ADVANTECH

Automation Devices and Computing

Enabling an Intelligent Planet

Product Catalog 2015-2016

Product Catalog 2015 - 2016

Automation Devices and Computing

Intelligent Automation, Seamless Integration

- Automation Software
- Intelligent HMI
- Industrial Communication
- Intelligent Systems
- Embedded Automation Computers
- DIN-Rail IPCs
- Intelligent RTUs
- Power & Energy Automation
- Machine Automation
- Data Acquisition and Control
- IoT Wireless I/O Modules
- Remote I/O Modules
- WebAccess+ Solutions

ADVANTECH

Enabling an Intelligent Planet

www.advantech.com

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About Advantech

Advantech: Partnering for Smart City & IoT Solutions

Founded in 1983, Advantech is a leader in providing trusted innovative embedded and automation products and solutions. Advantech offers comprehensive system integration, hardware, software, customer-centric design services, and global logistics support; all backed by industry-leading front and back office e-business solutions. Advantech has always been an innovator in the development and manufacture of high-quality, high-performance computing platforms. We cooperate closely with our partners to help provide complete solutions for a wide array of applications across a diverse range of industries. To realize our corporate vision of Enabling an Intelligent Planet, Advantech will continue collaborating and partnering for smart city and IoT solutions.

Advantech's Good-to-Great 3-Circle Principle

The Advantech 3-Circle Principle is based on the book "Good to Great," by Jim Collins. According to the book, a company looking for long-term success should clearly address these three fundamental principles, and commit to their continuing, solid execution. Advantech is fully committed to this approach and has defined the Advantech "Good to Great 3-Circle Principle" as a means of adhering to it.

Mission
Enabling an Intelligent Planet

Growth Model
Segmented Business Units Powered by Global Trusted Brand

Focus & Goal
The Global Leader of Embedded & Automation Solutions for iWorld System Integrators
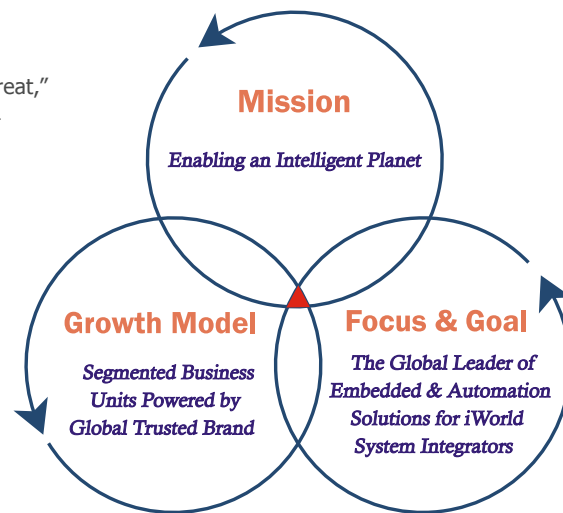
Advantech Corporate Structure and Growth Engines

Advantech Business Group Structure

Networks & Communications (DMS)
- Blade Computing & Systems
- Network Appliances
- DSP Based Platforms
- Embedded Switches

Intelligent Systems
- Industrial Computers & Servers
- Intelligent Video Solutions
- Intelligent IoT Modules
- Transportation Solutions

iConnectivity
- Industrial Communications
- Advantech-Netstar

Embedded Core Computing (Emb'Core)
- Single Board Computers
- Industrial Motherboards
- Computer-On-Modules
- Embedded Software Services
- Industrial Displays & Peripherals
- Gaming Computing
- Embedded Design-To-Order Services

Advansus

Service Automation
- Digital Healthcare
- Industrial Vehicle Computing
- Industrial Portable Computing
- Intelligent Retail & Hospitality

ADVANTECH Digital Healthcare
ADVANTECH DLOG
ADVANPOS

Applied Computing (DMS)
- Medical Computing
- Portable Computing
- POS/POI/Kiosk
- Embedded Systems

Industrial Automation
- Industrial I/O & Controllers
- Industrial HMI
- WebAccess+ IoT Software
- Power & Energy
- FA/EFMS Solutions
- Machine Automation Solutions

ADVANTECH LNC

ADVANTECH
Embedded Platforms | Smart City Solutions

• Embedded Core Computing Group

Embedded Core Computing Group provides a full range of embedded boards, systems peripheral modules and innovative embedded software services with leading technologies to customers. With a range of specialist design-in services backed by our internal and global resources, Advantech is committed to working closely with embedded customers to ensure design success by helping them discover new business opportunities through advanced embedded technologies and services that empower smart applications for an intelligent planet.

• Intelligent Systems Group

With innovative technologies from cloud computing (industrial server, video server), edge computing (fanless, slim & portable devices), to high performance embedded systems (blade computing, network processor platforms, DSP processing), Advantech transforms embedded systems into intelligent systems with smart, secure, energy-saving features, built with Industrial Cloud Services and professional System Design-To-Order Services (System DTOS). Advantech's intelligent systems are designed to target vertical markets in transportation, industry (machine automation, equipment/machine building), digital signage, and video applications (video infrastructure and video surveillance).

World-Class Recognition

Advantech is an authorized alliance partner of both Intel® and Microsoft®. Our customers find the technologies we use inside our products to be widely compatible with other products in the global marketplace. Interbrand, the world renowned brand consulting firm, recognized Advantech as one of the Top 20 Taiwanese Global Brands for many years. Advantech appreciates this recognition of our efforts to build a trusted, global brand; it also symbolizes a promise we give to our business partners, which is to keep building a trustworthy brand that is recognized everywhere and improves the lives of all.

Quality and Environmental Compliance

As a member of the global village, Advantech understands the importance of preserving the environment. Our environmental programs focus on reducing, reusing, and recycling materials used in our manufacturing operations. Advantech's quality and environmental compliance efforts include the following:
- ISO 9001 Certification
- ISO 14001 Certification
- ISO 13485 Certification

- OHSAS 18001 Certification
- TL9000 Certification
- ISO/TS 16949 Certification
- ISO 17025 Certification
- RoHS Directive Compliance
- WEEE Directive Compliance
- Authorized Sony Green Partner
- REACH SVHC Directive Compliance
- EICC Conflict Minerals Declaration

Timely Support at Your Convenience

Advantech has over 18 regional hotlines and offices throughout 92 cities, in 21 countries, with over 6,000 employees to provide efficient, professional services for customer care, product selection, technical support, and order handling. Through our call centers and online stores, customers worldwide enjoy the convenience of Advantech's multi-service channels to reduce business turnaround time. Together with the four customer service centers in Taiwan, China, Europe and the United States, our global service network offers an extensive spectrum of services that includes warehousing, logistics, peripheral certification, sourcing & purchasing, and RMA & value-added services, and technical support & training.

• Networks & Communications Group

Advantech's integrated DMS "Star Fleet" Model provides OEMs and premier key accounts with customer-focused Design and Manufacturing Services (DMS), winning together through worldwide partnership and collaboration. DMS provides hardware and software integrated solutions. For the telecom and networking markets, Advantech provides mission-critical hardware to the leading equipment manufacturers. Advantech's standard and customized products are embedded in OEM equipment that the world's communications infrastructure depends upon. Through Advantech's premier DMS, our customers get reliable, open-standard solutions from the leading innovator in network platform development and manufacturing – plus dedicated resources and support to back them up.

• iConnectivity Group

Advantech's iConnectivity Group offers a full range of industrial communication products including wired and wireless communication solutions for mission critical applications. These products include: Industrial Ethernet Switches, Industrial Wireless AP/CPE, Media Converters, Serial Device Servers, Cellular IP Gateways, and Modbus Gateways. They are also capable of securely transmitting, remotely monitoring and controlling networked devices and high communication capabilities for industrial applications. These reliable and robust industrial grade communication products from Advantech's iConnectivity group fit different applications including process manufacturing, discrete manufacturing, security, and intelligent transportation systems, and our mission is to simplify the way you connect.

• Industrial Automation Group

With the theme of "Intelligent Automation, Seamless Integration", the Industrial Automation Group (IAG) of Advantech Corporation is a pioneer in intelligent automation technology. By combining connectivity, flexibility, ruggedness and leading-edge "Internet of Things" technology, IAG offers products for intelligent HMI platforms, the industrial Ethernet, wireless communications, automation controllers, automation software, embedded automation computers, distributed I/O modules, wireless sensor network solutions, motion I/O and plug-in I/O modules for a wide array of industries. With more than 20 years of experience in providing a full range of products to different vertical markets, IAG is a leading global automation product and services provider.

• Service Automation Group (Intelligent Services)

Following global trends in urbanization, smart cities will flourish with innovative services, and with interconnected and integrated devices, marking a significant change in the mode of operation in the industry. Service Automation Group (SAG) aims to enable smarter cities by providing products and solutions for different vertical markets such as Digital Logistics, Healthcare, and Retail. The key to the future of intelligent services is the ability to shape the industry ecosystem through fruitful collaboration with key partners. SAG is now offering a Solution Ready Package business model to targeted markets that will create higher value and help drive the industry onwards.

• Applied Computing Group

The Applied Computing Group devotes itself to customization services and delivers vertically-driven and application-specific solutions. We specialize in design and manufacture of high quality industrial hardware and tailored software that fulfill exact needs for sectors including gaming, healthcare, portable devices, retail, and embedded systems. We strive to apply the newest technology and debut niche products. With dedicated R&D experts, accumulated domain know-how, flexible manufacturing, and a comprehensive global service net, we offer service that gives customers a dramatic market advantage.

About Industrial Automation Group

Enabling Industry 4.0 & IoT with Intelligent Automation

The future of Industry 4.0 and the Internet of Things (IoT) relies on powerful IT systems that can process and store the information in a fast and efficient manner from anywhere. Combining reliable and fast network connectivity, intelligent automation platform and gateways, flexibility and ruggedness automation controllers, IoT devices and sensors, with the IoT software framework - WebAccess - and having the ability to connect to the cloud for accessibility from other smart devices. Advantech is a pioneer of intelligent industrial automation and is committed to investing in R&D in new automation technologies, collaborating in vertical market solutions with partners and connecting industry Eco-partnerships through the WebAccess+ alliance program.

Advantech, a Pioneer of Intelligent Automation Technology

With the goal of integrating every layer of automation architecture, the Industrial Automation Group strengthens its products and solutions capabilities to provide not only a series of industrial automation products, such as IoT software framework - WebAccess software, industrial communication, IoT gateways, PC-based control platform, energy control platform, IoT Ethernet remote I/O, etc., but also solution ready packages, such as machine status monitoring, trend analysis and production information. As well as addressing the needs of different vertical markets, Advantech leverages its WebAccess + IoT solution alliance partner program. WebAccess is an integrated IoT Software Suite & Solution Platform and is the core software component of Advantech's IoT solutions.

With more than 30 years' experience in providing a full range of products to different vertical markets, the Industrial Automation Group is a leading global Automation Product and Services provider.

Enabling Industry 4.0 & IoT with Intelligent Automation

Robotics   Machinery   Automotive   Oil & Gas   Energy   Agriculture

WebAccess+ Alliance

Solution Ready Package

Production Performance Analysis   Machine Status   Process Optimization   Scheduling Management   Production Information   Status Assessment   Trend Analysis   Abnormality Diagnosis

Intelligent Automation Platform & Gateway

HMIs   IoT Gateway   Embedded Computing   DIN-rail IPC   Power & Energy Gateway
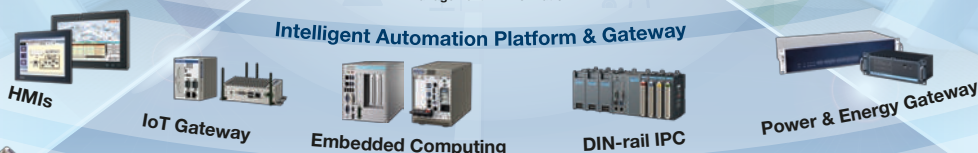
Controller, Device & Sensor

MA & Robot Controller   Machine Vision   Motion Control & I/O   PC-based Controller   IoT Wireless I/O   Remote I/O   RTU
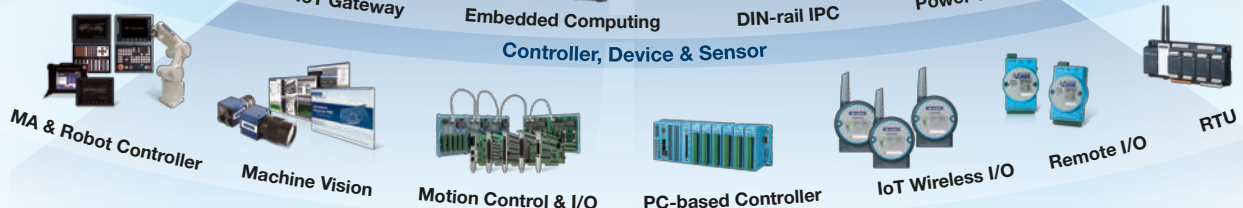
Integrated Automation and Cloud Innovation for Industry 4.0

Industry 4.0 is becoming a buzzword in smart factories. For Advantech's Industrial Automation group, 2015 is the year of Industry 4.0. To understand Advantech's industry 4.0 solution, we've developed a three-layer architecture—intelligent machines and robots; connected iFactory solutions; and enabling the IIoT—as part of our Industry 4.0 blueprint. With these layers and the integration of information, quick response and flexible manufacturing, the overall effectiveness and efficiency of machine automation will be greatly improved.

As an equipment provider, Advantech's WebAccess+ software platform supports system integrator partners in integrating the various applications and hardware they develop. The platform combines smart HMI/SCADA software, remote device management software and intelligent video software. It also connects with industrial cloud platforms, and analyzes and manages large amounts of data, video and voice data, providing critical information anytime for management by industrial customers, effectively realizing the vision of Industry 4.0.

For intelligent machines and robotics, we offer a range of products and technologies including: motion control, machine vision, automation computing and integrated machine tools and robot controllers. With these advanced technologies, traditional industrial automation machines will become more intelligent and able to communicate, transforming the machines into cyber-physical systems that can become even more efficient.

In an Industry 4.0 environment, all machines and equipment are networked and contain a plethora of sensors to continuously provide status details and production information to the process control system so it can perform immediate analysis and quickly take any necessary actions. By analyzing the machines used by each operator, sensors can be developed that will adjust the settings of the machine based on who's operating it. Furthermore, this information can then be integrated into manufacturing execution systems (MES) and enterprise resource planning (ERP) systems. To reach these goals, Advantech provides solutions to enable network-connected iFactories. Our WebAccess+ Integrated IoT Software Suite and Solution Platform can connect machines, robots and equipment to the factory network and integrate them with systems such as MES and ERP systems.

Another of our efforts is to enable innovative services based on big data analysis. By continuously producing status reports of plant equipment and production information, big data analysis allows system engineers to plan for future maintenance and make changes to configurations at the most appropriate time, thereby reducing the amount of downtime. The endless stream of information is an excellent method of developing new applications and creative services and can be used to increase production and reduce overheads. Industry 4.0, IIoT, cloud services and Advantech's solutions for system integrators will help lead factories into the future.

Enabling Industry 4.0 with Integrated Automation & Cloud Innovations

Industry 4.0
WebAccess-Enabled iFactory 4.0

WebAccess Enabled iFactory 4.0

WebAccess+ Alliance

Semiconductor	Food & Beverage	Automotive	Metal Processing	Electronics
Predictive Maintenance	Product Serialization	Enterprise Resources Planning (ERP)	Manufacturing Execution System (MES)	Mass Customization

Connected iFactory Solutions

WebAccess

WebAccess+IMM   WebAccess+IVS
WebAccess/SCADA   WebAccess/NMS

Production Performance Analysis · Machine Status · Process Optimization · Scheduling Management · Production Information · Status Assessment · Trend Analysis · Abnormality Diagnosis

Intelligent Machinery & Robotics

Platform · Motion Control · Controller · Machine Vision · Sensor Measurement

Intelligent Automation, Seamless Integration
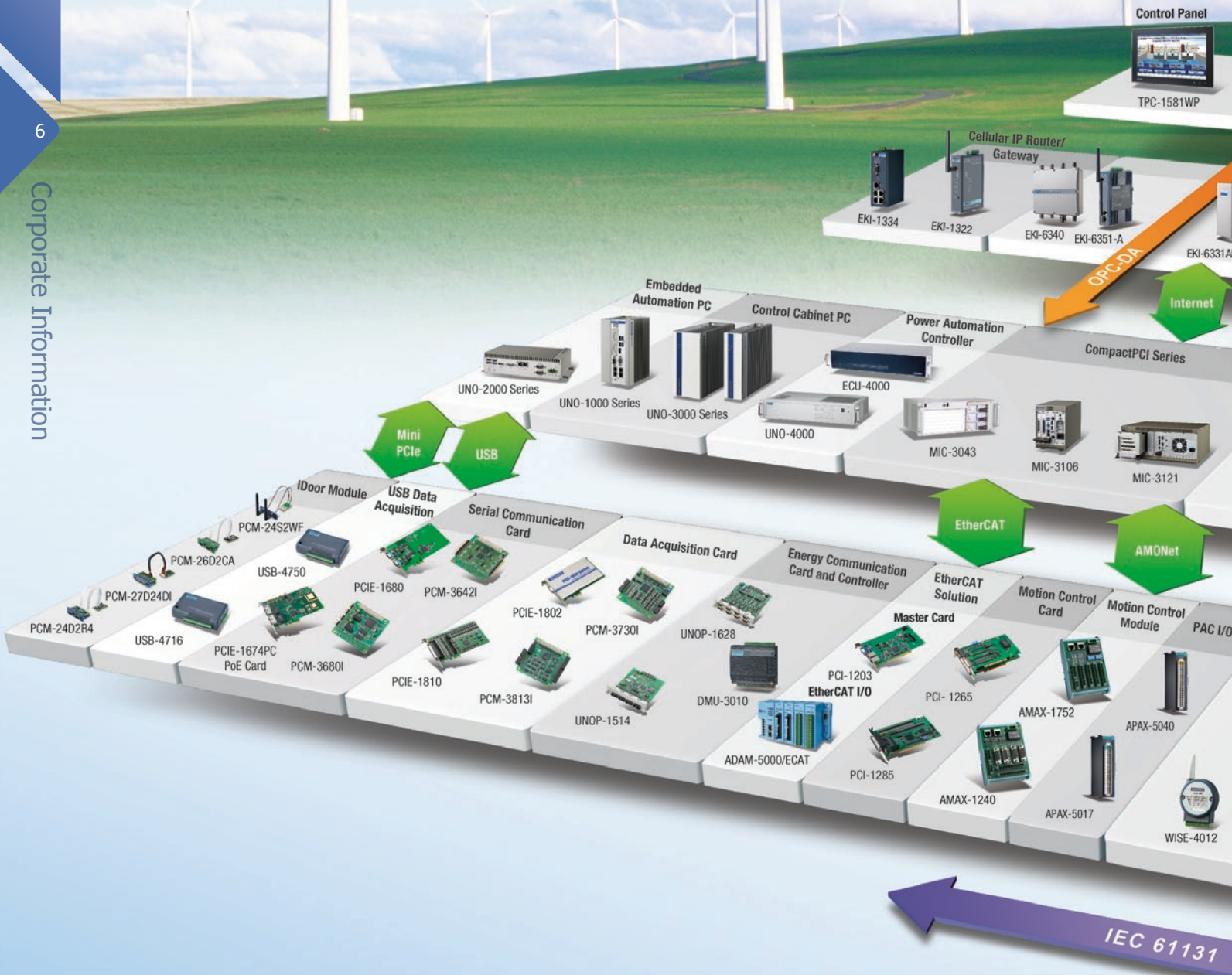
Control Panel

TPC-1581WP

Cellular IP Router/ Gateway

EKI-1334 EKI-1322 EKI-6340 EKI-6351-A EKI-6331AN

OPC-DA

Internet

Embedded Automation PC

Control Cabinet PC

Power Automation Controller

CompactPCI Series

UNO-2000 Series

UNO-1000 Series UNO-3000 Series UNO-4000

ECU-4000

MIC-3043 MIC-3106 MIC-3121

Mini PCIe USB

iDoor Module USB Data Acquisition Serial Communication Card

Data Acquisition Card

Energy Communication Card and Controller

EtherCAT Solution

Master Card

Motion Control Card

Motion Control Module

PAC I/O

EtherCAT

AMONet

PCM-24S2WF

PCM-26D2CA USB-4750

PCIE-1680 PCM-3642I

PCM-27D24DI

PCM-24D2R4 USB-4716 PCIE-1674PC PoE Card PCM-3680I

PCIE-1810 PCM-3813I

PCIE-1802 PCM-3730I

UNOP-1514 UNOP-1628

DMU-3010

ADAM-5000/ECAT

PCI-1203 EtherCAT I/O

PCI-1285

PCI-1265

AMAX-1240

AMAX-1752

APAX-5017

APAX-5040

WISE-4012

IEC 61131

Operator Panel

Rugged Tablet SCADA Server

WebAccess

Industrial Computer Thin-client Panel Panel PC Industrial Monitor

WebOP-3100T

PWS-870

HPC-7442

ACP-4020

TPC-1840WP

PPC-3190

FPM-6211W

HMI & Mobile Device

Wi-Fi

EKI-6311GN EKI-6310GN

Managed Switch

EKI-7656C

EKI-9316

ProView

Unmanaged Switch

EKI-5728I EKI-5525I

EKI-3725 EKI-7526MI EKI-2728

PoE Switch

EKI-7659CPI EKI-9312P

EN50155

EKI-9500 Series

Network

OPC-DA

Internet

Device Server

EKI-1361 EKI-1524

OPC-UA

ADAM-4572

DIN-Rail IPC

APAX-5580

SCADA Controller

ADAM-5560WA

Energy Controller

ECU-1871

ECU-1710A

Remote Terminal Unit

ADAM-3600

Embedded Vision/ Motion Controller

UNO-2483P

PEC-3240

Controller

Wi-Fi

Zigbee

Modbus RTU

Modbus/TCP

IoT Wireless I/O

WISE-4012E

WISE-4060

WISE-4050

Wireless Router & Gateway

ADAM-2510Z

ADAM-2520Z

RS-485 I/O

ADAM-4168

ADAM-4117

Ethernet I/O

ADAM-6117 ADAM-6017

ADAM-6150 ADAM-6066

Intelligent Ethernet I/O

ADAM-6217 ADAM-6260

ADAM-6250 ADAM-6266

IoT Ethernet I/O

ADAM-3600-A

ADAM-3617 ADAM-3618 ADAM-3622

ADAM-3651 ADAM-3656 ADAM-3664

I/O & Sensor

Global Certified Partner Network

Since 1983, Advantech has formed strong and lasting partnerships with many well-established channel partners and solution partners to deliver prompt and reliable local services for our customers. Currently, Advantech has over 600 partners in more than 70 countries worldwide to provide certified services and products anytime, anywhere.

Certified Professionals Guarantee Outstanding Quality Services

Through rigorous training and validation, our partners are certified annually, guaranteeing a high standard of quality & service. With these dedicated and well-trained sales and technical support teams, Advantech customers can enjoy outstanding quality services and early access to latest industrial computing solutions.

• Value-added services: Many of our partners are distributors, value-added resellers, focused channels, system integrators, or independent software vendors specialized in specific industry segments or applications with years of experience in developing application ready platforms. Their profound knowledge in integrating Advantech's hardware platforms with peripherals and software can speed up your time-to-market.

• Quality technical support: All the partners have dedicated application engineers to provide pre-sales and post-sales technical support. Within Advantech, there's a group of hotline and field application engineers to back up our partners, ensuring the service level.

• Fast delivery with flexible global supply chain: With over 600 partners and 4 regional service centers worldwide, Advantech offers fast delivery and after-sales support to our customers.

Dedicated Professionals

Online Technical Community

Global, High Quality Support

Channel Partners

ADVANTECH

Solution Partners

Business Alliance Partners

Vertical Solutions

Reliable and Trusted Products

Strategic Focus Makes the Difference

As industrial and embedded computing applications become more diversified, customers are demanding to get solutions tailored for vertical applications and high-quality local support.

To fulfill such needs, Advantech strives to develop its global partner network with a strategic focus. We only partner with distributors, VARs, and system integrators who value quality services as we do and pride themselves with profound industry know-how and technical competency. Through our comprehensive training and certification programs, Advantech partners are expert consultants in our rich portfolio of product offerings and applications for various vertical segments.

Currently, Advantech has partners in the following categories:

Channel Partners

Advantech iAutomation Channel Partners (CPs) are focus on industrial automation, embedded systems and general computing platform markets. With local inventory, logistic services, technical support and other add-on value services, our partners can provide professional services and prompt delivery of system components for system integrators' control and automation applications. Aligned with our regional sales offices and service centers, Advantech CPs have formed a strong service network to offer professional pre-sales and post-sales worldwide.

Advantech also identified the Channel Partners, focus on specific vertical segments, to provide local value-added services for our customers, such as application development, technical consultation, design service, integration & installation, on-site services, technical training and project management. These CPs are certified value-added resellers with expertise in application development and system integration for each segment.

Solution Partners

Solution Partners are 3rd parties who integrate Advantech products and value-added software and peripherals to provide turn-key solutions. Advantech's Solution Partners offer our customers a full range of field proven integrated solutions in Medical, Telecom, Transportation, Gaming, Power & Energy, Building & Home Automation, Factory & Machine Automation, Environmental Monitoring & Facility Management, Retail, Hospitality & Self-service, and many more. Their solutions are validated with Advantech products for compatibility, quality, and service.

Business Alliance Partners

Advantech is the global premier partner of Intel Embedded Alliance and gold partner of Microsoft Windows Embedded. All the business alliance partners have been carefully selected and closely cooperated to improve the service Advantech provide to customers, helping them add value whilst meeting stringent requirements in a wide array of industries. These partnerships aim to enable an intelligent planet by offering hardware or software that empower the connected eWorld.

Advantech Online Sales Force

Enabling an Intelligent Planet

To provide fast and convenient services to our customers and users, Advantech provides several easily-accessible web portals, including: the Advantech.com website, Buy.Advantech.com and an Online Support Portal to serve different requirements. To supplement our electronic contacts, we've also built up regional call centers to take care of customers who prefer human contact. These methods allow us to deliver our services by live chat, phone line and email anytime and anywhere.

33 Teams in 26 Cities Serve Global Inquiries

Buy.Advantech.com

Online Support

Advantech.com

Call Center

Corporate Information

Milpitas   Cincinnati   Düsseldorf   Beijing   Taipei   Tokyo   Melbourne

Advantech.com Website

Through www.advantech.com, we not only offer comprehensive products, but also real-time updated information to our customers. In addition to product information, you also can find case studies of proven applications from diverse sectors. Furthermore, registered MyAdvantech members, can access the RMA service center, updated price lists, and various promotion programs.

Online Store

Buy.Advantech.com

To extend Advantech's services, we launched the Buy.Advantech online store which offers one-stop shopping for Human Machine Interfaces, Industrial Ethernet networking, Controller & I/O products, plus computing platforms. This eStore offers comprehensive product information to build systems easily, with live expert support to solve problems, online configurations providing easy system customization options, instant quotations, an extensive library of FAQs and all the latest up-to-date downloads and firmware.

Online Support

Providing superior self-support mechanisms is one of the most essential parts of being a top-tier automation company, and we take pride in the outstanding level of service that we offer. To best support our customers, we've created a suite of useful interactive online tools, including:
- Technical Documents: Manuals, datasheets, updated drivers and utilities all available for download through the Support Portal
- 3D Product Models: Simulated products in 3D format to provide detailed outlook for customer evaluation
- Online Training: Self-training documents and videos to provide trainees with integrated information
- Online Catalog: Comprehensive online catalogs to provide customers with extensive product information

24/7 Online Service

To effectively respond to customers' questions, our regional call centers support inquiries about: purchasing, shipping, technical, and RMA issues among lots of general accounts. Contact your regional call center to get the support you need today.

Global Hotlines

Mexico	52-55-4170-8318	China	800-810-0345/8389	Japan	0800-500-1055
Colombia	57-1381-2858	India	800-425-5070/5071	Australia	1300-308-531
Indonesia	62-21-7511939	US	888-576-9668	Malaysia	1800-88-1809
Singapore	888-576-9668	Brazil	0800-770-5355	Russia	8800-555-0150/8120
Thailand	66-2248-3140	Taiwan	0800-777-111	Europe	00800-2426-8081
Korea	080-363-9494/9495				

Advantech iPlanet Care

Manufacturing

Our dual, world-class manufacturing centers in Taiwan and China maintain precise quality control, and offer a full range of production in a timely and cost-effective manner. To maximize the efficiency of operational procedures, we have implemented a cluster manufacturing system within our segmented manufacturing service units. This unique approach enables a direct, simplified, and highly streamlined design-to-manufacturing process.

ATMC
Taipei, Taiwan

Mutual Backup

Centralized ERP & Shop Floor

- Small Volume Production
- Board & System Products
- ODM/OEM Projects
- Engineering Sample Innovation Services

AKMC
KunShan, China

- Mid-to-High-Volume Production
- Board, Chassis and System Design & Production
- ODM/OEM Projects
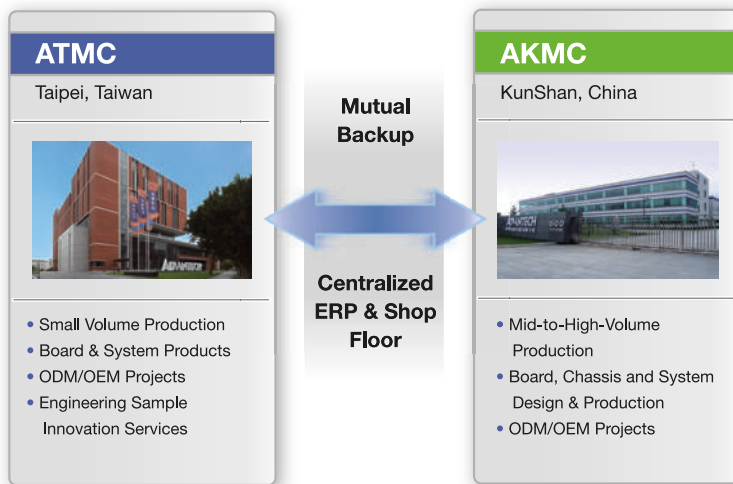
- In-house board, chassis, and system production
- Dual world-class manufacturing centers minimize business risks
- Advanced production capabilities and customizable processes
- Rigid quality assurance system
- Most complete ISO standard coverage

Configure To Order Services

Advantech's Configure To Order Services (CTOS) makes industrial computing solutions more accessible by offering web-based configuration tools, comprehensive, complex assembly services with high-mix, low-volume box build and customized assembly, modification, system integration and functional testing services.

- Online intelligent configuration
- Comprehensive approach to complex configuration solutions
- Local customized configuration services
- 2 year global warranty covering system & peripherals integrated

ADVANTECH CTOS
Configure To Order Services

Certified Quality Assurance System

Advantech has been designing and manufacturing industrial PCs according to our 3C Quality Statement:

- Always strive for overall customer satisfaction
- Continuous improvement
- Apply closed-loop mechanisms to resolve problems

At Advantech, quality is our main priority. A complete line of safety, EMC and reliability measures such as ESD, vibration, drop testing, temperature, humidity and HALT chambers are available to ensure our products meet the strictest standards. All facilities are at least ISO 9001 and 14001 certified while others hold additional certifications such as ISO 13485, 17025, TL9000 and OHSAS18001. An environmental program that focuses on reducing, reusing and recycling of materials throughout the manufacturing process is also applied at Advantech. All our products are 100% RoHS compliant and Environmental Management Systems such as QC080000 are applied to meet worldwide environmental requests. Advantech's efforts towards environmental protection have been recognized by Sony since 2004 (Sony Green Partner).

- Complete ISO coverage
- Green policies
- Constant quality and reliability monitoring
- Ease of access to quality contacts

RoHS COMPLIANT 2002/95/EC | **TÜV** www.tuv.com ID:0000000001 | **ISO 13485 SGS** | **UKAS QUALITY MANAGEMENT 005**

One-Stop Global Services

Advantech iPlanet Care combines exceptional business expertise, powerful design capacities, and a thorough global service network to provide one-stop global services and total solutions. Our broad range of global support packages adds maximum flexibility and efficiency to your projects.

Global Logistics Services

With strong integrated ERP and SAP supply chain solutions, our worldwide logistics network offers a wide range of options for different delivery models including local and global solutions that meet your unique needs and budget requirements.

Advantech's Logistics Service gives you the flexibility to simplify your logistical networks, bring your products to market on time, and enjoy a timely return on your investment.

- Optimized and flexible shipping solutions
- Integrated ERP and SAP supply chain solution with global distribution network
- Centralized plants with local delivery

Global Peripheral Procurement Services

Advantech global peripheral procurement network consists of local teams that leverage strong, worldwide supplier relationships and strict vendor and product management to offer quality-guaranteed, compatible peripherals with short lead times and competitive prices.

- Localized procurement with worldwide network support
- Global standardization management; 100% compatible peripherals
- Trusted quality with revision control
- Short lead time and competitive price

Global Customer Support Services

Our global presence provides localized reliable customer support services. We can create an optimized maintenance and support plan, leveraging the full power of our service portfolio to help reduce costs and proactively mitigate business risks to best meet your needs. In addition to our complete technical and repair support, we provide a variety of customizable after-sales services, including extended warranty, advance replacement, upgrade, fast repair, etc. With our knowledgeable local support groups, we enable a consistent support experience around the world and help keep your investment at peak performance and within your budget.

- 24/7 technical support: hotline AE & online chat support
- Global deployment with local full-line repair capability
- Easy-to-use web-based repair and tracking system (eRMA)
- Various value-added, after-sales service packages

Non-Stop technical support

Hotline Call

Online Chat

Email

Intelligent Support Portal

Web-based Logistics and RMA Info System

Onsite Service

Warranty

Extended Warranty Service

Pick-up Service

Fast Repair Service

Advanced Replacement Service

Upgrade Service

Technology Update Service

Preventive Maintenance Service

Health Checkup Service
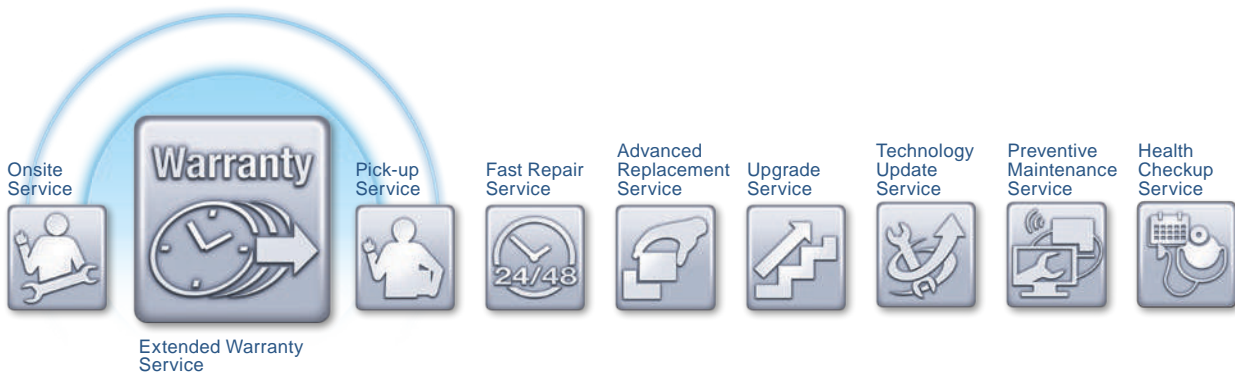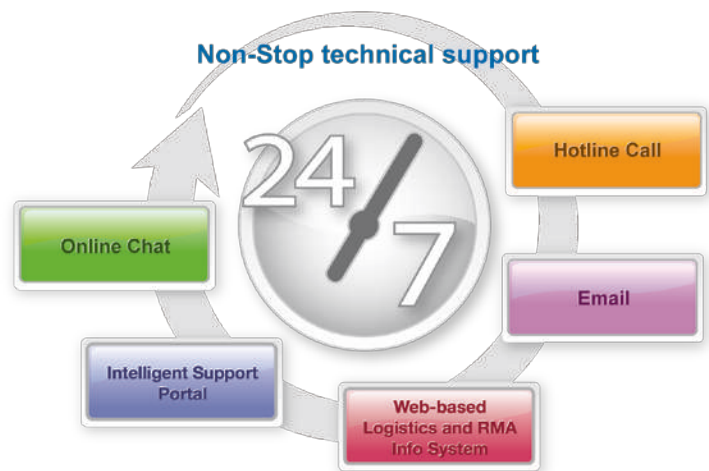
Automation Software

Minimize Programming Time while Optimizing Performance

Advantech's automation software lineup includes SCADA software, network management, remote device management, HMI runtime development software, SoftLogic programming tools, OPC Server, and other user-friendly programming tools and utilities. Advantech WebAccess web-based HMI/SCADA software is a shining example. It helps customers view, control and configure systems remotely through the Internet from any smart device. Advantech's software and hardware solutions empower automation professionals to develop integrated automation systems efficiently.

Automation Software

Advantech WebAccess
Web-based HMI/SCADA Software
- Cross-browser, cross-platform business intelligent dashboard for remote data analytic service
- Distributed SCADA architecture with central database server and multi-layer inter-operable SCADA nodes
- Google Maps and GPS location tracking integration
- Supports open interfaces - web services, widget interfaces and WebAccess APIs

Advantech WebAccess/NMS
Visualize Device Connectivity
- Easy device location with Google map support
- Ethernet, WLAN, Cellular integration network topology
- Remote configuration, monitoring and F/W upgrading
- Supports Advantech Ethernet-based platforms and modules
- 100% browser-based software system
- Supports a variety of mobile devices and browsers

SUSIAccess
Remote Device Management Software
- Device monitoring and automatic alerts by email/SMS
- Quick access to remote control for device diagnostics and repair
- Complete protection from cyber threats (powered by McAfee application control technology)
- Simple backup and recovery (powered by Acronis backup and recovery technology)

WebOP Designer/Panel Express
HMI Runtime Development Software
- Provides user friendly easy configuration
- Application software function objects
- Supports project protection, upload/download operations
- Collects data from many devices using various methods
- Supports over 400 industrial communication protocols

CODESYS
IEC-61131-3 SoftLogic Control Software
- Cross-compiling: 5 standard languages can be cross-compiled to each other
- Real-time performance
- Provides free IDE tool
- Powerful debugging tools and simulation support
- Fulfill integration with Advantech control platform

DAQNavi
Software Development Package for Advantech DAQ Products
- Rapid Application Design (RAD) helps developers to build a program in the shortest time
- Thread-safety design to ensure high reliability under multi-thread environment
- Intuitive utility Navigator integrates configuration tools, testing panel, manual, tutorial, and example codes

Advantech Data Logger
Data Logging Application Software
- Online and offline monitoring of acquired signal
- Exports recorded data to .txt and .xls (Excel) for post analysis
- Flexible display with customized plot, title, cursor and axis
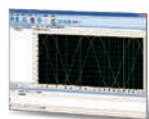
OPC Server
OPC Server for ADAM & Modbus Devices
- Supports Microsoft Windows XP/ 2000/ 7/ 8/ 8.1
- Supports Advantech ASCII, Modbus RTU, and Modbus/ TCP protocol
- Compliant with the latest OPC Data Access 1.0, 2.04 and 3.0 standards
- Compliant with the latest OPC Alarm and Events 1.0 and 1.2 standards

Intelligent HMI

Leading the Evolution of Intelligent Operator and Panel PCs

As we stand on the edge of the new era of Industry 4.0, Advantech as a leading enabler of intelligent factories, will continue to innovate the next generation of HMI products and solutions for different industries.

We provide an integrated and comprehensive range of HMI products including Control Panel Computers and Thin-client Panel Computers (TPC and SPC), Industrial Monitors (FPM), Web Operator Panels (WebOP), Industrial Panel PCs (IPPC) and Panel PCs (PPC) for intelligent factories, automation markets, and domain focused markets such as food and beverage, oil and gas and railway transportation.

Control Panel Computers

TPC-1881WP
NEW ikey iDoor

18.5" WXGA TFT LED LCD Intel® Core™ i7/ i3 with PCT Multi-Touch Panel Computer
- Intel® Core™ i7-4650U/ i3-4010U with 4GB DDR3L SDRAM
- 7H Hardness Glass Surface Widescreen with PCT Multi-touch, IP66 Front Protection and True-flat Touch Design
- Expandable System I/O, Isolated Digital I/O, Fieldbus and Communication by iDoor Technology
- Built-in ikey and Home-key for an intuitive UI
- Supports two USB 3.0 and HDMI for independent display

TPC-1581WP
NEW ikey iDoor

15.6" HD TFT LED LCD Intel® Core™ i3 with PCT Multi-Touch Panel Computer
- Intel® Core™ i3-4010U 1.7GHz with 4GB DDR3L SDRAM
- 7H Hardness Glass Surface Widescreen with PCT Multi-touch, IP66 Front Protection and True-flat Touch Design
- Expandable System IO, Isolated Digital IO, Fieldbus and Communication by iDoor Technology
- Built-in ikey and Home-key for an intuitive UI
- Supports USB 3.0 and HDMI for independent display

TPC-1582T/ 1282T
NEW iDoor

15"/ 12" XGA TFT LED LCD Intel® Core™ i3 Touch Panel Computer
- Intel® Core™ i3-4010U 1.7GHz with 4GB DDR3L SDRAM
- More Durable 5-wire Resistive Touch Screen with IP66 Front Protection
- PCIe and mini PCIe expansion support
- Expandable System I/O, Isolated Digital I/O, Fieldbus and Communication by iDoor Technology

Thin Client Panel Computers
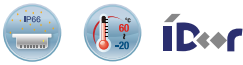
TPC-1751T/ 1551T/ 1251T/ 651T
IP66 / iDoor

17"/ 15"/ 12.1"/ 5.7" XGA TFT LED LCD Intel® Atom™ Dual-core Thin Client Panel Computer
- Intel® Atom™ Dual-core E3827 1.75 GHz processor with 4GB DDR3L SDRAM
- -20°C ~ 60°C Wide Operating Temperature
- IP66 Front Protection and More Durable 5-wire Resistive Touch Screen with True-flat Touch Design
- Supports iDoor Technology (TPC-1251T-EHKE required)

TPC-1551WP
ikey iDoor

15.6" WXGA TFT LED LCD Intel® Atom™ Dual-core Thin Client Panel Computer
- Intel® Atom™ Dual-core E3827 1.75 GHz processor with 4GB DDR3L SDRAM
- 7H Hardness Glass Surface 16:9 Widescreen with PCT Multi-touch, IP66 Front Protection and True-flat Touch Design
- Supports iDoor Technology (TPC-1251T-EHKE required)

TPC-1051WP
ikey iDoor

10.1" WXGA TFT LED LCD Intel® Atom™ Dual-core Thin Client Panel Computer
- Intel® Atom™ Dual-core E3827 1.75 GHz processor with 4GB DDR3L SDRAM
- 7H Hardness Glass Surface Widescreen with PCT Multi-touch, IP66 Front Protection and True-flat Touch Design
- Supports iDoor Technology (TPC-1251T-EHKE required)

True-flat Monitors

FPM-7211W/ 7181W/ 7151W
TAIWAN EXCELLENCE 2015 / IP66

21.5"/ 18.5"/ 15.6" Industrial Monitor with PCT, Direct VGA+DVI ports
- 16:9 FHD/ WXGA LED backlight LCD with True-flat Seamless Design
- 7H Hardness Glass Surface with PCT Multi-touch and IP66 Front Protection
- Supports 10 points multi-touch via USB interface in Windows 7/ 8
- Robust design with SECC chassis and Magnesium alloy front panel

FPM-6211W
iLink ikey

21.5" Semi-industrial Monitor with PCT for long-distance / iLink Technology
- 16:9 FHD LED backlight LCD with True-flat Seamless Design
- 7H Hardness Glass Surface with PCT Multi-touch and IP65 Front Protection
- Supports 5 points multi-touch via USB interface in Windows 7/ 8
- iKey for OSD control and remote/local source switch
- Robust design with SECC chassis and Magnesium alloy front panel

FPM-7151T/ 7121T
IP66

15"/ 12.1" XGA TFT LED LCD
- 15"/ 12.1" XGA 50K Lifetime LED Backlight LCD with Anti-glare Screen and Tempered Glass
- IP66 Certified Front Panel Protection with True-flat Seamless Design
- -20°C ~ 60°C Wide Operating Temperature
- Robust Design with SECC Chassis and Aluminum Front Panel
- DP/VGA video input
- Combination RS-232 & USB Interface for Touchscreen Function

Web Operator Panels

WebOP-3120T

NEW

12" XGA Cortex™-A8 Operator Panel with Wide Operating Temperature
- Microsoft® Windows CE 6.0
- Backup memory FRAM in 128KB (64 words) without battery
- Power & Terminal I/O ports isolation protection
- -20°C ~ 60°C Wide Operating Temperature
- Front panel flat-sealed with IP66 compliance

WebOP-3100T

10.1" WSVGA Cortex™-A8 Operator Panel with Wide Operating Temperatures
- Microsoft® Windows CE 6.0
- Backup memory FRAM in 128KB (64 words) without battery
- Power & Terminal I/O ports isolation protection
- -20°C ~ 60°C Wide Operating Temperature
- Front panel flat-sealed with IP66 compliance

WebOP-3070T

7" WVGA Cortex™-A8 Operator Panel with Wide Operating Temperatures
- Microsoft® Windows CE 6.0
- Backup memory FRAM in 128KB (64 words) without battery
- Power & Terminal I/O ports isolation protection
- -20°C ~ 60°C Wide Operating Temperature
- Front panel flat-sealed with IP66 compliance

Entry Level Operator Panels

WebOP-2100T

10.1" WSVGA Cortex™-A8 Operator Panel
- 65,536 colors TFT LCD, ARM9-based CPUs
- Front panel flat-sealed with IP66 compliance
- 10W low power consumption
- Supports over 400 PLC communication protocols
- Communicates with up to four types of devices
- Flexible runtime download and maintenance

WebOP-2070T

7" WVGA Cortex™-A8 Operator Panel
- 65,536 colors TFT LCD, ARM9-based CPUs
- Front panel flat-sealed with IP66 compliance
- 10W low power consumption
- Supports over 400 PLC communication protocols
- Communicates with up to four types of devices
- Flexible runtime download and maintenance

WebOP-2040T

4.3" WQVGA Cortex™-A8 Operator Panel
- 65,536 colors TFT LCD, ARM9-based CPUs
- Front panel flat-sealed with IP66 compliance
- 10W low power consumption
- Supports over 400 PLC communication protocols
- Communicates with up to four types of devices
- Flexible runtime download and maintenance

Stationary Panels

SPC-1581WP

NEW | iF product design award 2013

All around IP65 15.6" WXGA Stationary Panel with Intel® i5 Processor
- Intel® Core™ i5-4300U 1.9GHz with 4GB DDR3L SDRAM
- All around IP65 protection with waterproof M12 connector
- Built-in ikey and home-key for an intuitive UI
- 7H Hardness Glass Surface with PCT Multi-touch
- 1 x RS-232/ 1 x USB/ 2 x LAN/ 24V$_{DC}$-in with Waterproof M12 connector

SPC-1840WP

iF product design award 2013

All around IP65 18.5" Stationary Panel with AMD® Dual-core Processor
- All around IP65 18.5" Stationary Panels with AMD® Dual-core Processor
- 7H Hardness Glass Surface Widescreen with PCT Multi-touch, True-flat Touch Design
- Built-in ikey and Home-key for an Intuitive UI
- Robust design with All Around IP65 design, VESA support
- 1 x RS-232/ 1 x USB/ 2 x LAN/ 24V$_{DC}$-in with Waterproof M12 connector

SPC-2140WP

iF product design award 2013

All around IP65 21.5" Stationary Panel with AMD® Dual-core Processor
- All around IP65 21.5" Stationary Panels with AMD® Dual-core Processor
- 7H Hardness Glass Surface Widescreen with PCT Multi-touch, True-flat Touch Design
- Built-in ikey and Home-key for an Intuitive UI
- Robust design with All Around IP65 design, VESA support
- 1 x RS-232/ 1 x USB/ 2 x LAN/ 24V$_{DC}$-in with Waterproof M12 connector

Domain-focused Computers

IPPC-8070WV

7" Multifunctional HMI for transportation applications
- Intel® Atom™ 1.6GHz processor
- IP65 front BZL protection with resistive touch screen
- GPS/ GSM/ Wifi/ Radio optional communication module expansions
- 2 x USB, 2 x LAN, 2 x COM Ports
- Supports iManager, SUSIAccess and Embedded Software APIs

IPPC-5211WS

All Around IP69K 21.5" TFT LED LCD with PCT Touch Panel and Corrosion-proof 316L Stainless Steel
- Intel® Celeron® Quad-core J1900 2 GHz
- All-round IP69K protection with corrosion-proof 316L stainless steel
- Sealed and rugged design with high reliable Components
- Options for Cfast/ HDD

FPM-8151H

15" XGA TFT LED LCD Industrial Monitor with Corrosion-proof 316L Stainless Steel Front Panel for Hazardous location
- Corrosion-proof 316L Stainless Steel Front Panel
- IP65 Certified Front Panel Protection
- -20 °C ~ 60 °C Wide Operating Temperature
- More Durable 5-wire Resistive Touch Screen with Anti-glare and Tempered Glass

Entry Level Monitors

FPM-2170G
17" SXGA Industrial Monitor with Resistive Touchscreen and Direct-VGA Port
- 17" SXGA TFT LCD with 50K hours LED backlight life time
- Robust design with IP65 aluminum front panel
- Anti-glare screen
- Supports Panel, Wall, Desktop, Rack or VESA arm mounting
- Combination RS-232 & USB interface for touchscreen function

FPM-2150G
15" XGA Industrial Monitor with Resistive Touchscreen and Direct-VGA Port
- 15" XGA TFT LCD with 50K hours LED backlight life time
- Robust design with IP65 aluminum front panel
- Anti-glare screen
- Supports Panel, Wall, Desktop, Rack or VESA arm mounting
- Combination RS-232 & USB interface for touchscreen function

FPM-2120G
12" SVGA Industrial Monitor with Resistive Touchscreen and Direct-VGA Port
- 12'' SVGA TFT LCD with 50K hours LED backlight life time
- Robust design with IP65 aluminum front panel
- Anti-glare screen
- Supports Panel, Wall, Desktop, Rack or VESA arm mounting
- Combination RS-232 & USB interface for touchscreen function

Ruggedized and Wide-temperature Monitors

FPM-3191G
19" SXGA Industrial Monitor with Resistive Touchscreen, Direct-VGA and DVI Ports
- Robust design with stainless steel chassis and IP65 aluminum front panel protection
- OSD control pad on front panel
- Supports industrial 24V_{DC} and 12V_{DC} power input
- Supports panel, wall, desktop, rack or VESA arm mounting

FPM-3171G
17" SXGA Industrial Monitor with Resistive Touchscreen, Direct-VGA and DVI Ports
- Robust design with stainless steel chassis and IP65 aluminum front panel protection
- -20°C ~ 60°C Wide Operating Temperature
- OSD control pad on front panel
- Supports industrial 24V_{DC} and 12V_{DC} power input
- Supports panel, wall, desktop, rack or VESA arm mounting

FPM-3151G
15" XGA Industrial Monitor with Resistive Touchscreen, Direct-VGA and DVI Ports
- Robust design with stainless steel chassis and IP65 aluminum front panel protection
- -20°C ~ 60°C Wide Operating Temperature
- OSD control pad on front panel
- Supports industrial 24V_{DC} and 12V_{DC} power input
- Supports panel, wall, desktop, rack or VESA arm mounting

Fanless Panel PCs

PPC-3120/ 3100
12.1" XGA/ 10.4" SVGA Intel® Atom™ Dual-core Fanless Panel PC
- Intel® Atom™ Dual-core D2550 1.86GHz Processor with Max 4GB DDR3 SDRAM
- Fanless Design and Low Power Consumption
- 5-wire Resistive Touch Screen
- Optional PCI x1/ PCIe x1 Expansion Kit
- Automatic data flow control over RS-485

PPC-3170/ 3150
17" SXGA/ 15" XGA Intel® Atom™ Quad-core Fanless Panel PC
- Intel® Atom™ Quad-core E3845 1.91GHz Processor with Max 8GB DDR3L SDRAM
- -20°C ~ 60°C Wide Operating Temperature
- 5-wire Resistive Touch Screen
- Built-in PCI x1/ PCIe x1 Expansion Slot
- Built-in Isolated RS-422/485 with Autoflow
- Optional CF and CFast module

PPC-4211W/ 4151W
21.5" FHD/15.6" WXGA Intel® Core™ i5/ Celeron® with PCT Multi-Touch Wide Screen Fanless Panel PC
- Intel® Core™ i5-4300U 2.9GHz/ Celeron® 2980U 1.6GHz Processor with Max 8GB DDR3L SDRAM
- Entirely flat panel with PCT touch screen
- Supports one PCIe x4/ PCI x1 Bus Expansion
- Built-in isolated RS-422/485 with Autoflow

Multi-functional Panel PCs

Core™ i
+
Compact

PPC-6120
12.1" XGA Intel® Core™ i5/ i3/ Celeron® Panel PC
- Intel® 4th Generation Core™ i7/ i5/ i3/ Celeron® Processor with 2x 204-pin SODIMM DDR3/DDR3L SDRAM (Max 16G)
- Built-in Isolated RS-422/485 with Autoflow, Dual Intel® GbE
- Optional PCI x1/ PCIe x1 Expansion Kit
- 5-wire Resistive Touch Screen

Core™ i
+
Advanced

PPC-6170/ 6150
17" SXGA/15" XGA Intel® Core™ i5/ i3/ Celeron® Panel PC
- Intel® Core™ i5-3610ME/ i3-3120ME/ Celeron® 1020E with Max 8GB DDR3/ DDR3L SDRAM
- Dual HDD support Intel RAID 0/1, and Optional second HDD or ODD
- Multiple Bus Expansion Slots, one PCIe x4, one PCI + Optional one PCIe x1, two PCI, Optional two PCIe x1
- Built-in Isolated RS-422/485 with Autoflow, Dual Intel® GbE

Core™ i
+
Economic

PPC-8170/ 8150
17" SXGA/15" XGA Intel® Core™ i5/ i3/ Celeron® Panel PC
- Intel® Core™ i5-3550S/ i3-3220 with 2x 204-pin DDR3 SDRAM (Max 8GB)
- One PCIe x4 or PCI slot
- Supports 6 x USB, 6 x COMs, 8 bit GPIO
- Supports iManager, SUSIAccess and Embedded Software APIs

Industrial Communication

Simplify the Way You Connect

Advantech's Industrial Communication products draw on over 20 years of experience to provide reliable wired and wireless communication (3G, GPRS, and WLAN) for mission critical applications. These products include: Industrial Ethernet Switches, Industrial Wireless AP/Client, Media Converters, Serial Device Servers, Cellular IP Gateways, and Modbus Gateways. They are also capable of securely transmitting critical and sensitive information, remotely monitoring and controlling networked devices and emphasizing high communication capabilities for industrial applications.

Industrial Wireless AP/ CPE ▶

EKI-1334
Industrial UMTS/HSPA+ Cellular Router
- Universal five-band UMTS/HSPA+ 850/900/1800/1900/2100 MHz
- Dual WAN (Ethernet WAN and Cellular WAN) for redundancy
- Routing and firewall security protocols
- Advanced VPN ((IPSec/SSL/GRE/L2TP/PPTP)

EKI-1331
1-port Serial/Ethernet to HSPA+ IP Gateway
- Universal five-band UMTS/HSPA+ 850/900/1800/1900/2100 MHz
- Protocols converting between serial and Ethernet: Modbus RTU & TCP
- Provides NAT and VPN
- EMC Level III for industrial standards

EKI-1321/ 1322
1/ 2-port RS-232/ 422/ 485 to GPRS IP Gateways
- Universal quad-band GSM/GPRS 850/ 900/ 1800/ 1900 MHz
- Dual SIM slots for connection redundancy
- Extra SD slot for data buffering and auto recovery
- Provides NAT and VPN

Industrial Wireless Access Point ▶

EKI-6340 Series
IEEE 802.11 a/ b/ g/ n Outdoor Single to Triple Radio Wi-Fi AP/ Client
- EMC Level 4
- C1D2 certified
- -40~75°C operating temperature range
- EN50155 compliant

EKI-6351-A
IEEE 802.11 a/ b/ g/ n Wi-Fi AP/ Client
- EMC Level 4
- C1D2 certified
- -40~75°C operating temperature range
- EN50155 compliant

Industrial Wireless Access Point ▶

EKI-6310GN
IEEE 802.11 b/ g/ n Wireless Access Point/ Client
- With N-type connector for antenna connector
- High output power 27dBm
- Standard 802.3af PoE PD
- WEP/ WPA/ WPA2/ IEEE 802.1 x authentication support

EKI-6331AN
IEEE 802.11 a/ n Wireless Access Point/ Client
- MIMO 2 x 2 11n
- Embedded 16dBi dual-polarity directional antenna with external R-SMA connector for optional antenna
- High output power 24 dBm
- IGMP snooping protocol support

Wireless Serial Device Servers

EKI-1361/ 1362
1/ 2-port RS232/ 422/ 485 to 802.11b/ g/ n WLAN Serial Device Servers
- Links any serial device to an IEEE 802.11b/ g/ n network
- Provides 1/2 x RS-232/ 422/ 485 port
- Secures data access with WEP, WPA, and WPA2
- Supports WLAN Ad-Hoc and Infrastructure modes

Industrial Ethernet Managed Switches

EKI-9778
1U Rackmount Switch with Combo Port Flexibility 24GbE + 4 10GbE Managed Switch
- 24 x GbE ports and 4 x 10GbE (4x SFP+) ports
- 16 x gigabit combo ports (1000BASE-T/TX or GbE SFP)
- Dual redundant power 110 ~ 220 V$_{AC}$ input
- Fanless design
- IEEE1588 PTPv2 with 1-step precision clock

EKI-9316/ 9312
16/12 Port Full Gigabit Managed DIN Rail Switch
- All Gigabit connections support dual-ring protection and non-blocking traffic forwarding
- Redundancy: X-Ring+ (recovery time < 20ms)
- STP, RSTP, MSTP for better redundancy
- Dual power input, dual image for system reliability
- Operating temperature: -40 ~ 75 °C

EKI-7659C
8+2G Combo Port Gigabit Managed Redundant Ethernet Switch
- 8 x Fast Ethernet ports, plus 2 x Gigabit combo ports
- SFP socket for Easy and Flexible Fiber Expansion
- Redundancy: X-Ring Pro (recovery time < 20ms)
- Dual 12 ~ 48 V$_{DC}$ power input and 1 relay output
- IPv6 support

Proview Series Ethernet Switch

EKI-5728/ 5725/ 5528/ 5525
8-port/ 5-port Fast and Gigabit ProView Series Ethernet Switch
- Communicates with SCADA software via Modbus/TCP
- Communicates with NMS via SNMP
- Port-based QoS for deterministic data transmission
- eMark certified (EKI-5728)
- Loop detection

Industrial Ethernet Unmanaged Switches

EKI-3728/ 3725/ 3528/ 3525
8-port/ 5-port Fast and Gigabit Unmanaged Ethernet Switch
- Supports IEEE 802.3az, Energy Efficient Ethernet
- Super compact IP40 protection
- Supports IEEE 802.1p QoS- VIP port
- Supports redundant 12 ~ 48 V$_{DC}$ dual power input and P-Fail relay
- Loop detection

Media Converters

EKI-3541M/ 3541S/ST
10/100T (X) to Multi/ Single-Mode SC/ST Type Fiber Optic Media Converter
- Supports Link Fault Pass-through (LFP) function
- Supports full/half duplex flow control
- Supports MDI/MDI-X auto crossover
- Supports redundant 12-48 V$_{DC}$ dual power input
- ST Connector Provided

Industrial PoE Switches

EKI-9316P/ 9312P
16/12 Port Managed DIN Rail Switch with PoE/PoE+
- All Gigabit connections support dual ring protection
- Redundancy: X-Ring+ (recovery time < 20ms)
- IEEE 802.3at PoE+ to supply 30W power
- IEEE 802.3af/802.3at per port with system PoE power management
- Dual power input, dual image for system reliability
- Operating temperature: -40 ~ 75 °C

EKI-7659CPI
8+2G Port Gigabit Managed PoE Switch w/ Wide Temperature
- 8 x Fast Ethernet ports with PoE injector function, plus 2 x Gigabit Copper/ SFP combo ports
- IEEE802.3af compliant, provides 15.4Watts per port.
- Redundancy: X-Ring Pro (recovery time < 20ms)
- IPv6 support

EN50155 Compliant Switches

EKI-6500/ EKI-9500 Series
EN50155 M12 Managed/ Unmanged Ethernet Switch
- EN50155 compliant
- Redundancy: X-Ring Pro (recovery time < 20ms) (Managed models)
- M12 connectors
- Waterproof fiber optic connectors
- Dual 12 ~ 48 V$_{DC}$ power input and 1 relay output

Serial Device Server

EKI-1526/T/ 1528/T
16/8-port RS-232/422/485 Serial Device Server
- 2 x 10/100 Mbps Ethernet ports for LAN redundancy
- Supports up to 921.6 kbps, and any baud rate setting
- Provides COM port redirection (Virtual COM), TCP and UDP operation modes
- Built-in 15 KV ESD protection for all serial signals
- Standard 1U rackmount size

EKI-1524/CI/I 1522/CI/I/ 1521/CI/I
4/2/1-port RS-232/ 422/ 485 Serial Device Server
- 2 x 10/ 100 Mbps Ethernet ports for LAN redundancy
- -40~70 °C operating temperature range
- 2KV Isolation for RS-422/485 signals
- EMC Level 4
- IPv6/IPv4 Dual Stack
- Port Buffering Support

Modbus Gateways

EKI-1224CI/I/ 1222CI/I/ 1221CI/I
4/2/1-port Modbus Gateway
- 2 x 10/ 100 Mbps Ethernet ports for LAN redundancy
- Supports up to 921.6 kbps, and any baud rate setting
- Automatic RS-485 data flow control
- -40 ~ 75 °C operating temperature range
- 2KV Isolation for RS-422/485 signals
- EMC Level 4

Intelligent Systems

Accelerating Cloud Computing, iConnectivity and Intelligent Video Solutions

With innovative technologies for cloud computing applications and services (industrial and video servers), edge computing applications (fanless, slim & portable devices), to high performance embedded systems (blade computing, network processor platforms, and DSP processing), Advantech is devoted to transforming our embedded systems into intelligent systems with smart, secured, energy-saving features. Designed by our Industrial Cloud Built-in Services and professional System Design-To-Order Services (System DTOS) teams, Advantech's intelligent systems are designed to target multiple vertical markets in transportation, industrial automation (machine automation, equipment/machine builders), digital signage, and also video applications (video infrastructure and video surveillance).

Intelligent Systems
Pursuing IoT Evolution with I-Cloud and Intelligent Systems

Intelligent Video Network Security

Industrial Cloud Equipment Builder Intelligent Transportation

Industrial Computers

ACP-4D00
4U Dial-node 350mm Chassis for Machine Automation Application
- Easy maintenance dual-node design
- Supports half-sized slot SBC and 6-slot backplane
- Maximum 3 available slots for 260mm length add-on cards
- Standard 4U height, ultra short depth of 350mm
- Self-diagnostics functions of system fan and temperature alarm

ACP-4020
Compact 4U Rackmount Chassis for Half-size SBC or ATX/ MicroATX Motherboard
- Compact 4U rackmount chassis, with shallow 350mm depth
- Supports ATX/ MicroATX motherboards or backplanes up to 15 slots for half-size SBC
- 1 x Internal 2.5" and two external 3.5" drive bays support up to five 2.5" HDD/ SSDs (via optional kit IDT-3120E)
- Supports 80 plus single power supply up to 700W
- Smart fan speed control for system fans

HPC-7442
4U Rackmount Chassis for EATX/ ATX Motherboard with Up to 8 SAS/ SATA HDD Trays
- Shock-resistant disk drive bay holds four hot-swap 3.5" and 2.5" SAS/ SATA disk trays, one slim optical disk drive, and one 3.5" internal drive
- With installation of optional storage upgrade kit, eight hot-swap HDD trays provide high storage capacity
- Supports 80 Plus certified single and redundant power supplies
- Front-accessible system fan
- LED indicators and audible alarm notification for system fault detection

Server-grade IPCs

ASMB-823
Intel® Xeon® E5 ATX Server Board
- LGA2011 ATX Server Board with dual Xeon® E5-2600(v3) processors
- DDR4 2133 MHz RDIMM up to 192 GB
- 4 x PCIe x16 slots (Gen3), two PCIe x8 (Gen3) and one PCIe x4 (Gen2) slots
- 9 x SATA3 ports and six USB 3.0 port

ASMB-923
Intel® Xeon® E3 EATX Server Board
- LGA 2011 EATX Server Board with dual Xeon® E5-2600(v3) processor
- DDR4 2133 MHz RDIMM up to 256 GB
- Four PCIe x16 slots (Gen3), two PCIe x8 slots (Gen3.0) and one PCIe x4 (Gen2.0)
- 10 SATA3 ports and 4 x USB 3.0 ports

GPU Server

AGS-920
2U GPU Server with Dual Intel® Xeon® E5 Processors
- Supports NVIDIA Tesla, Grid, Quadra, AMD FirePro, and Advantech designed DSP cards
- 8 x DDR3 Non-ECC/ECC/REG 1600 DIMM up to 128GB
- Supports 4 x FH/FL double-depth PCIe x16 expansion cards + 1 FH/HL single-depth PCIe x8 expansion card
- 8 x Hot-swap SATA/SAS HDD bays
- Quad GbE LAN (IPM 2.0) port

Machine Vision Systems ▶

AIIS-1240 / 1440

PoE / USB 3.0 Machine Vision System, Intel® Core™ i CPU, Dedicate to 4-CH PoE / USB 3.0 Camera

- Intel® 3rd/ 2nd Core™ i7/ i5/ i3 CPU (LGA1155)
- AIIS-1240: 4-CH GbE PoE (Power over Ethernet), IEEE 802.3af compliant
- AIIS-1440: 4-CH USB 3.0 with dedicated controller
- Volume less than 3 Liters
- Easier fan filter maintenance
- Internal USB Type-A with lock design

Fanless Compact Systems ▶

NEW

ARK-5261

Intel® Celeron™ Processor J1900 Fanless Compact Equipment System with PCIe & PCI Expansion Slots

- Intel® Celeron™ processor J1900
- Supports one PCIex1 & 2x PCI slots
- Supports four RS-232/422/485 (COM 1/2 with 5V/ 12V power); ARK-5261i sku has isolation feature
- Supports 2 Giga LAN/ 1 USB 3.0+ 5 USB 2.0/ Dual 2.5" HDD/ GPIO& printer port
- Supports wide power range of 9~ 30V DC input

NEW

ARK-5420

3rd Gen Intel® Core™ i Processor Fanless Compact Equipment System with PCIe & PCI Expansion Slots

- Supports 3rd Gen Intel® Core™ i5/ Celeron BGA type CPU with Intel® HM76 PCH
- Supports 1x PCIex4 & PCI slots and 1x Mini-PCIe (Full size)
- Supports VGA& HDMI/USB 3.0/ serial ports
- Supports wide temperature -25~ 60ºC
- Supports 9~ 36V wide range DC input

Transportation Systems ▶

ITA-1711

Intel® Celeron™ Processor J1900 Fanless AFC System with Dual GbE and Display

- Supports 9 ~ 36 V wide range DC input
- Supports up to two GbE, six USB 2.0X ten COM ports
- Supports RS-232/ 422/ 485 with serial ports automatic flow control
- Onboard DDR3 memory up to 4GB and optional NVRAM
- Supports one 2.5" HDD

ITA-2210

EN50121-4 Full Compliance 2U Fanless Systems for Wayside Control with Intel® Atom™ D525 Processor

- Supports Intel® Atom™ D525 Processor at 1.8GHz
- Supports three ITAM modules, one PC 104+ and one Mini-PCIe cards
- Supports two VGA/ eight USB 2.0/ two COM ports
- Supports wide temperature -25~ 60ºC
- Supports single/ dual power module

ITA-5730

EN 50155 Certified Compact Fanless System with 3rd Gen Intel® Core™ i Processor

- Satisfies temp. standard: EN 50155 TX (-40 ~ 70°C) and IEC 61373 body mount class B
- Compliant with EN 50121-3-2 EMC test standard
- Ruggedized connectors (M12) used for communication and power ports
- Optional PCI/ miniPCIe slots for expansion
- Supports easy-swap HDD/ SSD/ CF modules

Multimedia Processing Cards ▶

DSP-8682

Full-length PCI Express Card with 8 TI 8-core DSPs

- On-board 8 x TI TMS320C6678 DSPs with PCIe Gen three 8 interfaces
- 8 x TMS320C66x DSP Core Subsystems @ 1.0/ 1.25 GHz per DSP
- 2 GB DDR-1333 memory per DSP

DSP-8662H

4-ch HDMI PCIe Video Decoder Card with 4-ch 3G-SDI inputs and SDK

- Powered by quad TI TMS320DM8168 SoC
- 4-channel HDMI video/ audio outputs up to 1920 x 1080 at 60 fps
- Supports H.264/ MJPEG/ RAW HW decoding
- 4-channel SDI video + audio inputs up to Full HD 60 fps per channel

High Performance Server ▶

CGS-6000

2U Server for Carrier Grade and Optimized I/O Deployment

- Supports dual Intel® Xeon® E5v2 series processors
- Up to 512GB DDR3 with 16 Registered ECC DIMMs
- 4 x full-height, full-length PCIe x8 slots
- 2 x full-height, half-length PCIe x4 slots
- 4 x 2.5" hot-swappable SAS/ SATA HDD/ SSD drives

CompactPCI® Platforms ▶

MIC-3328

3U CompactPCI PlusIO Intel® 3rd Generation Core™ Processor Blade

- Supports 3rd generation Intel® Core™ processor and QM77 PCH
- 4 GB DDR3 1600 soldered SDRAM with ECC (max 8GB)
- 1 x 2.5" SATA-II SSD, CFast, XMC, SATA NAND Flash on board (optional)
- Triple independent display support

MIC-3396

6U CompactPCI 4th Generation Intel® Core™ i3/ i5/ i7 Processor Blade

- Supports 4th Generation Intel® Core™ i3/ i5/ i7 processors and QM87 PCH with embedded graphic display
- 2 x SATA ports, 1 x USB 3.0, 4 x USB 2.0, 2 x DVI ports, 2 x RS-232 ports, 1 x PS/2 connector and PCIe x 8 interface to RTM
- Optimized single-slot SBC with 2.5" SATA-III HDD/ CFast socket/ on-board flash (optional)

CPCI-8220

6U CompactPCI Freescale QorIQ P2040 Ruggedized Processor Blade

- Supports Freescale QorIQ™ P2040 at 1.2 GHz
- Up to 4GB DDR3 with ECC support
- Supports extended operating temperature range -40°C ~ 85°C (optional)
- Supports WR VxWorks 6.9 or WR Linux 4.3

Embedded Automation PCs

Open and Robust Computing Power for Automation Applications

Advantech's offers a complete range of Embedded Automation PCs with each series coming in three sizes: palm, small and regular. All of them are dedicated to providing fanless, industrial-proven and application ready control platforms. With a robust design, they include multiple expansion solutions and versatile mounting methods to fulfill the needs of different applications. The UNO-1000/3000 series is ideal for din-rail, enclosure and book mounting in control cabinets and the UNO-2000 series is a versatile model for stand-mount environments. In addition, all new UNO products support Advantech iDoor Technology which utilizes the mPCIe format and gives customers the flexibility to configure the various I/O requirements based on different applications. Modules for iDoor Technology include: Fieldbus protocol; digital and analog I/O; smart sensor, communication and memory.

Control Cabinet PCs

UNO-1252G
Intel® Quark Palm-Size DIN-Rail Controller
- Intel® Quark 400Mhz processor with 256MB memory
- 2 x LAN, 2 x mPCIe, 2 x COM, 8 x GPIO, 2 x USB, 1 x microSD, 1 x SIM, 1 x power terminal
- Compact with fanless design
- Chassis grounding protection

UNO-1372G
Intel® Atom Quad-Core Small-Size DIN-Rail Controller
- Intel® Atom E3845 1.91GHz processor with 4GB DDR3L memory
- 3 x GbE, 3 x USB, 2 x COM, 1 x VGA, 1 x HDMI, audio, 1 x mSATA, 2 x mPCIe, 1 x SATA, 8 x DI/O, 1 x power terminal
- Exchangeable RTC battery with easily access at top side

UNO-1483G
Intel® 4th Gen Core™ i3 Regular-Size DIN-Rail Controller
- Intel® 4th Gen Core™ i3 processor up to 1.7GHz with 8GB DDR3L memory
- 4 x GbE, 3 x mPCIe, 1 x PCIe, 4 x USB 2.0/3.0, 1 x RS-232, 2 x RS-422/485, 1 x VGA, 1 x DP, 8 x DI/O and audio ports
- Dual power input and remote power button for reducing power down time

UNO-3382G/3384G
Intel® Core™ i7 Book Mount Automation Computer
- Intel® 4th Generation Core™ i7/Celeron processors with 4GB/8GB DDR3L memory
- 2 x GbE, 2 x USB 2.0, 2 x USB 3.0, 1 x RS-232/422/485, 2 x display ports, 2 x PCI/PCIe, 2 x mPCIe, 1 x mSATA slot
- Dual hot-swappable HDD/SSD slots with thumb screws for easy maintenance
- Supports DIN-rail, stand, wall and book mounting

UNO-3483G
Intel® Core™ i7 Enclosure Mount Automation Computer
- Intel® 3rd Gen Quad Core processor, up to 2.1 GHz with 8GB DDR3L memory
- 2 x GbE, 2 x USB 2.0, 2 x USB 3.0, 1 x RS-232, 1 x RS-422/485, 1 x VGA, 1 x HDMI, 1 x PCIex4, 3 x mPCIe, 1 x mSATA slot
- Dual hot-swappable HDD/SSD slots with thumb screws for easy maintenance

Embedded Vision Controller

UNO-2483P
Intel® Core™ i7/Celeron Regular-Size Automation Computer
- Intel® 4th generation Core™ i7/Celeron processors up to 1.9GHz with 4GB/8GB DDR3L memory
- 4 x PoE, 4 x GbE, 4 x USB 2.0/3.0, 2 x RS-232, 2 x RS-422/485, 1 x VGA, 1 x HDMI, audio
- Rubber stopper design with captive screw

Embedded Automation Computers

UNO-2272G
Intel® Atom™ Palm-Size Automation Computer
- Latest Intel® Atom™ processors up to 1.86 GHz with 2GB DDR3 memory
- 1 x GbE, 3 x USB 2.0, 1 x RS-232, 1 x VGA, 2 x mPCIe, audio
- Compact fanless design

UNO-2362G
AMD® Dual Core T40E Small-Size Automation Computer
- AMD® Dual Core T40E 1.0GHz processor with 2GB DDR3 SO-DIMM memory
- 1 x GbE, 4 x USB 2.0, 1 x RS-232, 1 x RS-485, 1 x mPCIe, 1 x DP, 1 x HDMI
- Daisy-chain for Ethernet with auto-bypass protection enabled

UNO-2483G/2473G
Intel® 4th Gen Core™ i7/ i3/ Celeron/ Atom™ Regular-Size Automation Computer
- Intel® 4th Gen Core™ i7/i3/Celeron/ Atom™ processors up to 1.9GHz with 4GB/8GB DDR3L memory
- 4 x GbE, 4 x USB 2.0/3.0, 2 x RS-232, 2 x RS-422/485, 3 x mPCIe, 1 x VGA, 1 x HDMI, audio
- Chassis grounding protection

Advantech iDoor Modules

PCM-2300MR
MR4A16B, MRAM, 2MByte
- 2MB MRAM Storage
- Speed 6 MB/Sec

PCM-23C1CF
CFast, Ejection Type I, CFast x 1
- 1 port CFast I/O card
- CFast 3.0, Type I/II

PCM-23U1DG
Internal Locked USB Slot for USB Dongle, USB x 1
- 1 port USB I/O card
- USB A type w/ lock

PCM-24R1TP
Intel 82574L, GbE, IEEE 1588 PTP, RJ45 x 1
- 1 port GbE LAN
- IEEE 1588 precision time protocol ready

PCM-24R2GL
Intel i350 mPCIe, GbE, IEEE 802.3ab, RJ45 x 2
- 2 port GbE LAN
- Intel i350

PCM-24R2PE
Intel i350, GbE, PoE IEEE 802.3af, PD, RJ45 x 2
- 2 port PoE (Power Over Ethernet)
- Singel port 15.4W of DC power

PCM-24U2U3
USB 3.0 mPCIe card, USB-A type x 2
- 2 port USB 3.0
- USB A type

PCM-24S2WF
Atheros AR9462, 802.11 a/b/g/n 2T2R w/ BT4.0, SMA x 2
- Atheros AR9462
- 802.11 a/b/g/n 2T2R w/ Bluetooth 4.0

PCM-24S23G
6-band HSPA Cellular Module, GPS, SIM Holder, SMA x 2
- 3.75G HSPA+GPS
- Dual-SIM card holder with switch for redundancy

PCM-24D2R2/ PCM-24D2R4
OXPCIe952 UART, Isolated RS-232, RS-422/485, DB9 x 2
- 2000 V_{DC} isolation protection
- RTS/CTS/Xon/Xo flow control

PCM-24D4R2/ PCM-24D4R4
OXPCIe954 UART, Non-isolated RS-232, RS-422/485, DB37 x 1
- Non isolation 4 COM ports
- 50 bps ~ 921.6 kbps serial speed (RS-422/485)

PCM-27D24DI
Digital I/O, Isolated 16DI/8DO, DB37 x 1
- 16DI, 8DO
- 2500 V_{DC} isolation protection

PCM-26R2EC
Hilscher netX100 FieldBus mPCIe, EtherCAT, RJ45 x 2
- Real-time fieldbus EtherCAT protocol
- Supports Master/Slave

PCM-26R2EI
Hilscher netX100 FieldBus mPCIe, EtherNet/IP, RJ45 x 2
- Real-time fieldbus EtherNet/IP protocol
- Supports Master/Slave

PCM-26R2PN
Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45 x 2
- Real-time fieldbus PROFINET protocol
- Supports Master/Slave

PCM-26D2CA
SJA1000 CANBus, CANOpen, DB9 x 2
- CAN 2.0 A/B
- 1Mbps, 16MHz

PCM-26D1DB
Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9 x 1
- Fieldbus PROFIBUS protocol
- Supports Master/Slave

PCM-26R2PL
Hilscher netX100 FieldBus mPCIe, POWERLINK, RJ45 x 2
- Real-time fieldbus POWERLINK protocol
- Supports Slave

DIN-Rail IPCs

The Next Generation of Scalable Automation Controllers

Advantech's APAX products are PC-based controllers which leverage embedded computing technology to achieve the same level of ruggedness as PLCs. With an open architecture and scalable I/O Modules, the APAX series is more flexible in order to implement various modern control strategies. It also inherits an excellent communication capability to collaborate with other industrial devices. Not only does it have super reliability, but the APAX bus provides backup and redundancy functionality to enhance the total availability.

APAX-5580 Controller and Modules

APAX-5580
APAX High Performance Controller
- Intel® 4th gen. Core i7/i3/Celeron CPU inside
- 2 x mPCIe interfaces for wireless communication
- One key operating system recovery
- Dual power input and UPS support

APAX-5435
APAX iDoor interface Module
- Supports Fieldbus iDoor module
- Supports mPCIe interface

UPS Module
APAX UPS Module
- Provides emergency power when the main power fails
- Supports fast boot from standby mode

APAX-5580 PCIe Modules

APAX-5490
RS-232/422/485 Module
- Support RS-232/422/485
- Auto flow control in 485 mode

APAX-5430
APAX SATA HDD Module
- SATA I/II/III 2.5" HDD/SDD
- Support RAID 0/1
- Support Hot swap

Couplers

APAX-5070/5071/5072
Fieldbus Communication Coupler
- Revised to support 1ms Modbus response time
- Flexible Modbus mapping table
- Supports UDP Data Streaming function and Event Alarms

I/O Modules

APAX-5090
Communication Module with APAX Local Bus
- 4 x RS-232/422/485 ports
- Acts as a Modbus gateway with APAX-5070
- Supports distributed topology with APAX bus

APAX-5017H
12-ch High Speed Analog Input Module
- Voltage and current inputs including ± 10 V and 4 ~ 20 mA
- Each channel can be configured with different input types and ranges
- 1000 samples/second per channel

APAX-5080
4/8-ch High Speed Counter Module
- 5 counter:Up, Up/Down, Pulse/Direction, A/B phase, Frequency
- 4 x DI channels for counter gate inputs
- 4 x DO channels for alarm outputs

Intelligent RTUs

Smart IoT Devices with Dual Wireless Network Capability and Flexible I/O Options

The ADAM-3600 is an intelligent iRTU, mainly used in the oil, gas and water industries. Intelligent network nodes in the IoT, can control the downstream field devices to complete delivery tasks, transfer data to upstream devices wired or wirelessly. It is key to connecting devices to the Internet of Things architecture. The ADAM-3600 has a high performance and low power processor, adopts 20 local I/O points and wired and wireless communication modes, users can collect, process and distribute the local information. It has a built-in real-time operating system and a real-time database, providing customers with an open interface and supports diverse programming languages.

Open Standard Intelligent RTU

NEW

ADAM-3600-C2G
8 AI / 8 DI / 4 DO / 4-Slot Expansion and Dual Wireless

- TI Cortex A8 600MHz CPU with DDR3L 256MB RAM
- RT-Linux OS with TagLINK realtime database
- Onboard IO- 8AI / 8DI / 4DO with 4-Slot I/O expansion flexibility
- Internal 2 x Mini-PCIe Interface for Dual Wireless Networking
- Certified Wireless Solution Zigbee/ Wi-Fi/ 3G/ 4G/ GPRS
- IEC61131-3 & C programming language SDK support
- Modbus/TCP, Modbus/RTU & DNP3 protocol support
- Wide operation temperature -40~70°C
- Support iCDManager for remote connectivity diagnosis
- iRTU Studio for off-line configuration and remote deployment

Intelligent Ethernet I/O Module

NEW

ADAM-3600-A1F
16 DI / 8 Relay with 4-Slot Expansion

- 16-ch Digital Input, 8-ch Relay Output on board I/O
- Flexible I/O deployment by 4-slot expansion module
- Datalog by internal memory, SD card, USB
- Support the Access Control function
- Auto firmware update by USB and SD card
- Remote monitor, control and configure through a Web browser
- Supports built-in web server and RESTful Web service

I/O Expansion Modules

NEW

ADAM-3600 Series I/O Expansion Modules

- ADAM-3651 8-ch Digital Input Module
- ADAM-3656 8-ch Digital Output (Sink type) Module
- ADAM-3624 2-ch Analog Output Module
- ADAM-3660 4-ch Relay Output Module
- ADAM-3618 3-ch Thermocouple Module
- ADAM-3617 4-ch Analog and Input Module

Power & Energy Automation

Ensure Reliable P&E Automation with IEC 61850-3 and IEEE 1613 Compliant Products

Advantech provides Power and Energy computers, controllers, and data acquisition module with rugged, cableless designs for harsh environments in Smart Substation and Green Energy applications. The UNO-4600 series and ECU-4000 series are compliant with the hardware requirements of IEC-61850-3, which defines the international standards of network and system communications in smart substation. Advantech also provides power and energy controllers (ECU-1000) for transformer and GIS switches, IED (Intelligent Electronic Devices) applications.

Power & Energy Automation Computers

ECU-4674
Intel® Atom™ N2600 Substation Computers for Power Automation Applications
- Intel® Atom™ N2600 1.6GHz CPU
- Supports 2 x RS-232 isolated ports, 16 x RS-232/485 isolated ports
- Supports 2 x 10/100/1000 Base-T, and 6 x 10/100 Base-T
- iCDManager : intelligent Connectivity Diagnose Manager

ECU-4784
Intel® Haswell Core i7 Power & Energy Automation Computer with 8 x LAN, 10 x COM and 2 x Expansion Slots
- Intel® Haswell Core i7 4650U 1.7GHz processor
- Supports 1 x 10/100/1000 Base T RJ-45 (Support AMT, Teaming Function, PXE, 1588)
- Supports 7 x 10/100/1000 Base T RJ-45 (Supports Teaming Function, PXE, 1588)
- iCDManager : intelligent Connectivity Diagnose Manager

UNO-4673A/4683
Intel® Atom™ D510/ Core™ i7 Substation Computers for Power Automation Applications
- Intel® Atom™ D510 1.66 GHz CPU (UNO-4673A)/Intel® Core™ i7 2.0 GHz CPU (UNO-4683)
- Supports fiber optic,IRIG-B, 6 x LAN, and 2 x COM
- Supports PCI, Mini PCI, Mini PCIe, and PCI-104 expansions

Power & Energy Automation Controllers

ECU-1871
Intel® Atom™ D510 Modular Power & Energy Controller
- Intel® Atom™ D510 CPU
- 1 x RS-232 port/ 2 x RS-485 isolated ports
- 2 x 10/100Base-T RJ-45 connectors
- Windows® CE 6.0, WES 2009, and Linux ready solution
- Supports 2 x PCI-104 extension slots

ECU-1911
Xscale @ PXA-270 520MHz All-in-one Open RTU
- Xscale @ PXA-270 520 MHz CPU
- 1 x RS-232 port, 3 x RS-485 isolated ports, 1 x VGA
- 2 x 10/100Base-T RJ-45 connectors
- 8-ch 16-bit differential Analog Input
- 32-ch isolated Digital Input/Output

ECU-1710A
Intel® Atom™ D510 Automation Controller Combined with Embedded Computer and DAQ Cards
- Intel® Atom™ D510 CPU
- 2 x RS-232 ports
- 2 x 10/100Base-T RJ-45 ports
- 16-ch AI/4-ch AO/16-ch DIO/1-ch Counter
- Integrated PCI-1710UL & PCI-1720U DAQ cards

Power & Energy Automation Extension Cards

ECU-P1706/ P1300
Simultaneous AI Card Combined with Vibration Signal Modulate Card for ECU-1871
- Simultaneous 8-ch AI with PCI-104
- 250KS/S, 16-bit, 8K Samples On-board FIFO
- 2-ch, 32-bit Timer/Counter
- 0.1Hz-25Hz adjustable low pass filter (ECU-P1300)

UNOP-1618D/ 1628D
8-port Isolated RS-232/422/485 with/ without Port-to-port Isolation for UNO-4673A/4683
- 8 x COM ports
- Selectable RS-232/422/485 port
- Isolation 2500V$_{DC}$ (UNOP-1628D)
- Automation RS-485 data flow control

UNOP-1514C/ RE/ PE
4-port Fiber Optic LAN Card for UNO-4673A/ 4683
- LAN 100 Base-FX
- Distance: Up to 2 km
- IEEE 802.3, 802.3u, 802.3x
- Wavelength : 1310nm
- 4 x SC type Multi-mode fiber ports

Machine Automation

Integrated Soft Computing to Enable Intelligent Machines

Supporting Advantech's PCI-1245/1265/1285/1245E/1285E/1245L series, SoftMotion is an important core technology in the machine automation field. Advantech independently developed its own SoftMotion control technology and uses the FPGA (Field Programmable Gate Array) and DSP (Digital Signal Processing) as the core-computing hardware platform. Meanwhile, based on the three motion control architectures - centralized, distributed, embedded. Advantech's comprehensive product offering helps our customers to continuously progress their technologies and optimize customer's devices control to minimize their programming needs.

Motion Control PCI Cards

PCI-1245E/ 1285E

Economic SoftMotion 4/ 8-axis Stepping and Servo Motor Control PCI Card

- Softmotion on DSP
- T&S-curve speed profile, Prog. Acc and Dec
- Jog Move, P to P move, Home Move
- 2-axis Linear interpolation, E-Gear
- Single axis Position/ Speed override

PCI-1245/ 1265/ 1285

Standard SoftMotion 4/6/8-axis Stepping and Servo Motor Control PCI Card

- Functions supported by Economic version
- 2 axis circular move, Helical Move
- Path table, Tangential move, Look Ahead
- Superimposed Move, E-CAM, Tigger/ Latch
- Group position/ Speed override
- 8DI/ 8DO/ 2AI (PCI-1265)

PCI-1245L

Basic SoftMotion 4-axis Stepping and Servo Motor Control PCI Card

- SoftMotion on FPGA
- Single end pulse output for stepping motor
- T&S-curve speed profile, Prog. Acc and Dec
- Jog Move, P to P move, Home Move
- 2-axis Linear interpolation
- Single axis position/ Speed override

AMONet Master Cards & Slave Modules

PCI-1202U

2-port AMONet RS-485 PCI Master Card

- Up to 64 slave AMAX modules per ring
- Transmission (baud rate) can be up to 20Mbps
- Communication distance is up to 100 M @ 10Mbps
- Programmable digital input to notify events
- Easy installation with RJ45 phone jack and LED diagnostic
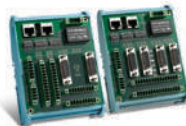
AMAX-1220/ 1240

High-performanced 2/4-axis AMONet Motion Slave Module

- Maximum transmission (baud rate) can be up to 20Mbps with master card
- Maximum pulse train output up to 6.5 MHz & equipped with encoder input
- 2-axis point-to-point, linear & circular interpolation
- Position compare and triggering function (AMAX-1240 only)

AMAX-1752/ 1754/ 1756

Compact 32-ch Isolated Digital Input/ Output Slave Module

- Maximum transmission (baud rate) can be up to 20 Mbps with master card
- On-board terminal for direct wiring & LED indicators
- 2,500 V_{RMS} isolation voltage
- Compact design for horizontal placement

EtherCAT Solutions

PCI-1203

EtherCAT Master PCI Card

- EtherCAT master card for Advantech and other EnterCAT IO / motion slave device connection
- Windows utility for slave device information display and parameter setting
- Integrate Advantech Common Motion SDK for user programming
- Support multi-axes and group motion function
- Support high density DI/O and AI/O application

ADAM-5000/ECAT

4-slot Distributed High Speed I/O System for EtherCAT

- 4 slots with various digital and analog I/O modules is just a single EtherCAT node on the network.
- Supports EtherCAT Distributed Clock (DC) mode and SyncManager mode
- Supports the Modular Device Profile (MDP) when all modules are a pure I/O function
- Compatible with Advantech Common Motion SDK or other EtherCAT master through ENI file generation

Embedded Motion Controller

PEC-3240

Intel® Celeron® M 1.0 GHz 4-axis Embedded Motion Controller with 32-ch Digital I/O

- Onboard Intel® Celeron® M 1.0 GHz CPU
- 16-ch isolated DI and 16-ch isolated DO
- Independent 4-axis motion control

Data Acquisition and Control

A Broad Selection of Form Factors to Satisfy All Your DAQ Needs

Advantech offers a wide range of industrial data acquisition and control devices with various interfaces and functions. Based on PC technology, from ISA to PCI Express, and signal conditioning to graphical software tools, Advantech's industrial I/O products are reliable, accurate, affordable, and suitable for many industrial automation applications, such as testing & measurement, laboratory applications, machine automation, and production testing. Moreover, its brand new I/O driver, DAQNavi, supports Windows 7 and 8, helping customers seamlessly integrate Advantech's data acquisition cards to the latest platforms, improve performance, and reduce development time.

Star Product Highlights

PCI Express DAQ Cards

PCIE-1730
32-ch TTL and 32-ch Isolated DI/O PCI Express Card
- 16-ch TTL DI and 16-ch TTL DO with 5 V compatibility
- 16-ch isolated DI and 16-ch isolated DO with 24 V compatibility
- High-voltage isolation on all isolated DI/ O channels (2,500 V_{DC})

PCIE-1752/ 1754/ 1756
64-ch Isolated Digital I/O PCI Express Card
- PCIE-1752: 64-ch DO
  PCIE-1754: 64-ch DI
  PCIE-1756: 32-ch DI, 32-ch DO
- High-voltage isolation on all channels (2,500 V_{DC})
- Keep the output setting and value after system hot reset
- Interrupt handling capacity

PCIE-1760
8-ch Relay and 8-ch Isolated DI PCI Express Card
- 8-ch isolated DI with programmable digital filter
- High-voltage isolation on input channels (2,500 V_{DC})
- 2-ch Form C and 6-ch Form A relay output
- 2-ch counter input and PWM output available

PCIE-1810/1816/1816H
12-bit/ 16-bt 16-ch AI Multifunction PCI Express Card
- PCIE-1810 & PCIE-1816: 500 KS/s
  PCIE-1816H: 1 MS/s
- Analog Trigger and Digital Trigger
- Waveform Generator for AO
- 24 programmable digital I/O lines
- Two 32-bit programmable counter/ timers

PCIE-1802
8-ch, 24-Bit, 216 kS/s Dynamic Signal Acquisition PCI Express Card
- 8 simultaneously sampled analog inputs up to 216 KS/s
- 24-bit resolution ADCs with 115 dB dynamic range
- Wide input ranges from ±0.2 V to ±10 V
- Built-in anti-aliasing filter
- Software configurable 4 or 10 mA integrated electronic Piezoelectric (IEPE)

PCIE-1840
125MS/s, 16-bit, 4-ch Digitizer PCI Express Card
- 4 analog inputs, up to 125MHz, 16-bit resolution
- 500 MHz Time Interleaved Sampling
- Non-stop data streaming capable
- 2 GB on-board memory
- On-Board tunable anti-aliasing filter AC/ DC Coupling

PCI DAQ Cards

PCI-1714U/1714UL
Simultaneous Analog Input PCI Card
- Each channel has dedicated A/D converter
  PCI-1714U: 12-bit, 30 MS/s, 4-ch single-ended AI
  PCI-1714UL: 12-bit, 10 MS/s, 4-ch single-ended AI
- 30 V_{DC} over-voltage protection

PCI-1716/ L
250KS/s, 16-bit, 16-ch Multifunction PCI Card
- 16 single-ended or 8 differential or a combination of analog inputs
- 16-bit A/ D converter, with up to 250 kHz sampling rate
- Auto-calibration
- 16-ch digital input and 16-ch digital output
- 2 analog output channels (PCI-1716 only)

PCI-1730U/ 1756
32-ch/ 64-ch Isolated Digital I/O Universal PCI Card
- High-voltage isolation on output channels (2,500 V_{DC})
- Wide output range (5 ~ 40 V_{DC})
- High-sink current for isolated output channels (90 mA max./ Channel)
- Current protection for each port

USB DAQ Modules ▶

USB-4711/ 4716

150 kS/s, 12-bit / 200 kS/s, 16-bit

16-ch Multifunction USB Module

- 2 analog output channels
- 5V/TTL compatible DIO (8 inputs, 8 outputs)
- 1 counter for event counting, frequency measurement and PWM output
- Lockable USB cable for secure connection

USB-4750

32-ch Isolated Digital I/O USB Module

- 16 isolated DI and 16 isolated DO channels
- 2 isolated counters for event counting and frequency measurement
- Keeps the last output value after system hot reset
- 2,500 V_{DC} isolation protection

USB-4761

8-ch Relay and 8-ch Isolated Digital Input USB Module

- 8 Form C (SPDT) relay channels
- Relay contact rating: 0.25 A @ 250 V_{AC}, 2 A @ 30 V_{DC}
- LED indicators to show activated relay
- 2,500 V_{DC} isolation protection

PCI/PCIE Communication Cards ▶

PCI-1620/ 1622

8-port PCI Express Serial Communication Card with Surge Protection

- PCI-1610: RS-232
  PCI-1612: RS-232/ 422/ 485
- Optional surge protection
- DMA mastering to reduce CPU loading
- 128-byte FIFOs with advanced management

PCIE-1620/ 1622

NEW

8-port PCI Express Serial Communication Card with Surge Protection

- PCIE-1620: RS-232
  PCIE-1622: RS-232/ 422/ 485
- Optional surge protection
- DMA mastering to reduce CPU loading
- 128-byte FIFOs with advanced management

PCIE-1672PC/ 1674PC

4/ 8-port PCI Express Power-over-Ethernet Communication Card

- Onboard DSP to reduce CPU loading
- 2,250 V_{DC} isolation protection
- Supports Jumbo frames (9,500 byte) and link aggregation
- Supports IEEE-1588 and IEEE-802.1 AS timing and synchronization

PCIE-1602/ PCIE-1604

NEW

2-port RS-232/422/485 PCI-express PCI Comm. Card w/Iso

- PCIE-1602: 2x RS-232/422/485 ports
  PCIE-1604: 2x RS-232 ports
- Optional surge protection
- Optional isolation protection for RS-232/422/485
- DMA mastering to reduce CPU loading

PCIE-1610/ PCIE-1612

NEW

4-port RS-232/422/485 PCI-express PCI Comm. Card w/Iso

- PCIE-1610: 4x RS-232 ports
  PCIE-1612: 4x RS-232/422/485 ports
- Optional surge protection
- Optional isolation protection for RS-232/422/485
- DMA mastering to reduce CPU loading

PCIE-1680

NEW

2-port CAN-bus Universal PCI Communication Card with CANopen Support

- Operates two separate CAN networks at the same time
- High speed transmission up to 1 Mbps
- 16 MHz CAN controller frequency
- Isolation protection of 2,500 V_{DC}
- I/O address automatically assigned by PCI PnP

CompactPCI Systems ▶

MIC-3106/ 3111/ 3121

4U CompactPCI With 2/7 Peripheral Slots

- 2G operational anti-vibration protection.
- 2G shipping anti-vibration protection
- Air-tight seal connector design for corrosive environments
- Modular design and front hot-swap enabled
- Easily exchange peripheral cards to reduce maintenance costs

TAIWAN
EXCELLENCE 2015

NEW   **NEW**   **NEW**

MIC-3106   MIC-3111   MIC-3121

IoT Wireless I/O Modules

Providing IoT Wireless Smart Devices from I/O to Sensor

As wireless applications became a more common and preferred solution, Advantech introduced a variety of wireless remote I/O devices to the market as an important enabler of the IoT. With the Wi-Fi based WISE-4000 series and popular Zigbee protocol ADAM-2000 series, our clients are free from worrying about a wired layout and extra associated costs, for a more flexible deployment. Furthermore, the WISE-4000 series brings an authentic IoT experience to the market. By realizing an "anytime and anywhere" solution, not only can users retrieve data via mobile devices, the modules can now be configured and troubleshot from mobile devices to save time.

Wireless IoT Ethernet I/O Modules

WISE-4050

4-ch Digital Input and 4-ch Digital Output
IoT Wireless I/O Module

- 2.4 GHz IEEE 802.11b/g/n WLAN
- Protocols: Modbus/TCP, TCP/IP, UDP, DHCP, HTTP
- Supports RESTful web API in JSON format for IoT integration
- Supports both wireless client and server modes that can be accessed directly without AP or router
- Supports file-based cloud storage and local logging
- Supports mobile device web configuration with HTML5
- Supports 10~30V$_{DC}$ power with reverse protection

WISE-4060

4-ch Digital Input and 4-ch Relay Output
IoT Wireless I/O Module

- 2.4 GHz IEEE 802.11b/g/n WLAN
- Protocols: Modbus/TCP, TCP/IP, UDP, DHCP, HTTP
- Supports RESTful web API in JSON format for IoT integration
- Supports both wireless client and server modes that can be accessed directly without AP or router
- Supports file-based cloud storage and local logging
- Supports mobile device web configuration with HTML5
- Supports 10~30V$_{DC}$ power with reverse protection

WISE-4012

4-ch Universal Input and 2-ch Relay Ouput
IoT Wireless I/O Module

- 2.4 GHz IEEE 802.11b/g/n WLAN
- 4-ch UI: 0~10V, 0~20mA, 4~20mA, digital input
- Supports RESTful web API in JSON format for IoT integration
- Web Services: REST, HTML5, JavaScript, JSON
- Supports both wireless client and server modes that can be accessed directly without AP or router
- Supports file-based cloud storage and local logging
- Supports mobile device web configuration with HTML5

WISE-4012E - IoT Developer Kit

6-ch Universal Input/Output IoT Wireless
I/O Module for IoT Developer

- 2.4 GHz IEEE 802.11b/g/n WLAN
- 2-ch 0~10V Input, 2-ch DI, and 2-ch Relay Output
- Includes WebAccess with demo project for developer
- Includes extension board for simulating sensor status
- Includes micro USB cable for power input
- Supports both wireless client and server modes that can be accessed directly without AP or router
- Supports mobile device web configuration

WebAccess/SCADA

M2M (Machine to Machine) I/O Modules

ADAM-2520Z/ 2510Z

Wireless Modbus RTU Gateway

- 2.4 GHz IEEE 802.15.4 compliant RF
- Outdoor range up to 1,000 m
- Supports battery input with 2 x AA alkaline batteries
- Supports Modbus RTU protocol
- Network capacity with 32 nodes (routers & end devices)
- Supports Star/ Tree/ Mesh Network Topologies

TAIWAN EXCELLENCE 2014

ADAM-2031Z

Wireless Temperature & Humidity
Sensor Node

- 2.4 GHz IEEE 802.15.4 compliant RF
- Low duty cycle and low power consumption
- Outdoor range up to 110 m
- Supports battery input with 2 x AA alkaline batteries
- Built-in temperature/ humidity sensor input

TAIWAN EXCELLENCE 2014

ADAM-2051Z/ 2051PZ

Wireless 8-ch Digital Input Node with
Power Amplifier

- 2.4 GHz IEEE 802.15.4 compliant RF
- Outdoor range up to 1,000 m
- Supports battery input with 2 x AA alkaline batteries
- 10K Ω input resistance

TAIWAN EXCELLENCE 2014

ADAM-2107PZ

Wireless 6-ch Analog Input Node with
Power Amplifier

- 2.4 GHz IEEE 802.15.4 compliant RF
- 6-ch differential input: ±150mV, ±500mV, ±1V, ±5V, ±10V, ±20mA, 0~20mA, 4~20 mA

Remote I/O Modules

Providing Remote I/O Connectivity with RS-485 and Ethernet, with More Options

When "Internet of things" is no longer just a slogan, Advantech's versatile products boost clients' production performance by meeting different application needs. With a typical automation network using RS-485 to transmit serial signals the ADAM-4000 & robust ADAM-4100 series, and the designed for harsh environment Robust RS-485 based ADAM-4100 series, Ethernet based ADAM-6000 series and Daisy-chain Ethernet based ADAM-6200 series, managing field devices becomes easier and the field site status can be identified, tracked and altered remotely. There are over 1 million ADAMs in the world, in various industries such as industrial automation, environmental and facility management, intelligent transportation system, and so on and their record of being highly efficient devices is well proven.

Daisy-chain Ethernet I/O Modules

ADAM-6217/ 6224
Isolated Analog I/O Modbus TCP Module
- ADAM-6217: 8-ch AI; ADAM-6224: 8-ch AO & 4-ch DI
- Daisy chain connection with auto-bypass protection
- Auto-calibration without providing any input
- Web language support: HTML 5, Java Script, XML
- Supports GCL and Peer-to-Peer
- Group configuration capability for setting up multiple modules

ADAM-6250/ 6251/ 6256
Isolated Digital I/O Modbus TCP Module
- ADAM-6250: 8-ch DI & 7-ch DO
  ADAM-6251: 16-ch DI; ADAM-6256: 16-ch DO
- Daisy chain connection with auto-bypass protection
- DI/O LED Indication; DO fail safe value
- Web language support: HTML 5, Java Script, XML
- Supports GCL and Peer-to-Peer
- Group configuration capability for setting up multiple modules

ADAM-6260/ 6266
Relay Output Modbus TCP Module (with DI)
- ADAM-6260: 6-ch RL; ADAM-6266: 4-ch RL & 4-ch DI
- Daisy chain connection with auto-bypass protection
- DI/O LED Indication; Relay fail safe value
- Web language support: HTML 5, Java Script, XML
- Supports GCL and Peer-to-Peer
- Group configuration capability for setting up multiple modules

Smart Ethernet I/O Modules

ADAM-6017
8-ch Isolated Analog Input Real-time Ethernet Module
- 2-ch DO for AI trigger applications
- Modbus RTU, TCP/ IP, UDP and HTTP protocol
- Embedded web server
- Supports data stream and event trigger
- Supports GCL and Peer-to-Peer

ADAM-6050
18-ch Isolated Digital I/O Modbus TCP Module
- Modbus RTU, TCP/ IP, UDP DHCP and HTTP protocol
- 12-ch digital input and 6-ch digital output
- Embedded web server
- Supports data stream and event trigger
- Supports GCL and Peer-to-Peer

ADAM-6060/ 6066
6-ch Digital Input and 6-ch Relay Modbus TCP Module/ 6-ch Digital Input and 6-ch Power Relay Modbus TCP Module
- Modbus RTU, TCP/ IP, UDP DHCP and HTTP protocol
- Embedded web server
- Supports data stream and event trigger
- Supports GCL and Peer-to-Peer

Robust RS-485 I/O Modules

RS-485 I/O Modules

ADAM-4117/ 4118
Robust 8-ch Analog Input Module
Robust 8-ch Thermocouple Input Module
- Modbus RTU protocol
- Wide operating temperature -40 ~ 85ºC (-40 ~ 185ºF)
- 8 differential and independent configuration channels
- High common mode voltage 200 V_{DC}
- 1 kV surge, 3 kV EFT and 8 kV ESD protection

ADAM-4017+/ 4018+
8-ch Analog Input Module
8-ch Thermocouple Input Module
- Modbus RTU protocol
- 8-ch AI/ 8-ch Thermocouple Input
- Over Voltage Protection: ±35 V_{DC}
- Built-in TVS/ESD protection
- Isolation Voltage: 3,000 V_{DC}

ADAM-4051/ 4055/ 4056
16-ch Isolated Digital Input Module
16-ch Isolated Digital I/O Module
12-ch Isolated Digital Output Module
- Modbus RTU protocol
- ADAM-4055: 8-ch DI & 8-ch DO
- Dry/ wet contact digital input level
- Isolation Voltage: 2,500 V_{DC}
- Over Voltage Protection: 70 V_{DC}

Advantech WebAccess

The IoT Software Framework

Advantech WebAccess is a 100% web-based HMI/SCADA software. With more and more investment and development on integrating IoT applications and cloud architecture, it has become not only a HMI/SCADA software but also an IoT software framework in the IoT era. Advantech WebAccess supports powerful remote monitoring and control functions through standard web browsers, so that users can easily monitor and control automation equipment with full featured SCADA functions by their Client or Thin Client device. Starting from Version 8, Advantech WebAccess provides a HTML5 based Dashboard as the next generation WebAccess HMI. It helps system integrators to create their own dashboard and view their dashboard remotely via any device. Advantech WebAccess also provides open interfaces for system integrators to develop their IoT applications and widgets which can meet the needs of various applications.

Advantech WebAccess HMI/SCADA Software

Advantech WebAccess
100% Web-based HMI/SCADA Software
- Distributed SCADA architecture with central database server and multi-layer inter-operable SCADA nodes
- Supports ample drivers, including Advantech I/O, controllers and major PLCs
- Web-enabled video, audio and animation
- Excel self-defined reports
- Google Maps and GPS location tracking integration
- High availability redundant SCADA, ports and devices
- Supports open interfaces as an IoT platform

HTML5 Business Intelligence Dashboard
- Cross-browser, cross-platform WebAccess HMI based on HTML5
- Supports dynamic thin clients access for a seamless viewing experience across PC, Mac, tablet and smartphone
- Built-in widgets to customize information page by analysis charts and diagrams
- Create customized widget with graphic functionalities, like basic shape, animation, picture import, and macro command via cross-browser

WebAccess Bundled Products

WA-TPC1771
17" Touch Panel Computer with 600/5,000 Tags WebAccess
- Built-in Windows 7 Embedded with Advantech WebAccess 600/5,000 Tags
- Intel® Atom™ D525 1.8 GHz CPU
- 8 DI/O and backup SRAM support

WA-UNO2178A
Compact SCADA Server with 600/5,000 Tags WebAccess
- Built-in Windows 7 Embedded with Advantech WebAccess 600/ 5,000 Tags
- Intel® Atom™ D510 1.67 GHz CPU
- 2 x GbE, 8 x COM, 6 x USB 3.0 and 2 x MiniPCIe

Semiconductor Data Gateway

WA+SECS
WebAccess SECS Server with Intel® Core™ i7 Automation Computer
- SECS protocol embedded –SEMI standard compliant interface for data collection
- Provides SECS functions for polling, trace and event notification by configuration
- Bundled with Advantech WebAccess, browser based HMI/SCADA software

Energy Data Gateways

BEMG-4221/ 4222
Energy Data Conentrator with 6 x USB, 4x COM / 8x COM, 128 Devices
- Built-in Windows CE with Advantech WinCE WebAccess
- Web-server functions support customers with remote configuration, remote operation, remote maintenance
- Combines Advantech BEMS and power meter for energy saving solution

Rugged Tablets as Portable HMIs

Enabling Intelligent Real-Time Inspections and Onsite Management

Advantech's portable HMI products are designed to assist mobile workers with conducting and managing onsite inspections. Equipped with the latest Intel® chipset and RF technology (WLAN, WWAN, and GPS), Advantech's rugged tablets enable data to be transmitted and processed seamlessly, ensuring workers have constant access to relevant information. Integrated I/O (dual camera, RFID, NFC RFID, and RS-232) and extensive user-friendly accessories (including a vehicle docking station, desk docking station, universal cover, and customizable extension modules) support rapid data collection and mobile operation for substantially increased productivity. The rugged product designs (MIL-STD-810G and IP65 certification with a drop tolerance of up to 4 ft.), sunlight-readable displays, and long battery life are designed to facilitate the completion of complex tasks in harsh field environments.

Fully Rugged Tablet

PWS-870
10" 16:9 Fully Rugged Tablet with Fourth Generation Intel® Core™ i Processor

- MIL-STD-810G and IP65 certified, and can withstand drops of up to 4 ft.
- 10.1" HD high-brightness, multi-touch, Gorilla Glass panel with digitizer
- Fourth generation Intel® Core™ i processor supports Windows 8
- Built-in 4G LTE, WLAN (802.11 a/b/g/n/ac), BT4.0, and GPS modules with Beidou/GLONASS support

- Hot-swappable battery offers up to 11 hours operation
- Built-in dual cameras, a 1D/2D barcode scanner, and NFC RFID
- Wide array of peripherals including a vehicle docking station, desk docking station, and customizable extension modules

Wall Docking Station
- Anti-theft locking mechanism
- Rapid device docking and removal (1 second)
- Equipped with 1 x DC-in, expansion I/O, 2 x USB 3.0, 1 x LAN, and 1 x GNSS port

Desk Docking Station
- Equipped with 1 x DC-in, 2 x USB 3.0, 1 x LAN, 1 x RS-232, and 1 x VGA port
- Secondary battery charger

Universal Cover
- Made from black plastic and PVC
- Measures Approx. 305 x 254.2 x 88.4 mm
- Designed for easy carrying

Extension Module
- MSR and smart card reader extension
- I/O extension
- UHF RFID extension

Rugged Tablet

PWS-770
10" 4:3 Rugged Tablet with Intel® Atom™ N2600 Processor

- 10.4" XGA LED, high brightness (300 cd/m2), WAV transflective-LCD panel
- Hot swappable, high-capacity li-ion battery provides 8 hours of operation
- Wide variety of I/O ports support various applications
- IP54 certified with a drop tolerance of up to 4 ft.

- Equipped with Wi-Fi, Bluetooth, GPS, and WWAN (3.75G) technology
- Supports optional data capture modules (1D/2D barcode scanner, MSR, and RFID)
- Lightweight design (1.2 kg)

Wall Docking Station
- Anti-theft locking mechanism
- Rapid device docking and removal (1 second)
- Equipped with 1 x DC-in, expansion I/O, 2 x USB 2.0, 1 x LAN, and 1 x SMA (for GPS) port

Desk Docking Station
- Equipped with 1 x DC-in, 2 x USB 2.0, 1 x LAN, and 1 x RS-232 port
- Secondary battery charger

Carry Bag
- Made from black PVC

Hand Strap
- Made from black PVC

Enabling an Intelligent Planet

Advancements in technology have paved the way for modern civilization; allowing us to interconnect human lives in a way never before thought possible. Advantech, a global industrial computing and automation manufacturer, continues to explore what technology can bring into our lives. With over three decades of proven experience, we combine information, automation and communication technology with efficiency, energy conservation, minimized risk, cost-effectiveness, and environmental protection to create solutions to enable an intelligent planet.

WebAccess+ Alliance

Equipment Networking
and Monitoring

Water Treatment

Information Dispatch
and Display

Production Information
Integration

WebAccess+

iAgriculture

Oil & Gas

Power & Energy

Internet of Things

Industry 4.0

Smart Manufacturing

The Internet of Things (IoT), which gives users the ability to control their devices from wherever they are, is moving into industrial automation. Industry 4.0 takes advantage of the IoT to become Industrial IoT (IIoT) and now gives industrial automation environments the same abilities. However, Industry 4.0 encompasses more than just IIoT and includes four core technologies: digital design & production technique; cyber-physical systems; intelligent facilities & products and unified standard communication protocols. Through these key elements, we can realize on-demand production, mixed model manufacturing and advanced applications like: machine predictive maintenance. Terabytes of data are generated in Industry 4.0 and form the basis of big data which is processed by an MES or ERP system to become valuable production information.

Flexible Production

Production Information Integration

Cyber-physical systems are formed through linking the production information of isolated production stations to enable all the stations to instantly respond to changes in production variables, significantly shortening the development of the optimal production yield and building a complete production record. Using this technology, the production process can simultaneously adapt the product design and form a dynamic manufacturing execution environment.

Product Solutions

Production Information Integration ▶ ──────────────── Instant Information

Software	HMI	Communication	Controller	Remote I/O		Software
Advantech WebAccess Web-based HMI/ SCADA Software	**TPC-1782H** Touch Panel Computer with iDoor techonology	**EKI-9300 series** Full Gigabit Managed DIN Rail Ethernet Switch	**UNO-2483G** Embedded Automation Computer with iDoor Technology	**WISE-4000 series** IoT Wireless I/O Modules	**ADAM-6200 series** Daisy-chain Ethernet I/O Modules	**WebAccess/NMS** Network Management Software

Mass Customization

On-demand Production

Instant Production Information Dispatch and Display

Intelligent factories mean optimizing factory information distribution with the visualization of information, and connecting it with the shop floor and MES management system. Users from field operators to plant managers and management executives can utilize these productivity indicators and trends to organize a more accurate real-time decision making and business strategies.

Equipment Networking and Monitoring

Through advanced test and measurement technology and highly integrated network functionality, machines collect data during production before turning it into valuable information. Network functionality also realizes M2M communication to upgrade the flexibility and efficiency of any production line. With comprehensive DAQ product functions and a mature networking structure, Advantech has its first foray into the era of Industry 4.0.

Gearbox
Pitch
Generator
Yaw
Bearings
Blades
1
0.8
0.6
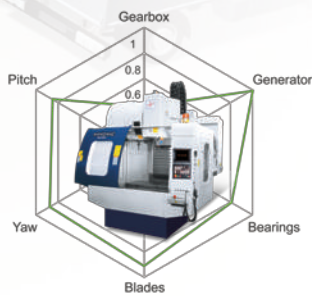
Dispatch & Display ▶

Equipment Networking and Monitoring ▶

Display	Computer	HMI	Communication	Controller		I/O	
FPM-6211W	**UNO-3483G**	**TPC-1551T**	**EKI-5000 series**	**MIC-3100 series**	**UNO-1483G**	**PCIE-1802**	**PCIE-1816**
21.5" Full HD Semi-industrial Monitor	Control Cabinet PC with flexible expansion	Thin Client Panel Computer with iDoor technology	Gigabit/Fast Ethernet ProView Switch	4U Highly Robust Industrial PC	DIN-Rail PC with built-in digital I/O	24 bit Ultra-high Resolution Instrument Cards	High Performance PCIE Multifunction Cards

Power and Energy

Building Reliable Power Automation Solutions with Trusted System Components

Power supply and demand is becoming more and more critical. Substation automation, T&D grid automation, renewable energy, power generation & transmissions, energy management systems and maintenance-free power backup systems with IEC 61850-3 compliance are the big trends in today's applications. Power Automation improves energy efficiency and intelligence while also implementing important environment protection and green powered features. Advantech is proud to develop reliable HMIs, Embedded Automation Computers, Industrial Managed Switches and DIN-rail PCs to serve this market.

Power Generation
- Redundant automation controller architecture
- Simultaneous high-speed data acquisition modules
- Multi-port managed Ethernet switches

Smart Substations
- IEC 61850-3/ IEEE 1613 compliant computing platforms, I/O modules and Ethernet switches
- Reliable redundant X-Ring networking communications

Renewable Energy
- Reliable energy automation Controllers with an open system
- Fiber optic managed switches for redundant X-ring networking topology
- Powerful SCADA software support

Wind Power Management
- Robust vibration diagnosis server
- Powerful SCADA software support
- Reliable industrial gateway

Product Solutions ▶

HMI	Controllers		Communication		I/O
FPM-7151T	**APAX-5522PE**	**ECU-1871**	**EKI-9228G**	**EKI-9312/ EKI-9316**	**APAX-5017PE**
15.6" Industrial Monitor with Projected Capacitive Touchscreen	IEC 61850-3 Compliant PAC with Marvel XScale® CPU	Intel® Atom™ D510 Modular Power & Energy Controller	L2 Managed IEC 61850-3 Industrial Ethernet Rack-Mount Switches	Full Gigabit Managed DIN Rail Switch	IEC 61850-3 Compliant 12-ch Analog Input Module
		ECU-4784			
		Intel® Haswell Core i7 Power & Energy Automation Computer			

Oil and Gas

Building Digital Oilfields via the IoT

Take advantage of science and technology innovation to promote industrialization and informatization integration in the oil and gas industry.

Currently in the intense competition of the international and domestic energy markets, methods of improving the management level and improving the production and economic efficiency to decrease costs is essential. To achieve this, improving the application level will strengthen management information and aid further integration.

Oil Well Monitoring
- Intelligent RTU
- Web-based HMI/SCADA software
- Industrial automation computer
- LED backlit LCD display screen

Pipeline Monitoring
- Intelligent pipeline RTU
- Powerful KW softlogic software
- Remote I/O monitoring
- GPRS telecommunication
- Excellent pipeline leakage detection

Storage Tank Monitoring
- IEC 61850 certified power automation control platform
- EN50155 certified industrial switch
- Web-based HMI/SCADA software
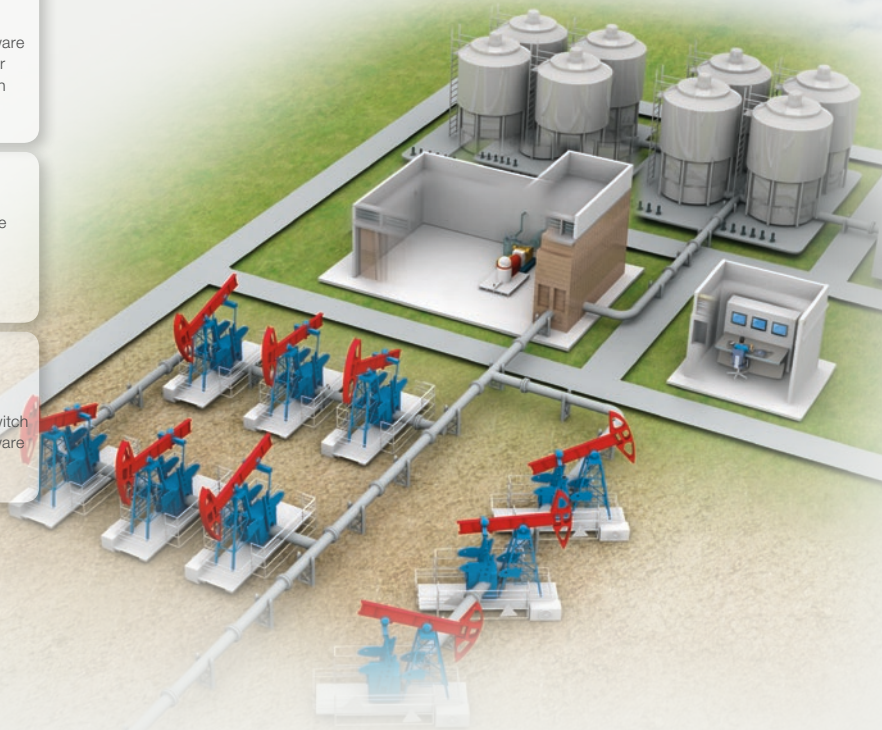
Product Solutions ▶

| Software	Communication		Controller	Computer Platform	RTU	I/O
Advantech WebAccess Web-based HMI/SCADA Software	**EKI-1331** RS-232/485 to HSPA+ IP Gateway	**EKI-5000** Gigabyte/Fast Ethernet ProView Switch	**APAX-5620** PAC with Marvel XScale® CPU and CAN	**TPC-1551T** 15" XGA Thin Client Multi-Touch Panel Computer	**ADAM-3600** 8AI/ 8DI/ 4DO/ 4-Slot Expansion Wireless Intelligent RTU	**ADAM-4000/6000** Remote I/O Modules

Water Treatment

Water Conservation and Water Treatment Solutions

Equipment that integrates the monitoring and control, data analysis, real-time video, mass data records, data base exchange mechanism and cloud technology based system, allows water conservation experts to easily construct various modes of control and management analysis.

From the water source, to sewage treatment, reclaimed water and drinking water, Advantech provides system devices, intelligent terminals, redundancy controllers, various communication devices and cloud monitoring software, and adopts an open framework to maximize the benefits and efficiency of water resource monitoring and management experts.
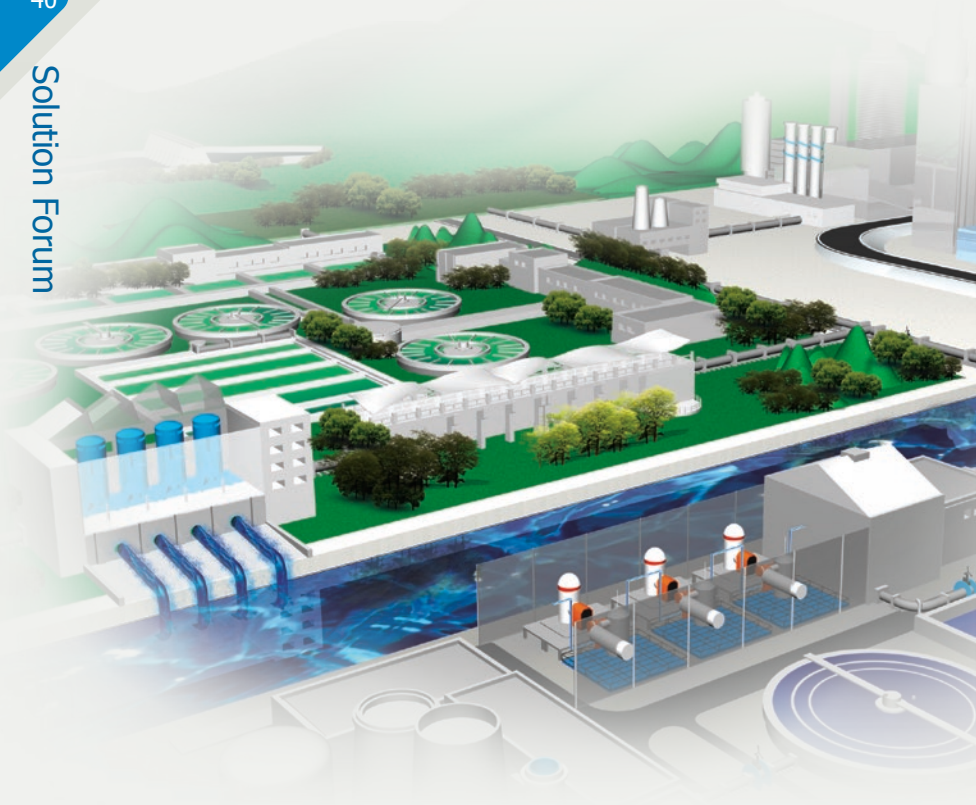
Pump Station Management
- Intelligent RTU controllers
- Flow/Pressure PID control
- Fiber optic switches
- Professional WebAccess HMI/SCADA software

Water Treatment Plant System
- User friendly touch panel computers
- IP-based video surveillance
- Redundant network architecture

Sewage Treatment
- Redundant automation controller architecture
- Redundant network architecture
- Professional WebAccess HMI/SCADA software

Pipeline Monitoring
- Intelligent pipeline RTU
- Remote I/O monitoring
- GPRS telecommunication
- Excellent pipeline leak detection

Product Solutions ▶

Software	HMI	Controllers	Intelligent RTU	Communication		I/O
Advantech WebAccess Web-based HMI/SCADA Software	**FPM-3151G** 15" XGA Industrial Monitor	**APAX-5620** PAC with Marvel XScale® CPU and CAN	**ADAM-3600** 8AI/ 8DI/ 4DO/ 4-Slot Expansion Wireless Intelligent RTU	**EKI-7659C** 8+2G Combo Port Gigabit Managed Redundant Industrial Ethernet Switch	**EKI-1322** 2-port RS-232/422/485 to GPRS IP Gateway	**APAX-5017** 12-ch Analog Input Module

Intelligent Agriculture

Providing Reliable Control and Remote Monitoring Solutions

As an enabler of IoT, Advantech aims to provide our customer a complete yet reliable system to enable our customers' business step into the next success. With cloud management and the connected system, computerized plants and managerial information can be fulfilled. The versatile product offerings can satisfy the need of the fields from fertilization and irrigation, plant tissue culture labs, plant factories, green houses and safe transportation process monitoring and control. With Advantech's control and monitoring systems, including compact embedded PC, trusted communication modules, remote data acquisition modules and web-based HMI/SCADA software – WebAccess; farm owners can get real-time information as quality data and thus takes less time to determine the next action.

Plant Cultivated Clod Process Control
- Reliable precision control systems
- Computerized management system
- Web-based HMI/SCADA software easily integrated into ERP systems

Plant Factory Environment Control & Monitoring
- Distributed control system for LED lighting, temperature, humidity, PH value and nutrient control
- Web-based tracking & management systems

Intelligent Greenhouse Facility Control & Monitoring
- Scalable distributed control system for chiller, boiler, clean room, sterilization, hygrometer, fertilization, irrigation, water pump and shade net control

Remote Management with Web-enabled SCADA Software
- Goods ID tracking recording & management system
- Powerful Remote Diagnose Maintenance Functionality
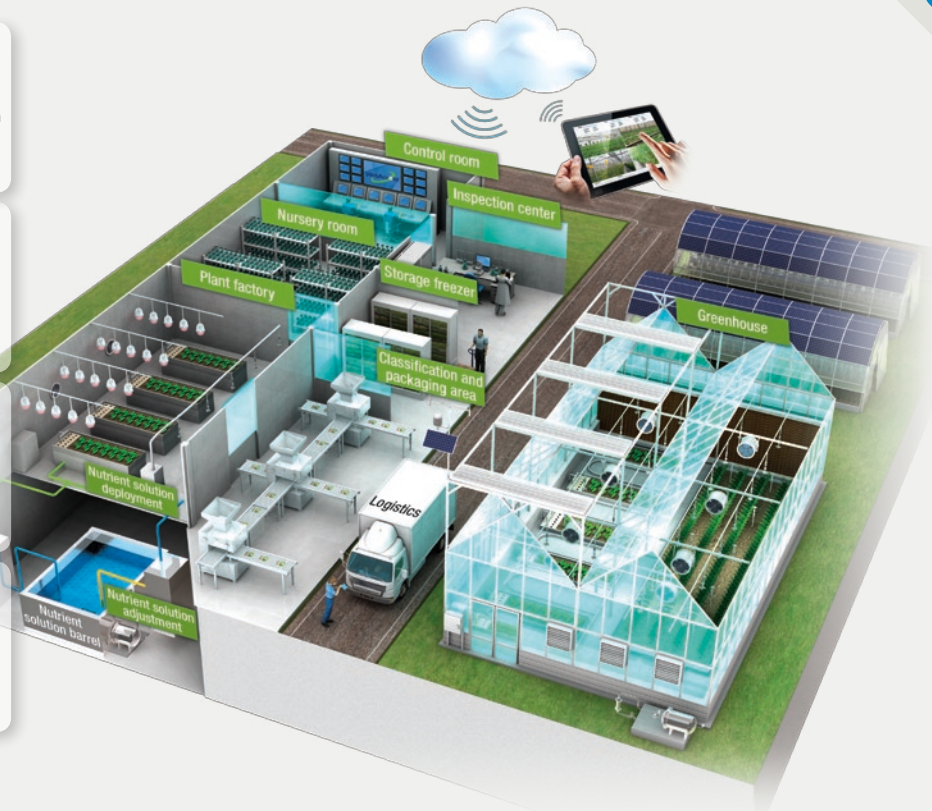
Product Solutions ▶

Software	HMI	Communications	Controllers and I/O		I/O	
Advantech WebAccess Web-based HMI/SCADA Software	**TPC-1581WP** 15.6" Multi-Touch Panel Computer	**EKI-5728I** 8-port Gigabit Ethernet ProView Switch	**ADAM-5560KW/ ADAM-5017P** 7-slot DIN-Rail IPC/ 8-ch Analog Input Module	**APAX-5620KW/ APAX-5046** DIN-Rail IPC/ 24-ch Digital Output Module	**WISE-4000** IoT Wireless I/O Modules	**ADAM-4000/ ADAM-6000** Remote I/O Modules

Realizing IoT Business Success with WebAccess+ Alliance

Advantech's WebAccess+ IoT Solution Alliance is a market-oriented cooperation model using WebAccess, the IoT Software framework as its core – to link solutions, partners' strengths and strategic co-marketing to get into focused vertical markets, such as Intelligent factory, water, oil & gas, renewable energy, intelligent agriculture and intelligent buildings. It aims to offer complete IoT solutions for a wide array of markets and applications, also achieving win-win partnerships in the blooming IoT industries.

Cloud-based IoT Software Platform

WebAcess integrates Microsoft Azure and IBM Bluemix public cloud platforms and provides RESTful open interface for partners to develop domain specific applications

Domain-focused Products and Solutions

To provide fast and suitable product solutions to vertical markets, WebAccess+ has three available solutions:
1) WebAccess software;
2) WebAccess+ bundled products;
3) Vertical market-oriented solution ready package (SRP)

Building Collaborative Partnership

Advantech invites business partners to join the WebAccess+ Alliance to jointly develop the Internet of Things (IoT) and create business opportunities and Eco-partnership.

WebAccess⁺ Alliance

Way to IoT Solutions

Solutions

Business

Partners

WebAccess+ Training & Certificate

Advantech provides a full range of WebAccess training courses and professional certificates to help partners to build up WebAccess software technology capability. Also, Advantech sets up regional WebAccess Solution Center (WSC) to assist local partners to increase partners' technical capabilities.

Marketing Collaboration

Advantech WebAccess+ partners can get full co-marketing supports such as co-exhibition, co-conference, seminar, roadshows, WebAccess+ website, video and co-marketing campaigns to increase company branding and awareness.

WebAccess+ Solutions

1

To view all of Advantech's WebAccess+ Solutions, please visit http://webaccess.advantech.com/.

WebAccess Introduction

Introduction

Advantech WebAccess is a 100% web-based HMI/SCADA software. With more and more investment and development on integrating IoT applications and cloud architecture, it has not only become HMI/SCADA software but also an IoT software framework in the IoT era. Advantech WebAccess supports powerful remote monitoring and control functions through a standard web browser, so that users can easily monitor and control automation equipment with full featured SCADA functions by their Client or Thin Client devices.

Starting from Version 8, Advantech WebAccess provides a HTML5 based Dashboard as the next generation WebAccess HMI. It helps system integrators create their own dashboard and view it remotely from any device. Advantech WebAccess also provides open interfaces for system integrators to develop their IoT applications and widgets which can meet the needs of various applications.

WebAccess Components

Advantech WebAccess is a HMI/SCADA software with excellent networking capabilities. Through the WebAccess web structure, users can develop a central database from project node to SCADA node via Internet or Intranet. It also supports powerful remote monitoring and control functions. Through a standard web browser, users can easily monitor and control automation equipment with full-featured SCADA functions by their Client or Thin Client device.

Project Node

A development platform for WebAccess and a web server for all clients to connect to the development project or to monitor and control the system remotely.

- System integration
- Project development
- Web server, provides connection between SCADA and client
- Database server, records the data

SCADA Node

It communicates in real-time with automation equipment and controls the equipment via serial ports, Ethernet or proprietary communication through multiple built-in drivers.

- Connect end devices
- Data acquisition and transmission
- Supports more than 200+ device drivers
- Real-time and historical data log
- Action log

Client

Connecting to Project Nodes and gets the address of the SCADA Node, then communicates directly with the SCADA Node using proprietary communications over TCP/IP connection.

- Remote monitoring and control
- Real-time and historical trend
- Alarm records

Thin Client

The Thin Client interface is intended for use with iOS, Android and Windows mobile devices. With thin clients, users can browse real-time graphics, data-log trends, and tag information. Set values to tag or acknowledge alarms to be supported via an intuitive interface.

- Mobility monitor and control
- Real-time data

WebAccess Architecture

WebAccess Focused Solutions

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

Building Energy Management Solution

- Single buildings : Commercial, Hospitals, Restaurants, Office buildings
- Building complex
  - Franchised restaurants, shopping malls, furniture stores, shoe stores, supermarkets, book stores, and convenience stores
  - Financial groups, shopping centers, campuses, and telecommunication stations
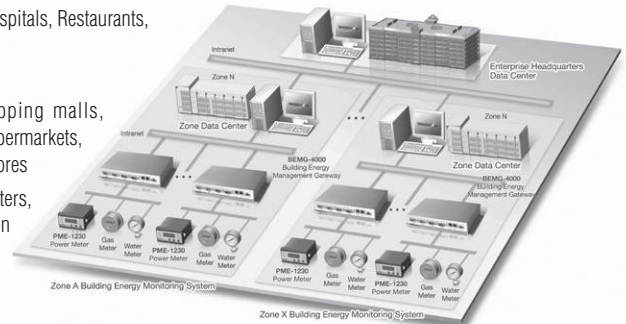
Oil & Gas Solution

- WebAccess is utilized to collect and manage data transferred from RTU, to create an analysis tool, and to monitor the operating status of oil wells
- For pipeline monitoring, the gateway software, WebAccess is running in each of the gateway devices converting each system to a standard protocol and sending them to control center
- Communicating with intelligent devices, WebAccess acts as remote control software for monitoring and controlling devices in the field
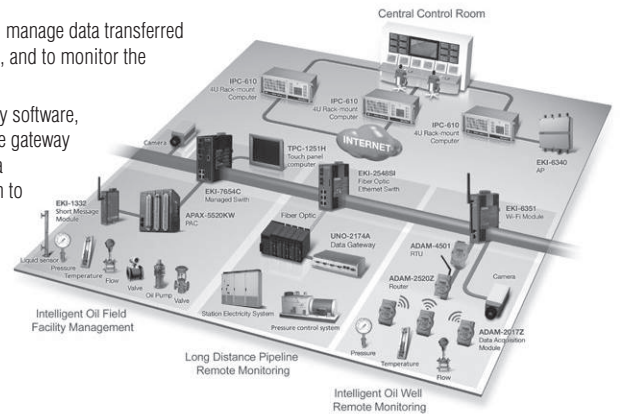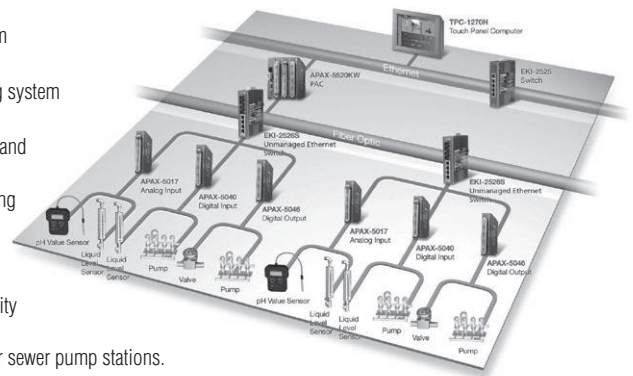
Factory Automation Solution

- Water system: raw water supply, ultra pure water supply, waste water treatment, and reclamation
- Electric system: 220/110 KV high voltage power monitoring, emergent power generator, dynamic/static uninterruptible power supply, electric bus, high voltage switch gear, and low voltage power meter
- Gas system: toxic gases detection, gas cabinet operation, valve box operation, and general gases
- HVAC system: clean room operation, acid exhaust, process cooling water, and general air-conditioning
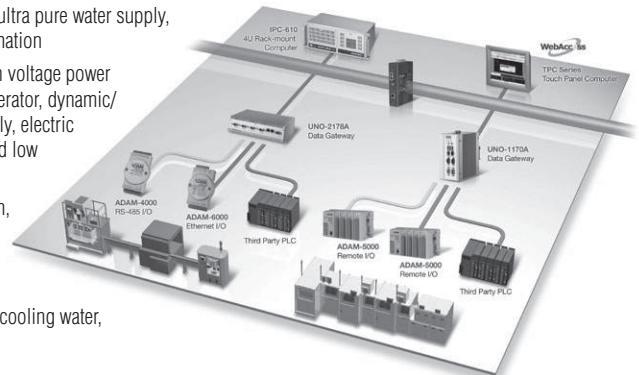
Water Treatment Solution

- Water resource distribution system
- Raw water distribution system
- Large scale water supply pumping system
- SCADA system for tap water
- Booster pump station monitoring and control system
- Urban tap water pipeline monitoring control system
- City pipeline distribution optimization system
- Remote management system for city sewage pipelines
- Monitoring and control system for sewer pump stations.
- SCADA system for large sewage plant
- Performance management for large sewage plan

Advantech WebAccess

Features

- Remote engineering and support with WebAccess Cloud Architecture
- Business Intelligence Dashboard - cross-browser, cross-platform WebAccess HMI based on HTML5
- Open Interfaces - Web Services, Widget Interfaces and WebAccess APIs
- Excel Report integration for report format customization
- Multitouch gesture support
- Google Maps and GPS location tracking integration
- WebAccess Express - The auto-configuration tool for various devices
- Distributed SCADA architecture with central database server and Multi-layer inter-operable SCADA nodes
- Supports ample drivers, including Advantech I/O, controllers and major PLCs
- Redundant SCADA, ports and devices - High availability
- Web-enabled video, audio and animation in WebAccess View
- Open data connectivity by providing industrial protocol and ODBC integration
- Advanced SCADA Function - Alarm, Schedule and Real-time database

Introduction

Advantech WebAccess is a web browser-based software package for human-machine interfaces (HMI) and supervisory control and data acquisition (SCADA). All the features found in conventional HMI and SCADA software including Animated Graphics Displays, Real-time Data, Control, Trends, Alarms and Logs, are available in a standard web browser. WebAccess is built around the latest internet technologies. The basic components are:

1. SCADA Node: it communicates in real-time with automation equipment and controls the equipment via serial, ethernet or proprietary communication via multiple built-in device drivers. Not only does it run local controls and monitoring, but also provides real-time data to all remote clients.

2. Project Node: it is the development platform for WebAccess and is a web server for all clients to connect to the development project or remotely monitor and control the system. All system configuration, project database files and graphics are stored here.

3. Client node: through the ActiveX control inside Microsoft Internet Explorer, it monitors and controls the SCADA Node. The client connects to the Project Node and get the address of the SCADA Node, then communicates directly with the SCADA Node using proprietary communications over a TCP/IP connection. Data is displayed in real-time with dynamically animated graphics along with real-time, historical trending and alarm information. Users can acknowledge alarms and change set-points, status and other data.

4. Thin Client: the Thin Client interface is intended for use with smart mobile devices, such as iOS, Android and Windows. In Thin client users can browse graphics, data-log trends, and tag information in real-time. Setting the value to tag or acknowledge alarms can also be supported via an intuitive interface.

WebAccess 8.0 is a new generation of WebAccess HMI. Business Intelligence Dashboard, provides users with cross-platform, cross-browser data analysis and user interface based on HTML5 technology. WebAccess 8.0 can also act as an IoT Platform by providing open interfaces for partners to develop IoT applications for different vertical markets.

Feature Details

WebAccess Cloud Architecture

WebAccess is a 100% web based HMI and SCADA software with private cloud software architecture. WebAccess can provide large equipment vendors, SIs, and Enterprises to access and manipulate centralized data and to configure, change/update, or monitor their equipment, projects, and systems all over the world using a standard web browser. Also, all the engineering works, such as database configuration, graphics drawing and system management and the troubleshooting can be operated remotely. This can significantly increase the efficiency of maintenance operations and reduce maintenance costs.

HTML5 Business Intelligence Dashboard

WebAccess 8.0 provides an HTML5 based Dashboard as the next generation of WebAccess HMI. System integrators can use Dashboard Editor to create the customized information page by using analysis charts and diagrams which are called widgets. Ample widgets have been included in the built-in widget library, such as trends, bars, alarm summary, maps…etc. After the dashboard screens have been created, end user can view the data by Dashboard Viewer in different platforms, like Internet Explorer, Safari, Chrome, and Firefox for a seamless viewing experience across PCs, Macs, tablets and smartphones.

Open Interfaces

WebAccess opens three kinds of interfaces for different use. First, WebAccess provides a Web Service interface for partners to integrate WebAccess data into APPs or application system. Second, a pluggable widget interface has been opened for programmer to develop their widget and run on WebAccess Dashboard. Last, WebAccess API, a DLL interface for programmer to access WebAccess platform and develop Windows applications. With these interfaces, WebAccess can act as an IoT platform for partners to develop IoT applications in various vertical markets.

Excel Report

WebAccess provides Excel Report integration for fulfilling the requirements of self-defined report functionality. Users can build self-defined Excel templates and generate daily/ weekly/ monthly/yearly or on demand reports automatically in Microsoft Excel format. The Excel Report function is also web-based. It can be generated and viewed in a Web browser from wherever is needed.
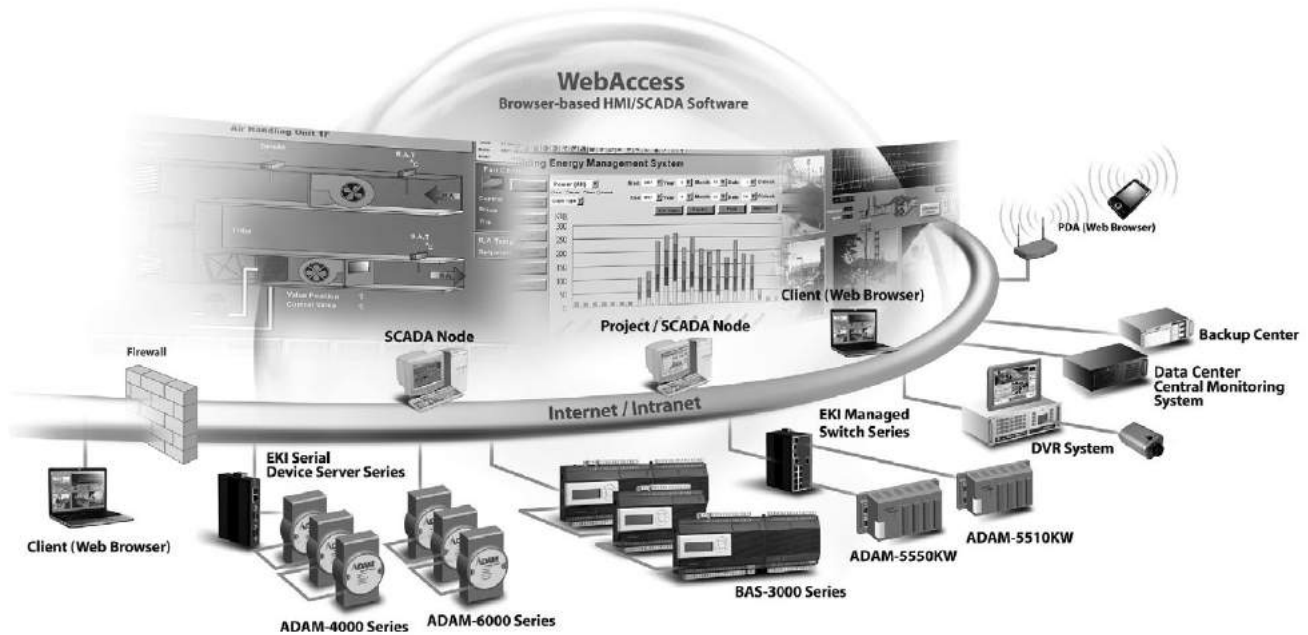
Multitouch Gesture Support

WebAccess supports multitouch functionality with various pre-set gestures, such as flick to change pages, zooming in and out of the display and 2-handed operation maximizing operating safety, increasing usability and decreasing training time due to the more intuitive handling. In addition, multi-touch also supports multi-finger tap, multi-finger grab, and multi-finger spread gestures to operate pre-defined actions.

Google Maps and GPS Tracking Integration

WebAccess integrates real-time data on each geographical site with Google Maps and GPS location tracking. For remote monitoring, users can intuitively view the current energy consumption on each building, production rate on each field or traffic flow on the highway together with alarm status. By right-clicking on Google Maps or entering the coordinate of the target, users can create a marker for the target and associate the real-time data of three sites with a display label. Furthermore, this function also integrates with GPS modules to track the location of the marker in Google Maps and allows it to be used in vehicle systems.

1 WebAccess+ Solutions

2 Motion Control

3 Power & Energy Automation

4 Automation Software

5 Intelligent Operator Panel

6 Automation Panels

7 Panel PCs

8 Industrial Wireless Solutions

9 Industrial Ethernet Solutions

10 Industrial Gateway Solutions

11 Serial communication cards

12 Embedded Automation PCs

13 DIN-Rail IPCs

14 CompactPCI Systems

15 IoT Wireless I/O Modules

16 IoT Ethernet I/O Modules

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18 Data Acquisition Boards

Auto-Configuration - WebAccess Express

Advantech WebAccess Express is an automated graphical remote control application program with 1-click to bring device information online. It automatically discovers the ADAM and EKI modules on the network and serial ports, generates a database and brings real-time data online with prebuilt monitoring graphics. Express also provides remote monitoring functions and allows users to communicate and exchange data with SNMP, DiagAnywhere Server or SUSI 4.0 APIs and then check the health of the CPU, memory, temperature, and voltage of the target machine as device monitoring platform. With SNMP, DiagAnywhere, or SUSI API Driver integration, users can configure the alarm function if any abnormal or suspicious data is detected in WebAccess.

Distributed SCADA Architecture with Central Database Server

SCADA nodes run independent of any other node. Each SCADA node communicates to automation equipment using communication drivers supplied with Advantech WebAccess. The Project Node is a centralized database server of configuration data. A copy of the database and graphics of all SCADA nodes is kept on the Project Node. The historical data is also stored in the database in project node.

Ample Driver Support

WebAccess supports hundreds of devices. In addition to Advantech I/Os and controllers, WebAccess also supports all major PLCs, controllers and I/Os, like Allen Bradley, Siemens, LonWorks, Mitsubushi, Beckhoff, Yokogawa etc. WebAccess can easily integrate all devices in one SCADA. All of these device drivers are integrated into WebAccess and free of charge. For a complete list of WebAccess drivers, refer to webaccess.advantech.com.

Redundant SCADA, COM Ports and Devices

Advantech WebAccess assures continuous, reliable communication to automation equipment. WebAccess Backup node activates when the Primary node is down. WebAccess device drivers communicate with backup ports or devices if the primary connection is lost and automatically restores to the primary item when it becomes available.

Alarm Management System

WebAccess advanced Alarm Management System (AMS) delivers alarm messages via SMS, email and audio announcement to multiple receivers by predefined alarm group, user groups, time schedule and priority setting.

Web-enabled Video, Audio, Animation

WebAccess allows operators and users to monitor equipment and facilities directly using web-enabled full-motion video cameras, audio, and web cams. It also supports the use of live video cameras that are IP-enabled via ActiveX control, Windows Media Player, JPEG and other formats supported by Microsoft Internet Explorer 8.0 (or later). The video image appears in the same display area as graphics, animation, alarms and trends displays. With vector-based graphics, WebAccess graphics can be built at any resolution and displayed at any resolution. It also has the options to allow users to define the aspect ratio, 16:9, 16:10 or 4:3, to view their graphics to avoid distortion when displaying in certain aspect ratio display.

Open Data Connectivity

Advantech WebAccess exchanges online data with 3rd party software in real-time by supporting OPC UA/DA, DDE, Modbus and BACnet Server/Client. It supports SQL, Oracle, MySQL, and MS Access for offline data sharing.

Real-Time Database

WebAccess Real-Time Database (RTDB) is designed to meet industrial high speed and large quantity data access requirements. With the fully integrated design, users do not need to learn how to operate this database. Just by enabling the usage of RTDB in WebAccess configuration page, WebAccess SCADA node can serve data processing (collection and retrieval at the same time) at a rate of millions of records per second. Also, the RTDB maintenance feature can automatically archive and delete obsolete data.

Gateway with WebAccess Installed

With open real-time data connectivity and hundreds of device drivers, WebAccess can integrate all devices and a selected hardware platform with pre-installed WebAccess becomes the perfect protocol gateway or data concentrator. With intuitive setup, WebAccess converts field device data to Modbus, OPC DA, OPC UA or BACnet protocol, so other software, such as ERP and MES can gain access without knowing the field device protocol. WebAccess+ Solution Products, a bundle of WebAccess Professional 8.0 and Windows 7 Embedded built in to Advantech's robust hardware platform, can be used as a high performance, low cost data gateway solution.

WebAccess Scheduler

WebAccess Scheduler provides on/off control and setpoint changes based on the time of day, day of the week and the calendar. Users can control lights, temperature and equipment for saving energy during work days. WebAccess Scheduler allows the definition of up to 16 periods per day and preserved functions for setpoints.

Advantech WebAccess
Browser-based HMI/SCADA Software

Software Specifications

Advantech WebAccess Professional
- I/O Tag Number   75/150/300/600/1500/5000/20K/64K
- Internal Tag Number   75/150/300/600/1500/5000/20K/64K
- Web Client   1024
- Alarm Logs   5000
- Action Logs   5000

Graphics
- Number of Graphic Pages   Unlimited (limited by H/D size)
- Variables per Graphic Pages   4000
- Tag Source   Global
- Multitouch Gestures   Yes

Dashboard
- Cross Browser and Platform   Yes
- Number of Built-in Widgets   37
- Open Widget Interface   Yes

Group Trend Log
- Number of Data Logging   Number of I/O tags license x 2
- Alarm Groups per SCADA   9999

Receipt
- Recipes per Project   Unlimited (limited by H/D size)
- Unit per Recipe   999
- Item per Unit   999

Scheduler
- Holiday Configuration Group   9999
- Time Zone Group   9999
- Device Loop Group   9999
- Equipment Group   9999
- Scheduler Reservation Group   9999

Web-enabled Integration
- Video   Yes
- Google Maps and GPS Location Tracking   Yes

Open Connectivity
- Modbus Server   Yes
- BACnet Server   Yes
- ODBC and SQL Query   Yes
- OPC DA/UA Server   Yes
- DDE Server   Yes

Others
- Centralized logs on project   Yes, node via ODBC
- SCADA Redundancy   Yes
- Script language   TclScript / VBScript / Jscript
- Data Transfer   Yes
- Report / Excel Report   Yes
- Device Redundancy   Yes
- Supports IPv6   Yes
- WebAccess Express   Yes

Minimum Requirements

Project Node / SCADA Node
- Operating System   Windows XP (SCADA Node only), Windows 7 SP1 Professional, Windows 8 Professional, Windows Server 2008 R2 or later
Net Framework 4.5 or later version
- Hardware   Intel Atom or Celeron. Dual Core processors or higher recommended
2GB RAM minimum, more recommended
30GB or more free disk space
- Display Resolution   1024 x 768 or higher (recommended)
Lower resolutions also supported
- USB Port   USB port for License Hardkey on SCADA node

Ordering Information

Professional Versions
- **WA-P80-U075E**   WebAccess V8.0 Professional Software with 75 tags
- **WA-P80-U150E**   WebAccess V8.0 Professional Software with 150 tags
- **WA-P80-U300E**   WebAccess V8.0 Professional Software with 300 tags
- **WA-P80-U600E**   WebAccess V8.0 Professional Software with 600 tags
- **WA-P80-U15HE**   WebAccess V8.0 Professional Software with 1,500 tags
- **WA-P80-U50HE**   WebAccess V8.0 Professional Software with 5,000 tags
- **WA-P80-U20KE**   WebAccess V8.0 Professional Software with 20,000 tags
- **WA-P80-U64KE**   WebAccess V8.0 Professional Software with Unlimited tags

Version Upgrade*
- **WA-X80-U000E**   WebAccess Upgrade to Version 8.0

* Upgrade the WebAccess Version from V.7.X to V8.0.

Upgrade*
- **WA-X80-U075E**   WebAccess software license, 75 tags upgrade
- **WA-X80-U300E**   WebAccess software license, 300 tags upgrade
- **WA-X80-U600E**   WebAccess software license, 600 tags upgrade
- **WA-X80-U15HE**   WebAccess software license, 1,500 tags upgrade
- **WA-X80-U50HE**   WebAccess software license, 5,000 tags upgrade

* Original serial number from WebAccess Professional version is required to purchase WebAccess upgrade. The serial number can be found on the USB dongle.

WebAccess+ Bundled Products
- **WA-TPC1771-T600E**   17" Touch Panel Computer, 600 tags WebAccess with Traditional Chinese
- **WA-TPC1771-T50HE**   17" Touch Panel Computer, 5,000 tags WebAccess with Traditional Chinese
- **WA-TPC1771-C600E**   17" Touch Panel Computer, 600 tags WebAccess with Simplified Chinese
- **WA-TPC1771-C50HE**   17" Touch Panel Computer, 5,000 tags WebAccess with Simplified Chinese
- **WA-TPC1771-E600E**   17" Touch Panel Computer, 600 tags WebAccess with English
- **WA-TPC1771-E50HE**   17" Touch Panel Computer, 5,000 tags WebAccess with English
- WA-UNO2178-T600E   Automation Computer, 600 tags WebAccess with Traditional Chinese
- WA-UNO2178-T50HE   Automation Computer, 5,000 tags WebAccess with Traditional Chinese
- WA-UNO2178-C600E   Automation Computer, 600 tags WebAccess with Simplified Chinese
- WA-UNO2178-C50HE   Automation Computer, 5,000 tags WebAccess with Simplified Chinese
- WA-UNO2178-E600E   Automation Computer, 600 tags WebAccess with English
- WA-UNO2178-E50HE   Automation Computer, 5,000 tags WebAccess with English

Dashboard Viewer
- Hardware   PC: Intel Core I3 or higher, 4GB RAM or higher
iPhone: iPhone 5 or later version
Android: 1.5GHz Quad Core or higher, 2GB RAM or higher
Windows Phone: 1.5GHz Quad Core or higher; 2GB RAM or higher
- Browser   Internet Explorer: Version 9 or later version
Chrome: Version 37 or later version
Firefox: Version 31 or later version
Safari: Version 7 or later version

WA+SECS

WebAccess SECS Server with Intel® Core™ i7 Automation Computer

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
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17 RS-485 I/O Modules
18 Data Acquisition Boards

NEW

Features

- Bundled with Advantech WebAccess, browser-based HMI/SCADA software
- SECS protocol embedded - SEMI standard compliant interface for data collection
- An integrated platform from PLC, PAC and Remote I/O devices
- Provide SECS functions for polling, trace and event notification by configuration
- Second SECS port is optional
- Built-in Windows® 7 Embedded
- 2 x RS-232 and 2 x RS-232/422/485 ports with automatic flow control
- 4 x 10/100/1000 Base-T Ethernet
- DVI-I, DP, HDMI support 2 independent displays
- Audio with Mic in, Line in, Line out
- Supports 2 x PCI-104 plug-in cards with daughterboard expansion

Introduction

Advantech WA+SECS is a plug and play compact SCADA server, and accommodate variety PLC in the market with SECS connection capability. It is built on Advantech's solid UNO platform with pre-installed WebAccess SCADA software, SECS Protocol, pre-configured Windows 7 Embedded and IIS environment. Just plug in the power and network cable, the web enabled browser-based server is ready for users to start configuring their SCADA system from their computer. This compact server enables users to view real-time graphics, alarms, trends and logs, and control the field devices via a web browser remotely on their desktop or notebook computer. This compact SCADA server is powered by an Intel Core i7-2655LE 2.2GHz processor. It equipped with 4 x 10/100/1000Base-T RJ-45 LAN ports, 6 USB 2.0 ports and 2 mini PCIe slots for WLAN cards and 1 SIM card slot. The fanless design, spindle-free storage, wide operating temperature environment and IP40 ingress protection make this SCADA server a durable and reliable platform.

WebAccess Professional Version

I/O Tag Number	100
Internal Tag Number	100
Web Clients	1024
Alarm Logs	5000
Action Logs	5000
SECS Protocol	Enable SEMI standard compliant interface
Graphics	Unlimited number of graphic pages, global tag source
Web-enabled Integration	Video
	Google Maps and GPS location tracking
Number of data logging	2 x number of I/O tags license
Others	SCADA redundancy
	TclScript / VBScript / Jscript Language
	Data transfer and reporting
	ODBC and SQL Query
	Device redundancy

## Specifications

General

Operating System	Windows 7 Embedded
Certification	CE, UL, CCC, FCC, C-Tick, BSMI
Dimensions (W x D x H)	55 x 152 x 69 mm (10" x 6.0" x 2.7")
Enclosure	Aluminum
Mounting	DIN-rail, Wallmount, VESA
Power Consumption	UNO-2174G/GL: 30 W/ 20 W (Typical)
Power Requirements	9 ~ 36 V$_{DC}$ (e.g +24V @ 3A) (Min. 72W), AT/ATX
	Weight 3.0 kg
System Design	Fanless with no internal cabling (except COM3/COM4)

System Hardware

CPU	Intel Core i7-2655LE 2.2GHz
Memory	4 GB/8 GB DDR3 SDRAM built-in
Indicators	LEDs for power, battery, LAN (Active, Status) and serial (Tx, Rx)
Keyboard/Mouse	1 x PS/2
Storage	2.5" SATA , 320G 5400RPM
Display	1 x DVI-I, 1 x HDMI, 1 x DP (2 x independent displays)
Mini PCIe Expansion	2 x mini PCIe slots with 1 x SIM card

I/O Interface

Serial Ports	2 x RS-232, 2 x RS-232/422/485 with DB9 connectors; automatic RS-485 data flow control
Serial Port Speed	RS-232: 50 ~ 115.2 kbps
	RS-422/485: 50 ~ 115.2 kbps (Max.)
LAN	4 x 10/100/1000 Base-T RJ-45 ports
USB Ports	6 x USB

Ordering Information

WA+SECS-T100E	Automation Computer, 100 tags WebAccess with Traditional Chinese
WA+SECS-C100E	Automation Computer, 100 tags WebAccess with Simplified Chinese

WebAccess SECS Gateway

Solution Ready Package (SRP) is a ready-for-use solution which can concentrate the benefits and advantages from WebAccess+ IoT Solution Alliance partner, who provides vertical application and HMI design based on Advantech WebAccess and devices, and also Advantech, who always devotes to providing hardware and WebAccess software for building up a SRP.

WebAccess SECS Gateway is a SRP solution based on WebAccess and Advantech devices to accommodate variety PLC in the market with Semiconductor Equipment Communication Standard protocol for data connection capability in Semiconductor application. WebAccess SECS Gateway is composed of SECS Interface, that help application developer to build and test programs which are necessary to communicate with SECS protocol enabled device or application efficiently. Collecting effective date and the use of monitoring and diagnostic solutions can not only prevent equipment failure for enhancing the capacity and stability, but also greatly save maintenance costs by data analysis.

WebAccess SCES Gateway Architecture

Features Details
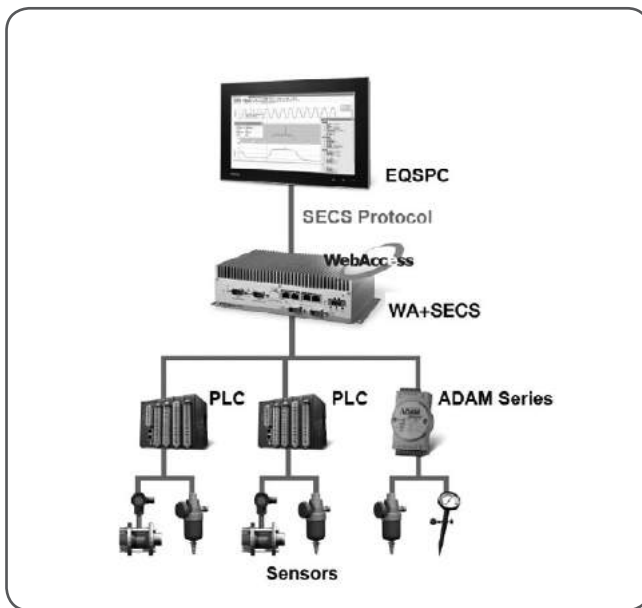
Supports SEMI E5-0702 (SECS II) and SEMI E37-0702 (HSMS) compliant

SECS is the semiconductor's equipment interface protocol for equipment-to-host data communications. In an automated fab, the interface can start and stop equipment processing, collect measurement data, change variables and select recipes for products. WA+SECS support SECS/GEM standard interface to do all this in a defined way.

An integrated platform from PLC, PAC and Remote I/O devices

WA+SECS is an integrated platform with WebAccess and SECS interface, and accommodate variety PLC in the market with Semiconductor Equipment Communication Standard protocol for data connection capability in Semiconductor application

Plug & Play from sensors to SECS

Plug and play compact Semiconductor application server. Just plug in the power and network cable, the web enabled browser-based server is ready for users to start configuring their Application system from their computer.

WA-TPC1771

NEW

Features

- Bundled with Advantech WebAccess, browser-based HMI/SCADA software
- Intel® Atom™ D525 1.8 GHz processor
- 17" SXGA TFT LED LCD
- Compact design with die-cast Al front bezel
- Fanless cooling system
- IP65 compliant front panel
- PCIe and Mini PCIe expansion support
- 8 x DI/O and backup SRAM support
- Supports DDR3 SDRAM
- Serial port isolation protection
- Automatic data flow control RS-485
- Gigabit Ethernet supported
- Built-in Windows® 7 embedded
- Supports external antenna for wireless communication

Introduction

Advantechs WA-TPC1771 is a plug and play HMI/SCADA server. It is built on Advantech solid Touch Panel Computer platform with pre-installed WebAccess SCADA software and pre-configured Windows 7 embedded and IIS environment. Just plug-in the power and network cable, the web enabled browser-based server is ready for user to start configuring his SCADA system from his computer. This HMI/SCADA server enables users to view real-time graphics, alarms, trending and logs, and control the field devices locally with the high quality 17" TFT LCD screen or via a web browser remotely on its desktop or notebook computer. The 1.8 GHz Intel® Atom™ D525 processor is the powerhouse of the server. It provides excellent computing power and balanced with it low power consumption. The fanless design and spindle-free storage make this SCADA server a durable and reliable platform.

WebAccess Professional version

I/O Tag Number	600/5000
Internal Tag Number	600/5000
Web Client	1024
Alarm Logs	5000
Action Logs	5000
Graphics	Unlimited Number of Graphic Pages, Global Tag Source
Number of Data Logging	2 x number of I/O tags license
Web-Enabled Integration	Video and Google Maps
Others	SCADA Redundancy TclScript / VBScript / Jscript Language Data Transfer and Reporting ODBC and SQL Query Device Redundancy

Specifications

General

Operating System	Windows 7 Embedded
BIOS	AMI 8Mbit
Certification	BSMI, CCC, CE, FCC Class A, UL
Cooling System	Fanless Design
Enclosure	Front bezel: Die-cast Aluminum alloy Back housing: PC/ABS Resin
Mounting	Desktop, Wall or Panel Mount
Power Consumption	24 W (typical)
Power Input	10~29 V_{DC}
Watchdog Timer	1 ~ 255 sec (system)

System Hardware

CPU	Intel® Atom™ D525 1.8 GHz with 1MB cache
Chipset	ICH8M
Memory	4GB SO-DIMM DDR3 SDRAM
LAN	10/100/1000Base-T x 2
Expansion Slots	Half-size PCI-E or full-size Mini PCI-E
Storage	2.5" SATA , 1TB 5400RPM
I/O	RS-232 x 2 (COM1, 2) with isolation RS-422/485 x 1 (COM3) with isolation and auto data flow control USB 2.0 x 2 (Host) PS/2 x 1
DI/DO & Backup SRAM	8 x DI/DO with isolation and backup 1MB SRAM

LCD Display

Display Type	SXGA TFT LED LCD
Display Size	17"
Max. Resolution	1280 x 1024

Ordering Information

- **WA-TPC1771-T600E** 17" Touch Panel Computer, 600 tags WebAccess with Traditional Chinese
- **WA-TPC1771-T50HE** 17" Touch Panel Computer, 5,000 tags WebAccess with Traditional Chinese
- **WA-TPC1771-C600E** 17" Touch Panel Computer, 600 tags WebAccess with Simplified Chinese
- **WA-TPC1771-C50HE** 17" Touch Panel Computer, 5,000 tags WebAccess with Simplified Chinese
- **WA-TPC1771-E600E** 17" Touch Panel Computer, 600 tags WebAccess with English
- **WA-TPC1771-E50HE** 17" Touch Panel Computer, 5,000 tags WebAccess with English

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WA-UNO2178

Intel® Atom™ D510 Compact SCADA Server with 600/5,000 Tags WebAccess

NEW

Features

- Bundled with Advantech WebAccess, browser-baesd HMI/SCADA software
- Onboard Intel Atom D510 processors
- 2 x 10/100/1000 Base-T RJ-45 ports, 6 x USB 2.0 ports
- Built-in Windows® 7 Embedded
- Onboard system status LED indicators
- Front-accessible CF slot
- Supports Boot from LAN function
- 2 x Mini PCIe slots with 1 x SIM slot support
- Fanless design with no internal cabling
- Isolation between chassis and power ground
- Supports wide operating temperatures from - 10 ~ 70°C
- IP40 ingress protection
- Supports plug-in cards (1 x PCI-104 and 1 x PC/104+) with additional daughterboard expansion
- Supports 8 x COM ports
- Supports arbitrary baud rates

Introduction

Advantechs WA-UNO2178 is a plug and play compact SCADA server. It is built on Advantech solid UNO platform with pre-installed WebAccess SCADA software and pre-configured Windows 7 Embedded and IIS environment. Just plug in the power and network cable, the web enabled browser-based server is ready for user to start configuring his SCADA system from his computer. This compact server enables users to view real-time graphics, alarms, trending and logs, and control the field devices via a web browser remotely on his desktop or notebook computer. This compact SCADA server is powered by 1.66 GHz Intel® Atom™ D510 processor. It provides excellent computing power and balanced with Energy Star certified low power consumption. It's also equipped with dual Gigabit LAN ports, 6 USB 2.0 ports and 2 mini PCIe slots for WLAN cards and 1 SIM card slot. The fanless design, spindle-free storage, wide operating temperature environment and IP40 ingress protection make this SCADA server a durable and reliable platform.

WebAccess Professional Version

I/O Tag Number	600/5000
Internal Tag Number	600/5000
Web Client	1024
Alarm Logs	5000
Action Logs	5000
Graphics	Unlimited Number of Graphic Pages, Global Tag Source
Number of data logging	2 x number of I/O tags license
Integration	
Others	SCADA Redundancy TclScript / VBScript / Jscript Language Data Transfer and Reporting ODBC and SQL Query Device Redundancy

Specifications

General

Operating System	Windows 7 Embedded
Certification	Energy Star, CE, FCC Class A, UL, CCC, C-Tick Class A, BSMI
Dimensions (W x D x H)	255 x 152 x 59 mm (10" x 6.0" x 2.3")
Enclosure	Aluminum +SECC
Mounting	DIN-rail, Wallmount, VESA
Industrial Grounding	Isolation between chassis and power ground
Power Consumption	16 W (Typical)
Power Requirements	9 ~ 36 V_{DC} (e.g +24 V @ 1.5 A) (Min. 36 W), ATX
System Design	Fanless design with no internal cabling

System Hardware

CPU	Intel Atom D510 Dual Core 1.66 GHz
Memory	2 GB DDR2 SDRAM built-in
Indicators	LEDs for Power, CF, LAN (Active, Status), Serial (Tx, Rx)
Keyboard/Mouse	1 x PS/2
Storage	2.5" SATA , 1TB 5400RPM
Display	DB15 VGA connector up to 2048 x 1536
Watchdog Timer	1~255 sec (System)

I/O Interface

|	
Serial Ports	2 x RS-232/485 (COM1-2), 2 x RS-232/422/485 w/ 128kB FIFO (COM A-B), 4 x RS-232/485 from DB25 print port (COM3-6)
LAN	2 x 10/100/1000Base-T RJ-45 ports (Built-in boot ROM in flash BIOS)
USB Ports	6 x USB 2.0

Ordering Information

WA-UNO2178-T600E	Automation Computer, 600 tags WebAccess with Traditional Chinese
WA-UNO2178-T50HE	Automation Computer, 5,000 tags WebAccess with Traditional Chinese
WA-UNO2178-C600E	Automation Computer, 600 tags WebAccess with Simplified Chinese
WA-UNO2178-C50HE	Automation Computer, 5,000 tags WebAccess with Simplified Chinese
WA-UNO2178-E600E	Automation Computer, 600 tags WebAccess with English
WA-UNO2178-E50HE	Automation Computer, 5,000 tags WebAccess with English

ADVANTECH | **WebAccess+ Solutions**

Motion Control

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To view all of Advantech's Motion Control Solutions, please visit www.advantech.com/products.
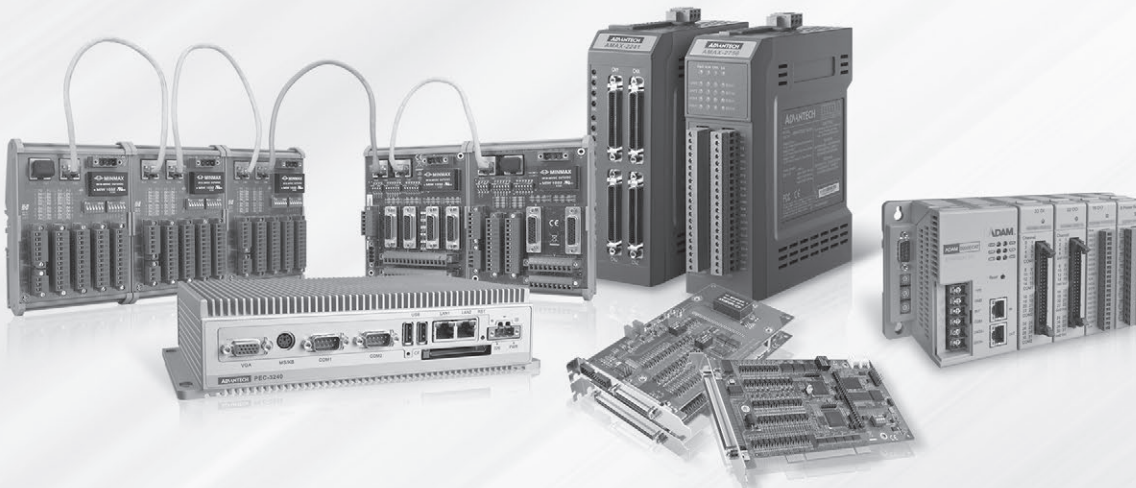
Motion Control Overview

Application-Oriented Motion Control Platforms to Fulfill a Variety of Control Requirements

Looking back over decades of PC-based motion control, ASIC-based & distributed control topologies through proprietary bus are quite common. However, the new emerging market for machine control comes with multiple-axis dependency, synchronization, and improved response times. These factors drive the paradigm shift from ASIC-based to SoftMotion-based and have more flexibility in design through suitable trajectories aligned with machines to meet the faster throughput, high performance and precision, and real-time Ethernet to give system integrators and machine builders help find the suitable solutions and reduce costs. Combining SoftMotion-based & Ethernet, this paradigm shift helps improve flexible trajectories, wiring-saving, and faster response times compared with past centralized topologies and reduce system implementation complexity.

Moreover, each quadrant of technology in the following diagram could be integrated into PC-based barebones to provide application-ready motion control platforms with off-the-shelf utilities and bountiful libraries for vertical market applications. For example, Advantech's PEC-3240 is a dispensing-oriented controller for the electronic industries.
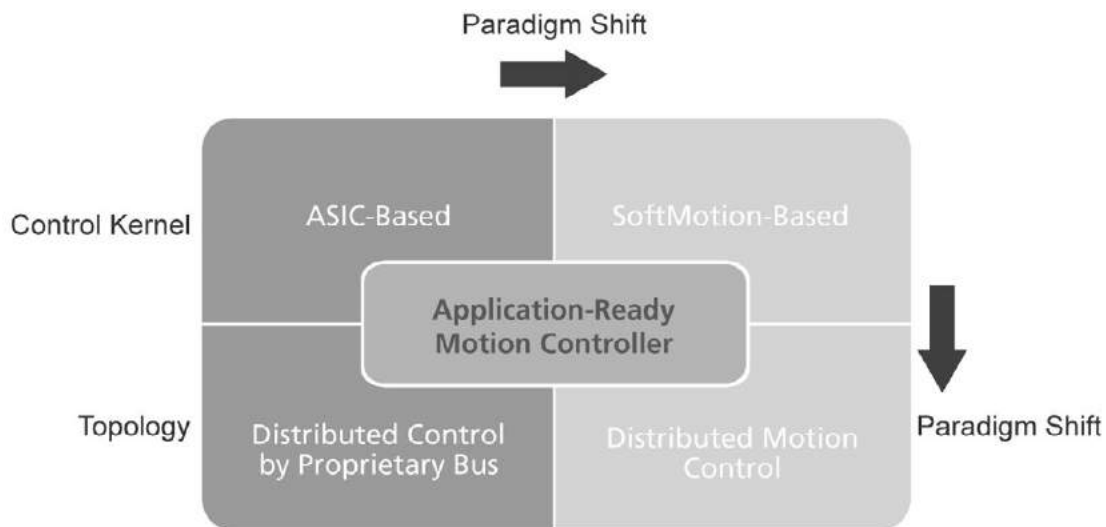
Application-ready Motion Control Platform Related Technology Chart

ASIC-based Motion Control

Since the 1990's, Advantech has been developing several motion control boards with ASIC-based technology. Based on the ASIC kernel, the boards are digital signal type and connected with servo drives and motors to build a system. The pulse train speed and resolution will determine the control precision and response. Advantech's motion control team implemented application-ready libraries to fulfill the different machines in industry. The ASIC-based series boards are for GMC (General Motion Control) purposes to provide faster time-to-market with robust and cost-effective market adopters.

Distributed Motion Control

As industrial Ethernet technology moves forward to increase response times and accurate time-deterministic precision, using real-time Ethernet is the future trend and benefits many machine builders with open standards. Distributed motion control can significantly reduce wiring efforts and cost in significant ways. In the past, fieldbus control was proprietary and had lower response times. Machine builders only have limited options in the market. However, open standard real-time Ethernet is the next generation. This technology will be also applied to a variety of Advantech platforms to offer application-ready motion control platforms with real-time Ethernet technology.

SoftMotion-based Motion Control

In order to meet increasingly demands for complexity of trajectories, such as Gantry control & synchronization, and voltage signals for speed/torque control, Advantech's motion control team developed SoftMotion-based motion controllers and provides application-oriented & customization services. The SoftMotion technology is a control kernel executed by software which can run in DSP-based, RISC-based and X86-based CPUs with real-time extension. This technology gives flexibility in system implementation and the possibility to integrate third party real-time I/O control boards.

Features and Benefits of Common Motion APIs

Most machine builders and system integrators face library integration headaches from different vendors and different boards. Moreover, re-programming applications are necessary when the motion control boards are changed or upgraded. Advantech's motion control team delivered the common motion API concept and developed the common motion library to reduce time-consuming on this task and give faster time-to-market if any upgrading request exists. The common motion API concept is applied to all of Advantech's motion controllers.

Application-Ready Motion Control Platform

In any vertical specific application, machine builders and system integrators are looking for application-ready control platforms. The main reasons for this consideration are system integrity and system stability. Compared with plug-in motion controllers plus industrial PCs, the application-ready motion control platform provides a well-designed system with validation to guarantee stability. Furthermore, this concept can bring higher add-on value to system integrators and machine builders.

Complete Application-Ready Platforms for General Motion Control Tasks

Advantech offers application-ready platforms that range from industrial workstations and industrial-grade CPUs, to motion control, encoder input and isolated I/O cards for general motion control (GMC) applications such as SMT/PCB, semiconductor and LCD manufacturing machinery. Advantech provides a full-range of industrial computing platforms that include high-brightness LCD displays, keypads, up to 20-slot backplanes and redundant power supplies for machine builders.

Nowadays general motion applications are divided into two functions - centralized and distributed motion control solutions. For centralized motion control, ASIC-based motion controllers are entry level that allow customers to easily build their own motion machines. As complicated and high performance applications are increasing, Advantech has recently developed SoftMotion control modules which are DSP-based to help customers do more tasks that ASIC-based motion modules can't do, such as gantry control, trajectory planning, electrical-CAM and so on. Furthermore, in order to enhance performance and stability, customized firmware in SoftMotion will be possible and can add secure protection for authorization. Advantech provides 2,4,6 and 8 axis motion modules to fulfill the different motion applications.
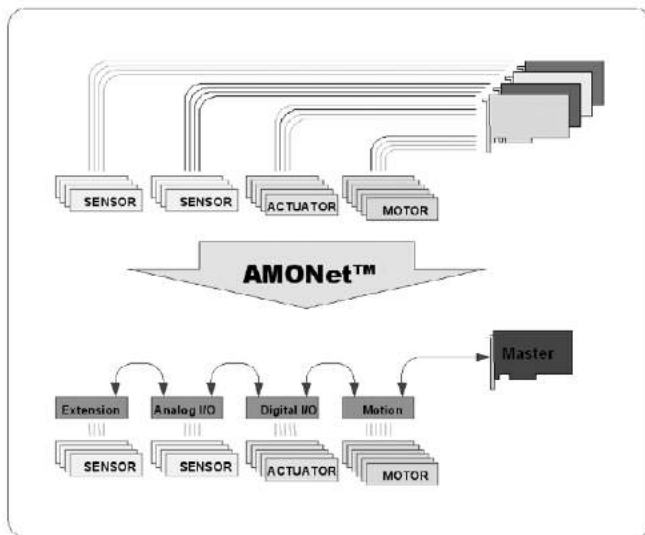
Wire-Saving/Long-Distance

AMONet - Advantech Distributed Motion Control Solutions

Motion control is growing in complexity as the number of axis in newly developed machines with motion control increases each year. Distance is also becoming an issue, as motors are located further and further away from the host computer. AMONet (Advantech Motion Network) was engineered to tackle the problems of increasing spending on wiring and maintenance of these complex motion control systems, and it also gets rid of distance limitations.

The first series of distributed motion control products from Advantech are called the AMONet RS-485 Series. AMONet RS-485 products are categorized as Master cards or Slave modules. While the Master card is kept in the host PC, the slave modules can be distributed so that they are next to motor drivers on the factory floor. The communication speed between the AMONet RS-485 slave modules can be up to 20 Mbps. This makes it possible to scan 2048 I/O points within 1.04 ms (or 1024 I/O points in 0.56 ms). Furthermore, an AMONet RS-485 master will update the I/O status automatically, and map data into local memory. Software running on the host PC can then read the status by simply reading the onboard memory, so no polling of slave modules is necessary.

Each port of a master card can control up to 2048 I/O connections or 256 motion axes, so future extensions are easily implemented. The distance between a master card and its slave modules can be up to 100 meters, and this distance is covered with a cost-effective Cat 5 network cable. In addition to saving wiring costs, debugging and maintenance are also simplified.

Another advantage of AMONet RS-485 is its compatibility with motor drivers from different vendors. Advantech provides specially designed wiring boards for popular motion drivers from vendors such as Panasonic, Mitsubishi, Yaskawa and Delta . This makes configuration easier, as pin-to-pin cables can be used. Having a selection of motor vendors can also be an advantage when sourcing of a certain motor is difficult.

Motion control and I/O functions with AMONet RS-485 use the same library. This unique feature saves time, as programmers do not need to study both a motion library and an I/O library. You can also connect to a manual pulse generator directly to adjust and calibrate the system without having to write programs first.

AMONet makes machine building with motion control easier. The savings made on wiring and programming effort, as well as the compatibility with a wide range of popular motors have already led to many requests for AMONet products.
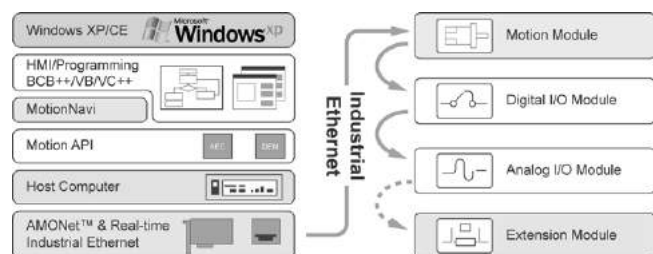
System Architecture

Motion Control Overview

A Broad Array of Products for Motion Control

Advantech's full product offering accommodate all your motion control needs. You can choose centralized, pulse type, position control motion cards with different axis numbers equipped with different functions. And you can decide the cards based on different machine configurations, features and costs. Advantech provides a common motion API that is the same for all motion control cards and our SDK also includes DOTNET components, G-codes and complete sample codes for major development environment. Advantech also provides distributed motion and IO control solution. For AMONet distributed solution, we provide master card, 2-axis/4-axis motion modules and multiple DIO modules. AMONet solution can help reduce overall wiring costs with the simple wiring design and offer the flexibility to easily adding new modules to fulfill the requirements of changing axis/IO configuration or long distance installation between modules. Advantech also provide the motion and IO control solution of EtherCAT. The master card can directly connect to EtherCAT Servo drivers and Advantech ADAM-5000/ECAT IO system with multiple DIO and AIO slave modules. The solution can perform multi-axis synchronous move and high speed IO capability coming with EtherCAT protocol.

The Differences Between Centralized & Distributed Motion Control

Machine control system architectures generally fall into two categories - centralized or distributed. In a centralized system, all control loops including logic, trajectory generation, and PID control, are executed on a single processor. In a distributed system, the trajectory generation and logic control executes in the central processor, but the PID control loop is executed in the intelligent slave module. A distributed approach gives moreprocessing power, while it reduces overall wiring cost and system complexity.

The Distributed Motion Control Products are categorized in two groups - Master Cards and Slave Modules. Communication between master and slave is based on AMONet or EtherCAT, which saves wires, transmits over long distances at high speeds, and has time-deterministic features.

The communication interface between master and host PC is based on memory mapping. Various functions can be chosen on the slave modules, and the industrial DIN-rail mountable design makes it easy to distribute them in the field. The master card collects information from slave modules and publishes the data to its host PC, and vice versa.

Centralized Motion Control

Motion Control Cards

Sensors and Actuators

Distributed Motion Control

Master Card

Slave Module

Sensors and Actuators
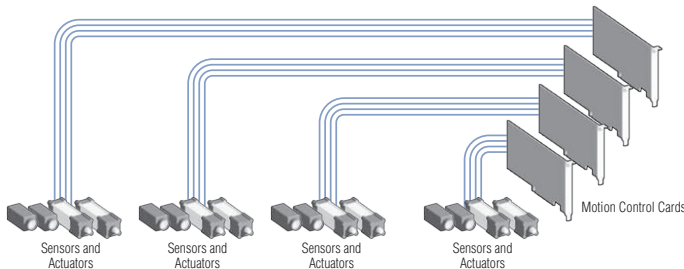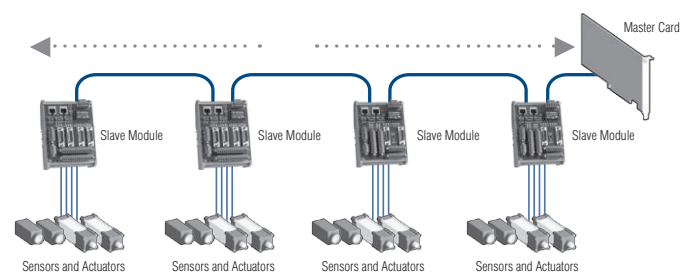
SoftMotion-based Motion Control

Advantech develops DSP-based SoftMotion control cards which enable the simplified utilization of complex motion manipulation involving JOG, PTP, linear and circular interpolation, multiple axes synchronized motion, and etc. For highly flexible programming features, it has the possibility to offer motion kernel customization. For high performance FPGA, high execution rate DSP, and Dual-Port RAM (DPM) technology, SoftMotion control cards can support faster encoding speeds, higher speed position comparison, and trigger pulse outputs over cards which use ASIC motion IC. SoftMotion controllers can provide programmable acceleration and deceleration to eliminate jerk and smooth velocity profile. For each axis, individual unlimited point tables can realize seamless continuous movements. These tables are also able to combine linear and arc segments. Based on the Common motion API—DSP & FPGA architectures, Advantech provides customers much easier programming environment and robust motion control.
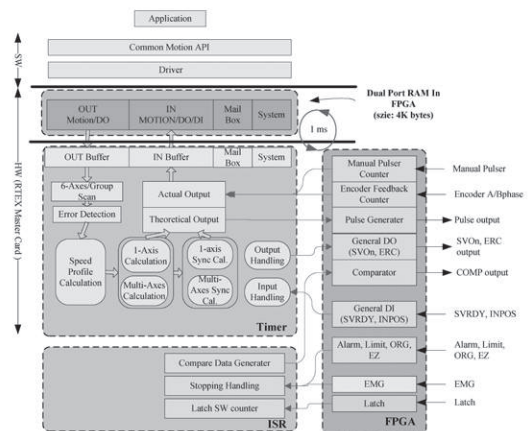
Application-Ready Motion Control Platforms - MIC Series

The new MIC-3100 series of modular industrial computers are the best choice as automation platforms for all types of critical applications. They are built upon proven technologies to offer most rugged flexibility, but at a reasonable cost. In brief, they provide three times the value of using traditional PCs, whilst only costing a little more, which means you get to enjoy better performance with greater affordability and value.

There are three features below comparing to troditional Box PC:

a. Reliability : Hard Metric Connector provides unmatchable robustness for avolding vibration problem. The anti-vibration spec is 2G for operating condition. 3G is for machine shipping.

b. Avalibility: Front access & hot swap design minimize maintenance effort, user can reduce the maintain cost.

c. Flexibility: Patened design can work with standard half size PCI cards. User can integrate solution with reasonable price easy.

MIC-3100 series are front accessible and the highly reliable nature of CompactPCI makes it the perfect choice for industrial applications.

SoftMotion Introduction

Advantech's SoftMotion Introduction

SoftMotion is Advantech's important core technology in the equipment automation field. Compared to ASIC motion control solutions, Advantech's Machine Automation Team independently developed its own SoftMotion control technology and uses the FPGA (Field Programmable Gate Array) and DSP (Digital Signal Processing) as the core-computing hardware platform. Because of SoftMotion, which is developed into the software architecture, excludes the inherent limitations of ASIC specifications Advantech is able to offer the expertise of professional motion control for our customers and provides custom firmware to optimize customer's devices control as well as to minimize their needs for programming. Through SoftMotion technology enhancements, Advantech offers critical technologies in EMA (Electronic Machine Automation) and TMA (Traditional Machine Automation) fields. Meanwhile, based on the three motion control architectures (centralized, distributed and embedded), Advantech's comprehensive product offering helps our customers to continuously progress their technologies, so as to create a win-win opportunity.

Supporting Advantech's PCI-1245/1245E/1245L/1265/1285/1285E series, SoftMotion's features are described below:

JOG Move

Manually control the axis to directly move within a fixed (predefined) amount of position or continuously in the +/- direction along all axes via external signals; with this feature, users can manually control the movement while reducing CPU loading without consuming system resource.
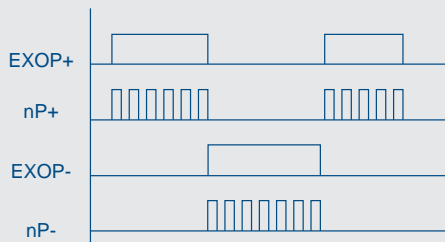
Handwheel Move

Use a handwheel to control a motor to rotate positively or negatively; also, users can define parameters for or use external handwheels to control axial movement.
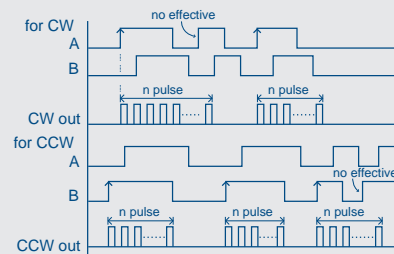

Trapezoidal & S-Curve Profile

Users can issue commands to configure movement profiles (initial speed, acceleration, deceleration, maximum speed and acceleration onset rate (or called jerk which is for S---speed-curve movement)) and control a motor to move based on predefined speed curves such as the trapezoidal curve or S-curve (second degree curve).
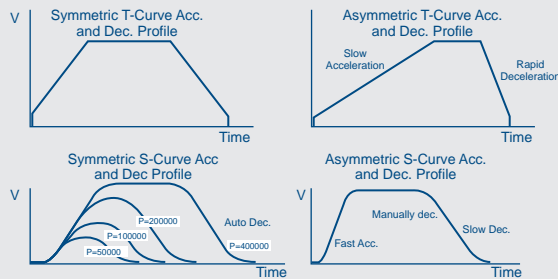
Programmable Acceleration and Deceleration

Programmable to define the rate of acceleration and deceleration and configure acceleration curve profile (the initial speed, maximum speed, acceleration, deceleration, Jerk) that best meets user needs. Acceleration and deceleration rates can be set independently to ensure the movement better & smooth!
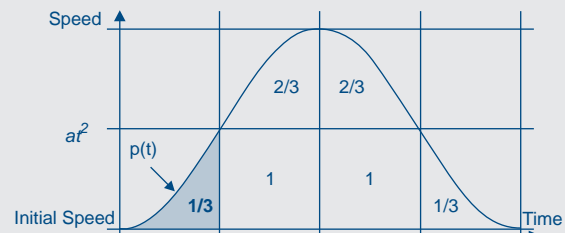
Homing

SoftMotion supports more than 10 homing modes to fit into the mechanical design.

MODE1_Abs: Limited to using ORG only, movement (direction) → ORG trigger → stop
  Example: Positive direction; ORG logic: trigger on a high voltage level

MODE2_Lmt: Limited to using EL only, movement (direction) → EL trigger → stop
  Example: Positive direction; EL logic: trigger on high voltage level

MODE3_Ref: Limited to using EZ only, movement (direction) → EZ trigger → stop
  Example: Positive direction; EZ logic: trigger on high voltage level
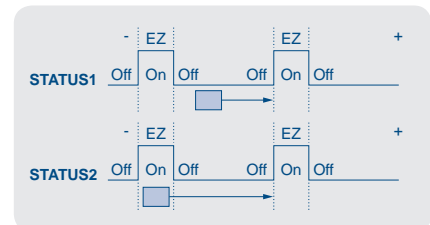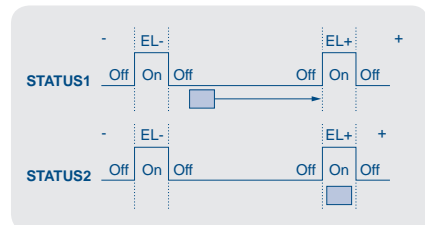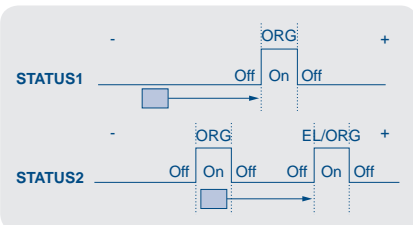
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SoftMotion Introduction

MODE4_Abs_Ref: ORG + EZ, movement (direction) → ORG trigger → stop → movement (direction) → EZ trigger → stop

Example: Positive direction; ORG logic: trigger on high voltage level; EZ logic: trigger on high voltage level

MODE5_Abs_NegRef: ORG + negative EZ, movement (direction) → ORG trigger → stop → movement (negative direction) → EZ trigger → stop

Example: Positive direction; ORG logic: trigger on high voltage level; EZ logic: trigger on high voltage level

MODE6_Lmt_Ref: EL + negative EZ, movement (direction) → EL trigger → stop → movement (negative direction) → EZ trigger → stop

Example: Positive direction; EL logic: trigger on high voltage level; EZ logic: trigger on high voltage level

MODE7_AbsSearch: limited to searching ORG only, movement (direction) → ORG → stop

Example: Positive direction; EL logic: trigger on high voltage level
EL logic: trigger on high voltage level

MODE8_LmtSearch: Limited to searching EL only, movement (direction) → EZ search → stop

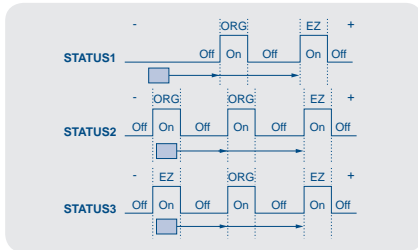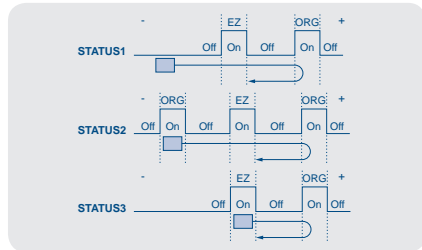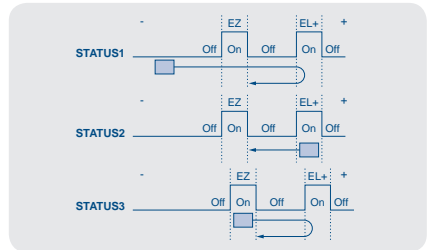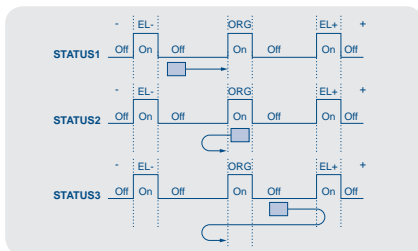**Example:** Positive direction; EL logic: trigger on high voltage level

MODE9_AbsSearch_Ref: Search ORG+EZ only, movement (direction) → ORG search → stop movement (direction) → EZ trigger → stop

Example: Positive direction; ORG logic: trigger on high voltage level; EL logic: trigger on high voltage level

MODE10_AbsSearch_NegRef: Search ORG+ negative EZ, movement (direction) → ORG search → stop → movement (direction) → EZ trigger → stop

Example: Positive direction; ORG logic: trigger on high voltage level; EL logic: trigger on high voltage level; EZ logic: trigger on high voltage level

MODE11_LmtSearch_Ref: Search EL+ negative EZ, movement (direction) → EL search → stop → movement (negative direction) → EZ trigger → stop

Example: Positive direction; EL logic: trigger on high voltage level; EZ logic: trigger on high voltage level
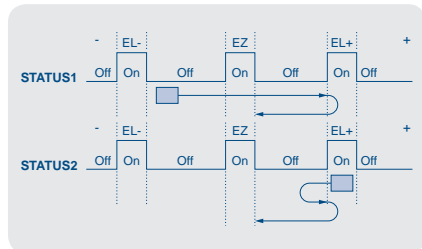
MODE12_AbsSearchRefind: Search ORG + Refind ORG, movement (direction) → ORG Search → stop → movement (negative direction) → Leave ORG(FL) → stop → movement (negative direction) → Refind ORG(FL) → stop

Example: Positive direction; ORG logic: trigger on high voltage level; limit logic: trigger on high voltage level
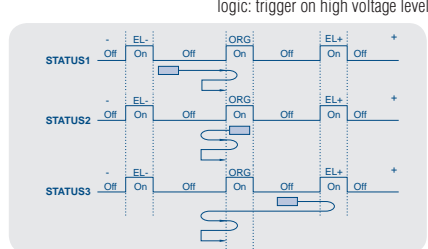
MODE13_LmtSearchRefind:
Search EL + Refind EL, movement (direction) → EL Search → stop → movement (negative direction) → Leave EL(FL) → stop → movement (negative direction) → Refind EL(FL) → stop
Example:
Positive direction; limit logic: trigger on high voltage level
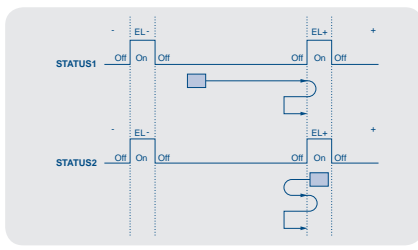
MODE14_AbsSearchRefind_Ref:
Search ORG + Refind ORG + EZ, movement (direction) → ORG Search → stop → movement (negative direction) → Leave ORG(FL) → stop → movement (direction) → EZ trigger → stop
Example:
Positive direction; limit logic: trigger on high voltage level; ORG logic: trigger on high voltage level

MODE15_AbsSearchRefind_NegRef:
Search ORG + Refind ORG + NegEZ, movement (direction) → ORG Search → stop → movement (negative direction) → Leave ORG(FL) → stop → movement (negative direction) → Refind ORG(FL) → stop → movement (Negative direction) → EZ trigger → stop
Example:
Positive direction; limit logic: trigger on high voltage level; ORG logic: trigger on high voltage level
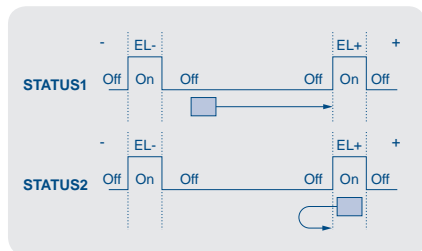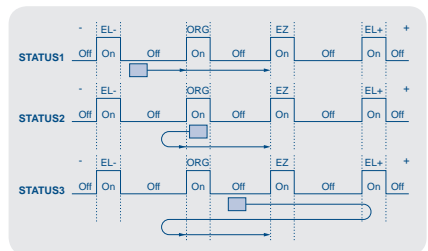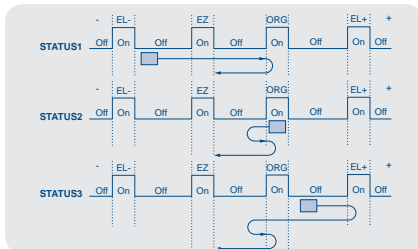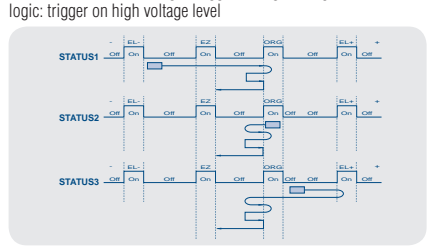
MODE16_LmtSearchRefind_Ref:
Search EL + Refind EL, movement (direction) → EL Search → stop → movement (negative direction) → Leave EL(FL) → stop → movement (negative direction) → Refind EL(FL) → stop → movement (negative direction) → EZ trigger → stop
Example: Positive direction; limit logic: trigger on high voltage level

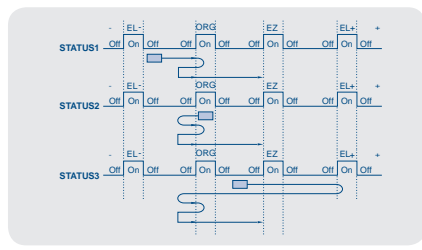## 3-axis Arc Interpolation

Center Point / End Point / Direction

Arc angle =180° or 360° is not allowed

Center Point / Normal line / Angle / Direction

Normal line positive direction is consistent with axis
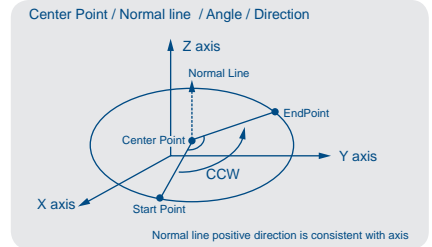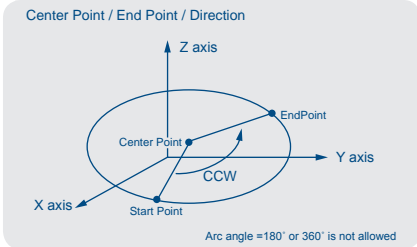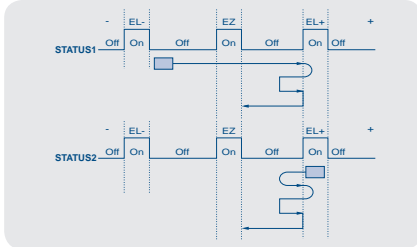
Helical / Spiral Interpolation

Helical / spiral movement by interpolation defined by

(1) center position

(2) terminal point on the circular route or points along the circular route

(3) terminal point on the circular route and Z axis movement.

To perform interpolation up to 2+1 axes for helical / spiral movement.

3-axis spiral interpolation (Center point specification/
CW direction/Z-axis movement)

The center position can be specified

The interpolation speed is the tangential velocity of arc

3-axis spiral interpolation (Center point specification/
CCW direction/Z-axis movement)

The center position can be specified

The interpolation speed is the tangential velocity of arc

3-axis spiral interpolation (Pass point specification/
Z-axis movement)

The pass point on an arc can be specified

The interpolation speed is the tangential velocity of arc

Multi-axis (Group) Motion

- Group settings: up to 3 group settings
- Linear interpolation: up to 8 axes
- Speed override is available

3-axis Linear Interpolation

3-axis linear interpolation
(Composite speed specification)

The composite speed can be specified

3-axis linear interpolation
(Composite speed specification)

The axis speed for the axis to be a long axis can be specified

2-axis Linear Interpolation

2-axis linear interpolation
(Composite speed specification)

The composite speed can be specified

2-axis linear interpolation
(Long axis speed specification)

The axis speed for the axis to be a long axis can be specified.

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SoftMotion Introduction

2-axis Circular Interpolation

2-axis circular interpolation
(Center point specification/CW direction)

Y axis

The center position can be specified

X axis

2-axis circular interpolation
(Center point specification/CCW direction)

Y axis   The center position can be specified

X axis
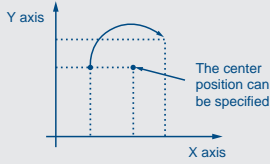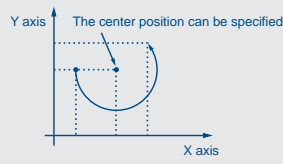
2-axis circular interpolation
(Pass point point specification)

Y axis   The pass point on a arc can be specified

X axis
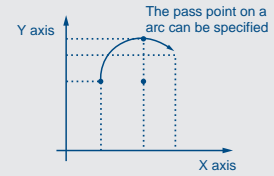
Backlash Compensation

In order to enhance ball screw repeatability precision, special algorithms and commands can be adopted to eliminate these errors and offset their inherited weakness in mechanism design.

The direction of last calibration move was positive.   (+)

Drive Gear

Driven Gear

Negative backlash distarice

Positive backlash distarice is zero

(-)   The drection of last calibration move was negative.

Drive Gear

Driven Gear

Negative backlash distarice is zero

Positive backlash distarice
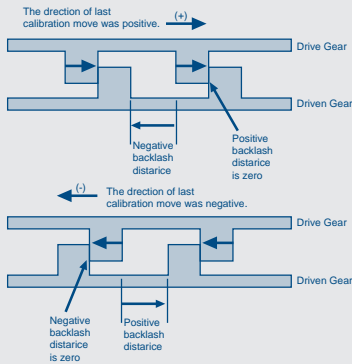
Superimposed Move

Change the current state of motion by superimposing new commands onto existing movement. E.g. the expected position and speed are 5,000 and 300. The state of motion is changed by superimposing position 1,000 and speed 100.

Point to point movement 5000
Superimposed movement 1000

Motion

Velocity

400
300
200
100
0

t

Distance

6000
5000

0

t
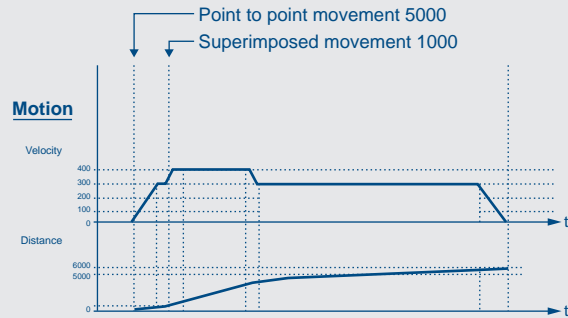
Tangential Following

The knife control of cutting machine is typical application. For Z axis movement, a motor follows the X-Y movement and curve. As shown below, the tangential direction of the circular movement for the Z axis on this X-Y dimension will be adjusted instantly to ensure that the radius between its movement and the circular trace stays at 90 degrees.

Y

X
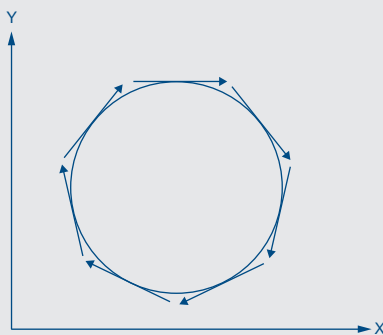
Position Window Output

The digital output voltage level within a certain position window can be controlled by using commands.

active

nactive

Position

Lower switching point   Upper switching point

active

nactive

Position

Lower switching point   Upper switching point
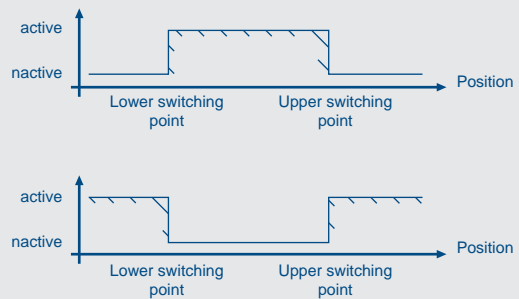
Position / Velocity Override

Under certain conditions, users can use commands to set up and change the position of a terminal point and movement speed to fulfill certain purposes. The terminal points and movement speed can still be changed on the fly.

Position / Velocity Override

Velocity — Change Velocity on the Fly

Position — Change Position on the Fly
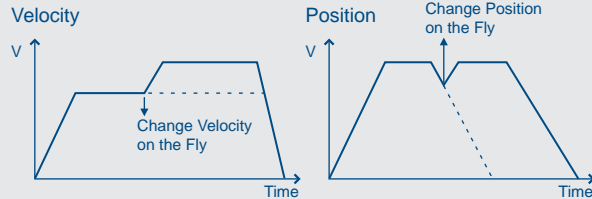
Simultaneously Start/Stop

Simultaneously start/stop can be achieved by issuing commands to configure settings to trigger multiple axes and multiple cards from external signal sources. Software control via commands is also supported.
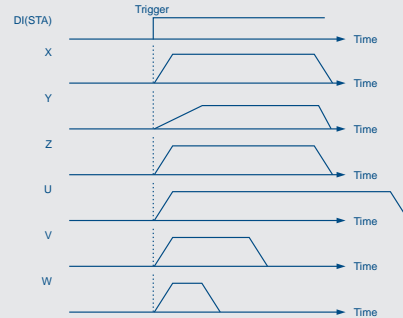
Trigger Function

- Single compare & trigger: trigger on a single position.
- Table compare & trigger: multi position triggers during fixed intervals or variable intervals can be achieved via commands.
- Linear compare & trigger: triggers on any position within 2D or 3D space can be achieved via commands.
- Compare and toggle trigger: as shown in the bottom right figure, we can set to invert DO after triggers of a certain position – ex. high voltage level at the first point after triggers for DO, low voltage level at the second point after triggers for DO, and high voltage level again at the third position and ends with a low voltage level at the fourth point.

Single Compare & Trigger
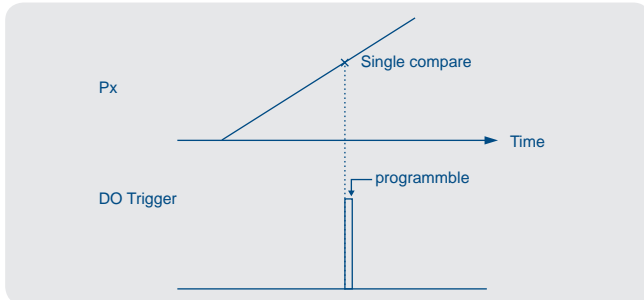
Table Compare & Trigger
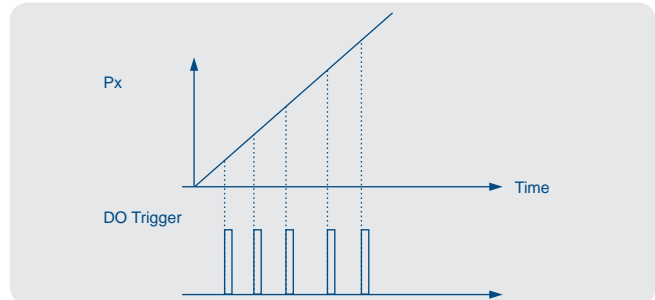
Linear Compare & Trigger
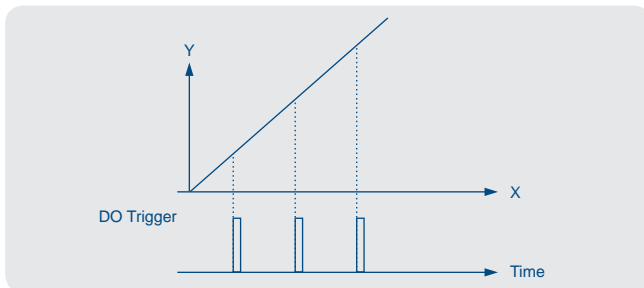
Compare and Toggle Trigger
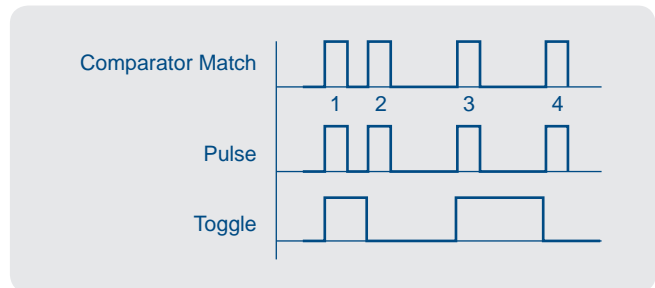
E-Gear

Multi-axial and absolutely synchronized controls can be achieved through SoftMotion algorithms and parameter configurations. With E-Gear, users can enforce configurations and controls over master and slave gears through their relationship. This not only simplifies the mechanism designs, but also saves mechanism space and enforces absolute and synchronized controls.
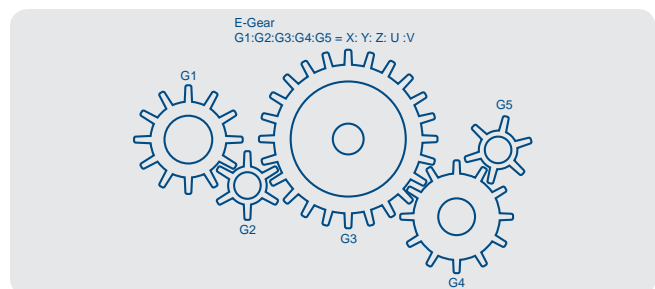
E-Gear
G1:G2:G3:G4:G5 = X: Y: Z: U :V

SoftMotion Introduction

Velocity Motion

Via commands, users can control motors to operate continuously under a defined speed.
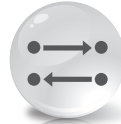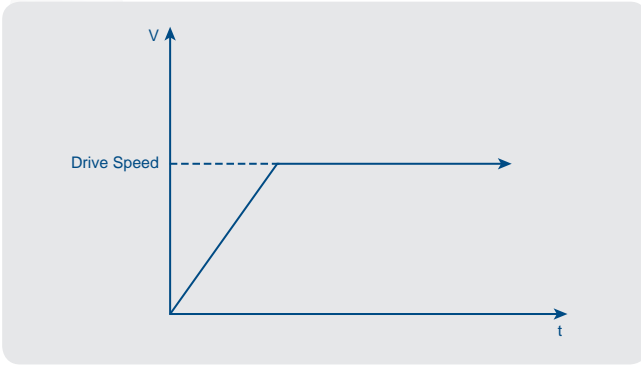
Multi-Axis Point to Point Motion

Entering terminal points of axis with relative and absolute positions, users can configure the motor to arrive at the final position configured. With this feature, users can activate multi-axial control and simultaneous start/stop on the same or different cards.
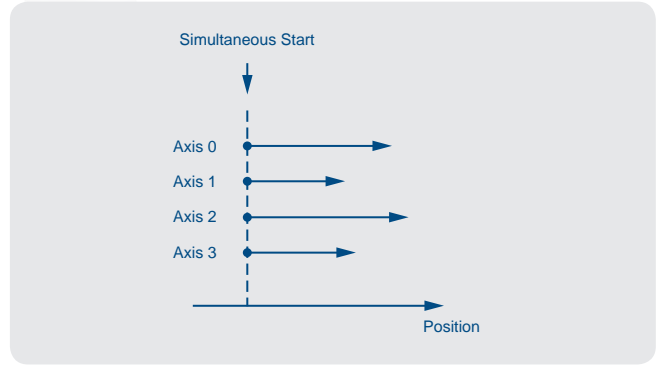
E-Cam

The relationship of relative movement between master (shaft axis) and slave (follower axis) axes can be established from following tables and it can simulate moves of the cam and provide multiple movement models based on the relationship.
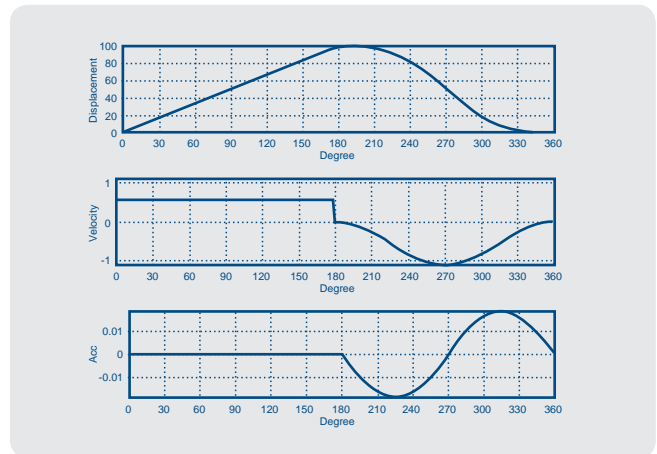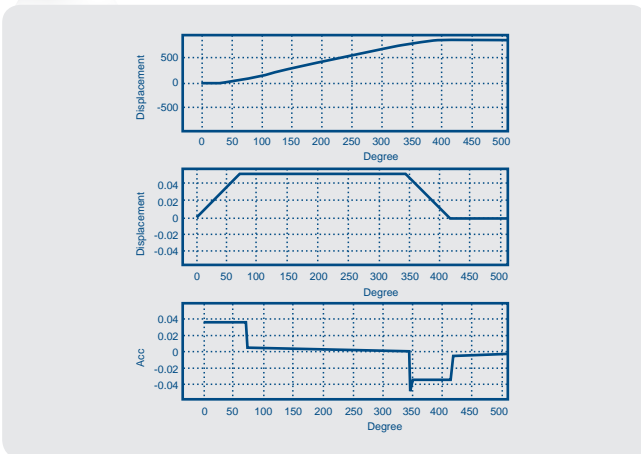
Path Table Motion

- Supports up to 3 describing path tables and each table can be up to 10,000 points
- Supports linear and circular interpolation commands
- Supports start/stop motion list as descriptive commands for movement control
- Supports Pause/ Resume commands
- Supports Auto Blending
- Supports Z axis following movement
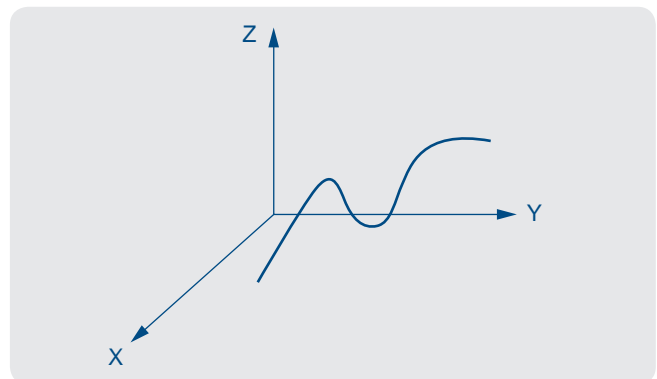
Look Ahead

By configuring customized parameter profiles (e.g. feed speed and acceleration) users can use the forward looking preprocessing module to enforce movement control and continuous small segmented linear-wise trajectories processing procedures.
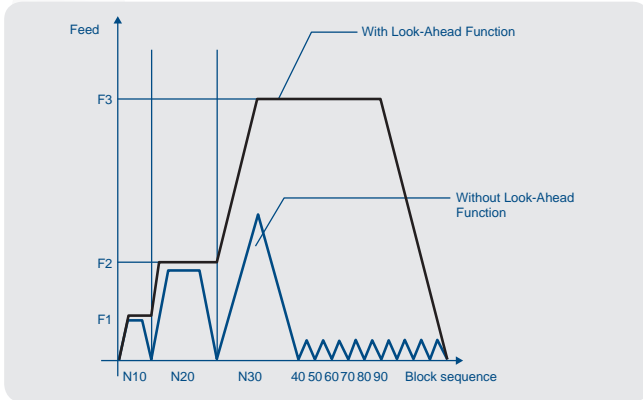
Up to 3 Groups of Vectors Moving

With SoftMotion algorithms designed to enhance DSP and FPGA interaction, users can use the system to perform interpolated movement: to simplify the design of machines for mechanism designers.

No delay
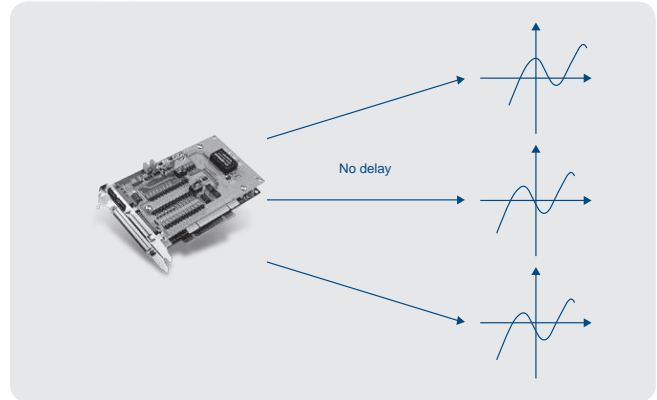
Event Interrupt

Instantly notify users with event interruption alerts when specified event occur. So, users can activate contingency procedures based on event condition.

Error → Event Trigger → Create Thread
Stop
PTP
C-Move
Alarm
....
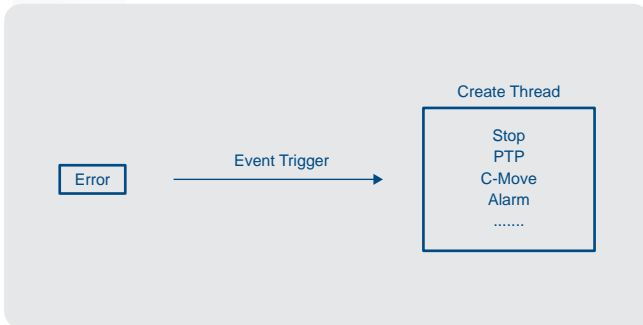
Position Latch

Record down the theoretical and actual motor positions when corresponding sensors are triggered.

10000 pulse

Vx

Latch

Time

Vy
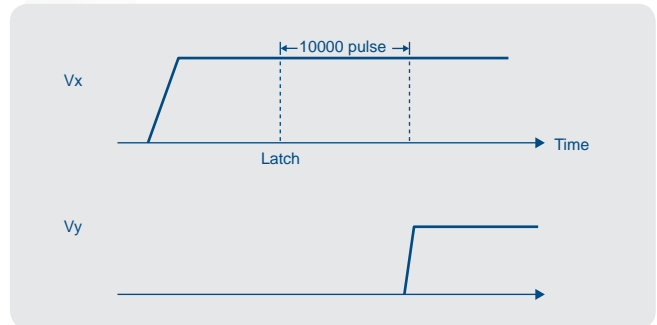
Gantry Control

Ensure that the error deviation of absolute mutual parallel axes positions during active sessions remain within the predefined range via special algorithms to achieve gantry controls.
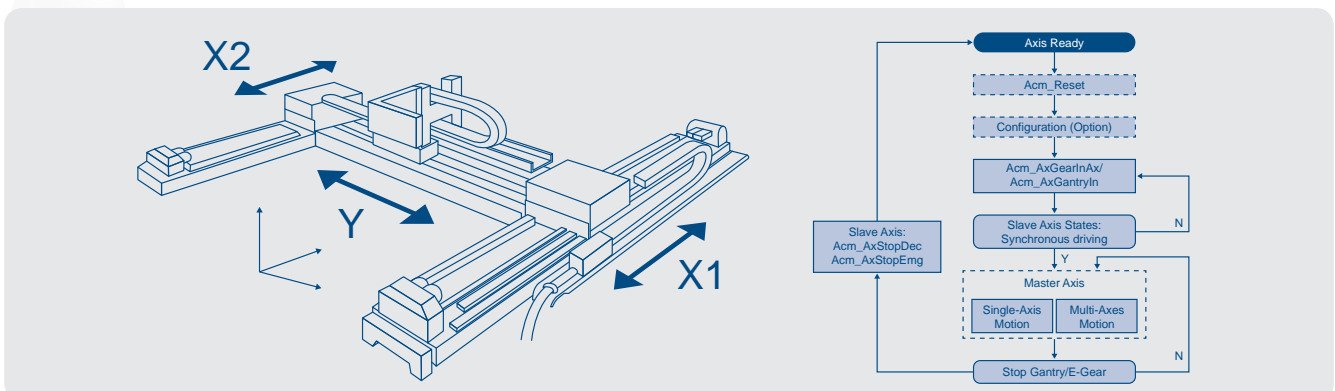
X2
Y
X1

Axis Ready
Acm_Reset
Configuration (Option)
Acm_AxGearInAx/
Acm_AxGantryIn
Slave Axis States:
Synchronous driving   N
Master Axis
Slave Axis:
Acm_AxStopDec
Acm_AxStopEmg
Single-Axis Motion | Multi-Axes Motion
Stop Gantry/E-Gear   N

Common Motion API Introduction

Architecture and Features of Common Motion API

Advantech's New Generation Motion Control Software

System integrators often encounter difficulties when an engineer may not be familiar with the different syntaxes during the integration of various motion control cards. And what bother them the most is that when the system has to be upgraded, the problems often occur with rewriting the program as well as increasing the development time. To reduce these difficulties, Advantech has introduced a unified interface - Common Motion API- which provides a single syntax and interface, regardless of the types of motion control card the integrator chooses to use. The design can proceed under a single syntax interface to save development time and speed up the time to market. The ACM (Advantech Common Motion) architecture defines a single interface which consists of three types of operation objects, including Device, Axis and Group and each object has its own Property, Method and State.
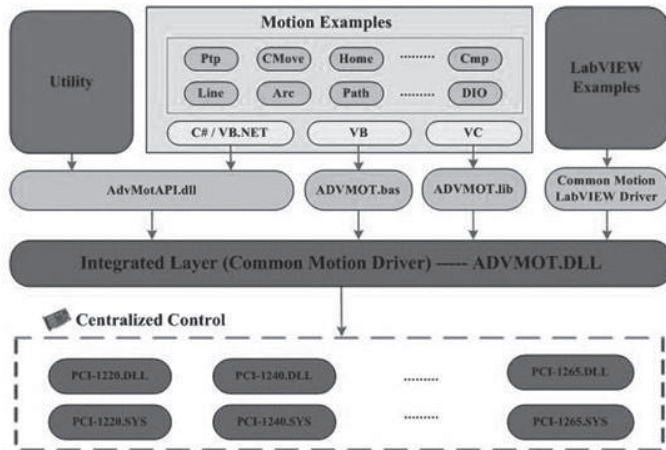
Features of Common Motion API

- Provides complete debugging tool utility
  - Hardware wiring testing
  - Software functional testing
  - Condition & status monitoring
- Provides the dedicated APIs for different applications
- Simplifies API calls process
- Improves the integration
- Supports scalable hardware
  - Supports the existing hardware and future hardware development, such as PCI-1245/45E/45L/65/85/85E series

Through the above advantages and the lower learning threshold, integrators can significantly reduce development time and follow-up maintenance work!

5 Compositions in Common Motion API

1. Easy-understanding Naming Rule

Property

- FT_XXX: Feature Property
- CFG_XXX: Configuration Property
- PAR_XXX: Parameter Property

Method

- Acm_DevXXX(): Use 'Device' as a control unit
- Acm_AxXXX(): Use 'Axis' as a control unit
- Acm_GpXXX(): Use 'Group' as a control unit

Event

- EVT_DevXXX
- EVT_AxXXX
- EVT_GpXXX

2. Object-oriented Interface

3 Categories of Property

- Feature Property
- Configuration Property
- Parameter Property

3 Categories of Method

- Use 'Device' as a control unit
- Use 'Axis' as a control unit
- Use 'Group' as a control unit

3 Categories of Event

- EVT_DevXXX
- EVT_AxXXX
- EVT_GpXXX

3. Clear Motion Control Unit

- Single-axis: Axis Object
- Multi-axis: Group Object
- DI/O, AI/O: Device Object

4. Simple Integer Type

- U/I/F stands for different types of integers and the following numbers stand for bits.

New Type	Windows Data Type	Description
U8	UCHAR	8-bit unsigned integer
U16	USHORT	16-bit unsigned integer
U32	ULONG	32-bit unsigned integer
U64	ULONGLONG	64-bit unsigned integer
I8	CHAR	8-bit signed integer
I16	SHORT	16-bit signed integer
I32	INT	32-bit signed integer
I64	LONGLONG	64-bit signed integer
F32	FLAOT	32-bit Floating point variable
F64	DOUBLE	64-bit Floating point variable

- Example: U32 Acm_AxMoveRel (U32 AxisHandle, PF64 Distance)

5. Detailed Error Classification

No	Error Code	Classification	Description
1	0	Success	Set up successfully
2	0x01000001 ~0x01000fff	Warning	The parameter is incorrect but do not affect performance
3	0x80000xxx	Function Error	Cannot execute because the parameter is incorrect
4	0x80001xxx	Communication Error	Cannot execute because of communication errors
5	0x80002xxx	Motion Error	Cannot execute because of motion errors
6	0x80003xxx	DAQ Error	Cannot execute because of data acquisition errors
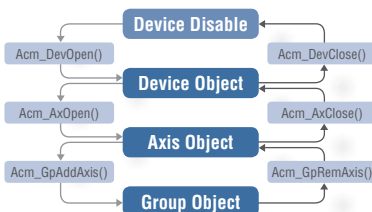
Centralized Motion Control Solution Selection Guide

Centralized Motion Control Solutions

NEW   NEW   NEW

Category		Motion Control							Encoder	
Bus		PCI						ISA	PCI	ISA
Model		PCI-1220U	PCI-1240U	PCI-1243U	PCI-1245L	PCI-1245E PCI-1285E	PCI-1245 PCI-1265 PCI-1285	PCL-839+	PCI-1784U	PCL-833
Axis	Number of Axis	2	4	4	4	4/8	4/6/8	3	-	-
	Linear Interpolation	✓	✓	-	✓	✓	✓	-	-	-
	2-axis Circle Interpolation	✓	✓	-	-	-/✓	✓	-	-	-
Advanced Functions	Encoder Channels	2	4	-	4	4/8	4/6/8	-	4	3
	Limit Switch Input Channels	4	8	8	8	8/16	8/12/16	6	-	-
	Home Input Channels	2	4	4	4	4/8	4/6/8	3	-	-
	Emergency Stop Input Channels	1	1	1	1	1	1	-	-	-
	Slow Down Limit Switches	4	8	-	8	8/16	8/12/16	6	-	-
	General Purpose DI Channels	6	12	8	16	16/32	16/32/32	16	4	2
	Servo On Output Channels	2	4	-	4	4/8	4/6/8	-	-	-
	General Purpose DO Channels	8	16	8	16	16/32	16/32/32	16	4	-
	Analog Input Channels	-	-	-	-	-	2 (PCI-1265 only)	-	-	-
	BoardID Switch	✓	✓	✓	✓	✓	✓	-	✓	-
	Position Compare Event	✓	✓	-	-	-	✓	-	-	-
	Position Latch	-	-	-	-	-	✓	-	-	-
Dimensions (mm)		175 x 100	175 x 100	175 x 100	175 x 100	175 x 100	175 x 100	185 x 100	185 x 100	185 x 100
Connector		50-pin SCSI	100-pin SCSI	DB62	100-pin/ 200-pin SCSI	100-pin SCSI 2x100-pin SCSI	100-pin SCSI 2x100-pin SCSI	1 x DB37 2 x 20-pin	DB37	1 x DB25
Wiring Boards		ADAM-3952 ADAM-3955 ADAM-3956	ADAM-3952 ADAM-3955 ADAM-3956	ADAM-3962	ADAM-3952 ADAM-3955 ADAM-3956	ADAM-3952 ADAM-3955 ADAM-3956	ADAM-3952 ADAM-3955 ADAM-3956	ADAM-3937 ADAM-3920	ADAM-3937	ADAM-3925
Page		2-21	2-21	2-22	2-20	2-19	2-16/ 2-17/2-18	online	online	online

CompactPCI Machine Automation Solution

Model Name		MIC-3106 MA ARP Solution
Chassis	Power Type	ATX
	Input Voltage	100 ~ 240 V_{AC}
	Wattage	180W
Hardware	CPU	Intel Atom D525, 1.8GHz / Intel 3rd Gen. Core i3-3217UE, 1.6GHz
	Memory	2GB / 4GB On board
	Storage	1 x CompactFlash Type II / 1 x CFast 1 x 2.5" SATA HDD
	Graphic	1 x DB15 port
Communication	Ethernet	2 x 10/100/1000 Mbps, RJ45 connector
	USB	3 x Type A / 2 x USB 3.0 Type A
	Serial	2 x RS-232, DB9 connector
Physical	Dimensions (W x H x D mm)	134 x 177 x 238
	Weight (kg)	7 Kg
	Page	2-15

Sidebar navigation:
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Distributed Motion Control Solution Selection Guide

AMONet Motion Master Cards

Model		PCI-1202U	PCM-3202P
Bus		PCI	PC/104+
Advanced Functions	General Purpose DI Channels	8	-
	General Purpose DO Channels	4	-
	Remote Motion	✓	✓
	Remote I/O	✓	✓
Dimensions (L x H)		175 x 100 mm	96 x 90 mm
Connectors		2 x RJ45	4 x 10-pin box header
Digital I/O Slave Modules		AMAX-1752, AMAX-1754, AMAX-1756, AMAX-2752SY, AMAX-2754SY, AMAX-2756SY	
Motion Slave Modules		AMAX-1220, AMAX-1240, AMAX-2241/PMA, AMAX-2242/J2S, AMAX-2243/YS2	
Page		2-20	2-20

AMONet Motion Slave Modules

Model		AMAX-1220	AMAX-1240	AMAX-2241/PMA
Axis	Number of Axis	2	4	4
	Linear Interpolation	✓	✓	✓
	2-axis Circle Interpolation	✓	✓	✓
Advanced Functions	Encoder Channels	2	4	4
	Limit Switch Input Channels	4	8	8
	Home Input Channels	2	4	4
	Emergency Stop Input Channels	1	1	1
	Slow Down Limit Switches	4	8	8
	Servo On Output Channels	2	4	4
	BoardID Switch	✓	✓	✓
	Position Compare Event	-	✓	✓
	Position Latch	-	✓	✓
	Simultaneously Start/ Stop among Modules	✓	✓	-
Power Consumption		2 W @ 24 V typical		5 W @ 24 V typical
Dimensions (L x W x H)		141 x 108 x 60 mm		125 x 47.6 x 151 mm
Page		2-21	2-21	2-23

Isolated Digital I/O Slave Modules

Model	AMAX-1752	AMAX-1754	AMAX-1756	AMAX-2752SY	AMAX-2754SY	AMAX-2756SY
Isolated Digital Input Channels	32	-	16	32	-	16
Isolated Digital Output Channels	-	32	16	-	32	16
Typical Power Consumption	600 mW			1.2 W		
Maximum Power Consumption	2 W			5 W		
Dimensions (L x W x H)	141 x 95 x 60 mm			125 x 47.6 x 151 mm		
Page	2-22	2-22	2-22	2-24	2-24	2-24

ADVANTECH | Motion Control

MIC-3106

CompactPCI Machine Automation Solution

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4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
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14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

Features

- Highly robust design for machine automation in harsh environments.
- 2G operational anti-vibration protection. 3G shipping anti-vibration protection
- Air-tight seal connector design for corrosive environments
- Modular design and front hot-swap enabled
- Easily exchange peripheral cards to reduce maintenance costs
- Pulse output up to 5 Mpps; Encoder input is 10 MHz for 4xAB mode
- Independent 4/8-axis motion control
- Up to 8-axis linear, 2-axis circular interpolation function
- 64-ch isolated Digital I/O (32-ch inputs and 32-ch outputs)

Introduction

The MIC-3106 is a whole new generation of industrial computers using a sophisticated CPCI interface which enables great anti-vibration and ventilation capabilities. The MIC-3106 also supports front hot-swap ability which makes switching cards and maintenance a lot easier. Advantech is proud to present a great value highly robust motion control solution. This model can be equipped with high accuracy 4/8-axis motion control cards (MIC-3245/3285) and a high density 64-ch isolated I/O card (MIC-3756) which provides you with a compact ready to use solution at no extra cost compared to traditional PCI solutions and speed up your system development with this application ready controller.

Specifications

General

- **Input Voltage** — 100 ~ 240 V_{AC}, ATX
- **Power Consumption** — 100 ~ 240 V_{AC}
- **Slot** — System slot x 1; Peripheral slot x 2
- **ON/OFF Switch** — Lockable Toggle Switch
- **Dimension** — 134 x 177 x 238
- **Weight** — 7kg

System Hardware

- **CPU** — Intel Atom D525, 1.8GHz / 3rd Gen. Core i3, 1.6GHz
- **Memory** — 2GB / 4GB On board
- **Storage** — CompactFlash Type II x 1; 2.5" SATA HDD x 1
- **Graphic** — DB15 port x 1

I/O Interface

- **LAN** — 10/100/1000 Mbps, RJ45 connector x 2
- **USB** — Type A x 3
- **Serial** — RS-232, DB9 connector x 2
- **PS/2** — PS/2 x 1

Pulse Type Motion Control

- **Number of Axis** — 4/8
- **Interpolation** — 2~8-axis linear, 2-axis circular
- **Max. Output Speed** — 5 Mpps
- **Step Count Range** — ±2, 147, 483, 646
- **Pulse Output Type** — Pulse/direction (1-pulse, 1-direction type) or CW/CCW (2-pulse type)
- **Position Counters** — Range of command and actual position
- **Velocity Profiles** — T-Curve, S-Curve
- **Local I/O** — Machine Interfaces: LMT+, LMT-, ORG
  Servo Driver Interfaces: ALM, INP
  Position Compare I/O: CMP
  General Digital I/O: MIC-3245:16-ch DI, 16-ch DO ; MIC-3285: 32-ch DI, 32-ch DO
  (RDY/LTC pin can be switchable to general-purpose input and CAM-DO/CMP/SVON/ ERC pin to general-purpose output)

Encoder Interface

- **Input Type** — Quadrature (A/B phase) or up/down
- **Counts per Enc.** — Cycle x1, x2, x4 (A/B phase only)
- **Input Range** — 5 ~ 15 V
- **Isolation Protection** — 2,500 V_{DC}
- **Max. Input Frequency** — 10 MHz under 4xAB mode

Isolated Digital Input

- **Channels** — 32
- **Input Voltage Logic** — 0: 2 V max.Logic 1: 10 V min. (50 V max.)
- **Interrupt Capable** — Ch. 2 (DI00, DI16)
- **Isolation Protection** — 2,500 V_{DC}
- **Input Resistance** — 5.7 kΩ

Isolated Digital Output

- **Channels** — 32
- **Output Type** — Sink (NPN)
- **Isolation Protection** — 2,500 V_{DC}
- **Output Voltage** — 5 ~ 40 V_{DC}
- **Sink Current** — 100 mA max./channel
- **Opto-Isolator Response** — OFF delay (±20%) 5 μsON delay (±20%) 120 μs

Environment

- **Temperature** — Operating: 0 ~ 50°C
  Non-Operating: -20 ~ 60°C
- **Humidity (non-condensing)** — Operating: 10 ~ 85% @ 40°C
  Non-Operating: 10 ~ 95% @ 40°C
- **Vibration(5 ~ 500 Hz)** — Operating: 2Grms (without HDD)
  Non-Operating: 2G
- **Shock (11ms)** — Operating: 10G
  Non-Operating: 30G

Ordering Information

- **MIC3106L2A1401E-T** — MIC-3106 chassis w/ MIC-3325D & MIC-3285
- **MIC3106L2A1402E-T** — MIC-3106 chassis w/ MIC-3325D & MIC-3245
- **MIC3106H1A1501E-T** — MIC-3106 chassis w/ MIC-3328 & MIC-3245
- **MIC3106H1A1502E-T** — MIC-3106 chassis w/ MIC-3328 & MIC-3285

Accessories

- **PCL-10153PA5-2E** — 50-pin Cable from ADAM-3955/ADAM-3956 to Panasonic A4 and A5 Servo, 2 m
- **PCL-10153PA5LS-2E** — 50-pin Cable from ADAM-3955/ADAM-3956 to Panasonic MINAS A Servo, 2 m
- **PCL-10153YS5-2E** — 50-pin Cable from ADAM-3955/ADAM-3956 to Yaskawa Sigma V Servo, 2 m
- **PCL-10153MJ3-2E** — 50-pin Cable from ADAM-3955/ADAM-3956 to Mitsubishi J3 Servo, 2 m
- **PCL-10153DA2-2E** — 50-pin Cable from ADAM-3955/ADAM-3956 to Delta A2 Servo, 2 m

Packing List

PCL-101100SB-1E	Mini-SCSI-100 Shielded Cable, 1m	w/ 3285: x2 w/ 3245: x1
ADAM-3956-AE	4-Axis 100-pin SCSI DIN-rail motion wiring board	
MIC-3756/3-A	3U cPCI 64-ch Isolated DI/O Card	x 1
PCL-10178-1E	DB-78 Shielded Cable, 1m	x 1
ADAM-3978-AE	DB-78 Wiring Terminal, DIN-rail Mount	x 1

PCI-1245
PCI-1265
PCI-1285

DSP-based 4/6/8-axis Stepping and Servo Motor Control Universal PCI Card
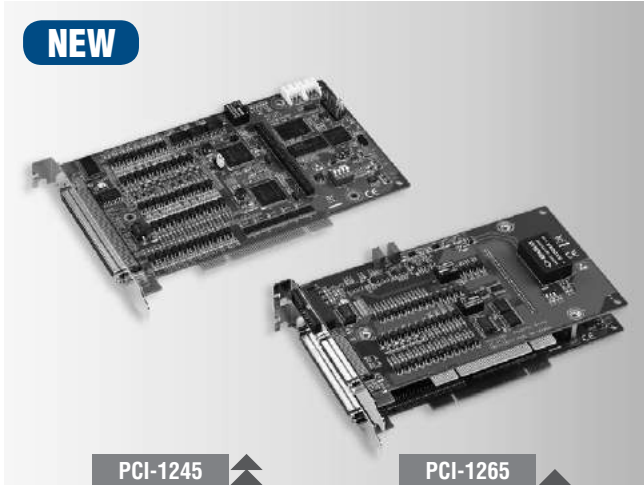
NEW

| PCI-1245 | PCI-1265 |

RoHS COMPLIANT 2002/95/EC CE FCC

Features

- Encoder input is 10 MHz for 4xAB mode, 2.5 MHz for CW/CCW mode
- Pulse output up to 5 Mpps
- Memory buffer (10K points) for trajectory planning which is designed in DSP
- Supports E-Gear, and helical interpolation
- Supports E-CAM providing 256 points to describe the CAM profiles which buffers located in DSP
- Hardware emergency input
- Watchdog timer
- Position latch
- Position compare triggering up to 100 KHz, and memory buffer is up to 100 K points in DSP
- Programmable interrupt
- Supports gantry mode by semi-closed loop pulse train control
- RDY/LTC-dedicated input channels & SVON/CMP/CAM-DO/ERC-dedicated output channels are switchable for general input and output purposes

Introduction

PCI-1245/65/85 is a 4/6/8-axis universal PCI (supporting both 3.3 V and 5 V signal slot) stepping/pulse-type servo motor control card designed for applications which need to control interpolation, synchronization among multiple axes, continuous contouring and high speed triggering to integrated machine vision solution. PCI-1245/65/85 utilizes the high-performance DSP and FPGA to calculate the motion trajectories, synchronization timing control for multiple axes and input/output handling to offer functionality, such as up to 4/6 -axis linear interpolation, 2- axis circular interpolation, helical interpolation, T/S-curve acceleration/deceleration rate and so on. In addition, Advantech supplies a Common Motion API library, graphical utility and user-friendly examples to decrease programming load, helping users complete configuration and diagnosis easily.

Specifications

Pulse Type Motion Control

- **Motor Driver Support** Pulse-type servo/stepping
- **Number of Axes** PCI-1245: 4
  PCI-1265: 6
  PCI-1285: 8
- **Interpolation** PCI-1245: 2 to 4-axis linear, 2-axis circular, X-Y plane with Z thread helical interpolation
  PCI-1265: 2 to 6-axis linear, 2-axis circular, X-Y plane with Z thread helical interpolation
  PCI-1285: 2 to 8-axis linear, 2-axis circular, X-Y plane with Z thread helical interpolation
- **Max. Output Speed** 5 Mpps
- **Step Count Range** ±2, 147, 483, 646
- **Pulse Output Type** Pulse/direction (1-pulse, 1-direction type) or CW/CCW (2-pulse type)
- **Position Counters** Range of command and actual position
- **Velocity Profiles** T-Curve, S-Curve
- **Local I/O**
  Machine Interfaces: LMT+, LMT-, ORG
  Servo Driver Interfaces: ALM, INP
  Position Compare I/O: CMP
  General Digital I/O: PCI-1245:16-ch DI, 16-ch DO (RDY/LTC pin can be switchable to general-purpose input and CAM-DO/CMP/SVON/ ERC pin to general-purpose output)
  PCI-1265: 32-ch DI, 32-ch DO (RDY/LTC pin can be switchable to general-purpose input and CAM-DO/CMP/SVON/ ERC pin to general-purpose output)
  PCI-1285: 32-ch DI, 32-ch DO (RDY/LTC pin can be switchable to general-purpose input and CAM-DO/CMP/SVON/ ERC pin to general-purpose output)
- **Analog Input** PCI - 1265: 2

Encoder Interface

- **Input Type** Quadrature (A/B phase) or up/down
- **Counts per Enc. Cycle** x1, x2, x4 (A/B phase only)
- **Input Range** 5 ~ 15 V
- **Isolation Protection** 2,500 V_{DC}
- **Max. Input Frequency** 10 MHz under 4xAB mode

General

- **Bus Type** Universal PCI V2.2
- **Connectors** PCI-1245:   1 x 100-pin SCSI female connector
  PCI-1265:   1 x 100-pin SCSI female connector & 1 x 50-pin SCSI female connector
  PCI-1285:   2 x 100-pin mini-SCSI female connector
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** PCI-1245/1265:
  Typical: 5 V @ 850 mA
  Max.:   5 V @ 1 A
  PCI-1285:
  Typical: 5 V @ 300 mA
  3.3 V @ 1.2 A
  Max.:   5 V @ 400 mA
  3.3 V @ 1.5 A
- **Humidity** 5 ~ 95% RH, non-condensing (IEC 60068-2-3)
- **Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature** -20 ~ 85°C (-4 ~ 185°F)

Ordering Information

- **PCI-1245-AE** 4-axis Stepping/Servo Control Universal PCI Card
- **PCI-1265 AE** 6-axis Stepping/Servo Control Universal PCI Card
- **PCI-1285-AE** 8-axis Stepping/Servo Control Universal PCI Card

Accessories

- **ADAM-3956-AE** 100-pin DIN-rail SCSI 4-axis Motion Wiring Board
- **ADAM-3955-AE** 50-pin DIN-rail SCSI 2-axis Motion Wiring Board
- **ADAM-3952-AE** 50-pin DIN-rail SCSI and Box Header Board
- **ADAM-39100-AE** 100-pin DIN-rail SCSI Wiring Board
- **PCL-101100M-1E/2E/3E** 100-pin SCSI Cable, 1m/2m/3m (for PCI-1245/65)
- **PCL-10251-1E/3E** 100-pin SCSI to Two 50-pin SCSI Cable, 1 m/3m (for PCI-1245/65 only)
- **PCL-101100SB-1E/2E/3E** Mini-SCSI-100 Shielded Cable, 1m/2m/3m (for PCI-1285)
- **PCL-10153PA5-2E** 50-pin Cable from ADAM-3955/ADAM-3956 to Panasonic A4 and A5 Servo, 2 m
- **PCL-10153PA5LS-2E** 50-pin Cable from ADAM-3955/ADAM-3956 to Panasonic MINAS A Servo, 2 m
- **PCL-10153YS5-2E** 50-pin Cable from ADAM-3955/ADAM-3956 to Yaskawa Sigma V Servo, 2 m
- **PCL-10153MJ3-2E** 50-pin Cable from ADAM-3955/ADAM-3956 to Mitsubishi J3 Servo, 2 m
- **PCL-10153DA2-2E** 50-pin Cable from ADAM-3955/ADAM-3956 to Delta A2 Servo, 2 m

ADVANTECH Motion Control

PCI-1245S

DSP-based 4-axis SCARA Robot Motor Control Universal PCI Card

NEW

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

Features

- Pulse output is up to 5Mpps
- Encoder input is 10MHz for 4xAB mode, 2.5MHz for CW/CCW mode
- Fast processing speed provides smooth interpolation
- Support T & S-Curve for joint-space trajectory planning
- Line, Arc, Angle and PTP motion are also supported
- Support both Jog/MPG in Joint/World system
- Support RZ direct coupling structure for various applications
- Adding teaching points through JOG/MPG by Common Motion Utility for Path planning
- Easy integration for robot-vision application
- Position latch
- Position compare triggering up to 100 KHz, and memory buffer is up to 100 K points in DSP

RoHS COMPLIANT 2002/95/EC   CE FCC

Introduction

PCI-1245S is 4-axis Robot PCI bus controller board which is created as the SCARA Robot solution for factories looking for maximum value without performance trade off. PCI-interface structure is a great benefit for user to embed into various platforms for flexibility and performance requirement. In addition, ease of integration with bus-level vision solutions and robot motion control for vision guide application.

All Advantech motion controllers are applied to "Common Motion API" architecture which is an unified user programming interface. This architecture can save the effort of application maintenance and upgrade. Both Joint and World coordinate system are supported. T&S-curve speed profile optimization make PCI-1245S has outstanding acceleration / deceleration characteristics. Robot path function and look ahead feature make robot trajectory can be planned in advance and move smoothly in arbitrary path. Lots of fully integrated options such as Virtual Device, .Net support, 3D emulator and much more enable powerful programming, reduced project-developed cycle times and very cost-saving robot solution.

Specifications

Pulse Type Motion Control

- **Motor Driver Support**   Pulse-type servo/stepping
- **Number of Axes**   4
- **Interpolation**   Line motion, Arc Motion
- **Max. Output Speed**   5 Mpps
- **Step Count Range**   ±2, 147, 483, 646
- **Pulse Output Type**   Pulse/direction (1-pulse, 1-direction type) or CW/CCW (2-pulse type)
- **Position Counters**   Range of command and actual position
- **Velocity Profiles**   T-Curve, S-Curve
- **Local I/O**
  Machine Interfaces: LMT+, LMT-, ORG
  Servo Driver Interfaces: ALM, INP
  Position Compare I/O: CMP
  General Digital I/O: 16-ch DI, 16-ch DO (RDY/LTC pin can be switchable to general-purpose input and CAM-DO/CMP/SVON/ ERC pin to general-purpose output)

ABS Encoder Interface

- **Input Type**   Quadrature (A/B phase) or up/down
- **Counts per Enc. Cycle**   x1, x2, x4 (A/B phase only)
- **Input Range**   5 ~ 15 V
- **Isolation Protection**   2,500 V_{DC}
- **Max. Input Frequency**   10 MHz under 4xAB mode

General

- **Bus Type**   Universal PCI V2.2
- **Connectors**   1 x 100-pin SCSI female connector
- **Dimensions (L x H)**   175 x 100 mm (6.9" x 3.9")
- **Power Consumption**   Typical: 5 V @ 850 mA
  Max.: 5 V @ 1 A
- **Humidity**   5 ~ 95% RH, non-condensing (IEC 60068-2-3)
- **Operating Temperature**   0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature**   -20 ~ 85°C (-4 ~ 185°F)

Ordering Information

- **PCI-1245S-AE**   4-axis Stepping/Servo Control Universal PCI Card

Accessories

- **ADAM-3956-AE**   100-pin DIN-rail SCSI 4-axis Motion Wiring Board
- **ADAM-3955-AE**   50-pin DIN-rail SCSI 2-axis Motion Wiring Board
- **ADAM-3952-AE**   50-pin DIN-rail SCSI and Box Header Board
- **ADAM-39100-AE**   100-pin DIN-rail SCSI Wiring Board
- **PCL-101100M-1E/2E/3E**   100-pin SCSI Cable, 1m/2m/3m
- **PCL-10251-1E/3E**   100-pin SCSI to Two 50-pin SCSI Cable, 1 m/3m
- **PCL-10153PA5-2E**   50-pin Cable from ADAM-3955/ADAM-3956 to Panasonic A4 and A5 Servo, 2 m
- **PCL-10153PA5LS-2E**   50-pin Cable from ADAM-3955/ADAM-3956 to Panasonic MINAS A Servo, 2 m
- **PCL-10153YS5-2E**   50-pin Cable from ADAM-3955/ADAM-3956 to Yaskawa Sigma V Servo, 2 m
- **PCL-10153MJ3-2E**   50-pin Cable from ADAM-3955/ADAM-3956 to Mitsubishi J3 Servo, 2 m
- **PCL-10153DA2-2E**   50-pin Cable from ADAM-3955/ADAM-3956 to Delta A2 Servo, 2 m

PCI-1245E
PCI-1285E

Economic DSP-based 4/8-axis Stepping and Servo Motor Control Universal PCI Card
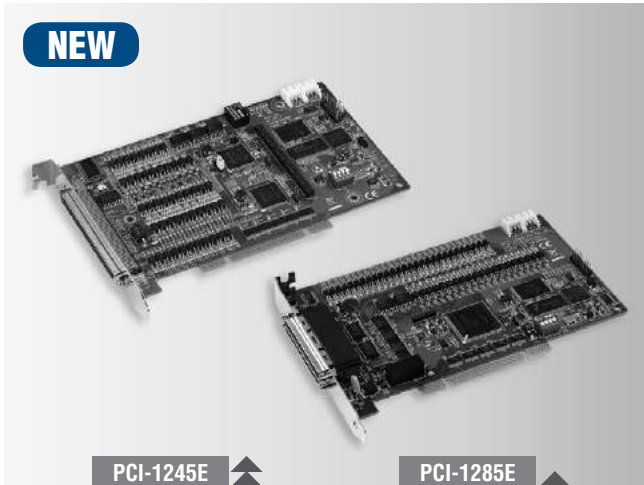
NEW

PCI-1245E ▲   PCI-1285E ▲

RoHS COMPLIANT 2002/95/EC   CE FCC

Features

- Encoder input is 10 MHz for 4xAB mode, 2.5 MHz for CW/CCW mode
- Pulse output up to 5 Mpps
- Memory buffer for trajectory planning (circular trajectory and auto blending are not supported)
- Supports E-Gear
- Hardware emergency input
- Watchdog timer
- Programmable interrupt
- RDY/LTC-dedicated input channels & SVON/CMP/CAM-DO/ERC-dedicated output channels are switchable for general input and output purposes

Introduction

PCI-1245E/1285E is a 4/8-axis economic universal PCI (supporting both 3.3 V and 5 V signal slot) stepping/pulse-type servo motor control card designed for entry-level applications which need to control linear interpolation, electronic gear, continuous contouring (circular trajectories and auto blending are excluded). PCI-1245E/1285E utilizes the high-performance DSP and FPGA to calculate the motion trajectories, synchronization timing control for multiple axes and input/output handling to offer functionality, such as 2~8-axis linear interpolation, E-Gear (only for PCI-1245E), T/S-curve acceleration/deceleration rate, speed override, 16 home modes and so on. In addition, Advantech supplies a Common Motion API library, graphical utility and user-friendly examples to decrease programming load, helping users complete configuration and diagnosis easily.

Specifications

Pulse Type Motion Control

- **Motor Driver Support** Pulse-type servo/stepping
- **Number of Axis** PCI-1245E: 4
  PCI-1285E: 8
- **Interpolation** PCI-1245E: 2-axis linear
  PCI-1285E: 2-axis linear
- **Max. Output Speed** 5 Mpps
- **Step Count Range** ±2, 147, 483, 646
- **Pulse Output Type** Pulse/direction (1-pulse, 1-direction type) or CW/CCW (2-pulse type)
- **Position Counters** Range of command and actual position
- **Velocity Profiles** T-Curve, S-Curve
- **Local I/O**
  Machine Interfaces: LMT+, LMT-, ORG
  Servo Driver Interfaces: ALM, INP
  General Digital I/O: PCI-1245E: 16-ch DI, 16-ch DO
  PCI-1285E: 32-ch DI, 32-ch DO

Encoder Interface

- **Input Type** Quadrature (A/B phase) or up/down
- **Counts per Enc. Cycle** x1, x2, x4 (A/B phase only)
- **Input Range** PCI-1245E 5~15V
  PCI-1285E 5~10V
- **Isolation Protection** 2,500 V_{DC}
- **Max. Input Frequency** 10 MHz under 4xAB mode

General

- **Bus Type** Universal PCI V2.2
- **Connectors** PCI-1245E: 1 x 100-pin SCSI female connector
  PCI-1285E: 2 x 100-pin mini-SCSI female connector
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** PCI-1245E: Typical: 5 V @ 850 mA
  Max.: 5 V @ 1 A
  PCI-1285E: Typical: 5 V @ 530 mA
  3.3 V @ 160 mA
  Max.: 5 V @ 500 mA
  3.3 V @ 1 A

- **Humidity** 5 ~ 95% RH, non-condensing (IEC 60068-2-3)
- **Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature** -20 ~ 85°C (-4 ~ 185°F)

Ordering Information

- **PCI-1245E-AE** Economic 4-axis Stepping/Servo Control Universal PCI Card
- **PCI-1285E-AE** Economic 8-axis Stepping/Servo Control Universal PCI Card
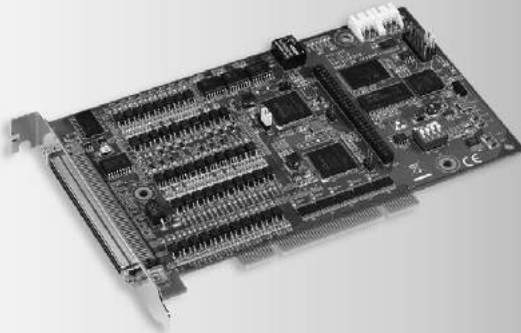
Accessories

- **ADAM-3956-AE** 100-pin DIN-rail SCSI 4-axis Motion Wiring Board
- **ADAM-3955-AE** 50-pin DIN-rail SCSI 2-axis Motion Wiring Board
- **ADAM-3952-AE** 50-pin DIN-rail SCSI and Box Header Board
- **ADAM-39100-AE** 100-pin DIN-rail SCSI Wiring Board
- **PCL-101100M-1E/2E/3E** 100-pin SCSI Cable, 1m/2m/3m (for PCI-1245E)
- **PCL-10251-1E/3E** 100-pin SCSI to Two 50-pin SCSI Cable, 1m/3m
- **PCL-101100SB-1E/2E/3E** Mini-SCSI-100 Shielded Cable, 1m/2m/3m (for PCI-1285E)
- **PCL-10153PA5-2E** DB-26 pin to SCSI-50 pin 50-pin Cable from ADAM-3955/ADAM-3956 to Panasonic A4 and A5 Servo, 2 m
- **PCL-10153PA5LS-2E** DB-26 pin to SCSI-50 pin 50-pin Cable from ADAM-3955/ADAM-3956 to Panasonic MINAS A Servo, 2 m
- **PCL-10153YS5-2E** DB-26 pin to SCSI-50 pin 50-pin Cable from ADAM-3955/ADAM-3956 to Yaskawa Sigma V Servo, 2 m
- **PCL-10153MJ3-2E** DB-26 pin to SCSI-50 pin 50-pin Cable from ADAM-3955/ADAM-3956 to Mitsubishi J3 Servo, 2 m
- **PCL-10153DA2-2E** DB-26 pin to SCSI-50 pin Cable from ADAM-3955/ADAM-3956 to Delta A2 Servo, 2 m

PCI-1245L

4-axis Stepping and Servo Motor Control Universal PCI Card

NEW

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

Features

- Encoder input is 10 MHz for 4xAB mode, 2.5 MHz for CW/CCW mode
- Pulse output up to 1 Mpps and the output type can be switched to differential or single-end by jumper setting
- Supports 2 axis linear interpolation
- Supports T/S-curve
- Supports speed override
- Hardware emergency input
- Watchdog timer
- Supports programmable acceleration/deceleration rate
- Programmable interrupt
- RDY dedicated input channels & SVON/ERC dedicated output channels are switchable for general input and output purposes

Introduction

The PCI-1245L is a 4-axis universal PCI card (supporting both 3.3 V and 5 V signal slots) stepping/pulse-type servo motor control card designed for entry-level applications which need to control interpolation, synchronization among multiple axes, with SoftMotion algorithm inside to perform the motion trajectory and precise movement. The PCI-1245L utilizes the high-performance FPGA to calculate the motion trajectories, synchronization timing control for multiple axes and input/output handling to offer functionality, such as 2 axis linear interpolation, T/S-curve, speed override, programmable acceleration/deceleration rate, 16 home modes and so on.

In addition, all Advantech motion controllers use the "Common Motion API" architecture which is a unified user programming interface and graphical utility. This architecture saves application maintenance and upgrades. Programmers can benefit from integrating any Advantech SoftMotion controller without changing large amounts of the application code. User-friendly examples decrease programming load, helping users complete configuration and diagnosis easily.

Specifications

Pulse Type Motion Control

- **Motor Driver Support**   Pulse-type servo/stepping
- **Number of Axes**   4
- **Interpolation**   2-axis linear interpolation
- **Max. Output Speed**   1 Mpps
- **Step Count Range**   ±2, 147, 483, 646
- **Pulse Output Type**   Pulse/direction (1-pulse, 1-direction type) , CW/CCW (2-pulse type) or single-ended +5V output
- **Position Counters**   Range of command and actual position
- **Velocity Profiles**   T-Curve, S-Curve
- **Local I/O**
  - Machine Interfaces: LMT+, LMT-, ORG
  - Servo Driver Interfaces: ALM, INP
  - General Digital I/O: 16-ch DI, 16-ch DO (RDY pin can be switchable to general-purpose input and SVON/ERC pin to general-purpose output)

Encoder Interface

- **Input Type**   Quadrature (A/B phase) or up/down
- **Counts per Enc. Cycle**   x1, x2, x4 (A/B phase only)
- **Input Range**   5~10 V
- **Isolation Protection**   2,500 V_{DC}
- **Max. Input Frequency**   4 MHz under 4xAB mode

General

- **Bus Type**   Universal PCI V2.2
- **Connectors**   1 x 100-pin SCSI female connector
- **Dimensions (L x H)**   175 x 100 mm (6.9" x 3.9")
- **Power Consumption**   Typical: 5 V @ 0.6 A
  Max.: 5 V @ 1 A

- **Humidity**   5 ~ 95% RH, non-condensing (IEC 60068-2-3)
- **Operating Temperature**   0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature**   -20 ~ 85°C (-4 ~ 185°F)

Ordering Information

- **PCI-1245L-AE**   4-axis Stepping/Pulse-type Servo Motor Control Universal PCI Card

Accessories

- **ADAM-3955-AE**   50-pin DIN-rail SCSI 2-axis Motion Wiring Board
- **ADAM-3952-AE**   50-pin DIN-rail SCSI and Box Header Board
- **ADAM-39100-AE**   100-pin DIN-rail SCSI Wiring Board
- **PCL-101100M-3E**   100-pin SCSI Cable, 3 m
- **PCL-10152-1E**   50-pin SCSI Male-male Shielded Cable, 1m
- **PCL-10152-3E**   50-pin SCSI Male-male Shielded Cable, 3m
- **PCL-10251-1E**   100-pin SCSI to Two 50-pin SCSI Cable, 1 m
- **PCL-10251-2E**   100-pin SCSI to Two 50-pin SCSI Cable, 2 m
- **PCL-10251-3E**   100-pin SCSI to Two 50-pin SCSI Cable, 3 m
- **PCL-10153PA5-2E**   50-pin Cable from ADAM-3955/ADAM-3956 to Panasonic A4 and A5 Servo, 2 m
- **PCL-10153PA5LS-2E**   50-pin Cable from ADAM-3955/ADAM-3956 to Panasonic MINAS A Servo, 2 m
- **PCL-10153YS5-2E**   50-pin Cable from ADAM-3955/ADAM-3956 to Yaskawa Sigma V Servo, 2 m
- **PCL-10153MJ3-2E**   50-pin Cable from ADAM-3955/ADAM-3956 to Mitsubishi J3 Servo, 2 m
- **PCL-10153DA2-2E**   50-pin Cable from ADAM-3955/ADAM-3956 to Delta A2 Servo, 2 m

PCI-1220U
PCI-1240U

2-axis Stepping and Servo Motor Control Universal PCI Card

4-axis Stepping and Servo Motor Control Universal PCI Card
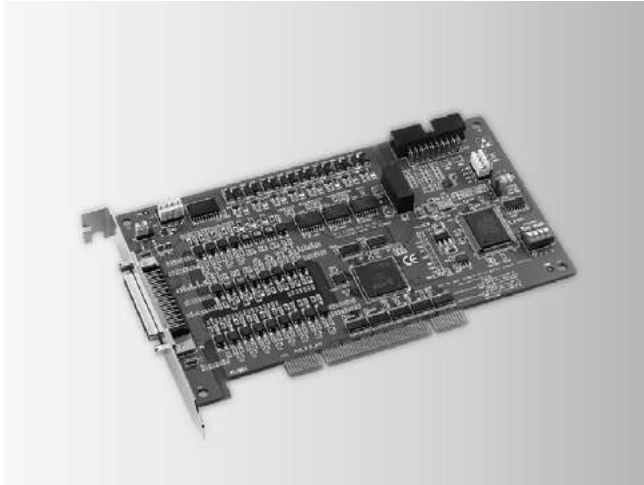
PCI-1220U
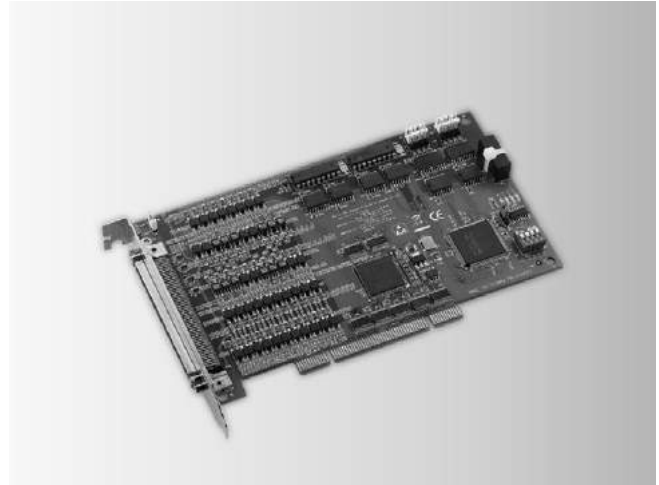
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PCI-1240U

RoHS COMPLIANT 2002/95/EC CE FCC

Specifications

Pulse Type Motion Control

- **Motor Driver Support**   Pulse-type servo/stepping
- **Number of Axis**   4
- **Interpolation**   2-axis linear, 3-axis linear, 2-axis circular (PCI-1240U)
  2-axis linear, 2-axis circular (PCI-1220U)
- **Max. Output Speed**   4 Mpps
- **Step Count Range**   ±2, 147, 483, 646 (32-bit)
- **Pulse Output Type**   Pulse/direction (1-pulse, 1-direction type), or CW/CCW (2-pulse type)
- **Position Counters**   Range of command and actual position
- **Velocity Profiles**   T-Curve, S-Curve
- **Local I/O**   Machine Interfaces: LMT+, LMT-, ORG
  Servo Driver Interfaces: ALM, RDY, SVON, INP
  Position Compare I/O: CMP
  General Digital I/O: 12-ch DI, 16-ch DO

Encoder Interface

- **Input Type**   Quadrature (A/B phase or up/down)
- **Counts /Enc. Cycle**   x1, x2, x4 (A/B phase only)
- **Input Range**   5 ~ 25 V
- **Isolation Protection**   2,500 V_{DC}
- **Max. Input Freq.**   1 MHz

General

- **Bus Type**   PC/104
- **Certification**   CE, FCC Class A
- **Connectors**   2 x IDC 50-pin male connector
- **Dimensions (L x H)**   96 x 90 mm (3.8" x 3.5")
- **Power Consumption**   Typical: 5 V @ 850 mA
  Max.: 5 V @ 1 A
- **Humidity**   5 ~ 95% RH, non-condensing (IEC 60068-2-3)
- **Operating Temp.**   0 ~ 60°C (32 ~ 140°F)
- **Storage Temp.**   -20 ~ 85°C (-4 ~ 185°F)

Ordering Information

- **PCI-1220U-AE**   2-axis Stepping and Servo Motor Control Universal PCI Card
- **PCI-1240U-B2E**   4-axis Stepping and Servo Motor Control Universal PCI Card
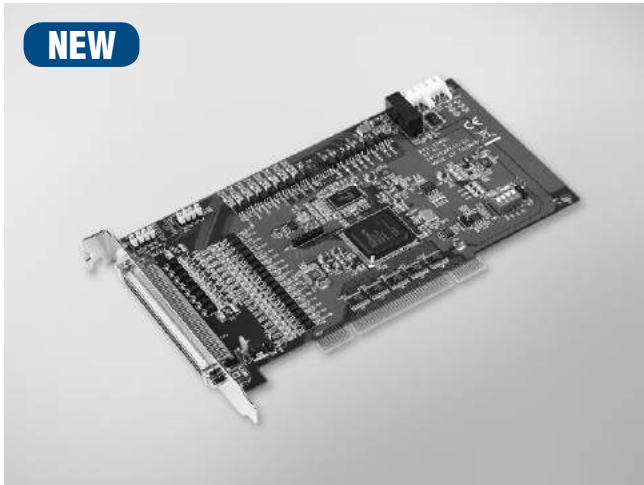
Accessories

- **ADAM-3956-AE**   100-pin DIN-rail SCSI 4-axis Motion Wiring Board (PCI-1240U only)
- **ADAM-3955-AE**   50-pin DIN-rail SCSI 2-axis Motion Wiring Board (PCI-1220U/1240U)
- **ADAM-3952-AE**   50-pin DIN-rail SCSI and Box Header Board (PCI-1220U/1240U)
- **ADAM-3950-AE**   50-pin DIN-rail Flat Cable Wiring Board (PCM-3240 only)
- **ADAM-39100-AE**   100-pin DIN-rail SCSI Wiring Board (PCI-1240U only)
- **PCL-101100M-1E/2E/3E** 100-pin SCSI Cable, 1m/2m/3m (PCI-1240U only)
- **PCL-10150-1.2E**   IDC-50 Flat Cable, 1.2m (PCM-3240 only)
- **PCL-10152-1E/3E**   50-pin SCSI M-M Shielded Cable, 1m/3m (PCI-1220U only)
- **PCL-10251-1E/3E**   100-pin SCSI to Two 50-pin SCSI Cable, 1 m/3m (PCI-1240U only)
- **PCL-10153PA5-2E**   50-pin Cable from ADAM-3955/ADAM-3956 to Panasonic A4 and A5 Servo, 2 m
- **PCL-10153PA5LS-2E**   50-pin Cable from ADAM-3955/ADAM-3956 to Panasonic MINAS A Servo, 2 m
- **PCL-10153YS5-2E**   50-pin Cable from ADAM-3955/ADAM-3956 to Yaskawa Sigma V Servo, 2 m
- **PCL-10153MJ3-2E**   50-pin Cable from ADAM-3955/ADAM-3956 to Mitsubishi J3 Servo, 2 m
- **PCL-10153DA2-2E**   50-pin Cable from ADAM-3955/ADAM-3956 to Delta A2 Servo, 2 m

ADVANTECH **Motion Control**

PCI-1243U

4-axis Stepping Motor Control Universal PCI Card

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

Features

- 4 axis stepping motor control
- PCI universal bus
- Up to 400 k pulse output rate
- T-Curve acceleration/deceleration
- Pulse/Dir and CW/CCW pulse output mode
- Up 24-bit step count
- Opto-Isolated Digital input and output
- Up to 1,500 V_{RMS} system isolation
- BoardID switch

RoHS COMPLIANT 2002/95/EC CE FCC

Introduction

PCI-1243U is a 4-axis stepping motor control card with universal PCI interface. Each axis can be controlled directly through the card's I/O registers. This board is economic solution for stepping motor which provides 4 channels pulse train, T/S speed profile, on-the-fly velocity change and so on. The board is supplied with DLL library for Windows programmer to write the program. With the DLL driver, you can easily link to VC++®, Visual Basic® or BCB.

Specifications

Pulse Type Motion Control

- **Motor Driver Support** Stepping
- **Number of Axis** 4
- **Max. Output Speed** 400 kpps
- **Step Count Range** 0 ~ 16, 777, 215
- **Pulse Output Type** Pulse/Direction, CW/CCW
- **Position Counters** ±16, 777, 215
- **Home Modes** 4
- **Velocity Profiles** T-Curve or S-Curve acceleration/deceleration
- **Local I/O Interfaces** PEL x 4, NEL x 4, RG x 4, SLD x 4, EMG x 1
- **General Input Channels** 8
- **General Output Channels** 8

Isolated Digital Input

- **Channels** 8
- **Input Voltage** Logic 0: 1 V
  Logic 1: 12 V (24 V max.)
- **Isolation Protection** 3,750 V_{RMS}
- **Opto-Isolator Response** 25 μs
- **Input Resistance** 4.7 kW

Isolated Digital Output

- **Channels** 8
- **Output Type** Sink (NPN)
- **Isolation Protection** 3,750 V_{RMS}
- **Output Voltage** 5 ~ 30 V_{DC}
- **Sink Current** 200 mA max./channel; 1.1 A max. total
- **Opto-Isolator Response** 25 μs

General

- **Bus Type** PCI V2.2
- **Certification** CE, FCC Class A
- **Connectors** 1 x DB-62 female
- **Dimensions** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Typical: 5 V @ 340 mA
  Max.: 5 V @ 500 mA
- **Storing Humidity** 5 ~ 95% RH, non-condensing (IEC 60068-2-3)
- **Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- **Storing Temperature** -20 ~ 80°C (-4 ~ 170°F)

Ordering Information

- **PCI-1243U-AE** 4-axis Stepping Motor Control Card

Accessories

- **PCL-10162-1E** DB-62 Cable Assembly, 1m
- **PCL-10162-3E** DB-62 Cable Assembly, 3m
- **ADAM-3962-AE** DB-62 Wiring Board with DIN-rail Mounting

PCI-1202U
PCM-3202P

2-port AMONet RS-485 PCI Master Card

2-port AMONet RS-485 PC/104+ Master Card

PCI-1202U

RoHS COMPLIANT 2002/95/EC   CE FCC

PCM-3202P

RoHS COMPLIANT 2002/95/EC   CE FCC

Specifications

AMONet RS-485 Motion Control

- **AMONet RS-485** — 2 rings
- **Interface** — Half duplex RS-485
- **Cable Type** — CAT5 UTP/STP Ethernet cable and above
- **Surge Protection** — 10 kV
- **Transmission Speeds** — 2.5, 5, 10, and 20 Mbps
- **Data Flow Control** — Automatic
- **Communication Distance (Max.)** — 100 m @ 20 Mbps w/32 slave modules / 100 m @ 10 Mbps w/64 slave modules
- **Slave Module** — Digital I/O, Motion Control, Analog I/O

Isolated Digital Input

- **Channels** — 8
- **Input Voltage** — Dry contact (need external voltage source)
- **Isolation Protection** — 2,500 V_{DC}
- **Input Resistance** — 2.4 kW @ 0.5 W

Isolated Digital Output

- **Channels** — 4
- **Output Type** — Open collector
- **Isolation Protection** — 2,500 V_{DC}
- **Output Voltage** — 10 ~ 30 V_{DC}
- **Sink Current** — 1 ch: Max. 0.5 A / 4 ch: Max. 1.1 A (total)

General

- **Bus Type** — Universal PCI V2.2
- **certification** — CE, FCC Class A
- **Connectors** — 2 x RJ45
- **Dimensions (L x H)** — 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** — 5 V_{DC} @ 0.5 A typical
- **Humidity** — 5 ~ 95% RH, non-condensing (IEC 60068-2-3)
- **Operating Temp.** — 0 ~ 60°C (32 ~ 140°F)
- **Storage Temp.** — -20 ~ 85°C (-4 ~ 185°F)

Ordering Information

- **PCI-1202U-AE** — 2-port AMONet RS-485 PCI Master Card

Specifications

AMONet RS-485 Motion Control

- **AMONet RS-485** — 2 rings
- **Interface** — Half duplex RS-485
- **Cable Type** — CAT5 UTP/STP Ethernet cable
- **Surge Protection** — 10 kV
- **Transmission Speeds** — 2.5, 5, 10, and 20 Mbps
- **Data Flow Control** — Automatic
- **Communication Distance (Max.)** — 100 m @ 20 Mbps w/32 slave modules
- **Slave Module** — Digital I/O, Motion Control, Analog I/O

General

- **Bus Type** — PC/104+
- **Certification** — CE, FCC Class A
- **Connectors** — 4 x 10-pin box header
- **Dimensions (L x H)** — 96 x 90 mm (3.8" x 3.5")
- **Power Consumption** — 5 V_{DC} @ 0.5 A typical
- **Humidity** — 5 ~ 95% RH, non-condensing (IEC 60068-2-3)
- **Operating Temp.** — 0 ~ 60°C (32 ~ 140°F)
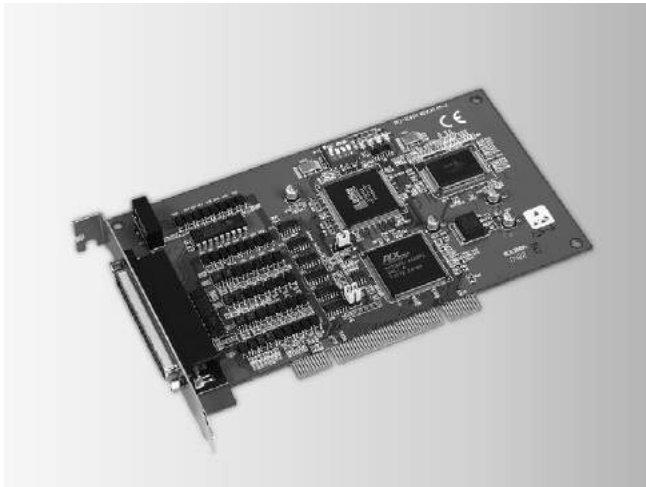- **Storing Temp.** — -20 ~ 85°C (-4 ~ 185°F)

Ordering Information

- **PCM-3202P-AE** — 2-port PC/104+ AMONet RS-485 Master Card

ADVANTECH   **Motion Control**

AMAX-1220
AMAX-1240

Open Frame Type 2/ 4-axis AMONet Motion Slave Modules

NEW

AMAX-1220   AMAX-1240

RoHS COMPLIANT 2002/95/EC   CE FCC

Features

- End limit logic is switchable (high or low active)
- BoardID is switchable
- Easily visible LED indicators on board to do diagnosis
- Direct wire to servo drive to save terminal board space while installation
- Max. 6.5 MHz, 4-axis pulse output
- 28 bits counter for incremental encoder
- Horizontal installation for for servo or stepping motor driver
- Suitable for DIN-rail mounting

Introduction

AMAX-1220 and AMAX-1240 have compact open frame designs for horizontal placement and an interface connector mounted on the board. With a transfer cable to servo drive, both models can conveniently connect to Mitsubishi J3, Yaskwa Sigma V and Panasonic A4/A5.

The AMAX-1220 is an economic 2-axis AMONet slave module which supports motion functionality in point-to-point (PTP), linear & circular interpolation, simultaneously start/stop among multiple slave modules, and brake signal to servo for emergence consideration. The AMAX-1240 is an advanced 4-axis AMONet slave module which not only supports AMAX-1220 motion functionality, but also supports advanced features in position compare and triggering function. Both linear interval and table setups are supported.

Specifications

Pulse Type Motion Control

- **Motor Driver Support**   Pulse-type servo
- **Number of Axes**   AMAX-1220: 2
  AMAX-1240: 4
- **Interpolation**   Linear and circular
- **Max. Output Speed**   6.5 Mpps
- **Step Count Range**   ±134, 217, 728
- **Pulse Output Type**   OUT/DIR, CW/CCW, A/B phase
- **Position Counter**   ±134, 217, 728
- **Home Modes**   13
- **Velocity Profiles**   T-Curve, S-Curve
- **Local I/O**
  Machine Interfaces: EL+/-, ORG and SD (Slow Down) for Each Axis
  Servo Driver Interfaces: ALM, RDY, SVON, INP, Break for Each Axis
  Position Compare I/O: LTC, CMP for Each Axis(Only available for AMAX-1240-AE)
  Simultaneous Move Within
  Multiple Modules: CSTA/CSTP (Simultaneously Start/Stop) for each model
  General Purpose I/O: AMAX-1220 supports 8xDI and 8xDO

Encoder Interface

- **Input Type**   A/B phase, CW/CCW
- **Counts per Enc. Cycle**   x1, x2, x4 (AB phase only)
- **Input Range**   Low: 0 ~ 0.5V
  High: 3.5 ~ 7V
- **Isolation Protection**   2,500 V_{RMS}
- **Max. Input Frequency**   2 MHz @ 5 V

General

- **Bus Type**   AMONet RS-485
- **Certification**   CE, FCC Class A
- **Connectors**   RJ-45 x 2 are for communication port
  DB-26 connector by transfer cable to servo drives. Other are screw terminal type connectors
- **Dimensions (L x W x H)**   141 x 108 x 60 mm (5.6" x 4.3" x 2.4")
- **System Power Consumption**   2 W @ 24 V typical
  Output Channel Power Consumption   120W typical, 240W max.
  Input Channel Power Consumption   AMAX-1220: 8 W @ 24 V external power (max.)
  AMAX-1240: 10 W @ 24 V external power (max.)
- **System Power Input**   24 V_{DC} within 200 mV ripple
- **Humidity**   5 ~ 95% RH, non-condensing (IEC 60068-2-3)
- **Operating Temperature**   0 ~ 60°C (32 ~ 140°F)

Ordering Information

- **AMAX-1220-AE**   Economic 2-axis AMONet Motion Control Module
- **AMAX-1240-AE**   Advanced 4-axis AMONet Motion Control Module

Accessories

- **PCL-10153PA5-2E**   50-pin Cable to Panasonic A4 and A5 Servo, 2 m
- **PCL-10153PA5LS-2E**   50-pin Cable to Panasonic MINAS A Servo, 2 m
- **PCL-10153YS5-2E**   50-pin Cable to Yaskawa Sigma V Servo, 2 m
- **PCL-10153MJ3-2E**   50-pin Cable to Mitsubishi J3 Servo, 2 m
- **PCL-10153DA2-2E**   50-pin Cable from ADAM-3955/ADAM-3956 to Delta A2 Servo, 2 m

AMAX-1752
AMAX-1754
AMAX-1756

Open Frame Type 32-ch Isolated Digital Input/Output Slave Modules

NEW

| AMAX-1752 | AMAX-1754 | AMAX-1756 |

RoHS COMPLIANT 2002/95/EC CE FCC
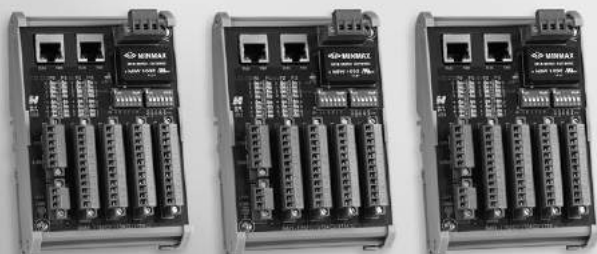
Features

- Communication baud rate, 2.5Mbps, 5Mbps, 10Mbps and 20Mbps are supported and switchable
- Onboard screw terminal for direct wiring
- 2,500 VRMS Isolation voltage
- Suitable for DIN-rail mounting
- BoardID is switchable
- Easily visible LED indicators on board to do diagnosis

Introduction

The AMAX-1752, AMAX-1754 and AMAX-1756 are compact open frame designs for horizontal placement, on-board screw terminal for direct wiring and on-board easily-visible LED indicators are for system diagnosis. All the digital I/O slave modules could be connected and distributed by standard LAN cables thereby saving wiring costs and maintenance. Three models are introduced: 32-ch digital input (AMAX-1752), 32-ch digital output (AMAX-1754) and 16-ch digital input/output (AMAX-1756). According to maximum communication baud rate, 2048 I/O points can be scanned and updated within 1.04 ms.

Specifications

Isolated Digital Input

- **Channels** AMAX-1752: 32
  AMAX-1756: 16
- **Input Type** Dry contact
- **Isolation Protection** 2,500 V_{RMS}
- **Opto-Isolator Response** 100 µs (max.)
- **Input Resistance** 3.2kΩ

Isolated Digital Output

- **Channels** AMAX-1754: 32
  AMAX-1756: 16
- **Output Type** Sink (NPN) (open collector Darlington transistors)
- **Isolation Protection** 2,500 V_{RMS}
- **Output Voltage** 10 ~ 30 V_{DC}
- **Sink Current** 1 ch: 500 mA (1 port)

General

- **Bus Type** AMONet RS-485
- **Certification** CE, FCC Class A
- **Connectors** (1) RJ-45 x 2 are for communication port
  (2) I/O points use screw terminal type connector
- **Dimensions** 141 x 95 x 60 mm (5.6" x 3.7" x 2.4")
- **Power Consumption** 600mW typical, 2 W max.
- **Power Input** 24 V_{DC} within 200 mA ripple
- **Power Supply for DIO** 10 ~ 30 V_{DC} (2A max)
- **Humidity** 5 ~ 95% RH, non-condensing (IEC 60068-2-3)
- **Operating Temperature** 0 ~ 60°C (32 ~ 140°F)

Ordering Information

- **AMAX-1752-AE** Open Frame Type 32-ch Isolated Digital Input AMONet Module
- **AMAX-1754-AE** Open Frame Type 32-ch Isolated Digital Output AMONet Module
- **AMAX-1756-AE** Open Frame Type 16/16-ch Isolated Digital I/O AMONet Module

ADVANTECH | **Motion Control**

EtherCAT Solution Introduction

Introduction

EtherCAT (Ethernet Control Automation Technology) is a high-performance, Ethernet-based fieldbus industrial network system. The protocol is standardized in IEC 61158 and applies to automation applications that need faster and more efficient communications. Short data update times with precise synchronization make EtherCAT suitable for real-time requirements in automation technology.

EtherCAT Features

Functional Principle

In EtherCAT network, the Master sends Ethernet frames through all of the slave nodes. The Standard Ethernet packet or frame is no longer received, interpreted, and copied as process data at every node. Instead, slave devices read the data addressed to them and input data are also inserted in the same time while the telegram passes through the device, processing data "on the fly". Typically the entire network can be addressed with just one frame.
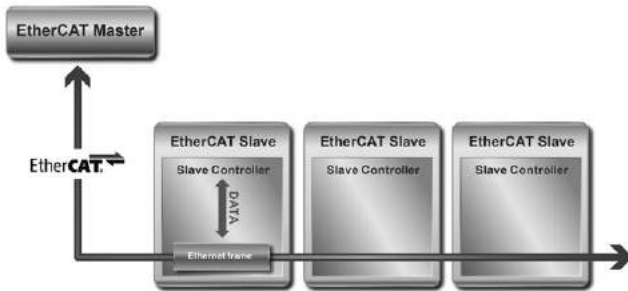
Protocol

Data exchanges are cyclically updated between EtherCAT Masters and Slaves. Data in EtherCAT frames is transported directly within the IEEE 802.3 Ethernet frame using Ethertype 0x88a4 and are processed by the EtherCAT Slave Controller on the fly. Each EtherCAT datagram is a command that consists of a header, data and a working counter. The datagram header indicates what type of access the master device would like to execute:

- Read, write, read-write
- Access to a specified slave device through direct addressing
- Access to multiple slave devices through logical addressing

Logical addressing is used for the cyclical exchange of process data. The header and data are used to specify the operation that the slave must perform, and the working counter is updated by the slave to let the master to know that a slave has processed the command.

Every EtherCAT datagram ends with a 16 Bit Working Counter (WKC). The Working Counter counts the number of devices that were successfully addressed by this EtherCAT datagram.

EtherCAT datagrams are processed before receiving the complete frame. In the case that the data is invalid, the frame check sum (FCS) is not valid and the slave will not set data for the local application.
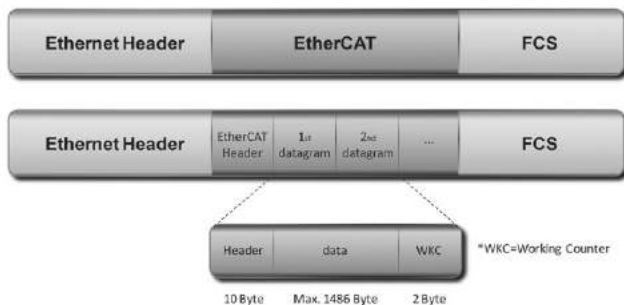
Topology

EtherCAT supports a variety of network topologies, including line, tree, ring and star. The line and tree topologies are more conducive to fieldbus applications because they require fewer connections and utilize a much simpler and more flexible cabling schema that switches and hubs are not necessary for lines or trees topology.

Inexpensive industrial Ethernet cable can be used between two nodes up to 100m apart in 100BASE-TX mode. EtherCAT makes a pure bus or line topology with hundreds of nodes possible without the limitations. Up to 65,535 devices can be connected to EtherCAT, so network expansion is almost unlimited.

EtherCAT supports individual nodes to be connected/disconnected during operation. If one of the slaves in the network is removed, the rest of the network can continue to operate normally. EtherCAT also enables other communication features such as cable redundancy or master redundancy with Hot Standby.

Synchronization

Distributed Clocks (DC) mechanism provides highly precise time synchronization between slaves in an EtherCAT network, which is equivalent to the IEEE 1588 Precision Time Protocol standard. By using distributed clocks, EtherCAT is able to synchronize the time in all local bus devices within a very narrow tolerance range. All EtherCAT slaves are provided with an internal clock which named as System Time ($t_{Local\ Time}$). One EtherCAT Slave, is used as a Reference Clock and distributes its Clock cyclically.

Possible misalignment between the reference clock and the clocks of the other slaves are caused when a slave is switched on, the internal free-running register that holds the current time is reset to zero. Unfortunately, this action doesn't happen at the same time, and this result in an initial offset (t_{offset}) among clocks has to be compensated.

Typically, masters send a broadcast to all other slaves in the system. Having received the message, slaves will latch the value of their internal clock. There are two latch values, one is receiving and the other is returning back. Thus, the master can read all latched values and calculate the delay for each slave ($t_{Propagation\ Delay}$). Delays will be stored into offset register. In the following, the master will send a message periodically to all other slaves in EtherCAT network to make the first slave the reference clock and forcing all other slaves to set their internal clock by the calculated offset.

$$\Delta t = \left(t_{Local\ Time} + t_{Offset} - t_{Propagation\ Delay}\right) - t_{Received\ System\ Time}$$

Because synchronization between slaves in DC mode is done by internal clocks in hardware, EtherCAT guarantee the time jitter is less than 1us.

Diagnosis with exact localization
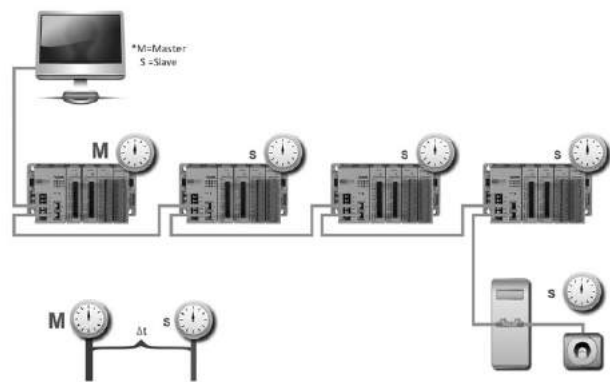
EtherCAT is an ultra-fast I/O system. To reach the best high-speed communication, high communication accuracy is demanded. EtherCAT comprises a wide range of system-inherent diagnostic features which help detect and locate system errors precisely.

Every EtherCAT datagram ends with a 16 Bit Working Counter (WKC) to count the number of devices that were successfully addressed by this EtherCAT datagram. The Master can check the data exchange situation by WKC in the same cycle and the error frame can be detected by analyzing the nodes' error counters. The slave application will be executed only as the frame is received correctly.

The automatic evaluation of the associated error counters enables precise localization of critical network sections.

Bit errors during transmission are detected reliably by the analysis of the CRC (Cyclic Redundancy Check) check sum. CRC is an error-detecting code commonly used in digital networks and storage devices to detect accidental changes to raw data.

In addition to the error detection and localization protocol, transmission physics and topology of the EtherCAT system allow an individual quality monitoring of every single transmission path.

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

PCI-1203

2-port EtherCAT Universal PCI Master Card

NEW

RoHS COMPLIANT 2002/95/EC CE FC
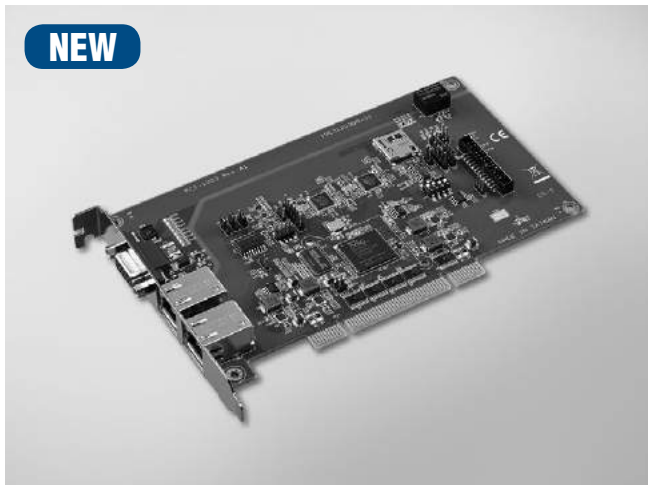
Features

- 650MHz dual-core ARM processor
- On-board real-time OS support
- Support common motion SDK for user programming
- Support ADAM-5000/ECAT salve device
- Support EtherCAT Drive/motor IO slave device
- 20-ch customer-defined programmable GPIOs by extension board
- MicroSD slot is designed for data logger
- Unique slot-number assignment via DIP switch

Introduction

PCI-1203 is a 2-port EtherCAT PCI Universal card. It is a ready-to-use, embedded software and Ethernet control development platform for all PC-based industrial automation. The EtherCAT protocol stack is executed autonomously on the PCI card and process data is exchanged via Dual-Port RAM without wasting CPU time.

It allows the host to handle up to 2 EtherCAT network with two trimode (1Gbit/100Mbit/10Mbit) Ethernet PHY. There is extremely short cycle time for pure IO application. For motion control, communication cycle time is no more than 1ms for connecting 24 axes of servo motors and 20 sets of ADAM-5000/ECAT high speed I/O system. An additional microSD slot is designed for data logger. Besides, there are 4- channel isolated digital outputs and 8-channel isolated inputs with 100KHz bandwidth on PCI-1203 to meet the extra I/O requirement. The resulting machine control is highly customizable and has hard real-time, high-precision capabilities.

In addition, all Advantech motion controllers use the "Common Motion API" architecture which is a unified user programming interface and graphical utility. This architecture saves application maintenance and upgrades. Programmers can benefit from integrating any Advantech SoftMotion controller without changing large amounts of the application code. User-friendly examples decrease programming load, helping users complete configuration and diagnosis easily.

Specifications

EtherCAT

Number of Rin	2 rings
Memory	256MB DDR3 x 16 (1600Mbps bandwidth) 32MB Serial Flash QSPI Interface x 1 Micro SD x 1
Serial Interface	Trimode (1Gbit/100Mbit/10Mbit) Ethernet PHY x 2
Cable Type	CAT5 UTP/STP Ethernet cable and above
Surge Protection	10 kV
Communication Time	100us~1ms Max.
Communication Motion Slave	24 Servo Drvie Max.(eq. Panasonsic A5B)
Communication IO Slave	128 port DI (128 byte) / 128 port DO (128 byte) 128 channel AI (256 byte) and 128 channel AO (256 byte) (based on ADAM-5000/ECAT)

Isolated Digital Input

Channels	4
Input Voltage	Dry contact (need external input voltage +24V)
Isolation Protection	1,500 V_{DC}
Input Resistance	8.4 kΩ

Isolated Digital Output

Channels	8
Output Type	Sink
Isolation Protection	1,500 V_{DC}
Output Voltage	10 ~ 30 V_{DC}
Sink Current	1 ch: Max. 0.3 A

General

Bus Type	Universal PCI V2.2
certification	CE, FCC Class A
Connectors	2 x RJ45, 1x GPIO box header
Dimensions (L x H)	175 x 100 mm (6.9" x 3.9")
Power Consumption	5 VDC @ 0.5 A typical
Humidity	5 ~ 95% RH, non-condensing (IEC 60068-2-3)
Operating Temp.	0 ~ 60°C (32 ~ 140°F)
Storage Temp.	-20 ~ 85°C (-4 ~ 185°F)

Ordering Information

- **PCI-1203-AE**   2-port EtherCAT Universal PCI Master Card

ADAM-5000/ECAT

4-slot Distributed High Speed I/O System for EtherCAT

Features

- 32-bit ARM RISC Processor
- 4 slots with various digital and analog I/O modules is just a single EtherCAT node on the network.
- Supports EtherCAT Distributed Clock (DC) mode and SyncManager mode
- Supports the Modular Device Profile (MDP) when all modules are a pure I/O function
- Configure I/O module parameters and upgrade via a utility
- Node addresses can be fixed by rotary switches, or set by software
- Compatible with Advantech Common Motion SDK or other EtherCAT master through ENI file generation
- 8-bit DIP switch for Mode setting and three rotate switch for up to 4,096 slave IDs (x1, x10, x100)

* I/O modules are optional

RoHS COMPLIANT 2002/95/EC CE FCC

Introduction

The ADAM-5000/ECAT 4-slot distributed flexible system can provide high-speed, high-precision remote I/O for EtherCAT. It is the link between the EtherCAT automation control network and the EtherCAT I/O modules ranging from basic DI/O's to high-speed AI/O models for different application scenarios. All our EtherCAT devices have been designed and tested to meet Advantech's stringent requirements on noise immunity. Fast, accurate, highly -efficient data transmission and easy remote configuration make ADAM-5000/ECAT the perfect match in industrial automation architecture.

Specifications

Control System

CPU	32-bit ARM RISC Processor
I/O Slots	4
Memory	Flash ROM: 64M SPI RAM: 4G DDR3
Operating System	Real-time OS
LED Indicators	Power LED System status LED EtherCAT RUN LED EtherCAT ERROR LED EtherCAT Port 0 LINK LED EtherCAT Port 1 LINK LED

Communications

Data Transfer Rate	Up to 100 Mbps
Communication Cycle Time	100 us
Interface	2 x RJ-45
Wiring	UTP, category 5 or greater

Power

Power Consumption	2.5 W @ 24 V_{DC} (not including I/O modules)
Power Input	10 ~ 30 V_{DC}

Software

API	Advantech Common Motion Library
Windows Utility	Network setting, I/O configuration & calibration

Protection

I/O Module Isolation	3.000 V_{DC}
LAN Communication	1.500 V_{DC}
Overvoltage Protection	Yes
Power Reversal Protection	Yes

General

Certification	CE, FCC class A
Connectors	1 x Screw-terminal for RS-485 (communication) 1 x DB9-M for RS-232 (internal use) 1 x Screw-terminal for power input 2 x RJ-45
Dimensions (W x H x D)	231 x 110 x 75 mm
Mounting	DIN-rail, wall

Environment

Operating Humidity	5 ~ 95%, non-condensing
Operating Temperature	- 10 ~ 70°C (14 ~ 158°F)
Storage Temperature	- 25 ~ 85°C (-13 ~ 185°F)

Ordering Information

ADAM-5000/ECAT	4-slot EtherCAT Distributed High Speed I/O System

EtherCAT IO Module Selection Guide

Analog Input/Output Modules

	Module	ADAM-E5017	ADAM-E5017UH	ADAM-E5024H	ADAM-E5051S	ADAM-E5053S
Analog Input	Resolution	16 bit	12 bit	-	-	-
	Input Channel	8	8	-	-	-
	Sampling Rate	10 (total*)	200K**	-	-	-
	Voltage Input	±150 mV, ±500 mV ±1 V, ±5 V, ±10 V	±10 V, 0 ~ 10 V	-	-	-
	Current Input	±20 mA	0 ~ 20 mA, 4 ~ 20 mA	-	-	-
	Direct Sensor Input	-	-	-	-	-
Analog Output	Output Channels	-	-	4	-	-
	Resolution	-	-	12 bit	-	-
	Voltage Output	-	-	0 ~ 10 V	-	-
	Current Output	-	-	0 ~ 20 mA 4 ~ 20 mA	-	-
Digital Input and Digital Output	Digital Input Channels	-	-	-	16 (ADAM-5051) 16w/LED (5051D/5051S)	32
	Digital Output Channels	-	-	-	-	-
Isolation		3,000 V$_{DC}$	3,000 V$_{DC}$	3,000 V$_{DC}$	2,500 V$_{DC}$ (5051S)	2,500 V$_{DC}$
Page		online	online	online	online	online

*Sampling rate value depends on used channel number.
Example: Using 5 channels on ADAM-E5017, sampling rate for each used channel will be 10/5 = 2 samples/second.
**The sampling rate vary with the controller.

Digital Input/Output Modules
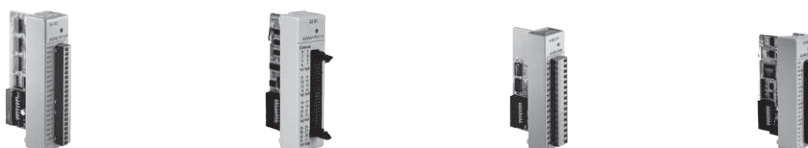
	Module	ADAM-E5056S ADAM-E5056SO	ADAM-E5057	ADAM-E5069	ADAM-E5082
Digital Input and Digital Output	Digital Input Channels	-	-	-	-
	Digital Output Channels	16 w/LED	32	8 power relay (form A)	-
Counter (32-bit)	Channels	-	-	-	2
	Input Frequency	-	-	-	5 Hz ~ 1 MHz max. (frequency mode) 1 MHz max. (counter mode)
	Mode	-	-	-	Frequency, Counter (Up/Down, Bi-direction, Up, A/B/Z Phase)
Communication	Channels	-	-	-	-
	Type	-	-	-	-
Isolation		2,500 V$_{DC}$	2,500 V$_{DC}$	-	2,500 V$_{DC}$
Page		online	online	online	online

ADVANTECH Motion Control

Selection Guide

1 WebAccess+ Solutions

2 Motion Control

3 Power & Energy Automation

4 Automation Software

5 Intelligent Operator Panel

6 Automation Panels

7 Panel PCs

8 Industrial Wireless Solutions

9 Industrial Ethernet Solutions

10 Industrial Gateway Solutions

11 Serial communication cards

12 Embedded Automation PCs

13 DIN-Rail IPCs

14 CompactPCI Systems

15 IoT Wireless I/O Modules

16 IoT Ethernet I/O Modules

17 RS-485 I/O Modules

18 Data Acquisition Boards

Motion Controller	Cable	Terminal Board	Cable for Motor

PCI-1285 / PCI-1285E

PCL-101100SB-1E/2E/3E x 2

ADAM-3956 x 2
ADAM-39100 x 2

- PCL-10153PA5-2E for Panasonic A4/A5 series
- PCL-10153PA5LS-2E Panasonic MINAS A series
- PCL-10153MJ3-2E Mitsubishi J3 series
- PCL-10153YS5-2E Yaskawa SigmaV series
- PCL-10153DA2-2E Delta A2 series

PCI-1265

PCL-10152-1E/3E + PCL-10251-1E/3E

ADAM-3952 x 3
ADAM-3955 x 3

PCL-10152-1E/3E + PCL-101100M-1E/2E/3E

ADAM-3952/3955 + ADAM-39100/ADAM-3956

- PCL-10153PA5-2E for Panasonic A4/A5 series
- PCL-10153PA5LS-2E Panasonic MINAS A series
- PCL-10153MJ3-2E Mitsubishi J3 series
- PCL-10153YS5-2E Yaskawa SigmaV series
- PCL-10153DA2-2E Delta A2 series

PCI-1245 / PCI-1245E / PCI-1245L / PCI-1240U

PCL-10251-1E/3E

ADAM-3952 x 2
ADAM-3955 x 2

PCL-101100M-1E/2E/3E

ADAM-3956
ADAM-39100

- PCL-10153PA5-2E for Panasonic A4/A5 series
- PCL-10153PA5LS-2E Panasonic MINAS A series
- PCL-10153MJ3-2E Mitsubishi J3 series
- PCL-10153YS5-2E Yaskawa SigmaV series
- PCL-10153DA2-2E Delta A2 series

PCI-1243U

PCL-10162-1E/3E

ADAM-3962

PCI-1220U

PCL-10152-1E/3E

ADAM-3952
ADAM-3955

- PCL-10153PA5-2E for Panasonic A4/A5 series
- PCL-10153PA5LS-2E Panasonic MINAS A series
- PCL-10153MJ3-2E Mitsubishi J3 series
- PCL-10153YS5-2E Yaskawa SigmaV series
- PCL-10153DA2-2E Delta A2 series

PCL-839+

PCL-10137-1E/2E/3E

ADAM-3937

Selection Guide

| Motion Controller | | Slave Motion Module | | Cable for Motor |

Motion Controller

Slave Motion Module

Cable for Motor

AMAX-1220

PCL-10153PA5-2E for Panasonic A4/A5 series

PCL-10153PA5LS-2E Panasonic MINAS A series

PCL-10153MJ3-2E Mitsubishi J3 series

AMAX-1240

PCL-10153YS5-2E Yaskawa Sigma II series

PCL-10153DA2-2E Delta A2 series

AMAX-2241/PMA

PCL-10150M-2E
Panasonic MINAS A / Yaskawa SigmaV series

PCI-1202U

40 pin Flat Cable

Terminal Board

ADAM-3940

Slave DI/O Module

Cat 5e LAN Cable

AMAX-1752

PCM-3202P

AMAX-1754

AMAX-1756

AMAX-2752SY

AMAX-2754SY

AMAX-2756SY

Accessories

ADAM-3940

40-pin Wiring Board with LED

Features

- DIN-rail wiring board
- Dimensions (W x L x H): 160 x 50 x 43 mm (6.3" x 2" x 1.7")
- 40-pin box header connector
- LED indicators

To Be Used With

AMAX-2241, AMAX-2242, AMAX-2243
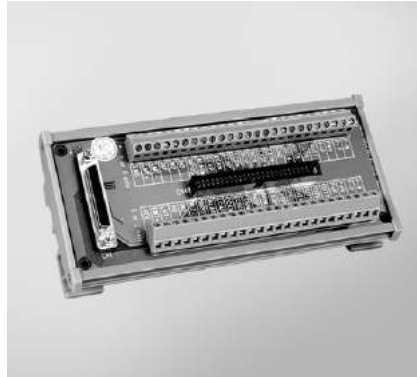
ADAM-3952

50-pin SCSI and IDC DIN-rail Wiring Board

Features

- DIN-rail wiring board
- Dimensions (W x L x H): 77.5 x 179.5 x 41.5 mm (3.1" x 7.1" x 1.6")
- 50-pin SCSI and IDC connectors

To Be Used With

PCI-1220U, PCI-1240U, PCI-1245, PCI-1245E, PCI-1245L, PCI-1265, PEC-3240
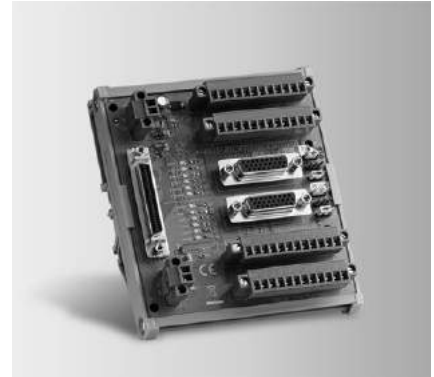
ADAM-3955

50-pin SCSI DIN-rail Motion Wiring Board

Features

- DIN-rail wiring board
- Dimensions (W x L x H): 103 x 120 x 45 mm (4.12" x 4.8" x 1.8")
- DB-26 and connector
- LED indicators

To Be Used With

PCI-1220U, PCI-1240U, PCI-1245, PCI-1245E, PCI-1245L, PCI-1265, PEC-3240

ADAM-3956

100-pin SCSI DIN-rail Motion Wiring Board

Features

- DIN-rail wiring board
- Dimensions (W x L x H): 122 x 171 x 45 mm (4.8" x 6.73" x 1.77")
- DB-26 and connector
- LED indicators

To Be Used With

PCI-1240U, PCI-1245, PCI-1245E, PCI-1245L, PCI-1265, PCI-1285, PCI-1285E
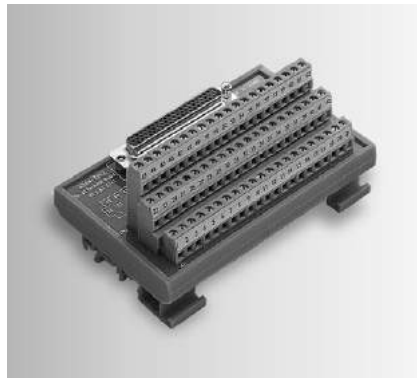
ADAM-3962

DB62 DIN-rail Wiring Board

Features

- Low cost universal DIN-rail mounting screw terminal module with DB62 female connector
- Screw-clamp terminal blocks allow easy and reliable connections
- Case dimensions (W x L x H): 77.5 x 124.5 x 63.5 mm (3.1" x 4.9" x 2.5")

To Be Used With

PCI-1243U
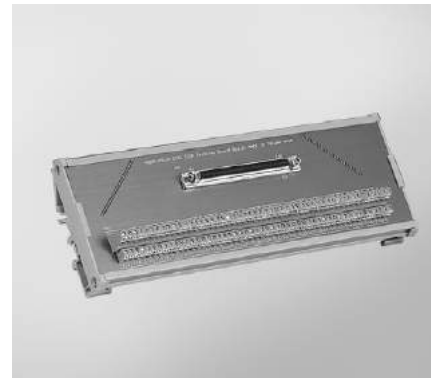
ADAM-39100

100-pin DIN-rail SCSI Wiring Board

Features

- Low cost universal DIN-rail mounting screw terminal module for industrial applications with 100-pin SCSI female connector
- Dimensions (W x L x H): 80 x 230 x 42 mm (3.14" x 9.05" x 1.65")

To Be Used With

PCI-1240U, PCI-1245, PCI-1245E, PCI-1245L, PCI-1265, PCI-1285, PCI-1285E

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9 Industrial Ethernet Solutions
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17 RS-485 I/O Modules
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Cable Accessory

PCL-101100M

100-pin SCSI Cable

PCL-10162

DB-62 Cable

PCL-10150M

50-Pin SCSI Cable, Ribbon Type

PCL-10152

50-pin SCSI Cable

PCL-10251

100-pin to Two 50-pin SCSI Cable

PCL-10153PA5

50-pin Cable to Panasonic A4 and A5 Servo

PCL-10153YS5

50-pin Cable to Yaskawa Sigma V Servo

PCL-10153MJ3

50-pin Cable to Mitsubishi J3 Servo

PCL-10153PA5LS

50-pin Cable to Panasonic MINAS A Servo

PCL-10153DA2

50-pin Cable to Delta A2 Servo

PCL-101100SB

Mini-SCSI 100-pin Cable

Power & Energy Automation

3

Power & Energy Automation Overview

Introduction

Advantech is dedicated to exploring new technologies for the power and energy industry. With an edge in the research and design of industrial products, Advantech provides rugged and highly reliable system components that are not only environmentally friendly, but also power efficient with control technology enabled by intelligent software. Advantech's products can be applied to various power and energy markets, including renewable solar and wind power generation, nuclear simulation, substation automation systems, electrical car charging station solutions, and building energy saving systems.

On the other hand, power & energy applications are becoming more and more critical as demand for electricity continues to increase worldwide. Additionally, new challenges are arising due to the limitations of traditional power resources as we try to minimize the impact our power usage has on the environment. To that end, renewable energies, such as wind and solar power are playing more significant roles in modern electricity grids. Furthermore, the modernization of legacy Transmission & Distribution (T&D) systems and providing reliable T&D information for electric power management are becoming key goals for today's power and energy applications. Thus, Advantech's power & energy solutions will focus on renewable energy generation and substation automation system development.

Smart Substation Automation

Station and Bay Level Application

▪ HMI/SCADA Application in Substations

Working status of devices within cabinet is controlled and monitored via HMI/SCADA, besides information and event trigger collection, time synchronization, such as IRIG-B function is also implemented in the automation controller.

- ▪ Application Requirements
  – Reliable IEC 61850-3 platform
  – Redundancy

▪ Cyber Security for Smart Grids

Communication within smart substations is based on network connection, and so is connection between smart substations. Hence, the cyber security to ensure smart substation maintenance becomes more critical than before. The UTM (Unified Threat Management) is the key to preventing hacker attacks.

- ▪ Application Requirements
  – Reliable IEC 61850-3 platform
  – Fiber optic LAN

▪ Network Recorder and Analyzer

A network recorder at substation operates in the same way as an aircraft flight recorder and is critical for recording and analyzing network flow information. It is possible to record and analyze data to discover the reason behind IED damage.

- ▪ Application Requirements
  – Reliable IEC 61850-3 platform
  – High-speed computing & packet acquisition
  – Synchronized time stamp
  – RAID for storage

▪ Data Gateway for IEC 61850

Within a substation, there are lots of devices using a wide variety of protocols. Status and information of devices need to be monitored and controlled reliably; hence, a reliable automation controller plays such an important data protocol gateway, communication server and IED analyzer at a substation.

- ▪ Application Requirements
  – Reliable IEC 61850-3 platform
  – Isolated COM port
  – IRIG-B Time Sync. Receiver
  – Fiber optic LAN

Bay and Process Level Application

▪ Partial Discharge Detection & Analytic Device

In electrical engineering, partial discharge is a localized dielectric breakdown if a small portion of a solid or fluid electrical insulation system under high voltage stress, which does not bridge the gap between two conductors. Protracted partial discharge can erode solid insulation and eventually lead to breakdown of insulation. Hence, a detection and analytic device to monitor the partial discharge is essential.

- ▪ Application Requirements
  – Reliable IEC 61850-3 platform
  – High-speed analog input for partial discharge detection

▪ Vibration Detection & Analytic Device

The most common cause of power transformer failures in mechanical defect is excessive vibration, which is formed by the combination of multiples of a frequency of 120 Hz. The vibration generated from machine structures causes abnormal vibration, breakage of machine and noise. The vibration level depends on the transformer construction and design, and it is increased through fault current, phase to ground or phase to phase fault. This electrical fault will change the transformer core or winding construction by mechanical force produced. The effect of the fault can be found by measuring the vibration level before and after several faults on low voltage side. Thus, a vibration analysis of the structure is important to prevent this vibration.

- ▪ Application Requirements
  – Reliable IEC 61850-3 platform
  – High-speed analog input for partial discharge detection

▪ Distribution Substation RTU Application

In substation automation systems, the RTU has interfaces towards protection and control equipment, as well as metering devices and other automation products. Local and remote monitoring and control can be easily achieved via the integrated RTU. The IEC 61850 client and server functionality of the RTU opens up an additional application area. It allows the combination of traditional protocols, parallel wiring and the IEC 61850 station bus. The hybrid solution provides the possibility to gradually upgrade the station to an IEC 61850 architecture.

- ▪ Application Requirements
  – High isolation for I/O and communication
  – Powerful platform bundled with high density I/O

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16 IoT Ethernet I/O Modules

17 RS-485 I/O Modules

18 Data Acquisition Boards

Renewable Solar Energy and Wind Power Generation

Renewable solar and wind generation play important roles in high power and low carbon demand. With harsh environment factors, such as drastic day-night temperature differences, dust/sand storms, vibration, heat and electrical noise, Advantech provides rugged, reliable and real-time communication, monitoring, tracking, testing and DAQ control solutions for renewable energy applications.

Wind Power Generation Monitoring Solution

Wind Power Turbine Gearbox Vibration Monitoring System

The vibration signals of a wind turbine gearbox contain a wide range of data, which can be used to detect defects within the gearbox. With an Energy Controller, vibration signal modulation card and simultaneous analog input card, Advantech provides an ideal solution for a Wind Power Turbine Gearbox Vibration Monitoring System. With a redundant Ethernet communication port, the analysis of data can be transferred to the remote management center in real time.

Wind Power Box-type Transformer Monitoring System

Box-type substations in a wind power turbine integrate the generated power into a power grid. Like traditional substation monitoring systems, the status of the transformer must be monitored in real time. Advantech Energy remote I/O monitors the status of the various parts of the transformer i.e. oil temperatures, 3-phase voltage, current, active and in-active power, and transfers the data to the remote control center via Ethernet.

Solar Power Monitoring System

Solar Power Plant management requires fast sampling, recording and analysis of data such as sunlight strength and overall direct current power. Average energy conversion efficiency of solar cell modules and power converters are also important. Advantech's Open Embedded Controllers, compact and fanless UNO-1000 series, can serve as communication controllers and protocol converters. Also, Advantech offers Data acquisition I/O modules, ADAM-4000 series, including ADAM-4117 analog input module, ADAM-4118, thermocouple input module, and ADAM-4150 digital I/O module, which support Modbus communication protocol and are used to measure and collect solar plant information.

P&E Automation Computers

NEW **NEW** **NEW**

Model Name	UNO-4671A	ECU-4674	ECU-4574	UNO-4673A/4683	ECU-4784
Certification	IEC 61850-3 / IEEE 1613 Compliant China Electricity Certificate IV level	IEC 61850-3 / IEEE 1613 Compliant China Electricity Certificate IV level	IEC 61850-3/IEEE 1613 China Electricity Certificate IV level	IEC 61850-3/IEEE 1613 Compliant China Electricity Certificate IV level	IEC 61850-3/ IEEE 1613/ UL Certificate
CPU	Intel Atom D510 1.66GHz Intel Atom D525 1.8GHz	Intel Atom N2600 1.66GHz	Intel Atom N2600 1.66GHz	Intel Atom D510, 1.6 GHz Intel Core i7, 2.0 GHz	Intel Haswell Core i7-4650U 1.7 GHz
RAM	2GB DDR2 SDRAM 4GB DDR3 SDRAM	2G DDR3 SDRAM	2G DDR3 SDRAM	2GB DDR2 SDRAM 4GB DDR3 SDRAM	8G DDR3L SDRAM 16G DDR3L SDRAM
Battery-Backup RAM	-	1 MB	1 MB	1 MB	-
Display	VGA	VGA	VGA	VGA/DVI-I	VGA/DVI
Serial Ports	2 x Isolated RS-232, 4 x Isolated RS-422/485, 4 x Isolated RS-485	2 x Isolated RS-232, 16 x Isolated RS-232/485	2 x isolated RS-232 8 x isolated RS-232/485	2 x Isolated RS-232/422/485	2 x Isolated RS-232 (Standard), 8 x RS-232/422/485
Ethernet Ports	6 x 10/100Base-T RJ-45/ 2 x 10/100/1000Base-T and 4 x 10/100 Base-T RJ-45	2 x 10/100/1000Base-T 6 x 10/100Base-T	2 x 10/100/1000Base-T 6 x 10/100Base-T	2 x 10/100/1000, 4 x 10/100 Base-T RJ-45	1 x 10/100/1000 Base T RJ45 (Support AMT) 7 x 10/100/1000 Base T RJ45
Smart LAN	-	-	-	-	-
USB Ports	Four (One internal)	Five (One internal)	Four	Six (One internal)	Six (One internal)
PC/104 Expansion	PCI-104	PCI-104	-	-	-
Onboard I/O	-	8 x isolated DI, 8 x isolated DO	-	-	-
Watchdog Timer	Yes	Yes	Yes	Yes	Yes
CompactFlash Slots	One Internal	One Internal	One Internal	One Internal	One Internal
2.5" HDD Expansion	1 x SATA	2 x SATA	1 x SATA	1 x SATA	2 x SATA
Operating Systems	WES2009, WES7, Windows CE 6.0 and Linux	WES7, Windows7, Linux	WES 7, WES 2009, Windows XP, Windows CE 6.0, Linux	WES, Windows XP Embedded, Windows CE 6.0, Windows 2000/XP, Linux, QNX, Window server 2008 R2 (64bits)	WES7, Windows7,Linux Window server 2008 R2 (64bits)
Mounting	2U Rackmount	2U Rackmount	1U Rackmount	2U Rackmount	2U Rackmount
Anti-Vibration	2 G w/CF, 0.5 G w/HDD	2 G w/CF, 1 G w/HDD	2 G w/CF, 1 G w/HDD	2 G w/CF, 1 G w/HDD	2 Gw/CF, 1 Gw/HDD
Anti-Shock	30 G w/CF, 20 G w/HDD	30 G w/CF, 20 G w/HDD	30 G w/CF, 20 G w/HDD	30 G w/CF, 20 G w/HDD	30 G w/CF, 20 G w/HDD
Operating Temperature	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 70°C (-4 ~ 158°F)	-20 ~ 70°C (-4 ~ 158°F)	-20 ~ 70°C (-4 ~ 158°F)	-20 ~ 70°C (-4 ~ 158°F)
Power Consumption Typical	30 W	-	45 W	45 W	-
Power Requirements	Supports Redundant power input: Power 1:100 ~ 240 V_{AC} or 100 ~ 240 V_{DC} (Optional:18 ~ 30 V_{DC}) Power 2:100 ~ 240 V_{AC} or 100 ~ 240 V_{DC} (Optional:18 ~ 30 V_{DC})	Supports Redundant power input Power 1: 100 ~ 240 V_{AC} or 100 ~ 240 V_{DC} Power 2: 100 ~ 240 V_{AC} or 100 ~ 240 V_{DC}	Supports Redundant power input Power 1: 100 ~240 V_{AC} or 100 ~ 240 V_{DC} Power 2: 100 ~ 240 V_{AC} or 100 ~ 240 V_{DC}	Supports Redundant power input Power 1: 100 ~ 240 V_{AC} or 100 ~ 240 V_{DC} Power 2: 100 ~ 240 V_{AC} or 100 ~ 240 V_{DC}	Supports Redundant power input Power 1: 100 ~ 240 V_{AC} or 100 ~ 240 V_{DC} Power 2: 100 ~ 240 V_{AC} or 100 ~ 240 V_{DC}
Dimensions (W x D x H)	440 x 220 x 88 mm (17.3" x 8.6" x 3.4")	440 x 220 x 88 mm (17.3" x 8.6" x 3.4")	440 x 272 x 44 mm (17.3" x 8.6" x 3.4")	440 x 220 x 88 mm (17.3" x 8.6" x 3.4")	440 x 220 x 44 mm (17.3" x 8.6" x 1.7")
Weight	~5.5 kg	~6.0 kg	4.6 Kg	~6.0 kg	~6.0 kg
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Energy Automation Controller

NEW **NEW** **NEW**

Model Name	ECU-1710A	ECU-1871	ECU-1911
Certification	-	IEC 61850-3 / IEEE 1613 Compliant China Electricity Certificate IV level	-
CPU	Intel Atom D510, 1.66 GHz	Intel Atom D510, 1.66 GHz	Xscale @ PXA-270 520MHz
RAM	1GB DDR2 667MHZ	2GB DDR2 SDRAM	64MB SDRAM 32 MB Flash
Battery-Backup RAM	1MB	-	-
Display	VGA	VGA	-
Serial Ports	2 x RS-232	1 x RS-232 2 x Isolated RS-485	1 x RS-232 3 x isolated RS-485
Ethernet Ports	2 x 10/100Base-T RJ-45	2 x 10/100/1000 Base-T RJ-45	2 x 10/100Base-T RJ-45
Smart LAN	-	-	-
USB Ports	Two	Two	One
PC/104 Expansion	-	PCI-104	-
Onboard I/O	8-ch AI 4-ch AO 16-ch Isolated DI/DO 1-ch Isolated Counter	Support Expansion IO: (1) ECU-P1702: 10Ms/S, 12-bit Simultaneous 4-ch PCI-104 card (2) ECU-P1706: 250Ks/S, 16-bit Simultaneous 8-ch PCI-104 card (3) ECU-P1300: Vibration Signal Modulate card	8-ch AI 32-ch isolated DI 32-ch isolated DO
Watchdog Timer	Yes	Yes	Yes
CompactFlash Slots	One Internal	One Internal	One Internal
2.5" HDD Expansion	1 x SATA	1 x SATA	-
Operating Systems	WES2009, WinCE 5.0, Linux	WES 7, WES 2009, Windows CE 5.0 & 6.0, Linux	Windows CE 5.0
Mounting	Wall & Rack Mount	Wall & Rack Mount	DIN-rail
Anti-Vibration	-	2 G w/CF, 1 G w/HDD	-
Anti-Shock	-	30 G w/CF, 20 G w/HDD	-
Operating Temperature	-20 ~ 70°C (-4 ~ 158°F)	-20 ~ 70°C (-4 ~ 158°F)	-20 ~ 70°C (-4 ~ 158°F)
Power Consumption Typical	28 W	24 W	< 10 W
Power Requirements	18 ~ 30 V_{DC} (e.g 24 V @ 2 A) (Min. 48 W), AT	18 ~ 30 V_{DC} (e.g 24 V @ 2 A) (Min. 48 W), AT	DC: 10 ~ 30 V_{DC}
Dimensions (W x D x H)	255 x 152 x 59 mm (10" x 6.0" x 2.3")	220 x 150 x 89 mm (8.7" x 5.9" x 3.5")	266 x 146 x 45 mm (10.5" x 5.7" x 1.8")
Weight	~2.4 kg	~2.4 kg	~1.5 kg
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Extension IO Cards

Module Name		ECU-P1706	ECU-P1702
BUS		PCI-104	PCI-104
Analog Input	Resolution	16-bit	12-bit
	Channels	8	4
	Onboard FIFO	8K samples/total	32K samples/per channel
	Sampling Rate	250KS/s	10MS/s
	Input Range/ Bipolar Inputs	±10, 5, 2.5, 1.25	±5, 2.5, 1, 0.5
Timer/ Counter	Channels	2 channels (Isolation)	-
	Resolution	32-bit	-
	Max. Input Frequency	1 M Hz	-
	Isolation Voltage	2500 V_{DC}	-
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Module Name		ECU-P1300
Inputs	Voltage Input Range	±5 V Maximum*
	Channels	8
	Amplifier Input Impedance	20k (min)
	Input Coupling	AC
Outputs	Maximum Output Voltage	±10V
	Accelerometer Input	4 mA ±1% , 24 V compliant
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UNO-4671A

Intel® Atom™ D510/D525 Power & Energy Automation Computers with 6 x LAN, 10 x COM, and 1 x PCI-104

NEW

Features

- IEC 61850-3 and IEEE 1613 compliant for Power & Energy automation applications
- China Electricity Certificate IV level
- Onboard Intel Atom D510 1.66GHz/D525 1.8 GHz processor
- Supports wide range and dual power input
- 2 x RS-232 isolated ports, 4 x RS-422/485 isolated ports and 4 x RS-485 isolated ports
- 6 x 10/100Base-T RJ-45 connector/2 x 10/100/1000Base-T and 4 x 10/100 Base-T RJ-45 connector
- Supports 1 x internal CF card and 1 x 2.5" SATA HDD
- Fanless design
- WES 2009, Windows XP, Windows CE 6.0, WES7 and Linux ready solution

Windows Embedded | RoHS COMPLIANT 2002/95/EC | CCC CE FCC

Introduction

The UNO-4671A is compliant with Electricity Certificate level IV (especially for China) and IEC 61850-3 certification, which defines the international standards of network and system communications in power substations. Featuring a fanless design with low power consumption and high performance Intel Atom D510/D525 processor, the UNO-4671A comes with 10 isolated serial ports, 6 x LAN, 4 x USB (Internal) and 1 x PCI-104 extension. With rich OS and driver support, such as WES 2009, Windows XP, Windows CE 6.0, WES7 and Linux, users can integrate applications easily with a platform that can provide versatile functions to fulfill diverse requirements.

Specifications

General

- **Certification** — CE, FCC class A, CCC, Electricity IV level for China (Compatible IEC 61850-3, IEEE 1613)
- **Dimensions (W x D x H)** — 2U (440 x 220 x 88 mm/17.3" x 8.6" x 3.4") fits into standard 19 inch rack
- **Enclosure** — SECC & Aluminum
- **Mounting** — 2U Rackmount
- **Power Consumption** — 30 W @ 24 V (Typical)
- **Power Requirements** — Supports Redundant power input
  Power 1: 100 ~ 240 V_{AC} or 100 ~ 240 V_{DC}
  Power 2: 100 ~ 240 V_{AC} or 100 ~ 240 V_{DC}
- **Weight** — < 5.5 kg
- **System Design** — Fanless design
- **OS Support** — WES 2009, Windows XP, Windows CE 6.0, WES7 and Linux
- **Remote Management** — Built-in Advantech DiagAnywhere agent on Windows CE/XPe/7

System Hardware

- **CPU** — Intel Atom D510 1.66 GHz./D525 1.8 GHz
- **Memory** — 2GB DDR2/4GB DDR3 SDRAM
- **Indicators** — LEDs for Power1&2, IDE, LAN (Active,Link) and Serial (Tx, Rx)
- **Storage** — 1 x Internal typeI/II CompactFlash® slot, 1 x Built-in 2.5" SATA HDD bracket
- **Display** — VGA , 1920 x 1080
- **Reset Button** — Yes
- **WatchDog Timer** — Programmable 256 levels time interval, from 1 to 255 seconds for each tier

I/O Interface

- **Serial Ports** — 10 ports, 2 x RS-232, 4 x RS-422/485, 4 x RS-485 (Automatic RS-485 data flow control)
- **Communication Speed** — RS-232: 50 ~ 115.2 kps, RS-422/485: 50 ~ 921600 bps
- **LAN** — 6 x 10/100 Base-T RJ-45 ports (For UNO-4671A-A33E) 2x 10/100/1000 Base-T RJ-45 ports and 4 x 10/100 Base-T RJ-45 ports (For UNO-4671A-A44BE)
- **USB Ports** — 4 x USB (include 1 x internal USB), UHCI, Rev. 2.0 compliant
- **Expansion** — 1 x PCI-104

Environment

- **Storage Humidity** — 95% @ 40°C (non-condensing)
- **Operating Temperature** — IEC 60068-2-2 with 100% CPU/ I/O loading, 48 hrs -20 ~ 60°C (-4 ~ 140°F)
- **Operating Humidity** — 20 ~ 95% (non-condensing)
- **Shock Protection** — IEC 68 2-27 CompactFlash®: 30 G half sine, 11 ms HDD: 20 G half sine, 11 ms
- **Vibration Protection** — IEC 68 2-64 (Random 1 Oct./min, 1hr/axis.) CompactFlash: 2 Grms @ 5 ~ 500 Hz

Ordering Information

- **UNO-4671A-A33E** — Intel Atom D510 1.66 GHz, 2 GB RAM Power & Energy Automation Computer
- **UNO-4671A-A44BE** — Intel Atom D525 1.8 GHz, 4GB RAM Power & Energy Automation Computer
- **1757004251-01(*)** — SPS AC 100-240V 120W W/PFC EOFP-120MA (For UNO-4671A Dual Power, by CTOS configuration center)

ADVANTECH | **Power & Energy Automation**

ECU-4674

1
WebAccess+ Solutions

2
Motion Control

3
Power & Energy Automation

4
Automation Software

5
Intelligent Operator Panel

6
Automation Panels

7
Panel PCs

8
Industrial Wireless Solutions

9
Industrial Ethernet Solutions

10
Industrial Gateway Solutions

11
Serial communication cards

12
Embedded Automation PCs

13
DIN-Rail IPCs

14
CompactPCI Systems

15
IoT Wireless I/O Modules

16
IoT Ethernet I/O Modules

17
RS-485 I/O Modules

18
Data Acquisition Boards

NEW

Features

- China Electricity Certificate IV level
- IEC 61850-3 and IEEE 1613 compliant for substation automation applications
- Intel Atom N2600 1.6GHz processor
- 2 x RS-232 isolated serial ports, 16 x RS-232/485 isolated serial ports
- 2 x 10/100/1000 Base-T RJ-45 connector (Support teaming function and IEEE-1588 hardware capability) and 6 x 10/100 Base-T RJ-45 connector
- Support 1 x internal CF, 2x 2.5" SATA HDD
- 5x USB2.0 (1 x internal)
- Front or Rear wiring, programmable LED indicator
- Isolated 8-ch Digital Input and 8-ch Digital Output
- 1 x Time Synchronize IRIG-B
- Fanless design
- Supports Redundant isolated power with wide AC/DC input range
- iCDManager: intelligent Connectivity Diagnosis and Management

Introduction

The ECU-4674 series of products is compliant with Electricity Certificate level IV (especially for China) and IEC 61850-3 and IEEE 1613 certification , which provide higher reliability and stability, suitable for any Global P&E automation market and harsh environment. With versatile communication interface to use for Smart substation Communication server and IED Analyzer to fulfill the Data Gateway & Protocol Conversion requirement easily. Featuring a fanless design with high performance Intel Atom N2600 processor, the ECU-4674 comes with 18 isolated serial ports, 8 x LAN and 1 x PCI-104 extension. With iCDMananger support , users can easy diagnose System & Communication and enhance maintenance efficiency, with Structured and functional module Internal design for easy customization and Fast assembly to fulfill the different kind of application.

Specifications

General

- **Certification**   CE, FCC class A, CCC, Electricity IV level for China (Compatible IEC 61850-3, IEEE 1613)
- **Dimensions (W x D x H)** 440 x 220 x 88 mm
- **Enclosure**   SECC & Aluminum
- **Mounting**   2U Rack mount
- **Power Requirements**   Supports Redundant power input
  Power 1: 100 ~ 240 V_{AC} or 100 ~ 240 V_{DC}
  Power 2: 100 ~ 240 V_{AC} or 100 ~ 240 V_{DC}
  Supports Power Monitoring during power loss
- **Weight**   < 5.5 kg
- **OS Support**   WES7, Windows7,Linux
- **System Design**   Fanless

System Hardware

- **CPU**   Intel Atom N2600, 1.6GHz
- **Memory**   2G DDR3 SDRAM built-in
- **Indicators**   LEDs for Power, HDD, Programmable LED,IRIG-B, LAN (Active, Status) and Serial (Tx, Rx)
- **Storage**   1 x internal CF, 2 x 2.5" SATA HDD
- **Display**   DB15 VGA connector
- **PC/104 slot**   1 x PCI-104
- **Watchdog Timer**   Programmable 256 levels time interval, from 1 to 255 seconds for each tier

I/O Interface

- **Serial Ports**   18 Ports, 2 x RS-232, 16 x RS-232/485
  2000 V_{DC} isolation
  (Automatic RS-485 data flow control)
- **Serial Port Speed**   RS-232: 50 ~ 115.2 kbps,
  RS-485: 50 ~ 921.6 kbps
- **LAN**   2 x 10/100/1000Base-T RJ-45 ports, teaming function supported,IEEE-1588 hardware capability, 6 x 10/100Base-T RJ-45 ports
- **USB Ports**   5 x USB (1x internal), UHCI, Rev. 2.0 compliant

- **Digital Input**   8-ch isolated digital input
  Wet contact: Logic 0:0~3 V_{DC}; Logic 1: 10~30 V_{DC}
  Isolation protect: 2000 V_{DC}, 30-50 V_{DC} over voltage protection (Only for ECU-4674-A53SAE)
  Opto-Isolator Response:25us-interrupt capable
- **Digital Output**   8-ch isolated digital output
  2000 V_{DC} isolation, 200mA max/channel sink current
  Keeps output status after system hot reset
  Open collector to 40V (200mA maximum sink current load) 3 kHz speed (Only for ECU-4674-A53SAE)
- **Programmable LED**   8-ch programmable LED indicator
  Only for ECU-4674-A53SAE)

Time Synchronization Interface (Only for ECU-4674-A53SAE)

- **Type**   IRIG-B (RS-485)
- **Channel**   1
- **Support Format**   IRIG-B00X according to IRIG STANDARD 04, 200-98
- **Message Syntax**   QQQHHMMSS (year, day, hour, minute & second)
- **Resolution of Time**   1s

Environment

- **Storage Humidity**   95% @ 40°C (non-condensing)
- **Operating Temperature** IEC 60068-2-2 with 100% CPU/ I/O loading, 48 hrs -20~ 70°C (-4 ~ 140°F)
- **Operating Humidity**   20 ~ 95% (non-condensing)
- **Shock Protection**   IEC 68 2-27 CompactFlash®: 30 G half sine, 11 ms
  HDD: 20 G half sine, 11 ms
- **Vibration Protection**   IEC 68 2-64 (Random 1 Oct./min, 1hr/axis.)
  CompactFlash: 2 Grms @ 5 ~ 500 Hz
  HDD: 1 Grms @ 5 ~ 500 Hz

Ordering Information

- **ECU-4674-A53SAE**   Intel Atom N2600 1.6Ghz 8LAN 18COM 8DI/DO, 1IRIG Computer
- **ECU-4674-LBA53SAE**   Intel Atom N2600 1.6Ghz 8LAN 10COM+IRIG Computer
- **XECU-FSP150-1H35(*)**   FSP AC 100-240V 150W W/PFC (Note: For ECU-4674 Dual Power, by CTOS configuration center)

ECU-4574

Intel® Atom™ N2600 Power & Energy Computers with 8 x LAN, 10 x COM Ports

NEW

Features

- China Electricity Certificate level IV
- IEC 61850-3 and IEEE 1613 compliant for substation automation applications
- Intel Atom N2600 1.6GHz processor
- 2GB DDR3 SDRAM and 1MB Battery Backup RAM
- 2 x RS-232 isolated serial ports, 8 x RS-232/485 isolated serial ports
- 2 x 10/100/1000 Base-T RJ-45 connector,6 x 10/100 Base-T RJ-45 connector
- Supports 1 x CF, 2 x SATA 2.5" HDD
- Mounting: 1U Rack-mount
- Fanless design
- Support Redundant isolated power with wide AC/DC input range
- WES7, Windows7, Linux
- Intelligent Connectivity Diagnose Manager (iCDManager)

Introduction

The ECU-4574 product is compliant with Electricity Certificate level IV, IEC 61850-3 and IEEE 1613 certification, provides higher reliability and stability performance that is suitable for global smart substations. With a flexible communication interface, the ECU-4574 works as an IED Analyzer that fulfills the smart substation bay level requirements. Featuring a fanless design with Intel Atom N2600 processor, 10 isolated serial ports, eight Ethernet ports and iCDMananger software, the ECU-4574 is easy for customization and fast assembly to fulfill different kinds of applications.

Specifications

General

- **Certification** CE, FCC class A, CCC, Electricity IV level for China (Compatible IEC 61850-3, IEEE 1613)
- **Dimensions (W x D x H)** 440 x 220 x 72 mm
- **Enclosure** SECC & Aluminum
- **Mounting** 1U Rack mount
- **Power Requirements** Supports Redundant power input
  Power 1: 100 ~ 240 V_{AC} or 100 ~ 240 V_{DC}
  Power 2: 100 ~ 240 V_{AC} or 100 ~ 240 V_{DC}
- **Weight** < 5.5 kg
- **OS Support** WES7, Windows7, Linux
- **System Design** Fanless

System Hardware

- **CPU** Intel Atom N2600, 1.6GHz
- **Memory** 2G DDR3 SDRAM built-in
- **Indicators** LEDs for Power, IDE, LAN(LINK, ACT) and Serial (Tx, Rx)
- **Storage** 1 x internal CF, 2 x 2.5" SATA HDD
- **Display** DB15 VGA connector
- **Watchdog Timer** Programmable 256 levels time interval, from 1 to 255 seconds for each tier

I/O Interface

- **Serial Ports** 2 x RS-232, 8 x RS-232/485
  2000 V_{DC} isolation
- **Serial Port Speed** RS-232: 50 ~ 115.2 kbps,
  RS-485: 50 ~ 921.6 kbps
- **LAN** 2 x 10/100/1000Base-T RJ-45 ports, teaming function supported,IEEE-1588 hardware capability,
  6 x 10/100Base-T RJ-45 ports
- **USB Ports** 4 x USB, UHCI, Rev. 2.0 compliant

Environment

- **Storage Humidity** 95% @ 40°C (non-condensing)
- **Operating Temperature** IEC 60068-2-2 with 100% CPU/ I/O loading, 48 hrs -20~ 70°C (-4 ~ 140°F)
- **Operating Humidity** 20 ~ 95% (non-condensing)
- **Shock Protection** IEC 68 2-27 CompactFlash®: 30 G half sine, 11 ms HDD: 20 G half sine, 11 ms
- **Vibration Protection** IEC 68 2-64 (Random 1 Oct./min, 1hr/axis.)
  CompactFlash: 2 Grms @ 5 ~ 500 Hz
  HDD: 1 Grms @ 5 ~ 500 Hz

Ordering Information

- **ECU-4574-A53SAE** 1U Intel® Atom™ N2600 Power & Energy Computers
- **XECU-FSP150-1H35(*)** FSP AC 100-240V 150W W/PFC (Note: For ECU-4574 Dual Power, by CTOS configuration center)

ADVANTECH | **Power & Energy Automation**

UNO-4673A
UNO-4683

Intel® Atom™ / Core™ i7 Automation Computers with 6 x LAN, 2 x COM and 3 x Expansion Slots

NEW

IEC 61850-3 / IEEE 1613 Compliant
Windows Embedded
RoHS COMPLIANT 2002/95/EC
CCC
CE
FCC
c UL us LISTED E180881 I.T.E.

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

Features

- IEC 61850-3 and IEEE 1613 compliant for substation automation applications
- Onboard Intel Atom 1.66 GHz / Core i7 2.0 GHz processor
- 2 x RS-232/422/485 isolated serial ports with automatic flow control and 128KB FIFO
- 2 x 10/100/1000 Base-T (supports teaming function) and 4 x 10/100 Base-T
- Supports 1 x internal CF card and 1 x 2.5" SATA HDD
- 6 x USB 2.0 (1 x internal) and 3 x Domain I/O expansions
- Rear wiring, multiple system & I/O LED status indicators
- Windows® CE 6.0, Windows XP Embedded SP2, and Linux ready solution
- Fanless design
- Isolation power design with wide AC / DC input range
- Isolation between chassis and power ground
- One internal USB for dongle and flash drive
- Redundant power supplier for system power backup

Introduction

The UNO-4673A and UNO-4683 are compliant with the hardware requirements of IEC 61850-3, which defines the international standards of network and system communications in power substations. Featuring fanless designs with built-in isolated PSU and 3 expansion slots for I/O plug-in cards, the UNO-4673A and UNO-4683 are suitable for harsh environment applications. The rear I/O connection and LEDs on front panel for all ports and modes highly simplify monitoring for operation and maintenance.

Specifications

General

- **Certification** IEC 61850-3, IEEE 1613, CE, FCC Class A, UL, CCC
- **Dimensions (W x D x H)** 2U (440 x 280 x 88) mm (17.3" x 11" x 3.4") fits into standard 19 inch rack
- **Enclosure** SECC
- **Mounting** 2U Rackmount
- **Power Consumption** 45W (Typical)
- **Power Requirements** AC : 100 ~ 240 V_{AC} (47 ~ 63 Hz)
  DC : 106 ~ 250 V_{DC}
  With isolation protection, AT
- **Weight** 6.0 kg
- **OS Support** WES, Windows XP Embedded, Windows /XP, Windows CE 6.0, Linux, QNX
- **System Design** Fanless
- **Remote Management** Built-in Advantech DiagAnywhere agent on Windows CE/XPe

System Hardware

- **CPU** Intel Dual Core Atom D510 1.66 GHz / Core i7 2.0 GHz
- **Memory** 2G DDR2 SDRAM/4G DDR3 SDRAM built-in
- **Indicators** LEDs for Power, IDE, Alarm for battery backup SRAM, Diagnosis (programmable), LAN (Active, Status) and Serial (Tx, Rx)
- **Keyboard/Mouse** 2 x PS/2 connector for Keyboard & Mouse
- **Storage**
  CF 1 x internal type I/II CompactFlash® slot
  HDD 1 x build-in 2.5" SATA HDD bracket
  *RAID capable with 2nd HDD kit
- **Display** DB15 VGA connector, 2048 x 1536 @ 85 Hz (UNO-4673A)
  1 x DVI-I, 1 x DVI-D (UNO-4683)
- **Watchdog Timer** Programmable 7-tier event handler, from 1 to 255 seconds for each tier
- **Battery Backup SRAM** 1 MB
- **Relay:**
  Relay output: Form C
  Contact: 5A@250V_{AC}\5A@30V_{DC}

I/O Interface

- **Serial Ports** 2 x DB-9
  Automatic RS-485 data flow control
  2000 V_{DC} EFT protection & 2000 V_{DC} isolation
- **Serial Port Speed** RS-232: 50 ~ 115.2 kbps
  RS-422/485: 50 ~ 921.6 kbps (Max.)
- **LAN** 2 x 10/100/1000 Base-T RJ-45 ports,teaming function supported
  4 x 10/100Base-T RJ-45 ports
- **Audio** Line-out
- **USB Ports** 6 x USB, UHCI, Rev. 2.0 compliant
  2 x Front, 3 x Rear and 1 x Internal ports
- **Expansion** 3 x Domain I/O expansions (Only slot 1 supports PCIe resource)

Environment

- **Humidity** 95% @ 40°C (non-condensing)
- **Operating Temperature** IEC 60068-2-2 with 100% CPU/ I/O loading, 48 hrs -20 ~ 70°C
- **Operating Humidity** 20 ~ 95% (non-condensing)
- **Shock Protection** IEC 60068-2-27 CompactFlash®: 50 G half sine, 11 ms
  HDD: 20 G half sine, 11 ms
- **Vibration Protection** IEC 60068-2-64 (Random 1 Oct./min, 1hr/axis.)
  CompactFlash®: 2 Grms @ 5 ~ 500 Hz,
  HDD: 1 Grms @ 5 ~ 500 Hz

Ordering Information

- **UNO-4673A-A33E** Intel Atom 1.66 GHz, 2 GB RAM Automation Computer
- **UNO-4683-D34E** Core i7 2.0 GHz, 4 GB RAM Automation Computer
- **UNO-4673ADP-A33E** Intel Atom 1.66 GHz, 2 GB RAM, dual PSU Automation Computer
- **UNO-4683DP-D34E** Core i7 2.0 GHz, 4 GB RAM, dual PSU Automation Computer

ECU-4784

Intel® Haswell Core i7 Power & Energy Automation Computer with 8 x LAN, 10 x COM and 2 x Expansion Slots

NEW

Features

- TUV IEC 61850-3 and IEEE 1613 compliant for substation automation applications
- Intel Haswell Core i7 4650U 1.7GHz processor
- Supports Intel Virtualization Technology for Direct IO (VT-D)
- Supports Intel Active Management Technology(AMT)
- 2 x 2.5" SATA HDD , RAID (RAID 0 & RAID 1), Hot swap installation
- 1 x 10/100/1000 Base T RJ45 (Support AMT, Teaming Function, PXE)
  7 x 10/100/1000 Base T RJ45 (Support Teaming Function, PXE)
- Security Protection: Trusted Platform Module
- Front or Rear wiring, programmable LED indicator
- Support Redundant Display (DVI& VGA)
- Support Redundant isolated power with wide AC/DC input range

Windows Embedded | RoHS COMPLIANT 2002/95/EC | CCC | CE | FCC

Introduction

ECU-4784 series products are compliant with TUV IEC 61850-3 and IEEE 1613 certification, which can provide higher reliability and stability, suitable for any global P&E automation market and harsh environment. With high computing and high integration performance , ECU-4784 is target to Smart Substation station level 's Server application, Featuring a fanless design with high performance processor (Intel Haswell Core i7 4650U), the ECU-4784 comes with 10 isolated serial ports, 8 x LAN and 2 x Expansion Slots. ECU-4784 are easy to expand more kinds domain I/O by functional module to extend data collection variety and highly simplify monitoring for operation and maintenance.

Specifications

General

- **Certification** CE, FCC class A, CCC, Electricity IV level for China (Compatible IEC 61850-3, IEEE 1613), UL
- **Dimensions (W x D x H)** 440 x 280 x 88 mm
- **Enclosure** SECC & Aluminum
- **Mounting** 2U Rack mount
- **Power Requirements** Supports Redundant power input
  Power 1: 100 ~ 240 V_{AC} or 100 ~ 240 V_{DC};
  Power 2: 100 ~ 240 V_{AC} or 100 ~ 240 V_{DC}
- **Weight** 6.0 kg
- **OS Support** WES7, Windows7, Linux
  Windows server 2008 R2 (64bits),
  Windows Embedded 8.1(32/64bits)
- **System Design** Fanless

System Hardware

- **CPU** Intel Haswell Core i7 4650U 1.7GHz
- **Memory** DDR3L 1.35V non-ECC 8G (Up to 16G by 2 Piece 8G)
- **Indicators** LEDs for Power, HDD, Programmable LED, LAN (Active, Status) and Serial (Tx , Rx)
- **Storage** 2 x 2.5" SATA HDD(RAID 0,1);
  1 x CFast socket
- **Display** DB15 VGA connector, 1 x DVI
- **Watchdog Timer** Programmable 256 levels time interval, from 1 to 255 seconds for each tier

Relay

- **Relay Output** Form C
- **Contact** 5 A @ 250 V_{AC}/5 A @ 30 V_{DC}
- **Channel** 1

I/O Interface

- **Serial Ports** 2 x RS-232 (DB-9 connectors) (Standard),
  8 x RS-232/422/485 (Terminal Block)
  2000 V_{DC} isolation
- **Serial Port Speed** RS-232: 50 ~ 115.2 kbps,
  RS-422/ RS-485: 50 ~ 921.6 kbps (Max.)
- **LAN** 1 x 10/100/1000 Base T RJ45 ports
  (Supports AMT, Teaming Function, PXE)
  7 x 10/100/1000 Base T RJ45 ports
  (Support Teaming Function, PXE)
- **USB Ports** 6 x USB, UHCI, Rev.2.0 Compliant
  2 x Front, 3 x Rear and 1 x Internal
- **Expansion** 2 Domain I/O Expansions
  (Each Expansion Slot supports 1 x PCIe and 2 x PCI Interface)

Environment

- **Storage Humidity** 95% @ 40°C (non-condensing)
- **Operating Temperature** IEC 60068-2-2 with 100% CPU/ I/O loading, 48 hrs
  -20~ 70°C (-4 ~ 158°F)
- **Operating Humidity** 20 ~ 95% (non-condensing)
- **Shock Protection** IEC 68 2-27 CFast®: 50 G half sine, 11 ms
  HDD: 20 G half sine, 11 ms
- **Vibration Protection** IEC 60068-2-64 (Random 1 Oct./min, 1hr/axis.)
  CFast®: 2 Grms @ 5 ~ 500 Hz,
  HDD: 1 Grms @ 5 ~ 500 Hz

Ordering Information

- **ECU-4784-D55SAE** Intel Core i7 1.7GHz, 8GB RAM, 8 x LAN,10 x COM, 2 x Slot Computer
- **ECU-4784-D56SAE** Intel Core i7 1.7GHz, 16GB RAM, 8 x LAN, 10 x COM, 2 x Slot Computer
- **XECU-FSP150-1H35(*)** FSP AC 100-240V 150W W/PFC (Note: For ECU-4784 Dual Power, by CTOS configuration center)
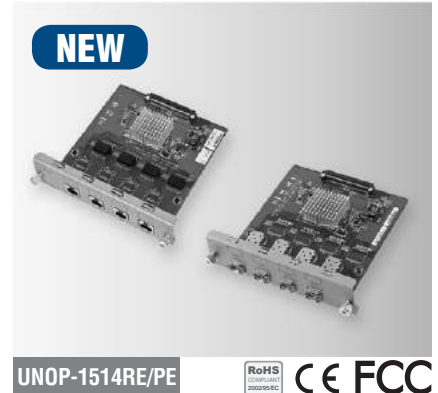
UNOP-1628D/1618D
8-port Isolated/Non Isolated RS-232/422/485

UNOP-1624D
4-port Isolated RS-232/422/485 with IRIG B

UNOP-1514RE/PE
4-Port Gigabit Base Ethernet Card

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

NEW

NEW

NEW

UNOP-1628D/1618D RoHS COMPLIANT 2002/95/EC CE FCC

UNOP-1624D RoHS COMPLIANT 2002/95/EC CE FCC

UNOP-1514RE/PE RoHS COMPLIANT 2002/95/EC CE FCC

Specifications

General
- **Connector** — 120-pin connector for UNO-4673A/PCI, UNO-4683/PCI
- **Dimensions** — 5.3" x 6.0" (136 x 150 mm)
- **Power Consumption** — 5V ± 5% @ 620mA typical 3.3V ± 5% @ 75mA typical
- **Certification** — CE/FCC

Communication
- **IRQ** — All COM ports use the same IRQ assigned by PCI Bus
- **COM Ports** — 8 x RS-232/422/485 ports
- **Data Bits** — 5, 6, 7, 8
- **Stop Bits** — 1, 1.5, 2
- **Parity** — None, Even, Odd
- **Baud-rate (bps)** — RS-232: 50 ~ 115.2 kbps RS-422/485: 50 ~ 921.6 kbps (max.)
- **Data Signals** — TxD, RxD, RTS, CTS, RI,DSR,DTR,DCD,GND for RS-232 Data+, Data-, GND for RS-485 Tx+, Tx-, Rx+,Rx-, GND for RS-422

Protection
- **Isolation Protection** — 2500 V_{DC} (UNOP-1628D)

Environment
- **Operating Temp.** — -20 ~ 70°C (-4 ~158°F)
- **Operating Humidity** — 10 ~ 90% RH non-condensing (refer to IEC 60068-2-3)
- **Storage Humidity** — 5 ~ 95% RH non-condensing (refer to IEC 60068-2-3)

Ordering Information
- **UNOP-1618D-AE** — 8-port RS-232/422/485 for UNO-4673A & UNO-4683
- **UNOP-1628D-AE** — 8-port Iso. RS-232/422/485 for UNO-4673A & UNO-4683

Specifications

General
- **Connector** — 120-pin connector for UNO-4673A/PCI, UNO-4683/PCI
- **Dimensions** — 5.3" x 6.0" (136 x 150 mm)
- **Power Consumption** — 5V ± 5% @ 500mA typical. 3.3V ± 5% @ 180mA typical.
- **Certification** — CE/FCC

Communication
- **IRQ** — All COM ports use the same IRQ assigned by PCI Bus
- **COM Ports** — 4 x RS-232/422/485 ports
- **Baud rate (bps)** — RS-232: 50 ~ 115.2 kbps RS-422/485: 50 ~ 921.6 kbps (Max.)
- **Data Signals** — TxD, RxD, RTS, CTS, RI, DSR, DTR, DCD, GND for RS-232 Data+, Data-, GND for RS-485 Tx+, Tx-, Rx+,Rx-, GND for RS-422

IRIG Time Code Input
- **IRIG Interface** — Male 9-pole D-Sub connector (COM4 or IRIG-B)
- **ST Multi-Mode** — Fiber connector Female BNC
- **Input Signal** — RS-422 input signal isolated by optocoupler Optical signal @ 820nm; TTL
- **Supported Formats** — IRIG-B according to IRIG STANDARD 200-04, 200-98

IRIG Time Code Output
- **IRIG Interface** — Male 9-pole D-Sub connector (COM4 or IRIG-B) Female BNC
- **Output Signal** — RS-422 output signal; TTL

IRIG Time Code Decoding
- **Message syntax** — YYYYQQQHHMMSS (yr, d, h, min, sec)
- **Resolution of the time** — 1s
- **Status info** — 1 status LED for indication

Protection
- **Isolation Protection** — 2500 V_{DC} for COM/IRIG

Environment
- **Operating Temp.** — -20 ~ 70°C (-4 ~158°F)
- **Operating Humidity** — 10 ~ 90% RH non-condensing (refer to IEC 60068-2-3)
- **Storage Humidity** — 5 ~ 95% RH non-condensing (refer to IEC 60068-2-3)

Ordering Information
- **UNOP-1624D-AE** — 4-port Iso. RS-232/422/485 and IRIG B for UNO-4673A & UNO-4683

Specifications

General
- **Connector** — 120-pin connector for UNO-4673A/4683 series PCIe
- **Bus Interface** — PCI Express® x 1 compliant
- **Dimensions** — 5.3" x 6.0" (136 x 150 mm)
- **Power Consumption** — 5V ±5% @ 400mA typical
- **Certification** — CE/FCC

UNOP-1514PE
- **Connector** — SFP
- **Ports** — 4
- **Compatibility** — IEEE 802.3 Ethernet interface
- **Speed** — 1000M bps

UNOP-1514RE
- **Connector** — RJ45
- **Ports 4**
- **Compatibility** — IEEE 802.3 Ethernet interface
- **Speed** — 10/100/1000M bps

Environment
- **Operating Temp.** — -20 ~ 70°C (-4 ~158°F)
- **Operating Humidity** — 10 ~ 90% RH n on-condensing (refer to IEC 60068-2-3)
- **Storage Humidity** — 5 ~ 95% RH non-condensing (refer to IEC 60068-2-3)

Ordering Information
- **UNOP-1514RE-AE** — 4-port RJ45 Gigabit Base Ethernet Card
- **UNOP-1514PE-AE** — 4-port SFP Gigabit Base Ethernet Card

Accessories
- **SFP-GTX/RJ45** — 1000Base RJ45 SFP module
- **SFP-GSX/LC** — 1000Base-SX Multi-mode SFP module
- **SFP-GLX/LC-10** — 1000Base-LX Single-mode SFP module (10 km)
- **SFP-GLX/LC-20** — 1000Base-LX Single-mode SFP module (20 km)
- **SFP-GLX/LC-40** — 1000Base-LX Single-mode SFP module (40 km)

ECU-1710A

Intel® Atom™ D510 Controller with 16-ch AI, 4-ch AO and 32-ch Isolated DI/O

NEW

Features

- Onboard Intel Atom D510 1.66 GHz processor
- 2 x RS-232 ports
- 2 x 10/100Base-T RJ-45 ports
- 2 x USB ports
- Integrated PCI-1710UL & PCI-1720U modules
- 16-ch single-ended or 8-ch differential or a combination of Analog Input
- 12-bit A/D converter, with up to 100kS/s sampling rate
- 4-ch 12-bit Analog Output
- 16-ch Isolated Digital Input/Digital Output
- 1-ch Isolated Counter

RoHS COMPLIANT 2002/95/EC CCC CE FCC

Introduction

The ECU-1710A is a standalone automation controller with integrated PCI-1710UL and PCI-1720U to provide 16-ch Analog Input, 4-ch Analog Output, 16-ch Isolated Digital Input and 16-ch Isolated Digital Output. This controller also supports serial communication ports and several other networking interfaces. You can seamlessly integrate your applications into the ECU-1710A and speed up your system development with these application ready controllers.

Specifications

General

- **Dimensions (W x D x H)** 255 x 152 x 59 mm (10" x 6.0" x 2.3")
- **Power Consumption** 28 W (Typical)
- **Power Requirements** 18 ~ 30 V_{DC} (e.g 24 V @ 2 A) (Min. 48 W), AT
- **Weight** 2.4 kg (Typical)
- **OS Support** WES 2009

System Hardware

- **CPU** Intel Atom D510 1.66 GHz/ 512 KB L2 Cache
- **Memory** 1GB DDRII 667MHZ
- **Indicators** LEDs for Power, IDE and LAN (Active, Status)
- **Keyboard/Mouse** 1 x PS/2
- **Storage** 1 x internal typeI/II CompactFlash® slot, 1 x Built-in 2.5" SATA HDD bracket

I/O Interface

- **Serial Ports** 2 x RS-232
- **LAN** 2 x 10/100Base-T RJ-45 ports
- **USB Ports** 2 x USB, EHCI, Rev. 2.0 compliant

Analog Input

- **Channels** 16 single-ended/ 8 differential
- **Resolution** 12 bits
- **Max. Sampling Rate** 100 kS/s
- **FIFO Size** 4,096 samples
- **Overvoltage Protection** 30 Vp-p
- **Input Impedance** >18M ohm
- **Sampling Mode** Delay to Start, Delay to Stop,None
- **Input Range** (V)

	N/A	0 ~ 10	0 ~ 5	0 ~ 2.5	0 ~ 1.25
Unipolar	N/A	0 ~ 10	0 ~ 5	0 ~ 2.5	0 ~ 1.25
Bipolar	±10	±5	±2.5	±1.25	±0.625
Accuracy (% of FSR ±1LSB)	0.1	0.1	0.2	0.2	0.4

Analog Output

- **Channels** 4
- **Resolution** 12 bits

- **Output Range** (Software programmable)
  Unipolar (V) 0 ~ 5, 0 ~ 10
  Bipolar (V) ±5, ±10
  Current Loop (mA) 0 ~ 20, 4 ~ 20
- **Driving Capability** 5 mA
- **Accuracy** Relative: ±1 LSB; Differential Non-Linearity: ±1 LSB (monotonic)
- **Excitation Voltage** 48 V (max.)

Digital Input /Output / Counter

- **DI Channels** 16
- **DI Input Voltage** Logic 0: 2 V max. Logic 1: 5 V min. (30 V max.)
- **DO Channels** 16
- **DO Output Type** Sink Type (NPN)
- **DO Output Voltage** 5 ~ 40 V_{DC}
- **DO Sink Current** 300 mA max. per channel
- **Counter Channels** 1
- **Counter Resolution** 16 bits
- **Counter Input Voltage** Logic 0: 2 V max. Logic 1: 5 V min. (30 V max.)
- **Counter Max. Input Frequency** 1 MHz
- **Isolation Protection** 1,000 V_{DC}

Environment

- **Storage Humidity** 5 ~ 95% RH, non-condensing (IEC-60068-2-3)
- **Operating Temperature** -10 ~ 60°C (14 ~140°F) @ 5 ~ 85% RH
- **Storage Temperature** -20 ~ 80°C (-4 ~176°F)

Ordering Information

- **ECU-1710A-A32E** Intel Atom D510 1.66 GHz controller with AI/O and DI/O

Accessories

- **ADAM-3925-AE** DB25 DIN-rail Wiring Board
- **ADAM-3937-BE** DB37 DIN-rail Wiring Board

ADVANTECH | **Power & Energy Automation**

ECU-1871

NEW

Features

- Onboard Intel Atom D510 1.66 GHz CPU
- IEC 61850-3 and IEEE-1613 compliant for substation application
- China Electricity Certificate IV level
- Built-in Time Synchronize IRIG-B
- Supports more Smart-Substation application I/O extension
- 1 x RS-232 port/ 2 x RS-485 isolation ports
- 2 x 10/100/1000Base-T RJ-45 ports
- Windows® CE 6.0, WES 2009, WES 7, and Linux ready solution
- Supports PCIe-104 & PCI-104 extension

Windows Embedded | RoHS COMPLIANT 2002/95/EC | CCC | CE | FCC

Introduction

The ECU-1871 is compliant with Electricity Certificate IV Level (especially for China) and IEC 61850-3 certification. Featuring a fanless design with low power consumption and high performance Intel Atom D510 processor, the ECU-1871 comes with 2 x Ethernet, 1 x RS-232, and 2 x isolation RS-485 ports. The ECU-1871 supports two extension interfaces, PCI-104 & PCIe-104, and users can easily order other Energy I/O boards to integrate into the ECU-1871 and speed up your system development with an energy controller.

Specifications

General

- **Dimensions (W x D x H)**   220 x 150 x 89 mm (8.7"x 5.9"x 3.5")
- **Power Consumption**   24 W (Typical)
- **Power Requirements**   18 ~ 30 V_{DC} (e.g 24 V @ 2 A) (Min. 48 W), AT
- **Weight**   2.4 kg (Typical)
- **Mounting**   2U Rack-mount & Wall-mount
- **OS Support**   WES 2009, WES 7, WinCE 6.0, Linux
- **System Design**   Fanless

System Hardware

- **CPU**   Intel Atom D510 1.66 GHz/ 512 KB L2 Cache
- **Memory**   2G DDRII 667 MHz
- **Indicators**   LEDs for Power, HDD,IRIG,COM(Tx Rx) and LAN (Active Statue)
- **Storage**   SSD: 1 x type I/II CompactFlash® slot
  HDD: 1 x integrated 2.5" SATA HDD bracket
- **Display**   VGA, 1600 x 1200 @ 85 Hz
- **Watchdog Timer**   Programmable 256 levels time interval, from 1 to 255 seconds for each tier
- **PCI-104/PCIe-104**   Supports +3.3/ +5 V power

Communication Interface

- **Serial Ports**   3 Ports, 1 x RS-232, 2 x RS-485
- **Serial Ports Speed**   RS-232   50 ~ 115.2 kbps
  RS-485   50 ~921.6 kbps
- **LAN**   2 x 10/100/1000Base-T RJ-45 ports
- **USB Ports**   4 x USB (include 1×internal USB), EHCI, Rev. 2.0 compliant

Time Synchronization Interface

- **Type**   IRIG-B
- **Channel**   1
- **Support Format**   IRIG-B00X according to IRIG STANDARD 04, 200-98
- **Input Signal**   ST Multi-mode, 1 Isolation RS-485 (Optional)
- **Message Syntax**   QQQHHMMSS(year, day, hour, minute & second)
- **Resolution of Time**   1s

Environment

- **Storage Humidity**   5 ~ 95% RH, non-condensing (IEC 60068-2-3)
- **Operating Temperature**   -20 ~ 70°C (-4 ~158°F) @ 5 ~ 85% RH
- **Storage Temperature**   -40 ~ 80°C (-40 ~176°F)

Ordering Information

- **ECU-1871 -A33CAE**   Intel Atom Energy Controller with 2 x LAN, 3 x COM, IRIG-B and I/O Extension

Accessories

- **ECU-P1706-AE**   250 KS/s, 16 bit, Simultaneous 8-ch Analog input PCI-104 Card
- **ECU-P1300-AE**   Vibration Signal Modulate, Vibration Sensor Driver, 8-order Low-pass Filter
- **ECU-P1702-LAE**   10 MS/s, 14bit, Simultaneous 4-ch Analog input PCI-104 Card

ECU-1911

Xscale @ PXA-270 520 MHz RTU with 8-ch 16-bit AI,32-ch DI,32-ch DO

NEW
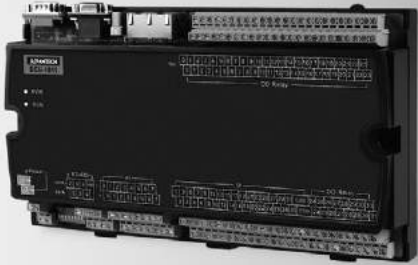
Features

- Onboard Xscale @ PXA-270 520 MHz CPU
- 1 x RS-232 port
- 3 x RS-485 isolated ports
- 2 x 10/100Base-T RJ-45 ports
- 8-ch 16-bit differential Analog Input
- 32-ch isolated Digital Input
- 32-ch isolated Digital Output
- Built-in Window CE 5.0

CE FCC

Introduction

The ECU-1911 focuses on RTU monitor application. The ECU-1911 is also a standalone RTU that provides a 16-bit 8-ch A/D converter, 32-ch Relay and 32-ch Digital Input. This controller also supports four serial communication ports and two networking interfaces. You can seamlessly integrate your applications into the ECU-1911 and speed up your system development with this application ready RTU.

Specifications

General

- **Power Consumption**   <10 W (Typical)
- **Power Requirements**   24 V_{DC} (Typical) (10 V_{DC} Min ~ 30 V_{DC} Max)
- **OS Support**   Windows CE 5.0

System Hardware

- **CPU**   Xscale @ PXA-270 520MHz
- **Memory**   Onboard 64 MB SDRAM/ 32 MB Flash
- **Storage**   1 x type I/II Compact Flash slot
- **Display**   VGA 640 x480 @ 60Hz

Digital Input

- **Channels**   32
- **I/O Type**   Sink
- **Wet Contact**   Logic 0: 0 ~ 10 V
  Logic 1: 19 ~ 30 V
- **Isolation**   3000 V_{DC}
- **Connector**   Terminal Block (#14 ~ 22 AWG)

Digital Output

- **Channels**   32
- **I/O Type**   Power Relay Form A
- **Contact Rating**   AC: 5A @ 250 V; DC: 30 V @ 5 A (Resistive Load)
- **Isolation**   500 V_{DC}
- **Connector**   Terminal Block (#14 ~ 22 AWG)

Analog Input

- **Channels**   8 differential
- **Resolution**   16 bits
- **Sampling rate**   10 Hz/sec (total)
- **Input Impedance**   700 kΩ
- **Input Range**   0 ~ 150 mV, 0 ~ 500 mV, 0 ~ 1 V, 0 ~ 5 V, 0 ~ 10 V,
  0 ~ 15 V, ±150 mV, ±500mV, ±1 V, ±5 V, ±10 V,
  ±15 V, ±20 mA, 4 ~ 20 mA
- **Accuray**   Voltage : ± 0.1 %
  Current : ± 0.2 %
- **Span Drift**   ±25 ppm/°C
- **Zero Drift**   ±6 µV/°C

Environment

- **Storage Humidity**   5 ~ 95% @ 40°C (non-condensing)
- **Operating Temperature**   -20 ~ 70°C (-4 ~158°F) @ 5 ~ 85% RH
- **Storage Temperature**   -40 ~ 80°C (-40 ~176°F)

I/O Interface

- **Serial Ports**   1 x RS-232, 3 x RS-485 (Automatic RS-485 data flow)
- **LAN**   2 x 10/100Base-T RJ-45 ports
- **USB Port**   1 x USB, OpenHCI, Rev. 1.1 compliant

Ordering Information

- **ECU-1911-R0CAE**   Xscale @ PXA-270 520 MHz RTU with 8-ch 16-bit Analog Input, 32-ch Digital Input, and 32-ch Digital Output

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ECU-P1706
ECU-P1702
ECU-P1300

250 KS/s, 16bit, Simultaneous 8-ch Analog input PCI-104

10 MS/s, 12bit, Simultaneous 4-ch Analog input PCI-104

Vibration Signal Modulate Card

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

NEW

Features

- Designed for Smart-Grid Applications
- ECU-P1706 focuses on the Vibration/ Substation Signal Analytics (Wind-Power / Smart Substations)
- ECU-P1702 focuses on the Partial Discharge Detection and Analytical Devices (Smart Substations)
- ECU-P1300 focuses on Vibration Applications (Wind-power / Smart Substations)
- Easy to install to ECU-1871 Energy Controller

ECU-P1706

Specifications

General

- **Power Consumption** — Typical: 5V @ 850mA
- **Bus Type** — PCI-104
- **I/O Connector** — Plug-in Terminal Block
- **Operating Temperature** — -20 ~ 70°C (-4 ~158°F) @ 5 ~ 85% RH
- **Storage Temperature** — -40 ~ 80°C (-40 ~176°F)
- **Storage Humidity** — 5 ~ 95% RH, non-condensing (IEC 60068-2-3)

Analog Input

- **Channels** — 8 differential
- **Resolution** — 16 bits
- **Max. Sampling Rate** — 250 KS/s
- **FIFO Size** — 8K samples
- **Overvoltage Protection** — ±30V
- **Input Impedance** — 18MΩ
- **Sampling Mode** — Software, onboard programmable pacer and external (TTL Level)
- **Trigger mode** — Delay To Start Trigger, Delay To Stop Trigger
- **Trigger Source** — Analog Trigger, External Trigger
- **Input Range** — (V. Software Programmable)

Bipolar	±10V	±5V	±2.5V	±1.25V
Accuracy % of FSR±1LSB	0.04	0.04	0.06	0.08

Timer Counter

- **Channels** — 2
- **Resolution** — 32 bits
- **Mode** — In: Event counting, Frequency In, PWM In
- **Compatibility** — Isolated 24V$_{DC}$
- **Max. Input Frequency** — 1 MHz
- **Max. Output Frequency** — 1 MHz

Ordering Information

- **ECU-P1706-AE** — 250 KS/s, 16bit, Simultaneous 8-ch PCI-104

ECU-P1702

Specifications

General

- **Power Consumption** — 5V @ 700mA (Max.) 3.3V @ 850mA (Max.)
- **Bus Type** — PCI-104
- **I/O Connector** — BNC
- **Operating Temperature** — -20 ~ 70°C (-4 ~158°F) @ 5 ~ 85% RH
- **Storage Temperature** — -40 ~ 80°C (-40 ~176°F)
- **Storage Humidity** — 5 ~ 95% RH, non-condensing (IEC 60068-2-3)

Analog Input

- **Channels** — 4 Single-ended
- **Resolution** — 12 bits
- **Max. Sampling Rate** — 10 MS/s
- **FIFO Size** — 32K samples
- **Overvoltage Protection** — ±15V
- **Input Impedance** — 50 ohm/1M ohm/Hi Z switch selectable
- **Sampling Mode** — Software, onboard programmable pacer and external (TTL Level)
- **Trigger mode** — Delay To Start Trigger, Delay To Stop Trigger
- **Trigger Source** — Analog Trigger, External Trigger
- **Input Range** — ±5V, ±2.5V, ±1V, ±0.5V

Ordering Information

- **ECU-P1702-LAE** — 10 MS/s, 12bit, Simultaneous 4-ch PCI-104

ECU-P1300

Specifications

General

- **Power Consumption** — Typical: 5V @ 700mA; 12V @ 100mA
- **Operating Temperature** — -20 ~ 70°C (-4 ~158°F) @ 5 ~ 85% RH
- **Storage Temperature** — -40 ~ 80°C (-40 ~176°F)
- **Storage Humidity** — 5 ~ 95% RH, non-condensing (IEC 60068-2-3)

Vibration Modulate

- **Channels** — 8
- **Input Range** — ±5V (Max.)
- **Output Range** — ±10V
- **Input Coupling** — AC
- **Sensor Current Supply** — 4mA ±1%, 24V compliant
- **Precision** — 0.1%
- **Drive Ability** — 0 ~ 5K
- **Sensor Signal Gain** — 1
- **Signal Gain** — 1
- **Analog Filter** — 8th order Lowpass Bessel Filters
- **Filter Adjustable** — 0.1 Hz ~ 25KHz Adjustable by Software Program

Ordering Information

- **ECU-P1300-AE** — Vibration Signal Modulate Card

DMU-3010

8-ch AI, 8-ch DI, 4-ch DO Ethernet I/O Module

Features

- Industrial Modbus/TCP protocol
- Mixed I/O in the Module
- Advantech Domain Focused Configuration Tool
- Remote maintenance through Ethernet
- Supports online device auto-scan or manual configure function
- Auto push data to specification target function
- Supports High/Low Alarm function
- Supports cable burn-out check
- Supports pulse/ accumulator input

RoHS COMPLIANT 2002/95/EC CE FCC

Introduction

The DMU-3010 is an Ethernet I/O module that supports the Modbus TCP protocol, and delivers various onboard I/Os including analog input, digital input, and digital output, providing flexible options to satisfy versatile application requirements. It also features the powerful Advantech Domain Focused Configuration Tool for engineers to quickly develop their applications.

Specifications

General

- **Dimensions (W x H x D)** 120 x 120 x 44 mm (4.72" x 4.72" x 1.73")
- **LAN** 10/100Base-T
- **Connector** 1 x RJ-45 (LAN)
  4 x Plug-in screw terminal block (I/O & Power)
- **Watchdog** System (1.6 sec)
- **Supported Protocols** Modbus/TCP
- **Power Input** 10 ~ 30 V_{DC}
- **Power Consumption** 3 W @ 24 V_{DC}

Analog Input

- **Channels** 8
- **Input Type** V, mA*1, RTD*2
- **Voltage Range** 0 ~ 10 V
- **Current Range** 0 ~ 20 mA, 4 ~ 20 mA
- **RTD Type** Pt 100 (3-wire): -50 ~ 150°C
  0 ~ 100°C
  0 ~ 200°C
  0 ~ 400°C
  -50 ~ 200°C
  Pt 1000 (3-wire): -40 ~ 160°C
  IEC RTD 100 ohms (=0.0385)
  JIS RTD 100 ohms (=0.0392)
- **Input Impedance** 2 MΩ (voltage)
- **Accuracy** ±0.1%, (voltage); ±0.2% (current); ±0.5°C (RTD); or Better
- **Span Drift** ±25 ppm/°C
- **Zero Drift** ±6 µV/°C
- **Resolution** 16-bit
- **Sampling Rate** 10 samples/second
- **CMR @ 50/60 Hz** 90 dB
- **NMR @ 50/60 Hz** 60 dB
- **Over Voltage Protection** ±35 V_{DC}

- **Built-in TVS/ESD Protection**
- **Isolation Protection** 2500 V_{DC}
  Channels 0~7 support V, mA
  Channel 4~7 also support RTD input

Digital Input

- **Channels** 8
- **Dry Contact** Logic level 0: Open
  Logic level 1: Close to Ground
- **Supports 200 Hz pulse/accumulator input**
- **Isolation Protection** 2500 V_{DC}

Digital Output

- **Channels** 4
  Open Collector to 30V
  30mA max load.
- **Power Dissipation** 300 mW for each channel
- **PWM Period** 20 ms ~ 3600 sec
- **PWM Minimum Duty On** 2 ms
- **Isolation Protection** 2500 V_{DC}

Environment

- **Humidity** 5 ~ 95% RH
- **Operation Temperature** -40 ~ 70°C (-40 ~ 158°F)
- **Storage Temperature** -40 ~ 70°C (-40 ~ 158°F)

Ordering Information

- **DMU-3010-AE** 8-ch AI,8-ch DI,4-ch DO Ethernet IO Module

ADVANTECH **Power & Energy Automation**

4

Automation Software

To view all of Advantech's Automation Software, please visit www.advantech.com/products.

Advantech WebAccess

Browser-based HMI/SCADA Software

Features

- Remote engineering and support with WebAccess Cloud Architecture
- Business Intelligence Dashboard - cross-browser, cross-platform WebAccess HMI based on HTML5
- Open Interfaces - Web Services, Widget Interfaces and WebAccess APIs
- Excel Report integration for report format customization
- Multi-touch gesture support
- Google Maps and GPS location tracking integration
- WebAccess Express - The auto-configuration tool for various devices
- Distributed SCADA architecture with central database server and Multi-layer inter-operable SCADA nodes
- Supports ample drivers, including Advantech I/O, controllers and major PLCs
- Redundant SCADA, ports and devices - High availability
- Web-enabled video, audio and animation in WebAccess View
- Open data connectivity by providing industrial protocol and ODBC integration
- Advanced SCADA Function - Alarm, Schedule and Real-time database

Introduction

Advantech WebAccess is a web browser-based software package for human-machine interfaces (HMI) and supervisory control and data acquisition (SCADA). All the features found in conventional HMI and SCADA software including Animated Graphics Displays, Real-time Data, Control, Trends, Alarms and Logs, are available in a standard web browser. WebAccess is built around the latest internet technologies. The basic components are:

1. SCADA Node: it communicates in real-time with automation equipment and controls the equipment via serial, ethernet or proprietary communication via multiple built-in device drivers. Not only does it run local controls and monitoring, but also provides real-time data to all remote clients.

2. Project Node: it is the development platform for WebAccess and is a web server for all clients to connect to the development project or remotely monitor and control the system. All system configuration, project database files and graphics are stored here.

3. Client node: through the ActiveX control inside Microsoft Internet Explorer, it monitors and controls the SCADA Node. The client connects to the Project Node and get the address of the SCADA Node, then communicates directly with the SCADA Node using proprietary communications over a TCP/IP connection. Data is displayed in real-time with dynamically animated graphics along with real-time, historical trending and alarm information. Users can acknowledge alarms and change set-points, status and other data.

4. Mobile Client: the Mobile Client interface is intended for use with smart mobile devices, such as iOS, Android; and Windows. In the mobile client users can browse graphics, data-log trends, and tag information in real-time. Setting the value to tag or acknowledge alarms can also be supported via an intuitive interface.

WebAccess 8.0 releases a new generation of WebAccess HMI. Business Intelligence Dashboard, provides users with cross-platform, cross-browser data analysis and user interface based on HTML5 technology. WebAccess 8.0 can also act as an IoT Platform by providing open interfaces for partners to develop IoT applications for different vertical markets.

Feature Details

WebAccess Cloud Architecture

WebAccess is a 100% web based HMI and SCADA software with private cloud software architecture. WebAccess can provide large equipment vendors, SIs, and Enterprises to access and manipulate centralized data and to configure, change/update, or monitor their equipment, projects, and systems all over the world using a standard web browser. Also, all the engineering works, such as: database configuration, graphics drawing and system management and the troubleshooting can be operated remotely. This can significantly increase the efficiency of maintenance operations and reduce maintenance costs.

HTML5 Business Intelligence Dashboard

WebAccess 8.0 provides an HTML5 based Dashboard as the next generation of WebAccess HMI. System integrators can use Dashboard Editor to create the customized information page by using analysis charts and diagrams which are called widgets. Ample widgets have been included in the built-in widget library, such as trends, bars, alarm summary, maps...etc. After the dashboard screens have been created, end user can view the data by Dashboard Viewer in different platforms, like Internet Explorer, Safari, Chrome, and Firefox for a seamless viewing experience across PCs, Macs, tablets and smartphones.

Open Interfaces

WebAccess opens three kinds of interfaces for different use. First, WebAccess provides a Web Service interface for partners to integrate WebAccess data into APPs or application system. Second, a pluggable widget interface has been opened for programmer to develop their widget and run on WebAccess Dashboard. Last, WebAccess API, a DLL interface for programmer to access WebAccess platform and develop Windows applications. With these interfaces, WebAccess can act as an IoT platform for partners to develop IoT applications in various vertical markets.

Excel Report

WebAccess provides Excel Reports for fulfilling the requirements of self-defined report functionality. Users can build self-defined Excel templates and generate daily/weekly/monthly/yearly or on demand reports automatically in Microsoft EXCEL format. The Excel Report function is also web-based. Excel reports can be generated and viewed in a Web browser from wherever is needed.

Multi-touch Gesture Support

WebAccess supports multi-touch functionality with various pre-set gestures, such as flick to change pages, zooming in and out of the display and 2-handed operation maximizing operating safety, increasing usability and decreasing training time due to the more intuitive handling. In addition, multi-touch also supports multi-finger tap, multi-finger grab, and multi-finger spread gestures to operate pre-defined actions.

Google Maps and GPS Tracking Integration

WebAccess integrates real-time data on each geographical site with Google Maps and GPS location tracking. For remote monitoring, users can intuitively view the current energy consumption on each building, production rate on each field or traffic flow on the highway together with alarm status. By right-clicking on Google Maps or entering the coordinate of the target, users can create a marker for the target and associate the real-time data of three sites with a display label. Furthermore, this function also integrates with GPS modules to track the location of the marker in Google Maps and allows it to be used in vehicle systems.

Advantech WebAccess

1 WebAccess+ Solutions

2 Motion Control

3 Power & Energy Automation

4 Automation Software

5 Intelligent Operator Panel

6 Automation Panels

7 Panel PCs

8 Industrial Wireless Solutions

9 Industrial Ethernet Solutions

10 Industrial Gateway Solutions

11 Serial communication cards

12 Embedded Automation PCs

13 DIN-Rail IPCs

14 CompactPCI Systems

15 IoT Wireless I/O Modules

16 IoT Ethernet I/O Modules

17 RS-485 I/O Modules

18 Data Acquisition Boards

Auto-Configuration - WebAccess Express

Advantech WebAccess Express is an automated graphical remote control application program with 1-click to bring device information online. It automatically discovers the ADAM and EKI modules on the network and serial ports, generates a database and brings real-time data online with prebuilt monitoring graphics. Express also provides remote monitoring functions and allows users to communicate and exchange data with SNMP, DiagAnywhere Server or SUSI 4.0 APIs and then check the health of the CPU, memory, temperature, and voltage of the target machine as device monitoring platform. With SNMP, DiagAnywhere, or SUSI API Driver integration, users can configure the alarm function if any abnormal or suspicious data is detected in WebAccess.

Distributed SCADA Architecture with Central Database Server

SCADA nodes run independent of any other node. Each SCADA node communicates to automation equipment using communication drivers supplied with Advantech WebAccess. The Project Node is a centralized database server of configuration data. A copy of the database and graphics of all SCADA nodes is kept on the Project Node. The historical data is also stored in the database in project node.

Ample Driver Support

WebAccess supports hundreds of devices. In addition to Advantech I/Os and controllers, WebAccess also supports all major PLCs, controllers and I/Os, like Allen Bradley, Siemens, LonWorks, Mitsubishi, Beckhoff, Yokogawa etc. WebAccess can easily integrate all devices in one SCADA. All of these device drivers are integrated into WebAccess and free of charge. For a complete list of WebAccess drivers, refer to webaccess.advantech.com.

Redundant SCADA, COM Ports and Devices

Advantech WebAccess assures continuous, reliable communication to automation equipment. WebAccess Backup node activates when the Primary node is down. WebAccess device drivers communicate with backup ports or devices if the primary connection is lost and automatically restores to the primary item when it becomes available.

Alarm Management System

WebAccess advanced Alarm Management System (AMS) delivers alarm messages via SMS, email or audio announcement to multiple receivers by predefined alarm group, user groups, time schedule and priority setting.

Web-enabled Video, Audio, Animation

WebAccess allows operators and users to monitor equipment and facilities directly using web-enabled full-motion video cameras, audio, and web cams. It also supports the use of live video cameras that are IP-enabled via ActiveX control, Windows Media Player, JPEG and other formats supported by Microsoft Internet Explorer 8.0 (or later). The video image appears in the same display area as graphics, animation, alarms and trends displays. With vector-based graphics, WebAccess graphics can be built at any resolution and displayed at any resolution. It also has the options to allow users to define the aspect ratio, 16:9, 16:10 or 4:3, to view their graphics to avoid distortion when displaying in certain aspect ratio display.

Open Data Connectivity

Advantech WebAccess exchanges online data with 3rd party software in real-time by supporting OPC UA/DA, DDE, Modbus and BACnet Server/Client. It supports SQL, Oracle, MySQL, and MS Access for offline data sharing.

Real-Time Database

WebAccess Real-Time Database (RTDB) is designed to meet industrial high speed and large quantity data access requirements. With the fully integrated design, users do not need to learn how to operate this database. Just by enabling the usage of RTDB in WebAccess configuration page, WebAccess SCADA node can serve data processing (collection and retrieval at the same time) at a rate of millions of records per second. Also, the RTDB maintenance feature can automatically archive and delete obsolete data.

Gateway with WebAccess Installed

With open real-time data connectivity and hundreds of device drivers, WebAccess can integrate all devices and a selected hardware platform with pre-installed WebAccess becomes the perfect protocol gateway or data concentrator. With intuitive setup, WebAccess converts field device data to Modbus, OPC DA, OPC UA or BACnet protocol, so other software, such as ERP and MES can gain access without knowing the field device protocol. WebAccess+ Solution Products, a bundle of WebAccess Professional 8.0 and Windows 7 Embedded built in to Advantech's robust hardware platform, can be used as a high performance, low cost data gateway solution.

WebAccess Scheduler

WebAccess Scheduler provides on/off control and setpoint changes based on the time of day, day of the week and the calendar. Users can control lights, temperature and equipment for saving energy during work days. WebAccess Scheduler allows the definition of up to 16 periods per day and preserved functions for setpoints.

Advantech WebAccess

Browser-based HMI/SCADA Software

Software Specifications

Advantech WebAccess Professional

▪ I/O Tag Number	75/150/300/600/1500/5000/20K/64K
▪ Internal Tag Number	75/150/300/600/1500/5000/20K/64K
▪ Web Client	1024
▪ Alarm Logs	5000
▪ Action Logs	5000

Graphics

▪ Number of Graphic Pages	Unlimited (limited by H/D size)
▪ Variables per Graphic Pages	4000
▪ Tag Source	Global
▪ Multi-touch Gesture	Yes

Dashboard

▪ Cross Browser and Platform	Yes
▪ Number of Built-in Widget	37
▪ Open Widget Interface	Yes

Group Trend Log

▪ Number of Data Logging	Number of I/O tags license x 2
▪ Alarm Groups per SCADA	9999

Receipt

▪ Recipes per Project	Unlimited (limited by H/D size)
▪ Unit per Recipe	999
▪ Item per Unit	999

Scheduler

▪ Holiday Configuration Group	9999
▪ Time Zone Group	9999
▪ Device Loop Group	9999
▪ Equipment Group	9999
▪ Scheduler Reservation Group	9999

Web-enabled Integration

▪ Video	Yes
▪ Google Maps and GPS Location Tracking	Yes

Open Connectivity

▪ Modbus Server	Yes
▪ BACnet Server	Yes
▪ ODBC and SQL Query	Yes
▪ OPC DA/UA Server	Yes
▪ DDE Server	Yes

Others

▪ Centralized logs on project	Yes node via ODBC
▪ SCADA Redundancy	Yes
▪ Script language	TclScript/VBScript/JScript
▪ Data Transfer	Yes
▪ Reporting / Excel Reporting	Yes
▪ Device Redundancy	Yes
▪ Supports IPv6	Yes
▪ WebAccess Express	Yes

Ordering Information

Professional Versions

▪ WA-P80-U075E	WebAccess V8.0 Professional Software with 75 tags
▪ WA-P80-U150E	WebAccess V8.0 Professional Software with 150 tags
▪ WA-P80-U300E	WebAccess V8.0 Professional Software with 300 tags
▪ WA-P80-U600E	WebAccess V8.0 Professional Software with 600 tags
▪ WA-P80-U15HE	WebAccess V8.0 Professional Software with 1,500 tags
▪ WA-P80-U50HE	WebAccess V8.0 Professional Software with 5,000 tags
▪ WA-P80-U20KE	WebAccess V8.0 Professional Software with 20,000 tags
▪ WA-P80-U64KE	WebAccess V8.0 Professional Software with Unlimited tags

Version Upgrade*

▪ WA-X80-U000E	WebAccess Upgrade to Version 8.0

* Upgrade the WebAccess Version from V.7.X to V8.0.

▪ Upgrade*	
▪ WA-X80-U075E	WebAccess software license, 75 Tags upgrade
▪ WA-X80-U300E	WebAccess software license, 300 Tags upgrade
▪ WA-X80-U600E	WebAccess software license, 600 Tags upgrade
▪ WA-X80-U15HE	WebAccess software license, 1,500 Tags upgrade
▪ WA-X80-U50HE	WebAccess software license, 5,000 Tags upgrade

* Original serial number from WebAccess Professional version is required to purchase WebAccess upgrade. The serial number can be found on the USB dongle.

WebAccess+ Bundled Products

▪ WA-TPC1771-T600E	17" Touch Panel Computer, 600 tags WebAccess with Traditional Chinese
▪ WA-TPC1771-T50HE	17" Touch Panel Computer, 5,000 tags WebAccess with Traditional Chinese
▪ WA-TPC1771-C600E	17" Touch Panel Computer, 600 tags WebAccess with Simplified Chinese
▪ WA-TPC1771-C50HE	17" Touch Panel Computer, 5,000 tags WebAccess with Simplified Chinese
▪ WA-TPC1771-E600E	17" Touch Panel Computer, 600 tags WebAccess with English
▪ WA-TPC1771-E50HE	17" Touch Panel Computer, 5,000 tags WebAccess with English
▪ WA-UNO2178-T600E	Automation Computer, 600 tags WebAccess with Traditional Chinese
▪ WA-UNO2178-T50HE	Automation Computer, 5,000 tags WebAccess with Traditional Chinese
▪ WA-UNO2178-C600E	Automation Computer, 600 tags WebAccess with Simplified Chinese
▪ WA-UNO2178-C50HE	Automation Computer, 5,000 tags WebAccess with Simplified Chinese
▪ WA-UNO2178-E600E	Automation Computer, 600 tags WebAccess with English
▪ WA-UNO2178-E50HE	Automation Computer, 5,000 tags WebAccess with English

Minimum Requirements

Project Node \ SCADA Node

▪ Operating System	Windows XP (SCADA Node Only), Windows 7 SP1 Professional, Windows 8 Professional, Windows Server 2008 R2 or later Net Framework 4.5 or later version
▪ Hardware	Intel Atom or Celeron. Dual Core processors or higher recommended 2GB RAM minimum, more recommended 30GB or more free disk space
▪ Display Resolution	1024 x 768 or higher (recommended) Lower resolutions also supported
▪ USB Port	USB port for License Hardkey on SCADA node

Dashboard Viewer

▪ Hardware	PC: Intel Core I3 or higher; 4GB RAM or higher iPhone: iPhone 5 or later version Android: 1.5GHz Quad Core or higher; 2GB RAM or higher Windows Phone: 1.5GHz Quad Core or higher; 2GB RAM or higher
▪ Browser	Internet Explorer: Version 9 or later version Chrome: Version 37 or later version Firefox: Version 31 or later version Safari: Version 7 or later version

WebOP Designer Panel Express

HMI Runtime Software

Software Features

- Allows users to manage multiple HMI applications in one project
- Allows users to switch multi-language UI dynamically, with Unicode and multilingual screen text supported
- Provides password protection of designs, macros and upload/download operations
- Running various applications on Open Platform with different O.S. - RTOS/WinCE and Windows O.S.
- Link and Control automation controller directly from platform
- Provides index registers for modifying device addresses at runtime
- Collects data from many devices with various methods
- Supports various data acquisition and trend presentation
- Operation log helps the review and investigation of important events
- Flexible runtime download through serial / Ethernet and memory cards.
- Allows to use the USB Memory Sticker for the trouble-free update of the application
- Supports over 300 industrial communication protocols such as SIMATIC S7-1200, BACNet MSTP/BACNet IP etc. and the driver list is growing

Introduction

WebOP Designer is powerful yet intuitive software to create total solutions for WebOP series Human Machine Interface products. WebOP Designer is proven in many application fields and is an easy to use integrated development tool. The features include solution-oriented screen objects, high-end vector graphics, Windows fonts for multi-language applications, recipes, alarms, data loggers and operation logging. WebOP Designer also includes online/offline simulation and other utility programs such as Data Transfer Helper (DTH); recipes editors and text editors.
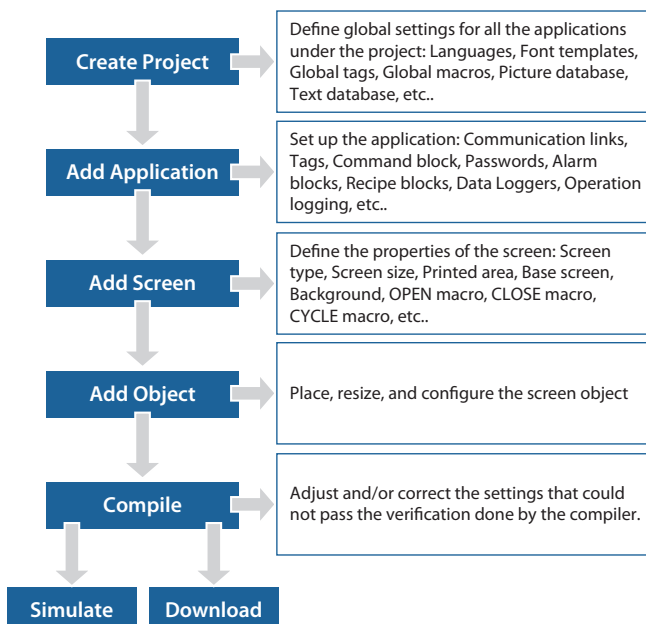
Panel Express runtime, a part of WebOP Designer, guarantees reliability and performance of Open Platform because of the minimum system overhead, high communication data rates, sub-second screen switching, and 24/7 operation. Our fast response software team adds new functions, communication drivers and solutions to the software all the time to meet dynamic needs.

System Requirements

Minimum OS Requirements:

- Windows XP SP2 (for all flavors of XP such as Home, Media Center, Tablet PC)
- Windows Server 2003
- Windows Vista
- Windows 7

Project Development Steps

Step	Description
Create Project	Define global settings for all the applications under the project: Languages, Font templates, Global tags, Global macros, Picture database, Text database, etc..
Add Application	Set up the application: Communication links, Tags, Command block, Passwords, Alarm blocks, Recipe blocks, Data Loggers, Operation logging, etc..
Add Screen	Define the properties of the screen: Screen type, Screen size, Printed area, Base screen, Background, OPEN macro, CLOSE macro, CYCLE macro, etc..
Add Object	Place, resize, and configure the screen object
Compile	Adjust and/or correct the settings that could not pass the verification done by the compiler.
Simulate	
Download	

Feature Details

Global Settings and Resources Sharable to all Applications of the Same Project

- Multi-languages (up to 10 languages)
- Font templates (up to 20 fonts for each language, TrueType fonts supported)
- Picture database (+PNG & SVG), Sound database (WAV), Text Database
- Global Tags
- Global Macros

### Plenty of Solution-oriented Screen Objects

- For common HMI needs:
  Buttons, Lamps, Message displays, Numeric displays, Numeric entries, Character displays, Character entries, Time displays, Date displays, Bar Graphs, Meters, etc.
- For animation:
  Pictures displays, GIF displays, Animated graphics, Dynamic rectangles, Dynamic circles, Pipelines, Circular bar graph, etc. Color of basic graphic objects (text, lines, rectangles, circles, etc.) changeable.
  Shape and color of buttons and lamps changeable.
- For advanced functions:
  Line chart, Scatter chart, Recipe selector, Recipe table, Alarm history display, Active alarm display, Alarm count display, Historic trend graph, Historic data table, Historic event table, Historic line chart, Operation log display, Sub-link table, etc.

Communication Links

The WebOP series HMI products can have at most 4 built-in communication ports. The WebOP Designer software allows you to create up to 4-links and 255 sub-links for one application. More than 400 communication drivers allow 1-to-N (one panel to a wide variety of industrial devices) or N -to-1(multiple panels to one device) connections.

The Panel Express can have at most 16 built-in communication ports. It also allows you to create up to 16-links for 255 sub-links with serial port & 128 sub-links with Ethernet ports in one application.

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards
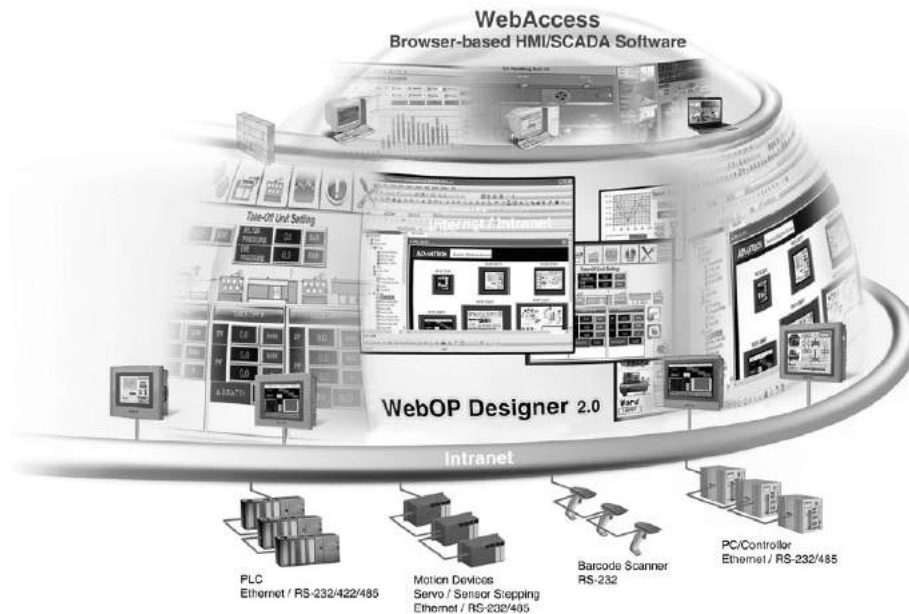
One Design for all Models

The WebOP Designer software provides the auto resizing function to resize all the objects so they can fit the new screen size when you change the HMI model. It makes the HMI model changes done in seconds.

Easy to Accumulate/Reuse Design Achievements

- Import/Export Function
  The WebOP Designer software provides the simple method for importing and exporting data between applications or projects. The data includes Language setting, Font templates, Pictures, Sounds, Text, Tags, Macros, Application, Screen, Alarm messages, Control block and status word settings, etc.
- Object Library
  The object library makes configuring, managing and sharing user-defined objects easier. It contains default objects, common objects, object groups and global objects.

Enhanced Intellectual Property (IP) Protection

WebOP Designer strengthens the IP protection by password with different levels. You can set the password to protect project, password table and global macros. You can also use up to 9 levels of passwords to secure the operations and restrict access to the objects. You can choose to prohibit uploading and copying of the panel application stored in the HMI unit.

Recipe

Distinguish from the conventional recipe operations, the WebOP Designer provides complete solutions to deal with recipes:

- Supports up to 16 recipe blocks
- Provides recipe selector for selecting a recipe and recipe table for displaying and modifying recipe data at runtime
- Provides Recipe Editor, an independent executable program, to view and edit recipe data saved in a binary file on PC
- Able to notify a bit when the recipe operations are performed successfully to prevent data loss

Data Collected into a CSV/TXT file

Allows to save/load collected data to/from CSV or TXT files. Those two standard file formats allow the easy manipulation data on PC.

Alarm

The WebOP Designer supports up to 16 discrete alarm blocks and up to 16 analog alarm blocks. It provides alarm history display, active alarm display, alarm count display and alarm marquee to display alarms in the application.

Macros, an easy-to-learn language with simple syntax

Application developers may program their own solutions using the macro commands for:

- Operations that are not supported in a standard object or feature of WebOP Designer
- Sequential, Interactive, Conditional and File operations
- Non-linear data conversions
- Data exchange between two controllers
- Simple communication drivers
- Hard-to-implement tasks in controllers
- Offloading the burden of controllers to boost their performance

Simplified Architecture

- Real time WYSIWYG screen editor, 8 toolbars and screen manager
- Screen overview that shows the relations among screens of the current application
- Link overview that shows the relations among links of the current application
- Object list that shows the screen objects and the associated I/O address of the current screen
- I/O list that shows all the I/O addresses of the project and their owners
- Compiler to verify, optimize, and build the designs
- Online/offline simulation for design verification
- Data Transfer Helper (DTH), an independent executable program, to help you get/update application data through serial port or Ethernet port
- Text Editor for editing all screen texts in multi-languages

Ordering Information

- **968WEXP015E**   PanelExpress V2.0 1500 tags S/W license (WinCE)
- **968WEXP050E**   PanelExpress V2.0 5000 tags S/W license (WinCE)
- **968WEXP003X**   PanelExpress V2.0 300 tags S/W license
- **968WEXP015X**   PanelExpress V2.0 1500 tags S/W license
- **968WEXP050X**   PanelExpress V2.0 5000 tags S/W license
- **968WEXP1USB**   PanelExpress V1.2 S/W USB dongle
- **968WEXP2USB**   PanelExpress V2.0 S/W USB dongle

KW MULTIPROG® IEC 61131-3 SoftLogic Control Software
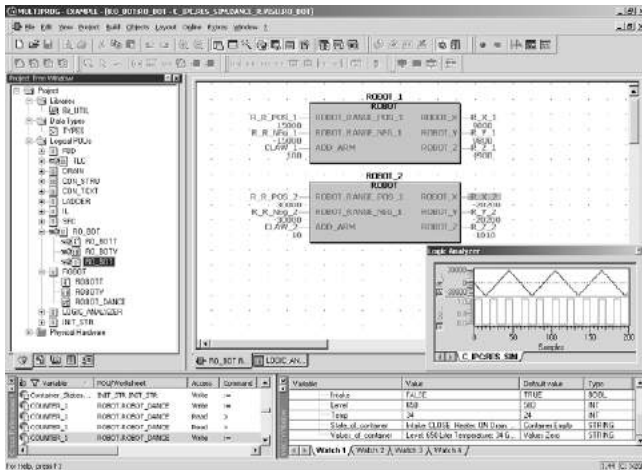
Features

- IEC 61131-3 programming languages
- Intuitive programming with a clear project structure
- Cross-compiling: FBD, LD and IL can be cross-compiled to each other
- Multi user functionality shortens programming time
- Management of distributed controls
- Network variables: Easy and powerful configuration of distributed communication
- Powerful debugging tools: Online changes, PLC simulation, overwriting & forcing, breakpoints, watch windows & recipes, logic analyzer, and cross reference
- Online program download
- Download Change Function
- Advantech FBs Support (Auto-Tuning PID, Batch Control)

Introduction

Advantech's Programmable Automation Controllers (PAC) leverage KW-Software's Multiprog and ProConOS as a single development tool with the SoftLogic control kernel. Requiring only a one-time design, users can easily leverage the control know-how into different control platforms to meet versatile automation projects needs. KW SoftLogic also creates single tagging database and HMI Software, such as WebAccess and other 3rd party SCADA software, all the features can help users to save the visible and invisible cost.

Multiprog supports all IEC 61131-3 programming languages. Depending on the task to be handled, your experience and company standards, you may choose one of the five standardized programming languages. The use of Multiprog offers you many advantages. Our long-term experience in the automation industry guarantees you a sophisticated software product.

Specifications

Hardware Requirements

Device	Recommended
IBM compatible PC with Pentium Processor	Pentium 4, 2 GHz or above
System RAM	Windows XP : 512 MB Windows Vista : 1 GB Windows 7 : 1 GB
Hard Disk	1 GB free memory space
VGA Monitor Color Settings Resolution	True color 1024 x 768
RS-232 interface	Optional
Mouse	Recommendded

Advantech Hardware Supported

- APAX-6000 Series
- APAX-5000 Series
- ADAM-55X0KW Series

Software Requirements

- Microsoft Windows 7
- Microsoft Windows Vista (SP2)
- Microsoft Windows XP (SP3)
- Microsoft Internet Explorer 6.0 or higher

IEC 61131-3 Programming Languages

- Instruction List (IL)
- Structured Text (ST)
- Function Block Diagram (FBD)
- Ladder Diagram (LD)
- Sequential Function Chart (SFC)
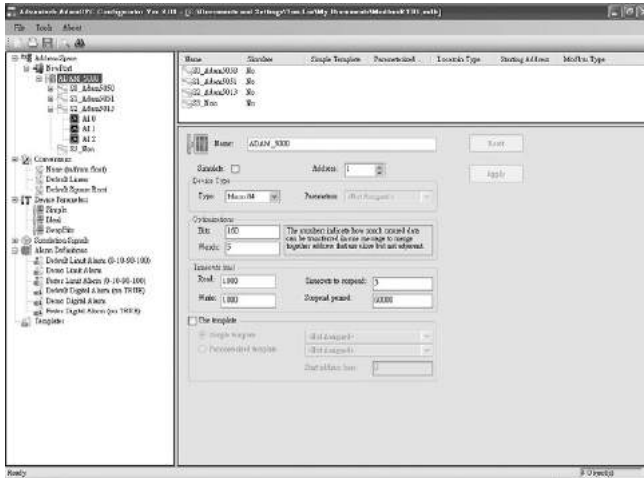- All programming languages can be mixed within one project

Ordering Information

- **MPROG-PRO535E** KW Multiprog Pro v5.35
  (128k bytes I/O, Win7 32-bit support)

OPC Server

Features

- Supports Microsoft Windows 8/7/XP/2000/NT/98
- Supports Advantech ASCII, MODBUS/RTU, and MODBUS/TCP protocol
- Compliant with the latest OPC Data Access 1.0, 2.04 and 3.0 standards
- Compliant with the latest OPC Alarm and Events 1.0 and 1.2 standards
- OPC DA and AE Client for rapid testing of your OPC data connections

Introduction

The Industrial Automation Group of Advantech introduces a standardized interface for industrial device servers, the OPC (OLE for process control) Server. An OPC server provides devices, such as an I/O device, to communicate with a wide range of HMI/SCADA software packages residing on a host. Any software system with OPC client capabilities can access the Advantech OPC server drivers.

Key Features of the OPC Servers

- Supports Microsoft Windows 8/7/XP/2000/NT/98
  - Supports Windows 7 / 8 both 32-bit and 64 bit versions
- Supports Advantech ASCII, MODBUS/RTU, and MODBUS/TCP protocol.
- Compliant with the latest OPC Data Access 1.0, 2.04 and 3.0 standards.
  - Compliant with the latest OPC Alarm and Events 1.0 and 1.2 standards.
  - Built-in OPC tag simulation and value conversion.
  - Wizards to create OPC Server tags about ADAM series quickly.
- Compatible with OPC client compliant application software.
- Provides OPC custom interface.
- Online configuration capability; add new signals and tags during runtime.
- Tag Multiplier let you create tags quickly.
- OPC DA and AE Client for rapid testing of your OPC data connections.

Specifications

Supported Hardware

- All ADAM-4000 series modules
- All ADAM-5000 series modules
- All ADAM-6000 series modules

Ordering Information

- **PCLS-OPC/ADM30**   OPC Server for ADAM ASCII protocol
- **PCLS-OPC/MTP30**   OPC Server for Modbus/TCP protocol
- **PCLS-OPC/RTU30**   OPC Server for Modbus/RTU protocol

DAQNavi

Software Development Package for
Advantech DAQ Products

1
WebAccess+ Solutions

2
Motion Control

3
Power & Energy Automation

4
Automation Software

5
Intelligent Operator Panel

6
Automation Panels

7
Panel PCs

8
Industrial Wireless Solutions

9
Industrial Ethernet Solutions

10
Industrial Gateway Solutions

11
Serial communication cards

12
Embedded Automation PCs

13
DIN-Rail IPCs

14
CompactPCI Systems

15
IoT Wireless I/O Modules

16
IoT Ethernet I/O Modules

17
RS-485 I/O Modules

18
Data Acquisition Boards

Features

- Supports multiple operating systems including Windows (32-bit and 64-bit), Linux
- Supports common-used development environment including Visual C/C++, Borland C Builder, Visual Basic .NET, Visual C#, Delphi, Java, VB, LabVIEW
- Supports Advantech PCI Express, PCI, PC/104, PCI-104, USB DAQ devices
- Integrated utility environment (Advantech Navigator) for device functionality testing without programming
- Able to generate a simulator device in utility to program and run application without real hardware device
- Pre-defined scenario application examples with source code to shorten programming learning and development time
- Express VI and Polymorphic VIs for both beginner and advanced programming in LabVIEW environment
- Complete documentations and tutorials for hardware specifications, wiring, example code and SDK programming

Introduction

DAQNavi is a completed software package, for programmers to develop their application programs using Advantech DAQ boards or devices. This integrated software package includes drivers, SDK, tutorial and utility. With the user-friendly design, even the beginner can quickly get familiar with how to utilize DAQ hardware and write programs through the intuitive "Advantech Navigator" utility environment. Many example codes for different development environment dramatically decrease users' programming time and effort.

You can go to http://www.advantech.com/daqnavi for more information about Advantech DAQNavi.

Feature Details

Multiple Operating System Support

DAQNavi supports many popular operating systems (OS) used in automation applications. For different OSs, API functions will be the same, so users can simply install the driver without modifying their program again when migrating between two different OSs.

DAQNavi supports latest Windows 7/Vista/XP and Windows CE (both 32-bit and 64-bit). Besides Windows operating system, Linux is famous for its openness and flexibility. DAQNavi software package also supports Linux OS distributions including Ubuntu, Fedora, Debian and, Susi. For other distributions, contact with Advantech local branch or dealer in your area, for more information.

.NET Support

DAQNavi offers a series of .NET Component objects, that you can benefit from platform-unified feature with the latest .NET technology. Users can simply drag and drop the .NET Components within .NET programming environment, such as Microsoft Visual C# and VB .NET. An intuitive window (called "DAQNavi Wizard") will pop-up, and user can perform all configurations by sequence. Then, related source code will be generated automatically. Programmers also can choose writing code manually with the .NET Component, to have a more flexible object calling. With Advantech CSCL technology, engineers can do the similar programming in Native environment such as Visual C++.

LabVIEW Support

LabVIEW is one popular graphical development environment used for measurement and automation. For LabVIEW user, DAQNavi offer two options for programming: Express VI and Polymorphic VI. DAQNavi Express VI for LabVIEW helps user quickly complete his LabVIEW without extra wiring. When the user drags the Express VI on LabVIEW Block Diagram, a pop-up intuitive wizard window will appear and user can perform hardware parameter configurations. After that, the programming is done. So it is similar to the .NET control used in Microsoft Visual Studio environment, suitable for programming beginners. As for the Polymorphic VI, users can use several VIs and wiring to build more complex program.

C++, Delphi, ActiveX and Java Support

DAQNavi also offers C++ Class Library (for VC++ and Borland C++ Builder) and ActiveX (for Visual Basic, Delphi and BCB) for Native programming environment with the same calling interface as .NET Class Library. With DAQNavi Java Class Library, user can develop Java program to across different platforms (including Windows and Linux) by means of Java engine.

Support Modules

DAQNavi supports all Advantech PCI Express, PCI, PC-104, and PCI-104 cards, as well as all USB DAQ devices.

Intuitive Utility

DAQNavi delivers one integrated easy-to-use and powerful utility, called Advantech Navigator. Within the Navigator, engineers can quickly start configuration and function testing for all Advantech DAQ devices, without any programming. Related user manuals are also displayed in the same environment. Besides, to help shorten development time, Advantech offers a series of DAQ applications examples (called "scenarios" in the Advantech Navigator). So programmers can refer to its source code and develop their own application based on it, as well as the wiring information. Without a DAQ device at hand, engineers can generate a simulated device and use that device for programming and testing. Except device testing, Navigator also offers complete documentation to describe how to use DAQNavi SDK to program in various development environments. Moreover, a video tutorial for how to create an application program in a different development environment is available.

Memo

Intelligent Operator Panel

5

To view all of Advantech's Operator Panels, please visit www.advantech.com/products.

Selection Guide

NEW NEW NEW

Model	TPC-31T	TPC-61T	WOP-3070T	WOP-3100T	WOP-3120T
Ordering Information	TPC-31T-E3AE	TPC-61T-E3AE	WOP-3070T-C4AE	WOP-3100T-C4AE	WOP-3120T-C4AE
CPU	RISC 32 bits, 600 MHz (ARM® Cortex™-A8)	RISC 32 bits, 600 MHz (ARM® Cortex™-A8)	RISC 32 bits, 600 MHz (ARM® Cortex™-A8)	RISC 32 bits, 600 MHz (ARM® Cortex™-A8)	RISC 32 bits, 600 MHz (ARM® Cortex™-A8)
Backup Memory	FRAM 128KB	FRAM 128KB	FRAM 1M bit (=128K Byte, 64word)	FRAM 1M bit (=128K Byte, 64word)	FRAM 1M bit (=128K Byte, 64word)
Working Memory	DDR2 256M Bytes	DDR2 256M Bytes	DDR2 256M Bytes	DDR2 256M Bytes	DDR2 256M Bytes
Storage	512MB on board SLC type	512MB on board SLC type	512MB on board SLC type	512MB on board SLC type	512MB on board SLC type
Operating System	Microsoft® Windows CE 6.0	Microsoft® Windows CE 6.0	Microsoft® Windows CE 6.0	Microsoft® Windows CE 6.0	Microsoft® Windows CE 6.0
	-	-	Panel Express 300 Tags	Panel Express 300 Tags	Panel Express 300 Tags

Display

		TPC-31T	TPC-61T	WOP-3070T	WOP-3100T	WOP-3120T
Display	Type	QVGA TFT LCD	QVGA TFT LCD	WVGA (16:9) TFT LCD	WSVGA (16:9) TFT LCD	XGA TFT LCD
	Size	3.5"	5.7"	7"	10.1"	12"
	Max. Resolution	320 x 240	320 x 240	800 x 480	1024 x 600	1024 x 768
	Max. Colors	65,536 colors	65,536 colors	65,536 colors	65,536 colors	65,536 colors
	Luminance (cd/m²)	450	800	500	550	500
	Viewing Angle (H/V°)	160/140	160/140	140/120	140/110	160/140
	Backlight Life (hr)	LED, 30,000	LED, 50,000	LED, 50,000	LED, 50,000	LED, 50,000
	Dimming	-	-	Adjustable	Adjustable	Adjustable
Touchscreen		4 wires Analog resistive	4 wires Analog resistive	5 wire Analog Resistive	5 wire Analog Resistive	5 wire Analog Resistive
Power-On LED		-	-	Yes	Yes	Yes
Communication LED		-	-	-	-	-
Front USB Access		-	-	-	-	-

Communication Interface

		TPC-31T	TPC-61T	WOP-3070T	WOP-3100T	WOP-3120T
Communication Interface	COM1	RS-232/485 (DB9)	RS-232 (DB9)	RS-232/422485 (DB9)	RS-232/422485 (DB9)	RS-232/422485 (DB9)
	COM2	-	RS-232 (DB9)	RS-422/485 (Terminal 4pin+Ground)	RS-422/485 (Terminal 4pin+Ground)	RS-422/485 (Terminal 4pin+Ground)
	COM3	-	RS-422/485 (DB9)	RS-485 (Termianl 2pin)	RS-485 (Termianl 2pin)	RS-485 (Termianl 2pin)
	CAN	CAN (DB9)	-	Termianl 2pin	Termianl 2pin	Termianl 2pin
	Ethernet (RJ45)	10/100-BaseT	10/100-BaseT	10/100-BaseT	10/100-BaseT	10/100-BaseT

I/Os

		TPC-31T	TPC-61T	WOP-3070T	WOP-3100T	WOP-3120T
I/Os	USB Client	-	USB 2.0	USB 2.0 Client x 1	USB 2.0 Client x 1	USB 2.0 Client x 1
	USB Host	USB 2.0	USB 2.0	USB 2.0 Host x 1 (Top)	USB 2.0 Host x 1 (Top)	USB 2.0 Host x 1 (Top)
	Micro-SD Slot	-	-	Yes	Yes	Yes
	SD Slot	Yes	Yes	-	-	-
	Audio	-	-	1 Lin out / 1 Mic in	1 Lin out / 1 Mic in	1 Lin out / 1 Mic in
	Power Isolation	-	-	Yes	Yes	Yes
	I/O Isolation	-	-	Yes	Yes	Yes
Power Supply Voltage		18 ~ 32 V$_{DC}$	18 ~ 32 V$_{DC}$	24VDC ± 10%	24VDC ± 10%	24VDC ± 10%
Power Consumption		8W	12W	7W Typical	9W Typical	12W Typical
Dimensions W x H x D (mm)		120.79 x 85.5 x 26.5 mm (4.76" x 3.37" x 1.04")	195 x 148 x 44.4 mm (7.68" x 5.83" x 1.75")	203.4 x 150 x 43.7 mm (8.01" x 5.91" x 1.72")	271.5 x 213.5 x 43.2 mm (10.69"" x 8.41"" x 1.7"")	311 x 237 x 46.8 mm (12.24" x 9.33" x 1.84")
Cut-out Dimensions W x H (mm)		115 x 79.5 mm (4.6" x 3.18")	189 x 142 mm (7.56" x 5.68")	192 x 138.5 mm (7.56" x 5.45")	259.5 x 201.5 mm (10.22" x 7.93")	302.5 x 228.5 mm (12.1" x 9.14")
Front Panel thickness (mm)		6 mm	6 mm	6 mm	6 mm	6 mm
Enclosure		PC + ABS	PC + ABS	Die-cast aluminum alloy front bezel	Die-cast aluminum alloy front bezel	Die-cast aluminum alloy front bezel
Net Weight		0.25 kg (0.55 lbs)	0.8 kg (1.76 lb)	1 kg (2.20 lbs)	1.2 kg (2.65 lbs)	2.5 kg (5.51 lb)
Operating Temperature		0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)
Storage Temperature		-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-30 ~ 70°C (-22 ~ 158°F)	-30 ~ 70°C (-22 ~ 158°F)	-30 ~ 70°C (-22 ~ 158°F)
Humidity		10% ~ 90% RH @ 40°C, non-condensing	10% ~ 90% RH @ 40°C, non-condensing	10% ~ 90% RH @ 40°C, non-condensing	10% ~ 90% RH @ 40°C, non-condensing	10% ~ 90% RH @ 40°C, non-condensing
Ingress Protection		Front panel: IP65	Front panel: IP65	Front panel: IP66	Front panel: IP66	Front panel: IP66
Certification		CE / FCC / BSMI / UL	CE / FCC / BSMI / UL	CE / FCC / BSMI / CCC / UL-508	CE / FCC / BSMI / CCC / UL-508	CE / FCC / BSMI / CCC / UL-508
Page		5-4	5-4	5-6	5-8	5-10

|	WOP-2040T		WOP-2050T	WOP-2070T		WOP-2080T		WOP-2100T	
	WOP-2040T-S1AE	WOP-2040T-N1AE	WOP-2050T-S1AE	WOP-2070T-S2AE	WOP-2070T-N2AE	WOP-2080T-S2AE	WOP-2080T-N2AE	WOP-2100T-S2AE	WOP-2100T-N2AE
	RISC 32bits, 200MHz		RISC 32bits, 200MHz	RISC 32bits, 200MHz		RISC 32bits, 200MHz		RISC 32bits, 200MHz	
	128KB		128KB	128KB		128KB		128KB	
	32 MB SDRAM		32 MB SDRAM	64 MB SDRAM		64 MB SDRAM		64 MB SDRAM	
	8MB NOR Flash	8MB NOR Flash	8MB NOR Flash	8MB NOR Flash	8MB NOR Flash	8MB NOR Flash	8MB NOR Flash	8MB NOR Flash	8MB NOR Flash
	-	128M NAND Flash	128M NAND Flash	-	128M NAND Flash	-	128M NAND Flash	-	128M NAND Flash
	HMI RTOS, WebOP Designer 2.0								
	WQVGA(16:9) TFT LCD		QVGA TFT LCD	WVGA(16:9) TFT LCD		SVGA TFT LCD		WSVGA(16:9) TFT LCD	
	4.3"		5.6"	7"		8"		10.1"	
	480 x 272		320 x 234	800 x 480		800 x 600		1024 x 600	
	65,536 colors		65,536 colors	65,536 colors		65,536 colors		65,536 colors	
	400		330	300		250		250	
	100/95		130/110	140/130		140/130		140/110	
	LED, 20,000		LED, 20,000	LED, 20,000		LED, 30,000		LED, 20,000	
	-		-	-		-		-	
	4 wires Analog resistive		4 wires Analog resistive	4 wires Analog resistive		4 wires Analog resistive		4 wires Analog resistive	
	Yes		Yes	Yes		Yes		Yes	
	-		-	-		-		-	
	-		-	-		-		-	
	RS232/422/485		RS232/422/485 (DB9)	RS232/422/485 (DB9)		RS232/422/485 (DB9)		RS232/422/485 (DB9)	
	RS422/485 (Termianl 5pin)		RS422/485 (Termianl 5pin)	RS422/485 (Termianl 5pin)		RS422/485 (Termianl 5pin)		RS422/485 (Termianl 5pin)	
	RS232 (COM1: Pin5; 7; 8)		RS232 (COM1: Pin5; 7; 8)	RS232 (COM1: Pin5; 7; 8)		RS232 (COM1: Pin5; 7; 8)		RS232 (COM1: Pin5; 7; 8)	
	-	10/100-BaseT	-	-	10/100-BaseT	-	10/100-BaseT	-	10/100-BaseT
	Yes		Yes	Yes		Yes		Yes	
	Yes		Yes	Yes		Yes		Yes	
	-	Yes	Yes	-	Yes	-	Yes	-	Yes
	-		-	-		-		-	
	-		-	-		-		-	
	-		-	-		-		-	
	-		-	-		-		-	
	24 V$_{DC}$ ± 10%		24 V$_{DC}$ ± 10%	24 V$_{DC}$ ± 10%		24 V$_{DC}$ ± 10%		24 V$_{DC}$ ± 10%	
	5W		10W	10W		10W		10W	
	130 x 106.2 x 36.4 mm (5.11" x 4.18" x 1.43")		188 x 143.3 x 30 mm (7.4" x 5.64" x 1.18")	188 x 143.3 x 30 mm (7.4" x 5.64" x 1.18")		231.5 x 174.6 x 37 mm (9.11" x 6.87" x 1.46")		269.8 x 212 x 37.4 mm (10.62" x 8.35" x1.47")	
	118.5 x 92.5 mm (4.66" x 3.64")		175 x 132.5 mm (6.89" x 5.21")	175 x 132.5 mm (6.89" x 5.21")		221 x 164 mm (8.70" x 6.46")		259.5 x 201.5 mm (10.22" x 7.93")	
	5 mm		6 mm	6 mm		6 mm		6 mm	
	PC + ABS		PC + ABS	PC + ABS		PC + ABS		PC + ABS	
	0.3 kg (0.66 lbs)		0.51 kg (1.12 lbs)	0.6 kg (1.32 lbs)		0.93 kg (2.05 lbs)		1.2 kg (2.64 lbs)	
	0 ~ 50°C (32 ~ 122°F)		0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)		0 ~ 50°C (32 ~ 122°F)		0 ~ 50°C (32 ~ 122°F)	
	-20 ~ 60°C (-4 ~ 140°F)		-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)		-20 ~ 60°C (-4 ~ 140°F)		-20 ~ 60°C (-4 ~ 140°F)	
	10% ~ 90% RH @ 40°C, non-condensing		10% ~ 90% RH @ 40°C, non-condensing	10% ~ 90% RH @ 40°C, non-condensing		10% ~ 90% RH @ 40°C, non-condensing		10% ~ 90% RH @ 40°C, non-condensing	
	Front panel: IP66		Front panel: IP66	Front panel: IP66		Front panel: IP66		Front panel: IP66	
	CE / FCC / BSMI / CCC / UL		CE / FCC / BSMI / CCC / UL	CE / FCC / BSMI / CCC / UL		CE / FCC / BSMI / CCC / UL		CE / FCC / BSMI / CCC / UL	
	5-12		5-14	5-16		5-18		5-20	

Sidebar:
1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

WebOP-3120T

12" XGA Cortex™ - A8 Operator Panel with Wide Operating Temperature Range

NEW
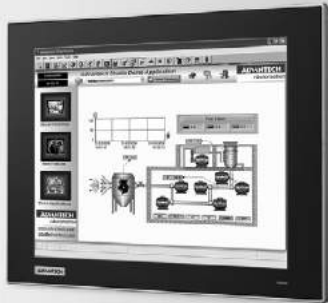
Features

- RISC 32 bits TI ARM® Cortex™-A8 processor
- Various LCD sizes (7", 10.1", 12")
- Full line LED BL TFT LCD with 50K life time
- Embedded Microsoft® WinCE 6.0 OS
- Bundle Panel Express HMI Runtime software (300 tags)
- Backup Memory FRAM in 128KB (64 words) without battery concern
- Power & Terminal I/O ports isolation protection
- -20°C ~ 60°C wide operating temperature range
- Supports CANopen library registered by CiA 301 V4.02
- RS-422/RS-485/CAN terminal I/O ports support Termination Resistor 120Ω
- Front panel IP66 compliant
- Die-cast aluminum alloy front bezel
- Level 4 ESD protection (Air:15KV / Contact:8KV)
- Industrial Control Equipment - UL 508 certification

Introduction

With a brand-new ID design, the WebOP-3120T provides stringent standards required in the automation market. Advantech offers the WebOP-3120T with Cortex™-A8 processor which consumes minimum power without sacrificing performance. The WebOP-3000T supports a variety of LCD sizes from 4.3" to 12" for different applications involving the use of PLCs, motion/thermal controllers, inverters and sensors. It's also provided with a wide operating temperature range to fulfill the requirements of harsh environments. The built-in Microsoft® WinCE 6.0 OS platform which bundles WebOP Designer lets the WebOP-3120T become a control HMI solution for flexible system integration.

Specifications

General

- **Certification** CE, BSMI, CCC, UL, FCC Class A
- **Dimensions (WxHxD)** 311.8 x 238 x 54.5 mm (12.28" x 9.37" x 2.15")
- **Cut-out Dimensions** 302.5 x 228.5 mm (12.1" x 9.14")
- **OS Support** Microsoft® Windows CE 6.0
- **Power Input** 24 V_{DC} ±10%
- **Power Consumption** 20 W
- **Enclosure Housing** PC + ABS
- **Mounting** Panel
- **Weight (Net)** 2.5 kg (5.51 lb)

System Hardware

- **CPU** RISC 32 bits, 600 MHz (ARM® Cortex™-A8)
- **Backup Memory** FRAM 1M bit (=128K Byte, 64 word)
- **Memory** DDR2 256M Bytes
- **Storage** 512MB on board SLC type
- **Power-On LED** Yes

Communication Interface

- **COM1** RS-232/RS-422,RS-485 (DB9), 300~115.2 kbps
- **COM2** RS-422/RS-485 (Terminal 4 pin+Ground), 300~115.2 kbps
- **COM3** RS-485 (Terminal 2 pin), 300~115.2 kbps
- **CAN** Terminal 2 pin
- **Ethernet (RJ45)** 10/100-BaseT
- **I/Os**
  - USB Client — USB 2.0 Client x 1
  - USB Host — USB 2.0 Host x 1 (Top)
  - Micro-SD Slot — Yes
  - Audio — 1 Line-out / 1 Mic-in

LCD Display

- **Display Type** XGA TFT LCD
- **Display Size** 12"
- **Max. Resolution** 1024 x 768
- **Max. Colors** 64K
- **Luminance (cd/m²)** 500
- **Viewing Angle (H/V)** 160/140
- **Backlight Life** LED, 50,000 hrs
- **Dimming** Adjustable by touch panel
- **Contrast Ratio** 500:1

Touchscreen

- **Lifespan** 36 million touches at 8mm-diameter finger point through silicone rubber bearing at least 250g 2 times per second.
- **Light** Transmission Above 80%
- **Resolution** Linearity
- **Type** 5-wire, analog resistive

Environment

- **Operating Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Storage Temperature** -30 ~ 70°C (-22 ~ 158°F)
- **Humidity** 10% ~ 90% RH @ 40°C, non-condensing
- **Ingress Protection** Front panel: IP66
- **Vibration Protection** Operating, radom vibration 1 Grms (5 ~ 500 Hz)

Ordering Information

- **WOP-3120T-C4AE** 12" XGA, Cortex™-A8, 256MB DDR, WinCE 6.0

Dimensions

Unit: mm

311.8
247.2
186.3
238
7
54.5
301.6
227.6
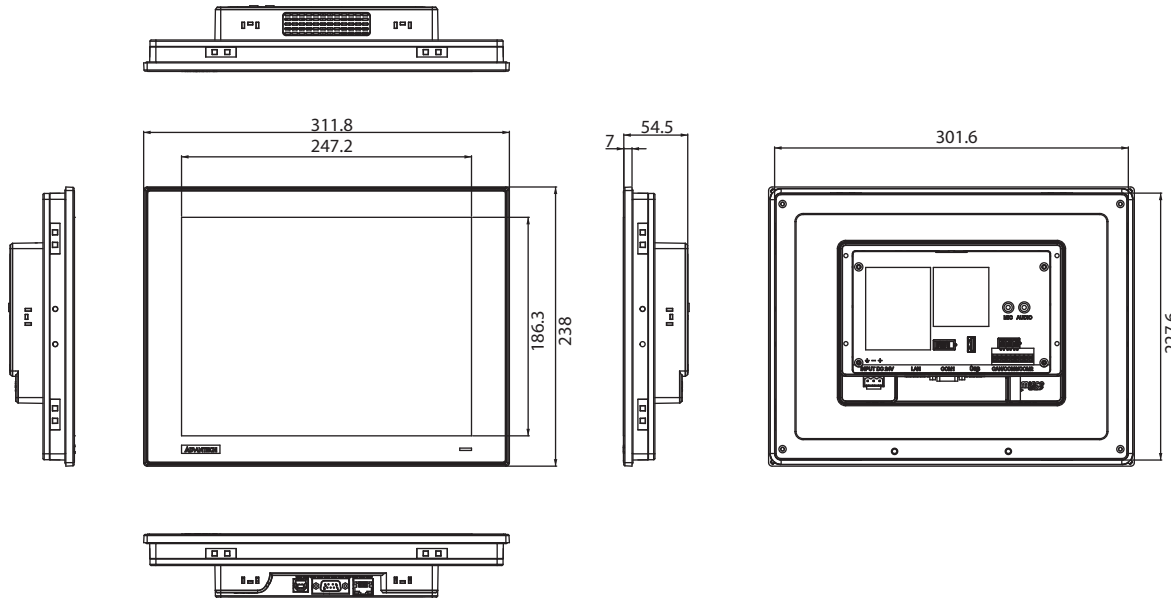
Panel Cut-out Dimensions: 302.5 x 228.5 mm (12.1" x 9.14")

Accessories

- **PWR-247-BE** — 63W DC 24V/2.62A Output Power Supply
- **WOP-3000T-WMKE** — WOP-3000T Series Wallmount Kits
- **1702002600** — Power Cable US Plug 1.8 M
- **1702002605** — Power Cable EU Plug 1.8 M
- **1702031801** — Power Cable UK Plug 1.8 M
- **1700000596** — Power Cable China/Australia Plug 1.8 M

Automation Software

- **968WEXP015E** — PanelExpress V2.0 1500 tags S/W license (WinCE)
- **968WEXP050E** — PanelExpress V2.0 5000 tags S/W license (WinCE)

Base View

Ethernet   USB Client
COM1 (RS-232/422/485)   Micro SD Slot

Rear View

USB Host   Mic In / Audio Out

Isolation Power Input   Isolation Terminal I/O Ports

CAN- CAN+ 485- 485+ SG TX- RX+ RX- TX+
D-   D+   D-   D+   422/485
CAN/COM3/COM2

Isolation Terminal I/O Ports

WebOP-3100T

10.1" WSVGA Cortex™ - A8 Operator Panel with Wide Operating Temperature Range

NEW

Features

- RISC 32 bits TI ARM® Cortex™-A8 processor
- Various LCD sizes (7", 10.1", 12", 15")
- Full line LED BL TFT LCD with 50K life time
- Embedded Microsoft® WinCE 6.0 OS
- Supports WebOP Designer HMI Runtime development tool
- Backup Memory FRAM in 128KB(64 words) without battery concern
- Power & Terminal I/O ports isolation protection
- -20°C ~ 60°C wide operating temperature range
- Supports CANopen library registered by CiA 301 V4.02
- RS-422/RS-485/CAN terminal I/O ports support Termination Resistor 120Ω
- Front panel IP66 compliant
- Die-cast aluminum alloy front bezel
- Level 4 ESD protection (Air:15KV / Contact:8KV)
- Industrial Control Equipment - UL 508 certification

Introduction

With brand-new ID design, the WebOP-3100T provides stringent standards required in the automation market. Advantech offers the WebOP-3100T with Cortex™-A8 processor which consumes minimum power without sacrificing performance. The WebOP-3000T supports a variety of LCD sizes from 4.3" to 15" for different applications involving the use of PLCs, motion/thermal controllers, inverters and sensors. It's also provided with a wide operating temperature range to fulfill the requirements of harsh environments. The built-in Microsoft® WinCE 6.0 OS platform which bundles WebOP Designer lets the WebOP-3100T become a control HMI solution for flexible system integration.

Specifications

General

- **Certification** CE, BSMI, CCC, UL, FCC Class A
- **Dimensions (WxHxD)** 271.5 x 213.5 x 43.2 mm (10.69" x 8.41" x 1.7")
- **Cut-out Dimensions** 260 x 201.5 mm (10.24" x 7.93")
- **OS Support** Microsoft® Windows CE 6.0
- **Power Input** $24V_{DC}$ ±10%
- **Power Consumption** 9W (Typical)
- **Enclosure Housing** PC + ABS
- **Mounting** Panel
- **Weight (Net)** 1.2 kg (2.65 lbs)

System Hardware

- **CPU** RISC 32 bits, 600 MHz (ARM® Cortex™-A8)
- **Backup Memory** FRAM 128KB
- **Memory** DDR2 256MB on board
- **Storage** 512MB on board SLC type
- **Power-On LED** Yes

Communication Interface

- **COM1** RS-232/422/485 (DB9 Male)
- **COM2** RS-422/485 (Terminal Plug 4-Pin)
- **COM3** RS-485 (Terminal Plug 2-Pin)
- **CAN** Terminal Plug 2-Pin
- **Ethernet (RJ45)** 10/100-BaseT
- **I/Os**
USB Client	USB 2.0 Client x 1
USB Host	USB 2.0 Host x 1
Micro-SD Slot	Yes
Audio	1 Line-out / 1 Mic-in

LCD Display

- **Display Type** WSVGA TFT LCD
- **Display Size** 10.1"
- **Max. Resolution** 1024 x 600
- **Max. Colors** 64K
- **Luminance (cd/m2)** 550
- **Viewing Angle (H/V)** 140/110
- **Backlight Life** LED, 50,000 hrs
- **Dimming** Adjustable by touch panel
- **Contrast Ratio** 500:1

Touchscreen

- **Lifespan** 36 million touches at 8mm-diameter finger point through silicone rubber bearing at least 250g 2 times per second.
- **Light** Transmission Above 80%
- **Resolution** Linearity
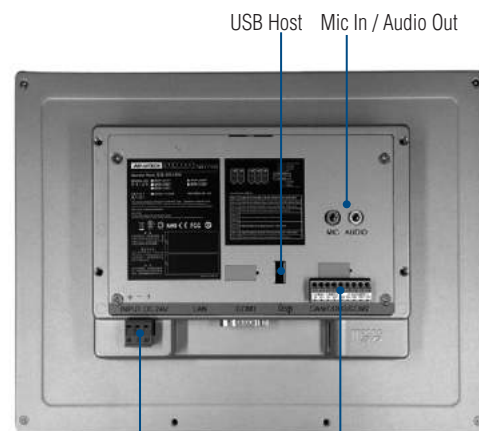- **Type** 5-wire, analog resistive

Environment

- **Operating Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Storage Temperature** -30 ~ 70°C (-22 ~ 158°F)
- **Humidity** 10 ~ 90% RH @ 40°C, non-condensing
- **Ingress Protection** Front panel: IP66
- **Vibration Protection** Operating, radom vibration 1 Grms (5 ~ 500 Hz)

Dimensions

Unit: mm

271.5

224.4

126.8

213.5

42.6

6

258.5

200.5
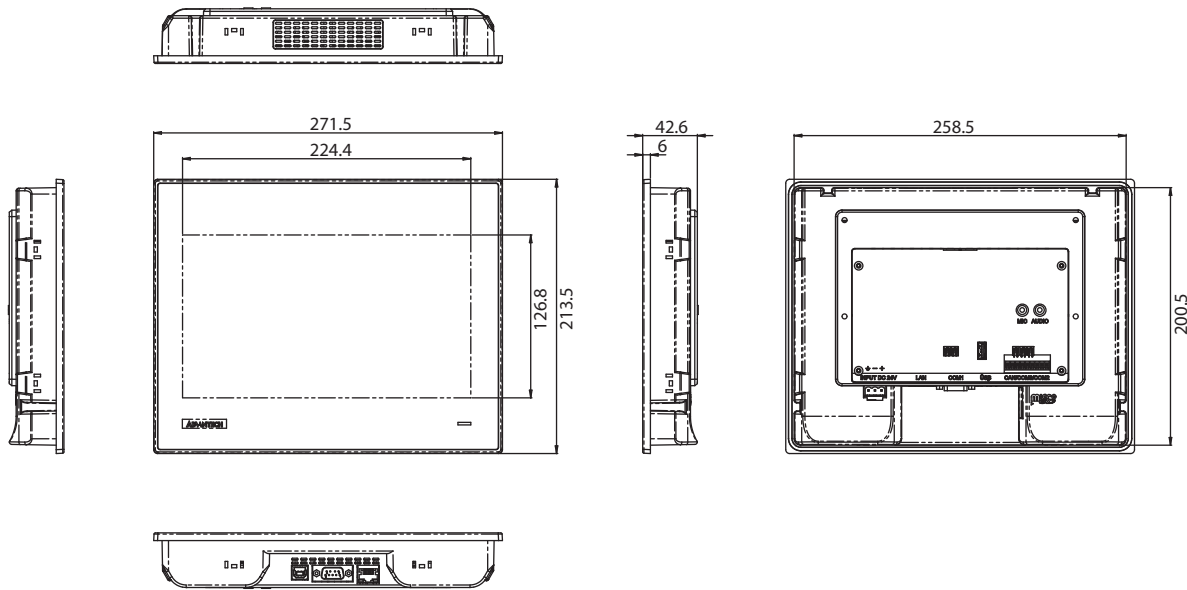
Panel Cut-out Dimensions: 260 x 201.5 mm (10.24" x 7.93")

Ordering Information

- **WOP-3100T-C4AE**   10.1" WSVGA, Cortex™-A8, 256MB DDR, WinCE 6.0

Accessories

- **PWR-247-AE**   24 V 50 W AC-DC Power Adapter
- **1702002600**   Power Cable US Plug 1.8 M
- **1702002605**   Power Cable EU Plug 1.8 M
- **1702031801**   Power Cable UK Plug 1.8 M
- **1702031836**   Power Cable China/Australia Plug 1.8 M

Base View

Ethernet

COM1 (RS-232/422/485)

USB Client

Micro SD Slot

Rear View

USB Host   Mic In / Audio Out

Isolation Power Input

Isolation Terminal I/O Ports

CAN/COM3/COM2

Isolation Terminal I/O Ports

WebOP-3070T

NEW

Features

- RISC 32 bits TI ARM® Cortex™-A8 processor
- Various LCD sizes (7", 10.1", 12", 15")
- Full line LED BL TFT LCD with 50K life time
- Embedded Microsoft® WinCE 6.0 OS
- Supports WebOP Designer HMI Runtime development tool
- Backup Memory FRAM in 128KB(64 words) without battery concern
- Power & Terminal I/O ports isolation protection
- -20°C ~ 60°C wide operating temperature range
- Supports CANopen library registered by CiA 301 V4.02
- RS-422/RS-485/CAN terminal I/O ports support Termination Resistor 120Ω
- Front panel IP66 compliant
- Die-cast aluminum alloy front bezel
- Level 4 ESD protection (Air:15KV / Contact:8KV)
- Industrial Control Equipment - UL 508 certification

Introduction

With brand-new ID design, the WebOP-3070T provides stringent standards required in the automation market. Advantech offers the WebOP-3070T with Cortex™-A8 processor which consumes minimum power without sacrificing performance. The WebOP-3000T supports a variety of LCD sizes from 4.3" to 15" for different applications involving the use of PLCs, motion/thermal controllers, inverters and sensors. It's also provided with a wide operating temperature range to fulfill the requirements of harsh environments. The built-in Microsoft® WinCE 6.0 OS platform which bundles WebOP Designer lets the WebOP-3070T becomes a control HMI solution for flexible system integration.

Specifications

General

Certification	CE, BSMI, CCC, UL, FCC Class A
Dimensions (WxHxD)	203.4 x 150 x 43.7 mm (8.01" x 5.91" x 1.72")
Cut-out Dimensions	192 x 138.5 mm (7.56" x 5.45")
OS Support	Microsoft® Windows CE 6.0
Power Input	24V$_{DC}$ ±10%
Power Consumption	7W (Typical)
Enclosure Housing	PC + ABS
Mounting	Panel
Weight (Net)	1 Kg (2.20 lbs)

System Hardware

CPU	RISC 32 bits, 600 MHz (ARM® Cortex™-A8)
Backup Memory	FRAM 128KB
Memory	DDR2 256MB on board
Storage	512MB on board SLC type
Power-On LED	Yes

Communication Interface

COM1	RS-232/422/485 (DB9 Male)	
COM2	RS-422/485 (Terminal Plug 4-Pin)	
COM3	RS-485 (Terminal Plug 2-Pin)	
CAN	Terminal Plug 2-Pin	
Ethernet (RJ45)	10/100-BaseT	
I/Os	USB Client	USB 2.0 Client x 1
	USB Host	USB 2.0 Host x 1
	Micro-SD Slot	Yes
	Audio	1 Line-out / 1 Mic-in

LCD Display

|	
Display Type	WVGA TFT LCD
Display Size	7"
Max. Resolution	800 x 480
Max. Colors	64K
Luminance (cd/m²)	500
Viewing Angle (H/V)	140/120
Backlight Life	LED, 50,000 hrs
Dimming	Adjustable by touch panel
Contrast Ratio	700:1

Touchscreen

Lifespan	36 million touches at 8mm-diameter finger point through silicone rubber bearing at least 250g 2 times per second.
Light	Transmission Above 80%
Resolution	Linearity
Type	5-wire, analog resistive

Environment

Operating Temperature	-20 ~ 60°C (-4 ~ 140°F)
Storage Temperature	-30 ~ 70°C (-22 ~ 158°F)
Humidity	10 ~ 90% RH @ 40°C, non-condensing
Ingress Protection	Front panel: IP66
Vibration Protection	Operating, radom vibration 1 Grms (5 ~ 500 Hz)

Dimensions

Unit: mm

203.4
154
42.5
6
191.4
93.1
150
138
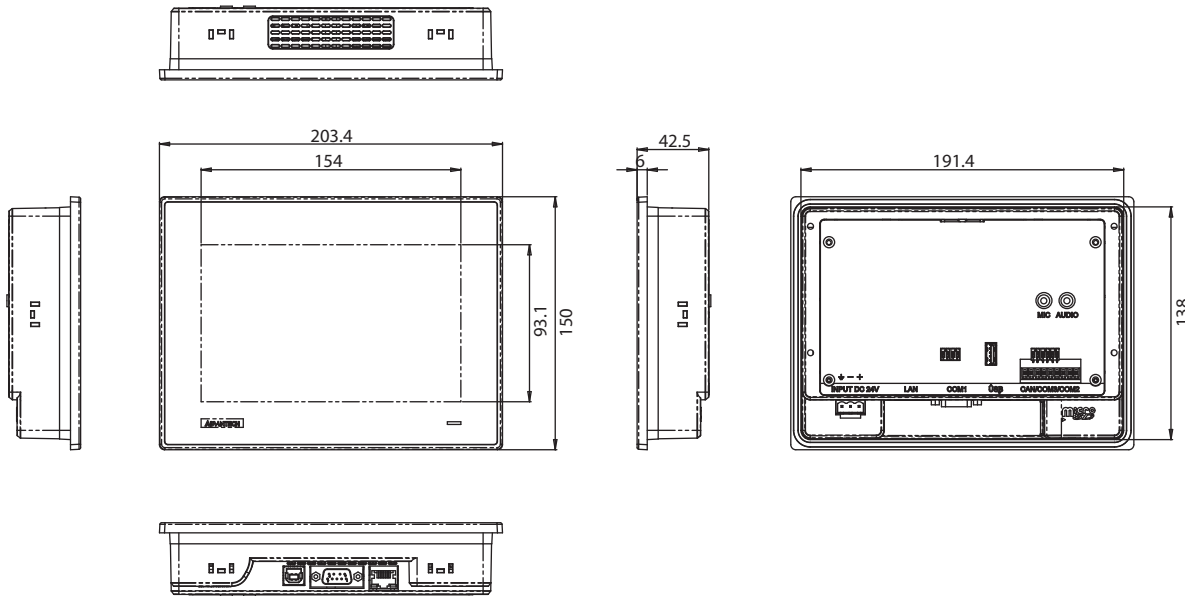
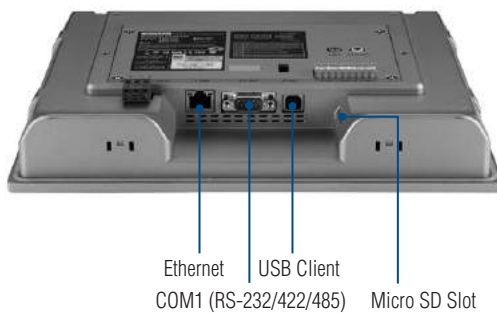**Panel Cut Out Dimensions: 192 x 138.5 mm (7.56" x 5.45")**

Ordering Information

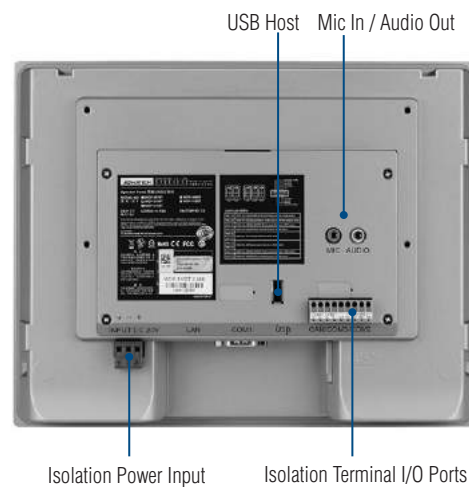▪ **WOP-3070T-C4AE** 7" WVGA, Cortex™-A8, 256MB DDR, WinCE 6.0

Accessories

▪ **PWR-247-AE**   24 V 50 W AC-DC Power Adapter
▪ **1702002600**   Power Cable US Plug 1.8 M
▪ **1702002605**   Power Cable EU Plug 1.8 M
▪ **1702031801**   Power Cable UK Plug 1.8 M
▪ **1702031836**   Power Cable China/Australia Plug 1.8 M

Base View

Ethernet
COM1 (RS-232/422/485)
USB Client
Micro SD Slot

Rear View

USB Host   Mic In / Audio Out

Isolation Power Input
Isolation Terminal I/O Ports

CAN
D- D+
485
D- D+ SG
422/485
TX- RX- RX+ TX+

CAN/COM3/COM2
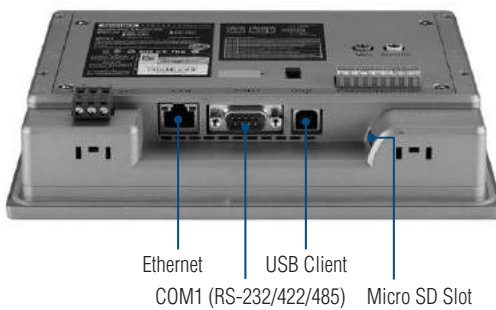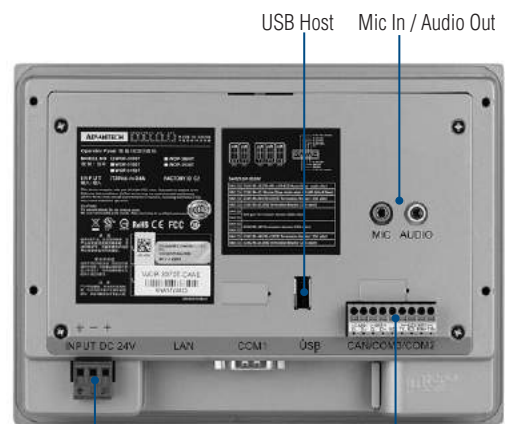
Isolation Terminal I/O Ports

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

TPC-31T
TPC-61T

3.5"/5.7" QVGA TFT LED LCD TI Cortex-A8 Touch Panel Computer

Features

- TI Cortex-A8 processor on board
- 3.5"/5.7" QVGA TFT LED LCD
- Super slim and compact design with plastic housing
- Fanless cooling system
- IP65 compliant front panel
- Built-in micro SD card with Windows® CE OS
- 1 x SD card slot
- Automatic data flow control RS-485
- Supports 1Mbit FRAM for data back-up

Introduction

The TPC-31T/61T model is a compact platform without redundant functions, and has been designed for small-sized operator interface applications. It has a 3.5"/5.7" TFT LCD display which is a cost effective choice for a limited budget. Its RISC kernel, the TI Cortex-A8 processor consumes minimum power without sacrificing performance. The TPC-31T/61T has a 10/100Base-T Ethernet port offering solid communication ability and comes bundled with a Windows® CE OS that supports Thin-Client solutions. The built-in Windows CE OS platform lets the TPC-31T/61T become an Open HMI solution for system integration.

Specifications

General

- **Certification** CE, BSMI, CCC, UL, FCC Class A
- **Cooling System** Fanless design
- **Dimensions (W x H x D)** TPC-31T: 120.79 x 85.5 x 26.5 mm
  (4.76" x 3.37" x 1.04")
  TPC-61T: 195 x 148 x 44.4 mm
  (7.68" x 5.83" x 1.75")
- **Enclosure** TPC-31T:ABS
  TPC-61T: PC/ABS Resin
- **Mounting** Panel
- **OS Support** Windows CE 6.0
- **Power Consumption** 8 W/12 W (typical)
- **Power Input** 18 ~ 32 V_{DC}
- **Watchdog Timer** Programmable as 250 ms, 500 ms, 1 second
- **Weight (Net)** 0.25 kg (0.55 lbs)/0.8 kg (1.76 lb)

System Hardware

- **CPU** TI Cortex-A8 600MHz
- **Memory** DDR2 256MB on board
- **LAN** 10/100Base-T x 1
- **Storage** 512MB on board micro SD card
  1 x SD Card slot
  1Mbit FRAM for Data back-up
- **I/O** TPC-31T: RS-232/RS-485 X1 with auto data flow
  control, USB 2.0(Host) x 1, CAN x 1
  TPC-61T: RS-232 x 2 (COM1,2) RS-422/RS-485 x 1
  (COM 3) with auto data flow control,
  USB2.0 (Host) x 1, USB2.0 (Client) x 1

LCD Display

- **Display Type** QVGA TFT LED LCD
- **Display Size** 3.5"/5.7"
- **Max. Resolution** 320 x 240
- **Max. Colors** 64 K
- **Luminance cd/m²** 450/800
- **Viewing Angle (H/V)** 160/140
- **Backlight Life** 30,000/50,000 hrs
- **Contrast Ratio** 300:1/800:1

Touchscreen

- **Lifespan** 1 million times with an 8mm diameter finger of silicone rubber
- **Light** Transmission Above 80%
- **Resolution** Linearity
- **Type** 4-wire, analog resistive

Environment

- **Humidity** 10 ~ 95% RH @ 40°C, non-condensing
- **Ingress Protection** Front panel: IP65
- **Operating Temperature** 0 ~ 50°C (32 ~ 122°F)
- **Storage Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Vibration Protection** 2 Grms (5 ~ 500 Hz) (Operating, random vibration)

Ordering Information

- **TPC-31T-E3AE** 3.5" QVGA Touch Panel PC, TI AM3517 600 MHz, 256 MB with WinCE 6.0
- **TPC-61T-E3AE** 5.7" QVGA Touch Panel PC TI AM3517 600 MHz, 256 MB with WinCE 6.0

Dimensions

Unit: mm

TPC-31T

121.0
72.7
26.5
5
54.3
85.5

114.1
78.6

TPC-61T

195
116.4
44.4
6
87.6
148

188.1
141.1
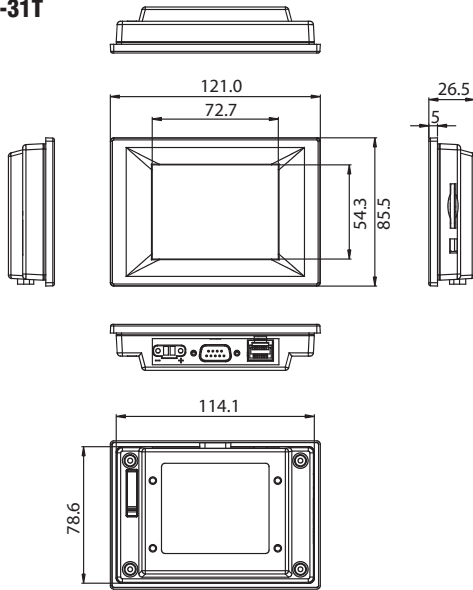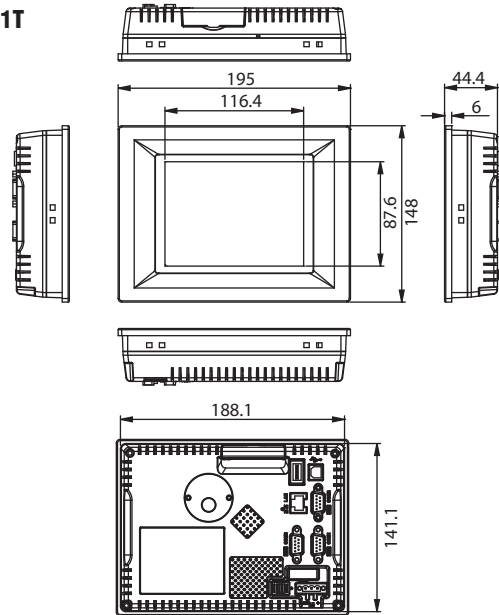
Panel Cut-out Dimensions: TPC-31T: 115 x 79.5 mm (4.6" x 3.18")
TPC-61T: 189 x 142 mm (7.56" x 5.68")

Accessories

- **PWR-247-BE**   63W DC 24V/2.62A Output Power Supply
- **1702002600**   Power Cable US Plug 1.8 M
- **1702002605**   Power Cable EU Plug 1.8 M
- **1702031801**   Power Cable UK Plug 1.8 M
- **1700000596**   Power Cable China/Australia Plug 1.8 M

Rear View

TPC-31T
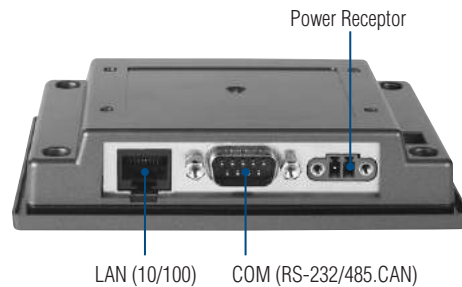
Power Receptor

LAN (10/100)   COM (RS-232/485.CAN)

TPC-61T

SD Slot   USB 2.0 (Host)

USB 2.0 (Client)

COM 2 (RS-232)

COM 1 (RS-232)

Fuse (1A)

LAN(10/100)

COM3 (RS-422/485)

Power Switch   Power Receptor

1 WebAccess+ Solutions

2 Motion Control

3 Power & Energy Automation

4 Automation Software

5 Intelligent Operator Panel

6 Automation Panels

7 Panel PCs

8 Industrial Wireless Solutions

9 Industrial Ethernet Solutions

10 Industrial Gateway Solutions

11 Serial communication cards

12 Embedded Automation PCs

13 DIN-Rail IPCs

14 CompactPCI Systems

15 IoT Wireless I/O Modules

16 IoT Ethernet I/O Modules

17 RS-485 I/O Modules

18 Data Acquisition Boards

WebOP-2100T

10.1 WSVGA Operator Panel with WebOP Designer Software

Features

- Various LCD sizes (4.3", 5.6", 7", 8", 10.1")
- Supports ARM9-based CPUs with 200MHz and 128MB flash memory
- Supports RTC, battery backup RAM, and Ethernet-based operator panels
- Supports runtime data downloads through Serial, Ethernet, USB
- Supports adjustable brightness controls via touch panel
- Reliable firmware for 24/7 operation
- Supports Windows XP/7/Vista-based WebOP Designer development tool
- Easy to switch one application to different LCD sizes in seconds
- Supports vertical and horizontal application screen rotation
- Supports over 400 PLC industrial communication protocols
- Communicates with up to four types of devices
- Panel mounting for machinery
- Front panel is IP66 compliant

Introduction

To satisfy the stringent standards required in the automation market, especially packaging, label slitting, and motion-based robot dispensing, Advantech offers the WebOP-2000T series with 200MHz ARM9-based RISC CPU's and 128MB flash memory for application software. The WebOP-2000T series also support a variety of LCD sizes from 4.3" to 10.1" for different applications involving the use of PLCs, motion/thermal controllers, inverters and sensors. The WebOP-2000T series is bundled with WebOP Designer: a software development kit which helps create application solutions for labor-saving, improved efficiency of manufacturing and easy control of every machine in the factory. WebOP Designer offers an outstanding price performance ratio for various markets such as conventional operator panels, HMI + Low mini SCADA systems, and HMI + communication gateways.

Specifications

General

- **Certification**   CE, BSMI, CCC, UL, FCC Class A
- **Dimensions (WxHxD)**   269.8 x 212 x 37.4mm (10.62" x 8.35" x1.47")
- **Cut-out Dimensions**   259.5 x 201.5 mm (10.22" x 7.93")
- **Front Panel Thickness**   6mm
- **Operating System**   HMI RTOS, WebOP Designer
- **Power Supply Voltage**   24V_{DC} ±10%
- **Power Consumption**   10W
- **Enclosure Housing**   Plastic
- **Mounting**   Panel
- **Weight (Net)**   1.2 kg (2.64 lbs)

System Hardware

- **CPU**   RISC 32bits, 200MHz
- **Battery Backup Memory** 128KB
- **Flash Memory**   8MB/ 8MB + 128M NAND flash
- **Power-On LED**   Yes
- **Communication LED**   No
- **Front USB Access**   No

Communication Interface

- **COM1**   RS-232/422/485 (DB9 Female)
- **COM2**   RS-422/485 (5-Pin Plug Connector)
- **COM3**   RS-232 (Com1: Pin5;7;8)
- **Ethernet (RJ45)**   10/100-BaseT (for N2AE model)
- **I/Os**   USB Client   Yes
       USB Host   Yes
       Micro-SD Slot   Yes (for N2AE model)

LCD Display and Touchscreen

- **Display Type**   WSVGA TFT LCD
- **Display Size**   10.1"
- **Max. Resolution**   1024 x 600
- **Max. Colors**   65,536 colors
- **Luminance (cd/m²)**   250
- **Backlight Life**   LED, 20,000 hrs
- **Dimming**   Adjustable by touch panel
- **Touchscreen**   4 wire analog resistive

Environment

- **Operating Temperature**   0 ~ 50°C (32 ~ 122°F)
- **Storage Temperature**   -20 ~ 60°C (-4 ~ 140°F)
- **Humidity**   10 ~ 90% RH @ 40°C, non-condensing
- **Ingress Protection**   Front panel: IP66
- **Vibration Protection**   Operating, radom vibration 1 Grms (5 ~ 500 Hz)

Ordering Information

- **WOP-2100T-S2AE**   10.1" WSVGA, 64MB (SDRAM), 8MB (NOR)
- **WOP-2100T-N2AE**   10.1" WSVGA, 64MB (SDRAM), 8MB (NOR) & 128MB (NAND)

Dimensions

Unit: mm

212 (8.35")
200.4 (7.9")
6 (0.24")
269.8 (10.62")
37.4 (1.47")
258.4 (10.18")
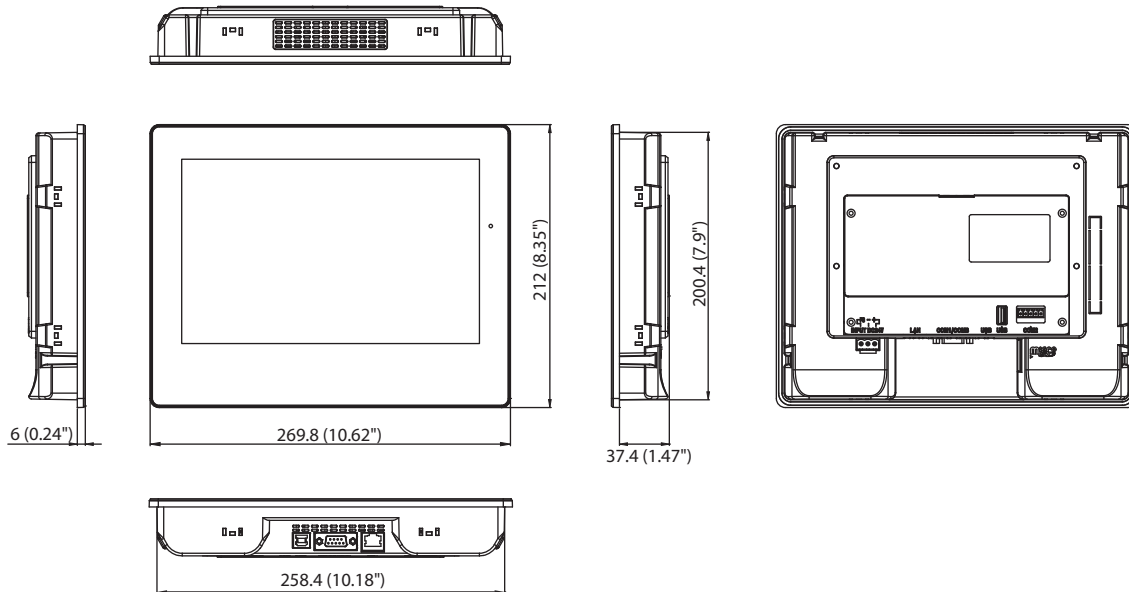
Panel Cut-out Dimensions: 259.5 x 201.5 mm (10.22" x 7.93")

Accessories

- **CWOP-P2HFM-AD12E** PC to HMI program download cable, DB9/2m
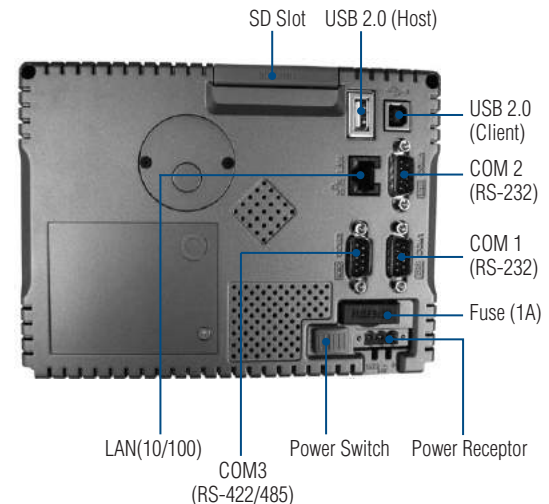- **CWOP-P2HAB-ADU2E** PC to HMI program download cable, USB/2m
- **PWR-247-BE** 63W DC 24V/2.62A Output Power Supply
- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M

Rear View

USB Host
COM2 (RS-422/485)
Ethernet
USB Client Micro SD Slot
Power Input COM1 (RS-232/422/485)

Communication Links

Direct Link
1-to-1 Connection
RS-232
WebOP PLC
Ethernet
WebOP PLC

1-to-N Connection
RS-485
WebOP PLC PLC PLC
Sub links

N-to-1 Data Sharing Connection
WebOP WebOP
RS-232 / Ethernet
PLC

In-Direct Link
2-to-1 Connection
WebOP WebOP PLC
Indirect link via 2-to-1 connection
2-to-1 server Direct link

N-to-1 Connection
WebOP WebOP
Ethernet
Indirect Link via N-to-1 connection (Ethernet)
N-to-1 master WebOP Direct link PLC

2-to-1 Transparent Connection
WebOP WebOP PLC
PC 2-to-1 Transparent Server
WebOP
2-to-1 Transparent Server PLC

WebOP-2080T

8" SVGA Operator Panel with WebOP Designer Software

Features

- Various LCD sizes (4.3", 5.6", 7", 8", 10.1")
- Supports ARM9-based CPUs with 200MHz and 128MB flash memory
- Supports RTC, battery backup RAM, and Ethernet-based operator panels
- Supports runtime data downloads through Serial, Ethernet, USB
- Supports adjustable brightness controls via touch panel
- Reliable firmware for 24/7 operation
- Supports Windows XP/7/Vista-based WebOP Designer development tool
- Easy to switch one application to different LCD sizes in seconds
- Supports vertical and horizontal application screen rotation
- Supports over 400 PLC industrial communication protocols
- Communicates with up to four types of devices
- Panel mounting for machinery
- Front panel is IP66 compliant

Introduction

To satisfy the stringent standards required in the automation market, especially packaging, label slitting, and motion-based robot dispensing, Advantech offers the WebOP-2000T series with 200MHz ARM9-based RISC CPU's and 128MB flash memory for application software. The WebOP-2000T series also support a variety of LCD sizes from 4.3" to 10.1" for different applications involving the use of PLCs, motion/thermal controllers, inverters and sensors. The WebOP-2000T series is bundled with WebOP Designer: a software development kit which helps create application solutions for labor-saving, improved efficiency of manufacturing and easy control of every machine in the factory. WebOP Designer offers an outstanding price performance ratio for various markets such as conventional operator panels, HMI + Low mini SCADA systems, and HMI + communication gateways.

Specifications

General

- **Certification** CE, BSMI, CCC, UL, FCC Class A
- **Dimensions (WxHxD)** 231.5 x 174.6 x 37 mm (9.11" x 6.87" x 1.46")
- **Cut-out Dimensions** 221 x 164 mm (8.70" x 6.46")
- **Front Panel Thickness** 6 mm
- **Operating System** HMI RTOS, WebOP Designer
- **Power Supply Voltage** 24V$_{DC}$ ±10%
- **Power Consumption** 10W
- **Enclosure Housing** Plastic
- **Mounting** Panel
- **Weight (Net)** 0.93 kg (2.05 lbs)

System Hardware

- **CPU** RISC 32bits, 200MHz
- **Battery Backup Memory** 128KB
- **Flash Memory** 8MB/ 8MB + 128M NAND flash
- **Power-On LED** Yes
- **Communication LED** No
- **Front USB Access** No

Communication Interface

- **COM1** RS-232/422/485 (DB9 Female)
- **COM2** RS-422/485 (5-Pin Plug Connector)
- **COM3** RS-232 (Com1: Pin5;7;8)
- **Ethernet (RJ45)** 10/100-BaseT (for N2AE model)
- **I/Os** USB Client Yes
  USB Host Yes
  Micro-SD Slot Yes (for N2AE model)

LCD Display and Touchscreen

- **Display Type** SVGA TFT LCD
- **Display Size** 8"
- **Max. Resolution** 800 x 600
- **Max. Colors** 65,536 colors
- **Luminance (cd/m²)** 250
- **Backlight Life** LED, 30,000 hrs
- **Dimming** Adjustable by touch panel
- **Touchscreen** 4 wire analog resistive

Environment

- **Operating Temperature** 0 ~ 50°C (32 ~ 122°F)
- **Storage Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Humidity** 10 ~ 90% RH @ 40°C, non-condensing
- **Ingress Protection** Front panel: IP66
- **Vibration Protection** Operating, radom vibration 1 Grms (5 ~ 500 Hz)

Ordering Information

- **WOP-2080T-S2AE** 8" SVGA, 64MB (SDRAM), 8MB (NOR)
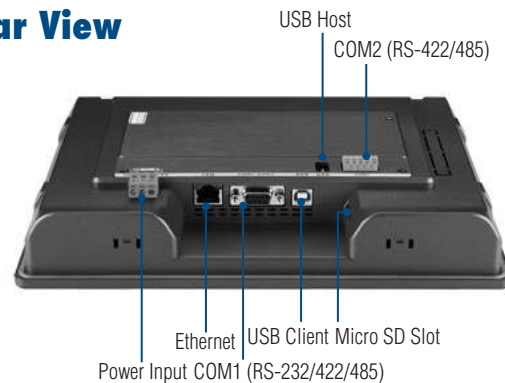- **WOP-2080T-N2AE** 8" SVGA, 64MB (SDRAM), 8MB (NOR) & 128MB (NAND)

Dimensions

Unit: mm

174.5 (6.87")

163 (6.42")

6 (0.24")

231.5 (9.11")

37 (1.46")

220 (8.67")
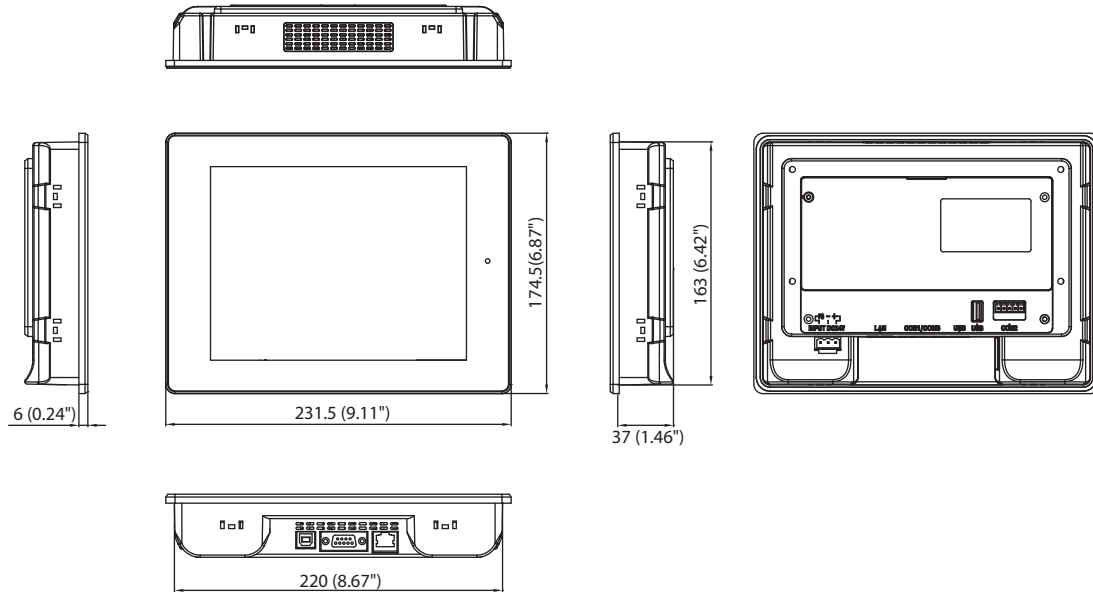
Panel Cut-out Dimensions: 221 x 164 mm (8.70" x 6.46")

Accessories

- **CWOP-P2HFM-AD12E** PC to HMI program download cable, DB9/2m
- **CWOP-P2HAB-ADU2E** PC to HMI program download cable, USB/2m
- **PWR-247-BE** 63W DC 24V/2.62A Output Power Supply
- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M

Rear View

USB Host
COM2 (RS-422/485)
Ethernet
USB Client Micro SD Slot
Power Input COM1 (RS-232/422/485)

Communication Links

Direct Link

1-to-1 Connection
RS-232
WebOP PLC
WebOP Ethernet PLC

1-to-N Connection
RS-485
WebOP PLC / PLC / PLC Sub links

N-to-1 Data Sharing Connection
WebOP WebOP RS-232 / Etherent PLC

In-Direct Link

2-to-1 Connection
WebOP WebOP PLC
Indirect link via 2-to-1 connection 2-to-1 server Direct link

N-to-1 Connection
WebOP WebOP Indirect Link via N-to-1 connection (Ethernet)
Etherent
N-to-1 master Direct link WebOP PLC

2-to-1 Transparent Connection
WebOP WebOP PLC
PC 2-to-1 Transparent Server
WebOP
2-to-1 Transparent Server PLC

WebOP-2070T

7" WVGA Operator Panel with WebOP Designer Software

Features

- Various LCD sizes (4.3", 5.6", 7", 8", 10.1")
- Supports ARM9-based CPUs with 200MHz and 128MB flash memory
- Supports RTC, battery backup RAM, and Ethernet-based operator panels
- Supports runtime data downloads through Serial, Ethernet, USB
- Supports adjustable brightness controls via touch panel
- Reliable firmware for 24/7 operation
- Supports Windows XP/7/Vista-based WebOP Designer development tool
- Easy to switch one application to different LCD sizes in seconds
- Supports vertical and horizontal application screen rotation
- Supports over 400 PLC industrial communication protocols
- Communicates with up to four types of devices
- Panel mounting for machinery
- Front panel is IP66 compliant

Introduction

To satisfy the stringent standards required in the automation market, especially packaging, label slitting, and motion-based robot dispensing, Advantech offers the WebOP-2000T series with 200MHz ARM9-based RISC CPU's and 128MB flash memory for application software. The WebOP-2000T series also support a variety of LCD sizes from 4.3" to 10.1" for different applications involving the use of PLCs, motion/thermal controllers, inverters and sensors. The WebOP-2000T series is bundled with WebOP Designer: a software development kit which helps create application solutions for labor-saving, improved efficiency of manufacturing and easy control of every machine in the factory. WebOP Designer offers an outstanding price performance ratio for various markets such as conventional operator panels, HMI + Low mini SCADA systems, and HMI + communication gateways.

Specifications

General

- **Certification**   CE, BSMI, CCC, UL, FCC Class A
- **Dimensions (WxHxD)**   188 x 143.3 x 30 mm (7.4" x 5.64" x 1.18")
- **Cut-out Dimensions**   175 x 132.5 mm (6.89" x 5.21")
- **Front Panel Thickness**   6mm
- **Operating System**   HMI RTOS, WebOP Designer
- **Power Supply Voltage**   24V_{DC} ±10%
- **Power Consumption**   10W
- **Enclosure Housing**   Plastic
- **Mounting**   Panel
- **Weight (Net)**   0.6 kg (1.32 lbs)

System Hardware

- **CPU**   RISC 32 bits, 200 MHz
- **Battery Backup Memory**   128KB
- **Flash Memory**   8MB/ 8MB + 128M NAND flash
- **Power-On LED**   Yes
- **Communication LED**   No
- **Front USB Access**   No

Communication Interface

- **COM1**   RS-232/422/485 (DB9 Female)
- **COM2**   RS-422/485 (5-Pin Plug Connector)
- **COM3**   RS-232 (Com1: Pin5;7;8)
- **Ethernet (RJ45)**   10/100-BaseT (for N2AE model)
- **I/Os**   USB Client   Yes
     USB Host   Yes
     Micro-SD Slot   Yes (for N2AE model)

LCD Display and Touchscreen

- **Display Type**   WVGA TFT LCD
- **Display Size**   7"
- **Max. Resolution**   800 x 480
- **Max. Colors**   65,536 colors
- **Luminance (cd/m²)**   300
- **Backlight Life**   LED, 20,000 hrs
- **Dimming**   Adjustable by touch panel
- **Touchscreen**   4 wire analog resistive

Environment

- **Operating Temperature**   0 ~ 50°C (32 ~ 122°F)
- **Storage Temperature**   -20 ~ 60°C (-4 ~ 140°F)
- **Humidity**   10 ~ 90% RH @ 40°C, non-condensing
- **Ingress Protection**   Front panel: IP66
- **Vibration Protection**   Operating, radom vibration 1 Grms (5 ~ 500 Hz)

Ordering Information

- **WOP-2070T-S2AE**   7" WVGA, 64MB (SDRAM), 8MB (NOR)
- **WOP-2070T-N2AE**   7" WVGA, 64MB (SDRAM), 8MB (NOR) & 128MB (NAND)

ADVANTECH   **Intelligent Operator Panel**

Dimensions

Unit: mm

143.3 (5.64")

131.5 (5.18")

6 (0.24")

188 (7.4")
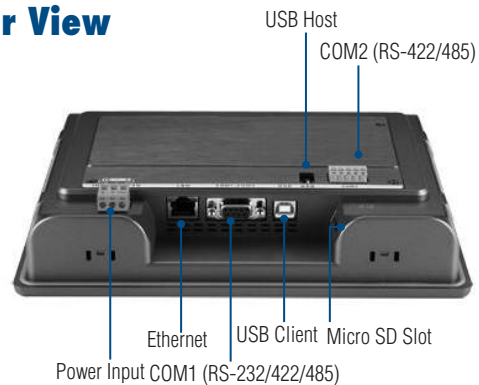
30 (1.18")

174 (6.86")

Panel Cut Out Dimensions: 175 x 132.5mm (6.89" x 5.21")

Accessories

- **CWOP-P2HFM-AD12E** PC to HMI program download cable, DB9/2m
- **CWOP-P2HAB-ADU2E** PC to HMI program download cable, USB/2m
- **PWR-247-BE** 63W DC 24V/2.62A Output Power Supply
- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M

Rear View

USB Host   COM2 (RS-422/485)

Ethernet
Power Input   COM1 (RS-232/422/485)   USB Client   Micro SD Slot

Communication Links

Direct Link

1-to-1 Connection

RS-232
WebOP   PLC

WebOP   Ethernet   PLC

1-to-N Connection

RS-485
WebOP   PLC
PLC
PLC
Sub links

N-to-1 Data Sharing Connection

WebOP   WebOP
RS-232 / Etherent
PLC

In-Direct Link

2-to-1 Connection

WebOP   WebOP   PLC
Indirect link via   Direct link
2-to-1 connection   2-to-1 server

N-to-1 Connection

WebOP   WebOP   Indirect Link via N-to-1
Etherent   connection (Etherent)
N-to-1 master   Direct link
WebOP   PLC

2-to-1 Transparent Connection

WebOP   WebOP   PLC
PC   2-to-1 Transparent Server
WebOP   PLC
2-to-1 Transparent Server

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

WebOP-2050T

5.6" QVGA Operator Panel with WebOP Designer Software

Features

- Various LCD sizes (4.3", 5.6", 7", 8", 10.1")
- Supports ARM9-based CPUs with 200MHz and 128MB flash memory
- Supports RTC, battery backup RAM, and Ethernet-based operator panels
- Supports runtime data downloads through Serial, Ethernet, USB
- Supports adjustable brightness controls via touch panel
- Reliable firmware for 24/7 operation
- Supports Windows XP/7/Vista-based WebOP Designer development tool
- Easy to switch one application to different LCD sizes in seconds
- Supports vertical and horizontal application screen rotation
- Supports over 400 PLC industrial communication protocols
- Communicates with up to four types of devices
- Panel mounting for machinery
- Front panel is IP66 compliant

Introduction

To satisfy the stringent standards required in the automation market, especially packaging, label slitting, and motion-based robot dispensing, Advantech offers the WebOP-2000T series with 200MHz ARM9-based RISC CPU's and 128MB flash memory for application software. The WebOP-2000T series also support a variety of LCD sizes from 4.3" to 10.1" for different applications involving the use of PLCs, motion/thermal controllers, inverters and sensors. The WebOP-2000T series is bundled with WebOP Designer: a software development kit which helps create application solutions for labor-saving, improved efficiency of manufacturing and easy control of every machine in the factory. WebOP Designer offers an outstanding price performance ratio for various markets such as conventional operator panels, HMI + Low mini SCADA systems, and HMI + communication gateways.

Specifications

General

- **Certification** CE, BSMI, CCC, UL, FCC Class A
- **Dimensions (WxHxD)** 188 x 143.3 x 30 mm (7.4" x 5.64" x 1.18")
- **Cut-out Dimensions** 175 x 132.5 mm (6.89" x 5.21")
- **Front Panel Thickness** 6mm
- **Operating System** HMI RTOS, WebOP Designer
- **Power Supply Voltage** 24V_{DC} ±10%
- **Power Consumption** 10W
- **Enclosure Housing** Plastic
- **Mounting** Panel
- **Weight (Net)** 0.51 kg (1.12 lbs)

System Hardware

- **CPU** RISC 32bits, 200MHz
- **Battery Backup Memory** 128KB
- **Flash Memory** 8MB + 128M NAND flash
- **Power-On LED** Yes
- **Communication LED** No
- **Front USB Access** No

Communication Interface

- **COM1** RS-232/422/485 (DB9 Female)
- **COM2** RS-422/485 (5-Pin Plug Connector)
- **COM3** RS-232 (Com1: Pin5;7;8)
- **Ethernet (RJ45)** None
- **I/Os** USB Client   Yes
  USB Host   Yes
  Micro-SD Slot   Yes

LCD Display and Touchscreen

- **Display Type** QVGA TFT LCD
- **Display Size** 5.6"
- **Max. Resolution** 320 x 234
- **Max. Colors** 65,536 colors
- **Luminance (cd/m²)** 330
- **Backlight Life** LED, 20,000 hrs
- **Dimming** Adjustable by touch panel
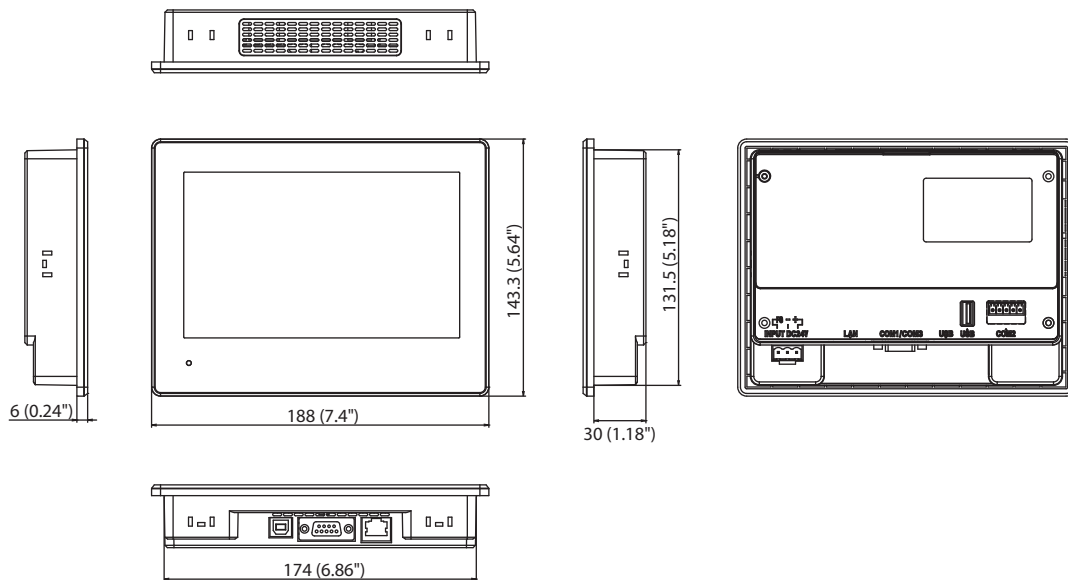- **Touchscreen** 4 wire analog resistive

Environment

- **Operating Temperature** 0 ~ 50°C (32 ~ 122°F)
- **Storage Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Humidity** 10 ~ 90% RH @ 40°C, non-condensing
- **Ingress Protection** Front panel:IP66
- **Vibration Protection** Operating, radom vibration 1 Grms (5 ~ 500 Hz)

Ordering Information

- **WOP-2050T-S1AE** 5.6" QVGA, 32 MB (SDRAM), 8MB (NOR) & 128MB (NAND)

Dimensions

Unit: mm

143.3 (5.64")
131.5 (5.18")
6 (0.24")
188 (7.4")
30 (1.18")
174 (6.86")
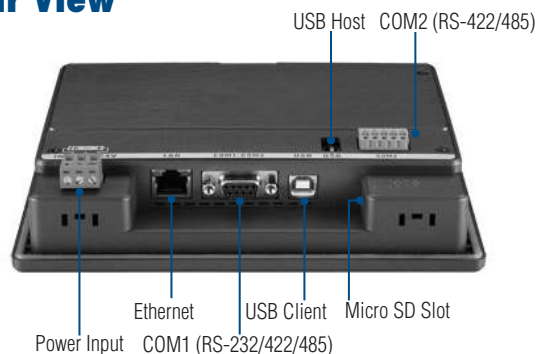
INPUT DC24V   USB   COM1/COM3   USB   COM2

Panel Cut-out Dimensions: 175 x 132.5mm (6.89" x 5.21")

Accessories

- **CWOP-P2HFM-AD12E** PC to HMI program download cable, DB9/2m
- **CWOP-P2HAB-ADU2E** PC to HMI program download cable, USB/2m
- **PWR-247-BE** 63W DC 24V/2.62A Output Power Supply
- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M

Rear View

COM2 (RS-422/485)

USB Host   USB Client   Micro SD Slot

Power Input   COM1 (RS-232/422/485)

Communication Links

Direct Link

1-to-1 Connection
WebOP — RS-232 — PLC
WebOP — Etherant — PLC

1-to-N Connection
WebOP — RS-485 — PLC / PLC / PLC
Sub links

N-to-1 Data Sharing Connection
WebOP ... WebOP
RS-232 / Etherent
PLC

In-Direct Link

2-to-1 Connection
WebOP — Indirect link via 2-to-1 connection — WebOP — Direct link — PLC
2-to-1 server

N-to-1 Connection
WebOP ... WebOP
Etherent
Indirect Link via N-to-1 connection (Etherent)
N-to-1 master — WebOP — Direct link — PLC

2-to-1 Transparent Connection
WebOP — WebOP — PLC
PC — 2-to-1 Transparent Server
WebOP
PC — 2-to-1 Transparent Server — PLC

WebOP-2040T

4.3" WQVGA Operator Panel with WebOP Designer Software

Features

- Various LCD sizes (4.3", 5.6", 7", 8", 10.1")
- Supports ARM9-based CPUs with 200MHz and 128MB flash memory
- Supports RTC, battery backup RAM, and Ethernet-based operator panels
- Supports runtime data downloads through Serial, Ethernet, USB
- Supports adjustable brightness controls via touch panel
- Reliable firmware for 24/7 operation
- Supports Windows XP/7/Vista-based WebOP Designer development tool
- Easy to switch one application to different LCD sizes in seconds
- Supports vertical and horizontal application screen rotation
- Supports over 400 PLC industrial communication protocols
- Communicates with up to four types of devices
- Panel mounting for machinery
- Front panel is IP66 compliant

Introduction

To satisfy the stringent standards required in the automation market, especially packaging, label slitting, and motion-based robot dispensing, Advantech offers the WebOP-2000T series with 200MHz ARM9-based RISC CPU's and 128MB flash memory for application software. The WebOP-2000T series also support a variety of LCD sizes from 4.3" to 10.1" for different applications involving the use of PLCs, motion/thermal controllers, inverters and sensors. The WebOP-2000T series is bundled with WebOP Designer: a software development kit which helps create application solutions for labor-saving, improved efficiency of manufacturing and easy control of every machine in the factory. WebOP Designer offers an outstanding price performance ratio for various markets such as conventional operator panels, HMI + Low mini SCADA systems, and HMI + communication gateways.

Specifications

General

- **Certification** CE, BSMI, CCC, UL, FCC Class A
- **Dimensions (WxHxD)** 130 x 106.2 x 36.4mm (5.11" x 4.18" x 1.43")
- **Cut-out Dimensions** 118.5 x 92.5mm (4.66" x 3.64")
- **Front Panel Thickness** 5mm
- **Operating System** HMI RTOS, WebOP Designer
- **Power Supply Voltage** 24V$_{DC}$ ±10%
- **Power Consumption** 5W
- **Enclosure Housing** Plastic
- **Mounting** Panel
- **Weight (Net)** 0.3 kg (0.66 lbs)

System Hardware

- **CPU** RISC 32bits, 200MHz
- **Battery Backup Memory** 128KB
- **Flash Memory** 8MB/ 8MB + 128M NAND flash
- **Power-On LED** Yes
- **Communication LED** No
- **Front USB Access** No

Communication Interface

- **COM1** RS-232/422/485 (DB9 Female)
- **COM2** RS-422/485 (5-Pin Plug Connector)
- **COM3** RS-232 (Com1: Pin5;7;8)
- **Ethernet (RJ45)** 10/100-BaseT (for N1AE model)
- **I/Os**
  - USB Client — Yes
  - USB Host — Yes
  - Micro-SD Slot — Yes (for N1AE model)

LCD Display and Touchscreen

- **Display Type** WQVGA TFT LCD
- **Display Size** 4.3"
- **Max. Resolution** 480 x 272
- **Max. Colors** 65,536 colors
- **Luminance (cd/m²)** 400
- **Backlight Life** LED, 20,000 hrs
- **Dimming** Adjustable by touch panel
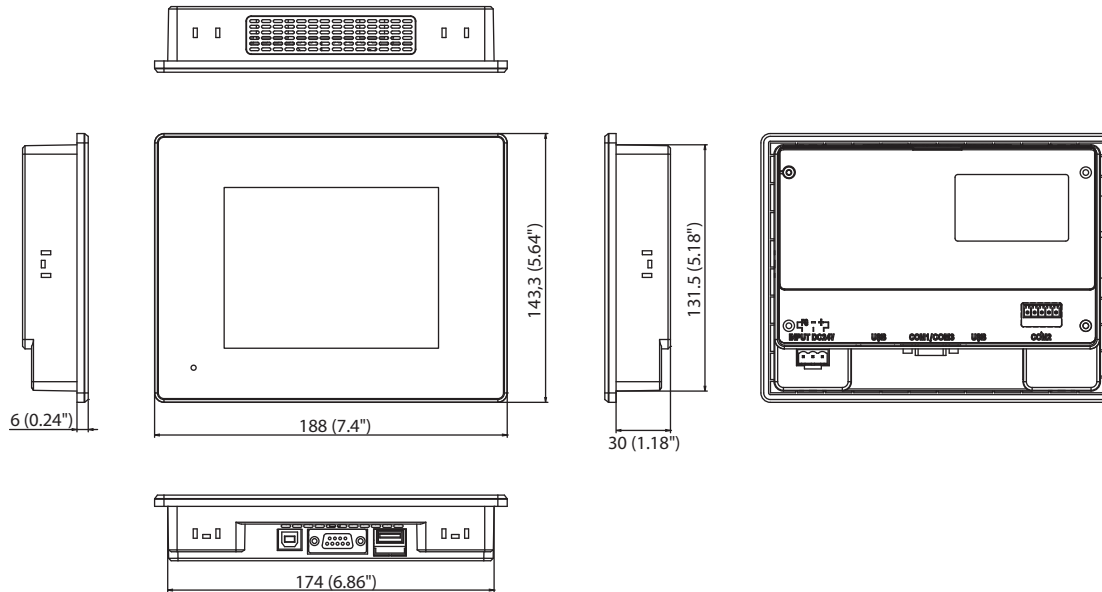- **Touchscreen** 4 wire analog resistive

Environment

- **Operating Temperature** 0 ~ 50°C (32 ~ 122°F)
- **Storage Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Humidity** 10 ~ 90% RH @ 40°C, non-condensing
- **Ingress Protection** Front panel: IP66
- **Vibration Protection** Operating, radom vibration 1 Grms (5 ~ 500 Hz)

Ordering Information

- **WOP-2040T-S1AE** 4.3" WQVGA, 32MB (SDRAM), 8MB (NOR)
- **WOP-2040T-N1AE** 4.3" WQVGA, 32MB (SDRAM), 8MB (NOR) & 128MB (NAND)

Dimensions

Unit: mm

106.2 (4.18")
92 (3.62")
5 (0.2")
130 (5.11")
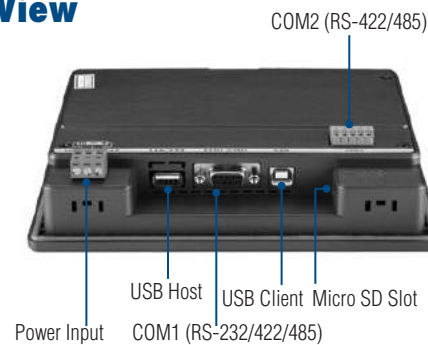36.4 (1.43")
118 (4.65")
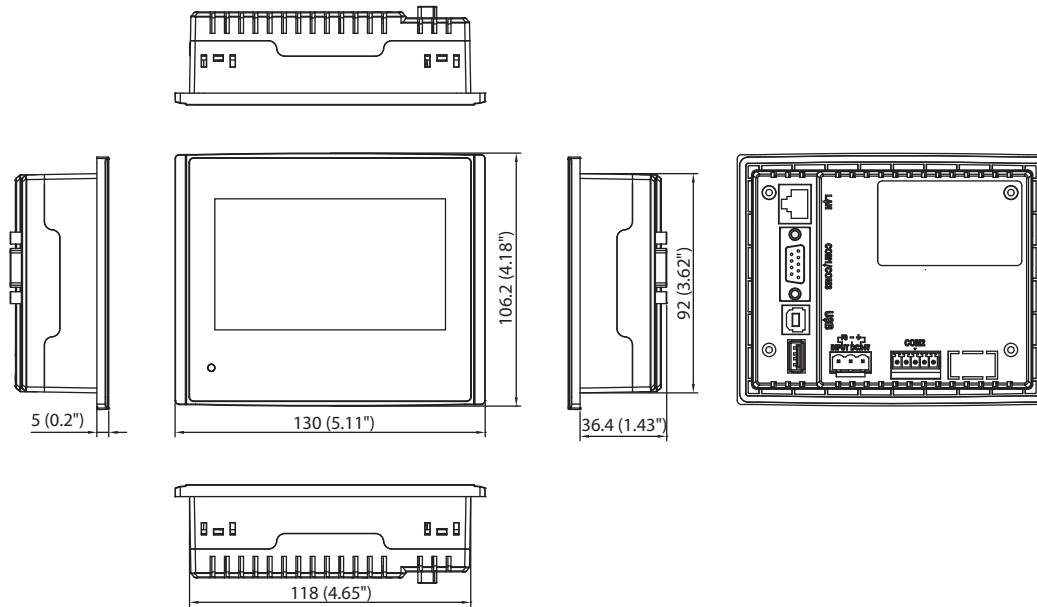
Panel Cut-out Dimensions: 118.5 x 92.5 mm (4.66" x 3.64")

Accessories

- **CWOP-P2HFM-AD12E**   PC to HMI program download cable, DB9/2m
- **CWOP-P2HAB-ADU2E**   PC to HMI program download cable, USB/2m
- **PWR-247-BE**   63W DC 24V/2.62A Output Power Supply
- **1702002600**   Power Cable US Plug 1.8 M
- **1702002605**   Power Cable EU Plug 1.8 M
- **1702031801**   Power Cable UK Plug 1.8 M
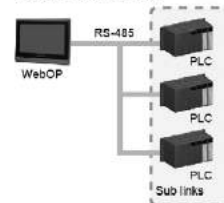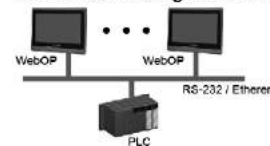- **1700000596**   Power Cable China/Australia Plug 1.8 M

Rear View

Ethernet
COM1 (RS-232/422/485)
USB Client
USB Host
Micro SD Slot
Power Input   COM2 (RS-422/485)

Communication Links

Direct Link
1-to-1 Connection
RS-232   PLC
WebOP
WebOP   Ethernet   PLC

1-to-N Connection
RS-485   PLC
WebOP   PLC
PLC
Sub links

N-to-1 Data Sharing Connection
WebOP   WebOP
RS-232 / Etherent
PLC

In-Direct Link
2-to-1 Connection
WebOP   WebOP   PLC
Indirect link via   Direct link
2-to-1 connection   2-to-1 server

N-to-1 Connection
WebOP   WebOP   Indirect Link via N-to-1 connection (Etherent)
Etherent
N-to-1 master   Direct link
WebOP   PLC

2-to-1 Transparent Connection
WebOP   WebOP   PLC
2-to-1 Transparent Server
PC   WebOP   PLC
2-to-1 Transparent Server

Left Table

Brand	Model	WOP-2000T	Panel Express	WOP-3000T	Type
A&D Company Ltd.	AD-4401 Weighing Indicator	V	V	V	Direct Link (COM)
ABIDO Automation Co., Ltd.	ACR420 984 Device/Slave (RTU)	V	V	V	Direct Link (COM)
ADLEE POWERTRONIC CO., LTD.	MS/AP/AS Series Inverter (RTU)	V	V	V	Direct Link (COM)
	BL/D305 Series (RTU)	V	V	V	Direct Link (COM)
Advantech	Null PLC	V	V	V	Direct Link (COM)
	ADAM (Modbus RTU)	V	V	V	Direct Link (COM)
	ADAM-4000 (ASCII)	V	V	V	Direct Link (COM)
	ADAM-6000 (ModBus TCP/IP)	V	V	V	Direct Link (Ethernet)
AIGO Technologies Corporation	SE500 Series (Modbus RTU)	V	V	V	Direct Link (COM)
Allen Bradley	Micrologix 1000/1500	V	V	V	Direct Link (COM)
	SLC 5/03, 5/04	V	V	V	Direct Link (COM)
	DH-485 (COM)	V	V	N/A	Direct Link (COM)
	PLC-5	V	V	V	Direct Link (COM)
	SLC 5/03, 5/04 (CRC)	V	V	V	Direct Link (COM)
	CompactLogix/ControlLogix Tag	V	V	N/A	Direct Link (COM)
	MicroLogix 1000/1500 via 1761-NET-ENI	V	V	V	Direct Link (Ethernet)
	MicroLogix	V	V	V	Direct Link (Ethernet)
	CompactLogix/ControlLogix Ethernet/IP Tag	V	V	V	Direct Link (Ethernet)
ARICO Technology	FC Type(Modbus)	V	V	V	Direct Link (COM)
Astraada HMI	ModBus Master (TCP/IP)	V	V	V	Direct Link (Ethernet)
	ModBus Device/Slave (TCP/IP)	V	V	V	Direct Link (Ethernet)
	Modbus Master (RTU)	V	V	V	Direct Link (COM)
	Modbus Device/Slave (RTU)	V	V	V	Direct Link (COM)
	Modicon Device/Slave (RTU, Quantum)	V	V	V	Direct Link (COM)
	ModBus Master (TCP/IP; Type 2)	V	V	V	Direct Link (Ethernet)
	ModBus Device/Slave (TCP/IP; Type 2)	V	V	V	Direct Link (Ethernet)
	Modbus Master (RTU; Non-volatile slave data)	V	V	V	Direct Link (COM)
Automation Technology Co., Ltd.	BLDC NLV/KLV Series	V	V	V	Direct Link (COM)
Banner Engineering Int'l Inc.	BSP01 Series	V	V	V	Direct Link (COM)
Beckhoff Automation GmbH	TwinCAT 2 (via Ethernet)	V	V	V	Direct Link (Ethernet)
	TwinCAT 2 (via DLL)	V	N/A	N/A	Direct Link (Ethernet)
Bosch Rexroth	ModBus Device/Slave (TCP/IP; Type 2)	V	V	V	Direct Link (Ethernet)
CAPAC	TC	V	V	V	Direct Link (COM)
CHINO Corporation	DB1000 Digital Indicating Controller (ASCII)	V	V	V	Direct Link (COM)
CMZ Sistemi Elettronici	NF0 Controllers	V	V	V	Direct Link (COM)
	FCT Controllers	V	V	V	Direct Link (COM)
	SD Drivers	V	V	V	Direct Link (COM)
	SDS Drivers	V	V	V	Direct Link (COM)
	MDM Drivers	V	V	V	Direct Link (COM)
	FCT Controllers(TCP/IP; Type 2)	V	V	V	Direct Link (Ethernet)
Crouzet Ltd.	M3 SLIN/SLOUT Protocol	V	V	V	Direct Link (COM)
CTB Technologies Corporation	IMS Servo Controller	V	N/A	N/A	Direct Link (COM)
Danfoss Group	VLT 2800 Series (FC Protocol)	V	V	V	Direct Link (COM)
DEIF A/S	Modbus RTU (COM port)	V	V	V	Direct Link (COM)
	TCP/IP Modbus (Ethernet port)	V	V	V	Direct Link (Ethernet)
	WSS/WSS-L	V	V	V	Direct Link (COM)
Delta Corporation	DVP-ES/SS/EP/EH	V	V	V	Direct Link (COM)
	DVP-ES/SS/EP/EH (No block read)	V	V	V	Direct Link (COM)
	DVP-SV(RTU)	V	V	V	Direct Link (COM)
	VFD-M Inverter (ASCII)	V	V	V	Direct Link (COM)
	VFD-B Inverter (ASCII)	V	V	V	Direct Link (COM)
	DTC1000/2000 Temperature (ASCII)	V	V	V	Direct Link (COM)
	DTA Temperature (ASCII)	V	V	V	Direct Link (COM)
	ASDA-A Servo Controller (ASCII)	V	V	V	Direct Link (COM)
	ASDA-B Servo Controller (ASCII)	V	V	V	Direct Link (COM)
	ASDA-A2 Servo Controller (ASCII)	V	V	V	Direct Link (COM)
Dirise Electric Technology Co.,Ltd.	DRS2000 Series Inverter	V	N/A	N/A	Direct Link (COM)
	DRS2800 M Series Inverter	V	V	V	Direct Link (COM)
EasyIO	EasyIO-30 (RTU)	V	V	V	Direct Link (Ethernet)
Emerson Network Power	EC Series (RTU)	V	V	V	Direct Link (COM)
	EV1000 Series Variable Speed Driver	V	V	V	Direct Link (COM)
Epson Corporate	Epson LQ Matrix Printer	V	V	V	Direct Link (COM)
Eura Drivers Electric Corp.	Eura EF1S/1N	V	V	V	Direct Link (COM)
	Eura EF2N	V	V	V	Direct Link (COM)
	Eura Inverter (Modbus RTU)	V	V	V	Direct Link (COM)
	Eura Inverter (Modbus ASCII)	V	V	V	Direct Link (COM)
	Eura EF200-CPU202(Modbus RTU)	V	V	V	Direct Link (COM)
	Eura EF200-CPU202XP/CPU204(Modbus RTU)	V	V	V	Direct Link (COM)
	Eura EF200-CPU204XP/CPU206(Modbus RTU)	V	V	V	Direct Link (COM)
	Eura EF300-CPU304(Modbus RTU)	V	V	V	Direct Link (COM)
	Eura EF300-CPU306(Modbus RTU)	V	V	V	Direct Link (COM)

Right Table

Brand	Model	WOP-2000T	Panel Express	WOP-3000T	Type
Eura Drivers Electric Corp.	Eura Servo Drive (Modbus RTU)	V	V	V	Direct Link (COM)
	Eura Servo Drive (Modbus ASCII)	V	V	V	Direct Link (COM)
	Eura HFR1000 (Modbus RTU)	V	V	V	Direct Link (COM)
	Eura HFR1000 (Modbus ASCII)	V	V	V	Direct Link (COM)
	Eura HFR2000 (Modbus RTU)	V	V	V	Direct Link (COM)
	Eura HFR2000 (Modbus ASCII)	V	V	V	Direct Link (COM)
Fatek Automation Corp.	FATEK FBs/FBe	V	V	V	Direct Link (COM)
	Fatek FBs/FBe (TCP)	V	V	V	Direct Link (Ethernet)
Festo Corporation	FPC/FEC Series	V	V	V	Direct Link (COM)
	FPC/FEC EasyIP	V	V	V	Direct Link (Ethernet)
Fuji Electric Corporation	NB Series	V	V	V	Direct Link (COM)
	PXR Series Temperature (RTU)	V	V	V	Direct Link (COM)
	FRENIC-VP (RTU)	V	V	V	Direct Link (COM)
	FRENIC5000G11/P11 (Fuji)	V	V	V	Direct Link (COM)
	FRENIC-Mini/Eco/Multi/Mega(RTU)	V	V	V	Direct Link (COM)
	MICREX-SX	V	V	V	Direct Link (Ethernet)
FVK Automation Co., Ltd.	F Series Inverter	V	V	V	Direct Link (COM)
GE Corporation	90 Series SNP	V	V	V	Direct Link (COM)
	VersaMax Series (SNP)	V	V	V	Direct Link (COM)
	90 and RX3i Series (SNP)	V	V	V	Direct Link (COM)
	90 Series CCM	V	V	V	Direct Link (COM)
	SRTP Ethernet	V	V	V	Direct Link (Ethernet)
	SRTP Ethernet (Micro)	V	V	V	Direct Link (Ethernet)
Gigarise Technology Co., Ltd.	SE5000	V	V	V	Direct Link (COM)
	GA400 Temperature (RTU)	V	V	V	Direct Link (COM)
GOFAST Corporation	NC Series	V	V	V	Direct Link (COM)
Haiwell Technology Co., Ltd	HW Series (RTU)	V	V	V	Direct Link (COM)
Hanbell Precise Machinery Co., Ltd.	Air Screw Compressor	V	V	V	Direct Link (COM)
Hitachi Industrial Equipment Systems Co., Ltd	SJ200 Inverter	V	V	V	Direct Link (COM)
	EH/EHV Series (Ethernet; TCP)	V	V	N/A	Direct Link (Ethernet)
	EH/EHV Series (Ethernet; UDP)	V	V	N/A	Direct Link (Ethernet)
	H/EH Series	V	V	V	Direct Link (COM)
	EHV Series (Procedure 1)	V	V	V	Direct Link (COM)
	H-252C	V	V	V	Direct Link (COM)
	AD Series Servo Drives	V	V	V	Direct Link (COM)
Hitech	Computer as Slave (COM)	V	V	V	Direct Link (COM)
	Computer as Master (COM)	V	V	V	Direct Link (COM)
	Computer as Slave V2 (COM)	V	N/A	N/A	Direct Link (COM)
	Computer as Master V2 (COM)	V	V	V	Direct Link (COM)
HOLIP ELECTRONIC TECHNOLOGY CO., LTD	HLP-C+/CP	V	V	V	Direct Link (COM)
HollySys	LE5108 (Modbus RTU)	V	V	N/A	Direct Link (COM)
Honeywell	BACnet/IP	V	N/A	N/A	Direct Link (Ethernet)
	BACnet/MSTP	V	N/A	N/A	Direct Link (COM)
	BACnet	V	N/A	N/A	Direct Link (COM)
	HW BACnet/IP	V	N/A	N/A	Direct Link (Ethernet)
	Modbus Device/Slave (RTU, 255)	V	V	V	Direct Link (COM)
	Modbus Device/Slave (RTU, 255, NoBlock)	V	V	V	Direct Link (COM)
Hunjoen Electronic Co., Ltd.	H_Tech PID CONTROLLER	V	V	V	Direct Link (COM)
HUST Automation Inc.	CNC Controller	V	V	V	Direct Link (COM)
	New CNC Controller	V	V	V	Direct Link (COM)
Idec Corporation	FC Series	V	V	V	Direct Link (COM)
IECCO	Sinus Penta Inverter (RTU)	V	V	V	Direct Link (COM)
Inovance Control Technology Co., Ltd.	H2u (CPU Port)	V	V	V	Direct Link (COM)
	MD Series Inverter (RTU)	V	V	V	Direct Link (COM)
	MD Series Inverter (RTU-1)	V	V	V	Direct Link (COM)
	IS Servo (RTU)	V	V	V	Direct Link (COM)
Integrated Flow Systems	iPurge Source Controller	V	V	V	Direct Link (COM)
Invt Auto-Control Technology	IVC Series	V	V	V	Direct Link (COM)
JETTER	NANO Series	V	V	V	Direct Link (COM)
	JetControl 24x Series	V	V	V	Direct Link (COM)
	JetControl 24x Series (Ethernet)	V	V	N/A	Direct Link (Ethernet)
Joint Peer Systec Corp.	IRIS Series	V	V	V	Direct Link (COM)
	JUPITER Series	V	V	V	Direct Link (COM)
	PDAN Series	V	V	V	Direct Link (COM)
	PDS Series	V	V	V	Direct Link (COM)
Keyence Corp.	KV Series	V	V	V	Direct Link (COM)
	KV-1000	V	V	V	Direct Link (COM)
	KV-L20V,KV-NANO	V	V	V	Direct Link (COM)
	KV-L20	V	V	V	Direct Link (COM)
	KV-3000	V	V	V	Direct Link (COM)
	KV-5000	V	V	V	Direct Link (Ethernet)
Kinco Automation Ltd.	Kinco ED Series	V	V	V	Direct Link (COM)
Klockner Moeller Corporation	PS4-201-MM1	V	V	V	Direct Link (COM)
	SUCONET K	V	N/A	N/A	Direct Link (COM)

Brand	Model	WOP-2000T	Panel Express	WOP-3000T	Type
Koyo Electric Corp.	K Sequence Series	V	V	V	Direct Link (COM)
	Direct Logic Series	V	V	V	Direct Link (COM)
	Direct 06 Series (K Sequence)	V	V	V	Direct Link (COM)
	Direct 06 Series (DirectNET)	V	V	V	Direct Link (COM)
Lenze Drive Systems GmbH	93xx Servo Controllers (LECOM A/B)	V	V	V	Direct Link (COM)
	E94AYCEN GCI(TCP/IP) Protocol	V	V	V	Direct Link (Ethernet)
LG Industrial Systems	Master-K Series CNet	V	V	V	Direct Link (COM)
	K120S CPU Port	V	V	V	Direct Link (COM)
	Master-K Loader	V	V	V	Direct Link (COM)
	GLOFA GM Series CNet	V	V	V	Direct Link (COM)
	XBM-DR16S	V	V	V	Direct Link (COM)
	GLOFA GM Loader	V	V	V	Direct Link (COM)
	XEC/XGI CNet	V	V	V	Direct Link (COM)
	XGT/XGK (CPU)	V	V	V	Direct Link (COM)
	XGL-C22A	V	V	V	Direct Link (COM)
	XGT/XGK (CPU)	V	V	V	Direct Link (Ethernet)
LG System	LGA Series(as Slave)	V	V	V	Direct Link (COM)
	LGA Series (as Master)	V	V	V	Direct Link (COM)
Liyan Electric Industrial Ltd.	EX Series (CPU Port)	V	V	V	Direct Link (COM)
Lust Antriebstechnik GmbH	LustBus ServoC/CDE Series	V	V	N/A	Direct Link (COM)
	LustBus CDD Series	V	V	N/A	Direct Link (COM)
Maxtech	MC2 PID Controller	V	V	V	Direct Link (COM)
Maxthermo	MC 5738 (RTU)	V	V	V	Direct Link (COM)
Mean Well Enterprises Co., Ltd.	PRETA	V	V	V	Direct Link (COM)
Megmeet	MC Series (RTU)	V	V	V	Direct Link (COM)
Micro Trend Corporation	UTC Servo Controller	V	V	V	Direct Link (COM)
MIKOM ELECTRICAL TECHNOLOGY	MX Series PLC	V	V	V	Direct Link (COM)
Mirle Automation Corporation	Fama SoftPLC Ethernet	V	V	V	Direct Link (Ethernet)
	ModBus Device/Slave (TCP/IP)	V	V	V	Direct Link (Ethernet)
	nDX Controller	V	V	V	Direct Link (COM)
Mitsubishi Electric Corp.	Melsec-FX (CPU Port)	V	V	V	Communication Service (COM)
	Melsec-Q/QnA (Link Port)	V	V	V	Direct Link (COM)
	Melsec-Q00/01 (CPU Port)	V	V	V	Direct Link (COM)
	Melsec-Q02H (CPU Port)	V	V	V	Direct Link (COM)
	Melsec-Q02 (CPU Port)	V	V	V	Direct Link (COM)
	Melsec-Q02U (CPU Port)	V	V	V	Direct Link (COM)
	Melsec-Q00J (CPU Port)	V	V	V	Direct Link (COM)
	Melsec-FX2n (CPU Port)	V	V	V	Direct Link (COM)
	Melsec-FX3U (CPU Port)	V	V	V	Direct Link (COM)
	Melsec-FX3U (Link Port)	V	V	V	Direct Link (COM)
	Melsec-AnN/AnS (Link Port)	V	V	V	Direct Link (COM)
	Melsec-AnN/AnS Protocol 4	V	V	V	Direct Link (COM)
	FX2n-10GM/20GM	V	V	V	Direct Link (COM)
	Melsec-A1S/A2S (CPU Port)	V	V	V	Direct Link (COM)
	FR-E500 Series (485)	V	V	V	Direct Link (COM)
	Melsec-A3N/A1SH (CPU Port)	V	V	V	Direct Link (COM)
	Melsec-AnA/AnU (Link Port)	V	V	V	Direct Link (COM)
	Melsec-AnA/AnU Protocol 4	V	V	V	Direct Link (COM)
	Servo Amplifier MR-J2S-A	V	V	V	Direct Link (COM)
	Servo Amplifier MR-J3-A	V	V	V	Direct Link (COM)
	Servo Amplifier MR-J4-A	V	V	V	Direct Link (COM)
	Melsec-A2A/A2AS (CPU Port)	V	V	V	Direct Link (COM)
	Melsec-Q06H (CPU Port)	V	V	V	Direct Link (COM)
	Melsec-Q12H (CPU Port)	V	V	V	Direct Link (COM)
	Melsec-Q03U (CPU Port)	V	V	V	Direct Link (COM)
	Melsec-Q00U (CPU Port)	V	V	V	Direct Link (COM)
	GOT-F900 Emulator (1:1 Format 1 & 2)	V	V	N/A	Direct Link (COM)
	Melsec-Q01U (CPU Port)	V	V	V	Direct Link (COM)
	Q Ethernet	V	V	V	Direct Link (Ethernet)
	Q/L Ethernet (ASCII Mode)	V	V	V	Direct Link (Ethernet)
	L Ethernet (Binary Mode)	V	V	V	Direct Link (Ethernet)
	Melsec-FX3U (MC-Protocol)	V	V	V	Direct Link (Ethernet)
Mitutoyo Corporation	EV Linear Gage Counter (ASCII)	V	V	V	Direct Link (COM)
Schneider Electric-Modicon Corp.	TSX Premium (Uni-Telway)	V	V	V	Direct Link (COM)
	TSX Quantum (Uni-Telway)	V	N/A	N/A	Direct Link (COM)
	Twido (Modbus RTU)	V	V	V	Direct Link (COM)
	ModBus Master (TCP/IP; Type 2)	V	V	V	Direct Link (Ethernet)
	ModBus Device/Slave (TCP/IP; Type 2)	V	V	V	Direct Link (Ethernet)
	Modbus Master (RTU; Non-volatile slave data)	V	V	V	Direct Link (COM)
	Modbus Device/Slave (RTU; 6-digit Addresses)	V	V	N/A	Direct Link (COM)
	Modbus Master (ASCII; Non-volatile slave data)	V	V	V	Direct Link (COM)
MOTEC	α Series	V	V	V	Direct Link (COM)
MTC	MTC96 Controller (Modbus ASCII)	V	V	V	Direct Link (COM)
Muscle Corporation Inc.	Cool Muscle CM1-17L30	V	V	V	Direct Link (COM)

Brand	Model	WOP-2000T	Panel Express	WOP-3000T	Type
MyTech	VL-CX: Melsec-FX2n (CPU Port)	V	V	V	Direct Link (COM)
Newtop Co., Ltd.	PSTC (Temperature Controller)	V	V	V	Direct Link (COM)
	PSBD (Bushless Driver)	V	V	V	Direct Link (COM)
	PSSD (Stepping Driver)	V	V	V	Direct Link (COM)
	PSMC (Motion Controller)	V	V	V	Direct Link (COM)
	PSNC (Embedded NC)	V	V	V	Direct Link (COM)
Omron Corporation	Sysmac C Series Host Link	V	V	V	Direct Link (COM)
	Sysmac CV Series Host Link	V	V	V	Direct Link (COM)
	Sysmac CS/CJ Series Host Link	V	V	V	Direct Link (COM)
	Sysmac CS/CJ Series (FINS)	V	V	V	Direct Link (COM)
	Sysmac CP Series (FINS)	V	V	V	Direct Link (COM)
	E5CN Temperature (CompoWay/F)	V	V	V	Direct Link (COM)
	E5CN Temperature (Modbus RTU)	V	V	V	Direct Link (COM)
	EJ1 Temperature (CompoWay/F)	V	V	V	Direct Link (COM)
	KM100 (CompoWay/F)	V	V	V	Direct Link (COM)
	3G3MV Inverter (RTU)	V	V	V	Direct Link (COM)
	Sysmac CS/CJ Series FINS/TCP	V	V	V	Direct Link (Ethernet)
	Sysmac NJ Series FINS/TCP	V	V	V	Direct Link (Ethernet)
Pan-Globe Corp.	E9 Temperature Series	V	V	V	Direct Link (COM)
	E904 Temperature (RTU)	V	V	V	Direct Link (COM)
	HT Series Temperature Controller	V	V	V	Direct Link (COM)
Matsushita Electric Works (Panasonic Corporation)	FP Series Computer Link	V	V	V	Direct Link (COM)
	FP-X Series	V	V	V	Direct Link (COM)
	VF0C Series Inverter	V	V	V	Direct Link (COM)
	VF100 Series Inverter	V	V	V	Direct Link (COM)
Panasonic Corporation	FP Series	V	V	V	Direct Link (COM)
	FP Series Computer Link	V	V	V	Direct Link (COM)
	MINAS A4 Series	V	V	V	Direct Link (COM)
PanelMaster	Null PLC	V	V	V	Direct Link (COM)
	N-to-1 Master (COM)	V	V	V	Communication Service (COM)
	Multi-drop Client (COM)	V	V	V	Indirect Link via N-to-1 Connection (COM)
	N-to-1 Master (Ethernet)	V	V	V	Communication Service (Ethernet)
	N-to-1 Slave (Ethernet)	V	V	V	Indirect Link via N-to-1 Connection (Ethernet)
	General Device (COM)	V	V	V	Direct Link (COM)
	2-to-1 Server (COM)	V	V	V	Communication Service (COM)
	2-to-1 Transparent Server (COM)	V	N/A	N/A	Communication Service (COM)
	2-to-1 Transparent Server for Modbus Device/Slave (RTU)	N/A	V	V	Communication Service (COM)
	2-to-1 Transparent Server for Omron Sysmac C Series Host Link	N/A	V	V	Communication Service (COM)
	2-to-1 Transparent Server for Modbus Device/Slave (RTU; 6-digit Addresses)	N/A	V	N/A	Communication Service (COM)
	2-to-1 Client (COM)	V	V	V	Indirect Link via 2-to-1 Connection (COM)
	TCP/IP Gateway Server	V	V	V	Gateway Service (Ethernet)
	Serial Gateway Server	V	V	V	Gateway Service (COM)
	Data Sharer (UDP)	V	V	V	Direct Link (Ethernet)
	General Device (TCP/IP Slave)	V	V	V	Direct Link (Ethernet)
	Data Sharer (RS485)	V	N/A	V	Direct Link (COM)
	Ping	V	N/A	N/A	Direct Link (Ethernet)
	Modbus Master (RTU)	V	V	V	Direct Link (COM)
	Modbus Master (RTU; Little Memory)	V	V	V	Direct Link (COM)
	Modbus Master (RTU; Non-volatile slave data)	V	V	V	Direct Link (COM)
	Modbus Device/Slave (RTU)	V	V	V	Direct Link (COM)
	Modbus Device/Slave (RTU, 16Words)	V	V	V	Direct Link (COM)
	Modbus Device/Slave (Word order in big-endian)	V	V	V	Direct Link (COM)
	Modbus Device/Slave (RTU; No block read)	V	V	V	Direct Link (COM)
	Modbus Device/Slave (RTU, 30Words)	V	V	V	Direct Link (COM)
	Modbus Device/Slave (ASCII)	V	V	V	Direct Link (COM)
	Modbus Device/Slave (ASCII; No block read)	V	V	V	Direct Link (COM)
	Modbus Device/Slave (TCP/IP)	V	V	V	Direct Link (Ethernet)
	Internal Memory Server	V	V	V	Gateway Service (Ethernet)
	Internal Memory	V	V	V	Direct Link (Ethernet)
	Barcode Scanner	V	V	V	Direct Link (COM)
	Epson Matrix Printer	V	V	V	Direct Link (COM)
	PC Series PLC Module	V	V	V	Direct Link (COM)
	OPC UA Client Driver	V	V	N/A	OPC Link
Parker Hannifin	Compax3	V	V	V	Direct Link (COM)

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

Brand	Model	WOP-2000T	Panel Express	WOP-3000T	Type
Parker Hannifin S.p.A.	HID Series (X4 RS232 Port)	V	V	V	Direct Link (COM)
	SLVDN Series (X1 RS422/485 Port)	V	V	V	Direct Link (COM)
	6K Ethernet Protocol	V	N/A	N/A	Direct Link (Ethernet)
PORIS	XC ModBus TCP	V	V	V	Direct Link (Ethernet)
	XC Modbus RTU	V	V	V	Direct Link (COM)
Resson Technologies Co., Ltd.	RD-15S	V	V	V	Direct Link (COM)
RICH Electric Co., LTD.	EI-500 Series (RTU)	V	V	N/A	Direct Link (COM)
	EI-9001 Series (RTU)	V	V	N/A	Direct Link (COM)
RKC Instrument Inc.	MA900/CB900 Series (RTU)	V	V	V	Direct Link (COM)
	CD/CH Series (ASCII)	V	V	V	Direct Link (COM)
Saia Burgess	PCD Series (S-Bus PGU)	V	V	V	Direct Link (COM)
	PCD Series (S-Bus, Data Mode)	V	V	V	Direct Link (COM)
	PCD Series (Ether-S-Bus)	V	V	V	Direct Link (Ethernet)
Samwon Technology	NOVA Series (RTU)	V	V	V	Direct Link (COM)
	NOVA Series	V	V	V	Direct Link (COM)
Modicon Corp. (Schneider Electric)	ModBus Master (TCP/IP)	V	V	V	Direct Link (Ethernet)
	ModBus Device/Slave (TCP/IP)	V	V	V	Direct Link (Ethernet)
	Modicon 984 Master (RTU)	V	V	V	Direct Link (COM)
	Modicon 984 Master (RTU; Little Memory)	V	V	V	Direct Link (COM)
	Modicon 984 Device/Slave (RTU)	V	V	V	Direct Link (COM)
	Modbus Master (ASCII)	V	V	V	Direct Link (COM)
	Modbus Master (ASCII; Little Memory)	V	V	V	Direct Link (COM)
	Modbus Device/Slave (ASCII)	V	V	V	Direct Link (COM)
	Modicon Device/Slave (RTU, Quantum)	V	V	V	Direct Link (COM)
Schneider Electric Sharp Corporation	ATV31 Inverter (RTU)	V	V	V	Direct Link (COM)
	Lexium 23 Servo Controller (ASCII)	V	V	V	Direct Link (COM)
	JW10/20 Series	V	V	V	Direct Link (COM)
Shenzhen Sine Electric Co., Ltd	EM303A	V	V	V	Direct Link (COM)
Shenzhen Step Servo Ltd.	Kinco Servo Controller	V	V	V	Direct Link (COM)
Shenzhen V&T Technologies Co.,Ltd	V5-H	V	V	V	Direct Link (COM)
Shenzhen Xilin Electric Tech. Co., Ltd.	Inverter EH series (RTU)	V	V	V	Direct Link (COM)
Shihlin Electric&Engineering Corp.	SH Inverter	V	V	V	Direct Link (COM)
SHIMAX CO., LTD.	MAC3 Series (RTU)	V	V	V	Direct Link (COM)
Shinko Technos Co., Ltd.	CPT-20A MODBUS DEVICE/SLAVE (ASCII)	V	V	V	Direct Link (COM)
	JCS-33A-R/M (Shinko Protocol)	V	V	V	Direct Link (COM)
	JCS-33A-R/M (Modbus ASCII)	V	V	V	Direct Link (COM)
Siemens AG	Simatic S7-200 (PPI; 1-to-1)	V	N/A	N/A	Direct Link (COM)
	Simatic S7-200 SMART (PPI; 1-to-1)	V	N/A	N/A	Direct Link (COM)
	Simatic S7-200 (PPI; Network)	V	N/A	N/A	Direct Link (COM)
	Simatic S7-300 (MPI Port)	V	N/A	N/A	Direct Link (COM)
	Simatic S5 3964R	V	N/A	N/A	Direct Link (COM)
	Simatic S5	V	N/A	N/A	Direct Link (COM)
	Simatic S7-300 Ethernet Module (CP343)	V	V	V	Direct Link (Ethernet)
	"SIMATIC S7 (Ethernet) (CPU on board ethernet ET200S/S7-300/S7-1200/S7-1500)"	V	V	V	Direct Link (Ethernet)
	SIMATIC S7-200 SMART (Ethernet)	V	V	V	Direct Link (Ethernet)
	SIMATIC S7-200 (Ethernet)	V	V	V	Direct Link (Ethernet)
	LOGO (Ethernet)	V	V	V	Direct Link (Ethernet)
Taian Automation Co.,Ltd.	TP03 Series (Modbus RTU)	V	V	V	Direct Link (COM)
	TP02 Series	V	V	V	Direct Link (COM)
Taiwan Instrument & Control Co., Ltd.	TAIE FY100/900 Series (RTU)	V	V	V	Direct Link (COM)
	TAIE FY100/900 Series (TAIE)	V	V	V	Direct Link (COM)
	FY series DIGITAL PID CONTROLLER	V	V	N/A	Direct Link (COM)
Teco Electric & Machinery Co.,Ltd.	TSDA Series AC Servo	V	V	V	Direct Link (COM)
	TP03 Series (Modbus RTU)	V	V	V	Direct Link (COM)
	TP02 Series	V	V	V	Direct Link (COM)
	TSTA Series AC Servo	V	V	V	Direct Link (COM)
TESHOW ELECTRONIC.	MY90V/MY40V Series (RTU)	V	V	V	Direct Link (COM)
Texas Instruments Incorporated	TI505	V	V	V	Direct Link (COM)
Thinget Electronic Co., Ltd.	XC Series Controller (RTU)	V	V	V	Direct Link (COM)
	IPC-03 Series (RTU)	V	V	V	Direct Link (COM)
TOHO Electronics Inc.	TTX-700 (Modbus RTU)	V	V	V	Direct Link (COM)
	TTM-000 Series (TOHO Protocol)	V	V	V	Direct Link (COM)
	TTM-200 Series (TOHO Protocol)	V	V	N/A	Direct Link (COM)
TOKY ELECRTICAL	DW8-CD18B	V	V	V	Direct Link (COM)
Tokyo Keiso	UCM-04A	V	V	V	Direct Link (COM)
Toshiba Schneider Inverter Corporation	TOSVERT VF Series(Modbus RTU)	V	V	V	Direct Link (COM)
TPM	EPC-1000	V	V	V	Direct Link (Ethernet)

Brand	Model	WOP-2000T	Panel Express	WOP-3000T	Type
Unitronics	Vision 120 Series (Modbus RTU)	V	V	V	Direct Link (COM)
USAT Technologies	AX (CPU Port)	V	V	V	Direct Link (COM)
	AX2N (CPU Port)	V	V	V	Direct Link (COM)
	AX3U (CPU Port)	V	V	V	Direct Link (COM)
Vertex Technology Co,. Ltd	VT26/30 Series Controllers (RTU)	V	V	V	Direct Link (COM)
Vigor Corporation	M/VB Series	V	V	V	Direct Link (COM)
	VS Series	V	V	N/A	Direct Link (COM)
VIPA GmbH	VIPA 100V/200V MPI Port	V	N/A	N/A	Direct Link (COM)
Vware	Null PLC	V	V	V	Direct Link (COM)
	N-to-1 Master (COM)	V	V	V	Communication Service (COM)
	Multi-drop Client (COM)	V	V	V	Indirect Link via N-to-1 Connection (COM)
	N-to-1 Master (Ethernet)	V	V	V	Communication Service (Ethernet)
	N-to-1 Slave (Ethernet)	V	V	V	Indirect Link via N-to-1 Connection (Ethernet)
	General Device (COM)	V	V	V	Direct Link (COM)
	Data Sharer (RS485)	V	N/A	V	Direct Link (COM)
WAGO Kontakttechnik GmbH & Co. KG	WAGO-I/O-SYSTEM 750	V	V	V	Direct Link (Ethernet)
Wanfeng Electric	WF Series	V	V	V	Direct Link (COM)
YABOS	Hospital System	V	V	V	Direct Link (COM)
	Dentists	V	V	V	Direct Link (COM)
YAMAHA MOTOR CO., LTD.	Single-axis Robot Controller ERCD	V	V	V	Direct Link (COM)
Yamatake Corporation	SDC35/36 Temperature (RTU)	V	V	V	Direct Link (COM)
	SDC35/36 Temperature (ASCII)	V	V	V	Direct Link (COM)
	MA500 FA Controller (ECL Host)	V	V	V	Direct Link (COM)
	DMC10 Controller (RTU)	V	V	V	Direct Link (COM)
	DMC10 Controller (ASCII)	V	V	V	Direct Link (COM)
	MX30	V	V	V	Direct Link (COM)
	MX50	V	V	V	Direct Link (COM)
	Σ-IISGDM/H Series AC Servo	V	V	V	Direct Link (COM)
	MP Series Controller (Memobus)	V	V	V	Direct Link (COM)
	ModBus Device/Slave (TCP/IP)	V	V	V	Direct Link (Ethernet)
	Extended MEMOBUS	V	V	V	Direct Link (Ethernet)
	MP Series Ethernet (Extension)	V	V	N/A	Direct Link (Ethernet)
	V7 inverter (Memobus)	V	V	V	Direct Link (COM)
	NS600 Servo Controller	V	V	V	Direct Link (COM)
YE-LI ELECTRIC & MACHINERY Co., Ltd.	YPV Servo Controller	V	V	V	Direct Link (COM)
	YJD Servo Controller	V	V	V	Direct Link (COM)
Yokogawa Electric Corporation	FA-M3 Series (CPU Port)	V	V	V	Direct Link (COM)
	FA-M3 Series (UDP)	V	V	V	Direct Link (Ethernet)
	FA-M3 Series (TCP)	V	V	V	Direct Link (Ethernet)
Yudian Automation Technology Ltd.	AI-7048 (AiBus)	V	V	V	Direct Link (COM)
	AI518/708/808/518P/708P/808P Controller (Albus)	V	V	V	Direct Link (COM)
Zhuhai Motion Control Motor Co., Ltd.	BP Series PSDA driver (RTU)	V	V	N/A	Direct Link (COM)

Automation Panels

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To view all of Advantech's Automation Panel PCs, please visit http://www.advantech.com/

SUSiAccess
Remote Device Management

iky iLink IDxr

Control Panel Computers Selection Guide

Model	TPC-1881WP	TPC-1581WP	TPC-1782H	TPC-1582H	TPC-1282T	TPC-1071H
CPU	4th Gen. Intel® Core™ i7/ i3 Processor	4th Gen. Intel® Core™ i3 Processor	4th Gen. Intel® Core™ i7/ i3 Processor	4th Gen. Intel® Core™ i3 Processor	5th Gen. Intel® Core™ i3 Processor	Intel® Atom™ 1.8 GHz Processor
Memory	4GB DDR3L 1600MHz SO-DIMM SDRAM	4GB DDR3L 1600MHz SO-DIMM SDRAM	4GB DDR3L 1600MHz SO-DIMM SDRAM	4GB DDR3L 1600MHz SO-DIMM SDRAM	4GB DDR3L 1600MHz SO-DIMM SDRAM	4GB SO-DIMM DDR3 SDRAM
Display Type	TFT LED LCD	TFT LED LCD	TFT LED LCD	TFT LED LCD	TFT LED LCD	TFT LED LCD
Display Size	18.5"	15.6"	17"	15"	12.1"	10.4"
Max. Resolution	1366 x 768	1366 x 768	1280 x 1024	1024 x 768	1024 x 768	800x600
Max. Colors	16.7M	16.7M	16.7M	16.2M	16.2M	262 K
Luminance cd/m^2	300 nits	300 nits	350 nits	400 nits	600 nits	400 nits
VieWINg Angle (H/V°)	170/160	170/160	170/160	160/140	160/140	120/100
Backlight MTBF (hrs)	50,000 hrs	50,000 hrs	50,000 hrs	50,000 hrs	50,000 hrs	50,000 hrs
Touchscreen	Projected capacitive touch	Projected capacitive touch	Resistive	Resistive	Resistive	Resistive
Network (LAN)	10/100/1000 Base-T x 2	10/100/1000 Base-T x 2	10/100/1000 Base-T x 2	10/100/1000 Base-T x 2	10/100/1000 Base-T x 2	10/100/1000 Base-T x 2
I/O Ports	RS-232/422/485 x 1 USB 3.0 x 2, HDMI 1.4 x 1 Audio Line out x 1, USB 2.0 x 1 (optional) Audio MIC x 1 (optional)	RS-232/422/485 x 1 USB 3.0 x 2, HDMI 1.4 x 1 Audio Line out x 1, USB 2.0 x 1 (optional) Audio MIC x 1 (optional)	RS-232/422/485 x 1 USB 3.0 x 2, HDMI 1.4 x 1 Audio Line out x 1, USB 2.0 x 1 (optional) Audio MIC x 1 (optional)	RS-232/422/485 x 1 USB 3.0 x 2, HDMI 1.4 x 1 Audio Line out x 1, USB 2.0 x 1 (optional) Audio MIC x 1 (optional)	RS-232/422/485 x 1 USB 3.0 x 2, HDMI 1.4 x 1 Audio Line out x 1, USB 2.0 x 1 (optional) Audio MIC x 1 (optional)	RS-232 x 2 (with isolation) RS-422/485 x 1 (with isolation) USB 2.0 x 2 (Host) PS/2 x 1
HDD (Optional)	2.5" SATA HDD	2.5" SATA HDD	2.5" SATA HDD	2.5" SATA HDD	2.5" SATA HDD	2.5" SATA HDD
Intelligent Keys	Quick access through built-in front bezel function and home key button	Quick access through built-in front bezel function and home key button	N/A	N/A	N/A	N/A
CompactFlash Slots	CFast slot x 1	CFast slot x 1	CFast slot x 1	CFast slot x 1	CFast slot x 1	CFast slot x 1
Expansion Slots	Full-size Mini PCI-E	Full-size Mini PCI-E	Full-size Mini PCI-E/ Half-size PCI-E	Full-size Mini PCI-E/ Half-size PCI-E	Full-size Mini PCI-E/ Half-size PCI-E	Full-size Mini PCI-E/ Half-size PCI-E
Digital Input/Output	N/A	N/A	N/A	N/A	N/A	16-channel Digital I/O with isolation
Ingress Protection	Front panel: IP66	Front panel: IP66	Front panel: IP65	Front panel: IP65	Front panel: IP66	Front panel: IP65
DC Power Input (Voltage)	24 V$_{DC}$ ± 20%	24 V$_{DC}$ ± 20%	24 V$_{DC}$ ± 20%	24 V$_{DC}$ ± 20%	24 V$_{DC}$ ± 20%	10 ~ 29V
Enclosure	Front bezel: Die-cast Aluminum alloy Back housing: PC/ABS Resin	Front bezel: Die-cast Aluminum alloy Back housing: PC/ABS Resin	Front bezel: Die-cast Aluminum alloy Back housing: PC/ABS Resin	Front bezel: Die-cast Aluminum alloy Back housing: PC/ABS Resin	Front bezel: Die-cast Aluminum alloy Back housing: PC/ABS Resin	Front bezel: Die-cast Aluminum alloy Back housing: PC/ABS Resin
Mounting	Panel Mount	Panel Mount	Desktop, Wall or Panel Mount	Desktop, Wall or Panel Mount	Desktop, Wall or Panel Mount	Desktop, Wall or Panel Mount
Weight	6 kg (13.22 lbs)	7kg (15.44 lbs)	6 kg (13.23 lbs)	5.5 kg (12.13 lbs)	3.2 kg (7.02 lbs)	3.5 kg (7.72 lbs)
Operating Temperature	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	0 ~ 55°C (32 ~ 131°F)	0 ~ 55°C (32 ~ 131°F)	0 ~ 55°C (32 ~ 131°F)	0 ~ 55°C (32 ~ 131°F)
Dimensions	419.7 x 269 x 56.7 mm (16.52" x 10.59" x 2.23")	488.1 x 309.1 x 56.7 mm (19.2" x 12.2" x 2.2")	414 x 347.5 x 84 mm (16.3" x 13.68" x 3.31")	383 x 307 x 78.5 mm (15.08" x 12.09" x 3.09")	311.8 x 238 x 77.2 mm (12.28" x 9.38" x 3.04")	287 x 227 x 72.3 mm (11.30" x 8.94" x 2.85")
Certification	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL
Operating System	WIN 7/8/WES7/Linux	WIN 7/8/WES7/Linux	WIN 7/8/WES7/Linux	WIN 7/8/WES7/Linux	WIN 7/8/WES7/Linux	WIN 7/WES7/ WES 2009/XPE/CE 6.0/Linux/ Android
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Thin Client Panel Computers Selection Guide

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Model	TPC-1551WP	TPC-1051WP	TPC-1751T	TPC-1551T	TPC-1251T	TPC-651T
CPU	Intel® Atom™ E3827 1.75 GHz Processor	Intel® Atom™ E3827 1.75 GHz Processor	Intel® Atom™ E3827 1.75 GHz Processor	Intel® Atom™ E3827 1.75 GHz Processor	Intel® Atom™ E3827 1.75 GHz Processor	Intel® Atom™ E3827 1.75 GHz Processor
Memory	4GB (8GB optional) DDR3L 1600MHz SO-DIMM SDRAM	4GB (8GB optional) DDR3L 1600MHz SO-DIMM SDRAM	4GB (8GB optional) DDR3L 1600MHz SO-DIMM SDRAM	4GB (8GB optional) DDR3L 1600MHz SO-DIMM SDRAM	4GB (8GB optional) DDR3L 1600MHz SO-DIMM SDRAM	4GB (8GB optional) DDR3L 1600MHz SO-DIMM SDRAM
Display Type	WXGA TFT LED LCD	WXGA TFT LED LCD	SXGA TFT LED LCD	XGA TFT LED LCD	XGA TFT LED LCD	VGA TFT LED LCD
Display Size	15.6"	10.1"	17"	15"	12.1"	5.7"
Max. Resolution	1366 x 768	1280 x 800	1280 x 1024	1024 x 768	1024 x 768	640 x 480
Max. Colors	16.2 M	262 K	16.7 M	16.2 M	16.2 M	262 K
Luminance cd/m 2	300 nits	300 nits	350 nits	400 nits	600 nits	550 nits
VieWINg Angle (H/V°)	170/160	170/170	160/140	160/140	160/140	160/140
Backlight MTBF(hrs)	50,000 hrs	25,000 hrs	50,000 hrs	50,000 hrs	50,000 hrs	50,000 hrs
Touchscreen	Projected capacitive	Projected capacitive	Resistive	Resistive	Resistive	Resistive
HDD (Optional)	2.5" SATA x 1	2.5" SATA x 1	2.5" SATA x 1	2.5" SATA x 1	2.5" SATA x 1	2.5" SATA x 1
Network (LAN)	10/100/1000 Base-T x 2	10/100/1000 Base-T x 2	10/100/1000 Base-T x 2	10/100/1000 Base-T x 2	10/100/1000 Base-T x 2	10/100/1000 Base-T x 2
I/O Ports	RS-232 x 1, RS-232/422/485 x 1 USB 3.0 x 1 USB 2.0 x 1	RS-232 x 1, RS-232/422/485 x 1 USB 3.0 x 1 USB 2.0 x 1	RS-232 x 1, RS-232/422/485 x 1 USB 3.0 x 1 USB 2.0 x 1	RS-232 x 1, RS-232/422/485 x 1 USB 3.0 x 1 USB 2.0 x 1	RS-232 x 1, RS-232/422/485 x 1 USB 3.0 x 1 USB 2.0 x 1	RS-232 x 1, RS-232/422/485 x 1 USB 3.0 x 1 USB 2.0 x 1
CompactFlash Slots	CFast slot x 1	CFast slot x 1	CFast slot x 1	CFast slot x 1	CFast slot x 1	CFast slot x 1
Expansion Slots	Full-size Mini PCI-E	Full-size Mini PCI-E	Full-size Mini PCI-E	Full-size Mini PCI-E	Full-size Mini PCI-E	Full-size Mini PCI-E
DC Power Input (Voltage)	24 V$_{DC}$ ± 20%	24 V$_{DC}$ ± 20%	24 V$_{DC}$ ± 20%	24 V$_{DC}$ ± 20%	24 V$_{DC}$ ± 20%	24 V$_{DC}$ ± 20%
Dimensions	419.7 x 269 x 61.9 mm (16.52" x 10.59" x 2.44")	283.1 x 202.3 x 61.4 mm (11.15" x 7.96" x 2.42)	413.7 x 347.2 x 63.8 mm (16.28" x 13.68" x 2.5")	383.20 x 307.30 x 61.10 mm (15.09" x 12.10" x 2.41")	311.80 x 238 x 57.2 mm (12.28" x 9.37" x 22.52")	199 x 152 x 58.9 mm (7.83" x 5.98" x 2.32")
Weight	5.0 KG	2.6 KG	6.0 KG	3.9KG	2.5KG	1.5 KG
Front cover	Front bezel: Die-cast Aluminum alloy	Front bezel: Die-cast Aluminum alloy	Front bezel: Die-cast Aluminum alloy	Front bezel: Die-cast Aluminum alloy	Front bezel: Die-cast Aluminum alloy	Front bezel: Die-cast Aluminum alloy
Operating Temperature	0 ~ 55°C (32 ~ 131°F)	-20 ~ 55°C (-4 ~ 131°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)
Ingress Protection (Front Panel)	IP66	IP66	IP66	IP66	IP66	IP66
Certification	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL
Operating System	WIN 7/8/WES7/ WES8/ Linux	WIN 7/8/WES7/ WES8/ Linux	WIN 7/8/WES7/ WES8/ Linux	WIN 7/8/WES7/ WES8/ Linux	WIN 7/8/WES7/ WES8/ Linux	WIN 7/8/WES7/ WES8/ Linux
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1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
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5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

NEW   NEW   NEW   NEW   NEW

Model	SPC-2140WP	FPM-8151H	TPC-8100TR	IPPC-5211WS	UNO-1172AH	IPPC-3152WH
CPU	AMD® G-series T56N 1.6GHz Processor	N/A	Intel® Atom™ 1.6 GHz Processor	Intel® Celeron Processor	Intel® Atom™ 1.66 GHz Processor	Intel® Core™ i7/ Celeron® Processor
Memory	4GB DDR3 SO-DIMM	N/A	4GB DDR3 SO-DIMM	4GB DDR3L SO-DIMM	2 GB DDR2 SDRAM built-in	4GB/8GB DDR3L 1333 MHz
Display Type	TFT LED LCD	XGA TFT LED LCD	SVGA TFT LCD	Full HD TFT LCD	N/A	HD TFT LED LCD
Display Size	21.5"	15"	10.4"	21.5"	N/A	15.6"
Max. Resolution	1920x1080	1024 x 768	800x600	1920 x 1080	N/A	1366 x 768
Max. Colors	16.7M	16.2M	262k	16.7M	N/A	16.7M
Luminance cd/m²	300 nits	350 nits	400 nits	300 nits	N/A	300 nits
VieWINg Angle (H/V°)	178/178	160/140	160/140	178/178	N/A	170/160
Backlight MTBF (hrs)	50K hrs	50K hrs	50K hrs	50K hrs	N/A	50K hrs
Touchscreen	Projected capacitive touch	Resistive	Resistive	Projected capacitive touch	N/A	Projected capacitive touch
Network (LAN)	10/100/1000Base-T x 2, M12 connector	N/A	2 x 10/100/1000 Mbps (M12 A-coded, 8-pin female)	2 x 10/100/1000 Mbps	3 x 10/100/1000 Mbps	2 x 10/100/1000 Mbps
I/O ports	RS-232 x 1, M12 connector USB 2.0 x 1, M12 connector 24VDC connector, M12 connector	1 x VGA 2 x DVI-D	2 x RS-232 (connection: M12 A-coded, 8-pin male) 2 x 422/485 (with isolation, connection: M12 A-coded, 8-pin male) 2 x USB2.0 (connection: M12 A-coded, 8-pin female) 1 x Audio (with Internal Buzzer,Line out, connection: M12 A-coded, 8-pin female) 1 x Power connector (connection: M12 A-coded, 5-pin male)	1 x RS232 1 x RS232/RS485/RS422 2 x USB(1 x USB2.0, 1 x USB3.0) 1 x i Door (optional) 1 x Antenna(optional)	1 x RS-232 1 x 422/485 4 x USB 2.0	4 x USB Ports (2 x USB 2.0, 2 x USB 3.0) 1 x HDMI 1 x DP
HDD (Optional)	1 x 2.5" SATA	NA	N/A	1 x 2.5" SATA	1 x SSD slot 1 x 2.5"" SATA	2 x 2.5" SATA
Optical Drive	N/A	NA	N/A	N/A	N/A	N/A
CompactFlash Slots	N/A	NA	1x 16G Cfast	1 x CFast® (optional)	N/A	1 x CFast
Expansion Slots	Full-size Mini PCI-E	NA	2x full-size mini PCIe	NA	N/A	NA
Power Input	24V DC	Phoenix Jack: 24 VDC input DC Jack: external 57 W power adapter, with 100 ~ 240 VAC input and 12 VDC @ 4.75 A output (Optional)	72V~110V DC 24V DC (Optional)	24V DC	10 ~ 36 V DC	18 ~ 36V DC
Ingress Protection	All around: IP66	Front panel: IP65	All around: IP65	Front panel: IP69k All around· IP69k (Optional)	IP40	Front panel: IP66
Enclosure	Front bezel: Die-cast aluminum alloy Back housing: Die-cast aluminum alloy	Stainless steel	Front bezel: Die-cast Aluminium alloy Back housing: Die-cast Aluminium alloy	Front bezel: Stainless steel Rear cover· Aluminum alloy/Stainless steel(optional)	Aluminum + SECC	Aluminum alloy
Mounting	Desktop, Wall, VESA arm	Panel, wall, desktop, VESA arm	Panel/VESA Mount	VESA and Flange connection adapter for arm and foot system	DIN-rail, Wallmount	Panel, VESA (Optional) mount
Operating Temperature	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	- 30 ~ 70°C (-22 ~ 158°F)	0 ~ 50°C (32 ~ 122°F)	-10 ~ 60°C (14 ~ 140°F)	- 20 ~ 60°C (-4 ~ 140°F)
Dimensions	558.4 x 349.8 x 65 mm (21.98" x 13.77" x 2.56")	422 x 338 x 68 mm (16.61" x 13.31" x 2.68")	345 x 227 x 85 mm (13.58" x 8.94" x 33.46")	555 x 346.5 x 81 mm (21.85" x 13.64" x 3.19")	85 x 152 x 139 mm (3.4" x 6" x 5.5")	419.7 x 269 x 93 mm (16.5" x 10.59" x 3.66")
Weight	9 kg (19.8 lbs)	8.5 kg (18.74 lbs)	5kg	18kg(39.68 lbs)	1.6 kg	5.8 kg (12.79 lbs)
Certification	BSMI, CCC, CE, FCC Class A, UL	CE, FCC Class A, UL C1D2, CB, BSMI, CCC	CE,FCC,CCC,EN50155, EN45545 Compliance	IP69K, CE, FCC, UL, CB, BSMI, CCC	CE, FCC Class A, UL, CCC	CE, FCC, UL, CCC, BSMI
Operating System	WIN XP/7/8/WES7/WES 2009/CE 6.0/Linux	Windows 2000, XP, Vista, 7, XPe, CE and Linux	WES 7/ WES 2009/ WIN CE 7.0/ Linux	WIN 7 64bit/ 8 64bit/ CE 7.0/ Linux	WES2009, WIN XP/7/CE 5.0/6.0, Linux, QNX	WIN7/8, WES7, WES-2009, Linux
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NEW

	IPPC-3152H	IPPC-6192A	IPPC-6172A	IPPC-6152A	IPPC-9171G	IPPC-9151G
	Intel® Core™ i7/ Celeron® Processor	Intel® Core™ i7/i5/i3 processor	Intel® Core™ i7/i5/i3 processor	Intel® Core™ i7/i5/i3 processor	Intel® Core™ i7/i5/i3/ Celeron Processor	Intel® Core™ i7/i5/i3/ Celeron Processor
	4GB/8GB DDR3L 1333 MHz	Up to 32 GB DDR3 1333/1600 MHz	Up to 32 GB DDR3 1333/1600 MHz	Up to 32 GB DDR3 1333/1600 MHz	Up to 8GB DDR3 SO-DIMM 1333MHz/1066MHz	Up to 8GB DDR3 SO-DIMM 1333MHz/1066MHz
	XGA TFT LED LCD	SXGA TFT LED LCD	SXGA TFT LED LCD	XGA TFT LED LCD	SXGA TFT LED LCD	XGA TFT LED LCD
	15"	19"	17"	15"	17"	15"
	1024 x 768	1280 x 1024	1280 x 1024	1024 x 768	1280 x 1024	1024 x 768
	16.2M	16.7M	16.7M	16.2M	16.7M	16.2M
	350 nits	350 nits	350 nits	400 nits	380 nits	350 nits
	160/140	170/160	170/160	160/140	170/160	160/140
	50K hrs	50K hrs	50K hrs	50K hrs	50K hrs	50K hrs
	Resistive	Resistive	Resistive	Resistive	Resistive	Resistive
	2 x 10/100/1000 Mbps	2 x 10/100/1000 Mbps	2 x 10/100/1000 Mbps	2 x 10/100/1000 Mbps	2 x 10/100/1000 Mbps	2 x 10/100/1000 Mbps
	4 x USB Ports (2 x USB 2.0, 2 x USB 3.0) 1 x HDMI 1 x DP	4 (3 x RS-232, 1 x RS-232/422/485) 1 x GPIO 2 x Reservation ports 5 x USB (1 X USB 2.0 front, 4 x USB 3.0) 2 x GbE LAN 1 x VGA; 1 x DVI; 1 x DP 2 (1 x keyboard and 1 x mouse) 2 (Mic-in, Line-out)	4 (3 x RS-232, 1 x RS-232/422/485) 1 x GPIO 2 x Reservation ports 5 x USB (1 X USB 2.0 front, 4 x USB 3.0) 2 x GbE LAN 1 x VGA; 1 x DVI; 1 x DP 2 (1 x keyboard and 1 x mouse) 2 (Mic-in, Line-out)	4 (3 x RS-232, 1 x RS-232/422/485) 1 x GPIO 2 x Reservation ports 5 x USB (1 X USB 2.0 front, 4 x USB 3.0) 2 x GbE LAN 1 x VGA; 1 x DVI; 1 x DP 2 (1 x keyboard and 1 x mouse) 2 (Mic-in, Line-out)	4 x RS-232, 1 x VGA, 1 x HDMI 5 x USB 2.0 (one at front), 1 x CFast slot, 1 x keyboard and 1 x mouse, Mic-in, Line-out, Line-in	4 x RS-232, 1 x VGA, 1 x HDMI 5 x USB 2.0 (one at front), 1 x CFast slot, 1 x keyboard and 1 x mouse, Mic-in, Line-out, Line-in
	2 x 2.5" SATA	2 x 2.5" SATA	2 x 2.5" SATA	2 x 2.5" SATA	1 x 2.5" SATA	1 x 2.5" SATA
	N/A	1 x Slim Type DVD-RW (optional)	1 x Slim Type DVD-RW (optional)	1 x Slim Type DVD-RW (optional)	N/A	N/A
	1 x CFast	1 x CFast® (optional)	1 x CFast® (optional)	1 x CFast® (optional)	1 x CFast®	1 x CFast®
	NA	2 x half-length PCI Slot	2 x half-length PCI Slot	2 x half-length PCI Slot	1 x PCIe (x1 or x4, PCI optional)	1 x PCIe (x1 or x4, PCI optional)
	18 ~ 36V DC	100 ~ 240V AC	100 ~ 240V AC	100 ~ 240V AC	100 ~ 240V AC	100 ~ 240V AC
	Front panel: IP66	Front panel: IP65	Front panel: IP65	Front panel: IP65	Front panel: IP65	Front panel: IP65
	Aluminum alloy	Front bezel: Aluminum alloy Back housing: SGCC	Front bezel: Aluminum alloy Back housing: SGCC	Front bezel: Aluminum alloy Back housing: SGCC	Front bezel: Aluminum alloy Back housing: Stainless steel	Front bezel: Aluminum alloy Back housing: Stainless steel
	Panel, VESA (Optional) mount	Panel, Rack (Optional) mount	Panel, Rack (Optional) mount	Panel, Rack (Optional) mount	Panel, Rack mount NOTE: it is different from other products of the same series	Panel, Rack (Optional) mount
	- 20 ~ 60°C (-4 ~ 140°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)
	390.7 x 289.8 x 93 mm (15.38" x 11.41" x 3.66")	481.93 x 384.6 x 135.5 mm (18.97" x 15.14" x 5.33")	481.93 x 355.87 x 132.5 mm (18.97" x 14.01" x 5.22")	449.92 x 315.63 x 126.4 mm (17.71" x 12.43" x 4.98")	482 x 354.8 x 98 mm (19" x 14" x 4")	"28 x 310 x 96.5 mm (16.4" x 12.2" x 3.8")
	5.4 kg (11.9 lbs)	16.6 Kg (35.6 lbs)	15 Kg (33.04 lb)	13 Kg (28.6 lbs)	14 Kg (30.86 lbs)	10.52 Kg (23.19 lbs)
	CE, FCC, UL, CCC, BSMI	CE, FCC, UL, CCC, BSMI	CE, FCC, UL, CCC, BSMI	CE, FCC, UL, CCC, BSMI	CE, FCC, UL, CCC, BSMI	CE, FCC, UL, CCC, BSMI
	WIN7/8, WES7, WES-2009, Linux	WIN XP / 7/ 8	WIN XP / 7/ 8	WIN XP / 7/ 8	WIN 7/XP	WIN 7/XP
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Selection Guide

Robust and Wide Temperature Monitors

Model		FPM-3191G	FPM-3171G	FPM-3151G	FPM-3121G
Display	Display Type	SXGA	SXGA	XGA	SVGA
	Display Size	19"	17"	15"	12"
	Max.Resolution	1280x1024	1280x1024	1024x768	800x600
	Max.Colors	16.7M	16.7M	16.2M	16.2M
	Luminance cd/m²	350	350	350	450
	VieWINg Angle (H/V°)	170/160	160/140	160/140	160/140
	Backlight MTBF (hrs)	50,000	50,000	50,000	50,000
Video Port		VGA/DVI	VGA/DVI	VGA/DVI	VGA/DVI
Touchscreen		Combo	Combo	Combo	Combo
OSD (onscreen display)		On front Panel with lockable function	On front Panel with lockable function	On front Panel with lockable function	On front Panel with lockable function
Power Input Voltage		100~240v (Adapter)	100~240v (Adapter)	100~240v (Adapter)	100~240v (Adapter)
DC Power Input(voltage)		12v & 24v	12v & 24v	12v & 24v	12v & 24v
Operating Temperature		0 ~ 50	-20 ~ 60	-20 ~ 60	-20 ~ 60
Storage Temperature		-20 ~ 60	-30 ~ 80	-30 ~ 80	-30 ~ 80
Dimension		482 x 399 x 67 mm	482 x 354.8 x 63.9 mm	422 x 310 x 70 mm	312 x 224 x 60.5 mm
Cut-out Dimension	Cut-out Dimension	444 x 376.4 mm	447.5 x 329.5 mm	396 x 296 mm	303.5 x 229.5 mm
Weight		10.65kg	9.25kg	7.73kg	4.07kg
Certification		BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	CE, FCC Class A, BSMI, CCC, UL, Energy Star	CE, FCC Class A, BSMI, CCC, UL, Energy Star
Operating System		WIN XP/Vista/7/8/XPE/Linux	WIN XP/Vista/7/8/XPE/Linux	WIN XP/Vista/7/8/XPE/Linux	WIN XP/Vista/7/8/XPE/Linux
Touch Operation System		Elo Touch	Elo Touch	PenMount 6000	PenMount 6000
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Robust with True-flat IP66 Upgraded

NEW NEW NEW

Model		FPM-7211W	FPM-7181W	FPM-7151W	FPM-7151T	FPM-7121T
Display	Display Type	Full HD	WXGA	WXGA	XGA	XGA
	Display Size	21.5"	18.5"	15.6"	15"	12.1"
	Max.Resolution	1920x1080	1366 x 768	1366 x 768	1024 x 768	1024 x 768
	Max.Colors	16.7M	16.7M	16.7M	16.7M	16.2M
	Luminance cd/m²	300	300	400	400	600
	VieWINg Angle (H/V°)	178/178	170/160	170/160	160/140	160/140
	Backlight MTBF (hrs)	50,000	50,000	50,000	50,000	50,000
Video Port		VGA/DVI-D	VGA/DVI-D	VGA/DVI-D	VGA/DP	VGA/DP
Touchscreen		Combo	Combo	Combo	Combo	Combo
OSD (onscreen display)		On rear side with lockable function	On rear side with lockable function	On rear side with lockable function	On rear side with lockable function	On rear side with lockable function
Power Input Voltage		100~240v (Adapter)	100~240v (Adapter)	100~240v (Adapter)	100~240v (Adapter optional)	100~240v (Adapter optional)
DC Power Input(voltage)		12v/24v	12v/24v	12v/24v	24v	24v
Operating Temperature		0 ~ 50	0 ~ 50	0 ~ 50	-20 ~ 60	-20 ~ 60
Storage Temperature		-20~60	-20~60	-20~60	-30 ~ 70	-30 ~ 70
Dimension		558.4 x 349.8 x 47.7 mm	488 x 309 x 47.7 mm	419.7 x 269 x 47.7 mm	383.2 x 307.3 x 48.2 mm	311.8 x 238 x 44.6 mm
Cut-out Dimension	Cut-out Dimension	550.3 x 341.8 mm	479.3 x 300.3 mm	412.4 x 261.7 mm	372.9 x 296.9 mm	301.6 x 227.6 mm
Weight		8kg	6kg	5kg	4.2kg	2.6kg
Certification		BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL
Operating System		WIN XP/Vista/7/8/XPE/Linux	WIN XP/Vista/7/8/XPE/Linux	WIN XP/Vista/7/8/XPE/Linux	WIN XP/Vista/7/8/XPE/Linux	WIN XP/Vista/7/8/XPE/Linux
Touch Operation System		PenMount 6000	PenMount 6000	PenMount 6000	PenMount 6000	PenMount 6000
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Regular Level Monitors

Model		FPM-5191G	FPM-5171G	FPM-5151G
Display	Display Type	SXGA	SXGA	XGA
	Display Size	19"	17"	15"
	Max.Resolution	1280 x 1024	1280 x 1024	1024 x 768
	Max.Colors	16.7M	16.7M	16.2M
	Luminance cd/m²	350	350	400
	VieWINg Angle (H/V°)	170/160	160/140	160/140
	Backlight MTBF (hrs)	50,000	50,000	50,000
Video Port		VGA/DVI	VGA/DVI	VGA/DVI
Touchscreen		Combo	Combo	Combo
OSD (onscreen display)		On rear side with lockable function	On rear side with lockable function	On rear side with lockable function
Power Input Voltage		100~240v (Adapter Optional)	100~240v (Adapter Optional)	100~240v (Adapter Optional)
DC Power Input(voltage)		10-30v	10-30v	10-30v
Operating Temperature		0 ~ 50	0 ~ 50	0 ~ 50
Storage Temperature		-20~60	-20~60	-20~60
Dimension		481.93 x 384.6 x 59 mm	481.9 x 355.9 x 55 mm	449.92 x 315.63 x 50.5 mm
Cut-out Dimension	Cut-out Dimension	454 x 338 mm	454 x 338 mm	424 x 293 mm
Weight		10kg	8kg	6kg
Certification		BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL
Operating System		WIN XP/Vista/7/8/XPE/Linux	WIN XP/Vista/7/8/XPE/Linux	WIN XP/Vista/7/8/XPE/Linux
Touch Operation System		PenMount 6000	PenMount 6000	PenMount 6000
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Model		FPM-2170G	FPM-2150G	FPM-2120G
Display	Display Type	SXGA	XGA	SVGA
	Display Size	17"	15"	12"
	Max.Resolution	1280x1024	1024x768	800x600
	Max.Colors	16.7M	16.2M	16.2M
	Luminance cd/m²	350	400	450
	VieWINg Angle (H/V°)	160/140	160/140	160/140
	Backlight MTBF (hrs)	50,000	50,000	50,000
Video Port		VGA	VGA	VGA
Touchscreen		Combo	Combo	Combo
OSD (onscreen display)		On rear side with lockable function	On rear side with lockable function	On rear side with lockable function
Power Input Voltage		100 ~ 240V (Adapter)	100 ~ 240V (Adapter)	100 ~ 240V (Adapter)
DC Power Input(voltage)		12V	12V	12V
Operating Temperature		0 ~ 50	0 ~ 50	0 ~ 50
Storage Temperature		-20 ~ 60	-20 ~ 60	-20 ~ 60
Dimension		413.72 x 347.22 x 52.13 mm	383 x 307 x 48 mm	311 x 237 x 40.63 mm
Cut-out Dimension	Cut-out Dimension	400.92 x 334.42 mm	374.6 x 298.6 mm	303.3 x 229.3 mm
Weight		5.6kg	4.5kg	4kg
Certification		BSMI, CCC, CE, FCC, UL	BSMI, CCC, CE, FCC, UL	BSMI, CCC, CE, FCC, UL
Operating System		WIN XP/Vista/7/8/XPE/Linux	WIN XP/Vista/7/8/XPE/Linux	WIN XP/Vista/7/8/XPE/Linux
Touch Operation System		PenMount 6000	PenMount 6000	PenMount 6000
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TPC-1881WP

18.5" HD TFT LED LCD 4th. Gen. Intel® Core™ i3/ i7 Multi-Touch Panel Computer

NEW

Features

- Industrial 18.5 HD TFT LCD with 50K Lifetime LED Backlight
- Intel 4th Generation Core i3-4010U/ i7-4650U with 4GB/8GB DDR3L SDRAM
- 16:9 Wide Screen with PCT Multi-Touch
- IP66 Approved Front Protection & Panel Mounting
- Built-in Intelligent Home key and i Key for Intuitive UI
- Front LED Indicator to Show Operating Status
- Diverse system IO and Isolated Digital IO by iDoor Technology
- Supports Fieldbus Protocol by iDoor Technology
- 3G/GPS/GPRS/WiFi Communication by iDoor Technology
- Supports Battery-backup MRAM by iDoor Technology
- Chassis Grounding Protection
- HDMI and Audio Multimedia Support
- Anti-scratch surface: 7H hardness

SUSIAccess   ikey iDoor   R33138   CCC   CE   FCC   LISTED E180881 I.T.E.

Introduction

With growing up in Multi-Touch technology, the TPC-1881WP features Intel 4th Generation Core i3-4010U/ i7-4650U 1.7GHz processor with 4GB/8GB DDR3L SDRAM provides the high computing performance. To enhance reliability and durability, built-in 7H hardness Anti-scrath surface on high resolution 18.5" HD display with Multi-Touch in 16:9 format. Through the Mini-PCIe slot, Advantech iDoor technology can provide more I/O connectors, Isolated Digital IO, the Fieldbus Protocol, 3G/GPS/GPRS/WiFi Communication and Battery-backup MRAM. A 2nd monitor and speaker can be attached via the integrated HDMI and Audio port.

Specifications

General

- **BIOS** — AMI UEFI
- **Certification** — BSMI, CCC, CE, FCC Class A, UL
- **Cooling System** — Fanless design
- **Dimensions (W x H x D)** — 488 x 309 x 56.7 mm (19.21" x 12.17" x 2.23")
- **Enclosure** — Front bezel: Die-cast Aluminum alloy
  Back housing: PC/ABS Resin
- **Mounting** — Panel Mount
- **OS Support** — Microsoft® WES7 32bit/64bit Windows 7 32bit/64bit Windows Embedded 8.1 Industry Pro 64bit Ubuntu 14.04.2 LTS
- **Power Consumption** — 28W Typical, 60W Max. (Without Add-on card)
- **Power Input** — $24V_{DC} \pm 20\%$
- **Watchdog Timer** — 1 ~ 255 sec (system)
- **Weight (Net)** — 7kg (15.44 lbs)

System Hardware

- **CPU** — Intel 4th Generation Core i7-4650U 1.7GHz
  Intel 4th Generation Core i3-4010U 1.7GHz
- **Chipset** — Lynx Point-LP
- **Memory** — 4GB DDR3L 1600MHz SO-DIMM SDRAM
- **LAN** — 10/100/1000 Base-T x 2 (one port supports iAMT)
- **Expansion Slots** — Full-size Mini PCI-E
- **Storage** — CFast slot x 1
  2.5" SATA SSD slot x 1
- **I/O** — RS-232/422/485 x 1, RS-232 x 1
  USB 3.0 x 2, HDMI 1.4 x 1
  Audio Line out x 1, USB 2.0 x 1 (optional)
  Audio MIC x 1 (optional)

LCD Display

- **Display Type** — HD TFT LED LCD
- **Display Size** — 18.5
- **Max. Resolution** — 1366 x 768
- **Max. Colors** — 16.7M
- **Luminance cd/m2** — 300
- **Viewing Angle (H/V°)** — 170/160
- **Backlight Life** — 50,000 hrs
- **Contrast Ratio** — 500:1

Touchscreen

- **Light Transmission** — ≥88%
- **Resolution** — 4096 x 4096 dot
- **Type** — Projected capacitive

Environment

- **Humidity** — 10 ~ 95% RH @ 40°C, non-condensing
- **Ingress Protection** — Front panel: IP66
- **Operating Temperature** — 0 ~ 55°C (32 ~ 131°F)
- **Storage Temperature** — -20 ~ 60°C (-4 ~ 140°F)
- **Vibration Protection** — With HDD: 1 Grms (5 ~ 500 Hz)
  (Operating, random vibration)

Rear View
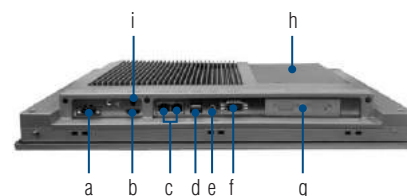
a. $24V_{DC}$ Power
b. HDMI
c. GbE
d. USB3.0
e. Audio Line out
f. COM Port RS-232/422/485, RS-232 x 1
g. Expansion I/O (iDoor)
h. 2.5" SATA SSD, CFast and Mini PCIe Slot
i. SMA Connector for Antenna

ADVANTECH   Automation Panels

Dimensions

Unit: mm [inch]

56.70 [2.23]

37.10 [1.46]

7 [0.28]

488 [19.21]

472.58 [18.61]

309 [12.17]

479.30 [18.87]

2 [0.08] wall thickness

300.30 [11.82]

Panel Cut-Out Dimension

R5 [0.20]

Panel Cut-out Dimensions: 479.3 x 300.3 (18.87" x 11.82")

Ordering Information

- **TPC-1881WP-433AE** — 18.5" HD Multi-Touch Panel PC, Intel i3-4010U, 4GB, iDoor
- **TPC-1881WP-473AE** — 18.5" HD Multi-Touch Panel PC, Intel i7-4650U, 4GB, iDoor
- **WA-TPC1881WP** — TPC-1881WP-433AE with WebAccess sofware

Accessories

- **PWR-248-AE** — 150W DC 24V/6.25A Output Power Supply
- **1702002600** — Power Cable US Plug 1.8 M
- **1702002605** — Power cable EU Plug 1.8M
- **1702031801** — Power cable UK Plug 1.8M
- **1700000596** — Power Cable China/Australia Plug 1.8 M
- **EWM-W151H01E** — 802.11bgn RTL8188EE 1T1R, Half-size Mini-PCIe (also need 9656EWMG00E)
- **9656EWMG00E** — Half-size miniPCIe to Full-size miniPCIe bracket set
- **1750000318** — EMI Antenna 2DBI 2.4GHz SMA CONN for ARK-3384
- **1750003222** — 802.11b/g 5dBi Dipole Antenna
- **1750003418** — Wireless Antenna AN2400-5901RS R/P SMA.M9dB

Automation S/W & Embedded O/S

- **2070013487** — TPC-xx81WP WS7P x64 MUI Image v4.12 B003
- **968WEXP003X** — PanelExpress V2.0 300 tags S/W license
- **968WEXP015X** — PanelExpress V2.0 1500 tags S/W license
- **968WEXP050X** — PanelExpress V2.0 5000 tags S/W license
- **968WEXP2USB** — PanelExpress V2.0 S/W USB dongle

iDoor Modules

- **PCM-24D2R4-AE** — 2-Port Isolated RS-422/485 mPCIe, DB9
- **PCM-27D24DI-AE** — 24-Channel Isolated Digital I/O w/ counter mPCIe, DB37
- **PCM-26D2CA-AE** — 2-Port Isolated CANBus mPCIe, CANOpen, DB9
- **PCM-24R1TP-AE** — 1-Port Gigabit Ethernet, Intel® 82574L, mPCIe, RJ45
- **PCM-24S2WF-AE** — WiFi 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, 2-port SMA
- **PCM-26D1DB-MAE** — 1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Master
- **PCM-26R2PN-MAE** — 2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45, Master
- **PCM-26R2EC-MAE** — 2-Port Hilscher netX100 FieldBus mPCIe, EtherCAT, RJ45, Master
- **PCM-26R2EI-MAE** — 2-Port Hilscher netX100 FieldBus mPCIe, EtherNet/IP, RJ45, Master
- **PCM-26R2S3-MAE** — 2-Port Hilscher netX100 FieldBus mPCIe, Sercos III, RJ45, Master

Application Software

SUSIACCESS	Version: V2.1 or above An innovative remote device management software, allowing efficient remote monitoring, quick recovery & backup, and real-time remote configuration, to create a more intelligent and interconnected embedded computing solution.
WebAccess	Version: V7.1 or above WebAccess, as the core of Advantech's IoT solution, is full web browser-based software package for HMI and SCADA software. All HMI and SCADA software features including: Animated Graphics Displays, Real-time Data, Control, Trends, Alarms and Logs, are available in a standard web browser. WebAccess is built around the latest internet technologies. With its open architecture, vertical domain applications can easily be integrated.
PANELEXPRESS Designed for Convenience	Version: V2.0.3.8 or above Panel Express, a windows based HMI mini SCADA, realizes the cross platform flexibility offered by WebOP Designer to switch hardware for the consideration of cost and performance become an easy job. Panel Express software provides the best economic and express solution for data intensive high-end HMI applications.
WebOP Designer	Version: V2.0.3.8 or above An easy to use integrated development tool featuring solution-oriented screen objects, high-end graphics, Windows fonts for multi-language applications. WebOP runtime, a part of WebOP Designer, guarantees reliability and performance because of the minimum system overhead, high communication data rates, and sub-second screen switching.

TPC-1581WP

15.6" WXGA TFT LED LCD 4th. Gen. Intel® Core™ i3 Multi-Touch Panel Computer

NEW

Features

- Industrial 15.6 HD TFT LCD with 50K Lifetime LED Backlight
- Intel 4th Generation Core i3-4010U with 4GB DDR3L SDRAM
- 16:9 Wide Screen with PCT Multi-Touch
- IP66 Approved Front Protection & Panel Mounting
- Built-in Intelligent Home key and i Key for Intuitive UI
- Front LED Indicator to Show Operating Status
- Diverse system IO and Isolated Digital IO by iDoor Technology
- Supports Fieldbus Protocol by iDoor Technology
- 3G/GPS/GPRS/WiFi Communication by iDoor Technology
- Supports MRAM by iDoor Technology
- Chassis Grounding Protection
- HDMI and Audio Multimedia Support
- Anti-scratch surface: 7H hardness

SUSIAccess   iKey   iDoor   R33138   CCC   CE   FCC   c(UL)us LISTED E180881 I.T.E.

Introduction

With growing up in Multi-Touch technology, the TPC-1581WP features Intel 4th Generation Core i3-4010U 1.7GHz processor with 4GB DDR3L SDRAM provides the high computing performance. To enhance reliability and durability, built-in 7H hardness anti-scratch surface on high resolution 15.6" HD display with Multi-Touch in 16:9 format. Through the Mini-PCIe slot, Advantech iDoor technology can provide more I/O connectors, Isolated Digital IO, the Fieldbus Protocol, 3G/GPS/GPRS/WiFi Communication and MRAM. A 2nd monitor and speaker can be attached via the integrated HDMI and Audio port.

Specifications

General

BIOS	AMI UEFI
Certification	BSMI, CCC, CE, FCC Class A, UL
Cooling System	Fanless design
Dimensions (W x H x D)	419.7 x 269 x 56.7 mm (16.52" x 10.59" 2.23")
Enclosure	Front bezel: Die-cast Aluminum alloy Back housing: PC/ABS Resin
Mounting	Panel Mount
OS Support	Microsoft® Windows WES7 32bit/64bit /WES8 64bit / Windows 7 32bit/64bit / Windows 8 64bit/Linux Kernel 3.x
Power Consumption	18W Typical, 60W Max. (Without Add-on card)
Power Input	24V$_{DC}$ ± 20%
Watchdog Timer	1 ~ 255 sec (system)
Weight (Net)	6 kg (13.22 lbs)

System Hardware

CPU	Intel 4th Generation Core i3-4010U 1.7GHz
Chipset	Lynx Point-LP
Memory	4GB DDR3L 1600MHz SO-DIMM SDRAM
LAN	10/100/1000 Base-T x 2
Expansion Slots	Full-size Mini PCI-E
Storage	CFast slot x 1 2.5" SATA SSD slot x 1 mSATA slot x 1 (via Mini PCIe slot, can't be used simultaneously with iDoor)
I/O	RS-232/422/485 x 1, RS-232 x 1 USB 3.0 x 2, HDMI 1.4 x 1 Audio Line out x 1, USB 2.0 x 1 (optional) Audio MIC x 1 (optional)

LCD Display

Display Type	WXGA TFT LED LCD
Display Size	15.6
Max. Resolution	1366 x 768
Max. Colors	16.7M
Luminance cd/m²	300
Viewing Angle (H/V°)	170/160
Backlight Life	50,000 hrs
Contrast Ratio	500:1

Touchscreen

Light Transmission	≥88%
Resolution	2048 x 2048 dot
Type	Projected capacitive

Environment

Humidity	10 ~ 95% RH @ 40°C, non-condensing
Ingress Protection	Front panel: IP66
Operating Temperature	0 ~ 55°C (32 ~ 131°F)
Storage Temperature	-20 ~ 60°C (-4 ~ 140°F)
Vibration Protection	With HDD: 1 Grms (5 ~ 500 Hz) (Operating, random vibration)

Rear View

a. 24V$_{DC}$ Power
b. HDMI
c. GbE
d. USB3.0
e. Audio Line out
f. COM Port RS-232/422/485, RS-232
g. Expansion I/O (iDoor)
h. 2.5" SATA SSD, CFast and Mini PCIe Slot
i. SMA Connector for Antenna

ADVANTECH   Automation Panels

Dimensions

Unit: mm [inch]

269 [10.59]

419.70 [16.52]
345.9 [13.62]

56.70 [2.23]
37.1 [1.46]
7 [0.28]

15.6"

269 [10.59]
195.2 [7.69]

419.70 [16.52]

412.40 [16.24]

2 [0.08] Wall thickness

261.70 [10.30]

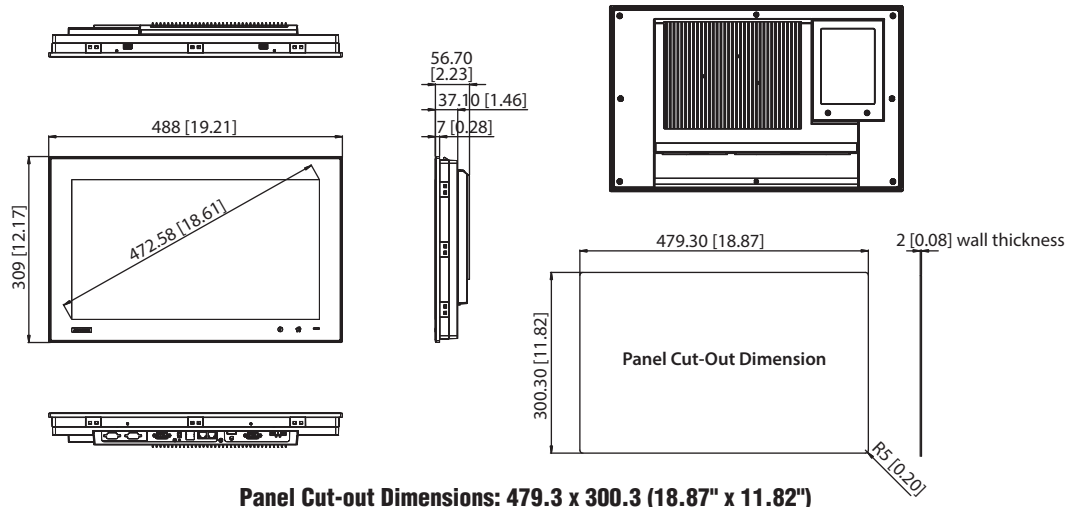**Panel Cut-out Dimensions**

R5 [0.20]

Panel Cut-out Dimensions: 261.7 x 412.4 mm (10.30"x16.24")

Ordering Information

- **TPC-1581WP-433AE** — 15.6" HD Multi-Touch Panel PC, Intel i3-4010U, 4GB, iDoor

Accessories

- **PWR-248-AE** — 150W DC 24V/6.25A Output Power Supply (High power consumption expansion card required, e.g. PoE)
- **1702002600** — Power Cable US Plug 1.8 M
- **1702002605** — Power cable EU Plug 1.8M
- **1702031801** — Power cable UK Plug 1.8M
- **1700000596** — Power Cable China/Australia Plug 1.8 M
- **EWM-W151H01E** — 802.11bgn RTL8188EE 1T1R, Half-size Mini-PCIe (also need 9656EWMG00E)
- **9656EWMG00E** — Half-size miniPCIe to Full-size miniPCIe bracket set
- **1750000318** — EMI Antenna 2DBI 2.4GHz SMA CONN for ARK-3384
- **1750003222** — 802.11b/g 5dBi Dipole Antenna
- **1750003418** — Wireless Antenna AN2400-5901RS R/P SMA.M9dB

Automation S/W & Embedded O/S

- **2070013487** — TPC-xx81WP WS7P x64 MUI Image v4.12 B003
- **968WEXP003X** — PanelExpress V2.0 300 tags S/W license
- **968WEXP015X** — PanelExpress V2.0 1500 tags S/W license
- **968WEXP050X** — PanelExpress V2.0 5000 tags S/W license
- **968WEXP2USB** — PanelExpress V2.0 S/W USB dongle

iDoor Modules

- **PCM-24D2R4-AE** — 2-Port Isolated RS-422/485 mPCIe, DB9
- **PCM-27D24DI-AE** — 24-Channel Isolated Digital I/O w/ counter mPCIe, DB37
- **PCM-26D2CA-AE** — 2-Port Isolated CANBus mPCIe, CANOpen, DB9
- **PCM-24R1TP-AE** — 1-Port Gigabit Ethernet, Intel® 82574L, mPCIe, RJ45
- **PCM-24S2WF-AE** — WiFi 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, 2-port SMA
- **PCM-26D1DB-MAE** — 1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Master
- **PCM-26R2PN-MAE** — 2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45, Master
- **PCM-26R2EC-MAE** — 2-Port Hilscher netX100 FieldBus mPCIe, EtherCAT, RJ45, Master
- **PCM-26R2EI-MAE** — 2-Port Hilscher netX100 FieldBus mPCIe, EtherNet/IP, RJ45, Master
- **PCM-26R2S3-MAE** — 2-Port Hilscher netX100 FieldBus mPCIe, Sercos III, RJ45, Master

Application Software

SUSIAccess	Version: V2.1 or above. An innovative remote device management software, allowing efficient remote monitoring, quick recovery & backup, and real-time remote configuration, to create a more intelligent and interconnected embedded computing solution.
WebAccess	Version: V7.1 or above. WebAccess, as the core of Advantech's IoT solution, is full web browser-based software package for HMI and SCADA software. All HMI and SCADA software features including: Animated Graphics Displays, Real-time Data, Control, Trends, Alarms and Logs, are available in a standard web browser. WebAccess is built around the latest internet technologies. With its open architecture, vertical domain applications can easily be integrated.
PANELEXPRESS	Version: V2.0.3.8 or above. Panel Express, a windows based HMI mini SCADA, realizes the cross platform flexibility offered by WebOP Designer to switch hardware for the consideration of cost and performance become an easy job. Panel Express software provides the best economic and express solution for data intensive high-end HMI applications.
WebOP Designer	Version: V2.0.3.8 or above. An easy to use integrated development tool featuring solution-oriented screen objects, high-end graphics, Windows fonts for multi-language applications. WebOP runtime, a part of WebOP Designer, guarantees reliability and performance because of the minimum system overhead, high communication data rates, and sub-second screen switching.

TPC-1782H

17" SXGA TFT LED LCD 4th. Gen. Intel® Core™ i3 Touch Panel Computer

NEW

Features

- Industrial 17" SXGA TFT LCD with 50K Lifetime LED Backlight
- Intel 4th Generation Core i3 1.7GHz with 4GB DDR3L SDRAM
- Compact Fanless Embedded System with Al Alloy Front Bezel
- IP65 Approved Front Protection & Panel Mounting
- More Durable 5-wire Resistive Touch Screen
- PCIe 1x and Mini PCIe Expansion Support
- Diverse system I/O and Isolated Digital I/O by iDoor Technology
- Supports Fieldbus Protocol by iDoor Technology
- 3G/GPS/GPRS/WiFi Communication by iDoor Technology
- Supports MRAM by iDoor Technology
- Chassis Grounding Protection
- Supports Advantech SNMP Subagent
- Supports Advantech SusiAccess Remote Device Management Software

Introduction

The TPC-1782H touch panel computer with a 17" SXGA LCD, low power embedded Intel 4th Generation Core i3 1.7GHz processor and 4GB DDR3L SDRAM provides the high computing performance in a compact fanless system. To enhance its durability, the TPC-1782H is designed with IP65 front protection, die-cast Al Alloy front bezel and 5-wire resistive touch. It also includes PCIe slot and Mini-pcie slots to extend the functionality and meet a variety of automation applications needs. Through the Mini-PCIe slot, Advantech iDoor technology can provide more I/O connectors, Isolated Digital I/O, the Fieldbus Protocol, 3G/GPS/GPRS/Wi-Fi Communication and MRAM. A 2nd monitor and speaker can be attached via the integrated HDMI and Audio port.

The pre-loaded SusiAccess is a smart, unique and ready-to-use remote device management software for you to centralize monitoring and managing of remote embedded devices in real-time. You can focus more on your own applications and let SusiAccess do the rest - configure systems, monitor device health, and recover from any system failures. It's cloud-based and provides on-demand software services so you can easily download and upgrade applications when you need.

Specifications

General

- **BIOS** — AMI UEFI
- **Certification** — BSMI, CCC, CE, FCC Class A, UL
- **Cooling System** — Fanless design
- **Dimensions (W x H x D)** — 414 x 347.5 x 84 mm (16.3" x 13.68" x 3.31")
- **Enclosure** — Front bezel: Die-cast Aluminum alloy
  Back housing: PC/ABS Resin
- **Mounting** — Desktop, Wall or Panel Mount
- **OS Support** — Microsoft® WES7 32bit/64bit Windows 7 32bit/64bit
  Windows Embedded 8.1 Industry Pro 64bit
  Windows 7 32bit/64bit
- **Power Consumption** — 20W Typical, 60W Max. (Without Add-on card)
- **Power Input** — $24V_{DC} \pm 20\%$
- **Watchdog Timer** — 1 ~ 255 sec (system)
- **Weight (Net)** — 6 kg (13.23 lbs)

System Hardware

- **CPU** — Intel 4th Generation Core i3-4010U 1.7GHz
- **Chipset** — Lynx Point-LP
- **Memory** — 4GB DDR3L 1600MHz SO-DIMM SDRAM
- **LAN** — 10/100/1000 Base-T x 2 (one port supports iAMT)
- **Expansion Slots** — Half-size PCIe 1x and Full-size Mini PCI-E
- **Storage** — CFast slot x 1
  2.5" SATA SSD slot x 1
- **I/O** — RS-232 x 1, RS-232/422/485 x 1
  USB 3.0 x 2, HDMI 1.4 x 1
  Audio Line out x 1, USB 2.0 x 1 (optional)
  Audio MIC x 1 (optional)

LCD Display

- **Display Type** — SXGA TFT LED LCD
- **Display Size** — 17"
- **Max. Resolution** — 1280 x 1024
- **Max. Colors** — 16.7 M
- **Luminance cd/m²** — 350
- **Viewing Angle (H/V°)** — 160/140
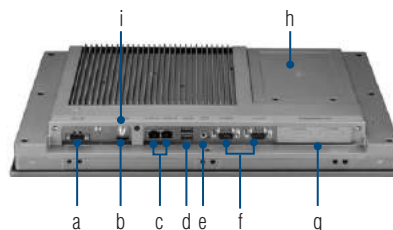- **Backlight Life** — 50,000 hrs
- **Contrast Ratio** — 800:1

Touchscreen

- **Lifespan** — 36 million touches at single point
- **Light Transmission** — Above 75%
- **Resolution** — Linearity
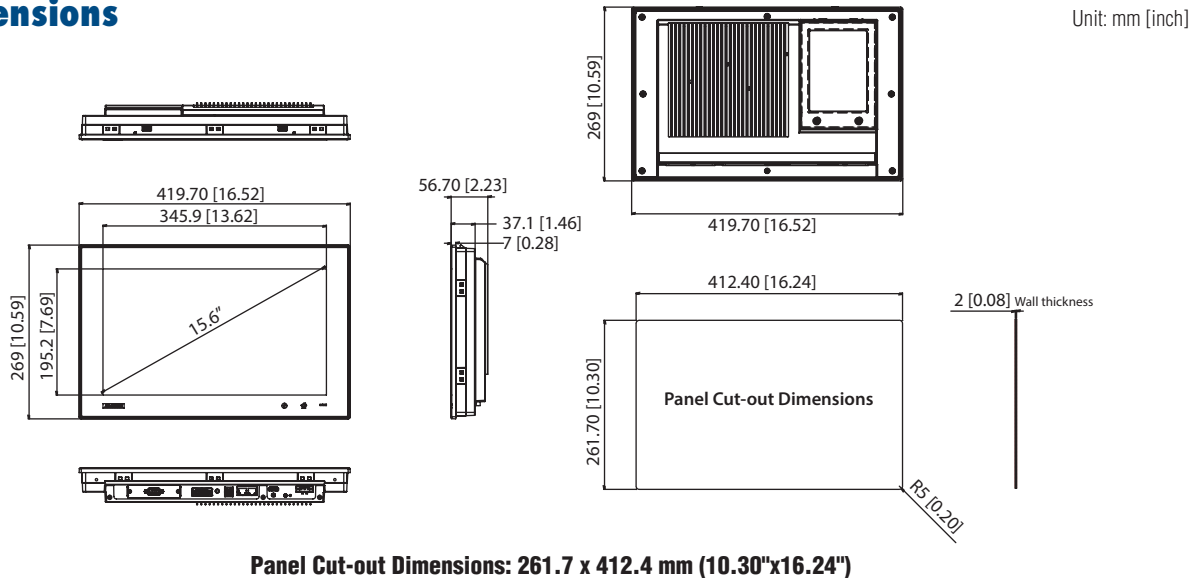- **Type** — 5-wire, analog resistive

Environment

- **Humidity** — 10 ~ 95% RH @ 40°C, non-condensing
- **Ingress Protection** — Front panel: IP65
- **Operating Temperature** — 0 ~ 55°C (32 ~ 131°F)
- **Storage Temperature** — -20 ~ 60°C (-4 ~ 140°F)
- **Vibration Protection** — With HDD: 1 Grms (5 ~ 500 Hz)
  (Operating, random vibration)

Rear View

a. CFast
b. PCI-E Slot
c. $24V_{DC}$ Power
d. COM (RS-232)
e. HDMI
f. LAN
g. USB3.0
h. Audio Line Out
i. COM (RS-232/422/485)
j. iDoor
k. SMA Connector for Antenna
l. 2.5" SATA SSD Slot and
   Mini-PCIe Slot

Dimensions

Unit: mm

414 ±0.50
340
10.5
84 ±1.50
7
399.8

8-M4x4L
30
90
210
272.50
347.50±0.50
333.3

240
120
7 TYP

Panel Cut-out Dimensions: 400.8 x 334.3 mm (16.03" x 13.37")

Ordering Information

- **TPC-1782H-433AE**   17" SXGA Panel PC, Intel i3-4010U, 4GB, iDoor, PCIe
- **TPC-1782H-473AE**   17" SXGA Panel PC, Intel i7-4650U, 4GB, iDoor, PCIe
- **WA-TPC1782H**   TPC-1782H-433AE with WebAccess software

Accessories

- **PWR-248-AE**   150W DC 24V/6.25A Output Power Supply
- **1702002600**   Power Cable US Plug 1.8 M
- **1702002605**   Power Cable EU Plug 1.8 M
- **1702031801**   Power Cable UK Plug 1.8 M
- **1700000596**   Power Cable China/Australia Plug 1.8 M
- **TPC-1000H-WMKE**   TPC VESA Mounting Kit from 10" to 17" TPC
- **TPC-1000H-SMKE**   TPC Stand kit from 10" to 17" TPC
- **EWM-W151H01E**   802.11bgn RTL8188EE 1T1R, Half-size Mini-PCIe (also need 9656EWMG00E)
- **9656EWMG00E**   Half-size miniPCIe to Full-size miniPCIe bracket set
- **1750000318**   EMI Antenna 2DBI 2.4GHz SMA CONN for ARK-3384
- **1750003222**   802.11b/g 5dBi Dipole Antenna
- **1750003418**   Wireless Antenna AN2400-5901RS R/P SMA.M9dB

Automation S/W & Embedded O/S

- **2070013102**   TPC-xx82 WS7P x64 MUI Image v4.12 B005
- **968WEXP003X**   PanelExpress V2.0 300 tags S/W license
- **968WEXP015X**   PanelExpress V2.0 1500 tags S/W license
- **968WEXP050X**   PanelExpress V2.0 5000 tags S/W license
- **968WEXP2USB**   PanelExpress V2.0 S/W USB dongle

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- **PCM-24D2R4-AE**   2-Port Isolated RS-422/485 mPCIe, DB9
- **PCM-27D24DI-AE**   24-Channel Isolated Digital I/O w/ counter mPCIe, DB37
- **PCM-26D2CA-AE**   2-Port Isolated CANBus mPCIe, CANOpen, DB9
- **PCM-24R1TP-AE**   1-Port Gigabit Ethernet, Intel® 82574L, mPCIe, RJ45
- **PCM-24S2WF-AE**   WiFi 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, 2-port SMA
- **PCM-26D1DB-MAE**   1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Master
- **PCM-26R2PN-MAE**   2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45, Master
- **PCM-26R2EC-MAE**   2-Port Hilscher netX100 FieldBus mPCIe, EtherCAT, RJ45, Master
- **PCM-26R2EI-MAE**   2-Port Hilscher netX100 FieldBus mPCIe, EtherNet/IP, RJ45, Master
- **PCM-26R2S3-MAE**   2-Port Hilscher netX100 FieldBus mPCIe, Sercos III, RJ45, Master

Application Software

SUSIAccess	Version: V2.1 or above An innovative remote device management software, allowing efficient remote monitoring, quick recovery & backup, and real-time remote configuration, to create a more intelligent and interconnected embedded computing solution.
WebAccess	Version: V7.1 or above WebAccess, as the core of Advantech's IoT solution, is full web browser-based software package for HMI and SCADA software. All HMI and SCADA software features including: Animated Graphics Displays, Real-time Data, Control, Trends, Alarms and Logs, are available in a standard web browser. WebAccess is built around the latest internet technologies. With its open architecture, vertical domain applications can easily be integrated.
PANELEXPRESS Designed for Convenience	Version: V2.0.3.8 or above Panel Express, a windows based HMI mini SCADA, realizes the cross platform flexibility offered by WebOP Designer to switch hardware for the consideration of cost and performance become an easy job. Panel Express software provides the best economic and express solution for data intensive high-end HMI applications.
WebOP Designer	Version: V2.0.3.8 or above An easy to use integrated development tool featuring solution-oriented screen objects, high-end graphics, Windows fonts for multi-language applications. WebOP runtime, a part of WebOP Designer, guarantees reliability and performance because of the minimum system overhead, high communication data rates, and sub-second screen switching.
WebAccess/NMS	Visualizing device and platform network connectivity conditions and offering easier firmware and configuration solutions to ensure stable network connections.

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

TPC-1582H

15" XGA TFT LED LCD 4th. Gen. Intel® Core™ i3 Touch Panel Computer

NEW

Features

- Industrial 15" XGA TFT LCD with 50K Lifetime LED Backlight
- Intel 4th Generation Core i3 1.7GHz with 4GB DDR3L SDRAM
- Compact Fanless Embedded System with Al Alloy Front Bezel
- IP65 Approved Front Protection & Panel Mounting
- More Durable 5-wire Resistive Touch Screen
- PCIe and Mini PCIe Expansion Support
- Diverse system IO and Isolated Digital IO by iDoor Technology
- Supports Fieldbus Protocol by iDoor Technology
- 3G/GPS/GPRS/WiFi Communication by iDoor Technology
- Supports MRAM by iDoor Technology
- Chassis Grounding Protection
- HDMI and Audio Multimedia Support
- Support Advantech SusiAccess Remote Device Management Software

Introduction

The TPC-1582H touch panel computer with a 15" XGA LCD, low power embedded Intel 4th Generation Core i3 1.7GHz processor and 4GB DDR3L SDRAM provides the high computing performance in a compact fanless system. To enhance its durability, the TPC-1582H is designed with IP65 front protection, die-cast Al Alloy front bezel and 5-wire resistive touch. It also includes PCIe slot and Mini-pcie slots to extend the functionality and meet a variety of automation applications needs. Through the Mini-PCIe slot, Advantech iDoor technology can provide more I/O connectors, Isolated Digital IO, the Fieldbus Protocol, 3G/GPS/GPRS/WiFi Communication and MRAM. A 2nd monitor and speaker can be attached via the integrated HDMI and Audio port.

The pre-loaded SusiAccess is a smart, unique and ready-to-use remote device management software for you to centralize monitoring and managing of remote embedded devices in real-time. You can focus more on your own applications and let SusiAccess do the rest - configure systems, monitor device health, and recover from any system failures. It's cloud-based and provides on-demand software services so you can easily download and upgrade applications when you need.

Specifications

General

- **BIOS** AMI UEFI
- **Certification** BSMI, CCC, CE, FCC Class A, UL
- **Cooling System** Fanless design
- **Dimensions (W x H x D)** 383 x 307 x 78.5 mm (15.08" x 12.09" x 3.09")
- **Enclosure** Front bezel: Die-cast Aluminum alloy
  Back housing: PC/ABS Resin
- **Mounting** Desktop, Wall or Panel Mount
- **OS Support** Microsoft® Windows WES7 32bit/64bit /WES8 64bit /
  Windows 7 32bit/64bit / Windows 8 64bit Linux Kernel
  3.x
- **Power Consumption** 18W Typical, 60W Max. (Without Add-on card)
- **Power Input** $24V_{DC} \pm 20\%$
- **Watchdog Timer** 1 ~ 255 sec (system)
- **Weight (Net)** 5.5 kg (12.13 lbs)

System Hardware

- **CPU** Intel 4th Generation Core i3-4010U 1.7GHz
- **Chipset** Lynx Point-LP
- **Memory** 4GB DDR3L 1600MHz SO-DIMM SDRAM
- **LAN** 10/100/1000 Base-T x 2 (one port supports iAMT)
- **Expansion Slots** Half-size PCI-E and Full-size Mini PCI-E
- **Storage** CFast slot x 1
  2.5" SATA SSD slot x 1
  mSATA slot x 1 (via Mini PCIe)
- **I/O** RS-232 x 1, RS-232/422/485 x 1
  USB 3.0 x 2, HDMI 1.4 x 1
  Audio Line out x 1, USB 2.0 x 1 (optional)
  Audio MIC x 1 (optional)

LCD Display

- **Display Type** XGA TFT LED LCD
- **Display Size** 15"
- **Max. Resolution** 1024 x 768
- **Max. Colors** 16.2 M
- **Luminance cd/m²** 400
- **Viewing Angle (H/V°)** 160/140
- **Backlight Life** 50,000 hrs
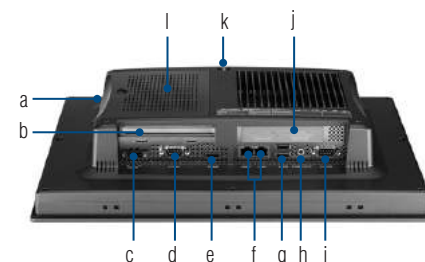- **Contrast Ratio** 700:1

Touchscreen

- **Lifespan** 36 million touches at single point
- **Light Transmission** Above 75%
- **Resolution** Linearity
- **Type** 5-wire, analog resistive

Environment

- **Humidity** 10 ~ 95% RH @ 40°C, non-condensing
- **Ingress Protection** Front panel: IP65
- **Operating Temperature** 0 ~ 55°C (32 ~ 131°F)
- **Storage Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Vibration Protection** With HDD: 1 Grms (5 ~ 500 Hz)
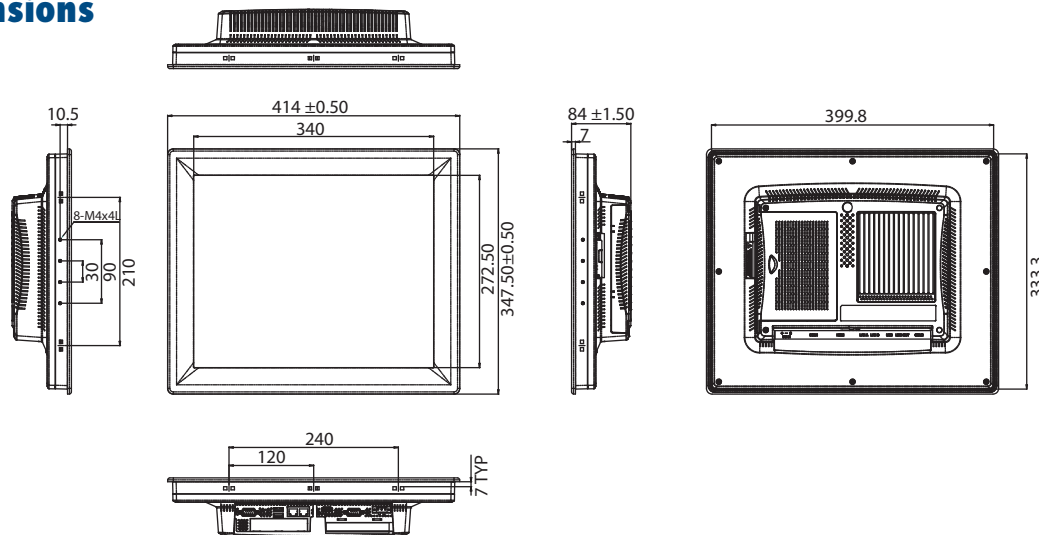 (Operating, random vibration)

Rear View

a. CFast
b. PCI-E Slot
c. $24V_{DC}$ Power
d. COM (RS-232)
e. HDMI
f. LAN
g. USB3.0
h. Audio Line Out
i. COM (RS-232/422/485)
j. iDoor
k. SMA Connector for Antenna
l. 2.5" SATA SSD Slot and
   Mini-PCIe Slot

Dimensions

Unit: mm

Panel Cut-out Dimensions: 374.5 x 298.5 mm (14.74" x 11.75")

Ordering Information

- **TPC-1582H-433AE**   15" XGA Panel PC, Intel i3-4010U, 4GB, iDoor, PCIe
- **WA-TPC1582H**   TPC-1582H-433AE with WebAccess software

Accessories

- **PWR-248-AE**   150W DC 24V/6.25A Output Power Supply
- **1702002600**   Power Cable US Plug 1.8 M
- **1702002605**   Power Cable EU Plug 1.8 M
- **1702031801**   Power Cable UK Plug 1.8 M
- **1700000596**   Power Cable China/Australia Plug 1.8 M
- **TPC-1000H-WMKE**   TPC VESA Mounting Kit from 10" to 17" TPC
- **TPC-1000H-SMKE**   TPC Stand kit from 10" to 17" TPC
- **EWM-W151H01E**   802.11bgn RTL8188EE 1T1R, Half-size Mini-PCIe (also need 9656EWMG00E)
- **9656EWMG00E**   Half-size miniPCIe to Full-size miniPCIe bracket set
- **1750000318**   EMI Antenna 2DBI 2.4GHz SMA CONN for ARK-3384
- **1750003222**   802.11b/g 5dBi Dipole Antenna
- **1750003418**   Wireless Antenna AN2400-5901RS R/P SMA.M9dB

Automation S/W & Embedded O/S

- **2070013102**   TPC-xx82 WS7P x64 MUI Image v4.12 B005
- **968WEXP003X**   PanelExpress V2.0 300 tags S/W license
- **968WEXP015X**   PanelExpress V2.0 1500 tags S/W license
- **968WEXP050X**   PanelExpress V2.0 5000 tags S/W license
- **968WEXP2USB**   PanelExpress V2.0 S/W USB dongle

iDoor Modules

- **PCM-24D2R4-AE**   2-Port Isolated RS-422/485 mPCIe, DB9
- **PCM-27D24DI-AE**   24-Channel Isolated Digital I/O w/ counter mPCIe, DB37
- **PCM-26D2CA-AE**   2-Port Isolated CANBus mPCIe, CANOpen, DB9
- **PCM-24R1TP-AE**   1-Port Gigabit Ethernet, Intel® 82574L, mPCIe, RJ45
- **PCM-24S2WF-AE**   WiFi 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, 2-port SMA
- **PCM-26D1DB-MAE**   1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Master
- **PCM-26R2PN-MAE**   2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45, Master
- **PCM-26R2EC-MAE**   2-Port Hilscher netX100 FieldBus mPCIe, EtherCAT, RJ45, Master
- **PCM-26R2EI-MAE**   2-Port Hilscher netX100 FieldBus mPCIe, EtherNet/IP, RJ45, Master
- **PCM-26R2S3-MAE**   2-Port Hilscher netX100 FieldBus mPCIe, Sercos III, RJ45, Master

Application Software

SUSIACCESS	Version: V2.1 or above An innovative remote device management software, allowing efficient remote monitoring, quick recovery & backup, and real-time remote configuration, to create a more intelligent and interconnected embedded computing solution.
WebAccess	Version: V7.1 or above WebAccess, as the core of Advantech's IoT solution, is full web browser-based software package for HMI and SCADA software. All HMI and SCADA software features including: Animated Graphics Displays, Real-time Data, Control, Trends, Alarms and Logs, are available in a standard web browser. WebAccess is built around the latest internet technologies. With its open architecture, vertical domain applications can easily be integrated.
PANELEXPRESS Designed for Convenience	Version: V2.0.3.8 or above Panel Express, a windows based HMI mini SCADA, realizes the cross platform flexibility offered by WebOP Designer to switch hardware for the consideration of cost and performance become an easy job. Panel Express software provides the best economic and express solution for data intensive high-end HMI applications.
WebOP Designer	Version: V2.0.3.8 or above An easy to use integrated development tool featuring solution-oriented screen objects, high-end graphics, Windows fonts for multi-language applications. WebOP runtime, a part of WebOP Designer, guarantees reliability and performance because of the minimum system overhead, high communication data rates, and sub-second screen switching.

TPC-1282T

12.1" XGA TFT LED LCD 5th. Gen. Intel® Core™ i3 Touch Panel Computer

NEW

Features

- Industrial 12.1" XGA TFT LCD with 50K Lifetime LED Backlight
- Intel 5th Generation Core Processors with 4GB DDR3L SDRAM
- Compact Fanless Embedded System with Al Alloy Front Bezel
- True-flat with IP66 / non-flat with IP65 certified front panel protection
- More Durable 5-wire Resistive Touch Screen
- PCIe and Mini PCIe Expansion Support
- Diverse system IO and Isolated Digital IO by iDoor Technology
- Supports Fieldbus Protocol by iDoor Technology
- 3G/GPS/GPRS/WiFi Communication by iDoor Technology
- Supports MRAM by iDoor Technology
- Chassis Grounding Protection
- HDMI and Audio Multimedia Support
- Support Advantech SusiAccess Remote Device Management Software

Introduction

The TPC-1282T touch panel computer with a 12.1" XGA LCD, low power embedded Intel 5th Generation Core processor and 4GB DDR3L SDRAM provides the high computing performance in a compact fanless system. To enhance its durability, the TPC-1282T is designed with IP66 front protection, die-cast Al Alloy front bezel and 5-wire resistive touch. It also includes PCIe slot and Mini-pcie slots to extend the functionality and meet a variety of automation applications needs. Through the Mini-PCIe slot, Advantech iDoor technology can provide more I/O connectors, Isolated Digital IO, the Fieldbus Protocol, 3G/GPS/GPRS/WiFi Communication and MRAM. A 2nd monitor and speaker can be attached via the integrated HDMI and Audio port.

The pre-loaded SusiAccess is a smart, unique and ready-to-use remote device management software for you to centralize monitoring and managing of remote embedded devices in real-time. You can focus more on your own applications and let SusiAccess do the rest - configure systems, monitor device health, and recover from any system failures. It's cloud-based and provides on-demand software services so you can easily download and upgrade applications when you need.

Specifications

General

- **BIOS** AMI UEFI
- **Certification** BSMI, CCC, CE, FCC Class A, UL
- **Cooling System** Fanless design
- **Dimensions (W x H x D)** 311.8 x 238 x 77.2 mm (12.28" x 9.38" x 3.04")
- **Enclosure** Front bezel: Die-cast Aluminum alloy
  Back housing: PC/ABS Resin
- **Mounting** Desktop, Wall or Panel Mount
- **OS Support** Microsoft® WES7 32bit/64bit Windows 7 32bit/64bit Windows Embedded 8.1 Industry Pro 64bit Ubuntu 14.04 LTS
- **Power Consumption** 18W Typical, 60W Max. (Without Add-on card)
- **Power Input** 24V$_{DC}$ ± 20%
- **Watchdog Timer** 1 ~ 255 sec (system)
- **Weight (Net)** 3.2 kg (7.02 lbs)

System Hardware

- **CPU** Intel 5th Generation Core i3-5010U 2.10GHz
- **Chipset** Broadwell PCH-LP
- **Memory** 4GB DDR3L 1600MHz SO-DIMM SDRAM
- **LAN** 10/100/1000 Base-T x 2 (one port supports iAMT)
- **Expansion Slots** Half-size PCI-E and Full-size Mini PCI-E
- **Storage** CFast slot x 1
  2.5" SATA SSD slot x 1
  mSATA slot x 1 (via Mini PCIe)
- **I/O** RS-232 x 1, RS-232/422/485 x 1
  USB 3.0 x 2, HDMI 1.4 x 1
  Audio Line out x 1, USB 2.0 x 1 (optional)
  Audio MIC x 1 (optional)

LCD Display

- **Display Type** XGA TFT LED LCD
- **Display Size** 12.1"
- **Max. Resolution** 1024 x 768
- **Max. Colors** 16.2 M
- **Luminance cd/m²** 600
- **Viewing Angle (H/V°)** 160/140
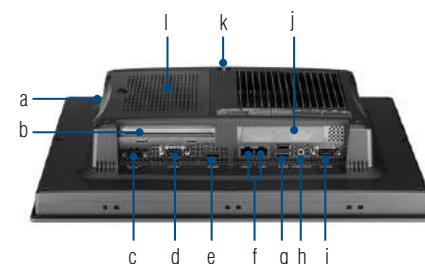- **Backlight Life** 50,000 hrs
- **Contrast Ratio** 700:1

Touchscreen

- **Lifespan** 36 million touches at single point
- **Light Transmission** 81 ± 3%
- **Resolution** Linearity
- **Type** 5-wire, analog resistive

Environment

- **Humidity** 10 ~ 95% RH @ 40°C, non-condensing
- **Ingress Protection** Front panel: IP66
- **Operating Temperature** 0 ~ 55°C (32 ~ 131°F)
- **Storage Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Vibration Protection** With HDD: 1 Grms (5 ~ 500 Hz)
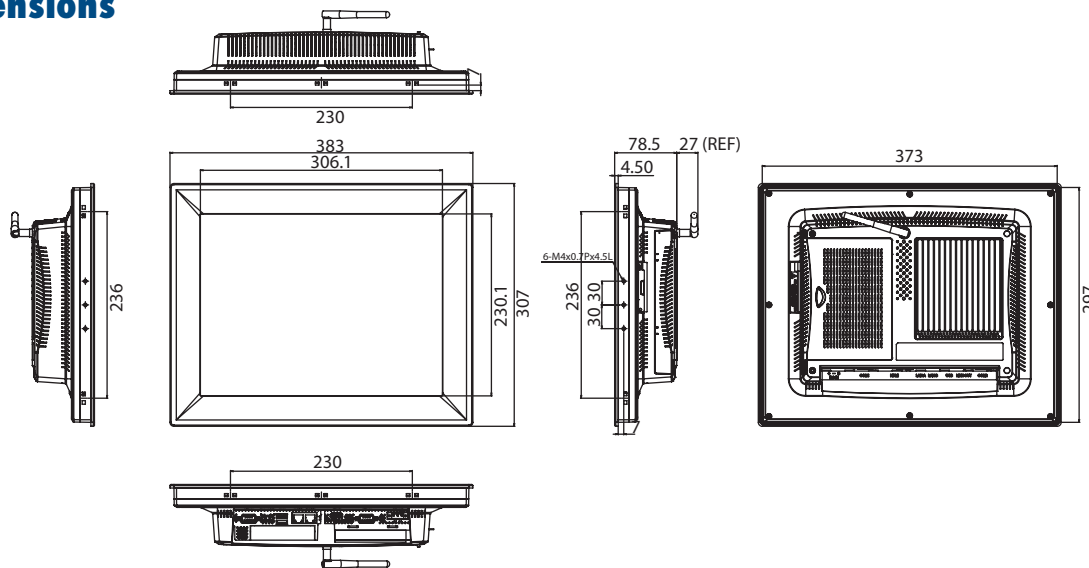 (Operating, random vibration)

Dimensions

Unit: mm

2-180

311.80

247.20

186.30

238

2-9

2-30

4-M4x0.7Px4L

77.20

2-150

7 TYP

301.6

227.6
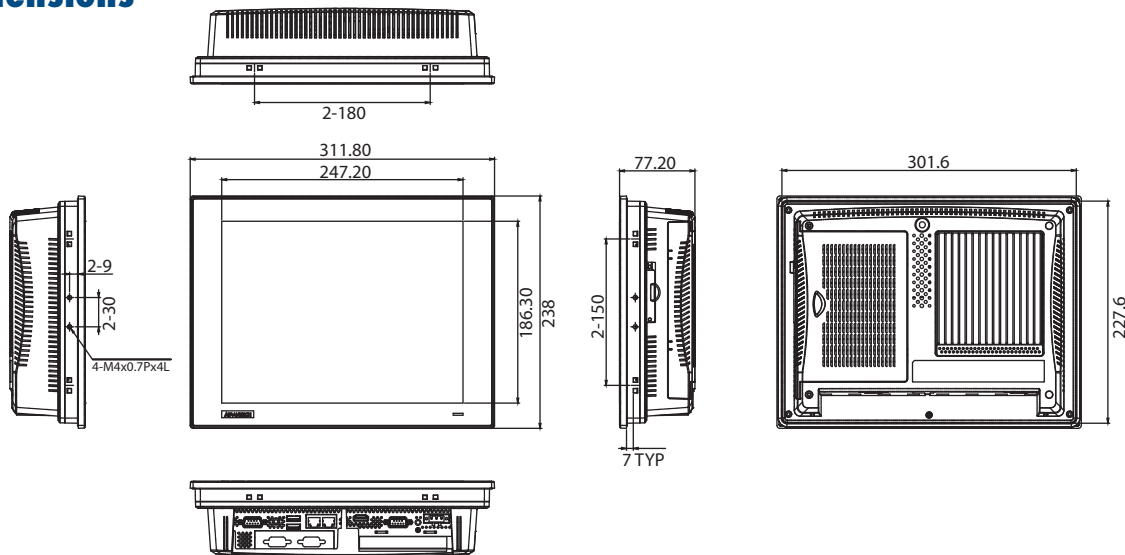
Panel Cut-out Dimensions: 303 x 229 mm (11.93" x 9.16")

Ordering Information

- TPC-1282T-433AE   12.1" XGA Panel PC, Intel i3-50101U, 4GB, iDoor, PCIe

Accessories

▪ PWR-248-AE	150W DC 24V/6.25A Output Power Supply
▪ 1702002600	Power Cable US Plug 1.8 M
▪ 1702002605	Power Cable EU Plug 1.8 M
▪ 1702031801	Power Cable UK Plug 1.8 M
▪ 1700000596	Power Cable China/Australia Plug 1.8 M
▪ TPC-1000H-WMKE	TPC VESA Mounting Kit from 10" to 17" TPC
▪ TPC-1000H-SMKE	TPC Stand kit from 10" to 17" TPC
▪ EWM-W151H01E	802.11bgn RTL8188EE 1T1R, Half-size Mini-PCIe (also need 9656EWMG00E)
▪ 9656EWMG00E	Half-size miniPCIe to Full-size miniPCIe bracket set
▪ 1750000318	EMI Antenna 2DBI 2.4GHz SMA CONN for ARK-3384
▪ 1750003222	802.11b/g 5dBi Dipole Antenna
▪ 1750003418	Wireless Antenna AN2400-5901RS R/P SMA.M9dB

Automation S/W & Embedded O/S

▪ 2070013102	TPC-xx82 WS7P x64 MUI Image v4.12 B005
▪ 968WEXP003X	PanelExpress V2.0 300 tags S/W license
▪ 968WEXP015X	PanelExpress V2.0 1500 tags S/W license
▪ 968WEXP050X	PanelExpress V2.0 5000 tags S/W license
▪ 968WEXP2USB	PanelExpress V2.0 S/W USB dongle

iDoor Modules

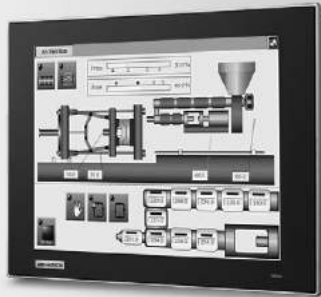|	
▪ PCM-24D2R4-AE	2-Port Isolated RS-422/485 mPCIe, DB9
▪ PCM-27D24DI-AE	24-Channel Isolated Digital I/O w/ counter mPCIe, DB37
▪ PCM-26D2CA-AE	2-Port Isolated CANBus mPCIe, CANOpen, DB9
▪ PCM-24R1TP-AE	1-Port Gigabit Ethernet, Intel® 82574L, mPCIe, RJ45
▪ PCM-24S2WF-AE	WiFi 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, 2-port SMA
▪ PCM-26D1DB-MAE	1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Master
▪ PCM-26R2PN-MAE	2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45, Master
▪ PCM-26R2EC-MAE	2-Port Hilscher netX100 FieldBus mPCIe, EtherCAT, RJ45, Master
▪ PCM-26R2EI-MAE	2-Port Hilscher netX100 FieldBus mPCIe, EtherNet/IP, RJ45, Master
▪ PCM-26R2S3-MAE	2-Port Hilscher netX100 FieldBus mPCIe, Sercos III, RJ45, Master

Application Software

SUSIAccess	Version: V2.1 or above An innovative remote device management software, allowing efficient remote monitoring, quick recovery & backup, and real-time remote configuration, to create a more intelligent and interconnected embedded computing solution.
WebAccess	Version: V7.1 or above WebAccess, as the core of Advantech's IoT solution, is full web browser-based software package for HMI and SCADA software. All HMI and SCADA software features including: Animated Graphics Displays, Real-time Data, Control, Trends, Alarms and Logs, are available in a standard web browser. WebAccess is built around the latest internet technologies. With its open architecture, vertical domain applications can easily be integrated.
PANELEXPRESS Designed for Convenience	Version: V2.0.3.8 or above Panel Express, a windows based HMI mini SCADA, realizes the cross platform flexibility offered by WebOP Designer to switch hardware for the consideration of cost and performance become an easy job. Panel Express software provides the best economic and express solution for data intensive high-end HMI applications.
WebOP Designer	Version: V2.0.3.8 or above An easy to use integrated development tool featuring solution-oriented screen objects, high-end graphics, Windows fonts for multi-language applications. WebOP runtime, a part of WebOP Designer, guarantees reliability and performance because of the minimum system overhead, high communication data rates, and sub-second screen switching.

TPC-1071H

10.4" SVGA TFT LED LCD Intel® Atom™ Dual-Core D525 Touch Panel Computer

Features

- Intel® Atom™ D525 1.8 GHz processor
- 10.4" SVGA TFT LED LCD
- Compact design with die-cast Al alloy front bezel
- Fanless cooling system
- IP65 approved front panel
- PCIe and Mini PCIe expansion support
- Supports 4 GB DDR3 SDRAM
- Integrated 16-channel Digital I/O with isolation
- 1 MB Battery-backed SRAM
- Serial port isolation protection
- Supports Microsoft® WES7/XP/WES/WinCE
- Supports external antenna for wireless communication
- Supports field-bus communication for PLC connectivity

Introduction

The TPC-1071H features a fanless low power consuming Intel® Atom™ Dual Core 1.8GHz processor 4GB DDR3 SDRAM and Resistive touch screen, and multiple I/O ports 2 x RS-232 with isolation, 1 x RS-422/485 with isolation. For data storage the fanless TPC devices also include: 1 x Compact Flash Slot and 1 x 2.5" SATA HDD. To expand function, this model provides PCIe and mini-PCIe expansion slots, an integrated 16-channel Digital I/O with isolation and 1MB Battery-backed SRAM.

Specifications

General

- **BIOS** — AMI 8Mbit
- **Certification** — BSMI, CCC, CE, FCC Class A, UL
- **Cooling System** — Fanless design
- **Dimensions (W x H x D)** — 287.0 x 227.0 x 73.3 mm (11.30" x 8.94 x 2.89)
- **Enclosure** — Front bezel: Die-cast Aluminum alloy Back housing: PC/ABS Resin
- **Mounting** — Desktop, Wall or Panel Mount
- **OS Support** — Microsoft® Windows 7/WES7/WES 2009/XPE/CE 6.0/ Linux / Android
- **Power Consumption** — 17W
- **Power Input** — 10~29 V$_{DC}$
- **Watchdog Timer** — 1 ~ 255 sec (system)
- **Weight (Net)** — TPC-1071H: 3.5 kg (7.72 lbs)

System Hardware

- **CPU** — Intel® Atom™ D525 1.8 GHz with 1MB cache
- **Chipset** — ICH8M
- **Memory** — 4GB SO-DIMM DDR3 SDRAM
- **LAN** — 10/100/1000Base-T x 2
- **Expansion Slots** — Half-size PCI-E or full-size Mini PCI-E
- **Storage** — CompactFlash® slot x 1 2.5" SATA HDD x 1 (Optional)
- **I/O** — RS-232 x 2 (COM1, 2) with isolation RS-422/485 x 1 (COM3) with isolation and auto data flow control USB 2.0 x 2 (Host) PS/2 x 1
- **DI/DO & backup SRAM** — 8 x DI/DO with isolation and backup 1MB SRAM

LCD Display

- **Display Type** — SVGA TFT LED LCD
- **Display Size** — 10.4"
- **Max. Resolution** — 800 x 600
- **Max. Colors** — 262 K
- **Luminance cd/m²** — 400
- **Viewing Angle (H/V°)** — 120/100
- **Backlight Life** — 50,000 hrs
- **Contrast Ratio** — 400:1

Touchscreen

- **Lifespan** — 10 million touches at single point
- **Light Transmission** — Above 75%
- **Resolution** — Linearity
- **Type** — 5-wire, analog resistive

Environment

- **Humidity** — 10 ~ 95% RH @ 40°C, non-condensing
- **Ingress Protection** — Front panel: IP65
- **Operating Temperature** — 0 ~ 55°C (32 ~ 131°F)
- **Storage Temperature** — -20 ~ 60°C (-4 ~ 140°F)
- **Vibration Protection** — With HDD: 1 Grms (5 ~ 500 Hz) (Operating, random vibration)

Rear View
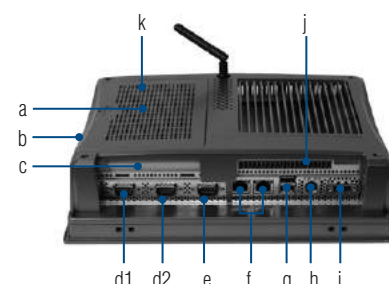
a. HDD
b. CompactFlash
c. PCI-E slot
d1. COM3 (RS-422/485)
d2. COM2(RS-232)
e. COM1(RS-232)
f. LAN (10/100/1000)
g. USB 2.0
h. PS/2
i. Power Receptor
j. DI/O ports
k. Mini PCI-E slot

Dimensions

Unit: mm
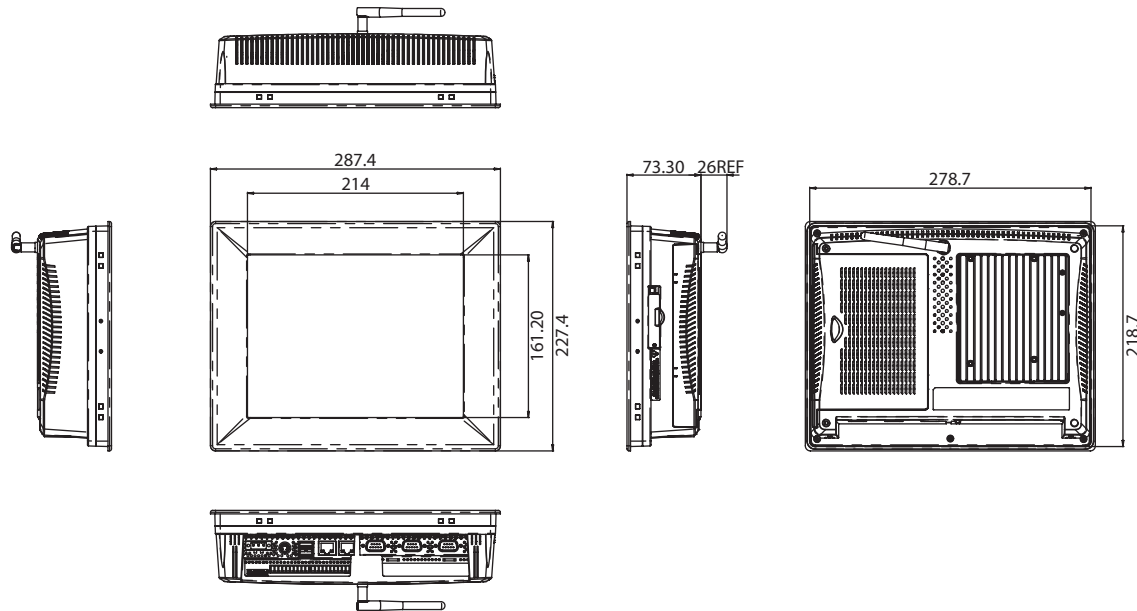
Panel Cut-out Dimensions: 279.5 x 219.5mm (11.00" x 8.64")

Ordering Information

- **TPC-1071H-D3AE**   10.4" SVGA Touch Panel PC, D525 1.8 GHz, 4GB
- **WA-TPC1071**   TPC-1071H-D3AE with WebAccess software

Accessories

- **PWR-247-BE**   63W DC 24V/2.62A Output Power Supply
- **1702002600**   Power Cable US Plug 1.8 M
- **1702002605**   Power Cable EU Plug 1.8 M
- **1702031801**   Power Cable UK Plug 1.8 M
- **1700000596**   Power Cable China/Australia Plug 1.8 M
- **EWM-W151H01E**   802.11bgn RTL8188EE 1T1R, Half-size Mini-PCIe (also need 9656EWMG00E)
- **9656EWMG00E**   Half-size miniPCIe to Full-size miniPCIe bracket set
- **1750000318**   EMI Antenna 2DBI 2.4GHz SMA CONN for ARK-3384
- **1750003222**   802.11b/g 5dBi Dipole Antenna
- **1750003418**   Wireless Antenna AN2400-5901RS R/P SMA.M9dB
- **TPC-1000H-WMKE**   TPC VESA Mounting Kit from 10" to 17" TPC
- **TPC-1000H-SMKE**   TPC Stand kit from 10" to 17" TPC
- **1750000318**   EMI Antenna 2DBI 2.4GHz SMA CONN for ARK-3384
- **1750003222**   802.11b/g 5dBi Dipole Antenna
- **1750003418**   Wireless Antenna AN2400-5901RS R/P SMA.M9dB

* VESA support via a wall mounting kit

Automation S/W & Embedded O/S

- **2070012784**   WES7P MUI. V4.10 B001 X64 for TPC-1071H
- **2070011506**   WES 2009 MUI V3.31 B003 for TPC-1071H
- **2070012397**   WinCE 6.0 MUI V3.03 B256 for TPC-1071H
- **968WEXP003X**   PanelExpress V2.0 300 tags S/W license
- **968WEXP015X**   PanelExpress V2.0 1500 tags S/W license
- **968WEXP050X**   PanelExpress V2.0 5000 tags S/W license
- **968WEXP2USB**   PanelExpress V2.0 S/W USB dongle

Application Software

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PANELEXPRESS Designed for Convenience	Version: V2.0.3.8 or above Panel Express, a windows based HMI mini SCADA, realizes the cross platform flexibility offered by WebOP Designer to switch hardware for the consideration of cost and performance become an easy job. Panel Express software provides the best economic and express solution for data intensive high-end HMI applications.
WebOP Designer	Version: V2.0.3.8 or above An easy to use integrated development tool featuring solution-oriented screen objects, high-end graphics, Windows fonts for multi-language applications. WebOP runtime, a part of WebOP Designer, guarantees reliability and performance because of the minimum system overhead, high communication data rates, and sub-second screen switching.

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

TPC-1551WP

15.6" WXGA TFT LED LCD Intel® Atom™ Thin Client Terminal

NEW

Features

- Industrial 15.6 HD TFT LCD with 50K Lifetime LED Backlight
- Intel® Atom™ E3827 1.75 GHz Processor with 4GB DDR3L SDRAM
- 16:9 Wide Screen with PCT Multi-Touch
- IP66 Approved Front Protection & Panel Mounting
- Built-in Intelligent Home key and i Key for Intuitive UI
- Front LED Indicator to Show Operating Status
- Supports iDoor with optional accessory kit
- Chassis Grounding Protection
- Anti-scratch surface: 7H hardness

Introduction

The TPC-1551WP thin client terminal with a 15.6" WXGA LCD, low power embedded Intel® Atom™ E3827 1.75 GHz Processor and 4GB DDR3L SDRAM provides adequate computing performance in a compact fanless system. The TPC-1551WP is true-flat touch screen designed with IP66 front protection, die-cast Aluminate Alloy front bezel and Projected capacitive touch. Furthermore, the TPC-1551WP is easy for your to embed to your equipment because of the small yet robust design. In addition, through the Mini-PCIe slot, Advantech iDoor technology (optional) can provide more I/O connectors, Isolated Digital I/O, the Fieldbus Protocol, 3G/GPS/GPRS/Wi-Fi Communication and Battery-backup MRAM to fulfill different kinds of the Industrial automation application.

Specifications

General

- **BIOS**   AMI UEFI
- **Certification**   BSMI, CCC, CE, FCC Class A, UL
- **Cooling System**   Fanless design
- **Dimensions (W x H x D)**   419.7 x 269 x 61.9 mm (16.52" x 10.59" x 2.44")
- **Enclosure**   Front bezel: Die-cast Aluminum alloy
  Back housing: SECC
- **Mounting**   Desktop, Wall, Panel Mount, and VESA mount (with optional kit)
- **OS Support**   Microsoft® Windows WES7 32bit/64bit /WE8S 64bit / Microsoft® Windows WES7 32bit/64bit /WE8S 64bit / Windows 7 32bit/64bit / Windows 8 64 bit / Linux Kernel 3.x
- **Power Consumption**   TBD
- **Power Input**   24 V_{DC} ± 20%
- **Watchdog Timer**   1 ~ 255 sec (system)
- **Weight (Net)**   TBD

System Hardware

- **CPU**   Intel® Atom™ E3827 1.75 GHz Processor
- **Memory**   4GB (8GB optional) DDR3L 1600MHz SO-DIMM SDRAM
- **LAN**   10/100/1000 Base-T x 2
- **Expansion Slots**   Full-size Mini PCI-E
- **Storage**   CFast slot x 1
  2.5" SATA SSD slot x 1 (optional)
- **I/O**   RS-232 x 1, RS-232/422/485 x 1
  USB 3.0 x 1
  USB 2.0 x 1

LCD Display

- **Display Type**   WXGA TFT LED LCD
- **Display Size**   15.6"
- **Max. Resolution**   1366 x 768
- **Max. Colors**   16.2 M
- **Luminance cd/m2**   300
- **Viewing Angle (H/V°)**   170/160
- **Backlight Life**   50,000 hrs
- **Contrast Ratio**   500:1

Touchscreen

- **Light Transmission**   90% ± 3%
- **Resolution**   2048 x 2048 dot
- **Type**   Projected capacitive

Environment

- **Humidity**   10 ~ 95% RH @ 40°C, non-condensing
- **Ingress Protection**   Front panel: IP66
- **Operating Temperature**   0 ~ 55°C (32 ~ 131°F)
- **Storage Temperature**   -20~60°C (-4~140°F)
- **Vibration Protection**   With HDD: 1 Grms (5 ~ 500 Hz) (Operating, random vibration)

Rear View

A. External HDD/iDoor kit (TPC-1251T-EHKE) (Optional)
B. CFast
C. RS-232
D. RS-232/422/485
E. USB 3.0 & 2.0
F. LAN (10/100/1000)
G. Power Receptor

Dimensions

Unit: mm [inch]

419.7 [16.52]
345.9 [13.62]
269 [10.59]
195.2 [7.69]
397.2
61.9 [2.44]
29
7
136
141 141

412.4 [16.24]
261.7 [10.30]
Panel Cut-out

4 Corner-R5 [R0.20]

TPC-1551WP Panel Cut-out Dimensions: 412.4 x 261.7 mm

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

Ordering Information

- **TPC-1551WP-E3AE**   15.6" Multi-Touch Panel PC, Intel Atom E3827, 4GB DDR3L pre-installed

Accessories

- **PWR-247-BE**   63W DC 24V/2.62A Output Power Supply
- **TPC-1251T-EHKE**   HDD and iDoor extension kit
- **1702002600**   Power Cable US Plug 1.8 M
- **1702002605**   Power Cable EU Plug 1.8 M
- **1702031801**   Power Cable UK Plug 1.8 M
- **1700000596**   Power Cable China/Australia Plug 1.8 M
- **TPC-1000H-WMKE**   TPC VESA Mounting Kit from 10" to 17" TPC
- **TPC-1000H-SMKE**   TPC Stand kit from 10" to 17" TPC

Automation S/W & Embedded O/S

- **2070013484**   TPC-xx51WP WS7P x64 MUI Image v4.13
- **2070013485**   TPC-xx51WP WEC7 X64 MUI Image V4.00
- **968WEXP003X**   PanelExpress V2.0 300 tags S/W license
- **968WEXP015X**   PanelExpress V2.0 1500 tags S/W license
- **968WEXP050X**   PanelExpress V2.0 5000 tags S/W license
- **968WEXP2USB**   PanelExpress V2.0 S/W USB dongle

iDoor Modules (TPC-1251T-EHKE is required for iDoor modules)

- **PCM-24D2R4-AE**   2-Port Isolated RS-422/485 mPCIe, DB9
- **PCM-26D2CA-AE**   2-Port Isolated CANBus mPCIe, CANOpen, DB9
- **PCM-27D24DI-AE**   24-Channel Isolated Digital I/O w/ counter mPCIe, DB37
- **PCM-24R1TP-AE**   1-Port Gigabit Ethernet, Intel® 82574L, mPCIe, RJ45
- **PCM-24S2WF-AE**   WiFi 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, 2-port SMA
- **PCM-24U2U3-AE**   2-Port USB 3.0, mPCIe, USB-A type
- **PCM-24S23G-AE**   Wide-Temp 3.75G HSPA and GPS, 2-in-1, Full-size mPCIe w/ Redundant SIM Card holder, 2-port SMA

Application Software

SUSIAccess	Version: V2.1 or above An innovative remote device management software, allowing efficient remote monitoring, quick recovery & backup, and real-time remote configuration, to create a more intelligent and interconnected embedded computing solution.
WebAccess	Version: V7.1 or above WebAccess, as the core of Advantech's IoT solution, is full web browser-based software package for HMI and SCADA software. All HMI and SCADA software features including: Animated Graphics Displays, Real-time Data, Control, Trends, Alarms and Logs, are available in a standard web browser. WebAccess is built around the latest internet technologies. With its open architecture, vertical domain applications can easily be integrated.
PANELEXPRESS Designed for Convenience	Version: V2.0.3.8 or above Panel Express, a windows based HMI mini SCADA, realizes the cross platform flexibility offered by WebOP Designer to switch hardware for the consideration of cost and performance become an easy job. Panel Express software provides the best economic and express solution for data intensive high-end HMI applications.
WebOP Designer	Version: V2.0.3.8 or above An easy to use integrated development tool featuring solution-oriented screen objects, high-end graphics, Windows fonts for multi-language applications. WebOP runtime, a part of WebOP Designer, guarantees reliability and performance because of the minimum system overhead, high communication data rates, and sub-second screen switching.

TPC-1051WP

10.1" WXGA TFT LED LCD Intel® Atom™ Thin Client Terminal

NEW

Features

- Industrial 10.1 TFT LCD with 25K Lifetime LED Backlight
- Intel® Atom™ E3827 1.75 GHz Processor with 4GB DDR3L SDRAM
- 16:9 Wide Screen with PCT Multi-Touch
- IP66 Approved Front Protection & Panel Mounting
- Built-in Intelligent Home key and i Key for an intuitive user interface
- Front LED Indicator to Show Operating Status
- Supports iDoor with optional accessory kit
- Chassis Grounding Protection
- Anti-scratch surface: 7H hardness

SUSIAccess iKey iDoor R33138 CCC CE FCC c(UL)us LISTED E180881 I.T.E.

Introduction

The TPC-1051WP is a thin client terminal with a 10.1" WXGA LCD, low power embedded Intel® Atom™ E3827 1.75 GHz Processor and 4GB DDR3L SDRAM provides adequate computing performance in a compact fanless system. The TPC-1051WP is a true-flat touch screen design with IP66 front protection, die-cast Aluminate Alloy front bezel and Projected capacitive touch. Furthermore, the TPC-1051WP is easy for your to embed into your equipment because of its small yet robust design. In addition, through the Mini-PCIe slot, Advantech iDoor technology (optional) can provide more I/O connectors, Isolated Digital I/O, the Fieldbus Protocol, 3G/GPS/GPRS/Wi-Fi Communication and Battery-backup MRAM to fulfill different kinds of the industrial automation application.

Specifications

General

- **BIOS**   AMI UEFI
- **Certification**   BSMI, CCC, CE, FCC Class A, UL
- **Cooling System**   Fanless design
- **Dimensions (W x H x D)**   283.1 x 202.3 x 61.4 mm (11.15" x 7.96" x 2.42)
- **Enclosure**   Front bezel: Die-cast Aluminum alloy
  Back housing: SECC
- **Mounting**   Desktop, Wall, Panel Mount, and VESA mount (with optional kit)
- **OS Support**   Microsoft® Windows WES7 32bit/64bit /WE8S 64bit / Windows 7 32bit/64bit / Windows 8 64 bit / Linux Kernel 3.x
- **Power Consumption**   TBD
- **Power Input**   24 V$_{DC}$ ± 20%
- **Watchdog Timer**   1 ~ 255 sec (system)
- **Weight (Net)**   TBD

System Hardware

- **CPU**   Intel® Atom™ E3827 1.75 GHz Processor
- **Memory**   4GB (8GB optional) DDR3L 1600MHz SO-DIMM SDRAM
- **LAN**   10/100/1000 Base-T x 2
- **Expansion Slots**   Full-size Mini PCI-E
- **Storage**   CFast slot x 1
  2.5" SATA SSD slot x 1 (optional)
- **I/O**   RS-232 x 1, RS-232/422/485 x 1
  USB 3.0 x 1
  USB 2.0 x 1

LCD Display

- **Display Type**   XGA TFT LED LCD
- **Display Size**   10.1"
- **Max. Resolution**   1280 x 800
- **Max. Colors**   262k
- **Luminance cd/m²**   300
- **Viewing Angle (H/V°)**   170/170
- **Backlight Life**   25,000 hrs
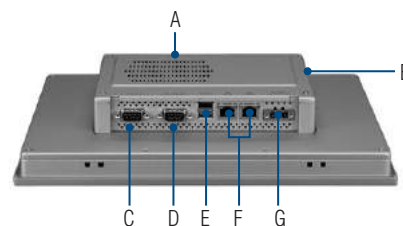- **Contrast Ratio**   1300:1

Touchscreen

- **Light Transmission**   90% ± 3%
- **Resolution**   2048 x 2048 dot
- **Type**   Projected capacitive

Environment

- **Humidity**   10 ~ 95% RH @ 40°C, non-condensing
- **Ingress Protection**   Front panel: IP66
- **Operating Temperature**   -20 ~ 55°C (-4 ~ 131°F)
- **Storage Temperature**   -30 ~ 70°C (-22 ~ 158°F)
- **Vibration Protection**   With HDD: 1 Grms (5 ~ 500 Hz), (Operating, random vibration)

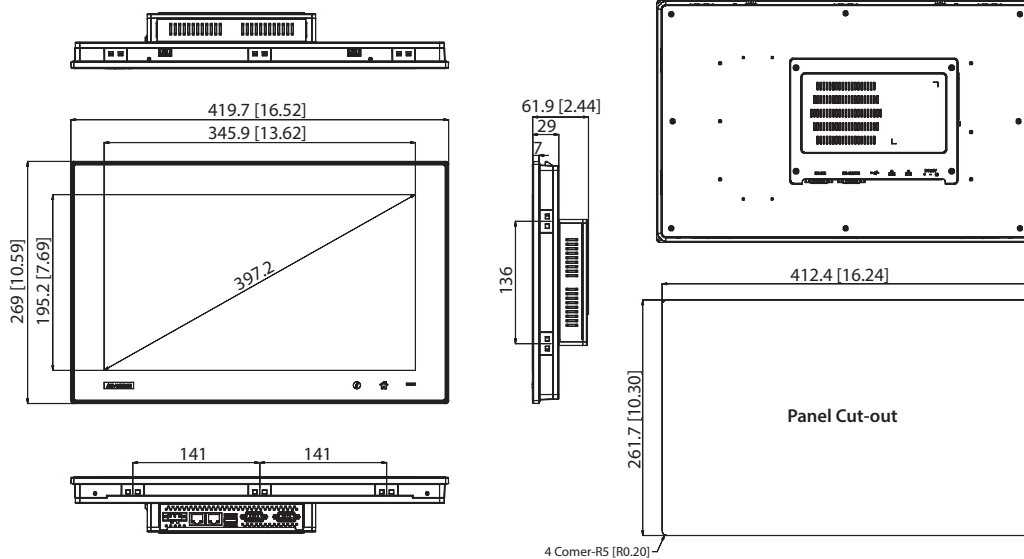## Rear View

A. External HDD/iDoor kit
   (TPC-1251T-EHKE) (Optional)
B. CFast
C. RS-232
D. RS-232/422/485
E. USB 3.0 & 2.0
F. LAN (10/100/1000)
G. Power Receptor
H.

Dimensions

Unit: mm [inch]

283.1 [11.15]
218.6 [8.61]
258.4 [10.17]
202.3 [7.96]
137.8 [5.43]
176

61.4 [2.42]
28.5
7
94.8
26
9
2-M4x4L

274.6 [10.81]
193.8 [7.63]

Panel Cut-out

4Corner-R5 [R0.20]

TPC-1051WP Panel Cut-out Dimensions: 274.6 x 193.8 mm

Ordering Information

- **TPC-1051WP-E3AE** — 10.1" Multi-Touch Panel PC, Intel Atom E3827, 4GB DDR3L pre-installed

Accessories

- **PWR-247-BE** — 63W DC 24V/2.62A Output Power Supply
- **TPC-1251T-EHKE** — HDD and iDoor extension kit
- **1702002600** — Power Cable US Plug 1.8 M
- **1702002605** — Power Cable EU Plug 1.8 M
- **1702031801** — Power Cable UK Plug 1.8 M
- **1700000596** — Power Cable China/Australia Plug 1.8 M

Automation S/W & Embedded O/S

- **2070013484** — TPC-xx51WP WS7P x64 MUI Image v4.13
- **2070013485** — TPC-xx51WP WEC7 X64 MUI Image V4.00
- **968WEXP003X** — PanelExpress V2.0 300 tags S/W license
- **968WEXP015X** — PanelExpress V2.0 1500 tags S/W license
- **968WEXP050X** — PanelExpress V2.0 5000 tags S/W license
- **968WEXP2USB** — PanelExpress V2.0 S/W USB dongle

iDoor Modules (TPC-1251T-EHKE is required for iDoor modules)

- **PCM-24D2R4-AE** — 2-Port Isolated RS-422/485 mPCIe, DB9
- **PCM-26D2CA-AE** — 2-Port Isolated CANBus mPCIe, CANOpen, DB9
- **PCM-27D24DI-AE** — 24-Channel Isolated Digital I/O w/ counter mPCIe, DB37
- **PCM-24R1TP-AE** — 1-Port Gigabit Ethernet, Intel® 82574L, mPCIe, RJ45
- **PCM-24S2WF-AE** — WiFi 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, 2-port SMA
- **PCM-24U2U3-AE** — 2-Port USB 3.0, mPCIe, USB-A type
- **PCM-24S23G-AE** — Wide-Temp 3.75G HSPA and GPS, 2-in-1, Full-size mPCIe w/ Redundant SIM Card holder, 2-port SMA

Application Software

SUSIAccess	Version: V2.1 or above An innovative remote device management software, allowing efficient remote monitoring, quick recovery & backup, and real-time remote configuration, to create a more intelligent and interconnected embedded computing solution.
WebAccess	Version: V7.1 or above WebAccess, as the core of Advantech's IoT solution, is full web browser-based software package for HMI and SCADA software. All HMI and SCADA software features including: Animated Graphics Displays, Real-time Data, Control, Trends, Alarms and Logs, are available in a standard web browser. WebAccess is built around the latest internet technologies. With its open architecture, vertical domain applications can easily be integrated.
PANELEXPRESS Designed for Convenience	Version: V2.0.3.8 or above Panel Express, a windows based HMI mini SCADA, realizes the cross platform flexibility offered by WebOP Designer to switch hardware for the consideration of cost and performance become an easy job. Panel Express software provides the best economic and express solution for data intensive high-end HMI applications.
WebOP Designer	Version: V2.0.3.8 or above An easy to use integrated development tool featuring solution-oriented screen objects, high-end graphics, Windows fonts for multi-language applications. WebOP runtime, a part of WebOP Designer, guarantees reliability and performance because of the minimum system overhead, high communication data rates, and sub-second screen switching.

TPC-1751T

17" SXGA TFT LED LCD Intel® Atom™ Thin Client Terminal

NEW

Features

- Industrial 17" SXGA TFT LCD with 50K Lifetime LED Backlight
- Intel® Atom™ E3827 1.75 GHz Processor with 4GB (8GB optional) DDR3L SDRAM
- Support wide operating temperatures -20~60°C
- Compact Fanless Embedded System with Al Alloy Front Bezel
- True-flat with IP66 / non-flat with IP65 certified front panel protection
- Durable 5-wire Resistive Touch Screen
- Full-size Mini PCIe Expansion Support
- Supports iDoor technology for diverse applications (optional accessory required)
- Chassis Grounding Protection
- Supports USB 3.0

SUSIAccess IDoor R33138 CCC CE FCC c(UL)us LISTED E180881 I.T.E.

Introduction

The TPC-1751T thin client terminal with a 17" SXGA LCD, low power embedded Intel® Atom™ E3827 1.75 GHz Processor and 4GB (8GB optional) DDR3L SDRAM provides computing performance in a compact fanless system. To enhance its durability, the TPC-1751T is true-flat touch screen designed with IP66 front protection, die-cast Al Alloy front bezel and 5-wire resistive touch. It supports wide operating temperatures -20~60°C and includes full size mini-PCIe slot to extend the functionality and meet a variety of automation applications needs. Through the Mini-PCIe slot, Advantech iDoor technology (optional) can provide more I/O connectors, Isolated Digital IO, the Fieldbus Protocol, 3G/GPS/GPRS/WiFi Communication and Battery-backup MRAM.

Specifications

General

- **BIOS** — AMI UEFI
- **Certification** — BSMI, CCC, CE, FCC Class A, UL
- **Cooling System** — Fanless design
- **Dimensions (W x H x D)** — 413.7 x 347.2 x 63.8 (16.28" x 13.68" x 2.5")
- **Enclosure** — Front bezel: Die-cast Aluminum alloy
  Back housing: SECC
- **Mounting** — Desktop, Wall or Panel Mount
- **OS Support** — Microsoft® WES7 64bit /WE8S 64bit / Windows 7 32bit/64bit
- **Power Consumption** — 30 W (Typical)
- **Power Input** — 24 V_{DC} ± 20%
- **Watchdog Timer** — 1 ~ 255 sec (system)
- **Weight (Net)** — 6 KG

System Hardware

- **CPU** — Intel® Atom™ E3827 1.75 GHz Processor
- **Memory** — 4GB (8GB optional) DDR3L 1600MHz SO-DIMM SDRAM
- **LAN** — 10/100/1000 Base-T x 2
- **Expansion Slots** — Full-size Mini PCI-E
- **Storage** — CFast slot x 1
  2.5" SATA SSD slot x 1 (optional)
- **I/O** — RS-232 x 1, RS-232/422/485 x 1
  USB 3.0 x 1
  USB 2.0 x 1

LCD Display

- **Display Type** — SXGA TFT LED LCD
- **Display Size** — 17"
- **Max. Resolution** — 1280 x 1024
- **Max. Colors** — 16.7M
- **Luminance cd/m2** — 350
- **Viewing Angle (H/V°)** — 160/140
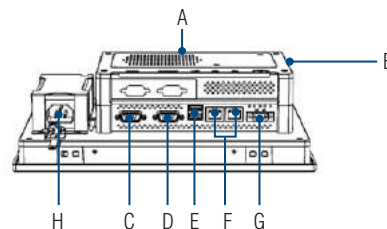- **Backlight Life** — 50,000 hrs
- **Contrast Ratio** — 800:1

Touchscreen

- **Lifespan** — 36 million touches at single point
- **Light Transmission** — Above 75%
- **Resolution** — Linearity
- **Type** — 5-wire, analog resistive

Environment

- **Humidity** — 10 ~ 95% RH @ 40°C, non-condensing
- **Ingress Protection** — Front panel: IP66
- **Operating Temperature** — -20 ~ 60°C (-4 ~ 140°F)
- **Storage Temperature** — -30 ~ 70°C (-22 ~ 158°F)
- **Vibration Protection** — With CFast: 2 Grms (5~500 Hz)
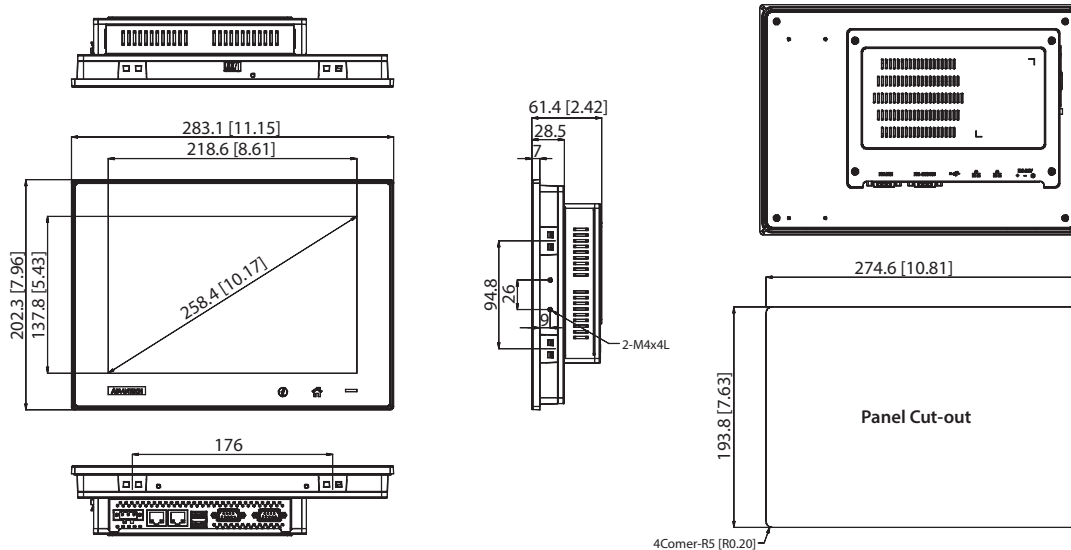 With HDD: 1 Grms (5 ~ 500 Hz)
  (Operating, random vibration)

Rear View

A. External HDD/iDoor kit (TPC-1251T-EHKE) (Optional)
B. CFast Slot
C. RS-232
D. RS-232/422/485
E. USB 3.0 & 2.0
F. LAN (10/100/1000)
G. Power Receptor

ADVANTECH | Automation Panels

Dimensions

Unit: mm

180

311.8/311.0
247.2
186.3
238.0/237.0
150.0/170.0
30
9

57.2/54.0
7.0/3.0
150.0/170.0
30
9
2-M4x0.7Px4L
7 TYP

301.6/301.5
227.6/227.5

180

TPC-1751T Panel Cut-out Dimensions: 303 x 229 mm (11.93" x 9.02")

1
WebAccess+ Solutions

2
Motion Control

3
Power & Energy
Automation

4
Automation Software

5
Intelligent Operator
Panel

6
Automation Panels

7
Panel PCs

8
Industrial Wireless
Solutions

9
Industrial Ethernet
Solutions

10
Industrial Gateway
Solutions

11
Serial communication
cards

12
Embedded Automation
PCs

13
DIN-Rail IPCs

14
CompactPCI Systems

15
IoT Wireless I/O
Modules

16
IoT Ethernet I/O
Modules

17
RS-485 I/O Modules

18
Data Acquisition
Boards

Ordering Information

- **TPC-1751T-E3AE** 17" SXGA Panel PC, Intel® Atom™ E3827 1.75 GHz Processor, 4GB (True-flat touch screen)
- **TPC-1751H-E3AE** 17" SXGA Panel PC, Intel® Atom™ E3827 1.75 GHz Processor, 4GB (Non-flat touch screen IP65 certified traditional TPC front panel)

Accessories

- **PWR-247-BE** 63W DC 24V/2.62A Output Power Supply
- **TPC-1251T-EHKE** HDD/ SSD and iDoor extension kit
- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M
- **TPC-1000H-WMKE** TPC VESA Mounting Kit from 10" to 17" TPC
- **TPC-1000H-SMKE** TPC Stand kit from 10" to 17" TPC

Automation S/W & Embedded O/S

- **968WEXP003X** PanelExpress V2.0 300 tags S/W license
- **968WEXP015X** PanelExpress V2.0 1500 tags S/W license
- **968WEXP050X** PanelExpress V2.0 5000 tags S/W license
- **968WEXP2USB** PanelExpress V2.0 S/W USB dongle
- **2070013067** WES7P X64 MUI. V4.12 B001
- **2070013359** WEC7 X64 MUI. V4.00 B031

iDoor Modules (TPC-1251T-EHKE is required for iDoor modules)

- **PCM-24D2R4-AE** 2-Port Isolated RS-422/485 mPCIe, DB9
- **PCM-26D2CA-AE** 2-Port Isolated CANBus mPCIe, CANOpen, DB9
- **PCM-27D24DI-AE** 24-Channel Isolated Digital I/O w/ counter mPCIe, DB37
- **PCM-24R1TP-AE** 1-Port Gigabit Ethernet, Intel® 82574L, mPCIe, RJ45
- **PCM-24S2WF-AE** WiFi 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, 2-port SMA
- **PCM-24U2U3-AE** 2-Port USB 3.0, mPCIe, USB-A type
- **PCM-24S23G-AE** Wide-Temp 3.75G HSPA and GPS, 2-in-1, Full-size mPCIe w/ Redundant SIM Card holder, 2-port SMA
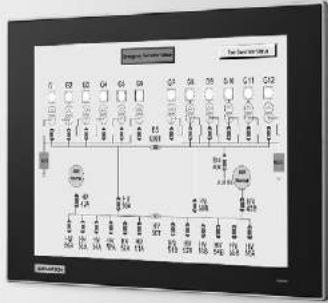
Application Software

SUSIACCESS	Version: V2.1 or above An innovative remote device management software, allowing efficient remote monitoring, quick recovery & backup, and real-time remote configuration, to create a more intelligent and interconnected embedded computing solution.
WebAccess	Version: V7.1 or above WebAccess, as the core of Advantech's IoT solution, is full web browser-based software package for HMI and SCADA software. All HMI and SCADA software features including: Animated Graphics Displays, Real-time Data, Control, Trends, Alarms and Logs, are available in a standard web browser. WebAccess is built around the latest internet technologies. With its open architecture, vertical domain applications can easily be integrated.
PANELEXPRESS *Designed for Convenience*	Version: V2.0.3.8 or above Panel Express, a windows based HMI mini SCADA, realizes the cross platform flexibility offered by WebOP Designer to switch hardware for the consideration of cost and performance become an easy job. Panel Express software provides the best economic and express solution for data intensive high-end HMI applications.
WebOP Designer	Version: V2.0.3.8 or above An easy to use integrated development tool featuring solution-oriented screen objects, high-end graphics, Windows fonts for multi-language applications. WebOP runtime, a part of WebOP Designer, guarantees reliability and performance because of the minimum system overhead, high communication data rates, and sub-second screen switching.

TPC-1551T

15" XGA TFT LED LCD Intel® Atom™ Thin Client Terminal

NEW

Features

- Industrial 15" XGA TFT LCD with 50K Lifetime LED Backlight
- Intel® Atom™ E3827 1.75 GHz Processor with 4GB (8GB optional) DDR3L SDRAM
- Support wide operating temperatures -20~60°C
- Compact Fanless Embedded System with Al Alloy Front Bezel
- True-flat with IP66 / non-flat with IP65 certified front panel protection
- Durable 5-wire Resistive Touch Screen
- Full-size Mini PCIe Expansion Support
- Supports iDoor technology for diverse applications (optional accessory required)
- Chassis Grounding Protection
- Support USB 3.0

SUSIAccess ID∞r R33138 CCC CE FCC c(UL)us LISTED E180881 I.T.E.

Introduction

The TPC-1551T thin client terminal with a 15" XGA LCD, low power embedded Intel® Atom™ E3827 1.75 GHz Processor and 4GB (8GB optional) DDR3L SDRAM provides computing performance in a compact fanless system. To enhance its durability, the TPC-1551T is true-flat touch screen designed with IP66 front protection, die-cast Al Alloy front bezel and 5-wire resistive touch. It supports wide operating temperatures -20~60°C and includes full size mini-PCIe slot to extend the functionality and meet a variety of automation applications needs. Through the Mini-PCIe slot, Advantech iDoor technology (optional) can provide more I/O connectors, Isolated Digital IO, the Fieldbus Protocol, 3G/GPS/GPRS/WiFi Communication and Battery-backup MRAM.

Specifications

General

- **BIOS** — AMI UEFI
- **Certification** — BSMI, CCC, CE, FCC Class A, UL
- **Cooling System** — Fanless design
- **Dimensions (W x H x D)** — 383.20 x 307.30 x 61.10 mm (15.09" x 12.10" x 2.41")
- **Enclosure** — Front bezel: Die-cast Aluminum alloy
  Back housing: SECC
- **Mounting** — Desktop, Wall or Panel Mount
- **OS Support** — Microsoft® WES7 64bit /WE8S 64bit / Windows 7 32bit/64bit / Windows 8 64bit
- **Power Consumption** — 40.8 W (typical)
- **Power Input** — 24 V_{DC} ± 20%
- **Watchdog Timer** — 1 ~ 255 sec (system)
- **Weight (Net)** — 3.9 KG

System Hardware

- **CPU** — Intel® Atom™ E3827 1.75 GHz Processor
- **Memory** — 4GB (8GB optional) DDR3L 1600MHz SO-DIMM SDRAM
- **LAN** — 10/100/1000 Base-T x 2
- **Expansion Slots** — Full-size Mini PCI-E
- **Storage** — CFast slot x 1
  2.5" SATA SSD slot x 1 (optional)
- **I/O** — RS-232 x 1, RS-232/422/485 x 1
  USB 3.0 x 1
  USB 2.0 x 1

LCD Display

- **Display Type** — XGA TFT LED LCD
- **Display Size** — 15"
- **Max. Resolution** — 1024 x 768
- **Max. Colors** — 16.2 M
- **Luminance cd/m²** — 400
- **Viewing Angle (H/V°)** — 160/140
- **Backlight Life** — 50,000 hrs
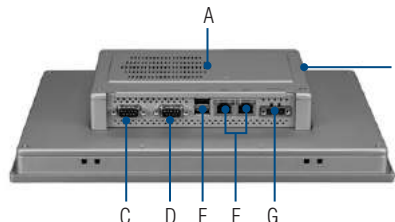- **Contrast Ratio** — 700:1

Touchscreen

- **Lifespan** — 36 million touches at single point
- **Light Transmission** — Above 75%
- **Resolution** — Linearity
- **Type** — 5-wire, analog resistive

Environment

- **Humidity** — 10 ~ 95% RH @ 40°C, non-condensing
- **Ingress Protection** — Front panel: IP66
- **Operating Temperature** — -20 ~ 60°C (-4 ~ 140°F)
- **Storage Temperature** — -30 ~ 70°C (-22 ~ 158°F)
- **Vibration Protection** — With CFast: 2 Grms (5~500 Hz)
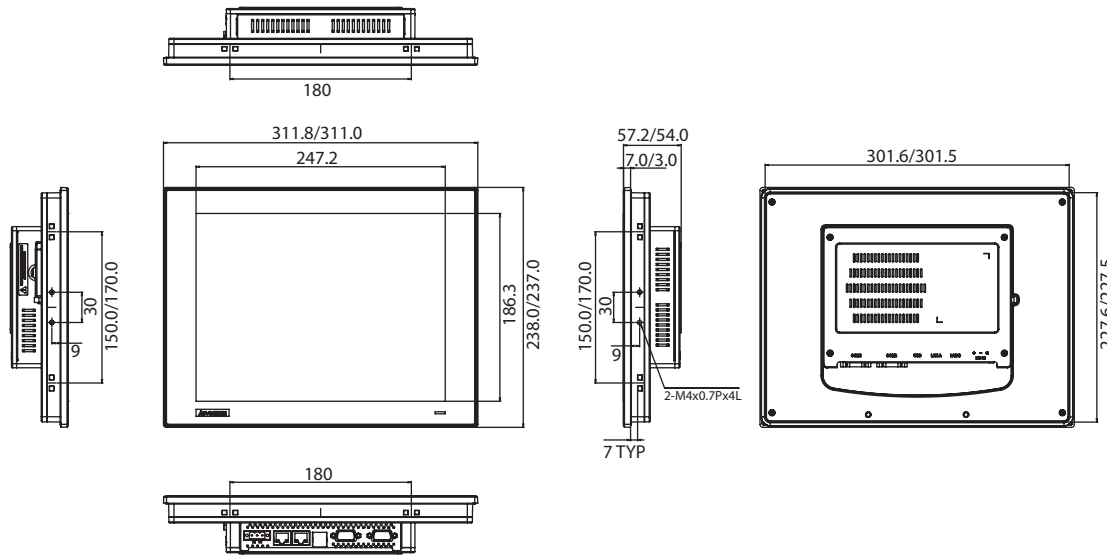 With HDD: 1 Grms (5 ~ 500 Hz)
  (Operating, random vibration)

Rear View

A. External HDD/iDoor kit (TPC-1251T-EHKE) (Optional)
B. CFast Slot
C. RS-232
D. RS-232/422/485
E. USB 3.0 & 2.0
F. LAN (10/100/1000)
G. Power Receptor
H.

Dimensions

Unit: mm

TPC-1551T Panel Cut-out Dimensions: 374.5 x 298.5 mm (14.74" x 11.75")

1 WebAccess+ Solutions

2 Motion Control

3 Power & Energy Automation

4 Automation Software

5 Intelligent Operator Panel

6 Automation Panels

7 Panel PCs

8 Industrial Wireless Solutions

9 Industrial Ethernet Solutions

10 Industrial Gateway Solutions

11 Serial communication cards

12 Embedded Automation PCs

13 DIN-Rail IPCs

14 CompactPCI Systems

15 IoT Wireless I/O Modules

16 IoT Ethernet I/O Modules

17 RS-485 I/O Modules

18 Data Acquisition Boards

Ordering Information

- **TPC-1551T-E3AE**   15" XGA Panel PC, Intel® Atom™ E3827 1.75 GHz Processor, 4GB (True-flat touch screen)
- **TPC-1551H-E3AE**   15" XGA Panel PC, Intel® Atom™ E3827 1.75 GHz Processor, 4GB (Non-flat touch screen IP65 certified traditional TPC front panel)
- **PE-TPC1551-CT1400A**   TPC-1551T-E3AE w/WES 7Pro Panel Express, 32Gb CFast

Accessories

- **PWR-247-BE**   63W DC 24V/2.62A Output Power Supply
- **TPC-1251T-EHKE**   HDD/ SSD and iDoor extension kit
- **1702002600**   Power Cable US Plug 1.8 M
- **1702002605**   Power Cable EU Plug 1.8 M
- **1702031801**   Power Cable UK Plug 1.8 M
- **1700000596**   Power Cable China/Australia Plug 1.8 M

Automation S/W & Embedded O/S

- **968WEXP003X**   PanelExpress V2.0 300 tags S/W license
- **968WEXP015X**   PanelExpress V2.0 1500 tags S/W license
- **968WEXP050X**   PanelExpress V2.0 5000 tags S/W license
- **968WEXP2USB**   PanelExpress V2.0 S/W USB dongle
- **2070013067**   WES7P X64 MUI. V4.12 B001
- **2070013359**   WEC7 X64 MUI. V4.00 B031

iDoor Modules (TPC-1251T-EHKE is required for iDoor modules)

- **PCM-24D2R4-AE**   2-Port Isolated RS-422/485 mPCIe, DB9
- **PCM-26D2CA-AE**   2-Port Isolated CANBus mPCIe, CANOpen, DB9
- **PCM-27D24DI-AE**   24-Channel Isolated Digital I/O w/ counter mPCIe, DB37
- **PCM-24R1TP-AE**   1-Port Gigabit Ethernet, Intel® 82574L, mPCIe, RJ45
- **PCM-24S2WF-AE**   WiFi 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, 2-port SMA
- **PCM-24U2U3-AE**   2-Port USB 3.0, mPCIe, USB-A type
- **PCM-24S23G-AE**   Wide-Temp 3.75G HSPA and GPS, 2-in-1, Full-size mPCIe w/ Redundant SIM Card holder, 2-port SMA
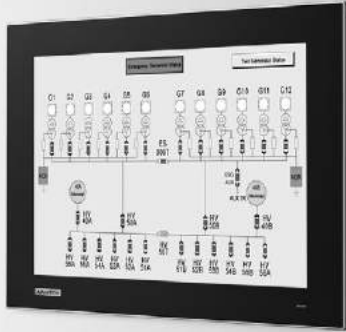
Application Software

SUSIAccess	Version: V2.1 or above An innovative remote device management software, allowing efficient remote monitoring, quick recovery & backup, and real-time remote configuration, to create a more intelligent and interconnected embedded computing solution.
WebAccess	Version: V7.1 or above WebAccess, as the core of Advantech's IoT solution, is full web browser-based software package for HMI and SCADA software. All HMI and SCADA software features including: Animated Graphics Displays, Real-time Data, Control, Trends, Alarms and Logs, are available in a standard web browser. WebAccess is built around the latest internet technologies. With its open architecture, vertical domain applications can easily be integrated.
PANELEXPRESS Designed for Convenience	Version: V2.0.3.8 or above Panel Express, a windows based HMI mini SCADA, realizes the cross platform flexibility offered by WebOP Designer to switch hardware for the consideration of cost and performance become an easy job. Panel Express software provides the best economic and express solution for data intensive high-end HMI applications.
WebOP Designer	Version: V2.0.3.8 or above An easy to use integrated development tool featuring solution-oriented screen objects, high-end graphics, Windows fonts for multi-language applications. WebOP runtime, a part of WebOP Designer, guarantees reliability and performance because of the minimum system overhead, high communication data rates, and sub-second screen switching.

TPC-1251T

12.1" XGA TFT LED LCD Intel® Atom™ Thin Client Terminal

NEW

Features

- Industrial 12.1" XGA TFT LCD with 50K Lifetime LED Backlight
- Intel® Atom™ E3827 1.75 GHz Processor with 4GB (8GB optional) DDR3L SDRAM
- Support wide operating temperatures -20~60°C
- Compact Fanless Embedded System with Al Alloy Front Bezel
- True-flat with IP66 / non-flat with IP65 certified front panel protection
- Durable 5-wire Resistive Touch Screen
- Full-size Mini PCIe Expansion Support
- Supports iDoor technology for diverse applications (optional accessory required)
- Chassis Grounding Protection
- Supports USB 3.0

SUSIAccess   IDoor   R33138   CCC   CE   FCC   LISTED E180881 I.T.E.

Introduction

The TPC-1251T thin client terminal with a 12.1" XGA LCD, low power embedded Intel® Atom™ E3827 1.75 GHz Processor and 4GB (8GB optional) DDR3L SDRAM provides computing performance in a compact fanless system. To enhance its durability, the TPC-1251T is true-flat touch screen designed with IP66 front protection, die-cast Al Alloy front bezel and 5-wire resistive touch. It supports wide operating temperatures -20~60°C and includes full size mini-PCIe slot to extend the functionality and meet a variety of automation applications needs. Through the Mini-PCIe slot, Advantech iDoor technology (optional) can provide more I/O connectors, Isolated Digital IO, the Fieldbus Protocol, 3G/GPS/GPRS/ Wi-Fi Communication and Battery-backup MRAM.

Specifications

General

BIOS	AMI UEFI
Certification	BSMI, CCC, CE, FCC Class A, UL
Cooling System	Fanless design
Dimensions (W x H x D)	311.80 x 238 x 57.2 mm (12.28" x 9.37" x 2.25")
Enclosure	Front bezel: Die-cast Aluminum alloy Back housing: SECC
Mounting	Desktop, Wall or Panel Mount
OS Support	Microsoft® WES7 64bit /WE8S 64bit / Windows 7 32bit/64bit / Windows 8 64 bit
Power Consumption	45.6 W (Typical)
Power Input	24 V_{DC} ± 20%
Watchdog Timer	1 ~ 255 sec (system)
Weight (Net)	2.5 KG

System Hardware

CPU	Intel® Atom™ E3827 1.75 GHz Processor
Memory	4GB (8GB optional) DDR3L 1600MHz SO-DIMM SDRAM
LAN	10/100/1000 Base-T x 2
Expansion Slots	Full-size Mini PCI-E
Storage	CFast slot x 1 2.5" SATA SSD slot x 1 (optional)
I/O	RS-232 x 1, RS-232/422/485 x 1 USB 3.0 x 1 USB 2.0 x 1

LCD Display

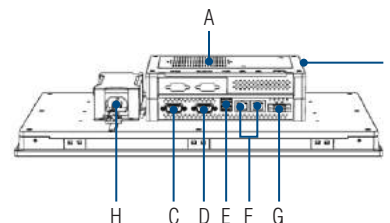|	
Display Type	XGA TFT LED LCD
Display Size	12.1"
Max. Resolution	1024 x 768
Max. Colors	16.2M
Luminance cd/m²	600
Viewing Angle (H/V°)	160/140
Backlight Life	50,000 hrs
Contrast Ratio	700:1

Touchscreen

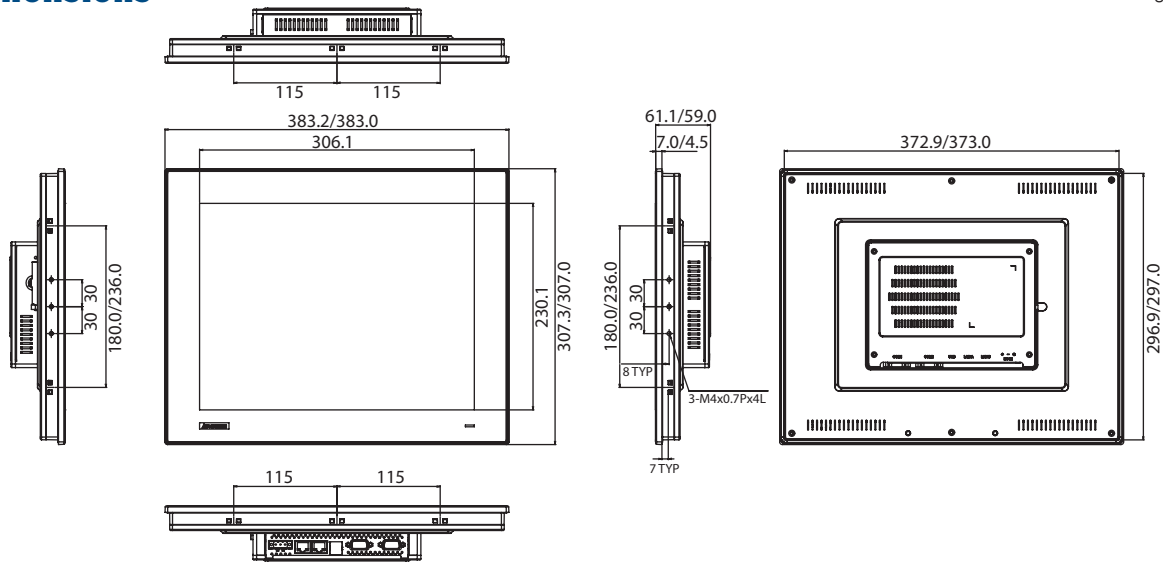|	
Lifespan	36 million touches at single point
Light Transmission	Above 75%
Resolution	Linearity
Type	5-wire, analog resistive

Environment

Humidity	10 ~ 95% RH @ 40°C, non-condensing
Ingress Protection	Front panel: IP66
Operating Temperature	-20 ~ 60°C (-4 ~ 140°F)
Storage Temperature	-30 ~ 70°C (-22 ~ 158°F)
Vibration Protection	With CFast: 2 Grms (5~500 Hz) With HDD: 1 Grms (5 ~ 500 Hz) (Operating, random vibration)

Rear View

A. External HDD/iDoor kit (TPC-1251T-EHKE) (Optional)
B. CFast Slot
C. RS-232
D. RS-232/422/485
E. USB 3.0 & 2.0
F. LAN (10/100/1000)
G. Power Receptor

ADVANTECH | Automation Panels

Dimensions

Unit: mm

TPC-1251T Panel Cut-out Dimensions: 303 x 229 mm (11.93" x 9.02")

1 WebAccess+ Solutions

2 Motion Control

3 Power & Energy Automation

4 Automation Software

5 Intelligent Operator Panel

6 Automation Panels

7 Panel PCs

8 Industrial Wireless Solutions

9 Industrial Ethernet Solutions

10 Industrial Gateway Solutions

11 Serial communication cards

12 Embedded Automation PCs

13 DIN-Rail IPCs

14 CompactPCI Systems

15 IoT Wireless I/O Modules

16 IoT Ethernet I/O Modules

17 RS-485 I/O Modules

18 Data Acquisition Boards

Ordering Information

- **TPC-1251T-E3AE** — 12" XGA Panel PC, Intel® Atom™ E3827 1.75 GHz Processor, 4GB (True-flat touch screen)
- **TPC-1251H-E3AE** — 12" XGA Panel PC, Intel® Atom™ E3827 1.75 GHz Processor, 4GB (Non-flat touch screen IP65 certified traditional TPC front panel)
- **PE-TPC1251-CT1400A** — TPC-1251T-E3AE w/WES 7Pro Panel Express, 32Gb CFast

Accessories

- **PWR-247-BE** — 63W DC 24V/2.62A Output Power Supply
- **TPC-1251T-EHKE** — HDD/SSD and iDoor extension kit
- **1702002600** — Power Cable US Plug 1.8 M
- **1702002605** — Power Cable EU Plug 1.8 M
- **1702031801** — Power Cable UK Plug 1.8 M
- **1700000596** — Power Cable China/Australia Plug 1.8 M
- **TPC-1000H-WMKE** — TPC VESA Mounting Kit from 10" to 17" TPC
- **TPC-1000H-SMKE** — TPC Stand kit from 10" to 17" TPC

Automation S/W & Embedded O/S

- **968WEXP003X** — PanelExpress V2.0 300 tags S/W license
- **968WEXP015X** — PanelExpress V2.0 1500 tags S/W license
- **968WEXP050X** — PanelExpress V2.0 5000 tags S/W license
- **968WEXP2USB** — PanelExpress V2.0 S/W dongle
- **2070013067** — WES7P X64 MUI. V4.12 B001
- **2070013359** — WEC7 X64 MUI. V4.00 B031

iDoor Modules (TPC-1251T-EHKE is required for iDoor modules)

- **PCM-24D2R4-AE** — 2-Port Isolated RS-422/485 mPCIe, DB9
- **PCM-26D2CA-AE** — 2-Port Isolated CANBus mPCIe, CANOpen, DB9
- **PCM-27D24DI-AE** — 24-Channel Isolated Digital I/O w/ counter mPCIe, DB37
- **PCM-24R1TP-AE** — 1-Port Gigabit Ethernet, Intel® 82574L, mPCIe, RJ45
- **PCM-24S2WF-AE** — WiFi 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, 2-port SMA
- **PCM-24U2U3-AE** — 2-Port USB 3.0, mPCIe, USB-A type
- **PCM-24S23G-AE** — Wide-Temp 3.75G HSPA and GPS, 2-in-1, Full-size mPCIe w/ Redundant SIM Card holder, 2-port SMA
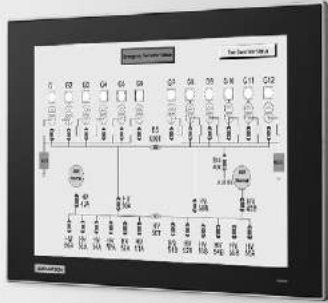
Application Software

SUSIACCESS	Version: V2.1 or above An innovative remote device management software, allowing efficient remote monitoring, quick recovery & backup, and real-time remote configuration, to create a more intelligent and interconnected embedded computing solution.
WebAccess	Version: V7.1 or above WebAccess, as the core of Advantech's IoT solution, is full web browser-based software package for HMI and SCADA software. All HMI and SCADA software features including: Animated Graphics Displays, Real-time Data, Control, Trends, Alarms and Logs, are available in a standard web browser. WebAccess is built around the latest internet technologies. With its open architecture, vertical domain applications can easily be integrated.
PANELEXPRESS Designed for Convenience	Version: V2.0.3.8 or above Panel Express, a windows based HMI mini SCADA, realizes the cross platform flexibility offered by WebOP Designer to switch hardware for the consideration of cost and performance become an easy job. Panel Express software provides the best economic and express solution for data intensive high-end HMI applications.
WebOP Designer	Version: V2.0.3.8 or above An easy to use integrated development tool featuring solution-oriented screen objects, high-end graphics, Windows fonts for multi-language applications. WebOP runtime, a part of WebOP Designer, guarantees reliability and performance because of the minimum system overhead, high communication data rates, and sub-second screen switching.

TPC-651T

NEW

Features

- Industrial 5.7" VGA TFT LCD with 50K Lifetime LED Backlight
- Intel® Atom™ E3827 1.75 GHz Processor with 4GB (8GB optional) DDR3L SDRAM
- Support wide operating temperatures -20~60°C
- Compact Fanless Embedded System with Al Alloy Front Bezel
- True-flat with IP66 certified front panel protection
- Durable 5-wire Resistive Touch Screen
- Full-size Mini PCIe Expansion Support
- Supports iDoor technology for diverse applications (optional accessory required)
- Chassis Grounding Protection
- Supports USB 3.0

SUSIAccess iDoor | R33138 | CCC | CE | FCC | c(UL)us LISTED E180881 I.T.E.

Introduction

The TPC-651T thin client terminal with a 5.7" VGA LCD, low power embedded Intel® Atom™ E3827 1.75 GHz Processor and 4GB (8GB optional) DDR3L SDRAM provides computing performance in a compact fanless system. To enhance its durability, the TPC-651T is true-flat touch screen designed with IP66 front protection, die-cast Al Alloy front bezel and 5-wire resistive touch. It supports wide operating temperatures -20~60°C and includes full size mini-PCIe slot to extend the functionality and meet a variety of automation applications needs. Through the Mini-PCIe slot, Advantech iDoor technology (optional) can provide more I/O connectors, Isolated Digital IO, the Fieldbus Protocol, 3G/GPS/GPRS/WiFi Communication and Battery-backup MRAM.

Specifications

General

- **BIOS** AMI UEFI
- **Certification** BSMI, CCC, CE, FCC Class A, UL
- **Cooling System** Fanless design
- **Dimensions (W x H x D)** 199 x 152 x 58.9 mm (7.83" x 5.98" x 2.32")
- **Enclosure** Front bezel: Die-cast Aluminum alloy
  Back housing: SECC
- **Mounting** Desktop, Wall or Panel Mount
- **OS Support** Microsoft® WES7 64bit /WE8S 64bit / Windows 7 32bit/64bit
- **Power Consumption** 19.2 W (typical)
- **Power Input** 24V$_{DC}$ ± 20%
- **Watchdog Timer** 1 ~ 255 sec (system)
- **Weight (Net)** 1.5 KG

System Hardware

- **CPU** Intel® Atom™ E3827 1.75 GHz Processor
- **Memory** 4GB (8GB optional) DDR3L 1600MHz SO-DIMM SDRAM
- **LAN** 10/100/1000 Base-T x 2
- **Expansion Slots** Full-size Mini PCI-E
- **Storage** CFast slot x 1
  2.5" SATA SSD slot x 1 (optional)
- **I/O** RS-232 x 1, RS-232/422/485 x 1
  USB 3.0 x 1
  USB 2.0 x 1

LCD Display

- **Display Type** VGA TFT LED LCD
- **Display Size** 5.7"
- **Max. Resolution** 640 x 480
- **Max. Colors** 262K
- **Luminance cd/m²** 550
- **Viewing Angle (H/V°)** 160/140
- **Backlight Life** 50,000 hrs
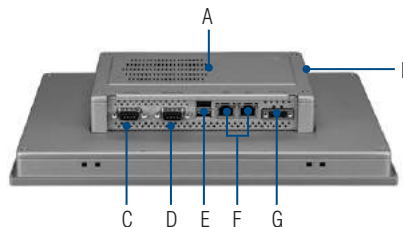- **Contrast Ratio** 800:1

Touchscreen

- **Lifespan** 36 million touches at single point
- **Light Transmission** Above 75%
- **Resolution** Linearity
- **Type** 5-wire, analog resistive

Environment

- **Humidity** 10 ~ 95% RH @ 40°C, non-condensing
- **Ingress Protection** Front panel: IP66
- **Operating Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Storage Temperature** -30 ~ 70°C (-22 ~ 158°F)
- **Vibration Protection** With CFast: 2 Grms (5~500 Hz)
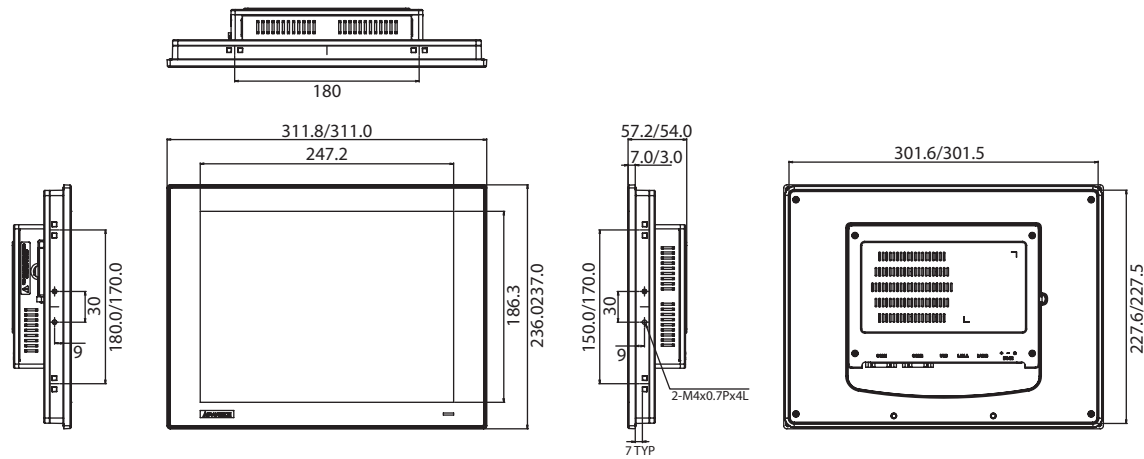 With HDD: 1 Grms (5 ~ 500 Hz)
  (Operating, random vibration)

Rear View

A. External HDD/iDoor kit
   (TPC-1251T-EHKE) (Optional)
B. CFast Slot
C. RS-232
D. RS-232/422/485
E. USB 3.0 & 2.0
F. LAN (10/100/1000)
G. Power Receptor

Dimensions

Unit: mm

132

199

117.2

88.4

152

58.9

7

7

187.8

140.8

7

Panel Cut-out Dimensions: 189.1 x 142.1 mm (7.44" x 5.59")

1 WebAccess+ Solutions

2 Motion Control

3 Power & Energy Automation

4 Automation Software

5 Intelligent Operator Panel

6 Automation Panels

7 Panel PCs

8 Industrial Wireless Solutions

9 Industrial Ethernet Solutions

10 Industrial Gateway Solutions

11 Serial communication cards

12 Embedded Automation PCs

13 DIN-Rail IPCs

14 CompactPCI Systems

15 IoT Wireless I/O Modules

16 IoT Ethernet I/O Modules

17 RS-485 I/O Modules

18 Data Acquisition Boards

Ordering Information

- **TPC-651T-E3AE** 5.7" VGA Panel PC, Intel® Atom™ E3827 1.75 GHz Processor, 4GB (True-flat touch screen)
- **TPC-651H-E3AE** 5.7" VGA Panel PC, Intel® Atom™ E3827 1.75 GHz Processor, 4GB (Non-flat touch screen IP65 certified traditional TPC front panel)

Accessories

- **PWR-247-BE** 63W DC 24V/2.62A Output Power Supply
- **TPC-1251T-EHKE** HDD and iDoor extension kit
- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M

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- **968WEXP015X** PanelExpress V2.0 1500 tags S/W license
- **968WEXP050X** PanelExpress V2.0 5000 tags S/W license
- **968WEXP2USB** PanelExpress V2.0 S/W USB dongle
- **2070013067** WES7P X64 MUI. V4.12 B001
- **2070013359** WEC7 X64 MUI. V4.00 B031

iDoor Modules (TPC-1251T-EHKE is required for iDoor modules)

- **PCM-24D2R4-AE** 2-Port Isolated RS-422/485 mPCIe, DB9
- **PCM-26D2CA-AE** 2-Port Isolated CANBus mPCIe, CANOpen, DB9
- **PCM-27D24DI-AE** 24-Channel Isolated Digital I/O w/ counter mPCIe, DB37
- **PCM-24R1TP-AE** 1-Port Gigabit Ethernet, Intel® 82574L, mPCIe, RJ45
- **PCM-24S2WF-AE** WiFi 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, 2-port SMA
- **PCM-24U2U3-AE** 2-Port USB 3.0, mPCIe, USB-A type
- **PCM-24S23G-AE** Wide-Temp 3.75G HSPA and GPS, 2-in-1, Full-size mPCIe w/ Redundant SIM Card holder, 2-port SMA

Application Software

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PANELEXPRESS Designed for Convenience	Version: V2.0.3.8 or above Panel Express, a windows based HMI mini SCADA, realizes the cross platform flexibility offered by WebOP Designer to switch hardware for the consideration of cost and performance become an easy job. Panel Express software provides the best economic and express solution for data intensive high-end HMI applications.
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SPC-2140WP

21.5" Full HD TFT LED LCD stationary Multi-Touch Panel Computer

iF product design award 2013

NEW

Features

- 21.5" Full HD TFT LED LCD display
- AMD dual-core 1.6GHz processor with independent GPU, advanced graphical performance
- 16:9 wide screen with PCT multi-touch
- Built-in function and home key button used for intuitive UI
- Anti-scratch touch surface: 7H hardness
- All around IP65 with waterproof M12 connector
- Support Mini-PCIe expansion slot
- Front LED indicator to show operating status
- Fanless cooling system
- Winner of the 2013 iF product design award

SUSIAccess ik•y R33138 CCC CE FCC c(UL)us LISTED E180881 I.T.E.

Introduction

With a brand-new ID design, the SPC-2140WP series provide high resolution 21.5" display and PCT multi-touch in 16:9 wide format. By embedding an AMD T56N 1.6GHz processor with independent GPU, the SPC-2140WP can support advanced graphical performance in more complex applications. Built-in function and home key button for greater user usability and operating safety. The SPC-2140WP also support Mini-PCIe slot for communication function expansion. Moreover, the SPC-2140WP includes an all around IP65 waterproof design with M12 connectors. With this vertical I/O connector, cable routing can be an easy job in stationary / VESA Arm applications.

Specifications

General

- **Certification** BSMI, CCC, CE, FCC Class A, UL
- **Cooling System** Fanless design
- **Dimensions (W x H x D)** 558.4 x 349.8 x 65 mm (21.98" x 13.77" x 2.56")
- **Enclosure** Front bezel: Die-cast Aluminium alloy
  Back housing: Die-cast Aluminium alloy
- **Mounting** VESA Arm
- **OS Support** Microsoft® Win7/8/WES7P/XP/WES2009/Linux
- **Power Consumption** 35 W Typical
- **Power Input** 24 V_{DC}
- **Weight (Net)** 9 kg (19.8 lbs)

System Hardware

- **CPU** AMD G-series T56N 1.6GHz
- **Chipset** AMD A50M FCH
- **Memory** 4GB SO-DIMM DDR3 SDRAM
- **LAN** 10/100/1000Base-T x 2 (connection:M12 A-coded, 8-pin female)
- **Expansion Slots** Full-sized Mini PCIe slot x 1 (optional)
- **Storage** 2.5" SATA HDD bracket x 1
- **I/O** RS-232 x1 (connection:M12 A-coded, 8-pin male)
  USB 2.0 x1 (connection:M12 A-coded, 8-pin female)
  24 V_{DC} power input (connection:M12 A-coded, 5-pin male)

LCD Display

- **Display Type** Full HD TFT LED LCD
- **Display Size** 21.5"
- **Max. Resolution** 1920 x 1080
- **Max. Colors** 16.7 M
- **Luminance cd/m²** 300
- **Viewing Angle (H/V°)** 178/178
- **Backlight Life** 50,000 hrs

Touchscreen

- **Light Transmission** ≥88%
- **Resolution** 4096*4096 dot
- **Type** Projected capacitive

Environment

- **Humidity** 10 ~ 95% RH @ 40°C, non-condensing
  Note: Tested for 48hrs
- **Ingress Protection** All around IP65
- **Operating Temperature** 0 ~ 55°C (32 ~ 131°F)
- **Storage Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Vibration Protection** With HDD: 1 Grms (5 ~ 500 Hz) (Operating, random vibration)

Rear View

a b c d e
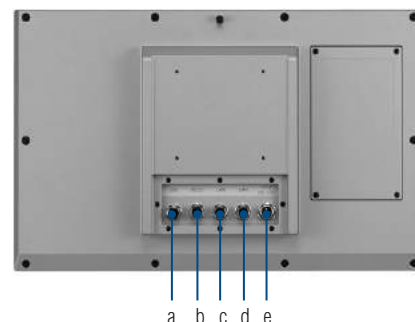
a. USB 2.0 with M12 connector
b. COM (RS-232) with M12 connector
c. LAN 1 with M12 connector
d. LAN 2 with M12 connector
e. 24 V_{DC} input with M12 connector

ADVANTECH | Automation Panels

Dimensions

Unit: mm [inch]

558.4 [21.98]

21.5"

349.8 [13.77]

65.00 [2.56]

39.75 [1.56]

100.00 [3.94]

M4 M4

100.00 [3.94]

M4 M4
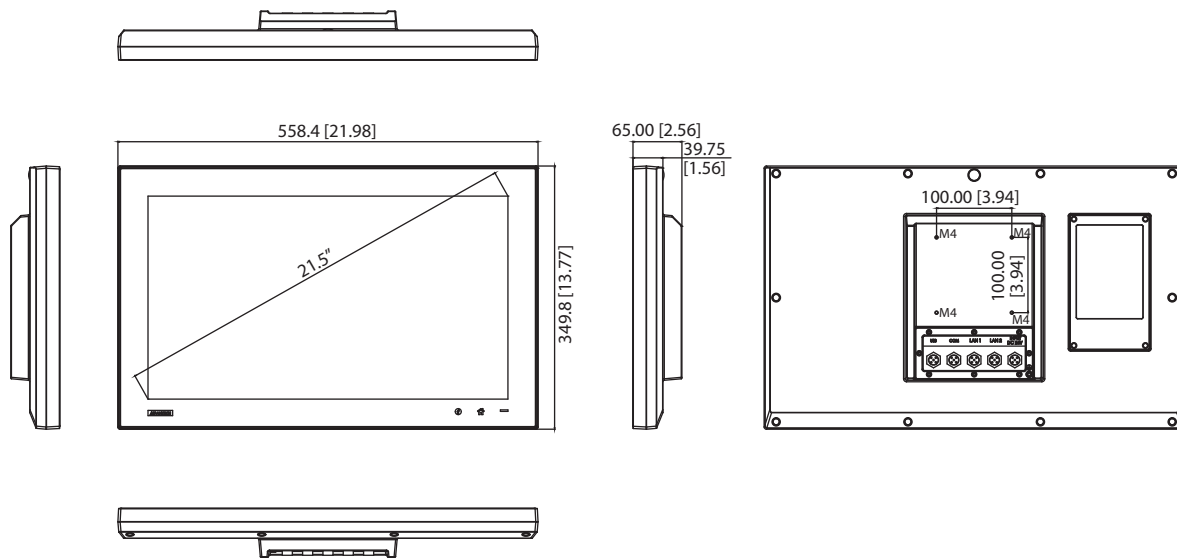
Ordering Information

- **SPC-2140WP-T3AE**   21.5" full-HD stationary Multi-Touch Panel PC, 4GB
- **WA-SPC2140WP**   SPC-2140WP-T3AE with WebAccess software

Accessories

- **PWR-247-BE**   63W DC 24V/2.62A Output Power Supply
- **1702002600**   Power Cable US Plug 1.8 M
- **1702002605**   Power Cable EU Plug 1.8 M
- **1702031801**   Power Cable UK Plug 1.8 M
- **1700000596**   Power Cable China/Australia Plug 1.8 M
- **EWM-W151H01E**   802.11bgn RTL8188EE 1T1R, Half-size Mini-PCIe (also need 9656EWMG00E)
- **9656EWMG00E**   Half-size miniPCIe to Full-size miniPCIe bracket set
- **1750007668-01**   Waterproof Wireless Antenna R/P SMA.M2dB L=86.7
- **1750003418**   Wireless Antenna AN2400-5901RS R/P SMA.M9dB
- **SPC-1840WP-MCKE**   M12 cable accessory kit for SPC series
- **SPC-1840WP-MOKE**   M12 Connector accessory kit for SPC series

Automation Software

- **968WEXP003X**   PanelExpress V2.0 300 tags S/W license
- **968WEXP015X**   PanelExpress V2.0 1500 tags S/W license
- **968WEXP050X**   PanelExpress V2.0 5000 tags S/W license
- **968WEXP2USB**   PanelExpress V2.0 S/W USB dongle

Application Software

SUSIACCESS	Version: V2.1 or above An innovative remote device management software, allowing efficient remote monitoring, quick recovery & backup, and real-time remote configuration, to create a more intelligent and interconnected embedded computing solution.
WebAccess	Version: V7.1 or above WebAccess, as the core of Advantech's IoT solution, is full web browser-based software package for HMI and SCADA software. All HMI and SCADA software features including: Animated Graphics Displays, Real-time Data, Control, Trends, Alarms and Logs, are available in a standard web browser. WebAccess is built around the latest internet technologies. With its open architecture, vertical domain applications can easily be integrated.
PANELEXPRESS Designed for Convenience	Version: V2.0.3.8 or above Panel Express, a windows based HMI mini SCADA, realizes the cross platform flexibility offered by WebOP Designer to switch hardware for the consideration of cost and performance become an easy job. Panel Express software provides the best economic and express solution for data intensive high-end HMI applications.
WebOP Designer	Version: V2.0.3.8 or above An easy to use integrated development tool featuring solution-oriented screen objects, high-end graphics, Windows fonts for multi-language applications. WebOP runtime, a part of WebOP Designer, guarantees reliability and performance because of the minimum system overhead, high communication data rates, and sub-second screen switching.

FPM-6211W

21.5" Full HD Semi-industrial Monitor with PCT Touch, Direct-HDMI Ports and Support Long-distance / Daisy chain applications

NEW

Features

- 21.5" Full HD TFT LED LCD backlight LCD
- True-flat design with IP65 compliance
- 16:9 wide screen display, view area increases by 40%
- Supports 5 points multi-touch via USB interface
- Slim type design with thinnest side bars on touch
- Projected Capacitive Touchscreen with reliable 7H hardness glass surface
- iKey for OSD control and remote/local source switch
- Seamless connection with iLink boxes via board to board connector
- Support VESA mounting
- Lockable I/O connectors
- long-distance / daisy chain applications support with optional iLink boxes

iLink **iKey** ⊜ ⊕ ⊂C∈ **FCC** ⊂(UL)us
R33138   LISTED E180881 I.X.E.

Introduction

With it's breakthrough design,the FPM-6211W not only provides a wide screen display size with industrial grade design concept but also provides long-distance and daisy-chain application support. With the iLink solution, the distance between the system and the monitor can be extended to 100 meters long and it can show clone images on up to four monitors, for a total of 400 meters. With the thinnest design in the industry it provides a compact and modern look & feel, ideally suited for VESA mounting. True flat design provides better dust and water resistance, easy for daily maintenances and enhances reliability

Specifications

General

- **OSD Controls**   Touch OSD control in front bezel
- **Certification**   BSMI, CCC, CE, FCC Class A, UL
- **Dimensions (W x H x D)** 519.6 x 314.3 x 26 mm (20.46" x 12.37" x 1.02")
- **Enclosure**   Die-cast Aluminum alloy
- **Mounting**   Wall, desktop, VESA (MIS,100,C)
- **Power Input**   Phoenix Jack: 24 V_{DC} input
- **Power Consumption** 20 W + 20%
- **Video Port**   HDMI
- **Weight (Net)**   5 kg

LCD Display

- **Display Type**   FULL HD TFT LED LCD
- **Display Size**   21.5"
- **Max. Resolution**   1920 x 1080
- **Max. Color**   16.7 M
- **Viewing Angle (H/V°)**   170/160
- **Luminance (cd/m²)**   250
- **Backlight Life (hrs)**   30,000
- **Contrast Ratio**   1000:1

Touchscreen

- **Type**   Projected capacitive touch
- **Interface**   USB
- **Light Transmission**   90% ±2%
- **OS Support**   Windows XP, Vista,7, 8, XPe and Linux
- **Multi Touch**   5 points, USB interface in Win 7/8.
- **Hardness**   7H

Environment

- **Operation Temperature**   0 ~ 55°C (32 ~ 131°F)
- **Storage Temperature**   -20 ~ 60°C (-4 ~ 140°F)
- **Humidity (Storage)**   10 ~ 90% non-condensing
- **Waterproof**   Front panel is IP65 compliant
- **Vibration**   5 ~ 500 Hz, 1 Grms (Operating, Random)

Rear View

24V$_{DC}$ Power Input with Phoenix Connector   USB Port for T/S

HDMI Port

Dimensions

Unit: mm [inch]

519.60 [20.46]

314.30 [12.37]

21.5"

26.00 [1.02]

100.00 [3.94]

100.00 [3.94]
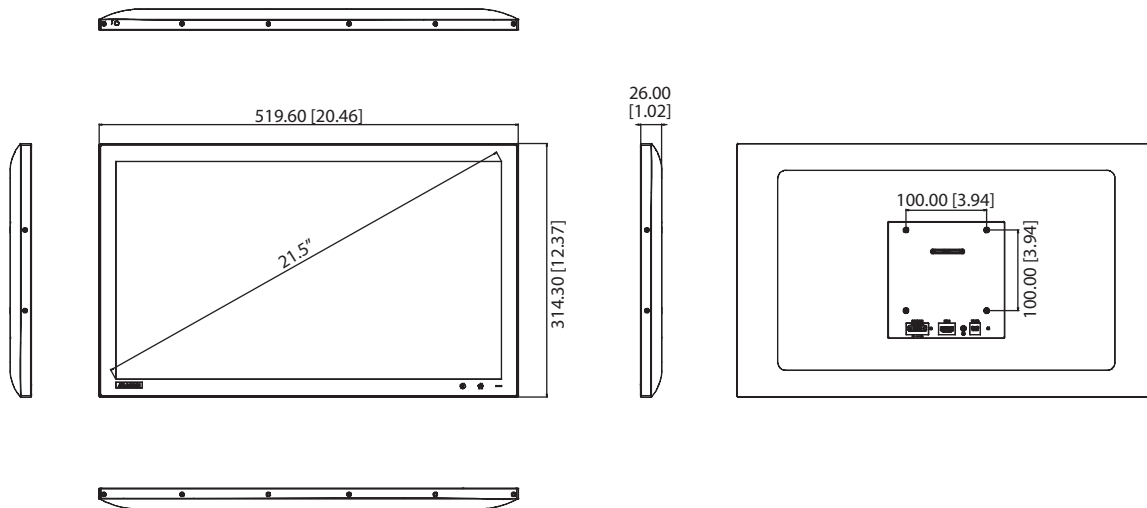
Ordering Information

- **FPM-6211W-P2AE**   21.5" FULL HD Ind Monitor w/PCT TS (HDMI)

Accessories

- **1702002600**   Power Cable US Plug 1.8 M
- **1702002605**   Power Cable EU Plug 1.8 M
- **1702031801**   Power Cable UK Plug 1.8 M
- **1700000596**   Power Cable China/Australia Plug 1.8 M
- **PWR-247-BE**   100-240V 63W 24V 2.62A Power Supply

iLink Boxes Ordering Information

- **PCM-28R1CT-AE**   iLink Transmitter box
- **PCM-28R1CR-AE**   iLink Receiver box
- **PCM-28R2CX-AE**   iLink Transmitter/Receiver box

iLink Topology

iLink Transmitter BOX [PCM-28R1CT]

HDMI

CAT 5 100m

iLink Receiver BOX [PCM-28R1CR]

iLink Transmitter/Receiver BOX [PCM-28R1CX]

HDMI

CAT 5 100m   CAT 5 100m   CAT 5 100m   CAT 5 100m

1 WebAccess+ Solutions
2 Motion Control
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4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
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9 Industrial Ethernet Solutions
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14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

TPC-8100TR

10.4" EN50155 Railway Panel Computer

NEW

SUSI**Access** ⓒⓒⓒ C E FCC

Features

- 10.4" XGA 1024x768 with 350 nits LED LCD display
- Fanless with Dual core 1.6 GHz processor
- 5H Hardness resistive touch
- Alternative keypad control in front bezel
- Mother board / Daughter board with coating for weather proof
- All around IP65 with waterproof M12 connector
- Optical bonding for weather proofing
- Ruggedized enclosure with Die-cast Aluminium alloy
- Wide operating temperature: -30 ~ 70°C
- EN50155 & EN45545 Compliance for railway application

Introduction

Advantech's HMI TPC-8100TR for transportation is used to keep the train driver informed about status of the train's functions. Its design allows it to be deployed in environments with an extended temperature range (−30 to +70°C) and it also complies with the EMC, shock and vibration test requirements of European standard EN50155 and EN45545 for railway applications.

The TPC-8100TR 10,4" TFT display has a ruggedized touch panel and optical bonding for weather-proofing. All round IP65 and M12 connectors are the perfect choice for Human Machine Interfaces (HMI) in railway environments. The internal boards all have Conformal Coating protection for anti-moisture protection. The TPC-8100TR includes a comprehensive feature set with two Ethernet ports, serial interfaces, USB ports, built-in CFast devices.

Railway power module design support 10 ms interruption (EN50155, S2) , EMI EN55022 CLASS A filter, Over/Short current protection for its railway application.

Specifications

General

- **Certification** CE,FCC,CCC,EN50155 Compliance
- **Cooling System** Fanless design
- **Dimensions (W x H x D)** 345x227x85mm (13.58" x 8.94' x 3.35")
- **Enclosure** Front bezel: Die-cast Aluminium alloy
  Back housing: Die-cast Aluminium alloy
- **Mounting** Panel Mount / VESA Mount
- **OS Support** WES 7 & 8/ WES 2009 / Windows CE 7.0 / Linux
- **Power Consumption** 35 W Typical
- **Power Input** 110 V$_{DC}$, 96 V$_{DC}$, 72 V$_{DC}$,
  48 V$_{DC}$ (option), 37.5 V$_{DC}$ (option),
  24 V$_{DC}$ (option)
- **Weight (Net)** 5 kg (11 lbs)

System Hardware

- **CPU** Intel Cedar Trail Dual core processor 1.6G
- **Chipset** Intel Atom N2600
- **Memory** 4GB SO-DIMM DDR3 SDRAM
- **Storage** Built in 64G CFast card
- **I/O** 2 x RS-232 (connection: M12 A-code, 8-pin male)
  2 x422/485 (with isolation, connection: M12 A-code, 8-pin male)
  2 x USB2.0 (connection: M12 A-code, 8-pin female)
  2 x 100/1000 Base (connection: M12 A-code, 8-pin female)
  1x Audio (with Internal Buzzer,Line out, connection: M12 A-code, 8-pin male)
  1x Power connector (connection: M12 A-code, 5-pin male)
  1xSMA connector for Wi-Fi
  1xSMA connector for GPS

LCD Display

- **Display Type** XGA TFT LED LCD
- **Display Size** 10.4"
- **Max. Resolution** 1024x768
- **Max. Colors** 16.2 M
- **Luminance cd/m²** 350
- **Viewing Angle (H/V°)** 176/176
- **Backlight Life** 30,000 hrs
- **Contrast Ratio** 1200:1
- **Environment**
  Humidity 10 ~ 95% RH @ 40°C, non-condensing
- **Ingress Protection** All around IP65
- **Operating Temperature** -30 ~ 70°C (-22 ~ 158°F)
- **Storage Temperature** -30 ~ 70°C (-22 ~ 158°F)
- **Vibration Protection** IEC 61373 Railway– Shock and Vibration

ADVANTECH | **Automation Panels**

Dimensions

Unit: mm [inch]

345.00 [13.58]
320.00 [12.60]
Ø9.00 [Ø0.35]
Ø14.50 [0.57]

227.00 [8.94]
160.00 [6.30]
33.50 [1.32]

10.4"

85.00 [3.35]
77.00 [3.03]
6.00 [0.24]

Ø14.50 [0.57]
Ø9.00 [0.35]
3.00 [0.12]

281.05 [11.06]
100.00 [3.94]
M4 SCREW
100.00 [3.94]
M4 SCREW
204.05 [8.03]
22.50 [0.89]

Panel Cut-out Dimension

205.00 [8.07]
160.00 [6.30]

22.50 [0.89]
19.00 [0.75]
282.00 [11.10]
19.00 [0.75]
320.00 [12.60]
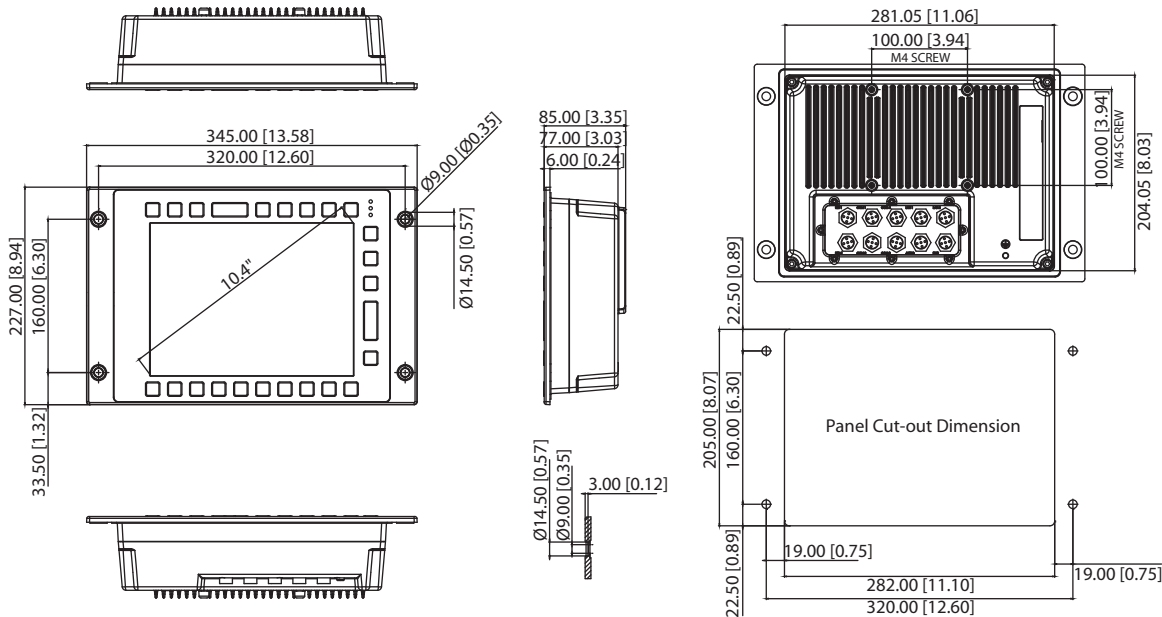
Ordering Information

- **TPC-8100TR-N3AE**   10.5" SVGA Touch Panel PC

Accessories
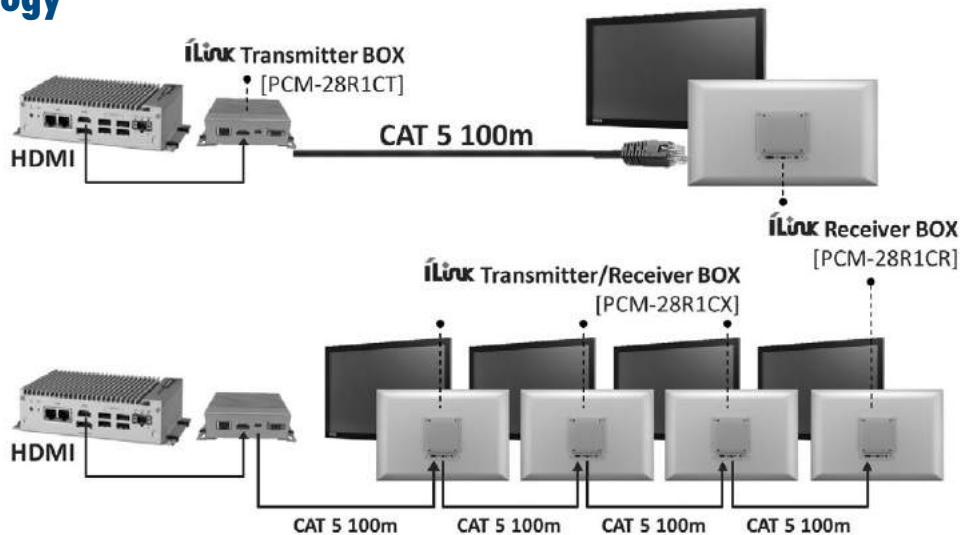
- **PWR-247-BE**   63W DC 24V/2.62A Output Power Supply
- **1702002600**   Power Cable US Plug 1.8 M
- **1702002605**   Power Cable EU Plug 1.8 M
- **1702031801**   Power Cable UK Plug 1.8 M
- **1700000596**   Power Cable China/Australia Plug 1.8 M
- **EWM-C109F6G1E**   6-band HSPA Cellular Module, SIM holder+GPS
- **1750006432**   GPS antenna 5000mm AG1575-0250SM-UL
- **1750005865**   GSM Antenna L=10.9cm 50Ohm AN8921F-5701SM
- **TPC-8100TR-MOKE**   (9 x M12 Connectors for TPC-8100TR)
- **TPC-8100TR-MCKE**   (9 x M12 Cables supporting standard I/O connector for TPC-8100TR)

Front View
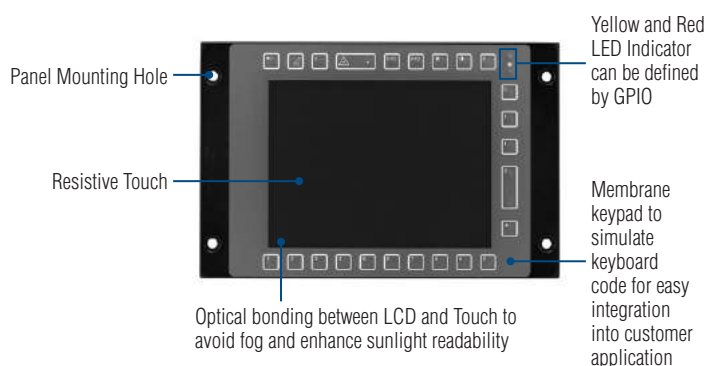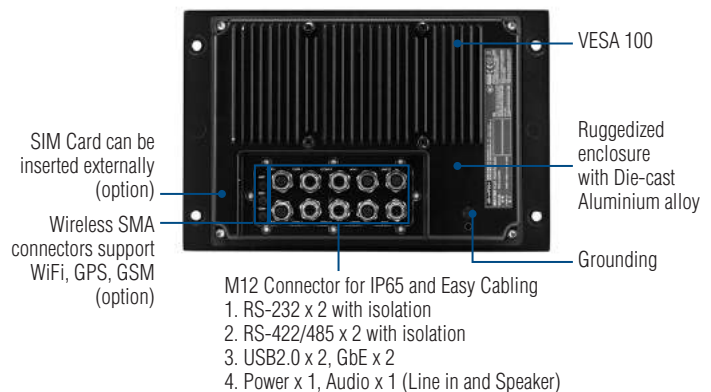
Panel Mounting Hole

Resistive Touch

Yellow and Red LED Indicator can be defined by GPIO

Membrane keypad to simulate keyboard code for easy integration into customer application

Optical bonding between LCD and Touch to avoid fog and enhance sunlight readability

Rear View

SIM Card can be inserted externally (option)

Wireless SMA connectors support WiFi, GPS, GSM (option)

VESA 100

Ruggedized enclosure with Die-cast Aluminium alloy

Grounding

M12 Connector for IP65 and Easy Cabling
1. RS-232 x 2 with isolation
2. RS-422/485 x 2 with isolation
3. USB2.0 x 2, GbE x 2
4. Power x 1, Audio x 1 (Line in and Speaker)

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
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16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

IPPC-5211WS

21.5" Full HD TFT LED LCD Industrial Multi-Touch Panel PC Stainless Steel chassis with IP69K Rated

NEW

Features

- Stainless steel chassis with IP69K waterproof rating
- The detachable product portfolio with accessories for various applications.
- Intel® Celeron Processor J1900
- Operating temperature : 0 ~ 50°C
- 21.5" Full HD TFT LED LCD display
- 16:9 widescreen with PCT multi-touch
- Supports iDoor or antenna
- Built-in function and home key button used for intuitive UI
- Fully flat glass front panel with 7H hardness
- Supports 4 GB DDR3L SO-DIMM
- Fanless cooling system
- Front LED indicator to show operating status

SUSIAccess **iKey** **iDoor** **CCC** **CE FCC** **c UL us** LISTED E180881 I.T.E.

Introduction

The IPPC-5211WS 21.5" fully sealed stainless steel multi-touch panel PC is IP69K rated and has a detachable product portfolio designed for OEMs and process manufacturing. It supports special functions via iDoor, iKey and an antenna, and is designed for HMIs which require better performance and functionality of machine-level interfaces used in Machineto-Machine (M2M), Internet of Things (IoT) etc which require extra protection for hygienic and harsh environments where the intrusion of dust, condensation and water jets is possible. The IPPC-5211WS can also perform a touch shut-down to avoid accidental operation.

Specifications

General

- **Certification** IP69k, CE, FCC Class A, UL, CCC, BSMI
- **Dimensions (W x H x D)** 555 x 346.5 x 81 (21.85" x 13.64" x 3.19")
- **Enclosure** Front : Stainless steel
  Back : Aluminum / stainless steel(optional)
- **Mounting** VESA and Flange connection adapter for arm and foot system
- **Power Consumption** 40 W
- **Power Input** 24 V_{DC}
- **Weight** 18 Kg
- **OS Support** Windows 7 (64bit), Windows 8 (64bit), Windows CE 7.0, Linux
- **BIOS** AMI UEFI

System Hardware

- **CPU** Intel® Celeron Processor J1900
- **Memory** 4 GB DDR3L SO-DIMM, up to 8GB
- **LAN** RTL8111E-VL-CG
- **Storage** Cfast (SATA Gen2) with ejector (optional)
  HDD (SATA Gen2) (optional)

LCD Display

- **Resolution** Full HD 1920 x 1080
- **Contrast** 5,000
- **Luminance (cd/m²)** 300
- **Backlight** 12V
- **Max Colors** 16.7 M
- **Lifetime** 50,000 hours

Touchscreen

- **Type** Projected capacitive touch
- **Interface** USB

Environment

- **Humidity** 10 ~ 95% RH @ 40°C, non-condensing
  Note: Tested for 48hrs
- **Operating Temperature** 0 ~ 50°C (32 ~ 122°F)
- **Storage Temperature** -20 ~ 60°C (-4 ~ 140°F)

I/O Interface

- **LAN** 2 x 10/100/1000 Mbps RJ45
- **Serial Ports** 1 x RS-232
  1 x RS-232/RS-485/RS-422
- **USB** 1 x USB 2.0
  1 x USB 3.0
- **iDoor** 1 x iDoor (optional)
- **Antenna** 1x Waterproof Wireless Antenna (optional)

ADVANTECH | **Automation Panels**

Dimensions

Unit: mm [inch]

555 [21.85]
478.20 [18.83]
21.5"
269.70 [10.62]
346.50 [13.64]

81 [3.19]
26 [1.02]
15.25 [0.60]
216 [8.50]

326 [12.83]
216 [8.50]
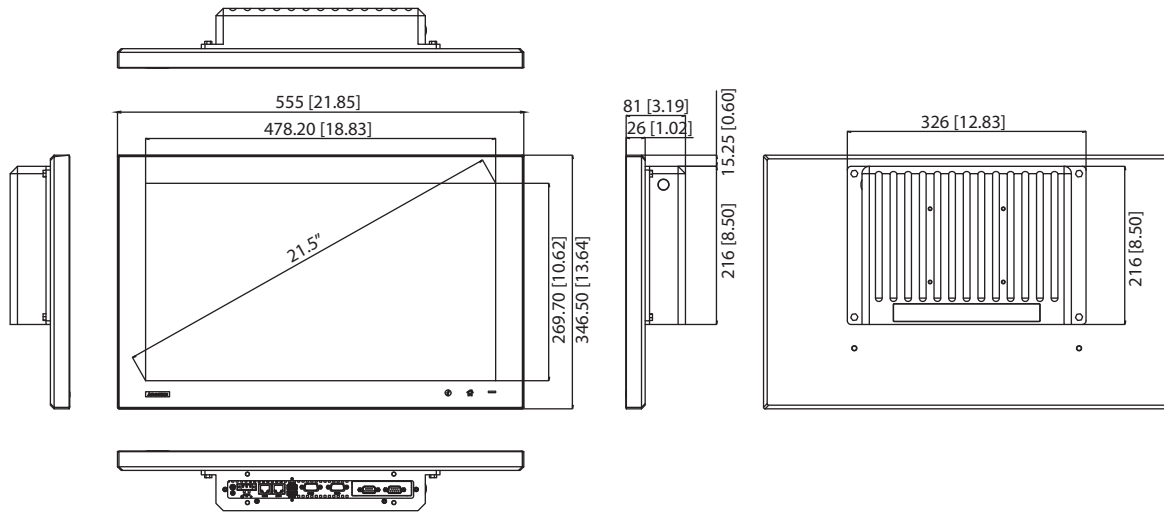
Ordering Information

- **IPPC-5211WS-J3AE** 21.5" Full HD 1080 TFT LCD with PCT touch, Intel® Celeron Processor & IP69K rating

iDoor Modules

- **PCM-24D2R4-AE** 2-Port Isolated RS-422/485 mPCIe, DB9
- **PCM-24D2R2-AE** 2-Port Isolated RS-232 mPCIe, DB9
- **PCM-27D24DI-AE** 24-Channel Isolated Digital I/O w/ counter mPCIe, DB37
- **PCM-26R2PN-MAE** 2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45, Master
- **PCM-26R2PN-SAE** 2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45, Slave
- **PCM-26D1DB-MAE** 1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Master
- **PCM-26D1DB-SAE** 1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Slave

Accessories

- **IPPC-5211WS-EMKE** A detachable unit for connecting to foot and arm flange systems
- **1750007668-01** Waterproof Wireless Antenna R/P SMA.M2dB L=86.7

IPPC-5211WS-EMKE

c1,c2 e g f e d c1,c2 b a(X12)

Rear View

a   b   c d e   f
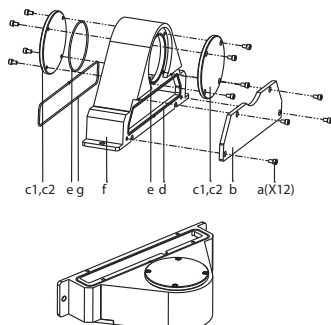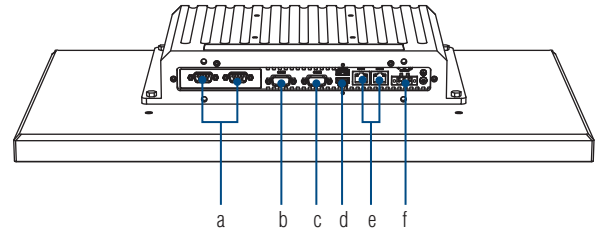
a. iDoor
b. COM1 (RS-232)
c. COM2 (RS232/RS485/RS422)
d. USB (USB3.0 x 1/ USB2.0 x 1)

e. 2 x LAN (10/100/1000 Mbps)
f. Power Receptor (24 V_{DC})

Product type with IPPC-5211WS-EMKE

Arm system

Foot system
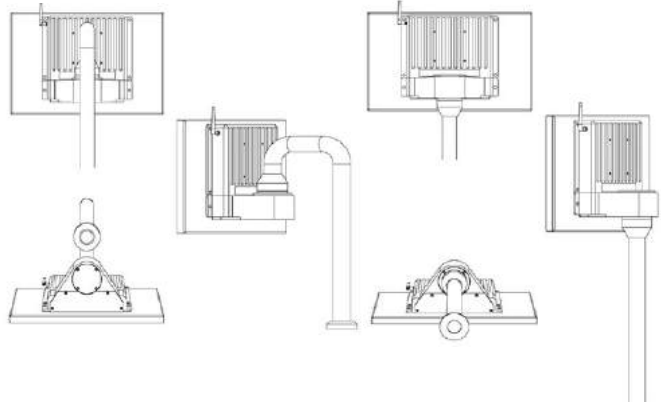
1 WebAccess+ Solutions
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16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

FPM-8151H

15" XGA Industrial Monitor for Hazardous Location, with 316L Stainless Steel Front Panel

NEW

Features

- 15" XGA TFT LCD with LED backlight
- Stainless steel 316L front panel
- IP65 compliant front panel
- -20 ~ 60°C (-4 ~ 140°F) wide operating temperature range
- Enhanced 5-wire resistive touch panel
- Direct VGA & DVI-D video input interface
- Combo RS-232 & USB interface for touchscreen function
- Supports 24 VDC input and 100~240 VAC input (optional AC adapter)
- OSD control pad with lockable function on front panel
- Certified with UL CID2 for hazardous environments

Introduction

The FPM-8151H is a particularly rugged and reliable 15" XGA wide temperature industrial monitor for a variety of industry applications. Equipped with a wide operating temperature range of -20 ~ 60°C (-4 ~ 140°F), it can satisfy demands in a wide range of harsh industrial applications. This model also features enhanced 5-wire resistive touch and system isolation to enhance the reliability. Moreover, FPM-8151H is designed to be safely operated in these locations and is Certified with UL Class I Division 2 for hazardous environments.

Specifications

General

- **Button Controls** OSD control pad on front panel with lockable function 2 user-defined contrast/brightness settings
- **Certification** CE, FCC Class A, UL C1D2, CB, BSMI, CCC
- **Dimensions (W x H x D)** 422 x 338 x 68 mm (16.61" x 13.31" x 2.68")
- **Enclosure** Front panel: 316L Stainless steel
  Rear cover: Stainless steel
  Ground Isolation Protection
- **Mounting** Panel, wall, desktop, VESA arm
- **Power Input** Phoenix Jack: 24 V_{DC} input
  DC Jack: external 57 W power adapter, with
  100 ~ 240 V_{AC} input and 12 V_{DC} @ 4.75 A output (Optional)
- **Power Consumption** 12W
- **Video Port** VGA & DVI-D Port
- **Weight (Net)** 8.5 kg (18.74 lbs)

LCD Display

- **Display Type** XGA TFT LCD
- **Backlight Type** LED
- **Display Size** 15"
- **Max. Resolution** 1024 x 768
- **Max. Color** 16.2M (RGB 8-bits)
- **Viewing Angle (H/V°)** 160/140
- **Luminance (cd/m2)** 350
- **Backlight Life (hrs)** 50,000
- **Contrast Ratio** 700:1

Touchscreen

- **Sensor** AMT
- **Driver** Penmount 6000
- **Type** 5-wire resistive with enhanced ITO film
- **Interface** USB & RS-232 (Combo)
- **Lifespan** 36 million with a silicone rubber R8 finger, writing rate is by 250g at 2 times/s
- **Light Transmission** > 80%
- **OS Support** Windows 2000, XP, Vista, 7, XPe, CE and Linux
- **Power Consumption** +5 V @ 100 mA
- **Touch Resolution** Linearity

Environment

- **Operation Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Storage Temperature** -30 ~ 80°C (-22 ~ 176°F)
- **Humidity (Storage)** 10 ~ 95% non-condensing
- **Waterproof** Front panel is IP65 compliant
- **Shock** 11ms, 10G (Non Operating, Half Sine Wave)
- **Vibration** 5 ~ 500 Hz, 1 Grms (Operating, Random)

ADVANTECH | **Automation Panels**

Dimensions

Unit: mm [inch]

36.00 [1.42]
60.00 [2.36]

422.00 [16.61]

338.00 [13.31]

68.00 [2.68]

8.00 [0.31]

390.00 [15.35]
100.00 [3.94]
75.00 [2.95]

M4 Depth=8mm
M4 Depth=8mm
M4 Depth=8mm
M4 Depth=8mm
M4 Depth=8mm
M4 Depth=8mm

75.00 [2.95]
100.00 [3.94]
290.00 [11.42]

Panel Cut-out Dimensions: 396 x 296 mm (15.59" x 11.65")

Ordering Information

- **FPM-8151H-R3AE**   15" XGA Ind. Monitor VGA, DVI, Wide Temp

Accessories

- **FPM-2150G-SMKE**   Mounting kit for desktop stand & wall
- **1702002600**   Power Cable US Plug 1.8 M
- **1702002605**   Power Cable EU Plug 1.8 M
- **1702031801**   Power Cable UK Plug 1.8 M
- **1702031836**   Power Cable China/Australia Plug 1.8 M
- **1757003822**   ADAPTER 100-240V57W12V4.75A W/O PFC SPU63-105 L5

I/O View
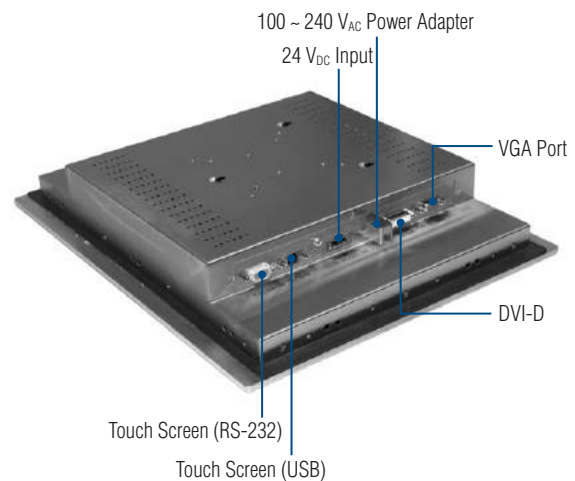
100 ~ 240 V$_{AC}$ Power Adapter
24 V$_{DC}$ Input
VGA Port
DVI-D
Touch Screen (RS-232)
Touch Screen (USB)

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17 RS-485 I/O Modules

18 Data Acquisition Boards

IPPC-3152H

15" XGA TFT LED LCD Industrial Touch Panel PC for Hazardous Area with C1D2 and ATEX certified

NEW

Features

- 15" TFT LCD, 1024 x 768, with Resistive touch
- 4th Generation Intel® Core™ i7/Celeron Processors with 8GB/4GB DDR3L Memory
- 2 x GbE, 2 x USB 2.0, 2 x USB 3.0, 1 x RS-232/RS-422/485, 1 x HDMI,
- 1 x DP, 2 x PCI/PCIe, 2 x mPCIe (2 x full)
- Hot-Swappable HDD/SSD support for RAID 0/1
- C1D2 & ATEX certified
- Protection Technology of optional UPS is compatible with UNO-3300 series which enhances the quality of input power and secure the data safety
- Able to quickly fit with Advantech FPM series product using accessible docking
- Supports Fieldbus Protocol by iDoor Technology 3G/GPS/GPRS/Wi-Fi
- Communication by iDoor Technology
- Supports MRAM by iDoor Technology

SUSIAccess **iDoor** **RoHS COMPLIANT 2002/95/EC** **CCC** **CE** **FCC** **LISTED E180881 I.T.E.**

Introduction

The IPPC-3152 series offers a domain forecasting automation solution with ATEX and C1D2 certificates for the oil and gas industries, and for machine-level operation in the process industry and hazardous areas: Zone 1, 2, 21, 22.

From the easy back-up maintenance- complete connectivity - Protection Technology with optional UPS (Optional UPS is compatible with the IPPC-3152 series which enhances the quality of input power and secures the data safely). In all applications, it can be utilized for measuring, real-time vision inspection, open- and closed-loop control, machine control, collecting of process and machine data and industrial image processing.

Specifications

General

- **Certification**   Class I Division 2 Group A,B,C,D T4A
                             CE 0539 Ex II 2 D Ex nA(ic) IIC T4 Gc
                             CF, FCC, UL, CCC, BSMI
- **Dimensions (W x D x H)** 390.7 x 289.8 x 93 mm (15.38"x 11.41"x 3.66")
- **Form Factor**   Regular Size
- **Enclosure**   Aluminum Housing
- **Mounting**   Panel mount, VESA mount
- **Weight (Net)**   5.4 kg (11.9 lbs)
- **Power Requirements**   18 ~ 36 V$_{DC}$
- **Power Consumption**   52 W (Typical)
- **OS Support**   WIN7/8, WES7, WES-2009, Linux

System Hardware

- **BIOS**   AMI UEFI 128Mbit Flash BIOS
- **Watchdog Timer**   Programmable 256 levels timer interval, from 1 to 255 sec
- **Processor**   Intel® Core™ i7-4650U 1.7GHz Haswell, 4MB L2
                             Intel® Celeron 2980U 1.6GHz, 2MB L2
- **System Chip**   Integrated Intel 8 Series Chipset
- **Memory**   On-board 4GB/8GB DDR3L 1333 MHz
- **Graphics Engine**   Intel® HD graphics 5000
- **Ethernet**   IntelR i210-ITGbE
- **LED Indicators**   LEDs for Power, Battery, Tx/Rx, HDD and reserved x 2
- **Storage**   1 x CFast
                             2 x Built-in 2.5" SATA HDD brackets with support for RAID 0/1
- **Expansion**   2 x Full-size mPCIe

I/O Interfaces

- **Serial Ports**   1 x RS-232/422/485, DB9, auto flow control, 50~115.2kbps
- **LAN Ports**   2 x RJ45, 10/100/1000 Mbps
- **USB Ports**   4 x USB Ports (2 x USB 2.0, 2 x USB 3.0 compliant)
- **Displays**   1 x HDMI, supports 1920 x 1200 @ 60Hz 24bpp
                             1 x DP, supports 3200 x 2000 @ 60Hz 24bpp
- **Power Connector**   1 x 3 Pin, Terminal Block

LCD Display

- **Display Type**   TFT LCD, 1024 x 768
- **Display Size**   15"
- **Luminance cd/m²**   350
- **Backlight MTBF(hrs)**   50,000

Environment

- **Operating Temperature** - 20 ~ 60°C (-4 ~ 140°F) @ 5 ~ 85% RH with 0.7m/s airflow (Industry SSD)
- **Storage Temperature**   - 40 ~ 85°C (-40 ~ 185°F)
- **Relative Humidity**   10 ~ 95% RH @ 40°C, non-condensing
- **Shock Protection**   Operating, IEC 60068-2-27, 50G, half sine, 11ms
- **Vibration Protection**   Operating, IEC 60068-2-64, 2Grms, random, 5 ~ 500Hz, 1hr/axis (mSATA)

Dimensions

Unit: mm [inch]

390.70 [15.38]

93.20 [3.67]
28.00 [1.10]

289.80 [11.41]

15"

1 WebAccess+ Solutions

2 Motion Control

3 Power & Energy Automation

4 Automation Software

5 Intelligent Operator Panel

6 Automation Panels

7 Panel PCs

8 Industrial Wireless Solutions

9 Industrial Ethernet Solutions

10 Industrial Gateway Solutions

11 Serial communication cards

12 Embedded Automation PCs

13 DIN-Rail IPCs

14 CompactPCI Systems

15 IoT Wireless I/O Modules

16 IoT Ethernet I/O Modules

17 RS-485 I/O Modules

18 Data Acquisition Boards

Ordering Information

- **IPPC-3152H-474AE**   Intel® Core™ i7-4650U 1.7GHz, 8GB, 2 x LANs, 2 x Full-size mPCIe, 1 x HDMI, 1 x DP
- **IPPC-3152H-4C3AE**   Intel® Celeron® 2980U 1.6GHz, 4GB, 2 x LANs, 2 x Full-size mPCIe, 1 x HDMI, 1 x DP

iDoor Modules

- **PCM-23C1CF-AE**   1 CFast Slot with Cover Protection
- **PCM-24R2PE-AE**   2-Port Gigabit Ethernet, IEEE 802.3af (PoE) Compliant, mPCIe, RJ45
- **PCM-24D2R4-AE**   2-Port Isolated RS-422/485 mPCIe, DB9
- **PCM-27D24DI-AE**   24-Channel Isolated Digital I/O w/ counter mPCIe, DB37
- **PCM-24S2WF-AE**   WiFi 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, 2-port SMA
- **PCM-24S23G-AE**   Wide-Temp 3.75G HSPA and GPS, 2-in-1, Full-size mPCIe w/ Redundant SIM Card holder, 2-port SMA
- **PCM-26R2PN-MAE**   2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45, Master
- **PCM-26R2PN-SAE**   2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45, Slave
- **PCM-26D1DB-MAE**   1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Master
- **PCM-26D1DB-SAE**   1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Slave

Accessories

- **757002161**   150W AC to DC power adapter (Commercial Grade)
- **1700001524**   Power cable 3-pin US type 1.8 M (Commercial Grade)
- **170203183C**   Power cable 3-pin EU type 1.8 M (Commercial Grade)
- **170203180A**   Power cable 3-pin UK type 1.8 M (Commercial Grade)
- **IPPC-3152WH-VMKE**   Accessory for VESA mounting

Embedded OS & Automation Software

- **968WEXP003X**   PanelExpress V2.0 300 tags S/W license
- **968WEXP015X**   PanelExpress V2.0 1500 tags S/W license
- **968WEXP050X**   PanelExpress V2.0 5000 tags S/W license

I/O View

A. Power Connector
B. iDoor Expansion Slots
C. HDMI
D. RJ45 LAN
E. USB 2.0/3.0 Ports
F. RS-232/RS-422/485
G. Chassis Grounding
H. Display Port
I. CFast
J. HDD & PWR LED lights
K. Hot-Swappable HDD

Application Software

SUSIACCESS	Version : V2.1 or above An innovative remote device management software, allowing efficient remote monitoring, quick recovery & backup, and real-time remote configuration, to create a more intelligent and interconnected embedded computing solution.
WebAccess	Version : V7.1 or above WebAccess, as the core of Advantech's IoT solution, is full web browser-based software package for HMI and SCADA software. All HMI and SCADA software features including: Animated Graphics Displays, Real-time Data, Control, Trends, Alarms and Logs, are available in a standard web browser. WebAccess is built around the latest internet technologies. With its open architecture, vertical domain applications can easily be integrated.
PANELEXPRESS Designed for Convenience	Version : V2.0.3.8 or above Panel Express, a windows based HMI mini SCADA, realizes the cross platform flexibility offered by WebOP Designer to switch hardware for the consideration of cost and performance become an easy job. Panel Express software provides the best economic and express solution for data intensive high-end HMI applications.
WebOP Designer	Version : V2.0.3.8 or above An easy to use integrated development tool featuring solution-oriented screen objects, high-end graphics, Windows fonts for multi-language applications. WebOP runtime, a part of WebOP Designer, guarantees reliability and performance because of the minimum system overhead, high communication data rates, and sub-second screen switching.

IPPC-3152WH

15.6" HD TFT LED LCD Industrial Multi-Touch Panel PC for Hazardous Area with C1D2 and ATEX certified
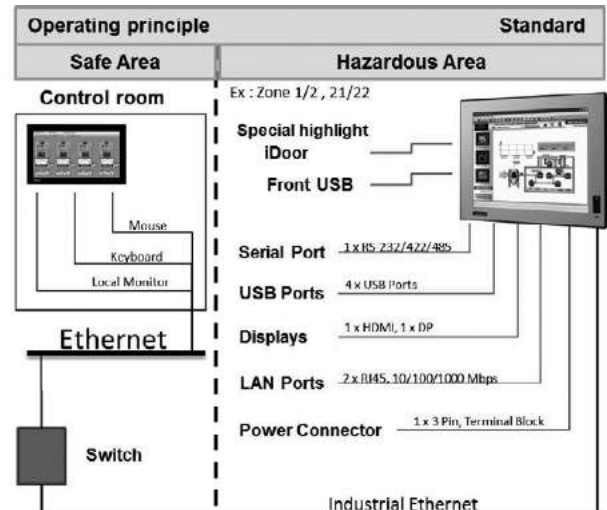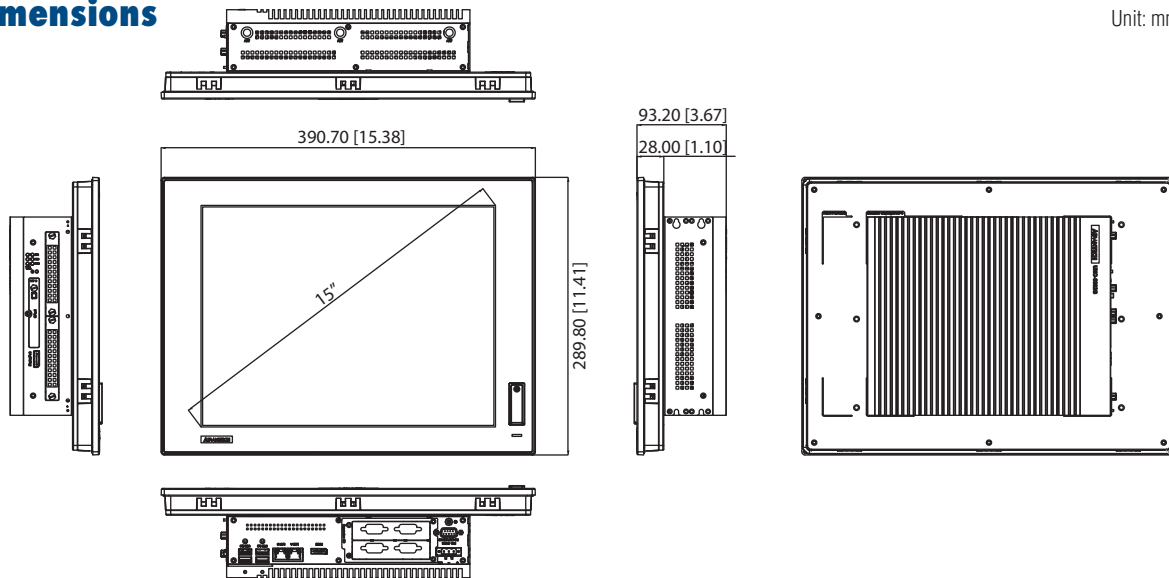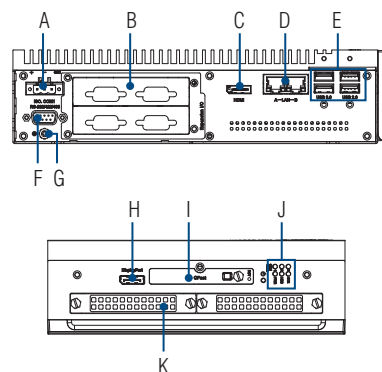
NEW

Features

- 15.6" HD TFT LCD, 1366 x 768, with PCT touch
- 4th Generation Intel® Core™ i7/Celeron Processors with 8GB/4GB DDR3L Memory
- 2 x GbE, 2 x USB 2.0, 2 x USB 3.0, 1 x RS-232/RS-422/485, 1 x HDMI,
- 1 x DP, 2 x PCI/PCIe, 2 x mPCIe (2 x full)
- Hot-Swappable HDD/SSD support for RAID 0/1
- C1D2 & ATEX certified
- Protection Technology of optional UPS is compatible with UNO-3300 series which enhances the quality of input power and secure the data safety
- Able to quickly fit with Advantech FPM series product using accessible docking
- Supports Fieldbus Protocol by iDoor Technology 3G/GPS/GPRS/Wi-Fi
- Communication by iDoor Technology
- Supports MRAM by iDoor Technology

SUSIAccess iDoor RoHS COMPLIANT 2002/95/EC CCC CE FCC c(UL)us LISTED E180881 I.T.E.

Introduction

The IPPC-3152 series offers a domain forecasting automation solution with ATEX and C1D2 certificates for the oil and gas industries, and for machine-level operation in the process industry and hazardous areas: Zone 1, 2, 21, 22.

From the easy back-up maintenance- complete connectivity - Protection Technology with optional UPS (Optional UPS is compatible with the IPPC-3152 series which enhances the quality of input power and secures the data safely). In all applications, it can be utilized for measuring, real-time vision inspection, open- and closed-loop control, machine control, collecting of process and machine data and industrial image processing.

Specifications

General

- **Certification**   Class I Division 2 Group A,B,C,D T4A
                             CE 0539 Ex II 2 D Ex nA(ic) IIC T4 Gc
                             CF, FCC, UL, CCC, BSMI
- **Dimensions (W x D x H)**   419.7 x 269 x 93 mm (16.5"x 10.59" x 3.66")
- **Form Factor**   Regular Size
- **Enclosure**   Aluminum Housing
- **Mounting**   Panel mount, VESA mount
- **Weight (Net)**   5.8 kg (12.79 lbs)
- **Power Requirements**   18 ~ 36 V$_{DC}$
- **Power Consumption**   52.8 W (Typical)
- **OS Support**   WIN7/8, WES7, WES-2009, Linux

System Hardware

- **BIOS**   AMI UEFI 128Mbit Flash BIOS
- **Watchdog Timer**   Programmable 256 levels timer interval, from 1 to 255 sec
- **Processor**   Intel® Core™ i7-4650U 1.7GHz Haswell, 4MB L2
                             Intel® Celeron 2980U 1.6GHz, 2MB L2
- **System Chip**   Integrated Intel 8 Series Chipset
- **Memory**   On-board 4GB/8GB DDR3L 1333 MHz
- **Graphics Engine**   Intel® HD graphics 5000
- **Ethernet**   IntelR i210-ITGbE
- **LED Indicators**   LEDs for Power, Battery, Tx/Rx, HDD and reserved x 2
- **Storage**   1 x CFast
                             2 x Built-in 2.5" SATA HDD brackets with support for RAID 0/1
- **Expansion**   2 x Full-size mPCIe

I/O Interfaces

- **Serial Ports**   1 x RS-232/422/485, DB9, auto flow control, 50~115.2kbps
- **LAN Ports**   2 x RJ45, 10/100/1000 Mbps
- **USB Ports**   4 x USB Ports (2 x USB 2.0, 2 x USB 3.0 compliant)
- **Displays**   1 x HDMI, supports 1920 x 1200 @ 60Hz 24bpp
                             1 x DP, supports 3200 x 2000 @ 60Hz 24bpp
- **Power Connector**   1 x 3 Pin, Terminal Block

LCD Display

- **Display Type**   HD TFT LCD, 1366 x 768
- **Display Size**   15.6"
- **Luminance cd/m²**   300
- **Backlight MTBF(hrs)**   50,000

Environment

- **Operating Temperature** - 20 ~ 60°C (-4 ~ 140°F) @ 5 ~ 85% RH with 0.7m/s airflow (Industry SSD)
- **Storage Temperature**   - 40 ~ 85°C (-40 ~ 185°F)
- **Relative Humidity**   10 ~ 95% RH @ 40°C, non-condensing
- **Shock Protection**   Operating, IEC 60068-2-27, 50G, half sine, 11ms
- **Vibration Protection**   Operating, IEC 60068-2-64, 2Grms, random, 5 ~ 500Hz, 1hr/axis (mSATA)

Dimensions

Unit: mm [inch]

419.70 [16.52]

15.6"

269.00 [10.59]

93.20 [3.67]
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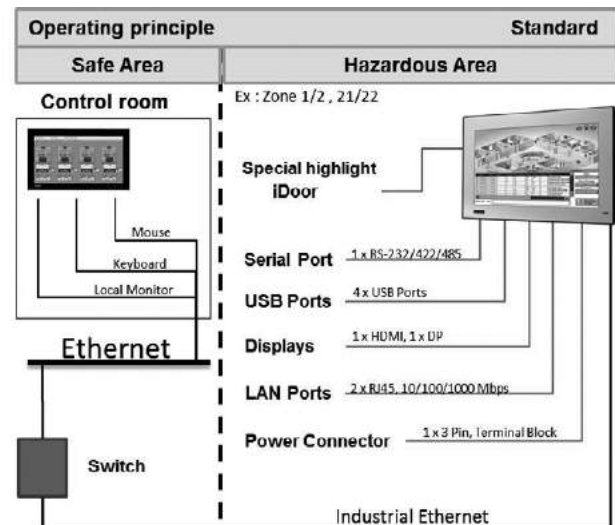
Ordering Information

- **IPPC-3152WH-474AE** Intel® Core™ i7-4650U 1.7GHz, 8GB, 2 x LANs, 2 x Full-size mPCIe, 1 x HDMI, 1 x DP
- **IPPC-3152WH-4C3AE** Intel® Celeron® 2980U 1.6GHz, 4GB, 2 x LANs, 2 x Full-size mPCIe, 1 x HDMI, 1 x DP

iDoor Modules

- **PCM-23C1CF-AE** 1 CFast Slot with Cover Protection
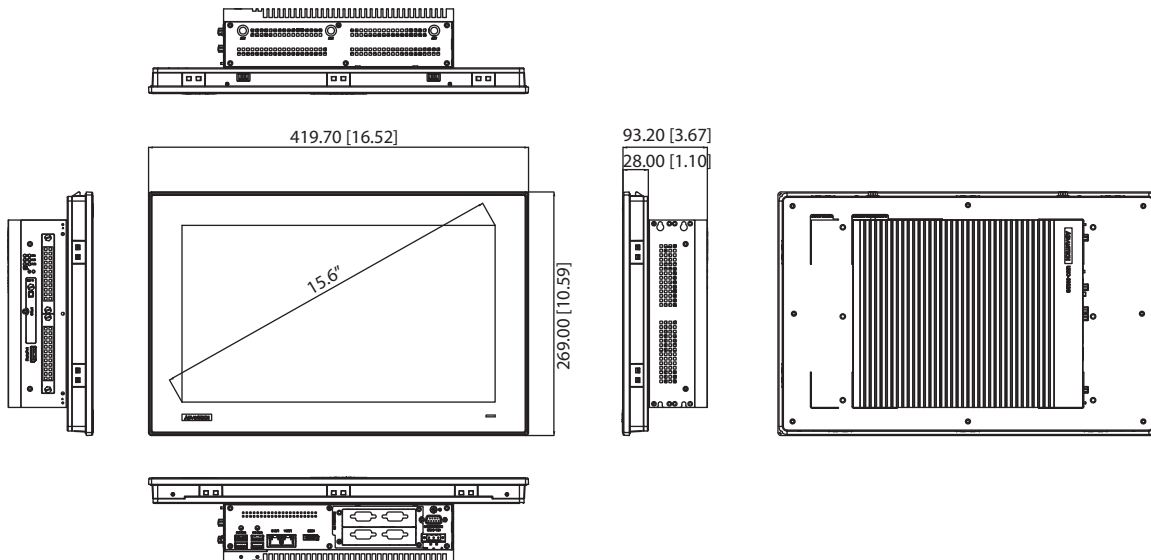- **PCM-24R2PE-AE** 2-Port Gigabit Ethernet, IEEE 802.3af (PoE) Compliant, mPCIe, RJ45
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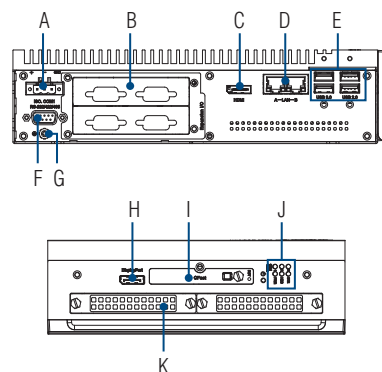- **PCM-26D1DB-SAE** 1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Slave

Accessories

- **757002161** 150W AC to DC power adapter (Commercial Grade)
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- **170203180A** Power cable 3-pin UK type 1.8 M (Commercial Grade)
- **IPPC-3152WH-VMKE** Accessory for VESA mounting

Embedded OS & Automation Software

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- **968WEXP015X** PanelExpress V2.0 1500 tags S/W license
- **968WEXP050X** PanelExpress V2.0 5000 tags S/W license

I/O View

A. Power Connector
B. iDoor Expansion Slots
C. HDMI
D. RJ45 LAN
E. USB 2.0/3.0 Ports
F. RS-232/RS-422/485
G. Chassis Grounding
H. Display Port
I. CFast
J. HDD & PWR LED lights
K. Hot-Swappable HDD

Application Software

SUSIAccess	Version : V2.1 or above An innovative remote device management software, allowing efficient remote monitoring, quick recovery & backup, and real-time remote configuration, to create a more intelligent and interconnected embedded computing solution.
WebAccess	Version : V7.1 or above WebAccess, as the core of Advantech's IoT solution, is full web browser-based software package for HMI and SCADA software. All HMI and SCADA software features including: Animated Graphics Displays, Real-time Data, Control, Trends, Alarms and Logs, are available in a standard web browser. WebAccess is built around the latest internet technologies. With its open architecture, vertical domain applications can easily be integrated.
PANELEXPRESS Designed for Convenience	Version : V2.0.3.8 or above Panel Express, a windows based HMI mini SCADA, realizes the cross platform flexibility offered by WebOP Designer to switch hardware for the consideration of cost and performance become an easy job. Panel Express software provides the best economic and express solution for data intensive high-end HMI applications.
WebOP Designer	Version : V2.0.3.8 or above An easy to use integrated development tool featuring solution-oriented screen objects, high-end graphics, Windows fonts for multi-language applications. WebOP runtime, a part of WebOP Designer, guarantees reliability and performance because of the minimum system overhead, high communication data rates, and sub-second screen switching.

IPPC-6192A
IPPC-6172A
IPPC-6152A

15"XGA/17"SXGA/19"SXGA TFT LED LCD Intel® Core™ i7/i5/i3 Industrial Touch Panel PC with Dual PCIe Slots

NEW
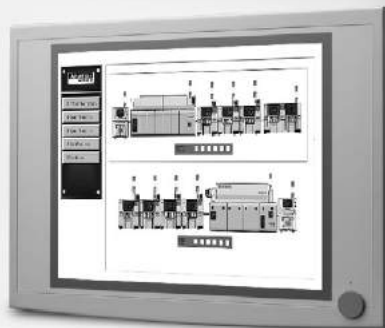
Features

- 15" XGA/17" SXGA/19" SXGA TFT LCD with touchscreen
- Supports Intel® Core™ i7/i5/i3 processor with Q87 chipset (up to 3.1GHz)
- System supports four DIMM sockets support up to 32 GB DDR3 1333/1600 MHz SDRAM
- Offers multiple expansion slots including two PCI (standard), one PCI + one PCIe x4 (optional), two PCIe x1 (optional)
- SATA 2.0 or SATA 3.0 HDDs and RAID 0,1 compatibility
- Front USB access and system reset function
- Front panel is IP65 compliant
- Supports Intel AMT 9.0 and Intel vPro competent
- Supports Microsoft® Windows® 8 and Windows 7
- Supports SUSIAccess and Embedded Software APIs
- Optional Functionality –CFast ,PCI/ PCIe expansion,DVD-ROM

Windows 8 SUSIAccess R33138 CCC CE FCC LISTED E180881 I.T.E.

Introduction

The IPPC-6000A Series is an Industrial Panel PC with front USB access, supports the powerful 4th Gen Intel Core™ i7/i5/i3, high speed DDR3 memory, up to 32 GB, two expansion slots. The processor and chipset combination form the foundation of vPro, Intel's next generation digital office platform, offering remote out-of-band manageability, improved security, and energy efficient performance. Two SATA hard driver interface with RAID 0,1 support provides data security. Multi function optional –CFast ,PCI/ PCIe expansion,DVD-ROM which offers great flexibility for application specific requirements. Rugged Metal &IP65 Flat-Sealed Front provide excellent durability in harsh environment. With optional mounting accessories, from panels to racks,it can be mounted anywhere.

Specifications

General

- **BIOS** — AMI 64 MB Flash BIOS
- **Certification** — UL, CE, FCC, CCC, BSMI
- **Enclosure** — Die-cast flat-sealed front with SGCC Housing
- **Dimensions (W x H x D)** — IPPC-6152A:449.92 x 315.63 x 126.4 mm (17.71" x 12.43" x 4.98") IPPC-6172A: 481.93 x 355.87 x 132.5 mm (18.97" x 14.01" x 5.22") IPPC-6192A: 481.93 x 384.6 x 135.5 mm (18.97" x 15.14" x 5.33")
- **Mounting** — Panel, Rack (option)
- **OS Support** — Microsoft Windows 7, Windows 8
- **Power Input** — 100 ~ 240 V$_{AC}$ @ 60 ~ 50 Hz, 7 ~ 3.5 A
- **Power Supply** — 350 W

System Hardware

- **CPU** — Supports Intel® Core™ i7/i5/i3 processor (up to 3.1GHz)
- **Chipset** — Intel Q87
- **Memory** — System supports four DIMM sockets support up to 32 GB DDR3 1333/1600 MHz SDRAM
- **LAN** — 10/100/1000 Base-T Ethernet x 2
- **Expansion** — Two half-length PCI (Standard) Two PCIe x1(Optional) One PCI + One PCIe x4 (Optional)
- **Storage** — Supports 2 x 2.5" SATA 2.0 or SATA 3.0 HDDs and RAID 0,1 compatibility
- **Optical Driver** — 1 x Slim Type DVD-RW (optional) CFast (optional)
- **I/Os** — 4 (3 x RS-232, 1 x RS-232/422/485 to support auto flow control) 1 x GPIO 2 x Reservation ports 5 x USB Host(USB 2.0 front, 4 USB 3.0) 2 x GbE LAN VGA x1; DVI x1; DP x1 2 (1 x keyboard and 1 x mouse) 2 (Mic-in, Line-out)

LCD Display

- **Backlight Life** — 50,000 hrs
- **Contrast Ratio** — IPPC-6152A: 700:1 IPPC-6172A:1000:1 IPPC-6192A:1000:1
- **Display Size** — 15", 17", 19"
- **Display Type** — IPPC-6152A: XGA TFT LCD LED Backlight IPPC-6172A:SXGA TFT LCD LED Backlight IPPC-6192A: SXGA TFT LCD LED Backlight
- **Luminance** — IPPC-6152A: 400 cd/m2 IPPC-6172A: 350 cd/m2 IPPC-6192A: 350 cd/m2
- **Max. Colors** — IPPC-6152A:16.2M/262K IPPC-6172A: 16.7M (RGB 6-bit + Hi-FRC data) IPPC-6192A:16.7M (RGB 6-bit + Hi-FRC data)
- **Max. Resolution** — IPPC-6152A: 1024 x 768 IPPC-6172A: 1280 x 1024 IPPC-6192A: 1280 x 1024
- **Viewing Angle (H/V°)** — IPPC-6152A:160/140 IPPC-6172A: 170/160 IPPC-6192A: 170/160

Touchscreen

- **Lifespan** — 36 million with a silicone rubber of R8 finger, writing rate is by 250g at 2 times/s
- **Light Transmission** — > 80%
- **Type** — Analog resistive 5-wire

Environment

- **Humidity** — 5 ~ 85% @ 40°C (non-condensing)
- **Ingress Protection** — Front panel: IP65
- **Operating Temperature** — 0 ~ 50°C (32 ~ 122°F)
- **Storage Temperature** — -20 ~ 60°C (-4 ~ 140°F)
- **Vibration Protection** — 5 ~ 500 Hz, 1 Grms random vibration

ADVANTECH **Automation Panels**

Dimensions

Unit: mm [inch]

IPPC-6152A: 449.92 [17.71]
IPPC-6172A: 481.93 [18.97]
IPPC-6192A: 481.93 [18.97]

IPPC-6152A: 6 [0.24]
IPPC-6172A: 6 [0.24]
IPPC-6192A: 7 [0.28]

97 [3.82]

IPPC-6152A: 422 [16.61]
IPPC-6172A: 450.97 [17.75]
IPPC-6192A: 445.92 [17.76]

416 [16.38]

IPPC-6152A: 315.63 [12.43]
IPPC-6172A: 355.87 [14.01]
IPPC-6192A: 384.60 [15.14]

285 [11.22]
IPPC-6152A: 291 [11.46]
IPPC-6172A: 335.97 [13.23]
IPPC-6192A: 334.52 [13.17]

IPPC-6152A: 126.40 [4.98]
IPPC-6172A: 132.50 [5.22]
IPPC-6192A: 135.50 [5.33]
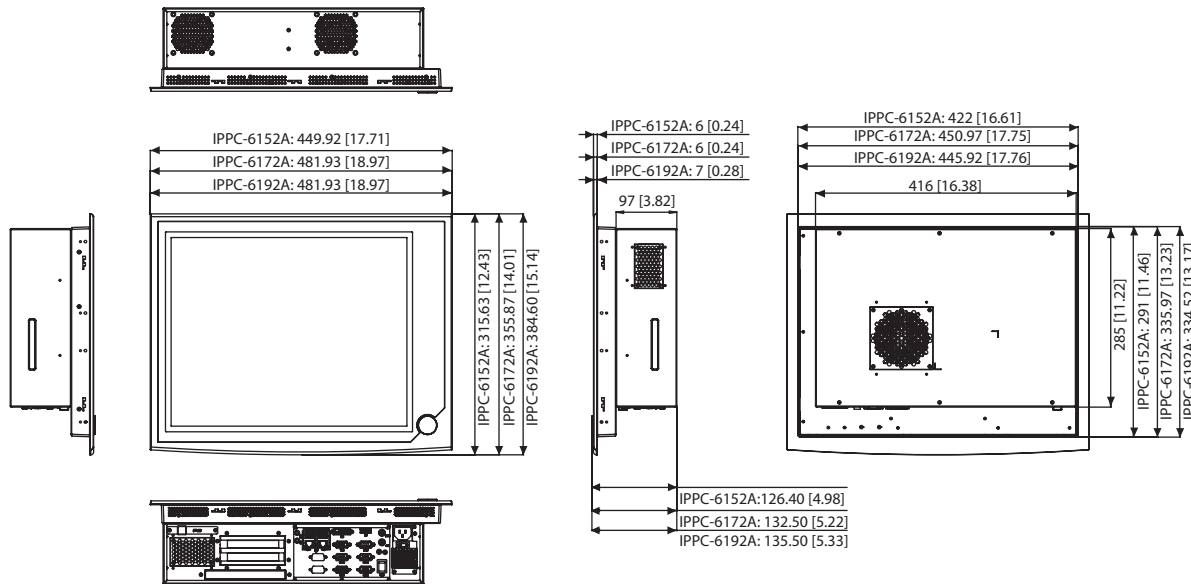
Panel Cut-out Dimensions:
IPPC-6152A:424x293mm(16.69"x11.54")
IPPC-6172A:454x338mm(17.87"x13.31")
IPPC-6192A:454x338mm(17.87"x13.31")

Ordering Information

- **IPPC-6152A-R2AE**   15" XGA LED IPPC-61X2-R2 2PCIs w/ TS
- **IPPC-6172A-R2AE**   17" SXGA LED IPPC-61X2-R2 2PCIs w/ TS
- **IPPC-6192A-R2AE**   19" SXGA LED IPPC-61X2-R2 2PCIs w/ TS

Accessories

- **IPPC-6152A-RMKE**   IPPC-6152A Rack mount Kit
- **IPPC-6172A-RMKE**   IPPC-6172A Rack mount Kit
- **IPPC-6192A-RMKE**   IPPC-6192A Rack mount Kit
- **IPPC-6152-CFASTE**   CFast module for IPPC-61X2-R2 Series
- **IPPC-6152-PCIE**   PCIex4 & PCI module, IPPC-61X2-R2 Series
- **IPPC-6152-PCIEE**   PCIe module for IPPC-61X2-R2 Series
- **1702002600**   Power Cable US Plug 1.8 M
- **1702002605**   Power Cable EU Plug 1.8 M
- **1702031801**   Power Cable UK Plug 1.8 M
- **1702031836**   Power Cable China/Australia Plug 1.8 M
- **96CB-POWER-B-1.8M1**   POWER CORD for China 1.8M

I/O View
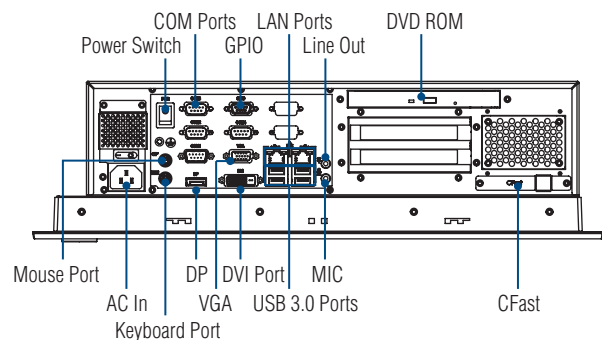
COM Ports   LAN Ports   DVD ROM
Power Switch   GPIO   Line Out
Mouse Port
AC In   DP   DVI Port   MIC
Keyboard Port   VGA   USB 3.0 Ports   CFast

Front Accessible USB Port

Reset Button
USB

Side navigation:
1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
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IPPC-9171G
IPPC-9151G

15"XGA/17"SXGA TFT LED LCD Intel® Core™ i7/i5/i3 Celeron® Industrial Touch Panel PC with 1 x PCIe Slot

NEW

Features

- Intel® Core™ i7/i5/i3 Celeron® µFC-PGA988 processor with Intel® QM67 chipset
- 15" XGA/17" SXGA LED backlight LCD with low power consumption
- Front access USB connector
- Supports 1 xPCIe x1 or 4 (Gen2) (PCI optional)
- Heavy-duty stainless steel chassis with aluminum front panel
- Strengthened glass protects the front panel from shock damage and s IP65 compliant
- Supports dual display of HDMI, LVDS, VGA
- Supports 1 x 2.5" SATA II or SATA III HDD and 1 x CFast
- Hard anodic coating to prevent panel abrasion and acid corrosion
- Supports embedded software APLs and Utilities

SUSIAccess   R33138   (((CE   FC   cULus LISTED E180881 I.M.E.

Introduction

IPPC-9151G/IPPC-9171G is a fully functional computer system with front USB access, with Intel® mobile Core i7-2710QE 2.1GHz/Core i5-2510E 2.5 GHz/Core i3-2330E 2.2 GHz /Celeron® B810 1.6 GHz processors up to 6 MB L3 cache and DDR3 SO-DIMM 1066/1333 up to 8 GB and a resolution up to 1024 x 768 to meet the demands of today's high-end industrial software. The IPPC-9151G/IPPC-9171G is a rugged unit with an aluminum panel,15"/17" TFT LCD with LED backlight, a stainless steel structure and a Pcie slot. The IPPC-9151G/9171G is rugged enough to handle the toughest industrial operating environments. With optional mounting accessories, from panels to racks, it can be mounted anywhere.

Specifications

General

- **BIOS** — AMI EFI 64 Mbit SPI
- **Certification** — BSMI, CCC, CE, FCC, UL
- **Cooling System** — 2 x 10.1 CFM fans w/50,000 hrs MTBF
- **Dimensions (W x H x D)**
  IPPC-9151G: 428 x 310 x 96.5 mm (16.35" x 12.2" x 3.79")
  IPPC-9171G: 482 x 354.8 x 98 mm (18.98" x 13.97" x 3.86")
- **Disk Drive Bay** — Supports 1 x 2.5" SATA II or SATA III HDD
- **Enclosure** — Stainless steel back case, 10 mm aluminum front panel
- **Mounting** — Panel, rack
- **Power Input** — 100~240 V$_{AC}$ @ 4A 50~60hz
- **Power Supply** — 180 W, MTBF: 100,000 hrs
- **Weight (Gross)** — IPPC-9151G: 10.52 Kg (23.19 lbs)
  IPPC-9171G: 14 Kg (30.86 lbs)
- **OS Support** — Win XP, Win 7

System Hardware

- **CPU** — Supports uFC-PGA988 Intel® mobile Core i7-2710QE 2.1 GHz/Core i5-2510E 2.5 GHz/Core i3-2330E 2.2 GHz/Celeron® B810 1. 6GHz processor
- **Chipset** — Intel® 6 series chipset (QM67)
- **Audio Ports** — Mic-in, Line-out, Line-in
- **Expansion Slots** — Supports 1 x PCIe x1 or x4 (PCI optional)
- **PS/2** — 1 x keyboard and 1 x mouse
- **LAN** — 2 x 10/100/1000 Mbps
- **Memory** — 2 x 204 pin DDR3 1066/1333 SODIMM sockets supports up to 8GB (2 x 4GB)
- **Cfast** — 1 x CFast slot
- **I/Os** — 1 x VGA; 1 x HDMI; 5 x USB 2.0 (one at front); 4 x RS-232

LCD Display

- **LCD Display Type** — IPPC-9151G: XGA TFT LCD with LED Backlight
  IPPC-9171G: SXGA TFT LCD with LED Backlight
- **Display Size** — IPPC-9151G: 15"; IPPC-9171G: 17"
- **Max. Resolution** — IPPC-9151G: 1024 x 768; IPPC-9171G: 1280 x 1024
- **Max. Colors** — IPPC-9151G: 16.2M or 256K Color
  IPPC-9171G: 16.7M colors (RGB 6-bits +Hi-FRC data)
- **Viewing Angle (H/V°)** — IPPC-9151G: 160/140; IPPC-9171G: 170/160
- **Luminance** — IPPC-9151G: 350 cd/m²; IPPC-9171G: 380 cd/m²
- **Backlight Life** — 50,000hrs
- **Contrast Ratio** — IPPC-9151G: 700:1; IPPC-9171G: 400:1

Touchscreen

- **Lifespan** — 36 million with a silicone rubber of R8 finger, writing rate is by 250g at 2 times/s
- **Light Transmission** — > 80%
- **Type** — Analog resistive (5-wire)

Environment

- **Humidity** — 5 ~ 85% @ 40°C (non-condensing)
- **Ingress Protection** — Front panel: IP65
- **Operating Temperature** — 0 ~ 50°C (32 ~ 122°F)
- **Storage Temperature** — -20 ~ 60°C (-4 ~ 140°F)
- **Vibration Protection** — 5 ~ 500 Hz, 1 G$_{RMS}$ random vibration

Dimensions

Unit: mm [inch]

IPPC-9151G:402 [15.827]
IPPC-9171G:445.2 [17.528]

IPPC-9151G:428 [16.850]
IPPC-9171G:482 [18.976]

IPPC-9151G:310 [12.205]
IPPC-9171G:354.8 [13.969]

IPPC-9151G:290 [11.417]
IPPC-9171G:327.2 [12.882]

IPPC-9151G:30.5 [1.201]
IPPC-9171G:32 [1.260]

IPPC-9151G:96.5 [3.799]
IPPC-9171G:98 [3.858]
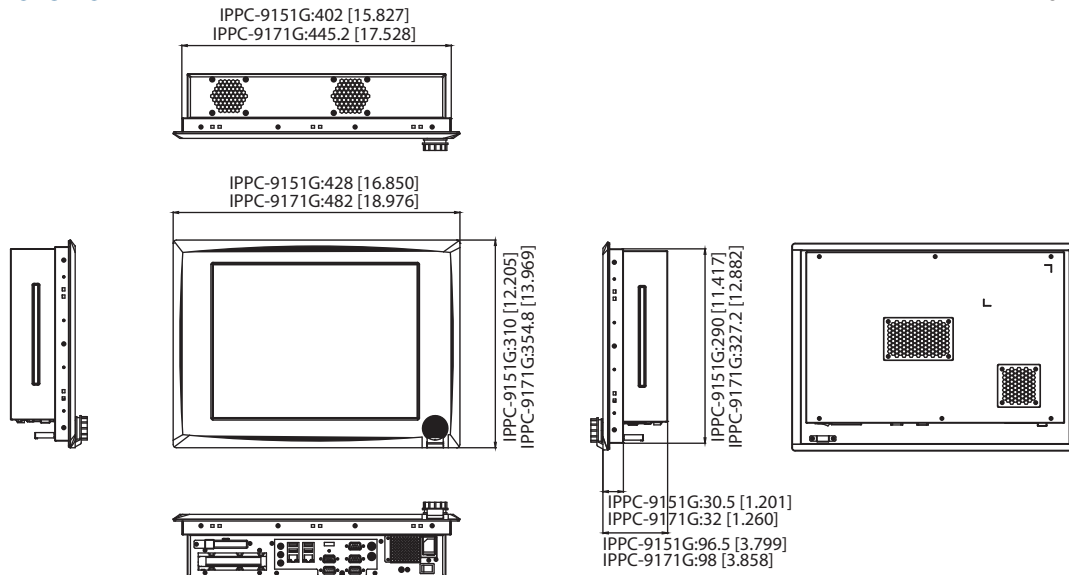
Panel Cut-out Dimensions: **IPPC-9151G: 404 x 292mm (15.90" x 11.49")**
IPPC-9171G: 447.5 x 329.5mm (17.618" x 12.972")

Ordering Information

- **IPPC-9151G-R1AE**   15" XGA Intel® Core™ i7/i5/i3 Celeron with TS
- **IPPC-9171G-R1AE**   17" SXGA Intel® Core™ i7/i5/i3 Celeron with TS

Accessories

- **IPPC-9151G-RMKE**   (IPPC-9151G) Mounting Kit for standard 19" industrial rack
- **IPPC-9151G-EPRE**   IPPC-9151G/9171G-R1AE PCI Riser card

Notes:

1. When used in a panel mounted environment, the panel's thickness can not be over 10mm.

1702002600	Power Cable US Plug 1.8 M
1702002605	Power Cable EU Plug 1.8 M
1702031801	Power Cable UK Plug 1.8 M
1702031836	Power Cable China/Australia Plug 1.8 M

2. Dual Display

Primary Display	LCD
Second Display	CRT or HDMI

I/O Overview

COM Ports 1-3
COM Port 4
LAN Ports
Audio Ports
PS/2 Keyboard & Mouse
VGA Port
HDMI Port
USB Ports 1-4
CFast Slot

UNO-1172AH

Class I, Division 2 Certified Intel® Atom™ D510 DIN-rail PC

NEW

Features

- UL listed for Hazardous Locations: Class I, Division 2
- Onboard Intel Atom D510 1.66 GHz
- Onboard 1 MB battery-backup SRAM
- System diagnosis through led and digital output, remote power control through digital input
- 2 x RS-232/422/485 ports with automatic flow control
- 3 x 10/100/1000Base-T RJ-45 ports with teaming function support
- 4 x external USB
- PC/104+ expansion slots option
- 1 x Mini PCIe slot for WLAN card and Fieldbus card
- Windows 7, Windows CE, XP Embedded and Linux support
- Fanless design with no internal cabling
- Isolation between chassis and power ground

SUSIAccess Windows Embedded RoHS COMPLIANT 2002/95/EC CE FCC CCC UL

Introduction

In hazardous locations, devices are under potential danger from flammable gases, combustible dust, or ignitable fibers, creating the potential for fire and explosions. The UNO-1172AH is designed to be safely operated in these locations and are UL listed for Hazardous Locations with Class I, Division 2, groups A, B, C, D & T5 certification. The UNO-1172AH is an Intel Atom DIN-rail PC which features an innovative system diagnosis feature for automation applications. It provides alarms for over temperature, over voltage, battery power fail, power status on both system onboard LED and Digital output. It also includes remote power control through digital input. These system diagnosis features enable control and monitoring of system status remotely. Three Gigabit Ethernet interfaces with teaming function support allow users to uplink two ports with data transmission fault tolerance and downlink one port to field device.

Specifications

General

- **Certification** CE, FCC Class A, UL, CCC
- **Hazardous Locations** US: ANSI/ISA 12.12.01-2007 cUL: CSA 22.2 No. 213 M1987, Class I, Division 2, Groups A,B,C,D, Hazardous Location, Temperature code: T5, Ambient Temperature Range: -10°C ≤ Tamb ≤ 60°C
- **Dimensions (W x H x D)** UNO-1172AH: 85 x 152 x 139 mm (3.4" x 6"x 5.5")
- **Enclosure** Aluminum + SECC
- **Mounting** DIN-rail, Wallmount
- **Power Consumption** 24 W (Typical)
- **Power Requirement** 10 ~ 36 V_{DC} (e.g +24 V @ 2 A) (Min. 48 W), AT/ATX power mode by Jumper selection and BIOS AT simulation (support system reboot automatically after power recovery)
- **Weight** 1.6 kg
- **OS Support** WES Windows XP Embedded, Windows XP & Windows 7, Windows CE 5.0/6.0, Linux, QNX
- **System Design** Fanless design with no internal cabling
- **Remote Management** Built-in Advantech DiagAnywhere agent on Windows CE / XPe

System Hardware

- **CPU** Intel Atom D510 1.66 GHz
- **Memory** 2 GB DDR2 SDRAM built-in
- **Battery Backup SRAM** 1 MB
- **Indicators** System:LEDs for Power, CF, LAN (Active, Status), Serial (Tx, Rx), Diagnosis /Alarm: over system temperature, over voltage, alarm for battery backup SRAM, alarm for RTC battery,Programmable(while disable Serial Tx&Rx), Buzzer for Diagnosis (programmable)
- **Keyboard/Mouse** 1 x PS/2
- **Storage** SSD: 1 x internal type I/II CompactFlash slot HDD: one 2.5" SATA HDD bracket
- **Display** DB15 VGA connector, 1600 x 1200 @ 85 Hz
- **Audio** 5.1 channel HD Audio, Mic in, Line in, Line out
- **Watchdog Timer** Programmable 256 levels timer interval, from 1 to 255 sec
- **Mini PCIe** 1 x PCI express mini card slot

I/O Interface

- **Serial Ports** 2 x RS-232/422/485 with DB9 connectors, automatic RS-485 data flow control
2 x RS-232 (Optional, pin header)
- **Serial Port Speed** RS-232: 50 ~ 115.2 kbps
RS-422/485: 50 ~ 115.2 kbps (Max)
- **LAN** 3 x 10/100/1000Base-T RJ-45 ports (supports Wake on LAN and built-in boot ROM)
- **USB** 4 x USB, EHCI, Rev. 2.0 compliant
- **Digital Input** 2-ch. wet/dry contact, 70 V_{DC} over-voltage protection, 0 ~ 50 V_{DC} input range and Interrupt handling
- **Digital Output** 6-ch DO
- 200 mA max/channel sink current
- Keep output status after system hot reset
- 5 ~ 40 V_{DC} output range and 10 kHz speed
- **System Diagnoses** Remote monitoring: over system temperature, over voltage, battery power fail, power status
Remote control: Power On/Off, Reset

Environment

- **Ingress Protection** IP40
- **Operating Temperature** (IEC 60068-2-2, 100% CPU/ I/O loading) -10 ~ 60°C (14 ~ 140°F)
- **Storage Temperature** -20 ~ 80°C (-4 ~ 176°F)
- **Operating Humidity** 20 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)
- **Shock Protection** IEC 60068- 2-27 CompactFlash: 50 G @ wall mount, half sine, 11 ms HDD: 20 G @ wall mount, half sine, 11 ms
- **Vibration Protection** IEC 60068- 2-64 (Random 1 Oct./min, 1hr/axis.) CompactFlash: 2 Grms @ 5 ~ 500 Hz, HDD: 1 Grms @ 5 ~ 500 Hz

Ordering Information

- **UNO-1172AH-A33E** CID2 Intel Atom D510 1.66 GHz, 2 GB RAM DIN-rail PC

Accessories

- **UNO-FPM11-BE** UNO-1100 Series VESA Mount Kit
- **PCLS-DIAGAW10** Advantech Remote Monitoring & Diagnosis Utility

ADVANTECH | **Automation Panels**

Memo

1
WebAccess+ Solutions

2
Motion Control

3
Power & Energy Automation

4
Automation Software

5
Intelligent Operator Panel

6
Automation Panels

7
Panel PCs

8
Industrial Wireless Solutions

9
Industrial Ethernet Solutions

10
Industrial Gateway Solutions

11
Serial communication cards

12
Embedded Automation PCs

13
DIN-Rail IPCs

14
CompactPCI Systems

15
IoT Wireless I/O Modules

16
IoT Ethernet I/O Modules

17
RS-485 I/O Modules

18
Data Acquisition Boards

FPM-3191G

Features

- 19" SXGA TFT LED LCD with 50,000 backlight life time
- Robust design with stainless steel chassis and aluminum front panel
- Anti-glare screen with tempered glass and IP65 certified front panel
- Lockable OSD control pad on rear cover
- Supports industrial 24 V_{DC} power input
- Supports panel, wall, desktop, rack or VESA arm mounting
- Supports 9U pre-drill Rackmount mounting hole

Introduction

FPM-3191G is a 19" color TFT LCD flat panel monitor specifically designed for industrial applications. With a viewing size as large as 19", it presents an simple display area as well as vivid and sharp images for your HMI. It features direct VGA signal transmission. You can thus upgrade the displays without making changes to the e x isting system. The onscreen display function also makes it easy to adjust the images on the screen. The whole chassis is designed in stainless steel and the front panel is made of aluminum with front panel IP65 compliance.

Specifications

General

- **Button Controls**   OSD (Onscreen Display) control pad on front panel
- **Certification**   BSMI, CCC, CE, FCC Class A, UL
- **Dimensions (W x H x D)** 482mm x 399mm x 67 mm (18.98" x 15.71" x 2.64")
- **Enclosure**   Front panel: Aluminum with coating
  Rear cover: Stainless steel chassis

*Mounting holes on rear cover are designed for PWR-246E DC Source

- **Mounting**   Panel, wall, desktop, VESA arm & 19" rackmount
- **Power Input**   Phoeni x Jack: 24 V_{DC} input
  DC Jack: e x ternal 57 W power adapter, with 100 ~ 240 V_{AC} input and 12 V_{DC} @ 4.75 A output

Note: AC power adapter is included.

- **Power Consumption**   35 W + 20%
- **Video Port**   VGA & DVI-D port
- **Weight (Net)**   10.65 kg (23.46 lbs)

LCD Display

- **Display Type**   SXGA TFT LCD with LED backlight
- **Display Size**   19"
- **Max. Resolution**   1280 x 1024
- **Max. Color**   16.7 M
- **Viewing Angle (H/V°)**   170/160
- **Luminance (cd/m²)**   350
- **Backlight Life (hrs)**   50,000
- **Contrast Ratio**   1000:1

Touchscreen (Optional)

- **Type**   5-wire Resistive
- **Interface**   RS-232 and USB
- **Lifespan**   35 million touches at a single point
- **Light Transmission**   80% ±5
- **OS Support**   Windows XP,Vista,7,8,XPe,CE and Linu x
- **Power Consumption**   +5 V @ 100 mA
- **Touch Resolution**   Linearity

Environment

- **Operation Temperature** 0 ~ 50°C (32 ~ 122°F)
- **Storage Temperature**   -20 ~ 60°C (-4 ~ 140°F)
- **Humidity (Storage)**   10 ~ 90% non-condensing
- **Waterproof**   Front panel is IP65 compliant
- **Vibration**   5 ~ 500 Hz, 1 Grms (Operating, Random)

Dimensions

Unit: mm [inch]

Diameters of the rackmount holes:
Vertical: 6.5 mm
Horizontal: 9 mm

482.00 [18.98]

399.20 [15.72]

67.00 [2.64]
8.00 [0.31]

439.00 [17.28]
100.00 [3.94]
75.00 [2.95]
M4
M4
75.00 [2.95]
100.00 [3.94]
374.40 [14.74]

Panel Cut-out Dimensions: 444 x 376.4 mm (17.48" x 14.82")

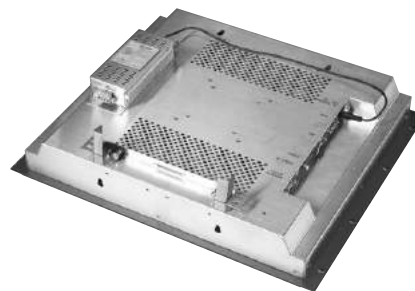## Ordering Information

- **FPM-3191G-X0AE**   19" SXGA Ind. Monitor with VGA, DVI
- **FPM-3191G-R3AE**   19" SXGA Ind. Monitor w/ Resistive TS (Combo)
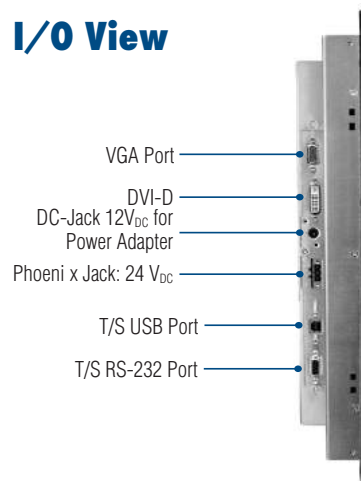
Accessories

- **1702002600**   Power Cable US Plug 1.8 M
- **1702002605**   Power Cable EU Plug 1.8 M
- **1702031801**   Power Cable UK Plug 1.8 M
- **1700000596**   Power Cable China/Australia Plug 1.8 M
  (Direct rack mounting, no need accessory)

Mounting with DC Source

I/O View

VGA Port

DVI-D

DC-Jack 12V_{DC} for Power Adapter

Phoeni x Jack: 24 V_{DC}

T/S USB Port

T/S RS-232 Port

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

FPM-3171G

Features

- 17" SXGA TFT LED LCD with 50,000 hours of backlight life
- Robust design with stainless steel chassis and aluminum front panel
- Anti-glare screen with tempered glass and IP65 certified front panel
- Lockable OSD control pad on rear cover
- Supports industrial 24V$_{DC}$ power input
- Supports panel, wall, desktop, rack or VESA arm mounting
- Supports 8U pre-drill Rackmount mounting hole

Introduction

FPM-3171G is a 17"color TFT LCD flat panel monitor specifically designed for industrial applications. With a viewing size as large as 17", it presents an simple display area as well as vivid and sharp images for your HMI. It features direct VGA signal transmission. You can thus upgrade the displays without making changes to the e x isting system. The onscreen display function also makes it easy to adjust the images on the screen. The whole chassis is designed in stainless steel and the front panel is made of aluminum with front panel IP65 compliance.

Specifications

General

- **Button Controls**   OSD (Onscreen Display) control pad on front panel
- **Certification**   BSMI, CCC, CE, FCC Class A, UL
- **Dimensions (W x H x D)** 482 x 354.8 x 63.9 mm (18.98" x 13.97" x 2.52")
- **Enclosure**   Front panel: Aluminum with coating
  Rear cover: Stainless steel chassis
  *Mounting holes on rear cover are designed for PWR-246E DC Source
- **Mounting**   Panel, wall, desktop, VESA arm & 19" rackmount
- **Power Input**   Phoeni x Jack: 24 V$_{DC}$ input
  DC Jack: e x ternal 57 W power adapter, with 100 ~ 240 V$_{AC}$ input and 12 V$_{DC}$ @ 4.75 A output

Note: AC power adapter is included.

- **Power Consumption**   35 W + 20%
- **Video Port**   VGA & DVI-D port
- **Weight (Net)**   9.25 kg (20.39 lbs)

LCD Display

- **Display Type**   'SXGA TFT LCD with LED backlight
- **Display Size**   17"
- **Max. Resolution**   1280 x 1024
- **Max. Color**   16.7 M
- **Viewing Angle (H/V°)**   160/140
- **Luminance (cd/m²)**   350
- **Backlight Life (hrs)**   50,000
- **Contrast Ratio**   1000:1

Touchscreen (Optional)

- **Type**   5-wire Resistive
- **Interface**   RS-232 and USB
- **Lifespan**   35 million touches at a single point
- **Light Transmission**   80% ±5
- **OS Support**   Windows XP,Vista,7,8,XPe,CE and Linu x
- **Power Consumption**   +5 V @ 100 mA
- **Touch Resolution**   Linearity

Environment

- **Operation Temperature**   -20 ~ 60°C (-4 ~ 140°F)
- **Storage Temperature**   -30 ~ 80°C (-22 ~ 176°F)
- **Humidity (Storage)**   95% @ 60°C . non-condensing
- **Waterproof**   Front panel is IP65 compliant
- **Vibration**   5 ~ 500 Hz, 1 Grms (Operating, Random)

Dimensions

Unit: mm [inch]

Diameters of the rackmount holes:
Vertical: 6.5 mm
Horizontal: 9 mm

445.20 (17.52")
151.00 (5.94")

37.50 (1.47")
482.00 (18.98")
465.00 (18.31")
432.91 (17.04")
76.20 (3.00")
279.40 (11.00")
354.80 (13.97")

63.50 (2.50")
7.00 (0.27")
327.20 (12.88")

224.00 (8.82")
100.00 (3.94")
75.00 (2.95")
100.00 (3.94")
75.00 (2.95")
12.00 (0.47")
135.60 (5.33")
276.20 (10.87")
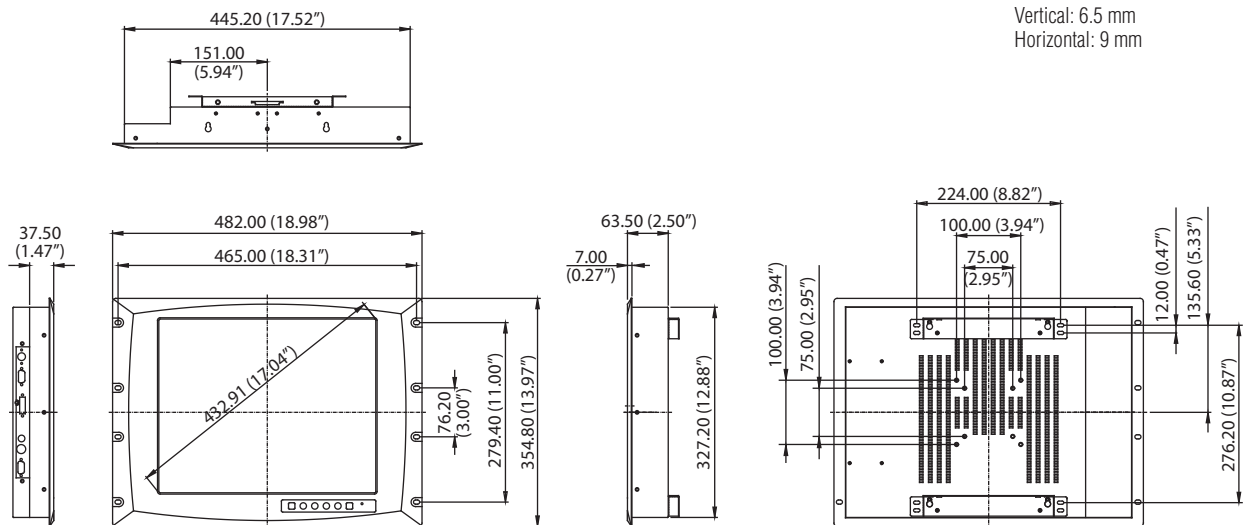
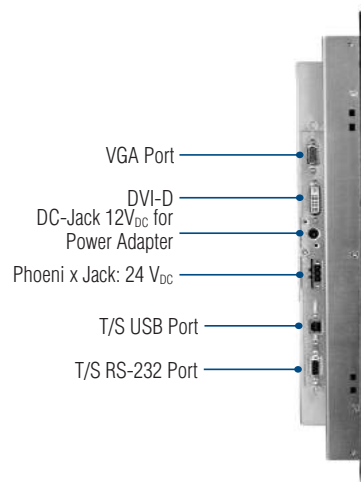**Panel Cut-out Dimensions: FPM-3171G: 447.5 x 329.5 mm (17.62" x 12.97")**

Ordering Information

- **FPM-3171G-X0AE**   17" SXGA WT Ind. Monitor with VGA, DVI
- **FPM-3171G-R3AE**   17"SVGA WT Ind. Monitor w/Resistive TS (Combo)

Accessories

- **1702002600**   Power Cable US Plug 1.8 M
- **1702002605**   Power Cable EU Plug 1.8 M
- **1702031801**   Power Cable UK Plug 1.8 M
- **1700000596**   Power Cable China/Australia Plug 1.8 M
                    (Direct rack mounting, no need accessory)

I/O View

VGA Port

DVI-D

DC-Jack 12V$_{DC}$ for Power Adapter

Phoeni x Jack: 24 V$_{DC}$

T/S USB Port

T/S RS-232 Port

1 WebAccess+ Solutions

2 Motion Control

3 Power & Energy Automation

4 Automation Software

5 Intelligent Operator Panel

6 Automation Panels

7 Panel PCs

8 Industrial Wireless Solutions

9 Industrial Ethernet Solutions

10 Industrial Gateway Solutions

11 Serial communication cards

12 Embedded Automation PCs

13 DIN-Rail IPCs

14 CompactPCI Systems

15 IoT Wireless I/O Modules

16 IoT Ethernet I/O Modules

17 RS-485 I/O Modules

18 Data Acquisition Boards

FPM-3151G

Features

- 15" XGA TFT LED LCD with 50,000 backlight life time
- Robust anodized coated aluminum front bezel and stainless steel rear cover
- Supports wide operating temperatures
- Increase reliability by enhanced 5-wire resistive touch sensor
- Anti-glare screen with tempered glass and IP65 certified front panel
- Full enclosure ground isolation protection
- Supports VGA/DVI input, dual touch interfaces and two power inputs
- Front lockable OSD membrane keys with user-defined brightness setting
- Front panel is IP65 compliant
- Supports panel, VESA, wall and desktop stand mounting

Introduction

The FPM-3151G is a particularly rugged and reliable 15" XGA wide temperature industrial monitor for a variety of industry applications. Equipped with a hard anodized coating, stainless steel chassis, and -20 to 60°C operating temperature, it can satisfy demands in a wide range of harsh industrial applications. This model also features enhanced 5-wire resistive touch and system ground isolation protection to enhance the reliability. FPM-3151G also provides lockable OSD keys on the front panel with two user-defined contrast/brightness settings.

Specifications

General

- **Button Controls** — OSD control pad on front panel with lockable function. Two user-defined contrast/brightness settings
- **Certification** — CE, FCC Class A, BSMI, CCC, UL, Energy Star
- **Dimensions (W x H x D)** — 422 x 310 x 70 mm (16.61" x 12.2" x 2.76")
- **Enclosure** — Front panel: Aluminum with hard anodizing coating. Rear cover: Stainless steel. Ground Isolation Protection
- **Mounting** — Panel, wall, desktop, VESA arm, or 19" rackmount with optional mounting kit
- **Power Input** — Phoeni x Jack: 24 V_{DC} input. DC Jack: e x ternal 57 W power adapter, with 100 ~ 240 V_{AC} input and 12 V_{DC} @ 4.75 A output
- **Power Consumption** — 12W
- **Video Port** — VGA & DVI-D Port
- **Weight (Net)** — 7.73 kg (17.04 lbs)

LCD Display

- **Display Type** — XGA TFT LCD
- **Backlight Type** — LED
- **Display Size** — 15"
- **Max. Resolution** — 1024 x 768
- **Max. Color** — 16.2M (RGB 8-bit)
- **Viewing Angle (H/V°)** — 160/140
- **Luminance (cd/m²)** — 350
- **Backlight Life (hrs)** — 50,000
- **Contrast Ratio** — 700:1

Touchscreen (Optional)

- **Sensor** — AMT
- **Driver** — Penmount 6000
- **Type** — 5-wire resistive with enhanced ITO film
- **Interface** — USB & RS-232 (Combo)
- **Lifespan** — 36 million with a silicone rubber R8 finger, writing rate is by 250g at 2 times/s
- **Light Transmission** — > 80%
- **OS Support** — Windows XP,Vista,7,8,XPe,CE and Linu x
- **Power Consumption** — +5 V @ 100 mA
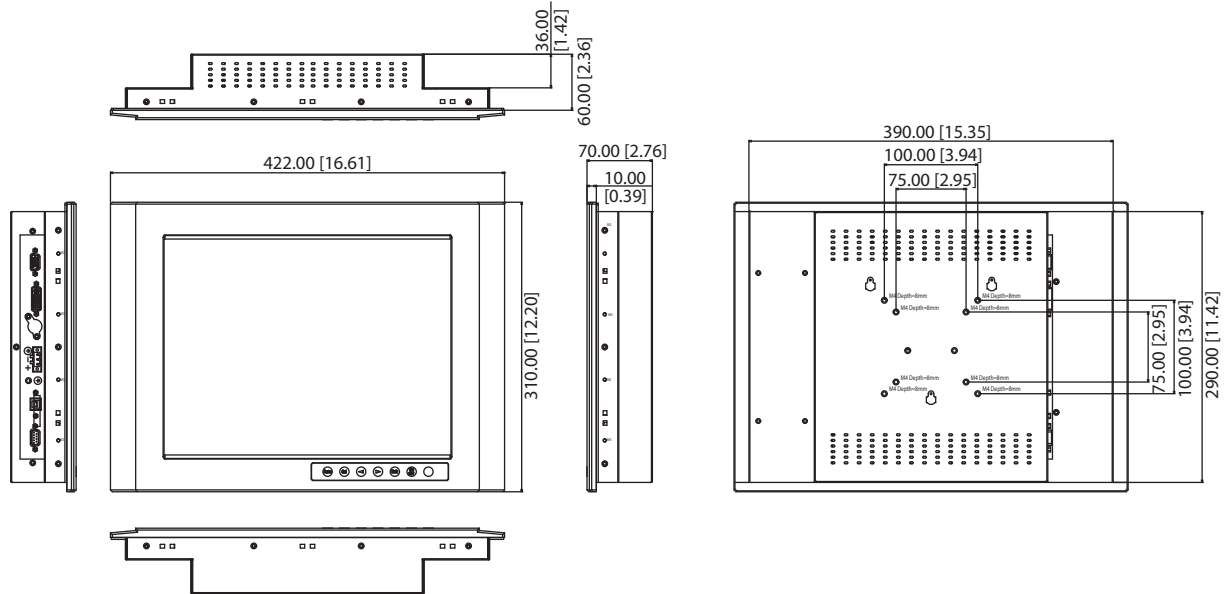- **Touch Resolution** — Linearity

Environment

- **Operation Temperature** — -20 ~ 60°C (-4 ~ 140°F)
- **Storage Temperature** — -30 ~ 80°C (-22 ~ 176°F)
- **Humidity (Storage)** — 10 ~ 95% non-condensing
- **Waterproof** — Front panel is IP65 compliant
- **Shock** — 11ms, 10G (Non Operating, Half Sine Wave)
- **Vibration** — 5 ~ 500 Hz, 1 Grms (Operating, Random)

Ordering Information

- **FPM-3151G-X0AE** — 15" XGA Ind. Monitor with Wide Temp
- **FPM-3151G-R3AE** — 15" XGA Ind. Monitor w/ Wide Temp, Resistive TS
- **FPM-3151SR-R3AE** — 15" XGA Ind. Monitor w/ Sunlight Readable Display

Dimensions

Unit: mm [inch]

36.00 [1.42]
60.00 [2.36]

422.00 [16.61]

310.00 [12.20]

70.00 [2.76]
10.00 [0.39]

390.00 [15.35]
100.00 [3.94]
75.00 [2.95]

M4 Depth=8mm
M4 Depth=8mm
M4 Depth=8mm

75.00 [2.95]
100.00 [3.94]
290.00 [11.42]

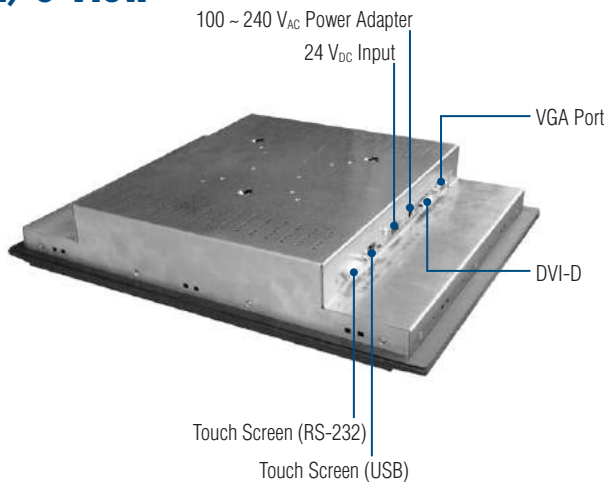**Panel Cut-out Dimensions: 396 x 296 mm (15.59" x 11.65")**

Accessories

- **FPM-3151G-RMKE**   Mounting kit for 19" industrial rack
- **1702002600**   Power Cable US Plug 1.8 M
- **1702002605**   Power Cable EU Plug 1.8 M
- **1702031801**   Power Cable UK Plug 1.8 M
- **1700000596**   Power Cable China/Australia Plug 1.8 M
- **FPM-2120G-SMKE**   FPM-2120G/2150G/2170G Stand Kit

Rack Mount (FPM-3151G-RMKE)

I/O View

100 ~ 240 V$_{AC}$ Power Adapter

24 V$_{DC}$ Input

VGA Port

DVI-D

Touch Screen (RS-232)

Touch Screen (USB)

1 WebAccess+ Solutions

2 Motion Control

3 Power & Energy Automation

4 Automation Software

5 Intelligent Operator Panel

6 Automation Panels

7 Panel PCs

8 Industrial Wireless Solutions

9 Industrial Ethernet Solutions

10 Industrial Gateway Solutions

11 Serial communication cards

12 Embedded Automation PCs

13 DIN-Rail IPCs

14 CompactPCI Systems

15 IoT Wireless I/O Modules

16 IoT Ethernet I/O Modules

17 RS-485 I/O Modules

18 Data Acquisition Boards

FPM-3121G

12.1" SVGA Industrial Monitor with Resistive Touchscreen, Direct-VGA, DVI and Wide Operating Temperature

Features

- 12.1" SVGA TFT LED LCD with 50,000 backlight life time
- Robust anodized coated aluminum front bezel and stainless steel rear cover
- Supports wide operating temperatures
- Increase reliability by enhanced 5-wire resistive touch sensor
- Anti-glare screen with tempered glass and IP65 certified front panel
- Full enclosure ground isolation protection
- Supports VGA/DVI input, dual touch interfaces and two power inputs
- Front lockable OSD membrane keys with user-defined brightness setting
- Energy Star certification
- Front panel is IP65 compliant
- Supports panel, VESA, wall and desktop stand mounting

Introduction

The FPM-3121G is a particularly rugged and reliable 12.1" SVGA wide temperature industrial monitor for a variety of industry applications. Equipped with a hard anodized coating, stainless steel chassis, and -20 to 60°C operating temperature, it can satisfy demands in a wide range of harsh industrial applications. This model also features enhanced 5-wire resistive touch and system ground isolation protection to enhance the reliability. Lockable OSD keys on front panel with 2 user-defined contrast/brightness settings.

Specifications

General

Button Controls	OSD control pad on front side with lockable function. Two user-defined contrast/brightness settings
Certification	CE, FCC Class A, BSMI, CCC, UL, Energy Star
Dimensions (W x H x D)	312 x 224 x 60 mm (12.28" x 8.82" x 2.36")
Enclosure	Front panel: Aluminum with hard anodized coating. Rear cover: Stainless steel chassis. Ground Isolation Protection
Mounting	Panel, VESA arm, or wall & desktop mount with optional mounting kit
Power Input	Phoenix Jack: 24 V_{DC} input. DC Jack: external 57 W power adapter, with 100 ~ 240 V_{AC} input and +12 V_{DC} @ 4.75 A output
Power Consumption	9 W
Video Port	VGA & DVI-D Port
Weight (Net)	4.07 kg (8.975 lbs)

LCD Display

Display Type	SVGA TFT LCD
Backlight Type	LED
Display Size	12.1"
Max. Resolution	800 x 600
Max. Color	16.2M (RGB 8-bit)
Viewing Angle (H/V°)	160 / 140
Luminance (cd/m²)	450
Operation Life (hrs)	50,000
Contrast Ratio	700:1

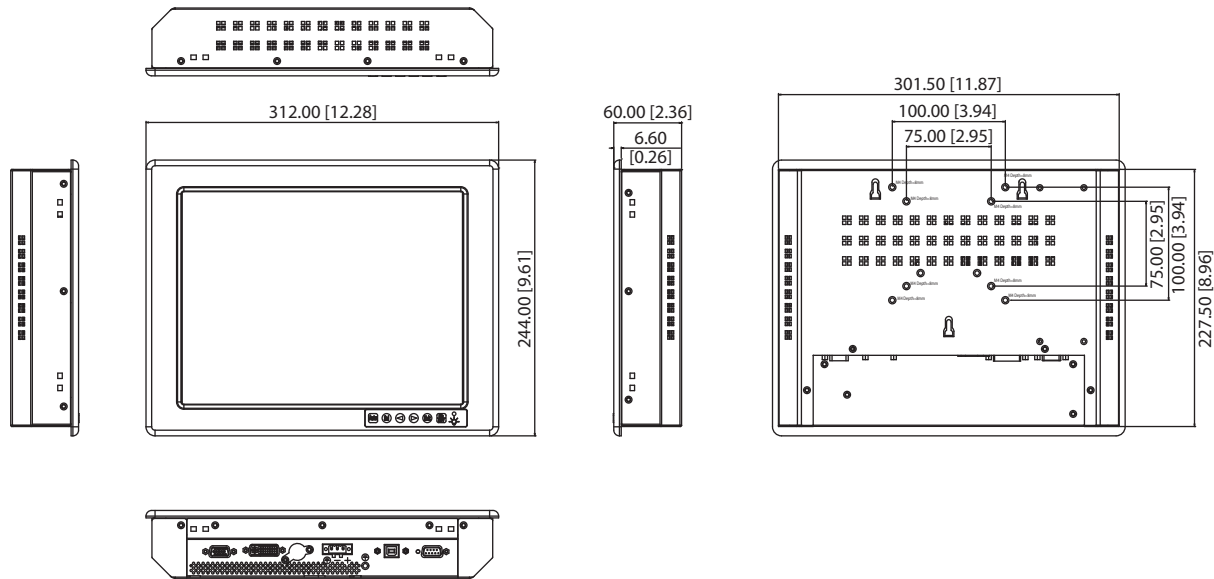#### Touchscreen (Optional)

Sensor	AMT
Driver	Penmount 6000
Type	5-wire Resistive with enhanced ITO film
Interface	USB & RS-232 (Combo)
Lifespan	36 million with a silicone rubber of R8 finger, writing rate is by 250g at 2 times/s
Light Transmission	> 80%
OS Support	Windows XP,Vista,7,8,XPe,CE and Linux
Power Consumption	+5 V @ 100 mA
Touch Resolution	Linearity

Environment

Operation Temperature	-20 ~ 60°C (-4 ~ 140°F)
Storage Temperature	-30 ~ 80°C (-22 ~ 176°F)
Humidity (Storage)	10 ~ 95% non-condensing
Waterproof	Front panel is IP65 compliant
Shock	11ms, 10G (Non Operating, Half Sine Wave)
Vibration	5 ~ 500 Hz, 1 Grms (Operating, Random)

Dimensions

Unit: mm [inch]

312.00 [12.28]

244.00 [9.61]

60.00 [2.36]

6.60 [0.26]

301.50 [11.87]

100.00 [3.94]

75.00 [2.95]

75.00 [2.95]

100.00 [3.94]

227.50 [8.96]

Panel Cut-out Dimensions: 303.5 x 229.5 mm (11.95" x 9.04")
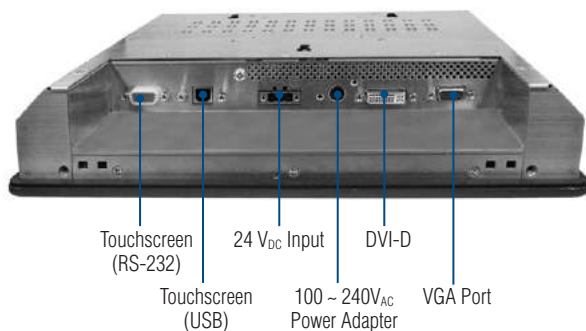
Ordering Information

- **FPM-3121G-X0AE**   12.1" SVGA Ind. Monitor with Wide Temp
- **FPM-3121G-R3AE**   12.1" SVGA Ind. Monitor w/ Wide Temp, Resistive TS
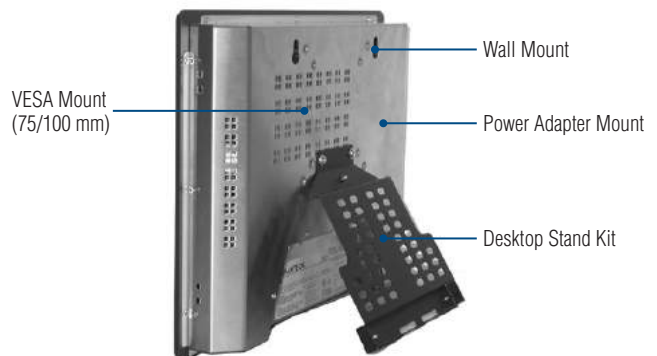
Accessories

- **FPM-2150G-SMKE**   Mounting kit for desktop stand & wall
- **1702002600**   Power Cable US Plug 1.8 M
- **1702031801**   Power Cable UK Plug 1.8 M
- **1702002605**   Power Cable EU Plug 1.8 M
- **1700000596**   Power Cable China/Australia Plug 1.8 M

I/O View

Touchscreen (RS-232)

Touchscreen (USB)

24 V$_{DC}$ Input

100 ~ 240V$_{AC}$ Power Adapter

DVI-D

VGA Port

Mounting Method

VESA Mount (75/100 mm)

Wall Mount

Power Adapter Mount

Desktop Stand Kit

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

FPM-7211W

21.5" Full HD Industrial Monitor with PCT Touch, Direct-VGA and DVI Ports

NEW

Features

- 21.5" Full HD TFT LED LCD wide screen display
- 16:9 wide screen display, view area increases by 40%
- Supports10 points multi-touch via USB interface in Windows 7/8
- Slim type design for Panel mount / Wall mount easy installation
- Various mounting options: panel, wall, desktop and VESA arm mounting
- Projected Capacitive Touchscreen with reliable glass surface
- Robust design with SECC chassis and Magnesium alloy front panel with IP66 compliance
- OSD control pad on rear cover
- Lockable I/O connectors

Introduction

With its brand new design, the FPM-7211W provides a new wide screen display size with industrial grade design concept. By truly-flat touch screen, the front bezel meets IP66 testing criteria. FPM-7211W projected capacitive touch can support 5-points touch application. New easy installation design can help you with one person for panel mounting.FPM-7211W monitor with slim enclosure is ideally suited to being either panel or wall mounted.

Specifications

General

- **OSD Controls**   OSD control in rear cover
- **Certification**   BSMI, CCC, CE, FCC Class A, UL
- **Dimensions (W x H x D)** 558.4 x 349.8 x 47.7 mm (21.98" x 13.77" x 1.88")
- **Enclosure**   Front panel: Die-cast Magnesium alloy
                         Rear cover: SECC
- **Mounting**   Panel, wall, desktop, VESA (MIS,100,C)
- **Power Input**   Phoeni x Jack: 24 V_{DC} input
                           DC Jack: e x ternal 57 W power adapter, with 100 ~ 240 V_{AC} input and 12 V_{DC} @ 4.75 A output

Note: AC power adapter is included.

- **Power Consumption**   25 W + 20%
- **Video Port**   VGA & DVI-D port
- **Weight (Net)**   8kg (17.6lbs)

LCD Display

- **Display Type**   Full HD TFT LED LCD
- **Display Size**   21.5"
- **Max. Resolution**   1920 x 1080
- **Max. Color**   16.7 M
- **Viewing Angle (H/V°)** 178/178
- **Luminance (cd/m²)**   300
- **Backlight Life (hrs)** 50,000
- **Contrast Ratio**   5000:1

Touchscreen

- **Type**   Projected Capacitive touch
- **Interface**   RS-232 and USB
- **Light Transmission**   Above 75%
- **OS Support**   Windows XP, Vista,7, 8,XPe and Linux
- **Multi Touch**   10 points, USB interface in Win 7/8.
- **Hardness**   >6H

Environment

- **Operation Temperature** 0 ~ 55°C (32 ~ 131°F)
- **Storage Temperature**   -20 ~ 60°C (-4 ~ 140°F)
- **Humidity (Storage)**   10 ~ 90% non-condensing
- **Waterproof**   Front panel is IP66 compliant
- **Vibration**   5 ~ 500 Hz, 1 Grms (Operating, Random)

Ordering Information
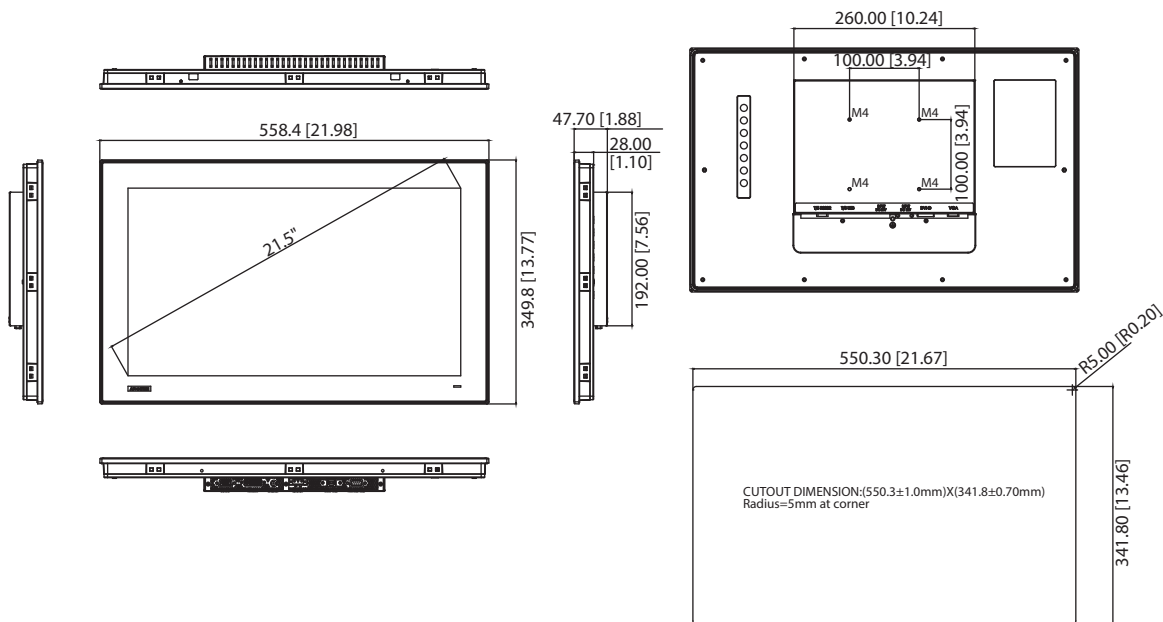
- **FPM-7211W-P3AE**   21.5" Full HD Ind Monitor w/PCT TS (RS-232, USB)

Accessories

- **1702002600**   Power Cable US Plug 1.8 M
- **1702002605**   Power Cable EU Plug 1.8 M
- **1702031801**   Power Cable UK Plug 1.8 M
- **1700000596**   Power Cable China/Australia Plug 1.8 M
- **FPM-7181W-SMKE**   FPM-7211W Mounting kit for desktop & wall

Dimensions

Unit: mm [inch]

558.4 [21.98]

21.5"

349.8 [13.77]

47.70 [1.88]

28.00 [1.10]

192.00 [7.56]

260.00 [10.24]

100.00 [3.94]

M4 M4

100.00 [3.94]

M4 M4

R5.00 [R0.20]

550.30 [21.67]

341.80 [13.46]

CUTOUT DIMENSION:(550.3±1.0mm)X(341.8±0.70mm)
Radius=5mm at corner

Panel Cut-out Dimensions: 550.30 x 341.8 mm (21.67" x 13.46")

Easy Installation

Snap hook in rear cover

Screw to set up the snap hook out of upper side

Stopper Screw in rear cover

Screw for the stopper screw out of down side

Rear View

Easy Installation: Snap hook x2

Easy Installation: Snap hook

TS Interface - RS232 Port

TS Interface - USB Port

24V_{DC} Power Input with Phoeni x Jack

12V_{DC} Power Input with DC Jack

DVI Port

VGA Port

Easy Installation: Snap hook

FPM-7181W

18.5" WXGA Industrial Monitor with PCT Touch, Direct-VGA and DVI Ports

NEW

Features

- 18.5" WXGA TFT LED LCD wide screen display
- 16:9 wide screen display, view area increases by 40%
- Supports10 points multi-touch via USB interface in Windows 7/8
- Slim type design for Panel mount / Wall mount easy installation
- Various mounting options: panel, wall, desktop and VESA arm mounting
- Projected Capacitive Touchscreen with reliable glass surface
- Robust design with SECC chassis and Magnesium alloy front panel with IP66 compliance
- OSD control pad on rear cover
- Lockable I/O connectors

Introduction

With its brand new design, the FPM-7181W provides a new wide screen display size with industrial grade design concept. By truly-flat touch screen, the front bezel meets IP66 testing criteria. FPM-7181W projected capacitive touch can support 10-points touch application. New easy installation design can help you with one person for panel mounting.FPM-7181W monitor with slim enclosure is ideally suited to being either panel or wall mounted.

Specifications

General

- **OSD Controls** — OSD control in rear cover
- **Certification** — BSMI, CCC, CE, FCC Class A, UL
- **Dimensions (W x H x D)** 488 x 309 x 47.7 mm (19.21" x 12.17" x 1.88")
- **Enclosure** — Front panel: Die-cast Magnesium alloy
  Rear cover: SECC
- **Mounting** — Panel, wall, desktop, VESA (MIS,100,C)
- **Power Input** — Phoeni x Jack: 24 V_{DC} input
  DC Jack: e x ternal 57 W power adapter, with 100 ~ 240 V_{AC} input and 12 V_{DC} @ 4.75 A output

Note: AC power adapter is included.

- **Power Consumption** — 20 W + 20%
- **Video Port** — VGA & DVI-D port
- **Weight (Net)** — 6kg (13.2lbs)

LCD Display

- **Display Type** — WXGA TFT LED LCD
- **Display Size** — 18.5"
- **Max. Resolution** — 1366 x 768
- **Max. Color** — 16.7M
- **Viewing Angle (H/V°)** — 170/160
- **Luminance (cd/m²)** — 300
- **Backlight Life (hrs)** — 50,000
- **Contrast Ratio** — 1000:1

Touchscreen

- **Type** — Projected capacitive touch
- **Interface** — RS-232 and USB
- **Light Transmission** — Above 75%
- **OS Support** — Windows XP, Vista, 7, 8, XPe and Linux
- **Multi Touch** — 10 points, USB interface in Win 7/8.
- **Hardness** — 7H

Environment

- **Operation Temperature** 0 ~ 55°C (32 ~ 131°F)
- **Storage Temperature** — -20 ~ 60°C (-4 ~ 140°F)
- **Humidity (Storage)** — 10 ~ 90% non-condensing
- **Waterproof** — Front panel is IP66 compliant
- **Vibration** — 5 ~ 500 Hz, 1 Grms (Operating, Random)
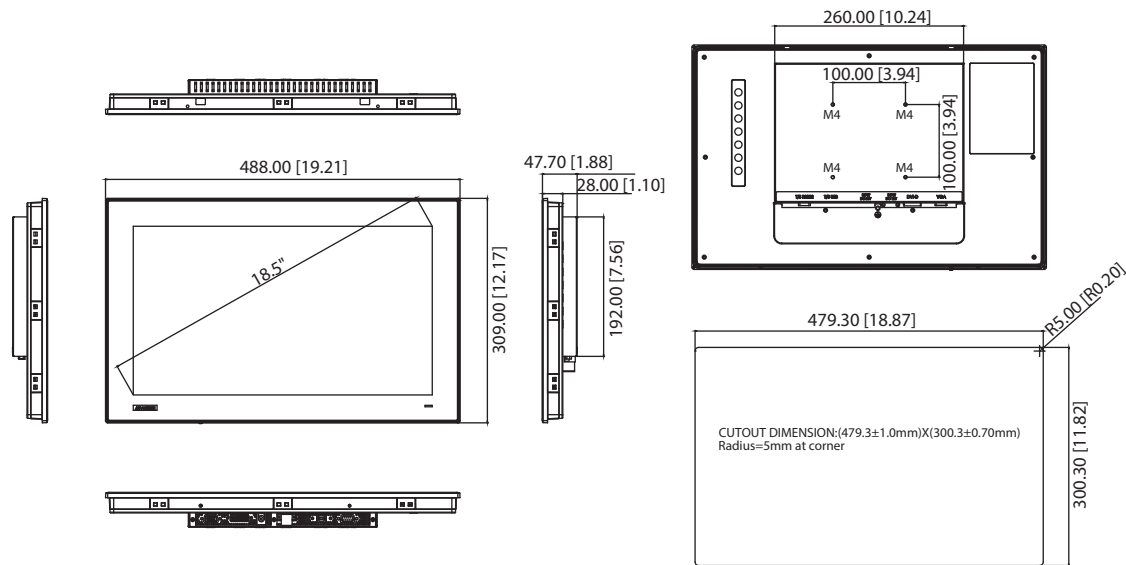
Ordering Information

- **FPM-7181W-P3AE** — 18.5" WXGA Ind Monitor w/PCT TS (RS-232, USB)

Accessories

- **1702002600** — Power Cable US Plug 1.8 M
- **1702002605** — Power Cable EU Plug 1.8 M
- **1702031801** — Power Cable UK Plug 1.8 M
- **1700000596** — Power Cable China/Australia Plug 1.8 M
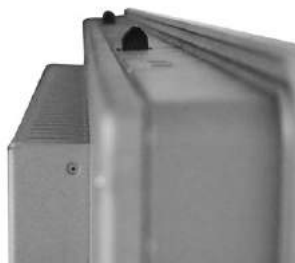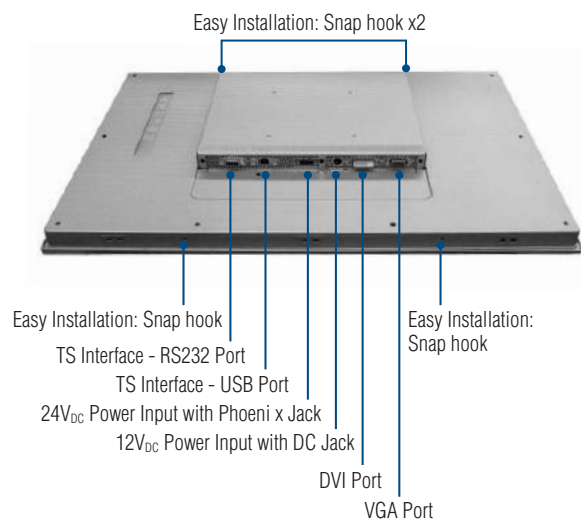- **FPM-7181W-SMKE** — FPM-7181W Mounting kit for desktop & wall

Dimensions

Unit: mm [inch]

260.00 [10.24]
100.00 [3.94]
M4   M4
100.00 [3.94]
M4   M4

488.00 [19.21]

47.70 [1.88]
28.00 [1.10]

18.5"

309.00 [12.17]

192.00 [7.56]

479.30 [18.87]
R5.00 [R0.20]

CUTOUT DIMENSION:(479.3±1.0mm)X(300.3±0.70mm)
Radius=5mm at corner

300.30 [11.82]

Panel Cut-out Dimensions: 479.30 x 300.30 mm (18.87" x 11.82")

Easy Installation

Snap hook in rear cover

Screw to set up the snap hook out of upper side

Stopper Screw in rear cover

Screw for the stopper screw out of down side

Rear View

Easy Installation: Snap hook x2

Easy Installation: Snap hook

TS Interface - RS232 Port

TS Interface - USB Port

$24V_{DC}$ Power Input with Phoeni x Jack

$12V_{DC}$ Power Input with DC Jack

DVI Port

VGA Port

Easy Installation: Snap hook

FPM-7151W

NEW

Features

- 15.6" WXGA TFT LED LCD backlight LCD with truly-flat multi-touch screen
- 16:9 wide screen display, view area increases by 40%
- Supports 10 points multi-touch via USB interface in Windows 7/8
- Slim type design for Panel mount / Wall mount easy installation
- Various mounting options: panel, wall, desktop and VESA arm mounting
- Projected Capacitive Touchscreen with reliable glass surface
- Robust design with SECC chassis and Magnesium alloy front panel with IP66 compliance
- OSD control pad on rear cover
- Lockable I/O connectors
- Two types of video port selections- VGA/DVI or VGA/HDMI

Introduction

With its brand new design, the FPM-7151W provides a new wide screen display size with industrial grade design concept. By truly-flat touch screen, the front bezel meets IP66 testing criteria. FPM-7151W projected capacitive touch can support 10 points (via USB interface in Windows 7/8) touch application. New easy installation design can help you with one person for panel mounting. FPM-7151W monitor with slim enclosure is ideally suited to being either panel or wall mounted.

Specifications

General

- **OSD Controls**   OSD control in rear cover
- **Certification**   BSMI, CCC, CE, FCC Class A, UL
- **Dimensions (W x H x D)** 419.7 x 269 x 47.7 mm (16.52" x 10.59" x 1.88")
- **Enclosure**   Front panel: Die-cast Magnesium alloy
  Rear cover: SECC
- **Mounting**   Panel, wall, desktop, VESA (MIS,100,C)
- **Power Input**   Phoeni x Jack: 24 V_{DC} input
  DC Jack: external 57 W power adapter, with 100 ~ 240 V_{AC} input and 12 V_{DC} @ 4.75 A output

Note: AC power adapter is included.

- **Power Consumption**   20 W + 20%
- **Video Port**   VGA & DVI-D or VGA & HDMI
- **Weight (Net)**   5kg (11lbs)

LCD Display

- **Display Type**   WXGA TFT LED LCD
- **Display Size**   15.6"
- **Max. Resolution**   1366 x 768
- **Max. Color**   16.7 M
- **Viewing Angle (H/V°)**   170/160
- **Luminance (cd/m²)**   300
- **Backlight Life (hrs)**   50,000
- **Contrast Ratio**   500:1

Touchscreen

- **Type**   Projected capacitive touch
- **Interface**   RS-232 and USB
- **Light Transmission**   Above 75%
- **OS Support**   Windows XP, Vista,7, 8, XPe and Linux
- **Multi Touch**   10 points, USB interface in Win 7/8.
- **Hardness**   7H

Environment

- **Operation Temperature**   0 ~ 55°C (32 ~ 131°F)
- **Storage Temperature**   -20 ~ 60°C (-4 ~ 140°F)
- **Humidity (Storage)**   10 ~ 90% non-condensing
- **Waterproof**   Front panel is IP66 compliant
- **Vibration**   5 ~ 500 Hz, 1 Grms (Operating, Random)
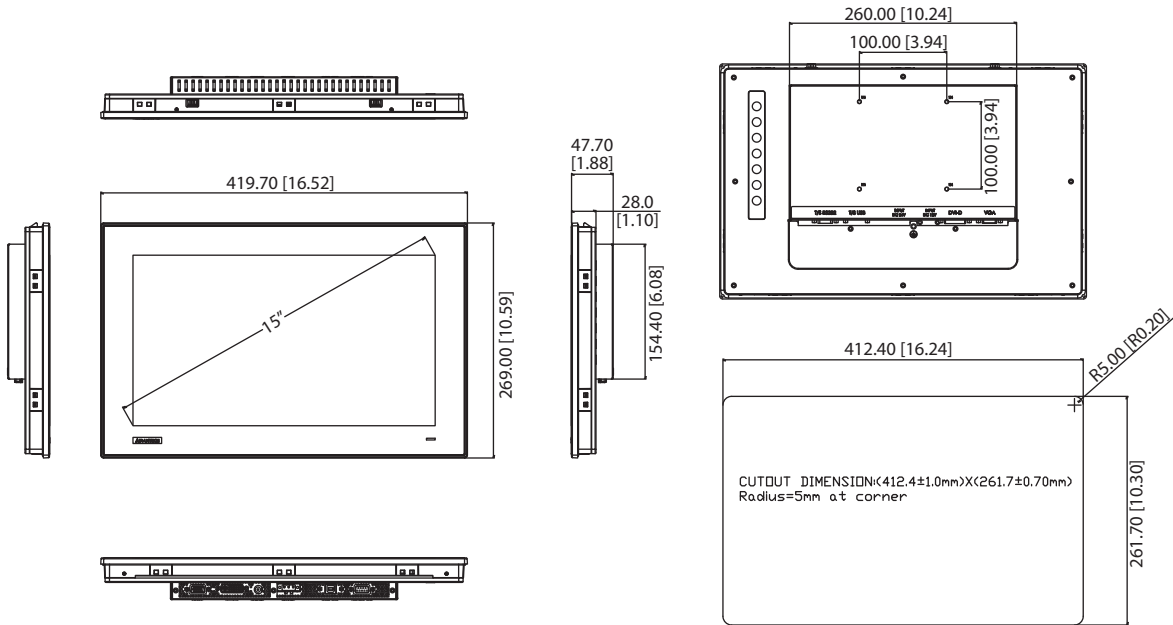
Ordering Information

- **FPM-7151W-P3AE**   15.6" WXGA Ind Monitor w/PCT TS (VGA/DVI)
- **FPM-7155W-P3AE**   15.6" WXGA Ind Monitor w/PCT TS (VGA/HDMI)

Accessories

- **1702002600**   Power Cable US Plug 1.8 M
- **1702002605**   Power Cable EU Plug 1.8 M
- **1702031801**   Power Cable UK Plug 1.8 M
- **1700000596**   Power Cable China/Australia Plug 1.8 M
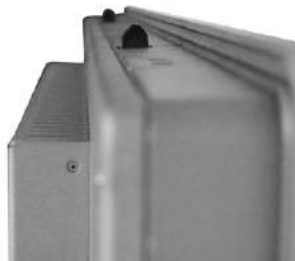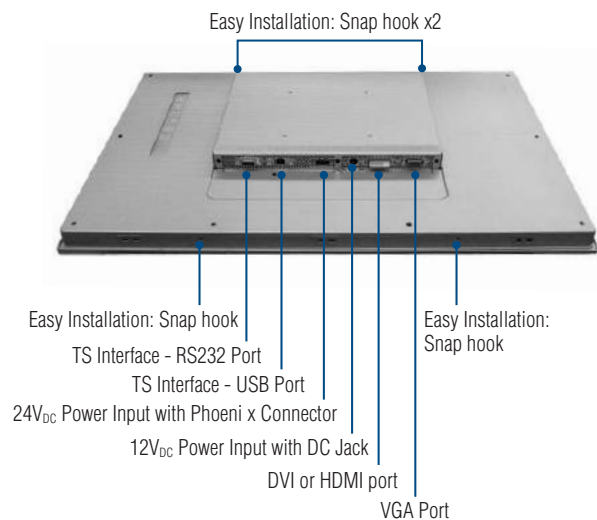- **FPM-7181W-SMKE**   FPM-7181W Mounting kit for desktop & wall

ADVANTECH   Automation Panels

Dimensions

Unit: mm [inch]

260.00 [10.24]
100.00 [3.94]
100.00 [3.94]

419.70 [16.52]

47.70 [1.88]
28.0 [1.10]
154.40 [6.08]

269.00 [10.59]

15"

412.40 [16.24]

R5.00 [R0.20]

CUTOUT DIMENSION:(412.4±1.0mm)X(261.7±0.70mm)
Radius=5mm at corner

261.70 [10.30]

Panel Cut-out Dimensions: 412.40 x 261.70 mm (16.24" x 10.30")

Easy Installation

Snap hook in rear cover

Screw to set up the snap hook out of upper side

Stopper Screw in rear cover

Screw for the stopper screw out of down side

Rear View

Easy Installation: Snap hook x2

Easy Installation: Snap hook
TS Interface - RS232 Port
TS Interface - USB Port
24V$_{DC}$ Power Input with Phoeni x Connector
12V$_{DC}$ Power Input with DC Jack
DVI or HDMI port
VGA Port

Easy Installation: Snap hook

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

FPM-7151T

NEW

Features

- 15" XGA TFT LED LCD with 50,000 backlight life time
- Robust design with IP66 compliance aluminum front panel
- Wide operating temperature support -20~60°C
- Anti-glare screen with tempered glass
- Supports Panel, Wall, Desktop, Rack or VESA arm mounting
- Combo RS-232 & USB interface for touchscreen function
- OSD control pad on rear cover
- Lockable I/O connectors

Introduction

FPM-7000T series is the first true-flat design in 4:3 industrial grade monitor. To enhance its durability, the FPM-7000T series is true-flat touch screen designed with IP66 front protection, die-cast Al Alloy front bezel and 5-wire resistive touch. It supports wide operating temperatures -20~60°C for a variety of user environments. Designed with various mounting methods for users to apply into the system or adopt to the environment easily.

Specifications

General

- **OSD Controls**   OSD control in rear cover
- **Certification**   BSMI, CCC, CE, FCC Class A, UL
- **Dimensions (W x H x D)**   383.2 x 307.3 x 48.2 mm (15.09" x 12.10" x 1.90")
- **Enclosure**   Front panel: Die-cast Magnesium alloy
  Rear cover: SECC
- **Mounting**   Stand, Wall, Panel or Rack mount
- **Power Input**   Phoeni x Jack: 24 V_{DC} input
- **Power Consumption**   12 W + 20%
- **Video Port**   VGA & DP
- **Weight (Net)**   4.2kg (9.26lbs)

LCD Display

- **Display Type**   XGA TFT LED LCD
- **Display Size**   15"
- **Max. Resolution**   1024 x 768
- **Max. Color**   16.7M
- **Viewing Angle (H/V°)**   160/140
- **Luminance (cd/m2)**   400
- **Backlight Life (hrs)**   50,000
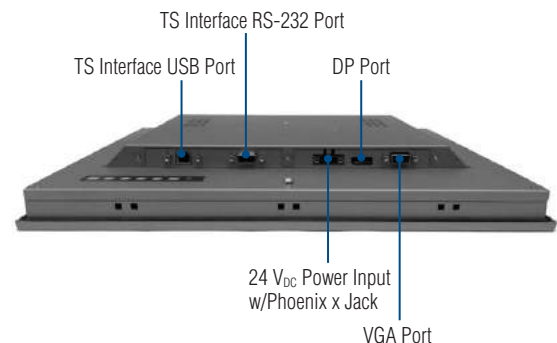- **Contrast Ratio**   700 :1

Touchscreen

- **Type**   5-wire, analog resistive
- **Interface**   RS-232 and USB
- **Light Transmission**   Above 75%
- **OS Support**   Windows XP, Vista, 7, 8, XPe and Linu x
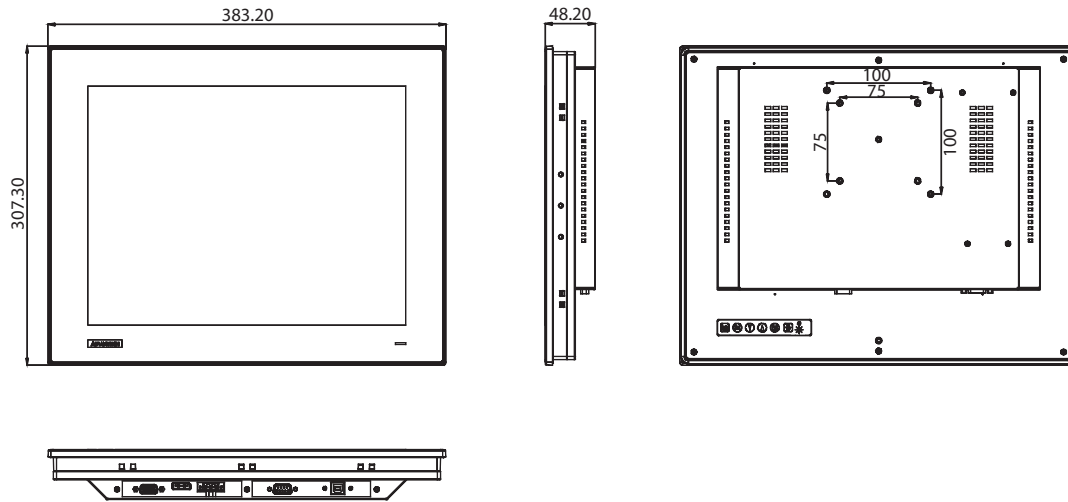
Environment

- **Operation Temperature**   -20 ~ 60°C (-4 ~ 140°F)
- **Storage Temperature**   -30 ~ 80°C (-22 ~ 176°F)
- **Humidity (Storage)**   10 ~ 90% non-condensing
- **Waterproof**   Front panel is IP66 compliant
- **Vibration**   5 ~ 500 Hz, 1 Grms (Operating, Random)

I/O View

TS Interface RS-232 Port

TS Interface USB Port

DP Port

24 V_{DC} Power Input w/Phoenix x Jack

VGA Port

Dimensions

Unit: mm

383.20

48.20

307.30

100
75
75
100

Panel Cut-out Dimensions: 372.9 x 296.9 mm (14.68" x 11.69")

Ordering Information

- **FPM-7151T-R3AE**   15" XGA Ind Monitor w/Resistive TS (VGA/DP)

Accessories

- **1702002600**   Power Cable US Plug 1.8 M
- **1702002605**   Power Cable EU Plug 1.8 M
- **1702031801**   Power Cable UK Plug 1.8 M
- **1700000596**   Power Cable China/Australia Plug 1.8 M
- **1757003934**   ADAPTER 100-240V 60W 12V 5A W/O PFC
    DPS-60PB A A
- **FPM-2150G-RMKE**   Rack-Mount Kit

Front View

Power Indicator
Blue: Power on
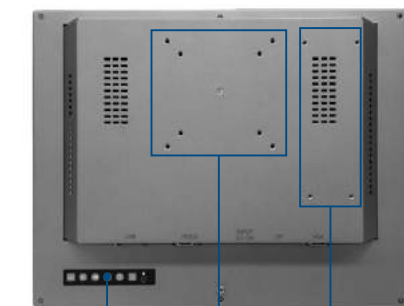Orange: Power off

Side View

O-ring for dust & water protection
while panel mounting

Panel mounting design
(Clampers & screw included)

Rear View

LCD OSD Control Keys

Adapter Mounting Area
(Bracket included)

VESA Mount, Wall Mount
& Desk Mount

FPM-7121T

NEW

Features

- 12.1" XGA TFT LED LCD with 50,000 backlight life time
- Robust design with IP66 compliance aluminum front panel
- Wide operating temperature support -20~60°C
- Anti-glare screen with tempered glass
- Supports Panel, Wall, Desktop, Rack or VESA arm mounting
- Combo RS-232 & USB interface for touchscreen function
- OSD control pad on rear cover
- Lockable I/O connectors

Introduction

FPM-7000T series is the first true-flat design in 4:3 industrial grade monitor. To enhance its durability, the FPM-7000T series is true-flat touch screen designed with IP66 front protection, die-cast Al Alloy front bezel and 5-wire resistive touch. It supports wide operating temperatures -20~60°C for a variety of user environments. Designed with various mounting methods for users to apply into the system or adopt to the environment easily.

Specifications

General

- **OSD Controls**   OSD control in rear cover
- **Certification**   BSMI, CCC, CE, FCC Class A, UL
- **Dimensions (W x H x D)** 311.8 x 238 x 44.6 mm (12.28" x 9.37" x 1.76")
- **Enclosure**   Front panel: Die-cast Magnesium alloy
  Rear cover: SECC
- **Mounting**   Stand, Wall, Panel or Rack mount
- **Power Input**   Phoeni x Jack: 24 V_{DC} input
- **Power Consumption**   12 W + 20%
- **Video Port**   VGA & DP
- **Weight (Net)**   2.6kg (5.73lbs)

LCD Display

- **Display Type**   XGA TFT LED LCD
- **Display Size**   12.1"
- **Max. Resolution**   1024 x 768
- **Max. Color**   16.2M
- **Viewing Angle (H/V°)**   160/140
- **Luminance (cd/m2)**   600
- **Backlight Life (hrs)**   50,000
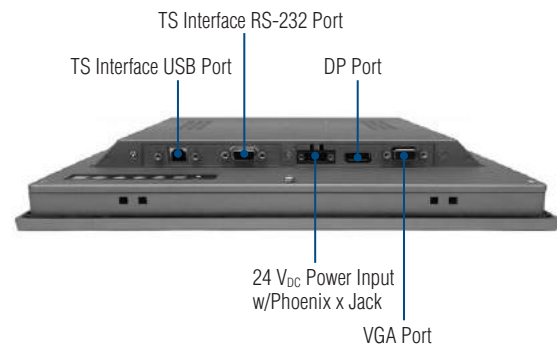- **Contrast Ratio**   700 :1

Touchscreen

- **Type**   5-wire, analog resistive
- **Interface**   RS-232 and USB
- **Light Transmission**   Above 75%
- **OS Support**   Windows XP, Vista, 7, 8, XPe and Linu x
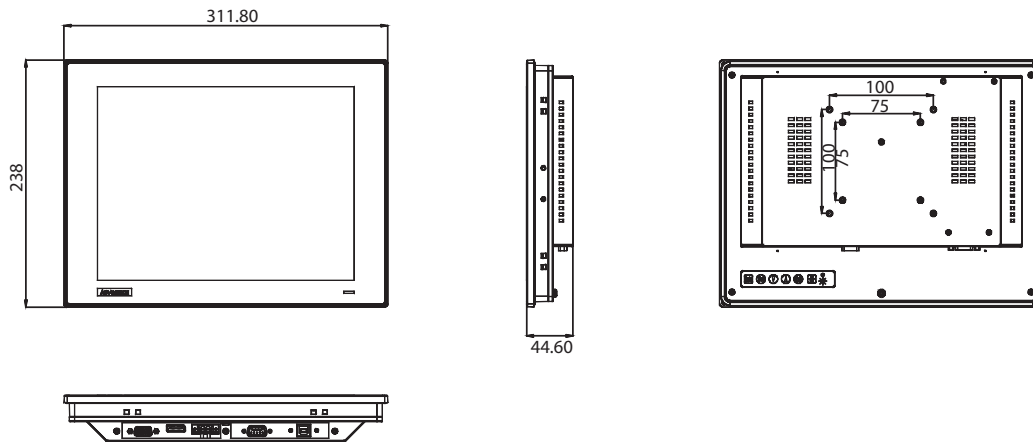
Environment

- **Operation Temperature**   -20 ~ 60°C (-4 ~ 140°F)
- **Storage Temperature**   -30 ~ 80°C (-22 ~ 176°F)
- **Humidity (Storage)**   10 ~ 90% non-condensing
- **Waterproof**   Front panel is IP66 compliant
- **Vibration**   5 ~ 500 Hz, 1 Grms (Operating, Random)

I/O View

TS Interface RS-232 Port

TS Interface USB Port   DP Port

24 V_{DC} Power Input w/Phoenix x Jack

VGA Port

Dimensions

Unit: mm

311.80

238

44.60

100
75
100
75

**Panel Cut-out Dimensions: 301.6 x 227.6 mm (11.87" x 8.96")**

Ordering Information

- **FPM-7121T-R3AE**   12.1" XGA Ind Monitor w/Resistive TS (VGA/DP)

Accessories

- **1702002600**   Power Cable US Plug 1.8 M
- **1702002605**   Power Cable EU Plug 1.8 M
- **1702031801**   Power Cable UK Plug 1.8 M
- **1700000596**   Power Cable China/Australia Plug 1.8 M
- **1757003934**   ADAPTER 100-240V 60W 12V 5A W/O PFC DPS-60PB A A
- **FPM-2120G-RMKE**   Rack-Mount Kit
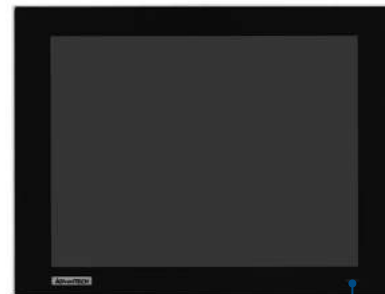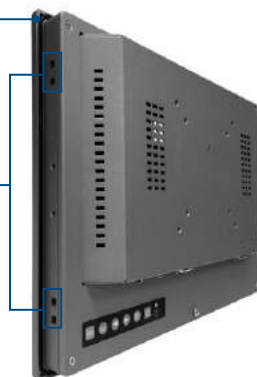
Front View

Power Indicator
Blue: Power on
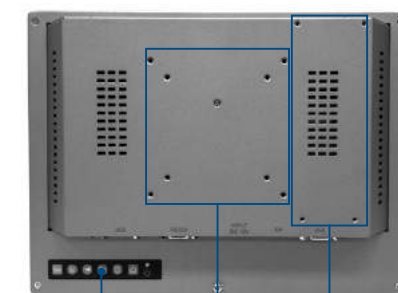Orange: Power off

Side View

O-ring for dust & water protection while panel mounting

Panel mounting design (Clampers & screw included)

Rear View

LCD OSD Control Keys

Adapter Mounting Area (Bracket included)

VESA Mount, Wall Mount & Desk Mount

1
WebAccess+ Solutions

2
Motion Control

3
Power & Energy Automation

4
Automation Software

5
Intelligent Operator Panel

6
Automation Panels

7
Panel PCs

8
Industrial Wireless Solutions

9
Industrial Ethernet Solutions

10
Industrial Gateway Solutions

11
Serial communication cards

12
Embedded Automation PCs

13
DIN-Rail IPCs

14
CompactPCI Systems

15
IoT Wireless I/O Modules

16
IoT Ethernet I/O Modules

17
RS-485 I/O Modules

18
Data Acquisition Boards

FPM-5191G
FPM-5171G
FPM-5151G

15" XGA/17" SXGA/19" SXGA Industrial Monitors with Resistive Touchscreens, Direct-VGA, and DVI Ports

Features

- 15" XGA or 17" / 19" SXGA TFT LED LCD with 50,000 backlight life time
- Direct VGA & DVI-D input interface
- Lockable OSD keys with 2 user-defined contrast/brightness settings
- Flat-sealed and IP65 certified front panel
- Robust design with anti-rust chassis and aluminum die-cast front panel
- Front accessible USB connector
- Combo RS-232 & USB interface for touchscreen function (optional)
- Supports industrial 10-30 V_{DC} power input with Phoeni x jack
- Supports panel, wall, desktop, rack or VESA arm mounting

Introduction

The FPM-5000G series provides 15", 17" and 19" color TFT LCD with LED backlight flat panel monitors specifically designed for industrial applications. With a viewing size from 15" to 19", they present ample display areas as well as vivid and sharp images. It features Direct-VGA & DVI-D signal transmission, which allows VGA control cards to be used in your system. The onscreen display allows users to adjust the images on the screen with two user-defined settings. The front access USB connector provides easy access the controller, and the industrial 10-30 V_{DC} wide range power support makes this product an e x cellent option for Factory and Machine Automation display solutions.

Specifications

General

- **Button Controls**   OSD control pad on rear side with lockable function
- **Certification**   BSMI, CCC, CE, FCC Class A, UL
- **Dimensions (W x H x D)** 5151G: 449.92 x 315.63 x 50.5 mm
                                 (17.71" x 12.43" x 1.99")
                             5171G: 481.9 x 355.9 x 55 mm
                                 (18.97" x 14.01" x 2.17")
                             5191G: 481.93 x 384.6 x 59 mm
                                 (18.97" x 15.14" x 2.32")
- **Enclosure**   Front panel: Aluminum and flat-sealed
                         Rear cover: Anti-rust coating
- **Mounting**   Panel, wall, desktop, VESA arm, or 19" rackmount
- **Power Input**   Phoeni x Jack - 10 ~ 30 V_{DC} input
                           Optional e x ternal 57 W power adapter, with AC
                           100 V ~ 240 V input and DC +12 V @ 4.7A output
- **Power Consumption**   18 W + 20%/31 W + 20%/32 W + 20%
- **USB**   Front USB access for e x tension
- **Video Port**   VGA & DVI-D
- **Weight (Net)**   6 kg (13.22 lbs)/8 kg (17.63 lbs)/10 kg (22.04 lbs)

LCD Display

- **Display Type**   XGA/SXGA/SXGA TFT LCDs
- **Display Size**   15"/17"/19"
- **Max. Resolution**   1024 x 768/1280 x 1024/1280 x 1024
- **Max. Color**   16.2M / 16.7M / 16.7M
- **Viewing Angle (H/V°)**   160/140, 170/160, 170/160
- **Luminance (cd/m²)**   400/350/350
- **Backlight Life (hrs)**   50,000
- **Contrast Ratio**   700:1 / 1000:1 / 1000:1

Touchscreen (Optional)

- **Sensor**   AMT
- **Driver**   Penmount 6000
- **Type**   5-wire Resistive
- **Interface**   RS-232 & USB
- **Lifespan**   10/10/36 million with a silicone rubber of R8 finger, writing rate is by 250g at 2 times/s
- **Light Transmission**   > 80%
- **OS Support**   Windows XP,Vista,7,8,XPe,CE and Linu x
- **Power Consumption**   +5 V @ 100 mA
- **Touch Resolution**   Linearity
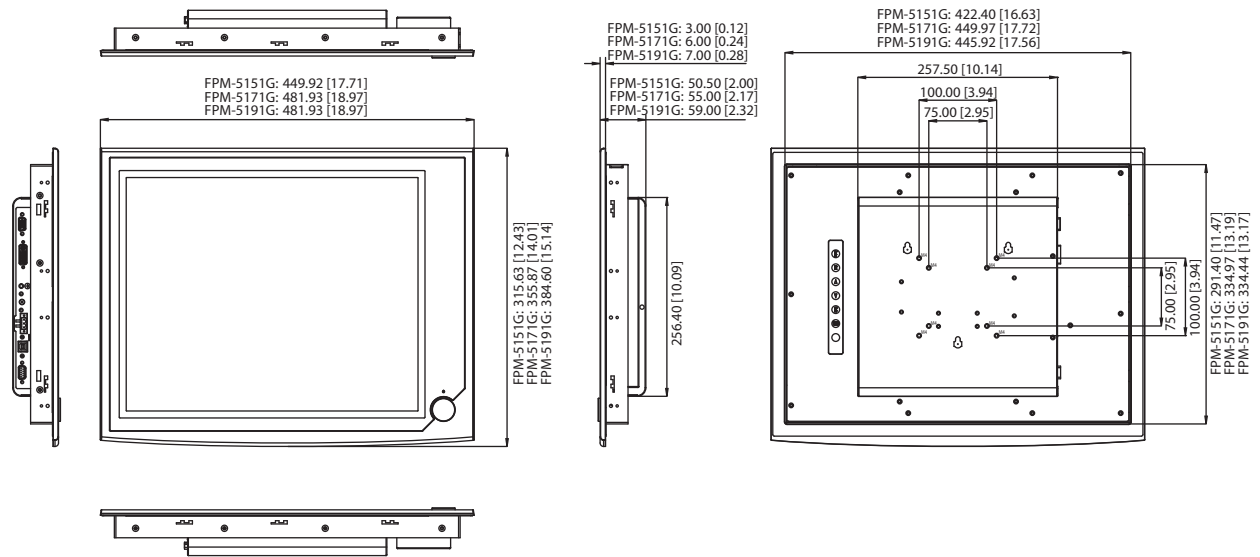
Environment

- **Operation Temperature** 0 ~ 50°C (32 ~ 122°F)
- **Storage Temperature**   -20 ~ 60°C (-4 ~ 140°F)
- **Humidity (Storage)**   10 ~ 90% non-condensing
- **Waterproof**   Front panel is IP65 compliant
- **Vibration**   5 ~ 500 Hz, 1 Grms (Operating, Random)

Ordering Information

- **FPM-5191G-X0BE**   19"SXGA Ind. Monitor
- **FPM-5191G-R3BE**   19"SXGA Ind. Monitor w/Resistive TS(RS-232,USB)
- **FPM-5171G-X0BE**   17"SXGA Ind. Monitor
- **FPM-5171G-R3BE**   17"SXGA Ind. Monitor w/Resistive TS(RS-232,USB)
- **FPM-5151G-X0BE**   15"XGA Ind. Monitor
- **FPM-5151G-R3BE**   15"XGA Ind. Monitor w/Resistive TS(RS-232,USB)

ADVANTECH | **Automation Panels**

Dimensions

Unit: mm [inch]

FPM-5151G: 449.92 [17.71]
FPM-5171G: 481.93 [18.97]
FPM-5191G: 481.93 [18.97]

FPM-5151G: 315.63 [12.43]
FPM-5171G: 355.87 [14.01]
FPM-5191G: 384.60 [15.14]

FPM-5151G: 3.00 [0.12]
FPM-5171G: 6.00 [0.24]
FPM-5191G: 7.00 [0.28]

FPM-5151G: 50.50 [2.00]
FPM-5171G: 55.00 [2.17]
FPM-5191G: 59.00 [2.32]

256.40 [10.09]

FPM-5151G: 422.40 [16.63]
FPM-5171G: 449.97 [17.72]
FPM-5191G: 445.92 [17.56]

257.50 [10.14]
100.00 [3.94]
75.00 [2.95]

75.00 [2.95]
100.00 [3.94]

FPM-5151G: 291.40 [11.47]
FPM-5171G: 334.97 [13.19]
FPM-5191G: 334.44 [13.17]

Panel Cut-out Dimensions: FPM-5151G: 424 x 293 mm (16.69" x 11.54")
FPM-5171G: 454 x 338 mm (17.87" x 13.31")
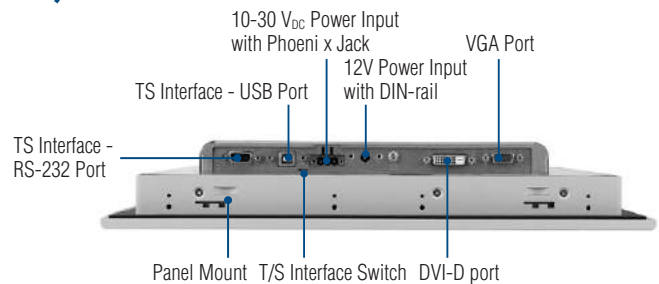FPM-5191G: 454 x 338 mm (17.87" x 13.31")

Accessories

- **FPM-5151G-SMKE**   FPM-5151G/5171G Stand Kit
- **FPM-5191G-SMKE**   FPM-5191G Stand Kit
- **IPPC-6152A-RMKE**   IPPC-6152A/FPM-5151G Rack Mount Kit
- **IPPC-6172A-RMKE**   IPPC-6172A/FPM-5171G Rack Mount Kit
- **IPPC-6192A-RMKE**   IPPC-6192A/FPM-5191G Rack Mount Kit
- **1702002600**   Power Cable US Plug 1.8 M
- **1702002605**   Power Cable EU Plug 1.8 M
- **1702031801**   Power Cable UK Plug 1.8 M
- **1700000596**   Power Cable China/Australia Plug 1.8 M
- **1757003822**   ADAPTER 100-240V57W12V4.75A W/O PFC
  SPU63-105 L5

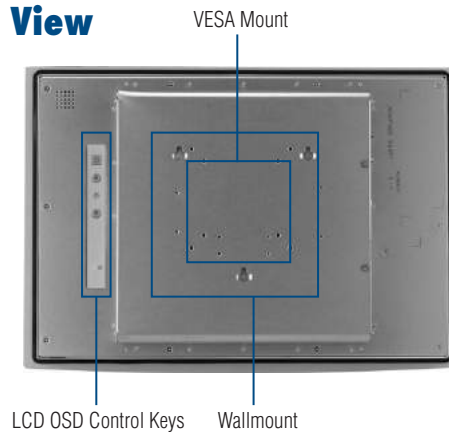Note: VESA mounting screw length: M4 x 6mm

Front Accessible USB Port

I/O View

10-30 V$_{DC}$ Power Input
with Phoeni x Jack

VGA Port

TS Interface - USB Port

12V Power Input
with DIN-rail

TS Interface -
RS-232 Port

Panel Mount   T/S Interface Switch   DVI-D port

Back View

VESA Mount

LCD OSD Control Keys   Wallmount

FPM-2170G

17" SXGA Industrial Monitor with Resistive Touchscreen and Direct-VGA Port

NEW

Features

- 17" SXGA TFT LED LCD with 50,000 backlight life time
- Robust design with aluminum front panel
- Anti-glare screen with tempered glass
- Supports Panel, Wall, Desktop, Rack or VESA arm mounting
- Combo RS-232 & USB interface for touchscreen function

Introduction

The FPM-2170G is an industrial-grade 17" TFT LCD with LED backlightflat panel monitor with an Al-Mg front panel, a modern appearance, and one of the most competitive prices for 17" LCD with LED backlight monitor on the market. The FPM-2170G are also e x tremely light and thin, and provides many industrial-grade features such as a stainless steel chassis, VESA mounting flexibility, and more. The FPM-2170G are especially suitable for industrial PCs such as IPC-610 or IPC-6806. This combination leads to an e x tremely reliable and tough system, ready to operate in a wide variety of industrial applications.

Specifications

General

- **Button Controls**   OSD (Onscreen Display) control pad on rear cover
- **Certification**   BSMI, CCC, CE, FCC, UL
- **Dimensions (W x H x D)**   413.72 x 347.22 x 52.13 mm (16.29" x 13.67 x 2.05")
- **Enclosure**   Front panel: Aluminum, Rear cover: SECC chassis
- **Mounting**   Panel, wall, desktop, VESA arm, or 19" rackmount with optional mounting kit
- **Power Input**   External 60 W power adapter, with AC 100 V ~ 240 V input and DC +12 V @ 5 A output (included)
- **Video Port**   VGA
- **Weight (Net)**   5.60 kg (12.34 lbs)

LCD Display

- **Display Type**   SXGA TFT LCD with LED Backlight
- **Display Size**   17"
- **Max. Resolution**   1280 x 1024
- **Max. Color**   16.7M
- **Viewing Angle (H/V)°**   170°(V),160°(H)
- **Luminance (cd/m2)**   350
- **Backlight Life (hrs)**   50,000
- **Contrast Ratio**   1000:1

Touchscreen (Optional)

- **Interface**   Combo RS-232 & USB interface
- **Lifespan**   36 millions times with a silicone rubber of R8 finger, hitting rate is calculated as being 250g at 2 times per second
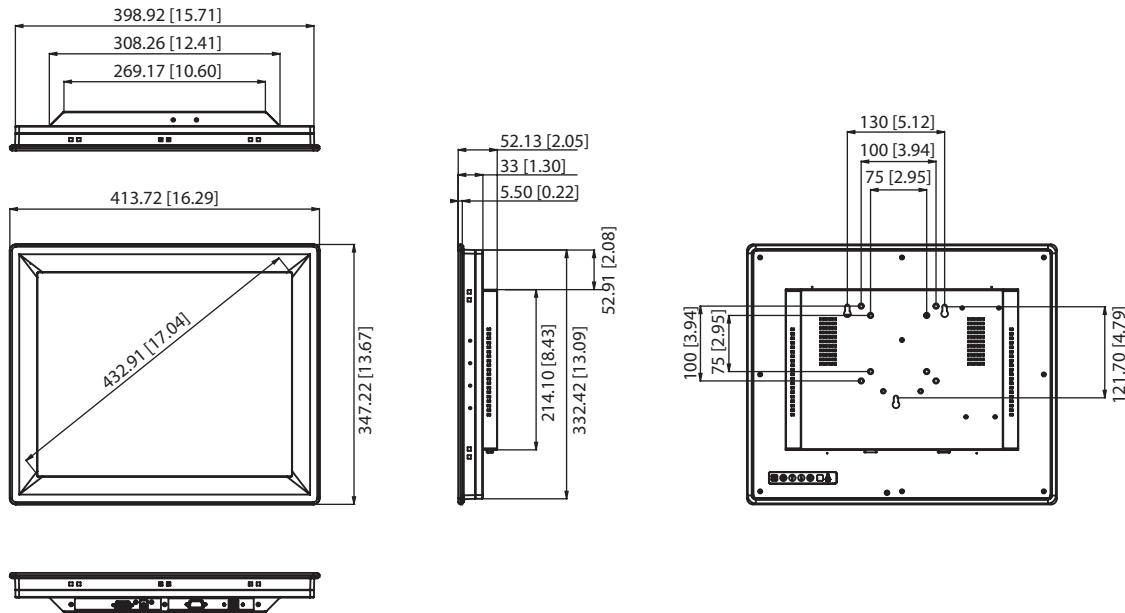- **OS Support**   Windows® XP,Vista,7,8,XPe,CE and Linux

Environment

- **Operation Temperature**   0 ~ 50°C (32 ~ 122°F)
- **Storage Temperature**   -20 ~ 60°C (-4 ~ 140°F)
- **Humidity (Storage)**   10 ~ 95% non-condensing
- **Waterproof**   Front Panel IP65 Compliant
- **Vibration**   5 ~ 500 Hz, 1 Grms (Operating, Random)

Ordering Information

- **FPM-2170G-X0AE**   17" SXGA Industrial LED Monitor
- **FPM-2170G-R3AE**   17" SXGA Industrial LED Monitor w/Resistive TS (RS-232 and USB interfaces)

Dimensions

Unit: mm [inch]

398.92 [15.71]
308.26 [12.41]
269.17 [10.60]

413.72 [16.29]

432.91 [17.04]

347.22 [13.67]

52.13 [2.05]
33 [1.30]
5.50 [0.22]

52.91 [2.08]

214.10 [8.43]
332.42 [13.09]

130 [5.12]
100 [3.94]
75 [2.95]

100 [3.94]
75 [2.95]

121.70 [4.79]

Panel Cut-out Dimensions: 400.92 x 334.42 mm (15.78" x 13.17")

Accessories

- **FPM-2170G-RMKE**   FPM-2170G Rack-Mount Kit
- **FPM-2120G-SMKE**   FPM-2120G/2150G/2170G Stand Kit
- **1702002600**   Power Cable US Plug 1.8 M
- **1702002605**   Power Cable EU Plug 1.8 M
- **1702031801**   Power Cable UK Plug 1.8 M
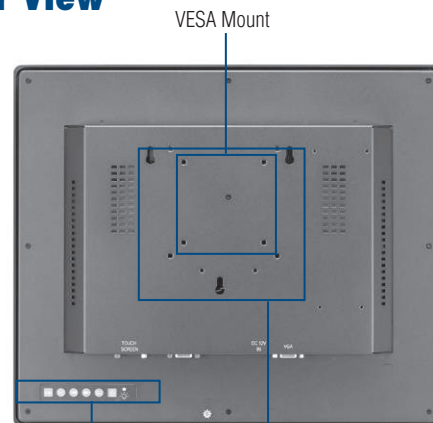- **1700000596**   Power Cable China/Australia Plug 1.8 M

I/O View

Touch Screen (USB)
Touch Screen (RS-232)
VGA Port
DC Jack 12V$_{DC}$
(100~240V$_{AC}$ adapter included)

Front View

Rear View

VESA Mount

OSD Control Keys   Wallmount

Chapter tabs: 1 WebAccess+ Solutions, 2 Motion Control, 3 Power & Energy Automation, 4 Automation Software, 5 Intelligent Operator Panel, 6 Automation Panels, 7 Panel PCs, 8 Industrial Wireless Solutions, 9 Industrial Ethernet Solutions, 10 Industrial Gateway Solutions, 11 Serial communication cards, 12 Embedded Automation PCs, 13 DIN-Rail IPCs, 14 CompactPCI Systems, 15 IoT Wireless I/O Modules, 16 IoT Ethernet I/O Modules, 17 RS-485 I/O Modules, 18 Data Acquisition Boards

FPM-2150G

NEW

Features

- 15'' XGA TFT LED LCD with 50,000 hours of backlight life
- Robust design with aluminum front panel
- Lockable OSD control pad on rear cover
- Anti-glare screen with tempered glass and IP65 certified front panel
- Supports Panel, Wall, Desktop, Rack or VESA arm mounting
- Combo RS-232 & USB interface for touchscreen function

Introduction

FPM-2150G is an industrial-grade 15" TFT LED LCD flat panel monitor with an Al-Mg front panel, a modern appearance, and one of the most competitive prices for 15" LCD monitors on the market. The FPM-2150G is also extremely light and thin, and provides many industrial-grade features such as a stainless steel chassis, VESA mounting flexibility, and more. The FPM-2150G is especially suitable for industrial PCs. This combination leads to an extremely reliable and tough system, ready to operate in a wide variety of industrial applications.

Specifications

General

- **Button Controls** — OSD (Onscreen Display) control pad on rear cover
- **Certification** — BSMI, CCC, CE, FCC, UL
- **Dimensions (W x H x D)** — 383 x 307 x 48.13 mm (15.08" x 12.09" x 1.89")
- **Enclosure** — Front panel: Aluminum with coating, Rear cover: SECC coating chassis
- **Mounting** — Panel, wall, desktop, VESA arm, or rackmount with optional mounting kit
- **Power Input** — External 60 W power adapter, with AC 100 V ~ 240 V input and DC +12 V @ 5 A output (included)
- **Video Port** — VGA
- **Weight (Net)** — 4.5 kg (9.9 lbs)

LCD Display

- **Display Type** — XGA TFT LCD with LED backlight
- **Display Size** — 15"
- **Max. Resolution** — 1024 x 768
- **Max. Color** — 16.2M
- **Viewing Angle (H/V)°** — 160, 140
- **Luminance (cd/m2)** — 400
- **Backlight Life (hrs)** — 50,000
- **Contrast Ratio** — 700 : 1

Touchscreen (Optional)

- **Interface** — Combo RS-232 & USB interface
- **Lifespan** — 36 millions times with a silicone rubber of R8 finger, hitting rate is calculated as being 250g at 2 times per second
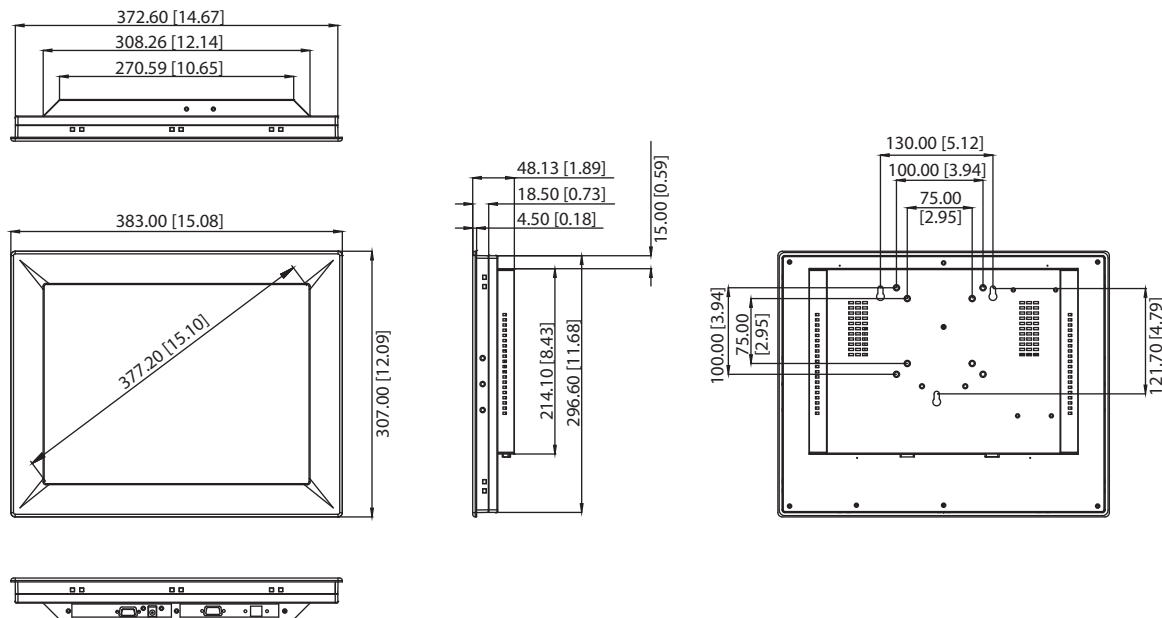- **OS Support** — Windows® XP,Vista,7,8,XPe,CE and Linux

Environment

- **Operation Temperature** — 0 ~ 50°C (32 ~ 122°F)
- **Storage Temperature** — -20 ~ 60°C (-4 ~ 140°F)
- **Humidity (Storage)** — 10 ~ 95% non-condensing
- **Waterproof** — Front Panel IP65
- **Vibration** — 5 ~ 500 Hz, 1 Grms (Operating, Random)

Ordering Information

- **FPM-2150G-X0AE** — 15" XGA Industrial LED Monitor
- **FPM-2150G-R3AE** — 15" XGA Industrial LED Backlight Monitor w/Resistive TS (RS- 232 and USB interfaces)

Dimensions

Unit: mm [inch]

372.60 [14.67]
308.26 [12.14]
270.59 [10.65]

383.00 [15.08]

377.20 [15.10]

307.00 [12.09]

48.13 [1.89]
18.50 [0.73]
4.50 [0.18]
15.00 [0.59]

214.10 [8.43]
296.60 [11.68]

130.00 [5.12]
100.00 [3.94]
75.00 [2.95]
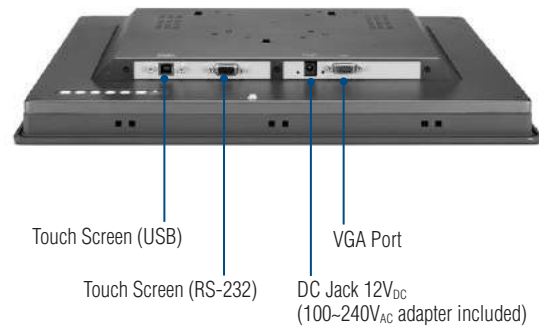
100.00 [3.94]
75.00 [2.95]

121.70 [4.79]

Panel Cut-out Dimensions: 374.6 x 298.6 mm (14.75" x 11.76")

Accessories

- **FPM-2150G-R1MKE**   FPM-2150G Rack-Mount Kit
- **FPM-2120G-SMKE**   FPM-2120G/2150G/2170G Stand Kit
- **1702002600**   Power Cable US Plug 1.8 M
- **1702002605**   Power Cable EU Plug 1.8 M
- **1702031801**   Power Cable UK Plug 1.8 M
- **1700000596**   Power Cable China/Australia Plug 1.8 M

I/O View

Touch Screen (USB)

Touch Screen (RS-232)

VGA Port

DC Jack 12V$_{DC}$
(100~240V$_{AC}$ adapter included)

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

FPM-2120G

12" SVGA Industrial Monitor with Resistive Touchscreen and Direct-VGA Port

NEW

Features

- 12" SVGA TFT LED LCD with 50,000 backlight life time
- Robust design with aluminum front panel
- Anti-glare screen with tempered glass
- Supports Panel, Wall, Desktop, Rack or VESA arm mounting
- Combo RS-232 & USB interface for touchscreen function

Introduction

The FPM-2120G is an industrial-grade 12" TFT LCD with LED backlightflat panel monitor with an Al-Mg front panel, a modern appearance, and one of the most competitive prices for 12" LCD with LED backlight monitor on the market. The FPM-2120G are also e x tremely light and thin, and provides many industrial-grade features such as a stainless steel chassis, VESA mounting flexibility, and more. The FPM-2120G are especially suitable for industrial PCs such as IPC-610 or IPC-6806. This combination leads to an e x tremely reliable and tough system, ready to operate in a wide variety of industrial applications.

Specifications

General

- **Button Controls**   OSD (Onscreen Display) control pad on rear cover
- **Certification**   BSMI, CCC, CE, FCC, UL
- **Dimensions (W x H x D)** 311 x 237 x 40.63 mm (12.24" x 9.33" x 1.60")
- **Enclosure**   Front panel: Aluminum, Rear cover: SECC chassis
- **Mounting**   Panel, wall, desktop, VESA arm, or 19" rackmount with optional mounting kit
- **Power Input**   External 60 W power adapter, with AC 100 V ~ 240 V input and DC +12 V @ 5 A output (included)
- **Video Port**   VGA
- **Weight (Net)**   4kg (8.82 lbs)

LCD Display

- **Display Type**   SVGA TFT LCD with LED backlight
- **Display Size**   12"
- **Max. Resolution**   800 x 600
- **Max. Color**   16.2M
- **Viewing Angle (H/V)°**   160°(V),140°(H)
- **Luminance (cd/m2)**   450
- **Backlight Life (hrs)**   50,000
- **Contrast Ratio**   700:1

Touchscreen (Optional)

- **Interface**   Combo RS-232 & USB interface
- **Lifespan**   36 millions times with a silicone rubber of R8 finger, hitting rate is calculated as being 250g at 2 times per second
- **OS Support**   Windows® XP,Vista,7,8,XPe,CE and Linux
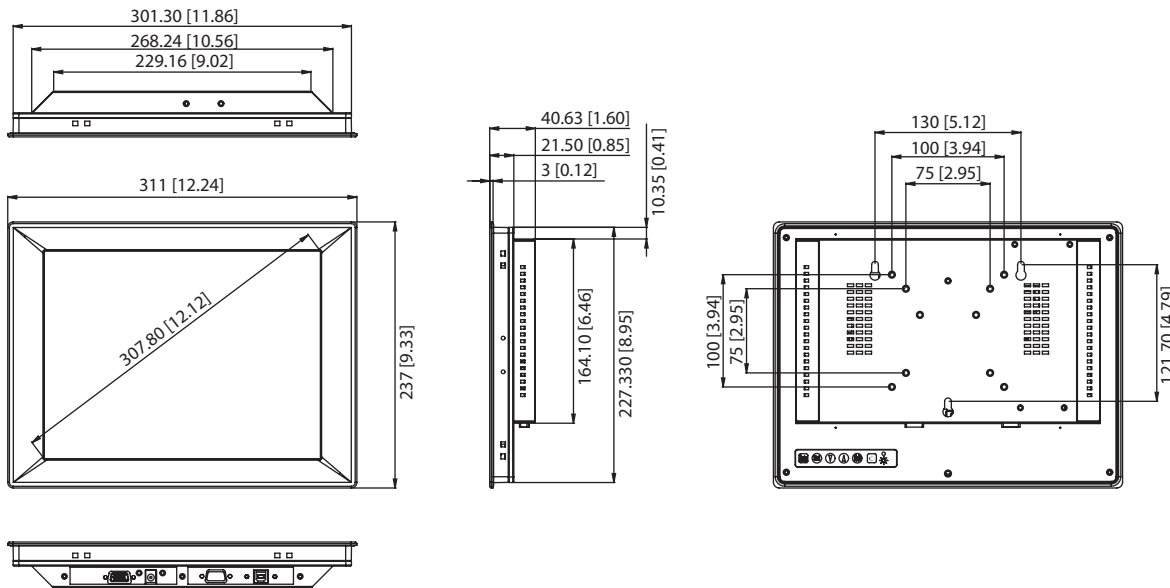
Environment

- **Operation Temperature**   0 ~ 50°C (32 ~ 122°F)
- **Storage Temperature**   -20 ~ 60°C (-4 ~ 140°F)
- **Humidity (Storage)**   10 ~ 95% non-condensing
- **Waterproof**   Front Panel IP65 Compliant
- **Vibration**   5 ~ 500 Hz, 1 Grms (Operating, Random)

Ordering Information

- **FPM-2120G-X0AE**   12" SVGA Industrial LED Monitor
- **FPM-2120G-R3AE**   12" SVGA Industrial LED Monitor w/Resistive TS (RS-232 and USB interfaces)

Dimensions

Unit: mm [inch]

301.30 [11.86]
268.24 [10.56]
229.16 [9.02]

40.63 [1.60]
21.50 [0.85]
3 [0.12]
10.35 [0.41]

130 [5.12]
100 [3.94]
75 [2.95]

311 [12.24]

307.80 [12.12]

237 [9.33]

164.10 [6.46]
227.330 [8.95]

100 [3.94]
75 [2.95]

121.70 [4.79]

Panel Cut-out Dimensions: 303.3 x 229.3 mm (11.94" x 9.03")

Accessories

- **FPM-2120G-SMKE**   FPM-2120G/2150G/2170G Stand Kit
- **FPM-2120G-RMKE**   FPM-2120G Rack-Mount Kit
- **1702002605**   Power Cable EU Plug 1.8 M
- **1702031801**   Power Cable UK Plug 1.8 M
- **1700000596**   Power Cable China/Australia Plug 1.8 M
- **1702002600**   Power Cable US Plug 1.8 M

I/O View

Touch Screen (USB)

Touch Screen (RS-232)

VGA Port

DC Jack 12V$_{DC}$
(100~240V$_{AC}$ adapter included)

Front View

Rear View

VESA Mount
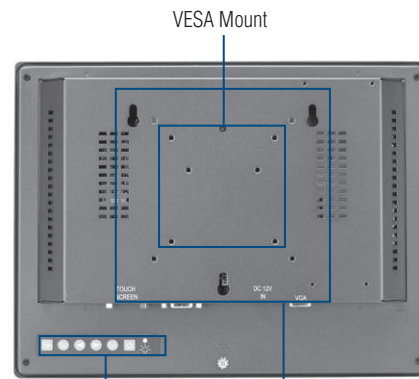
OSD Control Keys

Wallmount

1
WebAccess+ Solutions

2
Motion Control

3
Power & Energy
Automation

4
Automation Software

5
Intelligent Operator
Panel

6
Automation Panels

7
Panel PCs

8
Industrial Wireless
Solutions

9
Industrial Ethernet
Solutions

10
Industrial Gateway
Solutions

11
Serial communication
cards

12
Embedded Automation
PCs

13
DIN-Rail IPCs

14
CompactPCI Systems

15
IoT Wireless I/O
Modules

16
IoT Ethernet I/O
Modules

17
RS-485 I/O Modules

18
Data Acquisition
Boards

TPC Installation Accessories

TPC VESA Mounting Kit

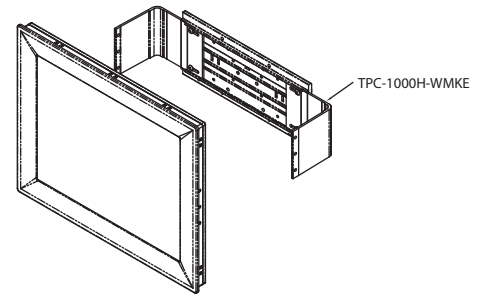### TPC-1000H-WMKE

Features
- Support VESA 75/100
- Adjustable design for 10" ~ 17" TPC
- Support any mounting with VESA

Ordering Information
- TPC-1000H-WMKE

Supported Models
- TPC-1250H, TPC-1550H, TPC-1750H
- TPC-1251H, TPC-1551H
- TPC-1071H, TPC-1271H, TPC-1571H, TPC-1771H
- TPC-1282T, TPC-1582H, TPC-1782H
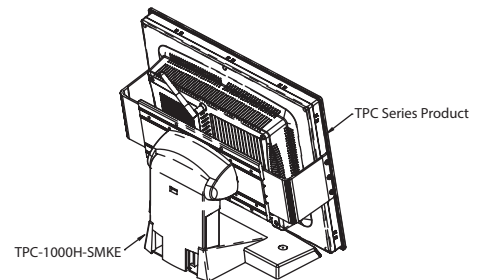- TPC-1251T, TPC-1551T, TPC-1751T

TPC-1000H-WMKE

TPC-Stand Kit

TPC-1000H-SMKE

Features
- Adjustable design for 10" ~ 17" TPC
- Adjustable view angle from 10° ~ 30°
- Can be fixed stood on the horizontal plane

Ordering Information
- TPC-1000H-SMKE

Supported Models
- TPC-1250H, TPC-1550H, TPC-1750H
- TPC-1251H, TPC-1551H
- TPC-1071H, TPC-1271H, TPC-1571H, TPC-1771H
- TPC-1282T, TPC-1582H, TPC-1782H
- TPC-1251T, TPC-1551T, TPC-1751T

TPC Series Product

TPC-1000H-SMKE

TPC HDD Extension Kit

Ordering Information & Supported Models
- TPC-651H-EHKE (HDD extension kit for TPC-1250H, TPC-1550H, TPC-1750H, TPC-1251H, TPC-1551H)
- TPC-1251T-EHKE (HDD and iDoor extension kit for TPC-1051WP, TPC-1251T, TPC-1551T, TPC-1551WP, TPC-1751T

TPC-651H-EHKE
TPC-651T-EHKE
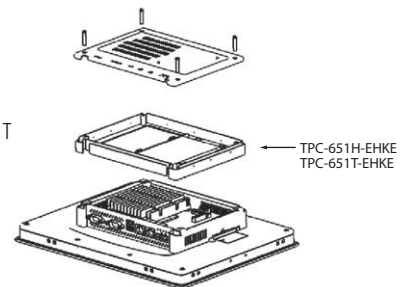
SPC M12 connector Kit

Ordering Information & Supported Models
- SPC-1840WP-MOKE (5 x M12 Connectors for SPC-1840WP/2140WP)
- SPC-1840WP-MCKE (5 x M12 Cables supporting standard I/O connector for SPC-1840WP/2140WP)
- TPC-8100TR-MOKE (9 x M12 Connectors for TPC-8100TR)
- TPC-8100TR-MCKE (9 x M12 Cables supporting standard I/O connector for TPC-8100TR)

M12 Connectors   M12 Cables supporting standard I/O connector

AC to DC Power Adapter

Features
- Input Voltage: 100-240V_{AC}, 47Hz~63Hz
- Output Voltage: 24V_{DC}

Supported Models
- TPC-50H-N series TPC-51H-Z series
- TPC-51T-E & TPC-51H-E series

Ordering Information
- PWR-247-BE

Features
- Input Voltage: 100-240V_{AC}, 47Hz~63Hz
- Output Voltage: 24V_{DC}

Supported Models
- TPC-1582H/1782H
- TPC-1581WP/TPC-1881WP

Ordering Information
- PWR-248-AE

Cable

Model Name		Part Number	Description
		1702002600	Power Cable US Plug 1.8 M
		1702002605	Power Cable EU Plug 1.8 M
		1702031801	Power Cable UK Plug 1.8 M
		1700000596	Power Cable China/Australia Plug 1.8 M

ADVANTECH   **Automation Panels**

FPM Accessories

Panel Mount   Desktop Stand   Arm Mount   Rack Mount   VESA Mount

Panel Mount   (* Included in accessory bo x)

Model Name	Part Number	Description
All FPM Series	1962055040*	CLAMPER PPC-55 M1632611 A2
	1935042520	Screw M4*25L R/S D=8.3 H=2.5 + ST BZn

Rack Mount

Model Name	Part Number	Description
FPM-2120G	FPM-2120G-RMKE	FPM-2120G Rack-Mount Kit
FPM-2150G	FPM-2150G-R1MKE	FPM-2150G Rack-Mount Kit
FPM-2170G	FPM-2170G-RMKE	FPM-2170G Rack-Mount Kit
FPM-3121G	Not support	
FPM-3151G	FPM-3151G-RMKE	Mounting kit for 19" industrial rack
FPM-3171G FPM-3171S	Direct rack mounting, no need accessory	
FPM-3191G FPM-3191S	Direct rack mounting, no need accessory	
FPM-5000 series	IPPC-6152A-RMKE	IPPC-6152A/FPM-5151G Rack Mount Kit
	IPPC-6172A-RMKE	IPPC-6172A/FPM-5171G Rack Mount Kit
	IPPC-6192A-RMKE	IPPC-6192A/FPM-5191G Rack Mount Kit
FPM-7000 W series	Not support	
FPM-7121T	FPM-2120G-RMKE	
FPM-7151T	FPM-2150G-RMKE	

Stand/Wall Mount

Model Name	Part Number	Description
FPM-2000 Series	FPM-2120G-SMKE	FPM-2120G/2150G/2170G Stand Kit
FPM-3121G	FPM-2150G-SMKE	Mounting kit for desktop stand & wall
FPM-3151G	FPM-2120G-SMKE	FPM-2120G/2150G/2170G Stand Kit
FPM-3171G FPM-3171S	1962317070*	FIX BRACKET (FOR FPM-3175TV) A1
	1962317080*	MOUNT BRACKET (R) (FOR FPM-3175TV) A1
	1962317090*	MOUNT BRACKET (L) (FOR FPM-3175TV) A1
FPM-3191G FPM-3191S	1962317070*	FIX BRACKET (FOR FPM-3175TV) A1
	19623190A0*	MOUNT BRACKET (L) (FOR FPM-3190TV) A1
	19623190B0*	MOUNT BRACKET (R) (FOR FPM-3190TV) A1
FPM-5000 series	FPM-5151G-SMKE	FPM-5151G/5171G Stand Kit
	FPM-5191G-SMKE	FPM-5191G Stand Kit
FPM-7000 series	FPM-7181W-SMKE	FPM-7181W Mounting kit for desktop & wall

Adapter

Model Name	Part Number	Description
FPM-2000 series	1757003934*	ADAPTER 100-240V 60W 12V 5A W/O PFC DPS-60PB A A
FPM-3000 series	1757003822*	ADAPTER 100-240V57W12V4.75A W/O PFC SPU63-105 L5
FPM-5151/5171/5191G	1757003822	ADAPTER 100-240V57W12V4.75A W/O PFC SPU63-105 L5
FPM-5152/5172/5192G	1757002321	ADAPTER 100-240V 63W 24V 2.62A IPU63-108 SINPRO
FPM-7000 series	1757003934*	ADAPTER 100-240V 60W 12V 5A W/O PFC DPS-60PB A A

Cable

Model Name	Part Number	Description
	1702002600	Power Cable US Plug 1.8 M
	1702002605	Power Cable EU Plug 1.8 M
	1702031801	Power Cable UK Plug 1.8 M
	1700000596	Power Cable China/Australia Plug 1.8 M
	1700000243	DVI CABLE 200cm FOR PDC-170
	1700019762	M CABLE DVI 24+1P(M)/DVI 24+1P(M) 300cm FPM-3121

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

Memo

Panel PCs

7

To view all of Advantech's Automation Panel PCs, please visit www.advantech.com/products.

Regular Panel PC Selection Guide

NEW NEW NEW NEW

Model	PPC-3190	PPC-3170	PPC-3150	PPC-3120	PPC-3100	PPC-L62T
CPU	Intel® Atom™ 1.91 GHz Processor	Intel® Atom™ 1.91 GHz Processor	Intel® Atom™ 1.91 GHz Processor	Intel® Atom™ 1.86 GHz Processor	Intel® Atom™ 1.86 GHz Processor	Intel® Atom™ 1.66 GHz Processor
Memory	1 x 204-pin SODIMM DDR3L support up to 8GB	1 x 204-pin SODIMM DDR3L support up to 8GB	1 x 204-pin SODIMM DDR3L support up to 8GB	1 x 204-pin SODIMM, DDR3/ DDRL (1066MHz), supports up to 4 GB	1 x 204-pin SODIMM, DDR3/ DDRL (1066MHz), supports up to 4 GB	1 x SO-DIMM DDR3 667 support up to 2GB
Display Type	TFT LED LCD	TFT LED LCD	TFT LED LCD	TFT LED LCD	TFT LED LCD	TFT LED LCD
Display Size	19"	17"	15"	12.1"	10.4"	6.5"
Max. Resolution	1280 x 1024	1280 x 1024	1024 x 768	1024 x 768	800 x 600	640 x 480
Max. Colors	16.7M	16.7M	16.7M	262K	16.2 M	262K
Luminance cd/m²	350 nits	350 nits	400 nits	600 nits	400 nits	700 nits
VieWINg Angle (H/V°)	85 (left), 85 (right), 80 (up), 80 (down)	80 (left), 80 (right), 60 (up), 80 (down)	80 (left), 80 (right), 70 (up), 70 (down)	80 (left), 80 (right), 70 (up), 70 (down)	80 (left), 80 (right), 70 (up), 70 (down)	80 (left), 80 (right), 70 (up), 70 (down)
Backlight MTBF (hrs)	50K hrs	50K hrs	50K hrs	50K hrs	30K hrs	50K hrs
Touchscreen	Analog Resistive 5-wire	Analog Resistive 5-wire	Analog Resistive 5-wire	Analog Resistive 5-wire	Analog Resistive 5-wire	Analog Resistive 5-wire
Network (LAN)	2 x GbE (Intel I210)	2 x GbE (Intel I210)	2 x GbE (Intel I210)	2 x 10/100/1000 Mbps Ethernet	2 x 10/100/1000 Mbps Ethernet	2 x 10/100/1000 Mbps Ethernet
I/O Ports	1 x isolated RS-422/485 (terminal block) 4 x RS-232, two external and two by internal pin header (need optional module) 1 x GPIO (8 channels, TTL level) by internal pin header (need optional module) 1 x USB3.0 + 3 x USB2.0 2 x Gigabit Ethernet 1 x D-SUB VGA port 1 x DP1.1a 1 x Line-out, 1 x Mic-in, 2 x 1W speaker	1 x isolated RS-422/485 (terminal block) 4 x RS-232, two external and two by internal pin header (need optional module) 1 x GPIO (8 channels, TTL level) by internal pin header (need optional module) 1 x USB3.0 + 3 x USB2.0 2 x Gigabit Ethernet 1 x D-SUB VGA port 1 x DP1.1a 1 x Line-out, 1 x Mic-in, 2 x 1W speaker	1 x isolated RS-422/485 (terminal block) 4 x RS-232, two external and two by internal pin header (need optional module) 1 x GPIO (8 channels, TTL level) by internal pin header (need optional module) 1 x USB3.0 + 3 x USB2.0 2 x Gigabit Ethernet 1 x D-SUB VGA port 1 x DP1.1a 1 x Line-out, 1 x Mic-in, 2 x 1W speaker	4 x Serial ports: 3 x RS-232, 1x RS-232/422/485 (Adjustable through BIOS) 4 x USB 2.0 ports 1 x Line-out, 1x MIC-in 1 x DB15 VGA 1 x DB9 GPIO port (8 pin programmable)	4 x Serial ports: 3 x RS-232, 1x RS-232/422/485 (Adjustable through BIOS) 4 x USB 2.0 ports 1 x Line-out, 1x MIC-in 1 x DB15 VGA 1 x DB9 GPIO port (8 pin programmable)	2 x Serial ports: RS-232 x 1; RS-232/422/485 x 1; 4 x USB; 1 x Line-out
HDD (Optional)	2.5" SATA HDD/1 x Full size mSATA	2.5" SATA HDD/1 x Full size mSATA	2.5" SATA HDD/1 x Full size mSATA	1 x 2.5" SATA HDD Bay 1 x Full size mSATA	1 x 2.5" SATA HDD Bay 1 x Full size mSATA	1 x 2.5" SATA HDD Bay
Expansion Slots	One PCI (standard) One PCIe x 1 (in the accessory box)	One PCI (standard) One PCIe x 1 (in the accessory box)	One PCI (standard) One PCIe x 1 (in the accessory box)	1 x PCI/ 1 x PCI-e through riser (Optional)	-	-
Additional Expansion	1 x Full-size Mini PCIe	1 x Full-size Mini PCIe	1 x Full-size Mini PCIe	1x MINI PCI-e (Standard)	1x MINI PCI-e (Standard)	1x MINI PCI-e (Standard)
Power Input (Voltage)	9 ~ 32 V_DC	9 ~ 32 V_DC	9 ~ 32 V_DC	12 ~ 30 V_DC	12 ~ 30 V_DC	15 ~ 24 V_DC
Ingress Protection	Front panel: IP65	Front panel: IP65	Front panel: IP65	Front panel: IP65	Front panel: IP65	Front panel: IP65
Mounting	PanMount, VESA 75/100, wall mount, stand, ARM	PanMount, VESA 75/100, wall mount, stand, ARM	PanMount, VESA 75/100, wall mount, stand, ARM	PanMount, VESA 75, wall mount, stand, ARM	PanMount, VESA 75, wall mount, stand, ARM	PanMount, VESA 75, wall mount, stand, ARM
Operating Temperature	0 ~ 50°C (32 ~ 122°F) with 2.5" SATA HDD -20 ~ 60°C (-4 ~ 140°F) with -40 ~ 85°C mSATA or 2.5" SATA SSD	0 ~ 50°C (32 ~ 122°F) with 2.5" SATA HDD -20 ~ 60°C (-4 ~ 140°F) with -40 ~ 85°C mSATA or 2.5" SATA SSD	0 ~ 50°C (32 ~ 122°F) with 2.5" SATA HDD -20 ~ 60°C (-4 ~ 140°F) with -40 ~ 85°C mSATA or 2.5" SATA SSD	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)
Storage Temperature	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	- 20 ~ 60°C (-4 ~ 140°F)	- 20 ~ 60°C (-4 ~ 140°F)	- 20 ~ 60°C (-4 ~ 140°F)
Dimensions	458.2 x 384 x 67.3 mm (18" x 15" x 2.6")	442.0 x 362.0 x 69.5 mm (17.4" x 14.3" x 2.74")	396.5 x 317.6 x 65.3 mm (15.6" x 12.5" x 2.57")	325 x 253.8 x 58.4 mm (12.79" x 10" x 2.3")	275 x 220 x 64.3 mm (10.83" x 8.74" x 2.53")	202 x 148 x 49 mm (7.9" x 5.82" x 1.92")
Weight	7.9 Kg	6.3 Kg	5.3 Kg	3.3 Kg	2.5 Kg	1.5 kg
Certification	BSMI, CE, FCC Class A CB, CCC, BSMI, UL	BSMI, CE, FCC Class A CB, CCC, BSMI, UL	BSMI, CE, FCC Class A CB, CCC, BSMI, UL	BSMI, CE, FCC Class B, CB, CCC, BSMI, UL	BSMI, CE, FCC Class B, CB, CCC, BSMI, UL	BSMI, CE, FCC Class B, CB, CCC, BSMI, UL
Operating System	WES7/ WIN 7/ WIN 8 32, 64 bit	WES7/ WIN 7/ WIN 8 32, 64 bit	WES7/ WIN 7/ WIN 8 32, 64 bit	WIN XPE/ XP Pro/ 7/ WES7 / CE 7.0	WIN XPE/ XP Pro/ 7/ WES7 / CE 7.0	WIN XPE/ XP Pro/ WES7/ CE 6.0
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Performance Panel PC selection guide

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

Model	PPC-4211W	PPC-4151W	PPC-6170	PPC-6150	PPC-6120	PPC-8170	PPC-8150
CPU	4th Gen. Intel® Core™ i5/ Celeron® Processor	4th Gen. Intel® Core™ i5/ Celeron® Processor	3rd Gen.Intel® Core™ i5/ i3/ Celeron Processor	3rd Gen.Intel® Core™ i5/ i3/ Celeron Processor	4th Gen. Intel® Core™ i/ Celeron® Processor	3rd Gen. Intel® Core™ i5/ i3 Processor	3rd Gen. Intel® Core™ i5/ i3 Processor
Memory	SO-DIMM x 1, DDR3L1333/1600, Max 8GB	SO-DIMM x 1, DDR3L1333/1600, Max 8GB	1 x 204-pin SODIMM, DDR3 (1600 MHz)/ DDRL (1333 MHz), supports up to 8 GB	1 x 204-pin SODIMM, DDR3 (1600 MHz)/ DDRL (1333 MHz), supports up to 8 GB	2 x 204-pin SODIMM DDR3/DDR3L (1600 MHz) total up to 16G	2 x 204 PIN DDR3 SO-DIMM, DDR3 1066/ 1333/ 1600MHz SDRAM, up to 8 GB/ 4 GB per SO-DIMM	2 x 204 PIN DDR3 SO-DIMM, DDR3 1066/ 1333/ 1600MHz SDRAM, up to 8 GB/ 4 GB per SO-DIMM
Display Type	TFT LED LCD	TFT LED LCD	TFT LED LCD	TFT LED LCD	TFT LED LCD	TFT LED LCD	TFT LED LCD
Display Size	21.5"	15.6"	17"	15"	12.1"	17"	15"
Max. Resolution	1920 x 1080	1366 x 768	1280 x 1024	1024 x 768	1024 x 768	1280 x 1024	1024 x 768
Max. Colors	16.7 M	16.7 M	262 K	262K	262K	16.7 M	262 K
Luminance cd/m²	300 nits	300 nits	350 nits	350 nits	600 nits	350 nits	400 nits
VieWINg Angle (H/V°)	178°/ 178°	160°/ 170°	85 (left), 85 (right), 80 (up), 80 (down)	80 (left), 80 (right), 70 (up), 70 (down)	80 (left), 80 (right), 70 (up), 70 (down)	80 (left), 80 (right), 60 (up), 80 (down)	80 (left), 80 (right), 70 (up), 70 (down)
Backlight MTBF (hrs)	50K hrs	50K hrs	50K hrs	50K hrs	50K hrs	50K hrs	50K hrs
Touchscreen	PCT Multi Touch or Analog Resistive 5-wire	PCT Multi Touch or Analog Resistive 5-wire	Analog Resistive 5-wire	Analog Resistive 5-wire	Analog Resistive 5-wire	Analog Resistive 5-wire	Analog Resistive 5-wire
Network (LAN)	2 x 10/100/1000 Mbps Ethernet, Intel I211-AT, Intel I218LM	2 x 10/100/1000 Mbps Ethernet, Intel I211-AT, Intel I218LM	2 x GbE, supports Intel AMT9.0	2 x GbE, supports Intel AMT9.0	2 x GbE, supports Intel AMT9.0	2 x GbE connectors (RTL8111E)	2 x GbE connectors (RTL8111E)
I/O Ports	5 x Serial ports: 4 x RS-232, 1 x RS-422/485 with isolation 1K VDC 4 x USB 3.0 ports in rear side, 1 x USB 2.0 in right side 1 x Line-out, 1x MIC-in 1 x DB15 VGA 1 x Display Port (1.2)	5 x Serial ports: 4 x RS-232, 1 x RS-422/485 with isolation 1K VDC 4 x USB 3.0 ports in rear side, 1 x USB 2.0 in right side 1 x Line-out, 1x MIC-in 1 x DB15 VGA 1 x Display Port (1.2)	4 x COM ports, 1 x isolated RS-232/422/485, 3 x RS-232 1 x GPIO/RS-232 (8 channels, TTL level); by pin header 3 x USB3.0 + 2 x USB2.0 ports	4 x COM ports, 1 x isolated RS-232/422/485, 3 x RS-232 1 x GPIO/RS-232 (8 channels, TTL level); by pin header 3 x USB3.0 + 2 x USB2.0 ports	4 x USB3.0 (Ext.), 2 x USB2.0 (Int. pin head) 4 x RS-232 Serial ports, 1 x Isolated RS422/485 (1KVDC) 1 x Display Port 1.2 1 x DB15 VGA out 1 x Mic in, 1 x Line out	6 COMs, 1 x RS-232/422/485, 5 x RS-232 6 x USB2.0 1 x VGA, 1 x DVI 1 x GPIO 8 bits (Internal pin header) 1 x Mic-in, 1 x Line-out 1 x PS/2 2 x 1.5W speaker	6 COMs, 1 x RS-232/422/485, 5 x RS-232 6 x USB2.0 1 x VGA, 1 x DVI 1 x GPIO 8 bits (Internal pin header) 1 x Mic-in, 1 x Line-out 1 x PS/2 2 x 1.5W speaker
HDD (Optional)	2.5" SATA HDD	2.5" SATA HDD	1 x 2.5" SATA bay/ Second 2.5" SATA bay (Intel RAID supported, optional)	1 x 2.5" SATA bay/ Second 2.5" SATA bay (Intel RAID supported, optional)	2.5" SATA HDD bay x1 mSATA x1	2.5" SATA HDD	2.5" SATA HDD
Expansion Slots	1 x PCIe x1 (standard) 1 x PCI (in the accessory box)	1 x PCIe x1 (standard) 1 x PCI (in the accessory box)	one PCI + one PCIe x1 (standard) one x PCIe x 4 (in the accessory box)	one PCI + one PCIe x1 (standard) one x PCIe x 4 (in the accessory box)	1 x PCIe by 1/ 1 x PCI through riser (Optional)	One PCIe x 4 (pre-installed) One PCI (in the accessory box)	One PCIe x 4 (pre-installed) One PCI (in the accessory box)
Additional Expansion	1 x Mini PCIe slot 1 x mSATA card slot	1 x Mini PCIe slot 1 x mSATA card slot	1 x full-size mini PCIe (Supports mSATA) 1 x half-size mini PCIe	1 x full-size mini PCIe (Supports mSATA) 1 x half-size mini PCIe	1 x MiniPCIe (Standard)	1 x Mini PCIe	1 x Mini PCIe
Power Input (Voltage)	9 ~ 32 VDC	9 ~ 32 VDC	100 - 240 VAC	100 - 240 VAC	12 ~ 30 VDC	100 - 240 VAC	100 - 240 VAC
Ingress Protection	Front panel: IP65	Front panel: IP65	Front panel: IP65	Front panel: IP65	Front panel: IP65	Front panel: IP65	Front panel: IP65
Mounting	Panel Mount, VESA 75/100, wall mount, stand, ARM	Panel Mount, VESA 75/100, wall mount, stand, ARM	Panel Mount, VESA 75/100, wall mount, stand, ARM	Panel Mount, VESA 75/100, wall mount, stand, ARM	Panel Mount, VESA 75/100, wall mount, stand, ARM	Panel Mount, VESA 75/100, wall mount, stand, ARM	Panel Mount, VESA 75/100, wall mount, stand, ARM
Operating Temperature	0 ~ 50° C (32 ~ 122° F) for SSD, 0~45° C for HDD	0 ~ 50° C (32 ~ 122° F) for SSD, 0~45° C for HDD	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)
Storage Temperature	- 20 ~ 60°C (-4 ~ 140°F)	- 20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	- 20 ~ 60°C (-4 ~ 140°F)	- 20 ~ 60°C (-4 ~ 140°F)	- 20 ~ 60°C (-4 ~ 140°F)
Dimensions	419.7 x 269 x 59 mm (16.52" x 10.59" x 2.32")	419.7 x 269 x 59 mm (16.52" x 10.59" x 2.32")	442.0 x 362.0 x 113.5 mm (17.4" x 14.25" x 4.47")	395.5 x 316.8 x 105.5 mm (15.6" x 12.5" x 4.15")	325.00 x 253.80 x 73.80 mm (12.80" x 9.99" x 2.91")	442.0 x 362.0 x 113.5 mm (17.4" x 14.25" x 4.47")	395.5 x 316.8 x 110.5 mm (15.6" x 12.5" x 4.35")
Weight	7.8 Kg	5.69 Kg	7.5 Kg	6.5 Kg	3.8 Kg	9.2 Kg	6.98 Kg
Certification	BSMI, CCC, CE, FCC Class B, UL	BSMI, CCC, CE, FCC Class B, UL	BSMI, CE, FCC Class A CB, CCC, BSMI, UL	BSMI, CE, FCC Class A CB, CCC, BSMI, UL	BSMI, CE, FCC Class A, CB, CCC, BSMI, UL	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL
Operating System	WIN 7/ 8 /Linux	WIN 7/ 8 /Linux	WIN XPE/ XP Pro/ WES7 32, 64bit/ 7 32, 64 bit	WIN XPE/ XP Pro/ WES7 32, 64bit/ 7 32, 64 bit	WIN 7 32, 64bit/ 8 32, 64bit/ Linux	WIN XP Pro/ 7 32, 64 bit	WIN XP Pro/ 7 32, 64 bit
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PPC-3190

19" Fanless Panel PC with Intel Atom Quad-Core Processor

NEW

Features

- 19" TFT SXGA LCD with resistive touchscreen
- Embedded Intel Atom Quad-Core E3845 1.91G
- Fanless and Slim design
- Supports one internal 2.5" SATA HDD, one mSATA socket
- Built-in one PCI or one PCIe x1 expansion slot
- Wide operating temp. range from -20~60°C
- Wide range power input for 9~32V_{DC}
- One isolated RS-422/485 with Autoflow, Dual Intel GbE
- One optional GPIO (8 channels, TTL level)

Introduction

The PPC-3190 is a 19" fanless panel PC that doesn't only deliver high performance with an Intel quad-core Atom processor but also supports a wide operating temp. (-20~60°C) and wide range of power input (9~32V_{DC}). It consolidates performance and reliability in one system. With multiple I/Os such as 4 x COM, 1 x USB3.0, 1x isolated RS-422/485 and dual Intel Gigabit Ethernet make it easier to connect to devices and be integrated into machine building industry. The PCI/PCIe expansion is allowed to add on field bus or proprietary card makes more application possibility.

Specifications

Processor system	CPU	Intel ATOM E3845
	Frequency	1.91 GHz
	L3 Cache	2M
	Chipset	Intel Bay-Trial I
	Memory	1 x 204-pin SODIMM DDR3L support up to 8GB
	Storage 1	1 x 2.5" SATA bay
	Optional Storage & I/O	Either: - 1 x Full size mSATA - CFast card (optional module) - CF card (optional module) - Internal USB connector for USB dongle (optional module) - 2 x DB9 for two RS-232 or one RS-232 and one GPIO (optional module)
	Network (LAN)	2 x Gigabit Ethernet, (Intel I210)
	I/O Ports	- 1 x isolated RS-422/485 (terminal block) - 4 x RS-232, two external and two by internal pin header (need optional module) - 1 x GPIO (8 channels, TTL level) by internal pin header (need optional module) - 1 x USB3.0 + 3 x USB2.0 - 2 x Gigabit Ethernet - 1 x D-SUB VGA port - 1 x DP1.1a - 1 x Line-out, 1 x Mic-in, 2 x 1W speaker,
	Expansion slots	Either - One PCI (standard) - One PCIe x 1 (in the accessory box)
	Other Expansion	1 x Full-size Mini PCIe
Physical Characteristics	Dimensions	458.2 x 384 x 67.3(mm)(18" x 15" x 2.6")
	Weight	7.9kg (17.3lb)
OS support	OS Support	WES7 32&64bit / Windows 7 32&64bit/ Windows 8 32&64bit
Power supply	Input Voltage	9-32 V_{DC}
	Power Consumption	27W (Burn-In test 7.0 in windows 7 32bits)
LCD Display	Display Type	19" TFT LCD (LED Backlight)
	Max. Resolution	1280 x 1024
	Colors	16.7M
	Viewing Angle	85 (left), 85 (right), 80 (up), 80 (down)
	Luminance(cd/m2)	350
	Conrast Ratio	1000
	Backlight Lifetime	50,000 hrs (typ.)

Dimensions

Unit: mm

442.00

458.20

367.80

384.00

67.33
57.33
5.00

Max.depth for VESA mounting
screws is M4*8(mm)

75.00

75.00

444.00

370.00

Touchscreen	Touch Type	Analog Resistive 5-wire
	Light Transmission	81% ± 3 %
	Controller	USB interface
	Software Driver Supports	Windows 7 / Windows 8
	Durability (Touches)	36 million
Environment	Operating Temperature	0 ~ 50°C (32 ~ 122°F) with 2.5" SATA HDD -20 ~ 60°C (-4 ~ 140°F) with -40 ~ 85°C mSATA or 2.5" SATA SSD
	Storage Temperature	-20 ~ 60°C (-4 ~ 140°F)
	Relative Humidity	10 ~ 95% @ 40°C (non-condensing)
	Shock	Operating 10 G peak acceleration (11 ms duration), follow IEC 60068-2-27
	Vibration	Operating Random Vibration Test 5~500Hz, 1Grms, follow IEC 60068-2-64
	EMC	BSMI, CE, FCC Class A
	Safety	CB, CCC, BSMI, UL
	Front Panel Protection	IP65 compliant

Ordering Information

Part NO	Description
PPC-3190-RE4AE	Intel Atom E3845(1.91G),19" SXGA LED&T/S,W/O RAM
PPC-WLAN-A2E	WiFi Module with Antenna Cable 40cm for PPC
PPC-174T-WL-MTE	Wall mount kit for PPC series
PPC-ARM-A03	PPC ARM VESA Standard
PPC-3190-COME	Module to install either two additional RS-232 port or one additional RS-232 and one GPIO for PPC-3190
PPC-3150-USBE	Module to install internal USB dongle for PPC-3150/PPC-3170
PS-DC19-L157E	19V DC power adapter module for fanless PPC series
1700001524	Power cord 3P UL 10A 125V 1.8M
170203183C	Power cord 3P Europe (WS-010+083) 183cm
1700008921	Power cord 3P/3P 1.8M PSE
2070013015	Image WES7P 32-bit Multi V4.12 for PPC-3150/3170
2070013321	Image WES7P 64-bit Multi V4.12 for PPC-3150/3170
PPC-STAND-A1E	Stand For PPC Series (single acting hinge)
PPC-174 Stand	Stand for PPC Series (double acting hinges)

I/O Appearance

A. Expansion slot x 1 (PCI or PCIe x1)
B. Line out/ Mic in
C. Intel Gigabit Ethernet x 2
D. DisplayPort x 1
E. RS-232 x 2
F. Isolated RS-422/485 x 1
G. Power Button
H. DC inlet and AT/ATX switch
I. VGA x1
J. USB3.0 x 1 + USB2.0 x 3

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

PPC-3170

17" Fanless Panel PC with Intel Atom Quad-Core Processor

NEW

Features

- 17" TFT SXGA LCD with resistive touchscreen
- Embedded Intel Atom Quad-Core E3845 1.91G
- Fanless and Slim design
- Supports one internal 2.5" SATA HDD, one mSATA socket
- Built-in one PCI or one PCIe x1 expansion slot
- Wide operating temp. range from -20~60°C
- Wide range power input for 9~32V_{DC}
- One isolated RS-422/485 with Autoflow, Dual Intel GbE
- One optional GPIO (8 channels, TTL level)

SUSIAccess RoHS CE CCC FCC c UL us

Introduction

The PPC-3170 is a 17" fanless panel PC that doesn't only deliver high performance with an Intel quad-core Atom processor but also supports a wide operating temp. (-20~60°C) and wide range of power input (9~32V_{DC}). It consolidates performance and reliability in one system. With multiple I/Os such as 4 x COM, 1 x USB3.0, 1x isolated RS-422/485 and dual Intel Gigabit Ethernet make it easier to connect to devices and be integrated into machine building industry. The PCI/PCIe expansion is allowed to add on field bus or proprietary card makes more application possibility.

Specifications

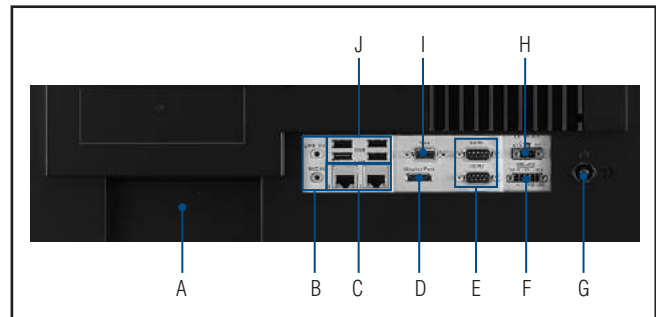|		
Processor system	CPU	Intel ATOM E3845
	Frequency	1.91 GHz
	L3 Cache	2M
	Chipset	Intel Bay-Trial I
	Memory	1 x 204-pin SODIMM DDR3L support up to 8GB
	Storage 1	1 x 2.5" SATA bay
	Optional Storage & I/O	Either: - 1 x Full size mSATA - CFast card (optional module) - CF card (optional module) - Internal USB connector for USB dongle (optional module) - 2 x DB9 for two RS-232 or one RS-232 and one GPIO (optional module)
	Network (LAN)	2 x Gigabit Ethernet, (Intel I210)
	I/O Ports	- 1 x isolated RS-422/485 (terminal block) - 4 x RS-232, two external and two by internal pin header (need optional module) - 1 x GPIO (8 channels, TTL level) by internal pin header (need optional module) - 1 x USB3.0 + 3 x USB2.0 - 2 x Gigabit Ethernet - 1 x D-SUB VGA port - 1 x DP1.1a - 1 x Line-out, 1 x Mic-in, 2 x 1W speaker,
	Expansion slots	Either - One PCI (standard) - One PCIe x 1 (in the accessory box)
	Other Expansion	1 x Full-size Mini PCIe
Physical Characteristics	Dimensions	442.0 x 362.0 x 69.5 (mm) (17.4" x 14.3" x2.74")
	Weight	6.3 Kg (13.89lb)
OS support	OS Support	WES7 32&64bit / Windows 7 32&64bit/ Windows 8 32&64bit
Power supply	Input Voltage	9-32 V_{DC}
	Power Consumption	34W (Burn-In test 7.0 in windows 7 32bits)
LCD Display	Display Type	17" TFT LCD (LED Backlight)
	Max. Resolution	1280 x 1024
	Colors	16.7M
	Viewing Angle	80 (left), 80 (right), 60 (up), 80 (down)
	Luminance(cd/m2)	350
	Conrast Ratio	800
	Backlight Lifetime	50, 000 hrs(typ.)

Dimensions

Unit: mm

425.1

442.0

345.1

362.0

12.0

69.5

38.5

136.9

75.0

Max.depth for VESA mounting
screws is M4*8(mm)

187.2   75.0

75.0

427.0

347.0

CUT OUT

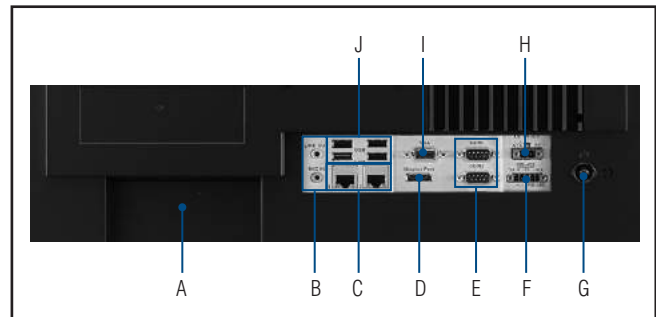| Touchscreen	Touch Type	Analog Resistive 5-wire
	Resolution	2048 x 2048
	Light Transmission	80% ± 3 %.
	Controller	USB interface
	Software Driver Supports	Windows 7 / Windows 8
	Durability (Touches)	36 million
Environment	Operating Temperature	0 ~ 50°C (32 ~ 122°F) with 2.5" SATA HDD -20 ~ 60°C (-4 ~ 140°F) with -40 ~ 85°C mSATA or 2.5" SATA SSD
	Storage Temperature	-20 ~ 60°C (-4 ~ 140°F)
	Relative Humidity	10 ~ 95% @ 40°C (non-condensing)
	Shock	Operating 10 G peak acceleration (11 ms duration), follow IEC 60068-2-27
	Vibration	Operating Random Vibration Test 5~500Hz, 1Grms, follow IEC 60068-2-64
	EMC	BSMI, CE, FCC Class A
	Safety	CB, CCC, BSMI, UL
	Front Panel Protection	IP65 compliant

Ordering Information

Part NO	Description
PPC-3170-RE4AE	Intel Atom E3845 (1.91G) Panel PC with 17" SXGA panel, 5-wire resistive T/S, w/o memory
PPC-WLAN-A1E	WiFi Module with Antenna Cable 28cm for PPC
PPC-174T-WL-MTE	Wall mount kit for PPC series
PPC-174 Stand	Stand for PPC Series (double acting hinges)
PPC-ARM-A03	PPC ARM VESA Standard
PPC-3150-CFE	Module to install CF card for PPC-3150/PPC-3170
PPC-3150-CFASTE	Module to install CFast card for PPC-3150/PPC-3170
PPC-3150-COME	Module to install either two additional RS-232 port or one additional RS-232 and one GPIO for PPC-3150/PPC-3170
PPC-3150-USBE	Module to install internal USB dongle for PPC-3150/PPC-3170
PS-DC19-L157E	19V DC power adapter module for fanless PPC series
1700001524	Power cord 3P UL 10A 125V 1.8M
170203183C	Power cord 3P Europe (WS-010+083) 183cm
1700008921	Power cord 3P/3P 1.8M PSE
2070013015	Image WES7P 32-bit Multi V4.12 for PPC-3150/3170
PPC-175 RACK-MT	19" Rack Mounting kit for PPC-175
2070013321	Image WES7P 64-bit Multi V4.12 for PPC-3150/3170
PPC-STAND-A1E	Stand For PPC Series (single acting hinge)

I/O Appearance

J   I   H

A   B   C   D   E   F   G

A. Expansion slot x 1 (PCI or PCIe x1)
B. Line out/ Mic in
C. Intel Gigabit Ethernet x 2
D. DisplayPort x 1
E. RS-232 x 2
F. Isolated RS-422/485 x 1

G. Power Button
H. DC inlet and AT/ATX switch
I. VGA x1
J. USB3.0 x 1 + USB2.0 x 3

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

PPC-3150

15" Fanless Panel PC with Intel Atom Quad-Core Processor

NEW

SUSI**Access** RoHS COMPLIANT 2002/95/EC CE CCC FCC c UL us

Features

- 15" TFT XGA LCD with resistive touchscreen
- Embedded Intel Atom Quad-Core E3845 1.91G
- Fanless and Slim design
- Supports one internal 2.5" SATA HDD, one mSATA socket
- Built-in one PCI or one PCIe x1 expansion slot
- Wide operating temp. range from -20~60°C
- Wide range power input for 9~32V_{DC}
- One isolated RS-422/485 with Autoflow, Dual Intel GbE
- One optional GPIO (8 channels, TTL level)

Introduction

The PPC-3150 is a 15" fanless panel PC that doesn't only deliver high performance with an Intel quad-core Atom processor but also supports a wide operating temp. (-20~60°C) and wide range of power input (9~32V_{DC}). It consolidates performance and reliability in one system. With multiple I/Os such as 4 x COM, 1 x USB3.0, 1x isolated RS-422/485 and dual Intel Gigabit Ethernet make it easier to connect to devices and be integrated into machine building industry. The PCI/PCIe expansion is allowed to add on field bus or proprietary card makes more application possibility.

Specifications

Processor system	CPU	Intel ATOM E3845
	Frequency	1.91GHz
	L3 Cache	2M
	Chipset	Intel Bay-Trial I
	Memory	1 x 204-pin SODIMM DDR3L support up to 8GB
	Storage 1	1 x 2.5" SATA bay
	Optional Storage & I/O	Either: ■ 1 x Full size mSATA ■ CFast card (optional module) ■ CF card (optional module) ■ Internal USB connector for USB dongle (optional module) ■ 2 x DB9 for two RS-232 or one RS-232 and one GPIO (optional module)
	Network (LAN)	2 x Gigabit Ethernet, (Intel I210)
	I/O Ports	■ 1 x isolated RS-422/485 (terminal block) ■ 4 x RS-232, two external and two by internal pin header (need optional module) ■ 1 x GPIO (8 channels, TTL level) by internal pin header (need optional module) ■ 1 x USB3.0 + 3 x USB2.0 ■ 2 x Gigabit Ethernet ■ 1 x D-SUB VGA port ■ 1 x DP1.1a ■ 1 x Line-out, 1 x Mic-in, 2 x 1W speaker,
	Expansion slots	Either ■ One PCI (standard) ■ One PCIe x 1 (in the accessory box)
	Other Expansion	1 x Full-size Mini PCIe
Physical Characteristics	Dimensions	396.5 x 317.6 x 65.3 (15.6" x 12.5" x 2.57")
	Weight	5.3 Kg (11.68 lb)
OS support	OS Support	WES7 32&64bit / Windows 7 32&64bit/ Windows 8 32&64bit
Power supply	Input Voltage	9-32 V_{DC}
	Power Consumption	30W (Burn-In test 7.0 in windows 7 32bits)
LCD Display	Display Type	15" TFT LCD (LED Backlight)
	Max. Resolution	1024 x 768
	Colors	16.7M
	Viewing Angle	80 (left), 80 (right), 70 (up), 70 (down)
	Luminance(cd/m2)	400
	Conrast Ratio	700
	Backlight Lifetime	50, 000 hrs(typ.)

Dimensions

Unit: mm

379.4

396.5

300.5

317.6

12.0

65.3
35.5

Max.depth for VESA mounting screws is M4*8(mm)

160.8   75.0

129.3
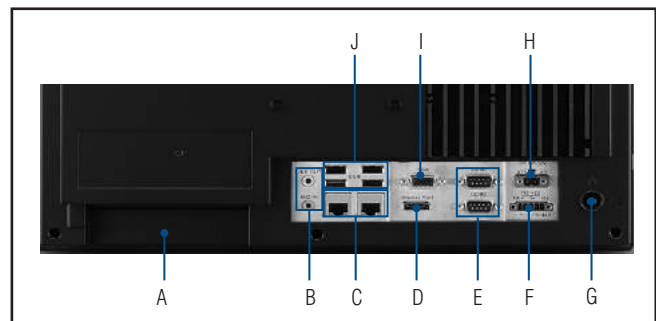
75.0

381.0

302.0

CUT OUT

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

	Touch Type	Analog Resistive 5-wire
Touchscreen	Resolution	2048 x 2048
	Light Transmission	80% ± 3 %.
	Controller	USB interface
	Software Driver Supports	Windows7 / Windows 8
	Durability (Touches)	36 million
Environment	Operating Temperature	0 ~ 50°C (32 ~ 122°F) with 2.5" SATA HDD -20 ~ 60°C (-4 ~ 140°F) with -40 ~ 85°C mSATA or 2.5" SATA SSD
	Storage Temperature	-20 ~ 60°C (-4 ~ 140°F)
	Relative Humidity	10 ~ 95% @ 40°C (non-condensing)
	Shock	Operating 10 G peak acceleration (11 ms duration), follow IEC 60068-2-27
	Vibration	Operating Random Vibration Test 5~500Hz, 1Grms, follow IEC 60068-2-64
	EMC	BSMI, CE, FCC Class A
	Safety	CB, CCC, BSMI, UL
	Front Panel Protection	IP65 compliant

Ordering Information

Part NO	Description
PPC-3150-RE4AE	Intel Atom E3845 (1.91G) Panel PC with 15" XGA panel, 5-wire resistive T/S, w/o memory
PPC-WLAN-A1E	WiFi Module with Antenna Cable 28cm for PPC
PPC-174T-WL-MTE	Wall mount kit for PPC series
PPC-ARM-A03	PPC ARM VESA Standard
PPC-3150-CFE	Module to install CF card for PPC-3150/PPC-3170
PPC-3150-CFASTE	Module to install CFast card for PPC-3150/PPC-3170
PPC-3150-COME	Module to install either two additional RS-232 port or one additional RS-232 and one GPIO for PPC-3150/PPC-3170
PPC-3150-USBE	Module to install internal USB dongle for PPC-3150/PPC-3170
PS-DC19-L157E	19V DC power adapter module for fanless PPC series
1700001524	Power cord 3P UL 10A 125V 1.8M
170203183C	Power cord 3P Europe (WS-010+083) 183cm
1700008921	Power cord 3P/3P 1.8M PSE
2070013015	Image WES7P 32-bit Multi V4.12 for PPC-3150/3170
2070013321	Image WES7P 64-bit Multi V4.12 for PPC-3150/3170
PPC-174 Stand	Stand for PPC Series (double acting hinges)
PPC-STAND-A1E	Stand For PPC Series (single acting hinge)

I/O Appearance

J   I   H

A   B   C   D   E   F   G

A. Expansion slot x 1 (PCI or PCIe x1)
B. Line out/ Mic in
C. Intel Gigabit Ethernet x 2
D. DisplayPort x 1
E. RS-232 x 2
F. Isolated RS-422/485 x 1

G. Power Button
H. DC inlet and AT/ATX switch
I. VGA x1
J. USB3.0 x 1 + USB2.0 x 3

PPC-3120

12.1" Fanless Panel PC with Intel® Atom™ D2550 Processor

NEW

Features

- 12.1" TFT XGA LED Panel with resistive touchscreen
- Embedded Intel® Atom™ processor D2550 1.86 GHz
- System memory up to 4 GB DDR3 1066 SDRAM
- Supports one internal SATA 2.5" HDD and 1 x mSATA socket
- Optional PCI/PCIe x1 expansion kit
- Fanless design and low power consumption
- Automatic data flow control over RS-485
- Adjust RS-232/422/485 through BIOS
- COM1/COM2 pin9 RI/5V/12V adjustable through BIOS
- Auto dimming LED backlight

SUSIAccess RoHS Windows Embedded CE CCC FC c(UL)us

Introduction

The PPC-3120 is a new 12.1" Panel PC equipped with an Intel Atom processor D2550. Meeting high demands of harsh environments, the fanless design makes PPC-3120 more reliable in different kinds of applications for the machine building industry. In addition, the dual GbE LAN, 4 x serial ports, 4 x USB ports, and GPIO connector make it easier to connect to devices and be integrated into specific solutions. With a user friendly design it comes with an LED indicator on the front panel for power on/off, storage access, and LAN active status.

Specifications

Processor System	CPU	Intel Atom D2550 1.86 GHz 10W Dual Core CPU on board
	Memory	SODIMM x 1, DDR3 1066, Max 4 GB
	2nd Cache Memory	1 MB
	Chipset	Intel NM10
	Storage	mSATA*1
	HDD	1 x 2.5" SATA HDD Bay (Internal)
	I/O Ports	4 x Serial ports: 3 x RS-232, 1x RS-232/422/485 (Adjustable through BIOS) 4 x USB 2.0 ports 1 x Line-out, 1x MIC-in 1 x DB15 VGA 1 x DB9 GPIO port (8 pin programable)
	Bus Expansion	1x MINI PCI-e (Standard), 1 x PCI / 1 x PCI-e through riser (Optional)
	Network (LAN)	2 x 10/100/1000 Mbps Ethernet
	Speaker	2 x 1W speakers
	Watchdog Timer	255 timer levels; setup by software
	Dimensions (W x H x D)	325 x 253.8 x 58.4 mm (12.79" x 10" x 2.3")
	Weight	3.3 kg (7.27 lb)
OS Support	OS Support	Win XPE, Win XP Pro, WES7 32 bit, Win CE 7.0, Win 7
Power Supply	Input Voltage	DC 12 ~ 30 V
LCD Display	Display Type	12.1" TFT LCD (LED Backlight)
	Max. Resolution	1024 x 768
	Colors	16.2M
	Dot Size (mm)	0.24 x 0.24
	Viewing Angle	80 (left), 80 (right), 70 (up), 70 (down)
	Luminance (cd/m²)	600
	Brightness Control	Yes
	Backlight Lifetime	50,000 hrs (typical)
Touchscreen	Touch Type	Analog Resistive 5-wire
	Resolution	2048 x 2048
	Light Transmission	81+/-3%
	Controller	RS-232 interface
	Software Driver Support	Windows 7, XP, CE
	Durability (Touches)	36 million

ADVANTECH **Panel PCs**

Dimensions

Unit: mm

325.00

237.59

253.80

58.40
12.00

240.00

CUT OUT

311.00

308.79

Environment	Operating Temperature	0 ~ 50°C (32 ~ 122°F)
	Storage Temperature	-20 ~ 60°C (-4 ~ 140°F)
	Relative Humidity	10 ~ 95% @ 40°C (non-condensing)
	Shock	Operating 10 G peak acceleration (11 ms duration), follow IEC 60068-2-27
	Vibration	Operating Random Vibration Test 5~500Hz, 1Grms, follow IEC 60068-2-64
	EMC	BSMI, CE, FCC Class B
	Safety	CB, CCC, BSMI, UL
	Front Panel Protection	IP65 compliant

Ordering Information

Part No.	Description
PPC-3120-RAE	Atom D2550 Fanless PPC with 12.1" XGA LED backlight, touch, without memory
PS-DC19-L157E	19V power adapter module
1700001524	Power cord 3P UL 10A 125V 1.8m
170203183C	Power cord 3P Europe (WS-010+083)183cm
1700008921	Power cord 3P/3P Power supply 1.8M PSE
* PPC-174T-WL-MTE	Wall mount kit for PPC series
* PPC-ARM-A03	PPC ARM VESA Standard
* PPC-STAND-A1E	Stand For PPC Series (single acting hinge)
PPC-3100-VESAE	PPC-3100 VESA bracket module
PPC-WLAN-A1E	WiFi Module with Antenna Cable 28cm for PPC
PPC-3120-EXPE	Add-on box for PCI or PCIe expansion (include PCI / PCIe riser card)
PPC-3120-USBE	Kit to install internal USB dongle for PPC-3120
2070012891	Image WES7P 32-bit Multi V4.12 PPC-3120/3100
2070011967	Image windows XPE WES2009 PPC-3120 V4.3 MUI SA
2070012979	Image WEC7 PPC-3120 V4.00 Eng

* If you order Wall mount kit / ARM / Desktop stand, please also order PPC-3100-VESAE at the same time.

I/O

A   C   E   G

B   D   F   H   I
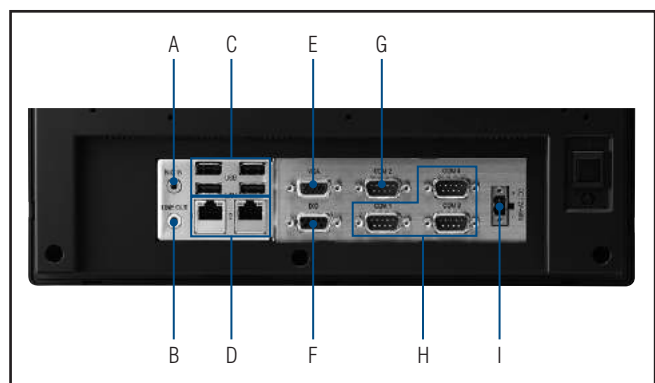
A. MIC in
B. Line Out
C. USB 2.0 x 4
D. 10/100/1000 Mbps Ethernet x 2
E. VGA Port
F. DIO Port
G. RS-232/422/485 x 1
H. RS-232 x 3
I. DC Inlet

PPC-3100

10.4" Fanless Panel PC with Intel® Atom™ D2550 Processor

Features

- 10.4" TFT SVGA LED Panel with resistive touchscreen
- Embedded Intel® Atom™ processor D2550 1.86 GHz
- System memory up to 4 GB DDR3 1066 SDRAM
- Supports one internal SATA 2.5" HDD and 1 x mSATA socket
- Fanless design and low power consumption
- Automatic data flow control over RS-485
- Adjust RS-232/422/485 through BIOS
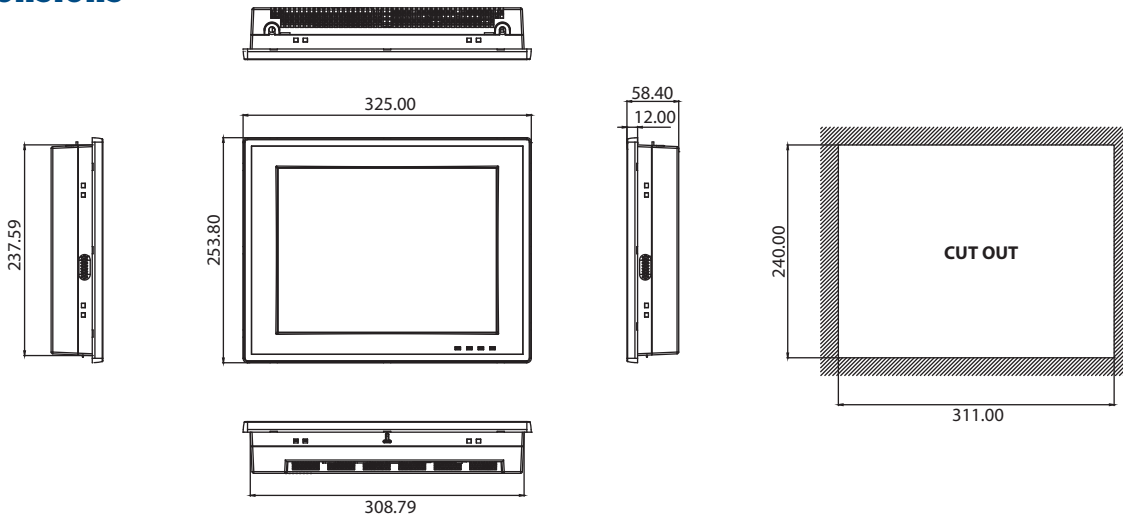- COM1/COM2 pin9 RI/5V/12V adjustable through BIOS
- LED backlight Auto dimming

SUSiAccess RoHS COMPLIANT Windows Embedded CE CCC FC c(UL)us

Introduction

PPC-3100 is a new 10.4" Panel PC equipped with an Intel Atom processor D2550. Meeting high demands of harsh environments, the fanless design makes PPC-3100 more reliable in different kinds of applications for the machine building industry. In addition, the dual GbE LAN, 4 x serial ports, 4 x USB ports, and GPIO connector make it easier to connect to devices and be integrated into specific solutions. With a user friendly design it comes with an LED indicator on the front panel for power on/off, storage access, and LAN active status.

Specifications

|		
Processor System	CPU	Intel Atom D2550 1.86 GHz 10W Dual Core CPU on board
	Memory	SODIMM x 1, DDR3 1066, Max 4 GB
	2nd Cache Memory	1 MB
	Chipset	Intel NM10
	Storage	mSATA*1
	HDD	1 x 2.5" SATA HDD Bay (Internal)
	I/O Ports	4 x Serial ports: 3 x RS-232, 1x RS-232/422/485 (Adjustable through BIOS) 4 x USB 2.0 ports 1 x Line-out, 1x MIC-in 1 x DB15 VGA 1 x DB9 GPIO port (8 pin programmable)
	Bus Expansion	1x MINI PCIe
	Network (LAN)	2 x 10/100/1000 Mbps Ethernet
	Speaker	2 x 1W speakers
	Watchdog Timer	255 timer levels; setup by software
	Dimensions (W x H x D)	275 x 220 x 64.3 mm (10.83" x 8.74" x 2.53")
	Weight	2.5 kg (5.51 lb)
OS Support	OS Support	Win XPE, Win XP Pro, WES7 32 bit, Win CE 7.0, Win 7
Power Supply	Input Voltage	DC 12 ~ 30 V
LCD Display	Display Type	10.4" TFT LCD (LED Backlight)
	Max. Resolution	800 x 600
	Colors	16.2 M
	Dot Size (mm)	0.264 x 0.264
	Viewing Angle	80 (left), 80 (right), 70 (up), 70 (down)
	Luminance(cd/m2)	400
	Brightness Control	Yes
	Backlight Lifetime	30, 000 hrs (typical)
Touchscreen	Touch Type	Analog Resistive 5-wire
	Resolution	2048 x 2048
	Light Transmission	81+/-3%
	Controller	RS-232 interface
	Software Driver Support	Windows 7, XP, CE
	Durability (Touches)	36 million

ADVANTECH **Panel PCs**

Dimensions

Unit: mm

262.86

275.00

207.86

220.00

64.30
4.50
21.50

266.00

CUT OUT

211.00

Environment	Operating Temperature	0 ~ 50°C (32 ~ 122°F)
	Storage Temperature	-20 ~ 60°C (-4 ~ 140°F)
	Relative Humidity	10 ~ 95% @ 40°C (non-condensing)
	Shock	Operating 10 G peak acceleration (11 ms duration), follow IEC 60068-2-27
	Vibration	Operating Random Vibration Test 5~500Hz, 1Grms, follow IEC 60068-2-64
	EMC	BSMI, CE, FCC Class B
	Safety	CB, CCC, BSMI, UL
	Front Panel Protection	IP65 compliant

Ordering Information

Part No.	Description
PPC-3100-RAE	Atom D2550 Fanless Panel PC with 10.4" SVGA LED backlight, touch, without memory
PS-DC19-L157E	19V power adapter module
1700001524	Power cord 3P UL 10A 125V 1.8m
170203183C	Power cord 3P Europe (WS-010+083)183cm
1700008921	Power cord 3P/3P Power supply 1.8M PSE
* PPC-174T-WL-MTE	Wall mount kit for PPC series
* PPC-ARM-A03	PPC ARM VESA Standard
PPC-3100-VESAE	PPC-3100 VESA bracket
PPC-WLAN-A1E	WiFi Module with Antenna Cable 28cm for PPC
2070011747	Image XPE WES2009 PPC-3100 V4.3.1 24 multi-languages with SUSI Access
2070012891	Image WES7P 32-bit Multi V4.12 PPC-3120/3100
2070012470	Image WEC7 PPC-3100 V1.0 Eng
* PPC-STAND-A1E	Stand For PPC Series (single acting hinge)

* if you order the Wall mount kit / ARM / Desktop stand , please also order PPC-3100-VESAE at the same time.

I/O
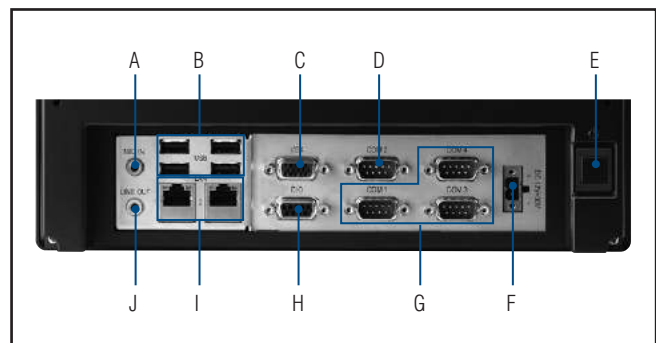
A. MIC in
B. 4 x USB
C. VGA
D. RS-232/422/485
E. Power S/W
F. DC-in
G. 3 x RS-232
H. GPIO
I. 2 x GbE
J. LINE out

PPC-4211W

21.5" Fanless Wide Screen Panel PC with Intel Core i5 Celeron Processor

NEW

Features

- 21.5" Full HD entirely flat panel with Projected capacitive touchscreen
- High performance Intel Core i CPU with Fanless design
- Supports 2 x 2.5" HDD Bay (supports Intel RAID)
- PCIe x4 / x1 or PCI expansion support
- Automatic data flow control over RS-485
- Wide Range DC 12-32 V support
- Dual Gigabit Ethernet, support IEEE1588
- 3 x Independent display

SUSIAccess RoHS COMPLIANT 2002/95/EC Windows Embedded CE CCC FC c UL us

Introduction

The PPC-4211W is a new generation Panel PC with Full HD (1920 x 1080) screen. The large panel help you to display more yet important information in one screen. The most important, system equips with high performance Intel Core i CPU but the heat can be dispatched easily by high efficiency fanless thermal design. This makes HMI a big step forward to consolidate performance and reliability in one system. Besides, with rich I/O as 5 x COM, 5 x USB and dual Gigabit Ethernet make it easier to connect to devices and be integrated into machine building industry. Moreover, with PCIe x4 expansion to add on field bus or proprietary card makes more application possibility. The last but not least, the multi touch screen makes the HMI more intuitive, brings you the best operate experience.

Specifications

Processor system	CPU	Intel 4th Generation Core i CPU i5-4300U, 2C, 3M, up to 2.9GHz Celeron 2980U, 2C, 2M, 1.6GHz
	Memory	SO-DIMM x 1, DDR3L1333/1600, Max 8GB
	2nd Cache Memory	3 MB / 2 MB
	Storage	mSATA*1
	HDD	2 x 2.5" SATA HDD Bay (supports Intel RAID)
	I/O Ports	5 x Serial ports: 4 x RS-232, 1 x RS-422/485 with isolation 1K V_{DC} 4 x USB 3.0 ports in rear side, 1 x USB 2.0 in right side 1 x Line-out, 1x MIC-in 1 x DB15 VGA 1 x Display Port (1.2)
	Bus Expansion	1 x MINI PCIe, 1 x PCIe x4 (support x1) or 1 x PCI (either one)
	Network (LAN)	2 x 10/100/1000 Mbps Ethernet, Intel I211-AT, Intel I218LM
	Speaker	2 x 1W
	Watchdog Timer	255 timer levels; setup by software
	Dimensions	557.77 x 349.17 x 63.6 mm
	Weight	7.8 Kg
OS support	OS Support	Win 7/Win 8/Win 8.1/Linux
Power supply	Input Voltage	DC 12-32V
Power Consumption	i5-4300U	66W
	Celeron 2980U	58W (8G DDR3L, USB x 4, COM x 4, USB mouse, 2.5" HDD 500G x 2, Win7 64bit, Burn-in 7.0)
LCD Display	Display Type	21.5" TFT LCD (LED Backlight)
	Max. Resolution	1920 x 1080
	Colors	16.7M
	Viewing Angle	178 Horizontal, 178 Vertical
	Luminance(cd/m2)	300
	Brightness Control	Yes (by BIOS)
	Backlight Lifetime	50, 000 hrs(typ.)
Touchscreen	Touch Type	Projected Capacitive multi touch 10 point
	Resolution	2048 x 2048
	Light Transmission	88 % ± 2 %.
	Controller	USB interface
Environment	Operating Temperature	0 ~ 50° C (32 ~ 122° F)
	Storage Temperature	-20 ~ 60° C (-4 ~ 140° F)
	Relative Humidity	10 ~ 95% @ 40° C (non-condensing)
	Shock	Operating 10 G peak acceleration (11 ms duration), follow IEC 60068-2-27
	Vibration	Operating Random Vibration Test 5~500Hz, 1Grms, follow IEC 60068-2-64
	EMC	BSMI, CE, FCC Class B
	Safety	CB, CCC, BSMI, UL
	Front Panel Protection	IP65 compliant

ADVANTECH | **Panel PCs**

Dimensions

Unit: mm

550.30

341.80

CUT OUT

548.81

558.40

340.21

349.80

7.30 63.60 41.70

100
75

Ordering Information

Part No	Description
PPC-4211W-P5AE	21.5 Wide screen PPC with PCT Multi-touch, Intel Core i5-4300U up to 2.9GHz
PPC-4211W-PCAE	21.5 Wide screen PPC with PCT Multi-touch, Intel Celeron 2980U 1.6GHz
1702002600	Power Cable UL/CSA (USA) 180D 125V10A 1.83M
1702002605	Power Cable 90D 220V EUROPEAN 250V/6A 1.8M
PS-DC19-150AE	19V DC 150W Power Adapter Module For PPC Product
PPC-174T-WL-MTE	Wall mount kit for PPC series
PPC-ARM-A03	PPC ARM VESA Standard
PPC-WLAN-A2E	Wi-Fi Module
PPC-174 Stand	Stand for PPC series (double acting hinges)
PPC-STAND-A1E	Stand for PPC Series (single acting hinge)
2070012905	Image WES7P 32-bit Multi V4.12 PPC-4151W/4211W-P
2070013051	Image WES7P 64-bit Multi V4.12 PPC-4151W/4211W-P
PPC-FUSB-A1E	Front USB Module

I/O Appearance

A B C D E

F
G

K J I H

A. Mic-in
B. 4 x USB 3.0
C. VGA Port
D. 4 x RS-232
E. DC Inlet
F. Power Button

G. Ground Line
H. 1 x RS-422/485
I. Display Port
J. 2 x 10/100/1000 Mbps Ethernet
K. Line Out

PPC-4151W

15.6" Fanless Wide Screen Panel PC with Intel Core i5/i3/Celeron Processor

NEW

SUSIAccess · RoHS · Windows Embedded · CE · CCC · FC · c UL us

Features

- 15.6" WXGA entirely flat panel with Projected capacitive touchscreen
- High performance Intel Core i CPU with Fanless design
- PCIe x1 or PCI expansion support
- Automatic data flow control over RS-485
- Wide Range DC 9-32V support
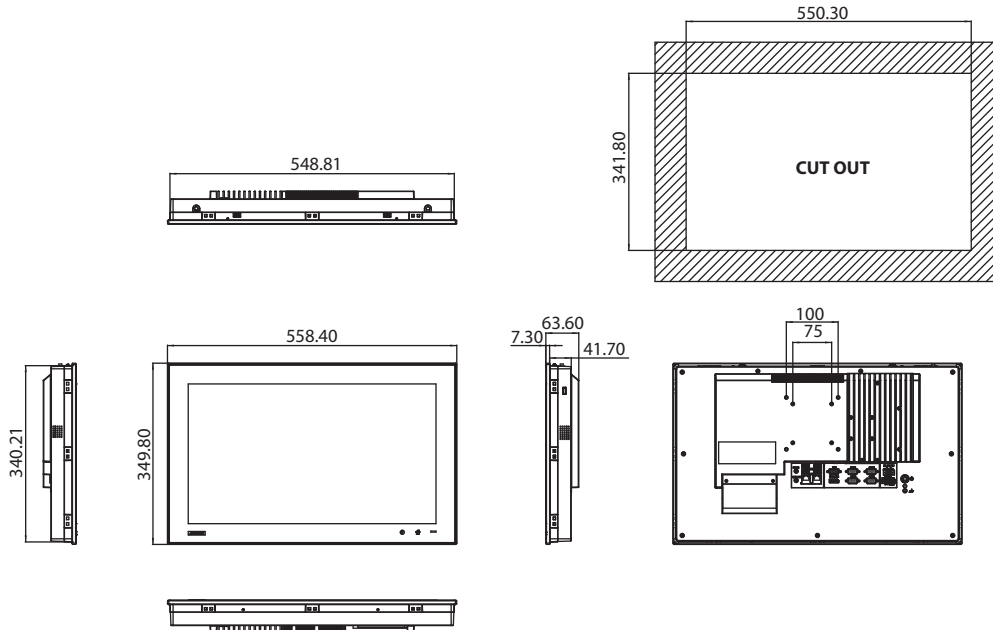- Dual Gigabit Ethernet, support IEEE1588
- 3 x Independent display

Introduction

The PPC-4151W is a new generation Panel PC with WXGA (1366 x 768) screen. The most important, system equips with high performance Intel Core i CPU but the heat can be dispatched easily by high efficiency fanless thermal design. This makes HMI a big step forward to consolidate performance and reliability in one system. Besides, with rich I/O as 5 x COM, 5 x USB and dual Gigabit ethernet make it easier to connect to devices and be integrated into machine building industry. In addition, PCIe/PCI expansion to add on field bus or proprietary card makes more application possibility. The last but not least, the multi touch screen makes the HMI more intuitive, brings you the best operate experience.

Specifications

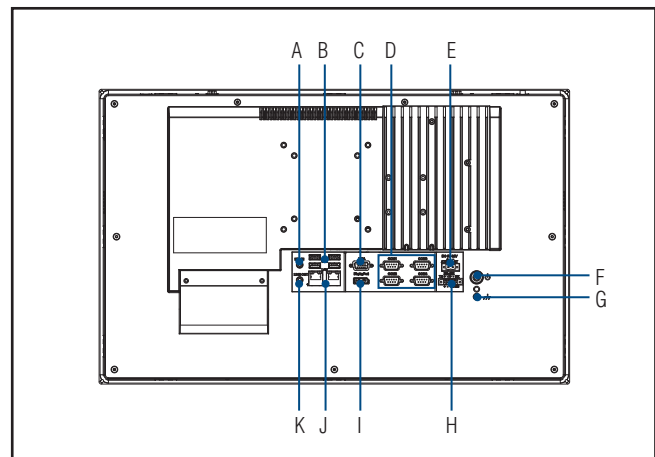|		PPC-4151W-P5AE PPC-4151W-PCAE	PPC-4151W-R3AE
Processor system	CPU	Intel 4th Generation Core i CPU i5-4300U, 2C, 3M, up to 2.9GHz Celeron 2980U, 2C, 2M, 1.6GHz	Intel 4th Generation Core i CPU i3-4010U,2C,3M
	Memory	SO-DIMM x 1, DDR3L1333/1600, Max 8GB	
	2nd Cache Memory	3 MB / 2 MB	
	Storage	mSATA*1	
	HDD	1 x 2.5" SATA HDD Bay	
	I/O Ports	5 x Serial ports: 4 x RS-232, 1 x RS-422/485 with isolation 1K V_{DC} 4 x USB 3.0 ports in rear side, 1 x USB 2.0 in right side 1 x Line-out, 1x MIC-in 1 x DB15 VGA 1 x Display Port (1.2)	
	Bus Expansion	1 x MINI PCIe, 1 x PCIe x1 or 1 x PCI(either one)	
	Network (LAN)	2 x 10/100/1000 Mbps Ethernet, Intel I211-AT, Intel I218LM	
	Speaker	2 x 1W	
	Watchdog Timer	255 timer levels; setup by software	
	Dimensions	419.7 x 269 x 59 mm	
	Weight	5.8 Kg	
OS support	OS Support	Win 7/Win 8/Win 8.1/Linux	
Power supply	Input Voltage	DC 9-32V	
	Power consumption	i5-4300U: 56W, i3-4010U:56W Celeron 2980U: 45W (8G DDR3L, USB x 4, COM x 4, USB mouse, 2.5" HDD 500G, Win7 64bit, Burn-in 7.0)	
LCD Display	Display Type	15.6" TFT LCD (LED Backlight)	
	Max. Resolution	1366 x 768	
	Colors	16.7M	
	Viewing Angle	85 (left), 85 (right), 85 (up), 85 (down)	
	Luminance(cd/m2)	300	
	Brightness Control	Yes (by BIOS)	
	Backlight Lifetime	50, 000 hrs (typ.)	
Touchscreen	Touch Type	Projected Capacitive multi touch 10 point	Resistive single touch
	Light Transmission	88 % ± 2 %.	80 % ± 5 %
	Controller	USB interface	
Environment	Operating Temperature	0 ~ 50° C (32 ~ 122° F) for SSD, 0~45° C for HDD	
	Storage Temperature	-20 ~ 60° C (-4 ~ 140° F)	
	Relative Humidity	10 ~ 95% @ 40° C (non-condensing)	
	Shock	Operating 10 G peak acceleration (11 ms duration), follow IEC 60068-2-27	
	Vibration	Operating Random Vibration Test 5~500Hz, 1Grms, follow IEC 60068-2-64	
	EMC	BSMI, CE, FCC Class B	
	Safety	CB, CCC, BSMI, UL	
	Front Panel Protection	IP65 compliant	

ADVANTECH | **Panel PCs**

Dimensions

Unit: mm

413.00

262.00

CUT OUT

411.36

419.70

59.00

7.30

41.70

100

260.56

269.00

Ordering Information

Part NO	Description
PPC-4151W-P5AE	15.6 Wide screen PPC with PCT Multi-touch, Intel Core i5-4300U up to 2.9GHz
PPC-4151W-PCAE	15.6 Wide screen PPC with PCT Multi-touch, Intel Celeron 2980U 1.6GHz
PPC-4151W-R3AE	15.6 Wide screen PPC with Resistive-touch, Intel Core i3-4010U up to 1.7GHz
PS-DC19-L157E	19V DC power Adapter Module
1700001524	POWER Cord 3P UL 10A 125V 180cm
170203183C	POWER Code 3P Europe (WS-010+083)183cm
1700008921	POWER CORD 3P/3P POWER SUPPLY 1.8M PSE
PPC-174T-WL-MTE	Wall mount kit for PPC series
PPC-STAND-A1E	Stand for PPC series (single acting hinge)
PPC-174 Stand	Stand for PPC Series (double acting hinges)
PPC-ARM-A03	PPC ARM VESA Standard
PPC-WLAN-A1E	Wi-Fi Module
2070012905	Image WES7P 32-bit Multi PPC-4151W/4211W-P
2070013051	Image WES7P 64-bit Multi PPC-4151W/4211W-P
PPC-FUSB-A1E	Front USB Module
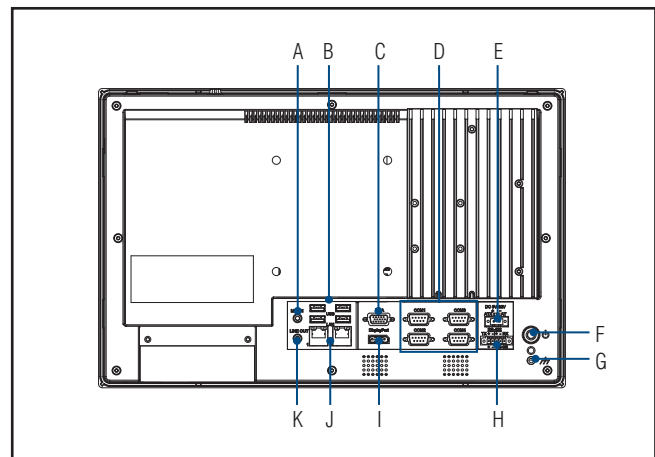
I/O Appearance

A B C D E

F
G

K J I H

A. Mic-in
B. 4 x USB 3.0
C. VGA Port
D. 4 x RS-232
E. DC Inlet
F. Power Button
G. Ground Line
H. 1 x RS-422/485
I. Display Port
J. 2 x 10/100/1000 Mbps Ethernet
K. Line Out

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

PPC-6170

17" Panel PC with Intel® Core™ i3 / i5 / Celeron® Processor

NEW

Windows 7 iManager SUSIAccess RoHS Windows Embedded CE FC c UL us

Features

- Intel® Core™ i3, i5, Celeron 1020E + Intel QM77 PCH
- 1X DDR3/DDR3L SODIMM support to 8 GB
- Multiple expansion slots including one PCIe x4, one PCI + one PCIe x1, two PCI (optional) and two PCIe x1 (optional)
- Optional second HDD, supports Intel RAID
- One isolated RS-232/422/485 port; (selectable in by BIOS)
- One GPIO/RS-232 (8 channels, TTL level); (by swapping pin header)
- Dual GbE, supports Intel AMT8.0
- Supports iManager, SUSIAccess and Embedded Software APIs

Introduction

The PPC-6170 is a Panel PC with an Intel Core i3/i5 or Celeron processor, and a 17" color TFT LCD panel. It features extremely high computing power, modular design, excellent connectivity, and can support virtually any application. In addition, its user-friendly interface makes it a great host for information appliances. Two expansion slots, dual hard drives supporting Intel RAID, and one isolated RS-232/422/485 port make the PPC-6170 highly reliable, and provide a great solution for a wide range of applications.

Specifications

Processor System	Intel	Core i5-3610ME	Core i3-3120ME	Celeron 1020E
	Frequency	2.7 GHz	2.4 GHz	2.2 GHz
	L3 Cache	4M	3M	2M
	Chipset	Intel QM77		
	Memory	1 x 204-pin SODIMM, DDR3 (1600 MHz) / DDRL (1333 MHz), supports up to 8 GB		
	Storage 1	1 x 2.5" SATA bay		
	Storage 2	Either one - Second 2.5" SATA bay (Intel RAID supported, optional) - Slim type 8X or above DVD +/- RW (optional)		
	Network (LAN)	2 x Gigabit Gigabit Ethernet connectors, Intel AMT supported (GbE1- Intel 82579LM, GbE2 – Intel 82583V)		
	I/O ports	- 4 x COM ports, 1 x isolated RS-232/422/485, 3 x RS-232 - 1 x GPIO/RS-232 (8 channels, TTL level); by pin header - 3 x USB3.0 + 2 x USB2.0 ports		
	Expansion Slots	Either: - One PCI + one PCIe x1 (standard) - One x PCIe x 4 (in the accessory box)		
	Additional Expansion	1 x Full-size mini PCIe (Supports mSATA) 1 x half-size mini PCIe		
	Fan	Two 12V 60 x 60 x 13 (mm) with smart fan control, (70,000 hours continuous test @ 40° C)		
Physical Characteristics	Dimensions	442.0 x 362.0 x 113.5 (mm) (17.4" x 14.25" x 4.47")		
	Weight	7.5Kg (16.52lb)		
OS Support	OS Support	Win XPE / Win XP Pro / WES7 32 & 64 bit / Windows 7 32 & 64 bit		
Power Supply	Output Rating	150 W (max.)		
	Input Voltage	100 - 240V_{AC}, 50/60Hz, 4-2A		
	Power Consumption	With Core i5-3610ME is 65W With Core i3-3120ME is 55W With Celeron 847E is 53W (Burn-in test 7.0 in Windows 7 32-bit)		
LCD Display	Display Type	17" TFT LCD (LED Backlight)		
	Max. Resolution	1280 x 1024		
	Colors	262K		
	Dot Size (mm)	0.264 x 0.264		
	Viewing Angle	85 (left), 85 (right), 80 (up), 80 (down)		
	Luminance(cd/m2)	350		
	Contrast Ratio	1,000		
	Backlight Lifetime	50, 000 hrs (typical)		

Dimensions

Unit: mm

425.1
377.8
31.5
12.0

113.5
345.1
298.9
442.0
362.0

Max. depth for VESA mounting screws is 7.5 (mm)

100.0
75.0
100.0
75.0
106.0
118.5

427
347

CUT OUT

Touchscreen	Touch Type	Analog Resistive 5-wire
	Resolution	2048 x 2048
	Light Transmission	81+/-3%
	Controller	RS-232 interface (COM5), USB interface is available as an option
	Software Driver Support	Windows 7, XP
	Durability (Touches)	36 million
Environment	Operating Temperature	0 ~ 50°C (32 ~ 122°F)
	Storage Temperature	-20 ~ 60°C (-4 ~ 140°F)
	Relative Humidity	10 ~ 95% @ 40°C (non-condensing)
	Shock	Operating 10 G peak acceleration (11 ms duration), follows IEC 60068-2-27
	Vibration	Operating Random Vibration Test 5~500Hz, 1Grms, follows IEC 60068-2-64
	EMC	BSMI, CE, FCC Class A
	Safety	CB, CCC, BSMI, UL
	Front Panel Protection	IP65 compliant

Ordering Information

Part No.	Description
PPC-6170-Ri5AE	Intel Core i5-3610ME (2.7G) Panel PC with 17" XGA LED backlight and 5-wire resistive T/S, w/o memory
PPC-6170-Ri3AE	Intel Core i3-3120ME (2.4G) Panel PC with 17" XGA LED backlight and 5-wire resistive T/S, w/o memory
PPC-6170-RC10AE	Intel Celeron 1020E (2.2G) Panel PC with 17" XGA LED backlight and 5-wire resistive T/S, w/o memory
PPC-WLAN-A1E	WiFi Module with Antenna Cable 28cm for PPC
PPC-6150-PCIE	Riser card supports two PCI slots for PPC-6150/PPC-6170
PPC-6150-PCIEE	Riser card supports two PCIe x1 slots for PPC-6150/PPC-6170
PPC-6150-HDDE	Kit to install the second 2.5" SATA HDD for PPC-6150/PPC-6170, w/o HDD
PPC-6150-DVDE	Module with 8X SATA DVD-RW for PPC-6150/PPC-6170
PPC-174T-WL-MTE	Wall mount kit for PPC series
PPC-175 RACK-MT	19" Rack Mounting kit for PPC-175
PPC-ARM-A03	PPC ARM VESA Standard
PPC-174 Stand	Stand for PPC Series (double acting hinges)
1702002605	Power cord 90D 220V EUROPEAN 250V/6A, 1.8M
1702002600	Power cord UL/CSA(USA) 180D 125V/10A 1.83M
1700019336	Cable for an external 25-pin LPT port
2070013299	WES7P PPC-6150/70 32-bits V5.1.6 10multi-languages with SUSI Access
2070013328	WES7P PPC-6150/70 64-bits V5.6.6 10multi-languages with SUSI Access

I/O Placement

A B C D E F G   H

L M L K J I

A: AC Inlet
B: Power Switch
C: USB 3.0 x 2, USB 2.0 x 2
D: HDMI
E: VGA
F: Cable clip x 2
G: Gigabit Ethernet x 2

H: 2 Expansion slots
I: Line out / Mic in
J: USB 3.0 x 1
K: GPIO / RS-232 (by swapping pin header)
L: RS232 x 3
M: Isolated RS-232/422/485 (selecting by BIOS)

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

PPC-6150

15" Panel PC with Intel® Core™ i3 / i5 / Celeron® Processor

NEW

Features

- Intel® Core™ i3, i5, Celeron 1020E + Intel QM77 PCH
- 1X DDR3/DDR3L SODIMM supports to 8 GB
- Multiple expansion slots including one PCIe x4, one PCI + one PCIe x1, two PCI (optional) and two PCIe x1 (optional)
- Optional second HDD, supports Intel RAID
- One isolated RS-232/422/485 port; (selectable in by BIOS)
- One GPIO/RS-232 (8 channels, TTL level); (by swapping pin header)
- Dual GbE, supports Intel AMT8.0
- Supports iManager, SUSIAccess and Embedded Software APIs

Introduction

The PPC-6150 is a Panel PC with an Intel Core i3/i5 or Celeron processor, and a 15" color TFT LCD panel. It features extremely high computing power, modular design, excellent connectivity, and can support virtually any application. In addition, its user-friendly interface makes it a great host for information appliances. Two expansion slots, dual hard drives supporting Intel RAID, and one isolated RS-232/422/485 port make the PPC-6150 highly reliable, and provide a great solution for a wide range of applications.

Specifications

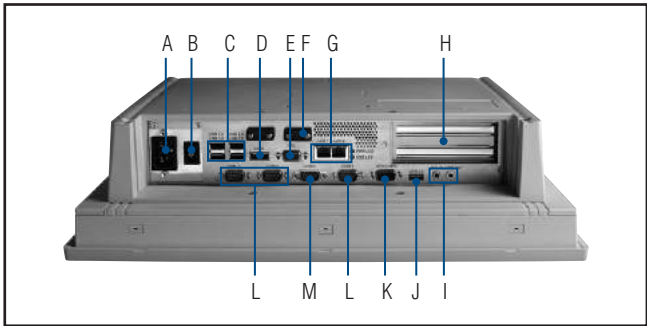|				
Processor System	Intel	Core i5-3610ME	Core i3-3120ME	Celeron 1020E
	Frequency	2.7 GHz	2.4 GHz	2.2 GHz
	L3 Cache	4M	3M	2M
	Chipset	Intel QM77		
	Memory	1 x 204-pin SODIMM, DDR3 (1600 MHz) / DDRL (1333 MHz), supports up to 8 GB		
	Storage 1	1 x 2.5" SATA bay		
	Storage 2	Either one ■ Second 2.5" SATA bay (Intel RAID supported, optional) ■ Slim type 8X or above DVD +/- RW (optional)		
	Network (LAN)	2 x Gigabit Gigabit Ethernet connectors, Intel AMT supported (GbE1- Intel 82579LM, GbE2 – Intel 82583V)		
	I/O ports	■ 4 x COM ports, 1 x isolated RS-232/422/485, 3 x RS-232 ■ 1 x GPIO/RS-232 (8 channels, TTL level); by pin header ■ 3 x USB3.0 + 2 x USB2.0 ports		
	Expansion Slots	Either: ■ One PCI + one PCIe x1 (standard) ■ One x PCIe x 4 (in the accessory box)		
	Additional Expansion	1 xfull-size mini PCIe (Supports mSATA) 1 x half-size mini PCIe		
	Fan	Two 12V 60 x 60 x 13 (mm) with smart fan control, (70,000 hours continuous test @ 40° C)		
Physical Characteristics	Dimensions	395.5 x 316.8 x 105.5 (mm) (15.6" x 12.5" x 4.15")		
	Weight	6.5 Kg (14.32lb)		
OS Support	OS Support	Win XPE / Win XP Pro / WES7 32 & 64 bit / Windows 7 32 & 64 bit		
Power Supply	Output Rating	150 W (max.)		
	Input Voltage	100 - 240V$_{AC}$, 50/60Hz, 4-2A		
	Power Consumption	With Core i5-3610ME is 61W With Core i3-3120ME is 50W With Celeron 847E is 48W (Burn-in test 7.0 in Windows 7 32-bit)		
LCD Display	Display Type	15" TFT LCD (LED Backlight)		
	Max. Resolution	1024 x 768		
	Colors	262K		
	Dot Size (mm)	0.297 x 0.297		
	Viewing Angle	80 (left), 80 (right), 70 (up), 70 (down)		
	Luminance(cd/m2)	350		
	Contrast Ratio	700		
	Backlight Lifetime	50, 000 hrs (typical)		

Dimensions

Unit: mm

379.0
23.5
12.0
105.5
395.5
300.0
316.8

Max. depth for VESA mounting screws is 7.5 (mm)

100.0
75.0
100.0
75.0
83.8
96.3

381
302

CUT OUT

Touchscreen	Touch Type	Analog Resistive 5-wire
	Resolution	2048 x 2048
	Light Transmission	81+/-3%
	Controller	RS-232 interface (COM5), USB interface is available as an option
	Software Driver Support	Windows 7, XP
	Durability (Touches)	36 million
Environment	Operating Temperature	0 ~ 50°C (32 ~ 122°F)
	Storage Temperature	-20 ~ 60°C (-4 ~ 140°F)
	Relative Humidity	10 ~ 95% @ 40°C (non-condensing)
	Shock	Operating 10 G peak acceleration (11 ms duration), follows IEC 60068-2-27
	Vibration	Operating Random Vibration Test 5~500Hz, 1Grms, follows IEC 60068-2-64
	EMC	BSMI, CE, FCC Class A
	Safety	CB, CCC, BSMI, UL
	Front Panel Protection	IP65 compliant

Ordering Information

Part No.	Description
PPC-6150-Ri5AE	Intel Core i5-3610ME (2.7G) Panel PC with 15" XGA LED backlight and 5-wire resistive T/S, w/o memory
PPC-6150-Ri3AE	Intel Core i3-3120ME (2.4G) Panel PC with 15" XGA LED backlight and 5-wire resistive T/S, w/o memory
PPC-6150-RC10AE	Intel Celeron 1020E (2.2G) Panel PC with 15" XGA LED backlight and 5-wire resistive T/S, w/o memory
PPC-WLAN-A1E	WiFi Module with Antenna Cable 28cm for PPC
PPC-6150-PCIE	Riser card supports two PCI slots for PPC-6150/PPC-6170
PPC-6150-PCIEE	Riser card supports two PCIe x1 slots for PPC-6150/PPC-6170
PPC-6150-HDDE	Kit to install the second 2.5" SATA HDD for PPC-6150/PPC-6170, w/o HDD
PPC-6150-DVDE	Module with 8X SATA DVD-RW for PPC-6150/PPC-6170
PPC-174T-WL-MTE	Wall mount kit for PPC series
PPC-ARM-A03	PPC ARM VESA Standard
PPC-174 Stand	Stand for PPC Series (double acting hinges)
1702002605	Power cord 90D 220V EUROPEAN 250V/6A, 1.8M
1702002600	Power cord UL/CSA(USA) 180D 125V/10A 1.83M
1700019336	Cable for an external 25-pin LPT port
2070013299	WES7P PPC-6150/70 32-bits V5.1.6 10multi-languages with SUSI Access
2070013328	WES7P PPC-6150/70 64-bits V5.6.6 10multi-languages with SUSI Access

I/O Placement

A B C D E F G

K L K J I H

A: AC Inlet
B: Power Switch
C: USB 3.0 x 2, USB 2.0 x 2
D: HDMI
E: VGA
F: Gigabit Ethernet x 2

G: 2 Expansion slots
H: Line out/ Mic in
I: USB 3.0 x 1
J: GPIO / RS-232 (by swapping pin header)
K: RS-232 x 3
L: Isolated RS-232/422/485 (selecting by BIOS)

PPC-6120

12" Panel PC Supporting 4th Generation Intel® Core™ i / Celeron® Processors

NEW

SUSIAccess RoHS COMPLIANT 2002/95/EC Windows® Embedded CE CCC FCC c(UL)us

Features

- 12.1" TFT XGA LED Panel with resistive touchscreen
- Supports 4th Generation Intel® Core™ i / Celeron® Processor (Thermal Design Power: 35W/45W)
- System memory supports 2 x 204-pin SODIMM DDR3/DDR3L total up to 16G
- Supports 2 x Mini PCIe sockets, one is included mSATA function.
- Optional one PCI/PCIe x1 expansion kit
- Supports one isolated RS422/485 (terminal block)
- 1 x VGA and 1 x Display port
- Dual GbE, supports Intel AMT9.0
- LED backlight Auto dimming

Introduction

 The PPC-6120 is a 12" color TFT LCD Panel PC which supports 4th Generation Intel® Core™ i / Celeron® Processors. It features extremely high computing power, various connectors, and can be installed in virtually any application. In addition, its user-friendly interface makes it a great host for information appliances. Four RS-232 ,one isolated RS422/485 and Dual Gb Ethernet connectors support Intel AMT, one expansion slot make PPC-6120 highly reliable, and provides a great solution for versatile applications.

Specifications

Processor System	CPU	4th Generation Intel® Core™ i / Celeron® Processor (Thermal Design Power: 35W/45W)
	Chipset	Intel Q87
	Memory	Supports 2 x 204-pin SODIMM DDR3/DDR3L total up to 16G
	Storage	2.5" SATA HDD bay x1 mSATA x1
	Bus Expansion	1 x MiniPCIe (Standard) 1 x PCIe by 1 / 1 x PCI through riser (Optional)
	Network (LAN)	2 x GbE, supports Intel AMT9.0
	I/O	4 x USB3.0 (Ext.), 2 x USB2.0 (Int. pin head) 4 x RS-232 Serial ports, 1 x Isolated RS422/485 (1KV$_{DC}$) 1 x Display Port 1.2 1 x DB15 VGA out 1 x Mic in, 1 x Line out
	Speaker	2 x 1W speakers
	Watchdog Timer	255 timer levels; setup by software
	Dimensions (W x H x D)	325 x 253.8 x 73.8
	Weight	3.4KG
OS Support	OS Support	Win7(32bit and 64bit),Win8 (32bit and 64bit), Linux
Power Supply	Input Voltage	DC 12 ~ 30 V
LCD Display	Display Type	12.1" TFT LCD (LED Backlight)
	Max. Resolution	1024 x 768
	Colors	262K
	Dot Size (mm)	0.24 x 0.24
	Viewing Angle	80 (left), 80 (right), 70 (up), 70 (down)
	Luminance (cd/m²)	600
	Brightness Control	Yes
Touchscreen	Touch Type	Analog Resistive 5-wire
	Resolution	2048 x 2048
	Light Transmission	80+/-3%
	Controller	RS-232 interface
	Software Driver Support	Win7, Win8, Linux
	Durability (Touches)	36 million

ADVANTECH | **Panel PCs**

Dimensions

Unit: mm

325.00

253.80

237.59

73.79
26.30
12.00

311.00

240.00

CUT OUT

308.79

Environment	Operating Temperature	0 ~ 50°C (32 ~ 122°F)
	Storage Temperature	-20 ~ 60°C (-4 ~ 140°F)
	Relative Humidity	10 ~ 95% @ 40°C (non-condensing)
	Shock	Operating 10 G peak acceleration (11 ms duration), follow IEC 60068-2-27
	Vibration	Operating Random Vibration Test 5~500Hz, 1Grms, follow IEC 60068-2-64
	EMC	BSMI, CE, FCC Class A
	Safety	CB, CCC, BSMI, UL
	Front Panel Protection	IP65 compliant

Ordering Information

Part No.	Description
PPC-6120-RAE	12.1" 4th Generation Intel® Core™ i / Celeron Panel PC with Resi. T/S
1702002600	Power Cable UL/CSA (USA) 180D 125V10A 1.83M
1702002605	Power Cable 90D 220V EUROPEAN 250V/6A 1.8M
* PPC-174T-WL-MTE	Wall mount kit for PPC series
* PPC-ARM-A03	PPC ARM VESA Standard
* PPC-STAND-A1E	Stand For PPC Series (single acting hinge)
PPC-3100-VESAE	PPC-3100 VESA bracket module
PPC-WLAN-A1E	WiFi Module with Antenna Cable 28cm for PPC
PPC-6120-EXPE	Add-on box for PCI or PCIe expansion (include PCI / PCIe riser card)
PS-DC19-150AE	19V DC 150W Power Adapter Module For PPC Product
2070012966	Image WES7P 32-bit Multi V4.12 PPC-6120
2070013226	Image WES7P 64-bit Multi V4.12 PPC-6120

* if you order Wall mount kit / ARM / Desktop stand, please also order PPC-3100-VESAE at the same time.

Supported CPUs

CPU	4th Generation Intel® Core™ i / Celeron® Processor (Thermal Design Power: 35W/45W)			
	Type	Frequency	Cache	TDP
	I7-4770TE	2.3GHz	8M	45W
	I5-4570TE	2.7GHz	4M	35W
	I3-4330TE	2.4GHz	4M	35W
	PENTIUM-G3320TE	2.3GHz	3M	35W
	Celeron-1820TE	2.2GHz	2M	35W
	I5-4590T	2.0GHz	6M	35W
	I3-4350T	3.1GHz	4M	35W
	I3-4340TE	2.6GHz	4M	35W

I/O
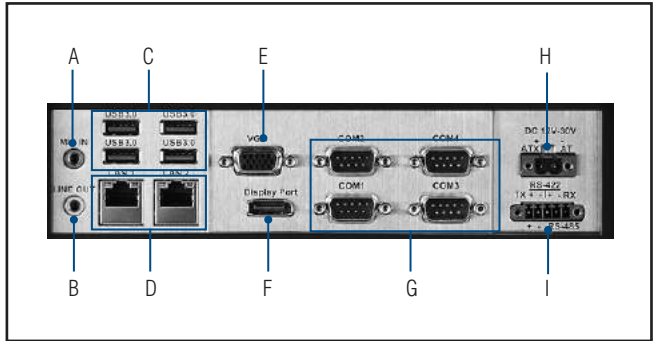
A. MIC in
B. Line Out
C. USB 3.0 x 4
D. 10/100/1000 Mbps Ethernet x 2
E. VGA Port
F. Display Port
G. COM RS-232 x 4
H. DC Inlet
I. COM RS-422/485

PPC-8170

NEW

Features

- 17" TFT LED Panel, resolution up to 1280 x 1024
- Built-in Intel® Core™ i3, i5 desktop processor (LGA) with Intel H61 chipset
- Two 204 PIN DDR3 SO-DIMM, DDR3 1066/1333/1600MHz SDRAM, up to 8 GB/4 GB per SO-DIMM
- Support one expansion PCIe x 4 slot installed. (Replaceable with PCI riser accessory
- Supports 6 USB, 6 COMs, 1 x GPIO, 8 bits (Internal pin header)
- Support 1 x 2.5" SATA bay
- Support AC 100~240V input
- Supports iManager, SUSIAccess and Embedded Software APIs

Introduction

PPC-8170 is a Panel PC with an Intel Core i3/i5 desktop processor, and a 17" color TFT LCD panel. It features extremely high computing power and performance, excellent connectivity, and good expansion ability. In addition, its rich variety of IO support makes it easy to operate for information applications, and provide a great solution for a wide-range of industrial applications.

Specifications

		Core i3-3220	Core i5-3550S
Processor System	CPU	Core i3-3220	Core i5-3550S
	Frequency	3.3GHz	3.7 GHz
	L3 Cache	3 MB	6 MB
	Chipset	H61	
	Memory	2 x 204 PIN DDR3 SO-DIMM, DDR3 1066/1333/1600MHz SDRAM, up to 8 GB/4 GB per SO-DIMM	
	Storage	1 x 2.5" SATA bay	
	Network (LAN)	2 x Gigabit Gigabit Ethernet connectors (RTL8111E)	
	I/O ports	▪ 6 COMs, 1 x RS-232/422/485, 5 x RS-232 ▪ 6 x USB2.0 ▪ 1 x VGA, 1 x DVI ▪ 1 x GPIO, 8 bits (Internal pin header) ▪ 2 x Ethernet ▪ 1 x Mic-in, 1 x Line-out ▪ 1 x PS/2 ▪ 2 x 1.5W speaker	
	Expansion slot	▪ One PCIe x 4 (pre-installed) ▪ One PCI (in the accessory box)	
	Additional Expansion	1 x Mini PCIe	
	Fan	1 x 12V 80 x 80 x 15 mm	
Physical Characteristics	Dimensions	442.0 x 362.0 x 113.5 (mm) (17.4" x 14.25" x 4.47")	
	Weight	9.2 KG	
Supported Operating Systems	OS's	Win XP Pro / Windows 7 32 & 64 bit	
Power Supply	Output Rating	180 W	
	Input Voltage	100 - 240 V_{AC}	
	Power consumption	With Core i3-3220 is 81W With Core i5-3550s is 96W (Burn-in test 7.0 in Windows 7 32-bit)	
LCD Display	Display Type	17" TFT LED Panel	
	Max. Resolution	1280 x 1024	
	Colors	16.7 M	
	Dot Size (mm)	0.264 (H) x 0.264 (W)	
	Viewing Angle	80 (left), 80 (right), 60 (up), 80 (down)	
	Luminance	350	
	Contrast Ratio	800	
	Backlight Lifetime	50,000 hrs	

ADVANTECH | **Panel PCs**

Dimensions

Unit: mm

425.1
377.8
26.5
12.0

113.5
345.1
253.7
362.0

442.0

CUT Out

427.0
347.0

171.0
183.5
100
75.0
100
75.0
109.0
121.5

	Touch Type	Analog Resistive 5-wire
Touchscreen	Resolution	2048 x 2048
	Light Transmission	81% +/- 3%
	Controller	USB Interface
	Software Driver Support	Windows 7, XP
	Durability (Touches)	36 Million
Environment	Operating Temperature	0 ~ 50°C (32 ~ 122°F)
	Storage Temperature	- 20 ~ 60°C (-4 ~ 140°F)
	Relative Humidity	10 ~ 95% @ 40°C (non-condensing)
	Shock	Operating 10 G peak acceleration (11 ms duration), follows IEC 60068-2-27
	Vibration	Operating Random Vibration Test 5~500Hz, 1Grms, follows IEC 60068-2-64
	EMC	CE, FCC Class A, BSMI
	Safety	CB, UL, CCC, BSMI
	Front Panel Protection	IP65 Compliant

Ordering Information

Part No	Description
PPC-8170-RI3AE	17" SVGA Panel PC w/Intel Corei3-3220, 5-Wire Touch, 6 COM, 6 USB, 2 LAN, 1 x PCIe or 1 x PCI expansion
PPC-8170-RI5AE	17" SVGA Panel PC w/Intel Core i5-3550S, 5-Wire Touch, 6 COM, 6 USB, 2 LAN, 1 x PCIe or 1 x PCI expansion
PPC-WLAN-A2E	Wi-Fi Module with Antenna Cable 40cm for PPC
PPC-174T-WL-MTE	Wall mount kits for PPC series
PPC-ARM-A03	PPC ARM VESA stand
PPC-174 Stand	Stand kit for PPC-174
1702002605	Power cord 2P FRANCE 10A/16A 220V 1.83M 90D
1702002600	Power Cord 3P UL/CSA(USA) 125V 10A 1.83M 180D

I/O Placement

J   I   H   G

A B C D   E F

A. AC Power Input
B. USB ports
C. COM Ports
D. VGA and DVI Ports
E. USB Ports
F. Audio Line-out/MIC
G. Riser Card Expansion
H. LAN Ports
I. COM Ports
J. Power Switch

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

PPC-8150

15" Panel PC with Intel® Core™ i3 / i5 Processor

NEW

Features

- 15" TFT LED Panel,resolution up to 1024 x 768
- Built-in Intel® Core™ i3, i5 desktop processor (LGA) with Intel H61 chipset
- Two 204 PIN DDR3 SO-DIMM,DDR3 1066/1333/1600MHz SDRAM, up to 8 GB/4 GB per SO-DIMM
- Support one expansion PCIe x 4 slot installed Replaceable with PCI riser accessory
- Supports 6 USB, 6 COMs, 1 x GPIO, 8 bits (Internal pin header)
- Support 1 x 2.5" SATA bay
- Support AC 100~240V input
- Supports iManager, SUSIAccess and Embedded Software APIs

Windows 7 iManager SUSIAccess RoHS Windows Embedded CCC cULus CE FC ⊖

Introduction

PPC-8150 is a Panel PC with an Intel® Core™ i3, i5 desktop processor, and a 15" color TFT LCD panel. It features extremely high computing power and performance, excellent connectivity, and good expansion ability. In addition, its rich variety of IO support makes it easy to operate for information applications, and provide a great solution for a wide-range of industrial applications.

Specifications

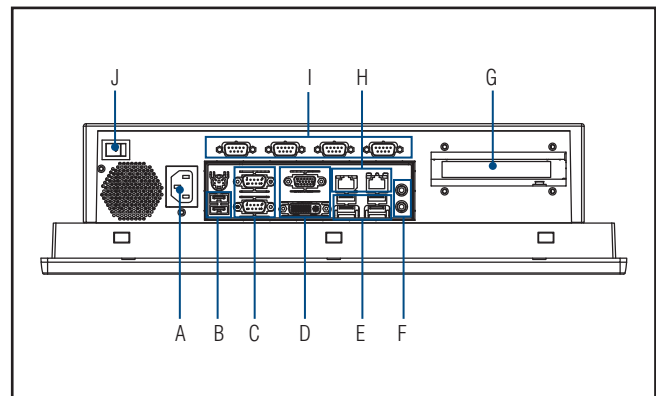|			
Processor System	CPU	Core i3-3220	Core i5-3550S
	Frequency	3.3GHz	3.7 GHz
	L3 Cache	3 MB	6 MB
	Chipset	H61	
	Memory	2 x 204 PIN DDR3 SO-DIMM,DDR3 1066/1333/1600MHz SDRAM, up to 8 GB/4 GB per SO-DIMM	
	Storage	1 x 2.5" SATA bay	
	Network (LAN)	2 x Gigabit Gigabit Ethernet connectors (RTL8111E)	
	I/O ports	■ 6 COMs, 1 x RS-232/422/485, 5 x RS-232 ■ 6 x USB2.0 ■ 1 x VGA, 1 x DVI ■ 1 x GPIO, 8 bits (Internal pin header) ■ 2 x Ethernet ■ 1 x Mic-in, 1 x Line-out ■ 1 x PS/2 ■ 2 x 1.5W speaker	
	Expansion slot	■ One PCIe x 4 (pre-installed) ■ One PCI (in the accessory box)	
	Additional Expansion	1 x Mini PCIe	
	Fan	1 x 12V 80 x 80 x 15 mm	
Physical Characteristics	Dimensions	395.5 x 316.8 x 110.5 (mm) (15.6" x 12.5" x 4.35")	
	Weight	6.98 KG	
Supported Operating Systems	OS's	Win XP Pro / Windows 7 32 & 64 bit	
Power Supply	Output Rating	180 W	
	Input Voltage	100 - 240 V_{AC}	
	Power consumption	With Core i3-3220 is 71W With Core i5-3550s is 86W (Burn-in test 7.0 in Windows 7 32-bit)	
LCD Display	Display Type	15" TFT LED Panel	
	Max. Resolution	1024 x 768	
	Colors	262 K	
	Dot Size (mm)	0.297(H) x 0.297(W)	
	Viewing Angle	80 (left), 80 (right), 70 (up), 70 (down)	
	Luminance	400	
	Contrast Ratio	700	
	Backlight Lifetime	50,000 hrs	

ADVANTECH | **Panel PCs**

Dimensions

Unit: mm

379.4
23.5
12.0
110.5
395.5
300.5
254.5
316.8
381.0
302.0
CUT Out
148.3
160.8
100
100
75.0
75.0
86.8
99.3

Touchscreen	Touch Type	Analog Resistive 5-wire
	Resolution	2048 x 2048
	Light Transmission	80% +/- 3%
	Controller	USB Interface
	Software Driver Support	Windows 7, XP
	Durability (Touches)	36 Million
Environment	Operating Temperature	0 ~ 50°C (32 ~ 122°F)
	Storage Temperature	- 20 ~ 60°C (-4 ~ 140°F)
	Relative Humidity	10 ~ 95% @ 40°C (non-condensing)
	Shock	Operating 10 G peak acceleration (11 ms duration), follows IEC 60068-2-27
	Vibration	Operating Random Vibration Test 5~500Hz, 1Grms, follows IEC 60068-2-64
	EMC	CE, FCC Class A, BSMI
	Safety	CB, UL, CCC, BSMI
	Front Panel Protection	IP65 Compliant

Ordering Information

Part No	Description
PPC-8150-RI3AE	15" XGA Panel PC w/Intel Core i i3-3220, 5-Wire Touch, 6 COM, 6 USB, 2 LAN, 1 x PCIe or 1 x PCI expansion
PPC-8150-RI5AE	15" XGA Panel PC w/Intel Core i i5-3550S, 5-Wire Touch, 6 COM, 6 USB, 2 LAN, 1 x PCIe or 1 x PCI expansion
PPC-WLAN-A2E	Wi-Fi Module with Antenna Cable 40cm for PPC
PPC-174T-WL-MTE	Wall mount kits for PPC series
PPC-ARM-A03	PPC ARM VESA stand
PPC-174 Stand	Stand kit for PPC-174 series
1702002605	Power cord 2P FRANCE 10A/16A 220V 1.83M 90D
1702002600	Power Cord 3P UL/CSA(USA) 125V 10A 1.83M 180D

I/O Placement

J I H G
A B C D E F

A. AC Power Input
B. USB ports
C. COM Ports
D. VGA and DVI Ports
E. USB Ports
F. Audio Line-out/MIC
G. Riser Card Expansion
H. LAN Ports
I. COM Ports
J. Power Switch

1
WebAccess+ Solutions

2
Motion Control

3
Power & Energy Automation

4
Automation Software

5
Intelligent Operator Panel

6
Automation Panels

7
Panel PCs

8
Industrial Wireless Solutions

9
Industrial Ethernet Solutions

10
Industrial Gateway Solutions

11
Serial communication cards

12
Embedded Automation PCs

13
DIN-Rail IPCs

14
CompactPCI Systems

15
IoT Wireless I/O Modules

16
IoT Ethernet I/O Modules

17
RS-485 I/O Modules

18
Data Acquisition Boards

Installation Accessories

PPC-STAND-A1E

Dimension   Unit:mm

PPC-ARM-A03

Dimension   Unit:mm
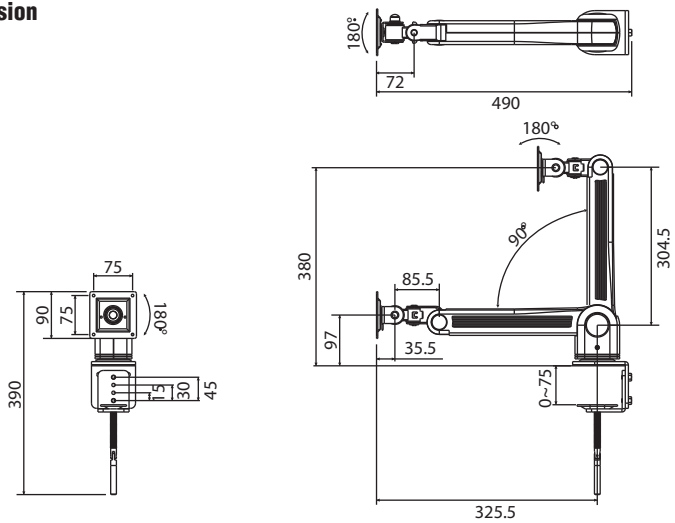
PPC-174T-WL-MTE

Dimension   Unit:mm

8

Industrial Wireless Solutions

To view all of Advantech's Industrial Ethernet Solutions, please visit www.advantech.com/products.
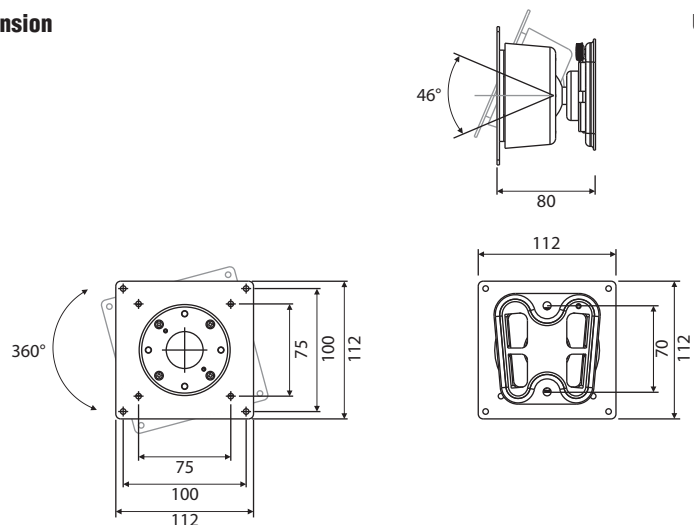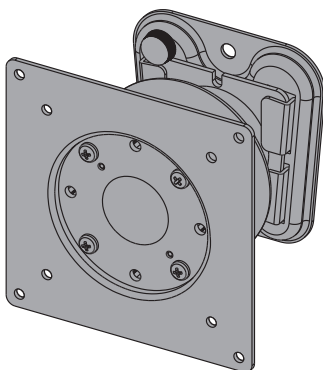
Industrial Wireless Product Selection Guide

Cellular IP Router/Gateway

Model Name		EKI-1321	EKI-1322	EKI-1331	EKI-1334
Descripton		1-Port RS-232/422/485 to GPRS IP Gateway	2-Port RS-232/422/485 to GPRS IP Gateway	1-Port RS-232/485 & Ethernet to GPRS/HSPA+ IP Gateway	4-Port HSPA+ IP Router
Cellular Interface	Standard	GSM/GPRS	GSM/GPRS	GS/GPRS/UMTS/HSPA+	GS/GPRS/UMTS/HSPA+
	Band Option	850/900/1800/1900 MHz	850/900/1800/1900 MHz	850/900/1800/1900/2100 MHz	850/900/1800/1900/2100 MHz
	Connector	SMA female	SMA female	SMA female	SMA female
SIM	No.	2	2	1	1
	Control	3V	3V	3V	3V
Ethernet WAN	No.	-	-	-	1
	Connector	-	-	-	RJ45
	Speed	-	-	-	10/100 Mbps
	Protection	-	-	-	1.5 KV built-in magnetic isolation protection
Ethernet LAN	No.	1	1	1	4
	Connector	RJ45	RJ45	RJ45	RJ45
	Speed	10/100 Mbps	10/100 Mbps	10/100 Mbps	10/100 Mbps
	Protection	1.5 KV built-in magnetic isolation protection	1.5 KV built-in magnetic isolation protection	1.5 KV built-in magnetic isolation protection	1.5 KV built-in magnetic isolation protection
Serial Communication	Type	RS-232/422/485	RS-232/422/485	RS-232/485	RS-232
	Baud Rate	50 bps ~ 921.6 kbps, any baud rate setting	50 bps ~ 921.6 kbps, any baud rate setting	9600 bps ~ 232.4 kbps	9600 bps ~ 232.4 kbps
	No. of Ports	1	2	1	1
	Port Connector	DB9 Male	DB9 Male	Terminal Block	DB9 Male
	Protection	15 KV ESD for all signals	15 KV ESD for all signals	15 KV ESD for all signals	15 KV ESD for all signals
Software	Gateway/Router	Gateway	Gateway	Gateway	Router
	Configuration	Windows utility, Telnet console, Web Browser	Windows utility, Telnet console, Web Browser	Telnet console, Web Browser	Telnet console, Web Browser
	Operation mode	VCOM, RVCOM, TCP Server/Client, UDP Server/Client, SMS Tunnel	VCOM, RVCOM, TCP Server/Client, UDP Server/Client, SMS Tunnel	TCP Server/Client, UDP Server/Client, Modbus RTU to Modbus TCP	TCP Server/Client, UDP Server/Client, Modbus RTU to Modbus TCP
Power	Power Input Range	12 - 48 V_{DC}	12 - 48 V_{DC}	12 - 24 V_{DC}	12 - 24 V_{DC}
	Redundant DC Power Input	V	V	-	-
Mechanism	DIN-Rail Mount	V	V	V	V
	Wall Mount	V	V	V	V
	IP Grade	IP30	IP30	IP30	IP30
Operating Temperature	-30 ~ 65°C (-22 ~ 149°F)	V	V	-	-
	-20 ~ 70°C (-5 ~ 160°F)	-	-	V	V
Certification	CE	V	V	V	V
	FCC	V	V	V	V
	GCF	-	-	V	-
	PCTRB	-	-	V	-
Page		8-6	8-6	online	8-7

Wireless Access Point/Client

Model Name		EKI-6310GN	EKI-6311GN	EKI-6331AN	EKI-6340-1	EKI-6340-2	EKI-6340-3	EKI-6351-A
Description		IEEE802.11 b/g/n WiFi AP/Client	IEEE 802.11 b/g/n Wi-Fi AP/Client	IEEE 802.11 a/n Wi-Fi AP/Client	IEEE 802.11 a/b/g/n Outdoor Single-Radio Wi-Fi AP	IEEE 802.11 a/b/g/n Outdoor Dual-Radio Wi-Fi AP	IEEE 802.11 a/b/g/n Outdoor Triple-Radio Wi-Fi AP	IEEE 802.11 a/b/g/n Wi-F AP/Client
Interface	IEEE Standard	802.11b/g/n	802.11b/g/n	802.11a/n	802.11 a/b/g/n	802.11 a/b/g/n	802.11 a/b/g/n	802.11 a/b/g/n
	100Base-TX	v	v	v	v	v	v	v
	1000Base-TX	-	-	-	v	v	v	v
	Radio Number	1	1	1	1	2	3	1
RF	MIMO	1T1R	1T1R	2T2R	2T2R	2T2R	2T2R	2T2R
	Transmit Output Power	*	*	*	*	*	*	*
	Receive Sensitivity	*	*	*	*	*	*	*
Operating Mode	Multi-Hopping	-	-	-	v	v	v	v
	AP/CPE	v	v	v	v	v	v	v
Power	PoE	802.3af	Passive 12 V	Passive 15 V	802.3at	802.3at	802.3at	802.3at
	Power Input Votage	-	12 V$_{DC}$	15 V$_{DC}$	12 ~ 48 V$_{DC}$			
	Redundant DC Power Input	-	-	-	v	v	v	v
Mechanism	DIN-rail Mount	v	-	-	-	-	-	v
	Wall Mount	-	-	-	v	v	v	v
	VESA Mount	-	-	-	v	v	v	-
	Pole Mount	v	v	v	v	v	v	-
	IP Grade	IP66	IP55	IP55	IP67	IP67	IP67	IP30
Operating Temperature	-20 ~ 70°C (-4 ~ 158°F)	v	v	v	-	-	-	-
	-35 ~ 75°C (-31 ~ 167°F)	-	-	-	v	v	v	v
Certification	FCC	v	v	v	v	v	v	v
	CE	v	v	v	v	v	v	v
	EN50155	-	-	-	v	v	v	v
Page		8-12	8-11	8-10	8-8	8-8	8-8	8-9

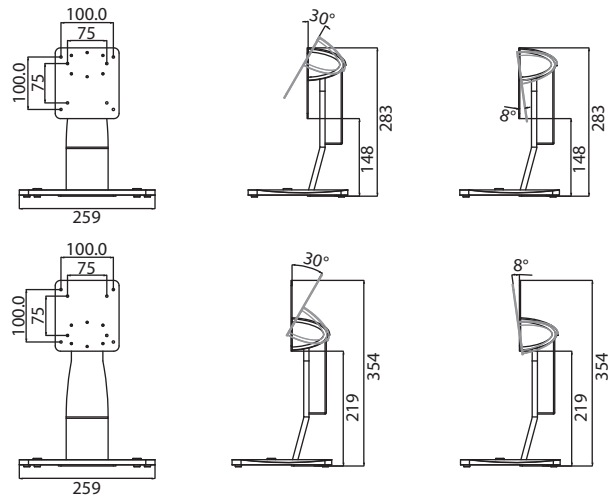*Note: Transmit Output Power & Receive Sensitivity are specified on data sheet.

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

Introduction

Introduction to Industrial IEEE 802.11 Wireless

In the past, Wireless deployment has been limited by security concerns, the cost of deployment, inadequate management solutions, lack of standards, and availability of innovative solutions. Rapid advances in wireless local area network (WLAN) technology in recent years, along with the widespread adoption of the technology in the industrial and enterprise space, have eliminated many of these roadblocks. WLAN is not a wholesale replacement for broadband, but it is a fast and cost-effective way to construct backhaul broadband transmissions. Wireless communication provides an easier way to connect devices, particularly those in dispersed locations or harsh environments. Today, a new wave of opportunity exists for industrial industries to improve margins through the use of wireless technology.
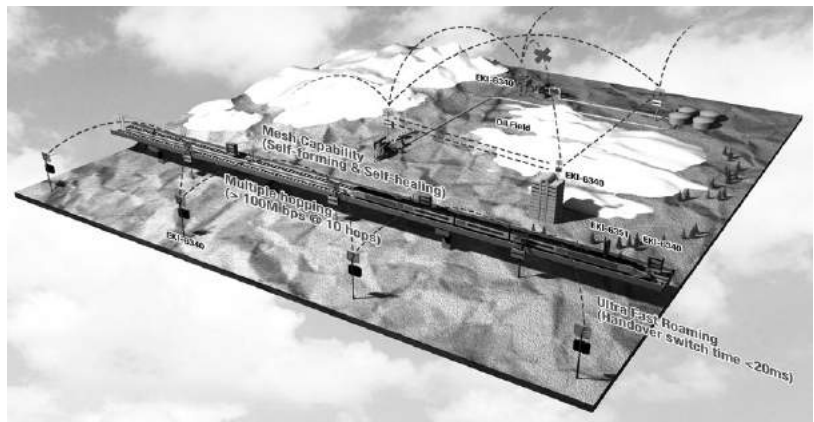
802.11 Standard Evolution

The IEEE 802.11 standard specifies a way to use radio frequency (RF) technology to send Ethernet packets over the air. Wireless LAN is based on the IEEE 802.11 standard and is referred to as Wi-Fi. The 802.11b standard, which operates in the 2.4 GHz frequency band at 11 Mbps, was the first commercially successful WLAN technology.

As wireless technology evolved, a higher transmission rate of 54 Mbps was achieved with 802.11g, which uses the 2.4 GHz band, and 802.11a, which uses the 5 GHz frequency band with same transmission rate of 54 Mbps. To extend the wireless communication distance and bandwidth, IEEE 802.11n has added more specifications in the MIMO standard and dual-band support. The transmission rate of 802.11n is up to 600Mbps. 802.11n offers a suite of advanced new features that increase effective data throughput, extended wireless coverage, and creates more reliable networks. Choosing the right WLAN technology is an important factor in determining the performance of your wireless network and overall return on investment.

	802.11a	802.11b	802.11g	802.11n
Channels	23 (24)	11	11	11 & 23
Antennas	1	1	1	1 ~ 4

802.11 1997 1997
2 Mbps

802.11a 2000
11 Mbps

802.11b 1999
54 Mbps, 5GHz, OFDM

802.11g 2003
54 Mbps, 2.4 GHz, OFDM

4 x 4 MIMO **802.11n** 2007
600 Mbps, MIMO, 2.4 or 5 GHz

8 x 8 MIMO **802.11ac** 2012
3.2 Gbps, 5GHz

802.11p 2010
27 Mbps, 5.8 GHz

Wireless Access for Vehicle Environment

802.11ad 2012
Up to 7 Gbps, 60GHz

802.11af 2013
TVWS   **TV White Spaces**

Wireless Gigabit [WiGig]

Wireless Architecture

AP-Client mode

The EKI-6300 series of products can perform as Access Points (AP) or Clients. When it's used as an AP, it's connected to a wired network via the Ethernet port and accepted connections from wireless clients and passes data upwards to a network wirelessly. In Client mode, it receives a wireless signal over last mile application, helping WISPs deliver wireless broadband Internet service to residents and business customers. In Client mode, it does not accept wireless associations from wireless clients.

WDS mode

A Wireless Distribution System (WDS) provides an easy way for APs to communicate wirelessly with each other. In this mode, it can support single or multiple WDS links and no wireless clients can be associated with it.

AP-Repeater mode

EKI-6300 series products can be used as a Clients to receive wireless signals over the last mile, helping WISPs deliver wireless broadband Internet service to new residential and business customers. And it can be used as an AP to accept wireless connections from client devices in this mode.

Cellular IP Gateway Technologies

RVCOM

iGateway series supports Advantech patented RVCOM function that allows user use the virtual com port as usual, even the device gets a private IP address.

DDNS Support

DDNS support helps user to locate the exactly current IP address of device easily. Device will automatically update current IP address to DDNS server. When using DDNS with VCOM or RVCOM, users don't need to do the lookup manually after setup. The connection will handle VCOM or RVCOM automatically.
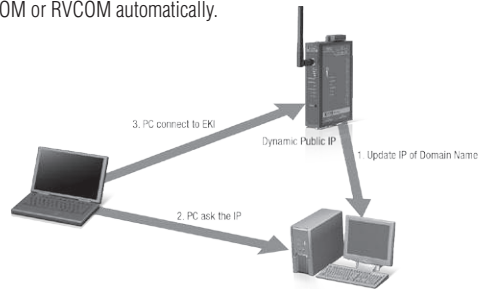
OpenVPN Support

iGateway series supports standard OpenVPN protocol that provide trustable data communication. Users can setup private OpenVPN server easily without an extra software license fee.
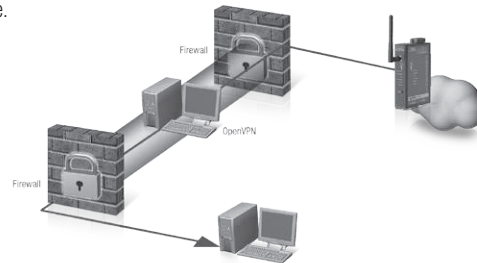
IPv6 and IPv4 Dual Stack Support

IPv6 is becoming more popular and the iGateway series supports IPv6 and IPv4 dual protocol stack that helps user to overcome the impact of Ethernet architecture transition smoothly and easily.
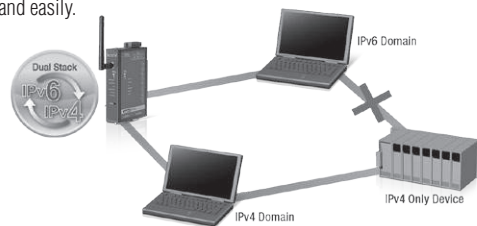
iGateway Application for Solar Power

Advantech's GPRS/3G Serial Device Servers are a perfect fit for wireless data transmission systems due to their great performance, reliability and ruggedness. The GPRS/3G Serial Device Servers collect data from solar panels & inverters, pyranometers, and relative sensors. This information is transmitted through cellular data network to the telecom control center. Service providers and users are able to easily access real-time information anywhere, anytime. The GPRS/3G Serial Device Servers provide dual SIM slots for telecom carrier redundancy and one SD slot for serial data buffering.
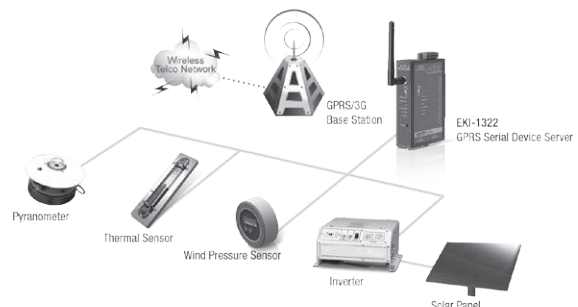
EKI-1321
EKI-1322

1-port RS-232/422/485 to GPRS IP Gateway
2-port RS-232/422/485 to GPRS IP Gateway

NEW

| EKI-1321 | EKI-1322 |

Features

- Universal quad-band GSM/GPRS 850/900/1800/1900 MHz
- Dual SIM for telecom redundancy
- Supports SDHC SD Card for Data Buffering
- Connects Ethernet and Serial Devices over VPN
- Various operation modes: COM port redirector, RVCOM, TCP, UDP, SMS tunnel, and pair connection
- Any baud rate setting for easy configuration
- Built-in 15 KV ESD protection for all serial signals
- 1.5 KV isolation protection (EKI-1321)
- 2 digital inputs (EKI-1321)
- Multiple configuration methods: Windows utility, Telnet, and Web console

Introduction

EKI-1321 and EKI-1322 cellular gateways can transparently bring RS-232/422/485 or Ethernet devices to a cellular network. They allow nearly any device with serial or Ethernet ports to connect and share a cellular network with easy and simple configuration. EKI-1321 and EKI-1322 GPRS IP Gateway's are compact, and can be DIN-rail or wall mounted and with both front panel and side panel LED displays for easy identification. They come with dual DC power input from 12 to 48 V$_{DC}$ and have 2 KV EFT/Surge protection to prevent damage from various type of power resources. The serial ports are also protected by 15 KV ESD line protection to keep your system safe from unexpected electrical discharges. Both models support dual SIM slots to support GPRS signal redundancy to switch to an available channel automatically while the existing one is disconnected, and SD card slot for data buffering to prevent loss of serial data while the communication is interrupted.

Specifications

LAN Interface

Ethernet	10/100 Mbps, auto MDI/MDIX
Connector	RJ45
Protection	1.5 KV built-in magnetic isolation protection

Cellular Interface

Standards	GSM/GPRS
Band Option	Quad-band 850/900 and 1800/1900 MHz
GPRS Multi-Slot	Class 10
GPRS Terminal Device	Class B
GPRS Coding Schemes	CS1 ~ CS4
Tx Power	1 W for GSM 1800/1900, 2 W for EGSM 850/900
No. of SIM	2
SIM Control	3 V

Serial Communications

Port Type	RS-232/422/485, software selectable
No. of Ports	EKI-1321: 1, 2 KV isolation protection
	EKI-1322: 2
Port Connector	DB9 male
Data Bits	5, 6, 7, 8
Stop Bits	1, 1.5, 2
Parity	None, Odd, Even, Space, Mark
Baud Rates	75 bps to 921.6 kbps, any baud rate setting
Serial Signals	RS-232: TxD, RxD, CTS, RTS, DTR, DSR, DCD, RI, GND
	RS-422: TxD+, TxD-, RxD+, RxD-, GND
	RS-485: Data+, Data-, GND
Protection	15 KV ESD for all signals

Relay Output

Channel	1
Contact Rating	0.5 A @ 120 V$_{AC}$
	0.25 A @ 240 V$_{AC}$; 2 A @ 30 V$_{DC}$
Relay off Time(Typ.)	4 ms
Relay on Time(Typ.)	3 ms

Digital Input (EKI-1321)

Channel	2
Input Level	Logic level 0: 1 V Maximum
	Logic level 1: 3 ~ 30 V

General

LED Indicators	System: Power, Status
	GPRS: Quality, ready
	Serial: Tx, Rx
	Ethernet: Speed, Link/Active
Reboot Trigger	Built-in WDT (watchdog timer)

Software

Driver Support	32-bit/64-bit Windows XP/Vista/7/8, Windows Server 2003/2008/2008 R2/2012, Windows CE 5.0, and Linux
Utility Software	Advantech EKI Device Configuration Utility
Operating Modes	Virtual COM, Reverse Virtual COM, TCP/UDP server mode, TCP/UDP client mode, Pair connection mode (Serial Tunnel), RFC2217, SMS Tunnel, IP Gateway w/ VPN
Configuration	Windows utility, Telnet console, Web Browser
Protocols	ARP, ICMP, IPv4, IPv6, TCP, UDP, BOOTP, DHCP Client, Auto IP, Telnet, DNS, SNMP, HTTP, HTTPS, SMTP, SNTP, SSL
Router/Firewall	NAT, port forwarding

Mechanics

Dimensions (W x H x D)	27 x 120 x 85 mm (1.06" x 4.72" x 3.35")
Enclosure	Metal with solid mounting hardware
Mounting	DIN-rail, Wall
Weight	0.49 Kg

Power Requirements

Power Input	12 ~ 48 V$_{DC}$, redundant dual inputs
Power Connector	Terminal block
Power Consumption	EKI-1321: 8W, EKI-1322: 8.5W
Power EFT/Surge Prot.	2 KV

Environment

Operating Temperature	-30 ~ 65°C (-22 ~ 149°F)
Storage Temperature	-40 ~ 75°C (-40 ~ 167°F)
Operating Humidity	5 ~ 95% RH

Regulatory Approvals

EMC	CE: EN55022/EN55024, Class A
	FCC: FCC part 15 subpart B, Class A
RF	FCC Part22H/Part24E, EN301 489-1, EN301 489-7, EN301 511

Ordering Information

EKI-1321	1-port GPRS IP Gateway
EKI-1322	2-port GPRS IP Gateway
OPT1-DB9	D-Sub 9 to Terminal Converter

EKI-1334

Industrial Ethernet/Serial Router

NEW

Features

- Universal five-band UMTS/HSPA+ 850/900/1800/1900/2100 MHz
- Universal quad-band GSM/GPRS 850/900/1800/1900 MHz
- Connect Ethernet and Serial Devices over VPN
- Dual WAN (Ethernet WAN and Cellular WAN) for redundancy
- Built-in 15 KV ESD protection for all serial signals
- Multiple configuration methods: Serial console, Telnet, and Web console

5 Year Warranty · RoHS COMPLIANT 2002/95/EC · CE · FCC

Introduction

The EKI-1334 is a compact designed industrial cellular routers which can help users quickly access high-speed Internet and support secure and reliable data transmission. The products combine together with the functions of switch, serial device server, 3G Router, IP modem and Advanced VPN client and provide with high cost-effective solution for applications in industrial automation and control, fleet monitoring, video surveillance, advertising media, and outlets networking. They allow nearly any device with serial or Ethernet ports to connect and share a cellular network with easy and simple configuration through the browser without connection to the router by cable. EKI-1334 HSPA+ IP Router is compact, and can be DIN-rail or wall mounted for easy identification. They come with dual DC power input from 9 to 26 V_{DC} and have 2 KV EFT/Surge protection to prevent damage from various type of power resources. The serial/Ethernet ports are also protected by 15 KV ESD line protection to keep your system safe from unexpected electrical discharges and enable the capability to work under harsh conditions.

Specifications

LAN Interface
- **Ethernet** — 10/100 Mbps, auto MDI/MDIX
- **Connector** — RJ45
- **Protection** — 1.5 KV built-in magnetic isolation protection
- **No. of Port** — 4

Cellular Interface
- **Standards** — HSPA+/UMTS/GPRS/GSM
- **Band Option** — Quad-band 850/900 and 1800/1900/2100 MHz
- **No. of SIM** — 1
- **SIM Control** — 3 V
- **SMA Connector** — SMA Female with inner pin

Ethernet WAN Interface
- **Ethernet** — 10/100 Mbps, auto MDI/MDIX
- **Connector** — RJ45
- **Protection** — 1.5 KV built-in magnetic isolation protection
- **No. of Port** — 1

Serial Communications
- **Port Type** — RS-232/485
- **No. of Ports** — 1
- **Port Connector** — 5-pin Terminal block
- **Data Bits** — 5, 6, 7, 8
- **Stop Bits** — 1, 1.5, 2
- **Parity** — None, Odd, Even, Space, Mark
- **Baud Rates** — 9600 bps to 232.4 kbps
- **Serial Signals** — RS-232: TxD, RxD, CTS, RTS, DTR, DSR, DCD, RI, GND
  RS-485: Data+, Data-, GND
- **Protection** — 15 KV ESD for all signals

General
- **LED Indicators** — System: Power, Status, Warn, Error
  Cellular: Three Levels of Cellular Signal Strength
  Ethernet: Speed, Link/Active
- **Reboot Trigger** — Built-in WDT (watchdog timer)

Software
- **Operating Modes** — TCP/UDP server mode, TCP/UDP client mode, IP Router w/ VPN
- **Configuration** — Telnet console, Web Browser
- **Protocols** — ARP, ICMP, PPP, IPv4, TCP, UDP, BOOTP, DHCP Client, DHCP Server, Auto IP, SNMP, SNTP, SMTP, Ping, Trace, DNS Relay, DDNS, Telnet, HTTP, HTTPS, SSH, VRRP, VPN (IPSec/SSL/PPTP/L2TP/GRE/VPN)
- **Network Security** — SPI, DDoS protection, Stateless Packet Inspection, Filtering Multicast/Ping package, Access Control List (ACL), NAT, DMZ, Port mapping, NAT, PAT,

Mechanics
- **Dimensions (W x H x D)** — 113 x 45 x 133 mm (4.45" x 1.8" x 5.24")
- **Enclosure** — Metal with solid mounting hardware
- **Mounting** — DIN-rail, Wall
- **Weight** — 0.34 Kg

Power Requirements
- **Power Input** — 9 ~ 26 V_{DC}
- **Power Connector** — Terminal block
- **Power Consumption** — 3.48W
- **Power EFT/Surge Prot.** — 2 KV

Environment
- **Operating Temperature** — -20 ~ 70°C (-5 ~ 160°F)
- **Storage Temperature** — -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** — 5 ~ 95% RH

Regulatory Approvals
- **EMC** — EN61000-4-2, level 2; EN61000-4-3, level 2
  EN61000-4-4, level 2; EN61000-4-5, level 2
  EN61000-4-6, level 2; EN61000-4-12, level 2
- **Shock** — IEC60068-2-27
- **Free Fall** — IEC60068-2-32
- **Vibration** — IEC60068-2-6

Ordering Information
- **EKI-1334** — Industrial HSPA+ IP Router

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

EKI-6340 Series
IEEE 802.11 a/b/g/n Outdoor Wi-Fi AP

| EKI-6340-1 | EKI-6340-2 | EKI-6340-3 |

Features

- High throughput multiple hopping (≥100 Mbps @10 hops)
- Ease of use installation utilities: antenna alignment, distance calculation and site survey tools
- Compliant with IEEE 802.11 a/b/g/n
- Up to 3 radios for Mesh back haul and Access Point
- MIMO 2 x 2, up to 300 Mbps data rate
- Dual 12 ~ 48 V redundant DC input power
- 802.3 at PoE input
- Gigabit Ethernet support
- WEP, WPA, WPA2-PSK/EAP (IEEE 802.1X/RADIUS, TKIP and AES)
- IP67 enclosure, wide operating temperature range
- EN50155 compliant

Introduction

The EKI-6340 series are perfect wireless APs for outdoor deployment. With self-healing & self-forming capabilities, the wireless network is free from interruption even part of Mesh nodes failed. It's especially critical for infrastructures where wired solutions are hard to deploy. The low latency and high throughput multiple hopping features greatly enables the extension of network coverage. This high throughput network perfectly covers the growing number of data demands such as video security, surveillance and entertainment. Comprehensive security features prevent system from intrusion. IP67 sturdy waterproof enclosure with wide-temperature design enables excellent performances under all harsh outdoor environments.

Specifications

Standard Support

- **Wireless** — IEEE 802.11a/b/g/n compliant
- **Ethernet** — IEEE 802.11i, IEEE 802.3/802.3u/802.3ab, IEEE 802.3at PoE, 802.1d, 802.1w, 802.1q, 802.1p
- **Data Rates** — IEEE 802.11b: 1, 2, 5.5, 11 Mbps
  IEEE 802.11a, g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
  IEEE 802.11n: @ 800ns (400ns) GI
  20 MHz BW
  1 Nss: 65 (72.2) Mbps maximal
  2 Nss: 130 (144.4) Mbps maximal
  40 MHz BW
  1 Nss: 135 (150) Mbps maximal
  2 Nss: 270 (300) Mbps maximal

Physical Specifications

- **Power** — Dual redundant 12 ~ 48 V_{DC}
  IEEE 802.3at PoE
- **Power Consumption** — Normal operation:
  EKI-6340-1   Max. 17 W
  EKI-6340-2   Max. 21W
  EKI-6340-3   Max. 25 W
  Cold start:
  EKI-6340-1   Max. 13W
  EKI-6340-2/3 Max. 25 W
- **Dimensions (W x H x D)** — 225 x 242 x 65 (8.86" x 9.53" x 2.56")
- **Weight** — 2.25 Kg
- **Enclosure** — Metal, IP67 protection
- **Mounting** — Pole, Wall, VESA

Environment

- **Operating Temperature** — -35 ~ 75°C (-31 ~ 167°F)
- **Storage Temperature** — -40 ~ 85°C (-40 ~ 185°F)
- **Ambient Relative Humidity** — 5% ~ 100% (non-condensing)

Interface

- **Antenna** — N-type female connector
  EKI-6340-1: 2 connectors
  EKI-6340-2: 4 connectors
  EKI-6340-3: 6 connectors
- **Power** — M12 D-code connector
- **LAN** — M25 cable gland

System Operation Mode

- Bridge/ Router

Other Features

- DHCP Client/Server, Statistic routing table, RIP v1&v2, WMM, Multi-SSID (up to 16x ESSID for each radio), traffic limitation, IEEE 802.11h DFS, Syslog, L2 management utility, HTTP (s), Telnet, SSH, CLI, SNMP, installation utilities.

Modulation Techniques

- **IEEE 802.11a/n** — OFDM (BPSK, QPSK, 16-QAM, 64-QAM)
- **IEEE 802.11b** — DSSS (DBPSK, DQPSK, CCK)
- **IEEE 802.11g/n** — OFDM (BPSK, QPSK, 16-QAM, 64-QAM)

Frequency Range

- **USA** — 2.400 ~ 2.483 GHz, 5.725 ~ 5.825 GHz
- **Europe** — 2.400 ~ 2.483 GHz, 5.15 ~ 5.35 GHz, 5.47 ~ 5.725 GHz
- **China** — 2.400 ~ 2.483 GHz, 5.725 ~5.85 GHz

Note: radio is capable to be operated within FCC DFS2 band or ETSI/EC DFS band, or other countries which is regulating or is planning to regulate mid -5 GHz band. The usage of mid -5 GHz band is subject to the regulatory approval status.

Certificates

- **EMC** — US FCC Part 15 Class B & C & E, Europe ETSI 301 489-1&17
- **Radio** — ETSI 300 328, ETSI 301 893, FCC 15.247
- **Rail Traffic** — EN50155, EN50121-1/-4
- **Safety** — EN 60950

Ordering Information

- **EKI-6340-1A** — 802.11 a/b/g/n Outdoor Single Radio AP
- **EKI-6340-2A** — 802.11 a/b/g/n Outdoor Dual Radio AP
- **EKI-6340-3A** — 802.11 a/b/g/n Outdoor Triple Radio AP
- **EKI-6340-1U** — 802.11 a/b/g/n Outdoor Single Radio AP (EU)
- **EKI-6340-2U** — 802.11 a/b/g/n Outdoor Dual Radio AP (EU)
- **EKI-6340-3U** — 802.11 a/b/g/n Outdoor Triple Radio AP (EU)

ADVANTECH   **Industrial Wireless Solutions**

EKI-6351-A

IEEE 802.11 a/b/g/n Wi-Fi AP/Client

Features

Unique features of EKI-6351-A

- Highly secured self-healing & self-forming Mesh capability

Common features:

- Ease of use installation utilities: antenna alignment, distance calculation and site survey tools
- Compliant with IEEE 802.11a/b/g/n
- MIMO 2 x 2 11n, up to 300 Mbps data rate
- Dual 12 ~ 48 V redundant DC input power
- 802.3at PoE input
- Gigabit Ethernet support
- WEP, WPA, WPA2-PSK/EAP (IEEE 802.1X/RADIUS, TKIP and AES)
- Wide operating temperature range from -35 to 75°C
- EN50155 compliant

Introduction

The EKI-6351-A are perfect wireless AP/Clients for deployment in many locations. This high throughput network covers the increasing data demands of applications such as video security, surveillance and entertainment. Comprehensive security features prevent the system from intrusion whilst the wide operating temperature range enables excellent performances in harsh environments.

Specifications

Standard Support

- **Wireless**   IEEE 802.11a/b/g/n compliant
- **Ethernet**   IEEE 802.11i, IEEE 802.3/802.3u/802.3ab, IEEE 802.3at PoE, 802.1d, 802.1w, 802.1q, 802.1p
- **Data Rates**   802.11b: 1, 2, 5.5, 11 Mbps
                        802.11a, g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
                        Passive 15 V PoE, max. distance: 20 meters
                        IEEE 802.11n: @ 800ns (400ns) GI
                        20 MHz BW
                        1 Nss: maximal
                        2 Nss: 130 (144.4) Mbps maximal
                        40 MHz BW
                        1 Nss: 135 (150) Mbps maximal
                        2 Nss: 270 (300) Mbps maximal

Physical Specifications

- **Power**   Dual redundant 12 ~ 48 V_{DC}
                        IEEE 803.2at PoE
- **Power Consumption** Normal operation: Max. 17 W
                        Cold start: Max. 13W
- **Dimensions (W x H x D)** 37 x 140 x 95 mm (1.46" x 5.51" x 3.74")
- **Weight**   0.63 Kg
- **Enclosure**   Metal, IP30 protection
- **Mounting**   DIN-rail, Wall

Environment

- **Operating Temperature** -35 ~ 75°C (-31 ~ 167°F)
- **Storage Temperature**   -40 ~ 85°C (-40 ~ 185°F)
- **Ambient Relative Humidity** 5% ~ 100% (non-condensing)

Interface

- **Antenna**   2 x RSMA connector
- **Power**   Terminal block
- **LAN**   RJ45

System Operation Mode

- EKI-6351-A - Bridge/Router/Mesh

Other Features

- DHCP Client/Server*, Statistic routing table*, RIP v1&v2*, WMM, Multi-SSID (up to 16x ESSID for each radio), traffic limitation, IEEE 802.11h DFS, Syslog,L2 management utility, HTTP (s), Telnet, SSH, CLI, SNMP, installation utilities.

Modulation Techniques

- **IEEE 802.11a/n**   OFDM (BPSK, QPSK, 16-QAM, 64-QAM)
- **IEEE 802.11b**   DSSS (DBPSK, DQPSK, CCK)
- **IEEE 802.11g/n**   OFDM (BPSK, QPSK, 16-QAM, 64-QAM)

Frequency Range

- **USA**   2.400 ~ 2.483 GHz, 5.15 ~ 5.25GHz, 5.725 ~ 5.825 GHz
- **Europe**   2.400 ~ 2.483 GHz, 5.15 ~ 5.35 GHz, 5.47 ~ 5.725 GHz
- **China**   2.400 ~ 2.483 GHz, 5.725 ~5.85 GHz

Note: radio is capable to be operated within FCC DFS2 band or ETSI/EC DFS band, or other countries which is regulating or is planning to regulate mid -5 GHz band. The usage of mid -5 GHz band is subject to the regulatory approval status.

Certificates

- **EMC**   US FCC Part 15 Class B & C & E, Europe ETSI 301 489-1&17
- **Radio**   ETSI 300 328, ETSI 301 893, FCC 15.247
- **Rail Traffic** EN50155, EN50121-1/-4
- **Safety**   EN 60950

Ordering Information

- **EKI-6351-A**   802.11 a/b/g/n Wi-Fi AP/Client
- **EKI-6351-U**   802.11 a/b/g/n Wi-Fi AP/Client (EU)

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

EKI-6331AN

IEEE 802.11 a/n Wi-Fi AP/Client

Features

- Compliant with IEEE 802.11 a/n
- IP55 waterproof certification
- MIMO 2 x 2 11n
- Embedded 16 dBi dual-polarity directional antenna with external R-SMA connector for optional antenna
- High output power 24 dBm
- Passive 15 V PoE
- Supports distances up to 10 km
- WEP/WPA/WPA2/ IEEE 802.1 x authentication support
- IGMP snooping protocol support

Introduction

The EKI-6331AN is a feature rich wireless AP/Client which provides a reliable 5GHz wireless connectivity for industrial environments. The PoE injector enhances flexibility in deployment of this AP/Client even where the DC power supply is hard to fulfill. As an 802.11n compliant device, EKI-6331AN provides 3 times higher data rates than legacy 802.11a devices. With MIMO 2 x 2 technology, EKI-6331AN provides both robust wireless connectivity as well as high throughput rate in wireless transmission. With the support of WMM and IGMP snooping protocols, EKI-6331AN effectively improves the reliability of wireless connectivity, especially in applications that need high reliability and high throughput data transmission. To secure wireless connections, EKI-6331AN implements the latest encryption technologies including WPA2/WPA/802.1x for powerful security authentication.

Specifications

Standard Support

- **Wireless** — IEEE 802.11 a/n
- **Ethernet** — IEEE 802.3u MDI / MDIX 10/100 Fast Ethernet
- **LAN** — IEEE 802.11a wireless LAN interface
  IEEE 802.11n wireless LAN standard
  Passive 15 V PoE
- **Certification** — US FCC Part 15
  ETSI 301 489-1&17,
  EN 60950 compliant and CE Mark
  EN 301 893 (5470-5725MHz DFS)
  EN 302 502 (5725-5850 MHz DFS)
- **Data Rates** — IEEE 802.11a: 54, 48, 36, 24, 18, 12, 9, 6 Mbps, auto-fallback
  IEEE 802.11n: 6 M, 6.5 M, 13 M, 13.5 M, 19.5 M, 26 M, 27 M, 39 M, 40.5 M, 53 M, 54 M, 58.5 M, 65 M, 78 M, 81 M, 104 M, 108 M, 117 M, 121.5 M, 130 M, 135 M, 150 Mbps, up to 300 Mbps

Physical Specifications

- **Power** — 15 V_{DC} @ 0.8A; AC Adapter 100 V ~ 240 V
- **Dimensions (W x H x D)** — 111 x 256 x 48 mm (4.37" x 10.08" x 1.89")
- **Mounting** — Wall, Pole
- **Weight** — 0.5 Kg

Environment

- **Operating Temp.** — -20 ~ 70°C (-4 ~ 158°F)
- **Storage Temperature** — -30 ~ 80°C (-22 ~ 176°F)
- **Humidity** — 5% ~ 95% non-condensing

Interface Operation Modes

- Access Point (AP) / Client

Antenna

- Antenna Configuration 2 x 2 (2T2R)
- Default embedded 14~16 dBi (Dual-polarity)
- Reverse SMA Connectors (configured by software)

Other Features

- **Management** — Telnet, FTP, SNMP, Web UI
- **Security** — Open System , Shared Key, 802.1X only, WPA, WPA2, WPA-PSK (TKIP)
- **Wireless** — Radio on/off, WMM/Regatta Mode, Output Power Control, Fragmentation Length, Beacon Interval, RTS/CTS threshold, DTIM Interval

Modulation Techniques

- **IEEE 802.11n** — OFDM (BPSK, QPSK, 16-QAM, 64-QAM)
- **IEEE 802.11a** — OFDM (BPSK, QPSK, 16-QAM, 64-QAM)

Channel Support

- **FCC** — 5725-5850 MHz
- **CE** — 5470-5725 MHz, 5725-5850 MHz

Wireless Transmission Rates

- **IEEE 802.11a** — 6-24 Mbps: 24 dBm
  54 Mbps: 21 dBm
- **IEEE 802.11n** — HT20 - MCS0: 23 dBm
  MCS15: 20 dBm
  HT40 - MCS0: 23 dBm
  MCS15: 19 dBm
- Note: bandedge exclusive (Controllable for different country regulations)

Receiver Sensitivity

- **IEEE 802.11a** — 54 Mbps: -76 dBm
- **IEEE 802.11n** — HT20 - MCS15: -70 dBm
  HT40 - MCS15: -66 dBm

Ordering Information

- **EKI-6331AN** — IEEE 802.11 a/n Wireless AP/Client
- **EKI-6331AN-EU** — IEEE 802.11 a/n Wireless AP/Client (EU)

ADVANTECH **Industrial Wireless Solutions**

EKI-6311GN

IEEE 802.11 b/g/n Wi-Fi AP/Client

1
WebAccess+ Solutions

2
Motion Control

3
Power & Energy
Automation

4
Automation Software

5
Intelligent Operator
Panel

6
Automation Panels

7
Panel PCs

8
Industrial Wireless
Solutions

9
Industrial Ethernet
Solutions

10
Industrial Gateway
Solutions

11
Serial communication
cards

12
Embedded Automation
PCs

13
DIN-Rail IPCs

14
CompactPCI Systems

15
IoT Wireless I/O
Modules

16
IoT Ethernet I/O
Modules

17
RS-485 I/O Modules

18
Data Acquisition
Boards

Features

- Compliant with IEEE 802.11 b/g/n
- IP55 waterproof certification
- Embedded 8 dBi directional antenna with external N-type connector for optional antenna
- High output power 26 dBm
- MIMO 1 x 1 11n
- Passive 15 V PoE
- Supports distances up to 5 km
- WPA/WPA2-Enterprise encryption for a highly secure wireless network
- WEP/WPA/WPA2/ IEEE 802.1 x authentication support
- Spanning Tree and IGMP snooping protocol support

Introduction

The EKI-6311GN is a feature rich wireless AP/Client which provides a reliable wireless connectivity for industrial environments. The PoE injector enhances flexibility in deployment of this AP/Client even where the DC power supply is hard to fulfill. As an 802.11n compliant device, EKI-6311GN provides 3 times higher data rates than legacy 802.11g devices. With the support of STP, WMM and IGMP snooping protocols, EKI-6311GN effectively improves the reliability of wireless connectivity, especially in applications that need high reliability and high throughput data transmission. To secure wireless connections, EKI-6311GN implements the latest encryption technologies including WPA2/WPA/802.1x for powerful security authentication.

Specifications

Standard Support

Wireless	IEEE 802.11b/g/n
Ethernet	IEEE 802.3u MDI / MDIX 10/100 Fast Ethernet
LAN	IEEE 802.11b/g wireless LAN interface
	IEEE 802.11n wireless LAN standard
	Passive 15 V PoE, max. distance: 20 meters
Certification	US FCC Part 15 Class B & C & E
	Europe ETSI 300 328, ETSI 301 489-1&17,
	EN 60950 compliant and CE Mark
Data Rates	802.11b 11, 5.5, 2, 1 Mbps, auto-fallback,
	802.11g 54, 48, 36, 24, 18, 12, 9, 6 Mbps,
	auto-fallback
IEEE 802.11n:	6 M, 6.5 M, 13 M, 13.5 M, 19.5 M, 26 M, 27 M, 39 M,
	40.5 M, 53 M, 54 M, 58.5 M, 65 M, 78 M, 81 M,
	104 M, 108 M, 117 M, 121.5 M, 130 M, 135 M,
	150 Mbps

Physical Specifications

Power	DC 15 V / 0.8A; AC Adapter 100 V ~ 240 V
Dimensions (W x H x D)	60 x 165 x 34 mm (2.36" x 6.50" x 1.34")
Mounting	Wall, Pole
Weight	0.5 Kg

Environment

Operating Temperature	Non Heater : -20 ~ 70°C (-4 ~ 158°F)
Storage Temperature	-30 ~ 80°C (-22 ~ 176°F)
Humidity	10% ~ 95% non-condensing

Interface Operation Modes

- Access Point (AP) / Client

Antenna

- Antenna Configuration 1x1 (1 Tx, 1 Rx)
- Default embedded 8 dBi directional antenna (Vertical-Pol)
- Reserve N-type Connector (Plug) *Switchable by software
- Equipped N-to-RSMA adaptor and 5dBi dipole antenna for indoor AP applications.

Other Features

- Telnet, FTP, SNMP, Password Changes, Firmware updates, Configuration Files
- Radio on/off, WMM/Regatta Mode, Output Power Control, Fragmentation Length, Beacon Interval
- RTS/CTS threshold, DTIM Interval

Modulation Techniques

IEEE 802.11n	OFDM (BPSK, QPSK, 16-QAM, 64-QAM)
IEEE 802.11b	DSSS (DBPSK, DQPSK, CCK)
IEEE 802.11g	OFDM (BPSK, QPSK, 16-QAM, 64-QAM)

Channel Support

IEEE 802.11b/g/gn	HT20
	FCC: CH1 ~ CH11; ETSI: CH1 ~ CH13
IEEE 802.11gn	HT40
	FCC: CH3 ~ CH9; ETSI: CH3 ~ CH11

Wireless Transmission Rates

Transmitted Power	802.11b: 26 dBm
	802.11g: 26 dBm @ 6 Mbps, 24 dBm @ 54 Mbps
	802.11gn HT20: 26 dBm @ MCS0, 22 dBm@ MCS7
	802.11gn HT40: 26 dBm @ MCS0, 21 dBm@ MCS7

Receiver Sensitivity

802.11b Sensitivity	-93 dBm @ 1 Mbps; -88 dBm @ 11 Mbps
802.11g Sensitivity	-89 dBm @ 6 Mbps; -73 dBm @ 54 Mbps
802.11n HT20	-88 dBm @ MCS0; -70 dBm @ MCS7
802.11n HT40	-84 dBm @ MCS0; -67 dBm @ MCS7

Ordering Information

EKI-6311GN	802.11 b/g/n Wireless AP/Client (US)
EKI-6311GN-EU	802.11 b/g/n Wireless AP/Client (EU)

EKI-6310GN

IEEE 802.11 b/g/n Wi-Fi AP/Client

Features

- Compliant with IEEE802.11b/g/n
- IP66 waterproof certification
- High output power 27dBm
- Standard PoE (802.3af) support
- Supports distances up to 5Km
- Supports wireless data encryption with 64/128 bits WEP/WPA/WPA2/TKIP with IEEE 802.1X-Enterprise encryption for a highly secure wireless network
- WEP/WPA/WPA2/ IEEE 802.1 x authentication support
- Supports WPS by software

RoHS COMPLIANT 2011/65/EU CE FCC

Introduction

The EKI-6310GN is a feature rich wireless AP/Client which provides a reliable wireless connectivity for industrial environments. The standard PoE input enhances flexibility in deployment of this AP/Client even where the DC power supply is hard to fulfill. As an 802.11n compliant device, EKI-6310GN provides 3 times higher data rates than legacy 802.11g devices. EKI-6310GN, with an integrated Type N RF connector that can be directly plugged in to any antenna to create a robust outdoor AP/Client, effectively improves the reliability of wireless connectivity, especially in applications that need high reliability and high throughput data transmission. To secure wireless connections, EKI-6310GN implements the latest encryption technologies including WEP/WPA/WPA2/802.1x for powerful security authentication.

Specifications

Standard Support

- **Wireless**   IEEE802.11b/g/n
- **Ethernet**   IEEE802.3u MDI / MDIX 10/100 Fast Ethernet
- **LAN**   IEEE802.11b/g wireless LAN interface IEEE 802.11n wireless LAN standard
                        Standard PoE 802.3af
- **Data Rates**   802.11b 11, 5.5, 2, 1 Mbps, auto-fallback, 802.11g 54, 48, 36, 24, 18, 12, 9, 6 Mbps, auto-fallback
- **802.11n**   6M, 6.5M, 13M, 13.5M, 19.5M, 26M, 27M, 39M, 40.5M, 53M, 54M, 58.5M, 65M, 78M, 81M, 104M, 108M, 117M, 121.5M, 130M, 135M, 150Mbps

Physical Specifications

- **Power**   Standard PoE 802.3af
- **Dimensions (W x H x D)** 61.7 x 206.2 x 47.7 mm (2.43" x 8.12" x 1.88")
- **Mounting**   DIN-rail, Wall, Pole
- **Weight**   0.5 Kg

Environment

- **Operating Temp.**   Non Heater: -30 ~ 70°C (-22 ~ 158°F)
- **Storage Temperature** -30 ~ 80°C (-22 ~ 176°F)
- **Humidity**   10% ~ 95% non-condensing

Interface Operation Modes

- Access Point (AP)/Client

Antenna

- **Antenna Configuration** 1x1 (1 Tx, 1 Rx)
- Reserve N-type Connector (Plug)

*Equipped N-to-RSMA adaptor and 5dBi dipole antenna for indoor AP applications.

Other Features

- Telnet, FTP, SNMP, Password Changes, Firmware updates, Configuration Files
- Output Power Control, Bandwidth Control, Distance Adjustment, Site survey
- Open System , Shared Key, Radius 802.1X , WPA, WPA2, WPA-PSK (TKIP)

Modulation Techniques

- **802.11n**   OFDM(BPSK, QPSK, 16-QAM, 64-QAM)
- **802.11b**   DSSS (DBPSK, DQPSK, CCK)
- **802.11g**   OFDM (BPSK, QPSK, 16-QAM, 64-QAM)

Channel Support

- **802.11b/g/gn**   HT20
                        FCC: CH1 ~ CH11; ETSI: CH1 ~ CH13
- **802.11gn**   HT40
                        FCC: CH3 ~ CH9; ETSI: CH3 ~ CH11

Wireless Transmission Rates

- **Transmitted Power** Max. 27 dBm

Receiver Sensitivity

- **802.11b Sensitivity** -95dBm @ 11Mbps
- **802.11g Sensitivity** -92dBm @ 54Mbps
- **802.11n Sensitivity** -90dBm @ HT20

Ordering Information

- **EKI-6310GN**   802.11 b/g/n Wireless AP/Client (US)
- **EKI-6310GN-EU**   802.11 b/g/n Wireless AP/Client (EU)

Accessories

Advantech P/N	ANT-1208-G2E	ANT-2209-G2E	ANT-2216-G2E	ANT-3215-G2E	ANT-1208-G5E	ANT-2218-G5E	ANT-3213-G5E
Frequency Range	2.4-2.5G	2.4-2.5G	2.4-2.5G	2.3-2.7G	4.9-5.35G	4.9-5.9G	4.9-5.9G
Antenna Type	Omni	Patch	Patch	Sector	Omni	Patch	Sector
Antenna Gain	8 dBi	9.5 dBi	16 dBi	15 dBi	8 dBi	18 dBi	13.5 dBi
Description	8 dBi 2.4G Omni Antennna	9.5 dBi 2.4G Patch Antenna	16 dBi 2.4G Patch Antenna	15 dBi 2.4G Sector Antenna	8dBi 5G Omni Antennna	18 dBi 5G Patch Antenna	13.5 dBi 5G Sector Antenna
Impedance	50 Ohm	50 Ohm	50 Ohm	50 Ohm	50 Ohm	50 Ohm	50 Ohm
Polarization	Linear, vertical	Linear, vertical	Linear, vertical	Linear, vertical	Linear, vertical	Linear, vertical	Linear, vertical
HPBW/Vertical	360/15	50/50	25/25	90/8	360/12	23/19	120/6
V.S.W.R.	2.0:1 (Max.)	1.5:1 (Max.)	1.5:1 (Max.)	2.0:1 (Max.)	2.0:1 (Max.)	2.0:1 (Max.)	2.0:1 (Max.)
Power Handling	20 W (cw)	20 W (cw)	20 W (cw)	50 W (cw)	20 W (cw)	5 W (cw)	10 W (cw)
Connector	N-Jack	N-Jack	N-Jack	N-Jack	N-Jack	N-Jack	N-Jack
Operating Temp.	-40 to +80	-40 to +80	-40 to +80	-40 to +80	-40 to +80	-40 to +80	-40 to +80
IP Rating	IP55	N/A	IP57	IP55	IP55	IP55	IP55
Weight	0.34 kg	0.14 kg	1.5 kg	1 kg	0.28 kg	0.825 kg	0.55 kg

Advantech P/N	ANT-1205D-G25E	ANT-1210D-G25E	ANT-2215D-G25E	ANT-3215D-G25E	ANT-2216M-G2E	ANT-2216M-G5E	ANT-3214M-G2E	ANT-3215M-G5E
Frequency Range	2.4-5G; 5.1-5.9G	2.4-5G; 5.1-5.9G	2.4-5G; 5.1-5.9G	2.4-5G; 4.9-5.9G	2.3-2.7GHz	5.1-5.9G	2.4-2.5G	5.1-5.9G
Antenna Type	Omni	Omni	Patch	Sector	Patch	Patch	Sector	Sector
Antenna Gain	4/7 dBi	8/10 dBi	13.5/15.5 dBi	12/15 dBi	16 dBi	16 dBi	14 dBi	15 dBi
Description	4/7dBi Dual-Band Omni Antennna	8/10dBi Dual-Band Omni Antennna	13.5/15.5dBi Dual-Band Patch Antennna	12/15dBi Dual-Band Sector Antennna	16dBi 2.4G MIMO Patch Antennna	16dBi 5G MIMO Patch Antennna	14dBi 2.4G MIMO Sector Antennna	15dBi 5G MIMO Sector Antennna
Impedance	50 Ohm	50 Ohm	50 Ohm	50 Ohm	50 Ohm	50 Ohm	50 Ohm	50 Ohm
Polarization	Linear, vertical	Linear, vertical	Linear, vertical	Linear, vertical	Linear, vertical/horizontal	Linear, vertical	Linear, vertical	Linear, vertical
HPBW/Vertical	360/30	360/13	30/30	70/18	25/25	19/21	90/13	90/8
V.S.W.R.	2.0:1 (Max.)	2.0:1 (Max.)	2.0:1 (Max.)	2.0:1 (Max.)	2.0:1 (Max.)	2.0:1 (Max.)	2.0:1 (Max.)	2.0:1 (Max.)
Power Handling	2 W (cw)	5 W (cw)	10 W (cw)	10 W (cw)	6 W (cw)	6 W (cw)	10 W (cw)	6 W (cw)
Connector	N-Plug	N-Jack	N-Jack	N-Jack	N-Jack	N-Jack	N-Jack	N-Jack
Operating Temp.	-40 to +70	-40 to +80	-40 to +80	-40 to +80	-40 to +80	-40 to +80	-40 to +80	-40 to +80
IP Rating	N/A	IP67	IP55	IP55	IP67	IP55	IP55	IP55
Weight	0.07 kg	0.394 kg	0.4 kg	0.462 kg	1.1 kg	0.8 kg	0.8 kg	1.4 kg

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

Advantech P/N	ANT-5115-AE	ANT-5130-AE	ANT-5210-AE	ANT-5230-AE	ANT-5260-AE	ANT-5290-AE
Description	1.5M N-Plug to SMA-Plug cable	3M N-Plug to SMA-Plug cable	1M N-Plug to N-Plug cable	3M N-Plug to N-Plug cable	6M N-Plug to N-Plug cable	9M N-Plug to N-Plug cable
Cable Type	ULA-168	ULA-168	ULA400	ULA400	ULA400	ULA400
VSWR	1.5 : 1 Max.@ DC ~ 3.0 GHz 2.0 : 1 Max.@ 3.0 ~ 6.0 GHz	1.5 : 1 Max.@ DC ~ 3.0 GHz 2.0 : 1 Max.@ 3.0 ~ 6.0 GHz	1.5 : 1 Max.@ DC ~ 6.0 GHz	1.5 : 1 Max.@ DC ~ 6.0 GHz	1.5 : 1 Max.@ DC ~ 6.0 GHz	1.5 : 1 Max.@ DC ~ 6.0 GHz
Insertion Loss	2.0 dB Max.@ DC ~ 3.0 GHz 2.5 dB Max.@ 3.0 ~ 6.0 GHz	3.5 dB Max.@ DC ~ 3.0 GHz 4 dB Max.@ 3.0 ~ 6.0 GHz	0.7 dB Max.@ DC ~ 3 GHz 1.0 dB Max.@ 3 ~ 6.0 GHz	1.1 dB Max.@ DC ~ 3 GHz 1.6 dB Max.@ 3 ~ 6.0 GHz	1.8 dB Max.@ DC ~ 3 GHz 2.7 dB Max.@ 3 ~ 6.0 GHz	3.0 dB (Max.) @ DC ~ 3 GHz 4.0 dB (Max.) @ 3 ~ 6 GHz
Connector Type	N-plug to RP SMA-plug	N-plug to RP SMA-plug	N-plug to N-plug	N-plug to N-plug	N-plug to N-plug	N-plug to N-plug
Cable Length	1.5M	3M	1M	3M	6M	9M

Advantech P/N	ANT-5501-AE	ANT-5502-AE	ANT-5601-AE
Description	1KV Aurge Arrestor N-Jack to N-Jack	1KV Aurge Arrestor N-Plug to N-Jack	Bulkhead adapter N-Jack to N-Jack
Surge Protection	1KV	1KV	N/A
VSWR	1.25: 1 Max @ DC ~ 4GHz 1.45: 1 Max @ 4 ~ 6GHz	1.3: 1 Max @ DC ~ 4GHz 1.5: 1 Max @ 4 ~ 6GHz	1.2: 1 Max @ DC ~ 3GHz 1.4: 1 Max @ 3 ~ 6GHz
Insertion Loss	0.8 dB	0.8 dB	N/A
Connector Type	N Jack to N Jack	N plug to N Jack	N-jack to N-jack

Industrial Ethernet Solutions

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To view all of Advantech's Industrial Ethernet Solutions, please visit www.advantech.com/products.

Industrial Ethernet Product Selection Guide

EN50155 Ethernet Switches

Model Name		EKI-6558TI	EKI-6559TMI	EKI-6528TI	EKI-6528TPI
Description		EN50155 IP67 8-port M12 Managed Ethernet Switch with Wide Temperature	EN50155 IP67 8-port M12 + 2-port Fiber Optic Managed Ethernet Switch with Wide Temperature	EN50155 8-port M12 Unmanaged Switch with Wide Temperature	EN50155 8-port PoE M12 Unmanaged Switch with Wide Temperature
Interface	Ports Number	8	10	8	8
	10/100Base-T (X)	8	8	8	8
	100BaseFX	-	2	-	-
	10/100/1000Base-T (X)	-	-	-	-
	1000Base-SX/LX/LHX/XD/ZX/EZX	-	-	-	-
	PoE (10/100 Mbps)	-	-	-	4
	PoE (10/100/1000 Mbps)	-	-	-	-
	DI/DO	-	-	-	-
	Console	V	V	-	-
Network Management	Redundancy	V	V	-	-
	Diagnostics	V	V	-	-
	VLAN	V	V	-	-
	Configuration	V	V	-	-
	SNMP	V	V	-	-
	Security	V	V	-	-
	Traffic Control	V	V	-	-
Power	2 x Unregulated 12 ~ 48 V_{DC}	V	V	12 ~ 48 V_{DC}	24 ~ 48 V_{DC}
	2 x Unregulated 100 ~ 240 V_{DC}	-	-	-	-
	2 x Unregulated 100 ~ 240 V_{AC}	-	-	-	-
	Relay Output	V	V	-	-
Mechanism	DIN-rail Mount	-	-	V	V
	Wall Mount	V	V	V	V
	Rack Mount	-	-	-	-
	IP Level	IP67	IP67	IP40	IP40
Protection	ESD (Ethernet)	V	V	V	V
	Surge (EFT for power)	V	V	V	V
	Power Reverse	V	V	V	V
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	-	-	-	-
	-40 ~ 75°C (-40 ~ 158°F)	V	V	V	V
	-40 ~ 85°C (-40 ~ 185°F)	-	-	-	-
Certification	CE	V	V	V	V
	FCC	V	V	V	V
	UL/cUL 60950-1	-	-	V	V
	Class I, Division 2	-	-	-	-
	UL 508	V	V	-	-
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PoE Switches

	Model Name	EKI-9312P	EKI-9316P	EKI-7659CPI	EKI-2726FHPI	EKI-2525P	EKI-2526PI
	Description	12 Port Industrial-Class Managed DIN Rail Switch Full Gigabit Switch with PoE/PoE+	16 Port Industrial-Class Managed DIN Rail Switch Full Gigabit Switch with PoE/PoE+	8+2G Port Gigabit Managed Redundant Industrial PoE Switch with Wide Temperature	4G+2 SFP W/ 4 IEEE 802.3 High Power PoE Industrial Wide Temperature Switch	5-port Industrial PoE Switch	6-port Industrial PoE Switch with Wide Temperature
Interface	Ports Number	12	16	10	6	5	6
	10/100Base-T (X)	-	-	-	-	1	2
	100BaseFX	-	-	-	-	-	-
	10/100/1000Base-T (X)	8	12	-	4	-	-
	1000Base-SX/LX/LHX/XD/ZX/EZX	4	4	2	2	-	-
	PoE (10/100 Mbps)	8	12	8	4 (PoE+, 30W)	4	4
	M12 Connector (10/100 Mbps)	-	-	-	-	-	-
	DI/DO	-	-	-	-	-	-
	Console	1	1	V	-	-	-
Network Management	Redundancy	v	v	V	-	-	-
	Diagnostics	v	v	V	-	-	-
	VLAN	v	v	V	-	-	-
	Configuration	v	v	V	-	-	-
	SNMP	v	v	V	-	-	-
	Security	v	v	V	-	-	-
	Traffic Control	v	v	V	-	-	-
Power	2 x Unregulated 48 V_{DC}	48 V_{DC}	48 V_{DC}	48 V_{DC}	48 V_{DC}	48 V_{DC}	48 V_{DC}
	2 x Unregulated 100 ~ 240 V_{DC}	-	-	-	-	-	-
	2 x Unregulated 100 ~ 240 V_{AC}	-	-	-	-	-	-
	Relay Output	-	-	V	V	V	V
Mechanism	DIN-rail Mount	V	V	V	V	V	V
	Wall Mount	v	v	V	V	V	V
	Rack Mount	-	-	-	-	-	-
	IP Level	IP30	IP30	V	IP30	V	V
Protection	ESD (Ethernet)	V	V	V	V	V	V
	Surge (EFT for power)	V	V	V	V	V	V
	Power Reverse	V	V	V	V	V	V
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	-	-	-	-	V	-
	-40 ~ 75°C (-40 ~ 167°F)	v	v	V	V	-	V
	-40 ~ 85°C (-40 ~ 185°F)	-	-	-	-	-	-
Certification	CE	v	v	V	V	V	V
	FCC	v	v	V	V	V	V
	UL/cUL 60950-1	v	v	V	-	V	V
	Class I, Division 2	v	v	-	-	-	-
	UL 508	-	-	-	V	-	-
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Industrial Ethernet Product Selection Guide

Model Name		EKI-2525PA	EKI-2528PAI	EKI-2701HPI	EKI-2701PSI
Description		5-port Industrial PoE Switch with 24/48 V$_{DC}$ Power Input	8-port Industrial PoE Switch with 24/48 V$_{DC}$ Power Input and Wide Temperature	Industrial PoE+ Injector with Wide Temperature	Industrial PoE Splitter with Wide Temperature
Interface	Ports Number	5	8	2	2
	10/100Base-T (X)	1	4	-	-
	100BaseFX	-	-	-	-
	10/100/1000Base-T (X)	-	-	1	1
	1000Base-SX/LX/LHX/XD/ZX/EZX	-	-	-	-
	PoE (10/100 Mbps)	4	4	1 (10/100/1000 Mbps)	1 (10/100/1000 Mbps)
	M12 Connector (10/100 Mbps)	-	-	-	-
	DI/DO	-	-	-	-
	Console	-	-	-	-
Network Management	Redundancy	-	-	-	-
	Diagnostics	-	-	-	-
	VLAN	-	-	-	-
	Configuration	-	-	-	-
	SNMP	-	-	-	-
	Security	-	-	-	-
	Traffic Control	-	-	-	-
Power	2 x Unregulated	24/48 V$_{DC}$	24/48 V$_{DC}$	24/48 V$_{DC}$	44~57 V$_{DC}$
	2 x Unregulated 100 ~ 240 V$_{DC}$	-	-	-	-
	2 x Unregulated 100 ~ 240 V$_{AC}$	-	-	-	-
	Relay Output	V	V	V	-
Mechanism	DIN-rail Mount	V	V	V	V
	Wall Mount	V	V	V	V
	Rack Mount	-	-	-	-
	IP Level	IP30	IP30	IP30	IP30
Protection	ESD (Ethernet)	V	V	V	V
	Surge (EFT for power)	V	V	V	V
	Power Reverse	V	V	V	V
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	V	-	-	-
	-40 ~ 75°C (-40 ~ 167°F)	-	V	V	V
	-40 ~ 85°C (-40 ~ 185°F)	-	-	-	-
Certification	CE	V	V	V	V
	FCC	V	V	V	V
	UL/cUL 60950-1	-	-	V	V
	Class I, Division 2	-	-	-	-
	UL 508	V	V	V	-
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Managed Ethernet Switches

NEW **NEW**

Model Name	EKI-9778	EKI-9316/ EKI-9312	EKI-7758F	EKI-7656C/CI	EKI-7659C/CI	EKI-7657C/CI	EKI-7654C
Description	24GbE + 4 10GbE Port Managed Switch with Combo Port	16/12 Port Industrial-Class Managed DIN Rail Switch Full Gigabit Switch	4G+4SFP Gigabit Managed Redundant Industrial Ethernet Switch	16+2G Combo Port Gigabit Managed Redundant Industrial Ethernet Switch	8+2G Combo Port Gigabit Managed Redundant Industrial Ethernet Switch	7+3G Combo Port Gigabit Managed Redundant Industrial Ethernet Switch with 2 x DI/O	4+2G Combo Port Gigabit Managed Redundant Industrial Ethernet Switch

Interface

	EKI-9778	EKI-9316/EKI-9312	EKI-7758F	EKI-7656C/CI	EKI-7659C/CI	EKI-7657C/CI	EKI-7654C
Ports Number	28	16/12	8	18	10	10	6
10/100Base-T (X)	-	-	-	16	8	7	4
100BaseFX	-	-	-	-	-	-	-
10/100/1000Base-T (X)	16 combo	12/8	4	2	2	3	2
1000Base-SX/LX/LHX/XD/ZX/EZX	8 & 16 combo	4	4	2	2	3	2
10GBE SFP+	4	-	-	-	-	-	-
PoE (10/100 Mbps)	-	-	-	-	-	-	-
DI/DO	-	-	-	-	-	2	-
Console	1	1	V	V	V	V	V

Network Management

Redundancy	V	V	V	V	V	V	V
Diagnostics	V	V	V	V	V	V	V
VLAN	V	V	V	V	V	V	V
Configuration	V	V	V	V	V	V	V
SNMP	V	V	V	V	V	V	V
Security	V	V	V	V	V	V	V
Traffic Control	V	V	V	V	V	V	V

Power

2 x Unregulated 12 ~ 48 V_{DC}	-	24/48 V_{DC}	V	V	V	V	V
2 x Unregulated 100 ~ 240 V_{DC}	-	-	-	-	-	-	-
2 x Unregulated 100 ~ 240 V_{AC}	V	-	-	-	-	-	-
Relay Output	-	-	V	V	V	V	V

Mechanism

DIN-rail Mount	-	V	V	V	V	V	V
Wall Mount	-	V	V	V	V	V	V
Rack Mount	V	-	-	-	-	-	-
IP Level	IP30	IP30	IP30	IP30	IP30	IP30	IP30

Protection

ESD (Ethernet)	V	V	V	V	V	V	V
Surge (EFT for power)	V	V	V	V	V	V	V
Power Reverse	V	V	V	V	V	V	V

Operating Temperature

-10 ~ 60°C (14 ~ 140°F)	v	-	V	V	V	V	V
-40 ~ 75°C (-40 ~ 158°F)	-	v	-	V (EKI-7656CI)	V (EKI-7659CI)	-	-
-40 ~ 85°C (-40 ~ 185°F)	-	-	-	-	-	-	-

Certification

CE	V	V	V	V	V	V	V
FCC	V	V	V	V	V	V	V
UL/cUL 60950-1	Ongoing	V	V	V	V	V	V
Class I, Division 2	-	V	V	V	-	V	-
UL 508	-	-	-	-	-	-	-
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1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
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15 IoT Wireless I/O Modules
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Industrial Ethernet Product Selection Guide

Managed Ethernet Switches

Model Name		EKI-7559SI/MI	EKI-7554SI/MI	EKI-2748FI/CI	EKI-2548I
Description		8+2 SC Type Fiber Optic Managed Redundant Industrial Ethernet Switch with Wide Temperature	4+2 SC Type Fiber Optic Managed Redundant Industrial Ethernet Switch with Wide Temperature	8Gx Managed Ethernet Switch with Wide Temperature	8Tx Managed Ethernet Switch with Wide Temperature
Interface	Ports Number	10	6	8	8
	10/100Base-T (X)	8	4	-	8
	100BaseFX	2	2	-	-
	10/100/1000Base-T (X)	-	-	4/6	-
	1000Base-SX/LX/LHX/XD/ZX/EZX	-	-	4/2	-
	PoE (10/100 Mbps)	-	-	-	-
	PoE (10/100/1000 Mbps)	-	-	-	-
	DI/DO	-	-	-	-
	Console	V	V	V	-
Network Management	Redundancy	V	V	V	V
	Diagnostics	V	V	V	V
	VLAN	V	V	V	V
	Configuration	V	V	V	V
	SNMP	V	V	V	V
	Security	V	V	V	V
	Traffic Control	V	V	V	V
Power	2 x Unregulated 12 ~ 48 V_{DC}	V	V	V	V
	2 x Unregulated 100 ~ 240 V_{DC}	-	-	-	-
	2 x Unregulated 100 ~ 240 V_{DC}	-	-	-	-
	Relay Output	V	V	V	V
Mechanism	DIN-rail Mount	V	V	V	V
	Wall Mount	V	V	V	V
	Rack Mount	-	-	-	-
	IP Level	IP30	IP30	IP30	IP30
Protection	ESD (Ethernet)	V	V	V	V
	Surge (EFT for power)	V	V	V	V
	Power Reverse	V	V	V	V
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	-	-	-	-
	-40 ~ 75°C (-40 ~ 167°F)	V	V	V	V
	-40 ~ 85°C (-40 ~ 185°F)	-	-	-	-
Certification	CE	V	V	V	V
	FCC	V	V	V	V
	UL/cUL 60950-1	V	V	-	-
	Class I, Division 2	V	-	V	V
	UL 508	-	-	V	V
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ProView Series Ethernet Switches

NEW   NEW   NEW   NEW

Model Name		EKI-5725/I EKI-5728/I	EKI-5525/I EKI-5528/I	EKI-5729F/FI	EKI-5726/I	EKI-5726F/FI
Description		5/8-port Gigabit Ethernet ProView Switch	5/8-port Fast Ethernet ProView Switch	8-Port+2 SFP Gigabit Ethernet ProView Switch	16-port Gigabit Ethernet ProView Switch	16-port+2 SFP Gigabit Ethernet ProView Switch
Interface	Ports Number	5/8	5/8	8	16	16
	10/100Base-T (X)	-	5/8	-	-	-
	100BaseFX	-	-	V	-	V
	10/100/1000Base-T (X)	5/8	-	8	16	16
	1000Base-SX/LX/LHX/XD/ZX/EZX	-	-	V	-	V
	PoE (10/100 Mbps)	-	-	-	-	-
	DI/DO	-	-	-	-	-
	Console	-	-	-	-	-
Network Management	VIP Port	V	V	V	V	V
	Modbus TCP	V	V	V	V	V
	EtherNet/IP	EKI-5728 EKI-5728I	-	V	V	V
	Configuration	V	V	V	V	V
	SNMP	V	V	V	V	V
Power	2 x Unregulated 48 V_{DC}	V	V	V	V	V
	2 x Unregulated 100 ~ 240 V_{DC}	-	-	-	-	-
	2 x Unregulated 100 ~ 240 V_{AC}	-	-	-	-	-
	Relay Output	v	v	v	v	v
Mechanism	DIN-rail Mount	v	v	v	v	v
	Wall Mount	v	v	v	v	v
	Rack Mount	-	-	-	-	-
	IP Level	IP30	IP30	IP30	IP30	IP30
Protection	ESD (Ethernet)	V	V	V	V	V
	Surge (EFT for power)	V	V	V	V	V
	Power Reverse	V	V	V	V	V
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	V	V	V	V	V
	-40 ~ 75°C (-40 ~ 167°F)	EKI-5725I EKI-5728I	EKI-5525I EKI-5528I	EKI-5729FI	EKI-5726I	EKI-5726FI
	-40 ~ 85°C (-40 ~ 185°F)	-	-	-	-	-
Certification	CE	V	V	V	V	V
	FCC	V	V	V	V	V
	UL/cUL 60950-1	V	V	V	V	V
	Class I, Division 2	V	V	V	V	V
	ATEX	V	V	V	V	V
	UL 508	V	V	V	V	V
	EtherNet/IP	EKI-5728 EKI-5728I	-	V	V	V
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Industrial Ethernet Product Selection Guide

Unmanaged Ethernet Switches

Model Name	EKI-4524I/RI	EKI-7626C/CI	EKI-7629C/CI	EKI-7526I	EKI-2525/I EKI-2528/I
Description	24+2 SPF Port Unmanaged Industrial Ethernet Switch with Wide Temperature	16+2G Combo Port Gigabit Unmanaged Industrial Ethernet Switch	8+2G Combo Port Gigabit Unmanaged Industrial Ethernet Switch	16+2 SC Type Fiber Optic Unmanaged Industrial Ethernet Switch with Wide Temperature	5/8-port Unmanaged Industrial Ethernet Switch
Interface					
Ports Number	24/26	18	10	16	5/8
10/100Base-T (X)	24	16	8	16	5/8
100BaseFX	0/2	-	-	-	-
10/100/1000Base-T (X)	-	2	2	-	-
1000Base-SX/LX/LHX/ XD/ZX/EZX	-	2	2	-	-
PoE (10/100 Mbps)	-	-	-	-	-
PoE (10/100/1000 Mbps)	-	-	-	-	-
DI/DO	-	-	-	-	-
Console	-	-	-	-	-
Network Management					
Redundancy	-	-	-	-	-
Diagnostics	-	-	-	-	-
VLAN	-	-	-	-	-
Configuration	-	-	-	-	-
SNMP	-	-	-	-	-
Security	-	-	-	-	-
Traffic Control	-	-	-	-	-
Power					
2 x Unregulated 12 ~ 48 V_{DC}	-	V	V	V	V
1 x Unregulated 100 ~ 240 V_{DC}	V	-	-	-	-
1 x Unregulated 100 ~ 240 V_{AC}	V	-	-	-	-
Relay Output	V	V	V	V	V
Mechanism					
DIN-rail Mount	-	V	V	V	V
Wall Mount	-	V	V	V	V
Rack Mount	V	-	-	-	-
IP Level	IP30	IP30	IP30	IP30	IP30
Protection					
ESD (Ethernet)	V	V	V	V	V
Surge (EFT for power)	V	V	V	V	V
Power Reverse	V	V	V	V	V
Operating Temperature					
-10 ~ 60°C (14 ~ 140°F)	-	V	V	-	V
-40 ~ 75°C (-40 ~ 167°F)	V	V (EKI-7626CI)	V (EKI-7629CI)	V	V (EKI-2525I/ EKI-2528I)
-40 ~ 85°C (-40 ~ 185°F)	-	-	-	-	-
Certification					
CE	V	V	V	V	V
FCC	V	V	V	V	V
UL/cUL 60950-1	-	V	V	-	V
Class I, Division 2	-	-	-	-	V
UL 508	-	-	-	V	-
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ADVANTECH Industrial Ethernet Solutions

Media Converters

Model Name		EKI-2541M/MI/S/SI	EKI-3541M/S	EKI-2741F/FI/SX/SXI/LX/LXI
Description		10/100TX to Multi-mode / Single-mode SC Type Fiber Optic Industrial Media Converters	10/100TX to Multi-mode / Single-mode SC Type Fiber Optic Industrial Media Converters	10/100/1000TX to Fiber Optic Gigabit Industrial Media Converters
Interface	Ports Number	2	2	2
	10/100Base-T (X)	1	1	-
	100BaseFX	1	1	-
	10/100/1000Base-T (X)	-	-	1
	1000Base-SX/LX/LHX/ XD/ZX/EZX	-	-	1
	PoE (10/100 Mbps)	-	-	-
	PoE (10/100/1000 Mbps)	-	-	-
	DI/DO	-	-	-
	Console	-	-	-
Network Management	Redundancy	-	-	-
	Diagnostics	-	-	-
	VLAN	-	-	-
	Configuration	-	-	-
	SNMP	-	-	-
	Security	-	-	-
	Traffic Control	-	-	-
Power	2 x Unregulated 12 ~ 48 V_{DC}	V	V	V
	2 x Unregulated 100 ~ 240 V_{DC}	-	-	-
	2 x Unregulated 100 ~ 240 V_{AC}	-	-	-
	Relay Output	V	V	V
Mechanism	DIN-rail Mount	V	V	V
	Wall Mount	V	V	V
	Rack Mount	-	-	-
	IP Level	IP30	IP40	IP30
Protection	ESD (Ethernet)	V	V	V
	Surge (EFT for power)	V	V	V
	Power Reverse	V	V	V
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	V	V	V
	-40 ~ 75°C (-40 ~ 167°F)	V (EKI-2541MI/SI)	-	V (EKI-2741FI/SXI/LXI)
	-40 ~ 85°C (-40 ~ 185°F)	-	-	-
Certification	CE	V	V	V
	FCC	V	V	V
	UL/cUL 60950-1	V	V	V
	Class I, Division 2	V	-	V
	UL 508	-	-	-
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EKI-6558TI
EKI-6559TMI

EN50155 IP67 8-port M12 Managed
Ethernet Switch with Wide Temperature

EN50155 IP67 8-port M12 + 2-port Fiber Optic
Managed Ethernet Switch with Wide Temperature

EKI-6558TI   EKI-6559TMI

Features

- EN50155 certified
- Supports X-Ring Pro function (ultra high-speed recovery time < 20 ms)
- Wide redundant power design
- Provides M12 connector with IP67 protection
- Provides Waterproof fiber optic connector
- TFTP firmware updates and system configure restore and backup
- Dual 12 ~ 48 V$_{DC}$ power input and 1 relay output
- Supports wide operating temperature -40 ~ 75°C
- Provides 100 Mbps LC type connector

Introduction

The EKI-6558TI and EKI-6559TMI are EN50155 certified IP67 wide temperature industrial switches which are especially designed for railway industry and harsh environments. M12 connectors secure highly reliable connectivity for industrial communication applications. EN50155 certification ensures the use of railway application. EKI-6559TMI also provides two additional fiber optic ports to extend communication range. Both EKI-6558TI and EKI-6559TMI provide Advantech's X-Ring Pro protocol, which enables users to establish a redundant Ethernet network with ultra high-speed recovery (less than 20 ms). They also support advanced network standards to optimize network performance, reduce maintenance cost, and secure network safety.

Specifications

Communications

- **Standard**   IEEE 802.3, 802.3u, 802.3x, 802.3ad, 802.1D, 802.1w, 802.1p, 802.1Q, 802.1X
- **LAN**   10/100Base-T (X), 100Base-FX
- **Transmission Speed**   Up to 100 Mbps

Interface

- **Ethernet**   M12, 4-pole D-coded, Female x 8
- **Fiber Optic**   LC type waterproof x 2, Multi-mode (EKI-6559TMI)
- **Console**   M12, 8-pole A-coded, Female x 1

Network Management

- **Configuration**   Web browser, Telnet, Serial console, TFTP, SNMPv1/v2c/v3, Port Speed/Duplex Configuration, IPv6
- **VLAN**   IEEE 802.1Q, GVRP, Port-based VLAN
- **Redundancy**   Advantech X-Ring Pro (Recovery time < 20 ms at 250 pcs full loading ring structure), Dual Homing, Dual Ring, Couple Ring, 802.1w/D RSTP/STP
- **Security**   IP Access security, port security, DHCP Server, Port and IP Binding, 802.1X Port Access Control, SSL
- **Traffic Control**   IGMP Snooping/Query for multicast group management, Port Trunking, Static/802.3ad, LACP Rate limit and storm control, IEEE 802.1p QoS CoS/TOS/DSCP priority queuing, IEEE 802.3x flow control
- **Diagnostics**   Port Mirroring, Real-time traffic statistic, MAC Address Table, SNTP, Syslog, Email Alert, SNMP Trap, RMON

Mechanism

- **Enclosure**   IP67, aluminum shell with solid mounting kits
- **Dimensions (W x H x D)**   193 x 176 x 62.5 mm (7.59" x 6.93" x 2.46")
- **Mounting**   Wall

Power

- **Power Consumption**   Max. 8.1 W
- **Power Input**   12 ~ 48 V$_{DC}$, redundant dual inputs
- **Power Connector**   M12, 5-pole A-coded, male x 1
- **P-Fail Output**   1A @ 24 V$_{DC}$
- **P-Fail Connector**   M12, 8-pole A-coded, Female x 1

Protection

- **Power Reverse**   Present

Environment

- **Operating Temperature**   -40 ~ 75°C (-40 ~ 167°F)
- **Storage Temperature**   -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity**   5 ~ 95% (non-condensing)
- **Storage Humidity**   0 ~ 95% (non-condensing)
- **MTBF**   388,201 hours (EKI-6558TI)
  320,420 hours (EKI-6559TMI)

Certification

- **Safety**   UL 508
- **EMI**   FCC Part 15 Subpart B Class A, EN 55022 Class A
- **EMS**   EN 61000-4-2
  EN 61000-4-3
  EN 61000-4-4
  EN 61000-4-5
  EN 61000-4-6
  EN 61000-4-8
- **Shock**   IEC 61373
- **Freefall**   IEC 60068-2-32
- **Vibration**   IEC 61373
- **Railway**   EN50155, EN 50121-3-2, EN 50121-4

Ordering Information

- **EKI-6558TI**   EN50155 8-port M12 Managed Ethernet Switch
- **EKI-6559TMI**   EN50155 8-port M12+ 2-port FX Managed Ethernet Switch

EKI-6528TI
EKI-6528TPI

EN50155 8-port M12 Unmanaged Switch
with Wide Temperature

EN50155 8-port M12 Unmanaged PoE
Switch with Wide Temperature

1 WebAccess+ Solutions

2 Motion Control

3 Power & Energy Automation

4 Automation Software

5 Intelligent Operator Panel

6 Automation Panels

7 Panel PCs

8 Industrial Wireless Solutions

9 Industrial Ethernet Solutions

10 Industrial Gateway Solutions

11 Serial communication cards

12 Embedded Automation PCs

13 DIN-Rail IPCs

14 CompactPCI Systems

15 IoT Wireless I/O Modules

16 IoT Ethernet I/O Modules

17 RS-485 I/O Modules

18 Data Acquisition Boards

Features

- Auto Bypass between Port 1 and Port 2
- EN50155 certified
- Wide redundant power design
- 8-port 10/100 Mbps M12 type connector with IP40 protection
- 4-port PoE type M12 (EKI-6528TPI)
- Dual redundant power input
- Supports wide operating temperature -40 ~ 75°C

EKI-6528TI   EKI-6528TPI

Introduction

The EKI-6528TI and EKI-6528TPI are EN50155 certified industrial switches with IP40 protection and wide temperature support designed for railway applications. EKI-6528TPI provides four PoE ports that support IEEE 802.3af and can provide up to 15.4 watts of power per port. M12 connectors ensure highly reliable connectivity for industrial communication applications. With IP40 compact metal housings, these switches are protected against dusty environments and are a good fit for many industrial applications. Under no-power condition, 'Auto Bypass' function ensures the Ethernet signal connection through internal circuitry. This feature provides non-stop communication to rolling stocks even no power exists in some of the carriages.

Specifications

Communications

- **Standard**   IEEE 802.3
  IEEE 802.3u
  IEEE 802.3x
  IEEE 802.3af
- **LAN**   10/100Base-T (X)
- **Transmission Speed** Up to 100 Mbps

Interface

- **Ethernet**   M12, 4-pole D-coded, Female x 8

Mechanism

- **Enclosure**   IP40 protected metal shell
- **Dimensions (W x H x D)** 92 x 180 x 42 mm (3.62" x 7.08" x 1.65")
- **Mounting**   DIN-rail, Wall

Power

- **Power Consumption** Max. 3.36 W (EKI-6528TI)
  Max. 72 W (EKI-6528TPI)
- **Power Input**   24 ~ 48 V_{DC}, redundant dual inputs (for EKI-6528TPI)
  12 ~ 48 V_{DC}, redundant dual inputs (for EKI-6528TI)
- **Power Connector**   M12, 5-pole A-coded, male x 1
- **P-Fail Output**   1A @ 24 V_{DC}
- **P-Fail Connector** M12, 8-pole A-coded, Female x 1

Protection

- **Power Reverse**   Present
- **Overload Current** Present

Environment

- **Operating Temperature** -40 ~ 75°C (-40 ~ 167°F)
- **Storage Temperature**   -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity**   5 ~ 95% (non-condensing)
- **Storage Humidity**   0 ~ 95% (non-condensing)
- **MTBF**   391,307 hours (EKI-6528TI)
  348,384 hours (EKI-6528TPI)

Certification

- **Safety**   UL 60950-1
- **EMI**   FCC Part 15 Subpart B Class A, EN 55022 Class A
- **EMS**   EN 61000-4-2
  EN 61000-4-3
  EN 61000-4-4
  EN 61000-4-5
  EN 61000-4-6
  EN 61000-4-8
- **Shock**   IEC 61373
- **Freefall**   IEC 60068-2-32
- **Vibration**   IEC 61373
- **Railway**   EN50155, EN 50121-3-2, EN 50121-4

Ordering Information

- **EKI-6528TI**   EN50155 8-port M12 Unmanaged Ethernet Switch
- **EKI-6528TPI**   EN50155 8-port M12 Unmanaged PoE Switch

EKI-9312P

Industrial-Class 12 Port Managed DIN Rail Switch Full Gigabit Switch with PoE/PoE+

NEW

Features

- All Gigabit connections support dual ring protection and non-blocking traffic forwarding
- X-Ring+: recovery time within 20ms for 250 node connections
- IEEE 802.3at PoE+ to supply 30W power
- IEEE 802.3af PoE to supply 15.4 power
- IEEE 802.3af/802.3at per port with system PoE power management
- Dual power input, dual image for system reliability
- Operating temperature: -40 ~ 75°C

FC CE

Introduction

The EKI-9312P Gigabit managed PoE+ Ethernet switches come standard with 8 10/100/1000BaseT(X), 802.3af (PoE), and 802.3at (PoE+) compliant Ethernet ports, and 4 fiber optic Gigabit Ethernet ports. The EKI-9312P PoE Ethernet switches provide up to 30 watts of power per PoE+ port for heavy-duty, industrial PoE devices, such as weather-proof IP surveillance cameras, high performance wireless access points, and rugged IP phones.

The EKI-9312P are equipped with 8 Gigabit Ethernet ports and up to 4 fiber optic ports, making them ideal for upgrading an existing network to Gigabit speed or building a new, full Gigabit network. The X-Ring+ with RSTP, STP and MSTP support, increases system reliability and the availability of your network. The EKI-9312P are designed especially for bandwidth demanding applications, such as video and process monitoring, intelligent transportation systems, all of which benefit from a scalable backbone construction.

Specifications

Interface

- **I/O Port** — 8 x 10/100/1000Base-T/TX RJ-45
  4 x 1000BASE-X SFP
- **Console port** — RJ-45
- **F/W backup port** — USB
- **Power Connector** — 6-pin screw Terminal Block (including relay)

Physical

- **Enclosure** — Aluminum Shell
- **Protection Class** — IP 30
- **Installation** — DIN Rail
- **Dimensions (W x H x D)** — 86 x 165 x 125 (mm)

LED Display

- **System LED** — PWR1, PWR2, SYS, CFG, Alarm and R.M.
- **Port LED** — Link / Speed / Activity / PoE

Environment

- **Operating Temperature** — -40 ~ 75°C
- **Storage Temperature** — -40 ~ 85°C
- **Ambient Relative Humidity** — 10 ~ 95% (non-condensing)
- **Humidity** — 10 ~ 95% (non-condensing)

Power

- **Power Consumption** — ~ 21.82 Watts (System)
  EKI-9316P: ~294.22 Watts
  EKI-9312P: ~203.42 Watts
- **Power Input** — 48 (46 to 57 V) V_{DC} dual inputs
  (> 53 V_{DC} for PoE+ output recommended)

Certification

- **EMI** — CE, FCC Class A
- **Safety** — UL60950 C1D2
- **EMC** — EN61000-6-4; EN61000-6-2; EN61000-4-2 (ESD) Level 4
  EN61000-4-3 (RS) Level 3; EN61000-4-4 (EFT) Level 4;
  EN50121-4; EN61000-4-5 (Surge)
  Level 4; EN61000-4-6 (CS) Level 3 EN61000-4-8 (Magnetic Field) Level 4
- **Shock** — IEC 60068-2-27
- **Freefall** — IEC 60068-2-32
- **Vibration** — IEC 60068-2-6

L2 Features

- **L2 MAC Address** — 16K
- **Jumbo Frame** — 12KB
- **VLAN Group** — 4K (VLAN ID 1~4094)
- **VLAN Arrange** — Mac based VLAN, Protocol based VLAN, IP subnet based VLAN, Port based VLAN, Q-in-Q (VLAN Stacking), GVRP
- **Port Mirroring** — Per port, Multi-source port, RSAPN,
- **IP Multicast** — IGMP Snooping v1/v2/v3, MLD Snooping, IGMP Immediate leave
- **Storm Control** — Broadcast, Multicast, Unknown unicast
- **Spanning Tree** — IEEE 802.1D-STP, IEEE 802.1s-MSTP, IEEE 802.1w-RSTP, X-Ring+

QoS

- **Priority Queue Scheduling** — WRR (Weighted Round Robin), SP (Strict Priority), Hybrid Priority
- **Class of Service** — IEEE 802.1p Based CoS, IP TOS, DSCP based CoS
- **Rate Limiting** — Ingress Rate limit, Egress Rate limit
- **Link Aggregation** — IEEE 802.3ad Dynamic Port Trunking, Static Port Trunking

Security

- **Port Security** — Static, Dynamic
- **Authentication** — 802.1x (Port-Based, MAC-Based, MD5/TLS/TTLS/PEAP Encryption), RADUIS, TCACAS+
- **ACL** — 1K rules
- **Advanced Security** — IP Source guard, ARP inspection, DHCP Snooping

Management

- **DHCP** — Client, Server, Relay, Option66/67/82
- **Access** — SNMP v1/v2c/v3, WEB, Telnet, RMON, Standard MIB, Private MIB
- **Security access** — SSH2.0, SSL
- **Software upgrade** — TFTP, HTTP, Dual Image
- **NTP** — NTP client/server

Ordering Information

- **EKI-9312-P0ID42E** — Layer 2 Fastpath, 8 x GbE 100/1000Base-T with PoE+ 4 x GbE SFP w/ 48 V_{DC} Redundant Power Input

Contact our sales for more pricing & ordering information.

EKI-9316P

Industrial-Class 16 Port Managed DIN Rail Switch Full Gigabit Switch with PoE/PoE+

NEW

Features

- All Gigabit connections support dual ring protection and non-blocking traffic forwarding
- X-Ring+: recovery time within 20ms for 250 node connections
- IEEE 802.3at PoE+ to supply 30W power
- IEEE 802.3af PoE to supply 15.4 power
- IEEE 802.3af/802.3at per port with system PoE power management
- Dual power input, dual image for system reliability
- Operating temperature: -40 ~ 75°C

FC CE

Introduction

The EKI-9316P Gigabit managed PoE+ Ethernet switches come standard with 12 10/100/1000BaseT(X), 802.3af (PoE), and 802.3at (PoE+) compliant Ethernet ports, and 4 fiber optic Gigabit Ethernet ports. The EKI-9316P PoE Ethernet switches provide up to 30 watts of power per PoE+ port for heavy-duty, industrial PoE devices, such as weather-proof IP surveillance cameras, high performance wireless access points, and rugged IP phones.

The EKI-9316P are equipped with 12 Gigabit Ethernet ports and up to 4 fiber optic ports, making them ideal for upgrading an existing network to Gigabit speed or building a new, full Gigabit network. The X-Ring+ with RSTP, STP and MSTP support, increases system reliability and the availability of your network. The EKI-9316P are designed especially for bandwidth demanding applications, such as video and process monitoring, intelligent transportation systems, all of which benefit from a scalable backbone construction.

Specifications

Interface

- **I/O Port** — 12 x 10/100/1000Base-T/TX RJ-45
  4 x 1000 BASE-X SFP
- **Console port** — RJ-45
- **F/W backup port** — USB
- **Power Connector** — 6-pin screw Terminal Block (including relay)

Physical

- **Enclosure** — Aluminum Shell
- **Protection Class** — IP 30
- **Installation** — DIN Rail
- **Dimensions (W x H x D)** — 86 x 165 x 125 (mm)

LED Display

- **System LED** — PWR1, PWR2, SYS, CFG, Alarm and R.M.
- **Port LED** — Link / Speed / Activity / PoE

Environment

- **Operating Temperature** — -40 ~ 75°C
- **Storage Temperature** — -40 ~ 85°C
- **Ambient Relative Humidity** — 10 ~ 95% (non-condensing)
- **Humidity** — 10 ~ 95% (non-condensing)

Power

- **Power Consumption** — ~ 21.82 Watts (System)
  EKI-9316P: ~294.22 Watts
  EKI-9312P: ~203.42 Watts
- **Power Input** — 48 (46 to 57 V) V_{DC} dual inputs
  (> 53 V_{DC} for PoE+ output recommended)

Certification

- **EMI** — CE, FCC Class A
- **Safety** — UL60950 C1D2
- **EMC** — EN61000-6-4; EN61000-6-2; EN61000-4-2 (ESD) Level 4 EN61000-4-3 (RS) Level 3; EN61000-4-4 (EFT) Level 4 EN61000-4-5 (Surge) Level 4; EN61000-4-6 (CS) Level 3 EN61000-4-8 (Magnetic Field) Level 4; EN50121-4
- **Shock** — IEC 60068-2-27
- **Freefall** — IEC 60068-2-32
- **Vibration** — IEC 60068-2-6

L2 Features

- **L2 MAC Address** — 16K
- **Jumbo Frame** — 12KB
- **VLAN Group** — 4K (VLAN ID 1~4094)
- **VLAN Arrange** — Mac based VLAN, Protocol based VLAN, IP subnet based VLAN, Port based VLAN, Q-in-Q (VLAN Stacking), GVRP
- **Port Mirroring** — Per port, Multi-source port, RSAPN,
- **IP Multicast** — IGMP Snooping v1/v2/v3, MLD Snooping, IGMP Immediate leave
- **Storm Control** — Broadcast, Multicast, Unknown unicast
- **Spanning Tree** — IEEE 802.1D-STP, IEEE 802.1s-MSTP, IEEE 802.1w-RSTP, X-Ring+

QoS

- **Priority Queue Scheduling** — WRR (Weighted Round Robin), SP (Strict Priority), Hybrid Priority
- **Class of Service** — IEEE 802.1p Based CoS, IP TOS, DSCP based CoS
- **Rate Limiting** — Ingress Rate limit, Egress Rate limit
- **Link Aggregation** — IEEE 802.3ad Dynamic Port Trunking, Static Port Trunking

Security

- **Port Security** — Static, Dynamic
- **Authentication** — 802.1x (Port-Based, MAC-Based, MD5/TLS/TTLS/PEAP Encryption), RADIUS, TCACAS+
- **ACL** — 1K rules
- **Advanced Security** — IP Source guard, ARP inspection, DHCP Snooping

Management

- **DHCP** — Client, Server, Relay, Option66/67/82
- **Access** — SNMP v1/v2c/v3, WEB, Telnet, RMON, Standard MIB, Private MIB
- **Security access** — SSH2.0, SSL
- **Software upgrade** — TFTP, HTTP, Dual Image
- **NTP** — NTP client/server

Ordering Information

- **EKI-9316-P0ID42E** — Layer 2 Fastpath, 12 x GbE 100/1000Base-T with PoE+ 4 x GbE SFP w/ 48V_{DC} Redundant Power Input

Contact our sales for more pricing & ordering information.

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

EKI-7659CPI

8+2G Port Gigabit Managed Redundant Industrial PoE Switch with Wide Temperature

Features

- 2 Gigabit Copper/SFP combo ports, plus 8 PoE injector ports
- SFP socket for Easy and Flexible Fiber Expansion
- Redundancy: Gigabit X-Ring Pro (ultra high-speed recovery time < 20 ms), RSTP/STP (802.1w/1D)
- Management: Web, Telnet, Serial Console, SNMP
- Control: VLAN/GVRP, QoS, IGMP Snooping/Query, LACP, Rate Limit
- Security: IP/MAC and port binding, DHCP Server, IP access list, 802.1X, SSL SNMPv3
- Diagnostic: Port Statistic, Port Mirroring, RMON, Trap, Email Alert, Syslog
- Dual 48 V$_{DC}$ power input and 1 relay output
- Supports wide operating temperatures -40 ~ 75°C

Introduction

The EKI-7659CPI supports eight Power over Ethernet (PoE) ports and two Gigabit combo ports. The PoE device helps realize a centralized power supply solution and provides up to 15.4 watts of power per port. To create reliability in your network, the EKI-7659CPI comes equipped with a proprietary redundant network protocol -- X-Ring Pro that was developed by Advantech, which provides users with an easy way to establish a redundant Ethernet network with ultra high-speed recovery time less than 20 ms. Furthermore, EKI-7659CPI also supports many advanced network standards to optimize network performance, ease maintenance issues, and secure network safety.

Specifications

Communications

- **Standard** — IEEE 802.3, 802.3u, 802.3x, 802.3z, 802.3ad, 802.3ab, 802.3af, 802.1D, 802.1w, 802.1p, 802.1Q, 802.1X
- **LAN** — 10/100/1000Base-T (X), Optional 100Base-FX, 1000Base-SX/LX/LHX/XD/ZX/EZX
- **Transmission Distance** — Ethernet: Up to 100 m (4- wire Cat.5e, Cat.6 RJ45 cable suggested for Gigabit port)
  SFP: Up to 110 km (depends on SFP)
- **Transmission Speed** — Ethernet: 10/100 Mbps Auto-Negotiation
  Gigabit Copper: 10/100/1000 Mbps, Auto-Negotiation
  Gigabit Fiber: Up to 1000 Mbps

Interface

- **Connectors** — 8 x RJ45 (Ethernet)
  2 x RJ45/SFP (mini-GBIC) combo ports
  6-pin removable screw terminal (Power&Relay)
- **LED Indicators** — System: PWR, PWR1, PWR2, R.M., P-Fail
  10/100T (X): Link/Activity, Duplex/Collision
  Gigabit Copper: Link/Activity, Speed (1000 Mbps)
  SFP: Link/Activity
- **Console** — RS-232 (RJ45)

Network Management

- **Configuration** — Web browser, Telnet, Serial console, TFTP, SNMPv1/v2c/v3, Port Speed/Duplex Configuration, IPv6
- **VLAN** — IEEE 802.1Q, GVRP, Port-based VLAN
- **Redundancy** — Advantech X-Ring Pro (Recovery time < 20 ms at 250 pcs full loading ring structure), Dual Homing, Dual Ring, Couple Ring, 802.1w/D RSTP/STP
- **Security** — IP Access security, port security, DHCP Server, Port and IP Binding, 802.1X Port Access Control, SSL
- **Traffic Control** — IGMP Snooping/Query for multicast group management, Port Trunking, Static/802.3ad, LACP Rate limit and storm control, IEEE 802.1p QoS CoS/TOS/ DSCP priority queuing, IEEE 802.3x flow control
- **Diagnostics** — Port Mirroring, Real-time traffic statistic, MAC Address Table, SNTP, Syslog, E-Mail Alert, SNMP Trap, RMON

Mechanism

- **Enclosure** — IP30, metal shell with solid mounting kits
- **Dimensions (W x H x D)** — 79 x 152 x 105 mm (3.11" x 5.98" x 4.13")
- **Mounting** — DIN-rail, Wall

Power

- **Power Consumption** — 116 W (Full load PoE)
- **Power Input** — 48 V$_{DC}$, redundant dual power input
- **Power Output** — 15.4W at 48V (per PoE port)
- **Fault Output** — 1 Relay Output

Protection

- **Power Reverse** — Present
- **Overload Current** — Present

Environment

- **Operating Temperature** — -40 ~ 75°C (-40 ~ 167°F)
- **Storage Temperature** — -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** — 5 ~ 95% (non-condensing)
- **Storage Humidity** — 0 ~ 95% (non-condensing)
- **MTBF** — 190,200 hours

Certification

- **Safety** — UL 60950-1, CAN/CSA-C22.2 No.60950
- **EMI** — FCC Part 15 Subpart B Class A, EN 55022 Class A
- **EMS** — EN 61000-4-2
  EN 61000-4-3
  EN 61000-4-4
  EN 61000-4-5
  EN 61000-4-6
  EN 61000-4-8
- **Shock** — IEC 60068-2-27
- **Freefall** — IEC 60068-2-32
- **Vibration** — IEC 60068-2-6

Ordering Information

- **EKI-7659CPI** — 8FE + 2G Combo Port Managed PoE Ethernet Switch w/Wide Temp

ADVANTECH | **Industrial Ethernet Solutions**

EKI-2726FHPI
4G+2 SFP W/ 4 IEEE 802.3 High Power PoE Industrial Wide Temperature Switch

NEW

Features

- All Gigabit Ethernet ports for 4 Copper and 2 SFP
- Back-plane (Switching Fabric): 12Gbps
- Embedded 4 ports PoE inject function
- Provide 30W at 55V power output
- Redundant Power Design
- IP30 Chassis Design
- Supports operating temperatures from -40 ~ 75°C

Introduction

The EKI-2726 FHPI switch has 4 x 10/100/1000BASE-T Ethernet ports with PoE+ function and 2 x SFP sockets, it has been designed to work within a wide operating temperature range.This cost-effective solution, meets the high reliability requirements and demands of industrial applications. The equipment also meets the IEEE 802.3 at standard and can provide 30Watts output per PoE port.

Specifications

Communications

- **Standard**　　　　IEEE 802.3, 802.3u, 802.3x, 802.3af/at, 802.3ab, 802.3z
- **LAN**　　　　10/100/1000Base-T
　　　　1000Base-SX/LX/LHX/XD/ZX/EZX
- **Transmission Distance**　　　　Ethernet: Up to 100 m
　　　　SFP: Up to 110 km (depends on SFP)
- **Transmission Speed**　　　　Copper: 10/100/1000 Mbps, Auto-Negotiation
　　　　Gigabit Fiber: Up to 1000 Mbps

Interface

- **Connectors**　　　　10/100/1000T(X): RJ-45 x 4
　　　　SFP: Gigabit Base x 2
- **LED Indicators**　　　　System: P1, P2, P-Fail,
　　　　Per port: Link/Activity, Speed, PoE (1 to 4 ports)

Power

- **Power Consumption**　　　　5.5 watts @ 48V$_{DC}$ (Ethernet only)
- **Power Input**　　　　48 V$_{DC}$ (44V$_{DC}$ to 57 V$_{DC}$), redundant dual inputs
- **Fault Output**　　　　1 Relay Output

Mechanism

- **Dimensions (W x H x D)**　　　　59.6 x 152 x 105 mm (2.35" x 5.98" x 4.13")
- **Enclosure**　　　　IP30, Metal shell with solid mounting kits
- **Mounting**　　　　DIN-rail, Wall

Protection

- **Power Reverse**　　　　Present
- **Overload Current**　　　　Present

Environment

- **Operating Temperature**　　　　-40 ~ 75°C (-40 ~ 167°F)
- **Storage Temperature**　　　　-40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity**　　　　5 ~ 95% (non-condensing)
- **MTBF**　　　　339,740 hours

Certification

- **Safety**　　　　UL/cUL508
　　　　Class I, Division 2, Groups A, B, C and D
- **EMI**　　　　FCC Part 15 Subpart B Class A, EN 55022
　　　　Class A
- **EMS**　　　　EN 61000-4-2
　　　　EN 61000-4-3
　　　　EN 61000-4-4
　　　　EN 61000-4-5
　　　　EN 61000-4-6
　　　　EN 61000-4-8
- **Shock**　　　　IEC 60068-2-27
- **Freefall**　　　　IEC 60068-2-32
- **Vibration**　　　　IEC 60068-2-6

Ordering Information

- **EKI-2726FHPI**　　　　4G+2 SFP Unmanaged Gigabit Switch with 4-port PoE+(IEEE 802.3af/at)

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

EKI-2525P
EKI-2526PI

5-port Industrial PoE Switch

6-port Industrial PoE Switch with Wide Temperature

Features

- Provides 5/6 Fast Ethernet ports with 4 PoE ports with injector function
- Supports 10/100 Mbps Auto Negotiation
- Provides broadcast storm protection
- Supports Ethernet ESD protection
- Provides Slim size, DIN-rail/Wall mount with IP30 metal mechanism
- Supports Redundant 48 V_{DC} power input and P-Fail relay
- Supports operating temperatures from -10 to 60°C (EKI-2525P)
- Supports wide operating temperature -40 ~ 75°C (EKI-2526PI)

EKI-2525P   **EKI-2526PI**

Introduction

The EKI-2525P is a 5-port unmanaged PoE (Power-over-Ethernet) Industrial Ethernet switch and EKI-2526PI is a 6-port unmanaged PoE Industrial Ethernet switch, they support 4 PoE ports which are classified as power source equipments (PSE). The PoE devoces makes centralized power supply come true and provides up to 15.4 watts of power per port. Advantech EKI PoE devices can be used to power IEEE 802.3af compliant powered devices (PD) by Ethernet cable and eliminates the need for additional power wiring. Advantech EKI PoE devices come equipped with all the standard features of the EKI family. Furthermore, it offers a 48 V_{DC} redundant power input design (EKI-2525P/EKI-2526PI), and is secured with a double protection mechanism; Power Polarity Reverse Protect and an Overload Current Resettable Fuse. Advantech EKI PoE devices come with compact metal housing that rates IP30 to help against from dusty industrial environments.

Specifications

Communications

- **Standard**   IEEE 802.3, 802.3u, 802.3x, 802.3af
- **LAN**   10/100Base-T (X)
- **Transmission Distance**   Ethernet: Up to 100 m (EKI-2525P/EKI-2526PI)
- **Transmission Speed**   Up to 100 Mbps

Fiber Optics (EKI-252SPI)

- **Single-mode**   1310 nm
  Tx Power: -8/-15 dBm
  Rx Sensitivity: -34 dBm
  Parameters: 9/125 um

Interface

- **Connectors**   PoE Ports: 4 (Ports 1 ~ 4)
  Ethernet x1 (EKI-2525P)
  Ethernet x2 (EKI-2526PI)
  6-pin removable screw terminal (power & relay)
- **LED Indicators**   P1, P2, P-Fail
  10/100TX: Link/Activity, Duplex/Collision

Power

- **Power Consumption**   EKI-2525P: 65 W (Full load PoE)
  EKI-2526PI: 62.6 W (Full load PoE)
- **Power Input**   48 V_{DC} (EKI-2525P/EKI-2526PI), redundant dual inputs
- **Power Output**   15.4 W at 48 V (per PoE port)
- **Fault Output**   1 Relay Output

Mechanism

- **Dimensions (W x H x D)**   37 x 140 x 95 mm (1.46" x 5.51" x 3.74")
  (EKI-2525P)
  48.6 x 140 x 95 mm (1.91" x 5.51" x 3.74")
  (EKI-2526PI)
- **Enclosure**   IP30, Metal shell with solid mounting kits
- **Mounting**   DIN-rail, Wall

Protection

- **Reverse Polarity**   Present
- **Overload current**   Present

Environment

- **Operating Temperature**   -10 ~ 60°C (14 ~ 140°F) (EKI-2525P)
  -40 ~ 75°C (-40 ~ 167°F) (EKI-2526PI)
- **Storage Temperature**   -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity**   5 ~ 95% (non-condensing)
- **Storage Humidity**   0 ~ 95% (non-condensing)
- **MTBF**   440,132 hours

Certification

- **Safety**   UL 60950-1, CAN/CSA-C22.2 No.60950
- **EMI**   FCC Part 15 Subpart B Class A, EN 55022 Class A
- **EMS**   EN 61000-4-2
  EN 61000-4-3
  EN 61000-4-4
  EN 61000-4-5
  EN 61000-4-6
  EN 61000-4-8
- **Shock**   IEC 60068-2-27
- **Freefall**   IEC 60068-2-32
- **Vibration**   IEC 60068-2-6

Ordering Information

- **EKI-2525P**   5-port Switch with 4 port-PoE
- **EKI-2526PI**   6-port Switch with 4 port-PoE

ADVANTECH | **Industrial Ethernet Solutions**

EKI-2701HPI

NEW

Features

- Supports 10/100/1000Base-T (X) for PoE+ OUT and Data IN
- IEEE 802.3af/at compliant, supports a full 30 watt output
- Power input (24 ~ 48 V_{DC}), inject 30 W for each port
- Provides slim size and DIN-rail/Wall mount with IP30 metal mechanism
- Supports operating temperatures from -40 to 75°C

Introduction

With PoE (Power over Ethernet) technology, we can transfer both data and electrical power to Ethernet-enabled devices using a standard CAT5 cable. EKI-2701HPI is compliant IEEE 802.3af/at and inject 30W for PD device. This product can operate in a wide range of Temp. between -40 to 75°C and support wide power input range between 24 to 48 V_{DC} .

Specifications

Communications

- **Standard**   IEEE 802.3, 802.3u, 802.3x, 802.3af/at, 802.3ab
- **LAN**   10/100/1000Base-T (X)
- **Transmission Distance** Up to 100 m
- **Transmission Speed** up to 1000 Mbps

Interface

- **Connectors**   PoE OUT: RJ45
                          DATA IN: RJ45
                          6-pin removable screw terminal
- **LED Indicators**   PWR1, PWR2, PoE status, Link/Activity

Power

- **Power Consumption**   Max. 33.36 W @ 24 V_{DC} (Full load PoE)
- **Power Input**   24 ~ 48 V_{DC}, redundant dual power inputs
- **Power Output**   30 W @ 24 V_{DC}

Mechanism

- **Dimensions (W x H x D)** 37 x 140 x 95 mm (1.46" x 5.51" x 3.74")
- **Enclosure**   IP30, Metal shell with solid mounting kits
- **Mounting**   DIN-rail, Wall

Protection

- **Reverse**   Present
- **Overload Current**   Present

Environment

- **Operating Temperature** -40 ~ 75°C (-40 ~ 167°F)
- **Storage Temperature**   -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity**   5 ~ 95% (non-condensing)
- **Storage Humidity**   0 ~ 95% (non-condensing)
- **MTBF**   1,419,817 hours

Certification

- **Safety**   UL508
- **EMI**   FCC Part 15 Subpart B Class A, EN 55022 Class A
- **EMS**   EN 61000-4-2
                          EN 61000-4-3
                          EN 61000-4-4
                          EN 61000-4-5
                          EN 61000-4-6
                          EN 61000-4-8
- **Shock**   IEC 60068-2-27
- **Freefall**   IEC 60068-2-32
- **Vibration**   IEC 60068-2-6

Ordering Information

- **EKI-2701HPI**   PoE+ Injector, support a full 30 W output

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

EKI-9778

1U Rackmount Industrial-Class Switch with Combo Port Flexibility 24GbE + 4 10GbE Managed Switch

NEW

Features

- Switching architecture with 24 x GbE ports and 4 x 10GbE ports
- 16 x gigabit combo ports (1000BASE-T/TX or GbE SFP)
- 4 x 10 Gigabit SFP+ ports
- 2 x redundant power 110 ~ 220 V_{AC} input
- Fanless design
- IEEE1588 PTPv2 with 1-step precision clock
- 128 Gbps switch fabric capacity supported
- Embedded hardware monitor
- Operating temperature -10 ~ 60°C

FCC CE

Introduction

The EKI-9778 Industrial-Class switch represents the entry level of Advantech's rackmount industrial class switch portfolio; EKI-9778 Industrial-Class switch is designed for flexible installation, and can be deployed in demanding industrial environments. The EKI-9778 gigabit combo switch design makes network planning easy, and allows greater flexibility for users install up to 16 Gigabit Ethernet combo ports plus 8 Gigabit 1000Base-X and 4 10 Gigabit SFP+ ports, making EKI-9778 suitable for edge to core industrial networks. It integrates Layer 2 switching software, which is optimized for scale and performance, delivering wire speed across all ports up to 128Gbps for layer 2 traffic forwarding. In addition, the fanless convection design provides a high degree of reliability, operating under -10 ~ 60°C operating temperatures, and two built-in 110 ~ 220 V_{AC} input redundant power modules ensure vital network capabilities with minimum downtime.

Specifications

Interface

I/O Port	4 x 10GbE SFP+ slot
	8 x 1000Base-X SFP
	16 x Gigabit Combo Port
	(10/100/1000Base-T(X) or 1000Base-X SFP)
Console port	RJ-45
F/W upgraded	USB
Power Connector	AC Socket

Physical

Enclosure	Metal Shell
Installation	Rack-Mount
Dimensions (W x H x D)	446 x 44 x 352 (mm)

LED Display

System LED	PWR1, PWR2, SYS, CFG, Alarm
Port LED	Link / Activity / Speed

Environment

Operating Temperature	-10 ~ 60°C
Storage Temperature	-40 ~ 85°C
Ambient Relative Humidity	5 ~ 95% (non-condensing)
Humidity	5 ~ 95% (non-condensing)

Power

Power Consumption	~72 Watts Max
Power Input	110 ~ 220 V_{AC} Redundant Inputs

Certification

EMI	FCC Part 15 Subpart B Class A
	CE EN55022, EN55024
Safety	EN 60950-1*
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Vibration	IEC 60068-2-6

L2 Features

L2 MAC Address	16K
Jumbo Frame	12KB
VLAN Group	4K (VLAN ID 1~4094)
VLAN Arrange	Mac based VLAN, Protocol based VLAN, IP subnet based VLAN, Port based VLAN, Q-in-Q (VLAN Stacking), GVRP
Port Mirroring	Per port, Multi-source port
IP Multicast	IGMP Snooping v1/v2/v3, MLD Snooping, IGMP Immediate leave
Storm Control	Broadcast, Multicast, Unknown unicast
Spanning Tree	IEEE 802.1D-STP, IEEE 802.1s-MSTP, IEEE 802.1w-RSTP, X-Ring+

QoS

Scheduling for priority queue	WRR (Weighted Round Robin), SP (Strict Priority), Hybrid Priority
Class of Service	IEEE 802.1p Based CoS, IP TOS, DSCP based CoS
Rate Limiting	Ingress Rate limit, Egress Rate limit
Link Aggregation	IEEE 802.3ad Dynamic Port Trunking, Static Port Trunking

Security

Port Security	Static, Dynamic
Authentication	802.1x (Port-Based, MAC-Based, MD5/TLS/TTLS/PEAP Encryption), RADUIS, TCACAS+
ACL	1K rules
Advanced Security	IP Source guard, ARP inspection, DHCP Snooping

Management

DHCP	Client, Server, Relay, Option66/67/82
Access	SNMP v1/v2c/v3, WEB, Telnet, RMON, Standard MIB, Private MIB
Security access	SSH2.0, SSL
Software upgrade	TFTP, HTTP, Dual Image
NTP	NTP client/server

* EN 60950-1 is ongoing

Ordering Information

- **EKI-9778-C0SA820E**   Layer 2 Fastpath, 8xGbE SFP slot + 16xGbE Combo Port + 4x(10GbE SFP+ slot) w/110 ~ 220 V_{AC} Redundant Power Input Mass Production

Contact our sales for more pricing & ordering information.

ADVANTECH | **Industrial Ethernet Solutions**

EKI-9312

Industrial-Class 12 Port Full Gigabit Managed DIN Rail Switch

NEW

Features

- All Gigabit connections support dual-ring protection and non-blocking traffic forwarding
- X-Ring+: recovery time within 20ms for 250 node connections
- STP, RSTP, MSTP for better redundancy
- Super security mechanism includes SSL,SSH, 802.1X, MAC, IP filtering, RADIUS, TACACS+, VLAN for access protection
- Dual power input, dual image for system reliability
- Operating temperature: -40 ~ 75°C

FC CE

Introduction

The EKI-9312 Gigabit Managed Ethernet Switches are designed for rigorous mission critical applications, such as factory automation, ITS, and process control. The 4 Gigabit Ethernet ports allow great flexibility to build up a Gigabit redundant ring and a Gigabit uplink.

The EKI-9312 is equipped with 8 Gigabit Ethernet ports and up to 4 fiber optic ports, making them ideal for upgrading an existing network to Gigabit speed or building a new, full Gigabit network. The X-Ring+ with RSTP, STP and MSTP support, increases system reliability and the availability of your network. The EKI-9312 are designed especially for communication demanding applications, such as video and process monitoring, or intelligent transportation systems, all of which can benefit from a scalable backbone construction.

Specifications

Interface

I/O Port	8 x 10/100/1000Base-T/TX RJ-45 4 x 1000BASE-X SFP
Console port	RJ-45
F/W backup port	USB
Power Connector	6-pin screw Terminal Block (including relay)

Physical

Enclosure	Aluminum Shell
Protection Class	IP 30
Installation	DIN Rail
Dimensions (W x H x D)	86 x 165 x 125 (mm)

LED Display

System LED	PWR1, PWR2, SYS, CFG, Alarm and R.M.
Port LED	Link / Speed / Activity

Environment

Operating Temperature	-40 ~ 75°C
Storage Temperature	-40 ~ 85°C
Ambient Relative Humidity	10 ~ 95% (non-condensing)
Humidity	10 ~ 95% (non-condensing)

Power

Power Consumption	~ 21.82 Watts (System)
Power Input	24/48 V_{DC} dual inputs

Certification

EMI	CE, FCC Class A
Safety	UL60950 C1D2
EMC	EN61000-6-4; EN61000-6-2; EN61000-4-2 (ESD) Level 4 EN61000-4-3 (RS) Level 3; EN61000-4-4 (EFT) Level 4 EN61000-4-5 (Surge) Level 4; EN61000-4-6 (CS) Level 3 EN61000-4-8 (Magnetic Field) Level 4; EN50121-4
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Vibration	IEC 60068-2-6

L2 Features

L2 MAC Address	16K
Jumbo Frame	12KB
VLAN Group	4K (VLAN ID 1~4094)
VLAN Arrange	Mac based VLAN, Protocol based VLAN, IP subnet based VLAN, Port based VLAN, Q-in-Q (VLAN Stacking), GVRP
Port Mirroring	Per port, Multi-source port, RSAPN,
IP Multicast	IGMP Snooping v1/v2/v3, MLD Snooping, IGMP Immediate leave
Storm Control	Broadcast, Multicast, Unknown unicast
Spanning Tree	IEEE 802.1D-STP, IEEE 802.1s-MSTP, IEEE 802.1w-RSTP, X-Ring+

QoS

Priority Queue Scheduling	WRR (Weighted Round Robin), SP (Strict Priority), Hybrid Priority
Class of Service	IEEE 802.1p Based CoS, IP TOS, DSCP based CoS
Rate Limiting	Ingress Rate limit, Egress Rate limit
Link Aggregation	IEEE 802.3ad Dynamic Port Trunking, Static Port Trunking

Security

Port Security	Static, Dynamic
Authentication	802.1x (Port-Based, MAC-Based, MD5/TLS/TTLS/PEAP Encryption), RADUIS, TCACAS+
ACL	1K rules
Advanced Security	IP Source guard, ARP inspection, DHCP Snooping

Management

DHCP	Client, Server, Relay, Option66/67/82
Access	SNMP v1/v2c/v3, WEB, Telnet, RMON, Standard MIB, Private MIB
Security access	SSH2.0, SSL
Software upgrade	TFTP, HTTP, Dual Image
NTP	NTP client/server

Ordering Information

- **EKI-9312-C0ID42E** — Layer 2 Fastpath, 8xGbE 100/1000Base-T + 4x GbE SFP w/ 24/48 V_{DC} Redundant Power Input

Contact our sales for more pricing & ordering information.

1 WebAccess+ Solutions
2 Motion Control
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4 Automation Software
5 Intelligent Operator Panel
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16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

EKI-9316

Industrial-Class 16 Port Full Gigabit Managed DIN Rail Switch

NEW

FC CE

Features

- All Gigabit connections support dual-ring protection and non-blocking traffic forwarding
- X-Ring+: recovery time within 20ms for 250 node connections
- STP, RSTP, MSTP for better redundancy
- Super security mechanism includes SSL,SSH, 802.1X, MAC, IP filtering, RADIUS, TACACS+, VLAN for access protection
- Dual power input, dual image for system reliability
- Operating temperature: -40 ~ 75°C

Introduction

The EKI-9316 Gigabit Managed Ethernet Switches are designed for rigorous mission critical applications, such as factory automation, ITS, and process control. The 4 Gigabit Ethernet ports allow great flexibility to build up a Gigabit redundant ring and a Gigabit uplink.

The EKI-9316 is equipped with 12 Gigabit Ethernet ports and up to 4 fiber optic ports, making them ideal for upgrading an existing network to Gigabit speed or building a new, full Gigabit network. The X-Ring+ with RSTP, STP and MSTP support, increases system reliability and the availability of your network. The EKI-9316 is designed especially for communication demanding applications, such as video and process monitoring, or intelligent transportation systems, all of which can benefit from a scalable backbone construction.

Specifications

Interface

- **I/O Port**   12 x 10/100/1000Base-T/TX RJ-45
                                   4 x 1000 BASE-X SFP
- **Console port**   RJ-45
- **F/W backup port**   USB
- **Power Connector**   6-pin screw Terminal Block (including relay)

Physical

- **Enclosure**   Aluminum Shell
- **Protection Class**   IP 30
- **Installation**   DIN Rail
- **Dimensions (W x H x D)**   86 x 165 x 125 (mm)

LED Display

- **System LED**   PWR1, PWR2, SYS, CFG, Alarm and R.M.
- **Port LED**   Link / Speed / Activity

Environment

- **Operating Temperature**   -40 ~ 75°C
- **Storage Temperature**   -40 ~ 85°C
- **Ambient Relative Humidity**   10 ~ 95% (non-condensing)
- **Humidity**   10 ~ 95% (non-condensing)

Power

- **Power Consumption**   ~ 21.82 Watts (System)
- **Power Input**   24/48 V_{DC} dual inputs

Certification

- **EMI**   CE, FCC Class A
- **Safety**   UL60950 C1D2
- **EMC**   EN61000-6-4; EN61000-6-2; EN61000-4-2 (ESD) Level
                    4 EN61000-4-3 (RS) Level 3; EN61000-4-4 (EFT) Level 4
                    EN61000-4-5 (Surge) Level 4;
                    EN61000-4-6 (CS) Level 3 EN61000-4-8
                    (Magnetic Field) Level 4; EN50121-4
- **Shock**   IEC 60068-2-27
- **Freefall**   IEC 60068-2-32
- **Vibration**   IEC 60068-2-6

L2 Features

- **L2 MAC Address**   16K
- **Jumbo Frame**   12KB
- **VLAN Group**   4K (VLAN ID 1~4094)
- **VLAN Arrange**   Mac based VLAN, Protocol based VLAN, IP subnet based VLAN, Port based VLAN, Q-in-Q (VLAN Stacking), GVRP
- **Port Mirroring**   Per port, Multi-source port, RSAPN,
- **IP Multicast**   IGMP Snooping v1/v2/v3, MLD Snooping, IGMP Immediate leave
- **Storm Control**   Broadcast, Multicast, Unknown unicast
- **Spanning Tree**   IEEE 802.1D-STP, IEEE 802.1s-MSTP, IEEE 802.1w-RSTP, X-Ring+

QoS

- **Priority Queue Scheduling**   WRR (Weighted Round Robin), SP (Strict Priority), Hybrid Priority
- **Class of Service**   IEEE 802.1p Based CoS, IP TOS, DSCP based CoS
- **Rate Limiting**   Ingress Rate limit, Egress Rate limit
- **Link Aggregation**   IEEE 802.3ad Dynamic Port Trunking, Static Port Trunking

Security

- **Port Security**   Static, Dynamic
- **Authentication**   802.1x (Port-Based, MAC-Based, MD5/TLS/TTLS/PEAP Encryption), RADUIS, TCACAS+
- **ACL**   1K rules
- **Advanced Security**   IP Source guard, ARP inspection, DHCP Snooping

Management

- **DHCP**   Client, Server, Relay, Option66/67/82
- **Access**   SNMP v1/v2c/v3, WEB, Telnet, RMON, Standard MIB, Private MIB
- **Security access**   SSH2.0, SSL
- **Software upgrade**   TFTP, HTTP, Dual Image
- **NTP**   NTP client/server

Ordering Information

- **EKI-9316-C0ID42E**   Layer 2 Fastpath, 12xGbE 100/1000Base-T + 4x GbE SFP w/ 24/48 V_{DC} Redundant Power Input

Contact our sales for more pricing & ordering information.

EKI-7758F

4G+4 SFP Gigabit Managed Redundant Industrial Ethernet Switch

1 WebAccess+ Solutions

2 Motion Control

3 Power & Energy Automation

4 Automation Software

5 Intelligent Operator Panel

6 Automation Panels

7 Panel PCs

8 Industrial Wireless Solutions

9 Industrial Ethernet Solutions

10 Industrial Gateway Solutions

11 Serial communication cards

12 Embedded Automation PCs

13 DIN-Rail IPCs

14 CompactPCI Systems

15 IoT Wireless I/O Modules

16 IoT Ethernet I/O Modules

17 RS-485 I/O Modules

18 Data Acquisition Boards

Features

- All Gigabit Ethernet ports for 4 Copper and 4 SFP
- SFP sockets for easy and flexible fiber expansion
- Redundancy: Gigabit X-Ring Pro (ultra high-speed recovery time < 20 ms), RSTP/STP (802.1w/1D)
- Management: Web, Telnet, Serial Console, SNMP
- Control: VLAN/GVRP, QoS, IGMP Snooping/Query, LACP, Rate Limit
- Security: IP/MAC and port binding, DHCP Server, IP access list, 802.1X, SSL
- Diagnostic: Port statistic, Port Mirroring, RMON, Trap, Email Alert, Syslog
- Dual 12 ~ 48 V_{DC} power input and 1 relay output

Introduction

The EKI-7758F supports eight Gigabit ports with four Ethernet and four SFP. To create reliability in your network, the EKI-7758F comes equipped with a proprietary redundant network protocol -- X-Ring that was developed by Advantech, which provides users with an easy way to establish a redundant Ethernet network with ultra high-speed recovery time less than 20 ms. Furthermore, the EKI-7758F also supports many advanced network standards to optimize network performance, ease maintenance issues, and secure network safety.

Specifications

Communications

- **Standard** IEEE 802.3, 802.3u, 802.3x, 802.3z, 802.1D, 802.1w, 802.1p, 802.1Q, 802.1X, 802.3ad, 802.3ab
- **LAN** 100Base-T (X), 10/1000Base-T, Optional 100Base-FX, 1000Base-SX/LX/LHX/XD/ZX/EZX
- **Transmission Distance** Ethernet : Up to 100 m (4- wire Cat.5e, Cat.6 RJ45 cable suggested for Gigabit port) SFP: Up to 110 km (depends on SFP)
- **Transmission Speed** Gigabit Copper:10/100/1000 Mbps, Auto-Negotiation SFP: Up to 1000 Mbps

Interface

- **Connectors** 4 x RJ45 (Ethernet) 4 x SFP (mini-GBIC) ports 6-pin removable screw terminal (Power & Relay)
- **LED Indicators** System: PWR, R.M., PWR1, PWR2, P-Fail Gigabit Copper: Link/Activity, Speed SFP: Link/Activity
- **Console** RS-232 (RJ45)

Network Management

- **Configuration** Web browser, Telnet, Serial consloe, TFTP, SNMPv1/v2c/v3, Port Speed/Duplex Configuration, IPv6
- **VLAN** IEEE 802.1Q, GVRP, Port-based VLAN
- **Redundancy** Advantech X-Ring Pro (Recovery time < 20 ms at 250 pcs full loading ring structure), Dual Homing, Dual Ring, Couple Ring, 802.1w/D RSTP/STP
- **Security** IP Access security, port security, DHCP Server, Port and IP Binding, 802.1X Port Access Control, SSL
- **Traffic Control** IGMP Snooping/Query for multicast group management, Port Trunking, Static/802.3ad, LACP Rate limit and storm control, IEEE 802.1p QoS CoS/TOS/DSCP priority queuing, IEEE 802.3x flow control
- **Diagnostics** Port Mirroring, Real-time traffic statistic, MAC Address Table, SNTP, Syslog, E-Mail Alert, SNMP Trap, RMON

Mechanism

- **Enclosure** IP30, metal shell with solid mounting kits
- **Dimensions (W x H x D)** 79 x 152 x 105 mm (3.11" x 5.98" x 4.13")
- **Mounting** DIN-rail, Wall

Power

- **Power Consumption** Max. 17 W
- **Power Input** 12 ~ 48 V_{DC}, redundant dual inputs
- **Fault Output** 1 Relay Output

Protection

- **Power Reverse** Present
- **Overload Current** Present

Environment

- **Operating Temperature** -10 ~ 60°C (14 ~ 140°F)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** 5 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)
- **MTBF** 289,777 hours

Certification

- **Safety** UL 60950-1, CAN/CSA-C22.2 No.60950 Class I, Division 2
- **EMI** FCC Part 15 Subpart B Class A, EN 55022 Class A
- **EMS** EN 61000-4-2 EN 61000-4-3 EN 61000-4-4 EN 61000-4-5 EN 61000-4-6 EN 61000-4-8
- **Shock** IEC 60068-2-27
- **Freefall** IEC 60068-2-32
- **Vibration** IEC 60068-2-6

Ordering Information

- **EKI-7758F** 4G+4 SFP Managed Gigabit Ethernet Switch

EKI-7656C/CI

16+2G Combo Port Gigabit Managed Redundant Industrial Ethernet Switch

Features

- 2 Gigabit Copper/SFP combo ports, plus 16 Fast Ethernet ports
- SFP socket for Easy and Flexible Fiber Expansion
- Redundancy: Gigabit X-Ring Pro (ultra high-speed recovery time < 20 ms), RSTP/STP (802.1w/1D)
- Management: Web, Telnet, Serial Console, SNMP
- Control: VLAN/GVRP, QOS, IGMP Snooping/Query, LACP, Rate Limit
- Security: IP/MAC and port binding, DHCP Server, IP access list, 802.1X, SSL, SNMPv3
- Diagnostic: Port Statistic, Port Mirroring, RMON, Trap, Email Alert, Syslog
- Dual 12 ~ 48 V_{DC} power inputs and 1 relay output
- Supports wide operating temperatures from -40 to 75°C (EKI-7656CI)

Introduction

The EKI-7656C supports 16 Fast Ethernet ports and 2 Gigabit combo ports. To create reliability in your network, the EKI-7656C comes equipped with a proprietary redundant network protocol -- X-Ring Pro that was developed by Advantech, which provides users with an easy way to establish a redundant Ethernet network with ultra high-speed recovery time less than 20 ms. Furthermore, EKI-7656C also supports many advanced network standards to optimize network performance, ease maintenance issues, and secure network safety.

Specifications

Communications

- **Standard** IEEE 802.3, 802.3u, 802.3x, 802.3z, 802.1D, 802.1w, 802.1p, 802.1Q, 802.1X, 802.3ad, 802.3ab
- **LAN** 10/100/1000Base-T (X), Optional 100Base-FX, 1000Base-SX/LX/LHX/XD/ZX/EZX
- **Transmission Distance** Ethernet: Up to 100 m (4- wire Cat.5e, Cat.6 RJ45 cable suggested for Gigabit port)
- **Transmission Speed** Ethernet: 10/100 Mbps Auto-Negotiation
  Gigabit Copper: 10/100/1000 Mbps, Auto-Negotiation, SFP: Up to 1000 Mbps

Interface

- **Connectors** 16 x RJ45 (Ethernet)
  2 x RJ45/SFP (mini-GBIC) combo ports
  6-pin removable screw terminal (Power&Relay)
- **LED Indicators** System: PWR, PWR1, PWR2, R.M., P-Fail
  Ethernet: Link/Activity, Duplex/Collision
  Gigabit Copper: Link/Activity, Speed (1000 Mbps)
  SFP: Link/Activity
- **Console** RS-232 (RJ45)

Network Management

- **Diagnostics** Port Mirroring, Real-time traffic statistic, MAC Address Table, SNTP, Syslog, E-Mail Alert, SNMP Trap, RMON
- **VLAN** IEEE 802.1Q, GVRP, Port-based VLAN
- **Configuration** Web browser, Telnet, Serial consloe, TFTP, SNMPv1/v2c/v3, Port Speed/Duplex Configuration, IPv6
- **Redundancy** Advantech X-Ring Pro (Recovery time < 20 ms at 250 pcs full loading ring structure), Dual Homing, Dual Ring, Couple Ring, 802.1w/D RSTP/STP
- **Security** IP Access security, port security, DHCP Server, Port and IP Binding, 802.1X Port Access Control, SSL
- **Traffic Control** IGMP Snooping/Query for multicast group management, Port Trunking, Static/802.3ad, LACP Rate limit and storm control, IEEE 802.1p QoS CoS/TOS/ DSCP priority queuing, IEEE 802.3x flow control

Mechanism

- **Enclosure** IP30, metal shell with solid mounting kits
- **Dimensions (W x H x D)** 79 x 152 x 105 mm (3.11" x 5.98" x 4.13")
- **Mounting** DIN-rail, Wall

Power

- **Power Consumption** Max. 10.7 W
- **Power Input** 12 ~ 48 V_{DC}, redundant dual inpuds
- **Fault Output** 1 Relay Output

Protection

- **Power Reverse** Present
- **Overload Current** Present

Environment

- **Operating Temperature** -10 ~ 60°C (14 ~ 140°F)
  -40 ~ 75°C (-40 ~ 167°F) (EKI-7656CI)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** 5 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)
- **MTBF** 295,000 hours

Certification

- **Safety** UL 60950-1, CAN/CSA-C22.2 No.60950
- **EMI** FCC Part 15 Subpart B Class A, EN 55022 Class A
- **EMS** EN 61000-4-2
  EN 61000-4-3
  EN 61000-4-4
  EN 61000-4-5
  EN 61000-4-6
  EN 61000-4-8
- **Shock** IEC 60068-2-27
- **Freefall** IEC 60068-2-32
- **Vibration** IEC 60068-2-6

Ordering Information

- **EKI-7656C** 16FE + 2G Combo Port Managed Ethernet Switch
- **EKI-7656CI** 16FE + 2G Combo Port Managed Ethernet Switch w/ Wide Temp

ADVANTECH **Industrial Ethernet Solutions**

EKI-7659C/CI

8+2G Combo Port Gigabit Managed Redundant Industrial Ethernet Switch

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

Features

- 2 Gigabit Copper/SFP combo ports, plus 8 Fast Ethernet ports
- SFP socket for Easy and Flexible Fiber Expansion
- Redundancy: Gigabit X-Ring Pro (ultra high-speed recovery time < 20 ms), RSTP/STP (802.1w/1D)
- Management: Web, Telnet, Serial Console, SNMP
- Control: VLAN/GVRP, QoS, IGMP Snooping/Query, LACP, Rate Limit
- Security: IP/MAC and port binding, DHCP Server, IP access list, 802.1X, SSL, SNMPv3
- Diagnostic: Port Statistic, Port Mirroring, RMON, Trap, Email Alert, Syslog
- Dual 12 ~ 48 V_{DC} power input and 1 relay output
- Supports wide operating temperatures from -40 to 75°C (EKI-7669CI)

Introduction

Th EKI-7659C supports eight Fast Ethernet ports and two Gigabit combo ports. To create reliability in your network, the EKI-7659C comes equipped with a proprietary redundant network protocol -- X-Ring Pro that was developed by Advantech, which provides users with an easy way to establish a redundant Ethernet network with ultra high-speed recovery time less than 20 ms. Furthermore, EKI-7659C also supports many advanced network standards to optimize network performance, ease maintenance issues, and secure network safety.

Specifications

Communications

- **Standard** IEEE 802.3, 802.3u, 802.3x, 802.3z, 802.1D, 802.1w, 802.1p, 802.1Q, 802.1X, 802.3ad, 802.3ab
- **LAN** 10/100/1000Base-T (X), Optional 100Base-FX, 1000Base-SX/LX/LHX/XD/ZX/EZX
- **Transmission Distance** Ethernet: Up to 100 m (4- wire Cat.5e, Cat.6 RJ45 cable suggested for Gigabit port)
  SFP: Up to 110 km (depends on SFP)
- **Transmission Speed** Ethernet: 10/100 Mbps Auto-Negotiation
  Gigabit Copper: 10/100/1000 Mbps, Auto-Negotiation
  Gigabit Fiber: Up to 1000 Mbps

Interface

- **Connectors** 8 x RJ45 (Ethernet)
  2 x RJ45/SFP (mini-GBIC) combo ports
  6-pin removable screw terminal (Power & Relay)
- **LED Indicators** System: PWR, PWR1, PWR2, R.M., P-Fail
  10/100T (X): Link/Activity, Duplex/Collision
  Gigabit Copper: Link/Activity, Speed (1000 Mbps)
  SFP: Link/Activity
- **Console** RS-232 (RJ45)

Network Management

- **Configuration** Web browser, Telnet, Serial console, TFTP, SNMPv1/v2c/v3, Port Speed/Duplex Configuration, IPv6
- **VLAN** IEEE 802.1Q, GVRP, Port-based VLAN
- **Redundancy** Advantech X-Ring Pro (Recovery time < 20 ms at 250 pcs full loading ring structure), Dual Homing, Dual Ring, Couple Ring, 802.1w/D RSTP/STP
- **Security** IP Access security, port security, DHCP Server, Port and IP Binding, 802.1X Port Access Control, SSL
- **Traffic Control** IGMP Snooping/Query for multicast group management, Port Trunking, Static/802.3ad, LACP Rate limit and storm control, IEEE 802.1p QoS CoS/TOS/DSCP priority queuing, IEEE 802.3x flow control
- **Diagnostics** Port Mirroring, Real-time traffic statistic, MAC Address Table, SNTP, Syslog, E-Mail Alert, SNMP Trap, RMON

Mechanism

- **Enclosure** IP30, metal shell with solid mounting kits
- **Dimensions (W x H x D)** 79 x 152 x 105 mm (3.11" x 5.98" x 4.13")
- **Mounting** DIN-rail, Wall

Power

- **Power Consumption** Max. 10.7 W
- **Power Input** 12 ~ 48 V_{DC}, redundant dual inputs
- **Fault Output** 1 Relay Output

Protection

- **Power Reverse** Present
- **Overload Current** Present

Environment

- **Operating Temperature** -10 ~ 60°C (14 ~ 140°F)
  -40 ~ 75°C (-40 ~ 167°F) (EKI-7659CI)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** 5 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)
- **MTBF** 284,409 hours

Certification

- **Safety** UL 60950-1, CAN/CSA-C22.2 No.60950
- **EMI** FCC Part 15 Subpart B Class A, EN 55022 Class A
- **EMS** EN 61000-4-2
  EN 61000-4-3
  EN 61000-4-4
  EN 61000-4-5
  EN 61000-4-6
  EN 61000-4-8
- **Shock** IEC 60068-2-27
- **Freefall** IEC 60068-2-32
- **Vibration** IEC 60068-2-6

Ordering Information

- **EKI-7659C** 8FE + 2G Combo Port Managed Ethernet Switch
- **EKI-7659CI** 8FE + 2G Combo Port Managed Ethernet Switch w/ Wide Temp

EKI-7657C/CI

7+3G Combo Port Gigabit Managed Redundant Industrial Ethernet Switch with 2 x DI/O

Features

- 3 Gigabit Copper/SFP combo ports, plus 7 Fast Ethernet ports
- 2 Digital Inputs and 2 Digital Outputs for Events and Alarms in the Network
- SFP socket for Easy and Flexible Fiber Expansion
- Redundancy: Gigabit X-Ring Pro (ultra high-speed recovery time < 20 ms), RSTP/STP (802.1w/1D)
- Management: Web, Telnet, Serial Console, SNMP
- Control: VLAN/GVRP, QoS, IGMP Snooping/Query, LACP, Rate Limit
- Security: IP/MAC and port binding, DHCP Server, IP access list, 802.1X, SSL, SNMPv3
- Diagnostic: Port Statistics, Port Mirroring, RMON, Trap, Email Alert, Syslog
- Dual 12 ~ 48 V_{DC} power input and 1 relay output
- Operating temperature from -40 to 75°C (EKI-7657CI)

Introduction

The EKI-7657C supports seven Fast Ethernet ports and three Gigabit combo ports with 2 x Digital Input and Digital Output ports. To create reliability in your network, the EKI-7657C comes equipped with a proprietary redundant network protocol -- X-Ring Pro that was developed by Advantech, which provides users with an easy way to establish a redundant Ethernet network with ultra high-speed recovery time less than 20 ms. Furthermore, the EKI-7657C also supports many advanced network standards to optimize network performance, ease maintenance issues, and secure network safety.

Specifications

Communications

- **Standard** IEEE 802.3, 802.3u, 802.3x, 802.3z, 802.1D, 802.1w, 802.1p, 802.1Q, 802.1X, 802.3ad, 802.3ab
- **LAN** 10/100/1000Base-T (X), Optional 100Base-FX, 1000Base-SX/LX/LHX/XD/ZX/EZX
- **Transmission Distance** Ethernet: Up to 100 m (4- wire Cat.5e, Cat.6 RJ45 cable suggested for Gigabit port)
SFP: Up to 110 km (depends on SFP)
- **Transmission Speed** Ethernet: 10/100 Mbps Auto-Negotiation
Gigabit Copper: 10/100/1000 Mbps, Auto-Negotiation
Gigabit Fiber: Up to 1000 Mbps

Interface

- **Connectors** 7 x RJ45 (Ethernet)
3 x RJ45/SFP (mini-GBIC) combo ports
1 x 6-pin removable terminal (Power & Relay)
- ▪ 1 x 6-pin removable terminal (DI/DO)
- **LED Indicators** System: PWR, PWR1, PWR2, R.M., P-Fail
10/100T (X): Link/Activity, Duplex/Collision
Gigabit Copper: Link/Activity, Speed (1000 Mbps)
SFP: Link/Activity
- **Console** RS-232 (RJ45)

Network Management

- **Configuration** Web browser, Telnet, Serial console, TFTP, SNMPv1/v2c/v3, Port Speed/Duplex Configuration, IPv6
- **VLAN** IEEE 802.1Q, GVRP, Port-based VLAN
- **Redundancy** Advantech X-Ring Pro (Recovery time < 20 ms at 250 pcs full loading ring structure), Dual Homing, Dual Ring, Couple Ring, 802.1w/D RSTP/STP
- **Security** IP Access security, port security, DHCP Server, Port and IP Binding, 802.1X Port Access Control, SSL
- **Traffic Control** IGMP Snooping/Query for multicast group management, Port Trunking, Static/802.3ad, LACP Rate limit and storm control, IEEE 802.1p QoS CoS/TOS/ DSCP priority queuing, IEEE 802.3x flow control
- **Diagnostics** Port Mirroring, Real-time traffic statistic, MAC Address Table, SNTP, Syslog, Email Alert, SNMP Trap, RMON

Mechanism

- **Enclosure** IP30, metal shell with solid mounting kits
- **Dimensions (W x H x D)** 79 x 152 x 105 mm (3.11" x 5.98" x 4.13")
- **Mounting** DIN-rail, Wall

Power

- **Power Consumption** Max. 10.7 W
- **Power Input** 12 ~ 48 V_{DC}, redundant dual inputs
- **Fault Output** 1 Relay Output

Protection

- **Power Reverse** Present
- **Overload Current** Present

Environment

- **Operating Temperature** -10 ~ 60°C (14 ~ 140°F)
-40 ~ 75°C (-40 ~ 167°F) (EKI-7657CI)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** 5 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)
- **MTBF** 284,409 hours

Certifications

- **Safety** UL 60950-1, CAN/CSA-C22.2 No.60950
- **EMI** FCC Part 15 Subpart B Class A, EN 55022 Class A
- **EMS** EN 61000-4-2
EN 61000-4-3
EN 61000-4-4
EN 61000-4-5
EN 61000-4-6
EN 61000-4-8
- **Shock** IEC 60068-2-27
- **Freefall** IEC 60068-2-32
- **Vibration** IEC 60068-2-6

Ordering Information

- **EKI-7657C** 7FE + 3G Combo Port Managed Ethernet Switch w/ 2 x DI/DO
- **EKI-7657CI** 7FE + 3G Combo Port Managed Ethernet Switch w/ 2 x DI/DO and Wide Temp

ADVANTECH **Industrial Ethernet Solutions**

EKI-7654C

Features

- 2 Gigabit Copper/SFP combo ports, plus 4 Fast Ethernet ports
- Full/half duplex mode flow control
- MDI/MDI-X auto crossover
- SFP socket for Easy and Flexible Fiber Expansion
- Redundancy: Gigabit X-Ring Pro (ultra high-speed recovery time < 20 ms), RSTP/STP (802.1w/1D)
- Management: Web, Telnet, Serial Console, SNMP
- Control: VLAN/GVRP, QOS, IGMP Snooping/ Query, LACP, Rate
- Limit Security: IP/MAC and port binding, DHCP Server, IP access list, 802.1X, SSL, SNMPv3 Diagnostic: Port Statistic, Port Mirroring, RMON, SNMP Trap, SMTP, Syslog, SSL
- Dual 12 ~ 48 V_{DC} power input and 1 relay output

Introduction

The EKI-7654C supports four Fast Ethernet ports and two Gigabit combo ports. To create reliability in your network, the EKI-7654C comes equipped with a proprietary redundant network protocol -- X-Ring Pro that was developed by Advantech, which provides users with an easy way to establish a redundant Ethernet network with ultra high-speed recovery time less than 20 ms. Furthermore, the EKI-7654C also supports many advanced network standards to optimize network performance, ease maintenance issues, and secure network safety.

Specifications

Communications

- **Standard**   IEEE 802.3, 802.3u, 802.3x, 802.3z, 802.1D, 802.1w, 802.1p, 802.1Q, 802.1X, 802.3ad, 802.3ab
- **LAN**   100Base-TX, 10/1000Base-T, Optional 100Base-FX, 1000Base-SX/LX/LHX/XD/ZX/EZX
- **Transmission Distance**   Ethernet: Up to 100 m (4- wire Cat.5e, Cat.6 RJ45 cable suggested for Gigabit port) SFP: Up to 110 km (depends on SFP)
- **Transmission Speed**   Ethernet: 10/100 Mbps Auto-Negotiation Gigabit Copper: 10/100/1000 Mbps, Auto-Negotiation Gigabit Fiber: Up to 1000 Mbps

Interface

- **Connectors**   4 x RJ45 (Ethernet) 2 x RJ45/SFP (mini-GBIC) combo ports 6-pin removable screw terminal (Power & Relay)
- **LED Indicators**   System: PWR, PWR1, PWR2, R.M., P-Fail 10/100T (X): Link/Activity, Duplex/Collision Gigabit Copper: Link/Activity, Speed (1000 Mbps) SFP: Link/Activity
- **Console**   RS-232 (RJ45)

Network Management

- **Configuration**   Web browser, Telnet, Serial console, TFTP, SNMPv1/ v2c/v3, Port Speed/Duplex Configuration, IPv6
- **VLAN**   IEEE 802.1Q, GVRP, Port-based VLAN
- **Redundancy**   Advantech X-Ring Pro (Recovery time < 20 ms at 250 pcs full loading ring structure), Dual Homing, Dual Ring, Couple Ring, 802.1w/D RSTP/STP
- **Security**   IP Access security, port security, DHCP Server, Port and IP Binding, 802.1X Port Access Control, SSL
- **Traffic Control**   IGMP Snooping/Query for multicast group management, Port Trunking, Static/802.3ad, LACP Rate limit and storm control, IEEE 802.1p QoS CoS/TOS/ DSCP priority queuing, IEEE 802.3x flow control
- **Diagnostics**   Port Mirroring, Real-time traffic statistic, MAC Address Table, SNTP, Syslog, E-Mail Alert, SNMP Trap, RMON

Mechanism

- **Enclosure**   IP30, metal shell with solid mounting kits
- **Dimensions (W x H x D)**   79 x 152 x 105 mm (3.11" x 5.98" x 4.13")
- **Mounting**   DIN-rail, Wall

Power

- **Power Consumption**   Max. 10.7 W
- **Power Input**   12 ~ 48 V_{DC}, redundant dual inputs
- **Fault Output**   1 Relay Output

Protection

- **Power Reverse**   Present
- **Overload Current**   Present

Environment

- **Operating Temperature**   -10 ~ 60°C (14 ~ 140°F)
- **Storage Temperature**   -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity**   5 ~ 95% (non-condensing)
- **Storage Humidity**   0 ~ 95% (non-condensing)
- **MTBF**   284,409 hours

Certification

- **Safety**   UL 60950-1, CAN/CSA-C22.2 No.60950
- **EMI**   FCC Part 15 Subpart B Class A, EN 55022 Class A
- **EMS**   EN 61000-4-2
  EN 61000-4-3
  EN 61000-4-4
  EN 61000-4-5
  EN 61000-4-6
  EN 61000-4-8
- **Shock**   IEC 60068-2-27
- **Freefall**   IEC 60068-2-32
- **Vibration**   IEC 60068-2-6

Ordering Information

- **EKI-7654C**   4FE + 2G Combo Port Managed Ethernet Switch

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

EKI-7559SI/MI
EKI-7554SI/MI

8+2 SC Type Fiber Optic Managed Industrial Ethernet Switch with Wide Temperature

4+2 SC Type Fiber Optic Managed Industrial Ethernet Switch with Wide Temperature

Features

- 2 x SC type fiber ports, plus 4 Fast Ethernet ports. (EKI-7554SI/MI)
- 2 x SC type fiber ports, plus 8 Fast Ethernet ports. (EKI-7559SI/MI)
- Redundancy: X-Ring Pro (high-speed recovery time < 20 ms), RSTP/STP (802.1w/1D)
- Management: Web, Telnet, Serial Console, SNMP
- Control: VLAN/GVRP, QoS, IGMP Snooping/Query, LACP, Rate Limit
- Security: IP/MAC, port binding, DHCP Server, IP access list, 802.1X, SSL, SNMPv3
- Diagnostic: Port Statistic, Port Mirroring, RMON, Trap, Email Alert, Syslog
- Dual 12 ~ 48 V$_{DC}$ power input and 1 relay output
- Supports wide operating temperature -40 ~ 75°C

EKI-7559SI/MI   EKI-7554SI/MI

Introduction

Both the EKI-7554SI/MI and EKI-7559SI/MI support two SC type Fiber ports, EKI-7554SI/MI four Fast Ethernet ports and EKI-7559SI/MI can support up to eight Fast Ethernet ports. To create reliability in your network, the EKI-7554SI/MI come equipped with a proprietary redundant network protocol -- X-Ring Pro that was developed by Advantech, which provides users with an easy way to establish a redundant Ethernet network with ultra high-speed recovery time less than 20 ms. Furthermore, EKI-7554SI/MI also supports many advanced network standards to optimize network performance, ease maintenance issues, and secure network safety.

Specifications

Communications

- **Standard** — IEEE 802.3, 802.3u, 802.3x, 802.3ad, 802.1D, 802.1w, 802.1p, 802.1Q, 802.1X
- **LAN** — 10/100Base-T (X), 100Base-FX
- **Transmission Distance** — Ethernet : Up to 100 m
  Multi-mode Fiber: Up to 2 km (EKI-7554MI)
  Single-mode Fiber: Up to 30 km (EKI-7554SI)
- **Transmission Speed** — Up to 100 Mbps

Interface

- **Connectors** — 4 x RJ45 ports (EKI-7554SI/MI)
  8 x RJ45 ports (EKI-7559SI/MI)
  2 x SC type fiber optic connectors
- **LED Indicators** — System: PWR, PWR1, PWR2, R.M., P-Fail
  10/100T (X): Link/Activity, Duplex/Collision
- **Console** — RS-232 (RJ45)

Network Management

- **Configuration** — Web browser, Telnet, Serial console, TFTP, SNMPv1/v2c/v3, Port Speed/Duplex Configuration, IPv6
- **VLAN** — IEEE 802.1Q, GVRP, Port-based VLAN
- **Redundancy** — Advantech X-Ring Pro (Recovery time < 20 ms at 250 pcs full loading ring structure), Dual Homing, Dual Ring, Couple Ring, 802.1w/D RSTP/STP
- **Security** — IP Access security, port security, DHCP Server, Port and IP Binding, 802.1X Port Access Control, SSL
- **Traffic Control** — IGMP Snooping/Query for multicast group management, Port Trunking, Static/802.3ad, LACP Rate limit and storm control, IEEE 802.1p QoS CoS/TOS/ DSCP priority queuing, IEEE 802.3x flow control
- **Diagnostics** — Port Mirroring, Real-time traffic statistic, MAC Address Table, SNTP, Syslog, Email Alert, SNMP Trap, RMON

Mechanism

- **Enclosure** — IP30, metal shell with solid mounting kits
- **Dimensions (W x H x D)** — 79 x 152 x 105 mm (3.11" x 5.98" x 4.13")
- **Mounting** — DIN-rail, Wall

Power

- **Power Consumption** — Max. 7.7 W (EKI-7554SI/MI)
  Max. 8.4 W (EKI-7559SI/MI)
- **Power Input** — 12 ~ 48 V$_{DC}$, redundant dual inputs
- **Fault Output** — 1 Relay Output

Protection

- **Power Reverse** — Present
- **Overload Current** — Present

Environment

- **Operating Temperature** — -40 ~ 75°C (-40 ~ 167°F)
- **Storage Temperature** — -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** — 5 ~ 95% (non-condensing)
- **Storage Humidity** — 0 ~ 95% (non-condensing)
- **MTBF** — 262,230 hours (EKI-7554SI/MI)
  264,964 hours (EKI-7559SI/MI)

Certification

- **Safety** — UL 60950-1, CAN/CSA-C22.2 No.60950
  Class I, Division 2 (EKI-7559MI/SI)
- **EMI** — FCC Part 15 Subpart B Class A, EN 55022 Class A
- **EMS** — EN 61000-4-2
  EN 61000-4-3
  EN 61000-4-4
  EN 61000-4-5
  EN 61000-4-6
  EN 61000-4-8
- **Shock** — IEC 60068-2-27
- **Freefall** — IEC 60068-2-32
- **Vibration** — IEC 60068-2-6

Ordering Information

- **EKI-7554SI** — 4FE + 2-port Single-mode Fiber Managed Ethernet Switch w/Wide Temp
- **EKI-7554MI** — 4FE + 2-port Multi-mode Fiber Managed Ethernet Switch w/Wide Temp
- **EKI-7559SI** — 8FE + 2-port Single-mode Fiber Managed Ethernet Switch w/Wide Temp
- **EKI-7559MI** — 8FE + 2-port Multi-mode Fiber Managed Ethernet Switch w/Wide Temp

ADVANTECH | **Industrial Ethernet Solutions**

EKI-5725/I
EKI-5728/I

5-port Gigabit Ethernet ProView Switch

8-port Gigabit Ethernet ProView Switch

1 WebAccess+ Solutions

2 Motion Control

3 Power & Energy Automation

4 Automation Software

5 Intelligent Operator Panel

6 Automation Panels

7 Panel PCs

8 Industrial Wireless Solutions

9 Industrial Ethernet Solutions

10 Industrial Gateway Solutions

11 Serial communication cards

12 Embedded Automation PCs

13 DIN-Rail IPCs

14 CompactPCI Systems

15 IoT Wireless I/O Modules

16 IoT Ethernet I/O Modules

17 RS-485 I/O Modules

18 Data Acquisition Boards

Features

- Communicates with SCADA software via Modbus/TCP
- Communicates with NMS (Networking management system) via SNMP
- Port-based QoS for deterministic data transmission
- -40 ~ 75°C operating temperature range (EKI-5725I and EKI-5728I only)
- 12 ~ 48V_{DC} (8.4 ~ 52.8V_{DC}) wide-range power input
- EMS level 3 protection for extreme outdoor environments
- IEEE 802.3az Energy Efficient Ethernet (EEE)
- Jumbo Frame Support (Up to 9,216 Bytes)
- Supports redundant 12 ~ 48 V_{DC} power input and P-Fail relay
- Loop detection

EKI-5725/I   **EKI-5728/I**

Introduction

The EKI-5725/I and EKI-5728/I are the world's first convergence switches for process control and IT networking management. This series uses Modbus/TCP to communicate with the SCADA software and SNMP to communicate with the NMS (Networking Management System) at the same time, thereby allowing full read control over the devices either for control engineers or for IT. The devices come with the Port-based QoS for deterministic data transmission allows the priority ports to prioritize the traffic coming over those ports and delay the less immediately necessary data over the remaining ports. EKI-5725/I and EKI-5728/I switches use the highest quality components, to enable the range to operate in temperatures of between -40 and 75°C along with EMS Level 3 protection to repel electromagnetic interface for industrial resistance.

Specifications

Communications

- **Standard**   IEEE 802.3, 802.3u, 802.3x, 802.1p, 802.3az, 802.3ab
- **LAN**   10/100/1000Base-T(X)
- **Transmission Distance**   Up to 100 m
- **Transmission Speed**   Up to 1000 Mbps

Interface

- **Connectors**   EKI-5725/I: 5 x RJ45
  EKI-5728/I: 8 x RJ45
  6-pin removable screw terminal (power & relay)
- **LED Indicators**   P1, P2, P-Fail, Loop detection
  10/100/1000T(X): Link/Activity, Speed

Switch Properties

- **MAC Table Size**   EKI-5725/I: 2K
  EKI-5728/I: 8K
- **Packet Buffer Size**   EKI-5725/I: 1M bit
  EKI-5728/I: 4.1M bit
- **Switching Capacity**   EKI-5725/I: 10 Gbps
  EKI-5728/I: 16 Gbps
- **Jumbo Frame**   9216 bytes

Power

- **Power Consumption**   EKI-5725/I: Max. 2 W
  EKI-5728/I: Max.5.2 W
- **Power Input**   12~48 V_{DC} (8.4~52.8 V_{DC}), redundant dual inputs
- **Fault Output**   1 Relay Output

Mechanism

- **Dimensions (W x H x D)** EKI-5725/I: 27 x 120 x 84 mm
  EKI-5728/I: 43 x 120 x 84 mm
- **Enclosure**   IP30, metal shell with solid mounting kits
- **Mounting**   DIN-Rail, Wall

Protection

- **Reverse Polarity**   Present
- **Overload Current**   Present

Environment

- **Operating Temperature**   EKI-5725 & EKI-5728: -10~60°C (14~140°F)
  EKI-5725I & EKI-5728I: -40~75°C (-40~167°F)
- **Storage Temperature**   -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity**   10 ~ 95% (non-condensing)
- **Storage Humidity**   10 ~ 95% (non-condensing)
- **MTBF**   EKI-5725/I: 5,168,110 hours
  EKI-5728/I: 4,176,861 hours

Certification

- **Safety**   IEC/EN60950, UL60950, UL508, Class 1 Division 2, ATEX
- **EMI**   FCC Part 15 Subpart B Class A, EN 55011/55022 Class A
- **EMS**   EN 61000-4-2 (Level 3)
  EN 61000-4-3 (Level 3)
  EN 61000-4-4 (Level 3)
  EN 61000-4-5 (Level 3)
  EN 61000-4-6 (Level 3)
  EN 61000-4-8 (Level 3)
- **Shock**   IEC 60068-2-27
- **Freefall**   IEC 60068-2-32
- **Vibration**   IEC 60068-2-6

Ordering Information

- **EKI-5725**   5-port Gigabit Ethernet ProView Switch
- **EKI-5725I**   5-port Gigabit Ethernet ProView Switch with Wide Temperature
- **EKI-5728**   8-port Gigabit Ethernet ProView Switch
- **EKI-5728I**   8-port Gigabit Ethernet ProView Switch with Wide Temperature

EKI-5525/I
EKI-5528/I

5-port Fast Ethernet ProView Switch

8-port Fast Ethernet ProView Switch

EKI-5525/I   EKI-5528/I

Features

- Communicates with SCADA software via Modbus/TCP
- Communicates with NMS (Networking management system) via SNMP
- Port-based QoS for deterministic data transmission
- -40 ~ 75°C operating temperature range (EKI-5525I and EKI-5528I only)
- 12 ~ 48 V$_{DC}$ (8.4 ~ 52.8 V$_{DC}$) wide-range power inputEMS level 3 protection for extreme outdoor environments
- IEEE 802.3az Energy Efficient Ethernet (EEE)
- Jumbo Frame Support
- Supports redundant 12 ~ 48 V$_{DC}$ power input and P-Fail relay
- Loop detection

Introduction

The EKI-5525/I and EKI-5528/I are the world's first convergence switches for process control and IT networking management. This series uses Modbus/TCP to communicate with the SCADA software and SNMP to communicate with the NMS (Networking Management System) at the same time, thereby allowing full read control over the devices either for control engineers or for IT. The devices come with the Port-based QoS for deterministic data transmission allows the priority ports to prioritize the traffic coming over those ports and delay the less immediately necessary data over the remaining ports. EKI-5525/I and EKI-5528/I switches use the highest quality components, to enable the range to operate in temperatures of between -40 and 75°C along with EMS Level 3 protection to repel electromagnetic interface for industrial resistance.

Specifications

Communications

- **Standard** — IEEE 802.3, 802.3u, 802.3x, 802.1p, 802.3az
- **LAN** — 10/100Base-T(X)
- **Transmission Distance** — Up to 100 m
- **Transmission Speed** — Up to 100 Mbps

Interface

- **Connectors** — EKI-5525/I: 5 x RJ45
  EKI-5528/I: 8 x RJ45
  6-pin removable screw terminal (power & relay)
- **LED Indicators** — P1, P2, P-Fail, Loop detection
  10/100T (X): Link/Activity, Speed

Switch Properties

- **MAC Table Size** — EKI-5525/I: 2K
  EKI-5528/I: 8K
- **Packet Buffer Size** — EKI-5525/I: 1M bit
  EKI-5528/I: 128K bit
- **Switching Capacity** — EKI-5525/I: 1Gbps
  EKI-5528/I: 1.6 Gbps
- **Jumbo Frame** — EKI-5525/I: 9216 bytes
  EKI-5528/I: 2048 bytes

Power

- **Power Consumption** — EKI-5525/I: Max. 2 W
  EKI-5528/I: Max.3.6 W
- **Power Input** — 12~48 V$_{DC}$ (8.4~52.8 V$_{DC}$), redundant dual inputs
- **Fault Output** — 1 Relay Output

Mechanism

- **Dimensions (W x H x D)** — EKI-5525/I: 27 x 120 x 84 mm
  EKI-5528/I: 43 x 120 x 84 mm
- **Enclosure** — IP30, metal shell with solid mounting kits
- **Mounting** — DIN-Rail, Wall

Protection

- **Reverse Polarity** — Present
- **Overload Current** — Present

Environment

- **Operating Temperature** — EKI-5525 & EKI-5528: -10~60°C (14~140°F)
  EKI-5525I & EKI-5528I: -40~75°C (-40~167°F)
- **Storage Temperature** — -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** — 10 ~ 95% (non-condensing)
- **Storage Humidity** — 10 ~ 95% (non-condensing)
- **MTBF** — EKI-5525/I: 5,168,110 hours
  EKI-5528/I: 5,235,270 hours

Certification

- **Safety** — IIEC/EN60950, UL60950, UL508, Class 1 Division 2, ATEX
- **EMI** — FCC Part 15 Subpart B Class A, EN 55011/55022 Class A
- **EMS** — EN 61000-4-2 (Level 3)
  EN 61000-4-3 (Level 3)
  EN 61000-4-4 (Level 3)
  EN 61000-4-5 (Level 3)
  EN 61000-4-6 (Level 3)
  EN 61000-4-8 (Level 3)
- **Shock** — IEC 60068-2-27
- **Freefall** — IEC 60068-2-32
- **Vibration** — IEC 60068-2-6

Ordering Information

- **EKI-5525** — 5-port Fast Ethernet ProView Switch
- **EKI-5525I** — 5-port Fast Ethernet ProView Switch with Wide Temperature
- **EKI-5528** — 8-port Fast Ethernet ProView Switch
- **EKI-5528I** — 8-port Fast Ethernet ProView Switch with Wide Temperature

ADVANTECH | **Industrial Ethernet Solutions**

EKI-5729F/FI

8-Port+2 SFP Gigabit Ethernet ProView Switch

Features

- Communicates with SCADA software via Modbus/TCP
- Communicates with NMS (Networking management system) via SNMP
- Port-based QoS for deterministic data transmission
- -40 ~ 75°C operating temperature range (EKI-5729FI only)
- 12 ~ 48 V_{DC} (8.4 to 52.8 V_{DC}) wide-range power input
- EMS level 3 protection for extreme outdoor environments
- IEEE 802.3az Energy Efficient Ethernet (EEE)
- Jumbo Frame Support (Up to 9,216 Bytes)
- Supports redundant 12 ~ 48 V_{DC} power input and P-Fail relay
- Loop detection

Introduction

The EKI-5729F/FI are the world's first convergence switches for process control and IT networking management. This series uses Modbus/TCP to communicate with the SCADA software and SNMP to communicate with the NMS (Networking Management System) at the same time, thereby allowing full read control over the devices either for control engineers or for IT. The devices come with the Port-based QoS for deterministic data transmission allows the priority ports to prioritize the traffic coming over those ports and delay the less immediately necessary data over the remaining ports. EKI-5729F/FI switches use the highest quality components, to enable the range to operate in temperatures of between -40 and 75°C along with EMS Level 3 protection to repel electromagnetic interface for industrial resistance.

Specifications

Communications

- **Standard** — IEEE 802.3, 802.3u, 802.3x, 802.1p, 802.3az, 802.3ab
- **LAN** — 10/100/1000Base-T(X), Optional 100Base-FX, 1000Base-SX/LX/LHX/XD/ZX/EZX
- **Transmission Distance** — Ethernet: UP to 100 m (4-wire Cat.5e, Cat.6 RJ-45 cable suggested for Gigabit port) SFP: UP to 110 km (depends on SFP)
- **Transmission Speed** — Ethernet: 10/100/1000 Mbps Auto-Negotiation Gigabit Copper: 10/100/1000 Mbps, Auto-Negotiation Gigabit Fiber: UP to 1000 Mbps

Interface

- **Connectors** — 8 x RJ45 2 x SFP ports 6-pin removable screw terminal (power & relay)
- **LED Indicators** — P1, P2, P-Fail, Loop detection 10/100/1000T(X): Link/Activity, Speed SFP: Link/Activity

Switch Properties

- **MAC Table Size** — 8K
- **Packet Buffer Size** — 4.1M bit
- **Switching Capacity** — 20 Gbps
- **Jumbo Frame** — 9216 bytes

Power

- **Power Consumption** — Max. 6.8 W
- **Power Input** — 12~48 V_{DC} (8.4~52.8 V_{DC}), redundant dual inputs
- **Fault Output** — 1 Relay Output

Mechanism

- **Dimensions (W x H x D)** — 43 x 120 x 84 mm
- **Enclosure** — IP30, metal shell with solid mounting kits
- **Mounting** — DIN-Rail, Wall

Protection

- **Reverse Polarity** — Present
- **Overload Current** — Present

Environment

- **Operating Temperature** — EKI-5729F: -10~60°C (14~140°F) EKI-5729FI: -40~75°C (-40~167°F)
- **Storage Temperature** — -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** — 10 ~ 95% (non-condensing)
- **Storage Humidity** — 10 ~ 95% (non-condensing)
- **MTBF** — 3,858,286 hours

Certification

- **Safety** — IEC/EN60950, UL60950, UL508, Class 1 Division 2, ATEX
- **EMI** — FCC Part 15 Subpart B Class A, EN 55011/55022 Class A
- **EMS** — EN 61000-4-2 (Level 3) EN 61000-4-3 (Level 3) EN 61000-4-4 (Level 3) EN 61000-4-5 (Level 3) EN 61000-4-6 (Level 3) EN 61000-4-8 (Level 3)
- **Shock** — IEC 60068-2-27
- **Freefall** — IEC 60068-2-32
- **Vibration** — IEC 60068-2-6

Ordering Information

- **EKI-5729F** — 8-port+2 SFP Gigabit Ethernet ProView Switch
- **EKI-5729FI** — 8-port+2 SFP Gigabit Ethernet ProView Switch with Wide Operating Temperature Range

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

EKI-5726/I

16-port Gigabit Ethernet ProView Switch

Features

- Communicates with SCADA software via Modbus/TCP
- Communicates with NMS (Networking management system) via SNMP
- Port-based QoS for deterministic data transmission
- -40 ~ 75°C operating temperature range (EKI-5726I only)
- 12 ~ 48 V_{DC} (8.4 ~ 52.8 V_{DC}) wide-range power input
- EMS level 3 protection for extreme outdoor environments
- IEEE 802.3az Energy Efficient Ethernet (EEE)
- Jumbo Frame Support (Up to 9,216 Bytes)
- Supports redundant 12 ~ 48 V_{DC} power input and P-Fail relay
- Loop detection

Introduction

The EKI-5726/I is the world's first convergence switch for process control and IT networking management. This series uses Modbus/TCP to communicate with the SCADA software and SNMP to communicate with the NMS (Networking Management System) at the same time, thereby allowing full read control over the devices either for control engineers or for IT. The devices come with the Port-based QoS for deterministic data transmission allows the priority ports to prioritize the traffic coming over those ports and delay the less immediately necessary data over the remaining ports. The EKI-5726/I switch uses the highest quality components, to enable the range to operate in temperatures of between -40 and 75°C along with EMS Level 3 protection to repel electromagnetic interface for industrial resistance.

Specifications

Communications

- **Standard**: IEEE 802.3, 802.3u, 802.3x, 802.1p, 802.3az, 802.3ab
- **LAN**: 10/100/1000Base-T(X)
- **Transmission Distance**: Up to 100 m
- **Transmission Speed**: Up to 1000 Mbps

Interface

- **Connectors**: 16 x RJ45
  6-pin removable screw terminal (power & relay)
- **LED Indicators**: P1, P2, P-Fail, Loop detection
  10/100/1000T(X): Link/Activity, Speed

Switch Properties

- **MAC Table Size**: 8K
- **Packet Buffer Size**: 4.1M bit
- **Switching Capacity**: 32 Gbps
- **Jumbo Frame**: 9216 bytes

Power

- **Power Consumption**: Max. 8 W
- **Power Input**: 12~48 V_{DC} (8.4~52.8 V_{DC}), redundant dual inputs
- **Fault Output**: 1 Relay Output

Mechanism

- **Dimensions (W x H x D)**: 74 x 120 x 84 mm
- **Enclosure**: IP30, metal shell with solid mounting kits
- **Mounting**: DIN-Rail, Wall

Protection

- **Reverse Polarity**: Present
- **Overload Current**: Present

Environment

- **Operating Temperature**: EKI-5726: -10~60°C (14~140°F)
  EKI-5726I: -40~75°C (-40~167°F)
- **Storage Temperature**: -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity**: 10 ~ 95% (non-condensing)
- **Storage Humidity**: 10 ~ 95% (non-condensing)
- **MTBF**: 2,788,343 hours

Certification

- **Safety**: IEC/EN60950, UL60950, UL508, Class 1 Division 2, ATEX
- **EMI**: FCC Part 15 Subpart B Class A, EN 55011/55022 Class A
- **EMS**: EN 61000-4-2 (Level 3)
  EN 61000-4-3 (Level 3)
  EN 61000-4-4 (Level 3)
  EN 61000-4-5 (Level 3)
  EN 61000-4-6 (Level 3)
  EN 61000-4-8 (Level 3)
- **Shock**: IEC 60068-2-27
- **Freefall**: IEC 60068-2-32
- **Vibration**: IEC 60068-2-6

Ordering Information

- **EKI-5726**: 16-port Gigabit Ethernet PorView switch
- **EKI-5726I**: 16-port Gigabit Ethernet ProView Switch with Wide Temperature

EKI-5726F/FI

16-port+2 SFP Gigabit Ethernet ProView Switch

Features

- Communicates with SCADA software via Modbus/TCP
- Communicates with NMS (Networking management system) via SNMP
- Port-based QoS for deterministic data transmission
- -40 ~ 75°C operating temperature range (EKI-5726FI only)
- 12 ~ 48 V_{DC} (8.4 ~ 52.8 V_{DC}) wide-range power input
- EMS level 3 protection for extreme outdoor environments
- IEEE 802.3az Energy Efficient Ethernet (EEE)
- Jumbo Frame Support (Up to 9,216 Bytes)
- Supports redundant 12 ~ 48 V_{DC} power input and P-Fail relay
- Loop detection

Introduction

The EKI-5726F/FI are the world's first convergence switches for process control and IT networking management. This series uses Modbus/TCP to communicate with the SCADA software and SNMP to communicate with the NMS (Networking Management System) at the same time, thereby allowing full read control over the devices either for control engineers or for IT. The devices come with the Port-based QoS for deterministic data transmission allows the priority ports to prioritize the traffic coming over those ports and delay the less immediately necessary data over the remaining ports. EKI-5726F/FI switches use the highest quality components, to enable the range to operate in temperatures of between -40 and 75°C along with EMS Level 3 protection to repel electromagnetic interface for industrial resistance.

Specifications

Communications

- **Standard**   IEEE 802.3, 802.3u, 802.3x, 802.1p, 802.3az, 802.3ab
- **LAN**   10/100/1000Base-T(X), Optional 100Base-FX, 1000Base-SX/LX/LHX/XD/ZX/EZX
- **Transmission Distance**   Ethernet: UP to 100 m (4-wire Cat.5e, Cat.6 RJ-45 cable suggested for Gigabit port) SFP: UP to 110 km (depends on SFP)
- **Transmission Speed**   Ethernet: 10/100/1000 Mbps Auto-Negotiation Gigabit Copper: 10/100/1000 Mbps, Auto-Negotiation Gigabit Fiber: UP to 1000 Mbps

Interface

- **Connectors**   16 x RJ45 / 2 x SFP ports / 6-pin removable screw terminal (power & relay)
- **LED Indicators**   P1, P2, P-Fail, Loop detection / 10/100/1000T(X): Link/Activity, Speed / SFP: Link/Activity

Switch Properties

- **MAC Table Size**   8K
- **Packet Buffer Size**   4.1M bit
- **Switching Capacity**   36 Gbps
- **Jumbo Frame**   9216 bytes

Power

- **Power Consumption**   Max. 9.6W
- **Power Input**   12~48 V_{DC} (8.4~52.8 V_{DC}), redundant dual inputs
- **Fault Output**   1 Relay Output

Mechanism

- **Dimensions (W x H x D)**   74 x 120 x 84 mm
- **Enclosure**   IP30, metal shell with solid mounting kits
- **Mounting**   DIN-Rail, Wall

Protection

- **Reverse Polarity**   Present
- **Overload Current**   Present

Environment

- **Operating Temperature**   EKI-5726F: -10~60°C (14~140°F) EKI-5726FI: -40~75°C (-40~167°F)
- **Storage Temperature**   -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity**   10 ~ 95% (non-condensing)
- **Storage Humidity**   10 ~ 95% (non-condensing)
- **MTBF**   1,962,789 hours

Certification

- **Safety**   IEC/EN60950, UL60950, UL508, Class 1 Division 2, ATEX
- **EMI**   FCC Part 15 Subpart B Class A, EN 55011/55022 Class A
- **EMS**   EN 61000-4-2 (Level 3) / EN 61000-4-3 (Level 3) / EN 61000-4-4 (Level 3) / EN 61000-4-5 (Level 3) / EN 61000-4-6 (Level 3) / EN 61000-4-8 (Level 3)
- **Shock**   IEC 60068-2-27
- **Freefall**   IEC 60068-2-32
- **Vibration**   IEC 60068-2-6

Ordering Information

- **EKI-5726F**   16-port+2 SFP Gigabit Ethernet ProView Switch
- **EKI-5726FI**   16-port+2 SFP Gigabit Ethernet ProView Switch with Wide Operating Temperature Range

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

EKI-7629C/CI

8+2G Combo Port Gigabit Unmanaged Industrial Ethernet Switch

Features

- Provides 2 Gigabit Copper/SFP combo port plus 8 Fast Ethernet ports (EKI-7629C/CI)
- SFP socket for Easy and Flexible Fiber Expansion
- Supports Auto Negotiation and Auto MDI/MDI-X
- Provides flexible mounting: DIN-rail and Wall mount
- Supports Dual 12 ~ 48 V_{DC} power input and 1 relay output
- Supports wide operating temperatures from -40 to 75°C (EKI-7629CI)

Introduction

Aside from 2 Gigabit fiber optic/copper combo ports, the EKI-7629C/CI comes equipped with 8 x 10/100Base-TX fast Ethernet ports. Traditional RJ45 ports can be used for up-linking wide-band paths in short distances (< 100 m), or the appropriate replaceable SFP module can be used for the application of wideband uploading and long distance transmissions to flexibly fit field requests. The long MTBF (Mean Time Between Failures) ensures low operation and maintenance cost. EKI-7629C/CI includes a switch controller that can automatically sense transmission speeds (10/100 Mbps) The RJ45 interface can also be auto-detected, so MDI or MDI-X is automatically selected and a cross-over cable is not required. All Ethernet ports have memory buffers that support the store-and-forward mechanism, which assures that data can be transmitted properly

Specifications

Communications

- **Standard**   IEEE 802.3, 802.3ab, 802.3u, 802.3x, 802.3z
- **LAN**   100Base-TX, 10/1000Base-T, Optional 100Base-FX, 1000Base-SX/LX/LHX/XD/ZX/EZX
- **Transmission Distance** Ethernet: Up to 100 m (4- wire Cat.5e, Cat.6 RJ45 cable suggested for Gigabit port)
Gigabit Fiber: Up to 110 km (depending on SFP)
- **Transmission Speed** Ethernet: 10/100 Mbps Auto-Negotiation
Gigabit Copper: 10/100/1000 Mbps, Auto-Negotiation
SFP: Up to 1000 Mbps

Interface

- **Connectors**   8 x RJ45 (Ethernet) with 2 x RJ45/SFP (mini-GBIC) combo ports (EKI-7629C/CI)
6-pin removable screw terminal (Power & Relay)
- **LED Indicators**   System: PWR1, PWR2, P-Fail
Gigabit Copper: Link/Activity, Speed (1000 Mbps)
Gigabit SFP: Link/Activity

Power

- **Power Consumption** Max. 6.5 W
- **Power Input**   12 ~ 48 V_{DC}, redundant dual inputs
- **Fault Output**   1 Relay Output

Mechanism

- **Dimensions (W x H x D)** 79 x 152 x 105 mm (3.11" x 5.98" x 4.13")
- **Enclosure**   IP30, Metal shell with solid mounting kits
- **Mounting**   DIN-rail, Wall

Protection

- **Reverse Polarity** Present
- **Overload Current** Present

Environment

- **Operating Temperature** -10 ~ 60°C (14 ~ 140°F)
Wide Temp. Model   -40 ~ 75°C (-40 ~ 167°F)
- **Storage Temperature**   -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity**   5 ~ 95% (non-condensing)
- **Storage Humidity**   0 ~ 95% (non-condensing)
- **MTBF**   295,000 hours

Certification

- **Safety**   UL 60950-1, CAN/CSA-C22.2 No.60950
- **EMI**   FCC Part 15 Subpart B Class A, EN 55022 Class A
- **EMS**   EN 61000-4-2
EN 61000-4-3
EN 61000-4-4
EN 61000-4-5
EN 61000-4-6
EN 61000-4-8
- **Shock**   IEC 60068-2-27
- **Freefall** IEC 60068-2-32
- **Vibration** IEC 60068-2-6

Ordering Information

- **EKI-7629C**   8+2G Combo Port Unmanaged Ethernet Switch
- **EKI-7629CI**   8+2G Combo Port Unmanaged Ethernet Switch w/ Wide Temp

EKI-2525/I
EKI-2528/I

5-port Unmanaged Industrial Ethernet Switch
8-port Unmanaged Industrial Ethernet Switch

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

Features

- Provides 5/8 Fast Ethernet ports with Auto MDI/MDI-X
- Supports 10/100 Mbps Auto-Negotiation
- Provides broadcast storm protection
- Provides compact size with DIN-rail/Wall mount, and IP30 metal mechanism
- Supports redundant 12 ~ 48 V$_{DC}$ power input and P-Fail relay
- Supports wide operating temperatures from -40 to 75°C (EKI-2525I/EKI-2528I)

EKI-2525   **EKI-2528**

Introduction

The EKI-2525/2528 supports a Fast Ethernet solution. The power is a +12 ~ 48 V$_{DC}$ redundant input design, and is secured with a double protection mechanism: Power Polarity Reverse Protect and an Overload Current Resetable Fuse. The former tolerates reverse power wiring while the later secures the system from overload currents. As the power supply turns normal, EKI-2525/2528 will automatically get back to work. Each port of EKI-2525/2528 has 2 LED's to show the link status transmission speed and collision status. It also provides a relay output for an event alarm. In the event of a power failure, the built-in LED will activate the alarm to notify administrators. Engineers can simply verify the hardware status by checking the LED, and have troubleshooting easy and quick. EKI-2525/2528 comes with compact metal housing that rates IP30 to help against from dusty industrial environments.

Specifications

Communications
- **Standard**   IEEE 802.3, 802.3u, 802.3x
- **LAN**   10/100Base-T (X)
- **Transmission Distance**   Up to 100 m
- **Transmission Speed**   Up to 100 Mbps

Interface
- **Connectors**   8 x RJ45 (EKI-2528) or 5 x RJ45 (EKI-2525)
                              6-pin removable screw terminal (power & relay)
- **LED Indicators**   P1, P2, P-Fail
                              10/100T (X): Link/Activity, Duplex/Collision

Power
- **Power Consumption**   EKI-2528: Max. 5 W
                              EKI-2525: Max. 3 W
- **Power Input**   12 ~ 48 V$_{DC}$, redundant dual inputs
- **Fault Output**   1 Relay Output

Mechanism
- **Dimensions (W x H x D)** 37 x 140 x 95 mm (1.46" x 5.51" x 3.74")
- **Enclosure**   IP30, Metal shell with solid mounting kits
- **Mounting**   DIN-rail, Wall

Protection
- **Reverse Polarity**   Present
- **Overload current**   Present

Environment
- **Operating Temperature**   -10 ~ 60°C (14 ~ 140°F)
                              -40 ~ 75°C (-40 ~ 167°F), (EKI-2525I and EKI-2528I)
- **Storage Temperature**   -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity**   5 ~ 95% (non-condensing)
- **Storage Humidity**   0 ~ 95% (non-condensing)
- **MTBF**   689,000 hours (EKI-2528)
                              412,590 hours (EKI-2525)

Certification
- **Safety**   UL 60950-1, CAN/CSA-C22.2 No.60950
                              Class I, Division 2
- **EMI**   FCC Part 15 Subpart B Class A, EN 55022 Class A
- **EMS**   EN 61000-4-2
                              EN 61000-4-3
                              EN 61000-4-4
                              EN 61000-4-5
                              EN 61000-4-6
                              EN 61000-4-8
- **Shock**   IEC 60068-2-27
- **Freefall**   IEC 60068-2-32
- **Vibration**   IEC 60068-2-6

Ordering Information

- **EKI-2525**   5-port Ethernet Switch
- **EKI-2525I**   5-port Ethernet Switch w/ Wide Temp
- **EKI-2528**   8-port Ethernet Switch
- **EKI-2528I**   8-port Ethernet Switch w/ Wide Temp

EKI-2541M/MI
EKI-2541S/SI

10/100T (X) to Multi-Mode SC Type Fiber Optic Industrial Media Converter

10/100T (X) to Single-Mode SC Type Fiber Optic Industrial Media Converter

Features

- Provides 1 x 10/100 Mbps Ethernet port with RJ45 connector
- Provides 1 x 100 Mbps Multi-mode/Single-mode SC type fiber port
- Provides internal jumper for Link Fault Pass-through (LFP) setting
- Supports full/half duplex flow control
- Supports store and forward transmission
- Supports Auto-negotiation
- Supports MDI/MDI-X auto-crossover
- Supports redundant 12-48 V_{DC} power input
- Provides flexible mounting: DIN-rail and Panel mount
- Supports wide operating temperatures from -40 to 75°C (EKI-2541MI/SI)

EKI-2541M   **EKI-2541S**

Introduction

The EKI-2541M/2541S is designed to convert Ethernet networks to fiber networks by transparently converting Ethernet signals to optic signals. The advantages of fiber optics are wide bandwidth, EMI immunity and long-distance transmissions.Therefore, the EKI-2541M/2541S is an ideal solution for "fiber to building" applications at central offices or local sites. EKI-2541M/2541S supports MDI/MDIX auto detection, so you don't need to use crossover wires. Furthermore, the EKI-2541M/2541S can work normally from -10 to 60°C and accepts a wide voltage range from 12 ~ 48 V_{DC}. Besides, it also provides 3,000 V_{DC} surge (EFT) protection against over-voltage, so it is suitable for harsh operating environments.

Link Fault Pass-Through (LFP)

The EKI-2541M/2541S is an enhanced Ethernet to fiber-optic converter. Aside from its standard features, the versatile the EKI-2541M/2541S also has the LFP (Link Fault Pass-through) feature. When one side of the link fails, the other side continues transmitting packets, and waiting for a response that never arrives from the disconnected side. Use the internal jumper to enable the LFP function, then the EKI-2541M/2541S will force the link to shut down as soon as noticed that the other link has failed, giving the application software a chance to react to the situation.

Specifications

Communications

- **Standard**   IEEE 802.3, 802.3u, 802.3x
- **LAN**   10/100Base-T (X), 100Base-FX
- **Transmission Distance** Ethernet: Up to 100 m
                            Fiber: Multi-mode: up to 2 km
                            Fiber: Single-mode: up to 30 km
- **Transmission Speed**   Up to 100 Mbps
- **Optical Fiber**
  Multi-mode   Wavelength: 1310 nm
  (EKI-2541M/MI)   Tx Power: -14/-20 dBm
                            Rx Sensitivity: -31 dBm
                            Parameters: 50/125 um,62.5/125 um

  Single-mode   Wavelength: 1310 nm
  (EKI-2541S/SI)   Tx Power: -8/-15 dBm
                            Rx Sensitivity: -34 dBm
                            Parameters: 9/125 um

Interface

- **Connectors**   1 x RJ45
                           1 x SC type fiber connector
                           6-pin removable screw terminal (power)
- **LED Indicators**   P1, P2, P-Fail
                           Ethernet: 10/100 m, LNK/ACT
                           Fiber: HDX/FDX, LNK/ACT
- **DIP Switch**   Port/Power Alarm, LFP
                           Fiber: HDX/FDX, Converter/Switch

Power

- **Power Consumption**   Max. 2.7 W
- **Power Input**   12 ~ 48 V_{DC}, redundant dual inputs

Mechanism

- **Dimensions (W x H x D)** 37 x 140 x 95 mm (1.46" x 5.51" x 3.74")
- **Mounting**   DIN-rail, Wall
- **Enclosure**   IP30, Metal shell with solid mounting

Protection

- **Power Reverse**   Present
- **Overload current**   Present

Environment

- **Operating Temperature** -10 ~ 60°C (14 ~ 140°F)
- **Wide Temp. model**   -40 ~ 75°C (-40 ~ 167°F)
- **Storage Temperature**   -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity**   5 ~ 95% (non-condensing)
- **Storage Humidity**   0 ~ 95% (non-condensing)
- **MTBF**   577,175 hours

Certification

- **Safety**   UL 60950-1, CAN/CSA-C22.2 No.60950
- **EMI**   FCC Part 15 Subpart B Class A, EN 55022 Class A
- **EMS**   EN 61000-4-2
                           EN 61000-4-3
                           EN 61000-4-4
                           EN 61000-4-5
                           EN 61000-4-6
                           EN 61000-4-8
- **Shock**   IEC 60068-2-27
- **Freefall**   IEC 60068-2-32
- **Vibration**   IEC 60068-2-6

Ordering Information

- **EKI-2541M**   Ethernet to Multi-mode Fiber Converter
- **EKI-2541MI**   Ethernet to Multi-mode Fiber Converter w/ Wide Temp.
- **EKI-2541S**   Ethernet to Single-mode Fiber Converter
- **EKI-2541SI**   Ethernet to Single-mode Fiber Converter w/ Wide Temp.

ADVANTECH   **Industrial Ethernet Solutions**

EKI-2741 Series

10/100/1000T (X) to Fiber Optic Gigabit Industrial Media Converters

Features

- Provides 1 x 1000 Mbps Ethernet port with RJ45 connector
- Provides 1 x 1000 Mbps fiber port with SC or SFP (mini-GBIC) type connector for 1000Base-SX/LX device
- Provides DIP switch for full/half duplex setting
- Supports MDI/MDI-X auto crossover
- Supports Auto-Negotiation
- Supports redundant 12 ~ 48 V_{DC} power input
- Provides flexible mounting: DIN-rail and Wall mount
- Provides Link Fault Pass-through (LFP)
- Jumbo Frame: 9K bytes

EKI-2741F **EKI-2741LX** **EKI-2741SX**

Introduction

The EKI-2741 is designed to convert Gigabit Ethernet networks to Gigabit fiber networks by transparently converting Ethernet signals to optic signals. Therefore, the EKI-2741 is an ideal solution for "fiber to building" applications at central offices or local sites. EKI-2741 supports MDI/MDIX auto detection, so you don't need to use crossover wires. Furthermore, the EKI-2741 accepts a wide voltage range from 12 ~ 48 V_{DC}. Besides, it also provides 3,000 V_{DC} surge (EFT) protection against over-voltage, so it is suitable for harsh operating environments.

EKI-2741 is an enhanced gigabit Ethernet to fiber optic converter. Aside from its standard features, the versatile the EKI-2741 also has the LFP (Link Fault Pass-through) feature. When one side of the link fails, the other side continues transmitting packets, and waiting for a response that never arrives from the disconnected side. EKI-2741 will force the link to shut down as soon as noticed that the other link has failed, giving the application software a chance to react to the situation.

Specifications

Communications

- **Standard** — IEEE 802.3, 802.3u, 802.3ab, 802.3x, IEEE 802.3z
- **LAN** — 10/100/1000Base-T (X), 1000Base-SX or 1000Base-LX
- **Transmission Distance** — Ethernet: Up to 100 m
  Fiber:
  Multi-mode: Up to 550 m
  Single-mode: Up to 10 km (EKI-2741LX) or up to 110 km (EKI-2741F)
  SFP: Up to 110 km (EKI-2741F)
- **Transmission Speed** — Up to 1000 Mbps
- **Optical Fiber**
  Multi-mode (EKI-2741SX) — Wavelength: 850 nm
  Tx Power: -4/-9.5 dBm
  Rx Sensitivity: -18 dBm
  Parameters: 50/125 um, 62.5/125 um

  Single-mode (EKI-2741LX/LXI) — Wavelength: 1310 nm
  Tx Power: -3/-9.5 dBm
  Rx Sensitivity: -20 dBm
  Parameters: 9/125 um

Interface

- **Connectors** — 1 x RJ45
  1 x SC type fiber connector (EKI-2741SX/LX) or
  1 x SFP type fiber connector (EKI-2741F)
  6-pin removable screw terminal (power & relay)
- **LED Indicators** — P1, P2, P-Fail
  Fiber: LNK/ACT
  Ethernet: 1000M, LNK/ACT
- **DIP Switch** — Port Alarm, LFP

Power

- **Power Consumption** — 5.28 W (EKI-2741F)
  5.18 W (EKI-2741SX)
  5.30 W (EKI-2741LX)
- **Power Input** — 12 ~ 48 V_{DC}, redundant dual inputs

Mechanism

- **Dimensions (W x H x D)** — 37 x 140 x 95 mm (1.46" x 5.51" x 3.74")
- **Enclosure** — IP30, Metal shell with solid mounting kits
- **Mounting** — DIN-rail, Wall

Protection

- **Power Reverse** — Present
- **Overload current** — Present

Environment

- **Operating Temperature** — -10 ~ 60°C (14 ~ 140°F)
  Wide Temp Model — -40 ~ 75°C (-40 ~ 167°F)
- **Storage Temperature** — -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** — 5 ~ 95% (non-condensing)
- **Storage Humidity** — 0 ~ 95% (non-condensing)
- **MTBF** — 515,600 hours (EKI-2741F)
  525,300 hours (EKI-2741SX/LX)

Certification

- **Safety** — UL 60950-1, CAN/CSA-C22.2 No.60950
- **EMI** — FCC Part 15 Subpart B Class A, EN 55022 Class A
- **EMS** — EN 61000-4-2
  EN 61000-4-3
  EN 61000-4-4
  EN 61000-4-5
  EN 61000-4-6
  EN 61000-4-8
- **Shock** — IEC 60068-2-27
- **Freefall** — IEC 60068-2-32
- **Vibration** — IEC 60068-2-6

Ordering Information

- **EKI-2741F** — Giga Ethernet to SFP Fiber Converter
- **EKI-2741SX** — Giga Ethernet to 1000Base-SX Fiber Converter
- **EKI-2741LX** — Giga Ethernet to 1000Base-LX Fiber Converter
- **EKI-2741FI** — Giga Ethernet to SFP Fiber Converter w/ Wide Temperature
- **EKI-2741SXI** — Giga Ethernet to 1000Base-SX Fiber Converter w/ Wide Temperature
- **EKI-2741LXI** — Giga Ethernet to 1000Base-LX Fiber Converter w/ Wide Temperature

SFP Transceiver Modules

Features

- Industry standard small form pluggable (SFP) package
- Immovable lock design
- Hot pluggable
- Duplex LC connector
- Full duplex speeds support
- TTL signal detect indicator
- 3.3 V_{DC} power supply
- Industry leading EMI performance for high port density
- Class 1 laser product complies with EN 60825-1
- RoHS compliant

Introduction

Advantech's Small Form-factor Pluggable (SFP) transceiver family is available with a variety of different types, allowing users to select the appropriate transceiver for each link to provide the required optical reach over the available optical fiber type. Advantech's SFP transceiver immovable lock design can fix SFP module into the switch firmly. Besides Advantech's SFP transceiver's compact design provides high port density and compliant with Fast Ethernet and IEEE 802.3z Gigabit Ethernet Standards. Advantech's SFP transceivers ensure your networks operate with maximum performance, reliability, and flexibility.

Specifications

Category	Distance	Model Name	Wavelength	TX Power	RX Sens	Voltage	Operating Temp
100Base-FX	M.M. (2km)	SFP-FXM/LC-AE	1310 nm	-14dBm ~ -20dBm	-31dBm (Min)	3.3V	0 to 70°C
	M.M. (2km)	SFP-FXM/LCI-AE					(-40 to 85°F)
	S.M. (30km)	SFP-FXS/LC-30E	1310 nm	-8 dBm ~ -15dBm	-34dBm (Min)	3.3V	0 to 70°C
	S.M. (30km)	SFP-FXS/LCI-30E					(-40 to 85°F)
1000Base	SX (550m)	SFP-GSX/LC-AE	850 nm	-4 dBm ~ -9.5dBm	-18dBm (Min)	3.3V	0 to 70°C
		SFP-GSX/LCI-AE					(-20 to 85°F)
	LX (10 km)	SFP-GLX/LC-10E	1310 nm	-3 dBm ~ -9.5dBm	-20dBm (Min)	3.3V	0 to 70°C
		SFP-GLX/LCI-10E					(-40 to 85°F)
	LX (20 km)	SFP-GLX/LC-20E	1310 nm	-2 dBm ~ -8dBm	-23dBm (Min)	3.3V	0 to 70°C
		SFP-GLX/LCI-20E					(-40 to 85°F)
	LX (40 km)	SFP-GLX/LC-40E	1310 nm	+1 dBm ~ -4dBm	-24dBm (Min)	3.3V	0 to 70°C
		SFP-GLX/LCI-40E					(-40 to 85°F)
	XD (50km)	SFP-GXD/LC-50E	1550 nm	+1 dBm ~ -4dBm	-24dBm (Min)	3.3V	0 to 70°C
		SFP-GXD/LCI-50E					(-40 to 85°F)
	ZX (70km)	SFP-GZX/LC-70E	1550 nm	+5 dBm ~ 0dBm	-24dBm (Min)	3.3V	0 to 70°C
		SFP-GZX/LCI-70E					(-40 to 85°F)
	EZX (110km)	SFP-GZX/LC-110E	1550 nm	+5 dBm ~ 0dBm	-30dBm (Min)	3.3V	0 to 70°C
		SFP-GZX/LCI-110E					(-40 to 85°F)
1000Base	RJ45 (100m)	SFP-GTX/RJ45-AE				3.3V	0 to 70°C
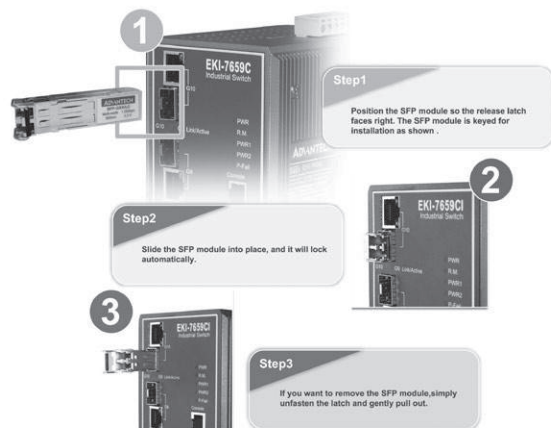
Ordering Information

- **SFP-FXM/LC**   100Base-FX Multi-mode SFP module
- **SFP-FXS/LC-30E**   100Base-FX Single-mode SFP module
- **SFP-GSX/LC**   1000Base-SX Multi-mode SFP module
- **SFP-GLX/LC-10E**   1000Base-LX Single-mode SFP module (10 km)
- **SFP-GLX/LC-20E**   1000Base-LX Single-mode SFP module (20 km)
- **SFP-GLX/LC-40E**   1000Base-LX Single-mode SFP module (40 km)
- **SFP-GXD/LC-50E**   1000Base-XD Single-mode SFP module (50 km)
- **SFP-GZX/LC-70E**   1000Base-ZX Single-mode SFP module (70 km)
- **SFP-GTX/RJ45**   1000Base RJ45 SFP module

Industrial Gateway Solutions

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To view all of Advantech's Serial Device Servers, please visit www.advantech.com/products.

Selection Guide

Wireless Serial Device Servers

NEW   **NEW**

Model Name		EKI-1361	EKI-1362	EKI-1351	EKI-1352
Descripton		1-port RS-232/422/485 to 802.11b/g/n WLAN Serial Device Server	2-port RS-232/422/485 to 802.11b/g/n WLAN Serial Device Server	1-port RS-232/422/485 to 802.11b/g WLAN Serial Device Server	2-port RS-232/422/485 to 802.11b/g WLAN
Wireless LAN	IEEE Standard	802.11 b/g/n		802.11 b/g	
	Radio Number	1			
	Security	WEP, WPA/WPA2-Personal, WPA/WPA2-Enterprise		WEP, WPA, WPA2, w/o 802.11i	
RF	MIMO	2T2R		-	
	Maximum Transmit Output Power	19dBm (11n)		13dBm (11b)	
	Rcecive Sensitivity	-93dBm (11g Rx0+Rx1)		-89dBm (11b 1Mbps)	
	Antenna Connector	R-SMA			
Ethernet LAN	No.	1		-	
	Connector	RJ45		-	
	Speed	10/100/1000 Mbps		-	
	Protection	1.5 KV built-in magnetic isolation protection		-	
Serial Communication	Type	RS-232/422/485			
	Baud Rate	50 bps ~ 921.6 kbps, any baud rate setting			
	No. of Ports	1	2	1	2
	Port Connector	DB9 Male			
	Protection	15 KV ESD for all signals			
Software	Configuration	Windows utility, Telnet console, Web Browser		Windows utility, Web Browser	
	Operation mode	VCOM, TCP Server/Client, UDP Server/Client			
	Driver	32-bit/64-bit Windows XP/Vista/7/8/8.1, Windows Server 2003/2008/2008 R2/2012/2012 R2, Windows CE 5.0, and Linux			
Power	Power Input Range	12 - 48 V$_{DC}$			
	Fault Relay	V			
	No.	2			
Mechanism	Mounting	Din-Rail / Wall Mount			
Operating Temperature		-30 ~ 65°C (-22 ~ 149°F)		-0 ~ 50°C (32 ~ 122°F)	
Certification	CE	V		V	
	FCC	V		V	
	C1D2	V		-	
	ATEX	V		-	
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Dual Ethernet Serial Device Servers

Model Name		EKI-1521/I/CI	EKI-1522/I/CI	EKI-1524/I/CI	EKI-1528/T	EKI-1526/T
Descripton		1-port RS-232/422/485 Serial Device Server	2-port RS-232/422/485 Serial Device Server	4-port RS-232/422/485 Serial Device Server	8-port RS-232/422/485 Serial Device Server	16-port RS-232/422/485 Serial Device Server
Ethernet LAN	No.	2				
	Connector	RJ45				
	Speed	10/100 Mbps				
	Protection	1.5 KV built-in magnetic isolation protection				
Serial Communication	Type	RS-232/422/485 (CI model with RS-422/485 only)			RS-232/422/485	
	Baud Rate	50 bps ~ 921.6 kbps, any baud rate setting				
	No. of Ports	1	2	4	8	16
	Port Connector	DB9 Male			RJ45	
	Protection	15 KV ESD for all signals (CI model with 2KV Isolation)			15 KV ESD for all signals	
Software	Configuration	Windows utility, Telnet, Web Browser			Windows utility, Telnet, Console, Web Browser	
	Operation mode	VCOM, TCP Server/Client, UDP Server/Client				
	Driver	32-bit/64-bit Windows XP/Vista/7/8/8.1, Windows Server 2003/2008/2008 R2/2012/2012 R2, Windows CE 5.0, and Linux				
Power	Power Input Range	12 - 48 V$_{DC}$			100 ~ 240 V$_{AC}$, 47 ~ 63 Hz (T model with 48 V$_{DC}$, Terminal Block)	
	Fault Relay	V			-	
	No.	2			1	
Mechanism	Mounting	Din-Rail / Wall Mount			Rack Mount	
Operating Temperature	-10 ~ 60°C (-14 ~ 140°F)	V			V	
	-30 ~ 65°C (-22 ~ 149°F)	-			-	
	-40 ~ 70°C (-40 ~ 158°F)	V (I & CI model)			-	
Certification	CE	V			V	
	FCC	V			V	
	C1D2	V			-	
	ATEX	V			-	
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Single Ethernet Serial Device Servers

Model Name		ADAM-4571	ADAM-4571L	ADAM-4570	ADAM-4570L
Descripton		1-port RS-232/422/485 Serial Device Server	1-port RS-232 Serial Device Server	2-port RS-232/422/485 Serial Device Server	2-port RS-232 Serial Device Server
Ethernet LAN	No.	1			
	Connector	RJ45			
	Speed	10/100 Mbps			
	Protection	1.5 KV built-in magnetic isolation protection			
Serial Communication	Type	RS-232	RS-232/422/485	RS-232	RS-232/422/485
	Baud Rate	50 bps ~ 921.6 kbps, any baud rate setting			
	No. of Ports	1		2	
	Port Connector	DB9 Male		RJ48	
	Protection	15 KV ESD for all signals			
Software	Configuration	Windows utility, Web Browser			
	Operation mode	VCOM, TCP Server/Client, UDP Server/Client			
	Driver	32-bit/64-bit Windows XP/Vista/7/8/8.1, Windows Server 2003/2008/2008 R2/2012/2012 R2, Windows CE 5.0, and Linux			
Power Input Range		10 - 30 Vdc			
Certification		1			
		CE/FCC			
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Dual Ethernet Serial Device Servers

Model Name		EKI-1221/I/CI	EKI-1222/I/CI	EKI-1224/I/CI	EKI-1221D	EKI-1222D
Descripton		1-port Modbus Gateway	2-port Modbus Gateway	4-port Modbus Gateway	1-port Modbus Gateway with Integrated Ethernet Cascading	2-port Modbus Gateway with Integrated Ethernet Cascading
Ethernet LAN	No.	2				
	Connector	RJ45				
	Speed	10/100 Mbps				
	Protection	1.5 KV built-in magnetic isolation protection				
	Embedded Switch (Daisy-Chain)	-			V	
Serial Communication	Type	RS-232/422/485 (CI model with RS-422/485 only)				
	Baud Rate	50 bps ~ 921.6 kbps, any baud rate setting				
	No. of Ports	1	2	4	1	2
	Port Connector	DB9 Male				
	Protection	15 KV ESD for all signals (CI model with 2KV Isolation)				
Power	Power Input Range	12 - 48 Vdc				
	Fault Relay	V				
	No.	2				
Mechanism	Mounting	Din-Rail / Wall Mount				
	Enclusure	IP30				
Operating Temperature	-10 ~ 60°C (-14 ~ 140°F)	V				
	-40 ~ 70°C (-40 ~ 158°F)	V (I & CI model)				
Certification	CE	V				
	FCC	V				
	C1D2	V		-		
	ATEX	V		-		
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Accessories

Model Name		OPT1-DB9	OPT1A	OPT1D	OPT1I	OPT1J
Length		-	1 m	30 cm	1 m	30 cm
Communication Interfaces	Connector Type	DB9 Female	RJ48		RJ45	
	Qty	1	1		1	
	Connector Type	Terminal	DB9 Male		DB9 Male	
	Qty	1	1		1	
Where Used		EKI-1000 Series, ADAM-4570 Series	ADAM-4570, ADAM-4570L		EKI-1526, EKI-1528	
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1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

EKI-1361
EKI-1362

1-port RS-232/422/485 to 802.11b/g/n WLAN Serial Device Server

2-port RS-232/422/485 to 802.11b/g/n WLAN Serial Device Server

NEW

EKI-1361   EKI-1362

Features

- Link any serial device to an IEEE 802.11b/g/n network
- Support 802.11n MIMO 2T2R
- WLAN transmision rate up to 300 Mbps
- Supports secure access with WEP, WPA/WPA2-Personal, WPA/WPA2-Enterprise
- Provides COM port redirection, TCP, UDP, and pair connection modes
- Supports up to 921.6 kbps, and any baud rate setting
- Provides Web-based configuration and Windows utility
- Allows a max. of 5 hosts to access one serial port

Introduction

EKI-1361 and EKI-1362 wireless serial device servers bring RS-232/422/485 to wireless LAN or LAN. They allow nearly any device with serial ports to connect and share an WLAN network. EKI-1361 and EKI-1362 provide a quick, simple and cost-effective way to bring the advantages of remote management and data accessibility to thousands of devices that cannot connect to a network.

With EKI-1361 and EKI-1362, your existing serial devices can be used with the most popular operating systems on the market. There is no need to write special drivers for specific operating systems. Moreover, you can make serial devices communicate with other devices peer-to-peer, without any intermediate host PCs and software programming. That saves a lot of cost and effort. In addition, you can actively request data or issue commands from the RS-232/422/485 side or wireless LAN side. This data can be sent bilaterally. Thus, the EKI-1361 and EKI-1362 are especially suitable for remote monitoring environments such as security systems, factory automaton, SCADA, transportation and more.

Specifications

Ethernet Communications
- **Port Type**   RJ45
- **No. of Ports**   1
- **Speed**   10/100/1000 Mbps

Wireless LAN Communications
- **Compatibility**   IEEE 802.11b/g/n
- **Speed**   Up to 300Mbps
- **Network Mode**   Infrastructure, Ad-hoc
- **Antenna Connector** Reverse SMA
- **No. of Antenna**   2 (supports 2T2R)
- **Free Space Range**   Open space 100 m
- **Wireless Security** WEP, WPA/WPA2-Personal, WPA/WPA2-Enterprise

Serial Communications
- **Port Type**   RS-232/422/485, software selectable
- **No. of Ports**   EKI-1361: 1
                         EKI-1362: 2
- **Port Connector**   DB9 male
- **Data Bits**   5, 6, 7, 8
- **Stop Bits**   1, 1.5, 2
- **Parity**   None, Odd, Even, Space, Mark
- **Baud Rate**   50 bps ~ 921.6 kbps, any baud rate setting
- **Serial Signals**   RS-232: TxD, RxD, CTS, RTS, DTR, DSR, DCD, RI, GND
                         RS-422: TxD+, TxD-, RxD+, RxD-, GND
                         RS-485: Data+, Data-, GND
- **Protection**   15 KV ESD for all signals

Software
- **OS Support**   32-bit/64-bit Windows XP/Vista/7/8/8.1, Windows Server 2003/2008/2008 R2/2012/2012 R2, Windows CE 5.0, and Linux
- **Utility Software**   Advantech EKI Device Configuration Utility

Operation Modes
COM port redirection mode (Virtual COM)
TCP/UDP server (polling) mode
TCP/UDP client (event handling) mode
Pair connection without AP (peer to peer) mode
- **Configuration**   Windows utility, Telnet console, Web Browser
- **Protocol**   ARP, ICMP, IPv4, IPv6, TCP, UDP, BOOTP, DHCP Client, Auto IP, Telnet, DNS, SNMP, HTTP, SMTP, SNTP

Mechanics
- **Enclosure**   Plastic and metal shell with solid mounting kits
- **Mounting**   DIN-rail, Wall
- **Dimensions (W x H x D)** 28.5 x 120 x 85.3 mm (1.12" x 4.72" x 3.36")
- **Weight**   0.5 Kg

General
- **LED Indicators**   System: Power, System Status
                         WLAN: Quality, Link/Active
                         LAN: Link/Active
                         Serial: Tx, Rx
- **Reboot Trigger**   Built-in WDT (watchdog timer)

Power Requirements
- **Power Input**   12 ~ 48 V_{DC}, redundant dual inputs
- **Power Connector**   Terminal block
- **Power Consumption** EKI-1361: 8W
                         EKI-1362: 9W

Environment
- **Operating Temperature** -30 ~ 65°C (-22 ~ 149°F)
- **Storage Temperature**   -40 ~ 80°C (-40 ~ 176°F)
- **Operating Humidity**   5 ~ 95% RH

Regulatory Approvals
- **EMC**   CE, FCC Part 15 Subpart B (Class B)

Ordering Information
- **EKI-1361**   1-port 802.11b/g/n WLAN Serial Device Server
- **EKI-1362**   2-port 802.11b/g/n WLAN Serial Device Server
- **OPT1-DB9**   D-Sub9 to Terminal Converter

ADVANTECH   **Industrial Gateway Solutions**

EKI-1521/CI/I
EKI-1522/CI/I
EKI-1524/CI/I

1-port RS-232/422/485 Serial Device Server

2-port RS-232/422/485 Serial Device Server

4-port RS-232/422/485 Serial Device Server

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

Features

- Provides 2 x 10/100 Mbps Ethernet ports for LAN redundancy
- Provides COM port redirection (Virtual COM), TCP and UDP operation modes
- Supports up to 921.6 kbps, and any baud rate setting
- Allows a max. of 5 hosts to access one serial port
- Allows a max. of 16 hosts to be accessed as TCP client mode
- Built-in 15 KV ESD protection for all serial signals
- Provides multiple configuration methods including Windows utility, Telnet console, and Web Browser
- Supports 32-bit/64-bit Windows 2000/XP/Vista/7/8/8.1, Windows Server 2003/2008/2012, Windows CE 5.0, and Linux
- Automatic RS-485 data flow control
- Supports surge protection for D.C. power ports with line to line 2 KV, and line to earth 4 KV; for signal ports with 4 KV.
- 'I' models support a wide operating temperature
- 'CI' models support isolation and wide operating temperature

| EKI-1521 | EKI-1522 | EKI-1524 |

Introduction

EKI-1521, EKI-1522 and EKI-1524 feature two independent Ethernet ports and MAC addresses to provide a redundant network mechanism to guarantee Ethernet network reliability. EKI-1521, EKI-1522 and EKI-1524 are serial device servers that connect RS-232/422/485 serial devices, such as PLC, meters, sensors, and barcode reader to an IP-based Ethernet LAN. They allow nearly any device with serial ports to connect and share an Ethernet network. EKI-1521, EKI-1522 and EKI-1524 provide various operations: COM port redirection (Virtual COMport), TCP Server, TCP Client and UDP mode. With COM port redirection mode, standard serial operation calls are transparently redirected to the EKI-1521, EKI-1522 and EKI-1524, guaranteeing compatibility with legacy serial devices and enabling backward compatibility with existing software. With TCP server, TCP client, and UDP modes, EKI-1521, EKI-1522 and EKI-1524 ensure the compatibility of network software that uses a standard network API. Moreover, you can make serial devices communicate with other devices peer-to-peer, without any intermediate host PCs and software programming.

Specifications

Ethernet Communications
- **Compatibility**   IEEE 802.3, IEEE 802.3u
- **Speed**   10/100 Mbps
- **No. of Ports**   2
- **Port Connector**   8-pin RJ45
- **Protection**   Built-in 1.5 KV magnetic isolation

Serial Communications
- **Port Type**   RS-232/422/485, software selectable
- **No. of Ports**   EKI-1521: 1/EKI-1522: 2/EKI-1524: 4
- **Port Connector**   DB9 male
- **Data Bits**   5, 6, 7, 8
- **Stop Bits**   1, 1.5, 2
- **Parity**   None, Odd, Even, Space, Mark
- **Flow Control**   XON/XOFF, RTS/CTS, DTR/DSR
- **Baud Rate**   50 bps ~ 921.6 kbps, any baud rate setting
- **Serial Signals**   RS-232: TxD, RxD, CTS, RTS, DTR, DSR, DCD, RI, GND
                           RS-422: TxD+, TxD-, RxD+, RxD-, GND
                           RS-485: Data+, Data-, GND
- **Protection**   Built-in 15 KV ESD for all signals
                           'CI' models: 2KV Isolation for RS-422/485 signals

Software
- **OS Support**   32-bit/64-bit Windows XP/Vista/7/8/8.1, Windows Server 2003/2008/2008 R2/2012/2012 R2, Windows CE 5.0, and Linux
- **Utility Software**   Advantech EKI Device Configuration Utility
- **Operation Modes**   COM port redirection mode (Virtual COM)
                           TCP/UDP server (polling) mode
                           TCP/UDP client (event handling) mode
                           Pair connection (peer to peer) mode
- **Configuration**   Windows utility, Telnet console, Web Browser
- **Management**   SNMP MIB-II

Mechanics
- **Dimensions (W x H x D)** 36.6 x 140 x 95 mm (1.44" x 5.51" x 3.74")
                              EKI-1524: 48.6 x 140 x 95 mm (1.91" x 5.51" x 3.74")
- **Enclosure**   Metal with solid mounting hardware

- **Mounting**   DIN-rail, Wall
- **Weight**   EKI-1521: 612g/EKI-1522: 620g/EKI-1524: 690g

General
- **LED Indicators**   System: Power, System Status/LAN: Speed, Link/Active Serial: Tx, Rx

Power Requirements
- **Input**   12 ~ 48 V_{DC}, redundant dual inputs
- **Connector**   Terminal block
- **Consumption**   EKI-1521: 5.2 W
                           EKI-1522: 5.2 W
                           EKI-1524: 6.3 W

Environment
- **Operating Temperature** EKI-1521/EKI-1522/EKI-1524: -10 ~ 60°C (14 ~ 140°F) 'CI & I' models: -40 ~ 70°C (-40 ~ 158°F)
- **Storage Temperature**   -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity**   5 ~ 95% RH

Regulatory Approvals
- **EMC**   CE, FCC Part 15 Subpart B (Class A)

Ordering Information
- **EKI-1521**   1-port RS-232/422/485 Serial Device Server
- **EKI-1522**   2-port RS-232/422/485 Serial Device Server
- **EKI-1524**   4-port RS-232/422/485 Serial Device Server
- **EKI-1521I**   1-port RS-232/422/485 Serial Device Server with wide operating temperature
- **EKI-1522I**   2-port RS-232/422/485 Serial Device Server with wide operating temperature
- **EKI-1524I**   4-port RS-232/422/485 Serial Device Server with wide operating temperature
- **EKI-1521CI**   1-port RS-422/485 Serial Device Server with wide operation temperature and isolation
- **EKI-1522CI**   2-port RS-422/485 Serial Device Server with wide operation temperature and isolation
- **EKI-1524CI**   4-port RS-422/485 Serial Device Server with wide operation temperature and isolation
- **OPT1-DB9**   D-Sub9 to Terminal Converter

EKI-1528/T
EKI-1526/T

8-port RS-232/422/485 Serial Device Server

16-port RS-232/422/485 Serial Device Server

EKI-1528 ▲   EKI-1526 ▲

Features

- 8 or 16-port RS-232/422/485 serial communication
- Provides 2 x 10/100 Mbps Ethernet ports for LAN redundancy
- Supports up to 921.6 kbps, and any baud rate setting
- Provides COM port redirection (Virtual COM), TCP and UDP operation modes
- Provides rich configuration methods: Windows utility, Telnet console, Web Browser, and serial console
- Built-in 15 KV ESD protection for all serial signals
- SNMP MIB-II for network management
- Built-in buzzer for easy location
- Standard 1U rackmount size
- Rear wiring
- Automatic RS-485 data flow control

Introduction

The EKI-1528 and EKI-1526 are industrial-grade network-based serial device servers for connecting up to 8 or 16 serial RS-232/422/485 devices, such as CNCs, PLCs, scales and scanners, directly to a TCP/IP network. The EKI-1528 and EKI-1526 feature two independent Ethernet ports and MAC addresses to provide a redundant network mechanism to guarantee Ethernet network reliability. The EKI-1528 and EKI-1526 provide a simple and cost-effective way to bring the advantages of remote management and data accessibility to thousand of devices that can't connect to an Ethernet network. The EKI-1528 and EKI-1526 offer multiple ways to configure through Windows utility, Web Browser, serial console or Telnet console, these methods make it easy manage many EKI-1528 and EKI-1526 or serial devices on your network.

Specifications

Ethernet Communications

- **Compatibility**   IEEE 802.3, IEEE 802.3u
- **Speed**   10/100 Mbps, auto MDI/MDIX
- **No. of Ports**   2
- **Port Connector**   8-pin RJ45
- **Protection**   Built-in 1.5 KV magnetic isolation

Serial Communications

- **Port Type**   RS-232/422/485, software selectable
- **No. of Ports**   EKI-1528/EKI-1528T: 8
  EKI-1526/EKI-1526T: 16
- **Port Connector**   8-pin RJ45
- **Data Bits**   5, 6, 7, 8
- **Stop Bits**   1, 1.5, 2
- **Parity**   None, Odd, Even, Space, Mark
- **Flow Control**   XON/XOFF, RTS/CTS, DTR/DSR
- **Baud Rate**   50 bps ~ 921.6 kbps, any baud rate setting
  16 ports up to 230.4 kbps simultaneously
- **Serial Signals**   RS-232: TxD, RxD, CTS, RTS, DTR, DSR, DCD, GND
  RS-422: TxD+, TxD-, RxD+, RxD-, GND
  RS-485: Data+, Data-, GND
- **Protection**   15 KV ESD for all signals

Software

- **OS Support**   32-bit/64-bit Windows XP/Vista/7/8/8.1, Windows Server 2003/2008/2008 R2/2012/2012 R2, Windows CE 5.0, and Linux
- **Utility Software**   Advantech EKI Device Configuration Utility
- **Operation Modes**   COM port redirection mode (Virtual COM)
  TCP/UDP server (polling) mode
  TCP/UDP client (event handling) mode
  Pair connection (peer to peer) mode
  RFC2217 mode
- **Configuration**   Windows utility, Telnet console, Web Browser, serial console
- **Protocols**   ARP, ICMP, IPv4, TCP, UDP, BOOTP/DHCP Client, Auto IP, Telnet, SNMP, HTTP, DNS, SMTP, NTP
- **Management**   SNMP MIB-II

Mechanics

- **Dimensions (W x H x D)**   440 x 44 x 220 mm (17.32" x 1.73" x 8.66")
- **Enclosure**   SECC chassis
- **Mounting**   Rack

General

- **LED Indicators**   System: Power, System Status
  LAN: Speed, Link/Active
  Serial: Tx, Rx
- **Alert Tools**   Built-in buzzer and RTC (real time clock)
- **Reboot Trigger**   Built-in WDT and push button for hardware reboot

Power Requirements

- **Power Input**   EKI-1528/EKI-1526: 100 ~ 240 VAC , 47 ~ 63 Hz
  EKI-1528T/EKI-156T: 48 VDC, Terminal Block
- **Power Consumption**   EKI-1528/EKI-1528T: 10 W
  EKI-1526/EKI-1526T: 12 W

Environment

- **Operating Temperature**   -10 ~ 60°C (14 ~ 140°F)
- **Storage Temperature**   -20 ~ 80°C (-4 ~ 176°F)
- **Operating Humidity**   5 ~ 95% RH

Regulatory Approvals

- **EMC**   CE, FCC Part 15 Subpart B (Class A)

Ordering Information

- **EKI-1528**   8-port RS-232/422/485 Serial Device Server
- **EKI-1526**   16-port RS-232/422/485 Serial Device Server
- **EKI-1528T-VDC**   8-port RS-232/422/485 Serial Device Server w/ DC Input
- **EKI-1526T-VDC**   16-port RS-232/422/485 Serial Device Server w/ DC Input

*All items include 1pc OPT1J

Accessories

- **OPT1I**   1 m RJ45 to DB9 Male Cable
- **OPT1J**   30 cm RJ45 to DB9 Male Cable
- **1702002600**   Power Cable US Plug 1.8 m
- **1702002605**   Power Cable EU Plug 1.8 m
- **1702031801**   Power Cable UK Plug 1.8 m
- **1702031836**   Power Cable China/Australia Plug 1.8 m

ADVANTECH   **Industrial Gateway Solutions**

EKI-1221/CI/I
EKI-1222/CI/I
EKI-1224/CI/I

1-port Modbus Gateway

2-port Modbus Gateway

4-port Modbus Gateway

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

EKI-1221	EKI-1222	EKI-1224

Features

- Provides 2 x 10/100 Mbps Ethernet ports for LAN redundancy
- Integration of Modbus TCP and Modbus RTU/ASCII networks
- Supports up to 921.6 kbps, and any baud rate setting
- Supports up to 16 connections and 32 requests simultaneously
- Auto searching slave ID over configuration utility
- Software selectable RS-232/422/485 communication
- Mounts on DIN-rail and Wall mount
- Built-in 15 KV ESD protection for all serial signals
- Automatic RS-485 data flow control
- Supports surge protection for D.C. power ports with line to line 2 KV, and line to earth 4 KV; for signal ports with 4 KV.
- 'I' models support a wide operating temperature
- 'CI' models support isolation and wide operating temperature

Introduction

The EKI-1200 series Modbus gateways are bi-directional gateways for integrating new and existing Modbus/RTU and Modbus/ASCII serial devices to newer TCP/IP networked-based devices. The EKI-1221/1222/1224 feature two independent Ethernet ports and MAC addresses to provide a redundant networking mechanism to guarantee Ethernet networking reliability. They provide a simple and cost-effective way to bring the advantage of remote management and data accessibility to thousand of devices that can not connect to a network. The EKI-1221/1222/1224 provide a feature that can allow users to select master or slave operation mode for each serial port. They not only allow an Ethernet master to control serial slaves, but also allow serial masters to control Ethernet slaves.

Specifications

Ethernet Communications
- **Compatibility**   IEEE 802.3, IEEE 802.3u
- **Speed**   10/100 Mbps
- **No. of Ports**   2
- **Port Connector**   8-pin RJ45
- **Protection**   Built-in 1.5 KV magnetic isolation

Serial Communications
- **Port Type**   RS-232/422/485, software selectable
- **No. of Ports**   EKI-1221: 1
                           EKI-1222: 2
                           EKI-1224: 4
- **Port Connector**   DB9 male
- **Data Bits**   7, 8
- **Stop Bits**   1, 2
- **Parity**   None, Odd, Even, Space, Mark
- **Flow Control**   XON/XOFF, RTS/CTS, DTR/DSR
- **Baud Rate**   50 bps ~ 921.6 kbps, any baud rate setting
- **Serial Signals**   RS-232: TxD, RxD, CTS, RTS, DTR, DSR, DCD, RI, GND
                           RS-422: TxD+, TxD-, RxD+, RxD-, GND
                           RS-485: Data+, Data-, GND
- **Protection**   15 KV ESD for all signals
                           'CI' models: 2KV Isolation for RS-422/485 signals

Software
- **OS Support**   32-bit/64-bit Windows XP/Vista/7/8/8.1, Windows Server 2003/2008/2008 R2/2012/2012 R2, Windows CE 5.0, and Linux
- **Utility Software**   Advantech EKI Device Configuration Utility
- **Operation Modes**   Modbus RTU Master/Slave mode
                           Modbus ASCII Master/Slave mode
- **Configuration**   Windows Utility, Web Browser
- **Protocols**   Modbus RTU, Modbus TCP, Modbus ASCII

General
- **LED Indicators**   System: Power, System Status
                           LAN: Speed, Link/Active
                           Serial: Tx, Rx
- **Reboot Trigger**   Built-in WDT (watchdog timer)

Mechanics
- **Dimensions (W x H x D)** EKI-1221/1222: 37 x 140 x 95 mm (1.46" x 5.51" x 3.74")
                              EKI-1224: 55 x 140 x 95 mm (2.17" x 5.51" x 3.74")
- **Enclosure**   Metal with solid mounting hardware
- **Mounting**   DIN-rail, Wall
- **Weight**   EKI-1221: 0.592 Kg
                           EKI-1222: 0.6 Kg
                           EKI-1224: 0.668 Kg

Power Requirements
- **Power Input**   12 ~ 48 V_{DC}, redundant dual inputs
- **Power Connector**   Terminal block
- **Power Consumption**   EKI-1221: 5.2 W
                           EKI-1222: 5.2 W
                           EKI-1224: 6.3 W

Environment
- **Operating Temperature** EKI-1221/EKI-1222/EKI-1224: -10 ~ 60°C (14 ~ 140°F)
                             'CI & I' models: -40 ~ 70°C (-40 ~ 158°F)
- **Storage Temperature** -20 ~ 80°C (-4 ~ 176°F)
- **Operating Humidity**   5 ~ 95% RH

Regulatory Approvals
- **EMC**   CE, FCC Part 15 Subpart B (Class A)

Ordering Information

- **EKI-1221**   1-port RS-232/422/485 Modbus Gateway
- **EKI-1222**   2-port RS-232/422/485 Modbus Gateway
- **EKI-1224**   4-port RS-232/422/485 Modbus Gateway
- **EKI-1221I**   1-port RS-232/422/485 Modbus Gateway with Wide Operating Temperature
- **EKI-1222I**   2-port RS-232/422/485 Modbus Gateway with Wide Operating Temperature
- **EKI-1224I**   4-port RS-232/422/485 Modbus Gateway with Wide Operating Temperature
- **EKI-1221CI**   1-port RS-422/485 Modbus Gateway with Wide Operation Temperature and Isolation
- **EKI-1222CI**   2-port RS-422/485 Modbus Gateway with Wide Operation Temperature and Isolation
- **EKI-1224CI**   4-port RS-422/485 Modbus Gateway with Wide Operation Temperature and Isolation
- **OPT1-DB9**   D-Sub9 to Terminal Converter

EKI-1221D
EKI-1222D

1-port Modbus Gateway with Integrated Ethernet Cascading

2-port Modbus Gateway with Integrated Ethernet Cascading

Features

- Provides 2 x 10/100 Mbps Ethernet ports for Daisy-Chain connectivity
- Integration of Modbus TCP and Modbus RTU/ASCII networks
- Supports Ethernet auto-bypass function
- Master mode supports 32 TCP slaves at the same time
- Slave mode supports up to 16 TCP masters
- Supports mapping Modbus slave ID option
- Auto searching Modbus slave ID over configuration utility
- Mounts on DIN-rail and Wall mount
- Class I, Division 2 certification

EKI-1221D   EKI-1222D

Introduction

The EKI-1200 series Modbus gateways are bi-directional gateways for integrating new and existing Modbus/RTU and Modbus/ASCII serial devices to newer TCP/IP networked-based devices. The EKI-1221D/1222D feature two Ethernet ports with one IP address for easier network wiring. One port can be used to connect to the network, and the other port can be used to connect to another Ethernet device or another EKI-1221D/1222D. They provide a simple and cost-effective way to bring the advantage of remote management and data accessibility to thousand of devices that can not connect to a network. The EKI-1221D/1222D provide a feature that can allow users to select master or slave operation mode for each serial port. They not only allow an Ethernet master to control serial slaves, but also allow serial masters to control Ethernet slaves.

Specifications

Ethernet Communications

- **Compatibility** IEEE 802.3, IEEE 802.3u
- **Speed** 10/100 Mbps
- **No. of Ports** 2
- **Port Connector** 8-pin RJ45
- **Protection** Built-in 1.5 KV magnetic isolation

Serial Communications

- **Port Type** RS-232/422/485, software selectable
- **No. of Ports** EKI-1221D: 1
  EKI-1222D: 2
- **Port Connector** DB9 male
- **Data Bits** 7, 8
- **Stop Bits** 1, 2
- **Parity** None, Odd, Even, Space, Mark
- **Flow Control** XON/XOFF, RTS/CTS, DTR/DSR
- **Baud Rate** 50 bps ~ 921.6 kbps, any baud rate setting
- **Serial Signals** RS-232: TxD, RxD, CTS, RTS, DTR, DSR, DCD, RI, GND
  RS-422: TxD+, TxD-, RxD+, RxD-, GND
  RS-485: Data+, Data-, GND
- **Protection** 15 KV ESD for all signals

Software

- **OS Support** 32-bit/64-bit Windows XP/Vista/7/8/8.1, Windows Server 2003/2008/2008 R2/2012/2012 R2, Windows CE 5.0, and Linux
- **Utility Software** Advantech EKI Device Configuration Utility
- **Operation Modes** Modbus RTU Master/Slave mode
  Modbus ASCII Master/Slave mode
- **Configuration** Windows Utility, Web Browser
- **Protocols** Modbus RTU, Modbus TCP, Modbus ASCII

General

- **LED Indicators** System: Power, System Status
  LAN: Speed, Link/Active
  Serial: Tx, Rx
- **Reboot Trigger** Built-in WDT (watchdog timer)

Mechanics

- **Dimensions (W x H x D)** 37 x 140 x 95 mm (1.46" x 5.51" x 3.74")
- **Enclosure** Metal with solid mounting hardware
- **Mounting** DIN-rail, Wall
- **Weight** EKI-1221D: 0.58 Kg
  EKI-1222D: 0.588 Kg

Power Requirements

- **Power Input** 12 ~ 48 V_{DC}, redundant dual inputs
- **Power Connector** Terminal block
- **Power Consumption** EKI-1221D: 2 W
  EKI-1222D: 2.5 W

Environment

- **Operating Temperature** -10 ~ 60°C (14 ~ 140°F)
- **Storage Temperature** -20 ~ 80°C (-4 ~ 176°F)
- **Operating Humidity** 5 ~ 95% RH

Regulatory Approvals

- **EMC** EN 55022, EN 55011, EN 61000-6-4, IEC 61000-4-2/3/4/5/6/8, FCC 47 CFR Part 15 Subpart B (Class A)
- **Hazardous Location** Class I, Division 2

Ordering Information

- **EKI-1221D** 1-port Modbus Gateway with Ethernet Cascading
- **EKI-1222D** 2-port Modbus Gateway with Ethernet Cascading
* All items include 1 pc OPT1-DB9 D-Sub9 to Terminal Converter
- **OPT1-DB9** D-Sub9 to Terminal Converter

ADVANTECH **Industrial Gateway Solutions**

Serial Communication Cards

To view all of Advantech's Serial Communication Cards, please visit www.advantech.com/products.

Serial Communication Card Selection Guide

Serial Communication Cards

Bus	Universal Low-Profile PCI		Universal PCI				
Model Name	PCI-1602UP	PCI-1604UP	PCI-1601A/B	PCI-1602	PCI-1603	PCI-1610A/B	PCI-1610C
Number of Ports	2	2	2	2	2	4	4
Communication Interfaces — Current Loop	-	-	-	-	V	-	-
Communication Interfaces — RS-232	-	V	-	-	V	V	V
Communication Interfaces — RS-422	V	-	V	V	-	-	-
Communication Interfaces — RS-485	V	-	V	V	-	-	-
Communication Interfaces — CAN	-	-	-	-	-	-	-
Driver	32-bit/64-bit Windows 2000/XP/Vista/7, Windows CE 5.0/6.0, Linux, and QNX						
Protection — ESD	8KV (air), 4KV (contact)						
Protection — Isolation	2,500 V_{DC}	2,500 V_{DC}	-	2,500 V_{DC}	2,500 V_{DC}	-	2,500 V_{DC}
Cable Connector Type	DB9 Male	DB9 Male	-	-	-	DB9 Male	DB9 Male
Page	12-4	12-4	12-5	12-5	12-5	12-6	12-6

Bus	Universal PCI				
Model Name	PCI-1620A/B	PCI-1612C	PCI-1612A/B	PCI-1622B	PCI-1622C
Number of Ports	4	4	8	8	8
Communication Interfaces — Current Loop	-	-	-	-	-
Communication Interfaces — RS-232	V	V	V	-	-
Communication Interfaces — RS-422	V	V	-	V	V
Communication Interfaces — RS-485	V	V	-	V	V
Communication Interfaces — CAN	-	-	-	-	-
Driver	32-bit/64-bit Windows 2000/XP/Vista/7, Windows CE 5.0/6.0, Linux, and QNX				
Protection — ESD	8KV (air), 4KV (contact)				
Protection — Isolation	-	2,500 V_{DC}	-	-	2,500 V_{DC}
Cable Connector Type	DB9 Male	DB9 Male	-	-	-
Page	12-6	12-6	12-6	12-7	12-7

NEW NEW NEW NEW NEW

Bus	PCI Express							CAN-bus PCI	CAN-bus ISA
Model Name	PCIE-1602	PCIE-1604	PCIE-1610	PCIE-1612	PCIE-1620	PCIE-1622	PCIE-1680	PCI-1680U	PCL-841
Number of Ports	2	2	4	4	8	8	2	2	2
Communication Interfaces — RS-232	V	V	V	V	V	V	-	-	-
Communication Interfaces — RS-422	V	-	V	V	-	V	-	-	-
Communication Interfaces — RS-485	V	-	V	V	-	V	-	-	-
Communication Interfaces — CAN	-	-	-	-	-	-	V	V	V
Driver	Windows Xp, 7, 8, 8.1, 10, server 2008, server2012, Linux, Qnx and Vxworks							32-bit/64-bit Windows 2000/XP/Vista/7, Linux, and QNX	
Protection — ESD	15KV (air), 8KV (contact)							8KV (air), 4KV (contact)	
Protection — Isolation	3,000 V_{DC}	3,000 V_{DC}	3,000 V_{DC}	3,000 V_{DC}	3,000 V_{DC}	3,000 V_{DC}	2,500 V_{DC}	1,000 V_{DC}	1,000 V_{DC}
Cable Connector Type	-	-	-	-	-	-	-	-	-
Page	11-8	11-8	11-8	11-8	11-9	11-9	11-10	11-11	11-11

PC/104 Communication Modules

Bus		PC/104						
Model Name		PCM-3680	PCM-3660	PCM-3610	PCM-3612	PCM-3614	PCM-3618	PCM-3640/3641
Ports		2	2	2	2	4	8	4
Communication Interfaces	Ethernet	-	V	-	-	-	-	-
	RS-232	-	-	V	-	-	-	V
	RS-422	-	-	V	V	V	V	-
	RS-485	-	-	V	V	V	V	-
	CAN	V	-	-	-	-	-	-
Protection	ESD				8KV (air), 4KV (contact)			
	Isolation	2,500 V$_{DC}$	-	2,500 V$_{DC}$	-	-	-	-
Cable Connector Type		-	-	-	-	-	-	-
Page		12-11	12-13	12-12	12-12	12-12	12-13	12-13

PCI-104 Communication Modules
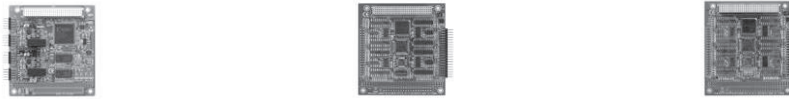
Bus		PCI-104		
Model Name		PCM-3680I	PCM-3614I	PCM-3641I
Ports		2	4	4
Communication Interfaces	Current Loop	-	-	-
	RS-232	-	V	V
	RS-422	-	V	-
	RS-485	-	V	-
	CAN	V	-	-
Protection	ESD		8KV (air), 4KV (contact)	
	Isolation	2,500 V$_{DC}$	-	-
Cable Connector Type		-	-	-
Page		12-11	12-14	12-14

Accessories

Model Name		1700018791	OPT4A	OPT8C	OPT8H	OPT8J
Length		30 cm	30 cm	1 m	1 m	1 m
Communication Interfaces	Connector Type	DB37 Male	DB37 Male	DB62 Male	DB62 Male	DB78
	Qty	1	1	1	1	1
	Connector Type	DB25 Male	DB9 Male	DB25 Male	DB9 Male	DB9 Male
	Qty	4	4	8	8	8
Where Used		PCI-1610, PCI-1610C, PCI-1612, PCI-1612C, PCIE-1610B, PCI-1612B, PCI-1612C	PCI-1610, PCI-1610C, PCI-1612, PCI-1612C, PCIE-1610B, PCI-1612B, PCI-1612C	PCI-1620, PCIE-1620A, PCIE-1622A, PCIE-1622B,	PCI-1620, PCIE-1620A, PCIE-1622B	PCI-1622, PCI-1622C, PCIE-1622C
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1 WebAccess+ Solutions

2 Motion Control

3 Power & Energy Automation

4 Automation Software

5 Intelligent Operator Panel

6 Automation Panels

7 Panel PCs

8 Industrial Wireless Solutions

9 Industrial Ethernet Solutions

10 Industrial Gateway Solutions

11 Serial communication cards

12 Embedded Automation PCs

13 DIN-Rail IPCs

14 CompactPCI Systems

15 IoT Wireless I/O Modules

16 IoT Ethernet I/O Modules

17 RS-485 I/O Modules

18 Data Acquisition Boards

PCI-1602UP
PCI-1604UP

2-port RS-422/485 Low-Profile Universal PCI Communication Card with Isolation Protection

2-port RS-232 Low-Profile Universal PCI Communication Card with Isolation Protection

PCI-1602UP   PCI-1604UP
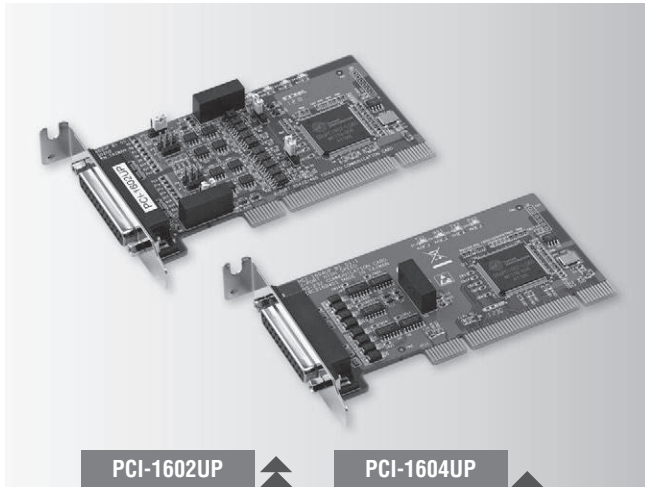
Features

- PCI bus 2.2 compliant
- Speeds up to 921.6 kbps
- 2-port RS-422/485 (PCI-1602UP); 2-port RS-232 (PCI-1604UP)
- I/O address automatically assigned by PCI Plug & Play
- OS support: Windows 2000/XP/Vista/7, Windows CE 5.0/6.0, Linux
- 2,500 V_{DC} EFT Protection
- 2,500 V_{DC} Isolation protection for RS-422/485 (PCI-1602UP) or RS-232 (PCI-1604UP)
- Interrupt status register for increased performance
- Space reserved for termination resistors (PCI-1602UP)
- Automatic RS-485 data flow control (PCI-1602UP)
- Powerful and easy-to-use utility (ICOM Tools)
- Universal and low-profile PCI (Supports 3.3 V or 5 V PCI bus signal)

Introduction

These RS-232/422/485 PCI communication cards are compatible with the PCI 2.2 bus specification for universal connectivity and low-profile PCI cards. The PCI-1604UP provides two independent RS-232 ports, while the PCI-1602UP has two RS-422/485 ports. To improve system performance, all cards allow transmission rates up to 921.6 kbps. To increase reliability, the cards offer EFT protection, protecting your system from abrupt high voltages up to 2,500 V_{DC}. High-performance OXuPC1952 and OXuPC1954 UARTs with 128-byte FIFO, reduces the CPU load, making the cards especially suitable for multitasking environments.

The cards follow the Low Profile PCI MD1 standard. This standard has the same protocol and electronic definition as standard PCI, but the low-profile PCI standard is smaller. Thus, the cards are suitable for embedded systems, and size-constrained environments. Moreover, all cards are equipped with an universal PCI connector, which allows support for traditional systems with 5 V signaling or newer systems with 3.3 V signaling.

Specifications

General

- **Bus Type**   Universal PCI V 2.2
- **Certification**   CE, FCC class A
- **Connectors**   1 x Female DB25
- **Dimensions (L x W)** 119.91 x 64.41 mm (4.7" x 2.5") (low-profile MD1)
- **Power Consumption** 5 V @ 400 mA (Max.)

Communications

- **Communication Controller** OXuPC1952
- **Data Bits**   5, 6, 7, 8
- **Data Signals**   RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND
                        RS-422: Tx+, Tx-, Rx+, Rx-, RTS+, RTS-, CTS+, CTS-, GND
                        RS-485: Data+, Data-, GND
- **FIFO**   128 bytes
- **Flow Control**   CTS/RTS, Xon/Xoff
- **IRQ**   Assigned by Plug & Play
- **Parity**   None, Even, Odd, Mark and Space
- **Speed**   50 bps ~ 921.6 kbps
- **Stop Bits**   1, 1.5, 2

Protection

- **EFT Protection**   1 KV
- **Isolation Protection** 2,500 V_{DC}
- **ESD Protection**   8KV (air), 4KV (contact)

Software

- **Bundled Software** ICOM Tools
- **OS Support**   Windows 2000/XP/Vista/7, Windows CE 5.0/6.0, Linux, and QNX

Environment

- **Operating Humidity**   5 ~ 95 % RH, non-condensing
- **Operating Temperature** 0 ~ 65°C (32 ~ 149°F)
- **Storage Temperature**   -25 ~ 85°C (-13 ~ 185°F)

Ordering Information

- **PCI-1602UP** 2-port RS-422/485 Low-Profile Uni PCI Comm Card w/Iso
- **PCI-1604UP** 2-port RS-232 Low-Profile Uni PCI Comm Card w/Iso

Note: PCI-1602UP and PCI-1604UP include one DB25 to 2 x DB9 cable

PCI-1601
PCI-1602
PCI-1603

2-port RS-422/485 Universal PCI Communication Card

2-port RS-422/485 Universal PCI Communication Card with Isolation Protection

2-port RS-232/Current-loop Universal PCI Communication Card with Isolation Protection
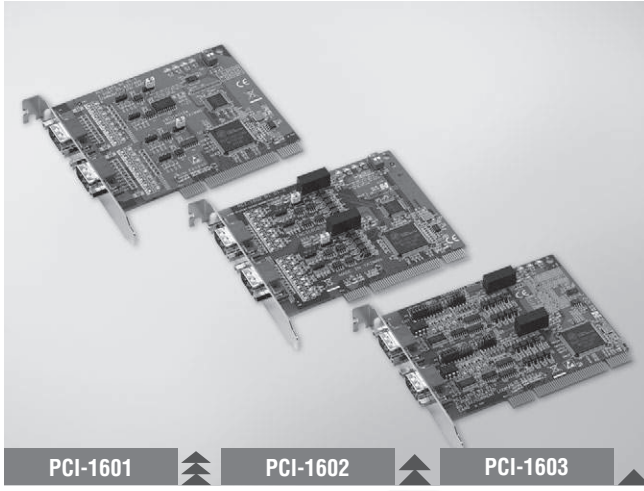
Features

- PCI bus 2.2 compliant
- Supports serial speed up to 921.6 kbps, and any baud rate setting
- 2-port RS-422/485 interface (PCI-1601/PCI-1602)
- 2 independent RS-232 or Current-loop serial ports (PCI-1603)
- I/O address automatically assigned by PCI Plug & Play
- OS supported: Windows 2K/XP/Vista/7, Windows CE 5.0/6.0, Linux, and QNX
- Interrupt status register for increased performance

PCI-1601   PCI-1602   PCI-1603

Introduction

The PCI-1601 and PCI-1602 are two RS-422/485 PCI communication cards that are compatible with the PCI 2.2 bus specification. Both cards provide EFT protected RS-422/485 ports, and come with features such as: high transmission speed of 921.6 kbps, optional isolation protection, windows utility software and more. The cards also come with high-performance OXuPCI952 UART with a 128-byte FIFO to reduce CPU load. This makes the PCI-1601 and PCI-1602 especially suitable for multitasking environments.

The PCI-1603 offers a versatile range of high-speed interfacing options. You can switch its ports between the popular RS-232 or noise-resistant current-loop. The card utilizes OXuPCI952 UART with 128-byte FIFO buffer for faster and more reliable communication, especially under multi-tasking environments such as Windows operating systems. The card utilizes OXuPCI952 UART that buffers data into packets before sending it to the bus. This drastically reduces CPU load and avoids data loss when the system is busy and cannot process an interrupt quickly. These FIFO buffers make the PCI-1603 especially suitable for high speed serial I/O under Windows.

Specifications

General

- **Bus Type** — Universal PCI v2.2
- **Certification** — CE, FCC class A
- **Connectors** — 2 x Male DB9
- **Dimensions (L x W)** — 123 x 92 mm (4.8" x 3.6")
- **Power Consumption** — 300 mA @ +5V

Current-loop Interface (PCI-1603)

- **Baud-rate** — 50 ~ 57600 bps
- **Current Value** — 20 mA (Standard)
- **Mode** — Asynchronous, full duplex
- **Signal Driver/Receiver** — 6N136
- **Signals** — TxD+, TxD-, RxD+, RxD-
- **Transmission Distance** — 1,000 m (RS-422/485 mode only)

Communications

- **Communications Controller** — OXuPCI952
- **Data Bits** — 5, 6, 7, 8
- **Data Signals** — RS-422: Tx+, Tx-, Rx+, Rx-, RTS+, RTS-, CTS+, CTS-, GND
  RS-485: Data+, Data-, GND
  RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND
- **FIFO** — 128 bytes
- **Flow Control** — RTS/CTS. Xon/Xoff
- **IRQ** — Assigned by Plug & Play
- **Parity** — None, Even, Odd, Mark and Space
- **Speed** — 50 bps ~ 921.6 kbps, any baud rate setting
  230.4 kbps (PCI-1601B, PCI-1602 and PCI-1603 in Current-loop mode only)
- **Stop Bits** — 1, 1.5, 2

Protection

- **ESD Protection** — 8 KV (air), 4 KV (contact)
- **EFT Protection** — 1 KV

Model Name	Surge Protection	Isolation Protection
PCI-1601A	-	-
PCI-1601B	1000 V$_{DC}$	-
PCI-1602	1000 V$_{DC}$	2500 V$_{DC}$
PCI-1603	1000 V$_{DC}$	2500 V$_{DC}$

Software

- **Bundled Software** — ICOM Tools
- **OS Support** — 32-bit/64-bit Windows 2000/XP/Vista/7, Windows CE 5.0/6.0, Linux, and QNX

Environment

- **Humidity (Operating)** — 5 ~ 95 % RH, non-condensing
- **Operating Temperature** — -10 ~ 60°C (14 ~ 144°F)
- **Storage Temperature** — -25 ~ 85°C (-13 ~ 185°F)

Regulatory Approvals

- **EMC** — EN 55011: 2009 + A1:2010, Group 1, Class A
  EN 55022: 2010, Class A
  EN 61000-6-4: 2007
  EN 55024: 2010
  EN 61000-6-2: 2005
  IEC 61000-4-2: 2008
  IEC 61000-4-3: 2006 +A1: 2007 +A2: 2010
  IEC 61000-4-4: 2010
  IEC 61000-4-6: 2008
  IEC 61000-4-8: 2009
  FCC 47 CFR Part 15 Subpart B (Class B),
  IC ICES-003 (2004)

Ordering Information

- **PCI-1601A** — 2-port RS-422/485 PCI Comm. Card
- **PCI-1601B** — 2-port RS-422/485 PCI Comm. Card w/Surge
- **PCI-1602** — 2-port RS-422/485 PCI Comm. Card w/Surge+Iso
- **PCI-1603** — 2-port RS-232/Current Loop PCI Comm. Card w/Surge+Iso

PCI-1610
PCI-1612

4-port RS-232 Universal PCI Communication Card

4-port RS-232/422/485 Universal PCI Communication Card
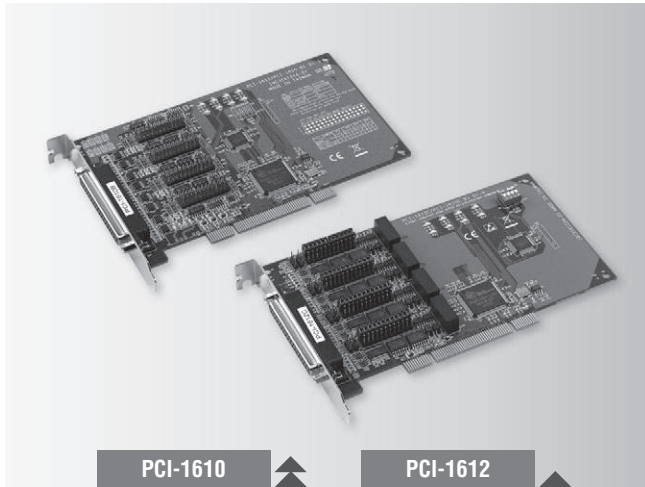
PCI-1610   PCI-1612

Features

- PCI bus 2.2 compliant
- Supports serial speed up to 921.6 kbps, and any baud rate setting
- 4-port RS-232 (PCI-1610), 4-port RS-232/422/485 (PCI-1612)
- OXuPCI954 UART with 128-byte FIFO standard
- I/O address automatically assigned by PCI Plug & Play
- OS supported: Windows 2000/XP/Vista/7, Windows CE 5.0/6.0, Linux, and QNX
- Interrupt status register for increased performance
- Powerful and easy to use utility (ICOM Tools)
- Universal PCI, supports 3.3 V or 5 V PCI bus signal
- 1,000 V$_{DC}$ surge protection
- 2,500 V$_{DC}$ isolation protection (PCI-1610C and PCI-1612C only)

Introduction

The PCI-1610 is a four port RS-232, and PCI-1612 is a four port RS-232/422/485 PCI communication card that are compatible with the PCI 2.2 bus specification, and offer transmission speeds up to 921.6 kbps. They also support any baud rate setting, for example 500 kbps is acceptable. The PCI-1610 and PCI-1612 also come with high-performance OXuPCI954 UART with 128-byte FIFO to reduce CPU load. These components make your system more stable and reliable. Thus, the PCI-1610 and PCI-1612 are especially suitable for multitasking environments.

Both the PCI-1610 and PCI-1612 have an universal PCI connector that is compatible with both the latest 3.3 V signaling systems and the traditional 5V signaling system. This gives high compatibility and allows usage in diverse systems. To further increase reliability, the cards can protect your system from abrupt high voltages up to 2,000 voltage thanks to EFT protection technology. PCI-1610C and PCI-1612C also provide 2,500 voltage optical isolation to protect your PC and equipment against damages from ground loops in harsh environments.

Specifications

General

- **Bus Type** — Universal PCI v2.2
- **Certification** — CE, FCC class A
- **Connectors** — 1 x Female DB37
- **Dimensions (L x W)** — 185 x 100 mm (7.3" x 3.9")
- **Power Consumption** — 180 mA @ +5 V

Communications

- **Communication Controller** — OXuPCI954
- **Data Bits** — 5, 6, 7, 8
- **Data Signals** — RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND (PCI-1610, PCI-1612)
  RS-422: Tx+, Tx-, Rx+, Rx-, RTS+, RTS-, CTS+, CTS- (PCI-1612)
  RS-485: Data+, Data- (PCI-1612)
- **FIFO** — 128 bytes
- **Flow Control** — RTS/CTS, Xon/Xoff
- **IRQ** — Assigned by Plug & Play
- **Parity** — None, Even, Odd, Mark and Space
- **Stop Bits** — 1, 1.5, 2
- **Speed** — 50 bps ~ 921.6 kbps, any baud rate setting
  230.4 kbps (PCI-1610B/C and PCI-1612B/C only)

Protection

- **ESD Protection** — 8KV (air), 4KV (contact)
- **EFT Protection** — 1 KV

Model Name	Surge Protection	Isolation Protection
PCI-1610A	-	-
PCI-1610B	1000 V$_{DC}$	-
PCI-1610C	1000 V$_{DC}$	2500 V$_{DC}$
PCI-1612A	-	-
PCI-1612B	1000 V$_{DC}$	-
PCI-1612C	1000 V$_{DC}$	2500 V$_{DC}$

Software

- **Bundled Software** — ICOM Tools
- **OS Support** — 32-bit/64-bit Windows 2000/XP/Vista/7, Windows CE 5.0/6.0, Linux, and QNX

Environment

- **Operating Humidity** — 5 ~ 95% RH, non-condensing
- **Operating Temperature** — -10 ~ 60°C (14 ~ 144°F)
- **Storage Temperature** — -25 ~ 85°C (-13 ~ 185°F)

Regulatory Approvals

- **EMC** — EN 55011: 2009 + A1:2010, Group 1, Class A
  EN 55022: 2010, Class A
  EN 61000-6-4: 2007
  EN 55024: 2010
  EN 61000-6-2: 2005
  IEC 61000-4-2: 2008
  IEC 61000-4-3: 2006 +A1: 2007 +A2: 2010
  IEC 61000-4-4: 2010
  IEC 61000-4-6: 2008
  IEC 61000-4-8: 2009
  FCC 47 CFR Part 15 Subpart B (Class B), IC ICES-003

Ordering Information

- **PCI-1610A** — 4-port RS-232 PCI Comm. Card
- **PCI-1610B** — 4-port RS-232 PCI Comm. Card w/Surge
- **PCI-1610C** — 4-port RS-232 PCI Comm. Card w/Surge+Iso
- **PCI-1612A** — 4-port RS-232/422/485 PCI Comm. Card
- **PCI-1612B** — 4-port RS-232/422/485 PCI Comm. Card w/Surge
- **PCI-1612C** — 4-port RS-232/422/485 PCI Comm. Card w/Surge+Iso

Note: this series includes cable OPT4A.

Accessories

- **OPT4A** — DB37 x1 to DB9 x4 Cable, 30cm
- **1700018791** — DB37 x1 to DB25 x4 Cable, 30cm

PCI-1620

8-port RS-232 Universal PCI Communication Card

PCI-1622

8-port RS-422/485 Universal PCI Communication Card

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

PCI-1620   PCI-1622

Features

- PCI bus 2.2 compliant
- Supports serial speed up to 921.6 kbps, and any baud rate setting
- 8-port RS-232, or 8-port RS-422/485
- OXPCIe958 UARTs with 128-byte FIFOs standard
- I/O address automatically assigned by PCI Plug & Play
- OS supported: Windows 2000/XP/Vista/7, Windows CE 5.0/6.0, Linux, and QNX
- Interrupt status register for increased performance
- Space reserved for termination resistors
- Automatic RS-422 data flow control
- Powerful and easy to use utility (ICOM Tools)
- Universal PCI, supports 3.3 V or 5 V PCI bus signal
- 1,000 V_{DC} surge protection and 2,500 V_{DC} isolation protection (PCI-1622C only)

Introduction

The PCI-1620 is an eight port RS-232, and PCI-1622 is an eight port RS-422/485 PCI communication card that are compatible with the PCI 2.2 bus specification, and offer transmission speeds up to 921.6 kbps.They also support any baud rate setting, for example 500 kbps is acceptable. PCI-1620 and PCI-1622 also come with high-performance OXuPC1954 UART with 128- byte FIFO to reduce CPU load. These components make your system more stable and reliable. Thus, the PCI-1620 and PCI-1622 are especially suitable for multitasking environments.

The PCI-1620 and PCI-1622 have an universal PCI connector that is compatible with both the latest 3.3 V signaling systems and the traditional 5V signaling system. This gives high compatibility and allows usage in diverse systems. To further increase reliability, the PCI-1620 and PCI-1622 offer EFT protection technology, protecting your system from electrical surges up to 2,500 volts. The PCI-1622C also provides 2,500 voltage optical isolation to protect your PC and equipment against damages from ground loops in harsh environments.

Specifications

General

- **Bus Type**   Universal PCI v2.2
- **Certification**   CE, FCC class A
- **Connectors**   PCI-1620: 1 x Female DB62
                          PCI-1622: 1 x Female DB78
- **Dimensions (L x W)** 185 x 100 mm (7.3" x 3.9")
- **Power Consumption**   600 mA @ +5 V

Communications

- **Communication Controller**   OXPCIe958
- **Data Bits**   5, 6, 7, 8
- **Data Signals**   RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND (PCI-1620)
                          RS-422: Tx+, Tx-, Rx+, Rx-, RTS+, RTS-, CTS+, CTS- (PCI-1622)
                          RS-485: Data+, Data- (PCI-1622)
- **FIFO**   128 bytes
- **Flow Control**   RTS/CTS, Xon/Xoff
- **IRQ**   Assigned by Plug & Play
- **Parity**   None, Even, Odd
- **Speed**   50 bps ~ 921.6 kbps, any baud rate setting
                          230.4 kbps (PCI-1622C only)
- **Stop Bits**   1, 1.5, 2

Protection

- **ESD Protection**   8KV (air), 4KV (contact)
- **EFT Protection**   1 KV

Model Name	Surge Protection	Isolation Protection
PCI-1620A	-	-
PCI-1620B	1000 V_{DC}	-
PCI-1622B	1000 V_{DC}	-
PCI-1622C	1000 V_{DC}	2500 V_{DC}

Software

- **Bundled Software**   ICOM Tools
- **OS Support**   Windows 2000/XP/Vista/7, Windows CE 5.0/6.0, Linux and QNX

Environment

- **Operating Humidity**   5 ~ 95% RH, non-condensing
- **Operating Temperature**   -10 ~ 60°C (14 ~ 144°F)
- **Storage Temperature**   -25 ~ 85°C (-13 ~ 185°F)

Regulatory Approvals

- **EMC**   EN 55022, EN 61000-3-2, EN 61000-3-3, EN 55044 including (IEC 61000-4-2/3/4/5/6/8/11), FCC Part 15 Subpart B

Ordering Information

- **PCI-1620A**   8-port RS-232 PCI Comm. Card w/Surge
- **PCI-1620B**   8-port RS-232 PCI Comm. Card w/Surge
- **PCI-1622B**   8-port RS-422/485 PCI Comm. Card w/Surge
- **PCI-1622C**   8-port RS-422/485 PCI Comm. Card w/Surge+Iso

Accessories

- **OPT8C**   DB62 x1 to DB25 x8 Cable, 1m
- **OPT8H**   DB62 x1 to DB9 x8 Cable, 1m
- **OPT8J**   DB78 x1 to DB9 x8 Cable, 1m

PCIE-1602
PCIE-1604
PCIE-1610
PCIE-1612

2-port RS-232/422/485 PCI Express Communication Card

2-port RS-232 PCI Express Communication Card

4-port RS-232 PCI Express Communication Card

4-port RS-232/422/485 PCI Express Communication Card

Preliminary

PCIE-1602	PCIE-1604

Preliminary

PCIE-1610	PCIE-1612
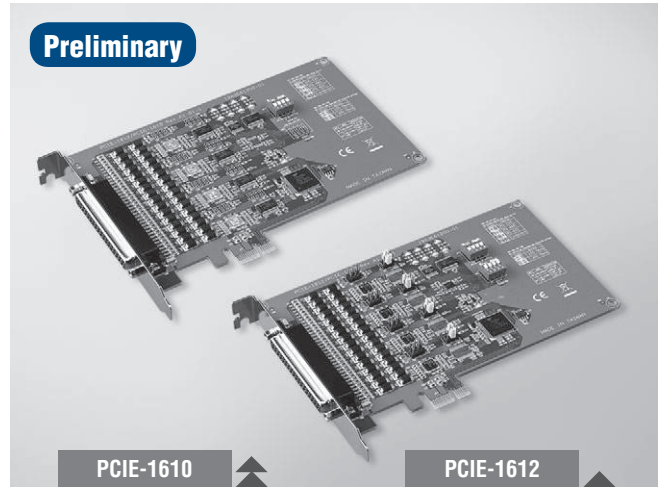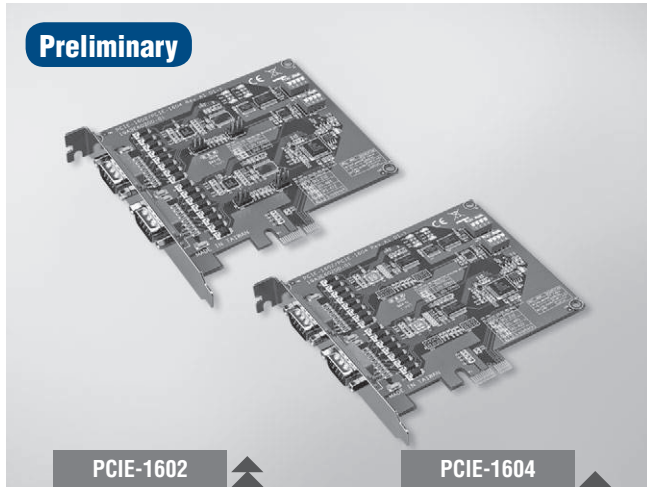
Features

- PCI Express bus 2.0 compliant
- Speeds up to 921.6 kbps for extremely fast data transmission
- Supports any baud rate setting
- 2 x RS-232 or RS- 232/422/485 ports
- Operating systems supported: Windows 2000/XP/Vista/7, and Linux 2.4/2.6
- XR17V352 with 256-byte FIFOs standard

Specifications

General

- **Bus Type** — PCI Express bus 2.0 compliant
- **Bus Interface** — PCI Express x1
- **Certification** — CE, FCC class A
- **Connectors** — 2x male DB9
- **Dimensions (L x W)** — 119.63 x 100 mm (4.71" x 3.9")
- **Power Consumption** — 260 mA @ +3.3 V

Communications

- **Comm. Controller** — XR17V352
- **Data Bits** — 5, 6, 7, 8
- **FIFO** — 256 bytes
- **Parity** — None, Odd, Even, Mark and Space
- **Speed** — 50 bps ~ 921.6 kbps and any other baud rate setting 230.4 kbps
- **Stop Bits** — 1, 1.5, 2

Software

- **Bundled Software** — ICOM Tools
- **OS Support** — Windows Xp, win7, win8, win8.1, win10, server 2008, server2012, Linux 2.6.x, 3.x.x, Qnx 6.3, 6.5, Vxworks 6.9

Environment

- **Operating Humidity** — 5 ~ 95 % RH, non-condensing
- **Operating Temperature** — -10 ~ 60°C (14 ~ 140°F)
- **Storage Temperature** — -25 ~ 85°C (-13 ~ 185°F)

Protection

Model Name	ESD Protection	EFT Protection	Surge Protection	Isolation Protection
PCIE-1602B	15KV (air), 8KV (contact)	2500 V	1000 V_{DC}	
PCIE-1602C	15KV (air), 8KV (contact)	2500 V	1000 V_{DC}	3000 V_{DC}
PCIE-1604B	15KV (air), 8KV (contact)	2500 V	1000 V_{DC}	
PCIE-1604C	15KV (air), 8KV (contact)	2500 V	1000 V_{DC}	3000 V_{DC}

Ordering Information

- **PCIE-1602B** — 2-port RS-232/422/485 PCI Express Comm. Card w/Surge
- **PCIE-1602C** — 2-port RS-232/422/485 PCI Express Comm. Card w/Surge & Isolation
- **PCIE-1604B** — 2-port RS-232 PCI Express Comm. Card w/Surge
- **PCIE-1604C** — 2-port RS-232 PCI Express Comm. Card w/Surge & Isolation

Features

- PCI Express bus 2.0 compliant
- Speeds up to 921.6 kbps for extremely fast data transmission
- Supports any baud rate setting
- 4 x RS-232 or RS- 232/422/485 ports
- Operating systems supported: Windows 2000/XP/Vista/7, and Linux 2.4/2.6
- XR17V354 with 256-byte FIFOs standard

Specifications

General

- **Bus Type** — PCI Express bus 2.0 compliant
- **Bus Interface** — PCI Express x1
- **Certification** — CE, FCC class A
- **Connectors** — 1x Female DB37
- **Dimensions (L x W)** — 185 x 100 mm (7.3" x 3.9")
- **Power Consumption** — 260 mA @ +3.3 V

Communications

- **Comm. Controller** — XR17V354
- **Data Bits** — 5, 6, 7, 8
- **FIFO** — 256 bytes
- **Parity** — None, Odd, Even, Mark and Space
- **Speed** — 50 bps ~ 921.6 kbps and any other baud rate setting 230.4 kbps
- **Stop Bits** — 1, 1.5, 2

Software

- **Bundled Software** — ICOM Tools
- **OS Support** — Windows Xp, win7, win8, win8.1, win10, server 2008, server2012, Linux 2.6.x, 3.x.x, Qnx 6.3, 6.5, Vxworks 6.9

Environment

- **Operating Humidity** — 5 ~ 95 % RH, non-condensing
- **Operating Temperature** — -10 ~ 60°C (14 ~ 140°F)
- **Storage Temperature** — -25 ~ 85°C (-13 ~ 185°F)

Protection

Model Name	ESD Protection	EFT Protection	Surge Protection	Isolation Protection
PCIE-1610B	15KV (air), 8KV (contact)	2500 V	1000 V_{DC}	
PCIE-1612B	15KV (air), 8KV (contact)	2500 V	1000 V_{DC}	
PCIE-1612C	15KV (air), 8KV (contact)	2500 V	1000 V_{DC}	3000 V_{DC}

Ordering Information

- **PCIE-1610B** — 4-port RS-232 PCI Express Comm. Card w/Surge
- **PCIE-1612B** — 4-port RS-232/422/485 PCI Express Comm. Card w/Surge
- **PCIE-1612C** — 4-port RS-232/422/485 PCI Express Comm. Card w/Surge & Isolation

Note: this series includes cable OPT4A.

Accessories

- **OPT4A** — DB37 x1 to DB9 x4 Cable, 30cm
- **1700018791** — DB37 x1 to DB25 x4 Cable, 30cm

ADVANTECH **Serial Communication Cards**

PCIE-1620
PCIE-1622

8-port RS-232 PCI Express Communication Card

8-port RS-232/422/485 PCI Express Communication Card

Preliminary
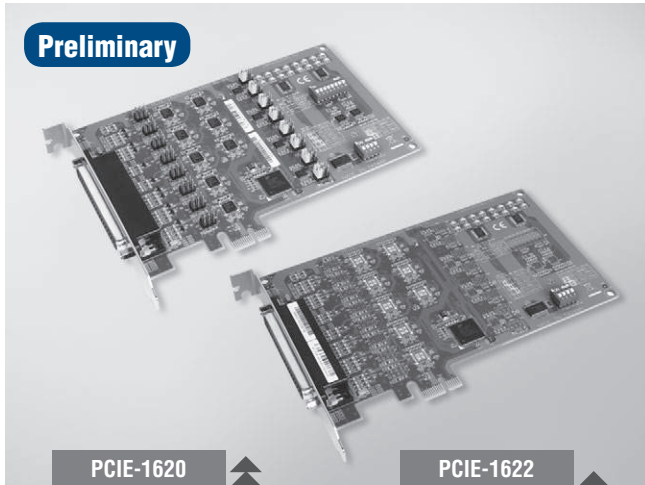
| PCIE-1620 | PCIE-1622 |

Features

- PCI Express bus 2.0 compliant
- Speeds up to 921.6 kbps for extremely fast data transmission
- Supports any baud rate setting
- 8 x RS-232 or RS-232/422/485 ports
- XR17V358 UART with 256-byte FIFOs

Introduction

PCIE-1620 is an 8-port RS-232, and PCIE-1622 is an 8-port RS-232/422/485 PCI Express communication cards that are compatible with the PCI Express x1 specification. The cards provide eight EFT protected ports up to 2,500 V, and have many functions such as high transmission speed of 921.6 kbps; The cards utilizes high-performance XR17V358 UARTs with 256-byte FIFOs to reduce CPU load. Thus, the PCIE-1620 and PCIE-1622 are especially suitable for making reliable systems in multitasking environments.

Specifications

General

- **Bus Type**   PCI Express bus 2.0 compliant
- **Bus Interface**   PCI Express x1
- **Certification**   CE, FCC class A
- **Connectors**   1x Female DB62 (PCIE-1620A/22A/22B)
  1x Female DB78 (PCIE-1622C)
- **Dimensions (L x W)**   168 x 111 mm (6.6" x 4.4")
- **Power Consumption**   260 mA @ +3.3 V

Communications

- **Comm. Controller**   XR17V358
- **Data Bits**   5, 6, 7, 8
- **Data Signals**   RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI
  RS-422: Tx+, Tx-, Rx+, Rx- (PCIE-1622)
  RS-485: Data+, Data- (PCIE-1622)
- **FIFO**   256 bytes
- **Flow Control**   RTS/CTS, Xon/Xoff
- **Parity**   None, Odd, Even, Mark, or Space
- **Speed**   50 bps ~ 921.6 kbps and any other baud rate setting
  230.4 kbps (PCIE-1622B only)
- **Stop Bits**   1, 1.5, 2

Protection

Model Name	ESD Protection	EFT Protection	Surge Protection	Isolation Protection
PCIE-1620A	15KV (air), 8KV (contact)	2500 V		
PCIE-1622A	15KV (air), 8KV (contact)	2500 V		
PCIE-1622B	15KV (air), 8KV (contact)	2500 V	1000 V	
PCIE-1622C	15KV (air), 8KV (contact)	2500 V	1000 V	3000 V$_{DC}$

Software

- **Bundled Software**   ICOM Tools
- **OS Support**   Windows Xp, win7, win8, win8.1, win10, server 2008, server2012
  Linux 2.6.x, 3.x.x
  Qnx 6.3, 6.5
  Vxworks 6.9

Environment

- **Operating Humidity**   5 ~ 95 % RH, non-condensing
- **Operating Temperature**   -10 ~ 60°C (14 ~ 140°F)
- **Storage Temperature**   -25 ~ 85°C (-13 ~ 185°F)

Ordering Information

- **PCIE-1620A**   8-port RS-232 PCI-express Comm. Card
- **PCIE-1622A**   8-port RS-232/422/485 PCI-express Comm. Card
- **PCIE-1622B**   8-port RS-232/422/485 PCI-express Comm. Card w/ Surge Protection
- **PCIE-1622C**   8-port RS-232/422/485 PCI-express Comm. Card w/ Surge & Isolation Protection

Accessories

- **OPT8C**   DB62 x1 to DB25 x8 Cable, 1m
- **OPT8H**   DB62 x1 to DB9 x8 Cable, 1m
- **OPT8J**   DB78 x1 to DB9 x8 Cable, 1m

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

PCIE-1680

2-Port CAN-Bus PCIE card with Isolation Protection

NEW
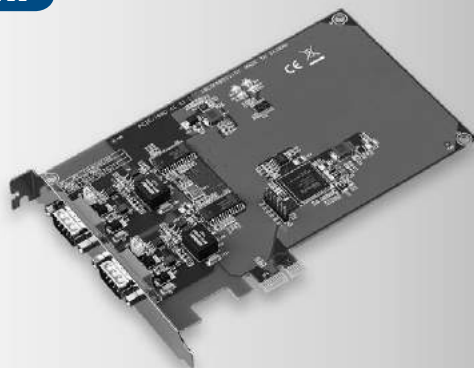
FCC CE

Features

- PCIe bus specification 1.1 compliant
- Two independent CAN ports
- High speed transmission up to 1 Mbps
- 16 MHz CAN controller frequency
- Optical isolation protection of 2,500 V_{DC}
- I/O address automatically assigned by PCI PnP
- Transmit/Receive status LED indicators
- Windows DLL library and examples included
- Supports Windows CE5/CE6/XP/7
- Supports Linux 2.4.xx / 2.6.xx; Intel x86 architecture

Introduction

The PCIE-1680 is a special purpose communication card that offers connectivity to Controller Area Networks (CAN) on your PC. With its built-in CAN controllers, the PCIE-1680 provides bus arbitration and error detection with an automatic transmission repetition. This drastically reduces the chance of data loss and ensures system reliability. Both CAN controllers operate independently. The PCIE-1680 operates at baud rates up to 1 Mbps.

Specifications

General

- **Bus Type**   PCI Express 1.1
- **Certification**   CE, FCC
- **Connectors**   2 x DB9 male connectors
                        2 x 10 pin box wafer (optional)
- **Ports**   2
- **Power Consumption** 3.3 V @ 600 mA (Typical)

Communication

- **CAN Controller**   NXP SJA-1000
- **CAN Transceiver**   NXP TJA1051T
- **Signal Support**   CAN_H, CAN_L
- **Protocol**   CAN 2.0 A/B
- **Data Transfer Rate(bps)** Programmable up to 1 Mbps
- **CAN Frequency**   16MHz

Protection

- **Isolation Protection**   2,500 V_{DC}

Mechanical and Environmental

- **Operating Temperature**   0 ~ 70°C (32 ~ 158°F)
                              (refer to IEC 60068-2-1, 2)
- **Storage Temperature**   -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity**   5 ~ 95% Relative Humidity, non-condensing
- **Dimensions (L x W)**   168 x 111 mm(6.6" x 4.4")

Ordering Information

- **PCIE-1680-AE**   2-Port CAN-Bus PCIE card with Isolation Protection

PCL-841
PCI-1680U
PCM-3680/I

2-port CAN-bus ISA Card with Isolation Protection

2-port CAN-bus Universal PCI Card with Isolation Protection

2-port CAN-bus PC/104 / PCI-104 Module with Isolation Protection

PCL-841 RoHS COMPLIANT 2002/95/EC CE FCC

PCI-1680U RoHS COMPLIANT 2002/95/EC CE FCC
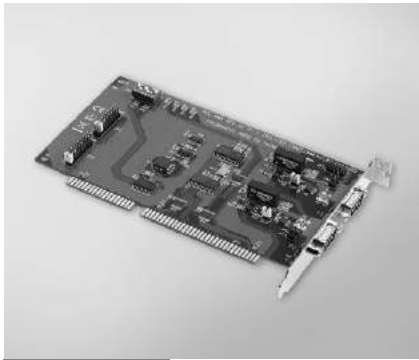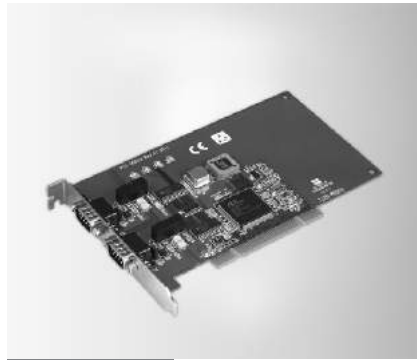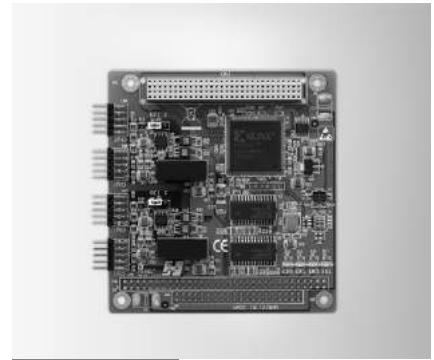
PCM-3680I RoHS COMPLIANT 2002/95/EC CE FCC

Features

- Operates two separate CAN networks simultaneously
- High speed transmission up to 500 kbps
- Optical isolation protection of 1000 V_{DC}
- Windows DLL library and examples included
- Wide IRQ selection for each port: IRQ 3, 4, 5, 6, 7, 9, 10, 11, 12, 15
- Supports 32-bit/64-bit Windows 2000/XP/Vista/7 and Linux

Features

- Operates two separate CAN networks simultaneously
- High speed transmission up to 1 Mbps
- Optical isolation protection of 1000 V_{DC}
- Windows DLL library and examples included
- I/O address automatically assigned by PCI PnP
- Supports 32-bit/64-bit Windows 2000/XP/Vista/7 and Linux

Features

- Operates two separate CAN networks simultaneously
- High speed transmission up to 1 Mbps
- 16 MHz CAN controller frequency
- Optical isolation protection
- Transmit/receive status LED indicators on each port
- Supports wide operating temperature
- Supports 32/64-bit WinXP/Vista/7 and Linux
- Supports WinCE 5.0/6.0

Specifications

General

- **Card Interface** ISA
- **Certification** CE, FCC
- **Connectors** 2 x DB9-M
- **Dimensions** 185 x 100 mm (7.3" x 3.9")
- **Ports** 2
- **Power Consumption** 5 V @ 400 mA typical

Communications

- **CAN Controller** SJA-1000
- **CAN Transceiver** 82C250
- **Protocol** CAN2.0 A/B
- **Speed** 500 kbps
- **IRQ** 3, 4, 5, 6, 7, 9, 10, 11, 12, or 15
- **Memory Segment Base Address** From C800H to EF00H
- **Signal Support** CAN_H, CAN_L

Protection

- **Isolation Protection** 1,000 V_{DC}

Environment

- **Operating Temp.** 0 ~ 50°C (32 ~ 122°F)

Ordering Information

- **PCL-841** 2-port CAN-bus ISA Comm. Card w/ Iso

Specifications

General

- **Card Interface** Universal PCI
- **Certification** CE, FCC
- **Connectors** 2 x DB9-M
- **Dimensions** 175 x 107 mm (6.9" x 4.2")
- **Ports** 2
- **Power Consumption** 5 V @ 400 mA typical

Communications

- **CAN Controller** SJA-1000
- **CAN Transceiver** 82C250
- **Protocol** CAN2.0 A/B
- **Speed** 1 Mbps
- **CAN Frequency** 16 MHz
- **Signal Support** CAN_H, CAN_L

Protection

- **Isolation Protection** 1,000 V_{DC}

Environment

- **Operating Temp.** 0 ~ 65°C (32 ~ 149°F)

Ordering Information

- **PCI-1680U** 2-port CAN Uni-PCI COMM Card w/Iso

Specifications

General

- **Card Interface** PCM-3680: PC/104 PCM-3680I: PCI-104
- **Certification** CE, FCC
- **Connectors** 2 x DB9-M with cable
- **Dimensions** 90 x 96 mm (3.6" x 3.8")
- **Ports** 2
- **Power Consumption** 5 V @ 400 mA

Communications

- **CAN Controller** SJA-1000
- **CAN Transceiver** 82C250
- **Protocol** CAN2.0 A/B
- **Speed** Up to 1 Mbps programmable transfer rate
- **CAN Frequency** 16 MHz
- **Signal Support** CAN_H, CAN_L

Protection

- **Isolation Protection** 2,500 V_{DC}

Environment

- **Operating Temp.** -40 ~ 85°C (-40 ~ 185°F)

Ordering Information

- **PCM-3680** Dual-port Iso CAN-bus PC/104 Module
- **PCM-3680I** Dual-port Iso CAN-bus PCI-104 Module

PCM-3610
PCM-3612
PCM-3614

2-port RS-232/422/485 PC/104 Module with Isolation Protection

2-port RS-422/485 PC/104 Module

4-port RS-422/485 High-speed PC/104 Module
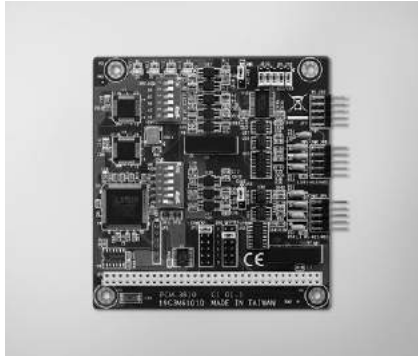
PCM-3610
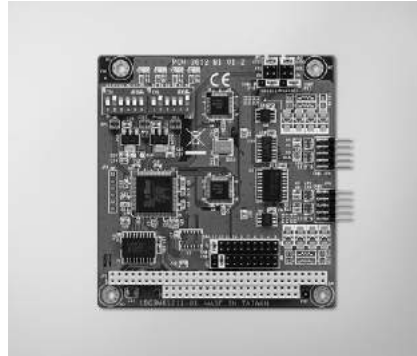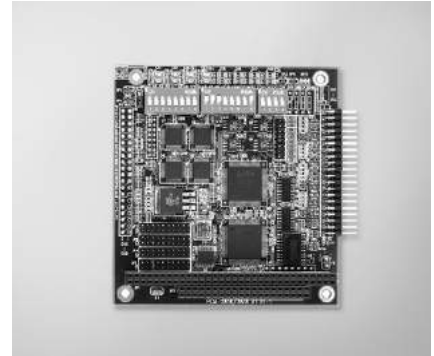
PCM-3612

PCM-3614

Features

- High speed transmission rate
- Automatic RS-485 data flow control
- Jumper selectable interrupt level
- Supports Windows 2000/XP/Vista/7
- Supports WinCE 4.2, 5.0
- Powerful and easy-to-use utility (ICOM Tools)

Features

- Long distance communication
- Automatic RS-485 data flow control
- Jumper selectable interrupt level
- Supports Windows 2000/XP/Vista/7
- Supports WinCE 4.2, 5.0
- Powerful and easy-to-use utility (ICOM Tools)

Features

- Automatic RS-485 data flow control
- Shared IRQ settings for each ports
- LED indicators: TX, RX
- Standard PC ports: COM1, COM2, COM3, COM4 compatible
- Supports Windows 2000/XP/Vista/7
- Supports WinCE 4.2, 5.0
- Powerful and easy-to-use utility (ICOM Tools)

Specifications

General
- **Card Interface** PC/104
- **Certification** CE, FCC
- **Connectors** 2 x DB9-M
- **Ports** 2
- **Power Consumption** +5V @ 400mA (Typical)

Communications
- **Channel 1** RS-232, 422, or 485
- **Channel 2** RS-422, or RS-485
- **Character Length** 5, 6, 7, or 8 bits
- **IRQ** 3, 4, 5, 6, 7, 9
- **Parity** Even, Odd, or None
- **Speed** 50 bps ~ 115.2 kbps
- **Stop Bit** 1, 1.5, or 2

Protection
- **Isolation Protection** 2,500 V_{DC}

Environment
- **Operating Humidity** 0 ~ 90 % RH
- **Operating Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)

Ordering Information
- **PCM-3610** Isolated RS-232/422/485 Module

Specifications

General
- **Card Interface** PC/104
- **Certification** CE, FCC
- **Connectors** 2 x DB9-M
- **Indicators** Red LED for TX
  Green LED for RX
- **Ports** 2
- **Power Consumption** +5V @ 400mA (Typical)

Communications
- **Channel 1 and 2** RS-422, or RS-485
- **Character Length** 5,6,7, or 8 bits
- **IRQ** 3, 4, 5, 6, 7, 9, 10, 11, 12 or 15
- **Parity** Even, Odd, or None
- **Speed** 50 bps ~ 115.2 kbps
- **Stop Bit** 1, 1.5, or 2

Environment
- **Operating Humidity** 0 ~ 90 % RH
- **Operating Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)

Ordering Information
- **PCM-3612** Dual Port RS-422/485 Module

Specifications

General
- **Card Interface** PC/104
- **Certification** CE, FCC
- **Connectors** 4 x DB9-M
- **Ports** 4
- **Power Consumption** +5V @ 450mA (Typical)

Communications
- **Data Bits** 5, 6, 7, 8
- **I/O Address Range** 0 x 000 ~ 0 x 3F8
- **IRQ** 3, 4, 5, 6, 7, 9, 10, 11, 12, or 15
- **Parity** Even, Odd, or None
- **Data Signals** RS-422: TxD+, TxD-, RxD+, RxD-, CTS+, CTS-, RTS+ , and RTS-
  RS-485: DATA+, DATA-
- **Speed** 50 bps ~ 921.6 kbps
- **Stop Bits** 1, 1.5, 2
- **Termination Resistor** 120 Ω

Environment
- **Operating Humidity** 0 ~ 90 % RH
- **Operating Temperature** 0~65°C (32~149°C)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)

Ordering Information
- **PCM-3614** 4-port RS-422/485 High-speed Module

ADVANTECH | **Serial Communication Cards**

PCM-3618
PCM-3640/3641
PCM-3660

8-port RS-422/485 High-speed PC/104 Module

4-port RS-232 High-speed PC/104 Module

Jumperless Ethernet PC/104 Module

PCM-3618 · RoHS COMPLIANT 2002/95/EC · CE · FCC

PCM-3641 · RoHS COMPLIANT 2002/95/EC · CE · FCC
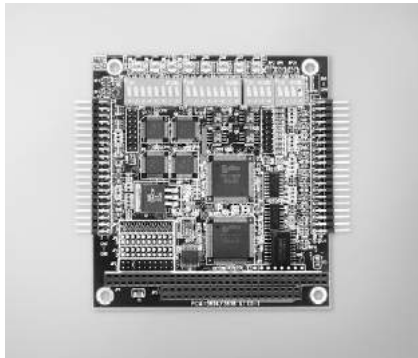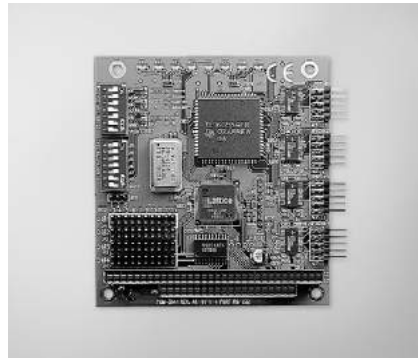
PCM-3660 · RoHS COMPLIANT 2002/95/EC · CE · FCC

Features

- Automatic RS-485 data flow control
- Shared IRQ settings for each ports
- LED indicators: TX, RX
- Supports Windows 2000/XP/Vista/7
- Supports WinCE 5.0/6.0
- Powerful and easy-to-use utility (ICOM Tools)

Features

- Transmission speeds up to 460 kbps (PCM-3641)
- Shared IRQ settings for each of 4 RS-232 ports (PCM-3641)
- Standard PC ports: COM1, COM2, COM3, COM4 compatible
- Supports Windows 2000/XP/Vista/7
- Supports WinCE 5.0/6.0
- Powerful and easy-to-use utility (ICOM Tools)

Features

- Automatically detects 8-bit or 16-bit
- AUI connector supports external MAUs
- Onboard 32 KB buffer for multi-packages

Specifications

General

- **Card Interface**   PC/104
- **Certification**   CE, FCC
- **Connectors**   8 x DB9-M
- **Ports**   8
- **Power Consumption** +5V @ 650 mA

Communications

- **Data Bits**   5, 6, 7, 8
- **I/O Address Range** 0 x 000 ~ 0 x 3F8
- **IRQ**   3, 4, 5, 6, 7, 9, 10, 11, 12, 15
- **Parity**   None, Even, or Odd
- **Data Signals**   RS-422: TxD+, TxD-, RxD+, RxD-, CTS+, CTS-, RTS+, and RTS-
                         RS-485: DATA+, DATA-
- **Speed**   50 bps ~ 921.6 kbps
- **Stop Bits**   1, 1.5, 2
- **Termination Resistor** 120 Ω

Environment

- **Operating Humidity** 0 ~ 90 % RH
- **Operating Temperature** 0 ~ 65°C (32 ~ 149°F)
- **Storage Temperature** -25 ~ 80°C (-13 ~ 176°F)

Ordering Information

- **PCM-3618**   8-port RS-422/485 High-Speed Module

Specifications

General

- **Card Interface**   PC/104
- **Certification**   CE, FCC
- **Connectors**   4 x DB9-M
- **Ports**   4
- **Power Consumption** +5V @ 200 mA (Typical)
                         +5V @ 250 mA (Max)

Communications

- **Data Bits**   5, 6, 7, 8
- **Data Signals**   RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI
- **I/O Address Range** 0 x 0200 ~ 0 x 03F8
- **IRQ**   3, 4, 5, 6, 7, 9, 10, 11, 12, 15
- **Parity**   None, Even, or Odd
- **Speed**   50 bps ~ 460.3 kbps (PCM-3641)
                         50 bps ~ 115.2 kbps (PCM-3640)
- **Stop Bits**   1, 1.5, 2

Environment

- **Operating Humidity** 0 ~ 90 % RH
- **Operating Temperature** 0 ~ 65°C (32 ~ 149°F)
- **Storage Temperature** -25 ~ 80°C (-13 ~ 176°F)

Ordering Information

- **PCM-3640**   4-port RS-232 Module
- **PCM-3641**   4-port RS-232 High-speed Module

Specifications

General

- **Boot ROM Address**   C0000, C8000, D0000, or D8000H
- **Card Interface**   PC/104
- **Certification**   CE, FCC
- **Connectors**   1 x PC/104 stackthrough
                         1 x 10Base-T (RJ-45)
                         1 x 16-pin insulation displacement connector for AU1
- **Power Consumption** +5V @ 400 mA max

Communications

- **Data Bus**   8-bit, 16-bit, or auto-sending
- **I/O Address**   200, 220, 240, 260, 280, 2A0, 2C0, 300, 320, 340, 380, 3A0
- **IRQ**   3,4,5,9, 10, 11, 12 or 15
- **Standard**   IEEE 802.3 10 Mbps CSMA/CD 10Base-T Transceiver

Environment

- **Operating Humidity** 10 ~ 90% RH
- **Operating Temperature** 0 ~ 70°C (32 ~ 158°F)
- **Storage Temperature** -15 ~ 80°C (5 ~ 176°F)

Ordering Information

- **PCM-3660**   Jumperless Ethernet Module

PCM-3614I
PCM-3641I

4-port RS-232/422/485 PCI-104 Module

4-port RS-232 PCI-104 Module
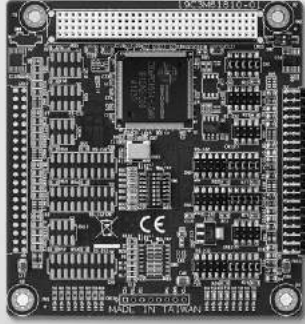
PCM-3614I
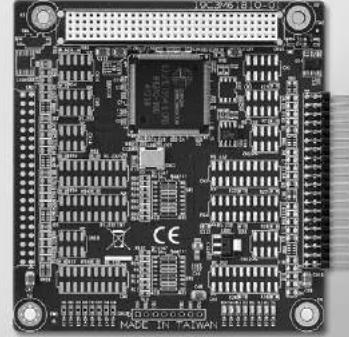
PCM-3641I

Features

- Automatic RS-485 data flow control
- Shared IRQ settings for each port
- LED indicators: TX, RX
- Standard PC ports: COM1, COM2, COM3, COM4 compatible
- Supports Windows 2000/XP/Vista/7 and Linux
- Supports WinCE 5.0/6.0
- Powerful and easy-to-use utility (ICOM Tools)

Specifications

General

- **Card Interface**   PCI-104
- **Connectors**   1 x 40-pin header
- **Ports**   4
- **Power Consumption**   +5V @ 450 mA

Communications

- **Data Bits**   5, 6, 7, 8
- **Data Signals**   RS-422: TxD+, TxD-, RxD+, RxD-
  RS-485: DATA+, DATA-
  RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI
- **IRQ**   3, 4, 5, 6, 7, 9, 10, 11, 12, 15
- **Parity**   None, Even, or Odd
- **Speed**   50 bps ~ 921.6 kbps
- **Stop Bits**   1, 1.5, 2
- **Termination Resistor**   120 Ω

Environment

- **Operating Humidity**   0 ~ 90 % RH
- **Operating Temperature**   -40 ~ 85°C (-40 ~ 185°F)
- **Storage Temperature**   -40 ~ 85°C (-40 ~ 185°F)

Ordering Information

- **PCM-3614I**   4-port RS-232/422/485 PCI-104 Module
- **PCM-3618I**   8-port RS-232/422/485 PCI-104 Module

Features

- Transmission speeds up to 460 kbps
- Shared IRQ settings for each port
- Standard PC ports: COM1, COM2, COM3, COM4 compatible
- Supports Windows 2000/XP/Vista/7 and Linux
- Supports WinCE 5.0/6.0
- Powerful and easy-to-use utility (ICOM Tools)

Specifications

General

- **Card Interface**   PCI-104
- **Connectors**   1 x 40-pin header
- **Ports**   4
- **Power Consumption**   +5V @ 250 mA (max.)

Communications

- **Data Bits**   5, 6, 7, 8
- **Data Signals**   TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI
- **IRQ**   3, 4, 5, 6, 7, 9, 10, 11, 12, 15
- **Parity**   None, Even, or Odd
- **Speed**   50 bps ~ 460.3 kbps
- **Stop Bits**   1, 1.5, 2
- **Termination Resistor**   120 Ω

Environment

- **Operating Humidity**   0 ~ 90 % RH
- **Operating Temperature**   -40 ~ 85°C (-40 ~ 185°F)
- **Storage Temperature**   -40 ~ 85°C (-40 ~ 185°F)

Ordering Information

- **PCM-3641I**   4-port RS-232 PCI-104 Module

Embedded Automation Computers

To view all of Advantech's Embedded Automation Computers and iDoor Technology, please visit www.advantech.com/products.

Embedded Automation PCs Selection Guide

NEW NEW NEW NEW

Model Name	UNO-2272G	UNO-2362G	UNO-2483G / UNO-2473G	UNO-2483P	UNO-2174G/GL UNO-2184G
CPU	Intel® Atom™ N2800, 1.86GHz Intel® Atom™ J1900, 2GHz	AMD G-Series APU T40E 1.0GHz Dual Core	Intel® Core™ i7-4650U ULT 1.7GHz Dual Core Intel® Core™ i3-4010U ULT 1.7GHz Dual Core Intel® Celeron® 2980U ULT 1.6GHz Dual Core Intel® Atom™ E3845 1.91GHz Quad Core	Intel® Core™ i7-4650U ULT 1.7GHz Dual Core Intel® Celeron® 2980U ULT 1.6GHz Dual Core	UNO-2174G/GL: Intel® Celeron™ 847/807UE, 1.1/1.0 GHz UNO-2184G: Intel® Core™ i7-3555LE/ i7-2655LE 2.5/2.2 GHz
Onboard RAM	2G DDR3/DDR3L SDRAM	2G DDR3 SDRAM	8G/4G DDR3L SDRAM	8G/4G DDR3L SDRAM	4 GB/8 GB DDR3 SDRAM
Battery-Backup RAM	-	-	-	-	-
Display	VGA for N2800 HDMI for J1900	HDMI/DP	HDMI/VGA	HDMI/VGA	DVI-I/HDMI/DP
Audio	Yes	-	Yes	Yes	Yes
Serial Ports	1 x RS-232	1 x RS-232, 1 x RS-485	2 x RS-232, 2 x RS-422/485	2 x RS-232, 2 x RS-422/485	2 x RS-232 2 x RS-232/422/485
Ethernet Ports	1 x 10/100/1000Base-T	2 x 10/100/1000Base-T, (1 x Giga Ethernet switch with daisy chain technology)	4 x 10/100/1000Base-T	4 x 10/100/1000Base-T 4 x POE	4 x 10/100/1000Base-T
USB Ports	3 external (1 x USB3.0)	4 external	4 external (2 x USB3.0)	4 external (2 x USB3.0)	6 external
PC Card Slots	-	-	-	-	-
Printer Ports	-	-	-	-	-
PC/104 Expansion	-	-	-	-	PCI-104 (optional)
PCIe/PCI Expansion	1 x Mini PCIe, 1 x Half-size Mini PCIe with 1 x SIM slot for N2800 2 x Mini PCIe with 1 x SIM slot for J1900	1 x Mini PCIe with 1 x SIM slot	2 x mPCIe, 1 x Half-size mPCIe	1 x Half-size Mini PCIe	2 x Mini PCIe with 1 x SIM slot
Onboard I/O	-	-	-	-	-
Watchdog Timer	Yes	Yes	Yes	Yes	Yes
CompactFlash Slots	1 x mSATA	1 x mSATA	1 x mSATA	1 x mSATA	1x CFast
2.5" HDD Expansion	-	1 x SATA (optional)	1 x SATA for UNO-2473G 2 x SATA for UNO-2483G	2 x SATA	2 x SATA (optional)
Operating Systems	Microsoft® Windows 7, WES7, Linux	Microsoft® Windows XP/7/8 WES7, Linux	Microsoft® Windows 7/8, WES7, Linux	Microsoft® Windows 7/8, WES7, Linux	Windows XP/7, WES7, WES-2009, Linux
Mounting	Stand, Wall, VESA (Optional)	Stand, Wall, VESA (Optional)	Stand, Wall, VESA (Optional)	Stand, Wall, VESA (Optional)	DIN-rail/Wall/VESA
Anti-Vibration	0.75G w/mSATA, 2G w/HDD	0.75G w/mSATA, 2G w/HDD	0.7G w/mSATA, 2G w/HDD	0.7G w/mSATA, 2G w/HDD	2 G w/CF, 1 G w/HDD
Anti-Shock	50G w/mSata, 20G w/HDD	50G w/mSata, 20G w/HDD	50G w/mSata, 20G w/HDD	50G w/mSata, 20G w/HDD	50 G w/CF, 20 G w/HDD
Power Input Range*	24V ± 20%	24V ± 15%	24V ± 20%	24V ± 20%	9 ~ 36 V$_{DC}$
Operating Temperature	- 20 ~ 60°C (-4 ~ 140°F) for N2800, 0 ~ 50°C (32 ~ 122°F) for J1900	- 10 ~ 60°C (14 ~ 140°F)	- 20 ~ 60°C (-4 ~ 140°F)	- 20 ~ 50°C (-4 ~ 122°F)	-10 ~ 60°C (14 ~ 140°F)
Power Consumption Typical	10 W	14 W	28 W	48 W	UNO-2174G/GL: 30 W/ 20 W UNO-2184G: 40 W
Power Requirements	12W, +24 V @ 0.5 A power input	24W, +24 V @ 1A power input	72 W, +24 V @ 3A power input	134W, +24V @ 5.6A power input	72 W, +24 V @ 3 A power input
Dimensions (W x D x H)	157 x 88 x 50 mm (6.2" x 3.5" x 2.0")	190 x 107 x 47 mm (7.5" x 4.2" x 1.8")	252 x 149 x 62 mm (9.9" x 5.9" x 2.4")	252 x 149 x 68 mm (9.9" x 5.9" x 2.7")	255 x 152 x 69 mm (10" x 6.0" x 2.7")
Weight	0.8kg	1.0kg	1.6kg	1.6kg	3.0 kg
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* All power input ranges represent the minimum and maximum values recommended for these devices.

Control DIN-Rail PCs Selection Guide

1 WebAccess⁺ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

Model Name	UNO-1110	UNO-1252G	UNO-1372G	UNO-1483G
CPU	TI Cortex A8 AM3505, 600 MHz	Intel® Quark 400 MHz	Intel® Atom™ E3845 1.91 GHz	4th Gen. Intel® Core™ i3-4010U 1.7 GHz
Onboard RAM	256 MB DDR2 SDRAM	256 MB DDR3 SDRAM	4 GB DDR3L SDRAM	8 GB DDR3L SDRAM
Battery-Backup SRAM	-	-	-	-
Display	VGA	-	HDMI, VGA	DP, VGA
Audio	-	-	Line-out	Line-out
Serial Ports	4 x RS-232/422/485 (2 x Isolation, optional) 1 x RS-485	1 x RS-232, 1 x RS-485	1 x RS-232, 1 x RS-422/485	1 x RS-232, 2 x RS-422/485
Ethernet Ports	2 x 10/100Base-T	2 x 10/100 Base-T	3 x 10/100/1000 Base-T	4 x 10/100/1000 Base-T
USB Ports	2 x USB 2.0	1 x USB 2.0 1 x USB 2.0 client	2 x USB 2.0 1 x USB 3.0	2 x USB 2.0 2 x USB 3.0
PC Card Slots	-	-	-	-
Printer Ports	-	-	-	-
PC/104 Expansion	-	-	-	-
PCIe/PCI Expansion	1 x Mini PCIe (w/ USB signal only)	2 x Mini PCIe	2 x Mini PCIe	1 x PCIex1 2 x Mini PCIe, mPCIe 2.0 (1 supports mSATA / SIM card)
Onboard I/O	4-ch DI, 2-ch DO	4-ch DI, 4-ch DO	4-ch DI, 4-ch DO	4-ch DI, 4-ch DO
Watchdog Timer	Yes	-	-	Yes
CompactFlash Slots	-	-	-	-
2.5" HDD Expansion	-	-	1 x SATA 6Gb/s	1 x SATA 6Gb/s
Operating Systems	Windows CE 6.0, Linux	Linux	Windows 7/8, WES7/WE8S, Linux	Windows 7/8, WES7/8, Linux
Mounting	DIN-rail/Wall	DIN-rail Mount	DIN-rail/Wall Mount	DIN-rail/Wall
Anti-Vibration	-	-	-	2 G w/ mSATA, 1 G w/ HDD
Anti-Shock	-	-	-	50 G w/ mSATA, 20 G w/ HDD
Power Input Range*	10 ~ 30 V_{DC}	9 ~ 36 V_{DC}	9 ~ 36 V_{DC}	12/24 V_{DC}
Operating Temperature	-10 ~ 70°C @ 5 ~ 85% RH	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)
Power Consumption Typical	Min. 8.5 W	6 W	24 W	41 W
Power Requirements	Min. 13 W	12 W, 24 V_{DC} @ 0.5A	36 W, 24 V_{DC} @ 1.5A	60 W, 24 V_{DC} @ 2.5A
Dimensions (W x D x H)	48 x 127 x 152 mm (1.9" x 5" x 6")	70 x 90 x 100 mm (2.76" x 3.54" x 3.94")	85 x 139 x 152 mm (3.3" x 5.5" x 6.0")	110 x 198 x 139 mm (4.3" x 7.8" x 5.8")
Weight	0.45 kg			1.6kg (3.5 lbs)
Page	12-17	12-18	12-20	12-22

* All power input ranges represent the minimum and maximum values recommended for these devices.

Control Cabinet PCs Selection Guide

Model Name	UNO-3083G/3085G UNO-3073G/3075G UNO-3073GL	UNO-3283G/UNO-3273G	UNO-3382G/3384G	UNO-3483G
CPU	UNO-3073GL: Intel Celeron 807UE 1GHz UNO-3073G: Intel Celeron 847 1.1GHz UNO-3083G/3085G : Intel Core i7 3555 LE 2.5 GHz or -2655LE 2.2 GHz	UNO-3283G: Intel® Skylake CPU UNO-3273G: Intel® CeleronR J1900 2.0GHz	Intel® Core™ i7-4650U 1.7Hz	Intel® Core™ i7-3612QE
Onboard RAM	4GB DDR3 SDRAM built-in	UNO-3283G: 8GB DDR3L SDRAM UNO-3273G: 4GB DDR3L SDRAM	8GB DDR3L SDRAM	8GB SO-DIMM DDR3/DDR3L
Battery-Backup RAM	-	-	On board MRAM 512K	-
Display	1 x DVI-I, 1 x HDMI	UNO-3283G: DVI, HDMI UNO-3273G: VGA, HDMI	HDMI, DP (disabled when attached to display module)	VGA, HDMI
Audio	Mic in, Line Out	N/A (built-in Line-in/out/Mic, I/O through iDoor)	N/A (built-in Line-in/out/Mic, I/O through iDoor)	Mic in, Line out (pin header)
Serial Ports	2 x RS-232/422/485 2 x RS-232 (optional)	2 x RS-232/422/485	RS-232/422/485 x 1 (isolation)	1 x RS-232, 1 x RS-232/422/485 with DB9 connection (pin header)
Ethernet Ports	2 x 10/100/1000 Base-T RJ-45 ports Supports AMT (UNO-3083G/3085G only)	2 x 10/100/1000 Base-T RJ-45 (support IEEE1588)	2 x 10/100/1000 Base-T RJ-45 (support IEEE1588)	2 x 10/100/1000 Base-T RJ-45 (support IEEE1588)
USB Ports	Nine (One Internal)	UNO-3283G: 2 x USB 2.0, 4 x USB 3.0 UNO-3273G: 5 x USB 2.0, 1 x USB 3.0	2 x USB 2.0 2 x USB 3.0	2 x USB 2.0 2 x USB 3.0
Printer Ports	-	-	-	-
PC/104 Expansion	-	-	-	-
PCIe/PCI Expansion	UNO-3073G/UNO-3073GL/ 3083G: 3 slots 3085G: 5 slots	UNO-3283G: 2x PCIe or 2x PCI or 1x PCI/1x PCIe UNO-3273G: 2x PCI	UNO-3382G: 2 x Mini PCIe UNO-3384G: 2 x Mini PCIe, 2 x PCI/PCIe (2 x PCI, 1 x PCIe x1+1 x PCIe x4, 1 x PCI + 1 x PCIex 4)	1 x PCIex 4, 3 x Mini PCIe (2 x full, 1 x half)
Onboard I/O	-	-	-	-
Watchdog Timer	Yes	-	-	-
CompactFlash Slots	Two internal			
2.5" HDD Expansion	2 x SATA, support RAID 0/1 (except UNO-3073GL)	Two built-in 2.5" SATA HDD brackets with support for RAID 0/1	Two built-in 2.5" SATA HDD brackets with support for RAID 0/1	Two built-in 2.5" SATA HDD brackets with support for RAID 0/1
Operating Systems	Windows XP,Windows7/8, WES7, WES-2009, Linus	WIN7/8, WES7, WES-2009, Linux	Linux, Win 7, WES 7, Win 8, Win Emb 8.1 Industry	WIN7/8, WES7, WES-2009, Linux
Mounting	Wall/Stand/Panel	Wall/Stand	Book Mount	Enclosure Mount
Anti-Vibration	-	-	-	-
Anti-Shock	50 G w/CF 20 G w/HDD	-	-	-
Power Input Range*	9 ~ 36 V$_{DC}$	9 ~ 36 V$_{DC}$	18 ~ 36 V$_{DC}$	12/24 V$_{DC}$ ± 20%
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)
Power Consumption Typical	UNO-3073GL: 25W (Typical) UNO-3073G: 35W (Typical) UNO-3083G/3085G: 45W (Typical)	45W (Typical)	45W	50W
Power Requirements	12 V ±20%, 24 V±20%	12V/24V$_{DC}$ ± 20% (24V@5A)	24V$_{DC}$ @ 4.5A	12V/24V$_{DC}$ @ 4A
Dimensions (W x D x H)	UNO-3083G/3073G/GL: 148 x 238 x 177 mm (5.8" x 9.3" x 7.0") UNO-3085G: 193 x 238 x 177 mm (7.6" x 9.3" x 7.0")	157 x 238 x 177 mm	UNO-3382G: 254 x 207 x 65.2 mm (100" x 81.5'" x 25.7'") UNO-3384G: 254 x 207 x 103.2 mm (100" x 81.5'" x 40.6'")	305 x 82 x 225 mm (120.1" x 32.3'" x 88.6'")
Weight	UNO-3083G/3073G/GL: 4.5 kg UNO-3085G: 5.0 kg	4.5 kg	UNO-3382G: 3.1 kg UNO-3384G: 3.9 kg	4.9 kg
Page	12-28	online	12-24	12-26

* All power input ranges represent the minimum and maximum values recommended for these devices.

ADVANTECH | **Embedded Automation Computers**

iDoor Module Selection Guide

Multiple I/O & Peripheral

Model Name	PCM-2300MR	PCM-23C1CF	PCM-23U1DG	PCM-24R1TP	PCM-24U2U3	PCM-24R2PE	PCM-24R2GL	PCM-28P1AD	PCM-28P1BK
Description	MR4A16B, MRAM, 2 MByte, mPCIe	1 CFast Slot with Cover Protection	USB Slot w/ Lock for USB Dongle	1-Port Gigabit Ethernet, Intel® 82574L, mPCIe, RJ45	2-Port USB 3.0, mPCIe, USB-A type	2-Port Gigabit Ethernet, IEEE 802.3af (PoE) Compliant, mPCIe, RJ45	2-Port Gigabit Ethernet, mPCIe, RJ45	PCIe to mPCIe, 2-Slots mPCIe, iDoor I/O plate expansion	iDoor PCIe I/O Plate
Page	12-29	12-30	12-30	12-34	12-35	12-32	12-33	12-43	12-43

Smart I/O & Comm.

Model Name	PCM-24D2R4	PCM-24D2R2	PCM-24D4R4	PCM-24D4R2	PCM-27D24DI
Description	2-Port Isolated RS-422/485 mPCIe, DB9	2-Port Isolated RS-232 mPCIe, DB9	4-Port Non-Isolated RS-422/485 mPCIe, DB37	4-Port Non-Isolated RS-232 mPCIe, DB37	24-Channel Isolated Digital I/O w/ counter mPCIe, DB37
Page	12-31	12-31	12-31	12-31	12-39

Communication

Model Name	PCM-24S1ZB	PCM-24S2WF	PCM-24S33G	PCM-24S34G
Description	Wireless Zigbee Gateway, mPCIe, 1-port SMA	WiFi 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, 2-port SMA	Wide-Temp 3.75G HSPA and GPS, 2-in-1, Full-size mPCIe w/ Redundant SIM Card holder, 2-port SMA	LTE Bands, UMTS/HSPA Bands, GPS/GPRS Bands, 2-port SMA
	For the information of regulation, please refer to the product page of each model (Wifi Accessory kit- PCM-24S200, 3G/ 4G Accessory kit- PCM-24S300)			
Page	12-36	12-37	12-38	-

Industrial Fieldbus

Model Name	PCM-26D2CA	PCM-26D1DB	PCM-26R2PN	PCM-26R2EC	PCM-26R2EI	PCM-26R2S3	PCM-26R2PL
Description	2-Port Isolated CANBus mPCIe, CANOpen, DB9	1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9	2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45	2-Port Hilscher netX100 FieldBus mPCIe, EtherCAT, RJ45	2-Port Hilscher netX100 FieldBus mPCIe, EtherNet/IP, RJ45	2-Port Hilscher netX100 FieldBus mPCIe, Sercos III, RJ45	2-Port Hilscher netX100 FieldBus mPCIe, POWERLINK, RJ45
Page	12-40	12-41	12-42	12-42	12-42	12-42	12-42

Naming Convention

PCM- 2 6 D 2 C A

Category
- 23-Memory / Storage / External I/O
- 24-Communication
- 25-Display
- 26-Fieldbus
- 27-Digital/Analog I/O
- 28-Expansion kit

Connector
- R-RJ45
- D-DB9
- U-USB
- P-mPCIe
- C-CFast
- S-SMA/DFP/SD
- H-HDMI/DP

Port
- 0-No Connector
- 1-One Connector
- 2-Two Connectors
- 4-Four Connectors

Function
- BK-Bracket
- DB-PROFIBUS
- PN-PROFINET
- EI-Eithernet/IP
- EC-EtherCAT
- S3-SERCOS III
- CA-CANOpen
- PL-PowerLink
- WF-WiFi/BT
- 3G-3G/GPS
- ZB-ZigBee
- AD-Adapter
- PE-PoE
- TP-Precision Time Protocol
- DC-Daisy-Chain
- MR-MRAM
- DI-Digital I/O
- AI-Analog I/O
- R4-Multi-drop RS-422/485
- R2-Single-ended RS-232
- ID-Intelligent Displays
- U3-USB 3.0
- HD-HDMI
- 4G-4G/LTE
- DG-Dongle
- GL-Gigabit LAN

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

UNO-2272G

Intel® Atom™ Palm-Size Automation Computer with 1 x GbE, 2 x mPCIe, VGA

NEW

Features

- Intel® Atom™ N2800/J1900 Processors up to 2.41 GHz with 2GB DDR3/DDR3L Memory
- 1 x GbE, 3 x USB 2.0, 1 x RS-232, 1 x VGA or HDMI, Audio
- Comprehensive Palm, Small, Regular-size form-factor
- Compact with Fanless Design
- Rubber Stopper Design with Captive Screw
- Diverse system I/O and Isolated Digital I/O by iDoor Technology
- Supports Fieldbus Protocol by iDoor Technology
- 3G/GPS/GPRS/Wi-Fi Communication by iDoor Technology
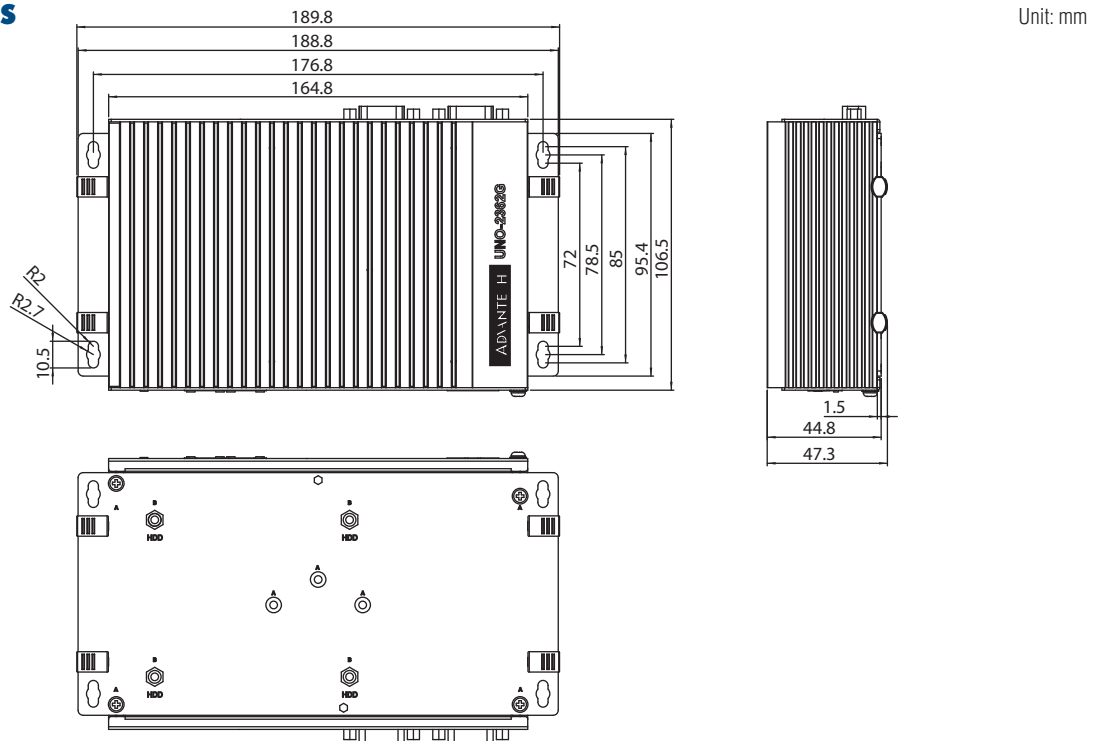- Supports MRAM by iDoor Technology
- Chassis Grounding Protection

iDoor SUSIAccess RoHS COMPLIANT 2002/95/EC CCC CE FCC c UL us LISTED E190881 I.T.E.

Introduction

Advantech's UNO-2000 series of Embedded Automation Computers are Fanless with highly ruggedized with an embedded operating system (Windows CE, Windows XPE, Linux-Embedded). It also includes iDoor technology which supports automation feature extensions such as industry fieldbus communication, Wi-Fi/3G, Digital I/O, including Palm, Small, and Regular-size Form-Factors with indicated market segments in terms of entry, value and performance product positioning. Both entry and value Embedded Automation Computers feature specific functions and they are suitable for data gateway, concentrator and data server applications. The performance model can shorten your development time and offer multiple networking interfaces to fulfill a diverse range of requirements.

Specifications

General

- **Certification**   CE, FCC, UL, CCC, BSMI
- **Dimensions (W x D x H)**   157 x 88 x 50mm (6.2"x 3.5"x 2.0")
- **Form Factor**   Palm Size
- **Enclosure**   Aluminum Housing
- **Mounting**   Stand, Wall, VESA (Optional)
- **Weight (Net)**   0.8 kg (1.76lbs)
- **Power Requirement**   24V_{DC} ± 20%
- **Power Consumption**   10W (Typical), 15W (Max)
- **OS Support**   Microsoft® Windows 7, WES7, Linux Fedora

System Hardware

- **BIOS**   AMI EFI64 Mbit
- **Watchdog Timer**   Programmable 256 levels timer interval, from 1 to 255 sec
- **Processor**   Intel Atom Dual Core N2800 1.86GHz / Intel Atom Quad Core J1900 2GHz
- **System Chip**   Intel Atom SoC integrated
- **Memory**   Built-in 2GB DDR3 1600 MHz for UNO-2272G-N2AE / Built-in 2GB DDR3L 1333 MHz for UNO-2272G-J2AE
- **Graphics Engine**   Intel® HD Graphics
- **Ethernet**   Intel® 82583V GbE, 802.1Qav, IEEE1588/802.1AS, 802.3az
- **LED Indicators**   LEDs for Power, LAN (Active,Status)
- **Storage**   1 x mSATA for UNO-2272G-N2AE / 1 x half-size mSATA for UNO-2272G-J2AE / Support HDD/SSD by project
- **Expansion**   1 x Full-size mPCIe slot, 1 x Half-size mPCIe slot, mPCIe2.0 for N2800 / 2 x Full-size mPCIe slot, mPCIe2.0 for J1900 (supports SIM card)

I/O Interfaces

- **Serial Ports**   1 x RS-232, DB9, 50~115.2kbps
- **LAN Ports**   1 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000Base-T Fast Ethernet
- **USB Ports**   3 x USB 2.0 for UNO-2272G-N2AE / 2 x USB 2.0 and 1 x USB 3.0 for UNO-2272G-J2AE
- **Displays**   1 x VGA, supports 1920x1200@60Hz 24bpp for UNO-2272G-N2AE / 1 x HDMI, support 1920 x 1080@60Hz for UNO-2272G-J2AE
- **Audio**   Line-Out
- **Power Connector**   1 x 2 Pins, Terminal Block
- **Grounding Protection**   Chassis Grounding

Environment

- **Operating Temperature**   - 20 ~ 60°C (-4 ~ 140°F) @ 5 ~ 85% RH with 0.7m/s airflow for UNO-2272G-N2AE / 0 ~ 50°C (32 ~ 122°F) @ 5 ~ 85% RH with 0.7m/s airflow for UNO-2272G-J2AE
- **Storage Temperature**   - 40 ~ 85°C (-40 ~ 185°F)
- **Relative Humidity**   10 ~ 95% RH @ 40°C, non-condensing
- **Shock Protection**   Operating, IEC 60068-2-27, 50G, half sine, 11ms
- **Vibration Protection**   Operating, IEC 60068-2-64, 2Grms, random, 5 ~ 500Hz, 1hr/axis (mSATA)
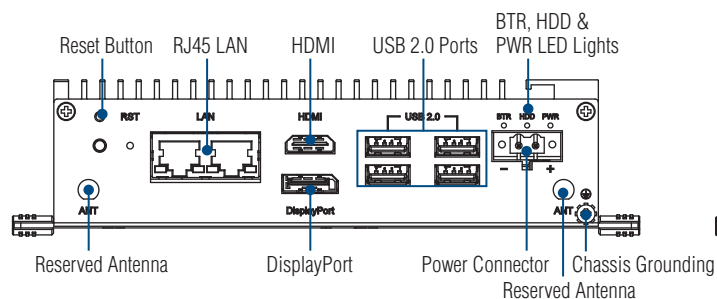- **Ingress Protection**   IP40

Application Software

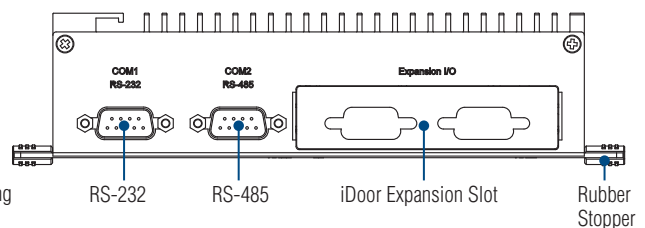|	
SUSIAccess	Version : V2.1 or above An innovative remote device management software, allowing efficient remote monitoring, quick recovery & backup, and real-time remote configuration, to create a more intelligent and interconnected embedded computing solution.
WebAccess	Version : V7.1 or above WebAccess, as the core of Advantech's IoT solution, is full web browser-based software package for HMI and SCADA software. All HMI and SCADA software features including: Animated Graphics Displays, Real-time Data, Control, Trends, Alarms and Logs, are available in a standard web browser. WebAccess is built around the latest internet technologies. With its open architecture, vertical domain applications can easily be integrated.
PANELEXPRESS Designed for Convenience	Version : V2.0.3.8 or above Panel Express, a windows based HMI mini SCADA, realizes the cross platform flexibility offered by WebOP Designer to switch hardware for the consideration of cost and performance become an easy job. Panel Express software provides the best economic and express solution for data intensive high-end HMI applications.
WebOP Designer	Version : V2.0.3.8 or above An easy to use integrated development tool featuring solution-oriented screen objects, high-end graphics, Windows fonts for multi-language applications. WebOP runtime, a part of WebOP Designer, guarantees reliability and performance because of the minimum system overhead, high communication data rates, and sub-second screen switching.

ADVANTECH   Embedded Automation Computers

Dimensions

Unit: mm

157
156
144
132

54.6
61.1
67.6
78
88

R2
R2.7
10.5

ADVANTECH UNO-2272G

1.5
47.3
49.8

Front IO View

Reset Button
Line-out
VGA
RJ45 LAN
Power LED
Power Connector

Line-out
VGA
USB 2.0
LAN
+
−
COM RS-232
R8T
HDD PWR
ANT
ANT

Reserved Antenna
RS-232
USB 2.0 Ports
Reserved Antenna
HDD LED
Chassis Grounding

Power Button

Rear IO View

USB 2.0
Expansion I/O

USB 2.0 Port
iDoor Expansion Slot
Rubber Stopper

Ordering Information

- **UNO-2272G-N2AE** Intel Atom N2800 1.86GHz, 2GB, 1xLANs, 2xmPCIe
- **UNO-2272G-J2AE** Intel Atom J1900 2GHz, 2GB, 1xLANs, 2xmPCIe

iDoor Modules

- **PCM-24S2WF-AE** 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, 2-port SMA
- **PCM-24U2U3-AE** 2-Port USB 3.0, mPCIe, USB-A type
- **PCM-24S23G-AE** Wide-Temp 3.75G HSPA and GPS, 2-in-1, Full-size mPCIe w/ Redundant SIM Card holder, 2-port SMA
- **PCM-24R2GL-AE** 2-Port Gigabit Ethernet, mPCIe, RJ45
- **PCM-24D2R2-AE** 2-Port Isolated RS-232 mPCIe, DB9
- **PCM-24D4R4-AE** 4-Port Non-Isolated RS-422/485 mPCIe, DB37
- **PCM-24R1TP-AE** 1-Port Gigabit Ethernet, Intel® 82574L, mPCIe, RJ45
- **PCM-27D24DI-AE** 24-Channel Isolated Digital I/O w/ counter mPCIe, DB37
- **PCM-26D1DB-MAE** 1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Master
- **PCM-26D1DB-SAE** 1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Slave
- **PCM-26R2PN-MAE** 2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45, Master
- **PCM-26R2PN-SAE** 2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45, Slave

Accessories

- **1757002321** 63WC to DC UNO series power adapter (Industrial Grade)
- **PWR-249-AE** 65W AC to DC power adapter (Commercial Grade)
- **1702002600** Power Cable US Plug 1.8 M (Industrial Grade)
- **1702002605** Power Cable EU Plug 1.8 M (Industrial Grade)
- **1702031801** Power Cable UK Plug 1.8 M (Industrial Grade)
- **1700000596** Power Cable China/Australia Plug 1.8 M (Industrial Grade)
- **1700001524** Power Cable 3-pin US type 1.8 M (Commercial Grade)
- **170203183C** Power Cable 3-pin EU type 1.8 M (Commercial Grade)
- **170203180A** Power Cable 3-pin UK type 1.8 M (Commercial Grade)
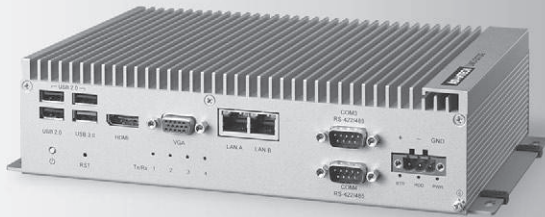
Embedded OS & Automation Software

- **2070013098** Image WES7P X86 MUI. V4.12 B001 for UNO-2272G-Nx
- **968WEXP003X** PanelExpress V2.0 300 tags S/W license
- **968WEXP015X** PanelExpress V2.0 1500 tags S/W license
- **968WEXP050X** PanelExpress V2.0 5000 tags S/W license

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

UNO-2362G

AMD® Dual Core T40E Small-Size Automation Computer w/ 1 x GbE, 1 x mPCIe, HDMI/DP

NEW

Features

- Onboard AMD® Dual Core T40E 1.0GHz processors with 2GB DDR3 SO-DIMM Memory
- 1 x GbE, 4 x USB 2.0, 1 x RS-232, 1 x RS-485, 1 x DP, 1 x HDMI
- Comprehensive Palm, Small, Regular-size form-factor
- Compact with Fanless Design
- Rubber Stopper Design with Captive Screw
- Daisy-Chain for Ethernet with auto-bypass protection enabled
- Diverse system I/O and Isolated Digital I/O by iDoor Technology
- Supports Fieldbus Protocol by iDoor Technology
- 3G/GPS/GPRS/Wi-Fi Communication by iDoor Technology
- Supports Battery-backup MRAM by iDoor Technology
- Chassis Grounding Protection

Introduction

Advantech's UNO-2000 series of Embedded Automation Computers are Fanless with highly ruggedised with an embedded operating system (Windows CE, Windows XPE, Linux-Embedded). It also includes iDoor technology which supports automation feature extensions such as industry fieldbus communication, Wi-Fi/3G, Digital I/O, including Palm, Small, and Regular-size Form-Factors with indicated market segments in terms of entry, value and performance product positioning. Both entry and value Embedded Automation Computers feature specific functions and they are suitable for data gateway, concentrator and data server applications. The performance model can shorten your development time and offer multiple networking interfaces to fulfill a diverse range of requirements.

Specifications

General

- **Certification**   CE, FCC, UL, CCC, BSMI
- **Dimensions (W x D x H)**   190 x 107 x 47 mm (7.5" x 4.2" x 1.8")
- **Form Factor**   Small Size
- **Enclosure**   Aluminum Housing
- **Mounting**   Stand, Wall, VESA (Optional)
- **Weight (Net)**   1.0kg (2.2lbs)
- **Power Requirement** $24V_{DC} \pm 15\%$
- **Power Consumption**   14W (Typical), 24W (Max)
- **OS Support**   Microsoft® Windows XP/7/8 WES7 Linux Fedora

System Hardware

- **BIOS**   AMI UEFI 32Mbit Flash BIOS
- **Watchdog Timer**   Programmable 256 levels timer interval, from 1 to 255 sec
- **Processor**   AMD® G-series T40E 1.0GHz dual core, 512MB
- **System Chip**   AMD® A50M FCH
- **Memory**   On-board 2GB DDR3 833/1066 MHz
- **Graphics Engine**   AMD Radeon™ HD 6250 DirectX® 11 graphics with UVD 3.0 2D/3D Accelerator
- **Ethernet**   Realtek RTL8111E, Marvell 88E6172 Giga Ethernet switch with daisy chain technology
- **LED Indicators**   LEDs for Power, battery, LAN (Active, Status) and HDD
- **Storage**   One mSATA drive or One drive bay for SATA 2.5" HDD (Compatible with 9.5mm height HDD) Note: iDoor technology isn't compatible with HDD storage. CFast drive by iDoor Technology (Optional)
- **Expansion**   1 x Full-size mPCIe slot, mPCIe 2.0 (supports SIM card)

I/O Interfaces

- **Serial Ports**   1 x RS-232, DB9, 50~115.2kbps 1 x RS-485, DB9, auto flow control, 50~115.2kbps
- **LAN Ports**   2 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000Base-T Fast Ethernet
- **USB Ports**   4 x USB 2.0 Compliant
- **Displays**   1 x DisplayPort 1.1, supports 1920x1200 (HD 6250) @ 30 bpp 1 x HDMI v1.3, supports 1920x1080p @ 36 bpp
- **Power Connector**   1 x 2 Pins, Terminal Block
- **Grounding Protection**   Chassis Grounding

Environment

- **Operating Temperature**   - 10 ~ 60°C (14 ~ 140°F) @ 5 ~ 85% RH with 0.7m/s airflow
- **Storage Temperature**   - 40 ~ 85°C (-40 ~ 185°F)
- **Relative Humidity**   10 ~ 95% RH @ 40°C, non-condensing
- **Shock Protection**   Operating, IEC 60068-2-27, 50G, half sine, 11ms
- **Vibration Protection**   Operating, IEC 60068-2-64, 2Grms, random, 5 ~ 500Hz, 1hr/axis (mSATA) Operating, IEC 60068-2-64, 0.75Grms, random, 5 ~ 500Hz, 1hr/axis (HDD)
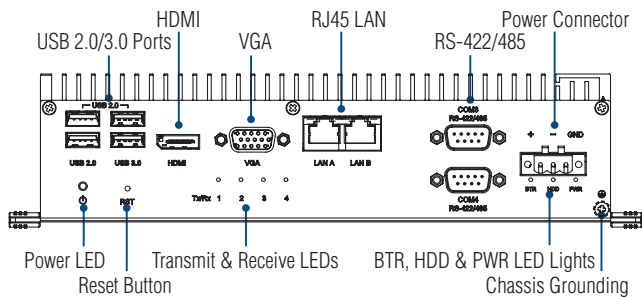- **Ingress Protection**   IP40

Application Software

SUSIAccess	Version : V2.1 or above An innovative remote device management software, allowing efficient remote monitoring, quick recovery & backup, and real-time remote configuration, to create a more intelligent and interconnected embedded computing solution.
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PANELEXPRESS Designed for Convenience	Version : V2.0.3.8 or above Panel Express, a windows based HMI mini SCADA, realizes the cross platform flexibility offered by WebOP Designer to switch hardware for the consideration of cost and performance become an easy job. Panel Express software provides the best economic and express solution for data intensive high-end HMI applications.
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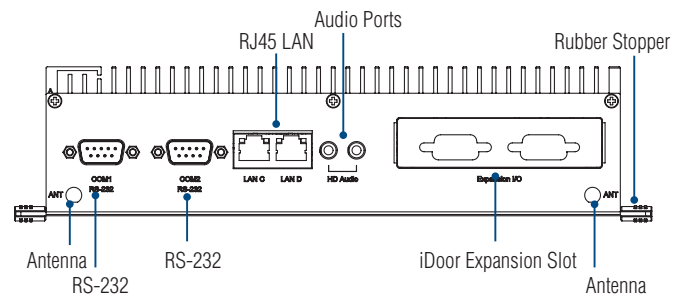**ADVANTECH**   **Embedded Automation Computers**

1 WebAccess+ Solutions

2 Motion Control

3 Power & Energy Automation

4 Automation Software

5 Intelligent Operator Panel

6 Automation Panels

7 Panel PCs

8 Industrial Wireless Solutions

9 Industrial Ethernet Solutions

10 Industrial Gateway Solutions

11 Serial communication cards

12 Embedded Automation PCs

13 DIN-Rail IPCs

14 CompactPCI Systems

15 IoT Wireless I/O Modules

16 IoT Ethernet I/O Modules

17 RS-485 I/O Modules

18 Data Acquisition Boards

Dimensions

Unit: mm

Front IO View

Reset Button · RJ45 LAN · HDMI · USB 2.0 Ports · BTR, HDD & PWR LED Lights

Reserved Antenna · DisplayPort · Power Connector · Chassis Grounding · Reserved Antenna

Rear IO View

RS-232 · RS-485 · iDoor Expansion Slot · Rubber Stopper

Ordering Information

- **UNO-2362G-T2AE**   AMD G-series T40E 1.0GHz, 2GB, 1 x GbE, 1 x mPCIe, HDMI/DP

iDoor Modules

- **PCM-24D2R2-AE**   2-Port Isolated RS-232 mPCIe, DB9
- **PCM-24D2R4-AE**   2-Port Isolated RS-422/485 mPCIe, DB9
- **PCM-24D4R2-AE**   4-Port Non-Isolated RS-232 mPCIe, DB37
- **PCM-24D4R4-AE**   4-Port Non-Isolated RS-422/485 mPCIe, DB37
- **PCM-26D2CA-AE**   2-Port Isolated CANBus mPCIe, CANOpen, DB9
- **PCM-27D24DI-AE**   24-Channel Isolated Digital I/O w/ counter mPCIe, DB37
- **PCM-24R1TP-AE**   1-Port Gigabit Ethernet, Intel® 82574L, mPCIe, RJ45
- **PCM-2300MR-AE**   MR4A16B, MRAM, 2 MByte, mPCIe
- **PCM-24S23G-AE**   Wide-Temp 3.75G HSPA and GPS, 2-in-1, Full-size mPCIe w/ Redundant SIM Card holder, 2-port SMA

Accessories

- **1757002321**   63WC to DC UNO series power adapter (Industrial Grade)
- **PWR-249-AE**   65W AC to DC power adapter (Commercial Grade)
- **1702002600**   Power Cable US Plug 1.8 M (Industrial Grade)
- **1702002605**   Power Cable EU Plug 1.8 M (Industrial Grade)
- **1702031801**   Power Cable UK Plug 1.8 M (Industrial Grade)
- **1700000596**   Power Cable China/Australia Plug 1.8 M (Industrial Grade)
- **1700001524**   Power Cable 3-pin US type 1.8 M (Commercial Grade)
- **170203183C**   Power Cable 3-pin EU type 1.8 M (Commercial Grade)
- **170203180A**   Power Cable 3-pin UK type 1.8 M (Commercial Grade)

Embedded OS & Automation Software

- **2070012411**   Image WES7P MUI. V4.12 for UNO-2362G
- **968WEXP003X**   PanelExpress V2.0 300 tags S/W license
- **968WEXP015X**   PanelExpress V2.0 1500 tags S/W license
- **968WEXP050X**   PanelExpress V2.0 5000 tags S/W license

UNO-2473G

Intel® Atom™ Regular-Size Automation Computer w/ 4 x GbE, 3 x mPCIe, HDMI/VGA

NEW

Features

- 4th Generation Intel® Atom™ Processor up to 1.91GHz with 4GB DDR3L Memory
- 4 x GbE, 4 x USB 2.0/3.0, 2 x RS-232, 2 x RS-422/485, 1 x VGA, 1 x HDMI, Audio
- Comprehensive Palm, Small, Regular-size form-factor
- Compact with Fanless Design
- Rubber Stopper Design with Captive Screw
- Diverse system I/O and Isolated Digital I/O by iDoor Technology
- Supports Fieldbus Protocol by iDoor Technology
- 3G/GPS/GPRS/Wi-Fi Communication by iDoor Technology
- Supports MRAM by iDoor Technology
- Chassis Grounding Protection
- LAN Redundancy (Teaming)
- Fault-Protected RS-485 Transceivers With Extended Common-Mode Range

iDoor SUSIAccess RoHS COMPLIANT 2002/95/EC CCC CE FCC c UL us LISTED E190881 I.T.E.

Introduction

Advantech's UNO-2000 series of Embedded Automation Computers are Fanless with highly ruggedised with an embedded operating system (Windows CE, Windows XPE, Linux-Embedded). It also includes iDoor technology which supports automation feature extensions such as industry fieldbus communication, Wi-Fi/3G, Digital I/O, including Palm, Small, and Regular-size Form-Factors with indicated market segments in terms of entry, value and performance product positioning. Both entry and value Embedded Automation Computers feature specific functions and they are suitable for data gateway, concentrator and data server applications. The performance model can shorten your development time and offer multiple networking interfaces to fulfill a diverse range of requirements.

Specifications

General

- **Certification**   CE, FCC, UL, CCC, BSMI
- **Dimensions (W x D x H)**   252 x 149 x 62 mm (9.9" x 5.9" x 2.4")
- **Form Factor**   Regular Size
- **Enclosure**   Aluminum Housing
- **Mounting**   Stand, Wall, VESA (Optional), Din-rail (Optional)
- **Weight (Net)**   1.6kg (3.5lbs)
- **Power Requirement**   24V$_{DC}$ ± 20%
- **Power Consumption**   28W (Typical), 48W (Max)
- **OS Support**   Microsoft® Windows 7/8

System Hardware

- **BIOS**   AMI UEFI 128Mbit Flash BIOS
- **Watchdog Timer**   Programmable 256 levels timer interval, from 1 to 255 sec
- **Processor**   Intel® Atom™ Processor E3845 1.91 GHz Quad Core, 2MB L2
- **System Chip**   Intel Atom SoC integrated
- **Memory**   On-board 4GB DDR3L 1600 MHz
- **Graphics Engine**   Intel® HD Graphics: Gen7 with 4EU
- **Ethernet**   Intel® i210-IT GbE, 802.1Qav, IEEE1588/802.1AS, 802.3az
- **LED Indicators**   LEDs for Power, battery, LAN (Active, Status), Tx/Rx and HDD
- **Storage**   One mSATA
  One drive bay for SATA 2.5" HDD (Compatible with 9.5mm height HDD)
  CFast drive by iDoor Technology (Optional)
- **Expansion**   3 x Full-size mPCIe slot, mPCIe 2.0

I/O Interfaces

- **Serial Ports**   2 x RS-232, DB9, 50~115.2kbps
  2 x RS-422/485, DB9, auto flow control, 50~115.2kbps
- **LAN Ports**   4 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000Base-T Fast Ethernet
- **USB Ports**   4 x USB Ports (3 x USB2.0, 1 x USB3.0 compliant)
- **Displays**   1 x VGA (2560x1600)
  1 x HDMI (1920x1200)
- **Audio**   Line-In, Line-Out
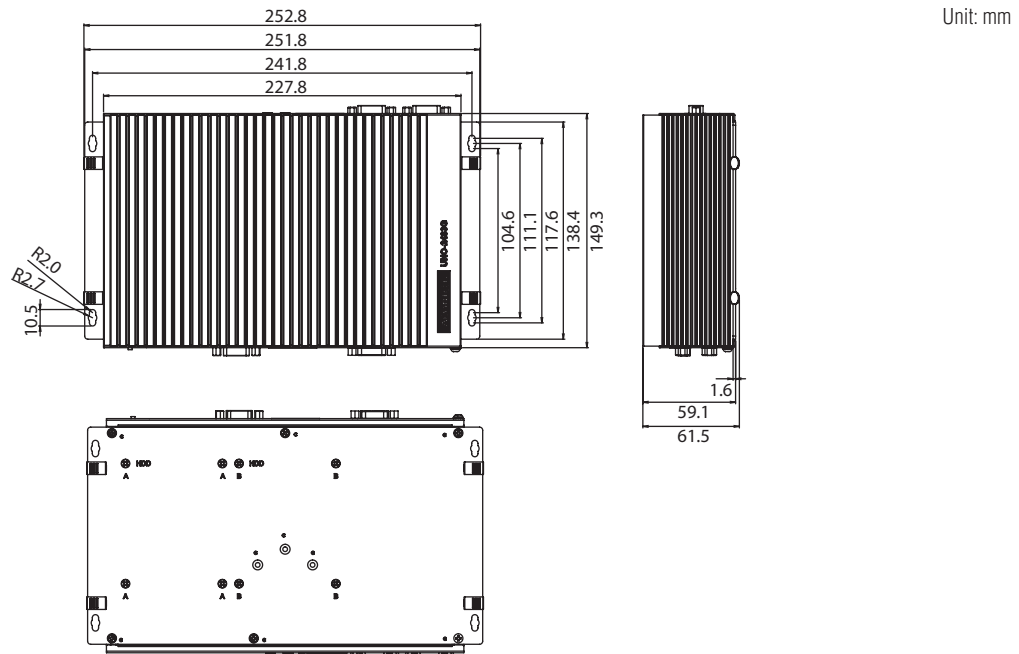- **Power Connector**   1 x 3 Pins, Terminal Block
- **Grounding Protection**   Chassis Grounding

Environment

- **Operating Temperature**   UNO-2473G-E3AE: - 20 ~ 60°C (-4 ~ 140°F) @ 5 ~ 85% RH with 0.7m/s airflow
  UNO-2473XXXXX: - 40 ~ 60°C (-40 ~ 140°F) @ 5 ~ 85% RH with 0.7m/s airflow
- **Storage Temperature**   - 40 ~ 85°C (-40 ~ 185°F)
- **Relative Humidity**   10 ~ 95% RH @ 40°C, non-condensing
- **Shock Protection**   Operating, IEC 60068-2-27, 50G, half sine, 11ms
- **Vibration Protection**   Operating, IEC 60068-2-64, 2Grms, random, 5 ~ 500Hz, 1hr/axis (mSATA)
  Operating, IEC 60068-2-64, 0.7Grms, random, 5 ~ 500Hz, 1hr/axis (HDD)
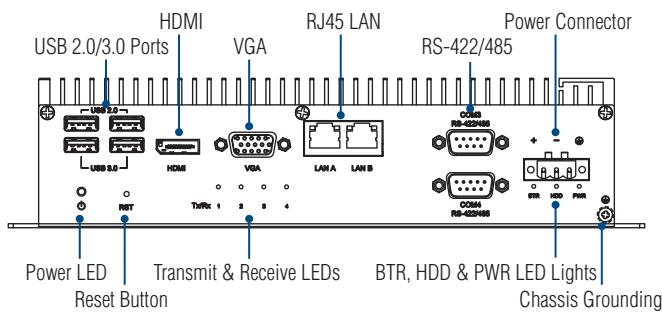- **Ingress Protection**   IP40

Application Software

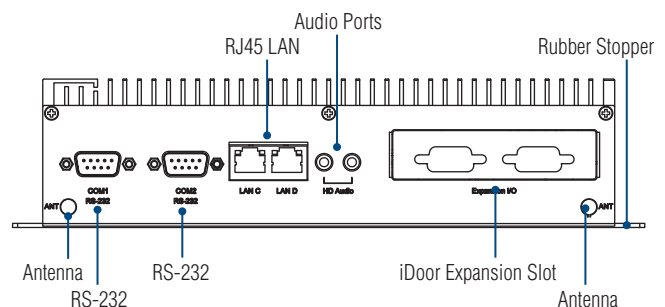|	
SUSIAccess	Version : V2.1 or above An innovative remote device management software, allowing efficient remote monitoring, quick recovery & backup, and real-time remote configuration, to create a more intelligent and interconnected embedded computing solution.
WebAccess	Version : V7.1 or above WebAccess, as the core of Advantech's IoT solution, is full web browser-based software package for HMI and SCADA software. All HMI and SCADA software features including: Animated Graphics Displays, Real-time Data, Control, Trends, Alarms and Logs, are available in a standard web browser. WebAccess is built around the latest internet technologies. With its open architecture, vertical domain applications can easily be integrated.
PANELEXPRESS Designed for Convenience	Version : V2.0.3.8 or above Panel Express, a windows based HMI mini SCADA, realizes the cross platform flexibility offered by WebOP Designer to switch hardware for the consideration of cost and performance become an easy job. Panel Express software provides the best economic and express solution for data intensive high-end HMI applications.
WebOP Designer	Version : V2.0.3.8 or above An easy to use integrated development tool featuring solution-oriented screen objects, high-end graphics, Windows fonts for multi-language applications. WebOP runtime, a part of WebOP Designer, guarantees reliability and performance because of the minimum system overhead, high communication data rates, and sub-second screen switching.

Dimensions

Unit: mm

Front I/O View

USB 2.0/3.0 Ports
HDMI
VGA
RJ45 LAN
RS-422/485
Power Connector

Power LED
Reset Button
Transmit & Receive LEDs
BTR, HDD & PWR LED Lights
Chassis Grounding

Rear I/O View

RJ45 LAN
Audio Ports
Rubber Stopper

Antenna
RS-232
RS-232
iDoor Expansion Slot
Antenna

Ordering Information

- **UNO-2473G-E3AE**   Intel® Atom E3845 1.91GHz, 4GB, 4 x LANs, 3 x mPCIe

iDoor Modules

- **PCM-24D4R2-AE**   4-Port Non-Isolated RS-232 mPCIe, DB37
- **PCM-24D4R4-AE**   4-Port Non-Isolated RS-422/485 mPCIe, DB37
- **PCM-26D2CA-AE**   2-Port Isolated CANBus mPCIe, CANOpen, DB9
- **PCM-27D24DI-AE**   24-Channel Isolated Digital I/O w/ counter mPCIe, DB37
- **PCM-2300MR-AE**   MR4A16B, MRAM, 2 MByte, mPCIe
- **PCM-23U1DG-AE**   USB Slot w/ Lock for USB Dongle
- **PCM-24S2WF-AE**   WiFi 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, 2-port SMA
- **PCM-24U2U3-AE**   2-Port USB 3.0, mPCIe, USB-A type
- **PCM-24R2GL-AE**   2-Port Gigabit Ethernet, mPCIe, RJ45
- **PCM-24S23G-AE**   Wide-Temp 3.75G HSPA and GPS, 2-in-1, Full-size mPCIe w/ Redundant SIM Card holder, 2-port SMA

Accessories

- **1757002321**   63WC to DC UNO series power adapter (Industrial Grade)
- **PWR-249-AE**   65W AC to DC power adapter (Commercial Grade)
- **1702002600**   Power Cable US Plug 1.8 M (Industrial Grade)
- **1702002605**   Power Cable EU Plug 1.8 M (Industrial Grade)
- **1702031801**   Power Cable UK Plug 1.8 M (Industrial Grade)
- **1700000596**   Power Cable China/Australia Plug 1.8 M (Industrial Grade)
- **1700001524**   Power Cable 3-pin US type 1.8 M (Commercial Grade)
- **170203183C**   Power Cable 3-pin EU type 1.8 M (Commercial Grade)
- **170203180A**   Power Cable 3-pin UK type 1.8 M (Commercial Grade)

Embedded OS & Automation Software

- **2070013268**   Image WES7P X64 MUI. V4.12 B001 for UNO-2473G-Ex
- **968WEXP003X**   PanelExpress V2.0 300 tags S/W license
- **968WEXP015X**   PanelExpress V2.0 1500 tags S/W license
- **968WEXP050X**   PanelExpress V2.0 5000 tags S/W license

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

UNO-2483G

Intel® Core™ i7/i3/Celeron Regular-Size Automation Computer w/ 4 x GbE, 3 x mPCIe, HDMI/VGA

NEW

Features

- 4th Generation Intel® Core™ i7/i3/Celeron Processors up to 1.9GHz with 4GB/8GB DDR3L Memory
- 4 x GbE, 4 x USB 2.0/3.0, 2 x RS-232, 2 x RS-422/485, 1 x VGA, 1 x HDMI, Audio
- Comprehensive Palm, Small, Regular-size form-factor
- Compact with Fanless Design
- Rubber Stopper Design with Captive Screw
- Dual HDD/SSD support with RAID 0/1 in regular-size
- Diverse system I/O and Isolated Digital I/O by iDoor Technology
- Supports Fieldbus Protocol by iDoor Technology
- 3G/GPS/GPRS/Wi-Fi Communication by iDoor Technology
- Supports MRAM by iDoor Technology
- Chassis Grounding Protection
- LAN Redundancy (Teaming)
- Fault-Protected RS-485 Transceivers With Extended Common-Mode Range

Introduction

Advantech's UNO-2000 series of Embedded Automation Computers are Fanless with highly ruggedised with an embedded operating system (Windows CE, Windows Embedded 7/8, Linux-Embedded). It also includes iDoor technology which supports automation feature extensions such as industry fieldbus communication, Wi-Fi/3G, Digital I/O, including Palm, Small, and Regular-size Form-Factors with indicated market segments in terms of entry, value and performance product positioning. Both entry and value Embedded Automation Computers feature specific functions and they are suitable for data gateway, concentrator and data server applications. The performance model can shorten your development time and offer multiple networking interfaces to fulfill a diverse range of requirements.

Specifications

General

- **Certification** CE, FCC, UL, CCC, BSMI
- **Dimensions (W x D x H)** 252 x 149 x 62 mm (9.9" x 5.9" x 2.4")
- **Form Factor** Regular Size
- **Enclosure** Aluminum Housing
- **Mounting** Stand, Wall, VESA (Optional)
- **Weight (Net)** 1.6kg (3.5lbs)
- **Power Requirement** 24V$_{DC}$ ± 20%
- **Power Consumption** 28W (Typical), 72W (Max)
- **OS Support** Microsoft® Windows 7/8

System Hardware

- **BIOS** AMI UEFI 128Mbit Flash BIOS
- **Watchdog Timer** Programmable 256 levels timer interval, from 1 to 255 sec
- **Processor** 4th Gen Intel® Core™ i7-4650U ULT 1.7 GHz Dual Core, 4MB L2
  4th Gen Intel® Core™ i3-4010U ULT 1.7 GHz Dual Core, 3MB L2
  4th Gen Intel® Celeron® 2980U ULT 1.6 GHz Dual Core, 2MB L2
- **System Chip** Integrated Intel 8 Series Chipset
- **Memory** On-board 4GB DDR3L 1600 MHz for UNO-2483G-4C3AE
  On-board 8GB DDR3L 1600 MHz for UNO-2483G-434AE and UNO-2483G-474AE
- **Graphics Engine** Intel® HD Graphics 5000/4400
- **Ethernet** Intel® i210-IT GbE, 802.1Qav, IEEE1588/802.1AS, 802.3az
  Intel® i218-LM GbE, Intel® AMT, IEEE1588/802.1AS, 802.3az
- **LED Indicators** LEDs for Power, battery, LAN (Active, Status), Tx/Rx and HDD
- **Storage** One mSATA
  Two drive bays for SATA 2.5" HDD (Compatible with 9.5mm height HDD)
  CFast drive by iDoor Technology (Optional)
- **Expansion** 2 x Full-size mPCIe slot, mPCIe 2.0

I/O Interfaces

- **Serial Ports** 2 x RS-232, DB9, 50~115.2kbps
  2 x RS-422/485, DB9, auto flow control, 50~115.2kbps
- **LAN Ports** 4 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000Base-T Fast Ethernet
- **USB Ports** 4 x USB Ports (2 x USB 2.0, 2 x USB 3.0 compliant)
- **Displays** 1 x VGA, supports 1920 x 1200 @ 60Hz 24bpp
  1 x HDMI 1.4a, supports 3200 x 2000 @ 60Hz 24bpp
- **Audio** Line-In, Line-Out
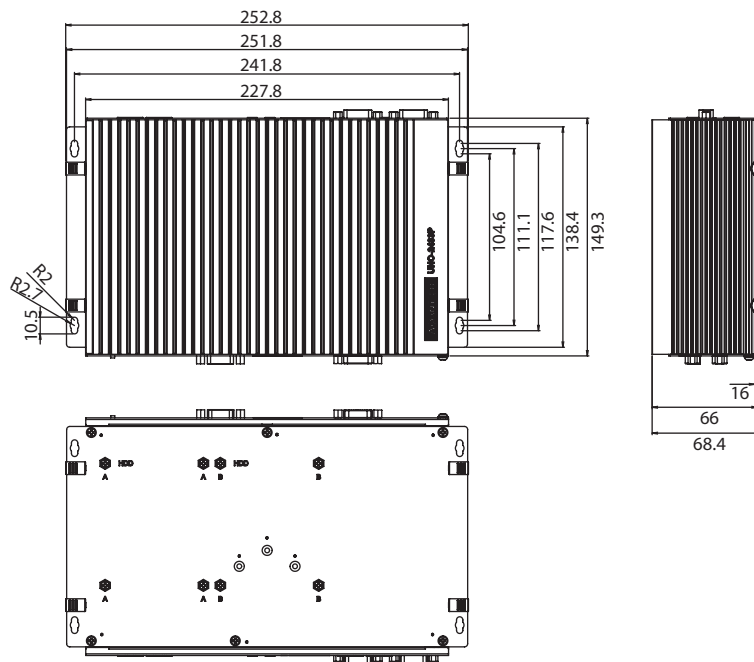- **Power Connector** 1 x 3 Pins, Terminal Block

Environment

- **Operating Temperature** - 20 ~ 60°C (-4 ~ 140°F) @ 5 ~ 85% RH with 0.7m/s airflow
- **Storage Temperature** - 40 ~ 85°C (-40 ~ 185°F)
- **Relative Humidity** 10 ~ 95% RH @ 40°C, non-condensing
- **Shock Protection** Operating, IEC 60068-2-27, 50G, half sine, 11ms
- **Vibration Protection** Operating, IEC 60068-2-64, 2Grms, random, 5 ~ 500Hz, 1hr/axis (mSATA)
  Operating, IEC 60068-2-64, 0.7Grms, random, 5 ~ 500Hz, 1hr/axis (HDD)
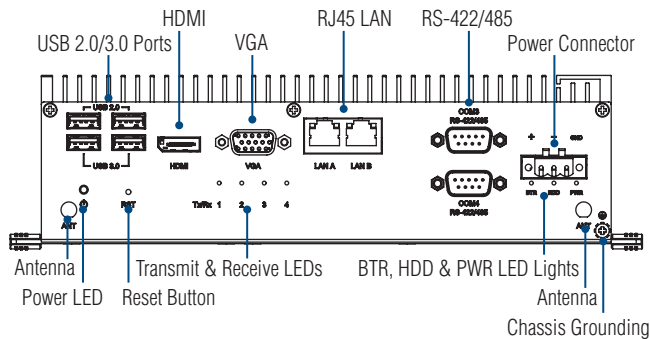- **Ingress Protection** IP40

Application Software

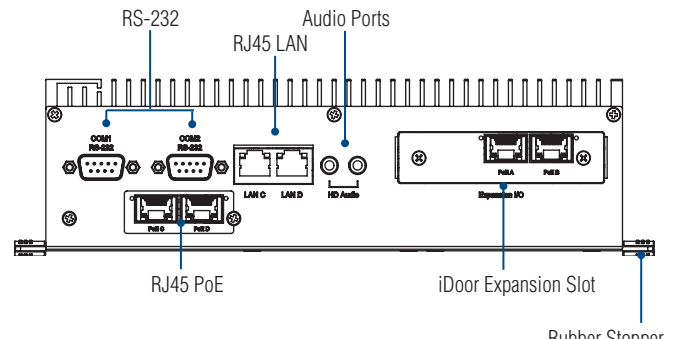|	
SUSIAccess	Version : V2.1 or above An innovative remote device management software, allowing efficient remote monitoring, quick recovery & backup, and real-time remote configuration, to create a more intelligent and interconnected embedded computing solution.
WebAccess	Version : V7.1 or above WebAccess, as the core of Advantech's IoT solution, is full web browser-based software package for HMI and SCADA software. All HMI and SCADA software features including: Animated Graphics Displays, Real-time Data, Control, Trends, Alarms and Logs, are available in a standard web browser. WebAccess is built around the latest internet technologies. With its open architecture, vertical domain applications can easily be integrated.
PANELEXPRESS Designed for Convenience	Version : V2.0.3.8 or above Panel Express, a windows based HMI mini SCADA, realizes the cross platform flexibility offered by WebOP Designer to switch hardware for the consideration of cost and performance become an easy job. Panel Express software provides the best economic and express solution for data intensive high-end HMI applications.
Web OP Designer	Version : V2.0.3.8 or above An easy to use integrated development tool featuring solution-oriented screen objects, high-end graphics, Windows fonts for multi-language applications. WebOP runtime, a part of WebOP Designer, guarantees reliability and performance because of the minimum system overhead, high communication data rates, and sub-second screen switching.

ADVANTECH   **Embedded Automation Computers**

Dimensions

Unit: mm

252.8
251.8
241.8
227.8

104.6
111.1
117.6
138.4
149.3

R2.0
R2.7
10.5

1.6

59.1
61.5

UNO-2483G

1 WebAccess+ Solutions
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4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
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8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

Front IO View

USB 2.0/3.0 Ports
HDMI
VGA
RJ45 LAN
RS-422/485
Power Connector

USB 2.0
USB 3.0
HDMI
VGA
LAN A   LAN B
COM3 RS-422/485
COM4 RS-422/485

Power LED
Reset Button
Transmit & Receive LEDs
BTR, HDD & PWR LED Lights
Chassis Grounding

Rear IO View

RJ45 LAN
Audio Ports
Rubber Stopper

ANT
COM1 RS-232
COM2 RS-232
LAN C   LAN D
HD Audio
Expansion I/O
ANT

Antenna
RS-232
RS-232
iDoor Expansion Slot
Antenna

Ordering Information

- **UNO-2483G-4C3AE** — Intel® Celeron 2980U ULT 1.6GHz, 4GB, 4 x LANs, 2 x mPCIe
- **UNO-2483G-434AE** — Intel® Core™ i3-4010U ULT 1.7GHz, 8GB, 4 x LANs, 2 x mPCIe
- **UNO-2483G-474AE** — Intel® Core™ i7-4650U ULT 1.7GHz, 8GB, 4 x LANs, 2 x mPCIe

iDoor Modules

- **PCM-24D4R2-AE** — 4-Port Non-Isolated RS-232 mPCIe, DB37
- **PCM-24D4R4-AE** — 4-Port Non-Isolated RS-422/485 mPCIe, DB37
- **PCM-26D2CA-AE** — 2-Port Isolated CANBus mPCIe, CANOpen, DB9
- **PCM-27D24DI-AE** — 24-Channel Isolated Digital I/O w/ counter mPCIe, DB37
- **PCM-24R1TP-AE** — 1-Port Gigabit Ethernet, Intel® 82574L, mPCIe, RJ45
- **PCM-2300MR-AE** — MR4A16B, MRAM, 2 MByte, mPCIe
- **PCM-24R2GL-AE** — 2-Port Gigabit Ethernet, mPCIe, RJ45
- **PCM-24R2PE-AE** — 2-Port Gigabit Ethernet, IEEE 802.3af (PoE) Compliant, mPCIe, RJ45
- **PCM-24S2WF-AE** — WiFi 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, 2-port SMA
- **PCM-24S23G-AE** — Wide-Temp 3.75G HSPA and GPS, 2-in-1, Full-size mPCIe w/ Redundant SIM Card holder, 2-port SMA

Accessories

- **1757002321** — 63WC to DC UNO series power adapter (Industrial Grade)
- **PWR-249-AE** — 65W AC to DC power adapter (Commercial Grade)
- **PWR-244-AE** — 96W AC to DC power adapter (Commercial Grade)
- **1702002600** — Power Cable US Plug 1.8 M (Industrial Grade)
- **1702002605** — Power Cable EU Plug 1.8 M (Industrial Grade)
- **1702031801** — Power Cable UK Plug 1.8 M (Industrial Grade)
- **1700000596** — Power Cable China/Australia Plug 1.8 M (Industrial Grade)
- **1700001524** — Power Cable 3-pin US type 1.8 M (Commercial Grade)
- **170203183C** — Power Cable 3-pin EU type 1.8 M (Commercial Grade)
- **170203180A** — Power Cable 3-pin UK type 1.8 M (Commercial Grade)

Embedded OS & Automation Software

- **2070012443** — Image WES7P MUI. V4.12 B001 for UNO-2483G
- **2070012949** — Image WES7P X64 MUI. V4.12 B002 for UNO-2483G
- **968WEXP003X** — PanelExpress V2.0 300 tags S/W license
- **968WEXP015X** — PanelExpress V2.0 1500 tags S/W license
- **968WEXP050X** — PanelExpress V2.0 5000 tags S/W license

UNO-2483P

Intel® Core™ i7/Celeron Regular-Size Vision Controller w/ 4 x PoE, 4 x GbE, HDMI/VGA

NEW

Features

- Intel® 4th Generation Core™ i7/Celeron Processors up to 1.9GHz with 4GB/8GB DDR3L Memory
- 4 PoE, 4 x GbE, 4 x USB 2.0/3.0, 2 x RS-232, 2 x RS-422/485, 1 x VGA, 1 x HDMI, Audio
- Comprehensive Palm, Small, Regular-size form-factors
- Compact with Fanless Design
- Rubber Stopper Design with Captive Screw
- Dual HDD/SSD support with RAID 0/1 in regular-size
- Diverse system I/O and Isolated Digital I/O by iDoor Technology
- Supports Fieldbus Protocol by iDoor Technology
- 3G/GPS/GPRS/Wi-Fi Communication by iDoor Technology
- Supports MRAM by iDoor Technology
- Chassis Grounding Protection
- LAN Redundancy (Teaming)
- Fault-Protected RS-485 Transceivers With Extended Common-Mode Range

Introduction

Advantech's UNO-2000 series of Embedded Automation Computers are Fanless with highly ruggedised with an embedded operating system (Windows CE, Windows Embedded 7/8, Linux-Embedded). It also includes iDoor technology which supports automation feature extensions such as industry fieldbus communication, Wi-Fi/3G, Digital I/O, including Palm, Small, and Regular-size Form-Factors with indicated market segments in terms of entry, value and performance product positioning. Both entry and value Embedded Automation Computers feature specific functions and they are suitable for data gateway, concentrator and data server applications. The performance model can shorten your development time and offer multiple networking interfaces to fulfill a diverse range of requirements.

Specifications

General

- **Certification** CE, FCC, UL, CCC, BSMI
- **Dimensions (W x D x H)** 252 x 149 x 68 mm (9.9" x 5.9" x 2.7")
- **Form Factor** Regular Size
- **Enclosure** Aluminum Housing
- **Mounting** Stand, Wall, VESA (Optional)
- **Weight (Net)** 1.6kg (3.5lbs)
- **Power Requirement** 24V$_{DC}$ ± 20%
- **Power Consumption** 48W (Typical), 134W (Max)
- **OS Support** Microsoft® Windows 7/8

System Hardware

- **BIOS** AMI UEFI 128Mbit Flash BIOS
- **Watchdog Timer** Programmable 256 levels timer interval, from 1 to 255 sec
- **Processor** Intel 4th Gen Core™ i7-4650U ULT 1.7 GHz Dual Core, 4MB L2
  Intel 4th Gen Celeron® 2980U ULT 1.6 GHz Dual Core, 2MB L2
- **System Chip** Integrated Intel 8 Series Chipset
- **Memory** On-board 4GB DDR3L 1600 MHz for UNO-2483P-4C3AE
  On-board 8GB DDR3L 1600 MHz for UNO-2483P-474AE
- **Graphics Engine** Intel® HD Graphics 5000/Intel® HD Graphics
- **Ethernet** Intel® i210-IT GbE, 802.1Qav, IEEE1588/802.1AS, 802.3az
  Intel® i218-LM GbE, Intel® AMT, IEEE1588/802.1AS, 802.3az
  Intel® i350-AM2 GbE, 802.1Q, IEEE1588/802.1AS, 802.3az
- **LED Indicators** LEDs for Power, battery, LAN (Active, Status), Tx/Rx and HDD
- **Storage** One mSATA
  Two drive bays for SATA 2.5" HDD (Compatible with 9.5mm height HDD)
- **Expansion** 1 x Half-size mPCIe slot, mPCIe 2.0
  1 x full size mPCIe slot when without 2 POE module through iDoor

I/O Interfaces

- **Serial Ports** 2 x RS-232, DB9, 50~115.2kbps
  2 x RS-422/485, DB9, auto flow control, 50~115.2kbps
- **LAN Ports** 4 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000Base-T Fast Ethernet
- **PoE** 4 x RJ45,IEEE 802.3af compliant, 15.4W per port
- **USB Ports** 4 x USB Ports (2 x USB 2.0, 2 x USB 3.0 compliant)
- **Displays** 1 x VGA, supports 1920 x 1200 @ 60Hz 24bpp
  1 x HDMI 1.4a, supports 3200 x 2000 @ 60Hz 24bpp
- **Audio** Line-In, Line-Out
- **Power Connector** 1 x 3 Pins, Terminal Block

Environment

- **Operating Temperature** - 20 ~ 50°C (-4 ~ 122°F) @ 5 ~ 85% RH with 0.7m/s airflow
- **Storage Temperature** - 40 ~ 85°C (-40 ~ 185°F)
- **Relative Humidity** 10 ~ 95% RH @ 40°C, non-condensing
- **Shock Protection** Operating, IEC 60068-2-27, 50G, half sine, 11ms
- **Vibration Protection** Operating, IEC 60068-2-64, 2Grms, random, 5 ~ 500Hz, 1hr/axis (mSATA)
  Operating, IEC 60068-2-64, 0.7Grms, random, 5 ~ 500Hz, 1hr/axis (HDD)
- **Ingress Protection** IP40

Application Software

SUSIAccess	Version : V2.1 or above An innovative remote device management software, allowing efficient remote monitoring, quick recovery & backup, and real-time remote configuration, to create a more intelligent and interconnected embedded computing solution.
WebAccess	Version : V7.1 or above WebAccess, as the core of Advantech's IoT solution, is full web browser-based software package for HMI and SCADA software. All HMI and SCADA software features including: Animated Graphics Displays, Real-time Data, Control, Trends, Alarms and Logs, are available in a standard web browser. WebAccess is built around the latest internet technologies. With its open architecture, vertical domain applications can easily be integrated.
PANELEXPRESS Designed for Convenience	Version : V2.0.3.8 or above Panel Express, a windows based HMI mini SCADA, realizes the cross platform flexibility offered by WebOP Designer to switch hardware for the consideration of cost and performance become an easy job. Panel Express software provides the best economic and express solution for data intensive high-end HMI applications.
WebOP Designer	Version : V2.0.3.8 or above An easy to use integrated development tool featuring solution-oriented screen objects, high-end graphics, Windows fonts for multi-language applications. WebOP runtime, a part of WebOP Designer, guarantees reliability and performance because of the minimum system overhead, high communication data rates, and sub-second screen switching.

ADVANTECH **Embedded Automation Computers**

Dimensions

Unit: mm

252.8
251.8
241.8
227.8

104.6
111.1
117.6
138.4
149.3

R2
R2.7
10.5

16
66
68.4

Front IO View

USB 2.0/3.0 Ports
HDMI
VGA
RJ45 LAN
RS-422/485
Power Connector

USB 2.0
USB 3.0
HDMI
VGA
LAN A LAN B
COM3 RS-422/485
COM4 RS-422/485

Tx/Rx 1 2 3 4

ANT
Antenna
Power LED
RST
Reset Button
Transmit & Receive LEDs
BTR, HDD & PWR LED Lights
Antenna
Chassis Grounding

Rear IO View

RS-232
RJ45 LAN
Audio Ports

COM1 RS-232
COM2 RS-232
LAN C LAN D
HD Audio
Expansion I/O
PoE A PoE B

PoE C PoE D
RJ45 PoE
iDoor Expansion Slot
Rubber Stopper

Ordering Information

- **UNO-2483P-4C3AE**   Intel® Celeron 2980U ULT 1.6GHz, 4GB, 4 x PoE, 4 x LANs
- **UNO-2483P-474AE**   Intel® Core™ i7-4650U ULT 1.7GHz, 8GB, 4 x PoE, 4 x LANs

Accessories

- **1757002161**   150W AC to DC power adapter (Commercial Grade)
- **1702002600**   Power Cable US Plug 1.8 M (Industrial Grade)
- **1702002605**   Power Cable EU Plug 1.8 M (Industrial Grade)
- **1702031801**   Power Cable UK Plug 1.8 M (Industrial Grade)
- **1700000596**   Power Cable China/Australia Plug 1.8 M (Industrial Grade)
- **1700001524**   Power Cable 3-pin US type 1.8 M (Commercial Grade)
- **170203183C**   Power Cable 3-pin EU type 1.8 M (Commercial Grade)
- **170203180A**   Power Cable 3-pin UK type 1.8 M (Commercial Grade)

Embedded OS & Automation Software

- **968WEXP003X**   PanelExpress V2.0 300 tags S/W license
- **968WEXP015X**   PanelExpress V2.0 1500 tags S/W license
- **968WEXP050X**   PanelExpress V2.0 5000 tags S/W license

UNO-2174G/GL
UNO-2184G

Intel® Celeron® Automation Computers with 4 x GbE, 2 x Mini PCIe, DVI/DP/HDMI

Intel® Core™ i7 Automation Computer with 4 x GbE, 2 x Mini PCIe, DVI/DP/HDMI

Features

- Onboard Intel Celeron 847E 1.1GHz/807UE 1.0GHz/Core i7-2655LE 2.2GHz/ i7-3555LE 2.5GHz processors
- 2 x RS-232 and 2 x RS-232/422/485 ports with automatic flow control
- 4 x 10/100/1000Base-T Ethernet
- DVI-I, DP, HDMI support 2 x independent displays
- Audio with Mic in, Line in, Line out
- 6 x USB ports
- Supports 2 x PCI-104 plug-in card with daughterboard expansion
- Windows® WES 2009, WES 7 ready solution
- External accessible CFast slot
- Onboard system status LED indicators
- Supports wake on LAN and boot from LAN function
- Supports Power eSATA
- Isolation between chassis and power ground
- IP40 ingress protection

Introduction

The UNO-2184G & 2174G/GL are high-performance Intel 3rd generation Core i7-3555LE/Intel 2nd generation core i7-2655LE/847E/807UE grade controllers that support PCI-104 with daughterboard expansion, 3 x display, 6 x USB, and 2 x Mini PCIe socket. They also feature WLAN, 3G expansion and compatibility with Windows 7. The 4 x Gigabit LANs on the UNO-2184G support teaming function with fault tolerance, link aggregation, and load balance features. The UNO-2184G & 2174G/GL are high end computing platforms designed to support applications with tremendous data volume and 3D content.

Specifications

General

Certification	CE, UL, CCC, FCC, C-Tick, BSMI
Dimensions (W x D x H)	255 x 152 x 69 mm (10" x 6.0" x 2.7")
Enclosure	Aluminum
Mounting	DIN-rail, Wallmount, VESA
Power Consumption	UNO-2174G/GL: 30 W/ 20 W (Typical)
	UNO-2184G: 40 W (Typical)
Power Requirements	9 ~ 36 V$_{DC}$ (e.g +24V @ 3A) (Min. 72W), AT/ATX
Weight	3.0 kg
OS Support	Windows XP/7, WES7, WES-2009, Linux
System Design	Fanless with no internal cabling (except COM3/COM4)
Remote Management	Built-in Advantech DiagAnywhere agent on WES2009 / WES7

System Hardware

CPU	UNO-2174G: Intel Celeron 847E 1.1GHz
	UNO-2174GL: Intel Celeron 807UE 1.0GHz
	UNO-2184G: Intel Core i7-3555LE 2.5GHz/i7-2655LE 2.2GHz
Memory	UNO-2174G/GL: 4 GB DDR3 SDRAM built-in
	UNO-2184G: 4 GB/8 GB DDR3 SDRAM built-in
Indicators	LEDs for Power, battery, LAN (Active, Status) and Serial (Tx, Rx)
Keyboard/Mouse	1 x PS/2
PC/104 Slot	PCI-104 slot, supports +5 & 3.3V power
Storage	CF: 1 x CFast slot
	HDD: One built-in 2.5" SATA HDD bracket (Optional 2 x HDD Bracket Kit)
Display	1 x DVI-I, 1 x HDMI, 1 x DP (2 x independent displays)
Audio	Mic in, Line in, Line out
Watchdog Timer	Programmable 256 levels timer interval, from 1 to 255 sec
Mini PCIe Expansion	2 x Mini PCIe slots with 1 x SIM card

Daughterboard (Additional purchase required)

Expansion Slot	PCI-104 support (+5 & 3.3V power)

I/O Interfaces

Serial Ports	2 x RS-232, 2 x RS-232/422/485 with DB9 connectors; automatic RS-485 data flow control
Serial Port Speed	RS-232: 50 ~ 115.2 kbps
	RS-422/485: 50 ~ 115.2 kbps (Max.)
LAN	4 x 10/100/1000Base-T RJ-45 ports
	Supports AMT (UNO-2184G only), wake on LAN and built-in boot ROM in flash BIOS
USB Ports	6 x USB (only UNO-2184G-D64E supports 2 x USB3.0)

Environment

Humidity	95% @ 40°C (non-condensing)
Operating Temperature	
UNO-2174/2184	-10 ~ 60°C (14 ~ 140°F) @ 5 ~ 85% RH. (with air flow)
UNO-2184GX (TBC)	-40 ~ 60°C (-40 ~ 140°F) @ 5 ~ 85% RH. (with air flow)
Storage Temperature	-40 ~ 60°C (-40~140°F)
Shock Protection	IEC 60068-2-27
	CompactFlash: 50 G @ wall mount, half sine, 11 ms
	HDD: 20 G @ wall mount, half sine, 11 ms
Vibration Protection	IEC 60068-2-64 (Random 1 Oct./min, 1hr/axis.)
	CompactFlash: 2 Grms @ 5 ~ 500 Hz,
	HDD: 1 Grms @ 5 ~ 500 Hz

Ordering Information

UNO-2184G-D44E	Intel Core i7-2655LE 2.2 GHz, 4 GB RAM Automation Computer
UNO-2184G-D45E	Intel Core i7-2655LE 2.2 GHz, 8 GB RAM Automation Computer
UNO-2184G-D64E	Intel Core i7-3555LE 2.5GHz, 4 GB RAM Automation Computer
UNO-2174G-C54E	Intel Celeron 847 1.1 GHz, 4 GB RAM Automation Computer
UNO-2174GL-C44E	Intel Celeron 807UE 1.0 GHz, 4 GB RAM Automation Computer

Accessories

UNO-2000G-VMKAE	**UNO & FPM integration VESA Mount kit**
EWM-W135H01E	Mini PCIe card for WLAN
1750006043	Wi-Fi cable 15CM
1750002842	Antenna for Wi-Fi
PCLS-DIAGAW10	Advantech Remote Monitoring & Diagnosis Utility
UNO-PCM24-AE	2 x PCI-104 expansion board
9656EWMG00E	Half size to full size Mini PCIe bracket
UNO-2184HD-AE	2 x HDD Bracket accessory kit for UNO-2184G/2174G

UNO-1110

TI Cortex AM3505 DIN-Rail PC with 2 x LAN, 5 x COM, 4 x USB

Features

- TI Cortex A8 AM3505 600 MHz processor
- 256 MB DDR2 on board
- 4 x RS-232/422/485, 1 x RS-485 serial ports
- Dual 10/100 Mbps Ethernet
- 2 x SD card slots
- Windows® CE 6.0 Ready Platform and optional uClinux OS support
- Included Advantech DaigAnywhere for easy remote configuration & diagnosis
- DIN-rail and Wallmounting Options
- Onboard system & LED indicators
- Supports Microsoft .NET compact framework 3.5
- Fanless and no internal cabling design
- System/Field ground isolation

Introduction

Advantech's UNO-1110 series are RISC-grade embedded platforms that offer up to 2 LAN ports, 5 serial ports and 2 SD card slots. The UNO-1110 series also come with Windows CE 6.0/Linux OS, offering an integrated image. Additionally, the UNO-1110 series operate at temperatures between -10 ~ 70°C, and their small size and lightweight design allows it to be installed in tight industrial environments. The UNO-1110 series are excellent communication gateways for converting communication protocols, I/O control, and data storage in the industrial field.

Specifications

General

- **Certification**: CE, FCC Class A, UL, CCC
- **Dimensions (W x H x D)**: 50 x 154 x 127 mm (1.9" x 6.1" x 5")
- **Enclosure**: Aluminium with solid mounting hardware
- **Mounting**: DIN-rail, Wallmount
- **Industrial Grounding**: Isolation between chassis and power ground
- **Power Consumption**: 10 ~ 30 V$_{DC}$ (13 W), AT, ground isolation, dual power inputs.
- **Weight**: 0.45 kg
- **System Design**: Fanless design with no internal cabling

System Hardware

- **CPU**: TI Cortex A8 AM3505 600 MHz
- **Memory***: Onboard 256 MB DDR2
- **Display**: DB15 VGA connector, up to 1024 x 768
- **Indicators**: Power, Serial (Tx, Rx), SD
  4 x DI/2 x DO
  4 x programmable LED
- **Storage**: 2 x SD card slots (one for boot and another for data storage)
- **Other**: Realtime clock, Watchdog timer
- **SIM**: 1 x card slot (reserved for project and will only have 1 x SD card slot left)
- **Expansion**: 1 x Mini PCIe card slot (Signal Protocol: USB Differential)

*Note: up to 512MB DDR2 (reserved for project)

System Software

- **Operating System**: WinCE 6.0/ Linux
- **Remote Management**: Built-in Advantech DiagAnywhere agent on Windows

I/O Interface

- **Serial Ports**: 4 x RS-232/422/485**, 1 x RS-485
  **COM3,4 optional isolation by project
  Automatic RS-485 data flow control, DIP Switch configuration
- **Serial Port Speed**: RS-232: 300 ~ 115.2 kbps
  RS-422/485: 300 ~ 115.2 kbps (Max)
- **LAN**: 2 x 10/100Base-T RJ-45 ports
- **USB**: 4 x USB 2.0
- **Digital Input**: 4 x Digital Inputs**
  Dry contact
      Logic level 0: Open
      Logic level 1: Close

- **Digital Output**: 2 x Digital Outputs**
  **Optional isloation by project
  Open Collect to 30 V
  200 mA max Load, power dissipation 450mW
  ***Audio Line-out reserved for project

Environment

- **Ingress Protection**: IP40
- **Operating Temperature**: -10 ~ 70°C (14 ~ 158°F)
- **Storage Temperature**: -40 ~ 80°C (-4 ~ 176°F)
- **Operating Humidity**: 20 ~ 95% (non-condensing)
- **Storage Humidity**: 20 ~ 95% (non-condensing)
- **Shock Protection**: Half-sine wave, 30G, 11ms
- **Vibration Protection**: Random 1Grms

Accessories

- **1757002321**: 63WC to DC UNO series power adapter (Industrial Grade)
- **1702002600**: Power Cable US Plug 1.8 M (Industrial Grade)
- **1702002605**: Power Cable EU Plug 1.8 M (Industrial Grade)
- **1702031801**: Power Cable UK Plug 1.8 M (Industrial Grade)
- **1700000596**: Power Cable China/Australia Plug 1.8 M (Industrial Grade)
- **PWR-249-AE**: 65W AC to DC power adapter (Commercial Grade)
- **1700001524**: Power Cable 3-pin US type 1.8 M (Commercial Grade)
- **170203183C**: Power Cable 3-pin EU type 1.8 M (Commercial Grade)
- **170203180A**: Power Cable 3-pin UK type 1.8 M (Commercial Grade)

Embedded OS & Automation Software

- **2070012469**: Image WinCE 6.0 Eng. V3.04 B304 for UNO-1110
- **2070012067**: Image WinCE 6.0 TC for UNO-1110-R11AE
- **2070012070**: Image WinCE 6.0 KR for UNO-1110-R11AE
- **2070012071**: Image WinCE 6.0 JP for UNO-1110-R11AE
- **2070012073**: Image WinCE 6.0 SC for UNO-1110-R11AE

Ordering Information

- **UNO-1110-R11AE**: TI Cortex AM3505 600MHz DIN-rail PC UNO-1110 with WinCE 6.0 (English), 1GB SD Card
- **PCLS-DIAGAW10**: Advantech Remote Monitoring & Diagnosis Utility
- **SQF-ISDS1-1G-86E**: 1GB SLC SD Card (-40 ~ 85° C)
- **2070012539**: UNO-1110 Linux MUL Image

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

UNO-1252G

NEW

Features

- Intel® Quark 400Mhz Processor with 256MB Memory
- 2 x LAN, 2 x mPCIe, 2 x COM, 8 x GPIO, 2 x USB, 1 x microSD, 1 x SIM, 1 x Power Terminal
- Compact with Fanless Design
- Supports Isolation COM, Digital I/O by iDoor Technology for Sensor Devices
- Supports 2 x GbE for Network Redundancy by iDoor Technology
- Supports 4G/ 3G/GPS/GPRS/Wi-Fi Communication by iDoor Technology
- Supports MRAM by iDoor Technology
- Chassis Grounding Protection
- Supports CANBus/CANOpen by iDoor for Transportation
- Supports FieldBus, ProfiBus by iDoor for Industrial Control

iD••r RoHS COMPLIANT 2002/95/EC CCC CE FCC c(UL)us LISTED E180881 I.T.E.

Introduction

The UNO-1252G is a palm-size Intel Quark DIN-Rail controller for IoT gateway solution. This controller featured with dual LAN ports for basic gateway function to economic gateway application for bridging cloud and brown area. The general purpose input/output ports also help gateway controller direct read status of sensors and indicate results required. The UNO-1252G is also equipped with Advantech iDoor technology that uses iDoor modules to extend this product to become a protocol gateway controller, such as a GbE card for network redundancy, CANBus/CANOpen for transportation, ProfiBus for industrial control, 3G/4G/Wi-Fi for wireless gateway or isolation COM/DIO for sensors. In addition, the UNO-1252G also features eight LED indicators for Status of Power, Battery, SD, COM and three programmable indicators.

Specifications

General

- **Certification**   CE, FCC, UL, CCC, BSMI
- **Dimensions (W x D x H)**   70 x 90 x 100 mm (2.76" x 3.54" x 3.94")
- **Form Factor**   Palm Size
- **Enclosure**   Aluminum Housing
- **Mounting**   DIN-rail, Wallmount
- **Weight (Net)**   0.6 kg (1.33 lbs)
- **Power Requirement**   12V/24V$_{DC}$ ± 20%
- **Power Consumption**   10W (Typical)
- **OS Support**   Linux

System Hardware

- **BIOS**   8MB SPI Flash
- **Processor**   Intel Quark 400 MHz
- **System Chip**   Integrated Intel SoC Chipset
- **Memory**   On-board 256 MB DDR3 800 MHz
- **LED Indicators**   LEDs for Power, battery, LAN (Active, Status), Tx/Rx and MicroSD, Programmable Indicators
- **Storage**   One MicroSD Slot
  CFast drive by iDoor Technology (Optional)
- **Expansion**   1 Full-size mPCIe, 1 half-size mPCIe w/o USB signal

I/O Interfaces

- **Serial Ports**   1 x RS-232, DB9, 50~115.2kbps, , supports console debug
  1 x RS-422/485, DB9, auto flow control, 50~115.2kbps
- **LAN Ports**   2 x RJ45, 10/100 Mbps
- **USB Ports**   1 x USB 2.0, 1 x USB Client
- **Power Connector**   1 x 3 Pin, Terminal Block
- **Grounding Protection**   Chassis Grounding
- **GPIO**   4-ch general purpose input, 4-ch general purpose output
- **SIM**   1 x SIM card slot

Environment
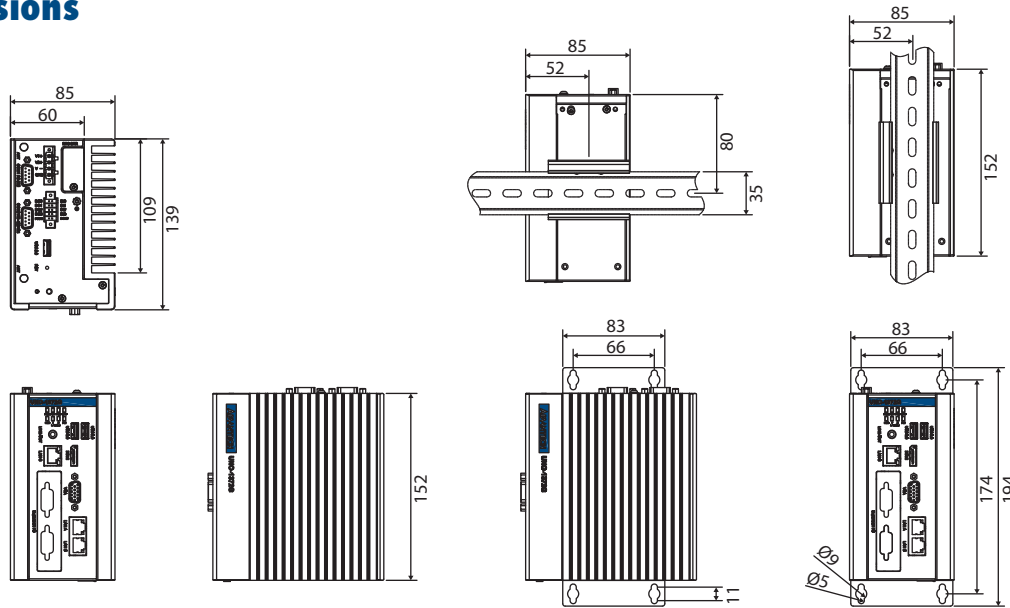
- **Operating Temperature**   - 20 ~ 60°C (-4 ~ 140°F) @ 5 ~ 85% RH with 0.7m/s airflow
- **Storage Temperature**   - 40 ~ 85°C (-40 ~ 185°F)
- **Relative Humidity**   10 ~ 95% RH @ 40°C, non-condensing
- **Shock Protection**   Operating, IEC 60068-2-27, 50G, half sine, 11ms
- **Vibration Protection**   Operating, IEC 60068-2-64, 1Grms, random, 5 ~ 500Hz, 1 hr/axis
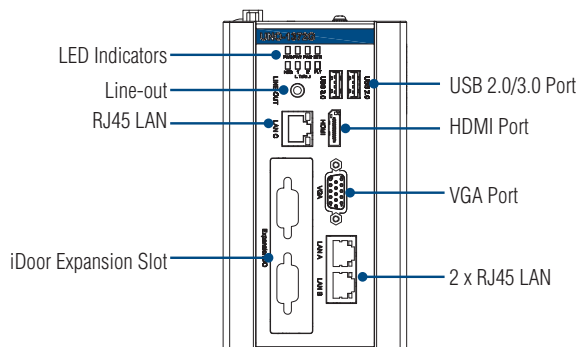- **Ingress Protection**   IP40

Application Software

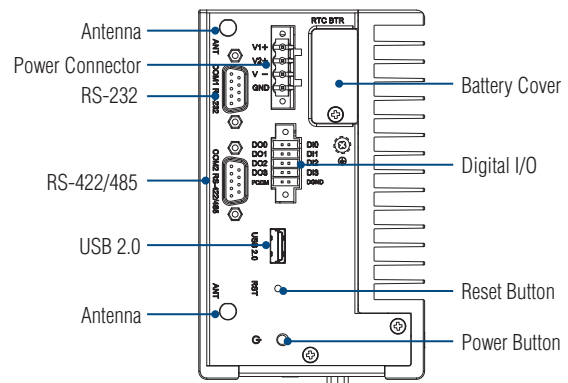|	
SUSIACCESS	Version : V2.1 or above An innovative remote device management software, allowing efficient remote monitoring, quick recovery & backup, and real-time remote configuration, to create a more intelligent and interconnected embedded computing solution.
WebAccess	Version : V7.1 or above WebAccess, as the core of Advantech's IoT solution, is full web browser-based software package for HMI and SCADA software. All HMI and SCADA software features including: Animated Graphics Displays, Real-time Data, Control, Trends, Alarms and Logs, are available in a standard web browser. WebAccess is built around the latest internet technologies. With its open architecture, vertical domain applications can easily be integrated.
PANELEXPRESS Designed for Convenience	Version : V2.0.3.8 or above Panel Express, a windows based HMI mini SCADA, realizes the cross platform flexibility offered by WebOP Designer to switch hardware for the consideration of cost and performance become an easy job. Panel Express software provides the best economic and express solution for data intensive high-end HMI applications.
Web Designer OP	Version : V2.0.3.8 or above An easy to use integrated development tool featuring solution-oriented screen objects, high-end graphics, Windows fonts for multi-language applications. WebOP runtime, a part of WebOP Designer, guarantees reliability and performance because of the minimum system overhead, high communication data rates, and sub-second screen switching.

Dimensions

Unit: mm

Front I/O View

- Micro USB Port
- USB 2.0 Port
- RS-485 Port
- LED Indicators
- iDoor Expansion Slot
- RS-232 Port
- 2 x RJ45 LAN

Top I/O View

- Grounding
- Antenna
- Antenna
- Power Connector
- Digital I/O
- Reset Button

Bottom I/O View

- SIM/SD Card Compartment

Ordering Information

- **UNO-1252G-Q0AE**   Intel Quark, 2 x LAN, 2 x mPCIe, 2 x COM, 8 x GPIO, 2 x USB, 1 x microSD, 1 x SIM

Accessories

- **1757002321**   63WC to DC UNO series power adapter (Industrial Grade)
- **PWR-249-AE**   65W AC to DC power adapter (Commercial Grade)
- **1702002600**   Power Cable US Plug 1.8 M (Industrial Grade)
- **1702002605**   Power Cable EU Plug 1.8 M (Industrial Grade)
- **1702031801**   Power Cable UK Plug 1.8 M (Industrial Grade)
- **1700000596**   Power Cable China/Australia Plug 1.8 M (Industrial Grade)
- **1700001524**   Power Cable 3-pin US type 1.8 M (Commercial Grade)
- **170203183C**   Power Cable 3-pin EU type 1.8 M (Commercial Grade)
- **170203180A**   Power Cable 3-pin UK type 1.8 M (Commercial Grade)

Embedded OS & Automation Software

- **968WEXP003X**   PanelExpress V2.0 300 tags S/W license
- **968WEXP015X**   PanelExpress V2.0 1500 tags S/W license
- **968WEXP050X**   PanelExpress V2.0 5000 tags S/W license

iDoor Modules

- **PCM-24U2U3-AE**   2-Port USB 3.0, mPCIe, USB-A type
- **PCM-24D2R2-AE**   2-Port Isolated RS-232 mPCIe, DB
- **PCM-24D2R4-AE**   2-Port Isolated RS-422/485 mPCIe, DB9
- **PCM-24S2WF-AE**   WiFi 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, 2-port SMA
- **PCM-24S23G-AE**   Wide-Temp 3.75G HSPA and GPS, 2-in-1, Full-size mPCIe w/ Redundant SIM Card holder, 2-port SMA
- **PCM-26D2CA-AE**   2-Port Isolated CANBus mPCIe, CANOpen, DB9
- **PCM-26D1DB-MAE**   1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Master
- **PCM-26D1DB-SAE**   1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Slave
- **PCM-26R2EC-MAE**   2-Port Hilscher netX100 FieldBus mPCIe, EtherCAT, RJ45, Master
- **PCM-26R2EC-SAE**   2-Port Hilscher netX100 FieldBus mPCIe, EtherCAT, RJ45, Slave
- **PCM-26R2EI-MAE**   2-Port Hilscher netX100 FieldBus mPCIe, EtherNet/IP, RJ45, Master
- **PCM-26R2EI-SAE**   2-Port Hilscher netX100 FieldBus mPCIe, EtherNet/IP, RJ45, Slave
- **PCM-26R2PN-MAE**   2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45, Master
- **PCM-26R2PN-SAE**   2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45, Slave

UNO-1372G

Intel® Atom™ Quad-Core Small- Size Control DIN-Rail PC w/ 3 x GbE, 2 x mPCIe, 1 mSATA, 2 x COM, 8 x DI/O, 3 x USB, HDMI/VGA

NEW

Features

- Intel® Atom E3845 1.91GHz processor with 4GB DDR3L Memory
- 3 x GbE, 3 x USB, 2 x COM, 1 x VGA, 1 x HDMI, Audio, iDoor, mSATA, 2mPCIe, 1 x SATA, 8 x DIO, 1 x Power Terminal
- Compact with Fanless Design
- Dual Power Input for Reducing Power Down Time
- Hot-Swap RTC Battery with easy Access on the Top
- Digital I/O with Isolation Protection for Sensing and controlling
- Diverse system IO and Supports Fieldbus Protocol by iDoor Technology as a Protocol Gateway
- 3G/GPS/GPRS/Wi-Fi Communication by iDoor Technology as a Communication Gateway
- Supports MRAM by iDoor Technology
- Chassis Grounding Protection
- LAN Redundancy (Teaming)

iDoor | RoHS COMPLIANT 2002/95/EC | CCC | CE | FCC | c(UL)us LISTED E180881 I.T.E.

Introduction

The UNO-1372G is an Intel Atom Quad-Core DIN-Rail controller. This controller featured with dual power input that shorten the down time to enhance operation excellence. The general purpose input/output ports also help machine builders integrate direct control of start/stop inspection and indicate inspection results. The UNO-1372G is also equipped with Advantech iDoor technology that uses iDoor modules to extend this product to become a gateway controller, such as a PoE card, or isolation serial port card. The UNO-1372G also features 3 gigabyte LAN ports, 1 USB 3.0 port, 2 COM ports and HDMI& VGA display ports for essential upstream and downstream links, for example, PoE connected to IP camera from iDoor.

Specifications

General

- **Certification** — CE, FCC, UL, CCC, BSMI
- **Dimensions (W x D x H)** — 85 x 139 x 152 mm (3.3" x 5.5" x 6.0")
- **Form Factor** — Small Size
- **Enclosure** — Aluminum Housing
- **Mounting** — DIN-rail, Wallmount
- **Weight (Net)** — 1.6kg (3.5lbs)
- **Power Requirement** — 9~36V$_{DC}$
- **Power Consumption** — 24W (Typical)
- **OS Support** — Microsoft® Windows 7/8, WES7/WE8S, Linux

System Hardware

- **BIOS** — AMI UEFI 128Mbit Flash BIOS
- **Watchdog Timer** — Programmable 6 levels timer interval, from 15 to 255 sec
- **Processor** — Intel Atom E3845 1.91GHz, 2MB L2 Cache
- **System Chip** — Integrated Intel SoC Chipset
- **Memory** — On-board 4GB DDR3L 1333 MHz
- **Graphics Engine** — Intel® HD Graphics
- **Ethernet** — Intel® i210-IT GbE, 802.1Qav, 802.1AS, 802.3az Realtek RTL8111E GbE
- **LED Indicators** — LEDs for Power, battery, LAN (Active, Status), Tx/Rx and HDD
- **Storage** — One drive bay for SATA 2.5" HDD (Compatible with 9.5mm height HDD) CFast drive by iDoor Technology (Optional)
- **Expansion** — 2 x Full-size mPCIe slot,1x mSATA (Full-size)

I/O Interfaces

- **Serial Ports** — 1 x RS-232, DB9, 50~115.2kbps
  1 x RS-422/485, DB9, auto flow control, 50~115.2kbps
- **LAN Ports** — 3 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000Base-T Fast Ethernet, support Jumbo Frame
- **USB Ports** — 3 x USB Ports (2 x USB2.0, 1 x USB 3.0 compliant)
- **Displays** — 1 x VGA, supports 1920x1200@60Hz 24bpp
  1 x HDMI 1.4a, supports 1920x1080@60Hz 24bpp
- **Audio** — Line-Out
- **Power Connector** — 1 x 4 Pins, Terminal Block to support dual power input
- **Grounding Protection** — Chassis Grounding

Digital I/O

- **4-ch digital input** — Wet/dry contact with Isolation Protection 2,500 VDC
- **4-ch digital output** — Compatible 5 V/TTL, Capable Sink: 24 mA max. per channel
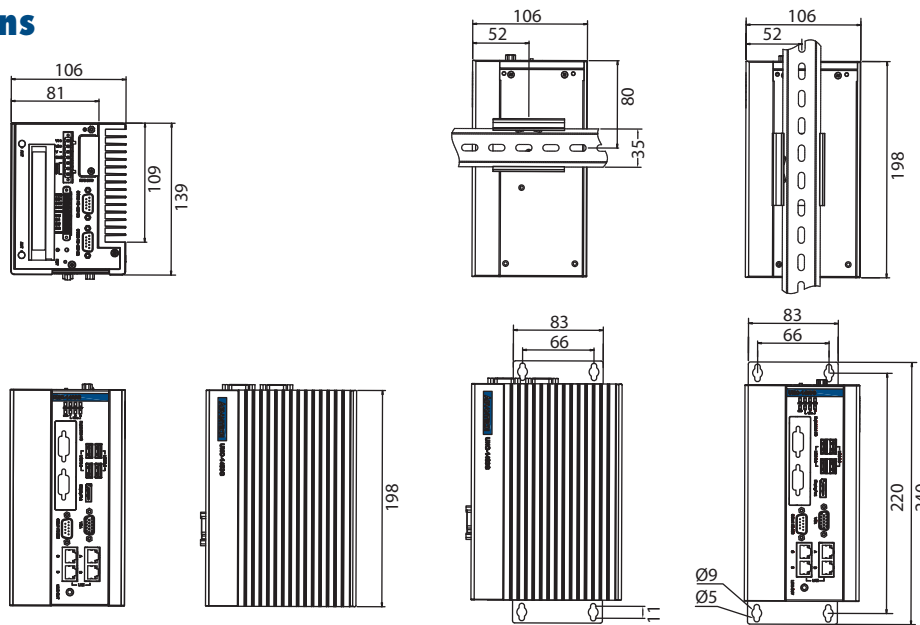
Environment

- **. Operating Temperature** — - 20 ~ 60°C (-4 ~ 140°F) @ 5 ~ 85% RH with 0.7m/s airflow (Industry SSD)
- **Storage Temperature** — - 40 ~ 85°C (-40 ~ 185°F)
- **Relative Humidity** — 95% RH @ 40°C, non-condensing
- **Shock Protection** — Operating, IEC 60068-2-27, 50G, half sine, 11ms
- **Vibration Protection** — Operating, IEC 60068-2-64, 1Grms, random, 5 ~ 500Hz, 1 hr/axis
- **Ingress Protection** — IP40

Application Software

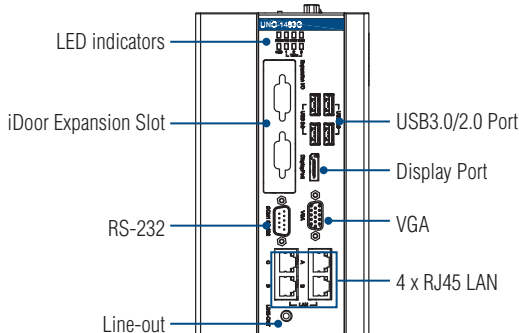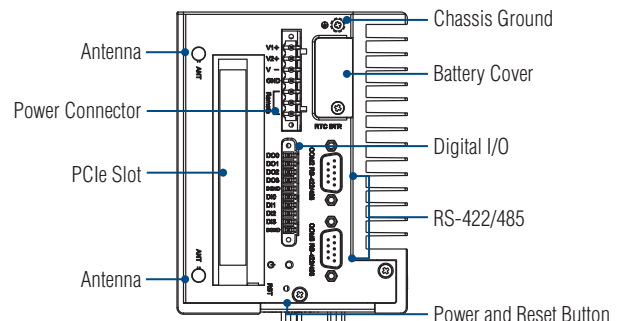| Software	Description
SUSIAccess	Version : V2.1 or above An innovative remote device management software, allowing efficient remote monitoring, quick recovery & backup, and real-time remote configuration, to create a more intelligent and interconnected embedded computing solution.
WebAccess	Version : V7.1 or above WebAccess, as the core of Advantech's IoT solution, is full web browser-based software package for HMI and SCADA software. All HMI and SCADA software features including: Animated Graphics Displays, Real-time Data, Control, Trends, Alarms and Logs, are available in a standard web browser. WebAccess is built around the latest internet technologies. With its open architecture, vertical domain applications can easily be integrated.
PANELEXPRESS *Designed for Convenience*	Version : V2.0.3.8 or above Panel Express, a windows based HMI mini SCADA, realizes the cross platform flexibility offered by WebOP Designer to switch hardware for the consideration of cost and performance become an easy job. Panel Express software provides the best economic and express solution for data intensive high-end HMI applications.
WebOP Designer	Version : V2.0.3.8 or above An easy to use integrated development tool featuring solution-oriented screen objects, high-end graphics, Windows fonts for multi-language applications. WebOP runtime, a part of WebOP Designer, guarantees reliability and performance because of the minimum system overhead, high communication data rates, and sub-second screen switching.

ADVANTECH | Embedded Automation Computers

1 WebAccess+ Solutions

2 Motion Control

3 Power & Energy Automation

4 Automation Software

5 Intelligent Operator Panel

6 Automation Panels

7 Panel PCs

8 Industrial Wireless Solutions

9 Industrial Ethernet Solutions

10 Industrial Gateway Solutions

11 Serial communication cards

12 Embedded Automation PCs

13 DIN-Rail IPCs

14 CompactPCI Systems

15 IoT Wireless I/O Modules

16 IoT Ethernet I/O Modules

17 RS-485 I/O Modules

18 Data Acquisition Boards

Dimensions

Unit: mm

Front IO View

- LED Indicators
- Line-out
- RJ45 LAN
- iDoor Expansion Slot
- USB 2.0/3.0 Port
- HDMI Port
- VGA Port
- 2 x RJ45 LAN

Top IO View

- Antenna
- Power Connector
- RS-232
- RS-422/485
- USB 2.0
- Antenna
- Battery Cover
- Digital I/O
- Reset Button
- Power Button

Ordering Information

- **UNO-1372G-E3AE**   Intel Atom Quad-Core 1.91GHz, 4GB, 3 x LAN, 2 mPCIe, iDoor

iDoor Modules

- **PCM-23C1CF-AE**   1 CFast Slot with Cover Protection
- **PCM-23U1DG-AE**   USB Slot w/ Lock for USB Dongle
- **PCM-24R2GL-AE**   2-Port Gigabit Ethernet, mPCIe, RJ45
- **PCM-24U2U3-AE**   2-Port USB 3.0, mPCIe, USB-A type
- **PCM-24D2R4-AE**   2-Port Isolated RS-422/485 mPCIe, DB9
- **PCM-24D4R4-AE**   4-Port Non-Isolated RS-422/485 mPCIe, DB37
- **PCM-24S2WF-AE**   WiFi 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, 2-port SMA
- **PCM-24S23G-AE**   Wide-Temp 3.75G HSPA and GPS, 2-in-1, Full-size mPCIe w/ Redundant SIM Card holder, 2-port SMA
- **PCM-26R2PN-MAE**   2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45, Master
- **PCM-26R2PN-SAE**   2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45, Slave
- **PCM-26D1DB-MAE**   1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Master
- **PCM-26D1DB-SAE**   1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Slave

Accessories

- **1757002321**   63WC to DC UNO series power adapter (Industrial Grade)
- **PWR-249-AE**   65W AC to DC power adapter (Commercial Grade)
- **1702002600**   Power Cable US Plug 1.8 M (Industrial Grade)
- **1702002605**   Power Cable EU Plug 1.8 M (Industrial Grade)
- **1702031801**   Power Cable UK Plug 1.8 M (Industrial Grade)
- **1700000596**   Power Cable China/Australia Plug 1.8 M (Industrial Grade)
- **1700001524**   Power Cable 3-pin US type 1.8 M (Commercial Grade)
- **170203183C**   Power Cable 3-pin EU type 1.8 M (Commercial Grade)
- **170203180A**   Power Cable 3-pin UK type 1.8 M (Commercial Grade)

Embedded OS & Automation Software

- **2070013467**   Image WES7P X64 MUI. for UNO-1372G
- **2070013468**   Image Linux for UNO-1372G
- **968WEXP003X**   PanelExpress V2.0 300 tags S/W license
- **968WEXP015X**   PanelExpress V2.0 1500 tags S/W license
- **968WEXP050X**   PanelExpress V2.0 5000 tags S/W license

UNO-1483G

Intel® Core™ i3 Regular-Size Control DIN-Rail PC w/ 4 x GbE, 3 x mPCIe, 1 PCIe, DP/VGA, 8 DI/O

NEW

Features

- 4th Generation Intel® Core™ i3 Processors up to 1.7GHz with 8GB DDR3L Memory
- 4 x GbE, 4 x USB 2.0/3.0, 1 x RS-232, 2 x RS-422/485, 1 x VGA, 1 x DP, Audio
- Compact with Fanless Design
- Supports PCIe card, PoE iDoor module and Digital I/O for Machine Motion/ Vision application
- Dual Power Input and Remote Power Button for reducing power down time and remote power control
- 4G/3G/GPS/GPRS/Wi-Fi Communication by iDoor Technology
- Supports MRAM by iDoor Technology
- Chassis Grounding Protection
- Hot-Swap RTC battery with easily access at top side
- Supports Fieldbus Protocol by iDoor Technology

iDoor · RoHS COMPLIANT 2002/95/EC · CCC · CE · FCC · c UL us LISTED E180881 I.T.E.

Introduction

The UNO-1483G is an Intel 4th generation Core i3 DIN-Rail controller. This controller featured with dual power input that shorten the down time to enhance operation excellence. The general purpose input/output ports also help machine builder integrate direct control of start/stop inspection and indicate inspection results. UNO-1483G also equipped with PCIe slot and Advantech iDoor technology that extend this product to motion controller, like motion control card, or isolation control unit from iDoor modules. In companion these features, UNO-1483G featured with 4 gigabyte LAN, 2 USB 3.0, 3 COM, DP, VGA can support essential link for upstream and downstream, for example, PoE connected to IP camera from iDoor.

Specifications

General

Certification	CE, FCC, UL, CCC, BSMI
Dimensions (W x D x H)	106 x 139 x 198 mm (4.2" x 5.8" x 7.8")
Form Factor	Regular Size
Enclosure	Aluminum Housing
Mounting	DIN-rail, Wallmount
Weight (Net)	2.4kg (5.3lbs)
Power Requirement	12V/24V$_{DC}$ ± 20%
Power Consumption	41W (Typical), 60W (Max)
OS Support	Microsoft® Windows 7/8, WES7/WE8S, Linux

System Hardware

BIOS	AMI UEFI 128Mbit Flash BIOS
Watchdog Timer	Programmable 6 levels timer interval, from 15 to 255 sec
Processor	Intel® 4th Gen. Core™ i3-4010U ULT 1.7GHz Haswell Dual Core, 3MB L2 Core i7-4650U/i5-4300U/Celeron 2980U by project
System Chip	Integrated Intel 8 Series Chipset
Memory	On-board 8GB DDR3L 1333/1600 MHz
Graphics Engine	Intel® HD Graphics 4400
Ethernet	Intel® i210-IT GbE Intel® i218-LM GbE
LED Indicators	LEDs for Power, battery, LAN (Active, Status), Tx/Rx and HDD
Storage	One drive bay for SATA 2.5" HDD (Compatible with 9.5mm height HDD) CFast drive by iDoor Technology (Optional)
Expansion	2 x Full-size mPCIe slot, mPCIe 2.0 (1 supports mSATA / SIM card) 1 x Half-size mPCIe slot w/o USB signal 1x PCIe slot with x1 signal

I/O Interfaces

Serial Ports	1 x RS-232, DB9, 50~115.2kbps 2 x RS-422/485, DB9, auto flow control, 50~115.2kbps
LAN Ports	4 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000Base-T Fast Ethernet, support Jumbo Frame
USB Ports	4 x USB Ports (2 x USB2.0, 2 x USB3.0 compliant)
Displays	1 x VGA, supports 1920x1200@60Hz 24bpp 1 x DP 1.2, supports 1920x1080@60Hz 24bpp
Audio	Line-Out
Power Connector	1 x 7 Pins, Terminal Block to support dual power input and remote power control
Grounding Protection	Chassis Grounding

Digital I/O

4-ch digital input	Wet/dry contact with Isolation Protection 2,500 V$_{DC}$
4-ch digital output	Compatible 5 V/TTL, Capable Sink: 24 mA max. per channel

Environment

Operating Temperature	- 20 ~ 60°C (-4 ~ 140°F) @ 5 ~ 85% RH with 0.7m/s airflow (Industry SSD)
Storage Temperature	- 40 ~ 85°C (-40 ~ 185°F)
Relative Humidity	10 ~ 95% RH @ 40°C, non-condensing
Shock Protection	Operating, IEC 60068-2-27, 50G, half sine, 11ms
Vibration Protection	Operating, IEC 60068-2-64, 1Grms, random, 5 ~ 500Hz, 1 hr/axis

Application Software

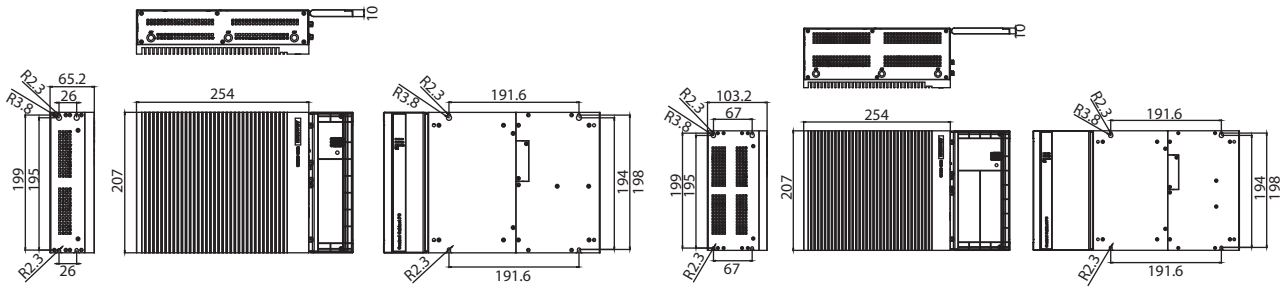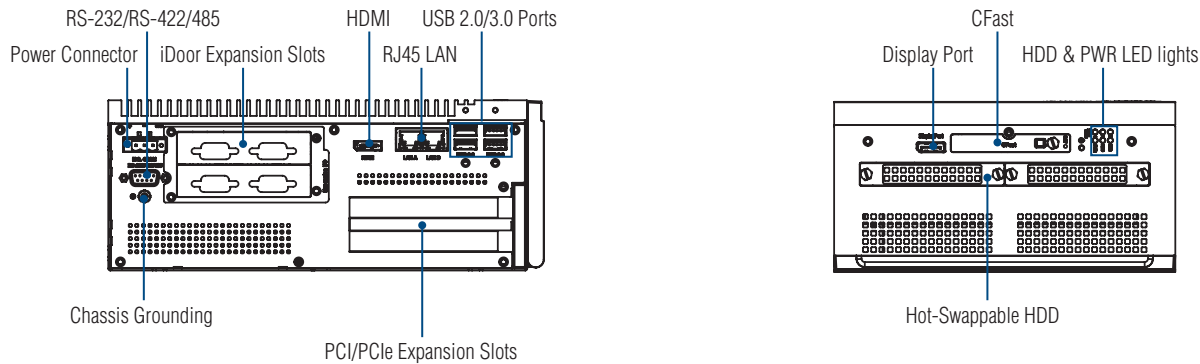|	
SUSIAccess	Version : V2.1 or above An innovative remote device management software, allowing efficient remote monitoring, quick recovery & backup, and real-time remote configuration, to create a more intelligent and interconnected embedded computing solution.
WebAccess	Version : V7.1 or above WebAccess, as the core of Advantech's IoT solution, is full web browser-based software package for HMI and SCADA software. All HMI and SCADA software features including: Animated Graphics Displays, Real-time Data, Control, Trends, Alarms and Logs, are available in a standard web browser. WebAccess is built around the latest internet technologies. With its open architecture, vertical domain applications can easily be integrated.
PANELEXPRESS Designed for Convenience	Version : V2.0.3.8 or above Panel Express, a windows based HMI mini SCADA, realizes the cross platform flexibility offered by WebOP Designer to switch hardware for the consideration of cost and performance become an easy job. Panel Express software provides the best economic and express solution for data intensive high-end HMI applications.
WebOP Designer	Version : V2.0.3.8 or above An easy to use integrated development tool featuring solution-oriented screen objects, high-end graphics, Windows fonts for multi-language applications. WebOP runtime, a part of WebOP Designer, guarantees reliability and performance because of the minimum system overhead, high communication data rates, and sub-second screen switching.

ADVANTECH **Embedded Automation Computers**

Dimensions

Unit: mm

Front I/O View

- LED indicators
- iDoor Expansion Slot
- RS-232
- Line-out
- USB3.0/2.0 Port
- Display Port
- VGA
- 4 x RJ45 LAN

Top I/O View

- Antenna
- Power Connector
- PCIe Slot
- Antenna
- Chassis Ground
- Battery Cover
- Digital I/O
- RS-422/485
- Power and Reset Button

Ordering Information

- **UNO-1483G-434AE**   Intel® Core™ i3-4010U ULT 1.7GHz, 8GB, 4 x LANs, 2 x mPCIe, 1 PCIe Slot

Note:
* Processor i7-4650U/i5-4300U/Celeron 2980U reserved for project.
* Support PCI expansion by project base.

Accessories

- **PWR-244-AE**   96W AC to DC power adapter (Commercial Grade)
- **1700001524**   Power cable 3-pin US type 1.8 M (Commercial Grade)
- **170203183C**   Power cable 3-pin EU type 1.8 M (Commercial Grade)
- **170203180A**   Power cable 3-pin UK type 1.8 M (Commercial Grade)
- **SQF-SMSM4-16G-S8E**   SQF MSATA 820 16G MLC 4-CH (-40~85°C)

Embedded OS & Automation Software

- **2070013050**   Image WES7P X64 MUI. for UNO-1483G
- **2070013219**   Image Linux for UNO-1483G
- **968WEXP003X**   PanelExpress V2.0 300 tags S/W license
- **968WEXP015X**   PanelExpress V2.0 1500 tags S/W license
- **968WEXP050X**   PanelExpress V2.0 5000 tags S/W license
- **968EMLSAP2**   SUSIAccess Pro V2.0 Package CD/ download card/flyer

iDoor Modules

- **PCM-24U2U3-AE**   2-Port USB 3.0, mPCIe, USB-A type
- **PCM-24R2PE-AE**   2-Port Gigabit Ethernet, IEEE 802.3af (PoE) Compliant, mPCIe, RJ45
- **PCM-24R2GL-AE**   2-Port Gigabit Ethernet, mPCIe, RJ45
- **PCM-24D2R4-AE**   2-Port Isolated RS-422/485 mPCIe, DB9
- **PCM-24D4R4-AE**   4-Port Non-Isolated RS-422/485 mPCIe, DB37
- **PCM-24S2WF-AE**   WiFi 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, 2-port SMA
- **PCM-26R2PN-MAE**   2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45, Master
- **PCM-26R2PN-SAE**   2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45, Slave
- **PCM-26R2EC-MAE**   2-Port Hilscher netX100 FieldBus mPCIe, EtherCAT, RJ45, Master
- **PCM-26R2EC-SAE**   2-Port Hilscher netX100 FieldBus mPCIe, EtherCAT, RJ45, Slave
- **PCM-26R2EI-MAE**   2-Port Hilscher netX100 FieldBus mPCIe, EtherNet/IP, RJ45, Master
- **PCM-26R2EI-SAE**   2-Port Hilscher netX100 FieldBus mPCIe, EtherNet/IP, RJ45, Slave
- **PCM-26D1DB-MAE**   1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Master
- **PCM-26D1DB-SAE**   1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Slave

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

UNO-3382G
UNO-3384G

Intel® Core™ i7/Celeron Control Cabinet
PC w/ 2 x GbE, 2 x mPCIe, HDMI/DP

NEW

Features

- 4th Generation Intel® Core™ i7/Celeron Processors with 8GB/4GB DDR3L Memory
- 2 x GbE, 2 x USB 2.0, 2 x USB 3.0, 1 x RS-232/RS-422/485, 1 x HDMI, 1 x DP, 2 x PCI/PCIe, 2 x mPCIe (2 x full)
- Hot-Swappable HDD/SSD support for RAID 0/1
- C1D2 & ATEX certified
- Protection Technology of optional UPS is compatible with UNO-3300 series which enhances the quality of input power and secure the data safety
- Able to quickly fit to Advantech FPM series products with accessible docking
- Supports Fieldbus Protocol by iDoor Technology 3G/GPS/GPRS/Wi-Fi Communication by iDoor Technology
- Supports MRAM by iDoor Technology
- LAN Redundancy (Teaming)

Introduction

Advantech's UNO-3300 series offer an open and universal automation solution, saving space of book mount and quickly build-in module with Advantech FPM series monitor in all industries. The newest UNO-3300 series of the Control Cabinet PC have attractive and flexible extension capabilities such as 2 x USB 2.0 ports and 2 x USB 3.0 ports, 1 x HDMI, 1 x DP, 1 x COM ports, 2 x LANS, 2 x mPCIe and 2 x PCI or PCI-E. From the easy back-up maintenance- Innovative transformers in detachable panel PC - Complete connectivity - Protection Technology with optional UPS (Optional UPS is compatible with UNO-3300 series which enhances the quality of input power and secure the data safety) they are at home in all applications, absolutely can be utilized for measuring, real-time vision inspection, open- and closed-loop control, Machine Control, collecting of process and machine data, industrial image processing.

Specifications

General

- **Certification** CE, FCC, UL, CCC, BSMI, C1D2, ATEX
  C1D2: Class I Division 2 Group A,B,C,D T4A
  ATEX: CE 0539 Ex II 2 D Ex nA (ic) IIC T4 Gc
- **Dimensions (W x D x H)** UNO-3382G: 254 x 207 x 65.2 mm (100" x 81.5" x 25.7")
  UNO-3384G: 254 x 207 x 103.2 mm (100" x 81.5" x 40.6")
- **Form Factor** Regular Size
- **Enclosure** Aluminum Housing
- **Mounting** Book mounting
- **Weight (Net)** UNO-3382G: 3.1kg
  UNO-3384G: 3.9kg
- **Power Requirements** 18 ~ 36 V_DC
- **Power Consumption** 45W (Typical)
- **OS Support** WIN7/8, WES7, WES-2009, Linux

System Hardware

- **BIOS** AMI UEFI 128Mbit Flash BIOS
- **Watchdog Timer** Programmable 256 levels timer interval, from 1 to 255 sec
- **Processor** Intel® Core™ i7-4650U 1.7GHz Haswell, 4MB L2
  Intel® Celeron 2980U 1.6GHz, 2MB L2
- **System Chip** Integrated Intel 8 Series Chipset
- **Memory** On-board 4GB/8GB DDR3L 1333 MHz
- **Graphics Engine** Intel® HD graphics 5000
- **Ethernet** IntelR i210-ITGbE
- **LED Indicators** LEDs for Power, Battery, Tx/Rx, HDD and reserved x 2
- **Storage** 1 x CFast slot
  Two built-in 2.5" SATA HDD brackets with support for RAID 0/1. (Compatible with 9.5mm height HDD)
- **Expansion** UNO-3382G: 2 Full-size mPCIe
  UNO-3384G: 2 Full-size mPCIe, 1x PCIex4, 1x PCIex1

I/O Interfaces

- **Serial Ports** 1 x RS-232/422/485, DB9, auto flow control, 50~115.2kbps
- **LAN Ports** 2 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000Base-T Fast Ethernet
- **USB Ports** 4 x USB Ports (2 x USB 2.0, 2 x USB 3.0 compliant)
- **Displays** 1 x HDMI, supports 1920 x 1200 @ 60Hz 24bpp
  1 x DP, supports 3200 x 2000 @ 60Hz 24bpp
- **Power Connector** 1 x 3 Pin, Terminal Block

Environment

- **Operating Temperature** - 20 ~ 60°C (-4 ~ 140°F) @ 5 ~ 85% RH with 0.7m/s airflow (Industry SSD)
- **Storage Temperature** - 40 ~ 85°C (-40 ~ 185°F)
- **Relative Humidity** 10 ~ 95% RH @ 40°C, non-condensing
- **Shock Protection** Operating, IEC 60068-2-27, 50G, half sine, 11ms
- **Vibration Protection** Operating, IEC 60068-2-64, 2Grms, random, 5 ~ 500Hz, 1hr/axis (mSATA)

Application Software

SUSIAccess	Version : V2.1 or above An innovative remote device management software, allowing efficient remote monitoring, quick recovery & backup, and real-time remote configuration, to create a more intelligent and interconnected embedded computing solution.
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ADVANTECH **Embedded Automation Computers**

Dimensions

Unit: mm

UNO-3382G

UNO-3384G

I/O View

UNO-3384G

- RS-232/RS-422/485
- Power Connector
- iDoor Expansion Slots
- HDMI
- RJ45 LAN
- USB 2.0/3.0 Ports
- Chassis Grounding
- PCI/PCIe Expansion Slots

- CFast
- Display Port
- HDD & PWR LED lights
- Hot-Swappable HDD

Ordering Information

- **UNO-3382G-474AE** — Intel® Core™ i7-4650U 1.7GHz, 8GB, 2 x LANs, 2 x Full-size mPCIe, 1 x HDMI, 1 x DP
- **UNO-3384G-474AE** — Intel® Core™ i7-4650U 1.7GHz, 8GB, 2 x LANs, 1 x PCIex4, 1 x PCI, 2 x Full-size mPCIe, 1 x HDMI, 1 x DP
- **UNO-3382G-4C3AE** — Intel® Celeron® 2980U 1.6GHz, 4GB, 2 x LANs, 2 x Full-size mPCIe, 1 x HDMI, 1 x DP
- **UNO-3384G-4C3AE** — Intel® Celeron® 2980U 1.6GHz, 4GB, 2 x LANs, 1 x PCIex4, 1 x PCI, 2 x Full-size mPCIe, 1 x HDMI, 1 x DP

Accessories

- **1757002161** — 150W AC to DC power adapter (Commercial Grade)
- **1700001524** — Power cable 3-pin US type 1.8 M (Commercial Grade)
- **170203183C** — Power cable 3-pin EU type 1.8 M (Commercial Grade)
- **170203180A** — Power cable 3-pin UK type 1.8 M (Commercial Grade)

Embedded OS & Automation Software

- **2070013477** — Image WES7P X64 MUI. for UNO-3382G/3384G
- **2070013478** — Image Linux for UNO-3382G/3384G
- **968WEXP003X** — PanelExpress V2.0 300 tags S/W license
- **968WEXP015X** — PanelExpress V2.0 1500 tags S/W license
- **968WEXP050X** — PanelExpress V2.0 5000 tags S/W license

iDoor Modules

- **PCM-24R2PE-AE** — 2-Port Gigabit Ethernet, IEEE 802.3af (PoE) Compliant, mPCIe, RJ45
- **PCM-24R2GL-AE** — 2-Port Gigabit Ethernet, mPCIe, RJ45
- **PCM-24D2R4-AE** — 2-Port Isolated RS-422/485 mPCIe, DB9
- **PCM-24D4R4-AE** — 4-Port Non-Isolated RS-422/485 mPCIe, DB37
- **PCM-27D24DI-AE** — 24-Channel Isolated Digital I/O w/ counter mPCIe, DB37
- **PCM-24S2WF-AE** — WiFi 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, 2-port SMA
- **PCM-26R2PN-MAE** — 2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45, Master
- **PCM-26R2PN-SAE** — 2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45, Slave
- **PCM-26R2EC-MAE** — 2-Port Hilscher netX100 FieldBus mPCIe, EtherCAT, RJ45, Master
- **PCM-26R2EC-SAE** — 2-Port Hilscher netX100 FieldBus mPCIe, EtherCAT, RJ45, Slave
- **PCM-26R2EI-MAE** — 2-Port Hilscher netX100 FieldBus mPCIe, EtherNet/IP, RJ45, Master
- **PCM-26R2EI-SAE** — 2-Port Hilscher netX100 FieldBus mPCIe, EtherNet/IP, RJ45, Slave
- **PCM-26D1DB-MAE** — 1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Master
- **PCM-26D1DB-SAE** — 1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Slave

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

UNO-3483G

**Intel® Core™ i7 Control Cabinet PC
w/ 2 x GbE, 2 x mPCIe, HDMI/VGA**

NEW
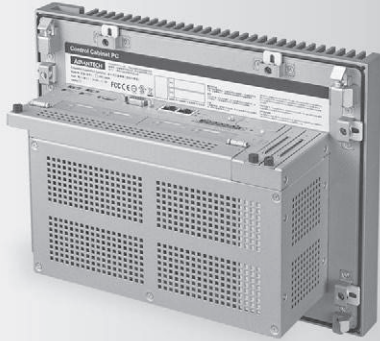
Features

- 3rd Generation Intel® Quad Core Processors, up to 2.1 GHz with 8GB DDR3L Memory
- 2 x GbE, 2 x USB 2.0, 2 x USB 3.0, 1 x RS-232, 1 x RS-422/485 (pin header), 1 x VGA, 1 x HDMI
- 1 x PCIex4, 3 x mPCIe (2 x full, 1 x half), 1 x mSATA slot
- Space-saving Compact with Fanless Design
- Thumb screw to easy maintenance
- Hot-Swappable HDD/SSD support for RAID 0/1
- High protection IP67 certification
- Convenient "Place & Click"
- Easily exchangeable RTC battery
- Supports Fieldbus Protocol by iDoor Technology
- 3G/GPS/GPRS/Wi-Fi Communication by iDoor Technology
- Supports MRAM by iDoor Technology
- Chassis Grounding Protection
- LAN Redundancy (Teaming)

iD••r RoHS COMPLIANT 2002/95/EC CE FCC °UL us LISTED E180881 I.T.E.

Introduction

Advantech's UNO-3483G Control Cabinet PC is configured with high-performance Intel Core i7 processors and QM77 PCH, which supports two displays, four USB ports, two mPCIe sockets, and up to three expansion slots. It also includes iDoor technology which supports automation feature extensions such as industry Fieldbus communication, Wi-Fi/3G, Digital I/O. The UNO-3483G has a compact heat sink with integrated seals mounted on the outside of the cabinet through a corresponding cutout, has a placing-and-click feature considers users' activities and then simplifies the installation procedure for space-saving and high protection using IP67 certification. The high performing UNO-3483G model offers user the maximum flexibility when selecting the control cabinet and remains independent of the number and form of control buttons and switches on the front panel.

Specifications

General

- **Certification**   CE, FCC, UL, BSMI
- **Dimensions (W x D x H)**   305 x 82 x 225 mm (12'' x 3.2'' x 8.9'')
- **Form Factor**   Regular Size
- **Enclosure**   Aluminum Housing
- **Mounting**   Enclosure mounting
- **Weight (Net)**   4.9kg (10.8lbs)
- **Power Requirements**   12V/24V$_{DC}$ ± 20%
- **Power Consumption**   50W (Typical)
- **OS Support**   WIN7/8, WES7, WES-2009, Linux

System Hardware

- **BIOS**   AMI UEFI 128Mbit Flash BIOS
- **Watchdog Timer**   Programmable 256 levels timer interval, from 1 to 255 sec
- **Processor**   Intel® Core™ i7-3612QE QC 2.1GHz Ivy Bridge Quad Core, 6MB L2
- **System Chip**   Integrated Intel 8 Series Chipset
- **Memory**   On-board 8GB DDR3L 1333 MHz
- **Graphics Engine**   Intel® HD Graphics 4000
- **Ethernet**   LAN A: Intel® 82579LM GbE, Intel® AMT, IEEE802.1AS, 802.3az
  LAN B: Intel® 82583V GbE, IEEE802.1AS, 802.3az
- **LED Indicators**   LEDs for Power, LAN (Active, Status), Tx/Rx and HDD
- **Storage**   One mSATA slot
  Two built-in 2.5" SATA HDD brackets with support for RAID 0/1. (Compatible with 9.5mm height HDD)
- **Expansion**   1 x PCIex4, 2 x Full-size mPCIe, 1 x half-size mPCIe

I/O Interfaces

- **Serial Ports**   1 x RS-232, DB9, 50~115.2kbps (pin header)
  1 x RS-422/485, DB9, auto flow control, 50~115.2kbps (pin header)
- **LAN Ports**   2 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000Base-T Fast Ethernet
- **USB Ports**   4 x USB Ports (2 x USB 2.0, 2 x USB 3.0 compliant)
- **Displays**   1 x VGA, supports 1920 x 1200 @ 60Hz 24bpp
  1 x HDMI 1.4a, supports 3200 x 2000 @ 60Hz 24bpp
- **Audio**   Mic-in, Line-In, Line-Out (Pin Header)
- **Power Connector**   1 x 7 Pin, Terminal Block to support dual power input and remote power control

Environment

- **Operating Temperature**   - 20 ~ 60°C (-4 ~ 140°F) @ 5 ~ 85% RH with 0.7m/s airflow (Industry SSD)
- **Storage Temperature**   - 40 ~ 85°C (-40 ~ 185°F)
- **Relative Humidity**   10 ~ 95% RH @ 40°C, non-condensing
- **Shock Protection**   Operating, IEC 60068-2-27, 50G, half sine, 11ms
- **Vibration Protection**   Operating, IEC 60068-2-64, 2Grms, random, 5 ~ 500Hz, 1hr/axis (mSATA)
- **Ingress Protection**   Integrated seals maintain with IP67 design

Application Software

SUSIACCESS	Version : V2.1 or above An innovative remote device management software, allowing efficient remote monitoring, quick recovery & backup, and real-time remote configuration, to create a more intelligent and interconnected embedded computing solution.
WebAccess	Version : V7.1 or above WebAccess, as the core of Advantech's IoT solution, is full web browser-based software package for HMI and SCADA software. All HMI and SCADA software features including: Animated Graphics Displays, Real-time Data, Control, Trends, Alarms and Logs, are available in a standard web browser. WebAccess is built around the latest internet technologies. With its open architecture, vertical domain applications can easily be integrated.
PANELEXPRESS Designed for Convenience	Version : V2.0.3.8 or above Panel Express, a windows based HMI mini SCADA, realizes the cross platform flexibility offered by WebOP Designer to switch hardware for the consideration of cost and performance become an easy job. Panel Express software provides the best economic and express solution for data intensive high-end HMI applications.
WebOP Designer	Version : V2.0.3.8 or above An easy to use integrated development tool featuring solution-oriented screen objects, high-end graphics, Windows fonts for multi-language applications. WebOP runtime, a part of WebOP Designer, guarantees reliability and performance because of the minimum system overhead, high communication data rates, and sub-second screen switching.

Dimensions

Unit: mm

305
291 (Cut Out)
225
211 (Cut Out)
136
136
82
110
160
244

I/O View

- USB 2.0/3.0 Ports
- HDMI
- VGA
- RJ45 LAN
- Chassis Grounding
- Power Connector
- RTC Battery
- PCIe Expansion
- iDoor Expansion Slots
- HDD & PWR LED Lights
- Reset Button
- Hot-Swappable HDD

Ordering Information

- **UNO-3483G-374AE**   Intel® Core™ i7-3612QE QC 2.1GHz, 8GB, 2 x LANs, 1 x PCIex4, 2 x Full-size mPCIe, 1 x half-size mPCIe

User scenario

iDoor Modules

PCM-23C1CF-AE	1 CFast Slot with Cover Protection
PCM-24R2PE-AE	2-Port Gigabit Ethernet, IEEE 802.3af (PoE) Compliant, mPCIe, RJ45
PCM-24D2R4-AE	2-Port Isolated RS-422/485 mPCIe, DB9
PCM-24D4R4-AE	4-Port Non-Isolated RS-422/485 mPCIe, DB37
PCM-27D24DI-AE	24-Channel Isolated Digital I/O w/ counter mPCIe, DB37
PCM-24S2WF-AE	WiFi 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, 2-port SMA
PCM-24S23G-AE	Wide-Temp 3.75G HSPA and GPS, 2-in-1, Full-size mPCIe w/ Redundant SIM Card holder, 2-port SMA
PCM-26R2PN-MAE	2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45, Master
PCM-26R2PN-SAE	2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45, Slave
PCM-26D1DB-MAE	1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Master
PCM-26D1DB-SAE	1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Slave

Accessories

1757002161	150W AC to DC power adapter (Commercial Grade)
1700001524	Power cable 3-pin US type 1.8 M (Commercial Grade)
170203183C	Power cable 3-pin EU type 1.8 M (Commercial Grade)
170203180A	Power cable 3-pin UK type 1.8 M (Commercial Grade)

Embedded OS & Automation Software

2070013472	Image WES7P X64 MUI. for UNO-3483G
2070013473	Image Linux for UNO-3483G
968WEXP003X	PanelExpress V2.0 300 tags S/W license
968WEXP015X	PanelExpress V2.0 1500 tags S/W license
968WEXP050X	PanelExpress V2.0 5000 tags S/W license

1 WebAccess+ Solutions
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14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

UNO-3083G/3085G
UNO-3073G/3075G
UNO-3073GL

Intel® Core i7/Celeron 800 series Automation Computers with 3/5 PCI(e) expansion slots, 2 mPCIe slots and 2 CFast sockets

Features

- Onboard Intel Core i7-3555LE/i7-2655LE/Celeron 847E/807UE, 2.2GHz/1.1GHz/1.0GHz
- 2 x RS-232/422/485 ports with automatic flow control and 2 x RS-232 pin head reserved
- 2 x 10/100/1000Base-T Ethernet
- DVI-I, HDMI support 2 x independent displays
- Audio with Mic in, Line out
- 9 x USB ports (4 x USB 3.0, 1 x internal USB for dongle and flash drive)
- Windows® WES 2009, WES 7 solution
- Dual power input for power redundancy
- Onboard system diagnosis LED indicators
- Supports wake on LAN and boot from LAN function
- Isolation between chassis and power ground
- Front accessible dual HDD/SSD with onboard RAID 0/1 support

RoHS COMPLIANT 2002/95/EC   CE FCC CCC c UL us LISTED E180881 I.T.E.

Introduction

The UNO-3083G/3085G/3073G/3075G/3073GL are configured with high-performance Intel® Core i7/Celeron 800 series processors and QM77/ QM67/ HM65 PCH, which supports two displays, eight USB ports, two Mini PCIe sockets, two CFast Sockets and up to five expansion slots. They also feature two power inputs for redundancy and relay function for alarm handling, furthermore, two friendly front accessible HDD/ SSD bays to support RAID 0/1. Two Gigabit LANs support teaming function with fault tolerance, link aggregation and load balance features. The built-in intelligent BIOS to diagnose system status immediately via relay function or LED indication.

Specifications

General

Certification	CE, UL, CCC, FCC, BSMI
Dimensions (W x D x H)	UNO-3083G/3073G/GL: 148 x 238 x 177 mm (5.8" x 9.3" x 7.0") UNO-3085G/3075G: 193 x 238 x 177 mm (7.6" x 9.3" x 7.0")
Enclosure	Aluminium
Mounting	Wallmount, Stand mount, Panel mount
Power Consumption	UNO-3083G/3085G: 45W (Typical) UNO-3073G/3075G: 35W (Typical) UNO-3073GL: 25W (Typical)
Power Requirements	12V ±20%/ 24V ±20% (e.g +24 V @ 5 A), AT/ATX power Jumper selection and BIOS AT simulation (support system reboot automatically after power recovery)
Weight	UNO-3083G/3073G/3073GL: 4.5kg UNO-3085G/3075G: 5.0kg
OS Support	Windows XP, Windows7/8, WES7, WES-2009, Linux
System Design	Fanless with no internal cabling (except COM1/COM2)
Remote Management	Built-in Advantech DiagAnywhere agent on WES2009/WES7

System Hardware

CPU	UNO-3083G/3085G: Intel Core i7-3555LE 2.5GHz/i7-2555LE 2.2GHz UNO-3073G/3075G: Intel Celeron 847E 1.1GHz UNO-3073GL: Intel Celeron 807UE 1.0GHz
Memory	4G DDR3 SDRAM built-in (UNO-3083G/3085G/3073G/3075G can support up to 16G RAM by project)
Indicators	LEDs for Power, Battery, LAN (Active, Status), Serial communication (Tx, Rx) and User Defined

Storage
  CF
  HDD
	
	2 x CFast slot
	Two built-in 2.5" SATA HDD brackets with RAID 0/1 (except UNO-3073GL)

Display	1 x DVI-I, 1 x HDMI (2 x independent displays)
Audio	Mic in, Line Out
Watchdog Timer	Programmable 256 levels timer interval, from 1 to 255 sec
Mini PCIe Expansion	2 x Mini PCIe slots with 2 x SIM cards
PCI (e) Expansion	UNO-3083G/3073G: 1x PCIex16 slot and 2x PCI slots UNO-3085G: 2x PCIex8 slots and 3x PCI slots UNO-3075G: 1x PCIex16 slot and 4x PCI slots UNO-3073GL: 1x PCIex1 slot and 2x PCI slots
PCI Slot Power	12 V @ 3 A, -12 V @ 0.8 A, +5 V @ 6 A, +3.3 V @ 6 A (total combined power consumption on the PCI slots should be less than 40W)

I/O Interface

Serial Ports	2 x RS-232/422/485 with DB9 connectors, automatic RS-485 data flow control, 2 x RS-232 (optional)
Serial Port Speed	RS-232: 50 ~ 115.2 kbps RS-422/485: 50 ~ 115.2 kbps (Max.)
LAN	2 x 10/100/1000Base-T RJ-45 ports Supports AMT (UNO-3083G/3085G only), wake on LAN and built-in boot ROM in flash BIOS
USB Ports	9 x USB (one internal, and 4x USB3.0 support on UNO-3083G-D64E/UNO-3085G-D64E)

Environment

Humidity	95% @ 40°C (non-condensing)
Operating Temperature	- 10 ~ 60°C (14 ~ 140°F) @ 5 ~ 85% RH with 0.7m/s airflow (Industry SSD)
Shock Protection	IEC 60068-2-27 CompactFlash: 50 G @ wall mount, half sine, 11 ms HDD: 20 G @ wall mount, half sine, 11 ms
Vibration Protection	IEC 60068-2-64 (Random 1 Oct./min, 1hr/axis.) CompactFlash: 2 Grms @ 5 ~ 500 Hz, HDD: 0.5Grms@5~500Hz

Ordering Information

UNO-3083G-D64E	Intel Core i7-3555LE 2.5GHz, 4GB RAM, 1 x PCIex16 + 2 x PCI expansion slots
UNO-3085G-D64E	Intel Core i7-3555LE 2.5GHz, 4GB RAM, 2 x PCIex8 + 3 x PCI expansion slots
UNO-3083G-D44E	Intel Core i7-2655LE 2.2 GHz, 4 GB RAM, 1 x PCIex16 + 2 x PCI expansion slots
UNO-3085G-D44E	Intel Core i7-2655LE 2.2 GHz, 4 GB RAM, 2 x PCIex8 + 3 x PCI expansion slots
UNO-3073G-C54E	Intel Celeron 847E 1.1 GHz, 4 GB RAM, 1 x PCIex16 + 2 x PCI expansion slots
UNO-3075G-C54E	Intel Celeron 847E 1.1GHz, 4GB RAM, 1 x PCIex16 + 4 x PCI expansion slots
UNO-3073GL-C44E	Intel Celeron 807UE 1.0 GHz, 4 GB RAM, 1 x PCIex1 + 2 x PCI expansion slots

Accessories

UNO-SM83-AE	Stand mount kit for UNO-3000G series
UNO-PM83-AE	Panel mount/wall mount kit for UNO-3000G series
UNO-3000EM-AE	Extra 2x RS-232 modules for UNO-3000G series
1757002161	150W AC to DC power adapter (Commercial Grade)
1700001524	Power cable 3-pin US type 1.8 M (Commercial Grade)
170203183C	Power cable 3-pin EU type 1.8 M (Commercial Grade)
170203180A	Power cable 3-pin UK type 1.8 M (Commercial Grade)

Embedded OS

2070012746	Image WES2009 MUI. v3.34 B001 for UNO-3073GL/75G
2070012529	Image WS7P MUI. V4.12 B001 for UNO-3073GL/3075G
2070012254	Image WS7P MUI. for UNO-3083G/3085G
2070012833	Image WS7P X64 MUI. for UNO-3083G/3085

Optional Expansion Type by Project Support

Model	Optional Expansion Type
UNO-3083G	2x PCIex8 slots and 1x PCI slot
UNO-3085G	1x PCIex16 slot and 4x PCI slots
UNO-3073G	2x PCIex8 slots and 1x PCI slot
UNO-3075G	2x PCIex8 slots and 3x PCI slots
UNO-3073GL	2x PCIex1 slots and 1x PCI slot
UNO-3073GL (same dimensions as UNO-3085G)	2x PCIx1 slots and 3x PCI slots

ADVANTECH   **Embedded Automation Computers**

PCM-2300MR MR4A16B, MRAM, 2 MByte, mPCIe

NEW

Features

- Meets Advantech Standard iDoor Technology
- PCI Express® Mini Card Specification Revision 1.2 compliant
- Data always non-volatile for >20-year at temperature
- Read / Write Memory speed 6 MB/Sec
- 2MB MRAM Storage
- I/O address automatically assigned by PCIe plug & play
- Supports Microsoft® Windows CE5/CE6
- Supports Microsoft® Windows Enterprise Server 2008, Windows Embedded Standard WES7/2009, Windows XP/7
- Supports Linux Intel x86 hardware platform
  Supports Embedded Automation PC UNO-2200/2300/2400 series
- Supports Control DIN-Rail PC UNO-1200/1300/1400 series
- Supports Control Cabinet PC UNO-3200/3300/3400 series
- Supports Control Panel Computers TPC-xx81/xx82 series
- Supports Thin Client Panel Computers TPC-xx51 series

iD**∙∙**r | RoHS COMPLIANT 2002/95/EC | CE FCC

Introduction

The PCM-23 series is categorized as Industrial storage or memory modules for the mPCIe interface which is able to extend connection to the connector through iDoor technology with different functions. They are all compatible with the PCI Express® Mini Card Specification Revision 1.2. including Isolated / Non-Isolated RS-232/422/485 communication cards for automation control, Wi-Fi/3G/GPS/GSM/LTE wireless communication models for data exchange during the management and machine level of automation application, Zigbee module as an IoT terminal or controller and PoE function for smart camera in detect inspection application of production. This is a flexible design that enables customers to customize their features which meet iDoor Technology.

Specifications

General

- **Bus Type**   PCI Express Mini Card Revision 1.2
- **Certification**   CE, FCC class A
- **Dimensions**   Module: 51 x 30 x 12.4 mm (2" x 1.18" x 0.49")
- **Power Consumption** Typical : +3.3 V @ 150 mA

Memory

- **Memory Everspin**   MR4A16B
- **Size**   2 MB
- **Read/Write Speed** 6 MB/sec

Software

- **Driver**   Microsoft® Windows CE5/CE6
                        Microsoft® Windows Enterprise Server 2008
                        Microsoft® Windows Embedded Standard WES7/2009
                        Microsoft® Windows XP/7

Environment

- **Humidity (Operating)** 5-95% RH, non-condensing
- **Operating Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Storage Temperature**   -40 ~ 85°C (-40 ~ 185°F)
- **Maximum magnetic field immunity during write** 8000 A/m
- **Maximum magnetic field during reading or standby** 8000 A/m

Dimensions

Module
PCM-2300MR

51

30

10

12.4
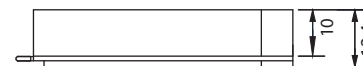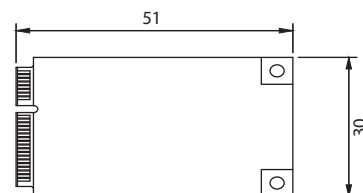
Ordering Information

- **PCM-2300MR-AE**   MR4A16B, MRAM, 2MByte

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
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12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

PCM-23C1CF
PCM-23U1DG

1 CFast Slot with Cover Protection

USB Slot w/ Lock for USB Dongle

NEW

PCM-23U1DG PCM-23C1CF

iDoor RoHS COMPLIANT 2002/95/EC CE FCC
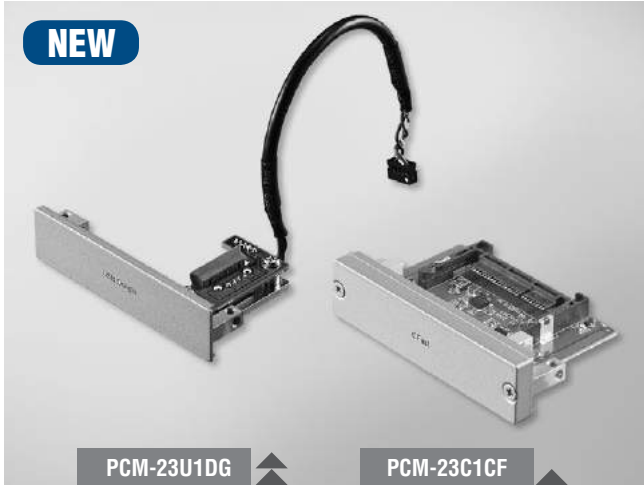
Features

- Meets Advantech Standard iDoor Technology
- PCM-23C1CF includes single CFast II slot which utilizes existing internal HDD cable
- PCM-23C1CF includes a captive screw type cover for CFast card protection
- PCM-23U1DG includes locked USB connector preventing disk from falling out
- Supports Control DIN-Rail PC UNO-1300
- Supports Embedded Automation PC UNO-2400 series
- Supports Control Cabinet PC UNO-3200/3400 series
- Supports Control DIN-Rail PC UNO-1400 (PCM-23C1CF)
- Supports Embedded Automation PC UNO-2300 series (PCM-23C1CF)
- Supports Control Cabinet PC UNO-3300 series (PCM-23U1DG)

Introduction

The PCM-23 series are storage modules from Advantech iDoor Technology. They are compatible with the PCI Express® Mini Card Specification Revision 1.2. including MRAM for automation machine memory back up which will no need battery, SATA to CFast on ThinClient terminal with storage for shorter maintenance and shorter MTB repair, Locked USB Dongle for Software protection in SCADA system, and TPM on Quality system management. This is a flexible design that enables customers to customize their features which meet iDoor Technology.

PCM-23C1CF Specifications

General

- **Dimensions**   19.4 x 81 x 41 mm
- **Features**   I/O plate to SATA connector
- **Form Factor**   I/O Plate
- **Contents**   I/O module, bracket
- **Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- **I/O Port**   CFast Type II connector
- **Quantity**   1
- **Color**   Silver

PCM-23U1DG Specifications

General

- **Dimensions**   19.4 x 81 x 41 mm (USB: L x W x H-max: 52 x 17 x 10)
- **Features**   USB A-type, 2.54 mm 5P header w/ +5V supported
- **Form Factor**   I/O Plate
- **Contents**   I/O module, cable, bracket
- **Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- **I/O Port**   Internal USB 2.0
- **Quantity**   1
- **Color**   Silver

* PCM-23U1DG must be utilized on the platforms which includes internal USB pin-header

Dimensions

Module
PCM-23C1CF

Dimensions

Module
PCM-23U1DG
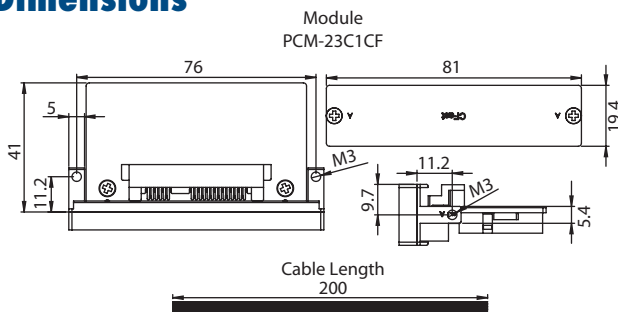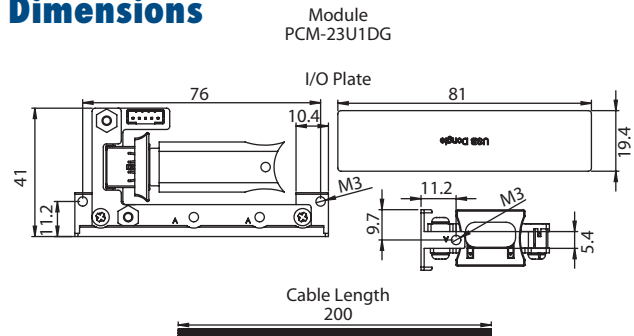
Ordering Information

- **PCM-23C1CF-AE**   SATAII 3G/Sec to CFast

User scenario

CFast Card

Ordering Information

- **PCM-23U1DG-AE**   USB Slot w/ Lock for USB Dongle

User scenario

USB Stick

USB lockable connector

ADVANTECH   **Embedded Automation Computers**
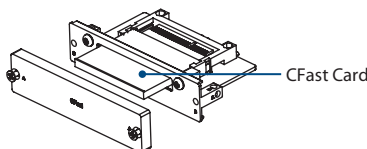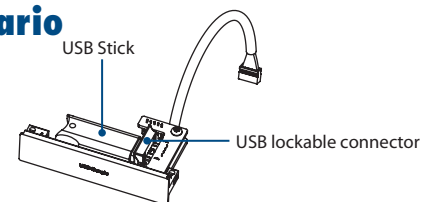
PCM-24D2R2
PCM-24D2R4
PCM-24D4R2
PCM-24D4R4

2-Port Isolated RS-232 mPCIe, DB9

2-Port Isolated RS-422/485 mPCIe, DB9

4-Port Non-Isolated RS-232 mPCIe, DB37

4-Port Non-Isolated RS-422/485 mPCIe, DB37
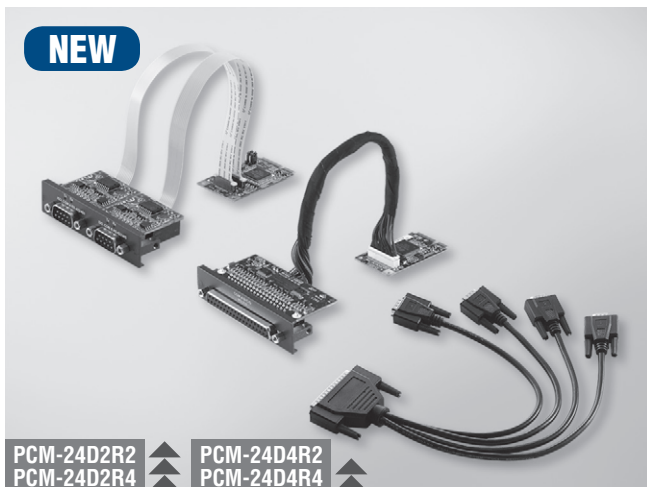
NEW

PCM-24D2R2 ▲▲
PCM-24D2R4 ▲▲
PCM-24D4R2 ▲
PCM-24D4R4 ▲

iDoor RoHS COMPLIANT 2002/95/EC CE FCC

Features

- Meets Advantech Standard iDoor Technology
- PCI Express® Mini Card Specification Revision 1.2 compliant
- Speeds up to 921.6 kbps for extremely fast data transmission
- Supports any baud rate setting (50 bps ~ 921.6 kbps)
- Supports both Isolated & Non-Isolated Protection with 2/4 ports RS-232/422/485
- I/O address automatically assigned by PCIe plug & play
- Supports Windows 2000/XP/Vista/7, Linux 2.4/2.6
- OXPCIe952/OXPCIe954 UART with 128-byte FIFOs standard
- Supports Embedded Automation PC UNO-2200/2300/2400 series
- Supports Control DIN-Rail PC UNO-1200/1300/1400 series
- Supports Control Cabinet PC UNO-3200/3300/3400 series
- Supports Control Panel Computers TPC-xx81/xx82 series
- Supports Thin Client Panel Computers TPC-xx51 series

Introduction

The PCM-24 series are categorized as communication modules from Advantech iDoor Technology. They are all compatible with the PCI Express® Mini Card Specification Revision 1.2. including Isolated / Non-Isolated RS-232/422/485 communication cards for automation control, Wi-Fi/3G/GPS/GSM/LTE wireless communication models for data exchange during the management and machine level of automation application, Zigbee module as an IoT terminal or controller and PoE function for smart camera in detect inspection application of production. This is a flexible design that enables customers to customize their features which meet iDoor Technology.

Specifications

General
- **Bus Type** — PCI Express Mini Card Revision 1.2
- **Certification** — CE, FCC class A
- **Connectors** — 2 x Male DB9 for PCM-24D2xx
  1 x Female DB37 for PCM-24D4xx
- **Dimensions** — Module: 51 x 30 x 12.4 mm (2" x 1.18" x 0.49")
  I/O Plate: 81 x 19.4 x 41 mm (3.19" x 0.76" x 1.61")
- **Power Consumption** — 400 mA @ +3.3 V for PCM-24D2xx
  500 mA @ +3.3 V for PCM-24D4xx

Communications
- **Comm. Controller** — OxPCIe952 for PCM-24D2xx
  OxPCIe954 for PCM-24D4xx
- **Data Bits** — 5, 6, 7, 8
- **Data Signals** — RS-232: TX, RX, RTS, CTS, DTR, DSR, DCD, DI, GND
  RS-422: TX+, TX-, RX+, RX-, (PCM-24D4R4)
  TX+, TX-, RX+, RX-, CTS+, CTS-, RTS+, RTS-
  (PCM-24D2R4)
  RS-485: Data+, Data-
- **FIFO** — 128 bytes
- **Flow Control** — RTS/CTS (PCM-24D4R4 not supported), Xon/Xoff
- **Parity** — None, Odd, Even, Mark and Space
- **Speed** — 50 bps ~ 921.6 kbps (PCM-24D2R4 & PCM-24D4R4 only) and any other baud rate setting 230.4 kbps
- **Stop Bits** — 1, 1.5, 2

Protection
- **Isolation Protection** — 2,000 V$_{DC}$ for PCM-24D2xx only
- **ESD Protection** — 15 KV
- **EFT Protection** — 2,500 V
- **Surge Protection** — 1,000 V$_{DC}$

Software
- **Bundled Software** — ICOM Tools & Drivers
- **OS Support** — Microsoft® Windows® 2000/XP/Vista/7 and Linux

Environment
- **Humidity (Operating)** — 5-95% RH, non-condensing
- **Operating Temperature** — -20 ~ 60°C (-4 ~ 140°F)
- **Storage Temperature** — -40 ~ 85°C (-40 ~ 185°F)

Dimensions

PCM-24D2R2/PCM-24D2R4

PCM-24D4R2/PCM-24D4R4
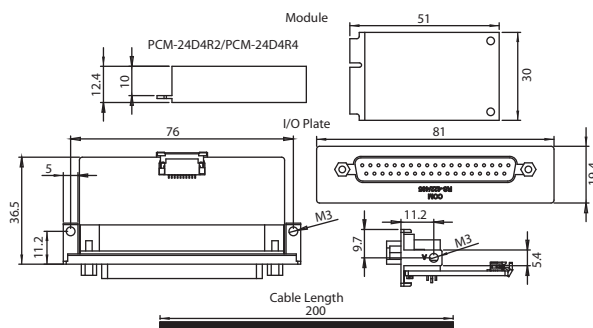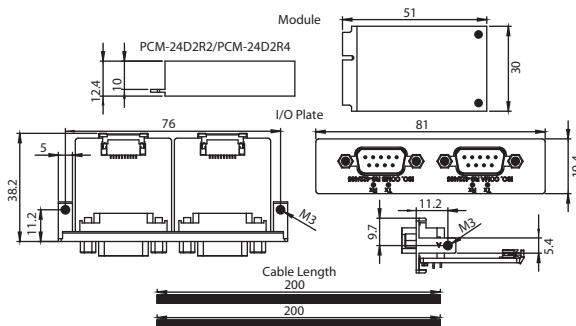
Ordering Information

- **PCM-24D2R2-AE** — OXPCIe-952 UART, Isolated RS-232, DB9 x 2
- **PCM-24D2R4-AE** — OXPCIe-952 UART, Isolated RS-422/485, DB9 x 2
- **PCM-24D4R2-AE** — OXPCIe-954 UART, Non-Isolated RS-232, DB37 x 1
- **PCM-24D4R4-AE** — OXPCIe-954 UART, Non-Isolated RS-422/485, DB37 x 1

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

PCM-24R2PE

2-Port Gigabit Ethernet, IEEE 802.3af (PoE) Compliant, mPCIe, RJ45

NEW

Features

- Meets Advantech Standard iDoor Technology
- PCI Express® Mini Card Specification Revision 1.2 compliant
- Supports 2 Gigabit Ethernet MAC Controller and PHY ports
- Supports 24 V_{DC} input power boost up to 15.4 W at 48 V_{DC} per PoE port
- Supports PoE (Power over Ethernet), IEEE 802.3af compliant
- Powered Device (PD) auto detection and classification
- Supports IEEE 802.3u Auto-Negotiation
- Supports 32/64-bit Windows 7/8, Linux 2.4/2.6
- Supports Embedded Automation PC UNO-2400 series
- Supports Control DIN-Rail PC UNO-1300/1400 series
- Supports Control Cabinet PC UNO-3200/3300/3400 series

iD**··**r | RoHS COMPLIANT 2002/95/EC | CE | FCC

Introduction

The PCM-24 series are categorized as communication modules from Advantech iDoor Technology. All of them are compatible with the PCI ExpressR Mini Card Specification Revision 1.2. including Isolated / Non-Isolated RS-232/422/485 communication cards for automation control, Wi-Fi /3G/GPS/GSM/LTE wireless communication models for data exchange during the management and machine level of automation application, Zigbee module as an IoT terminal or controller and PoE function for smart camera in detect inspection application of production. This is a flexible design that enables customers to customize their features which meet iDoor Technology.

Specifications

General

- **Bus Type**   PCI Express Mini Card Revision 1.2
- **Certification**   CE, FCC class A
- **Connectors**   2 x RJ45 GbE Half-/Full-Duplex
- **Dimensions**   Module: 51 x 30 x 12.4 mm (2" x 1.18" x 0.49")
                        I/O Plate: 81 x 19.4 x 41 mm (3.19" x 0.76" x 1.61")

*Shielding ethernet cable is recommended for use in PoE applications.

Communications

- **PoE Controller**   MICROSEMI_PD69101ILQ-TR
- **Compatibility**   IEEE 802.3, IEEE 802.3u,IEEE802.3ab, IEEE802.3x, IEEE802.3af
- **Speed**   10/100/1000 Mbps
- **No. of Ports**   2 Gigabit Ethernet Media Access Control (MAC) and physical layer (PHY) ports.

Power Requirements

- **Input Voltage**   24 V_{DC}
- **Overload Current** Present Protection
- **Connection**   Internal 24 V_{DC}
                        External 24 V_{DC} Phoenix terminal block (Optional add-on)
- **Output PoE Power** 48 V_{DC} PoE Power output PCM-24R2PE
                        Supports 2 PoE ports up to 2 x 15.4 W at 48 V_{DC}

Protection

- **Isolation Protection**   1,600 V_{DC}
- **ESD Protection**   4KV (Contact), 8KV (Air)
- **EFT Protection**   1,000 V

Software

- **OS Support**   Microsoft® Windows® XP/7/8, Linux 2.4/2.6

Environment

- **Operating Humidity**   5 ~ 95% RH
- **Operating Temperature**   0 ~ 50°C (0 ~ 122°F)
- **Storage Temperature**   -20 ~ 80°C (-4 ~ 176°F)

Dimensions

Module
PCM-24R2PE

51
30
12.4
10

I/O Plate

76
81
19.4
41
5
M3
11.2
M3
11.2
9.7
5.4

Cable Length
200
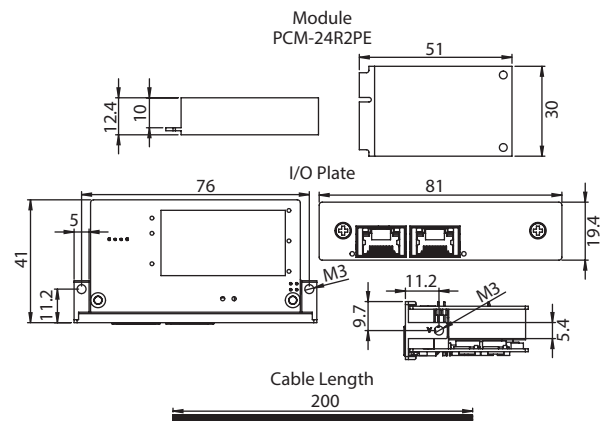
Ordering Information

- **PCM-24R2PE-AE**   GbE, IEEE 802.3af (PoE) Compliant, mPCIe, RJ45 x2

PCM-24R2GL
2-Port Gigabit Ethernet, mPCIe, RJ45

NEW
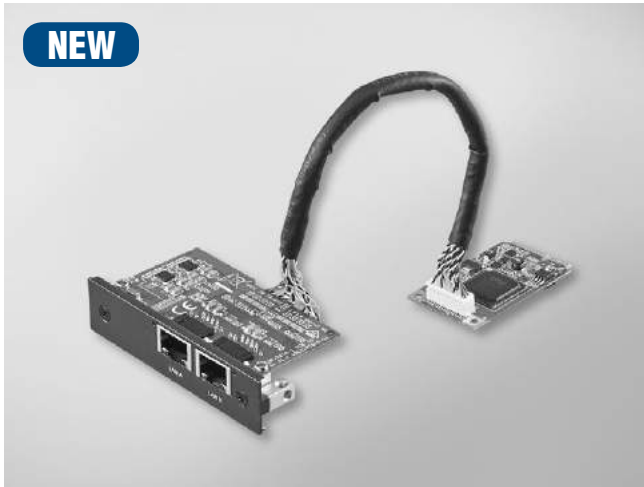
Features

- Meets Advantech Standard iDoor Technology
- PCI Express® Mini Card Specification Revision 1.2 compliant
- Supports 2 Gigabit Ethernet MAC Controller and PHY ports
- Supports 32/64-bit Windows 7/8, Linux 2.4/2.6
- Supports Embedded Automation PC UNO-2200/2400 series
- Supports Control DIN-Rail PC UNO-1200/1300/1400 series
- Supports Control Cabinet PC UNO-3200/3300/3400 series
- Supports Control Panel Computers TPC-xx81/xx82 series
- Supports Thin Client Panel Computers TPC-xx51 series

iDoor RoHS COMPLIANT 2002/95/EC CE FCC

Introduction

The PCM-24 series are categorized as communication modules from Advantech iDoor Technology. All of them are compatible with the PCI Express® Mini Card Specification Revision 1.2. including Isolated / Non-Isolated RS-232/422/485 communication cards for automation control, Wi-Fi /3G/GPS/GSM/LTE wireless communication models for data exchange during the management and machine level of automation application, Zigbee module as an IoT terminal or controller and PoE function for smart camera in detect inspection application of production. This is a flexible design that enables customers to customize their features which meet iDoor Technology.

Specifications

General

- **Bus Type** PCI Express Mini Card Revision 1.2
- **Certification** CE, FCC class A
- **Connectors** 2 x RJ45
- **Dimensions** Module: 51 x 30 x 12.4 mm (2" x 1.18" x 0.49")
  I/O Plate: 81 x 19.4 x 41 mm (3.19" x 0.76" x 1.61")

Communications

- **LAN Controller** Intel® I350-AM2 LAN Controller
- **Speed** 10/100/1000 Mbps
- **No. of Ports** 2 Gigabit Ethernet Media Access
  Control (MAC) and physical layer (PHY) ports.

Power Requirements

- **Power Consumption** Typical: +3.3 V @ 9 W

Protection

- **Isolation Protection** 1,600 V_{DC}
- **ESD Protection** 4 KV (Contact),8 KV (Air)
- **EFT Protection** 1,000 V

Software

- **OS Support** Microsoft® Windows® 7/8, Linux 2.4/2.6

Environment

- **Operating Humidity** 5 ~ 95% RH
- **Operating Temperature** 0 ~ 60°C (0 ~ 140°F)
- **Storage Temperature** -20 ~ 80°C (-4 ~ 176°F)

Dimensions

Module
PCM-24R2GL

51
12.4
10
30

76
I/O Plate
81

5
41
11.2
M3
19.4
11.2
M3
9.7
5.4

Cable Length
200
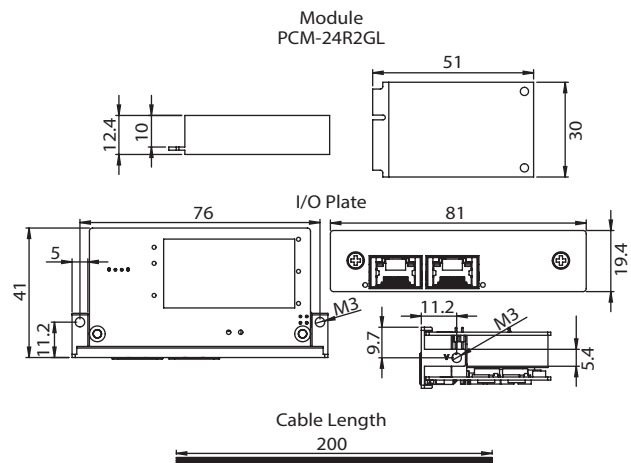
Ordering Information

- **PCM-24R2GL-AE** Gigabit Ethernet, mPCIe, RJ45 x 2

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

PCM-24R1TP

1-Port Gigabit Ethernet, Intel® 82574L, mPCIe, RJ45

NEW

iDoor IEEE1588 RoHS COMPLIANT 2002/95/EC CE FCC

Features

- Meets Advantech Standard iDoor Technology
- PCI Express® Mini Card Specification Revision 1.2 compliant
- Real-time Ethernet with hardware based Precision Time Protocol
- Achieves time synchronization for device or system
- I/O address automatically assigned by PCIe plug & play
- Supports 32/64-bit Windows 7/8, Linux 2.4/2.6
- Supports Embedded Automation PC UNO-2200/2300/2400 series
- Supports Control DIN-Rail PC UNO-1200/1300/1400 series
- Supports Control Cabinet PC UNO-3200/3300/3400 series
- Supports Control Panel Computers TPC-xx81/xx82 series
- Supports Thin Client Panel Computers TPC-xx51 series

Introduction

The PCM-24 series are categorized as communication modules from Advantech iDoor Technology. They are all compatible with the PCI Express® Mini Card Specification Revision 1.2. including Isolated / Non-Isolated RS-232/422/485 communication cards for automation control, Wi-Fi/3G/GPS/GSM/LTE wireless communication models for data exchange during the management and machine level of automation application, Zigbee module as an IoT terminal or controller and PoE function for smart camera in detect inspection application of production. This is a flexible design that enables customers to customize their features which meet iDoor Technology.

Specifications

General

- **Bus Type** — PCI Express Mini Card Revision 1.2
- **Certification** — CE, FCC class A
- **Connectors** — 1 x RJ45 GbE Half-/Full-Duplex
- **Dimensions** — Module: 51 x 30 x 12.4 mm (2" x 1.18" x 0.49")
  I/O Plate: 81 x 19.4 x 41 mm (3.19" x 0.76" x 1.61")
- **Power Consumption** — Typical : +3.3V @ 9 W

Communications

- **LAN Controller** — Intel® 82574L Gigabit Ethernet Chip
- **Speed** — 10/100/1000 Base-TX, Auto-negotiation
- **Support** — 9K jumbo frames, hardware-based support for precise time synchronization over Ethernet, wake-on-LAN

Protection

- **Isolation Protection** — 1,500 V_{DC}
- **ESD Protection** — 4KV (Contact), 8KV (Air)
- **EFT Protection** — 1,000 V
- **Surge Protection** — 1,000 V_{DC}

Software

- **OS Support** — Microsoft® Windows® 7/8, Linux

Environment

- **Humidity (Operating)** — 5-95% RH, non-condensing
- **Operating Temperature** — - 20 ~ 60°C (-4 ~ 140°F)
- **Storage Temperature** — - 40 ~ 85°C (-40 ~ 185°F)

Dimensions

Module PCM-24R1TP

I/O Plate

Cable Length 200
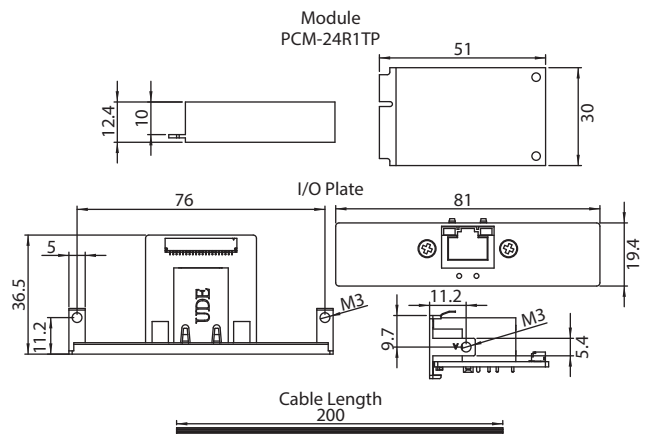
Ordering Information

- **PCM-24R1TP-AE** — Intel® 82574L, GbE, RJ45 x 1

PCM-24U2U3 2-Port USB 3.0, mPCIe, USB-A type

NEW

Features

- Meets Advantech Standard iDoor Technology
- PCI Express® Mini Card Specification Revision 1.2 compliant
- Expands two external USB3.0 Super-Speed ports
- Supports hot-swapping function
- Supplies maximum +5 V/900 mA power output to USB device
- Supports Windows 2000/XP/Vista/7
- Supports Embedded Automation PC UNO-2200/2400 series
- Supports Control DIN-Rail PC UNO-1200/1300/1400 series
- Supports Control Cabinet PC UNO-3200/3300/3400 series

iDoor RoHS COMPLIANT 2002/95/EC CE FCC

Introduction

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Specifications

General

- **Bus Type**   PCI Express Mini Card Revision 1.2
- **Certification**   CE, FCC class A
- **Connector**   2 x USB standard-A type
- **Dimensions**   Module: 51 x 30 x 12.4 mm (2" x 1.18" x 0.49")
                        I/O Plate: 81 x 19.4 x 41 mm (3.19" x 0.76" x 1.61")
- **Power Consumption** Typical : +3.3 V

Communication

- **Protocol**   Universal Serial Bus 3.0 specification Rev. 1.0
- **Speed**   1.5 Mbps to 5 Gbps

Software

- **OS Support**   Microsoft® Windows® 2000/XP/2003/Vista/7

Environment

- **Humidity (Operating)**   5-95% RH, non-condensing
- **Operating Temperature**   - 10 ~ 60°C (14 ~ 140°F)
- **Storage Temperature**   - 20 ~ 85°C (-4 ~ 185°F)

Dimensions

Module PCM-24U2U3

I/O Plate

Cable Length 200
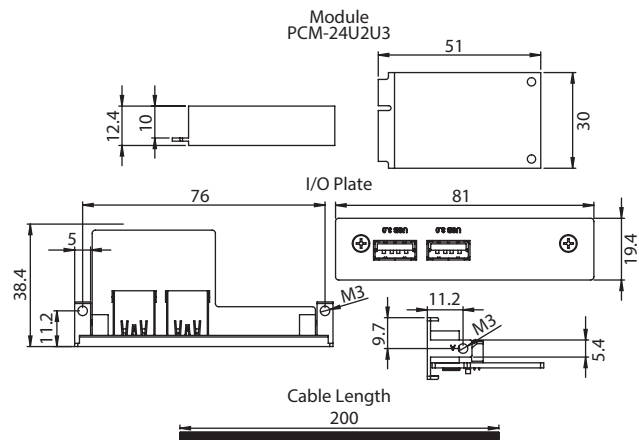
Ordering Information

- **PCM-24U2U3-AE**   USB 3.0, mPCIe, USB-A type x 2

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

PCM-24S1ZB

Wireless Zigbee Gateway, mPCIe, 1-port SMA

NEW

Features

- Meets Advantech Standard iDoor Technology
- PCI Express® Mini Card Specification Revision 1.2 compliant
- Radio frequency 2.4 GHz IEEE 802.15.4 compliant
- Supports Embedded Automation PC UNO-2200/2300/2400 series
- Supports Control DIN-Rail PC UNO-1200/1300/1400 series
- Supports Control Cabinet PC UNO-3200/3300/3400 series
- Supports Control Panel Computers TPC-xx81/xx82 series
- Supports Thin Client Panel Computers TPC-xx51 series

iD••r RoHS COMPLIANT 2002/95/EC CE FCC

Introduction

The PCM-24 series are categorized as communication modules from Advantech iDoor Technology. They are all compatible with the PCI Express® Mini Card Specification Revision 1.2. including Isolated / Non-Isolated RS-232/422/485 communication cards for automation control, Wi-Fi/3G/GPS/GSM/LTE wireless communication models for data exchange during the management and machine level of automation application, Zigbee module as an IoT terminal or controller and PoE function for smart camera in detect inspection application of production. This is a flexible design that enables customers to customize their features which meet iDoor technology.

Specifications

General

- **Bus Type**   PCI Express Mini Card Revision 1.2
- **Dimensions**   Module: 51 x 30 x 12.4mm (2" x 1.18" x 0.49")
- **Power Consumption**   0.8W @3.3V

Communication

- **Network Standard**   IEEE 802.15.4
- **Frequency Band**   ISM 2.4 GHz ~ 2.4835 GHz
- **Channels**   11~26
- **RF data rate**   250 kbps
- **Topology**   Star / Tree / Mesh
- **Outdoor Range**   1000 m with line of sight (with 2 dBi Antenna)
- **Network Capacity**   Max. 32 nodes
- **Range Extenders**   Max. 5 Hops

Environment

- **Humidity (Operating)**   5-95% RH, non-condensing
- **Operating Temperature**   -20 ~ 70°C (-4 ~ 158°F)
- **Storage Temperature**   -40 ~ 85°C (-40 ~ 185°F)

Dimension

Module
PCM-24S1ZB

51
30
12.4
10

I/O Plate

76
81
5
M3
11.2
M3
11.2
9.7
19.4
5.4

Cable Length
200
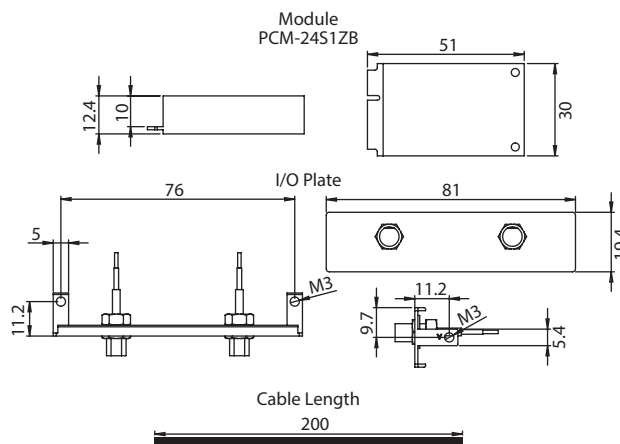
Ordering Information

- **PCM-24S1ZB-AE**   Wireless Zigbee Gateway, mPCIe

PCM-24S2WF

NEW

Features

- Meets Advantech Standard iDoor Technology
- PCI Express® Mini Card Specification Revision 1.2 compliant
- IEEE 802.11 a/b/g/n + Bluetooth 4.0 HS standard
- 2 SMA, 2Tx/ 2Rx ports
- Up to 300 Mbps data throughput
- 64/128/152-bit WEP, 802.1x, TKIP and AES
- Operating temperature: 0 ~ 70°C (32 ~ 158°F)
- Supports 32/64-bit Windows XP/Vista/7/8/8.1
- Supports Embedded Automation PC UNO-2200/2300/2400 series
- Supports Control DIN-Rail PC UNO-1200/1300/1400 series
- Supports Control Cabinet PC UNO-3200/3300/3400 series
- Supports Control Panel Computers TPC-xx81/xx82 series
- Supports Thin Client Panel Computers TPC-xx51 series

iDoor RoHS COMPLIANT 2002/95/EC CE FCC

Introduction

The PCM-24 series are categorized as communication modules from Advantech iDoor Technology. They are all compatible with the PCI Express® Mini Card Specification Revision 1.2. including Isolated / Non-Isolated RS-232/422/485 communication cards for automation control, Wi-Fi/3G/GPS/GSM/LTE wireless communication models for data exchange during the management and machine level of automation application, Zigbee module as an IoT terminal or controller and PoE function for smart camera in detect inspection application of production. This is a flexible design that enables customers to customize their features which meet iDoor Technology.

Specifications

General
- **Bus Type** PCI Express Mini Card Revision 1.2
- **Certification** CE, FCC class A
- **Dimensions** Module: 51 x 30 x 12.4 mm (2" x 1.18" x 0.49")
  I/O Plate: 81 x 19.4 x 41 mm (3.19" x 0.76" x 1.61")
- **Power Consumption** 3.3 V, 445 mW (Wi-Fi continue, Avg.)
- **Antenna** WiFi 2.4 GHz and 5 GHz dipole antenna, 109 mm
- **Cable** WiFi coaxial cable, 200 mm

Communications
- **Data throughput** 300 Mbps (Max.)
- **Security** 64/128-bit WEP

Software
- **OS Support** Microsoft® Windows® XP/Vista/7/8/8.1

Environment
- **Humidity (Operating)** 5-95% RH, non-condensing
- **Operating Temperature** 0 ~ 70° C (32 ~ 158° F)

Regulation

PCM-24S2WF-AE employs Atheros AR9462 as main chipset and corresponds to its regulatory.

Dimensions
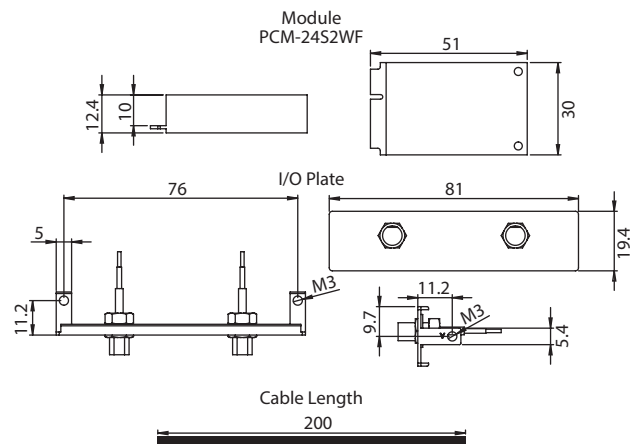
Ordering Information

- **PCM-24S2WF-AE** 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe
- **PCM-24S200-AE** Accessory kit for WiFi solution, antenna, cables, bracket

1 WebAccess⁺ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

PCM-24S23G

Wide-Temp 3.75G HSPA and GPS, 2-in-1, Full-size mPCIe w/ dual SIM Card holder, 2-port SMA

NEW

iDoor   RoHS COMPLIANT 2002/95/EC   CE   FCC

Features

- Meets Advantech Standard iDoor Technology
- PCI Express® Mini Card Specification Revision 1.2 compliant
- 6-bands, 800/850/900/1700/1900/2100 MHz for UMTS/HSPA network
- 850/900/1800/1900 MHz for EDGE/GPRS/GSM network
- Includes dual SIM card holder with switch for redundancy
- With hardware standalone GPS, u-blox MAX-6
- HSDPA 7.2 Mbps, HSUPA 5.76 Mbps
- Operating temperature: -40 ~ 85°C (-40 ~ 185°F)
- Supports 32/64-bit Windows XP/Vista/7/8/8.1, Windows CE5.0/CE6.0, Linux 2.4/2.6, Mac
- Supports Embedded Automation PC UNO-2200/2300/2400 series
- Supports Control DIN-Rail PC UNO-1200/1300/1400 series
- Supports Control Cabinet PC UNO-3200/3300/3400 series
- Supports Control Panel Computers TPC-xx81/xx82 series
- Supports Thin Client Panel Computers TPC-xx51 series

Introduction

The PCM-24 series are categorized as communication modules from Advantech iDoor Technology. They are all compatible with the PCI Express® Mini Card Specification Revision 1.2. including Isolated / Non-Isolated RS-232/422/485 communication cards for automation control, Wi-Fi/3G/GPS/GSM/LTE wireless communication models for data exchange during the management and machine level of automation application, Zigbee module as an IoT terminal or controller and PoE function for smart camera in detect inspection application of production. This is a flexible design that enables customers to customize their features which meet iDoor Technology.

Specifications

General

- **Bus Type** — PCI Express Mini Card Revision 1.2
- **Certification** — CE, FCC class A
- **Dimensions** — Module: 51 x 30 x 12.4 mm (2" x 1.18" x 0.49")
  I/O Plate: 81 x 19.4 x 41 mm (3.19" x 0.76" x 1.61")
- **Power Consumption** — 3.3-3.6 V, <700 mA (HSPA connected mode)
- **Antenna** — 824~960 MHz, 1710~2170 MHz dipole antenna, 109 mm
  GPS antenna 1575MHz, cubic antenna 45 x 35 x 14 mm, wire length 5000mm
- **Cable** — Coaxial GSM/ GPS cable, 250 mm

Communications

- **Frequency Band** — UMTS/HSPA: 800/850/900/1700/1900/2100 MHz
  EDGE/GPRS/GSM: 850/900/1800/1900 MHz
- **Data throughput** — Downlink: 7.2 Mbps
  Uplink: 5.76 Mbps

Software

- **OS Support** — Microsoft® Windows® XP/Vista/7/8/8.1, Microsoft® Windows® CE5.0/6.0, Linux 2.4/2.6, Mac

Environment

- **Humidity (Operating)** — 5-95% RH, non-condensing
- **Operating Temperature** — -40 ~ 85°C (-40 ~ 185°F)

Regulation

PCM-24S23G-AE employs u-blox LISA-U200/Max-6 as main chipset and corresponds to its regulatory.

Dimensions
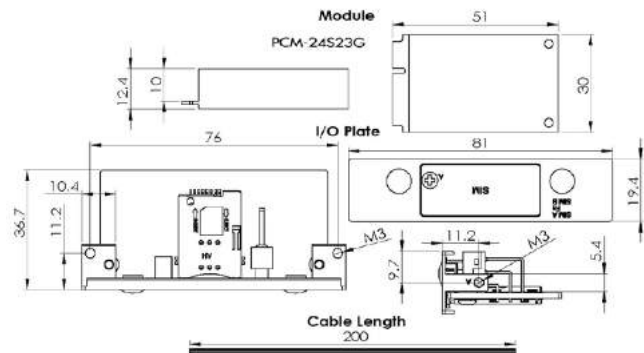
Ordering Information

- **PCM-24S23G-AE** — Wide-Temp 3.75G HSPA and GPS, 2-in-1, Full-size mPCIe w/ dual SIM Card holder, Antenna, cable
- **PCM-24S300-AE** — Accessory kit for 3G/GPS solution, dual-SIM card holder w/ switch, antenna, cables

User scenario
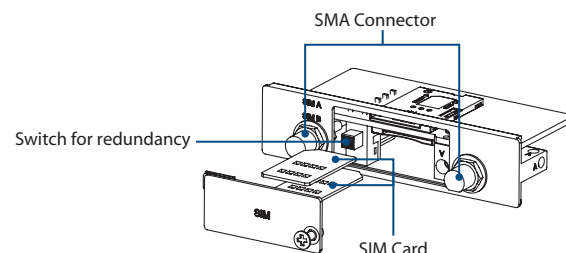
PCM-27D24DI
24-Channel Isolated Digital I/O w/ counter mPCIe, DB37

NEW
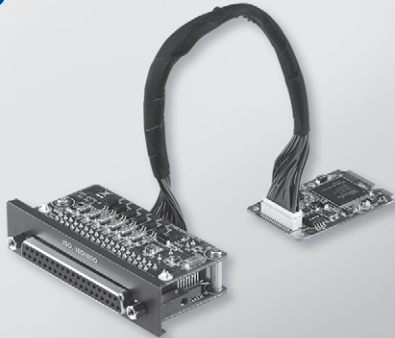
Features

- Meets Advantech Standard iDoor Technology
- PCI Express® Mini Card Specification Revision 1.2 compliant
- Supports wide-input/output voltage (10-30 V$_{DC}$/5-30 V$_{DC}$)
- High over-voltage-protection (70 V$_{DC}$) and voltage isolation (2,500 V$_{DC}$)
- Easy configuration & efficient programming by Advantech DAQNavi
- I/O address automatically assigned by PCIe plug & play
- Keeps the output settings and values after system hot reset
- Supports Embedded Automation PC UNO-2200/2300/2400 series
- Supports Control DIN-Rail PC UNO-1300/1400 series
- Supports Control Cabinet PC UNO-3200/3300/3400 series
- Supports Control Panel Computers TPC-xx81/xx82 series
- Supports Thin Client Panel Computers TPC-xx51 series

iD••r RoHS COMPLIANT 2002/95/EC CE FCC

Introduction

The PCM-27 series are categorized as digital input/output modules from Advantech iDoor Technology. They are all compatible with the PCI Express® Mini Card Specification Revision 1.2. including Isolated / Non-Isolated RS-232/422/485 communication cards for automation control, Wi-Fi/3G/GPS/GSM/LTE wireless communication models for data exchange during the management and machine level of automation application, Zigbee module as an IoT terminal or controller and PoE function for smart camera in detect inspection application of production. This is a flexible design that enables customers to customize their features which meet iDoor Technology.

Specifications

General

- **Bus Type**   PCI Express Mini Card Revision 1.2
- **Certification**   CE, FCC class A
- **Connectors**   1 x Female DB37
- **Dimensions**   Module: 51 x 30 x 12.4 mm (2" x 1.18" x 0.49")
     I/O Plate: 81 x 19.4 x 41 mm (3.19" x 0.76" x 1.61")
- **Power Consumption**   Typical: +3.3 V @ 400 mA
     Max.: +3.3V @ 520 mA

Isolated Digital Input

- **Input Channels**   16
- **Input Voltage (Wet Contact)**   Logic 0: 0~3 V$_{DC}$
     Logic 1: 10~30 V$_{DC}$
- **Input Voltage (Dry Contact)**   Logic 0: Open
     Logic 1: Shorted to GND
- **Input Current**   10 V$_{DC}$ @ 2.97 mA
     20 V$_{DC}$ @ 6.35 mA
     30 V$_{DC}$ @ 9.73 mA
- **Input Resistance**   5K Ohm
- **Interrupt Capable Channels**   2 (IDI0, IDI8)
- **Isolation Protection**   2,500 V$_{DC}$
- **Overvoltage Protection**   70 V$_{DC}$
- **ESD Protection**   4KV (Contact), 8KV (Air)
- **Opto-Isolator Response**   50 µs

Isolated Digital Output

- **Output Channels**   8
- **Output Type**   MOSFET
- **Isolation Protection**   2,500 V$_{DC}$
- **Output Voltage**   5 ~ 30 V$_{DC}$
- **Sink Current**   100 mA max./channel
- **Opto-isolator**   Response 50 µs

Counter

- **Channels**   2
- **Resolution**   32 bits
- **Max. Input Frequency**   1 kHz

Software

- **Tools & Drivers**   Advantech DAQNavi Tools & API Drivers
- **OS Support**   Microsoft® Windows® XP/7/8

Environment

- **Humidity (Operating)**   5-95% RH, non-condensing
- **Operating Temperature**   -20 ~ 60°C (-4 ~ 140°F)
- **Storage Temperature**   -40 ~ 85°C (-40 ~ 185°F)

Dimensions

Module PCM-27D24DI
51
12.4
10
30

I/O Plate
76
81
5
36.5
19.4
11.2
M3
11.2
9.7
M3
5.4

Cable Length
200
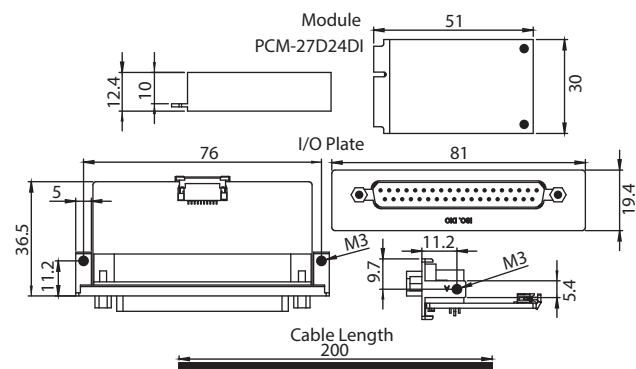
Ordering Information

- **PCM-27D24DI-AE**   Iso. Digital I/O, 16DI/8DO, mPCIe, DB37 x 1

Accessories

- **PCL-10137-1E**   DB-37 Shielded Cable, 1m
- **PCL-10137-2E**   DB-37 Shielded Cable, 2m
- **PCL-10137-3E**   DB-37 Shielded Cable, 3m
- **ADAM-3937-BE**   DB-37 Wiring Terminal, DIN-rail Mount

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

PCM-26D2CA

2-Port Isolated CANBus mPCIe, CANOpen, DB9

NEW

Features

- Meets Advantech Standard iDoor Technology
- PCI Express® Mini Card Specification Revision 1.2 compliant
- Supports Advantech CANOpen Protocol Library
- Operates two separated CAN networks simultaneously
- High speed transmission up to 1 Mbps
- I/O address automatically assigned by PCIe plug & play
- Supports 32/64-bit Windows 2000/XP/Vista/7, Linux 2.4/2.6
- Optical isolation protection of 2,500 V_{DC} ensures system reliability
- Includes Windows® DLL library and examples
- Supports Embedded Automation PC UNO-2200/2300/2400 series
- Supports Control DIN-Rail PC UNO-1200/1300/1400 series
- Supports Control Cabinet PC UNO-3200/3300/3400 series
- Supports Control Panel Computers TPC-xx81/xx82 series
- Supports Thin Client Panel Computers TPC-xx51 series

iDoor CANopen RoHS COMPLIANT 2002/95/EC CE FCC

Introduction

The PCM-26 series is categorized as Industrial Communication with Fieldbus Protocol modules from Advantech iDoor Technology. They are all compatible with the PCI Express® Mini Card Specification Revision 1.2. including Isolated / Non-Isolated RS-232/422/485 communication cards for automation control, Wi-Fi/3G/GPS/GSM/LTE wireless communication models for data exchange during the management and machine level of automation application, Zigbee module as an IoT terminal or controller and PoE function for smart camera in detect inspection application of production. This is a flexible design that enables customers to customize their features which meet iDoor Technology.

Specifications

General

- **Bus Type**   PCI Express Mini Card Revision 1.2
- **Certification**   CE, FCC class A
- **Connectors**   2 x Male DB9
- **Dimensions**   Module: 51 x 30 x 12.4 mm (2" x 1.18" x 0.49")
                        I/O Plate: 81 x 19.4 x 41 mm (3.19" x 0.76" x 1.61")
- **Power Consumption** Typical : +5V @ 400 mA

Communications

- **CAN Controller**   NXP SJA-1000
- **CAN Transceiver**   NXP 82C251
- **Protocol**   CAN 2.0 A/B
- **Signal Support**   CAN_H, CAN_L
- **Speed**   1Mbps
- **CAN Frequency**   16MHz
- **Termination Resistor** 120 Ohm (selected by jumper)

Protection

- **Isolation Protection** 2,500 V
- **ESD Protection**   15 KV
- **EFT Protection**   2,500 V
- **Surge Protection** 1,000 V_{DC}

Software

- **CAN Bus Driver**   Windows 2000/XP/Vista/7 (x86 and x64), Windows CE 5.0/6.0, Linux, QNX
- **CANopen Software** Windows 2000/XP/Vista/7 (x86 and x64), Windows CE 5.0/6.0

Environment

- **Humidity (Operating)**   5-95% RH, non-condensing
- **Operating Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Storage Temperature**   -40 ~ 85°C (-40 ~ 185°F)

Dimensions

Module PCM-26D2CA

51 · 30 · 12.4 · 10

I/O Plate

76 · 81 · 5 · 38.2 · 11.2 · 19.4 · M3 · 11.2 · 9.7 · M3 · 5.4

Cable Length 200

200
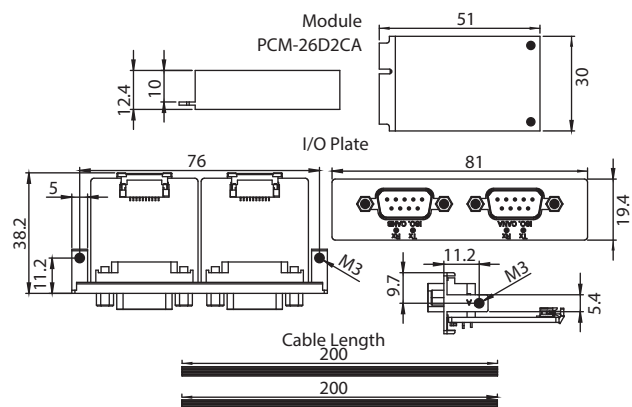
Ordering Information

- **PCM-26D2CA-AE**   SJA1000 CANBus, CANOpen, DB9 x 2

PCM-26D1DB

1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9

NEW
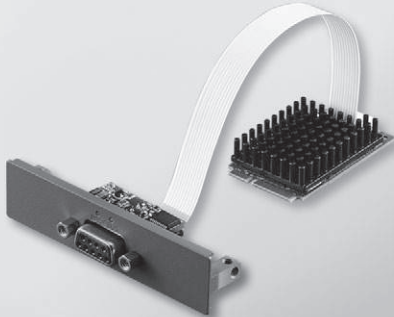
Features

- Meets Advantech Standard iDoor Technology
- PCI ExpressR Mini Card Specification Revision 1.2 compliant
- Supports Hilscher PROFIBUS Protocol Library
- Easy integration by wide range of device drivers
- High extended temperature range up to 70°C
- Supports Embedded Automation PC UNO-2200 series
- Supports Control DIN-Rail PC UNO-1200/1300/1400 series
- Supports Control Cabinet PC UNO-3200/3300/3400 series
- Supports Control Panel Computers TPC-xx81/xx82 series

Introduction

The PCM-26 series is categorized as Industrial Communication with Fieldbus Protocol modules from Advantech iDoor Technology. They are all compatible with the PCI Express® Mini Card Specification Revision 1.2. including Isolated / Non-Isolated RS-232/422/485 communication cards for automation control, Wi-Fi/3G/GPS/GSM/LTE wireless communication models for data exchange during the management and machine level of automation application, Zigbee module as an IoT terminal or controller and PoE function for smart camera in detect inspection application of production. This is a flexible design that enables customers to customize their features which meet iDoor Technology.

Specifications

General

- **Bus Type**   PCI Express Mini Card Revision 1.2
- **Certification**   CE, UL
- **Connectors**   1 x Female DB9
- **Dimensions**   Module: 51 x 30 x 12.4mm (2" x 1.18" x 0.49")
  I/O Plate: 81 x 19.4 x 41mm (3.19" x 0.76" x 1.61")
- **Power Consumption**   Typical : +3.3 V @ 650mA

Communications

- **Controller**   Hilscher netX100
- **Protocol**   PROFIBUS DP V1
- **Signal interface**   Iso. RS-485, RxD/TxD-P, RxD/TxD-N
- **Speed**   9.6 kbps ~ 12 Mbps
- **Displays**   SYS, System status LED

Software

- **OS Device**   Windows 2000/XP/Vista/7/8 (32/64-bit)
- **Utility**   SYCON.net

Environment

- **Humidity (Operating)**   10-95% RH, non-condensing
- **Operating Temperature**   -20 ~ 70°C (-4 ~ 158°F), w/ Air flow during measurement: 0,5 m/s
- **Storage Temperature**   -10 ~ 70°C (14 ~ 158°F)

Dimension

Module PCM-26D1DB

I/O Plate

Cable Length 150
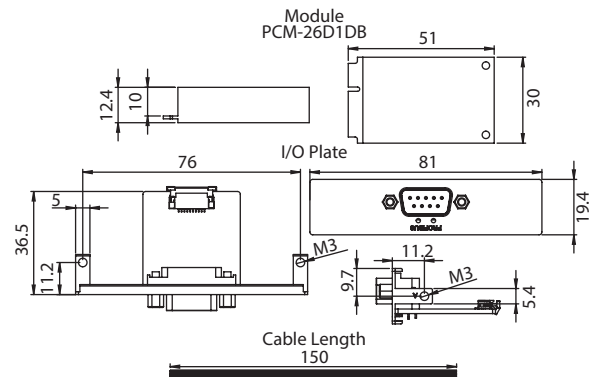
Ordering Information

Master

- **PCM-26D1DB-MAE**   Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9 x 1, Master

Slave

- **PCM-26D1DB-SAE**   Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9 x 1, Slave

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

PCM-26R2EC
PCM-26R2EI
PCM-26R2S3
PCM-26R2PN
PCM-26R2PL

2-Port Hilscher netX100 FieldBus mPCIe, EtherCAT, RJ45
2-Port Hilscher netX100 FieldBus mPCIe, EtherNet/IP, RJ45
2-Port Hilscher netX100 FieldBus mPCIe, Sercos III, RJ45
2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45
2-Port Hilscher netX100 FieldBus mPCIe, POWERLINK, RJ45

NEW
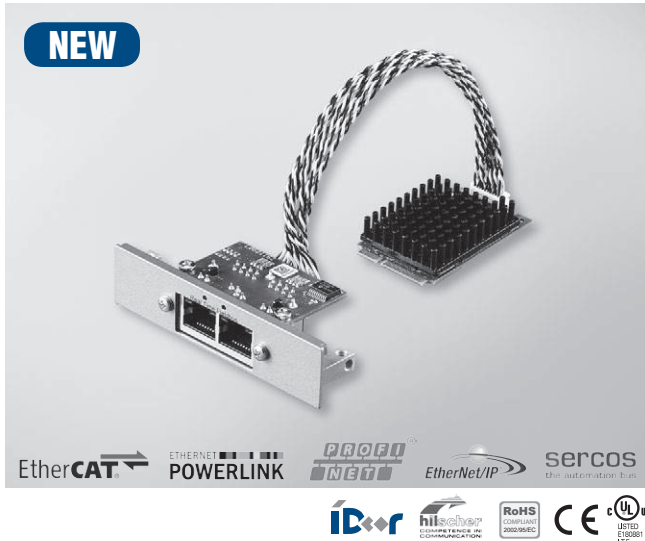
Features

- Meets Advantech Standard iDoor Technology
- PCI ExpressR Mini Card Specification Revision 1.2 compliant
- Identical interface for all Hilscher Real-Time Ethernet Fieldbus Protocols
- Various colorful front plates for protocol identification
- Easy integration by wide range of device drivers
- High extended temperature range up to 70°C
- Supports Embedded Automation PC UNO-2200 series
- Supports Control DIN-Rail PC UNO-1200/1300/1400 series
- Supports Control Cabinet PC UNO-3200/3300/3400 series
- Supports Control Panel Computers TPC-xx81/xx82 series

Introduction

The PCM-26 series is categorized as Industrial Communication with Fieldbus Protocol modules from Advantech iDoor Technology. They are all compatible with the PCI Express® Mini Card Specification Revision 1.2. including Isolated / Non-Isolated RS-232/422/485 communication cards for automation control, Wi-Fi/3G/GPS/GSM/LTE wireless communication models for data exchange during the management and machine level of automation application, Zigbee module as an IoT terminal or controller and PoE function for smart camera in detect inspection application of production. This is a flexible design that enables customers to customize their features which meet iDoor Technology.

Specifications

General
- **Bus Type** PCI Express Mini Card Revision 1.2
- **Certification** CE, UL
- **Connectors** 2 x Female RJ45
- **Dimensions** Module: 51 x 30 x 12.4 mm (2" x 1.18" x 0.49")
  I/O Plate: 81 x 19.4 x 45 mm (3.19" x 0.76" x 1.61")
- **Power Consumption** Typical : +3.3 V @ 650 mA

Communications
- **Controller** Hilscher netX100
- **Protocol** EtherCAT, EtherNET/IP, Sercos III, PROFINET, POWERLINK
- **Signal interface** Isolation 10BASE-T/100BASE-TX
- **Speed** 100 Mbps, 10 Mbps (depending on loaded firmware)
- **Displays** SYS, System status LED

Software
- **OS Device** Windows 2000/XP/Vista/7/8 (32/64-bit)
- **Utility** SYCON.net

Environment
- **Humidity (Operating)** 10-95% RH, non-condensing
- **Operating Temperature** 0 ~ 70 °C (32 ~ 140 °F), w/ Air flow during measurement: 0,5 m/s
- **Storage Temperature** 0 ~ 70 °C (32 ~ 185 °F)

Dimension

Module PCM-26R2EC

I/O Plate

Cable Length 150
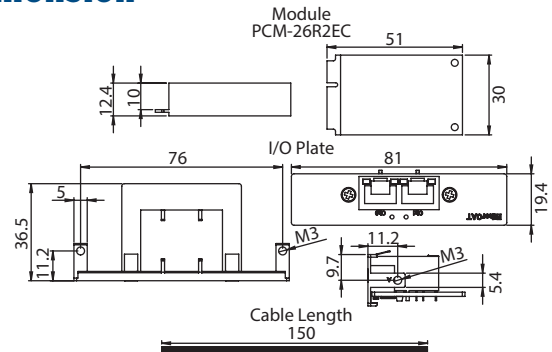
Ordering Information

Master
- **PCM-26R2EC-MAE** Hilscher netX100 FieldBus mPCIe, EtherCAT, RJ45 x2, Master
- **PCM-26R2EI-MAE** Hilscher netX100 FieldBus mPCIe, EtherNet/IP, RJ45 x2, Master
- **PCM-26R2S3-MAE** Hilscher netX100 FieldBus mPCIe, Sercos III, RJ45 x2, Master
- **PCM-26R2PN-MAE** Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45 x2, Master

Slave
- **PCM-26R2EC-SAE** Hilscher netX100 FieldBus mPCIe, EtherCAT, RJ45 x2, Slave
- **PCM-26R2EI-SAE** Hilscher netX100 FieldBus mPCIe, EtherNet/IP, RJ45 x2, Slave
- **PCM-26R2S3-SAE** Hilscher netX100 FieldBus mPCIe, Sercos III, RJ45 x2, Slave
- **PCM-26R2PN-SAE** Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45 x2, Slave
- **PCM-26R2PL-SAE** Hilscher netX100 FieldBus mPCIe, POWERLINK, RJ45 x2, Slave

PCM-28P1AD
PCM-28P1BK

PCIe to mPCIe, 2-Slots mPCIe, iDoor I/O plate expansion

iDoor PCIe I/O Plate

NEW

PCM-28P1BK   PCM-28P1AD

iDoor RoHS COMPLIANT 2002/95/EC CE FCC
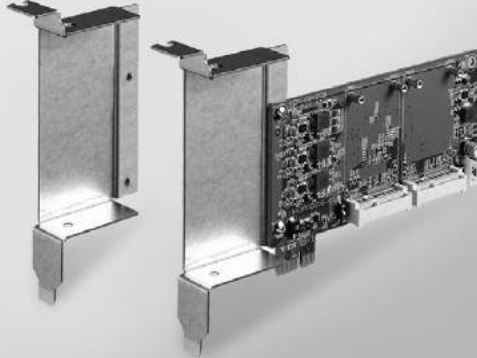
Features

- Meets Advantech Standard iDoor Technology
- PCI Express base SPEC 2.0 and backward compatible with SEPC 1.1 & 1.0a compliant
- PCI Express® Mini Card Specification Revision 1.2 compliant
- Expands two external full-size mPCIe slots from an existing PCIe slot
- Expands one external iDoor I/O module plate from existing PCIe plate
- Supports Microsoft® Windows® XP/2003/Vista/7/8
- Supports Control DIN-Rail PC UNO-1300/1400 series
- Supports Control Cabinet PC UNO-3200/3300/3400 series

Introduction

The PCM-28 series is categorized as expansion kits providing solutions for multi-application from Advantech iDoor technology. They are all compatible with the PCI Express Mini Card Specification Revision 1.2 including Isolated / Non-Isolated RS-232/422/485 communication cards for automation control, Wi-Fi/3G/GPS/GSM/LTE wireless communication models for data exchange during the management and machine level of automation application, Zigbee module as an IoT terminal or controller and PoE function for smart camera in detect inspection application of production. This is a flexible design that enables customers to customize their features which meet iDoor Technology.

Specifications

General

- **Bus Type** PCI Express® Rev. 2.0 compliant
- **Interface** PCI Express® Mini Card Specification Revision 1.2 compliant
- **Certification** CE, FCC class A
- **I/O Connectors** 1 x PCI Express Male, 2 x mPCIe Female
- **Dimensions** 173 x 120.8 x 21.6mm (6.8" x 4.8" x 0.9")
- **Power Consumption** +3.3V @2.2A; +12V @500mA; +1.5V@ 375mA

Software

- **OS Support** Windows® XP/2003/Vista/7/8

Environment

- **Humidity (Operating)** 5-95% RH, non-condensing
- **Operating Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)

User scenario

2-Slots mPCIe expansion

Dimension

Module
PCM-28P1AD
PCM-28P1BK

21.6   172.97   120.8
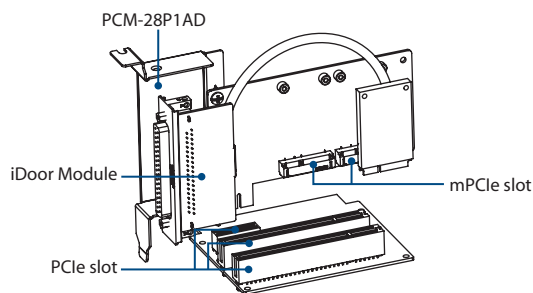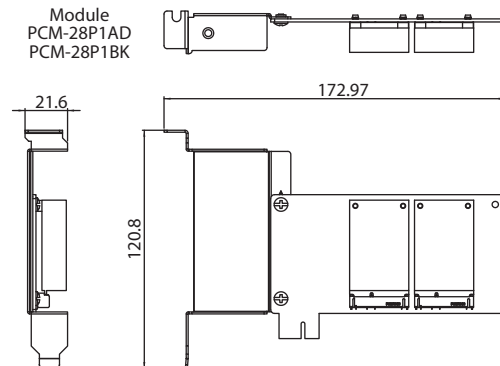
Ordering Information

- **PCM-28P1AD-AE** PCIe to mPCIe, mPCIe Slot x2, iDoor PCIe I/O plate x1
- **PCM-28P1BK-AE** iDoor PCIe I/O Plate

iDoor with PCIe I/O Plate
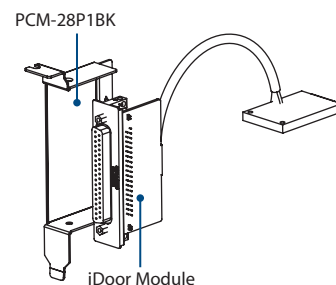
Accessories

Mounting Kit

UNO-2000 Series VESA Mounting Kit
UNO-2000G-VMKAE

Features
- Dimensions: 270 x 162 x 11 mm (W x H x D) (Only extension kit)
- Supports VESA 75 and 100 monitor

Supported Models
- UNO: All UNO-2000 series
- FPM : All FPM 12", 15", 17", 19" models

Ordering Information
- UNO-2000G-VMKAE

FPM Series Product

UNO-2000G-VMKAE

UNO-2000 Series Product
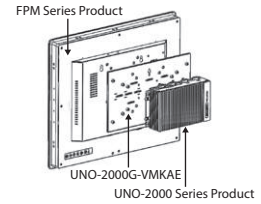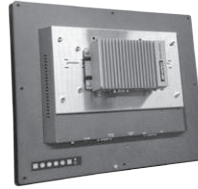
UNO-2000 Series Din-Rail Mounting Kit
UNO-2000G-DMKAE

Features
- Dimensions: 66 x 48.5 x 9 mm (W x H x D)

Supported Models
- UNO-2272G
- UNO-2362G
- UNO-2483G/2473G
- UNO-2483P

Ordering Information
- UNO-2000G-VMKAE

UNO-2000 Series Product

DIN-Rail
UNO-2000G-DMKAE
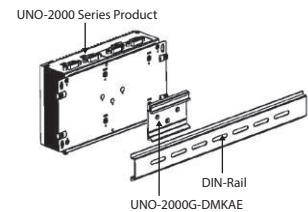
UNO-3000 Series Stand Mounting Kit
UNO-SM83

Supported Models
- UNO-3083G
- UNO-3085G

Ordering Information
- UNO-SM-83

UNO-3083G/3085G

UNO-SM83
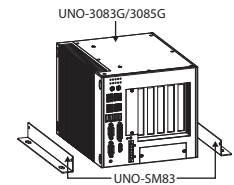
UNO-3000 Wall Mounting Kit
UNO-WM83

Supported Models
- UNO-3083G
- UNO-3085G

Ordering Information
- UNO-WM83

UNO-WM83

UNO-3083G/3085G
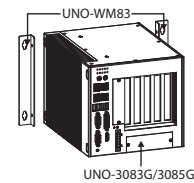
Power Adapter/ Power Cord

	Industrial Grade			Commercial Grade	
	Part Number	Description		Part Number	Description
Power Adapter	1757002321	63WC to DC UNO series power adapter		PWR-249-AE	65W AC to DC power adapter
				PWR-244-AE	96W AC to DC power adapter
				1757002161	150W AC to DC power adapter
	Features - Input voltage: 90 ~ 264 V_{AC}, 47 ~ 63 Hz - Output Voltage: 24 V_{DC} - Operating Temperature: -20 ~ 70°C			**Features** - Input voltage: 100 ~ 240 V_{AC}, 50 ~ 60 Hz - Output Voltage: 19 V_{DC} - Operating Temperature: 0 ~ 40°C	
Power Cable	1702002600	Power Cable US Plug 1.8 M		1700001524	Power cable 3-pin US type 1.8 M
	1702002605	Power Cable EU Plug 1.8 M		170203183C	Power cable 3-pin EU type 1.8 M
	1702031801	Power cable UK Plug 1.8 M		170203180A	Power cable 3-pin UK type 1.8 M
	1700000596	Power Cable China/Australia Plug 1.8 M		-	-

ADVANTECH | **Embedded Automation Computers**

DIN-Rail IPCs

To view all of Advantech's Programmable Automation Controllers & I/O Modules, please visit www.advantech.com/products.

DIN-Rail IPCs Overview

Introduction

Advantech offers PAC solutions designed for industrial automation applications which combine the openness and flexibility of PCs with the reliability of traditional automation controllers, such as PLCs. Advantech's offerings include the APAX series, ADAM-5000 series, and Embedded Automation Computers, utilizing sophisticated thermal designs to ensure the system stability. APAX controllers support Windows CE, Windows XP Embedded and Windows 7 operating systems. Advantech's DIN-Rail IPCs are ideal platforms to implement in diverse applications, such as power/energy, transportation, machine automation, factory automation, building automation, facility management system, environment monitoring, and more.

Real-time DIN-Rail IPCs: APAX Series

APAX series are Ethernet-enabled controllers allowing users to deploy I/O modules in flexible expansion combinations, like direct stack or daisy-chain. The control performance and functionality are not only better than PLCs, but also better than most PC-based controllers. Features including versatile CPU modules, I/O modules designed as reliable as PLC I/Os, high density I/Os with LEDs, hot swap and stackable functionality are delivered. Both C/C++ and .NET library, and IEC 61131-3 languages are provided as programming tools.

Data Acquisition DIN-Rail IPCs: ADAM-5000 Series

ADAM-5000 series are modularized I/Os to be inserted on backplanes with fixed slot numbers. Leveraging Advantech's rich experience in industrial data acquisition applications, ADAM-5000 offers a compact control system. Inheriting the reliability and robustness of a PLC system, ADAM-5000 offers the openness and flexibility of a PC, including computing power, networking and storage capability. Both C/C++ and .NET libraries and IEC 61131-3 languages are provided as programming tools.

Automation Controllers

Advantech's Embedded Automation Computers are designed to fulfill the needs of mission critical automation applications. Their embedded design, industrial automation features and advanced computer technology deliver robustness, reliability and flexibility to satisfy customers who are looking for a rugged and compact computing platform. They support various interfaces to integrate with other devices, such as Ethernet, RS-232/422/485, onboard I/O, extension PC card slots, CAN-bus and more. Through standard Ethernet networking, these computers can link to Advantech remote I/O solutions, such as APAX-5000 high density I/O (through APAX-5070 Modbus/TCP coupler module) or ADAM-6000 series compact modules, to get data and perform control tasks.

Control System Architecture
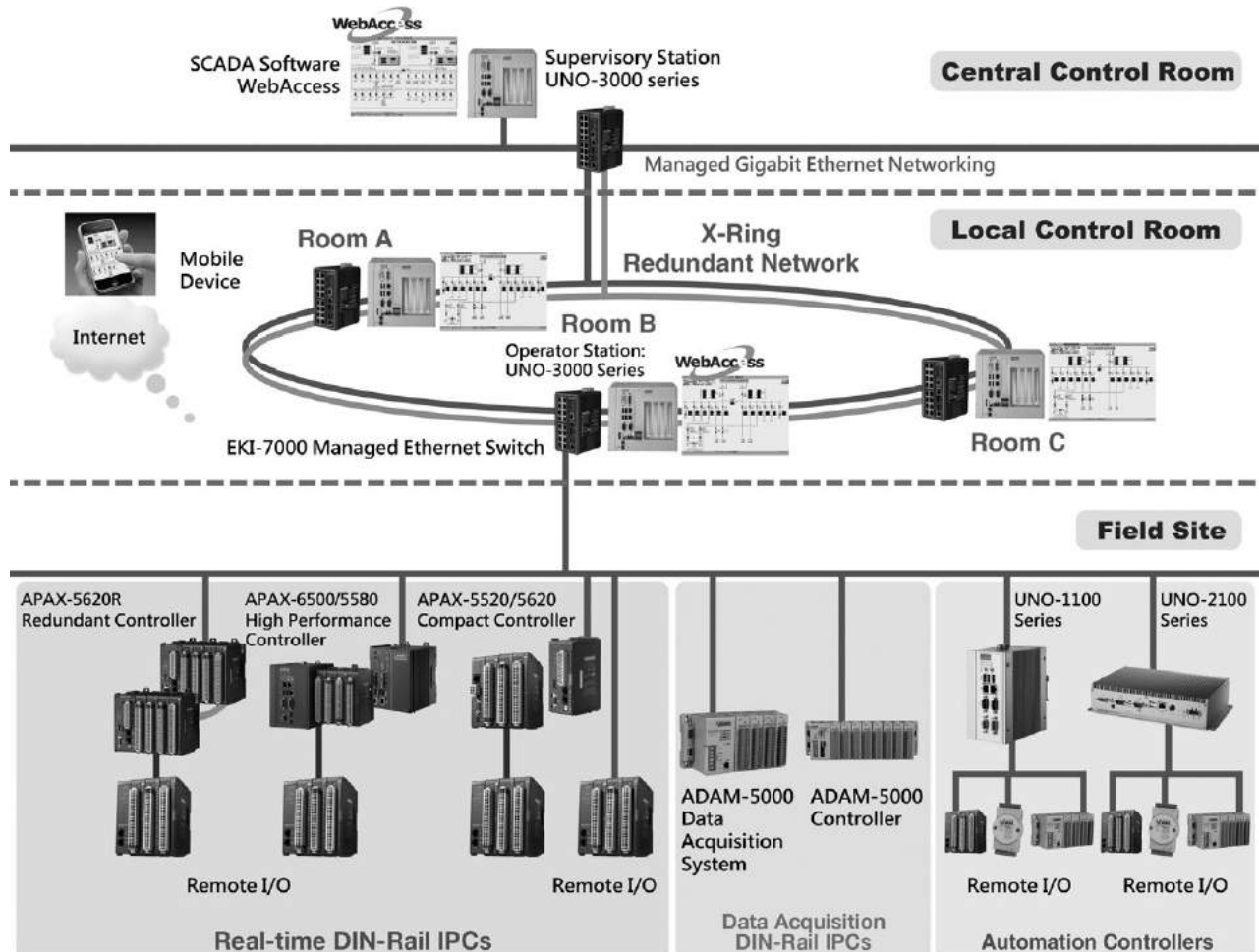
Real-time I/O Control Suitable for Multiple Domain Applications

Currently most PC-based controllers face one major challenge, especially DIN-Rail IPCs systems, which is real-time I/O control. Performance is severely hampered when I/O points increase because the access time also increases, which impacts control precision as well.

Food and beverage companies face shorter production runs on a wide range of products for different vendors, while automotive companies are dealing with changes in customer preference, aggressive competition and rising fuel costs. These industries require a mix of discrete, batch, process and motion control solution. In the past, these applications forced engineers to use multiple controllers: a PLC for discrete control, a motion controller for multi-axis control, and a distributed control system or loop controller for process applications, which has proven time consuming and costly. Advantech DIN-Rail IPCs feature the ability to handle all these tasks with a single control system.

The result is shortened development time through reusable programming tools, lower maintenance costs through reduced parts, better information sharing among applications, and fewer personnel support throughout the plant.

Information Processing and Networking Capabilities

Advantech DIN-Rail IPCs not only provide excellent real-time I/O control, but also another key benefit for automation applications, information processing. With the ability to perform field operations, data exchanges and valuable information collection, this series is able to execute efficient decision-making. Information processing includes data logging and analysis with storage devices like SD or CF cards, recipe management for batch control, and database exchanges through SQL and OPC. Furthermore, implementing HMI software enables local operation.

This improves control system networking tremendously, allowing the network to share a common protocol at the device level, control level, and information level. It provides the ability to move information from the device level to executives at the enterprise resource planning (ERP) level without new protocols or drivers.

Advantech DIN-Rail IPCs feature a PC-based architecture, delivering significant networking benefits for manufacturers by USB, RS-232, RS-422/485 and Ethernet interfaces. Users can connect to field devices through serial or USB interface to satisfy any kind of application. The Ethernet interface allows users to effectively manage I/O control and information flow throughout the manufacturing and IT enterprise. Leveraging the high computing power of Advantech DIN-Rail IPCs also allows networks to communicate seamlessly on the factory floor with other common sets of IT capabilities like video, data and telephones. Easy access to such information is critical to making decisions about the capacity of an enterprise.

Scalability

In the past, many PLCs required users to learn different programming software and specify networks depending on the size and complexity of the application. Advantech DIN-Rail IPCs allow users to more closely match the controller to application needs without compromising functionality or learning a new control system. Such scalability reduces the headaches and high costs associated with system redesign, lack of program re-use, and re-training.

Software

Advantech DIN-Rail IPCs support software to satisfy both PC-based and PLC-based programmers. Leveraging IEC 61131-3 SoftLogic programming environment, PLC programmers can take PLC operations to the next level in many areas, such as communication, information processing, enterprise level database integration, and user interface development.

For PC-based programmers, Advantech offers an open platform solution, with C/C++ and .NET libraries for I/O control and communication functionality. They can satisfy programmers familiar with high level programming languages like Microsoft Visual Studio .NET. In addition, several convenient utilities are offered to save development time.

SoftLogic Control Software

SoftLogic Software

For traditional PLC platforms, the development environment will vary depending on the PLC supplier and they are not compatible with each other. PAC platforms adapt the international standard IEC 61131-3, established to standardize multiple languages, sets of instructions and different concepts existing in the field of automation systems. Therefore, these programming languages which comply with the IEC 61131-3 standard, usually called SoftLogic software, enable users to leverage PLC-world typical programming interface. But they can also benefit from a portability of all platforms and reduce costs of building automation systems.

Advantech SoftLogic Software: KW MultiProg and ProConOS

Advantech delivers KW-Software's MultiProg development environment and ProConOS runtime kernel for various control platforms, including ADAM-5510 series, ADAM-5550 series and APAX series controllers. KW MultiProg supports all IEC-61131-3 programming language as following:

- Instruction List (IL)
- Structured Text (ST)
- Sequential Function Chart (SFC)
- Function Block Diagram (FBD)
- Ladder Diagram (LD)

Graphical Editor

Programmers can work with SFC, FBD, and LD programming languages. The editor supports the mixing of them in a single worksheet. The graphical editor allows the completely free placement of objects. The Edit Wizard helps you when inserting and replacing code elements in worksheets. You can insert keywords and statements, operators, functions and function blocks with the help of the Edit Wizard. In addition, the Wizard simplifies the declaration of own data types.

Text Editor

With the text editor, you edit and debug the code in IL and ST programming and define user-defined data types. IntelliSense automatically completes your variable names, structure elements and function block parameters.

Variable Grid Editor

In the variables grid, each line represents the declaration of a variable or FB instance. For an optimal overview, variables can be divided into different groups. The attributes of each variable/instance are defined in the respective table columns either by entering or selecting a combo box entry. The variables editor prevents a number of syntactical declaration errors and makes declaration easy and clear.

KW MultiProg has several features which can save your development time and well manage your complicated project:

Project Template

A new project can not only be created with the Project Wizard in MultiProg, but also based on a project template. Owing to the practice-orientated template management, you can not only access supplied default templates, but save each own project as template.

Cross-Compiling

The basic languages of the IEC 61131-3 standard, i.e. FBD, LD and IL, can be cross-compiled to each other including their comments. Program code which has been written in ST can be compiled to any of the three basic languages.

Password Protection

You can protect complete subtrees or individual project nodes in the project tree with a password. Access rights can be restricted for editing the project structure, opening and writing worksheets, downloading to individual configurations or resources and debugging. Each user has to log in using the valid password in order to get full access to a protected project.

Multi-user Feature

The Multi-user feature provides safe access to project source files while several users are working on the same project at the same time. In order to provide a safe and fast development environment for multiple users, the project is saved as server project on a server PC in the network. Each user can create a client project on his local PC for editing. The respective nodes in the project tree of the client project must be checked out, which means that no other user has write access for these data any longer.

Online Assistance in Multiple Languages

The software includes online help systems and documentation, available in English, German, French, Spanish, Japanese and Chinese.

Offline Simulation Tools

Program simulation is the best debug function for software developers. Before the program is downloaded into the controller, programmers can use this function to simulate programs. The easy-to-use 32 bit simulation offers fast and real-time multitasking test environment. The image below is of the simulation tool function and program with I/O status monitoring. Programmers can set the simulation value to AI or DI channels for checking the program before downloading. By simply clicking on a green input point (LED) you activate a simulator input. The output LEDs represent the actuated signal outputs in the same way.
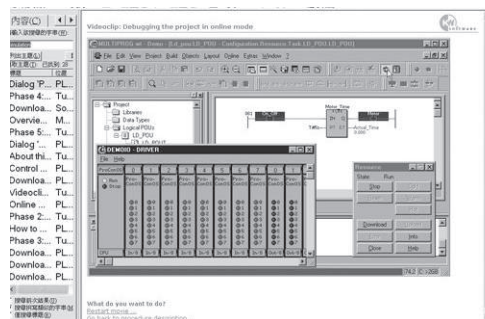
▪ Logic Analyzer

The Logic Analyzer is a powerful tool for recording variable values in online mode and representing them in a graph. Using the results delivered by the analyzer, you can evaluate if the program runs as expected.
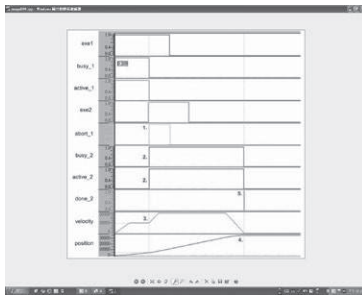
▪ Advantech Advanced Function Blocks

To satisfy automation applications, Advantech also add some add-on features for various dedicated control and automation applications:

- ▪ I/O Function Blocks: Used to control I/O with Advantech DIN-Rail IPCs. Including AI/O read FB, AI/O write FB, DI/O read FB, DI/O write FB, I/O error FB.
- ▪ SQL Database Function Blocks: Used for data log and analysis.
- ▪ Scheduling Function Blocks: Used for time scheduling control in building automation and devices schedule control applications.
- ▪ Email Function Blocks: Used for event notification and remote service applications.
- ▪ Modbus Communication Driver:

Advantech has provided an interface to monitor and control tags. This interface is accessible via Modbus/TCP as well as Modbus/RTU .The APAX controller can be treated as a Modbus Slave. The APAX Controller reserves approximately 128K Bytes memory space for Modbus use. This shared memory block can store user's data and exchange the data through Modbus/TCP and Modbus/RTU protocol with a HMI/SCADA software.
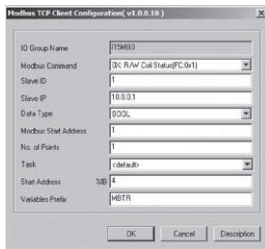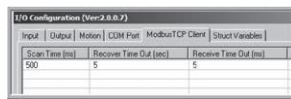
Modbus TCP Input   **Modbus/TCP Client General Settings**

▪ Auto-Tuning PID Function Blocks

PID function blocks provide auto-tuning functionality. This function block makes use of Proportion, Integral, and Derivative calculations to provide a control cycle function to implement modulation control, and automatically find the optimized P, I, and D parameters.

Using this control function, user can save more time on process control commissioning duty. The totally recommended PID are 32 loops, depending on customer's process application. For the flow and pressure control applications, we recommended up to 16 PID loops.
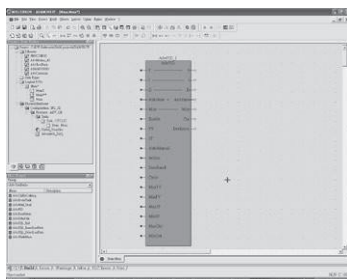
▪ Online Change

It is not acceptable to stop a machine and shut down processes in order to carry out maintenance work. Not to mention the difficulties that occurs during the debug phase, when constant switching between development and online mode is necessary. Changes of current program can be downloaded to the targeted Advantech DIN-Rail IPCs after compilation and commissioned without having to stop the controller and program execution. This feature enables controller to switch between two process cycles from the "old" to the "new" code after downloading the modified program.

▪ Backup Function Blocks

APAX-5000 series delivers system backup functionality. To leverage this functionality, two controllers with the same control program, are installed in one system. After both controllers' backup function is enabled, the APAX-5000 system will automatically delegate one of the two controllers as the master controller. The control program should use the function block "AdvRdSysActiveState" to know if its controller is the master controller currently, by the parameter Value. If the Value responses "True", it means the controller is master controller, then the program should execute the control algorithm. If the Value responses "False", it means the controller is backup controller, then its program should do nothing, and simply checking if the master controller is still alive periodically. When it detect the master controller lost, it should executing the control algorithm, making it become the master controller.
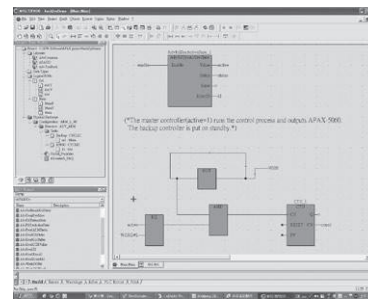
Ordering Information

- ▪ **MPROG-PRO535E**   KW Multiprog Pro v5.35 (128k bytes I/O, Win7 support)

PC-based Programming Software

PC-based Programming Software

Advantech DIN-Rail IPCs offers the seamless software integration for automation application. Regarded as SoftPLC, Advantech DIN-Rail IPCs not only leverage KW-Software including LD/FBD/IL/ST and SFC, but also empower many application-oriented & practice-oriented function blocks to different domain fields, such as batch control for food/beverage, auto-tuning PID for temperature control in EFMS, PLCOpen-compliant motion control blocks for a variety of trajectory control and positioning purposes in machine automation. Multi-tasking, runtime error reports and operating mode chances are also possible for DIN-Rail IPCs applications.

For PC-based users, Advantech also offers the .NET function library. System integrators can benefit from flexibility to integrate I/O control, motion control, industrial communication protocols and data process/exchange, database access, HMI interface and SCADA. Plenty of C/C++ and .NET examples save programmer learning time, helping save programmers' development effort and shortening time to market.

.NET and C/C++ Library

Advantech's DIN-Rail IPCs series solution offers a complete PC-based platform with Application Programming Interface (API). With C/C++ libraries and .NET class libraries provided by Advantech, PC-based programmers can develop their own programs for industrial control and automation tasks, involving I/O control, system backup function, communication, SQL and scheduling, even integrated with HMI/SCADA interface.

Modbus Server

Advantech's PAC series offers Modbus/RTU and Modbus/TCP for data exchange purposes. Advantech offers a series of API, including Modbus server/client configuration, easy data access function and callback function for multithread event handling. Plenty of samples programs can help you to easily set up the Modbus communication. Besides, APAX-5570 series and APAX-5520 controller has built-in Modbus server, so any Modbus client (such as HMI) can access to APAX I/O without writing programming.
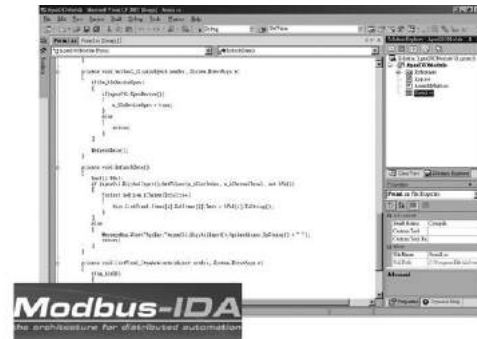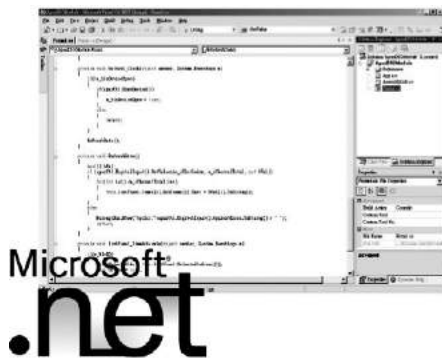
DiagAnywhere – Remote Maintenance Software

DiagAnywhere, an abbreviation of "Diagnostic Anywhere", is a networking solution for remotely monitoring and controlling APAX controllers through Windows-based operating systems. It includes the utility on the client side and the server on APAX controllers. Any computer installed with the utility can connect to APAX controllers, seeing what's happens on the controller and performing remote control. It is very convenient that the engineer doesn't need use a screen to operate the controller in the field, and allows them to maintain the system on the remote site. One DiagAnywhere client can monitor and control up to 16 target controllers simultaneously. This useful software tool also supports remote screen snapshots, remote screen recording, file upload and download between utility (on the client computer) and server (APAX controller), favorite devices grouping to manage system more easily, and authentication functionality. All these features help users save maintenance cost and effort.
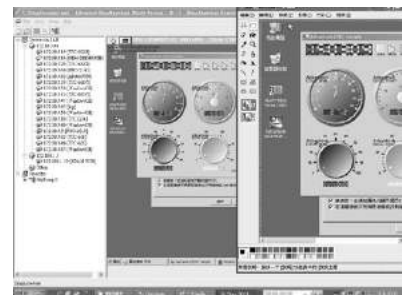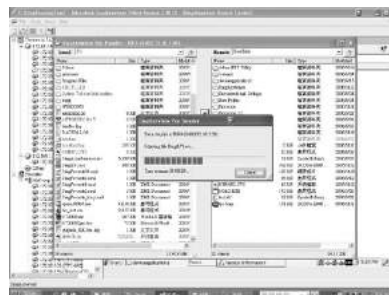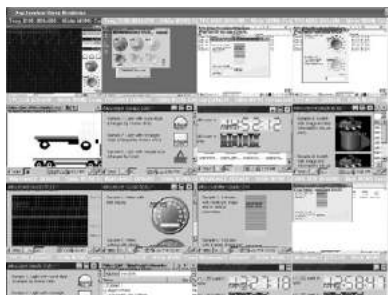
Batch Control Solution

Introduction

The batch control process involves a sequence of metal treatment, semiconductor crystal silicon growing, chemical or biological processes for the conversion and transport of material. The manufacturing processes can be classified as continuous and discrete control manufacturing and be processed step by step in each processes equipment. For example, a typical application is a metal heating treatment furnace: in order to convert metal ingredients for an industrial application, the metal heating process is actioned by different temperature control Set Points (SP) by a time-based, ramp/soak pattern of a PID control loop SP and in each heating period, the metal ingredients will be changed by different temperatures and other conditions.

To classify these industry applications, we call them Batch Control Industries. The control application of the manufacturing process is a combination of continuous and discrete controls. All of these manufacturing processes are time-based flow processes. The control functions are included in a PID closed-loop control that is a continuous process control function. The PID SP pattern generation function is a typical batch control function. The other is a discrete control for logic and sequence control function. Some of the applications need recipe controls and report management.

Target Applications Furnace

Furnace Applications	Chemical Applications	Healthy Applications
Silicon Growing Furnace	Rubber Process	Pharmaceutical
Metal Heat Treatment Furnace	Dyeing Machine	Food & Beverage
Vacuum Furnace	Plastics Process	Bio-chemical Process
Printed Circuit Board Press	Glue Process	

Batch Control Function Highlight

Typical Process/Production Line Diagram

Advantech's batch control system focuses on a single path batch manufacturing process equipment, e.g. a heating treatment furnace for the metal used in semiconductors. Plastic and rubber manufacturing equipment, printed circuit board (PCB) manufacturing equipment or reactors for food & beverage applications. Main application functions focus on:

Process Control Functions
- Auto-tuning PID Function
- Temperature Control
- Air/Fluid Ratio Function
- Ramp/Soak Control

Motion Control
- Position & Speed

Recipe Management
- Process Parameter Configuration

Batch Report
- Daily, Weekly, Monthly, Yearly
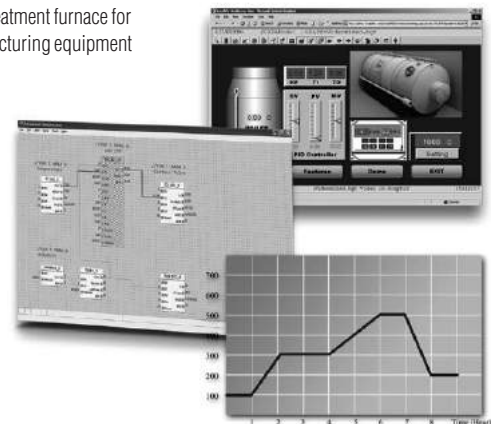
Key Features

Guaranteed Real-time Performance

APAX I/O local bus ensures deterministic control. Contributed by the dedicated Digital Signal Processor (DSP) which handles I/O data process without controller's CPU resource, the I/O scan rate can be maintained within 1ms, regardless of the number of I/O points. Programmers can concentrate on their application program development, and the APAX system can perform real-time I/O access automatically.

Flexible Expansion Architecture

Through expansion ports on backplanes and standard Ethernet cables, a remote expansion with localbus speed can be built, and the distance can be up to 100m. A standard ethernet switch can be used between two backplanes, so line, tree or star topologies can be built for I/O expansion - all with fast local-bus speed. When fiber optic ports are available, the distance can be longer.

Hot-swappable I/O

APAX backplanes carry communication and power to I/O modules. With a special design, the I/O modules can be hot-swapped when the system is powered-on and running. Engineers can easily change modules without shutting down the system thereby saving system management costs.

Fail Safe Value

System reliability is critical for batch control applications. APAX output modules feature fail safe value settings, meaning when modules lose communication to the controller, all output channel values will be set as the pre-defined value. This can eliminate risks owing to system communication issues.

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

APAX Series Overview

Advantech's New Generation DIN-Rail IPCs - APAX Series

APAX series, the new DIN-Rail IPCs from Advantech, integrates control, information processing and networking in a single platform. By leveraging the latest automation technology, APAX series offers a unique system architecture, providing dual controllers for different tasks, same I/O with changeable controllers, and flexible I/O expansion with deterministic performance. All these features make Advantech's DIN-Rail IPCs more reliable, scalable and flexible, satisfying various complicated control and automation applications.

▶ Dual Controllers for Different Tasks

Controller for HMI/SCADA

One controller focuses on I/O processing, while another controller can execute other tasks such as HMI/SCADA, database, recipe, image processing, etc. This architecture ensures system reliability since I/O processing won't be affected by other tasks.

▶ Changeable Controllers and Couplers

APAX-5070 Coupler

APAX-5000 I/O

APAX-5520 Controller

APAX-5620

APAX-5580
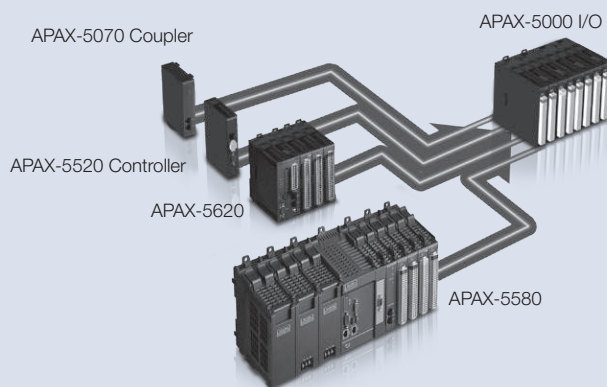
APAX I/O modules can combine different controllers or couplers to satisfy different applications. Using different couplers, I/O modules can link to various real-time Ethernet and fieldbus systems. It saves investment in I/O and offers scalability for future needs.

▶ Flexible Expansion Topology

Star Topology

Line Topology
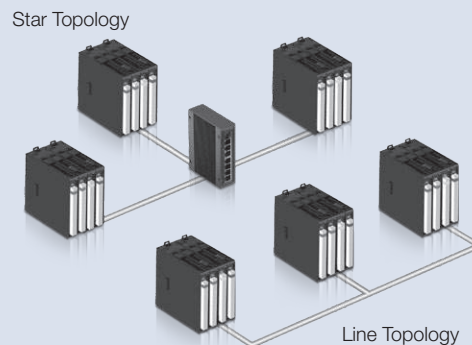
All APAX I/O modules are inserted on the backplane. Through the expansion port and Ethernet cable, different backplanes can be connected. This decentralized architecture retains high-speed data transfers, so the distributed I/O modules provide real-time performance. Almost any topology, such as line, tree or star, can be easily established. The hot swap capability is also available for remote expansion I/O modules.

APAX System Architecture

Introduction

To simplify the system configuration, Advantech's new APAX-6000 and APAX-5000 series provide easy and flexible way to setup different functions and configurations. There are multiple APAX series system combinations that can be selected to develop reliable control systems as detailed below.

Application Ready High Performance DIN-Rail IPCs

Advantech's APAX-5580 and 6572 series offers several high performance controllers with Atom and Celeron M grade CPUs. These controllers benefit from the high throughput, openness, flexibility and connectivity brought by PC-based architectures. Contributed by excellent heat dissipation technology with no hard disks, they deliver great system reliability. Various peripheral interfaces such as LAN, USB, DVI, audio, RS-232, RS-422/485, etc, are provided. These high performance DIN-Rail IPCs are suitable for many complex control applications. Besides, its powerful integration ability makes it an ideal platform to integrate video, audio, HMI/SCADA software, database, data processing into one single solution.
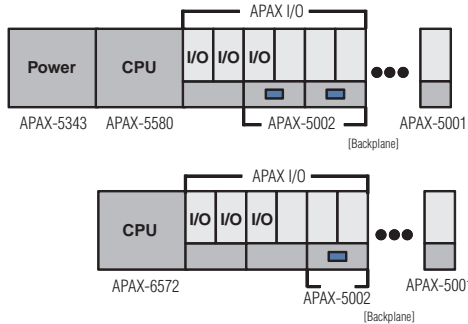
Robust, Compact DIN-Rail IPCs

APAX-5620 series controllers offer a compact size without fans. These controllers have no rotating parts, helping further increase system reliability. APAX-5520/5620 features a VGA interface, enabling local displays, and its RS-485 and LAN ports offer communication ability with Modbus protocol. CF slot and battery backup RAM can be used for data storage. These features make APAX-5520/5620 as compact and robust as a PLC, but with enhanced displays, connectivity, and storage.
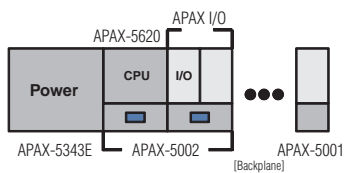
Redundant System

With the data synchronization, the secondary controller can take over the control tasks at the same position which primary fails within a very short time. Depending on customers request , the power supply can be separated to increase the availability.
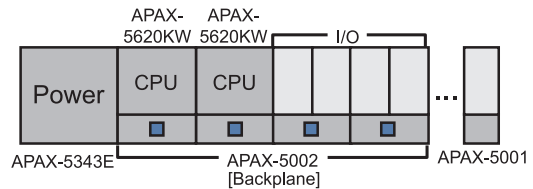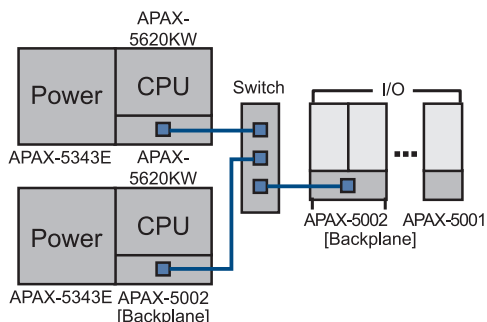
Scalable Systems with Remote I/O

For different fieldbus or real-time Ethernet networks, such as Modbus/TCP, Ethernet/IP, PROFINET, etc, APAX series offers different kinds of couplers for communication. Controllers, HMI, and computers in the same network can access APAX I/O modules through the coupler. Not having to change I/O modules for different fieldbus or real-time Ethernet networks helps ensuring current I/O modules' investment for future demands. These couplers feature daisy-chain design, making installation easier.
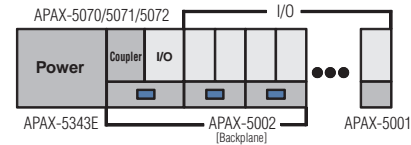
Reliable Backup System

APAX-5000 series delivers system backup functionality to significantly decrease the risk that the system will fail when the controller crashes. To leverage this, two controllers with the same control program are installed in one system. After both controllers' backup functions are enabled, APAX-5000 will automatically delegate one controller as the master controller.

The master controller will run the control program to execute the control process, while another controller (the backup controller) is put on standby. The master controller periodically sends live messages to the backup controller. If the backup controller does not receive a message from the master controller, it will automatically become the master controller and restart the control process.

If the master controller is switched, it means there was an error happening on the previous master controller. Therefore, engineers can repair or change the previous master controller and re-enable it as the backup controller. Then if the new master controller fails, the new backup controller will automatically take over the control once again. This mechanism ensures the control system will continuously run the control process.

NEW   NEW
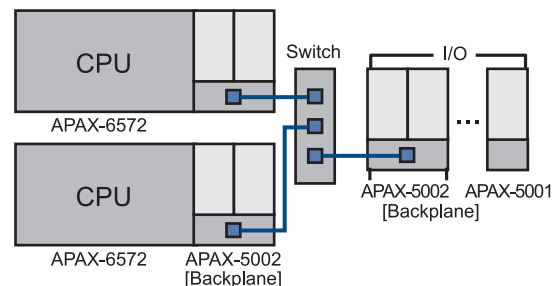
System	APAX-5520	APAX-5620	APAX-6572	APAX-5580
CPU	XScale PXA270 520 MHz		Intel Atom D510 1.66 GHz	Intel Core i7-4650U 1.7GHz Dual Core Intel Core i3-4010U 1.7GHz Dual Core Intel Celeron 2980U 1.6GHz Dual Core
Memory	Flash 32 MB, SDRAM 64 MB		2 GB DDR2 DRAM	4GB DDR3L SDRAM
Storage	1 x CF slot		1 x CF slot (internal)	1 x mSATA slot 2 x SD card slots
Local Display	VGA		VGA	VGA
USB Ports	1 x USB 1.1		4 x USB 2.0	2 x USB 2.0, 2 x USB 3.0
Audio	-		Mic in, Line in, Line out	Line Out
Cooling System	Fanless		Fanless	Fanless
Power Input	18 ~ 30 V_{DC}		9 ~ 36 V_{DC}	24V ± 20%
Diagnostics LED	Power, Battery, Run, Error		Power, IDE, LAN, Serial	PWR, RUN, SATA, UPS, ERR, Over Temp.,Abnormal Volt, SYS Recovery
Real-time Clock	Yes			
Watchdog Timer	Yes			
Control Software	C/C++ library and .NET class library for C and .NET programming environment KW IEC 61131-3 SoftLogic programming tool			C/C++ library and .NET class library for C and .NET programming environment CODESYS IEC 61131-3 SoftLogic S/W
Local Real-time I/O Modules	32 (max.)*			
Digital I/O Points	2048 (max.)			
Analog I/O points	512 (max.)			

Communication (Ethernet)	LAN Ports	1	2	3	2
	Speed	10/100 Mbps		10/100/1000 Mbps	10/100/1000Mbps
	Protocol	Modbus/TCP			
Communication (Serial)	COM 1	RS-485	RS-485	RS-232/422/485	RS-232/422/485
	COM 2	-	RS-485	RS-232/422/485	-
	COM 3	-	-	-	-
	CAN Bus	-	2	-	-
	Protocol	Modbus/RTU, CANopen (APAX-5620 only)			
Isolation	Communication	2500 V_{DC} (RS-485)	2500 V_{DC} (CAN & RS-485)	-	-
Environment	Operating Temperature (when mounted vertically)	-10 ~ 55°C		-10 ~ 50°C	-10 ~ 60°C
	Storage Temperature	-40 ~ 70°C			
	Relative Humidity	0 ~ 95 % (non-condensing)			
	Vibration Protection	IEC 60068-2-64/60068-2-6: 1 Grms @ 5 ~ 500 Hz (Random, operating) 2 G @ 5 ~ 500 Hz (Sine, non-operating)		IEC 60068-2-64: 2 Grms @ 5 ~ 500 Hz (Random, operating)	IEC 60068-2-64: 2 Grms @ 5 ~ 500 Hz (Random, operating)
	Shock Protection	IEC 60068-2-27: 20 G @ wall mount		IEC 60068-2-27: 50 G @ wall mount	IEC 60068-2-27: 50 G @ wall mount
Power Supply Module (Optional)		APAX-5343E			
Page		13-19	13-19	13-15	13-16

*APAX DI/O modules can use ID numbers 0 ~ 31, while AI/O modules and counter modules can only use ID numbers 0 ~ 15

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16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

APAX I/O Module Selection Guide

Module Name	APAX-5013	APAX-5017	APAX-5017H	APAX-5018	APAX-5028
Description	8-ch RTD Module	12-ch AI Module	12-ch High Speed AI Module	12-ch Thermocouple Module	8-ch AO Module
Analog Input — AI Channels	8	12	12	12	-
Input Type*	RTD (2-wire or 3-wire)	V, mV, mA	V, mV, mA	V, mV, mA, Thermocouple	-
Sampling Rate (Samples/second)	50 Hz filter: 8 (Total**) 60 Hz filter: 10 (Total**)	12/120 selectable (Total**)	1000 (per channel)	12 (Total**)	-
Input Resolution	16-bit	16-bit (voltage) 14 ~ 15-bit (current)	12-bit	16-bit (voltage) 14 ~ 15-bit (current, thermocouple)	-
Input Accuracy	±0.1 % of FSR	±0.1 % of FSR (Voltage) ±0.2 % of FSR (Current)	±0.1 % of FSR (Voltage) ±0.2 % of FSR (Current)	±0.1 % of FSR (Voltage) ±0.2 % of FSR (Current)	-
Voltage Input	-	±150 mV, ±500 mV, ±1 V, ±5 V, ±10 V	0 ~ 500 mV, ±10 V, 0 ~ 10 V	±50 mV, ±100 mV, ±500 mV, ±1 V, ±2.5 V	-
Current Input	-	±20 mA, 0 ~ 20 mA, 4 ~ 20 mA	0 ~ 20 mA, 4 ~ 20 mA	±20 mA, 0 ~ 20 mA, 4 ~ 20 mA	-
Direct Sensor Input	RTD (Pt-100, Pt-200, Pt-500, Pt-1000, Balco, Ni 518)	-	-	Thermocouple (Type J, K, T, E, R, S, B)	-
Wire Burnout Detection	All RTD range	4 ~ 20 mA	4 ~ 20 mA	4 ~ 20 mA and all Thermocouple range	-
Analog Output — AO Channels	-	-	-	-	8
Output Type*	-	-	-	-	V, mA
Output Resolution	-	-	-	-	14-bit
Output Accuracy	-	-	-	-	±0.1 % of FSR
Output Slew Rate	-	-	-	-	0.7 V$_{DC}$/μs (per channel)
Voltage Output	-	-	-	-	±2.5 V, ±5 V, ±10 V, 0 ~ 2.5 V, 0 ~ 5 V, 0 ~ 10 V
Current Output	-	-	-	-	0 ~ 20 mA, 4 ~ 20 mA
Short Circuit Protection	-	-	-	-	Yes
Fail Safe Value	-	-	-	-	Yes
General — Weight	170 g	170 g	175 g	170 g	175 g
Operating Temperatrure	-10 ~ 60°C (when mounted vertically)				
Storage Temperature	-40 ~ 85°C				
Relative Humidity (non-condensing)	5 ~ 95%				
Power Consumption (typical)	2.5 W @ 24 V$_{DC}$	4 W @ 24 V$_{DC}$	3.5 W @ 24 V$_{DC}$	3.5 W @ 24 V$_{DC}$	3.5 W @ 24 V$_{DC}$
Isolation between channels and backplane	2500 V$_{DC}$				
Power Supply Module (optional)	APAX-5343E				
Page	online	online	13-23	online	13-23

*Each channel can be configured with different type and range

**Sampling rate value depends on used channel number.

   Example: Using 6 channels on APAX-5017, sampling rate for each used channel will be 12/6 = 2 samples/second.

Module Name	APAX-5040	APAX-5045	APAX-5046/SO	APAX-5060	APAX-5080
Description	24-ch DI Module	24-ch DI/O Module	24/20-ch DO Module	12-ch Relay Module	4/8-ch Counter Module
Digital Input — DI Channels	24	12	-	-	4
Input Type	Sink or Source Load	Sink or Source Load	-	-	Source Load
Rated Input Voltage	24 V_{DC}	24 V_{DC}	-	-	24 V_{DC}
Input Voltage Range (signal "0")	-5 ~ 5 V_{DC}	-5 ~ 5 V_{DC}	-	-	0 ~ 3 V_{DC}
Input Voltage Range (signal "1")	15 ~ 30 V_{DC} -15 ~ -30 V_{DC}	15 ~ 30 V_{DC} -15 ~ -30 V_{DC}	-	-	10 ~ 30 V_{DC}
Rated Input Current	4.4 mA (typical)	4.4 mA (typical)	-	-	10 mA (typical)
Input Filter	3 ms	3 ms	-	-	3 ms
Over Voltage Protection	Yes	Yes	-	-	Yes
Counter Input — Counter Channels	-	-	-	-	8 (Up and Frequency mode) 4 (Pulse/Direction, Up/Down, A/B phase mode)
Rated Input Voltage	-	-	-	-	24 V_{DC}
Input Voltage Range (signal "0")	-	-	-	-	0 ~ 3 V_{DC}
Input Voltage Range (signal "1")	-	-	-	-	10 ~ 30 V_{DC}
Rated Input Current (signal "1")	-	-	-	-	5 ~ 15 mA (typical)
Counting Range	-	-	-	-	32-bit + 1-bit overflow/underflow
Counter Frequency	-	-	-	-	1 MHz (max.)
Counter Gate and Alarm Function	-	-	-	-	Yes
Digital Output — DO Channels	-	12	24/20	12	4
Output Type	-	Sink	Sink/Source	Relay (Form A, SPST)	Sink
Rated Output Voltage	-	24 V_{DC}	24 V_{DC}	250 V_{AC}, 30 V_{DC}	24 V_{DC}
Rated Output Current (signal "1")	-	0.5 A	0.5A/1A	5 A	0.5 A
Short Circuit Protection	-	Yes	Yes	-	Yes
Thermal Shutdown Protection	-	Yes	Yes	-	Yes
General — Weight	160 g	165 g	165 g	195 g	170 g
Operating Temperature	-10 ~ 60°C (when mounted vertically)				
Storage Temperature	-40 ~ 85°C				
Relative Humidity (non-condensing)	5 ~ 95%				
Power Consumption (typical)	2 W @ 24 V_{DC}	2.5 W @ 24 V_{DC}	2.5 W @ 24 V_{DC}	2 W @ 24 V_{DC}	2.5 W @ 24 V_{DC}
Isolation between channels and backplane	2500 V_{DC}				
Channel Status LED	Yes (per channel)				
Fail Safe Value	-	Yes (DO channel)	Yes	Yes	Yes (DO channel)
Power Supply Module (optional)	APAX-5343E				
Page	online	online	13-24	13-25	13-25

APAX Communication Module Selection Guide

Coupler Modules

Module Name		APAX-5070	APAX-5071	APAX-5072
Description		Modbus/TCP Communication Coupler	PROFINET Communication Coupler	EtherNet/IP Communication Coupler
Communication	Protocol	Modbus/TCP	PROFINET RT	EtherNet/IP
	Data Transfer Rates	10/100 Mbps	100 Mbps	10/100 Mbps
	Connected I/O Modules	32 (max.)*		
	Digital Signals	768 (max.)		
	Analog Signals	192 (max.)		
General	Connector	2 x RJ-45 (2-channel switch, share same IP address)		
	Topology	Line or star wiring		
	Operating Temperature	-10 ~ 60°C (when mounted vertically)		
	Storage Temperature	-40 ~ 85°C		
	Relative Humidity	5 ~ 95% (non-condensing)		
Page		13-22	13-22	13-22

*APAX DI/O modules can use ID number 0 ~ 31, while AI/O modules and counter modules can only use ID numbers 0 ~ 15

Communication Modules

Module Name		APAX-5490	APAX-5495	APAX-5090
Description		4-port RS-232/422/485 Communication Module	2-port CANopen Master Module	4-port RS-232/422/485 Communication Module
Serial Communication	Baud Rate	50 bps ~ 230.4 kbps	-	600 bps ~ 115.2kbps
	Data Bits	5, 6, 7, 8	-	8
	Stop Bits	1, 1.5, 2	-	1, 1.5, 2
	Parity	None, even, odd	-	None, even, odd
CANopen Communication	Data Transfer Rates	-	Max. 1 Mbits/s	-
Motion	Transmission Speed	-	-	-
	Slaves Number	-	-	-
General	Interface	4 x RS-232/422/485	2 x CAN Bus	2 x RS-422/485 2 x RS-232/422/485
	Connector	26-pin clamp-type terminal	DB9	26-pin clamp-type terminal
	Operating Temperature	0 ~ 60°C (when mounted vertically)		
	Storage Temperature	-40 ~ 70°C		
	Relative Humidity	5 ~ 95% (non-condensing)		
Page		13-18	13-18	online

Note: APAX-5090P, APAX-5095P and APAX-5202P can only be used by controller with a PCI interface

ADVANTECH | DIN-Rail IPCs

APAX-6572

Features

- Intel Atom D510 1.66 GHz CPU
- Onboard 2 GB DDR2 DRAM
- Backup system with two controllers (master and slave) to ensure continuous I/O control
- Expands I/O by connecting with APAX-5000 I/O modules
- Supports Windows WES2009 and Windows CE
- Provides C/C++ and .NET library for I/O control and communication
- Supports real-time control tasks under Windows CE through ProConOS
- 2 x RS-232/422/485 (automatic flow control)
- 3 x 10/100/1000 Mbps LAN, 4 x USB 2.0

RoHS COMPLIANT 2002/95/EC   CE FCC

Introduction

The APAX-6572 is a high performance controller with an Intel Atom D510 CPU. By installing Windows WES2009 or Windows CE operating system, it becomes an application ready platform. It is an ideal open control platform which can be combined with APAX I/O modules, and features flexible I/O expansion, real-time I/O control, and powerful computing and networking capability through various interfaces.

Specifications

General

- **Certification** CE, FCC Class A
- **Cooling System** Fanless
- **Mounting** DIN-rail, Wall mount (panel mount)
- **Dimensions (W x H x D)** 222 x 155 x 140 mm
- **Enclosure** Aluminum + SECC, ABS + PC (I/O)
- **Weight** 2.6 kg (APAX-6572)
- **Power Consumption** 35 W @ 24 V_{DC} (APAX-6572, Typical, Without I/O modules)
- **Power Requirement** 10 ~ 36 V_{DC} (e.g +24 V @ 1 A) (Min. 24 W), AT

System Hardware

- **CPU** Intel Atom D510 1.66 GHz
- **Memory** 2 GB DDR2 DRAM (onboard)
- **Battery Backup SRAM** 1 MB
- **Watchdog Timer** Programmable 7-tier event handler, from 1 ~ 255 seconds for each tier
- **LED Indicators** Power, CF, LAN (Active, Status), Serial (Tx, Rx)
- **Display** VGA (DB15 connector), up to 1600 x 1200 @ 85Hz
- **Audio** Line in, Line out, Mic in
- **Storage** 1 x internal Type I/II CompactFlash card slot

Software

- **Operating System** Windows WES2009, Windows CE
- **Control Software** C/C++ and .NET library with utility
  KW MultiProg (development), ProConOS (kernel)
- **Remote Management** Built-in Advantech DiagAnywhere agent
  Modbus/ASCII master/slave mode
  KW MultiProg (development), ProConOS (kernel)

I/O Expansion

- **Accompanied I/O slots** 4 x APAX/PCI combo slots
- **Connected I/O Modules** 32 (max.)*
- **Digital Signals** 768 (max.)
- **Analog Signals** 192 (max.)

Communication

- **Serial Ports** 2 x RS-232/422/485 (supports automatic RS-485 data flow control)
- **Serial Baud Rate** 50 ~ 115.2 kbps
- **LAN Ports** 3 x RJ-45 Ports, 10/100/1000 Mbps
- **USB Ports** 4 x USB 2.0

Environment

- **Operating Temperature** -10 ~ 50°C (when mounted vertically)
- **Storage Temperature** -40 ~ 70°C
- **Operating Humidity** 20 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)
- **Vibration Protection** 2 Grms @ 5 ~ 500 Hz
  (Random, operating, 1hr/axis)
  (Conforms to IEC 60068-2-64)

Ordering Information

- **APAX-6572** Intel Atom D510 1.66 GHz, 2 GB RAM Controller
- **PWR-244** Panel Mount Power Supply

PAC softlogic option (for CTOS only)

- **SQF-P10S2-8G-ETE** Suggested CF 8G CF NR, DMA (-40 ~ 85°C)
- **2070012262** WinCE image with KW support for APAX-6572
- **2010000007** License Agreement for KW ProConOS Embedded

PC-base controller option (for CTOS only)

- **SQF-P10S2-16G-ETE** Suggested CF 16G CF NR, DMA (-40 ~ 85°C)
- **2070012263** WES2009 MUI for APAX-6572

*APAX DI/O modules can use ID number 0 ~ 31, while AI/O modules and counter modules can only use ID numbers 0 ~ 15

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

APAX-5580

Intel® Core™ i7/i3/Celeron DIN-Rail PC Controller w/ 2 x GbE, 2 x mPCIe, VGA

Preliminary

SUSIÂccess RoHS COMPLIANT 2002/95/EC CE FCC

Features

- 4th Generation Intel® Core™ i7/i3/Celeron Processors up to 1.7 GHz with 4GB/8GB DDR3L Memory
- 2 x GbE, 4 x USB 2.0/3.0, 1 x RS-232 /422/485, 1 x VGA, Audio
- Dual power input and UPS support
- Compact with Fanless Design
- Supports Fieldbus Protocol by iDoor Technology
- 3G/GPS/GPRS/Wi-Fi Communication by mPCIe
- Chassis Grounding Protection
- LAN Redundancy (Teaming)
- Fault-Protected RS-485 Transceivers With Extended Common-Mode Range
- One button system recovery
- 10 year lifetime RTC battery

Introduction

Advantech's APAX-5580 is a powerful DIN-Rail PC Controller with an Intel Core i7/i3/Celeron CPU. It is the ideal open control platform to be combined with APAX I/O modules, and features flexible I/O expansion, real-time I/O control, network capability through various interfaces, and support dual power input and UPS module for robust power system. It also has a built-in the standard mini PCI express interface for wireless communication and Advantech's iDoor technology. The APAX-5580 is the best solution for data gateway, concentrator and data server applications, its seamless integration with I/O can save your costs and fulfill a diverse range of automation projects.

Specifications

General

Certification	CE, FCC
Dimensions (W x D x H)	128 x 106 x 110 mm
Form Factor	Regular Size
Enclosure	Aluminum Housing
Mounting	DIN-Rail
Weight (Net)	1.8 kg (4.0 lbs)
Power Requirement	24 V_{DC} ± 20%
Power Consumption	28 W (Typical), 72 W(Max)
OS Support	Microsoft® Windows 7/8, Linux Kernel 3.X

System Hardware

BIOS	AMI UEFI 128Mbit Flash BIOS
Watchdog Timer	Programmable 256 levels timer interval, from 1 to 255 sec
Processor	Intel® Core™ i7-4650U ULT 1.7GHz Haswell Dual Core, 4MB L2
	Intel® Core™ i3-4010U ULT 1.7GHz Haswell Dual Core, 3MB L2
	Intel® Celeron 2980U ULT 1.6GHz Haswell Dual Core, 2MB L2
System Chip	Integrated Intel 8 Series Chipset
Memory	On-board 4GB (8GB optional)
Graphics Engine	Intel® HD Graphics 5000/4400
Ethernet	Intel® i210-IT GbE, 802.1Qav, IEEE1588/802.1AS, 802.3az
	Intel® i218-LM GbE, Intel® AMT, IEEE1588/802.1AS, 802.3az
LED Indicators	LEDs for Power, battery, LAN (Active, Status), Tx/Rx and HDD
Storage	1 x mSATA, 1 x SD, 1 x SD (for OS backup)
Expansion	1 x Full-size mPCIe slot, 1 x Half-size mPCIe slot, mPCIe 2.0

I/O Interfaces

Serial Ports	1 x RS-232/422/485, DB9, 50~115.2kbps
LAN Ports	2 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000Base-T Fast Ethernet
USB Ports	4 x USB Ports (2 x USB 2.0, 2 x USB 3.0 compliant)
	1 x internal USB
Display	1 x VGA, supports 1920 X 1080 @ 60 Hz 24 bpp
Audio	Line-Out
Power Connector	Dual power input and UPS support
Grounding Protection	Chassis Grounding

Environment

Operating Temperature	- 10 ~ 60°C (-4 ~ 140°F) @ 5 ~ 85% RH with 0.7m/s airflow
Storage Temperature	- 40 ~ 85°C (-40 ~ 185°F)
Relative Humidity	10 ~ 95% RH @ 40°C, non-condensing
Shock Protection	Operating, IEC 60068-2-27, 50G, half sine, 11ms
Vibration Protection	Operating, IEC 60068-2-64, 2Grms, random, 5 ~ 500Hz, 1hr/axis (mSATA)

Ordering Information

APAX-5580-4C3AE	Intel Celeron 1.6 GHz with 4 GB memory, no external expansion slot
APAX-5580-433AE	Intel Core i3 1.7 GHz with 4 GB memory, no external expansion slot
APAX-5580-473AE	Intel Core i7 1.7 GHz with 4 GB memory, no external expansion slot

Accessories

APAX-5430	APAX Battery Module
APAX-5343	AC to DC APAX Power Supply
APAX-5402-E2A1AE	2 expansion slots with APAX Bus and PCI express
APAX-5402-E2A0AE	2 expansion slots with PCI express only
SQF-SMSM4-XG-S8E	SQFlash 820 series mSATA MLC 16/32/64/128G (-40~85°C)

Application Software

SUSIÂccess	Version : V3.0 or above An innovative remote device management software, allowing efficient remote monitoring, quick recovery & backup, and real-time remote configuration, to create a more intelligent and interconnected embedded computing solution.
WebAccess	Version : V7.1 or above WebAccess, as the core of Advantech's IoT solution, is full web browser-based software package for HMI and SCADA software. All HMI and SCADA software features including: Animated Graphics Displays, Real-time Data, Control, Trends, Alarms and Logs, are available in a standard web browser. WebAccess is built around the latest internet technologies. With its open architecture, vertical domain applications can easily be integrated.

APAX-5430
APAX-5435

SATA HDD module

mPCIe module to support iDoor

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
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17 RS-485 I/O Modules
18 Data Acquisition Boards

APAX-5430

FCC CE RoHS COMPLIANT 2002/95/EC

APAX-5435

iDoor FCC CE RoHS COMPLIANT 2002/95/EC

Specifications

General
- **Certification**   CE, FCC class A
- **Dimensions**   30 x 139 x 100 mm
  (W x H x D)
- **Enclosure**   ABS+PC
- **Weight**   165 g
- **Power Consumption**   2.5 W @ 24 V_{DC} (typical)

Function
- **Interface**   SATA
- **RAID**   Supports RAID 0/1
- **Power Supply**   5V:2A
                           3.3V:2A
- **Support SATA I/II/III 2.5" HDD/SDD**
- **Support Hot swap**

Environment
- **Operating**   -10 ~ 60°C
  Temperature   (when mounted vertically)
- **Storage Temperature** -40 ~ 70°C
- **Relative Humidity**   5 ~ 95% (non-condensing)

Ordering Information
- **APAX-5430**   SATA HDD Module

Specifications

General
- **Certification**   CE, FCC class A
- **Dimensions**   30 x 139 x 100 mm
  (W x H x D)
- **Enclosure**   ABS+PC
- **Weight**   165 g
- **Power Consumption**   2.5 W @ 24 V_{DC} (typical)

Function
- **Interface**   mini PCI express 2.0 (Support iDoor)
                           mSATA
- **Support Hot Plug**

Environment
- **Operating**   -10 ~ 60° C
  Temperature   (when mounted vertically)
- **Storage Temperature** -40 ~ 70° C
- **Relative Humidity**   5 ~ 95% (non-condensing)

Ordering Information
- **APAX-5435**   mPCIe Module to support iDoor

APAX-5490
APAX-5495

4-port RS-232/422/485 Communication Module

2-port CANopen Communication Module

NEW

APAX-5490

RoHS COMPLIANT 2002/95/EC CE FCC

NEW

APAX-5495

CANopen RoHS COMPLIANT 2002/95/EC CE FCC

Specifications

General
- **Certification**   CE, FCC class A
- **Interface**   COM 1, COM 2: RS-232/422/485
                           COM 3, COM 4: RS-232/422/485
- **Connectors**   1 x 26-pin clamp-type terminal
- **Dimensions (W x H x D)** 30 x 139 x 100 mm
- **Enclosure**   ABS+PC
- **Weight**   180 g
- **Power Consumption**   2 W @ 5 V_{DC} (typical)

Communications
- **Data Bits**   5, 6, 7, 8
- **Stop Bits**   1, 1.5, 2
- **Parity**   None, even, odd
- **Baud Rate**   50 bps ~ 230.4 kbps
- **Data Signals**   RS-232: TxD, RxD, GND
                           RS-422: Tx+, Tx-, Rx+, RX-
                           RS-485: Data+, Data-
- **FIFO**   256 bytes
- **Flow Control**   Xon/Xoff

Protection
- **ESD Protection**   15 kV
- **EFT Protection**   2,500 V_{DC}
- **Isolation Protection** 2,500 V_{DC} (between COM port and
                           backplane)

Environment
- **Operating Temperature** 0 ~ 60°C (mounted vertically)
- **Storage Temperature**   -40 ~ 70°C
- **Relative Humidity**   5 ~ 95% (non-condensing)

Ordering Information
- **APAX-5490-P4AE**   Non Isolation 4-port RS-232/422/485 Comm. Module
                           (Isolation is optional)

Note: APAX-5490 can only be used by controllers with a PCI express interface
(ex. APAX-5580)

Specifications

General
- **Certification**   CE, FCC class A
- **Interface**   2 x CAN Bus
- **Connectors**   DB9
- **Dimensions (W x H x D)** 30 x 139 x 100 mm
- **Enclosure**   ABS+PC
- **Weight**   180 g
- **Power Consumption**   2 W @ 5 V_{DC} (typical)

Communications
- **Protocol**   CANopen
- **Speed**   Max. 1 Mbits/s
- **Supports PDO transmission mode**
- **Supports NMT and SDO communication object**
- **Supports Heartbeat producer and consumer**
- **Supports Emergency objects**

Protection
- **Isolation Protection** 2,500 V_{DC}

Environment
- **Operating Temperature** 0 ~ 60°C (mounted vertically)
- **Storage Temperature**   -40 ~ 70°C
- **Relative Humidity**   5 ~ 95% (non-condensing)

Ordering Information
- **APAX-5495-P2AE**   2-port CANopen Module

Note: APAX-5495 can only be used by controllers with a PCI express interface
(ex. APAX-5580)

APAX-5520CE/KW
APAX-5620CE/KW

PAC with Marvel XScale® CPU

PAC with Marvel XScale® CPU and CAN

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

NEW

APAX-5520CE/KW RoHS COMPLIANT 2002/95/EC CE FCC

APAX-5620CE/KW RoHS COMPLIANT 2002/95/EC CE FCC

Specifications

General
- **Certification**   CE, FCC class A
- **Dimensions (W x H x D)** 30 x 139 x 100 mm
- **Enclosure**   ABS+PC
- **Weight**   210 g
- **Power Consumption**   4.5 W @ 24 V_DC (typical)

System Hardware
- **CPU**   Intel XScale PXA270 520 MHz
- **Memory Flash**   32M bytes, SDRAM 64M bytes
- **Battery Backup Memory** 256 KB file system, 256 KB direct access
- **Real-time Clock**   Yes
- **Watchdog Timer**   Yes
- **VGA**   DB15 connector
- **SB Ports**   1 x USB 1.1
- **Storage**   1 x Type II CompactFlash card slot

Software
- **OS Support**   Windows CE
- **Control Software**   C/C++ and .NET library
                             KW Multiprog (development tool)
                             KW ProConOS (runtime kernel)

I/O Expansion
- **Connected I/O Modules** 32 (max.)*
- **Digital Signals**   768 (max.)
- **Analog Signals**   192 (max.)

Communication (Ethernet)
- **LAN Ports**   1 x RJ-45 Port, 10/100 Mbps
- **Offers Modbus/TCP Server and Client APIs**

Communication (Serial)
- **Medium**   1 x Isolated RS-485 (2-wire, isolated)
- **Offers Modbus/RTU Master and Slave APIs**

Environment
- **Operating Temperature** -10 ~ 55°C (when mounted vertically)
- **Storage Temperature**   -40 ~ 70°C
- **Relative Humidity**   5 ~ 95% (non-condensing)

Ordering Information
- **APAX-5520CE**   PAC with Marvel XScale CPU, WinCE
- **APAX-5520KW**   PAC with Marvel XScale CPU, KW

Accessories
- **APAX-5002**   2-slot Backplane Module
- **APAX-5343E**   Power Supply for APAX Expansion Module

Specifications

General
- **Certification**   CE, FCC class A
- **Dimensions (W x H x D)** 60 x 139 x 100 mm
- **Enclosure**   ABS+PC
- **Weight**   310 g
- **Power Consumption**   5 W @ 24 V_DC (typical)
- **Redundancy**   25ms data sync, 20ms changeover time and 14kbytes for data sync

System Hardware
- **CPU**   Intel XScale PXA270 520 MHz
- **Memory Flash**   32M bytes, SDRAM 64M bytes
- **Battery Backup Memory** 256 KB file system, 256 KB direct access
- **Real-time Clock**   Yes
- **Watchdog Timer**   Yes
- **VGA**   DB15 connector
- **USB Ports**   1 x USB 1.1
- **Storage**   1 x Type II CompactFlash card slot

Software
- **OS Support**   Windows CE
- **Control Software**   C/C++ and .NET library
                             KW Multiprog (development tool), KW ProConOS (runtime kernel)

I/O Expansion
- **Connected I/O Modules** 32 (max.)*
- **Digital Signals**   768 (max.)
- **Analog Signals**   192 (max.)

Communication (Ethernet)
- **LAN**   2 x RJ-45 Port, 10/100 Mbps
- **Offers Modbus/TCP Server and Client APIs**
- **Modbus/TCP under KW**   Server : 64 connections
                             Client : 128 connections

Communication (Serial)
- **Medium**   2 x Isolated RS-485 (2-wire, isolated)
- **Offers Modbus/RTU Master and Slave APIs**

Communication (CAN)
- **Medium**   2 x Isolated CAN
- **Protocol**   CANopen (DS301/302)
- **Speed maximum**   1 Mbit/s

Environment
- **Operating Temperature** -10 ~ 55°C (when mounted vertically)
- **Storage Temperature**   -40 ~ 70°C
- **Relative Humidity**   5 ~ 95% (non-condensing)

Ordering Information
- **APAX-5620CE**   PAC with Marvel XScale CPU, CAN, WinCE
- **APAX-5620KW**   PAC with Marvel XScale CPU, CAN, KW

Accessories
- **APAX-5002**   2-slot Backplane Module
- **APAX-5343E**   Power Supply for APAX Expansion Module

*APAX DI/O modules can use ID number 0 ~ 31, while AI/O modules and counter modules can only use ID numbers 0 ~ 15

APAX-5522PE
Linus based RTU Controller

NEW

Features

- IEC 61850-3 and IEEE-1613 certified for substation automation application
- XScale PXA270 520 MHz processor
- Wide temperature support (-20 ~ 70°C)
- Supports up to 32 APAX I/O modules
- Time-stamp function support
- Linux OS support
- 2 x LAN ports support

RoHS COMPLIANT 2002/95/EC   CE FCC

Introduction

IEC 61850-3 standards specify a number of "hardened" characteristics that network products should meet to withstand the potentially electromagnetically harsh substation environment: such as immunity to electrical surge, electrostatic discharges and other phenomena that would cause non-hardened devices to fail. The APAX-5000PE series modules are IEC 61850-3 compliant and can be used in power & energy applications e.g. smart substation for good protection features.

Specifications

General

- **Certification**   CE, FCC class A
  Dielectric Strengh and Impulse Tests: IEC60255-5:2000
  EMC Immunity: Electronic Discharge: IEC 61000-4-2:2001,level3
  Radiated RF Immunity: IEC 61000-4-3:2002, 10 V/m
                                       IEEE C37.90.2-1995, 35 V/m
  Fast Transient, Burst Immunity: IEC 61000-4-4:1995 + A1:2001, 4kV @ 2.5KHz
  Surge Immunity: IEC 61000-4-5:2001, 2kV line to line, 4kV line to earth
  Conducted RF Immunity: IEC 61000-4-6:2004, 10 Vrms
  Magnetic Field Immunity: IEC 61000-4-8:2001, 1000 A/m for 3 seconds, 100 A/m for 1 minute
  DOMF: IEC 61000-4-10:2001, 30 A/m @ 100KHz and 1 MHz
  EMC Emissions
  Conducted Emissions: EN 55011: 2002, Class A
  Radiated Emissions: EN 55011: 2002, Class A
- **Dimensions (W x H x D)** 60 x 139 x 100 mm (without backplane)
- **Enclosure**   ABS+PC
- **Weight**   180 g
- **Connectors**   DB-9
- **Power Consumption**   2 W @ 5 V$_{DC}$ (typical)

System Hardware

- **CPU**   Intel XScale PXA270 520 MHz
- **Memory Flash**   32 M bytes, SDRAM 64 M bytes
- **Battery Backup Memory** 256 KB file system, 256 KB direct access
- **Real-time Clock**   Yes
- **Watchdog Timer**   Yes
- **Storage**   1 x Type II CompactFlash card slot

Software

- **OS Support**   Linux Kernel 2.6 RT, KW software on WinCE
- **Control Software**   API library / MultiProg KW

I/O Expansion

- **Connected I/O Modules** 32 (max.)*
- **Digital Signals**   768 (max.)
- **Analog Signals**   192 (max.)

Communication (Ethernet)

- **LAN**   2 x RJ-45 Port, 10/100 Mbps

Communication (Serial)

- **Medium**   2 x Isolated RS-232

Environment

- **Operating Temperature** -20 ~ 70°C (mounted vertically)
- **Storage Temperature**   -40 ~ 85°C
- **Relative Humidity**   5 ~ 95% (non-condensing)

Ordering Information

- **APAX-5522PELX**   IEC 61850-3 Compliant PAC
- **APAX-5522PEKW**   IEC 61850-3 Compliant PAC, KW softlogic on WinCE

Accessories

- **APAX-5002L**   2-slot Backplane Module
- **APAX-5350**   APAX Power Filter for APAX PE modules

*APAX DI/O modules can use ID number 0 ~ 31, while AI/O modules and counter modules can only use ID numbers 0 ~ 15

APAX-5343/E
APAX-5001/5002/5002L

Power Supply for APAX-5570 Series/ APAX Expansion Modules

1/2/2-slot Backplane Modules

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

| APAX-5343 | APAX-5343E |

| APAX-5001 | APAX-5002/L | APAX-5004L |

Specifications

Input
- **Rated Voltage** 115/230 V_{AC}
- **Voltage Range** 90 ~ 264 V_{AC}
- **Rated Input Current** 1.5 A (at rated load)
- **Rated Input Frequency** 50/60 Hz
- **Input Frequency Range** 47 ~ 63 Hz
- **Inrush Current Limit** < 50 A

Output
- **Output Power** 72 W
- **Power Loss** about 8~9 W (at rated load)
- **Efficiency** > 88% (at rated load)
- **Rated Voltage** 24 V_{DC}
- **Rated Output Current** 3 A
- **Output Current Limit** 3.5 ~ 4.3 A
- **Residual Ripple** < 240 mVpp
- **Startup Delay** < 3 second
- **Voltage Rise** 60 ms (typical)

Protection
- **Isolation Protection (In/Out)** 42/42 V_{DC}
- **Output Over Voltage Protection** shutdown as approximate 25 ~ 27 V_{DC}, latch off mode
- **Over Load Protection** auto-recovery mode
- **Short Circuit Protection** auto-recovery mode

General
- **Certification** CE, FCC class A, UL 508, Energy Star
- **Dimensions (W x H x D)** 75 x 151 x 115 mm
- **Enclosure** PC
- **Operating Temperature** 0 ~ 50°C (mounted vertically)
- **Storage Temperature** -20 ~ 75°C
- **Relative Humidity** 5 ~ 95% (non-condensing)
- **Mounting** DIN-rail, wall mount (panel mount)

Ordering Information
- **APAX-5343** Power Supply for APAX-5570 Series
- **APAX-5343E** Power Supply for APAX Expansion Module

Specifications

General
- **Certification** CE, FCC class A
- **Dimensions (W x H x D)** 28 x 151 x 38 mm (APAX-5001)
  54 x 151 x 38 mm (APAX-5002, APAX-5002L)
  105 x 151 x 38 (APAX-5004L)
- **Enclosure** ABS+PC
- **Weight** 70 g (APAX-5001)
  120 g (APAX-5002, APAX-5002L)
- **Mounting** DIN-rail, Wall mount (panel mount)
- **Power Consumption** 0.3 W @ 24 V_{DC} (APAX-5001)
  1.3 W @ 24 V_{DC} (APAX-5002, APAX-5002L)
- **Power Input** 18 ~ 30 V_{DC}
- **Slot Number** 1 (APAX-5001)
  2 (APAX-5002, APAX-5002L)

Environment
- **Operating Temperature** APAX-5001*/APAX-5002*: 0 ~ 60°C
  APAX-5002L*: -20 ~ 70°C
- **Storage Temperature** -25 ~ 75°C
- **Relative Humidity** 5 ~ 95% (non-condensing)

*when mounted vertically

Ordering Information
- **APAX-5001** 1-slot Backplane Module
- **APAX-5002L** 2-slot Backplane Module
- **APAX-5002** 2-slot Backplane Module with RJ-45 Port and 24V_{DC} input

	Slot Number	Expansion Port (RJ-45)	Power Input Terminal
APAX-5001	1	N/A	N/A
APAX-5002L	2	N/A	N/A
APAX-5002	2	Yes	Yes

APAX-5070
APAX-5072
APAX-5071

Modbus/TCP Communication Coupler

EtherNet/IP Communication Coupler

PROFINET Communication Coupler

APAX-5070 Modbus-IDA RoHS COMPLIANT 2002/95/EC CE FCC

APAX-5072 EtherNet/IP RoHS COMPLIANT 2002/95/EC CE FCC

APAX-5071 PROFI NET RoHS COMPLIANT 2002/95/EC CE FCC

Specifications

General

- **Certification** CE, FCC class A
- **Dimensions** 30 x 139 x 100 mm
  (W x H x D)
- **Enclosure** ABS+PC
- **Weight** 190 g
- **Connector** 2 x RJ-45 (2-channel switch, share same IP address)
- **Power Consumption** 2 W @ 5 V$_{DC}$ (typical)

Communication

- **Protocol** Modbus/TCP
- **Connected I/O** 32 (max.)*
  Modules
- **Digital Signals** 768 (max.)
- **Analog Signals** 192 (max.)
- **Data Transfer Rates** 10/100 Mbps
- **Topology** Line or star
- **Isolation Protection** 1,500 V$_{AC}$

Environment

- **Operating** -10 ~ 60°C
  Temperature (mounted vertically)
- **Storage Temperature** -40 ~ 85°C
- **Relative Humidity** 5 ~ 95% (non-condensing)
- **Shock Protection** 10 G @ wall mount, half sine, 11 ms (Confirms to IEC 60068-2-27)
- **Vibration Protection** 1 Grms @ 5 ~ 500 Hz (Random, operating, 1 hr/axis)
  2 G @ 5 ~ 500 Hz (Sine, non-operating, 1 hr/axis) (Confirms to IEC 60068-2-64 and IEC 60068-2-6)

Ordering Information

- **APAX-5070** Modbus/TCP Communication Coupler

Specifications

General

- **Certification** CE, FCC class A
- **Dimensions** 30 x 139 x 100 mm
  (W x H x D)
- **Enclosure** ABS+PC
- **Weight** 180 g
- **Connectors** 2 x RJ-45 (2-channel switch, share same IP address)
- **Power Consumption** 2 W @ 5 V$_{DC}$ (typical)

Communications

- **Protocol** EtherNet/IP
- **Connected I/O** 32 (max.)*
  Modules
- **Digital Signals** 768 (max.)
- **Analog Signals** 192 (max.)
- **Data Transfer Rates** 10/100 Mbps
- **Topology** line or star
- **Isolation Protection** 1,500 V$_{AC}$

Environment

- **Operating** -10 ~ 60°C
  Temperature (mounted vertically)
- **Storage Temperature** -40 ~ 85°C
- **Relative Humidity** 5 ~ 95% (non-condensing)
- **Shock Protection** 10 G @ wall mount, half sine, 11 ms (Confirms to IEC 60068-2-27)
- **Vibration Protection** 1 Grms @ 5 ~ 500 Hz (Random, operating, 1 hr/axis)
  2 G @ 5 ~ 500 Hz (Sine, non-operating, 1 hr/axis) (Confirms to IEC 60068-2-64 and IEC 60068-2-6)

Ordering Information

- **APAX-5072** EtherNet/IP Communication Coupler

Specifications

General

- **Certification** CE, FCC class A
- **Dimensions** 30 x 139 x 100 mm
  (W x H x D)
- **Enclosure** ABS+PC
- **Weight** 180 g
- **Connector** 2 x RJ-45 (2-channel switch, share same IP address)
- **Power Consumption** 2 W @ 5 V$_{DC}$ (typical)

Communication

- **Protocol** PROFINET RT V2.2
- **Connected I/O** 32 (max.)*
  Modules
- **Digital Signals** 768 (max.)
- **Analog Signals** 192 (max.)
- **Data Transfer Rates** 10/100 Mbps
- **APAX IO Topology** Line or Star

Environment

- **Operating** -10 ~ 60°C
  Temperature (mounted vertically)
- **Storage Temperature** -40 ~ 85°C
- **Relative Humidity** 5 ~ 95% (non-condensing)
- **Shock Protection** 10 G @ wall mount, half sine, 11 ms (Confirms to IEC 60068-2-27)
- **Vibration Protection** 1 Grms @ 5 ~ 500 Hz (Random, operating, 1 hr/axis)
  2 G @ 5 ~ 500 Hz (Sine, non-operating, 1 hr/axis) (Confirms to IEC 60068-2-64 and IEC 60068-2-6)

Ordering Information

- **APAX-5071** PROFINET Communication Coupler

Accessories

- **APAX-5002** 2-slot Backplane Module
- **APAX-5343E** Power Supply for APAX Expansion Module

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*APAX DI/O modules can use ID number 0 ~ 31, while AI/O modules and counter modules can only use ID numbers 0 ~ 15

APAX-5017H
APAX-5028

12-ch High Speed Analog Input Module

8-ch Analog Output Module

WebAccess+ Solutions 1

Motion Control 2

Power & Energy Automation 3

Automation Software 4

Intelligent Operator Panel 5

Automation Panels 6

Panel PCs 7

Industrial Wireless Solutions 8

Industrial Ethernet Solutions 9

Industrial Gateway Solutions 10

Serial communication cards 11

Embedded Automation PCs 12

DIN-Rail IPCs 13

CompactPCI Systems 14

IoT Wireless I/O Modules 15

IoT Ethernet I/O Modules 16

RS-485 I/O Modules 17

Data Acquisition Boards 18

APAX-5017H

RoHS COMPLIANT 2002/95/EC CE FCC

APAX-5028

RoHS COMPLIANT 2002/95/EC CE FCC

Specifications

General

- **Certification** CE, FCC class A
- **Dimensions (W x H x D)** 30 x 139 x 100 mm
- **Enclosure** ABS+PC
- **Weight** 175 g
- **Power Consumption** 3.5 W @ 24 V_{DC} (typical)

Analog Input

- **Channels** 12
- **Input Impedance** 2 MΩ (Voltage), 120 Ω (Current)
- **Input Type** V, mV, mA
- **Input Range** 0 ~ 500 mV, ±10 V, 0 ~ 10 V, 0 ~ 20 mA, 4 ~ 20 mA
- **Configure Different Range for Each Channel**
- **Resolution** 12-bit with accuracy ±0.1% or better of Full Scale Range (Voltage), ±0.2% or better of Full Scale Range (Current)
- **Sampling Rate** 1,000 sample/second (per channel)

* Support Integration function to eliminate field site noise at sample rate: 100 sample/second

- **Span Drift** ±25 ppm/°C
- **Zero Drift** ±6 μV/°C
- **Wire Burn-out Detection** Yes (4~20 mA only)

Protection

- **Over Voltage Protection**
- **2,500 V_{DC} Isolation Between Channels and Backplane**

Note: The voltage between any two pins must not exceed 15 V

Environment

- **Operating Temperature** -10 ~ 60°C (when mounted vertically)
- **Storage Temperature** -40 ~ 70°C
- **Relative Humidity** 5 ~ 95% (non-condensing)

Ordering Information

- **APAX-5017H** 12-ch High Speed Analog Input Module

Specifications

General

- **Certification** CE, FCC class A
- **Dimensions (W x H x D)** 30 x 139 x 100 mm
- **Enclosure** ABS+PC
- **Weight** 175 g
- **Power Consumption** 3.5 W @ 24 V_{DC} (typical)

Analog Output

- **Channels** 8
- **Output Type** V, mA
- **Output Range** ±2.5 V, ±5 V, ±10 V, 0 ~ 2.5 V, 0 ~ 5 V, 0 ~ 10 V, 0 ~ 20 mA, 4 ~ 20 mA
- **Configure Different Range for Each Channel**
- **Resolution** 14-bit with accuracy ±0.1% or better of Full Scale Range
- **Settling time** about 500 μs
- **Slew Rate** 0.7 V_{DC}/μs (per channel)
- **Span Drift** ±60 ppm/°C
- **Zero Drift** ±275 mV/°C (Voltage), ±250 mV/°C (Current)
- **Drive Voltage (Current Mode)** 15 V_{DC}
- **Load (Current Mode)** 0 ~ 500Ω

Protection

- **Short Circuit Protection**
- **2,500 V_{DC} Isolation Between Channels and Backplane**

Environment

- **Operating Temperature** -10 ~ 60°C (when mounted vertically)
- **Storage Temperature** -40 ~ 70°C
- **Relative Humidity** 5 ~ 95% (non-condensing)

Ordering Information

- **APAX-5028** 8-ch Analog Output Module

APAX-5046
APAX-5046SO

24-ch Digital Output Module

20-ch Source Type DO Module

APAX-5046

FCC CE RoHS COMPLIANT 2002/95/EC

APAX-5046SO

FCC CE RoHS COMPLIANT 2002/95/EC

Specifications

General

- **Certification** CE, FCC class A
- **Dimensions** 30 x 139 x 100 mm
  (W x H x D)
- **Enclosure** ABS+PC
- **Weight** 165 g
- **Power Consumption** 2.5 W @ 24 V_{DC} (typical)
- **Status Display** LED per channel
  On: Logic level 1
  Off: Logic level 0

Digital Output

- **Channels** 24 (Sink Type)
- **Voltage Range** 8 ~ 35 V_{DC}
- **Rated Current Output** 0.5 A (per channel, at signal "1")
- **Leakage Current** 0.1 mA (at signal "0")
- **Switch Rate:** Resistive load: 300 Hz (max.)
  Inductive load: 20 Hz (max.)
  Lamp load: 200 Hz
  (max. at 5W lamp and under 50 Ω, 24 V)

Protection

- **2,500 V_{DC} Isolation Between Channels and Backplane**
- **Short Circuit Protection**
- **Thermal Shutdown Protection**

Environment

- **Operating** -10 ~ 60°C
  Temperature (when mounted vertically)
- **Storage Temperature** -40 ~ 70°C
- **Relative Humidity** 5 ~ 95% (non-condensing)

Ordering Information

- **APAX-5046** 24-ch Digital Output Module
- **APAX-5001** 1-slot Backplane Module
- **APAX-5002** 2-slot Backplane Module
- **APAX-5343E** Power Supply for APAX Expansion Module

Specifications

General

- **Certification** CE, FCC class A
- **Dimensions** 30 x 139 x 100 mm
  (W x H x D)
- **Enclosure** ABS+PC
- **Weight** 165 g
- **Power Consumption** 2.5 W @ 24 V_{DC} (typical)
- **Status Display** LED per channel
  On: Logic level 1
  Off: Logic level 0

Relay Output

- **Channels** 20 (Source Type)
- **Voltage Range** 10~35V_{DC}
- **Rated Current Output** 1A(per channel, at signal "1")
- **Leakage Current** 0.1 mA (at signal "0")
- **Switch Rate** Resistive load : 300 Hz (max.)
  Inductive load: 20 Hz (max.)
  Lamp load: 200 Hz
  (max., at 5W amp and under 50 Ω, 24V)

Protection

- **2,500 V_{DC} Isolation Between Channels and Backplane**
- **Short Circuit Protection**
- **Thermal Shutdown Protection**

Environment

- **Operating** -10 ~ 60° C
  Temperature (when mounted vertically)
- **Storage Temperature** -40 ~ 70° C
- **Relative Humidity** 5 ~ 95% (non-condensing)

Ordering Information

- **APAX-5046SO** 20-ch Source-Type DO Module
- **APAX-5001** 1-slot Backplane Module
- **APAX-5002** 2-slot Backplane Module
- **APAX-5343E** Power Supply for APAX Expansion Module

ADVANTECH **DIN-Rail IPCs**

APAX-5060
APAX-5080

12-ch Relay Output Module

4/8-ch High/Low Speed Counter Module

NEW

APAX-5060

FCC CE RoHS COMPLIANT 2002/95/EC

NEW

APAX-5080

FCC CE RoHS COMPLIANT 2002/95/EC

Specifications

General

- **Dimensions (W x H x D)** 30 x 139 x 100 mm
- **Weight** 195 g
- **Power Consumption** 2 W @ 24 V_{DC} (typical)
- **Status Display** LED per channel
  On: Logic level 1
  Off: Logic level 0

Relay Output

- **Channels** 12
- **Relay Type** Form A (SPST)
- **Switching Capacity and Lifetime of the Contact (For Resistive Load)**
  VDE: 30,000 operations (5 A @ 250 V_{AC},
  10 operations/minute at 8°C)
  70,000 operations (5 A @ 30 V_{DC},
  10 operations/ minute at 85°C)
  UL: 60,000 operations (5 A @ 250 V_{AC})
  100,000 operations (5 A @ 30 V_{DC})
  Mechanism: 20,000,000 operations
  (no load, 300 operations/min)
- **Breakdown Voltage** 500 V_{AC} (50/60 Hz)
- **Contact Resistance** 30 mΩ (maximum)
- **Insulation Resistance** 1 GΩ (minimum) at
  500 V_{DC}

Protection

- **Isolation Between** 2,500 V_{DC}
  Channels and Backplane

Environment

- **Operating Temperature** -10 ~ 60°C (when mounted vertically)
  -20 ~ 70°C (for PE version)
- **Storage Temperature** -40 ~ 70°C
- **Relative Humidity** 5 ~ 95% (non-condensing)

Ordering Information

- **APAX-5060** 12-ch Relay Output Module
- **APAX-5060PE** 12-ch Relay Output Module with Wide Temperature

Specifications

General

- **Dimensions (W x H x D)** 30 x 139 x 100 mm
- **Weight** 170 g
- **Power Consumption** 2.5 W @ 24 V_{DC} (typical)
- **Status Display** LED per channel (for DI/O only)
  On: Logic level 1; Off: Logic level 0

Counter/Frequency Input

- **Channels & Mode** 8 (Up Counter, High/Low Freq. and Wave Width mode)
  4 (Pulse and Direction, Up/Down Pulse, A/B Phase)
- **Counting Range** 32-bit + 1-bit overflow
- **Minimum Pulse Width** 1 µs for High Freq. mode; 1 ms for Low Freq. mode
- **Counter Frequency** 0.1 Hz ~ 10 Hz for Low Freq. mode and Wave Width
  mode
  10 Hz ~ 1M Hz for High Freq. mode and other modes
- **Input Voltage** For "0" signal: 0 ~ 3 V_{DC}; For "1" signal: 10 ~ 30 V_{DC}
- **Accuracy** 0.1% for Low Freq. mode
- **Input Filter** 0.1 us ~ 40 ms

Digital Input

- **Channels** 4
- **Type** Sink (Wet contact)
- **Input Voltage** For "0" signal: 0 ~ 3 V_{DC}; For "1" signal: 10 ~ 30 V_{DC}

Digital Output

- **Channels** 4 (Sink Type)
- **Output Voltage Range** 8 ~ 35 V_{DC}
- **Normal Output Current** 0.5 A (per channel)

Protection

- **Isolation Between** 2,500 V_{DC}
  Channels and Backplane
- **Short Circuit Protection (For DO channel)**
- **Thermal Shutdown Protection (For DO channel)**

Environment

- **Operating Temperature** -10 ~ 60°C (when mounted vertically)
- **Storage Temperature** -40 ~ 70°C
- **Relative Humidity** 5 ~ 95% (non condensing)

Ordering Information

- **APAX-5080** 4/8-ch High Speed Counter Module

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

APAX Controller Support table

Type		Performance PAC		Compact PAC			Coupler		
System		APAX-6572	APAX-5580	APAX-5620	APAX-5520	APAX-5522PE	APAX-5070	APAX-5071	APAX-5072
Function	I/O module	PAC with Intel ATOM™ D510 1.66 GHz	PAC with Intel Core i CPU	PAC with Marvel Xscaler CPU and CAN	PAC with Marvel Xscaler CPU	IEC 61850-3 Certified PAC with Marvel Xscaler CPU	Modbus/TCP Communication Coupler	PROFINET Communication Coupler	EtherNet/IP Communication Coupler
Analog I/O	APAX-5013	•	•	•	•	•	•	•	•
	APAX-5017	•	•	•	•	•	•	•	•
	APAX-5017H	•	•	•	•	•	•	•	•
	APAX-5018	•	•	•	•	•	•	•	•
	APAX-5028	•	•	•	•	•	•	•	•
Digital I/O	APAX-5040	•	•	•	•	•	•	•	•
	APAX-5045	•	•	•	•	•	•	•	•
	APAX-5046	•	•	•	•	•	•	•	•
	APAX-5060	•	•	•	•	•	•	•	•
	APAX-5080	•	•	•	•	•	•	•	•
Communication (Serial/CAN/AMAX)	APAX-5090P	•	•	-	-	-	-	-	-
	APAX-5095P	•	•	-	-	-	-	-	-
	APAX-5202P	•	•	-	-	-	-	-	-
Backplane Modules	APAX-5001	•	•	•	•	•	•	•	•
	APAX-5002/L	•	•	•	•	•	•	•	•
Power Supply Modules	APAX-5343	-	•	-	-	-	-	-	-
	APAX-5343E	-	-	•	•	-	•	•	•
IEC-61850 Certified I/O	APAX-5017PE	•	•	•	•	•	•	-	-
	APAX-5040PE	•	•	•	•	•	•	-	-
	APAX-5060PE	•	•	•	•	•	•	-	-

ADAM-5000 Series

Open Network and Fieldbus Solutions for Device Networking

Introduction

The Fieldbus concept will change the control environment and device characteristics of future control systems in both processing and manufacturing. Compared with traditional systems, the Fieldbus system reduces cost of cabling, commissioning, and installation. In addition, the Fieldbus system has greater reliability.

The ADAM-5000 series, a compact distributed data acquisition and control system, supports the shift toward Fieldbus-based systems. Based on popular Fieldbus data communication structures such as RS-485 and Modbus, the ADAM-5000 series now offers two different DA&C systems that allow field I/O devices to easily connect to PC network applications: the ADAM-5000 DA&C systems and the ADAM-5510 series of PC-based controllers.

Distributed I/O Systems

Ethernet-based Data Acquisition and Control System

With the ADAM-5000/TCP as your Ethernet I/O data processing center, you can monitor and control field signals at a speed of 10/100 Mbps. The best field-proven communication performance that can be reached in industrial network environments. Additionally, the popular Modbus/TCP protocol is supported as well.

RS-485 based Data Acquisition and Control System

The ADAM-5000/485 system is a data acquisition and control system that can acquire, monitor and control data through multi-channel I/O modules. It communicates with a network master over a twisted-pair, multi-drop RS-485 network. Both ADAM ASCII and Modbus/RTU protocols are supported.

PC-based Controllers

Ethernet-enabled PC-based Controllers

The ADAM-5510 series of PC-based programmable controllers includes ADAM-5510M, ADAM-5510E, ADAM-5510/TCP and ADAM-5510E/TCP. They feature Intel x86-based CPUs running Datalight ROM-DOS.

Users can use Borland C 3.0 to develop the application program and then download it by Windows-based ADAM-5510 series utility. The Ethernet-enabled feature of ADAM-5510/TCP and ADAM-5510E/TCP enables features like:FTP server, web server, TCP/UDP connections and email alarm. The ADAM-5510 controllers also have high expansion capability by supporting Modbus/RTU master/ slave and Modbus/TCP client/server functions.

ADAM-5550CE features AMD GX2 CPU running Windows CE operating system. Users can use Microsoft Visual Studio .NET to develop the application program.

ADAM-5550KW and ADAM-5510KW series allow users leverage IEC 61131-3 SoftLogic programming environment to complete their automation task.

Maximum System Design Flexibility

The ADAM-5000's modular design allows users to tailor solutions based on their own requirements. Built-in programmable I/O ranges and alarm outputs enhance flexibility in system design. A variety of communication media such as twisted-pair wiring, radio modems and fiber optics are supported.

System Maintenance and Troubleshooting

The ADAM-5000 series uses hardware self-test and software diagnosis to monitor system problems. Also included is a watchdog timer that monitors the microprocessor. If the system crashes, the watchdog automatically resets the system. Node ID setting is easily accomplished by setting a DIP switch on the front of the system.

Easy Installation and Networking

The ADAM-5000 series can be easily mounted on a DIN-rail or on a panel. Signal connections, network modifications and maintenance are simple and quick. Building a multi-drop network only requires a single twisted pair of wires.

Proven for Industrial Environments

The ADAM-5000 series can operate in industrial environments at temperatures between -10 and 70°C, and can use unregulated power sources between 10 and 30 V_{DC}. These units are protected against accidental power supply reversals. A 3-way isolation design (I/O, power & communication) prevents ground loops and reduces the effect of electrical noise in the system.

Extensive Software Support

The ADAM-5000 series is supported by most standard process controls and HMI software. .NET Class LIB is provided for use with Windows applications. OPC drivers provide links to a wide range of HMI/SCADA software packages such as InTouch, FIX and ICONICS. Advantech data acquisition software and Advantech Studio SCADA/HMI software are both tightly integrated with the ADAM-5000 systems.
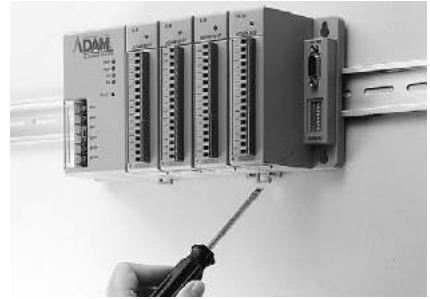
DIN-rail Mounting
Installed on industrial standard DIN-rails

Panel/Wall Mounting
Flat surface system mounting

Node ID Setting
8-pin dip switch configuration

Connection
Pre-wired plug-in terminals with I/O modules

Simple & Low Cost Network
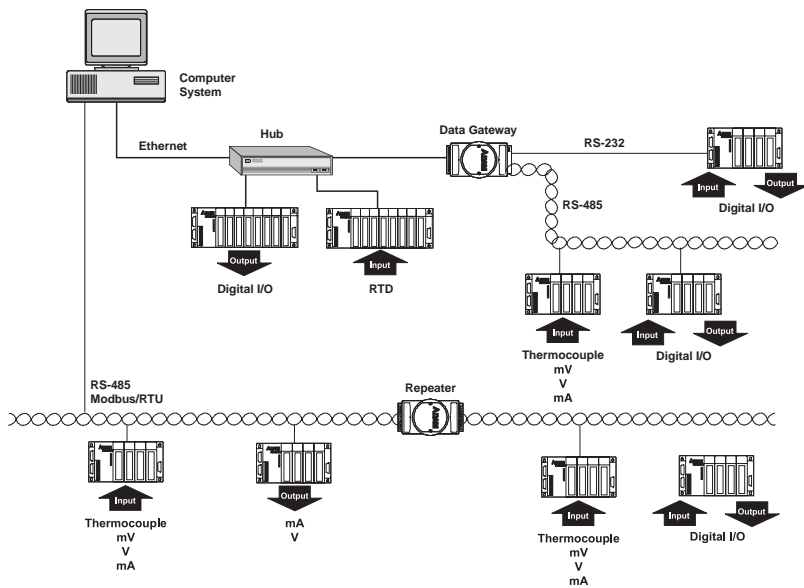
ADAM-5000 Controller Selection Guide

NEW

System	ADAM-5510M ADAM-5510KW	ADAM-5510E	ADAM-5510/TCP ADAM-5510KW/TCP	ADAM-5510E/TCP ADAM-5510EKW/TP	ADAM-5560
CPU	80188				Intel Atom Z510P 1.1 GHz
RAM	640 KB				1 GB DDR2 SDRAM
Flash ROM	256 KB				-
Flash Memory	256 KB				-
Flash Disk	1 MB				-
OS	ROM-DOS				WinCE5.0/XP embedded
Control Software	ADAM-5510M: Borland C ADAM-5510KW: KW SoftLogic	Borland C	ADAM-5510/TCP: Borland C ADAM-5510KW/TCP: KW SoftLogic	ADAM-5510E/TCP: Borland C ADAM-5510EKW/TP: KW SoftLogic	ADAM-5560CE: C/C++ and .NET ADAM-5560KW: KW SoftLogic
Real-time Clock	Yes				
Watchdog Timer	Yes				
COM1	RS-232	RS-232/485	RS-232	RS-232/RS-485	RS-232/485
COM2	RS-485				
COM3 (Programming)	RS-232 (TX, RX, GND)				RS-232/485
COM4	RS-232/485				
I/O Slots	4	8	4	8	7
Power Consumption	4 W				17 W
Isolation — Communication	2,500 V_{DC} (COM2 RS-485)				2,500 V_{DC} (COM2 RS-485) 1,500 V_{DC} (COM1, COM3, COM4 RS-485)
Isolation — Communication Power	3,000 V_{DC}				
Isolation — I/O Module	3,000 V_{DC}				
Diagnosis — Status Display	Power, CPU, Communication, Battery				Power, User Define
Diagnosis — Self Test	Yes, while ON				
Diagnosis — Software Diagnosis	Yes				
Communication — Interface	RS-232/485		Ethernet (RJ-45)		Ethernet (2 x RJ-45)
Communication — Speeds	1,200 bps ~ 115.2 kbps		10/100 Mbps		10/100 Mbps
Communication — Max. Distance	4,000 feet (1.2 km)		100 m		100 m
Communication — Data Format	N, 8, 1, 1		-	-	-
Communication — Max. Nodes	32	32	256 for Ethernet, 32 for RS-485	256 for Ethernet, 32 for RS-485	256 for Ethernet, 32 for RS-485
Communication — Protocol	User Defined, Modbus/RTU	User Defined, Modbus/RTU	User Defined, Modbus/RTU, Modbus/TCP	User Defined, Modbus/RTU, Modbus/TCP	Modbus/RTU, Modbus/TCP
Communication — Remote I/O	Modbus Device				
Communication — Power Requirements	10 ~ +30 V_{DC}				
Environment — Operating Temperature	-10 ~ 70°C (14 ~ 158°F)				0 ~ 55°C (32 ~ 131°F)
Environment — Storage Temperature	-25 ~ 85°C (-13 ~ 185°F)				
Environment — Humidity	5 ~ 95%				
Dimensions (mm)	231 x 110 x 75	355 x 110 x 75	231 x 110 x 75	355 x 110 x 75	355 x 110 x 75
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ADAM-5000 I/O Module Selection Guide
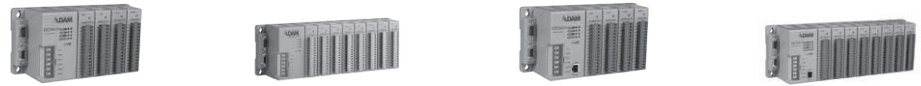
System	ADAM-5000/485	ADAM-5000E	ADAM-5000L/TCP	ADAM-5000/TCP
CPU	80188	80188	RISC CPU	
RAM	-	-	4 MB	
Flash ROM (User AP)	-	-	512 KB	
Flash Memory (Data Storage)	-	-	-	
Flash Disk	-	-	-	
OS	-	-	real-time OS	
Timer BIOS	-	-	-	
Real-time Clock	-	-	-	
Watchdog Timer	Yes			
I/O Slots	4	8	4	8
Power Consumption	3 W		4.0 W	5.0 W
Isolation — Communication	2,500 V_{DC}	3,000 V_{DC}	RS-485: 1,500 V_{DC}	
Isolation — Communication Power	3,000 V_{DC}			
Isolation — I/O Module	3,000 V_{DC}			
Diagnosis — Status Display	Power, CPU, Communication		Power, CPU, Error Diagnostic, Communication	
Diagnosis — Self Test	Yes, while ON			
Diagnosis — Software Diagnosis	Yes			
Communication — Interface	RS-232/485 (2-wire)	RS-232/485 (2-wire)	Ethernet	
Communication — Speeds (bps)	1,200, 2,400, 4,800, 9,600, 19.2 K, 38.4 K, 57.6 K, 115.2 K	1,200, 2,400, 4,800, 9,600, 19.2 K, 38.4 K, 57.6 K, 115.2 K	10 M, 100 M	
Communication — Max. Distance	4,000 feet (1.2 km)	4,000 feet (1.2 km)	100 m without repeater	
Communication — Data Format	Advantech protocol: N, 8, 1 Modbus protocol: N, 8, 1 N, 8, 2 E, 8, 1 O, 8, 1	Advantech protocol: N, 8, 1 Modbus protocol: N, 8, 1 N, 8, 2 E, 8, 1	TCP/IP	
Communication — Max. Nodes	128	128	Depend on IP address	
Communication — Protocols	ADAM ASCII/Modbus Protocol	ADAM ASCII/Modbus Protocol	Modbus/TCP	
Communication — Remote I/O	-	-	20 nodes Modbus devices	
Communication — Power Requirements	+10 ~ +30 V_{DC}			
Environment — Operating Temperature	-10 ~ 70°C (14 ~ 158°F)			
Environment — Storage Temperature	-25 ~ 85°C (-13 ~ 185°F)			
Environment — Humidity	5 ~ 95%			
Dimensions (mm)	231 x 110 x 75	355 x 110 x 75	231 x 110 x 75	355 x 110 x 75
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Analog Input/Output Modules

Module		ADAM-5013	ADAM-5017	ADAM-5017P	ADAM-5017UH	ADAM-5018
Analog Input	Resolution	16 bit	16 bit	16 bit	12 bit	16 bit
	Input Channel	3	8	8	8	7
	Sampling Rate	10 (total*)	10 (total*)	10 (total*)	200K**	10 (total*)
	Voltage Input	-	±150 mV, ±500 mV ±1 V, ±5 V, ±10 V	±150 mV, ±500 mV ±15V, ±10V, ±5 V, ±1 V 0 ~ 150mV, 0 ~ 500mV 0 ~ 1V, 0 ~ 5V, 0 ~ 10V 0 ~ 15V	±10 V, 0 ~ 10 V	±15 mV, ±50 mV ±100 mV, ±500 mV ±1 V, ±2.5 V
	Current Input	-	±20 mA	±20 mA, 4 ~ 20mA	0 ~ 20 mA, 4 ~ 20 mA	±20 mA
	Direct Sensor Input	Pt or Ni RTD	-	-	-	J, K, T, E, R, S, B
Isolation		3,000 V_{DC}	3,000 V_{DC}	3,000 V_{DC}	3,000 V_{DC}	3,000 V_{DC}
Page		online	online	online	online	online

*Sampling rate value depends on used channel number.
Example: Using 5 channels on ADAM-5017, sampling rate for each used channel will be 10/5 = 2 samples/second.
**The sampling rate vary with the controller.

Module		ADAM-5018P	ADAM-5024	ADAM-5050	ADAM-5051/ ADAM-5051D/ ADAM-5051S	ADAM-5052	ADAM-5053S
Analog Input	Resolution	16 bit	-	-	-	-	-
	Input Channel	7	-	-	-	-	-
	Sampling Rate	10 (total*)	-	-	-	-	-
	Voltage Input	±15 mV, ±50 mV ±100 mV, ±500 mV ±1 V, ±2.5 V	-	-	-	-	-
	Current Input	4 ~ 20 mA	-	-	-	-	-
	Direct Sensor Input	J, K, T, E, R, S, B	-	-	-	-	-
Analog Output	Output Channels	-	4	-	-	-	-
	Resolution	-	12 bit	-	-	-	-
	Voltage Output	-	0 ~ 10 V	-	-	-	-
	Current Output	-	0 ~ 20 mA 4 ~ 20 mA	-	-	-	-
Digital Input and Digital Output	Digital Input Channels	-	-	16 DI/O (bit-wise selectable)	16 (ADAM-5051) 16w/LED (5051D/5051S)	8	32
	Digital Output Channels	-	-		-	-	-
Isolation		3,000 V_{DC}	3,000 V_{DC}	-	2,500 V_{DC} (5051S)	5,000 V_{RMS}	2,500 V_{DC}
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*Sampling rate value depends on used channel number.
Example: Using 6 channels on ADAM-5017, sampling rate for each used channel will be 12/6 = 2 samples/second.

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ADAM-5000 I/O Module Selection Guide

Digital Input/Output Modules

Module		ADAM-5055S	ADAM-5056/ ADAM-5056D	ADAM-5056S/ ADAM-5056SO	ADAM-5057S	ADAM-5060
Digital Input and Digital Output	Digital Input Channels	8 w/LED	-	-	-	-
	Digital Output Channels	8 w/LED	16 (ADAM-5056) 16 w/LED (ADAM-5056D)	16 w/LED	32	6 relay (2 form A/4 form C)
Isolation		2,500 V_{DC}	-	2,500 V_{DC}	2,500 V_{DC}	-
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Module		ADAM-5069	ADAM-5080	ADAM-5081	ADAM-5090/ ADAM-5091	ADAM-5095
Digital Input and Digital Output	Digital Input Channels	-	-	-	-	-
	Digital Output Channels	8 power relay (form A)	-	-	-	-
Counter (32-bit)	Channels	-	4	4/8	-	-
	Input Frequency	-	0.3 ~ 1000 Hz max. (frequency mode) 5000 Hz max. (counter mode)	5 Hz ~ 1 MHz max. (frequency mode) 1 MHz max. (counter mode)	-	-
	Mode	-	Frequency, Up/Down Counter, Bi-direction Counter	Frequency, Counter (Up/Down, Bi-direction, Up, A/B Phase)	-	-
Communication	Channels	-	-	-	4	2
	Type	-	-	-	RS-232	CAN
Isolation		-	1,000 V_{RMS}	2,500 V_{DC}	-	1,000 V_{DC}
Page		online	online	online	online	online

ADVANTECH DIN-Rail IPCs

ADAM-5000 Controller Support Table

Type		PAC			PC-based Controller		
System		ADAM-5560KW	ADAM-5510KW ADAM-5510EKW	ADAM-5510KW/TCP ADAM-5510EKW/TP	ADAM-5560CE	ADAM-5510/TCP ADAM-5510E/TCP	ADAM-5510M ADAM-5510E
Function	I/O Module	7-slot Micro PAC with Atom™ CPU	4/8-slot Softlogic Controller w/ RS-485	4/8-slot Softlogic Controller w/ Ethernet	7-slot PC-based Controller with Atom™ CPU	4/8-slot PC-based Controller with Ethernet	4/8-slot PC-based Controller with RS-485
Analog Input (AI)	ADAM-5013	•	•	•	•	•	•
	ADAM-5017	•	•	•	•	•	•
	ADAM-5017P	•	-	-	•	•	•
	ADAM-5017H	-	•	•	-	•	•
	ADAM-5017UH	•	-	-	•	•	•
	ADAM-5018	•	•	•	•	•	•
	ADAM-5018P	•	-	-	•	•	•
Analog Output (AO)	ADAM-5024	•	•	•	•	•	•
Digital Input (DI)	ADAM-5051	•	•	•	•	•	•
	ADAM-5051D	•	•	•	•	•	•
	ADAM-5051S	•	•	•	•	•	•
	ADAM-5052	•	•	•	•	•	•
	ADAM-5053S	•	-	-	•	-	-
Digital Output (DO)	ADAM-5056	•	•	•	•	•	•
	ADAM-5056D	•	•	•	•	•	•
	ADAM-5056S	•	•	•	•	•	•
	ADAM-5056SO	•	•	•	•	•	•
	ADAM-5057S	•	-	-	•	-	-
Digital I/O	ADAM-5050	•	•	•	•	•	•
	ADAM-5055S	•	•	•	•	•	•
Relay Output	ADAM-5060	•	•	•	•	•	•
	ADAM-5069	•	•	•	•	•	•
Counter/ Frequency	ADAM-5080	-	•	•	-	•	•
	ADAM-5081	•	-	-	•	•	•
Comm.	ADAM-5090	-	•	•	-	•	•
	ADAM-5095	•	-	-	•	-	-
Motion	ADAM-5202	•	-	-	•	-	-
	ADAM-5240	•	-	-	•	-	-
SD	ADAM-5030	•	-	-	•	-	-

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ADAM-5000 Remote I/O System Support Table

Remote I/O System			ADAM-5000/485	ADAM-5000E	ADAM-5000L/TCP	ADAM-5000/TCP
Function	I/O Module	Description	4-slot Distributed DA&C for RS-485	8-slot Distributed DA&C for RS-485	4-slot Distributed DA&C for Ethernet	8-slot Distributed DA&C for Ethernet
Analog Input (AI)	ADAM-5013	3-ch RTD Input	•	•	•	•
	ADAM-5017	8-ch AI	•	•	•	•
	ADAM-5017P	8-ch AI w/ Independent Input Range	•	•	•	•
	ADAM-5017H	8-ch high Speed (1K) AI	•	•	•	•
	ADAM-5017UH	8-ch Ultra high Speed (200K) AI	•	•	•	•
	ADAM-5018	7-ch Thermocouple Input	•	•	•	•
	ADAM-5018P	7-ch Thermocouple Input w/ Independent Input Range	•	•	•	•
Analog Output (AO)	ADAM-5024	4-ch AO	•	•	•	•
Digital Input (DI)	ADAM-5051	16-ch DI	•	•	•	•
	ADAM-5051D	16-ch DI w/ LED	•	•	•	•
	ADAM-5051S	16-ch Isolated DI w/ LED	•	•	•	•
	ADAM-5052	8-ch Isolated DI	•	•	•	•
Digital Output (DO)	ADAM-5056	16-ch DO	•	•	•	•
	ADAM-5056D	16-ch DO w/ LED	•	•	•	•
	ADAM-5056S	16-ch Isolated DO w/ LED	•	•	•	•
	ADAM-5056SO	16-ch Source Type Isolated DO w/ LED	•	•	•	•
Digital I/O	ADAM-5050	16-ch Universal Digital I/O	•	•	•	•
	ADAM-5055S	16-ch Isolated Digital I/O w/ LED	•	•	•	•
Relay Output	ADAM-5060	6-ch Relay Output	•	•	•	•
	ADAM-5069	8-ch Power Relay Output w/ LED	•	•	•	•
Counter/ Frequency	ADAM-5080	4-ch Counter/ Frequency	•	•	•	•
	ADAM-5081	4-ch High Speed Counter/Frequency	•	•	•	•

ADVANTECH   DIN-Rail IPCs

ADAM-5560CE/XPE ADAM-5560KW

7-slot PC-based Controller with Intel® Atom™ CPU

7-slot Micro PAC with Intel® Atom™ CPU

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NEW

RoHS COMPLIANT 2002/95/EC CE FCC

Features

- Optional SCADA solftware WebAccess through CTOS
- Integrated VGA port for local display of HMI software
- Can be operated with or without display/ keyboard/ mouse
- Remote monitoring through Web Server
- Remote maintenance via FTP Server
- Supports .NET class library in Windows CE and XP embedded
- Supports IEC-61131-3 SoftLogic Control Software
- Supports Modbus/RTU (Master/Slave) and Modbus/TCP (Server/Client)
- Supports SD Storage I/O Module
- Remote I/O expansion
- Supports ADAM-5000 I/O Modules

Introduction

The ADAM-5560 is a Programmable Automation Controller designed for control tasks which require Industrial PC computing performance with a PLC's robustness. The ADAM-5560 offers an Intel Atom CPU along with control specific features such as watchdog timer, battery backup RAM and deterministic I/O. The ADAM-5560KW features 5 standard IEC 61131-3 programming languages in Windows CE, so PLC users can develop control strategies with their own familiar programming languages. The powerful Multiprog KW Software and stable ProConOS have caused the ADAM-5560KW to become the best choice for a Programmable Automation Controller on the market today. Besides, the ADAM-5560CE offers an open platform that helps users to develop their own program using the common eVC and .NET programming environments to build compact and reliable control solutions. With the optional HMI Software and built-in VGA port, users no longer need to build additional SCADA PC's into their applications. This compact and powerful PAC is ideal for a variety of applications ranging from machine automation to SCADA applications.

Specifications

Control System

- **CPU**   Intel Atom Z510P
- **I/O Capacity**   7 slots
- **LED Indicators**   Power, User defined
- **Memory**   1 GB DDR2 SDRAM
                             1 MB Battery Backup
                             1 x CompactFlash® Card (Internal, 4GB)
- **Operating System**   Windows® CE5.0/Windows XP Embedded
- **Real-time Clock**   Yes
- **Watchdog Timer**   Yes
- **Control Software**   ADAM-5560CE: eVC and .NET library
                             ADAM-5560XPE: .NET library
                             ADAM-5560KW: KW Multiprog (development tool)
                                          ProConOS (runtime Kernel)

Communications

- **Comm. Protocol**   Modbus/RTU and Modbus/TCP
- **Medium**   2 x 10/100 Base-T w/ RJ-45
                             4 x RS-485 w/ DB9

Protection

- **Communication**   RS-485 Isolation 1.5kV for COM1,COM3 and COM4
                             RS-485 Isolation 2.5kV for COM2
- **Power Reversal**   Yes

Power

- **Power Consumption**   17w @ 24 V_{DC} (Not include I/O modules)
- **Power Input**   12 ~ 24 V_{DC}, ± 20%

General

- **Certification**   CE, FCC Class A
- **Connectors**   1 x RS-232/485 (COM1)
                             1 x RS-485 (COM2)
                             1 x RS-232/485 (COM3)
                             1 x RS-232/485 (COM4)
                             2 x USB 2.0 ports (KB/Mouse via USB Ports)
                             1 x VGA (1024 x 768 Resolution)
- **Dimensions**   355 x 110 x 75 mm
- **Enclosure**   ABS+PC
- **Mounting**   DIN-rail, wall mount (panel mount)
- **Plug-in Screw Terminal** Accepts 0.5 mm² to 2.5 mm², 1 – #12 or
                             2 - #14 to #22 AWG

Environment

- **Humidity**   5% to 95%, non-condensing
- **Operating Temperature** 0 ~ 55°C (32 ~ 131°F)
- **Storage Temperature**   -25 ~ 85°C (-13 ~ 185°F)

Ordering Information

- **Open Platform Solution**
  - ADAM-5560   7-slot PC-based Controller with Intel ATOM CPU
  - SQF-P10S2-16G-ETE   Suggested 16G CF NR, DMA (-40 ~ 85°C)
  - 2070012906   WES2009 Eng. for ADAM-5560
- **ADAM-5560CE**   7-slot PC-based Controller with Intel ATOM CPU (WinCE5.0)
- **ADAM-5560KW**   7-slot Micro PAC with Intel Atom CPU

ADAM-5560WA

7-slot Compact SCADA Controller with 600 Tags WebAccess

NEW

WebAccess

Windows Embedded | RoHS COMPLIANT 2002/95/EC | CE FCC

Features

- Bundled with Advantech WebAccess, browser based HMI/SCADA software
- Built-in Windows XP Embedded
- Fanless design with no internal cabling
- Remote monitoring through Web Server
- Remote maintenance via FTP Server
- Supports .NET class library in Windows XP embedded
- Supports more than 200 industrial protocols by 4 isolated comports and 2 LANs
- Onboard system status LED indicators
- Front-accessible design
- Remote I/O expansion
- Supports ADAM-5000 I/O Modules

Introduction

The ADAM-5560WA is a compact SCADA controller with 7-slots. It is built on Advantech's solid platform and comes pre-installed with WebAccess SCADA software and pre-configured with Windows XP Embedded and the IIS environment. Just plug in the power and a network cable and the web enabled browser-based controller is ready for users to start configuring the SCADA system and IO from a computer. This compact SCADA controller is powered by an Intel Atom Z510P processor. It provides excellent computing power with low power consumption. It also has a direct I/O connection to form a space saving controller system.

WebAccess Professional Version

- **I/O Tag Number**   600
- **Internal Tag Number**   600
- **Web Client**   1024
- **Alarm Logs**   5000
- **Action Logs**   5000
- **Node**   SCADA Node
- **Graphics**   Unlimited Number of Graphic Pages, Global Tag Source
- **Number of data logs**   Number of I/O Tag Licenses x 2
- **Others**   SCADA Redundancy
                             TclScript / VBScript / Jscript Language
                             Data Transfer and Reporting
                             ODBC and SQL Query
                             Device Redundancy

Specifications

Control System

- **CPU**   Intel Atom Z510P
- **I/O Capacity**   7 slots
- **LED Indicators**   Power, User defined
- **Memory**   1 GB DDR2 SDRAM
- **Storage**   1 x CompactFlash® Card (Internal, 4GB)
- **Operating System**   Windows XP Embedded (WES2009)
- **Real-time Clock**   Yes
- **Watchdog Timer**   OS and Application

Protection

- **Communication**   RS-485 Isolation 1.5kV for COM1,COM3 and COM4
                         RS-485 Isolation 2.5kV for COM2
- **Power Reversal**   Yes

Power

- **Power Consumption** 17W @ 24 V$_{DC}$ (Not include I/O modules)
- **Power Input**   12 ~ 24 V$_{DC}$, ± 20%

General

- **Certification**   CE, FCC Class A
- **Dimensions**   355 x 110 x 75 mm
- **Enclosure**   ABS+PC
- **Mounting**   DIN-rail, wall mount (panel mount)
- **Plug-in Screw Terminal** Accepts 0.5 mm² to 2.5 mm², 1 – #12 or 2 - #14 to #22 AWG

I/O Interfaces

- **Serial Ports**   1 x RS-485, Terminal, 50~115.2kbps
                         3 x RS-232/485, DB9, 50~115.2kbps
- **LAN Ports**   2 x RJ-45, 10/100Mbps
- **USB Ports**   2 x USB2.0
- **Displays**   1 x VGA, support 1024 x 768

Environment

- **Humidity**   5% to 95%, non-condensing
- **Operating Temperature** 0 ~ 55°C (32 ~ 131°F)
- **Storage Temperature**   -25 ~ 85°C (-13 ~ 185°F)

Ordering Information

- **ADAM-5560WA-T600E** 7-slot Compact SCADA Controller with 600 Tags WebAccess (Traditional Chinese)
- **ADAM-5560WA-C600E** 7-slot Compact SCADA Controller with 600 Tags WebAccess (Simplified Chinese)
- **ADAM-5560WA-E600E** 7-slot Compact SCADA Controller with 600 Tags WebAccess (English)

ADAM-5510 Series 4/8 slots PC-based Controller

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2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

Features

- Supports Modbus/RTU, Modbus/TCP Master and Slave function libraries
- Windows-based utility
- Optional support C Programming and IEC-61131-3 standard
- Complete set of I/O modules
- Built-in real-time clock and watchdog timer
- ROM-DOS operating system
- 4 serial communication ports
- Optional support Ethernet Interface with network function, such as Web Server, FTP Server and Email Alarm.
- 4 or 8 I/O slot expansion

ADAM-5510E   ADAM-5510

RoHS COMPLIANT 2002/95/EC   CE FCC

Introduction

The ADAM-5510 Series are ideal for PC-based data acquisition and control applications. They are compact, controllers with an Intel x86- based CPU running Datalight ROM-DOS. Built-in battery backup SRAM is the best choice for complex logic or data storage applications. For professional C/C++ programmers, the ADAM-5510 Series application programs may be written and compiled in Borland C++ 3.0, and downloaded to the controller.

For user who familiar with PLC programing environment, we provide the option for customer to use the KW softlogic which supports 5 standard IEC 61131-3 programming languages, including LD/FB/SFC/IL/ST.

Specifications

Control System

- **CPU**   80188, 16-bit microprocessor
- **I/O Slots**   Optional 8 or 4 slots
- **LED Indicators**   Power, CPU, communications and battery
- **Memory**   Flash disk: 1 MB (960 KB for user applications)
                       Flash memory: 256 KB
                       Flash ROM: 256 KB
                       RAM: 640 KB (up to 384 KB with battery backup)
- **Memory**   Flash disk: 512KB
  (Softlogic version) Flash memory: 768KB
                       Flash ROM: 256KB
                       RAM: 640KB SRAM, 32KB with battery backup (ADAM-5510KW)
                       RAM: 768KB SRAM, 17KB with battery backup (ADAM-5510KW/TCP,ADAM-5510EKW/TP)
- **Operating System** ROM-DOS (MS-DOS 6.22 Compatible)
- **Real-time Clock** Yes
- **Watchdog Timer**   Yes

Serial Communication

- **Max. Nodes**   256 (in RS-485 daisy-chain network)
- **Distance**   1.2 km (4,000 feet)
- **Speed**   1,200 bps ~ 115.2 kbps (9600, 19200, 38400 bps for Softlogic version)
- **Isolation**   2500 V_{DC} (COM2 only)

Ethernet Communication

- **Medium**   Cat.5 cable with RJ-45 connector
- **Distance**   100 m
- **Speed**   10/100Base-T

Power

- **Power Consumption** 4 W @ 24 V_{DC} (not including I/O modules)
- **Power Input**   Unregulated 10 ~ 30 V_{DC}
- **Isolation**   3000 V_{DC}
- **Reverse Protection** Yes

Software

- **ROM DOS version** C library for Borland C++ 3.0
- **Softlogic version** Development tool : KW Multiprog
                       Runtime kernel : ProConOS

General

- **Certification**   CE, FCC Class A
- **Connectors**   COM1 : DB9-M
                       COM2 : Screw terminal(RS-485)
                       COM3 : DB9-F (RS-232/Programming)
                       COM4 : DB9-M (RS-232/485)
                       Power : Screw terminal
                       LAN : RJ-45 (option)
- **Dimensions**   4-slot: 231 x 110 x 75 mm
                       8-slot: 355 x 110 x 75 mm
- **Enclosure**   ABS+PC
- **Mounting**   DIN-rail, stack, wall

Environment

- **Humidity**   5 ~ 95%, non-condensing
- **Operating Temperature** -10 ~ 70°C (14 ~ 158°F)
- **Storing Temperature** -25 ~ 85°C (-13 ~ 185°F)

Ordering Information

- **ADAM-5510M**   4-slot PC-based Controller
- **ADAM-5510E**   8-slot PC-based Controller
- **ADAM-5510/TCP**   4-slot PC-based Controller with Ethernet
- **ADAM-5510E/TCP**   8-slot PC-based Controller with Ethernet
- **ADAM-5510KW**   4-slot Softlogic Controller
- **ADAM-5510KW/TCP**   4-slot Softlogic Controller with Ethernet
- **ADAM-5510EKW/TP**   8-slot Softlogic Controller with Ethernet
- **MPROG-PRO535E**   KW Multiprog Pro v5.35 (128k bytes I/O, Win7 support)

ADAM-5000/485
ADAM-5000E

4-slot Distributed DA&C System for RS-485
8-slot Distributed DA&C System for RS-485
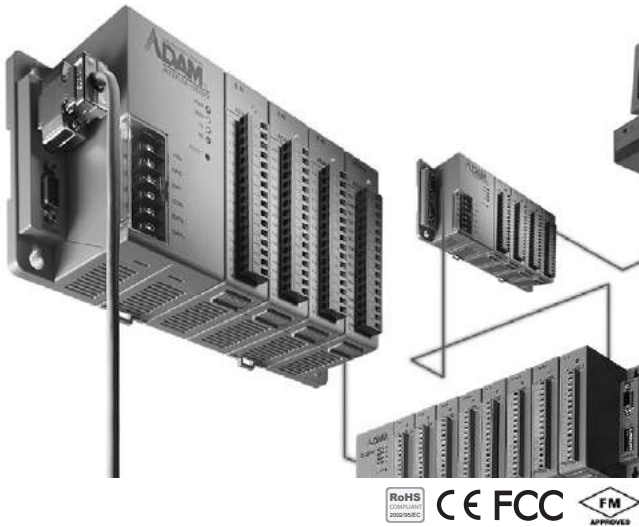
Features

- RS-485 communication for easy installation and networking
- 4 or 8 slots for up to 128 points data monitoring card control in one module
- Extensive software support, includes windows DLL drivers, OCX drivers, OPC server and popular HMI/SCADA software drivers
- Seamlessly integrated with easy-to-use ADAMView data acquisition software
- Supports ADAM ASCII protocol or Modbus®/RTU protocol
- Supports Modbus/RTU protocol with user-defined Modbus address

Introduction

The ADAM-5000/485 and ADAM-5000E systems conform to the EIA RS-485 communication standard. This is the industry's most widely used, balanced, bidirectional transmission line standard. RS-485 was specifically developed for industrial applications to transmit and receive data at high rates over long distances.

Specifications

Control System

- **CPU** — 16-bit 80188 microprocessor
- **I/O Slots** — ADAM-5000/485: 4
  ADAM-5000E: 8
- **LED Indicators** — Power, CPU, communications
- **Watchdog Timer** — 1.6 sec. (System)

Communications

- **Command Format** — ASCII command/response protocol, Modbus/RTU
- **Communication Distance** — RS-485: 1.2 km (4000 feet)
- **Data Format** — Asynchronous. 1 start bit, 8 data bits, 1 stop bit, no parity
- **Network Protocols** — Programming link: RS-232 (3-wire: TX, RX, GND)
  Communication: RS-485 (2-wire)
- **Reliability Check** — Communication error checking with checksum
- **Max. Nodes** — 128 (in RS-485 daisy-chain network)
- **Speeds (kbps)** — 1.2, 2.4, 4.8, 9.6, 19.2, 38.4, 57.6, and 115.2

Power

- **Power Consumption** — 3 W @ 24 V_{DC} (ADAM-5000/485)
  (not including I/O modules)
  4.0 W @ 24 V_{DC} (ADAM-5000E)
  (not including I/O modules)
- **Power Input** — Unregulated 10 ~ 30 V_{DC}

Software

- **Driver Support Windows DLL, OPC Server, Wonderware InTouch, Intellution, iFIX, Citect, Advantech Studio, ADAMView**
- **C and .NET Class Library**

Protection

- **Communication Line Isolation** — 2,500 V_{DC} (ADAM-5000/485)
  3,000 V_{DC} (ADAM-5000E)
- **I/O Module Isolation** — 3,000 V_{DC}
- **Transient Protection** — RS-485 communication lines, power input
- **Power Reversal Protection** — Yes

General

- **Certification** — CE, FM
- **Connectors** — 1 x DB9-M/DB9-F/screw terminal for RS-485 (communication)
  1 x DB9-F for RS-232 (configuration)
  1 x Screw-terminal for power input
- **Dimensions (WxHxD)** — 4-slot: 231 x 110 x 75 mm
  8-slot: 355 x 110 x 75 mm
- **Enclosure** — ABS+PC
- **Mounting** — DIN-rail, wall, rack (with mounting kit)

Environment

- **Humidity** — 5 ~ 95%, non-condensing
- **Operating Temperature** — -10 ~ 70°C (14 ~ 158°F)
- **Storing Temperature** — -25 ~ 85°C (-13 ~ 185°F)

Ordering Information

- **ADAM-5000/485** — 4-slot Distributed DA & C System for RS-485
- **ADAM-5000E** — 8-slot Distributed DA & C System for RS-485

ADAM-5000L/TCP
ADAM-5000/TCP

4-slot Distributed DA&C System for Ethernet
8-slot Distributed DA&C System for Ethernet

Features

- Cortex M4 CPU
- 10/100Base-T auto-negotiation high-speed communication port
- Supports Modbus/TCP for easy integration
- Supports UDP event handling function
- Up to 100 m communication distance w/o repeater
- Allows remote configuration via Ethernet
- Allows concurrent access for 16 host PCs
- 4 I/O slots for up to 64 points and 8 I/O slots for up to 128 points data monitoring and control
- 1500 V_{DC} isolation for Ethernet communication
- Built-in watchdog timer for system auto-reset
- Windows utility
  - I/O modules configuration and calibration
  - Network auto searching
  - Data stream setting
  - Current status monitoring and alarm trigger
- Provides C and .NET class library to develop applications
- Support GCL function for easy IO interlocking logic

ADAM-5000/TCP ▲   ADAM-5000L/TCP ▲

RoHS COMPLIANT 2002/95/EC   CE FCC

Introduction

The ADAM-5000L/TCP and ADAM-5000/TPC are both Ethernet-based I/O systems. Without a repeater, the ADAM-5000L/TCP and ADAM-5000/TCP can cover a communication distance up to 100 m. This allows remote configuration via Ethernet and sixteen PCs can simultaneously access the data. The ADAM-5000L/TCP and ADAM-5000/TCP are the solutions for easy configuration and efficient management. It is an ideal and cost-effective solution for eAutomation architecture.

Specifications

Control System

CPU	Cortex M4
I/O Slots	ADAM-5000L/TCP: 4
	ADAM-5000/TCP: 8
Memory	Flash ROM:1 MB
Operating System	Real-time OS
LED Indicators	Power (3.3 V)
	RUN
	Communication (Link, Active, 10/100 Mbps, Tx, Rx)
Storage	1 x MicroSD slot

Communications (Ethernet)

Data Transfer Rate	Up to 100 Mbps
Event Response Time	< 5 ms
Interface	2 x RJ-45 sharing one MAC Address
Wiring	UTP, category 5 or greater

Communications (Serial)

Comm. Distance	RS-485: 1.2 km (4000 feet)
	RS-232: 15 m
Comm. Protocol	Modbus/RTU
Data Transfer Rate	Up to 115.2 kbps
Interface	1 x DB9-M for RS-485
	1 x DB9-F for RS-485
	1 x DB9-F for RS-232 (System Monitoring)
Max. Nodes	15 (in RS-485 daisy-chain network for Remote I/O connection)

Power

Power Consumption	4.0 W @ 24 V_{DC} (ADAM-5000L/TCP)
	(not including I/O modules)
	5.0 W @ 24 V_{DC} (ADAM-5000/TCP)
	(not including I/O modules)
Power Input	Unregulated 10 ~ 30 V_{DC}

Software

API	VS.NET Llass Library
Windows Utility	Network setting, I/O configuration & calibration, data stream, alarm setting
Modbus/TCP OPC Server	

Protection

Communication Line Isolation	3.000 V_{DC}
I/O Module Isolation	3.000 V_{DC}
LAN Communication	1.500 V_{DC}
Overvoltage Protection	Yes
Power Reversal Protection	Yes

General

Certification	CE, FCC class A
Connectors	1 x DB9-M/DB9-F/screw terminal for RS-485 (communication)
	1 x DB9-F for RS-232 (internal use)
	1 x Screw-terminal for power input
	2 x RJ-45 for LAN
Dimensions (W x H x D)	ADAM-5000L/TCP: 231 x 110 x 75 mm
	ADAM-5000/TCP: 355 x 110 x 75 mm
Enclosure	ABS+PC
Mounting	DIN-rail, wall

Environment

Operating Humidity	5 ~ 95%, non-condensing
Operating Temperature	- 10 ~ 70°C (14 ~ 158°F)
Storage Temperature	- 25 ~ 85°C (-13 ~ 185°F)

Ordering Information

- **ADAM-5000L/TCP** 4-slot Ethernet-based Distributed DA & C System
- **ADAM-5000/TCP** 8-slot Ethernet-based Distributed DA & C System

iRTU Overview

Introduction

The ADAM-3600 is a new ADAM series for RTU application by leveraging IoT technology. They not only have high environmental adaptability to work in the far and wide remote station. But also the new form factor is very friendly for the installation in control cabinet. The domain focused on-board IO design and the 4 slots IO expansion capability provides the maximum flexibility to serve the application with less IO requirements.

TagLink, Core Technology for Big-data Application in IoT Era

TagLink is a new technology embedded in ADAM-3600 series product. It is a technology to help user to access data easily and intuitively as a tag. In the IoT Era, data is what customer mainly concern. But for traditional RTU device, user needs to take care about the IO source, scaling, unit translation and communication with other software. With TagLink, user can access the data direct to the ADAM-3600 by the tag name which is with engineering meaning and it will return the physical unit which is well scaled in the ADAM-3600. To achieve it, we provide a configuration utility for user to mapping the IO to configuration easily.

Vertical Driven Product Development

ADAM-3600 as an intelligent RTU is a terminal unit in every application field. It mainly executes the programmed tasks locally and reports all the status back to the center which could be in the cloud.

To fit in every vertical application, the unit needs to be with certain vertical features such as the domain protocols or algorithm. It is also a trusted embedded platform can carry user's domain intelligence. User can use familiar programming language to do the programming such as C or 5 kinds of PLC language defined by IEC-61131-3.

ADAM-3600-C2G series is designed for Oil&Gas and water market and focus on monitoring the gathering and transmission process in the wide area. It equips the on-board IO which could fulfill most of the application scenario on the field. The modularized expansion IO and communication module provide user maximum flexibility to adapt to the field application. It can also easily integrate to the Advantech WebAccess SCADA software and provide user a complete solution to the target application.

ADAM-3600-A1F series focus on realizing Smart City vision by leveraging IoT technology. Through it, user can access the data from cloud directly by IT oriented language. To secure user's data, it can log data in the SD/USB storage. It also provides user a friendly interface for user to monitor, maintain and upgrade the device.

ADAM-3600 development team will continue cultivating vertical market, and provide new models or firmware upgrade to service the more and more requirement for IoT applications. For any customization requirement, due to the flexible and open system architecture, we can also fulfill rapidly.

ADAM-3600-C2G

8AI / 8DI / 4DO / 4-Slot Expansion Wireless Intelligent RTU

Preliminary

Features

- High Performance CPU Cortex A8 600MHz
- Low Power DDR3L 256MB RAM
- Embedded Real-time Linux Kernel
- Domain Focused Onboard IO -8AI / 8DI / 4DO
- 4-Slot I/O Expansion
- High I/O Flexibility with 4-slot I/O Expansion
- Multiple wireless options for Zigbee/ Wi-Fi/ 3G/ 4G/ GPRS
- IEC61131-3&C Programming Language
- Modbus & DNP3 Protocol
- Operation Temperature -40~70°C

Introduction

The ADAM-3600-C2G is an intelligent Remote Terminal Unit with multiple wireless function capability, multiple I/O selection, wide temperature range and support flexible communication protocol for oil, Gas and Water application. In the oil, gas and water application environments the ADAM-3600 is ideal for any other remote inhospitable regions with many devices to be managed remotely

Features

Wide Array of Flexible I/Os

Wide array of on-board I/O and flexible expansion I/O modules supporting different acquisition requirements giving it a high cost performance.

Wireless Communication & Protocols

The ADAM-3600 simultaneously supports two mini-PCIe cards (a half-size and a full-size) for Wi-Fi/ 3G/ GPRS/ Zigbee communication which is flexible for wiring in the field. Modbus RTU/TCP and DNP3 protocol support that integrates the ADAM-3600 with more SCADA systems.

Wide Temperature Range

A -40~70°C operating temperature allows the ADAM-3600 to work in harsh environments and reduces the maintenance costs for customers.

Remote Firmware Update

The ADAM-3600 can use a USB drive and an SD card to automatically update the firmware so there's no need to bring a computer and execute the configuration program in the field.
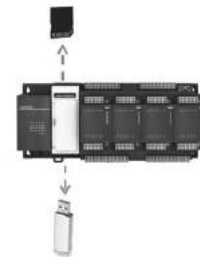
Intelligent Connectivity Diagnosis Manager (iCD Manager)

Remotely monitor the serial and Ethernet ports status and send the alarm information, during the communication failure, to improve the intelligent monitoring.

Node ID for Batch Configuration

Each ADAM-3600 has a node ID as its name to support batch configuration (max.64) with the configuration utility. When an alarm is displayed on the utility, customers can directly find the fault source with the node ID.

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2 Motion Control
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Specifications

Control System

- **CPU** — Cortex-A8 AM3352
- **Memory** — RAM 256MB
  Battery Backup RAM 32KB
- **OS** — RT-Linux
- **Storage** — MicroSD card / 1GB included for system
  SD card slot / Optional
- **Programming** — IEC-61131-3/ Linux C
- **Watchdog** — Yes
- **Real-time Clock** — Yes
- **Power Consumption** — 24V @5W

Communication

- **Protocol** — Modbus/ DNP3
- **Serial Port** — 1 x RS232/485- DB9
  2 x RS485- Terminal Block
- **Ethernet Port** — 2 x RJ-45 10/100Mbps
- **USB Port** — 1 x USB 2.0
- **VGA Port** — 1 x D-SUB15
- **LED** — System LEDs/ IO LEDs

Analog Input

- **Channel** — 8 differential
- **Resolution** — 16-bit
- **Input Type** — ±10V, ±2.5V, 0~20mA, 4~20mA
- **Isolation** — 2,000 V_{DC}

Digital Input

- **Channel** — 8
- **Input Type** — Wet Contact Input (Sink)
- **Protection Voltage** — +40 V_{DC}
- **Insolation** — 2,000 V_{DC}

Digital Output

- **Channel** — 4
- **Output Type** — Open Collector (Sink)
- **Rated Voltage** — 8~30V_{DC}

Wireless Communication(Selectable)

- **Interface** — Mini-PCIe (1 x Half-Size/ 1 x Full-Size)
- **Wireless Type** — Zigbee- UART Signal
  Wi-Fi/3G/GPRS- USB Signal

General

- **Certification** — CE/FCC/C1D2
- **Operating Temp.** — -40~70°C
- **Storage Temp.** — -40~85°C
- **Humidity** — 5~95%(no-condensation)
- **Mounting** — DIN 35 rail/ Wall Mount

Ordering Information

- **ADAM-3600-C2GL1AE** — 8AI/8DI/4DO/4-Slot Expansion Wireless Intelligent RTU

Pin Assignment
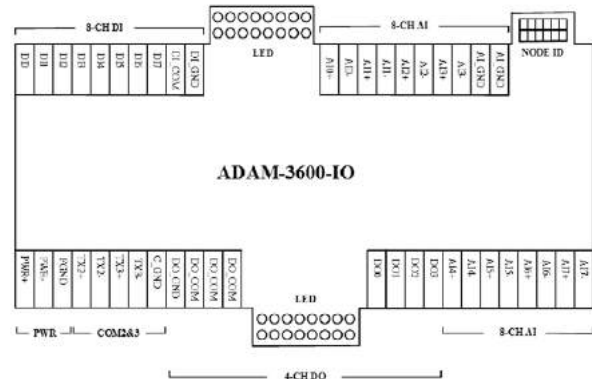
Layout
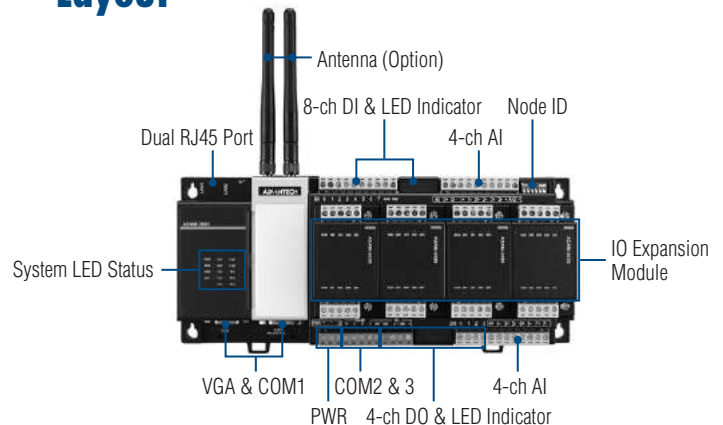
Wi-Fi Solution (Antenna is not included)

- **EWM-W150H02E** — Half-size mini card, Support 802.11bgn
- **1750006043** — SMA(M) cable, 15cm

3G/GPRS Solution (Antenna and SIM card are not included)

- **EWM-C109F601E** — 6-band HSPA Cellular Module with SIM holder
- **1750006264** — SMA(F) cable, 15cm

I/O Expansion Module Selection Table

Unit: Channels

Expansion Module	AI	T.C.	AO	DI	DO	RO
ADAM-3617	4					
ADAM-3618		3				
ADAM-3622			2			
ADAM-3651				8		
ADAM-3656					8	
ADAM-3664						4

Dimensions
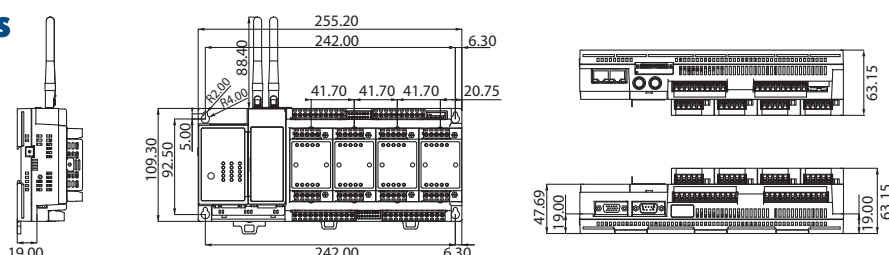
Unit: mm

ADAM-3600-A1F

16-ch Digital Input, 8-ch Relay Output with 4-Slot Expansion Module

Preliminary

Features

- 16-ch Digital Input, 8-ch Relay Output on board I/O
- Flexible I/O deployment by 4-slot expansion module
- Datalog by internal memory, SD card, USB
- Support the Access Control function
- Remote monitor, control and configure through a Web browser
- Supports built-in web server and RESTful Web service

Introduction

The ADAM-3600-A1F is an intelligent I/O module which provides 16 digital inputs, 8 relay outputs and 4 I/O expansion slots to approach different scenarios. With the data log and the data process functions, it can transmit truly useful data to the user. In addition, ADAM-3600-A1F has been built in a Web server. Users could remotely acquire I/O data in any Web service of smart device without routing from SCADA system.

Features

Flexible I/O deployment

The ADAM-3600 can approach different scenarios by switching I/O expansion modules. Users can easily change and expand ADAM-3600's I/O deployment by applying on board I/O and switching the I/O expansion modules.

Datalog by either a USB storage device or a SD card

The ADAM-3600 is able to log its data either a USB storage device or a SD card for preventing data losses and providing data for analysis.
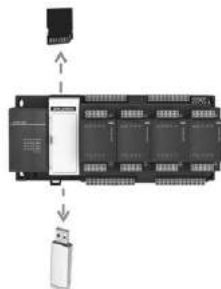
Built-in Switch

The ADAM-3600 can apply Daisy Chain topology, which can save the wiring costs and space.

30m 30m 30m
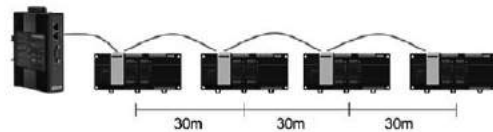
Remote monitor, control and configure through a Web browser

ADAM-3600-A1F I/O module feature a built-in Web server that can be accessed by using a common Web browser, such as IE, Safari, Chrome, and Firefox. There is a default Web page that is developed by HTML 5 and follow the REST software style. Users who are using remote computers or mobile devices can configure, monitor and control ADAM-3600-A1F module remotely through the Web page. This feature will bring obvious benefit to users in maintenance anywhere over the Ethernet in the local field. Moreover, it could allow programmers to create powerful, custom Web pages by using HTML5 and Java Script.

Layout
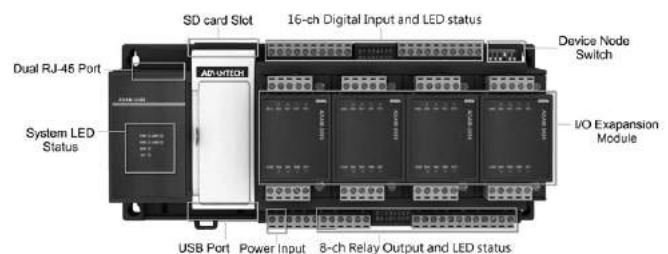
SD card Slot — 16-ch Digital Input and LED status — Device Node Switch — Dual RJ-45 Port — System LED Status — I/O Expansion Module — USB Port — Power Input — 8-ch Relay Output and LED status

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17 RS-485 I/O Modules
18 Data Acquisition Boards

Specifications

Digital Input

- **Channel** — 16
- **Wet Contact** — Logic level 0: 0~5 V
  Logic level 1: 10~30 V
- **Max. Input Frequency** — 3 kHz
- **Max. Counter Frequency** — 3 kHz
- **Isolation Protection** — 2500 V_{DC}

Relay Output

- **Channel** — 8
- **Input type** — Form A
- **Contact rating** — 250 V_{AC} @ 5A
  30 V_{DC} @ 3A
- **Relay on time** — 10 ms
- **Relay off time** — 5 ms
- **Insulation Resistance** — 1 GΩ
- **Maximum Switching** — 20 operations/minute
- **Isolation Protection** — 2500 V_{DC}

General

- **Protocol** — Modbus/TCP, TCP/IP, UDP, HTTP, DHCP
- **LAN** — 2 x RJ-45 ports , built-in switch
- **Watchdog** — System (1.6 second)
  Communication (programmable)
- **Power Input** — 10V ~ 30V
- **LED Indicator** — System LEDs
- **Mounting** — DIN 35 rail, Wall Mount
- **USB Port** — 1 x USB 2.0
- **SD card** — 1 x Standard SD card slot

I/O Expansion

- **Accompanied I/O slots** — 4 x expansion modules
- **Digital Signals** — 56 points (max)
- **Analog Signals** — 16 points (max)

Environment

- **Operating Temperature** — -40~70°C (-40~150°F)
- **Storage Temperature** — -40~85°C (-40~185°F)
- **Operating Humidity** — 20 ~ 95% RH (non-condensing)
- **Storage Humidity** — 0 ~ 95% RH (non-condensing)

Pin Assignment
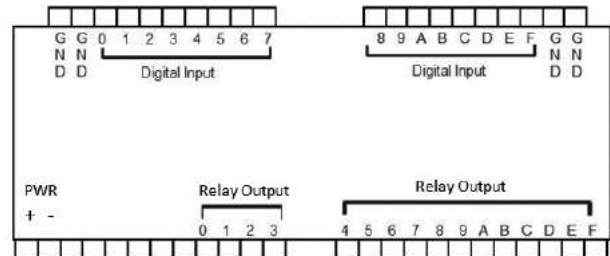
Ordering Information

- **ADAM-3600-A1FN0AE** — 16-ch Digital Input and 8-ch Relay Output Module with 4 slot Expansion Module

I/O Expansion Module Selection Table   Unit: Channels

Expansion Module	AI	T.C.	AO	DI	DO	RO
ADAM-3617	4					
ADAM-3618		4				
ADAM-3622			2			
ADAM-3651				8		
ADAM-3656					8	
ADAM-3664						4

Dimensions
Unit: mm
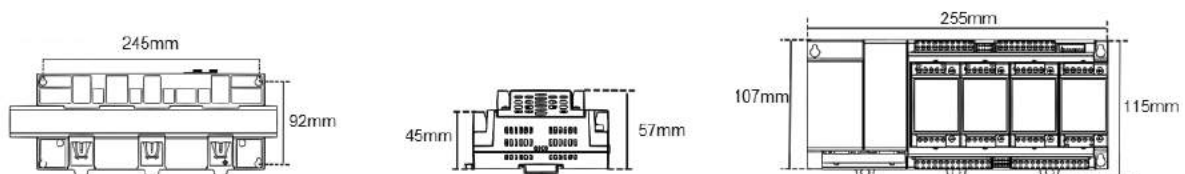
ADAM-3617-AE
ADAM-3618-AE
ADAM-3622-AE

4-ch Analog Input Module

3-ch Thermocouple Module

2-ch Analog Output Module

ADAM-3617-AE

ADAM-3618-AE

ADAM-3622-AE

Specifications

General

- **Power Consumption** 1W (Max)
- **Certification** CE/FCC
  C1D2

Analog Input

- **Channel** 4, differential
- **Input Type** Voltage, Current
- **Voltage/Current Range** ±10V, ±2.5V, 0~20mA, 4~20mA
- **Sampling rate** 10 sample/second (total)
- **Input Impedance** 10MΩ
- **Accuracy** ±0.2% or better of FSR (Voltage)
  ±0.2% or better of FSR (Current)
- **CMR @ 50/60 Hz** 120 dBs
- **NMR @ 50/60 Hz** 100 dBs
- **Span Drift** ± 50 ppm/°C
- **Zero Drift** ± 6 μV/°C, ± 6 μA/°C
- **Isolation Voltage** 2000 V$_{DC}$
- **Burn-out detection** Yes (Current-only)

Environment

- **Operating Temp.** -40 ~ 70°C
- **Storage Temp.** -40 ~ 85°C
- **Humidity** 5 ~ 95% (no-condensation)

Ordering Information

- **ADAM-3617-AE** 4-ch Analog Input Module

Specifications

General

- **Power Consumption** 1W (Max)
- **Certification** CE/FCC
  C1D2

Thermocouple Input

- **Channel** 3, differential
- **Input Type** J, K, T, E, R, S, B Type Thermocouple
- **Resolution** 16-bit
- **Sampling rate** 10 sample/second (total)
- **Input Impedance** 2MΩ
- **Accuracy** ±0.2% or better of FSR (Voltage)
  ±0.2% or better of FSR (Current)
- **CMR @ 50/60 Hz** 90 dBs
- **NMR @ 50/60 Hz** 60 dBs
- **Span Drift** ± 50 ppm/°C
- **Zero Drift** ± 6 μV/°C, ± 6 μA/°C
- **Isolation Voltage** 2000 V$_{DC}$
- **Burn-out detection** Yes (Current-only)

Environment

- **Operating Temp.** -40 ~ 70°C
- **Storage Temp.** -40 ~ 85°C
- **Humidity** 5 ~ 95% (no-condensation)

Ordering Information

- **ADAM-3618-AE** 3-ch Thermocouple Module

Specifications

General

- **Power Consumption** 1W (Max)
- **Certification** CE/FCC
  C1D2

Analog Input

- **Channel** 2
- **Output Impedance** 2.1 Ω
- **Output Settling Time** 20 μs
- **Driving Load** Voltage: 2kΩ
  Current: 500 Ω
- **Output Type** Voltage, Current
- **Output Range** 0 ~ 10 V$_{DC}$
  0 ~ 20 mA
  4 ~ 20 mA
- **Resolution** 12-bit
- **Accuracy** ± 0.3% of FSR (Voltage) at 25°C
  ± 0.5% of FSR (Current) at 25°C
- **Current Load Resistor** 0~500Ω
- **Drift** ± 50 ppm/°C
- **Isolation Voltage** 2000 V$_{DC}$

Environment

- **Operating Temp.** -40 ~ 70°C
- **Storage Temp.** -40 ~ 85°C
- **Humidity** 5 ~ 95% (no-condensation)

Ordering Information

- **ADAM-3622-AE** 2-ch Analog Output Module

ADAM-3651-AE
ADAM-3656-AE
ADAM-3664-AE

8-ch Digital Input Module

8-ch Digital Output Module

4-ch Relay Output Module

ADAM-3651-AE

ADAM-3656-AE

ADAM-3664-AE

Specifications

General

- **Power Consumption**   1W (Max.)
- **Certification**   CE/FCC
  C1D2

Digital Input

- **Channel**   8
- **Input Type**   Sink (Wet Contact)/Counter
- **Rated Input**   >5mA @ 12 V_{DC}
- **Current**   >10mA @ 24 V_{DC}
- **Input Filter**   Programmable,
  Default: 3ms
- **Pulse Input Frequency** 150Hz
- **Over Voltage Protection**   +40 V_{DC}

Environment

- **Operating Temp.**   -40 ~ 70°C
- **Storage Temp.**   -40 ~ 85°C
- **Humidity**   5 ~ 95% (no-condensation)

Ordering Information

- **ADAM-3651-AE**   8-ch Digital Input Module

Specifications

General

- **Power Consumption**   1W (Max.)
- **Certification**   CE/FCC
  C1D2

Digital Output

- **Channel**   8
- **Output Type**   Open Collector (Sink)
- **OC Output**
  Rated Voltage   8 ~ 30 V_{DC}
  Rated Current   200mA (max load)
- **Over Voltage Protection**   +40 V_{DC}
- **Pulse Output Frequency**   1KHz
- **Isolation Voltage**   2000 V_{DC}

Environment

- **Operating Temp.**   -40 ~ 70°C
- **Storage Temp.**   -40 ~ 85°C
- **Humidity**   5 ~ 95% (no-condensation)

Ordering Information

- **ADAM-3656-AE**   8-ch Digital Output
  (Sink type) Module

Specifications

General

- **Power Consumption**   1W (Max.)
- **Certification**   CE/FCC
  C1D2

Relay Output

- **Channel**   4
- **Breakdown Voltage**   500 V_{AC}
  (50/60 Hz)
- **Contact Rating**   AC: 125 V @ 0.6 A
  250 V @ 0.3 A
  DC: 30 V @ 2 A
  110 V @ 0.6 A
- **Insulation Resistance**   1 GΩ min. @ 500 V_{DC}
- **Relay Off Time (Typical)**   2 ms
- **Relay On Time (Typical)**   3 ms
- **Total Switching Time** 10 ms

Environment

- **Operating Temp.**   -40 ~ 70°C
- **Storage Temp.**   -40 ~ 85°C
- **Humidity**   5 ~ 95% (no-condensation)

Ordering Information

- **ADAM-3664-AE**   4-ch Relay Output Module

CompactPCI Systems

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To view all of Advantech's CompactPCI Systems, please visit www.advantech.com/products.

Advantech
CompactPCI

Features

- Commercial standard PCI chips provide high performance at a low price
- Up to 8 slots in one bus segment. Expandable using PCI-to-PCI bridge chips
- Eurocard form factor
- Airtight, high density, 2 mm pin-and-socket connectors
- Front loading and removal
- Vertical card orientation for better cooling
- Staged power pins for hot-swap capability
- Excellent shock and vibration characteristics

Introduction

Engineers have been trying to apply high-performance, low-cost PC technologies to critical applications such as telecommunications and industrial automation for quite some time. Unfortunately, the characteristics of desktop PC technologies do not readily lend themselves to critical applications where high serviceability, vibration & shock resistance, and good ventilation are required. CompactPCI may be the answer.

What is CompactPCI ?

CompactPCI is a small, rugged, high-performance industrial computer architecture based on the standard PCI bus specification. It was developed by the PCI Industrial Computers Manufacturers Group (PICMG) in late 1994, and is ideal for embedded applications.

Three important technologies form the core of CompactPCI: PCI local bus, Eurocard mechanics, and airtight pin-and-socket connectors.

PCI Local Bus

PCI stands for Peripheral Component Interconnect. It was published by Intel® in 1992, and soon became popular in commercial PC designs. It is a high-performance, processor-independent data bus, and most importantly, it is very inexpensive. The PCI local bus specification defines two data widths: 32-bit and 64-bit operating at a speed up to 66 MHz. This provides theoretical throughput up to 264 MB/s at 32-bit or 528 MB/s at 64-bit. Most computer systems and operating systems support the PCI bus. For example, Pentium, Alpha, PowerPC, Windows, Unix, and MacOS. Because PCI components are manufactured in large quantities, they are inexpensive and readily available. With these advantages, the PCI bus is very suitable for high speed computing and high speed data communication applications.

Eurocard Mechanics

Eurocard is an industrial-grade packaging standard popularized by VMEbus. CompactPCI allows the use of 3U and 6U Eurocards. The dimensions of a 3U CompactPCI board are 160 mm deep x 100 mm high, while the dimensions of a 6U CompactPCI board are 160 mm deep x 233.35 mm high. The front panels of CompactPCI boards are IEEE 1101.1 and IEEE 1101.10 compliant, and may include optional EMC gaskets to minimize electromagnetic interference. Typically, the front panel contains I/O connectors, LED indicators, and switches. CompactPCI also supports rear panel I/O, which is compliant with IEEE 1101.11. Rear panel I/O is popular for telecommunication equipment because of its easy-to-maintain characteristics. If all the wiring is done on rear transition boards (passive boards), the front CompactPCI boards (active boards), which may require maintenance, are "clean" without any connected wiring. The front CompactPCI boards can then simply be replaced without the need for rewiring.

Airtight Pin-and-Socket Connectors

CompactPCI uses airtight, high-density pin-and-socket connectors as specified in the IEC-1076 international standard. These 2 mm "hard metric" connectors have low inductance and controlled impedance, which reduce signal reflections caused by the high speed PCI bus. They enable CompactPCI systems to have up to eight slots in one bus segment.
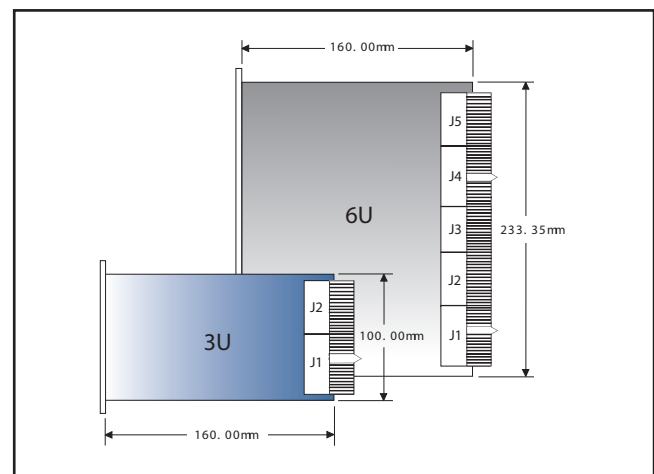
Eurocard Form Factor

The CompactPCI specification defines five connectors, designated as J1 through J5. The 3U CompactPCI board has two connectors labeled J1 and J2, while the 6U CompactPCI board has five connectors labeled J1 through J5. J1 and J2 are defined identically on both 3U and 6U CompactPCI boards, so 3U and 6U CompactPCI boards are electrically interchangeable.
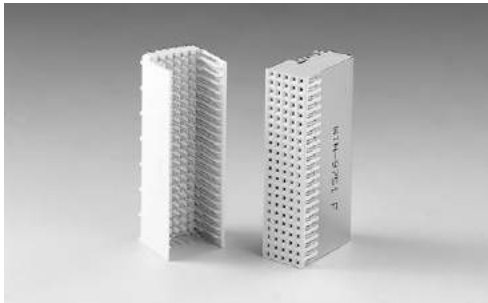
Pin-and-Socket Connector

CompactPCI versus Conventional Industrial PCs

Serviceability

Replacement of a card from a conventional industrial PC system is always time-consuming. Users need to unfasten the chassis cover, disconnect all wiring from the card, replace the card, reconnect the wiring, and refasten the chassis cover. It is a process prone to error because there can be internal cabling between cards and peripheral devices, and it is necessary to remove all cabling before a card can be replaced. The serviceability of conventional industrial PC systems is not as simple and fast as CompactPCI systems.

CompactPCI is designed to be a front loading and removable system. The replacement of a CompactPCI board is very simple, with no need to remove the chassis cover. In addition, if the I/O is cabled through the back of the system, the front CompactPCI boards are "clean" without any connected wiring, and the replacement of a CompactPCI board is quick and easy. The maintenance time can be reduced from a matter of hours (conventional industrial PCs) to a matter of minutes, yielding a lower Mean Time To Repair (MTTR).

4U 8-Slot CompactPCI Enclosure

4U 8-Slot CompactPCI Enclosure

Vibration and Shock Resistance

Conventional industrial PCs do not provide reliable and secure support for peripheral cards in the system. Cards inside conventional industrial PCs are screwed down at one point only, and the top and bottom card edges are not supported by guide rails. Therefore, the connecting edge of a card is prone to shift under shock and vibration.

CompactPCI boards are firmly mounted in the system. Guide rails support the top and bottom edges of the boards. Front panel retaining mechanisms securely lock the front panel to the surrounding mechanical frame. The connecting edge of the board is held tightly in place by the pin-and-socket connectors. With all four sides of the board firmly held in place, it is much less prone to suffer loss of electrical contact in high vibration and shock environments.

Ventilation

Conventional industrial PC systems cannot provide regular airflow paths, resulting in uneven cooling within the chassis. Airflow is blocked by backplanes, card brackets, and disk drives. Cooling air cannot circulate over all the cards, and hot air is not immediately forced out of the chassis. Electronic devices and circuit boards deteriorate because of these cooling related problems: warped circuit boards, bad connections, broken traces, and shortened component lives.

CompactPCI systems provide clear paths for airflow over all active, heat-producing boards in the system. Cooling air easily flows through the spaces between cards, and carries heat out of the spaces. A fan system can be integrated at the bottom of the boards to provide forced air to each slot. CompactPCI systems are therefore much less susceptible to cooling problems because of the even cooling pattern inherent in their mechanical design.

The Complete Offering for Mission-Critical Applications

The MIC-3000 series is an industrial CompactPCI solution which features front-end access, high shock and vibration tolerance characteristics, automatic cooling system, fault resilient and hot swappable capabilities. These features make MIC-3000 the most reliable PC-based computing platform, for mission-critical applications. Advantech leverages 3U CompactPCI as the industrial high-end computing platform, providing Pentium 4-grade CPU modules, 8-slot chassis, high-speed I/O and serial communication modules, to become a total solution provider for industrial CompactPCI solutions. Target applications include military defense, transportation, traffic control, test and measurement (T&M) and critical data acquisition & control markets.

MIC-3106
MIC-3111

4U CompactPCI With 2 Peripheral Slots

4U CompactPCI With 7 Peripheral Slots

Preliminary

MIC-3106   MIC-3111

Features

- 4U CompactPCI supports 2 or 7 peripheral slots
- High performance or low power consumption CPU selectable
- Lockable power on/off switch prevents inadvertent access
- 40dB Ultra low system noise for working environments
- Easy-accessible cooling fan and air filter for system maintenance
- Robust design, Anti-Vibration up to 2G with SSD

Introduction

The MIC-3106 and 3111 are Advantech's latest IPC's and the first to use the CompactPCI standard. CompactPCI is an open standard that gives users the flexibility to add the components that they need. The small footprint of MIC-3106 and 3111 makes it the smallest CPCI system available and offers either 2 or 7 expansion slots to give users the flexibility to build the system they require. For improved access and configuration, the MIC-3106 and 3111 are front accessible and the highly reliable nature of CompactPCI makes it the perfect choice for industrial applications. The three available models in the MIC-3106 and 3111 offer a choice of either high power or low power CPUs and therefore a range of prices to suit the requirements of specific companies.

Specifications

			MIC-3106	MIC-3111
Power Supply	Power Type		ATX	ATX
	Input Voltage		100 ~ 240 V_{AC}	100 ~ 240 V_{AC}
	Wattage		180W	180W
	ON/OFF Switch		Lockable Toggle Switch	Lockable Toggle Switch
Backplane	System Slot		1, on the right	1, on the right
	Peripheral Slot		2 Slots	7 Slots
	PCI Bus		32-bit 33MHz	32-bit 33MHz
Physical	Dimensions (W x H x D mm)		134 x 177 x 238	234 x 177 x 258
	Weight (kg)		4.33 Kg	6.14 Kg
Environment	Temperature	Operating	0 ~ 50°C	0 ~ 50°C
		Non-Operating	-20 ~ 60°C	-20 ~ 60°C
	Humidity (non-condensing)	Operating	10 ~ 85% @ 40°C	10 ~ 85% @ 40°C
		Non-Operating	10 ~ 95% @ 40°C	10 ~ 95% @ 40°C
	Vibration (5 ~ 500 Hz)	Operating	2Grms (without HDD)	2Grms (without HDD)
		Non-Operating	2G	2G
	Shock (11ms)	Operating	10G	10G
		Non-Operating	30G	30G
Compliance	Regulatory		CE, FCC, CCC, UL, RoHS	CE, FCC, CCC, UL, RoHS
	Compliance		PICMG 2.0 Rev. 3.0	PICMG 2.0 Rev. 3.0

Ordering Information

Part Number	Description
MIC-3106-00-AE	Modular Industrial Chassis 4U, 2 slots, w/ 180W
MIC-3111-00-AE	Modular Industrial Chassis 4U, 7 slots, w/ 180W
MIC-3106-L1-AE	4U, 2 slots, w/ 180W, MIC-3325N
MIC-3106-L2-AE	4U, 2 slots, w/ 180W, MIC-3325D
MIC-3106-H1-AE	4U, 2 slots, w/ 180W, MIC-3328 w/ 3217UE
MIC-3111-L1-AE	4U, 7 slots, w/ 180W, MIC-3325N
MIC-3111-L2-AE	4U, 7 slots, w/ 180W, MIC-3325D
MIC-3111-H1-AE	4U, 7 slots, w/ 180W, MIC-3328 w/ 3217UE
MIP-3104-AE	MIC-3100 PCI Hybrid Box
MIC-3106-H2-AE	4U, 2 slots, w/ 180W, MIC-3328 w/ 3517UE
MIC-3111-H2-AE	4U, 7 slots, w/ 180W, MIC-3328 w/ 3517UE

Optional Accessories

Part Number	Description
1990024035N000	Fan filter 130 x 10 x 12 mm³ (for MIC-3106)
1990024034N000	Fan filter 230 x 10 x 10 mm³ (for MIC-3111)
1750002440	Bottom side fan 60 x 60 x 13 mm³
1750007398-01	Up side blower 51 x 51 x 15 mm³
1960064154N001	4HP bracket cover
1960064193N001	Wall Mount Kit for MIC-3106
1960064192N001	Wall Mount Kit for MIC-3111
1960064183N001	Table Mount for MIC-3106
1960064184N001	Table Mount for MIC-3111

ADVANTECH **CompactPCI Systems**

CPU Options

L1	Processor	CPU	Intel Atom N455, 1.66GHz
		Memory	2 GB Onboard
		Storage	1 x CompactFlash Type II 1 x 2.5" SATA HDD
	Front I/O	VGA	1 x DB15 port
		Ethernet	2 x 10/100/1000 Mbps, RJ45 connector
		USB 2.0	3 x Type A
		Serial	2 x RS-232, DB9 connector
		PS/2	1
	Operating System	Windows	XP, XPE, 7
L2	Processor System	CPU	Intel Atom D525, 1.8GHz
		Memory	2GB On board
		Storage	1 x CompactFlash Type II 1 x 2.5" SATA HDD
	Front I/O	VGA	1 x DB15 port
		Ethernet	2 x 10/100/1000 Mbps, RJ45 connector
		USB 2.0	3 x Type A
		Serial	2 x RS-232, DB9 connector
		PS/2	1
	Operating System	Windows	XP ,XPE, 7

H1	Processor	CPU	Intel 3rd Gen. Core i3-3217UE, 1.6GHz
		Memory	4GB On board
		Storage	1 x CFast 1 x 2.5" SATA HDD
	Front I/O	VGA	1 x DB15 port
		Ethernet	2 x 10/100/1000 Mbps, RJ45 connector
		USB 2.0	2 x Type A
		Serial	2 x RS-232, RJ45 connector
		PS/2	1
	Operating System	Windows	XP, 7
H2	Processor	CPU	Intel 3rd Gen. Core i7-3517UE, 1.7 GHz
		Memory	4GB On board
		Storage	1 x CFast 1 x 2.5" SATA HDD
	Front I/O	VGA	1 x DB15 port
		Ethernet	2 x 10/100/1000 Mbps, RJ45 connectors
		USB 3.0	2 x Type A
		Serial	2 x RS-232, RJ45 connector
		PS/2	1
	Operating System	Windows	XP, 7

PCI Hybrid Box

MIP-3104		
Backplane	CPCI interface to chassis	1 for chassis
	PCI Slot	4 Slots
	PCI Slot Power (4 Slot)	12V @ 2.4A, -12V @ 0.8A, +5V @ 7.5A, +3.3V @ 10A
Physical	Dimensions (W x H x D mm)	142 x 131 x 213
	Weight (g)	725
Temperature	Operating	0~50°C
	Non-operating	-20~60°C
Humidity (non-condensing)	Operating	10~85% @40°C
	Non-operating	10~95% @40°C
Vibration (5~500 Hz)	Operating	1 Grms (with MIC-3100 chassis)
	Non-operating	1G
Shock (11 ms)	Operating	10G (with MIC-3100 chassis)
	Non-operating	30G
Compliance	Regulatory	CE, FCC
	Compliance	PICMG 2.0 Rev. 3.0

MIC-3121

Preliminary

Features

- 4U height rackmount CompactPCI supports 7 peripheral slots
- Optional 4-slot PCI hybrid box for flexible configuration
- Selectable high performance or low power consumption CPU
- Lockable power on/off switch prevents accidental access
- Very low noise cooling fan for quiet environments
- Easily-accessible cooling fan and air filter for system maintenance
- All front-accessible connectors/cables for easy wall mounting

Introduction

The MIC-3121 CompactPCI is Advantech's new generation IPC to meet the CompactPCI standard, it offers a 4U height rackmount platform, with compact features, and is the most compact device in its price range. The MIC-3121 measures 482 x 177 x 310 mm, which is the standard 4U height rackmount CPCI system. With seven CPCI expansion slots or three CPCI expansion slots plus an optional four slot PCI hybrid box, users have the flexibility to configure their own system. With all these features the MIC-3121 is an open platform with a front access modular design, and high reliability which makes it the perfect choice for industrial applications where high availability matters.

The MIC-3121 has two levels of CPU choice. One is the Intel Core i3-3217UE CPU for high performance applications, and the other is the Intel Atom N455 CPU which is the most cost effective for low power consumption applications.

Specifications

Power Supply	Power Type	ATX
	Input Voltage	100~240 V$_{AC}$
	Wattage	300W
	On/Off Switch	Lockable Toggle Switch
Backplane	System Slot	1 on the right
	Peripheral Slot	7 slots
	PCI Bus	32-bit 33 MHz
Dimensions (W x Hx D mm)	482 x 177 x 310	
Weight (kg)	9.65 Kg	
Temperature	Operating	0~50°C
	Non-operating	-20~60°C
Humidity (non-condensing)	Operating	10~85% @ 40°C
	Non-operating	10~95% @ 40°C
Vibration (5~500 Hz)	Operating	2Grms (without HDD)
	Non-operating	2G
Shock (11ms)	Operating	10G
	Non-operating	30G
Certification	CE, FCC, CCC, UL, RoHS	
Compliance	PICMG 2.0 Rev. 3.0	

Ordering Information

Part Number	Description
MIC-3121-00-AE	Modular Industrial Chassis 4U, 7 slots, w/ 300W
MIC-3121-L1-AE	4U, 7 slots, w/ 300W, MIC-3325N
MIC-3121-L2-AE	4U, 7 slots, w/ 300W, MIC-3325D
MIC-3121-H1-AE	4U, 7 slots, w/ 300W, MIC-3328 w/ 3217UE
MIP-3104-AE	MIC-3100 PCI Hybrid Box
MIC-3121-H2-AE	4U, 7 slots, w/ 300W, MIC-3328 w/ 3517UE

Optional Accessories

Part Number	Description
1990024038N000	Fan filter 430 x 10 x 10 mm3 (for MIC-3121 only)
1750002440	Bottom side fan 60 x 60 x 13 mm3
1750007398-01	Top blower 51 x 51 x 15 mm3
1960064154N001	4HP bracket cover
1960064155N001	8HP bracket cover

CPU Options

L1	Processor	CPU	Intel Atom N455, 1.66GHz
		Memory	2GB Onboard
		Storage	1 x CompactFlash Type II 1 x 2.5" SATA HDD
	Front I/O	VGA	1 x DB15 port
		Ethernet	2 x 10/100/1000 Mbps, RJ45 connector
		USB 2.0	3 x Type A
		Serial	2 x RS-232, DB9 connector
		PS/2	1
	Operating System	Windows	XP, XPE, 7
L2	Processor System	CPU	Intel Atom D525, 1.8GHz
		Memory	2GB On board
		Storage	1 x CompactFlash Type II 1 x 2.5" SATA HDD
	Front I/O	VGA	1 x DB15 port
		Ethernet	2 x 10/100/1000 Mbps, RJ45 connector
		USB 2.0	3 x Type A
		Serial	2 x RS-232, DB9 connector
		PS/2	1
	Operating System	Windows	XP, XPE, 7

H1	Processor	CPU	Intel 3rd Gen. Core i3-3217UE, 1.6GHz
		Memory	4GB On board
		Storage	1 x CFast 1 x 2.5" SATA HDD
	Front I/O	VGA	1 x DB15 port
		Ethernet	2 x 10/100/1000 Mbps, RJ45 connector
		USB 2.0	2 x Type A
		Serial	2 x RS-232, RJ45 connector
		PS/2	1
	Operating System	Windows	XP, 7
H2	Processor	CPU	Intel 3rd Gen. Core i7-3517UE, 1.7 GHz
		Memory	4GB On board
		Storage	1 x CFast 1 x 2.5" SATA HDD
	Front I/O	VGA	1 x DB15 port
		Ethernet	2 x 10/100/1000 Mbps, RJ45 connectors
		USB 3.0	2 x Type A
		Serial	2 x RS-232, RJ45 connector
		PS/2	1
	Operating System	Windows	XP, 7

PCI Hybrid Box

MIP-3104			
Backplane	CPCI interface to chassis		1 for chassis
	PCI Slot		4 Slots
	PCI Slot Power (4 Slot)		12V @ 2.4A, -12 V@ 0.8A, +5V @ 7.5A, +3.3V @ 10A
Physical	Dimensions (W x H x D mm)		142 x 131 x 213
	Weight (g)		725
	Temperature	Operating	0~50°C
		Non-operating	-20~60°C
	Humidity (non-condensing)	Operating	10~85% @40°C
		Non-operating	10~95% @40°C
	Vibration (5~500 Hz)	Operating	1 Grms (with MIC-3100 chassis)
		Non-operating	1G
	Shock (11 ms)	Operating	10G (with MIC-3100 chassis)
		Non-operating	30G
Compliance	Regulatory		CE, FCC
	Compliance		PICMG 2.0 Rev. 3.0

MIC-3001

Features

- 8-slot 3U CompactPCI®
- Easy installation: rack or panel mount
- Hot swap compliant backplane
- Hot swap fan tray module
- Optional fault detection and alarm notification
- Logic ground and chassis ground can be isolated or common

CE

Specifications

Backplane	Slots	8							
	Bus	32-bit/33 MHz							
	Vio Voltage	3.3 V/5 V (short-bar selectable)							
Device Bay	HDD or CD-ROM	Yes							
Cooling	Fan	2 (2 x 113 CFM)							
Power	Input	90 ~ 132 V_{AC}/180 ~ 264 V_{AC} @ 47 ~ 63 Hz.							
	Output	400 W							
	Loading (A)	Model	Load	+3.3 V	+5 V	-5 V	+12 V	-12 V	+5 Vsb
		MIC-3001	Max.	20	42	1	14	1	0.75
			Min.	0.2	2.5	0	0.5	0	0
Environment	Operating Temperature	0 ~ 50°C (32 ~ 122°F)							
	Storage Temperature	-40 ~ 80°C (-40 ~ 176°F)							
	Storage Humidity	10 ~ 90% @ 40°C, non-condensing							
Physical		MIC-3001/8				MIC-3001AR/8			
	Dimensions (W x H x D)	440 x 178 x 240 mm				440 x 178 x 283 mm			
	Weight	7 kg (15.4 lb)				10 kg (22 lb)			
	Operating Vibration	1.0 Grms w/CF disk 0.5 Grms w/3.5" HDD							
	Shock	10 G peak-to peak, 11ms duration							
Reliability	MTBF (hours)	71174 hours							
Compliance	PICMG Compliance	PICMG 2.0, R 2.1CompactPCI Specification PICMG 2.1, R 1.0 Hot Swap Specification							

Ordering Information

Part Number	Description
MIC3001AR801E-ES	4U CompactPCI chassis with 8-slot backplane, fan tray module, rear I/O and AC ATX power supply

MIC-3321

3U CompactPCI® Intel Celeron® M 1GHz / Pentium® M 2 GHz Controller
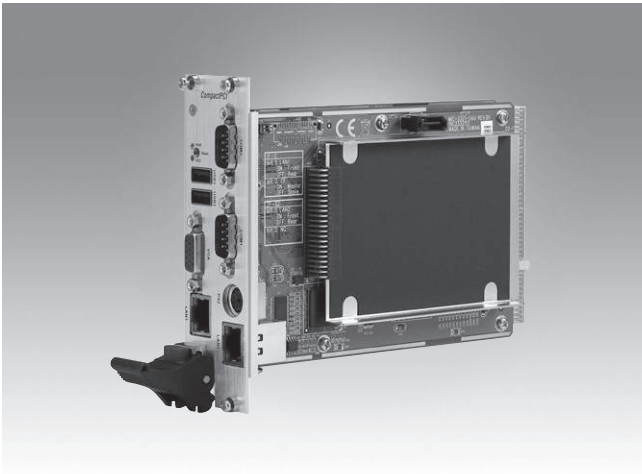
Features

- Built-in Intel® Pentium® M 760 2.0 GHz processor/ Celeron® M Ultra Low Voltage 373 1.0GHz processor
- Mobile Intel® 915GM express chipset
- Supports up to 1GB DDR2 533/400 SDRAM soldered on board
- Extended operating temp: -25 ~ 70°C (-13 ~ 158°F) (Optional: MIC-3321C only)
- Dual Giga LAN on PCI-Express
- High-performance Intel Graphics Media Accelerator 900 VGA display
- Onboard CompactFlash® disk socket
- Onboard 2.5" HDD support
- Rear I/O signal support for easy wiring (Only for MIC-3321D-DE)

RoHS COMPLIANT 2002/95/EC CE

Introduction

The MIC-3321D is a 3U CompactPCI system controller board that combines the performance of Intel's Mobile Pentium M 760 2.0GHz processor with the high integration of the 915GM chipset and the I/O Controller Hub ICH6. The MIC-3321C with the low power of the Intel Mobile Celeron M makes it possible to work with high extended temperature ranges. The directly soldered CPU and memory provides less weight and a higher shock/vibration resistance than socket devices. In all, MIC-3321 is a powerful 3U CompactPCI Controller that fulfills requirements in mission critical applications, such as military defense, transportation, traffic control, test and measurement (T&M) as well as critical data acquisition & control applications.

Specifications

CPU		MIC-3321D: Intel Pentium M 760 2.0 GHz with 2 MB L2 cache
		MIC-3321C: Intel Celeron M Ultra Low Voltage 373 1.0 GHz with 512 KB L2 cache
Chipset		Intel 915 GM (GMCH) + Intel 82801FBM (ICH6-M)
BIOS		Award 4 MB Flash
Bus	Front Side Bus	533 MHz (Intel Pentium M 760 2.0 GHz CPU) 400 MHz (Intel Celeron M Ultra Low Voltage 373 1.0 GHz CPU) PCI-to-PCI Bridge: PERICOM PI7C8150
	PCI Bus	7 x 32-bit/33MHz CompactPCI bus Master interface 3.3 V/5 V VIO adjustable
Memory		Directed Soldered 512 MB DDR2 SDRAM
Graphics		Controller: Intel Graphics Media Accelerator 900
		VRAM: DVMT3.0 128MB
		Resolution: Up to 2048 x 1536 with 32-bit color at 75 Hz
Ethernet		Interface: 10/100/1000 Mbps Gigabit Ethernet
		Controller: 2 x Intel 82573E/L PCI Express Gigabit Ethernet Controllers
		Connector: 2 x RJ-45
		Supports Pre-boot Execution Environment (PXE)
Serial		Interface: RS-232
		Controller: 2 x 16C550 Compatible
		Data Bits: 5, 6, 7, 8
		Stop Bits: 1, 1.5, 2
		Parity: None, Even, Odd
		Speed (bps): 50 ~ 115.2K
		Data Signal: TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND
		Connector: 2 x DB9 male
		Two as front I/O, one as rear I/O
P-IDE		One channel P-IDE Supports PIO mode 4 (16.67MB/s data transfer rate) and ATA 33/66/100 (33/66/100MB/s data transfer rate)
		1 x CompactFlash Socket Type II
		1 x 44-pin 2.5" HDD connector
USB		4 x USB 2.0 channels up to 480Mbps, 2 as front I/O, 2 as rear I/O

PS/2		PS/2 for keyboard and mouse legacy support
Watchdog Timer		0 ~ 64s, 0.25s step, generate reset signal
Hot Swap		Support for all signals to allow peripheral boards to be hot swapped. The individual clocks for each slot and access to the backplane ENUM# signal comply with the PICMG 2.1 Hot Swap specification. (PCI to PCI bridge GPIO3)
Front Panel Functions	4HP Board	1 x VGA-CRT 15-pin D-SUB connector Ethernet: 1 x RJ-45 connector with integrated LEDs USB: 2 x 4-pin connectors Reset: Reset button, guarded LED: Power, HDD
	8HP Board (Additional to 4HP)	COM1: 1 x DB9 RS-232 connector COM3: 1 x DB9 RS-232 connector PS/2: 1 x PS/2 connector for keyboard and mouse Ethernet: 1 x RJ-45 connector with integrated LEDs
Rear I/O via J2 (Only for MIC-3321D-DE)		2 x USB 2.0 channels
		2 x Gigabit Ethernet channels with LED (shared with front I/O)
		1 x COM port
		1 x VGA-CRT channel (shared with front I/O)
		1 x PS/2 keyboard/mouse channel (shared with front I/O)
Compliancy		PICMG 2.0 Rev. 3.0 compatible
		CompactPCI Hot Swap Specification PICMG 2.1 R2.0
Environment	Operating Temperature	0 ~ 50°C/ 32 ~ 122°F (Pentium M 2.0G / Celeron M 1.0G CPU) -25 ~ 70°C/ -13 ~ 158°F (Optional: Celeron M 1.0G CPU only)
	Storage Temperature	-40 ~ 80°C/ -40 ~ 176°F
Physical	Dimensions (L x H)	160 x 100 mm (3U)
	Weight	0.6 kg

Ordering Information

Part Number	Description
MIC-3321D-CE	Pentium M 2.0 GHz, 2MByte L2 cache, 512 MByte soldered DDR2 SDRAM, 8 HP width
MIC-3321C-CE	Celeron M 1.0 GHz, 512KByte L2 cache, 512 MByte soldered DDR2 SDRAM, 8 HP width

MIC-3323
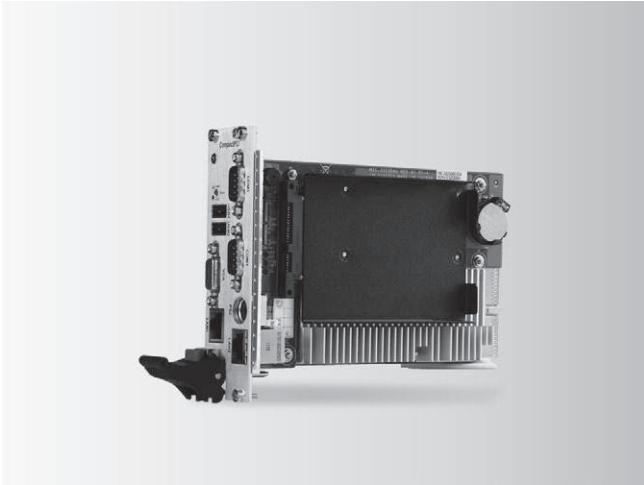
Features

- Supports two different CPU types
  - Intel® Core® 2 Duo or Atom™ D510 Processor
  - Intel® GME965 GMCH /ICH8M
- Supports up to 4GB DDR2 533/667 MHz SDRAM
- Dual Giga LAN ports
- High-performance Intel 965GME Graphics Media Acclerator
- Internal CompactFlash Slot or Supports SATA 2.5" HDD
- Supports Rear I/O Connections

RoHS COMPLIANT 2002/95/EC   CE FCC

Introduction

The MIC-3323 is a 3U CompactPCI® system control board, which support two different CPU grade, one adapts high performations Intel® Core® 2 Duo1.6GHz processor and highly integrated Intel® 965GM Express chipset, and the other one adapts Intel® Atom™ Processor D510 1.66GHZ and ICH8M chipset. In addition to 4MB L2 Cache, it supports 2GB DDR2 SDRAM up to 4GB and dual Gigabit Ethernet.

The MIC-3323 is a powerful 3U CompactPCI Controller that fulfills your requirements in mission critical applications, such as military defense, transportation, traffic control, test and measurement (T&M) as well as critical data acquisition & control application.

Specifications

CPU	Intel® Core® 2 Duo 1.6GHZ/Atom™ D510 1.66 GHZ (Note 1)
L2 Cache	4 MB L2 Cache/1MB L2Cache
Chipset	Intel® 965GM GMCH/ICH8M
BIOS	AWARD™ 4 Mbit /AMI 16Mbit Flash BIOS

BUS	Front Side Bus	533MHZ (Intel® Core® 2 Duo 1.6GHz CPU)
		533MHZ (Intel®Atom™ D510 1.66 GHZ CPU)
	PCI Bus	PCI-PCI bridge PERICOM PI7C8150
		7 x 32bit/33MHz Compact PCI bus master interface
		3.3V VIO

Memory	SDRAM, DDR2 533/667 MHz Support 2G (Note 2)
	Socket: 2 x 200-pin SODIMM sockets

Graphics	Chipset: Intergated Intel 965GME Chipset/Intel Atom D510
	Resolution: Up to 1920 x 1080

Ethernet	Interface: 1000/100/10M Base-TX Gigabit Ethernet
	Controller: PCI-Expressx1 Intel@82574L Ethernet Controller
	Connector: RJ-45 x 2
	Optional Front End or Rear End Ethernet (Selected with Switch)

Serial	Interface: RS-232
	UART: 3 x 16C550 compatible
	Data bits: 5,6,7,8
	Stop Bits: 1,1.5,2
	Parity: None, Even, Odd
	Speed: 50~115.2Kbps
	Data Signal: TXD, RXD, RTS, CTS, DTR, DSR, DCD, RI GND
	Connector: 3 X DB-9 (Two in Front Panel and one in Real I/O)

SATA	1 x SATA interface, data transfer rate up to 300MB/S(Note 3)
USB	4 x USB 1.1 channels up to 480Mbps, 2 as front I/O, 2 as rear I/O (doesn't support USB 2.0)
PS/2	Used for Keyboard and mouse
Watchdog Timer	256 levels timer interval, from 0 to 255 sec or min setup by software, jumper less selection, generates system reset

Hot-swap	Supports for all signal to allow peripheral boards to be Hot swapped
Compliance	PICMG®2.0 Rev.3.0 Compatible
	Compact PCI Hot-swap PICMG® 2.1 Rev.2.0

Environment	Humidity: 5~95% (non-condensing)
	Working Temp: 0 ~ 50°C
	Storage Temp: -40°C~80°C

Physical	Dimensions (W X H): 160 X 100mm (3U)
	Weight: 0.8Kg

Front panel Function(8HP) (MIC-3323)	COM1/3: 2X DB9, RS-232
	PS/2: 1 for Keyboard and Mouse
	Ethernet: 2 x RJ-45 connectors with LEDs
	VGA: 1 x 15 pin D-SUB connector
	USB: 2 x USB1.1, 4 pin Connector
	Button: Reset Button
	LED: Power, HDD

Rear I/O Panel Function (8HP)	COM2: 1 x DB9,RS-232
	PS/2: 1 for keyboard and Mouse (Shared with Front PS2)
	Ethernet: 2 x RJ-45 connectors with LED (Shared with Front I/O, selected with switch)
	VGA: 1 x 15 pin D-SUB connectors (shared fornt VGA)
	USB: 2 x USB2.0,4 pin connector

Note 1: Select different CPU grade by order number
Note 2: Supports 2GB, up to 4GB
Note 3: Support SATA or CF Card by order number

Ordering Information

- **MIC-3323D01-D23E** 3U CompactPCI® Intel® Core® 2 Duo 1.6GHz Controller with SATA HDD/8HP

- **MIC-3323D01-A33E** 3U CompactPCI® Intel® Atom D510 1.66G Controller with SATA HDD/8HP

MIC-3611
MIC-3612
MIC-3620

MIC-3611/3 CE FCC

MIC-3612/3 CE
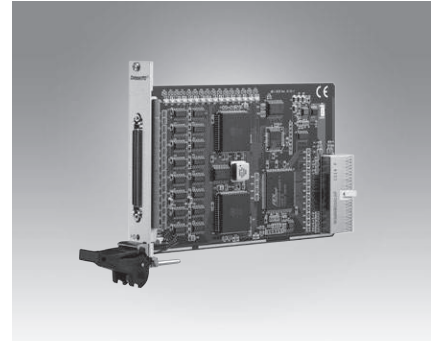
MIC-3620/3 CE FCC

Features

- PCI Specification 2.1x compliant
- Speeds up to 921.6Kbps
- 16C954 UARTs with 128-byte standard
- Standard Industrial 3U/6U sized CPCI Board size
- I/O address automatically assigned by PCI Plug-and-Play
- OSs supported: Windows 98/2000/XP
- Surge protection: 2,000 V_{DC}
- Isolation protection: 2,500 V_{DC}
- Interrupt status register for increased performance
- Space reserved for termination resistors(for RS-422/485)
- Automatic RS-485 data flow control

Specifications

Communications

- **Communication**   BUS controller: PLX9030 Controller UART: 16C954 UART with 128-byte FIFOs
- **IRQ**   All ports use the same IRQ assigned by PCI Plug-and-Play
- **Data Bits**   5, 6, 7, 8
- **Stop Bits**   1, 1.5, 2
- **Parity**   none, even, odd
- **Speed**   50bps ~ 921.6 Kbps
- **Data Signals**   TxD, RxD ,RTS, CTS (for RS-422/485)
- **Surge Protection**   2,000 V_{DC}
- **Isolation Protection** 2,500 V_{DC}

General

- **Bus Type**   CompactPCI bus specification 2.1 compliant
- **I/O Connectors**   DB44 and four RS422/485 DB9 male
- **Dimensions (L x H)** 160 x 100 mm (6.3" x 3.9"), 3U bracket
- **Power Consumption** +5 V @ 600 mA
- **Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature** -20 ~ 80°C (-4 ~ 176°F)
- **Operating Humidity** 5 ~ 95% Relative Humidity, non-condensing
- **Certification**   CE, FCC

Ordering Information

- **MIC-3611/3-AE**   4-port RS-422/485 3U CompactPCI communication card w/isolation & surge protection

Features

- PCI Specification 2.1 compliant
- Speeds up to 921.6 kbps
- 4-port RS-232/422/485
- Surge protection
- 16C954 UARTs with 128-byte standard
- Standard Industrial CompactPCI® 3U Board size
- I/O address automatically assigned by PCI Plug & Play
- OSs supported: Windows® 98/2000/XP, Linux 2.4
- Interrupt status register for increased performance
- Automatic RS-485 data flow control
- Tx/Rx LED indicator

Specifications

Communications

- **Communication**   BUS controller: PLX9030 Controller UART: 16C954
- **Data Bits**   5, 6, 7, 8
- **Data Signals**   TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND (for RS-232) TxD, RxD, RTS, CTS (for RS-422) DATA+, DATA- (for RS-485)
- **IRQ**   All ports use the same IRQ assigned by PCI Plug & Play
- **Parity**   None, even, odd
- **Speed (bps)**   50 ~ 921.6 k
- **Stop Bits**   1, 1.5, 2

General

- **PICMG Compliance**   CompactPCI V2.0, R 3.0 Hot swap V2.1, R 2.0
- **Bus Type**   CompactPCI V2.1
- **I/O Connectors**   DB 44pin female
- **Dimensions (L x H)** 160 x 100 mm (6.3" x 3.9"), 3U bracket
- **Power Consumption**

	Typical	Max.
+5 V	220 mA	285 mA
+3.3 V	100 mA	200 mA
+12 V	60 mA	80 mA

- **Operating Temperature** 0 ~ 70°C (32 ~ 158°F) (IEC68-2-1, 2)
- **Storage Temperature** -20 ~ 80°C (-4 ~ 176°F)
- **Operating Humidity** 5 ~ 95% RH, non-condensing (IEC 68-2-1, 2)

Ordering Information

- **MIC-3612/3-AE**   3U CompactPCI 4-port RS-232/422/485 Card
- **MIC-3612/6-AE**   6U CompactPCI 4-port RS-232/422/485 Card

Features

- PCI Specification 2.1 compliant
- Speeds up to 921.6 kbps
- 16C954 UARTs with 128-byte standard
- 8-port RS-232
- Standard Industrial CompactPCI 3U Board size
- I/O address automatically assigned by PCI Plug & Play
- OSs supported: Windows 98/2000/XP, Linux 2.4
- Interrupt status register for increased performance

Specifications

Communications

- **Communication**   PCI9030 + 16C954 Controller
- **Data Bits**   5, 6, 7, 8
- **Data Signals**   TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND
- **IRQ**   All ports use the same IRQ assigned by PCI Plug & Play
- **Parity**   None, even, odd
- **Speed (bps)**   50 ~ 921.6 k
- **Stop Bits**   1, 1.5, 2

General

- **PICMG Compliance**   CompactPCI V2.0, R 3.0 Hot swap V2.1, R 2.0
- **Bus Type**   CompactPCI bus specification 2.1 compliant
- **I/O Connectors**   SCSI 68-pin female
- **Dimensions (L x H)** 160 x 100 mm (6.3" x 3.9"), 3U Bracket
- **Power Consumption** +5 V, +3.3 V, +12 V
- **Operating Temperature** 0 ~ 70°C (32 ~ 158°F) (refer to IEC68-2-1, 2)
- **Storage Temperature** -20 ~ 80°C (-4 ~ 176°F)
- **Storage Humidity**   5 ~ 95% Relative Humidity, non-condensing (IEC 68-2-1, 2)

Ordering Information

- **MIC-3620/3-AE**   3U CompactPCI 8-port RS-232 Card

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

MIC-3621
MIC-3680

8-Port RS-232/422/485 6U CompactPCI® Card with Surge Protection

2-Port CAN-bus 3U CompactPCI® Card

MIC-3621

MIC-3680/3
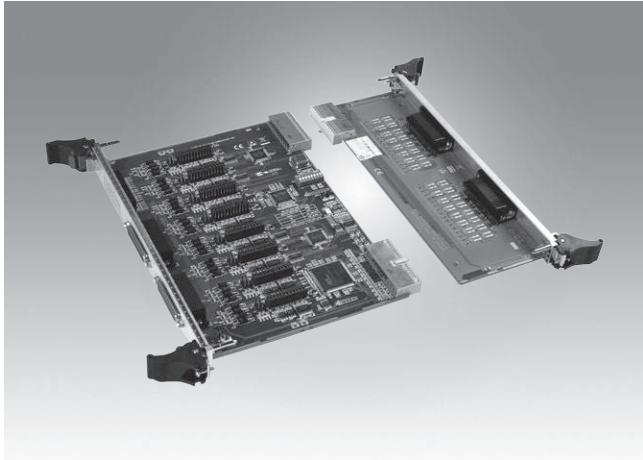
Features

- CPCI Specification 2.1 compliant
- Speeds up to 921.6 kbps
- 16C954 UARTs with 128-byte standard
- 8-port RS-232/485/422
- Standard Industrial CompactPCI 6U Board size
- I/O address automatically assigned by PCI Plug & Play
- Interrupt status register for increased performance
- Automatic RS-485 data flow control
- OS support: Windows 2000/XP

Features

- CompactPCI specification PICMG 2.0 R3.0 compatible
- Hot swap support
- Two individual CAN ports
- Supports CAN2.0 A/B
- High speed transmission up to 1 Mbps
- 16 MHz CAN controller frequency
- Optical isolation up to 2,500 V_{DC}
- Microsoft Windows DLL library and examples included
- Supports Windows 98/2000/XP drivers and utility
- Supports Rear I/O

Specifications

Communications

- **Communication Controller** — BUS Controller: PCI9030 UART:16C954 Controller
- **Data Signals -** **RS-232** TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND
  RS-422 TX+, TX-, RX+, RX-, RTS+, RTS-, CTS+, CTS-, GND
  RS-485 DATA+, DATA-, GND
- **Speed (bps)** 50~921.6k
- **Data Bits** 5, 6, 7, 8
- **Stop Bits** 1, 1.5, 2
- **Parity** None, even, odd
- **IRQ** All ports use the same IRQ assigned by PCI plug & play
- **Surge Protection** 2,500 V_{DC}

General

- **PICMG Compliance** CompactPCI V2.0, R 2.1 Hot swap V2.1, R 2.0
- **Bus Type** CompactPCI bus specification 2.1 compliant
- **Hotswap Support** Yes
- **I/O Connectors** 2 x DB44 (female)
- **Dimensions (LxH)** 233.35 x 160 mm (9.19" x 6.3"), 6U Bracket
- **Power Consumption** +5V, +3.3V, +12V
- **Operating Temperature** 0~70°C (32~158°F) (refer to IEC68-2-1, 2)
- **Storage Temperature** -20~80°C (-4~176°F)
- **Storage Humidity** 5~95%, Relative Humidity, non-condensing (refer to IEC 68-1,-2,-3)

Specifications

Communications

- **CAN Controller Frequency** 16 MHz
- **CAN Transceiver** 82C250
- **Communication Controller** SJA-1000
- **Ports** 2
- **Protocol** CAN 2.0 A/B
- **Signal Support** CAN_H, CAN_L, GND
- **Speed (bps)** Up to 1 Mbps programmable transfer rate
- **Isolation Protection** 2,500 V_{DC}

General

- **PICMG Compliance** CompactPCI V2.0, R 3.0 Hot swap V2.1, R 2.0
- **Bus Type** CompactPCI
- **I/O Connectors** 2 x DB9-M
- **Dimensions (L x H)** 160 x 100 mm (6.3" x 3.9")
- **Power Consumption** 5 V @ 400 mA (Typical)
- **Operating Temperature** 0 ~ 65°C (32 ~ 149°F)
- **Storage Temperature** -25 ~ 85°C (-13 ~ 185°F)
- **Storage Humidity** 5 ~ 95% RH, non-condensing

Ordering Information

- **MIC-3680/3-AE** 3U CompactPCI 2-port Isolated CAN Communication Card

Ordering Information

- **MIC-3621RE** 6U CompactPCI 8-port RS-232/485/422 Front I/O Card and Rear I/O Support
- **MIC-3621RIOE** 6U CompactPCI Rear I/O Module for MIC-3621RE

ADVANTECH **CompactPCI Systems**

MIC-3716
MIC-3723
MIC-3758

250 kS/s, 16-bit, 16-ch Multifunction 3U CompactPCI® Card

16-bit, 8-ch Analog Output 3U CompactPCI® Card

128-CH Isolated Digital I/O 3U CompactPCI® Card

MIC-3716/3

MIC-3723/3
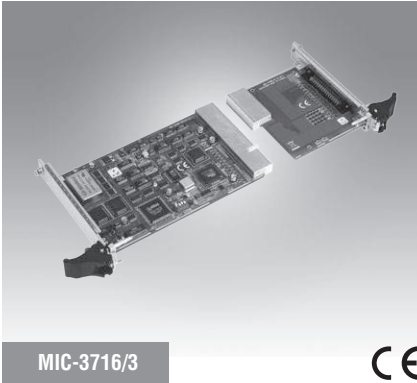
MIC-3758/3

Specifications

Analog Input
- **Channels**: 16 single-ended, 8 differential, or combination
- **Resolution**: 16 bits
- **Max. Sampling Rate**: 250 kS/s
- **FIFO Size**: 1024 samples/ch
- **Overvoltage Protection**: 30 Vp-p
- **Input Impedance**: 100 MΩ/10 pF (Off); 100 MΩ/100 pF (On)
- **Sampling Modes**: Software, pacer, or external
- **Input Range**

Bipolar	±10	±5	±2.5	±1.25	±0.625
Unipolar	-	0 ~ 10	0 ~ 5	0 ~ 2.5	0 ~ 1.25
Accuracy (% of FSR ±1LSB)	0.15	0.03	0.03	0.05	0.1

Analog Output
- **Channels**: 2
- **Resolution**: 16 bits
- **Output Rate**: Static update
- **Output Range**

Internal Reference	Bipolar	±5, ±10
	Unipolar	0 ~ 5, 0 ~ 10
External Reference		0 ~ +x v @ +x v (-10 ≤ x ≤ 10) -x ~ +x v @ +x v (-10 ≤ x ≤ 10)

- **Slew Rate**: 20 V/μs
- **Driving Capability**: ±20 mA
- **Output Impedance**: 0.1 Ω max.
- **Operation Mode**: Single output
- **Accuracy**: Relative: ±1LSB

Digital Input/Output
- **Channels**: 16, 5V/TTL
- **Input Voltage**: Logic 0: 0.4 V max.
Logic 1: 2.4 V min.
- **Output Voltage**: Logic 0: 0.4 V max.
Logic 1: 2.7 V min.
- **Output Capability**: Sink: 0.4 V max. @ +8 mA
Source: 2.4 V min. @ -0.4 mA

Counter/Timer
- **Channels**: 3
- **Compatibility**: 5 V/TTL
- **Resolution**: 16 bits
- **Max. Input Frequency**: 1 MHz
- **Reference Clock**: Internal 10 MHz
External Clock Frequency 10 MHz
External Voltage Range TTL (Low: 0.8, High: 2 V)

General
- **PICMG Compliance**: CompactPCI V2.0, R 2.1 Hot-Swap V2.1, R 2.0
- **Bus Type**: CompactPCI
- **I/O Connector Type**: 68-pin SCSI-II female
- **Dimensions (L x H)**: 160 x 100 mm (6.9" x 3.9") with 3U Bracket
- **Power Consumption**: Typical: +5 V @ 850 mA, +12 V @ 600 mA
Max.: +5 V @ 1 A, +12 V @ 700 m A
- **Certification**: CE

Ordering Information

- **MIC-3716/3-AE**: 3U, 250 kS/s, 16-bit, 16-ch High-Resolution Multifunction Card
- **PCLD-8710-AE**: Industrial Wiring Terminal Board with CJC circuit for DIN-rail Mounting. (cable not included)
- **PCL-10168-1E/2E**: 68-pin SCSI-II cable with male connectors on both ends and special shielding for noise reduction, 1 and 2 m
- **ADAM-3968-AE**: 68-pin SCSI-II Wiring Terminal Board for DIN-rail Mounting
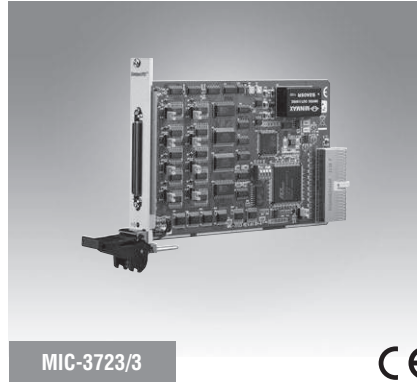
Specifications

Analog Output
- **Channels**: 8
- **Resolution**: 16 bits
- **Output Rate**: Static update
- **Output Range**: (V, software programmable)

Internal Reference	Unipolar	±10 V
	Current Loop	0 ~ 20 mA, 4 ~ 20 mA

- **Slew Rate**: 20 V/μs
- **Driving Capability**: 5mA
- **Output Impedance**: 0.1 Ω max.
- **Operation Modes**: Single output, synchronized output

Digital Input/Output
- **Channels**: 16, 5V/TTL
- **Input Voltage**: Logic 0: 0.8 V max.
Logic 1: 2.0 V min.
- **Output Voltage**: Logic 0: 0.5 V max. @ 24 mA
Logic 1: 2.4 V min. @ -15 mA
- **Output Capability**: Sink: 0.5 V max. @ 24 mA
Source: 2.4 V min. @ -15 mA

General
- **PICMG Compliance**: CompactPCI V2.0, R 2.1 Hot-Swap V2.1, R 2.0
- **Bus Type**: CompactPCI
- **I/O Connector Type**: 68-pin SCSI-II female
- **Dimensions (L x H)**: 160 x 100 mm (6.9" x 3.9") with 3UBracket
- **Power Consumption**: Typical: 5 V @ 850, 12 V @ 600 mA
- **Certification**: CE

Ordering Information

- **MIC-3723/3-AE**: 3U CompactPCI 16-bit, 8-ch non-isolated analog output card
- **PCL-10168-1E**: 68-pin SCSI-II cable with male connectors on both
- **PCL-10168-2E**: ends and special shielding for noise reduction, 1 and 2 m
- **ADAM-3968-AE**: 68-pin SCSI-II Wiring Terminal Board for DIN-rail mounting

Specifications

Isolated Digital Input
- **Channels**: 64
- **Input Voltage**: Logic 0: 2.5 V max.
Logic 1: 5 V min. (25 V max)
- **Interrupt Capable Ch.**: 64
- **Isolation Protection**: 2,500 V$_{DC}$
- **Opto-Isolator Response**: 50 μs
- **Input Resistance**: 3 kΩ

Isolated Digital output
- **Channels**: 64
- **Output Type**: Sink (NPN)
- **Isolation Protection**: 2500 V$_{DC}$
- **Output Voltage**: 5 ~ 40 V$_{DC}$
- **Sink Current**: 90 mA max./Channel
- **Opto-isolator Response**: 50 μs

General
- **Bus Type**: CPCI bus spec. 2.1 compliant
- **I/O Connectors**: 1 x MINI-SCSII HDRA-E100 Female
- **Dimensions (L x H)**: 160 x 100 mm (6.9" x 3.9") with 3U Bracket
- **Power Consumption**: Typical: +5 V @ 800 mA, +3.3 V @ 600 mA
Max : +5 V @ 1 A, +3.3 V @ 1 A
- **Operating Temperature**: 0 ~ 60°C (32 ~ 140°F) (IEC 68-2-1,2)
- **Storage Temperature**: -20° ~ 70°C (-4°~ 158°F)
- **Storage Humidity**: 5 ~ 95% (IEC 68-2-3) non-condensing

Ordering Information

- **MIC-3758/3-AE**: 3U CompactPCI 128-ch isolated Digital I/O card
- **PCL-101100S-1**: 100-pin SCSI Cable, 1 m
- **ADAM-39100**: 100-pin SCSI wiring terminal, DIN-rail mounting

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

MIC-3761
MIC-3780

8-CH Relay & 8-CH Isolated Digital Input 3U CompactPCI® Card

8-CH, 16-bit Counter/Timer 3U CompactPCI® Card
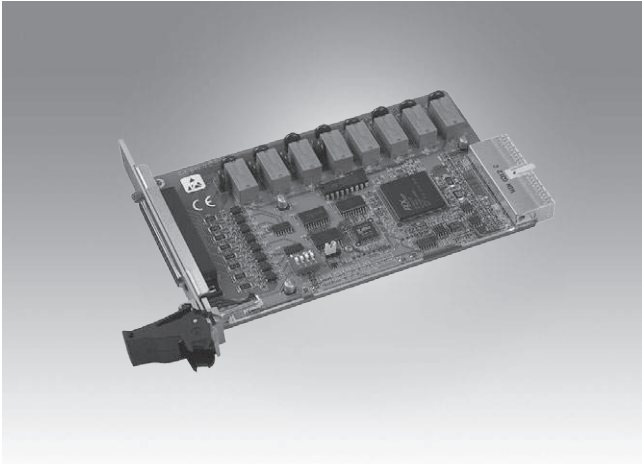
MIC-3761/3

RoHS COMPLIANT 2002/95/EC   CE

MIC-3780/3   CE

Specifications

Isolated Digital Input

- **Channels** — 8
- **Input Voltage** — Logic 0: 3 V max.
  Logic 1: 10 V min.
  (50 V max.)
- **Input Current*** — 10 V_{DC} 1.6 mA (typical)
  12 V_{DC} 1.9 mA (typical)
  24 V_{DC} 4.1 mA (typical)
  48 V_{DC} 8.5 mA (typical)
  50 V_{DC} 8.9 mA (typical)
- **Interrupt Capable Ch.** — ID0 ~ ID7
- **Isolation Protection** — 2,500 V_{DC}
- **Overvoltage Protection** — 70 V_{DC}
- **Opto-Isolator Response** — 25 µs
- **Input Resistance** — 560 Ω

Relay Output

- **Channels** — 8
- **Relay Type** — SPDT
  (4 Form A, and 4 Form C)
- **Contact Rating** — 3 A @ 250 V_{AC} or
  3 A @ 24 V_{DC}
- **Relay on Time** — 15 ms max.
- **Relay off Time** — 5 ms max.
- **Life Span** — Mechanical
  2 x 10⁷ ops. min.
  Electrical
  2 x 10⁵ ops. min. (contact rating)
- **Resistance** — 1 GΩ min. (at 500 V_{DC})

General

- **PICMG Compliance** — CompactPCI V2.0, R 3.0
  Hot-Swap V2.1, R 2.0, R 2.1
- **Bus Type** — CompactPCI
- **I/O Connectors** — 1 x 37-pin D-type female connector
- **Dimensions (L x H)** — 160 x 100 mm (6.9" x 3.9") with 3U Bracket
- **Power Consumption** — Typical: +5 V @ 220 mA
  Max.: +5 V @ 750 mA
- **Certification** — CE

Ordering Information

- **MIC-3761/3-AE** — 3U 8-ch Relay Actuator and 8-ch Isolated D/I Card
- **PCL-10137-1E/2E/3E** — DB-37 cable assembly, 1, 2 and 3 m
- **ADAM-3937-BE** — DB-37 Wiring Terminal for DIN-rail Mounting
- **PCLD-780-BE** — Universal Screw Terminal Board
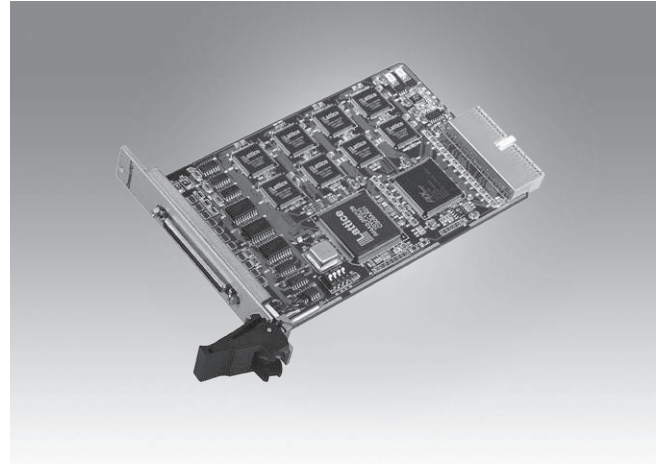
Specifications

Digital Input

- **Channels** — 8
- **Compatibility** — 5 V/TTL
- **Input Voltage** — Logic 0: 0.8 V max.
  Logic 1: 2.4 V min.
- **Interrupt Capable Ch.** — 1 (channel 0)

Digital Output

- **Channels** — 8
- **Compatibility** — 5 V/TTL
- **Output Voltage** — Logic 0: 0.5 V max. @ 24 mA
  Logic 1: 2.4 V min. @ -15 mA
- **Output Capability** — Sink: 0.5 V max. @ 24 mA
  Source: 2.4 V min. @ -15 mA

Counter/Timer

- **Channels** — 8 (independent)
- **Resolution** — 16 bits
- **Compatibility** — 5 V/TTL
- **Max. Input Frequency** — 20 MHz
- **Reference Clock** — Internal: 20 MHz
- **Counter Modes** — 12 (programmable)
- **Interrupt Capable Ch.** — 8

General

- **PICMG Compliance** — CompactPCI V2.0, R 3.0
  Hot-Swap V2.1, R 2.0
- **Bus Type** — CompactPCI V2.1
- **I/O Connectors** — 68-pin SCSI-II female
- **Dimensions (L x H)** — 160 x 100 mm (6.3" x 3.9") with 3U Bracket
- **Power Consumption** — Typical: +5 V @ 900 mA
  Max: +3.3 V @ 1.2 A
- **Operating Temperature** — 0 ~ 60°C (32 ~ 140°F) (refer to IEC 68-2-1, 2)
- **Storage Temperature** — -20 ~ 70°C (-4 ~ 158°F)
- **Relative Humidity** — 5 ~ 95 % RH non-condensing (refer to IEC 68-2-3)
- **Certification** — CE, FCC Class A

Ordering Information

- **MIC-3780/3-A1E** — 3U Compact PCI 8-ch, 16 bit counter/timer card
- **PCL-10168-1E/2E** — 68-pin SCSI-II cable with male connectors on both ends and special shielding for noise reduction, 1 and 2 m
- **ADAM-3968-AE** — 68-pin SCSI-II Wiring Terminal Board for DIN-rail mounting

IoT Wireless I/O Modules

To view all of Advantech's IoT Wireless I/O Modules, please visit www.advantech.com/products.

IoT Wireless I/O Modules Overview

Wireless Solution for IoT

According to an IoT trend report, there will be 25 billion devices connected by the end of 2015, and 50 billion by 2020. Devices can be connected with various interfaces, however the most popular interface is likely to be wireless bceause of it reduced number of cables and speed of installation. As mobile devices are widely used to access cloud services via Wi-Fi, 3G, LTE, etc., wireless solutions have become one of the most common ways to provide service in the IoT era. Advantech's WISE (Wireless IoT Sensing Embedded) series are designed as sensing devices which use a wireless interface under the IoT framework.
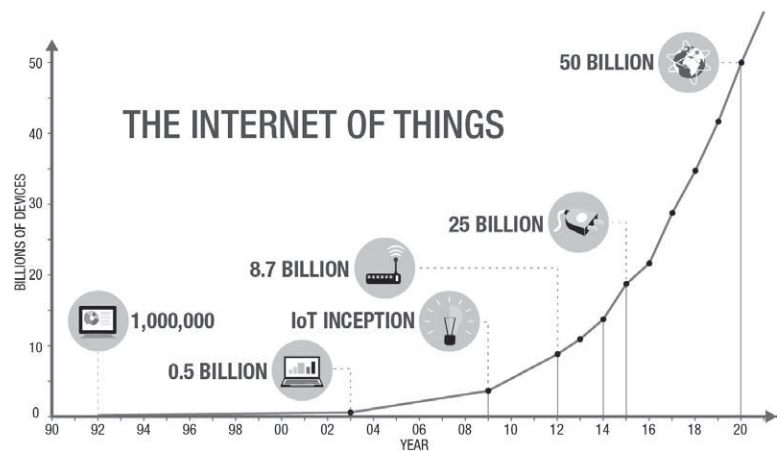
Image Source: The Connectivist

Embedded Sensing Devices

With the advances in silicon technology, more and more embedded chipsets are able to be implemented in our daily life. System on a Chip (SoC) can serve not only as a Micro Control Unit (MCU), it can provide wireless connectivity even on a single SoC. This means the wireless interface can now be easily embedded in all the devices. As well as connectivity, sensors are also developed in silicon. In the past, people used thermometers to measure the temperature of field devices regardless of whether they are inside or outside. With the help of Microelectromechanical System (MEMS) technology, the size of a thermometer can now be reduced to a single silicon chip. Advantech's WISE series will offer more choices with various wireless connectivity solutions and with more kinds of MEMS sensor solutions, for more applications in different vertical domains.

Data Acquisition and Sensing in IoT

IoT Architecture

There are two different ways to get the devices to the cloud. For legacy devices, an IoT gateway can be used to perform protocol translation and data aggregation. A gateway then publishes the aggregated data to the cloud. For IoT devices which support Ethernet, it can be directly connected to the cloud to provide further service if there are not many devices in the system, or the devices are widely deployed in different areas. Otherwise, an IoT gateway can be used to manage the data before publishing to the cloud to reduce the connections between cloud and devices, or reducing the network bandwidth.

IoT Architecture with Legacy Device
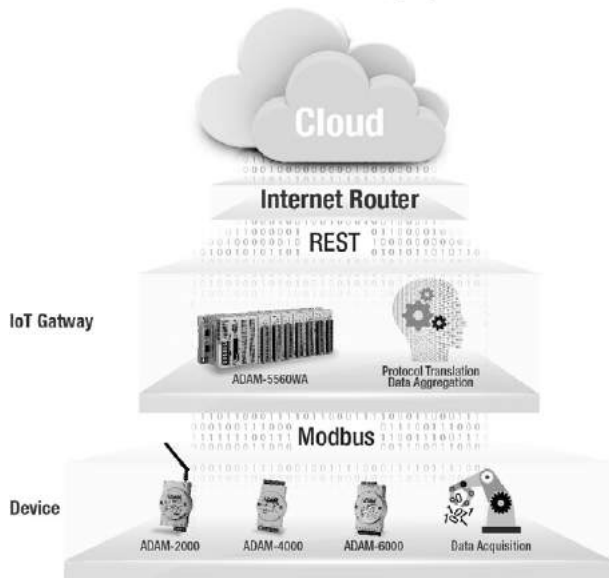
IoT Architecture with IoT Device
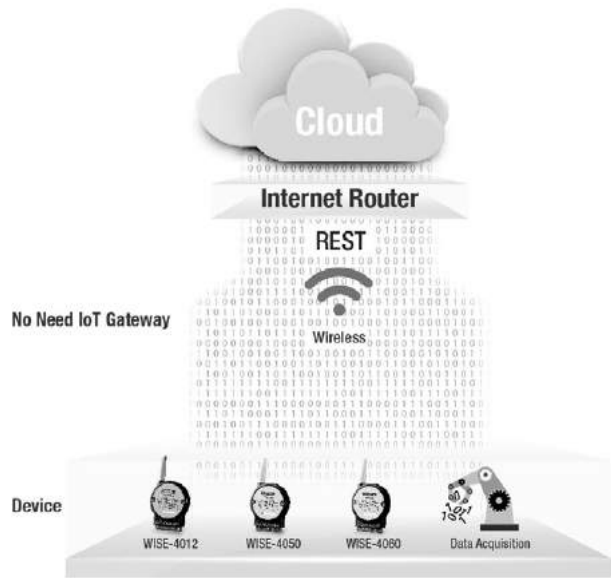
RESTful API

Representational State Transfer (REST) is a software architecture style and widely used for creating scalable web services. With the advantage of scalability, simplicity and performance, it's already adopted in IoT applications. It is based on Hypertext Transfer Protocol (HTTP) and uses verbs, like GET, POST, PUT, DELETE, etc., for web browsers to get web pages or retrieve data with remote servers. The data can be retrieved by internet media like HTML, XML, or JSON. REST s a uniform resource identifier (URI) to identify the data. Like using "http://10.0.0.1/analoginput/ch0" to identify the analog input value of channel 0. Then the web server may retrieve a JSON file analog input value of channel 0.

Secure Socket

Compared to Modbus/TCP which is also based on TCP, RESTful API provides higher scales to be used in swide area network (WAN). Modbus/TCP does not support security, so it can only be used in local area networks (LAN). However, RESTful which uses HTTP for data retrieval, can support HTTPS (HTTP over SSL (Secure Socket Layer)) or TLS (Transport Layer Secure). For developing IoT applications, RESTful API will be a better option for publishing data to the cloud or retrieving data between devices.

Automation Protocol — Modbus/TCP Master — Polling — Modbus/TCP Slave

RESTful Web API — Web Client — Post JSON Get — Web Server

Wi-Fi WPA2 Encryption / HTTPS Secure Socket / User Authorized and White List / HTTPS

IoT Wireless I/O and Sensing Devices

DNA of IoT I/O and Sensing Devices

Advantech's new generation of remote I/O is designed with IT oriented spirit, provides versatile product offerings to the market. With the advanced concepts of data Acquisition, data Processing to data Publishing, fulfilling mobile monitoring and controlling needs under a IoT framework.

Broad adoptability has made WISE a reliable source of big data which benefits users in identifying their next steps and which action to take. With intelligent processing and publishing features, the time it tales to generate insightful reports can be shortened. Thus users can quickly notice and identify possible issues and system downtime can be minimized or even avoided.

Vibration | Pressure | Flow/Level | Temperature | Humidity | Current | Voltage | Switch (on/off) | Door (open/close)

DNA 1 ▶ Data Acquisition

Broad Adoptability

The WISE-4000 series adopts major sensors in different formats with different I/O channel types and amounts

Robust Protection

The wide operating temperature with isolation protection ensures it can be deployed in even more environments

Easy Installation

New industrial design for quick hardware installation and also software configuration

DNA 2 ▶ Data Processing

Data log

Data can be buffered with a time stamp, which can then be queried or automatically pushed
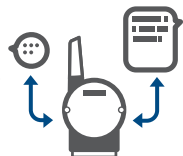
Data Conditioning

Built-in local intelligence includes filtering, scaling and other several logic rules

Web Configuration

With an HTML5 web server, all devices with a browser can access modules for configuration and troubleshooting

DNA 3 ▶ Data Publishing

Cloud Access

Data can be transmitted to the cloud in a secure socket without using a gateway

RESTful Web Service

With the RESTful web service, I/O modules can seamlessly integrate with IT systems

Direct Mobile Connectivity

Mobile devices can connect to WISE-series via Wi-Fi, to get the data and module configuration without needing other devices in between

IoT Wireless I/O Modules Features

Wireless Ethernet Interface

IEEE 802.11 b/g/n and Wi-Fi

The 802.11 specification is a standard for wireless LAN (WLAN) that was ratified by the Institute of Electrical and Electronics Engineers (IEEE) in the year 1997. Like all IEEE 802 standards, the 802.11 standards focus on the bottom two levels the ISO model, the physical layer and link layer. The name Wi-Fi (short for "Wireless Fidelity") corresponds to the name of the certification given by the Wi-Fi Alliance, the group which ensures compatibility between hardware devices that use the 802.11 standard. Due to misuse of the terms, the name of the standard is often confused with the name of the certification. A Wi-Fi network, in reality, is a network that complies with the 802.11 standard.

2.4 GHz Interface Comparison

2.4 GHz radio band is one of the industrial, scientific and medical (ISM) radio bands. And it is the most widely used band for short-range, low power communications systems, which including Bluetooth, near field communication (NFC), wireless sensor networks (like Zigbee), and wireless LAN (Wi-Fi). WLAN provides most widely bandwidth and is also the the widest used standard that each vendor's WLAN devices able to communicate with others. Bluetooth provides low power consumption and is widely applied to mobile devices as WLAN. In this case, the new standard of Bluetooth can automatically avoid radio band interference with WLAN by frequency hopping. ZigBee also provides low energy consumption, it also has various network topologies. However, ZigBee cannot be used in environments with other 2.4GHz radio wireless devices. And it need its own gateway to organize the ZigBee network, and it is not compatible with other vender's ZigBee devices.
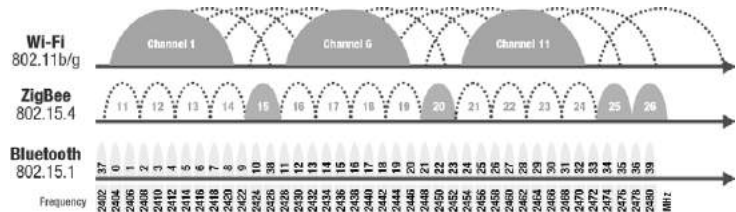
WLAN Infrastructure

The WLAN infrastructure is organized by WLAN Access Point (AP) and WLAN Stations. The wireless client, which is the end device like a smart phone, connecteds to a wireless access point to join the network is call WLAN station. The wireless server which provides the wireless network, and organizes the network for WLAN stations is called a WLAN access point (AP), or wireless adapter. WLAN APs sometime provides the function of a DHCP server with dynamically assigned IP address for WLAN stations. This kind of AP usually act a as a network router, so it can also be called a wireless router.

Ethernet Architecture

WLAN is the easiest interface to implement in an existing Ethernet network, users just need to add an access point in to an existing network to extend the wireless connectivity. Usually all the network devices don't need to be provided from same vendor. So it is also widely been accepted by different application scenarios.
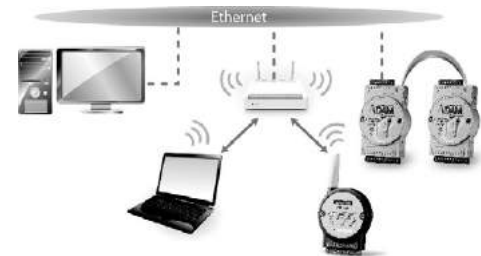
HTML5 Web configuration

A web interface is the most common interface that can be accessed by almost all devices. Compared with .NET programmed utilities or mobile apps, a web interface has much less limitations compared to platform or operating system. WISE modules provide web interface configuration, and web pages in HTML5.

By using browsers which support HTML5, like Microsoft IE, Google Chrome, Mozilla Firefox, or Apple Safari, users can access WISE using any devices or platforms.

The new web configuration interface can automatically change its layout when using different kinds of device, for mobile device which have vertical screens, it will automatically adjust the layout to fit the screen of the mobile device and switch to horizontal layout when using a laptop. Before entering the page or web configuration, WISE modules provide an authorization process, meaning that users need to login with different accounts for different authorizations, which ensures the security of the module.

Wireless Operation Mode

Infrastructure Mode

In general, WISE modules stay connected to access point (AP) to be online. Users who want to connect their mobile devices to WISE modules will need to connect to the same AP as WISE modules connect to. In this case, that access point act as a wireless switch for both Ethernet devices.

Limited AP Mode

For configuration or doing module diagnostic, it is not necessary to have a wireless switch. WISE-4000 series offer another network mode: Limited AP Mode. Users can connect the mobile devices to access WISE module directly without an AP. When WISE-4000 work in Limited AP mode, user can find the SSID for WISE module, and connecting to it as a wireless switch. It makes the configuration and diagnostic of WISE module much easier.

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

IoT Wireless I/O Modules Features

File-based Cloud Logger and Local Data Storage

Up to 10,000 samples of local data storage

The internal flash of the WISE module can log up to 10,000 samples of data with a time stamp. The I/O data can be logged periodically, and also when the I/O status changes. Once the memory is full, users can choose to overwrite the old data to ring log or just stop the log function. When the module is powered-off, data can be kept in the module. When restarting, users can decide whether to clear all data or continue logging.

Reduce the communication time and bandwidth

In the IoT communication architecture, periodic polling takes lots of time and bandwidth. Once the data can be logged in the module, users can poll a batch of data at the same time, instead of polling each piece of data individually. In this case, user can simplify the polling mechanism and also reduce the communication interface fee.

Cloud Logger function with file-based cloud or private cloud

The internal flash of the WISE module can log up to 10,000 samples of data with time stamps. The I/O data can be logged periodically, and also be logged when the I/O status changes. Once the memory is full, users can choose to overwrite the old data to perform ring logging or just stop the log function. When the module is powered-off, data can be kept in the module. When restarting, users can decide whether to clear all data again or continue logging.

Data storage with time stamps

The definition of data in the IoT is not only the status of everything, but also includes time or location information. With a built-in Real Time Clock (RTC), WISE modules log data with a time stamp and the MAC address of the WISE module. The internal RTC can be calibrated by SNTP with time server. Once the module been powered-off, the internal time can also be saved using the time backup battery. When users poll the data from the data logger, the time stamp will always be attached to the data.

Reducing the concerns of a wireless interface

WISE-4000 Wireless IoT Ethernet I/O Modules focus on wireless connectivity. Even though new a new generation of Wi-Fi interface could be stable, users are concerned that the wireless signal maybe reduced or nonexistent. In this situation, WISE modules provide local data storage. The I/O data and system events are logged in the internal flash memory of the WISE module. So now users can fetch this logged data when communication is restored.

Quick Installation and Easy Maintenance

Changeable Antenna

For flexibility the wireless antenna of the WISE module is not fixed. Users can replace the antenna by unscrewing it counterclockwise. Please note that Advantech only ensure the performance of the default antenna. And performance is decided by the application's environment.

LED Indicator for Diagnostics

WISE modules have an LED indicator on the front of the module, the name plate of the module. Besides the Status and Communication indicator, users can instantly see the network mode by an LED indicator. The LED will be ON when working in AP mode. During infrastructure mode, the LED will be OFF and the signal strength LED will be on to indicate the signal quality between the WISE module and wireless access point.
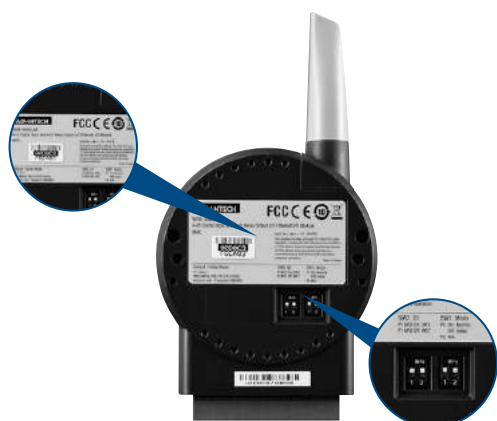
External Switches and Detailed Product Label

The I/O input setting switches are on the back of the WISE module. Users don't need to open the device to configure the I/O type. For example, users can configure the digital input contact to be dry or wet by the switch. The details of the switch will be shown on the product label for the user's reference. The MAC address of the module is also on the label.

Initial Switch

There is a DIP switch on the back of the device for restoring the WISE module to the default factory communication settings. If the user forgets the IP address of the WISE module, or wireless communication password they can configure this switch to the OFF position for the default factory communication settings.

New Mounting Kit

WISE modules come with a new type of mounting kit. Users can use this kit for DIN-rail and wall mounting (panel mount). The new mounting kit provides fast mounting for to DIN-rails, users just need to switch the hook for the mounting kit to lock or release the module on the DIN-rail. WISE modules also support stack mounting as used on Advantech's other I/O modules.

DIN-rail mounting Push up to lock Pull down to release Wall (panel) mounting
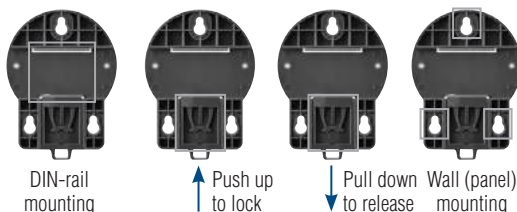
Power Supply

Power Input

The WISE-4000 is designed for a standard industrial unregulated 24 V_{DC} power supply. For further applications, it can also accept 10~30 V_{DC} of power input, 200mV peak to peak of power ripple.

USB Power Input (WISE-4012E Only)

For the IoT Developer Kit, easy power is a very important feature to quickly experience the module. So a micro-B USB power connector is provided for powering the WISE module via the computer's USB port, mobile device's USB power adapter, or USB power bank. (WISE modules are not battery chargeable, the USB port is only for powering up the module, not for USB communication)

Selection Guide

Preliminary
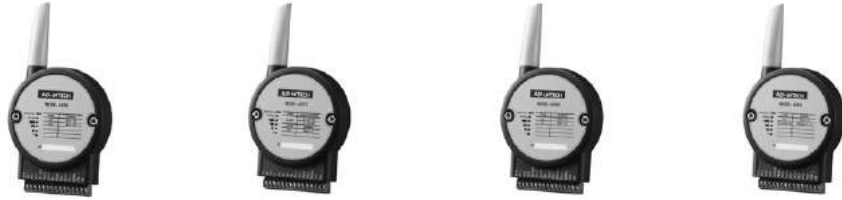
Model	WISE-4012E	WISE-4012	WISE-4050	WISE-4060
Description	6-ch Input/Output Wireless IoT Ethernet I/O Module for IoT Developer	4-ch Universal Input and 2-ch Relay Output Wireless IoT Ethernet I/O Module	4-ch Digital Input and 4-ch Digital Output Wireless IoT Ethernet I/O Module	4-ch Digital Input and 4-ch Relay Output Wireless IoT Ethernet I/O Module
Wireless Network — IEEE Standard	IEEE 802.11b/g/n			
Frequency Band	2.4GHz			
Network Mode	Limited AP, Infrastructure			
Wireless Security	WPA2 Personal, WPA2 Enterprise			
Antenna Connector	Reverse SMA			
Outdoor Range	100m			
Analog I/O — Channels	2	4	-	-
Resolution	12-bit	16-bit	-	-
Accurancy	1% of FSR	0.1% of FSR	-	-
Sampling Rate	10Hz/Channel	100Hz/Total	-	-
Voltage Input	0~10V	0~5V, 0~10V, ±5V, ±10V	-	-
Current Input	-	0~20mA, 4~20mA	-	-
Digital Input	-	Dry Contact	-	-
Digital I/O — Input Channel	2 (Dry Contact)	-	4	4
Output Channel	2 (Form A Relay)	2 (Form A Power Relay)	4	4 (Form A Power Relay)
Counter Input	-	-	3k Hz	3k Hz
Frequency Input	-	-	3k Hz	3k Hz
Pulse Output	-	1 Hz	1k Hz	1 Hz
Isolation Protection	No	3,000 V_{rms}	3,000 V_{rms}	3,000 V_{rms}
LED Indicator	Status, Comm, Mode, Wireless Signal			
Power Requirement	5V_{DC} Micro-B USB	10~30V_{DC} (24V_{DC} Standard)		
Power Consumption	2.5W @ 24V_{DC}	2.5W @ 24V_{DC}	2.2W @ 24V_{DC}	2.5W @ 24V_{DC}
Operating Temperature	-25 ~ 70°C (-13~158°F)			
Storage Temperature	-40 ~ 85°C (-40~185°F)			
Operating Humidity	20 ~ 95% RH (non-condensing)			
Storage Humidity	0 ~ 95% RH (non-condensing)			
Page	15-12	15-11	15-11	15-11

WISE-4012
WISE-4050
WISE-4060

4-ch Universal Input and 2-ch Relay Output
IoT Wireless I/O Module

4-ch Digital Input and 4-ch Digital Output
IoT Wireless I/O Module

4-ch Digital Input and 4-ch Relay Output
IoT Wireless I/O Module

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

Preliminary

WISE-4012 C€ FCC R&TTE SRRC RoHS COMPLIANT

WISE-4050 C€ FCC R&TTE SRRC RoHS COMPLIANT

WISE-4060 C€ FCC R&TTE SRRC RoHS COMPLIANT

Specifications (WISE-4012)

Universal Input

- **Channel** 4
- **Resolution** 16-bit
- **Sampling Rate** 100 Hz (Total)
- **Accuracy** ±0.1% of FSR (Voltage, Current)
- **Input Type and Range**
  Analog Input 0~10 V, 0~20 mA, 4~20mA
  Digital Input Dry Contact
  0: Open,
  1: Close to GND
- **Burn-out Detection** Yes (4~20 mA only)
- **Supports Data Scaling and Averaging**

Relay Output

- **Channels** 2 (Form A)
- **Contact Rating** 250 V_{AC} @ 5 A (Resistive Load) 30 V_{DC} @ 3A
- **Isolation** 3,000 V_{rms} (b/w coil & contacts)
- **Relay On Time** 10 ms
- **Relay Off Time** 5 ms
- **Insulation Resistance** 1 GΩ min. @ 500 V_{DC}
- **Maximum Switching** 60 operations/minute
- **Supports 1 Hz Pulse Output**
- **Supports High-to-Low and Low-to-High Delay Output**

Specifications (WISE-4050)

Digital Input

- **Channels** 4
- **Logic level** Dry Contact
  0: Open
  1: Close to DI COM
  Wet Contact
  0: 0 ~ 3 V_{DC}
  1: 10 ~ 30 V_{DC} (3 mA min.)
- **Isolation** 3,000 Vrms
- **Support 32-bit Counter Input Function (Maximum signal frequency 3 kHz)**
- **Keep/Discard Counter Value when Power-off**
- **Support Frequency Input Function (Maximum frequency 3 kHz)**
- **Supports Inverted DI Status**

Digital Output

- **Channels** 4 (Open collector to 30 V, 500 mA max. for resistance load)
- **Isolation** 3,000 V_{rms}
- **Supports 1 kHz Pulse Output**
- **Supports High-to-Low and Low-to-High Delay Output**

Specifications (WISE-4060)

Digital Input

- **Channels** 4
- **Logic level** Dry Contact
  0: Open
  1: Close to DI COM
  Wet Contact
  0: 0 ~ 3 V_{DC}
  1: 10 ~ 30 V_{DC} (3 mA min.)
- **Isolation** 3,000 Vrms
- **Support 32-bit Counter Input Function (Maximum signal frequency 3 kHz)**
- **Keep/Discard Counter Value when Power-off**
- **Support Frequency Input Function (Maximum frequency 3 kHz)**
- **Supports Inverted DI Status**

Relay Output

- **Channels** 4 (Form A)
- **Contact Rating** 250 V_{AC} @ 5 A (Resistive Load) 30 V_{DC} @ 3A
- **Isolation** 3,000 V_{rms} (b/w coil & contacts)
- **Relay On Time** 10 ms
- **Relay Off Time** 5 ms
- **Insulation Resistance** 1 GΩ min. @ 500 V_{DC}
- **Maximum Switching** 60 operations/minute
- **Supports 1 Hz Pulse Output**
- **Supports High-to-Low and Low-to-High Delay Output**

Common Specifications

General

- **WLAN** IEEE 802.11b/g/n 2.4GHz
- **Connectors** Plug-in screw terminal block (I/O and power)
- **Watchdog Timer** System (1.6 second) and Communication (programmable)
- **Certification** CE, FCC, R&TTE, NCC, SRRC, RoHS
- **Dimensions (W x H x D)** 80 x 139 x 25 mm
- **Enclosure** PC
- **Mounting** DIN 35 rail, wall, and stack

- **Power Input** 10 ~ 30 V_{DC}
- **Power Consumption** WISE-4012: 2.0 W @ 24 V_{DC}
  WISE-4050: 2.2 W @ 24 V_{DC}
  WISE-4060: 2.5 W @ 24 V_{DC}
- **Power Reversal Protection**
- **Supports User Defined Modbus Address**
- **Supports Data Log Function Up to 10000 samples with RTC time stamp**
- **Supported Protocols** Modbus/TCP, TCP/IP, UDP, DHCP, and HTTP
- **Supports RESTful Web API in JSON format**
- **Supports Web Server in HTML5 with JavaScript & CSS3**
- **Supports System Configuration Backup and User Access Control**

Environment

- **Operating Temperature** -25 ~ 70°C (-13~158°F)
- **Storage Temperature** -40 ~ 85°C (-40~185°F)
- **Operating Humidity** 20 ~ 95% RH (non-condensing)
- **Storage Humidity** 0 ~ 95% RH (non-condensing)

WISE-4012E

6-ch Input/Output IoT Wireless I/O Module for IoT Developers

Features

- 2.4 GHz IEEE 802.11b/g/n WLAN
- 2-ch 0~10V Input, 2-ch DI, and 2-ch Relay Output
- Includes WebAccess with demo project for developer
- Includes extension board for simulating sensor status
- Includes micro USB cable for power input
- Supports Modbus/TCP with RESTful web service
- Supports wireless client and server mode that can be accessed directly without AP or router
- Supports mobile device web configuration with HTML5 without the platform limitation
- Supports file-based cloud storage (preliminary) and local logging with time stamp

CE FCC R&TTE SRRC RoHS COMPLIANT 2002/95/EC

Introduction

The Advantech WISE IoT Developer Kit is a complete hardware & software solution to help users develop IoT applications and simulate their projects in the simplest way. The WISE IoT Developer Kit provides everything you need to get going: a WISE-4012E 6-ch universal input or output wireless Ethernet I/O module, and developer kit including: WebAccess 8.0 with open interfaces for intelligent application developer, extension board for simulating sensor status, a micro USB cable for power input, and a screwdriver for wiring. The WISE-4012E has an integrated Wi-Fi interface with AP mode and web configuration which can be accessed by mobile device directly. Data can be logged in the I/O module and then automatically pushed to the file-based cloud.

Product Concept: Data A-P-P

Data **A**cquisition

Data **P**rocessing

Data **P**ublishing

IoT Developer Kit

WebAccess | Cloud | Mobile | WiFi
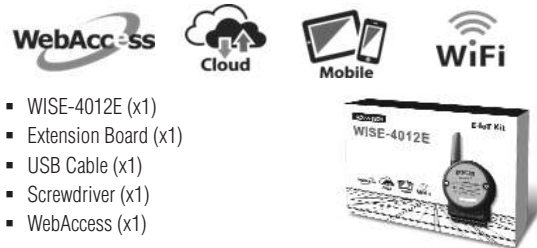
- WISE-4012E (x1)
- Extension Board (x1)
- USB Cable (x1)
- Screwdriver (x1)
- WebAccess (x1)

Application Scenario 1
Connect to end devices

Power input with USB cable, easy to implement

\<AI\> \<AI\> \<DI\> \<DI\> \<Relay\> \<Relay\>

PH SCALE | TEMP. SCALE | FLOW STATUS | VALVE STATUS | FAN SWITCH | CURTAIN SWITCH
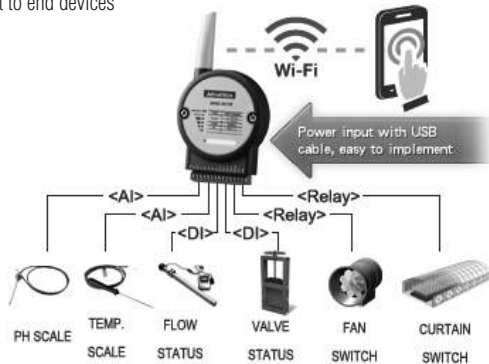
Application Scenario 2
Connect to an extension board

Power input with USB cable, easy to implement

- LED LIGHT (x2), to be switched on/off with WISE built in relay output
- DI SWITCH (x2), to provide switch status signals to WISE
- AI KNOB (x2), to provide voltage signals to WISE
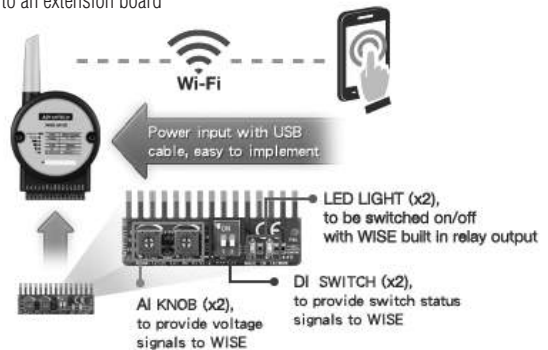
Specifications

Voltage Input

- **Channel** — 2
- **Resolution** — 12-bit
- **Sampling Rate** — 10 Hz (Total)
- **Accuracy** — $\pm 0.1\ V_{DC}$
- **Input Type and Range** — 0~10 V
- **Input Impedance** — 100 kΩ

Digital Input

- **Channels** — 2
- **Logic level** — Dry Contact 0: Open
  1: Close to GND
- **Supports 3 kHz Counter Input (32-bit + 1-bit overflow)**
- **Keep/Discard Counter Value when Power-off**
- **Supports 3 kHz Frequency Input**
- **Supports Inverted DI Status**

Relay Output

- **Channels** — 2 (Form A)
- **Contact Rating** — 120 V_{AC} @ 0.5 A
  (Resistive Load) — 30 V_{DC} @ 1A
- **Isolation** (b/w coil & contacts) — 1,500 V_{rms}
- **Relay On Time** — 10 ms
- **Relay Off Time** — 7 ms
- **Insulation Resistance** — 1 GΩ min. @ 500 V_{DC}
- **Maximum Switching** — 60 operations/minute
- **Supports Pulse Output**
- **Supports High-to-Low and Low-to-High Delay Output**

Environment

- **Operating Temperature** — -25 ~ 70°C (-13~158°F)
- **Storage Temperature** — -40 ~ 85°C (-40~185°F)
- **Operating Humidity** — 20 ~ 95% RH (non-condensing)
- **Storage Humidity** — 0 ~ 95% RH (non-condensing)

General

- **WLAN** — IEEE 802.11b/g/n 2.4GHz
- **Connectors** — Plug-in screw terminal block (I/O and power)
- **Watchdog Timer** — System (1.6 second) and Communication (programmable)
- **Certification** — CE, FCC, R&TTE, NCC, SRRC, RoHS
- **Dimensions (W x H x D)** — 80 x 139 x 25 mm
- **Enclosure** — PC
- **Power Input** — Micro USB 5 V_{DC}
- **Power Consumption** — 1.5 W @ 5 V_{DC}
- **Supports User Defined Modbus Address**
- **Supports Data Log Function** — Up to 10000 samples with time stamp
- **Supported Protocols** — Modbus/TCP, TCP/IP, UDP, DHCP, and HTTP
- **Supports RESTful Web API in JSON format**
- **Supports Web Server in HTML5 with JavaScript & CSS3**
- **Supports System Configuration Backup and User Access Control**

Ordering Information

- **WISE-4012E** — 6-ch Input/Output IoT Wireless I/O Module for IoT Developer

WebAccess 8.0

WebAccess Cloud Architecture

WebAccess is a 100% web based HMI and SCADA software with private cloud software architecture. WebAccess can provide large equipment vendors, SIs, and Enterprises access to and manipulation of centralized data to configure, change/update, or monitor their equipment, projects, and systems all over the world using a standard web browser. Also, all the engineering works, such as: database configuration, graphics drawing and system management and the troubleshooting can be operated remotely. This can significantly increase the efficiency of maintenance operations and reduce maintenance costs.

Business Intelligence Dashboard

WebAccess 8.0 provides an HTML5 based Dashboard as the next generation of WebAccess HMI. System integrators can use Dashboard Editor to create the customized information page by using analysis charts and diagrams which are called widgets. Ample widgets have been included in the built-in widget library, such as trends, bars, alarm summary, maps…etc. After the dashboard screens have been created, end user can view the data by Dashboard Viewer in different platforms, like Explorer, Safari, Chrome, and Firefox for a seamless viewing experience across PCs, Macs, tablets and smartphones.

Open Interfaces

WebAccess has three interfaces for different uses. First, WebAccess provides a Web Service interface for partners to integrate WebAccess data into APPs or application system. Second, a pluggable widget interface has been opened for programmer to develop their widget and run on WebAccess Dashboard. Last, WebAccess API, a DLL interface for programmer to access WebAccess platform and develop Windows applications. With these interfaces, WebAccess can act as an IoT platform for partners to develop IoT applications in various vertical markets.

Google Maps and GPS Tracking Integration

WebAccess integrates real-time data on each geographical site with Google Maps and GPS location tracking. For remote monitoring, users can intuitively view the current energy consumption on each building, production rate on each field or traffic flow on the highway together with alarm status. By right-clicking on Google Maps or entering the coordinate of the target, users can create a marker for the target and associate the real-time data of three sites with a display label. Furthermore, this function also integrates with GPS modules to track the location of the marker in Google Maps and allows it to be used in vehicle systems.

Ample Driver Support

WebAccess supports hundreds of devices. In addition to Advantech I/Os and controllers, WebAccess also supports all major PLCs, controllers and I/Os, like Allen Bradley, Siemens, LonWorks, Mitsubishi, Beckhoff, Yokogawa etc. WebAccess can easily integrate all devices in one SCADA. All of these device drivers are integrated into WebAccess and free of charge. For a complete list of WebAccess drivers, refer to webaccess.advantech.com.

Distributed SCADA Architecture with Central Database Server

SCADA nodes run independent of any other node. Each SCADA node communicates to automation equipment using communication drivers supplied with Advantech WebAccess. The Project Node is a centralized database server of configuration data. A copy of the database and graphics of all SCADA nodes is kept on the Project Node. The historical data is also stored in the database in project node.

Open Data Connectivity

Advantech WebAccess exchanges online data with 3rd party software in real-time by supporting OPC UA/DA, DDE, Modbus and BACnet Server/Client. It supports SQL, Oracle, MySQL, and MS Access for offline data sharing.

Software Requirements

- **Operating System** — Windows XP (SCADA Node Only), Windows 7 SP1, Windows 8 Professional, Windows Server 2008 R2 or later
- **Hardware** — Intel Atom or Celeron. Dual Core processors or higher recommended
  2GB RAM minimum, more recommended
  30GB or more free disk space

M2M I/O Modules Overview
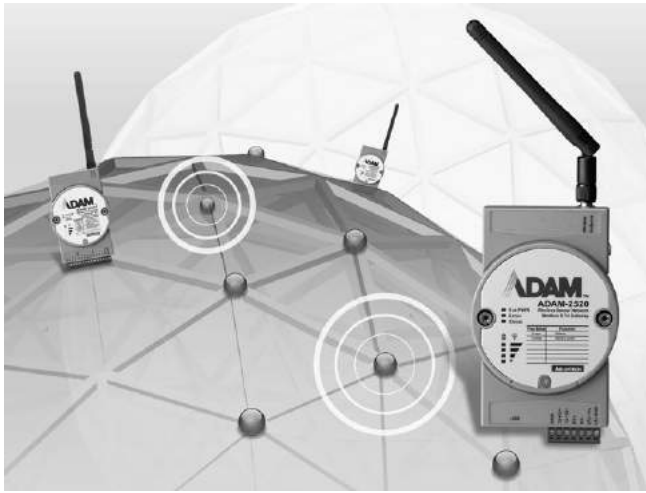
Introduction

The Internet of Things (IoT) is a new design paradigm, rapidly gaining wide global attention from academia, industry, and government. The fundamental concept is to emphasize ubiquitous computing among global networked machines and physical objects, denoted as things, such as sensors, actuators, machine-to-machine (M2M) devices, wireless sensor network (WSN) devices etc..

Machine To Machine (M2M) Technology

Machine To Machine (M2M) technology is now sufficiently mature that large numbers of companies are confident enough in its potential to launch their own projects that include innovation in services and products. The use of M2M technology is particularly well-suited to interaction with a large number of remote, and possibly mobile, devices, usually acting as the interface with an end-user.

Wireless Sensor Networks

The IoT is composed of four layers, an application layer, service layer, network layer and device layer. The application layer is the real application system, the service layer is now defined as cloud computing and the network layer is the wired/wireless network infrastructure. The device layer connects everything to the internet and is the key infrastructure of the IoT. One of the most important technologies is the Wireless Sensor Network, which is the wireless I/O and sensor solution/interface to collect and transmit analog/digital signals to the internet. The WSN is composed of two major parts; the wireless technology is based on IEEE 802.15.4 and the I/O technology. With different types of I/Os and sensors, signals can be measured in every situation. For instance, bridges can be measured through strain gauges, and buildings can be measured for energy usage. WSN is the next generation of wireless data acquisition solution.

Advantech's IoT-ready Product Development Framework
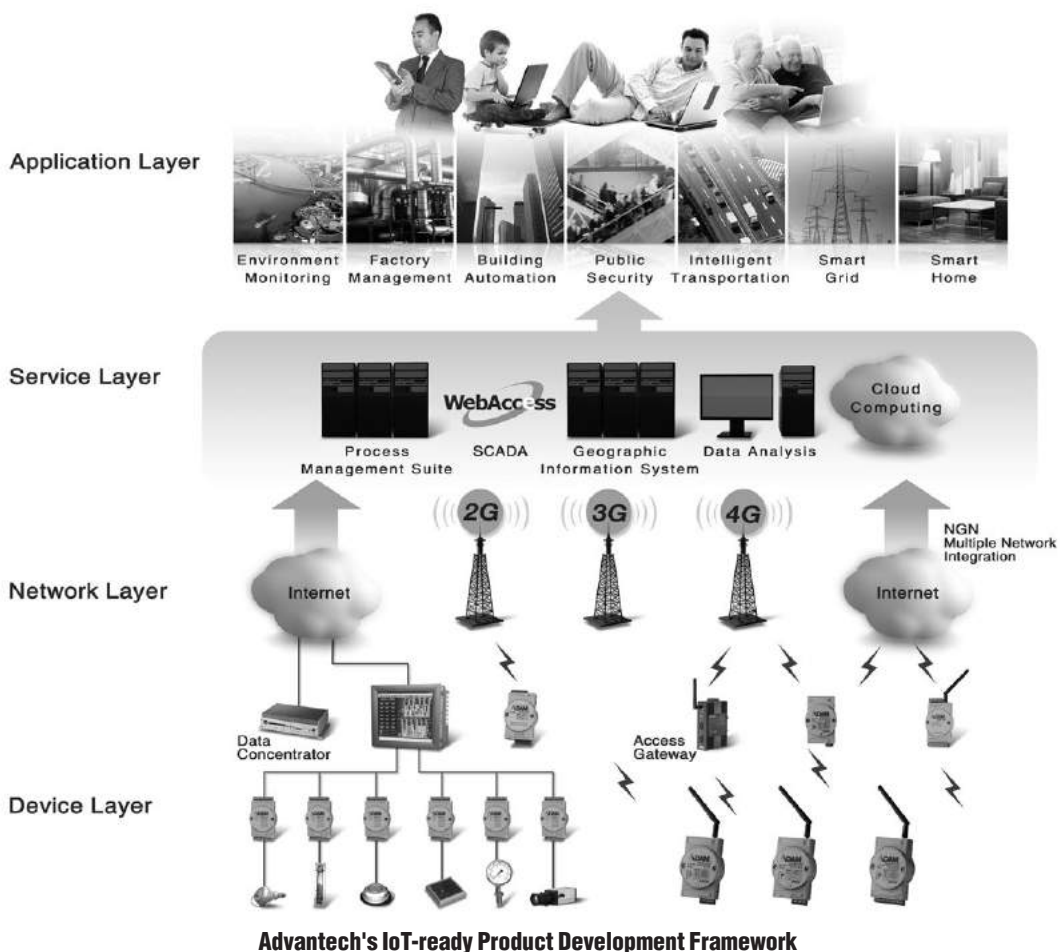
IEEE 802.15.4

IEEE 802.15.4 is defined and maintained by the IEEE organization. The standard intends to offer fundamental lower network layers of low-rate wireless personal area networks (WPANs) which focuses on low-data rates, low-power consumption ubiquitous wireless communication between devices. IEEE 802.15.4 conforming devices may use one of three possible unlicensed frequency bands for operation:

- 868.0-868.6 MHz: Europe, allows one communication channel.
- 902-928 MHz: North America, up to ten channels, extended to thirty.
- 2400-2483.5 MHz: worldwide use, up to sixteen channels.

IEEE 802.15.4 defines the Wireless Medium Access Control (MAC) and Physical Layer (PHY) for WPANs only, upper layer stacks can be implemented by users for variety of applications. One example of the known protocols is ZigBee.
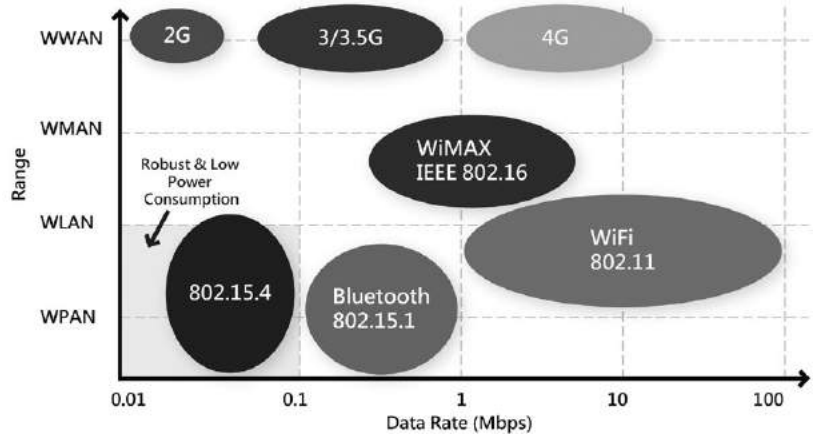
Network Topologies

Wireless Sensor Networks (WSN) can be built using a few or a lot of "nodes". Each node can be connected to one or several sensors; the network topology is composed of three typical components, PAN Coordinator/Gateway, Router and End Device (or called End Node), which can be built to Star, Tree and Mesh network topologies.

Three components of a wireless sensor network

- **PAN Coordinator/Gateway**

  A coordinator is the data collection center and also exists as a gateway to transfer and translate wireless data to other interfaces.

- **Router**

  A router enhances the wireless signal and a wireless router is used to select the optimal path for wireless communication between the coordinator and the end nodes.

- **End Node/Device**

  An end node is a wireless remote I/O for data acquisition. Data is acquired from sensors or devices which are then transmitted through it.
  The end node communicates with the coordinator directly or via a router to a coordinator.
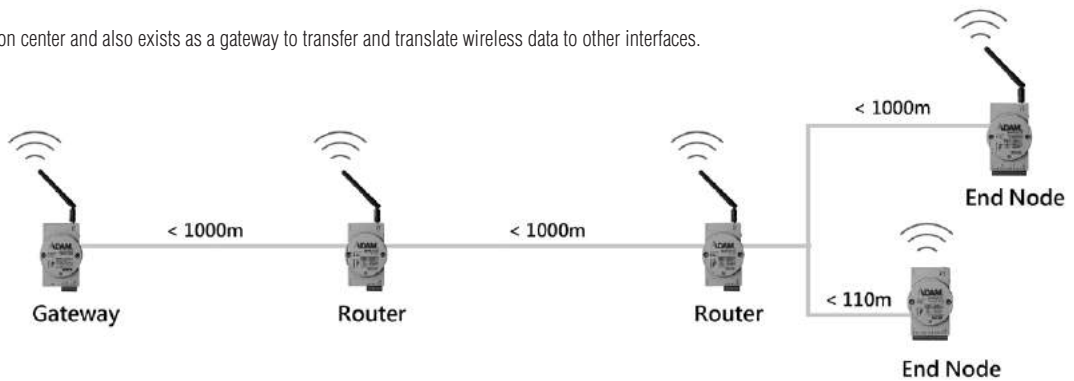
Three Network Topologies

- **Star Topology**

  It's the simplest way to construct a network with a gateway and end nodes. The benefit of the topology is that it operates as a low-latency communication network. But has the limitation of low wireless signal coverage.
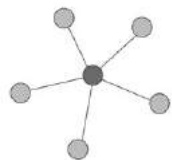
- **Tree Topology**

  Using a tree topology, the network can be extended through routers making it flexible enough to locate the end nodes in specified locations. Latency is increased with the number of routers hopping.
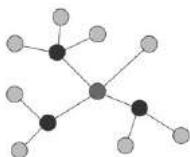
- **Mesh Topology**

  When routers connect to each other in a mesh topology they have the following benefits.
  1. Wide network coverage.
  2. Robust routing mechanism with self-healing.
  3. Multi-hopping mechanism.
  But also the following limitations:
  1. More power consumption than the other topologies.
  2. Routing path and hop counts affect the latency and performance.
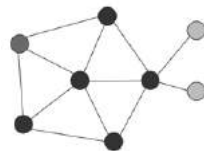
Comparison of Topologies

Topology	Star	Tree	Mesh
Power Consumption	Low	Medium	High
Installation Fee	Low	Medium	High
Network Coverage	Small	Large	Large
Network Capability	Small	Large	Large
Reliability	Low	Low	High

1
WebAccess+ Solutions
2
Motion Control
3
Power & Energy Automation
4
Automation Software
5
Intelligent Operator Panel
6
Automation Panels
7
Panel PCs
8
Industrial Wireless Solutions
9
Industrial Ethernet Solutions
10
Industrial Gateway Solutions
11
Serial communication cards
12
Embedded Automation PCs
13
DIN-Rail IPCs
14
CompactPCI Systems
15
IoT Wireless I/O Modules
16
IoT Ethernet I/O Modules
17
RS-485 I/O Modules
18
Data Acquisition Boards

M2M I/O Modules Overview

ADAM-2000 Series

Advantech provides ADAM-2000 series industrial grade Wireless Sensor Network I/O solutions for low-power consumption, cost-efficient and reliable networking for remote monitoring applications. It utilizes IEEE 802.15.4 wireless technology and supports star, tree and mesh topologies. Once the modules are configured, the ADAM-2000 series will automatically construct the most suitable network topology for your control system without further configuration.

The ADAM-2000 series contains several models, including coordinator (gateway), router, analog input, digital input, and sensor modules. To perform as a Wireless Sensor Network, a gateway ADAM-2520Z is essential for collecting data from end nodes. With the Modbus RTU protocol, the ADAM-2000 series can be easily integrated into any SCADA or Modbus RTU compliant system.

- **ADAM-2520Z:** Wireless Modbus RTU Gateway
- **ADAM-2510Z:** Wireless Router
- **ADAM-2017PZ:** Wireless 6-ch Analog Input Node with Power Amplifier
- **ADAM-2031Z:** Wireless Temperature & Humidity Sensor Node
- **ADAM-2051Z:** Wireless Sensor Network 8-ch Digital Input Node
- **ADAM-2051PZ:** Wireless Sensor Network 8-ch Digital Input Node with Power Amplifier
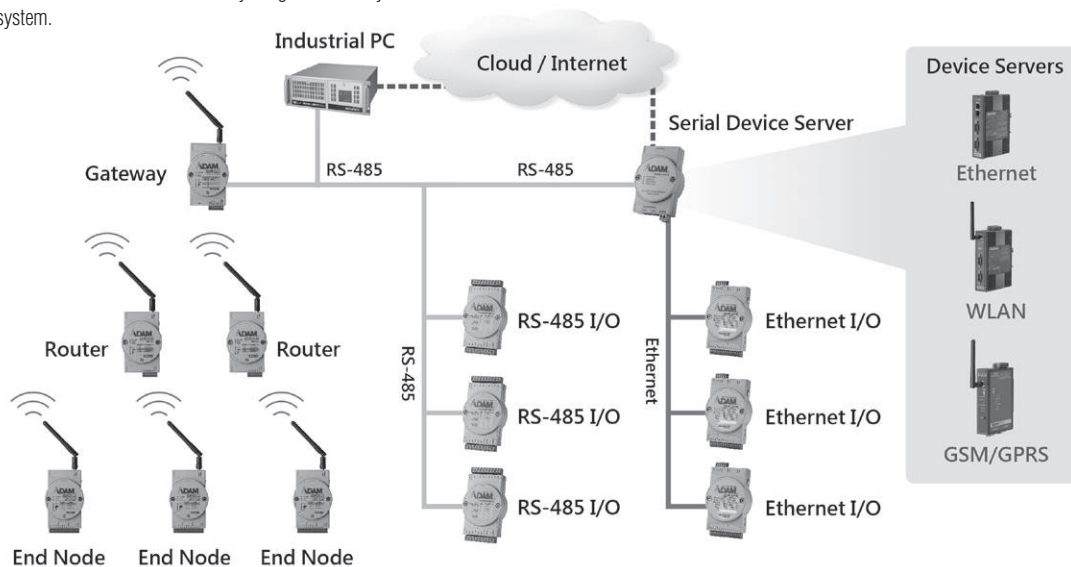
Features

Advantech's ADAM-2000 Series are wireless I/O devices designed for industrial systems and applications.

2.4GHz IEEE 802.15.4

Global Deployable ISM 2.4GHz IEEE 802.15.4 Standard

The standard has the following benefits.

- With the global deployable ISM 2.4 GHz RF band, the ADAM-2000 series can be installed worldwide.
- Compared to a wired solution, wireless technology makes the network easily extendible and can be installed in almost any location, especially in distributed construction applications.
- Enhances transmission power and high gain antennas can expand network coverage.
- Enlarges highly effective network structure to reduce development costs and maintainable complexity in harsh applications.
- Provides self-forming and self-healing ability to cope with communication failures or node failures conditions.
- Low data rates and low duty cycles make it possible to act as standalone devices with batteries for a long term operation without maintenance.

Modbus RTU Protocol

Industrial Communication and I/O Interfaces

The popular industrial communication protocol Modbus makes the ADAM-2000 series easy to integrate with industrial systems and is also compliant with ADAM-4000 and ADAM-6000 wired solutions. Multiple I/O interface selection provides users plentiful sensor options.

Low-power Consumption

Low Power Consumption Design

The ADAM-2000 series is designed for applications that require long-time operation without maintenance. Therefore power consumption is taken into consideration during its design. The ADAM-2000 series not only follows the IEEE 802.15.4 standard for low-power consumption wireless communication, but also optimizes the peripheral hardware and firmware design to achieve uA-level power consumption. This allows ADAM-2000 input/output and sensor modules to be powered by 2 AA Alkaline batteries*.

* We suggest using Energizer L91 Ultimate Lithium AA batteries.
* Only the ADAM-2031Z and ADAM-2051Z support low power consumption. For other modules batteries can still be used as back-up power.

SCADA Software Support

Advantech and Industrial SCADA Software Support

The ADAM-2000 series can be configured through the Adam/Apax .NET Utility. Only a few steps are required, and wireless networks can be built up quickly. Due to the Modbus protocol design, the ADAM-2000 series can support any third-party SCADA software and HMI, including Advantech SCADA software, WebAccess.

Ensured Data Design

The ADAM-2000 family has an acking mechanism feature to ensure data communicating processes can be successfully transferred between the coordinator and end device before device entering sleep mode.
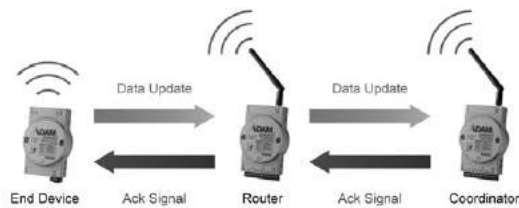
Over The Air (OTA) Firmware Update

The ADAM-2000 modules with strengthened firmware maintenance technique, which integrates a stable backup buffer and secure mechanism allowing wireless module firmware updates during operation.
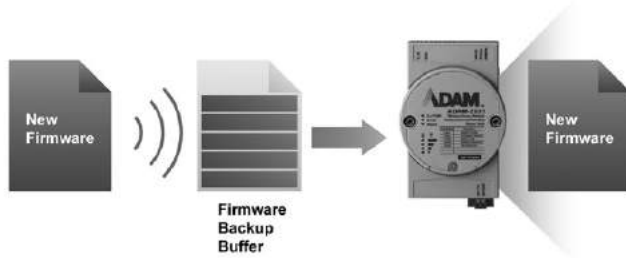
Event Triggering

ADAM-2000 digital input modules are empowered with an Event Triggering function. When receiving DI status change, ADAM-2000 digital input modules will wake up immediately from sleep mode and send I/O data to a coordinator. This avoids the missing of events during operation.
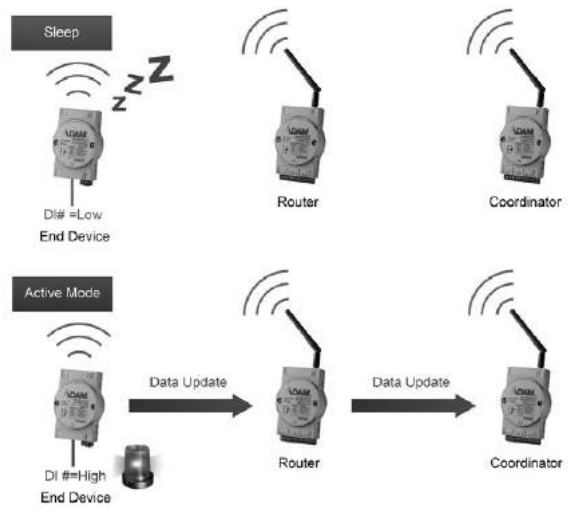
Site Survey Monitoring

ADAM-2000 modules provide a useful site survey tool in Adam/Apax .Net utility to help users to achieve network setup and major remote maintenance tasks to avoid try and error network processes. The topology monitoring of an ADAM-2000 network adopts an easy place and drag action allowing users to choose the working field image for monitoring backgrounds, and lists the relations among ADAM-2000 modules then illustrated in a single page. Through site survey monitoring, users can comprehensively know each device location, current status, and information in customized background.
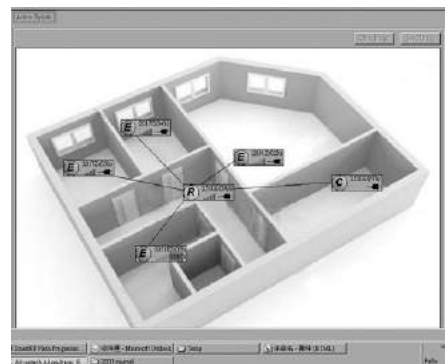
M2M I/O Modules Selection Guide

Model	ADAM-2510Z	ADAM-2520Z	ADAM-2031Z
Description	Wireless Router	Wireless Modbus RTU Gateway	Wireless Temperature & Humidity Sensor Node
Wireless Network — IEEE Standard	IEEE 802.15.4		
Modulation Type	DSSS (OQPSK)		
Frequency Band	ISM 2.4 GHz (2.4 GHz ~ 2.4835 GHz)		
Channels	11 - 26		
Topology	Star / Tree / Mesh		
Transmit Power	19 ± 1 dBm	19 ± 1 dBm	3 ± 1 dBm
Receiver Sensitivity	-97 dBm		
Outdoor Range *	1000 m (with 2 dBi Antenna)		110 m
RF Data Rate	250 Kbps		
Function	Router	Coordinator	End Device
Network — Interface	-	RS-485/USB	-
Communication Protocol	-	Modbus RTU	-
Analog Input — Resolution	-	-	-
Channels	-	-	-
Sampling Rate	-	-	-
Voltage Input	-	-	-
Current Input	-	-	-
Thermocouple Type	-	-	-
Digital Input and Digital Output — Input Channels	-	-	-
Output Channels	-	-	-
Sensor Input — Temperature	-	-	-20°C ~ 70°C (-4°F ~ 157.9°F)
Humidity	-	-	0 ~ 100% RH
CO2	-	-	-
LED Indicator	External PWR/Error/Status/Level Index		
Power Requirement	Power Input: Unregulated 10 ~ 30 V_{DC} Battery Input: 2 x AA Alkaline 3 V_{DC}		
Operating Temperature — External Power	-20°C ~ 70°C (-4°F ~ 157.9°F)		
Battery Power	0°C ~ 50°C (32°F ~ 122°F)		
Power Consumption — Power Supply	0.8 W @ 24 V_{DC}		0.3 W @ 24 V_{DC}
USB	-	0.5 W @ 5 V_{DC}	-
Battery AA * 2	0.3 W @ 3 V_{DC}		420 uW @ 3 V_{DC} (1 minute Tx Interval) 240 uW @ 3 V_{DC} (2 minute Tx Interval) 150 uW @ 3 V_{DC} (5 minute Tx Interval)
Storage Temperature	-40°C~ 85°C (-40°F ~ 184°F)		
Operating Humidity	20~95% RH		
Storage Humidity	0~95% RH		
Page	15-20	15-20	15-21

NEW

ADAM-2017PZ	ADAM-2051Z	ADAM-2051PZ
Wireless 6-ch Analog Input Node with Power Amplifier	Wireless 8-ch Digital Input Node	Wireless 8-ch Digital Input Node with Power Amplifier
IEEE 802.15.4		
DSSS (OQPSK)		
ISM 2.4 GHz (2.4 GHz ~ 2.4835 GHz)		
11 - 26		
Star / Tree / Mesh		
15 ± 1 dBm	3 ± 1 dBm	19 ± 1 dBm
-97 dBm		
1000 m	110 m	1000 m
250 Kbps		
End Device		
-	-	-
-	-	-
16-bit	-	-
6 Non-Isolation (Differential)	-	-
12 samples/second (total)	-	-
±150mV,±500mV ±1V,±5V,±10V	-	-
±20mA,0~20mA,4~20 mA	-	-
-	-	-
-	8	8
-	-	-
-	-	-
-	-	-
-	-	-
External PWR/Error/Status/Level Index		
Power Input:Unregulated 10 ~ 30 V_{DC} — Battery Input: 2 x AA Alkaline 3 V_{DC}		
-20°C ~ 70°C (-4°F ~ 157.9°F)		
0°C ~ 50°C (32°F ~ 122°F)		
0.5 W @ 24 V_{DC}	0.3 W @ 24 V_{DC}	
-	-	-
380 uW @ 3 V_{DC} (1 minute Tx Interval) — 220 uW @ 3 V_{DC} (2 minute Tx Interval) — 130 uW @ 3 V_{DC} (5 minute Tx Interval)		
-40°C~ 85°C (-40°F ~ 184°F)		
20~95% RH		
0~95% RH		
15-21	15-22	15-22

* Outdoor Range is estimated with line of sight, and please perform site survey to determine the set up range of wireless network.

** ADAM-2017PZ's power consumption will be higher than other end devices to shorten the battery life, therefore, we suggest providing external power for its main power and batteries for power backup.

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

ADAM-2510Z
Wireless Router

ADAM-2520Z
Wireless Modbus RTU Gateway

ADAM-2510Z 《((R&TTE SRRC FCC CE [RoHS COMPLIANT 2002/95/EC]

ADAM-2520Z 《((R&TTE SRRC FCC CE [RoHS COMPLIANT 2002/95/EC]

Features

- Easy maintenance and field installation
- Low duty wireless communication
- Smart and simple indicator design
- Extends network range and coverage

Specifications

Wireless Communication

- **IEEE Standard**   IEEE 802.15.4
- **Modulation Type**   DSSS (OQPSK)
- **Frequency Band**   ISM 2.4 GHz (2.4 GHz ~ 2.4835 GHz)
- **Channels**   11 - 26
- **RF Data Rate**   250 Kbps
- **Transmit Power**   Typ. 19 ± 1 dBm
- **Receiver Sensitivity**   -97 dBm
- **Topology**   Star / Tree / Mesh
- **Outdoor Range**   1000 m with line of sight (with 2 dBi Antenna)
- **Function**   Router

General

- **Connectors**   1 x plug-in terminal block (#14 ~ 22 AWG)
- **Power Input**   Unregulated 10 ~ 30 V_{DC}
- **Battery Input**   2 x AA Alkaline
- **Power Consumption**   0.8 W @ 24 V_{DC}
                             0.3 W @ 3 V_{DC} (Battery AA * 2)

Common Specifications

Environment

- **Operating Temperature**
  External Power   -20°C ~ 70°C (-4°F ~ 157.9°F)
  Battery Power   0°C ~ 50°C (32°F ~ 122°F)
- **Storage Temperature**   -40°C~ 85°C (-40°F ~ 184°F)
- **Operating Humidity**   20~95% RH
- **Storage Humidity**   0~95% RH

Ordering Information

- **ADAM-2510Z**   Wireless Router

Features

- 2.4 GHz IEEE 802.15.4 compliant RF
- Provides RS-422/485 and USB interfaces
- Multiple power input design

Specifications

Wireless Communication

- **IEEE Standard**   IEEE 802.15.4
- **Modulation Type**   DSSS (OQPSK)
- **Frequency Band**   ISM 2.4 GHz (2.4 GHz ~ 2.4835 GHz)
- **Channels**   11 - 26
- **RF Data Rate**   250 Kbps
- **Transmit Power**   Typ. 19 ± 1 dBm
- **Receiver Sensitivity**   -97 dBm
- **Topology**   Star / Tree / Mesh
- **Outdoor Range**   1000 m with line of sight (with 2 dBi Antenna)
- **Network Capacity**   32 nodes (Routers & End Devices)*
                             *Based on user's configuration
- **Range Extenders**   Maximum 5 Hops
- **Function**   Coordinator

General

- **Connectors**   1 x plug-in terminal block (#14 ~ 22 AWG)
                             1 x USB-type A connector (type A to B cable provided)
- **Protocol**   Modbus RTU
- **Power Input**   Unregulated 10 ~ 30 V_{DC}
- **Battery Input**   2 x AA Alkaline
- **Power Consumption**   0.8 W @ 24 V_{DC}
                             0.5 W @ 5 V_{DC} (USB)
                             0.3 W @ 3 V_{DC} (Battery AA * 2)

Common Specifications

Environment

- **Operating Temperature**
  External Power   -20°C ~ 70°C (-4°F ~ 157.9°F)
  Battery Power   0°C ~ 50°C (32°F ~ 122°F)
- **Storage Temperature**   -40°C~ 85°C (-40°F ~ 184°F)
- **Operating Humidity**   20~95% RH
- **Storage Humidity**   0~95% RH

Ordering Information

- **ADAM-2520Z**   Wireless Modbus RTU Gateway

ADAM-2031Z
ADAM-2017PZ

Wireless Temperature & Humidity Sensor Node
Wireless 6-ch Analog Input Node with Power Amplifier

ADAM-2031Z

R&TTE SRRC FCC CE RoHS COMPLIANT 2002/95/EC

NEW

ADAM-2017PZ

CE RoHS COMPLIANT 2002/95/EC

Features

- IEEE 802.15.4 Wireless Standard
- Supports Star/Tree/Mesh Network Topologies
- Modbus Communication Protocol
- Low Power Consumption
- LED Indicators
- Embedded Sensor

Specifications

Temperature Sensor Input

- **Operating Range**   -20°C ~ 70°C (-4°F ~ 157.9°F)
- **Resolution**   0.02°C (0.04°F)
- **Accuracy**   ±2.0°C
  (Battery Mode)   ±1.0°C @ 25~40°C
- **Response Rate**   ±1°C/min.
- **Long Term Drift**   < 0.04°C/Year (0.07°F/Year)

Humidity Sensor Input

- **Operating Range**   0 ~ 100% RH
- **Resolution**   0.15% RH
- **Accuracy**   ±8.0% RH
  (Battery Mode)   ±6.0% RH @ 40~60% RH
- **Response Time**   8 seconds (Achieving 63% of a step function)
- **Long Term Drift**   0.5% RH/Year

Ordering Information

- **ADAM-2031Z**   Wireless Temperature & Humidity Sensor Node

Features

- IEEE 802.15.4 Wireless Standard
- Supports Star/Tree/Mesh Network Topologies
- Modbus Communication Protocol
- LED Indicators

Specifications

Analog Input

- **Channels**   6 Non-Isolation (Differential)
- **Input Max Voltage**   +/-15V
- **Common Mode Volts**   10 V_{DC}
- **Input Impedance**   >10 MΩ (Voltage), 120Ω (Current)
- **Input Type**   mV, V, mA
- **Input Range**   ±150mV, ±500mV, ±1V, ±5V, ±10V, ±20mA, 0~20mA, 4~20 mA
- **Accuracy**   Voltage: +/-0.1% or better (Current) at 25°C
  Current: +/-0.2% or better (Current) at 25°C
- **Span Drift**   ±25 ppm/°C
- **Zero Drift**   ±6 µV/°C
- **Resolution**   16-bit
- **Sampling Rate**   12 samples/second (total)
- **CMR @ 50/60 Hz**   100 dB
- **NMR @ 50/60 Hz**   65 dB

Ordering Information

- **ADAM-2017PZ**   Wireless 6-ch Analog Input Node with Power Amplifier

Common Specifications

Wireless Communication

- **IEEE Standard**   IEEE 802.15.4
- **Modulation Type**   DSSS (OQPSK)
- **Frequency Band**   ISM 2.4 GHz (2.4 GHz ~ 2.4835 GHz)
- **Channels**   11 - 26
- **RF Data Rate**   250 Kbps
- **Transmit Power**   3 ± 1 dBm (ADAM-2031Z)
  15 ± 1dBm (ADAM-2017PZ)
- **Receiver Sensitivity**   -97 dBm
- **Topologies**   Star / Tree / Mesh
- **Outdoor Range**   110 m with line of sight (ADAM-2031Z)
  1000 m with line of sight (ADAM-2017PZ)
- **Function**   End Device

General

- **Connectors**   1 x plug-in terminal block (#14 ~ 22 AWG)
- **Power Input**   Unregulated 10 ~ 30 V_{DC}
- **Battery Input**   2 x AA Alkaline
- **Power Consumption**   0.3 W @ 24 V_{DC}
  Battery AA * 2
  420 uW @ 3 V_{DC} (1 minute Tx Interval)
  240 uW @ 3 V_{DC} (2 minute Tx Interval)
  150 uW @ 3 V_{DC} (5 minute Tx Interval)

Environment

- **Operating Temperature**
  External Power   -20°C ~ 70°C (-4°F ~ 157.9°F)
  Battery Power   0°C ~ 50°C (32°F ~ 122°F)
- **Storage Temperature**   -40°C~ 85°C (-40°F ~ 184°F)
- **Operating Humidity**   20~95% RH
- **Storage Humidity**   0~95% RH

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

ADAM-2051Z
Wireless Sensor Network 8-ch Digital Input Node

ADAM-2051PZ
Wireless Sensor Network 8-ch Digital Input Node with Power Amplifier

ADAM-2051Z   (((R&TTE SRRC FCC CE RoHS COMPLIANT 2002/95/EC

ADAM-2051PZ   (((R&TTE SRRC FCC CE RoHS COMPLIANT 2002/95/EC

Features

- IEEE 802.15.4 Wireless Standard
- Supports Star/Tree/Mesh Network Topologies
- Modbus Communication Protocol
- Low Power Consumption
- LED Indicators
- Event Triggering

Specifications

Digital Input

- **Channels**   8
- **Input Resistance** 10 KΩ
- **Input Level**

  Dry contact: Logic level 0: Close to GND

                        Logic level 1: Open

  Wet contact: Logic level 0: 0-0.8 V max

                        Logic level 1: 2.0 ~ 5.0 V

  (Note: The Digital Input Level 0 and 1 status can be inverted)

Ordering Information

- **ADAM-2051Z***   Wireless 8-ch Digital Input Node

Features

- IEEE 802.15.4 Wireless Standard
- Supports Star/Tree/Mesh Network Topologies
- Modbus Communication Protocol
- LED Indicators
- Event Triggering

Specifications

Digital Input

- **Channels**   8
- **Input Resistance** 10 KΩ
- **Input Level**

  Dry contact: Logic level 0: Close to GND

                        Logic level 1: Open

  Wet contact: Logic level 0: 0-0.8 V max

                        Logic level 1: 2.0 ~ 5.0 V

  (Note: The Digital Input Level 0 and 1 status can be inverted)

Ordering Information

- **ADAM-2051PZ***   Wireless 8-ch Digital Input Node with Power Amplifier

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Common Specifications

Wireless Communication

- **IEEE Standard**   IEEE 802.15.4
- **Modulation Type**   DSSS (OQPSK)
- **Frequency Band**   ISM 2.4 GHz

                           (2.4 GHz ~ 2.4835 GHz)
- **Channels**   11 - 26
- **RF Data Rate**   250 Kbps
- **Transmit Power Typ.** 3 ± 1 dBm (ADAM-2051Z)

                           19 ± 1 dBm (ADAM-2051PZ)
- **Receiver Sensitivity** -97 dBm
- **Topologies**   Star / Tree / Mesh
- **Outdoor Range**   110 m with line of sight (ADAM-2051Z)

                           1000 m with line of sight (ADAM-2051PZ)
- **Function**   End Device

General

- **Connectors**   1 x plug-in terminal block (#14 ~ 22 AWG)
- **Power Input**   Unregulated 10 ~ 30 V_{DC}
- **Battery Input**   2 x AA Alkaline
- **Power Consumption**   0.3 W @ 24 V_{DC}

  (ADAM-2051Z/PZ) Battery AA * 2   380 uW @ 3 V_{DC} (1 minute Tx Interval)

                           220 uW @ 3 V_{DC} (2 minute Tx Interval)

                           130 uW @ 3 V_{DC} (5 minute Tx Interval)

Environment

- **Operating Temperature**

  External Power   -20°C ~ 70°C (-4°F ~ 157.9°F)

  Battery Power   0°C ~ 50°C (32°F ~ 122°F)
- **Storage Temperature** -20°C ~ 70°C (-4°F ~ 157.9°F)
- **Operating Humidity**   20~95% RH
- **Storage Humidity**   0~95% RH

***If want to operate in a wider temperature (-40°C~ 85°C (-4°F ~ 157.9°F)), contact our sales team.**

To view all of Advantech's Ethernet I/O Modules: ADAM-6000, please visit www.advantech.com/products.

ADAM-6000 Series
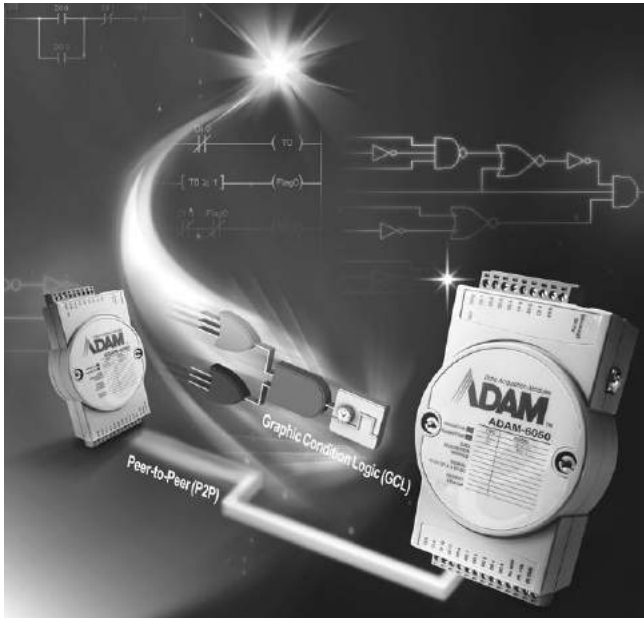
Features

- Ethernet-based smart I/O
- Mixed I/O in single module
- Pre-built HTTP server and web pages in each module
- Web language support: XML, HTML 5, Java Script
- Remote monitoring and control with smart phone/pad
- Active I/O message by data stream or event trigger function
- Industrial Modbus/TCP protocol
- Easily update firmware through Ethernet
- ADAM.NET Class Library for .NET application
- Intelligent control ability by Peer-to-Peer and GCL function
- Group configuration capability for multiple module setup
- Flexible user-defined Modbus address
- System configuration backup
- User Access Control

The Path to Seamless Integration

The integration of automation and enterprise systems requires a change in the architecture of open control systems. From Advantech's point of view, the level of integration between automation and enterprise systems can only be accomplished through Internet technology.

It is believed that IP/Ethernet protocols will progress beyond the control layer, into the field layers. Placing remote I/O with IP/Ethernet connections on the shop floor is economical. Advantech believes that over the next five years, Internet protocols over Ethernet will dominate major field connections. The Advantech ADAM-6000 series offers ideal remote I/O solutions with Internet protocols for industrial automation environments.

ADAM-6000 firmware features a built-in Modbus/TCP server. Advantech provides the ADAM .NET Utility, ADAM .NET class library and OPC Server for the ADAM-6000 series to support these functions as well. Users can configure DA&C systems via ADAM.NET Utility and integrate it with an HMI software package via Modbus/TCP driver or Modbus/TCP OPC Server. Furthermore, users can easily use the ADAM .NET class library to develop their own applications.

Web-enabled Technology Becomes Popular on Factory Floors

As Internet technologies and standards have rapidly developed over the past decade, Web-based control methodologies now obviously represent a powerful opportunity for extending efficient network-based management techniques to encompass non-IT real-world assets.

The ADAM-6000 series is equipped with a built-in web server so that its data can be viewed, anytime-anywhere via the Internet. Moreover, the ADAM-6000 series allows users to configure user-defined web pages to meet the diverse needs in various applications. With this powerful function, the ADAM-6000 series breaks the boundary of traditional multi-layer automation architecture and allows users to access field data directly in real time, which enables seamless integration between the plant floor and the front office.

HMI has provided a friendly operator interface for discrete control and sharply reduced the cost and complexity of automation systems. A web server has been added to most HMI software and a browser allows access to HMI displays from remote locations via the network. The end user is able to see and use an identical HMI from any Internet connected computer anytime, anywhere. ADAM-6000 series can be be fully integrated with standard HMI software which supports Modbus/TCP.

System Architecture
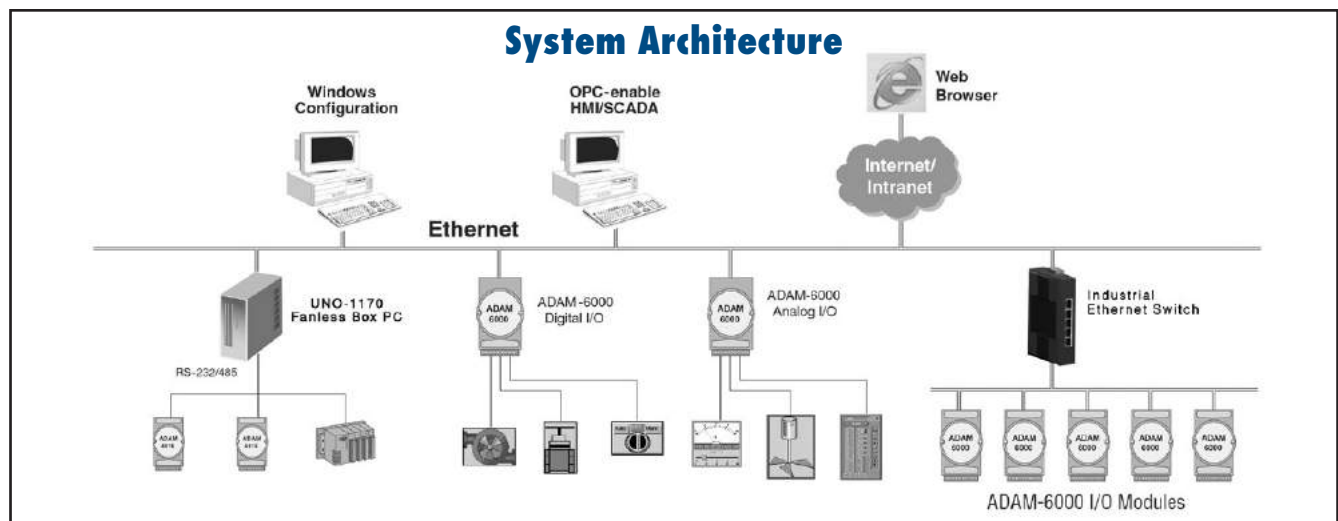
ADAM-6000 Features: GCL

Using Ethernet I/O Modules as Controllers

What is GCL?

GCL (Graphic Condition Logic) gives Ethernet I/O modules control ability. Users can define the control logic rules using the graphic configuration environment in the ADAM. NET Utility, and download defined logic rules to ADAM-6000 Ethernet I/O modules. Then, that Ethernet I/O module will execute the logic rules automatically just like a standalone controller.

For each Ethernet I/O module, 16 logic rules can be defined. In the configuration environment of ADAM.NET Utility, four graphic icons shows the four stages of one logic rule: Input, Logic, Execution and Output (Refer to figure below). Users can simply click on each icon and one dialog window will pop-up for users to configure each stage. After completing all configurations, users can click one button to download the defined logic rules to the specific Ethernet I/O module.
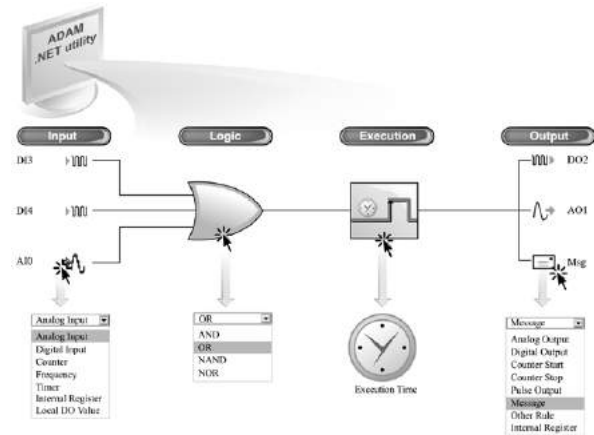
ADAM-6000 GCL is the Simplest Logic Ethernet I/O

- **Complete Graphic Configuration Environment**
  Unlike other text-based logic configuration utilities, Advantech GCL provides a complete graphic configuration utility, which is very intuitive to use. By simply clicking the icons, all related configurations can be done through the pop-up dialog window. GCL is not only easy-to-use, but is also features very powerful functionality.

- **Supports Both Local and Remote Output**
  When users define the destination of Output stage (such as digital output, analog output, counter and pulse output), users can choose either the local module or another remote module as the target.
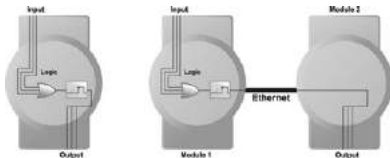
- **Cascade Logic**
  The output of one logic rule can be another rule. Therefore, different rules can be combined together. GCL provides this kind of functionality called Cascade Logic. It helps to create more input numbers of logic rule. For example, if users combine rule 1 and rule 2 with rule 3, the maximum inputs become seven. (Two inputs of rule 3 will be rule 1 and rule 2. Refer to figure below.) So users can define complex logic architecture to satisfy various application requirements.
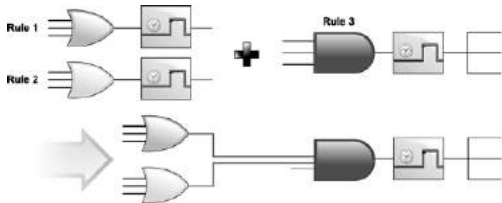
- **Distributed Cascade Logic**
  Users can assign other rules as the output of one logic rule. In fact, that "Other Rule" can be on the same module, or on another remote module. So, one GCL logic architecture can operate across different modules. Several Ethernet I/O modules can be integrated into one complete logic system.
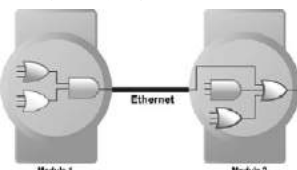
- **Feedback**
  Users can assign input and output of logic rule to the same internal register. This gives GCL feedback ability. No hardware wiring is needed.
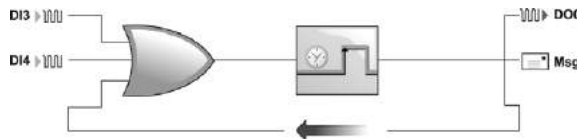
- **Rich I/O Options**

Analog Input	Thermocouple, RTD, Voltage, Current
Analog Output	Voltage, Current
Digital Input	Dry Contact, Wet Contact, Counter/Frequency input
Digital Output	Sink, Source, Relay output, Pulse output

- **Fast Execution Time**
  Advantech GCL features extremely short logic rule execution time in the market. When users choose local output (input and output channel are on the same module), the processing time (including hardware input delay time, one logic rule execution time and hardware output delay time) is less than 1 millisecond. When users choose remote output (input and output channel are on different modules), the total time needed (including processing and communication time) is less than 3 milliseconds.

- **Analog Input Scaling**
  When configuring analog input condition, GCL provides linear scaling function to convert measured voltage/current value to its engineer unit value (such as temperature or pressure unit). Then users can use the engineer unit value to define the logic condition, and it is more intuitive for users.

- **Online Monitoring**
  After users complete all GCL configurations in ADAM.NET Utility, they can simply click the "Run Monitoring" button. Then users can see real-time execution workflow of logic rule on ADAM-6000 modules. Besides, current input values will also be displayed. This helps users to maintain the system easily.

- **Sending Messages**
  In GCL, you can define your customized message. When conditions are satisfied, message, module's IP and I/O status will be sent to defined PC or device.

- **Local DO Status Can be Input Condition**
  In GCL, you can read the local DO channel value and use it in the input condition. So you can define logic rule based on the local DO status.
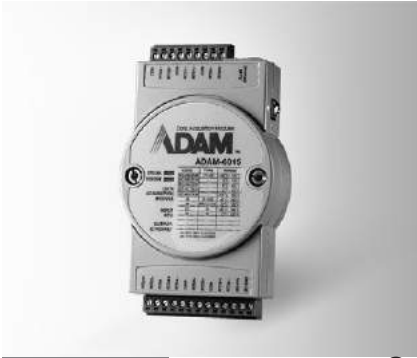
1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
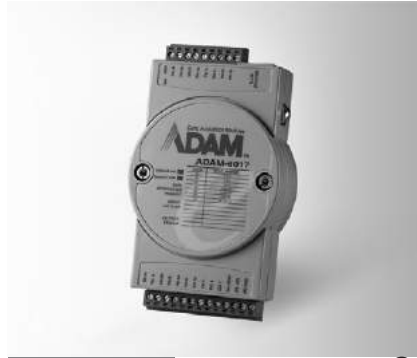17 RS-485 I/O Modules
18 Data Acquisition Boards

ADAM-6000 Features: Peer-to-Peer

Requirements

One of our clients has three branches across multiple countries. For each branch, cameras were installed near the gates. At the headquarters, people in the control room can monitor each gate via the Intranet. Now they want to enhance the system to remotely control each gate, so that each gate can be controlled from inside the control room of the headquarters. Since the distance between the headquarters and each branch is thousands of miles away, it may be very difficult to establish extra communication network for this purpose.

Solution

Through three pairs of Advantech ADAM-6000 Peer-to-Peer Ethernet I/O modules (without any additional hardware), this application has been easily solved. For each pair of ADAM-6000 modules, one module is inside the headquarter's control room, and another is located at each branch. When the module in headquarters is activated, it will notify its paired module at the branch to open or close the gate. The communication is Ethernet-based, so that our clients can leverage their existing Ethernet infrastructure.

What is Peer-to-Peer?

Unlike client / server mode, Peer-to-Peer enabled modules will actively update input channel status to specific output channel. There will be a pair of module: one input module and one output module. Users can define the mapping between input channel and output channel. Then the input value will be transferred to the output channel actively.
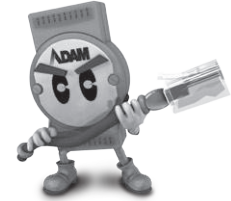
What Benefits Do Peer-to-Peer Modules Provide?

No Controller Required

For Ethernet I/O modules without Peer-to-Peer functionality, a controller is needed to read data from the input module and then send data to the output module. With Peer-to-Peer solutions, the controller can be removed since data will automatically transfer. This not only simplifies the process, but also helps save system hardware costs.

No Programming Required

To utilize Peer-to-Peer modules, the only thing required is to configure related setting through the ADAM .NET Utility. No additional programming effort is needed, therefore reducing system development time.

Simple and Flexible System Wiring

Long distance wiring can be difficult. For some automation applications, if the PLC and the sensors are far away, one remote I/O module needs to be located near the sensors, and a proprietary communication network needs to connect the PLC and the remote I/O module, and the communications distance is severely limited. Moreover, networks provided by PLC manufacturers are rarely open. Peer-to-Peer modules can replace limited and closed networks with no limitations since they leverage the most open and flexible Ethernet networks.
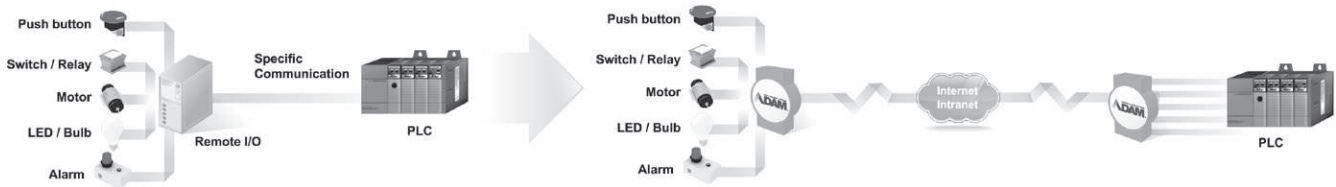
Why is Advantech's Peer-to-Peer Technology the Best Choice?

- **Flexible Channel Mapping**
  ADAM-6000 Peer-to-Peer modules provide two modes: Basic and Advanced. For Basic mode, channels on one input module are directly mapped to channels on another single output module. For Advanced mode, channels on one input module can be mapped to channels on different output modules. (Refer to figure below)
- **Fast Response Time**
  Advantech Peer-to-Peer modules feature excellent execution performance in market. The execution time to transfer data from input to output module is less than 1.2 millisecond.
- **Advanced Security**
  When engineers use Peer-to-Peer modules, they don't want it to be controlled by non-authorized computers or devices. ADAM-6000 Peer-to-Peer module lets users decide which IP or MAC address has control authority. This can make sure the output module is only controlled by its paired input module.
- **Advanced Reliability**
  When communication between a pair of ADAM-6000 Peer-to-Peer modules is broken, the digital output module can generate pre-defined value to ensure safety.

ADAM-6000 P2P Mode: Basic Mode
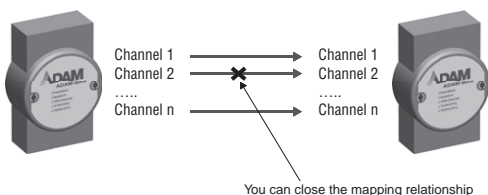
ADAM-6000 P2P Mode: Advanced Mode

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ADAM-6000 Series Selection Guide

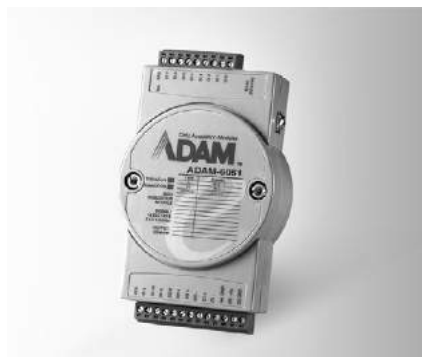| Spec. \ Model		ADAM-6015	ADAM-6017	ADAM-6018	ADAM-6022	ADAM-6024
Interface		10/100 Mbps Ethernet				
Peer-to-Peer[1]		Yes			No	Receiver Only[2]
GCL[1]		Yes			No	Receiver Only[2]
Resolution		16 bit			16 bit for AI 12 bit for AO	16 bit for AI 12 bit for AO
Analog Input	Channels	7	8	8	6	6
	Sampling Rate	10 S/s				
	Voltage Input	-	±150mV, ±500mV, ±1 V, ±5V, ±10V, 0~150mV, 0~500mV, 0~1V, 0~5V, 0~10V	-	±10 V	±10 V
	Current Input	-	0~20mA 4~20mA ±20mA	-	0 ~ 20 mA 4 ~ 20 mA	0 ~ 20 mA 4 ~ 20 mA
	Direct Sensor Input	Pt, Balco and Ni RTD	-	J, K, T, E, R, S, B Thermocouple	-	-
	Burn-out Detection	Yes	-	Yes	-	-
	Math. Functions	Max. Min. Avg.	Max. Min. Avg.	Max. Min. Avg.	-	-
Analog Output	Channels	-	-	-	2	2
	Current Output	-	-	-	0 ~ 20 mA, 4 ~ 20 mA with 15 V_{DC}	0 ~ 20 mA, 4 ~ 20 mA with 15 V_{DC}
	Voltage Output	- -	-	-	0 ~ 10 V_{DC} with 30 mA	0 ~ 10 V_{DC} with 30 mA
Digital Input/Output	Input Channels	-	-	-	2	2
	Output Channels	-	2 (Sink)	8 (Sink)	2 (Sink)	2 (Sink)
	Extra Counter Channels	-	-	-	-	-
	Counter Input	-	-	-	-	-
	Frequency Input	-	-	-	-	-
	Pulse Output	-	-	-	-	-
	High/Low Alarm Settings	Yes	Yes	Yes	-	-
Isolation Protection		2,000 V_{DC}			2,000 V_{DC}[3]	2,000 V_{DC}[3]
Remark		-	-	-	Built-in Dual Loop PID Control Algorithm	-
Page		16-6	16-6	16-6	16-7	16-7

Spec. \ Model		ADAM-6050	ADAM-6051	ADAM-6052	ADAM-6060	ADAM-6066
Interface		10/100 Mbps Ethernet				
Peer-to-Peer[1]		Yes				
GCL[1]		Yes				
Digital Input/Output	Input Channels	12	12	8	6	6
	Output Channels	6 (Sink)	2 (Sink)	8 (Source)	6-channel relay	6-channel power relay
	Extra Counter Channels	-	2	-	-	-
	Counter Input	3 kHz	4.5 kHz	3 kHz	3 kHz	3 kHz
	Frequency Input	3 kHz	4.5 kHz	3 kHz	3 kHz	3 kHz
	Pulse Output	Yes				
	High/Low Alarm Settings	-	-	-	-	-
Isolation Protection		2,000 V_{DC}				
Page		16-8	16-8	16-8	16-9	16-9

Note 1: Peer-to-Peer and GCL cannot run simultaneously, only one feature is enabled at one time.
Note 2: ADAM-6024 can only act as a receiver and generate analog output when using Peer-to-Peer or GCL.
Note 3: Only for analog input and analog output channels.

ADAM-6015
ADAM-6017
ADAM-6018

7-ch Isolated RTD Input Modbus TCP Module

8-ch Isolated Analog Input Modbus TCP Module with 2-ch DO

8-ch Isolated Thermocouple Input Modbus TCP Module with 8-ch DO

ADAM-6015 FCC CE RoHS COMPLIANT 2002/95/EC c UL us LISTED E180881 I.T.E.

ADAM-6017 FCC CE RoHS COMPLIANT 2002/95/EC c UL us LISTED E180881 I.T.E.

ADAM-6018 FCC CE RoHS COMPLIANT 2002/95/EC c UL us LISTED E180881 I.T.E.

Specifications

Analog Input

- **Channels**   7 (differential)
- **Input Impedance**   > 10 MΩ
- **Input Connections**   2 or 3 wire
- **Input Type**   Pt, Balco and Ni RTD
- **RTD Types and Temperature Ranges**

Pt 100	-50°C	~	150°C
	0°C	~	100°C
	0°C	~	200°C
	0°C	~	400°C
	-200°C	~	200°C
Pt 1000	-40°C	~	160°C

Supports both IEC 60751 ITS90 (0.03851 W/W/°C) and JIS C 1604 (0.03916 W/W/°C)

Balco 500	-30°C	~	120°C
Ni 518	-80°C	~	100°C
	0°C	~	100°C

- **Accuracy**   ± 0.1 %
- **Span Drift**   ± 25 ppm/°C
- **Zero Drift**   ± 6 µV/°C
- **Resolution**   16-bit
- **Sampling Rate**   10 sample/ second (total)
  CMR @ 50/60 HZ 90dB
  NMR @ 50/60 HZ 60dB
- **Wire Burn-out Detection**

Ordering Information

- **ADAM-6015**   7-ch Isolated RTD Input Modbus TCP Module

Specifications

Analog Input

- **Channels**   8 (differential)
- **Input Impedance**   > 10 MΩ (voltage)
  120 Ω (current)
- **Input Type**   mV, V, mA
- **Input Range**   ±150mV, ±500mV,
  ±1 V, ±5V, ±10V, 0~150mV,
  0~500mV, 0~1V, 0~5V,
  0~10V, 0~20mA , 4~20mA
  , ±20mA
- **Accuracy**   ±0.1% (voltage)
  ±0.2% (current)
- **Span Drift**   ±25 ppm/°C
- **Zero Drift**   ±6 µV/°C
- **Resolution**   16-bit
- **Sampling Rate**   10 sample/ second (total)
  CMR @ 50/60 HZ 90dB
  NMR @ 50/60 HZ 67CMR
  @ 50/60 HZ 90dBdB
- **Common-Mode Voltage**   350 V$_{DC}$

Digital Output

- **Channels**   2, open collector to 30 V, 100 mA max. load
- **Output Delay**   On: 100 µs
  Off: 150 µs
- **Power Dissipation**   300 mW for each module

Ordering Information

- **ADAM-6017**   8-ch Isolated AI with 2-ch DO Modbus TCP Module

Specifications

Analog Input

- **Channels**   8 (differential)
- **Input Impedance**   > 10 MΩ
- **Input Type**   Thermocouple
- **Thermocouple Type and Range:**

J	0 ~ 760°C	R	500 ~ 1,750°C
K	0 ~ 1,370°C	S	500 ~ 1,750°C
T	-100 ~ 400°C	B	500 ~ 1,800°C
E	0 ~ 1,000°C		

- **Accuracy**   ±0.1%
- **Span Drift**   ±25 ppm/°C
- **Zero Drift**   ±6 µV/°C
- **Resolution**   16-bit
- **Sampling Rate**   10 sample/ second (total)
  CMR @ 50/60 HZ 90dB
  NMR @ 50/60 HZ 60dB
- **Wire Burn-out Detection**

Digital Output

- **Channels**   8, open collector to 30 V, 100 mA max. load
- **Power Dissipation**   300 mW for each module

Ordering Information

- **ADAM-6018**   8-ch Isolated Thermocouple Input Modbus TCP Module w/ 8-ch DO

Common Specifications

General

- **LAN**   10/100Base-T(X)
- **Power Consumption**   2 W @ 24 V$_{DC}$
  2.7 W @ 24 V$_{DC}$ (ADAM-6017)
- **Connectors**   1 x RJ-45 (LAN), Plug-in screw terminal block (I/O and power)
- **Watchdog**   System (1.6 second) and Communication (programmable)

- **Power Input**   10 ~ 30 V$_{DC}$
- **Supports Peer-to-Peer**
- **Supports GCL**
- **Supports Modbus/TCP, TCP/IP, UDP and HTTP Protocols**

Protection

- **Isolation Protection**   2,000 V$_{DC}$
- **Built-in TVS/ESD Protection**
- **Power Reversal Protection**

Environment

- **Operating Temperature**   -10 ~ 70°C (14 ~ 158°F)
  -20 ~ 70°C (-4 ~ 158°F) (ADAM-6017)
- **Storage Temperature**   -20 ~ 80°C (-4 ~ 176°F)
  -30 ~ 80°C (-22 ~ 176°F) (ADAM-6017)
- **Operating Humidity**   20 ~ 95% RH (non-condensing)
- **Storage Humidity**   0 ~ 95% RH (non-condensing)

ADVANTECH   **IoT Ethernet I/O Modules**

ADAM-6022
ADAM-6024

Ethernet-based Dual-loop PID Controller

12-ch Isolated Universal Input/Output Modbus TCP Module

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

ADAM-6022

FCC C€ RoHS COMPLIANT 2002/95/EC | c(UL)us LISTED E180881 I.T.E.

Specifications

General
- **Loop Number**   2 (3 AI, 1 AO, 1 DI, 1 DO for each control loop)

Analog Input
- **Channels**   6 (differential)
- **Input Range**   ±10 V_{DC}, 0 ~ 20 mA, 4 ~ 20 mA

Analog Output
- **Channels**   2
- **Output Type**   V, mA
- **Output Range**   0 ~10 V_{DC}, 4 ~ 20 mA, 0 ~ 20 mA

Digital Input
- **Channels**   2
- **Dry Contact**   Logic level 0: close to GND
                           Logic level 1: open
- **Wet Contact**   Logic level 0: 0 ~ 3 V_{DC}
                           Logic level 1: 10 ~ 30 V_{DC}

Digital Output
- **Channels**   2, open collector to 30 V, 100 mA max. load
- **Power Dissipation**   300 mW for each module

Ordering Information
- **ADAM-6022**   Ethernet-based Dual-loop PID Controller

ADAM-6024

FCC C€ RoHS COMPLIANT 2002/95/EC | c(UL)us LISTED E180881 I.T.E.

Specifications

Analog Input
- **Channels**   6 (differential)
- **Input Range**   ±10 V_{DC}, 0 ~ 20 mA, 4 ~ 20 mA

Analog Output
- **Channels**   2
- **Output Type**   V, mA
- **Output Range**   0 ~10 V_{DC}, 4 ~ 20 mA, 0 ~ 20 mA

Digital Input
- **Channels**   2
- **Dry Contact**   Logic level 0: close to GND
                           Logic level 1: open
- **Wet Contact**   Logic level 0: 0 ~ 3 V_{DC}
                           Logic level 1: 10 ~ 30 V_{DC}

Digital Output
- **Channels**   2, open collector to 30 V, 100 mA max. load
- **Power Dissipation**   300 mW for each module

Supports
- **Peer-to-Peer (Receiver only)**
- **GCL (Receiver only)**

Ordering Information
- **ADAM-6024**   12-ch Isolated Universal I/O Modbus TCP Module

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Common Specifications

General
- **LAN**   10/100Base-T(X)
- **Power Consumption**   4 W @ 24 V_{DC}
- **Connectors**   1 x RJ-45 (LAN), Plug-in screw terminal block (I/O and power)
- **Watchdog**   System (1.6 second) and Communication (programmable)
- **Power Input**   10 ~ 30 V_{DC}
- **Supports Modbus/TCP, TCP/IP, UDP and HTTP Protocols**

Analog Input
- **Input Impedance**   20 MΩ
- **Accuracy**   ±0.1% of FSR
- **Resolution**   16-bit
- **Sampling Rate**   10 sample/second
- **CMR @ 50/60 Hz**   90 dB
- **NMR @ 50/60 Hz**   60 dB
- **Span Drift**   ±25 ppm/° C
- **Zero Drift**   ±6 µV/° C

Analog Output
- **Accuracy**   ±0.1% of FSR
- **Resolution**   12-bit
- **Drift**   ±50 ppm/° C
- **Current Load Resistor** 0 ~ 500Ω

Protection
- **Isolation Protection**   2,000 V_{DC}
- **Built-in TVS/ESD Protection**
- **Over Voltage Protection**   ±35 V_{DC}
- **Power Reversal Protection**

Environment
- **Operating Temperature** -10 ~ 50° C (14 ~ 122° F)
- **Storage Temperature**   -20 ~ 80° C (-4 ~ 176° F)
- **Operating Humidity**   20 ~ 95% RH (non-condensing)
- **Storage Humidity**   0 ~ 95% RH (non-condensing)

ADAM-6050
ADAM-6051
ADAM-6052

18-ch Isolated Digital I/O Modbus TCP Module

14-ch Isolated Digital I/O Modbus TCP Module with 2-ch Counter

16-ch Source-type Isolated Digital I/O Modbus TCP Module

ADAM-6050   FCC CE RoHS COMPLIANT 2002/95/EC   c UL us LISTED E180881 I.T.E.

ADAM-6051   FCC CE RoHS COMPLIANT 2002/95/EC   c UL us LISTED E180881 I.T.E.

ADAM-6052   FCC CE RoHS COMPLIANT 2002/95/EC   c UL us LISTED E180881 I.T.E.

Specifications

Digital Input

- **Channels**   12
- **Dry Contact**   Logic level 0: close to GND
  Logic level 1: open
- **Wet Contact**   Logic level 0: $0 \sim 3$ V$_{DC}$
  Logic level 1: $10 \sim 30$ V$_{DC}$
- **Supports 3 kHz Counter Input (32-bit + 1-bit overflow)**
- **Keep/Discard Counter Value when Power-off**
- **Supports 3 kHz Frequency Input**
- **Supports Inverted DI Status**

Digital Output

- **Channels**   6 (sink type), open collector to 30 V, 100 mA maximum load
- **Supports 5 kHz Pulse Output**
- **Supports High-to-Low and Low-to-High Delay Output**

Ordering Information

- **ADAM-6050**   18-ch Isolated DI/O Modbus TCP Module

Specifications

Digital Input

- **Channels**   12
- **Dry Contact**   Logic level 0: close to GND
  Logic level 1: open
- **Wet Contact**   Logic level 0: $0 \sim 3$ V$_{DC}$
  Logic level 1: $10 \sim 30$ V$_{DC}$
- **Supports 3 kHz Counter Input (32-bit + 1-bit overflow)**
- **Keep/Discard Counter Value when Power-off**
- **Supports 3 kHz Frequency Input**
- **Supports Inverted DI Status**

Counter Input

- **Channels**   2
- **Mode**   Counter, Frequency
- **Keep/Discard Counter Value when Power-off**
- **Maximum Count**   4,294,967,295 (32-bit + 1-bit overflow)
- **Input Frequency**   Frequency Mode: $0.2 \sim 4500$ Hz
  Counter Mode: $0 \sim 4.5$ kHz

Digital Output

- **Channels**   2 (sink type), open collector to 30 V, 100 mA maximum load
- **Supports 5 kHz Pulse Output**
- **Supports High-to-Low and Low-to-High Delay Output**

Ordering Information

- **ADAM-6051**   16-ch Isolated DI/O with Counter Modbus TCP Module

Specifications

Digital Input

- **Channels**   8
- **Dry Contact**   Logic level 0: close to GND
  Logic level 1: open
- **Wet Contact**   Logic level 0 : $0 \sim 3$ V$_{DC}$
  Logic level 1 : $10 \sim 30$ V$_{DC}$
- **Supports 3 kHz Counter Input (32-bit + 1-bit overflow)**
- **Keep/Discard Counter Value when Power-off**
- **Supports 3 kHz Frequency Input**
- **Supports Inverted DI Status**

Digital Output

- **Channels**   8 (Source Type)
- **Voltage Range** $10 \sim 35$ V$_{DC}$
- **Current**   1 A (per channel)
- **Supports 5 kHz Pulse Output**
- **Supports High-to-Low and Low-to-High Delay Output**
- **Supports Over Current Protection**

Ordering Information

- **ADAM-6052**   16-ch Source-type Isolated DI/O Modbus TCP Module

---

Common Specifications

General

- **LAN**   10/100Base-T(X)
- **Power Consumption**   2 W @ 24 V$_{DC}$
- **Connectors**   1 x RJ-45 (LAN), Plug-in screw terminal block (I/O and power)
- **Watchdog**   System (1.6 second) and Communication (programmable)

- **Power Input** $10 \sim 30$ V$_{DC}$
- **Supports Peer-to-Peer, GCL**
- **Supports User Defined Modbus Address**
- **Supports Modbus/TCP, TCP/IP, UDP, DHCP and HTTP Protocol**

Protection

- **Power Reversal Protection**
- **Isolation Protection**   2,000 V$_{DC}$

Environment

- **Operating Temperature** $-20 \sim 70°C$ ($-4 \sim 158°F$)
- **Storage Temperature** $-30 \sim 80°C$ ($-22 \sim 176°F$)
- **Operating Humidity** $20 \sim 95\%$ RH (non-condensing)
- **Storage Humidity** $0 \sim 95\%$ RH (non-condensing)

ADAM-6060
ADAM-6066

6-ch Digital Input and 6-ch Relay Modbus TCP Module

6-ch Digital Input and 6-ch Power Relay Modbus TCP Module

| ADAM-6060 | ▲ | ADAM-6066 | ▲ |

FCC CE RoHS COMPLIANT 2002/95/EC LISTED E180881 I.T.E.

Specifications

General

- **LAN** 10/100Base-T(X)
- **Power Consumption** 2 W @ 24 V_{DC} (ADAM-6060)
  2.5 W @ 24 V_{DC} (ADAM-6066)
- **Connectors** 1 x RJ-45 (LAN), Plug-in screw terminal block (I/O and power)
- **Watchdog Timer** System (1.6 second) and Communication (programmable)
- **Power Input** 10 ~ 30 V_{DC}
- **Supports Peer-to-Peer, GCL**
- **Supports User Defined Modbus Address**
- **Supports Modbus/TCP, TCP/IP, UDP, DHCP and HTTP Protocols**

Digital Input

- **Channels** 6
- **Dry Contact** Logic level 0: close to GND
  Logic level 1: open
- **Wet Contact** Logic level 0: 3 V_{DC}
  Logic level 1: 10 ~ 30 V_{DC}
- **Supports 3 kHz Counter Input (32-bit + 1-bit overflow)**
- **Keep/Discard Counter Value when Power-off**
- **Supports 3 kHz Frequency Input**
- **Supports Inverted DI Status**

Relay Output (Form A)

- **Channels** 6
- **Contact Rating (Resistive)** ADAM-6060: 120 V_{AC} @ 0.5 A
  30 V_{DC} @ 1 A
  ADAM-6066: 250 V_{AC} @ 5 A
  30 V_{DC} @ 3 A
- **Breakdown Voltage** 500 V_{AC} (50/60 Hz)
- **Relay On Time** 7 ms
- **Relay Off Time** 3 ms
- **Total Switching Time** 10 ms
- **Insulation Resistance** 1 GΩ min. at 500 V_{DC}
- **Maximum Switching Rate (at rated load)** 20 operations/minute
- **Supports Pulse Output**

Protection

- **Isolation Voltage** 2,000 V_{DC}
- **Power Reversal Protection**

Environment

- **Operating Temperature** -20 ~ 70°C (-4 ~ 158°F)
- **Storage Temperature** -30 ~ 80°C (-22 ~ 176°F)
- **Operating Humidity** 20 ~ 95% RH (non-condensing)
- **Storage Humidity** 0 ~ 95% RH (non-condensing)

Ordering Information

- **ADAM-6060** 6-ch DI and 6-ch Relay Modbus TCP Module
- **ADAM-6066** 6-ch DI and 6-ch Power Relay Modbus TCP Module

ADAM-6000 Series Dimensions

Unit: mm

Front View

Rear View

Wall Mounting View

Side View

DIN-Rail Mounting View

Top View
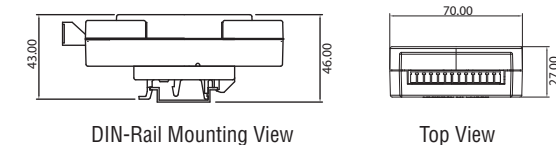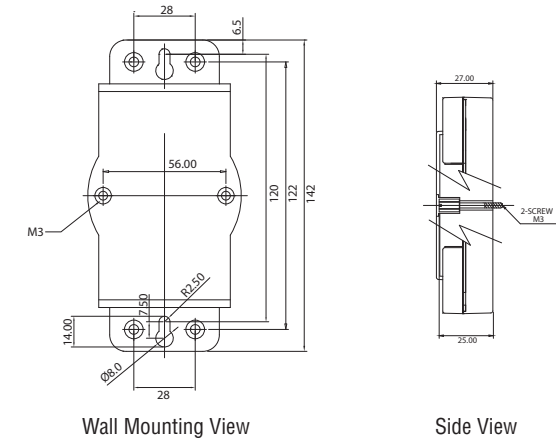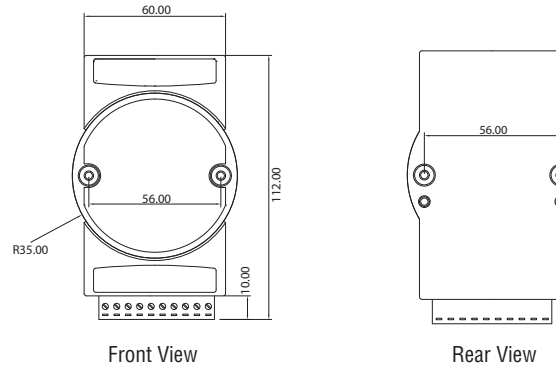
ADAM-6000 Series Common Specifications

General

- **Dimensions (W x H x D)** 70 x 122 x 27 mm
- **Enclosure** ABS+PC/ PC
- **Mounting** DIN 35 rail, stack, wall

ADAM-6200 Series

Auto-bypass

Feature

- Daisy chain connection with auto-bypass protection
- Remote monitoring and control with smart phone/pad
- Group configuration capability for multiple module setup
- DI/O LED indication
- Flexible user-defined Modbus address
- Intelligent control ability by Peer-to-Peer and GCL function
- Multiple protocol support: Modbus TCP, TCP/IP, UDP, HTTP, DHCP
- Web language support: XML, HTML 5, Java Script
- System configuration backup
- User Access Control

Transition and Vision on Remote DAQ Device

In 2002, Advantech released its first Ethernet I/O module, ADAM-6000 series, which aims to provide ideal remote Ethernet I/O solution for industrial automation environments. It could work as a standalone station to conduct data acquisition, processing and delivery reliably in diverse of automation applications such as factory automation, EFMS and building automation.

However, as of today, the information technologies and network infrastructure are getting well-developed in the world. More and more enterprises not only face the requirement of enhancing their existing automation systems for greater overall equipment effectiveness (OEE), but also need up-to-date information integration, plant management and business systems. In the same way, the remote DAQ modules should be evolved to make it more effective, interoperable, and smarter than before to meet new requirements.

In the future, there are plenty of potential key elements like intelligence, energy-efficiency, cloud computing, cyber-security and mobile communication technologies being progressively leveraged in automation market. We believe that these will also contribute to ideal remote DAQ devices in IoT world.

In order to fulfill the transition of requirements and future applications, Advantech releases ADAM-6200 series, a new selection of Ethernet I/O family comprised of analog I/O, digital I/O and relay modules. ADAM-6200 series module possesses plenty of advanced features whatever the evolution of hardware design and what's worth expecting for user is a variety of useful software functions to make it effective in the application field. With new design and strong capabilities, ADAM-6200 can be a well-integrated I/O solution in Ethernet control systems.
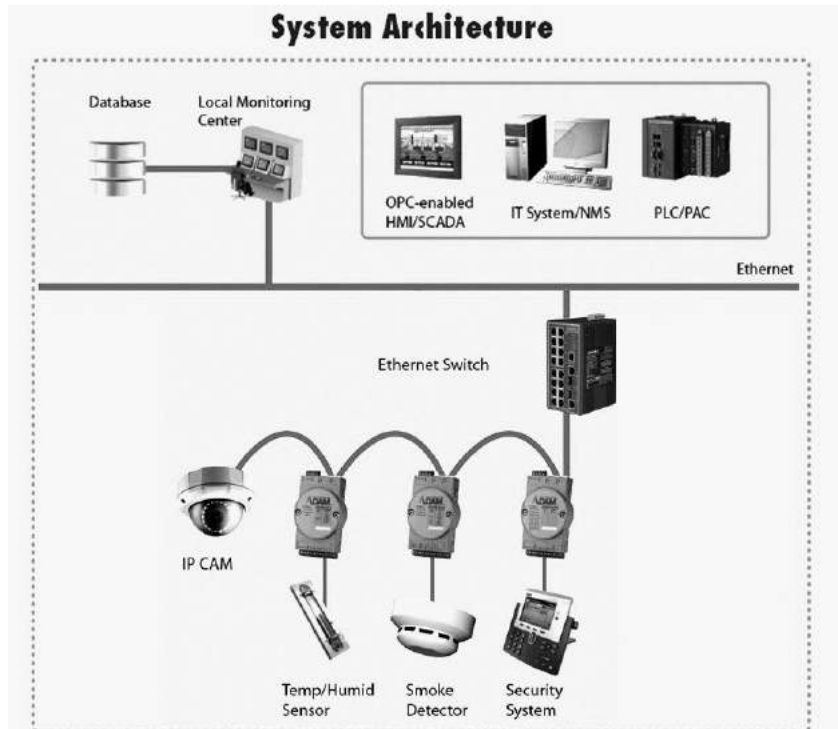
ADAM-6200 Key Features

Flexible Deployment with Daisy Chain Networking and Auto-Bypass Protection

ADAM-6200 module has built-in Ethernet switches to allow daisy chain connections in an Ethernet network, making it easier to deploy, saving wiring costs, and helping improve scalability. The two Ethernet ports are fully compliant with IEEE 802.3u 10/100Mbps through standard RJ-45 connectors.

Although daisy chain topology brings attractive benefits for user, it still comes with the risk that once any device in the daisy-chain network suffers power outage, it will cause the disconnection of all devices data stream

Auto-bypass Protection

To prevent this critical issue from happening, Advantech especially refines the hardware design of ADAM-6200 so that it can rapidly recover the network connection in about 2.5 seconds. Therefore, the damage will be greatly minimized.

Remote Monitoring and Control with Smart Phone/Pad

In early stage of automation, it's hard to access or obtain the data of equipments online when conducting on-site inspection. Mostly, the possible way to do that is communicating with engineers in branch or central control room where the SCADA program is running. It always takes extra efforts to complete an on-site checking or debugging.

The ADAM-6200 series module integrates the latest Web language HTML 5, allowing users to remotely monitor the status of all online modules without bridging SCADA system and to perform basic I/O configurations on any built-in HMI devices such as Smart Phone, Smart Pad over the Internet. Moreover, users can further develop its extended applications based on the default HTML 5 file embedded in the module.

HTML 5

HTML is a markup language popularly used to program the content for Web page over the Internet. The fifth revision (HTML 5) is the latest version which enhances its syntax structure and additionally mixes up with rich Web technologies like CSS, Java Script to implement more Web service, API, interactive applications in mobile communications.
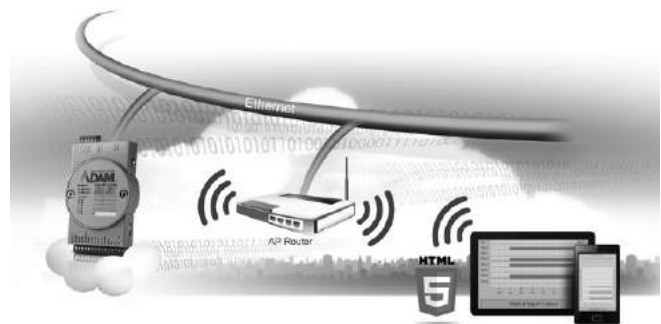
Group Configuration Capability for Multiple Module Setup

In certain application scenario, it requires to set multiple modules with the same settings because these modules are doing the same tasks on different sites. Users have to set configurations of module one after another before onsite deployment. After the modules are installed and the system is running, it will still require repetitive efforts in maintenance when doing firmware update.

ADAM-6200 series modules are equipped with group configuration capability to reduce the repetitive efforts and quickly finish the multiple module setups, including firmware upgrade, configuration and HTML 5 file at one time. Users can finish the module installation faster than before as the configuration time tremendously reduced.

ADAM-6200 Series Selection Guide

NEW NEW NEW NEW NEW NEW NEW NEW

Model		ADAM-6217	ADAM-6218	ADAM-6224	ADAM-6250	ADAM-6251	ADAM-6256	ADAM-6260	ADAM-6266
Interface		10/100Mbps Ethernet							
Analog Input	Channels	8	6	-	-	-	-	-	-
	Input Impedance	>10MΩ (voltage) 120 Ω (current)	>1MΩ (voltage) 120 Ω (current)	-	-	-	-	-	-
	Voltage Input	± 150mV, ± 500mV, ± 1V, ± 5V, ± 10V	± 50mV, ± 100mV, ± 500mV, ± 1V, ± 2.5V	-	-	-	-	-	-
	Current Input	0 ~ 20 mA, 4 ~ 20mA, ± 20mA	0 ~ 20mA, 4 ~ 20mA, ± 20mA	-	-	-	-	-	-
	Sampling Rate (sample/second)	10	10	-	-	-	-	-	-
	Direct Sensor Input	-	J, K, T, E, R, S, B Thermocouple	-	-	-	-	-	-
	Burn-out Detection	Yes (4~20 mA)	Yes (TC, 4~20 mA)	-	-	-	-	-	-
	Resolution	16-bit	16-bit	-	-	-	-	-	-
	Accuracy	± 0.1% of FSR (Voltage) at 25°C ± 0.2% of FSR (Current) at 25°C		-	-	-	-	-	-
Analog Output	Channels	-	-	4	-	-	-	-	-
	Voltage Output	-	-	0 ~ 5V, 0 ~ 10V, ± 5V, ± 10V	-	-	-	-	-
	Current Output	-	-	0 ~ 20mA, 4 ~ 20mA	-	-	-	-	-
	Resolution	-	-	12-bit	-	-	-	-	-
Digital Input/Output	Input Channels	-	-	4 (Dry contact only)	8	16	-	-	4
	Output Channels	-	-	-	7 (Sink)	-	16 (Sink)	-	-
	Relay Output	-	-	-	-	-	-	6 (5 Form C + 1 Form A)	4 (Form C)
	Contact Rating	-	-	-	-	-	-	250 V$_{AC}$ @ 5A 30 V$_{DC}$ @ 5A	
	Counter Input	-	-	-	3kHz	3kHz	-	-	3kHz
	Frequency Input	-	-	-	3kHz	3kHz	-	-	3kHz
	Pulse Output	-	-	-	5kHz	-	5kHz	5kHz	5kHz
	LED Indicator	-	-	-	8 DI, 7 DO	16 DI	16 DO	6 RL	4 DI, 4 RL
Power Consumption		3.5W	3.5W	6W	3W	2.7W	3.2W	4.5W	4.2W
Isolation Voltage		2,500 V$_{DC}$							
Watchdog Timer		System (1.6 seconds) Communication (Programmable)							
Communication Protocol		Modbus TCP, TCP/IP, UDP, HTTP, DHCP							
Power Requirements		10 - 30 V$_{DC}$ (24 V$_{DC}$ standard)							
Operating Temperature		-10 ~ 70°C (14 ~ 158°F)							
Storage Temperature		-20 ~ 80°C (-4 ~ 176°F)							
Operating Humidity		20 ~ 95% RH (non-condensing)							
Storage Humidity		0 ~ 95% RH (non-condensing)							
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ADVANTECH   **IoT Ethernet I/O Modules**

ADAM-6217
ADAM-6218
ADAM-6224

8-ch Isolated Analog Input Modbus TCP Module

6-ch Thermocouple Input Modbus TCP Module

4-ch Isolated Analog Output Modbus TCP Module
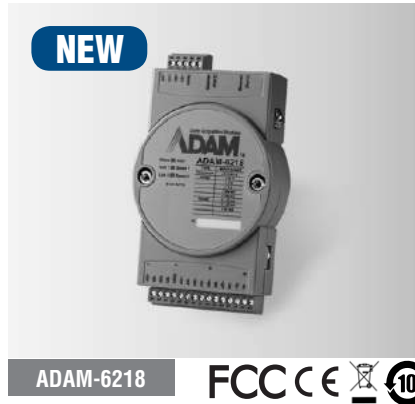
1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

NEW   ADAM-6217   FCC CE ☒ ⑩

NEW   ADAM-6218   FCC CE ☒ ⑩

NEW   ADAM-6224   FCC CE ☒ ⑩

Specifications

Analog Input

- **Channels** — 8 (differential)
- **Input Impedance** — > 10 MΩ (voltage) / 120 Ω (current)
- **Input Type** — mV, V, mA
- **Input Range** — ±150 mV, ±500 mV, ±1 V, ±5 V, ±10 V, 0~20 mA, 4~20 mA, ±20 mA
- **Span Drift** — ± 30 ppm/°C
- **Zero Drift** — ± 6 µV/°C
- **Resolution** — 16-bit
- **Accuracy** — ± 0.1% of FSR (Voltage) at 25°C / ± 0.2% of FSR (Current) at 25°C
- **Sampling Rate** — 10 sample/second (total)
- **CMR @ 50/60 Hz** — 92 dB
- **NMR @ 50/60 Hz** — 67 dB
- **Common Mode** — 200 V_{DC}

Ordering Information

- **ADAM-6217** — 8-ch Isolated Analog Input Modbus TCP Module

Specifications

Analog Input

- **Channels** — 6 (differential)
- **Input Impedance** — > 1 MΩ (voltage) / 120 Ω (current)
- **Input Type** — mV, V, mA, Thermocouple
- **Temperature Range**

J	-210 ~ 1,200°C	R	0 ~ 1,768°C
K	-270 ~ 1,372°C	S	0 ~ 1,768°C
T	-270 ~ 400°C	B	200 ~ 1,820°C
E	-270 ~ 1,000°C		

- **Voltage/Current Input Range** — ±50 mV, ±100 mV, ±500 mV, ±1 V, ±2.5 V, ±20 mA, 0~20 mA, 4~20 mA
- **Span Drift** — ± 30 ppm/°C
- **Zero Drift** — ± 6 µV/°C
- **Resolution** — 16-bit
- **Accuracy** — ± 0.1% of FSR (Voltage) at 25°C / ± 0.2% of FSR (Current) at 25°C
- **Sampling Rate** — 10/100 sample/second (total)
- **CMR @ 50/60 Hz** — 92 dB
- **NMR @ 50/60 Hz** — 67 dB
- **High Common Mode** — 350 V_{DC}

Ordering Information

- **ADAM-6218** — 6-ch Isolated Thermocouple Input Modbus TCP Module

Specifications

Analog Output

- **Channels** — 4
- **Output Impedance** — 2.1 Ω
- **Output Settling Time** — 20 µs
- **Driving Load** — Voltage: 2kΩ / Current: 500 Ω
- **Programmable Output Slope** — 0.125 ~ 128 mA/sec / 0.0625 ~ 64 V/sec
- **Output Type** — V, mA
- **Output Range** — 0 ~ 5 V, 0 ~ 10 V, ± 5 V, ± 10 V, 0 ~ 20 mA, 4 ~ 20 mA
- **Accuracy** — ± 0.3% of FSR (Voltage) at 25°C / ± 0.5% of FSR (Current) at 25°C
- **Resolution** — 12-bit
- **Current Load Resistor** — 0 ~ 500 Ω
- **Drift** — ± 50 ppm/°C

Digital Input

- **Channels** — 4 (Dry Contact only)
- **Dry Contact** — Logic 0: Open / Logic 1: Closed to DGND
- **Support DI Filter**
- **Support Inverted DI Status**
- **Support Trigger to Startup or Safety Value**

Ordering Information

- **ADAM-6224** — 4-ch Isolated Analog Output Modbus TCP Module

Common Specifications

General

- **Ethernet** — 2-port 10/100 Base-TX (for Daisy Chain)
- **Protocol** — Modbus/TCP, TCP/IP, UDP, HTTP, DHCP
- **Connector** — Plug-in 5P/15P screw terminal blocks
- **Power Input** — 10 - 30 V_{DC} (24 V_{DC} standard)
- **Watchdog Timer** — System (1.6 seconds) / Communication (Programmable)
- **Dimensions** — 70 x 122 x 27 mm
- **Protection** — Built-in TVS/ESD protection / Power Reversal protection / Over Voltage protection: +/- 35V_{DC} / Isolation protection: 2500 V_{DC}
- **Power Consumption** — ADAM-6217: 3.5W @ 24 V_{DC} / ADAM-6218: 3.5W @ 24 V_{DC} / ADAM-6224: 6W @ 24 V_{DC}

Features

- Daisy chain connection with auto-bypass protection
- Remote monitoring and control with smart phone/pad
- Group configuration capability for multiple module setup
- Flexible user-defined Modbus address
- Intelligent control ability by Peer-to-Peer and GCL function
- Multiple protocol support: Modbus TCP, TCP/IP, UDP, HTTP, DHCP
- Web language support: XML, HTML 5, Java Script
- System configuration backup
- User Access Control

Environment

- **Operating Temperature** — -10 ~ 70°C (14 ~ 158°F) ADAM-6224 / -20 ~ 70°C (-4 ~ 158°F) ADAM-6217, ADAM-6218
- **Storage Temperature** — -20 ~ 80°C (-4 ~ 176°F)
- **Operating Humidity** — 20 ~ 95% RH (non-condensing)
- **Storage Humidity** — 0 ~ 95% RH (non-condensing)

ADAM-6250
ADAM-6251
ADAM-6256

15-ch Isolated Digital I/O Modbus TCP Module

16-ch Isolated Digital Input Modbus TCP Module

16-ch Isolated Digital Output Modbus TCP Module

NEW	**NEW**	**NEW**
ADAM-6250 FCC C€ ☒ ⑩	ADAM-6251 FCC C€ ☒ ⑩	ADAM-6256 FCC C€ ☒ ⑩

Specifications

Digital Input

- **Channels**
  ADAM-6250: 8
  ADAM-6251: 16
- **Dry Contact**
  Logic 0: Open
  Logic 1: Closed to DGND
- **Wet Contact**
  Logic 0: $0 \sim 3$ V_{DC} or $0 \sim -3$ V_{DC}
  Logic 1: $10 \sim 30$ V_{DC} or $-10 \sim -30$ V_{DC}
  (Dry/Wet Contact decided by Switch)
- **Input Impedance**
  5.2 kΩ (Wet Contact)
- **Transition Time**
  0.2 ms
- **Frequency Input Range**
  $0.1 \sim 3$kHz
- **Counter Input**
  3kHz (32 bit + 1 bit overflow)
- **Keep/Discard Counter Value when power off**
- **Supports Inverted DI Status**

Digital Output

- **Channels**
  ADAM-6250: 7 (Sink Type)
  ADAM-6256: 16 (Sink Type)
- **Output Voltage Range**
  $10 \sim 30$ V_{DC}
- **Normal Output Current**
  100 mA (per channel)
- **Pulse Output**
  Up to 5kHz
- **Delay Output**
  High-to-Low and Low-to-High

Ordering Information

- **ADAM-6250**   15-ch Isolated Digital I/O Modbus TCP Module
- **ADAM-6251**   16-ch Isolated Digital Input Modbus TCP Module
- **ADAM-6256**   16-ch Isolated Digital Output Modbus TCP Module

Common Specifications

General

- **Ethernet**
  2-port 10/100 Base-TX (for Daisy Chain)
- **LED Indication**
  ADAM-6250: 8 DI + 7 DO
  ADAM-6251: 16 DI
  ADAM-6256: 16 DO
- **Protocol**
  Modbus/TCP, TCP/IP, UDP, HTTP, DHCP
- **Connector**
  Plug-in 5P/15P screw terminal blocks
- **Power Input**
  10 - 30 V_{DC} (24 V_{DC} standard)
- **Watchdog Timer**
  System (1.6 seconds)
  Communication (Programmable)
- **Dimensions**
  70 x 122 x 27 mm
- **Protection**
  Built-in TVS/ESD protection
  Power Reversal protection
  Over Voltage protection: +/- 35V_{DC}
  Isolation protection: 2500 V_{DC}
- **Power Consumption**
  ADAM-6250: 3 W @ 24 V_{DC}
  ADAM-6251: 2.7 W @ 24 V_{DC}
  ADAM-6256: 3.2 W @ 24 V_{DC}

Features

- Daisy chain connection with auto-bypass protection
- Remote monitoring and control with smart phone/pad
- Group configuration capability for multiple module setup
- DI/O LED Indication
- Flexible user-defined Modbus address.
- Intelligent control ability by Peer-to-Peer and GCL function
- Multiple protocol support: Modbus TCP, TCP/IP, UDP, HTTP, DHCP
- Web language support: XML, HTML 5, Java Script
- System configuration backup
- User Access Control

Environment

- **Operating Temperature** $-10 \sim 70$°C ($14 \sim 158$°F)
- **Storage Temperature** $-20 \sim 80$°C ($-4 \sim 176$°F)
- **Operating Humidity** $20 \sim 95$% RH (non-condensing)
- **Storage Humidity** $0 \sim 95$% RH (non-condensing)

ADAM-6260
ADAM-6266

6-ch Relay Output Modbus TCP Module

4-ch Relay Output Modbus TCP Module with 4-ch DI

ADAM-6260 FCC C€ ☒ ⑩

ADAM-6266 FCC C€ ☒ ⑩

Specifications

Relay Output

▪ **Channels**	ADAM-6260: 5 Form C and 1 Form A
	ADAM-6266: 4 Form C
▪ **Contact Rating**	250 V_{AC} @ 5A
	30 V_{DC} @ 5A
▪ **Max. Switching Voltage**	400 V_{AC}
	300 V_{DC}
▪ **Breakdown Voltage**	500 V_{AC} (50/60Hz)
▪ **Max. Breakdown Capacity**	1250 VA
▪ **Frequency of Operation**	360 operations/hour with load
	72,000 operations/hour without load
▪ **Set/Reset Time**	8 ms/8 ms
▪ **Mechanical Endurance**	> 15 x 10^6 operations
▪ **Isolation between Contact**	1000 V_{rms}
▪ **Insulation Resistance**	> 10 GΩ @ 500 V_{DC}

Digital Input

▪ **Channels**	ADAM-6266: 4
▪ **Dry Contact**	Logic 0: Open
	Logic 1: Closed to DI COM
▪ **Wet Contact**	Logic 0: 0 ~ 3 V_{DC} or 0 ~ -3 V_{DC}
	Logic 1: 10 ~ 30 V_{DC} or -10 ~ -30 V_{DC}
	(Dry/Wet Contact decided by Switch)
▪ **Input Impedance**	5.2 kΩ (Wet Contact)
▪ **Transition Time**	0.2 ms
▪ **Frequency Input Range**	0.1 ~ 3kHz
▪ **Counter Input**	3kHz (32 bit + 1 bit overflow)
▪ **Keep/Discard Counter Value when power off**	
▪ **Supports Inverted DI Status**	

Ordering Information

▪ **ADAM-6260**	6-ch Relay Output Modbus TCP Module
▪ **ADAM-6266**	4-ch Relay Output Modbus TCP Module with 4-ch DI

Common Specifications

General

▪ **Ethernet**	2-port 10/100 Base-TX (for Daisy Chain)
▪ **LED Indication**	ADAM-6260: 6 RL
	ADAM-6266: 4 RL + 4 DI
▪ **Protocol**	Modbus/TCP, TCP/IP, UDP, HTTP, DHCP
▪ **Connector**	Plug-in 5P/15P screw terminal blocks
▪ **Power Input**	10 - 30 V_{DC} (24 V_{DC} standard)
▪ **Watchdog Timer**	System (1.6 seconds)
	Communication (Programmable)
▪ **Dimensions**	70 x 122 x 27 mm
▪ **Protection**	Built-in TVS/ESD protection
	Power Reversal protection
	Over Voltage protection: +/- 35V_{DC}
	Isolation protection: 2500 V_{DC}
▪ **Power Consumption**	ADAM-6260: 4.5 W @ 24 V_{DC}
	ADAM-6266: 4.2 W @ 24 V_{DC}

Features

- Daisy chain connection with auto-bypass protection
- Remote monitoring and control with smart phone/pad
- Group configuration capability for multiple module setup
- DI/O LED Indication
- Flexible user-defined Modbus address.
- Intelligent control ability by Peer-to-Peer and GCL function
- Multiple protocol support: Modbus TCP, TCP/IP, UDP, HTTP, DHCP
- Web language support: XML, HTML 5, Java Script
- System configuration backup
- User Access Control

Environment

▪ **Operating Temperature**	-10 ~ 70°C (14 ~ 158°F)
▪ **Storage Temperature**	-20 ~ 80°C (-4 ~ 176°F)
▪ **Operating Humidity**	20 ~ 95% RH (non-condensing)
▪ **Storage Humidity**	0 ~ 95% RH (non-condensing)

1 WebAccess+ Solutions
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5 Intelligent Operator Panel
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7 Panel PCs
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10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

EtherNet/IP I/O Module Introduction
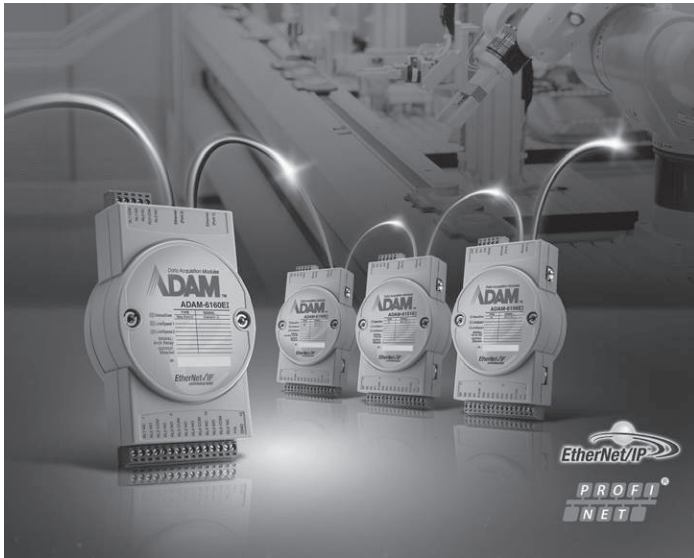
Real-time distributed control systems are an important technology for reliable industrial Ethernet and automation applications. A number of techniques are used to adapt the Ethernet protocol for industrial processes, which must provide reliable service to ensure stable operation. Through modern protocols, automation systems from different manufacturers can be interconnected throughout a plant. Industrial Ethernet takes advantage of the relatively larger marketplace for computer interconnections to reduce cost and improve performance of communications between industrial controllers.

Real-time Systems

A real-time system is one in which the correctness of a result not only depends on correct calculations, but also upon correct timing.

In computing, real-time refers to a time frame that is very brief, appearing to be immediate. When a computer processes data in real time, it reads and handles data as it is received, producing results without delay. A non real-time computer process does not have a deadline. Such a process can be considered non-real-time, even if fast results are preferred. A real-time system, on the other hand, is expected to respond not just quickly, but also within a predictable period of time. In an automation control system, real time technology provides multiple advantages, such as improved safety, quality, and efficiency.

To build a real-time distributed control system, it is critical to establish reliable and real-time communication among the controllers and targets. Distributed processors must be able to intercommunicate via real-time protocols. There is now increasing interest in the use of Ethernet as the link-layer protocol, such as EtherNet/IP, PROFINET, EtherCAT, Ethernet PowerLink, SERCOS III.

EtherNet/IP

EtherNet/IP was developed in the late 1990's by Rockwell Automation for use in process control and other industrial automation applications, ensuring multi-vendor system interoperability. EtherNet/IP is a lot like standard office Ethernet, using the same TCP/IP messaging but with a new application layer added where data is arranged. This is known as Object-Orientated Organization, and allows ordinary office Ethernet to become a more versatile system. Today, EtherNet/IP is commonly used in industrial automation applications, such as water processing, manufacturing, and utilities.

Feature Highlights

Daisy Chain Connections
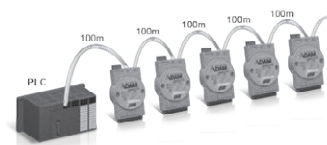
Each ADAM-6100 module has two built in Ethernet switches to allow daisy chain connections in an Ethernet network, making it easier to deploy, helping improve scalability and improving resistance against interference common in factory settings.
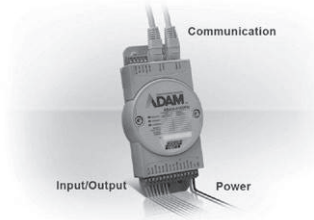
2,500 V_{DC} Isolation Protection

With triple isolation, including power supply, input/output, and Ethernet communication, ADAM-6100 series ensures I/O data to be controlled correctly, and prevents devices from breaking down.

Ethernet-based Configuration Tool

ADAM.NET Utility comes bundled with each ADAM-6100 module. With ADAM. NET Utility, users can configure, set and test ADAM-6100 modules through Ethernet.
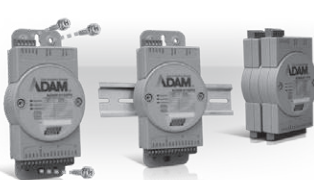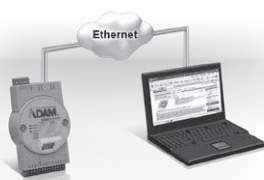
Multiple Mounting Mechanisms

Advantech provides versatile mounting methods to fit various demands in the field. ADAM-6100 series supports DIN-rail mounting, wall mounting and piggybacking.

ADAM-6100 Series Selection Guide

Model	ADAM-6117	ADAM-6150	ADAM-6151	ADAM-6156	ADAM-6160
Interface	10/100 Mbps Ethernet				
Support Protocol	ADAM-6100EI: EtherNet/IP				
Analog Input Resolution	16-bit	-	-	-	-
Analog Input Channels	8	-	-	-	-
Analog Input Sampling Rate (sample/second)	10	-	-	-	-
Analog Input Voltage Input	±150 mV ±500 mV ±1 V ±5 V ±10 V	-	-	-	-
Analog Input Current Input	0 ~ 20 mA 4 ~ 20 mA ±20 mA	-	-	-	-
Analog Input Direct Sensor Input	-	-	-	-	-
Analog Output Resolution	-	-	-	-	-
Analog Output Channels	-	-	-	-	-
Analog Output Current Output	-	-	-	-	-
Analog Output Voltage Output	-	-	-	-	-
Digital Input/Output Input Channels	-	8	16	-	-
Digital Input/Output Output Channels	-	7	-	16	6-ch power relay
Isolation Protection	2,500 V$_{DC}$	2,500 V$_{DC}$	2,500 V$_{DC}$	2,500 V$_{DC}$	2,500 V$_{DC}$
Connectors	2 x RJ-45 LAN (Daisy Chain) Plug-in screw terminal block (I/O and power)				
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1 WebAccess+ Solutions
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3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

ADAM-6117
ADAM-6160

8-ch Isolated Analog Input Real-time Ethernet Module

6-ch Relay Real-time Ethernet Module

ADAM-6117

FCC CE RoHS COMPLIANT 2002/95/EC

ADAM-6160

FCC CE RoHS COMPLIANT 2002/95/EC

Specifications

Analog Input

▪ **Channels**	8 (differential)
▪ **Input Impedance**	> 10 MΩ (voltage)
	120 Ω (current)
▪ **Input Type**	mV, V, mA
▪ **Input Range**	±150 mV, ±500 mV, ±1 V
	±5 V, ±10 V, 0~20 mA,
	4~20 mA, ±20 mA
▪ **Span Drift**	± 30 ppm/°C
▪ **Zero Drift**	± 6 µV/°C
▪ **Resolution**	16-bit
▪ **Accuracy**	± 0.1% of FSR (Current) at 25°C
	± 0.2% of FSR (Current) at 25°C
▪ **Sampling Rate**	10 sample/second (total)
▪ **CMR @ 50/60 Hz**	92 dB
▪ **NMR @ 50/60 Hz**	67 dB
▪ **High Common Mode**	200 V_{DC}

Ordering Information

▪ **ADAM-6117EI**	8-ch Isolated AI EtherNet/IP Module

Specifications

Relay Output

▪ **Channels**	5 Form C and 1 Form A
▪ **Contact Rating**	250 V_{AC} @ 5A
	30 V_{DC} @ 5A
▪ **Max. Switching Voltage**	400 V_{AC}
	300 V_{DC}
▪ **Breakdown Voltage**	500 V_{AC} (50/60Hz)
▪ **Max. Breakdown Capacity**	1250 VA
▪ **Frequency of Operation**	360 operations/hour with load
	72,000 operations/hour without load
▪ **Set/Reset Time**	8 ms/8 ms
▪ **Mechanical Endurance**	> 15 x 10^6 operations
▪ **Isolation between Contact**	1000 V_{rms}
▪ **Insulation Resistance**	> 10 GΩ @ 500 V_{DC}

Ordering Information

▪ **ADAM-6160EI**	6-ch Relay EtherNet/IP Module

Common Specifications

General

▪ **LAN**	10/100Base-T(X)
▪ **Power Consumption**	ADAM-6117: 3.5 W @ 24 V_{DC}
	ADAM-6160: 4.5 W @ 24 V_{DC}
▪ **Connectors**	2 x RJ-45 LAN (Daisy Chain)
	Plug-in screw terminal block (I/O and power)
▪ **Watchdog**	System (1.6 second)
▪ **Power Input**	10 ~ 30 V_{DC}

Protection

▪ **Isolation Protection**	2,500 V_{DC}
▪ **Built in TVS/ESD Protection**	
▪ **Power Reversal Protection**	

Environment

▪ **Operating Temperature**	-10 ~ 70°C (14 ~ 158°F)
▪ **Storage Temperature**	-20 ~ 80°C (-4 ~ 176°F)
▪ **Operating Humidity**	20 ~ 95% RH (non-condensing)
▪ **Storage Humidity**	0 ~ 95% RH (non-condensing)

ADAM-6150
ADAM-6151/6156

15-ch Isolated Digital I/O Real-time Ethernet Module

16-ch Isolated Digital Input/ Digital Output Real-time Ethernet Module

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ADAM-6150 FCC CE RoHS COMPLIANT 2002/95/EC

ADAM-6151/6156 FCC CE RoHS COMPLIANT 2002/95/EC

Specifications

Digital Input

- **Channels**   8
- **Dry Contact**   Logic level 0: open
                       Logic level 1: close to DGND
- **Wet Contact**   Logic level 0: 0 ~ 3 V_{DC} or 0 ~ -3 V_{DC}
                       Logic level 1: 10 ~ 30 V_{DC} or -10 ~ -30 V_{DC}
                       (Dry/Wet Contact decided by switch)
- **Input Impedance** 5.2 kΩ (Wet Contact)
- **Transition Time** From logic level 0 to 1: 0.2 ms
                       From logic level 1 to 0: 0.2 ms

Digital Output

- **Channels**   7
- **Output Voltage Range**   8 ~ 35 V_{DC}
- **Normal Output Current**   100 mA (per channel)

Ordering Information

- **ADAM-6150EI**   15-ch Isolated DI/O EtherNet/IP Module

Specifications

Digital Input (ADAM-6151)

- **Channels**   16
- **Dry Contact**   Logic level 0: open
                       Logic level 1: close to DGND
- **Wet Contact**   Logic level 0: 0 ~ 3 V_{DC} or 0 ~ -3 V_{DC}
                       Logic level 1: 10 ~ 30 V_{DC} or -10 ~ -30 V_{DC}
                       (Dry/Wet Contact decided by switch)
- **Input Impedance** 5.2 kΩ (Wet Contact)
- **Transition Time** From logic level 0 to 1: 0.2 ms
                       From logic level 1 to 0: 0.2 ms

Digital Output (ADAM-6156)

- **Channels**   16
- **Output Voltage Range**   8 ~ 35 V_{DC}
- **Normal Output Current**   100 mA (per channel)

Ordering Information

- **ADAM-6151EI**   16-ch Isolated DI EtherNet/IP Module
- **ADAM-6156EI**   16-ch Isolated DO EtherNet/IP Module

Common Specifications

General

- **LAN**   10/100Base-T(X)
- **Power Consumption**   ADAM-6150: 3 W @ 24 V_{DC}
                           ADAM-6151: 2.7 W @ 24 V_{DC}
                           ADAM-6156: 3.2 W @ 24 V_{DC}
- **Connectors**   2 x RJ-45 LAN, (Daisy Chain)
                           Plug-in screw terminal block (I/O and power)
- **Watchdog**   System (1.6 second)
- **Power Input**   10 ~ 30 V_{DC}

Protection

- **Over Voltage Protection** ±35 V_{DC}
- **Isolation Protection**   2,500 V_{DC}
- **Power Reversal Protection**

Environment

- **Operating Temperature** -10 ~ 70°C (14 ~ 158°F)
- **Storage Temperature**   -20 ~ 80°C (-4 ~ 176°F)
- **Operating Humidity**   20 ~ 95% RH (non-condensing)
- **Storage Humidity**   0 ~ 95% RH (non-condensing)
                             0 ~ 95% RH (non-condensing)

Memo

RS-485 I/O Modules: ADAM-4000

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To view all of Advantech's RS-485 I/O Modules: ADAM-4000, please visit www.advantech.com/products.

ADAM-4000 Series

Applications

- Remote data acquisition
- Process monitoring
- Industrial process control
- Energy management
- Supervisory control
- Security systems
- Laboratory automation
- Building automation
- Product testing
- Direct digital control
- Relay control

Introduction

The ADAM-4000 series modules are compact, versatile sensor-to-computer interface units designed specifically for reliable operation in harsh environments. Their built-in microprocessors, encased in rugged industrial grade plastic, independently provide intelligent signal conditioning, analog I/O, digital I/O, data display and RS-485 communication. The ADAM-4000 series can be categories into three groups: controllers, communication modules, and I/O modules.

General Features

RS-485

The ADAM-4000 series of modules use the EIA RS-485 communication protocol, the industry's most widely used bi-directional, balanced transmission line standard. The EIA RS-485 was specifically developed for industrial applications. It lets ADAM-4000 modules transmit and receive data at high rates over long distances. All modules use optical isolators to prevent ground loop problems and reduce damages caused by power surges.

Modbus Communication Protocol

Since Modbus is one of the most popular communication standards in the world, Advantech has applied it as the major communication protocol for eAutomation product development. The new-generation ADAM-4000 modules now also support the Modbus/RTU protocol as the remote data transmission mechanism. Featuring the Modbus-support capacity, the new ADAM-4000 series becomes universal remote I/O modules, which work with any Modbus systems. The HMI server or controller can read/write data via standard Modbus command instead of complex ASCII code.

Watchdog Timer

A watchdog timer supervisory function will automatically reset the ADAM-4000 series modules if required, which reduces the need for maintenance. It also provides great reliability to the system.

Flexible Networking

ADAM-4000 series modules need just two wires to communicate with their controlling host computer over a multidrop RS-485 network. Their ASCII-based command/response protocol ensures compatibility with virtually any computer system.

Modular Industrial Design

You can easily mount modules on a DIN-rail, a panel or modules can piggyback on top of each other. You make signal connections through plug-in screw-terminal blocks, ensuring simple installation, modification and maintenance.

Controller Features

Alternative Standalone Control Solution

A standalone control solution is made possible when the ADAM-4000 series modules are controlled by the ADAM-4501 or ADAM-4502 PC-based communication controller. The ADAM-4501 and ADAM-4502 allow users to download an application (written in a high-level programming language) into its Flash ROM. This allows customization for your applications.

I/O Module Features

Remotely Programmable Input Ranges

The ADAM-4000 series modules stand out because of their ability to accommodate multiple types and ranges of analog input. The type and range can be remotely selected by issuing commands from a host computer. One type of module satisfies many different tasks, which greatly simplifies design and maintenance. A single kind of module can handle the measurement needs of a whole plant. Since all modules are remotely configured by the host computer, physical adjustments are unnecessary.

Easy Plug-in System Integration

With ADAM-4000's Modbus I/O, and built-in Modbus/RTU protocol, any controller using the Modbus/RTU standard can be integrated as part of an ADAM-4000 control system. Any Modbus Ethernet data gateway can upgrade these I/O Modules up to the Modbus/TCP Ethernet layer. Most HMI software is bundled with a Modbus driver, and can access the ADAM-4000 I/O directly. Moreover, Advantech provides Modbus OPC Server and Modbus/TCP OPC Server as data exchange interfaces between the ADAM-4000 Modbus I/O and any Windows Applications.

Communication Module Features

Ethernet

ADAM-4570 and ADAM-4571 are designed for the connection between serial devices (RS-232/422/485) and Ethernet. With ADAM-4570 or ADAM-4571, you can use graphical control software to monitor and control I/O modules. With existing devices, you can connect to an Ethernet network with the benefits of enhanced host performance and convenience.

Fiber Optics

If users need to transmit over long distances without noise interference, ADAM-4541 and ADAM-4542+ are designed for this task. The ADAM-4541 is a multi-mode converter, which carries signals from fiber optics to RS-232/422/485. It offers a transmission distance of up to 2,500 m with a total immunity to electromagnetic noise. The ADAM-4542+ is a single-mode converter, which carries signals from fiber to optics to RS-232/422/485. It offers a transmission distance of up to 15 km with total immunity to electromagnetic noise.

USB Communications

ADAM-4561/4562 is an one-port isolated USB to RS-232/422/485 converter. ADAM-4561 can convert USB to RS-232/422/485 with plug-in terminal. The major features of ADAM-4562 are the capability to use 9-wire RS-232, and to get power from the USB port. With 9-wire RS-232 capability, this converter meets the requirements of PLCs, modems, and controller equipment. As a USB-to-serial converter, ADAM-4562 supports Plug & Play, and hot-swapping, which simplifies the configuration process, and it also acts as a power supply for the module. It is no longer necessary to have an external power supply.

ADAM-4000 Remote Data Acquisition and Control System
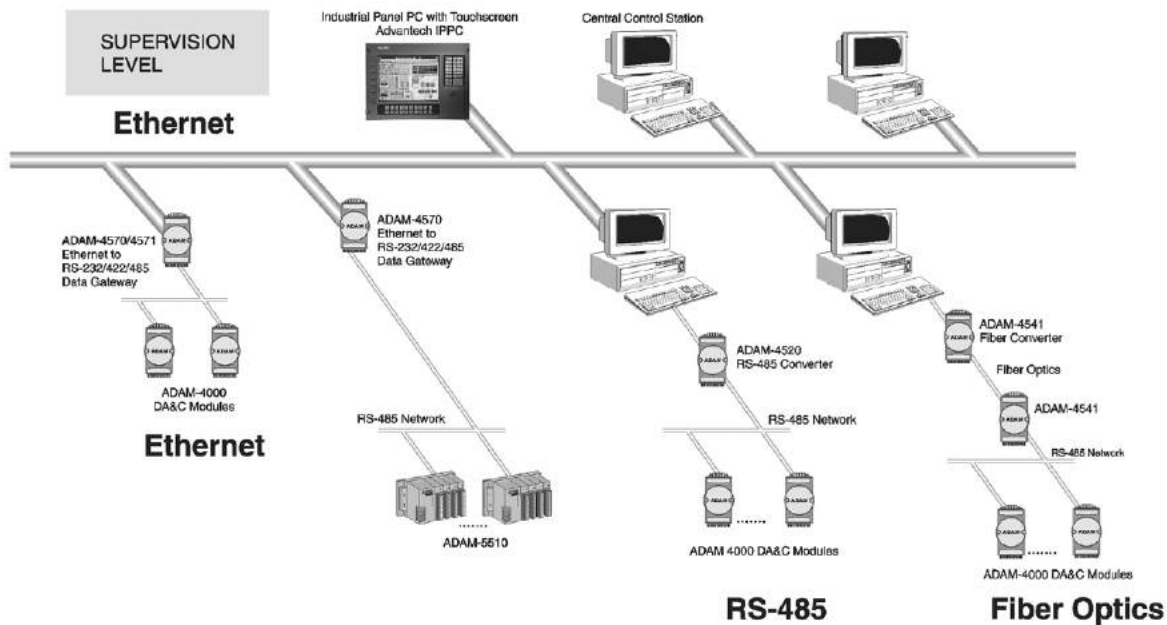
Communication and Controller Module Selection Guide

Controllers

Repeaters

Model	ADAM-4501	ADAM-4502	ADAM-4022T	ADAM-4510 ADAM-4510S
Network	Ethernet, RS-232, RS-485		RS-485	RS-422 RS-485
Comm. Protocol	Modbus/RTU, Modbus/TCP TCP/IP, UDP, ICMP, ARP, DHCP		ASCII Command/ Modbus	-
Comm. Speed (bps)	Ethernet: 10/100M Serial: From 1,200 to 115.2 kbps		Serial: From 1,200 to 115.2 k	Serial: From 1,200 to 115.2 k
Comm. Distance	Ethernet: 100 m Serial: 1.2 Km		Serial: 1.2 km	Serial: 1.2 km
Interface Connectors	Ethernet: RJ-45 RS-485: plug-in screw terminal RS-232: RJ-48		RS-485: plug-in screw terminal	RS-422/485: plug-in screw terminal
LED Indicators	Communication & Power		Power	Communication & Power
Data Flow Control	Yes		Yes	-
Watchdog Timer	Yes		Yes	-
Isolation Voltage	-	1,000 V_{DC}	3,000 V_{DC}	ADAM-4510: - ADAM-4510S: 3,000 V_{DC}
Special Features	Email function Built-in HTTP and FTP Server		PID Control	-
Built-in I/O	4DI/4DO	1AI/1AO/2DI/2DO	-	-
Power Requirements	10 ~ 30 V_{DC}			10 ~ 30 V_{DC}
Operating Temperature	-10 ~ 70°C (14 ~ 158°F)			-10 ~ 70°C (14 ~ 158°F)
Operating Humidity	5 ~ 95% RH			5 ~ 95% RH
Power Consumption	4 W @ 24 V_{DC}			1.4 W @ 24 V_{DC}
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Converters

Model	ADAM-4520	ADAM-4521	ADAM-4541 ADAM-4542+	ADAM-4561 ADAM-4562
Network	RS-232 to RS-422/485		Fiber Optic to RS-232/422/485	USB to RS-232/485/422
Comm. Protocol	-			
Comm. Speed (bps)	Serial: From 1,200 to 115.2 k			
Comm. Distance	Serial: 1.2 km	Serial: 1.2 km	ADAM-4541: 2.5 km ADAM-4542+: 15 km	Serial: 1.2 km
Interface Connectors	RS-232: female DB9 RS-422/485: plug-in screw terminal	RS-232: female DB9 RS-422/485: plug-in screw terminal	RS-232/422/485: plug-in screw terminal Fiber: ADAM-4541: ST connector ADAM-4542+: SC connector	USB: type A client connector Serial: ADAM-4561: plug-in screw terminal (RS-232/422/485) ADAM-4562: DB9 (RS-232)
LED Indicators	Communication & Power			
Data Flow Control	-	Yes	-	Yes
Watchdog Timer	-	Yes	-	Yes
Isolation Voltage	3,000 V_{DC}	1,000 V_{DC}	-	ADAM-4561: 3,000 V_{DC} ADAM-4562: 2,500 V_{DC}
Power Requirements	10 ~ 30 V_{DC}			
Operating Temperature	-10 ~ 70°C (14 ~ 158°F)			
Operating Humidity	5 ~ 95% RH			
Power Consumption	1.2 W @ 24 V_{DC}	1 W @ 24 V_{DC}	ADAM-4541: 1.5 W @ 24 V_{DC} ADAM-4542+: 3 W @ 24 V_{DC}	ADAM-4561: 1.5 W @ 5 V_{DC} ADAM-4562: 1.1 W @ 5 V_{DC}
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I/O Module Selection Guide

Analog Input

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

	Model	ADAM-4011	ADAM-4012	ADAM-4013	ADAM-4015 ADAM-4015T	ADAM-4016	ADAM-4017+
	Resolution	16 bit					
Analog Input	Channels	1 differential	1 differential	1 differential	6 differential	1 differential	8 differential
	Sampling Rate	10 Hz					
	Voltage Input	±15 mV ±50 mV ±100 mV ±500 mV ±1 V ±2.5 V	±150 mV ±500 mV ±1 V ±5 V ±10 V	-	-	±15 mV ±50 mV ±100 mV ±500 mV	±150 mV ±500 mV ±1 V ±5 V ±10 V
	Current Input	±20 mA	±20 mA	-	-	±20 mA	4 ~ 20 mA ±20 mA
	Direct Sensor Input	J, K, T, E, R, S, B Thermocouple	-	RTD	ADAM-4015: RTD ADAM-4015T: Thermistor	-	-
	Burn-out Detection	Yes	-	-	Yes	-	-
	Channel Independent Configuration	-	-	-	Yes	-	Yes
Analog Output	Channels	-	-	-	-	1	-
	Voltage Output	-	-	-	-	0 - 10 V	-
	Current Output	-	-	-	-	-	-
Digital Input/ Output	Input Channels	1	1	-	-	-	-
	Output Channels	2	2	-	-	4	-
	Alarm Settings	Yes	Yes	-	-	-	-
Counter (32-bit)	Channels	-	-	-	-	-	-
	Input Frequency	-	-	-	-	-	-
	Isolation Voltage	3,000 V_{DC}					
	Digital LED Indicator	-					
	Watchdog Timer	Yes (System)	Yes (System)	Yes (System)	Yes (System & Comm.)	Yes (System)	Yes (System & Comm.)
	Safety Setting	-					
	Modbus Support *	-	-	-	Yes	-	Yes
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*: All ADAM-4000 I/O Modules support ASCII Commands

I/O Module Selection Guide

Analog Input   Analog Output   Digital Input/Output

		Analog Input		Analog Output		Digital Input/Output	
Model		ADAM-4018+	ADAM-4019+	ADAM-4021	ADAM-4024	ADAM-4050	ADAM-4051
Resolution		16 bit		12 bit	12 bit	-	-
Analog Input	Channels	8 differential	8 differential	-	-	-	-
	Sampling Rate	10 Hz	10 Hz	-	-	-	-
	Voltage Input	-	± 100 mV ± 500 mV ± 1 V ± 2.5 V ± 5 V ± 10 V	-	-	-	-
	Current Input	4 ~ 20 mA ±20 mA	4 ~ 20 mA ±20 mA	-	-	-	-
	Direct Sensor Input	J, K, T, E, R, S, B Thermocouple	J, K, T, E, R, S, B Thermocouple	-	-	-	-
	Burn-out Detection	Yes	Yes (4 ~ 20 mA & All T/C)	-	-	-	-
	Channel Independent Configuration	Yes	Yes	-	-	-	-
Analog Output	Channels	-	-	1	4	-	-
	Voltage Output	-	-	0 ~ 10 V	±10 V	-	-
	Current Output	-	-	0 ~ 20 mA 4 ~ 20 mA	0 ~ 20 mA 4 ~ 20 mA	-	-
Digital Input/Output	Input Channels	-	-	-	4	7	16
	Output Channels	-	-	-	-	8	-
	Alarm Settings	-	-	-	Yes	-	-
Counter (32-bit)	Channels	-	-	-	-	-	-
	Input Frequency	-	-	-	-	-	-
Isolation Voltage		3,000 V$_{DC}$	3,000 V$_{DC}$	3,000 V$_{DC}$	3,000 V$_{DC}$	-	2,500 V$_{DC}$
Digital LED Indicator		-	-	-	-	-	Yes
Watchdog Timer		Yes (System & Comm.)	Yes (System & Comm.)	Yes (System)	Yes (System & Comm.)	Yes (System)	Yes (System & Comm.)
Safety Setting		-	-	-	Yes	-	-
Modbus Support *		Yes	Yes	-	Yes	-	Yes
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*: All ADAM-4000 I/O Modules support ASCII Commands

Relay Output   Counter

	ADAM-4052	ADAM-4053	ADAM-4055	ADAM-4056S/4056SO		ADAM-4060	ADAM-4068	ADAM-4069		ADAM-4080
	-	-	-	-		-	-	-		-
	-	-	-	-		-	-	-		-
	-	-	-	-		-	-	-		-
	-	-	-	-		-	-	-		-
	-	-	-	-		-	-	-		-
	-	-	-	-		-	-	-		-
	-	-	-	-		-	-	-		-
	-	-	-	-		-	-	-		-
	-	-	-	-		-	-	-		-
	-	-	-	-		-	-	-		-
	8	16	8	-		-	-	-		2
	-	-	8	12		4-ch relay	8-ch relay	8-ch power relay		Yes
	-	-	-	-		-	-	-		2
	-	-	-	-		-	-	-		50 kHz
	5,000 V_{RMS}	-	2,500 V_{DC}	5,000 V_{DC}		-	-	-		2,500 V_{RMS}
	-	-	Yes	Yes		-	Yes	-		-
	Yes (System)	Yes (System)	Yes (System & Comm.)	Yes (System & Comm.)		Yes (System)	Yes (System & Comm.)	Yes (System & Comm.)		Yes (System)
	-	-	Yes	-		Yes	Yes	Yes		-
	-	-	Yes	Yes		-	Yes	Yes		-
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1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
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ADAM-4011
ADAM-4012
ADAM-4013

1-ch Thermocouple Input Module

1-ch Analog Input Module

1-ch RTD Input Module

ADAM-4011

ADAM-4012

ADAM-4013

Specifications

General
- **Power Consumption** 1.4 W @ 24 V_{DC}
- **Supported Protocols** ASCII command

Analog Input
- **Channels** 1
- **Input Impedance** Voltage: 2 MΩ
  Current: 125 Ω (Added by user)
- **Input Type** T/C, mV, V or mA
- **Input Range** ±15 mV, ±50 mV, ±100 mV, ±500 mV, ±1 V, ±2.5 V, ±20 mA
- **Accuracy** Voltage mode: ±0.1% or better
  Current mode: ±0.2% or better
- **T/C Type and Temperature Range**

J	0 ~ 760°C	R	500 ~ 1,750°C
K	0 ~ 1,370°C	S	500 ~ 1,750°C
T	-100 ~ 400°C	B	500 ~ 1,800°C
E	0 ~ 1,000°C		

- **Span Drift** ±25 ppm/°C
- **Zero Drift** ±6 µV/°C

Digital Input
- **Channels** 1
  Logic level 0: 1 V max.
  Logic level 1: 3.5 ~ 30 V
  Pull up current: 0.5 mA, 10 kΩ resistor to 5 V
- **Event Counter** Max. input freq: 50 Hz

Digital Output
- **Channels** 2, open collector to 30 V, 30 mA max. load
- **Power Dissipation** 300 mW
- **Supports high/low alarms**

Specifications

General
- **Power Consumption** 1.2 W @ 24 V_{DC}
- **Supported Protocols** ASCII command

Analog Input
- **Channels** 1
- **Input Impedance** Voltage: 20 MΩ
  Current: 125 Ω (Added by user)
- **Input Type** mV, V or mA
- **Input Range** ±150 mV, ±500 mV, ±1 V, ±5 V, ±10 V and ±20 mA
- **Accuracy** Voltage mode: ±0.1% or better
  Current mode: ±0.2% or better
- **Span Drift** ±25 ppm/°C
- **Zero Drift** ±6 µV/°C

Digital Input
- **Channels** 1
  Logic level 0: 1 V max.
  Logic level 1: 3.5 ~ 30 V
  pull up current: 0.5 mA, 10 kΩ resistor to 5 V
- **Event Counter** Max. input freq.: 50 Hz
  Min. input pulse width: 1 msec.

Digital Output
- **Channels** 2, open collector to 30 V, 30 mA max. load
- **Power Dissipation** 300 mW

Specifications

General
- **Power Consumption** 0.7 W @ 24 V_{DC}
- **Supported Protocols** ASCII command

Analog Input
- **Channels** 1
- **Input Connections** 2 or 3-wire
- **Input Impedance** 2 MΩ
- **Input Type** Pt or Ni RTD
- **RTD Types and Temperature Ranges**
  IEC RTD 100 ohms

Pt	-100°C	to	+100°C	a = 0.00385
Pt	0°C	to	+100°C	a = 0.00385
Pt	0°C	to	+200°C	a = 0.00385
Pt	0°C	to	+600°C	a = 0.00385

  JIS RTD 100 ohms

Pt	-100°C	to	+100°C	a = 0.003916
Pt	0°C	to	+100°C	a = 0.003916
Pt	0°C	to	+200°C	a = 0.003916
Pt	0°C	to	+600°C	a = 0.003916

  Ni RTD

Ni	-80°C	to	+100°C
Ni	0°C	to	+100°C

- **Accuracy** ±0.1% or better
- **Span Drift** ±25 ppm/°C
- **Zero Drift** ±3 µV/°C

Common Specifications

General
- **Power Input** Unregulated 10 ~ 30 V_{DC}
- **Connectors** 1 x plug-in terminal block (#14 ~ 22 AWG)
- **Watchdog Timer** System (1.6 second)

Analog Input
- **Resolution** 16-bit
- **Sampling Rate** 10 sample/second

- **CMR @ 50/60 Hz** 150 dB
- **NMR @ 50/60 Hz** 100 dB
- **Isolation Voltage** 3,000 V_{DC}

Environment
- **Operating Humidity** 5 ~ 95% RH
- **Operating Temperature** -10 ~ 70°C (14 ~ 158°F)
- **Storage Temperature** -25 ~ 85°C (-13 ~ 185°F)

Ordering Information
- **ADAM-4011** 1-ch Thermocouple Input Module
- **ADAM-4012** 1-ch Analog Input Module
- **ADAM-4013** 1-ch RTD Input Module

ADAM-4015
ADAM-4015T
ADAM-4016

6-ch RTD Module with Modbus

6-ch Thermistor Module with Modbus

1-ch Analog Input/Output Module

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
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6 Automation Panels
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ADAM-4015   **ADAM-4015T**   **ADAM-4016**

Specifications

General
- **Connectors** 2 x plug-in terminal blocks (#14 ~ 28 AWG)
- **Power Consumption** 1.2 W @ 24 V$_{DC}$
- **Watchdog Timer** System (1.6 s) & Communication
- **Supported Protocols** ASCII command and Modbus/RTU
- **Burn-out Detection** Yes

Analog Input
- **Channels** 6 differential
- **Input Connections** 2, 3-wire
- **Input Impedance** 10 MΩ
- **Input Type** Pt, Balco and Ni RTD
- **RTD Types and Temperature Ranges**
  Pt 100 RTD:
  Pt -50°C   to   150°C
  Pt 0°C   to   100°C
  Pt 0°C   to   200°C
  Pt 0°C   to   400°C
  Pt -200°C   to   200°C
  IEC RTD 100 ohms (a = 0.00385)
  JIS RTD 100 ohms (a = 0.00392)
  Pt 1000 RTD
  Pt -40°C   to   160°C
  Balco 500 RTD
  -30°C   to   120°C
  Ni 50 RTD
  Ni -80°C   to   100°C
  Ni 508 RTD
  Ni 0°C   to   100°C
  BA1
  -200°C   to   600°C
- **Accuracy** ±0.1% or better
- **CMR @ 50/60 Hz** 120 dB
- **Span Drift** ± 25 ppm/°C
- **Zero Drift** ± 3 µV/°C

Specifications

General
- **Connectors** 2 x plug-in terminal blocks (#14 ~ 28 AWG)
- **Power Consumption** 1.2 W @ 24 V$_{DC}$
- **Watchdog Timer** System (1.6 s) & Communication
- **Supported Protocols** ASCII command and Modbus/RTU
- **Burn-out Detection** Yes

Analog Input
- **Channels** 6 differential
- **Input Connections** 2, 3-wire
- **Input Impedance** 10 MΩ
- **Input Type** Thermistor (NTC)
- **Thermistor Types and Temperature Ranges**
  Thermistor 3 k   0 ~ 100°C
  Thermistor 10 k   0 ~ 100°C
- **Accuracy** ±0.1% or better
- **CMR @ 50/60 Hz** 120 dB
- **Span Drift** ± 25 ppm/°C
- **Zero Drift** ± 3 µV/°C

Specifications

General
- **Connectors** 2 x plug-in terminal blocks (#14 ~ 22 AWG)
- **Power Consumption** 2.2 W @ 24 V$_{DC}$
- **Watchdog Timer** System (1.6 s)
- **Supported Protocols** ASCII command

Analog Input
- **Channels** 1 differential
- **Input Impedance** Voltage: 2 MΩ
  Current: 125 Ω
  (Added by user)
- **Input Type** mV or mA
- **Input Range** ±15 mV, ±50 mV, ±100 mV, ±500 mV, ±20 mA
- **Accuracy** Voltage mode: ±0.1% or better
  Current mode: ±0.2% or better
- **CMR @ 50/60 Hz** 150 dB
- **Span Drift** ±25 ppm/°C
- **Zero Drift** ±6 µV/°C

Analog Output
- **Channels** 1
- **Accuracy** 0.05% of FSR
- **Output Type** V
- **Output Range** 0 ~ 10 V
- **Drift** ±50 ppm/°C
- **Drive Current** 30 mA
- **Isolation Voltage** 3,000 V$_{DC}$

Digital Output
- **Channels** 4, open collector to 30 V, 30 mA max. load
- **Power Dissipation** 300 mW

Common Specifications

General
- **Power Input** Unregulated 10 ~ 30 V$_{DC}$

Analog Input
- **Resolution** 16-bit
- **NMR @ 50/60 Hz** 100 dB
- **Sampling Rate** 10 sample/second (total)
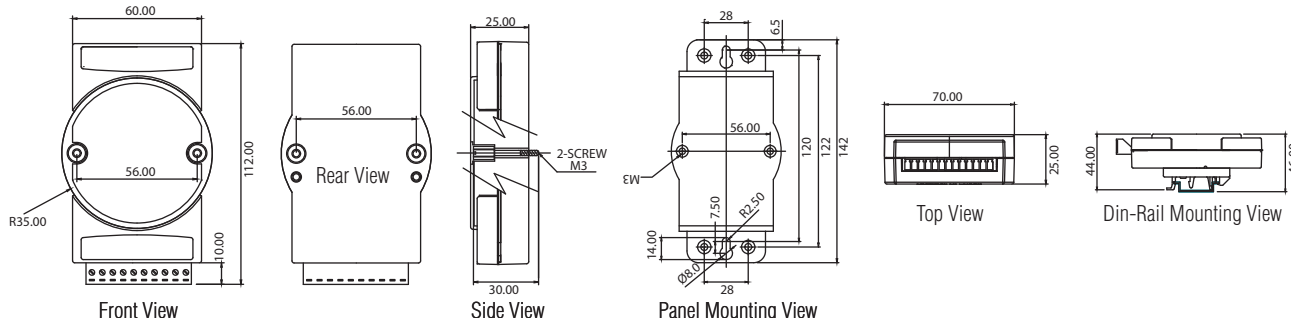- **Isolation Voltage** 3,000 V$_{DC}$

Environment
- **Operating Humidity** 5 ~ 95% RH
- **Operating Temperature** - 10 ~ 70°C (14 ~ 158°F)
- **Storage Temperature** - 25 ~ 85°C (-13 ~ 185°F)

Ordering Information

- **ADAM-4015** 6-ch RTD Input Module with Modbus
- **ADAM-4015T** 6-ch Thermistor Input Module with Modbus
- **ADAM-4016** 1-ch Analog Input/ Output Module

ADAM-4017+
ADAM-4018+
ADAM-4019+

8-ch Analog Input Module with Modbus

8-ch Thermocouple Input Module with Modbus

8-ch Universal Analog Input Module with Modbus

ADAM-4017+	FCC $C\epsilon$ RoHS COMPLIANT 2002/95/EC	c(UL)us LISTED E180881 I.T.E.

ADAM-4018+	FCC $C\epsilon$ RoHS COMPLIANT 2002/95/EC	c(UL)us LISTED E180881 I.T.E.

ADAM-4019+	FCC $C\epsilon$ RoHS COMPLIANT 2002/95/EC	c(UL)us LISTED E180881 I.T.E.

Specifications

General

- **Power Consumption** 1.2 W @ 24 V_{DC}
- **Watchdog Timer** System (1.6 second) & Communication
- **Supported Protocols** ASCII command and Modbus/RTU

Analog Input

- **Channels** 8 differential
- **Channel Independent** Yes
  Configuration
- **Input Impedance** Voltage: 20 MΩ
  Current: 120 Ω
- **Input Type** mV, V, mA
- **Input Range** ±150 mV, ±500 mV, ±1 V, ±5 V, ±10 V, ±20 mA, 4 ~ 20 mA

Specifications

General

- **Power Consumption** 0.8 W @ 24 V_{DC}
- **Watchdog Timer** System (1.6 second) & Communication
- **Supported Protocols** ASCII command and Modbus/RTU

Analog Input

- **Channels** 8 differential
- **Channel Independent** Yes
  Configuration
- **Input Impedance** Voltage: 20 MΩ
  Current: 120 Ω
- **Input Type** Thermocouple, mA
- **Input Range** 0 ~ 20 mA, 4 ~ 20 mA
- **T/C Types and Temperature Ranges**

J	0 ~ 760°C	R	500 ~ 1,750°C
K	0 ~ 1,370°C	S	500 ~ 1,750°C
T	-100 ~ 400°C	B	500 ~ 1,800°C
E	0 ~ 1,000°C		

- **Burn-out Detection** All T/C

Specifications

General

- **Power Consumption** 1.0 W @ 24 V_{DC}
- **Watchdog Timer** System (1.6 second) & Communication
- **Supported Protocols** ASCII command and Modbus/RTU

Analog Input

- **Channels** 8 differential channels for individual input type
- **Channel Independent** Yes
  Configuration
- **Input Impedance** Voltage: 20 MΩ
  Current: 120 Ω
- **Input Type** T/C, mV, V, mA
- **Input Range** ±1 V, ±2.5 V, ±5 V, ±10 V, ±100 mV, ±500 mV, ±20 mA, 4 ~ 20 mA
- **T/C Types and Temperature Ranges**

J	0 ~ 760°C	R	500 ~ 1,750°C
K	0 ~ 1,370°C	S	500 ~ 1,750°C
T	-100 ~ 400°C	B	500 ~ 1,800°C
E	0 ~ 1,000°C		

- **Burn-out Detection** 4 ~ 20 mA & all T/C

Common Specifications

General

- **Power Input** Unregulated 10 ~ 30 V_{DC}
- **Connectors** 2 x plug-in terminal block (#14 ~ 22 AWG)

Analog Input

- **Accuracy** Voltage mode: ±0.1% or better
  Current mode: ±0.2% or better
- **Resolution** 16-bit
- **Sampling Rate** 10 sample/second (total)
- **Isolation Voltage** 3,000 V_{DC}

- **Overvoltage Protection** ±35 V_{DC}
- **CMR @ 50/60 Hz** 120 dB
- **NMR @ 50/60 Hz** 100 dB
- **Span Drift** ±25 ppm/°C
- **Zero Drift** ±6 µV/°C
- **Built-in TVS/ESD Protection**

Environment

- **Operating Humidity** 5 ~ 95% RH
- **Operating Temperature** -10 ~ 70°C (14 ~ 158°F)
- **Storage Temperature** -25 ~ 85°C (-13 ~ 185°F)

Ordering Information

- **ADAM-4017+** 8-ch Analog Input Module with Modbus
- **ADAM-4018+** 8-ch Thermocouple Input Module w/Modbus
- **ADAM-4019+** 8-ch Universal Analog Input Module w/Modbus

ADAM-4021
ADAM-4022T
ADAM-4024

1-ch Analog Output Module

2-ch Serial Based Dual Loop PID Controller with Modbus

4-ch Analog Output Module with Modbus

ADAM-4021 | FM APPROVED | CE | RoHS COMPLIANT 2002/95/EC | c UL us LISTED E180881 I.T.E.

ADAM-4022T | FCC CE | RoHS COMPLIANT 2002/95/EC | c UL us LISTED E180881 I.T.E.

ADAM-4024 | FCC CE | RoHS COMPLIANT 2002/95/EC | c UL us LISTED E180881 I.T.E.

Specifications

General
- **Connectors** 2 x plug-in terminal blocks (#14 ~ 22 AWG)
- **Power Consumption** 1.4 W @ 24 V_{DC}
- **Watchdog Timer** System (1.6 second)
- **Supported Protocols** ASCII command

Analog Output
- **Channels** 1
- **Output Impedance** 0.5 Ω
- **Output Range** 0 ~ 20 mA, 4 ~ 20 mA, 0 ~ 10 V
- **Output Type** mA, V
- **Accuracy** ±0.1% of FSR for current output
  ±0.2% of FSR for voltage output
- **Current Load Resistor** 0 to 500 Ω (source)
- **Resolution** 12-bit
- **Isolation Voltage** 3,000 V_{DC}
- **Programmable Output Slope** 0.125 ~ 128 mA/sec. 0.0625 ~ 64.0 V/sec.
- **Readback Accuracy** ±1% of FSR
- **Span Temperature Coefficient** ±25 ppm/°C
- **Zero Drift**
  Voltage output: ±30 µV/°C
  Current output: ±0.2 µA/°C

Common Specifications

General
- **Power Input** Unregulated 10 ~ 30 V_{DC}

Environment
- **Operating Humidity** 5 ~ 95% RH
- **Operating Temperature** -10 ~70°C (14 ~ 185°F)
- **Storage Temperature** - 25 ~ 85°C (-13 ~ 185°F)

Specifications

General
- **Connectors** 2 x plug-in terminal blocks (#14 ~ 28 AWG)
- **Power Consumption** 4 W @ 24 V_{DC}
- **Watchdog Timer** System (1.6 second)
- **Supported Protocols** ASCII command and Modbus/RTU

Analog Input (Only AI0 and AI2 are the PID input)
- **Channels** 4
- **Input Type** mA, V, Thermistor, RTD
- **Input Range** 0 ~ 20 mA, 4 ~ 20 mA, 0 ~ 10 V
- **Thermistor Type and Temperature Ranges**
  Thermistor 3 K (NTC): 0 ~ 100°C
  Thermistor 10 K (NTC): 0 ~ 100°C
- **RTD Type and Temperature Ranges**
  Pt 100 RTD
  Pt 0 ~ 100°C Pt -100 ~ 100°C
  Pt 0 ~ 600°C Pt 0 ~ 200°C
  IEC RTD 100 ohms (a = 0.00385)
  JIS RTD 100 ohms (a = 0.00392)
  Pt 1000 RTD Pt -40 ~ 160°C
- **Resolution** 16-bit
- **Sampling Rate** 10 sample/second
- **Isolation Voltage** 3,000 V_{DC}

Analog Output
- **Channels** 2
- **Output Range** 0 ~ 20 mA, 4 ~ 20 mA, 0 ~ 10 V
- **Output Type** mA, V
- **Resolution** 12-bit
- **Isolation Voltage** 3,000 V_{DC}

Digital Input
- **Channels** 2
- **Dry Contact** Logic level 0-close to GND Logic level 1-open

Digital Output
- **Channels** 2
  Open Collector to 30 V, 30 mA max. load
- **Power Dissipation** 300 mW

Specifications

General
- **Connectors** 2 x plug-in terminal blocks (#14 ~ 28 AWG)
- **Power Consumption** 3 W @ 24 V_{DC}
- **Watchdog Timer** System (1.6 second) & Communication
- **Supported Protocols** ASCII command and Modbus/RTU

Analog Output
- **Channels** 4
- **Output Impedance** 0.5 Ω
- **Output Range** 0 ~ 20 mA, 4 ~ 20mA, ±10 V
- **Output Type** mA, V (Differential)
- **Accuracy** ±0.1 % of FSR for current output
  ±0.1 % of FSR for voltage output
- **Current Load Resistor** 0 to 500 Ω (source)
- **Resolution** 12-bit
- **Isolation Voltage** 3,000 V_{DC}
- **Programmable Output Slope** 0.125 ~ 128 mA/sec. 0.0625 ~ 64.0 V/sec.
- **Span Temperature Coefficient** ±25 ppm/°C
- **Zero Drift** Voltage output: ±30 µV/°C
  Current output: ±0.2 µA/°C

Digital Input
- **Channels** 4
- **Input Level** Logic level 0: 1 V max. Logic level 1: 10 ~ 30 V_{DC}
- **Isolation Voltage** 3,000 V_{DC}

Ordering Information
- **ADAM-4021** 1-ch Analog Output Module
- **ADAM-4022T** 2-ch Serial Dual Based Loop PID Controller w/ Modbus
- **ADAM-4024** 4-ch Analog Output Module with Modbus

ADAM-4050
ADAM-4051
ADAM-4052

15-ch Digital I/O Module
16-ch Isolated Digital Input Module with Modbus

8-ch Isolated Digital Input Module

ADAM-4050

ADAM-4051

ADAM-4052

Specifications

General
- **Connectors** — 2 x plug-in terminal blocks (#14 ~ 22 AWG)
- **Power Consumption** — 0.4 W @ 24 V_{DC}
- **Watchdog Timer** — System (1.6 second)
- **Supported Protocols** — ASCII command

Digital Input
- **Channels** — 7
- **Input Level** — Logic level 0: 1 V max.
  Logic level 1: 3.5 ~ 30 V
  Pull up current: 0.5 mA,
  10 kΩ resistor to 5 V

Digital Output
- **Channels** — 8
  open collector to 30 V,
  30 mA max. load
- **Power Dissipation** — 300 mW

Specifications

General
- **Connectors** — 2 x plug-in terminal blocks (#14 ~ 28 AWG)
- **Power Consumption** — 1 W @ 24 V_{DC}
- **Watchdog Timer** — System (1.6 second)
- **Supported Protocols** — ASCII command and Modbus/RTU
- **LED Indicators** — Yes

Digital Input
- **Channels** — 16
- **Input Voltage** — 50 V max
- **Input Level**
  Dry contact: Logic level 0: open
                 Logic level 1: close to GND
  Wet contact: Logic level 0: 3 V max
                 Logic level 1: 10 ~ 50 V
  (Note: Digital Input levels 0 and 1 can be inverted)
- **Isolation Voltage** — 2,500 V_{DC}
- **Input Resistance** — 5.2 kΩ
- **Overvoltage Protection** — 70 V_{DC}

Specifications

General
- **Connectors** — 2 x plug-in terminal blocks (#14 ~ 22 AWG)
- **Power Consumption** — 0.4 W @ 24 V_{DC}
- **Watchdog Timer** — System (1.6 second)
- **Supported Protocols** — ASCII command

Digital Input
- **Channels** — 8
  (6 fully independent isolated channels, 2 isolated channels with common ground)
- **Input Level** — Logic level 0: 1 V max.
  Logic level 1: 3 ~ 30 V
- **Isolation Voltage** — 5,000 V_{RMS}
- **Input Resistance** — 3 kΩ

Common Specifications

General
- **Power Input** — Unregulated 10 ~ 30 V_{DC}

Environment
- **Operating Humidity** — 5 ~ 95% RH
- **Operating Temperature** — - 10 ~ 70°C (14 ~ 158°F)
- **Storage Temperature** — - 25 ~ 85°C (-13 ~ 185°F)

Ordering Information
- **ADAM-4050** — 15-ch Digital I/O Module
- **ADAM-4051** — 16-ch Isolated Digital Input Module with Modbus
- **ADAM-4052** — 8-ch Isolated Digital Input Module

ADAM-4055
ADAM-4056S/4056SO
ADAM-4080

16-ch Isolated Digital I/O Module with Modbus

12-ch Sink/Source Type Isolated Digital Output Modules with Modbus

2-ch Counter/Frequency Module

ADAM-4055 · FM APPROVED · CE · RoHS COMPLIANT 2002/95/EC

ADAM-4056S/4056SO · FCC CE · RoHS COMPLIANT 2002/95/EC · c(UL)us LISTED E183881 I.T.E.

ADAM-4080 · FM APPROVED · CE · RoHS COMPLIANT 2002/95/EC

Specifications

General

- **Connectors** — 2 x plug-in terminal blocks (#14 ~ 28 AWG)
- **Power Consumption** — 1 W @ 24 V_{DC}
- **Watchdog Timer** — System (1.6 second) & Communication
- **Supported Protocols** — ASCII command and Modbus/RTU
- **Isolation Voltage** — 2,500 V_{DC}
- **LED Indicators** — Yes

Digital Input

- **Channels** — 8
- **Input Level**
  Dry Contact: Logic level 0: open
  Logic level 1: close to GND
  Wet Contact: Logic level 0: 3 V max.
  Logic level 1: 10 ~ 50 V
- **Overvoltage Protection** — 70 V_{DC}

Digital Output

- **Channels** — 8, open collector to 40 V (200 mA max. load)
- **Power Dissipation** — Channel: 1 W max. Total: 2.2 W (8 Channels)

Specifications

General

- **Connectors** — 2 x Plug-in terminal blocks (#14~22 AWG)
- **Watchdog Timer** — System (1.6 second) & Communication
- **Support Protocol** — ASCII command and Modbus/RTU
- **Isolation Voltage** — 5000 V_{DC}
- **LED Indicators** — Yes

ADAM-4056S

- **Digital Output Channels** — 12 Open collector to 40V (200mA max. load)
- **Power Dissipation** — Channel: 1 W max Total: 4 W (12 Channels)
- **Digital Output Type** — Sink

ADAM-4056SO

- **Digital Output Channels** — 12 VCC: 10 ~ 35 V_{DC} Current: 1A (per channel)
- **Digital Output Type** — Source
- **Over Current Detection and Protection**

Specifications

General

- **Connectors** — 2 x plug-in terminal blocks (#14 ~ 22 AWG)
- **Power Consumption** — 2.0 W @ 24 V_{DC}
- **Watchdog Timer** — System (1.6 second)
- **Supported Protocols** — ASCII command

Counter Input

- **Channels** — 2 independent counters (32-bit + 1-bit overflow)
- **Input Frequency** — 50 kHz max.
- **Input Pulse Width** — >10 µs.
- **Input Mode** — Isolated or non-isolated
- **Isolated Input Level** — Logic level 0: 1 V max. Logic level 1: 3.5~30 V
- **Isolation Voltage** — 2,500 V_{RMS}
- **Non-isolated Input Level** — Programmable threshold: Logic level 0: 0.8 Vmax. Logic level 1: 2.4 ~ 5.0 V
- **Maximum Count** — 4,294,967,295 (32-bit)
- **Preset Type** — Absolute or relative
- **Programmable Digital Noise Filter** — 2 µs ~ 65 ms
- **Alarm** — Alarm comparators on each counter
- **Frequency Measurement Range** — 5 Hz ~ 50 kHz
- **Programmable Built-in Gate Time** — 1 or 0.1 second

Digital Output

- **Channels** — 2, open collector to 30 V, 30 mA max. load
- **Power Dissipation** — 300 mW for each channel

Common Specifications

General

- **Power Input** — Unregulated 10 ~ 30 V_{DC}

Environment

- **Operating Humidity** — 5 ~ 95% RH
- **Operating Temperature** — -10 ~ 70°C (14 ~ 158°F)
- **Storage Temperature** — -25 ~ 85°C (-13 ~ 185°F)

Ordering Information

- **ADAM-4055** — 16-ch Isolated Digital I/O Module with Modbus
- **ADAM-4056S** — 12-ch Sink Type Isolated Digital Output Module with Modbus
- **ADAM-4056SO** — 12-ch Source Type Isolated Digital Output Module with Modbus
- **ADAM-4080** — 2-ch Counter/Frequency Modules

ADAM-4060
ADAM-4068
ADAM-4069

4-ch Relay Output Module

8-ch Relay Output Module with Modbus

8-ch Power Relay Output Module with Modbus

ADAM-4060

ADAM-4068

ADAM-4069

Specifications

General

- **Connectors** 2 x plug-in terminal blocks (#14 ~ 22 AWG)
- **Power Consumption** 0.8 W @ 24 V_{DC}
- **Watchdog Timer** System (1.6 second)
- **Supported Protocols** ASCII command

Relay Output

- **Breakdown Voltage** 500 V_{AC} (50/60 Hz)
- **Channels** 2 x Form A
  2 x Form C
- **Contact Rating (Resistive)** 0.6 A @ 125 V_{AC}
  0.3 A @ 250 V_{AC}
  2 A @ 30 V_{DC}
  0.6 A @ 110 V_{DC}
- **Initial Insulation Resistance** 1 G Ω min. at 500 V_{DC}
- **Relay off Time (Typical)** 2 ms
- **Relay on Time (Typical)** 3 ms
- **Maximum Operating Speed** 20 operations/min (at related load)

Specifications

General

- **Connectors** 2 x plug-in terminal blocks (#14 ~ 28 AWG)
- **Power Consumption** 0.6 W @ 24 V_{DC}
- **Watchdog Timer** System (1.6 second) & Communication
- **Supported Protocols** ASCII command and Modbus/RTU

Relay Output

- **Breakdown Voltage** 500 V_{AC} (50/60 Hz)
- **Channels** 4 x Form A
  4 x Form C
- **Contact Rating (Resistive)** 0.5 A @ 120 V_{AC}
  0.25 A @ 240 V_{AC}
  1 A @ 30 V_{DC}
  0.3 A @ 110 V_{DC}
- **Initial Insulation Resistance** 1 GΩ min. at 500 V_{DC}
- **Relay off Time (Typical)** 4 ms
- **Relay on Time (Typical)** 3 ms
- **Maximum Operating Speed** 50 operations/min (at related load)

Specifications

General

- **Connectors** 2 x plug-in terminal blocks (#14 ~ 28 AWG)
- **Power Consumption** 2.2 W @ 24 V_{DC}
- **Watchdog Timer** System (1.6 second) & Communication
- **Supported Protocols** ASCII command and Modbus/RTU

Relay Output

- **Breakdown Voltage** 1,000 V_{AC} (50/60 Hz)
- **Channels** 4 x Form A
  4 x Form C
- **Contact Rating (Resistive)** 5 A @ 250 V_{AC}
  5 A @ 30 V_{DC}
- **Initial Insulation Resistance** 1 GΩ min. at 500 V_{DC}
- **Relay off Time (Typical)** 5.6 ms
- **Relay on Time (Typical)** 5 ms
- **Maximum Operating Speed** 6 operations/min (at related load)

Common Specifications

General

- **Power Input** Unregulated 10 ~ 30 V_{DC}

Environment

- **Operating Humidity** 5 ~ 95% RH
- **Operating Temperature** -10 ~ 70°C (14 ~ 158°F)
- **Storage Temperature** -25 ~ 85°C (-13 ~ 185°F)

Ordering Information

- **ADAM-4060-DE** 4-ch Relay Output Module
- **ADAM-4068-BE** 8-ch Relay Output Module with Modbus
- **ADAM-4069-AE** 8-ch Power Relay Output Module with Modbus

Dimensions

Unit: mm

60.00

56.00

112.00

56.00

R35.00

110.00

Front View

Rear View

25.00

2-SCREW M3

30.00

Side View

28

6.5

56.00

120

122

142

M3

7.50

R2.50

14.00

Ø28.0

28

Panel Mounting View

70.00

25.00

Top View

44.00

46.00

Din-Rail Mounting View

ADAM-4510/S
ADAM-4520
ADAM-4521

RS-422/485 Repeater

Isolated RS-232 to RS-422/485 Converter

Addressable RS-422/485 to RS-232 Converter

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

ADAM-4510/4510S

ADAM-4520

ADAM-4521

Specifications

General

- **Connectors**   2 x plug-in terminal blocks (#14 ~ 22 AWG) (RS-422/485)
- **Isolation Voltage**   3,000 V_{DC} (ADAM-4510S)
- **Power Consumption**   1.4 W @ 24 V_{DC}

Serial Communications

- **Input**   RS-485 (2-wire) or RS-422 (4-wire)
- **Output**   RS-485 (2-wire) or RS-422 (4-wire)
- **Speed Modes (bps)**   1,200, 2,400, 4,800, 9,600, 19.2 k, 38.4 k, 57.6 k, 115.2 k, RTS control and RS-422 (switchable)

Specifications

General

- **Connectors**   1 x plug-in terminal block (#14 ~ 22 AWG) (RS-422/485) 1 x DB9-F (RS-232)
- **Isolation Voltage**   3,000 V_{DC}
- **Power Consumption**   1.2 W @ 24 V_{DC}

Serial Communications

- **Input**   RS-232 (DB9)
- **Output**   RS-485 (2-wire) or RS-422 (4-wire)
- **Speed Modes (bps)**   1,200, 2,400, 4,800, 9,600, 19.2 k, 38.4 k, 57.6 k, 115.2 k, RTS control and RS-422 (switchable)

Specifications

General

- **Connectors**   1 x plug-in terminal block (#14 ~ 22 AWG) (RS-422/485) 1 x DB9-F (RS-232)
- **Isolation Voltage**   1,000 V_{DC}
- **Power Consumption**   1.0 W @ 24 V_{DC}
- **Built-in microprocessor and watchdog timer**

Serial Communications

- **Input**   RS-485 (2-wire) or RS-422 (4-wire)
- **Output**   RS-232 (DB9)
- **Speed Modes (bps)**   300, 600, 1,200, 2,400, 4,800, 9,600, 19.2 k, 38.4 k, 57.6 k, 115.2 k (software configurable)
- **RS-232 and 485 can be set to different baudrates**
- **RS-485 surge protection and automatic RS-485 data flow control**
- **Software configurable to either addressable or non-addressable mode**

Common Specifications

General

- **Power Input**   Unregulated 10 ~ 30 V_{DC} w/ power reversal protection

Environment

- **Operating Humidity**   5 ~ 95% RH
- **Operating Temperature**   - 10 ~ 70°C (14 ~ 158°F)
- **Storage Temperature**   - 25 ~ 85°C (-13 ~ 185°F)

Ordering Information

- **ADAM-4510**   RS-422/485 Repeater
- **ADAM-4510S**   Isolated RS-422/485 Repeater
- **ADAM-4520**   Isolated RS-232 to RS-422/485 Converter
- **ADAM-4521**   Addressable RS-422/485 to RS-232 Converter

ADAM-4541
ADAM-4542+
ADAM-4561/4562

Multi-mode Fiber Optic to RS-232/422/485 Converter

Single-mode Fiber Optic to RS-232/422/485 Converter

1-port Isolated USB to RS-232/422/485 Converter

ADAM-4541 FM APPROVED CE RoHS COMPLIANT 2002/95/EC c(UL)us LISTED E180881 I.T.E.

ADAM-4542+ FCC CE RoHS COMPLIANT 2002/95/EC c(UL)us LISTED E180881 I.T.E.

ADAM-4561/4562 FCC CE RoHS COMPLIANT 2002/95/EC c(UL)us LISTED E180881 I.T.E.

Specifications

General

- **Power Input** Unregulated 10 ~ 30 V$_{DC}$
- **Connectors** 1 x plug-in terminal block (#14 ~ 22 AWG) (RS-232/422/485) 2 x ST fiber connector
- **Power Consumption** 1.5 W @ 24 V$_{DC}$

Serial Communications

- **Communication Mode** Asynchronous
- **Speed Modes (bps)** 1,200, 2,400, 4,800, 9,600, 19.2 k, 38.4 k, 57.6 k, 115.2 k and RS-232/422 mode (switchable)
- **Transmission Mode** Full/half duplex, bidirectional

Fiber Optic Communications

- **Optical Power Budget (Attenuation)** 12.5 dB (measured with 62.5/125 µm)
- **Transmission Distance** 2.5 km
- **Transmission Mode** Multi mode (Send and Receive)
- **Wavelength** 820 nm

Specifications

General

- **Power Input** Unregulated 12 ~ 24 V$_{DC}$
- **Connectors** 1 x plug-in terminal block (#14 ~ 22 AWG) (RS-232/422/485) 1 x SC fiber connector
- **Power Consumption** 3 W @ 24 V$_{DC}$
- **Operation Modes** Support Point-to-Point, Redundant* and Ring (half-duplex)
- **Redundant Transfer Time** 1 µs

Serial Communications

- **Communication Mode** Asynchronous
- **Speed Modes (bps)*** 1,200, 2,400, 4,800, 9,600, 19.2 k, 38.4 k, 57.6 k, 115.2 k, 230.4 k, 460.8 k, 921.6 k and RS-232/422/485 mode (switchable)
- **Transmission Modes** Full/half duplex, bidirectional

Fiber Optic Communications

- **Optical Power Budget (Attenuation)** 15 dB
- **Transmission Distance** 15 km
- **Transmission Mode** Single mode (Send and Receive)
- **Wavelength** 1310 nm

Specifications

General

- **Connectors**
  Network: USB-type A connector (type A to type B cable provided)
  Serial:
  ADAM-4561 1 x plug-in terminal (#14 ~ 22 AWG) (3-wire RS-232/422/485)
  ADAM-4562 1 x DB-9 serial connectors (9-wire RS-232)
- **Isolation Voltage**
  ADAM-4561: 3,000 V$_{DC}$
  ADAM-4562: 2,500 V$_{DC}$
- **Power Consumption**
  ADAM-4561: 1.5 W @ 5 V
  ADAM-4562: 1.1 W @ 5 V
- **Driver Support**
  ADAM-4561: Windows 2000/XP/ Vista/7/8 (32&64-bit)
  ADAM-4562: Windows 2000/XP/ Vista/7/8(32&64-bit)
- **USB Specification Compliance**
  ADAM-4561: USB 2.0
  ADAM-4562: USB 2.0

Serial Communications

- **Speed Modes (bps)** 75 bps to 115.2 kbps
- **Transmission Modes** Full/half duplex, bidirectional

Common Specifications

Environment

- **Operating Humidity** 5 ~ 95% RH
- **Operating Temperature** ADAM-4541/4542+: -10 ~ 70°C (14 ~ 158°F)
  ADAM-4561/4562: 0 ~ 70°C (32 ~ 158°F)
- **Storage Temperature** -25 ~ 85°C (-13 ~ 185°F)

Ordering Information

- **ADAM-4541** Multi-mode Fiber to RS-232/422/485 Converter
- **ADAM-4542+** Single-mode Fiber to RS-232/422/485 Converter
- **ADAM-4561** 1-port Isolated USB to RS-232/422/485 Converter
- **ADAM-4562** 1-port Isolated USB to RS-232 Converter

ADAM-4100 Series

Robust Remote Data Acquisition and Control Modules Overview

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

Introduction

The robust ADAM-4000 family includes the ADAM-4100 series modules, ADAM-4510I and ADAM-4520I modules. The ADAM-4100 series are compact, versatile sensor-to-computer interface units designed for reliable operation in harsh environments. Their built-in microprocessors, encased in rugged industrial-grade ABS+PC plastic, independently provide intelligent signal conditioning, analog I/O, digital I/O, LED data display, and an address mode with an user-friendly design for convenient address reading. The ADAM-4510I and ADAM-4520I modules are robust industrial-grade communication modules.

The ADAM-4000 robust family is designed to endure more severe and adverse environments. The operating temperature is -40 ~ 85°C which makes them suitable for more widespread applications.

Designed for Severe Industrial Environments

Broader Operating Temperature Range

The ADAM-4000 robust family supports a broad operating temperature range of -40 to 85°C.

Higher Noise Immunity

In order to prevent noise from affecting your system, the ADAM-4000 robust family has been designed with more protection to counteract these effects. New standard features include: 1 kV surge protection on power inputs, 3 kV EFT, and 8 kV ESD protection.

Broader Power Input Range

The ADAM-4000 robust family accepts any unregulated power source between 10 and 48 V_{DC}. In addition, they are also protected against accidental power reversals, and can be safely connected or disconnected without disturbing a running network.

New Features for I/O Modules

- **ADAM-4117/4118**
  1. Supports 200 V_{DC} High Common Mode voltage
  2. Software Filter
  3. Supports Auto Optimized Working Frequency
  4. Auto noise rejection at 50/60 Hz
  5. Higher over voltage protection ±60 V_{DC}
  6. Optional Sampling Rate 10 or 100 samples/sec
  7. Supports unipolar and bipolar input (ADAM-4117 only)
  8. Supports ±15V input range (ADAM-4117 only)

- **ADAM-4150**
  1. Over current and temperature protection circuit
  2. DI channels support counter (32-bit, overflow flag) and frequency type signal input
  3. DO channels support pulse (1 kHz) and delay (high-to-low and low-to-high) type signal output
  4. Support invert DI status
- **ADAM-4168**
  1. Supports 1 kHz pulse output

ADAM-4100 Module with LED Display

The ADAM-4100 series modules have a LED display that lets you monitor the channel status. Using ADAM-4117/4118, the LED will be lit when related channel is active. Using ADAM-4150/4168, the LED will be lit when related channel value is high. The ADAM-4100 series modules have two operating modes (initial and normal), unlike the old module using extra wiring, ADAM-4100 modules can use the switch on the case to set "initial" mode or "normal" mode. It is very convenient for the user to configure. When you set to "initial" mode, the LED display can represent the node address of that module. Besides, when you use multiple ADAM-4100 series modules, you can locate the module through ADAM utility and LED display. All of these functions are very helpful to diagnose the ADAM-4100 series system.

Online Firmware Updates

The ADAM-4100 series modules have a friendly and convenient design where firmware can be updated through a local network or the Internet. You can easily update latest firmware using utility on host PC. This saves time and ensures that the module always runs with the latest functional enhancements.

Legacy Communication Protocol Support

To satisfy both the current ADAM users, and Modbus users, The ADAM-4100 series modules support both the ADAM (ASCII) protocol and the Modbus/RTU protocol. You can select the communication mode you want through the Windows Utility Software. The Modbus protocol not only supports the original data format (N, 8, 1) for (parity check, data bit, stop check) but also accepts (N,8,1) (N, 8, 2) (E, 8, 1) (O, 8, 1).

Model		ADAM-4117	ADAM-4118	ADAM-4150	ADAM-4168
Resolution		16 bit		-	-
Analog Input	Channels	8 differential		-	-
	Sampling Rate	10/100 Hz (total)		-	-
	Voltage Input	0 ~ 150 mV, 0 ~ 500 mV, 0 ~ 1 V, 0 ~ 5 V, 0 ~ 10 V, 0 ~ 15 V, ±150 mV, ±500 mV, ±1 V, ±5 V, ±10 V, ±15V	±15 mV, ±50 mV, ±100 mV, ±500 mV, ±1 V, ±2.5V	-	-
	Current Input	0 ~ 20 mA, ±20 mA, 4 ~ 20 mA	±20 mA, 4 ~ 20 mA	-	-
	Direct Sensor Input	-	J, K, T, E, R, S, B Thermocouple	-	-
	Burn-out Detection	Yes (mA)	Yes (mA and All T/C)	-	-
	Channel Independent Configuration	Yes		-	-
Digital Input/ Output	Input Channels	-	-	7	-
	Output Channels	-	-	8	8-ch relay
Counter	Channels	-	-	7	-
	Input Frequency	-	-	3 kHz	-
Isolation Voltage		3,000 V_{DC}			
Digital LED Indicator		Communication and Power			
Watchdog Timer		Yes (System & Communication)			
Safety Setting		-	-	Yes	Yes
Communication Protocol		ASCII Command/Modbus			
Power Requirements		10 ~ 48 V_{DC}			
Operating Temperature		-40 ~ 85°C (-40 ~ 185°F)			
Storage Temperature		-40 ~ 85°C (-40 ~ 185°F)			
Operating Humidity		5 ~ 95% RH			
Power Consumption		1.2 W @ 24 V_{DC}	0.5 W @ 24 V_{DC}	0.7 W @ 24 V_{DC}	1.8 W @ 24 V_{DC}
Page		17-19	17-20		

Model	ADAM-4510I	ADAM-4520I
Network	RS-422/485	RS-232 to RS-422/485
Communication Speed (bps)	From 1,200 to 115.2k	
Communication Distance	Serial: 1.2 km	
Interface Connectors	RS-422/485: plug-in screw terminal	RS-232: female DB9 RS-422/485: plug-in screw terminal
Digital LED Indicators	Communication and Power	
Auto Data Flow Control	Yes	
Isolation Voltage	3,000 V_{DC}	
Power Requirement	10 ~ 48 V_{DC}	
Operating Temperature	-40 ~ 85°C (-40 ~ 185°F)	
Storage Temperature	-40 ~ 85°C (-40 ~ 185°F)	
Operating Humidity	5 ~ 95%	
Power Consumption	1.4 W @ 24 V_{DC}	1.2 W @ 24 V_{DC}
Page	17-19	

ADAM-4510I
ADAM-4520I
ADAM-4117

Robust RS-422/485 Repeater

Robust RS-232 to RS-422/485 Converter
Robust 8-ch Analog Input Module with Modbus

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

ADAM-4510I FCC CE RoHS COMPLIANT 2002/95/EC $_{c}$UL$_{us}$ LISTED E180881 I.T.E.

ADAM-4520I FCC CE RoHS COMPLIANT 2002/95/EC $_{c}$UL$_{us}$ LISTED E180881 I.T.E.

ADAM-4117 FCC CE RoHS COMPLIANT 2002/95/EC $_{c}$UL$_{us}$ LISTED E180881 I.T.E.

Specifications

General

- **Connectors** 2 x plug-in terminal blocks (#14 ~ 22 AWG)
- **Power Consumption** 1.4 W @ 24 V$_{DC}$

Communications

- **Input** RS-485 (2-wire) or RS-422 (4-wire)
- **Output** RS-485 (2-wire) or RS-422 (4-wire)
- **Speed Modes (bps)** 1,200, 2,400, 4,800, 9,600, 19.2 k, 38.4 k, 57.6 k, 115.2 k, RTS control and RS-422 (switchable)
- **Supports Auto Baud-Rate**
- **Provide RS-485 to RS-422 Convert Ability**

Specifications

General

- **Connectors** 1 x plug-in terminal block (#14 ~ 22 AWG) (RS-422/485) 1 x DB9-F (RS-232)
- **Power Consumption** 1.2 W @ 24 V$_{DC}$

Communications

- **Input** RS-232 (DB9)
- **Output** RS-485 (2-wire) or RS-422 (4-wire)
- **Speed Modes (bps)** 1,200, 2,400, 4,800, 9,600, 19.2 k, 38.4 k, 57.6 k, 115.2 k, RTS control and RS-422 (switchable)
- **Supports Auto Baud-Rate**

Specifications

General

- **Connectors** 2 x plug-in terminal blocks (#14 ~ 22 AWG)
- **Watchdog Timer** System (1.6 second) & Communication
- **Supported Protocols** ASCII Command and Modbus/RTU
- **Power Consumption** 1.2 W @ 24 V$_{DC}$

Analog Input

- **Channels** 8 differential and independent configuration channels
- **Input Impedance** Voltage: 800 Ω Current: 120 Ω
- **Input Type** mV, V (supports unipolar and bipolar), mA
- **Input Range** 0 ~ 150mV, 0 ~ 500mV, 0 ~ 1V, 0 ~ 5V, 0 ~ 10V, 0 ~ 15V, ±150 mV, ±500 mV, ±1V, ±5 V, ±10 V, ±15V, ±20 mA, 0 ~ 20 mA, 4 ~ 20mA
- **Accuracy**
  Voltage mode : ±0.1% or better
  Current mode : ±0.2% or better
- **Resolution** 16-bit
- **Sampling Rate** 10/100 samples/sec (selected by utility)
- **CMR @ 50/60 Hz** 92 dB
- **NMR @ 50/60 Hz** 60 dB
- **Over Voltage Protection** ±60 V$_{DC}$
- **High Common Mode** 200 V$_{DC}$
- **Span Drift** ±25 ppm/°C
- **Zero Drift** ±6µV/°C
- **Built-in TVS/ESD Protection**

Common Specifications

General

- **Power Input** Unregulated 10 ~ 48 V$_{DC}$ w/power reversal protection
- **Isolation Voltage** 3,000 V$_{DC}$

Environment

- **Operating Humidity** 5 ~ 95% RH
- **Operating Temperature** - 40 ~ 85°C (-40 ~ 185°F)
- **Storage Temperature** - 40 ~ 85°C (-40 ~ 185°F)
- **Supports Noise Rejection**

Ordering Information

- **ADAM-4510I** Robust RS-422/485 Repeater
- **ADAM-4520I** Robust RS-232 to RS-422/485 Converter
- **ADAM-4117** Robust 8-ch Analog Input Module with Modbus

ADAM-4118
ADAM-4150
ADAM-4168

Robust 8-ch Thermocouple Input Module with Modbus

Robust 15-ch Digital I/O Module with Modbus

Robust 8-ch Relay Output Module with Modbus

ADAM-4118 | FCC CE RoHS COMPLIANT 2002/95/EC | c UL us LISTED E180881 I.T.E.

ADAM-4150 | FCC CE RoHS COMPLIANT 2002/95/EC | c UL us LISTED E180881 I.T.E.

ADAM-4168 | FCC CE RoHS COMPLIANT 2002/95/EC | c UL us LISTED E180881 I.T.E.

Specifications

General
- **Power Consumption** 0.5W @ 24 V_{DC}

Analog Input
- **Channels** 8 differential and independent configuration channels
- **Input Impedance** Voltage: 20 MΩ
  Current: 120 Ω
- **Input Type** T/C, mV, V, mA
- **Input Range**
  Thermocouple

J	0 ~ 760°C	R	500 ~ 1,750°C
K	0 ~ 1,370°C	S	500 ~ 1,750°C
T	-100 ~ 400°C	B	500 ~ 1,800°C
E	0 ~ 1,000°C		

  Voltage mode ±15 mV, ±50 mV, ±100 mV, ±500 mV, ±1 V, ±2.5 V
  Current mode ±20 mA, 4 ~ 20 mA
- **Accuracy** Voltage mode: ±0.1% or better
  Current mode: ±0.2% or better
- **Resolution** 16-bit
- **Sampling Rate** 10/100 samples/sec (selected by Utility)
- **CMR @ 50/60 Hz** 92 dB
- **NMR @ 50/60 Hz** 60 dB
- **Overvoltage Protection** ±60 V_{DC}
- **High Common Mode** 200 V_{DC}
- **Span Drift** ±25 ppm/°C
- **Zero Drift** ±6μV/°C
- **Built-in TVS/ESD Protection**
- **Burn-out Detection**

Specifications

General
- **Power Consumption** 0.7 W @ 24 V_{DC}

Digital Input
- **Channels** 7
- **Input Level**
  Dry contact: Logic level 0: Close to GND
  Logic level 1: Open
  Wet contact: Logic level 0: 3 V max
  Logic level 1: 10 ~ 30 V
  (Note: The Digital Input Level 0 and 1 status can be inverted)
- **Supports 3 kHz Counter Input (32-bit + 1-bit overflow)**
- **Supports 3 kHz Frequency Input**
- **Supports Invert DI Status**
- **Over Voltage Protection** 40 V_{DC}

Digital Output
- **Channels** 8, open collector to 40 V (0.8A max. load)
- **Power Dissipation** 1W load max
- **RON Maximum** 150 mΩ
- **Supports 1 kHz Pulse Output**
- **Supports High-to-Low Delay Output**
- **Supports Low-to-High Delay Output**

Specifications

General
- **Power Consumption** 1.8 W @ 24 V_{DC}

Relay Output
- **Output Channels** 8 Form A
- **Contact Rating** 0.5 A @ 120 V_{AC} (Resistive)
  0.25 A @ 240 V_{AC}
  1 A @ 30 V_{DC}
  0.3 A @ 110 V_{DC}
- **Breakdown Voltage** 750 V_{AC} (50/60 Hz)
- **Initial Insulation Resistance** 1 G Ω min. @ 500 V_{DC}
- **Relay Response Time (Typical)** On: 3ms
  Off: 1ms
- **Total Switching Time** 10 ms
- **Supports 100 Hz pulse output**
- **Maximum Operating Speed** 50 operations/min (at related load)

Common Specifications

General
- **Power Input** Unregulated 10 ~ 48 V_{DC}
- **Watchdog Timer** System (1.6 second) & Communication
- **Connector** 2 x plug-in terminal blocks (#14 ~ 22 AWG)
- **Isolation Voltage** 3,000 V_{DC}
- **Supported Protocols** ASCII Command and Modbus/RTU

Environment
- **Operating Humidity** 5 ~ 95% RH
- **Operating Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)

Ordering Information

Data Acquisition Boards

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To view all of Advantech's Data Acquisition Boards, please visit www.advantech.com/products.
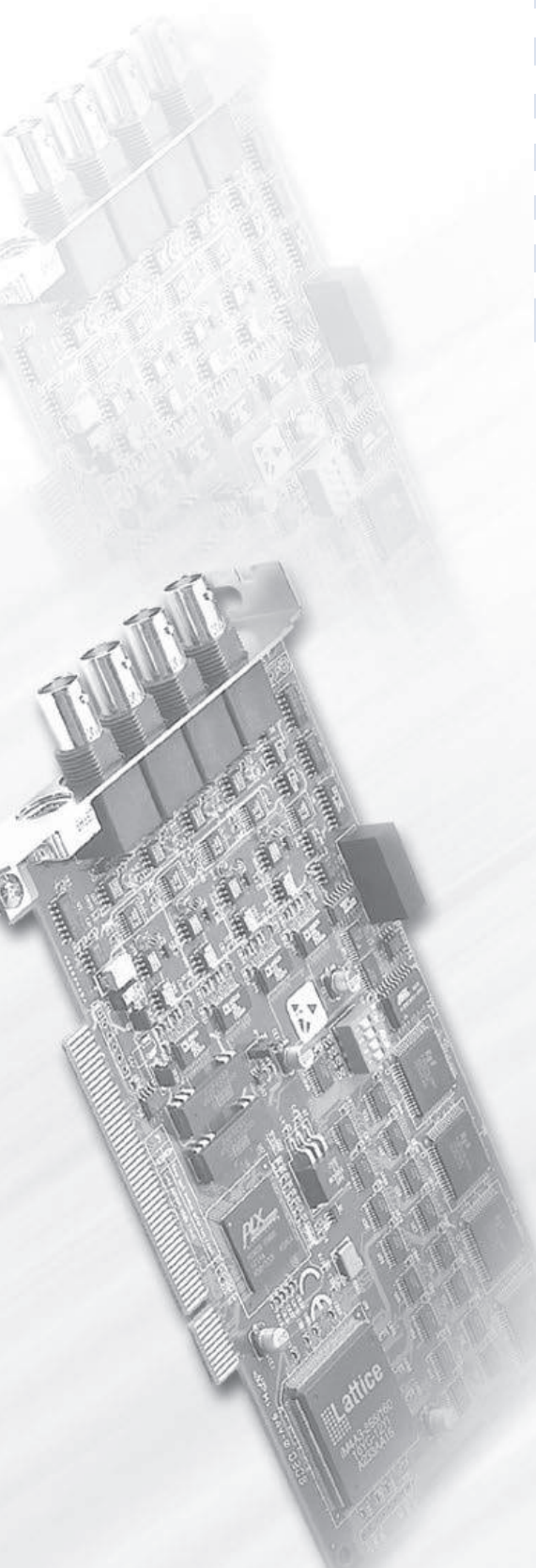
Data Acquisition and Control Tutorial & Software

PC-based Data Acquisition (DAQ) System Overview

Because industrial PC I/O interface products have become increasingly reliable, accurate, and affordable in the last few years, PC-based data acquisition and control systems are nowadays widely used in industrial and laboratory applications such as monitoring, control, data acquisition and automated testing.

It requires know-how of electrical and computer engineering to select and build a data acquisition (DAQ) and control system that actually does what you want. This tutorial gives a brief introduction to what data acquisition and control systems do and how to configure them. Here, we cover:

- Transducers and Actuators
- Signal Conditioning
- Data Acquisition and Control Hardware
- Getting Started

Transducers and Actuators

A transducer converts temperature, pressure, level, length, position, etc. into voltage, current, frequency, pulses or other signals.

Thermocouples, thermistors and resistance temperature detectors (RTDs) are common transducers for temperature measurements. Other types of transducers include flow sensors, pressure sensors, strain gauges, load cells and LVDTs, which measure flow rate, pressure variances, force or displacement.

An actuator is a device that activates process control equipment by using pneumatic, hydraulic or electrical power. For example, a valve actuator can open and close a valve to control fluid rates.

Signal Conditioning

Signal conditioning circuits improve the quality of signals generated by transducers before they are converted into digital signals by the PC's data-acquisition hardware. Examples of signal conditioning are signal scaling, amplification, linearization, cold-junction compensation, filtering, attenuation, excitation, common-mode rejection, and so on.

One of the most common signal conditioning functions is amplification. For maximum resolution, the voltage range of the input signals should be approximately equal to the maximum input range of the A/D converter. Amplification expands the range of the transducer signals so that they match the input range of the A/D converter. For example, a x10 amplifier maps transducer signals that range from 0 to 1 V into the range 0 to 10 V before they go into the A/D converter.

Data Acquisition & Control Hardware

Data acquisition and control hardware generally performs one or more of the following functions: analog input, analog output, digital input, digital output and counter/timer functions. This section will discuss each function and list some considerations that are important when you select a data acquisition and control system.

Analog Inputs (A/D)

Analog to digital (A/D) conversion changes analog voltage or current levels into digital information. The conversion is necessary to enable a computer to process or store the signals.
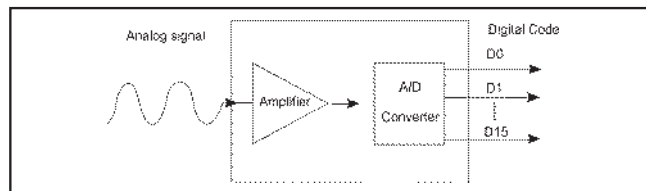
The most significant criteria when selecting A/D hardware are:
1. Number of input channels
2. Single-ended or differential input signals
3. Sampling rate (in samples per second)
4. Resolution (usually measured in bits of resolution)
5. Input range (specified in full-scale volts)
6. Noise and nonlinearity

Analog Outputs (D/A)

The opposite of analog to digital conversion is digital to analog (D/A) conversion. This operation converts digital information into analog voltage or current. D/A devices allow a computer to control real-world events.
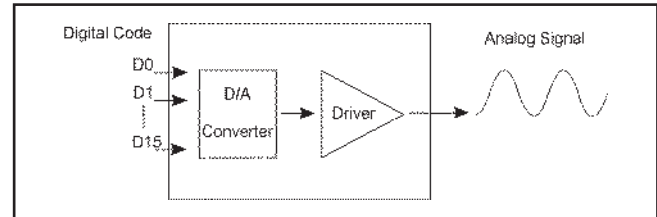
Analog output signals may directly control process equipment. The process can give feedback in the form of analog input signals. This is referred to as a closed loop control system with PID control. Analog outputs can also be used to generate waveforms. In this case, the device behaves as a function generator.

Digital Inputs and Outputs

Digital input/output functions are useful in applications such as contact closure and switch status monitoring, industrial On/Off control and digital communications.

Counter/Timer

A counter/timer can be used for event counting, flowmeter monitoring, frequency counting, pulse width measurement, time period measurement, and so on.

Getting Started

Advantech: The Source For What You Need

Advantech manufactures data acquisition hardware and software for measurement, monitoring and applications control. The following guide is provided to help you choose components for your data acquisition system.

Step 1: Know Your Fundamental Goal

Decide whether your DAQ system will be used primarily for measurement, monitoring, control, or analysis. Know the data requirements of your process, and know the number of data collection points in your system. Know the required data collection speed, the sampling rate, the type of measurement, the voltage or current being produced, the desired accuracy and the output resolution at each data collection point. Finally, know the timing of events in your system, and any special environmental conditions that exist.

Step 2: Hardware Selection

Select the hardware required to achieve your fundamental goal. Advantech provides plug-in boards for Analog-to-Digital, Digital-to-Analog, Digital I/O needs. Both ISA and PCI bus products are available. Your hardware selection should be based on five major criteria:

1. Number and types of channels
2. Differential or single-ended inputs
3. Resolution
4. Speed
5. Software compatibility with hardware

Step 3: Accessory Selection

Most applications require additional accessories which are available as separate items. These include:

1. Expansion peripherals to add channels to your system
2. Cables, signal conditioners and external boxes such as screw terminals or BNC accessories

Step 4: Software Selection

More than any other single factor, software will determine your system start-up time, as well as its effectiveness, suitability for your application, and ease of modification.

Three major criteria should determine the choice of software:

1. Operating system used
2. User programming expertise
3. Software compatibility with hardware

DAQNavi Introduction

What is DAQNavi?

DAQNavi is a Advantech next-generation driver package, for programmers to develop their application programs using Advantech DAQ boards or devices. This integrated driver package includes device drivers, SDK, tutorial and utility. With the user-friendly design, even the beginner can quickly get familiar with how to utilize DAQ hardware and write programs through the intuitive "Advantech Navigator" utility environment. Many example codes for different development environment dramatically decrease users' programming time and effort.

You can go to www.advantech.com/DAQNavi for more information about Advantech DAQNavi.

Multiple Operating System Support

DAQNavi supports many popular operating systems (OS) used in automation applications. For different OSs, API functions will be the same, so users can simply install the driver without modifying their program again when migrating between two different OSs.

DAQNavi supports latest Windows 8/7/Vista/XP and Windows CE (both 32-bit and 64-bit).

Besides Windows operating system, Linux is famous for its openness and flexibility. DAQNavi software package also support Linux OS including Ubuntu, Fedora, Debian, Susi distributions. For other distributions, please contact the local Advantech branch or dealer in your area.

Note: DAQNavi only supports Windows 8 desktop version. Windows RT version is not supported.

LabVIEW and Matlab Support

LabVIEW is popular graphical development environment used for measurement and automation. For LabVIEW user, DAQNavi offers two options for programming: Express VI and Polymorphic VIs. Express VI helps user quickly complete his programming without extra wiring. When user drags the Express VI on LabVIEW Block Diagram, a pop-up intuitive wizard window will appear and user can perform configurations. After that, the programming is done. So it is similar to the .NET Component DAQ Wizard used in Microsoft Visual Studio environment, making programming more easily. As for the Polymorphic VI, user can use several VIs and wiring to build more complex program. Except LabVIEW, DAQNavi also support Matlab programming.

.NET Support

DAQNavi offers a series of **.NET Component** object, that you can benefit from platform-unified feature by latest .NET technology. User can simply drag and drop the .NET Components within .NET programming environment, such as Microsoft Visual C# and VB .NET. An intuitive window (called "DAQNavi Wizard") will pop-up, and user can perform all configurations by sequence. It is so-called "Configure & Run" programming. Programmers also can choose writing code manually with the .NET Component, to have a more flexible object calling. With Advantech CSCL technology, engineers can do the similar programming in an native environment such as Visual C++.

C++, Delphi, VB, BCB, Java and Qt Support

DAQNavi offers C++ Class Library (for VC++ and Borland C++ Builder) and ActiveX (for Visual Basic, Delphi, and BCB) for Native programming environment with the same calling interface as .NET Class Library. With DAQNavi Java class library and Qt class library, users can develop Java and Qt programs to migrate between different operating systems (including Windows and Linux).

Support Modules

DAQNavi supports all PCI Express, PCI, PC/104, and PCI-104 cards, as well as all USB DAQ devices.

DAQNavi Driver Package Architecture
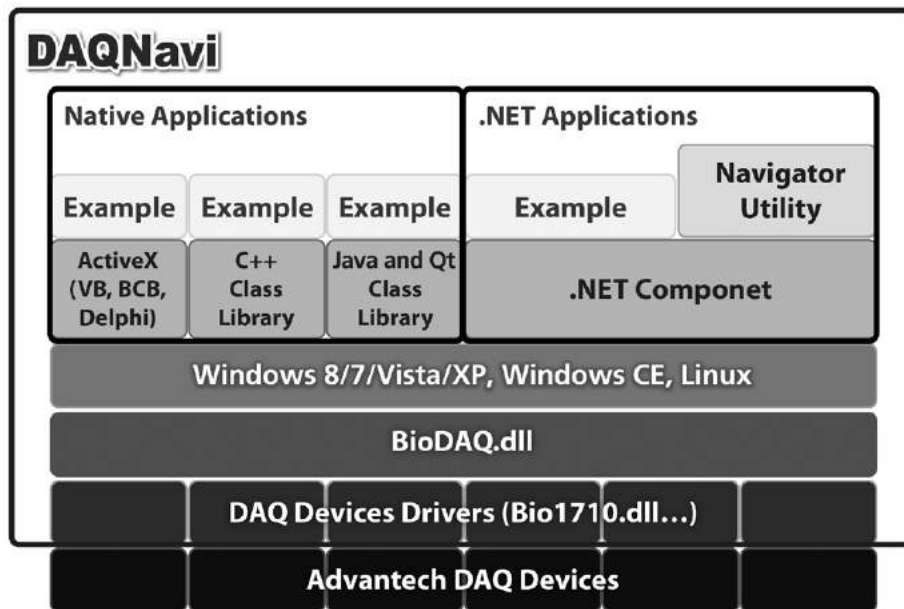
Note: When you visit Advantech DAQNavi download website, you can find two software: (1) DAQNavi SDK (2) individual DAQNavi driver for specific hardware. You need to install these two software on your computer to utilize the hardware.

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

Powerful Intuitive Utility: Advantech Navigator

Devices

You can see all your installed Advantech DAQ devices here, including the simulated DAQ device called "DemoDevice". In other words, you don't need any hardware installed on your computer to test all operations within DAQNavi. For each device, there are four items you can select.

1. Device Setting

You can perform all hardware configurations for the selected device.

2. Device Test

You can test all hardware functionality here, without any programming.
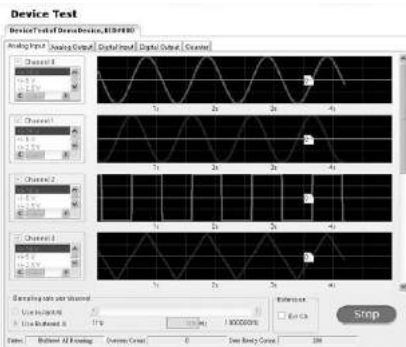
3. Scenarios

Advantech defines commonly-used measurement and automation applications, named "scenarios" for users to refer. For each scenario, one example program is embedded within Advantech Navigator that you can execute it directly. Corresponding source code for each scenario is provided, written by different language (C#, VB .NET, C++, Delphi , Qt, VB6, and Java). Besides, wiring diagram for each scenario is available here.
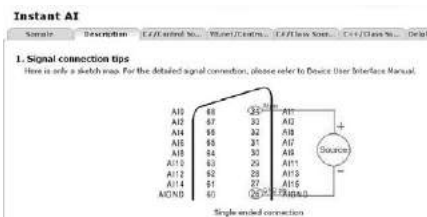
4. Reference

You can find the detailed user manual for the selected device.

SDKs

1. DAQ User Interface Manual

To shorten the development time, Advantech offer a lot of tutorial and reference documentation.There are two programming ways you can refer: (1) Class Library (2) Device Control. You can find instructions for programming. It not only teaches you how to create one application project, but also how to write the program with a programming chart and example code.

2.Tutorial Video

If you don't know how to start creating a project, Advantech offers a tutorial video for your programming reference.

Scenarios: Commonly-used for Measurement and Automation Applications

Category	Scenario	Description
Analog Input	Instant AI	Read single AI value once
	Asynchronous One Buffered AI	Read a buffer of AI values once (Don't need to wait the acquisition is done to run other program)
	Synchronous One Buffered AI	Read a buffer of AI values once (Need to wait the acquisition is done to run other program)
	Streaming AI	Continuously read a buffer of AI values
Analog Output	Static AO	Change AO values once
	Asynchronous One Waveform AO	Change AO value based on a pre-defined waveform once (Don't need to wait the generation is done to run other program)
	Synchronous One Waveform AO	Change AO value based on a pre-defined waveform once (Need to wait the generation is done to run other program)
	Streaming AO	Continuously change AO value based on a pre-defined waveform
Digital Input	Static DI	Read the selected DI port value once
	DI Interrupt	When DI bit meets a pre-defined edge change (rising or falling), an interrupt is generated
	DI Pattern Match Interrupt	When selected DI port meets pre-defined pattern, an interrupt is generated
	DI Status Change Interrupt	When the status of certain selected channel of DI port changes, an interrupt is generated
Digital Output	Static DO	Change DO values once
Timer/ Counter	Delayed Pulse Generation	When a trigger from coutner gate is met, a pulse is generated after a specific period
	Pulse Output with Timer Interrupt	Continuously generate a periodic pulse train (using counter internal clock), and an event will be sent out at the same time.
	Event Counter	Continuously count the pulse number of signal from counter input
	Frequency Measurement	Meaure frequency of singal from counter input
	Pulse Width Measurement	Meaure pulse width of signal from counter input
	PWM Output	Generate PWM (Pulse Width Modulation) signal

DAQNavi Data Logger

Configurable Data Logging Software
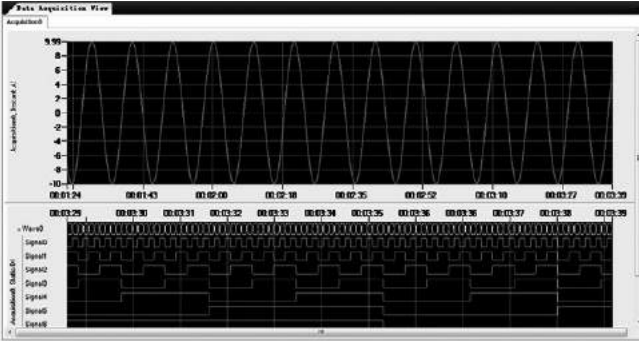
Features

- Data logging, display and recording without programming
- Instant AI, buffered AI and static DI data logging
- Intuitive hardware channel parameters configuration wizard
- Supports simulated device operation
- Save configurations into a project file for future re-use
- Real-time display with zoom and pan operation
- Supports data recording to store as file to local disk
- Recorded data playback to view historical data
- Supports both analog graph and digital graph display

Introduction

Advantech DAQNavi Data Logger is ready-to-use application software that engineers can leverage its easy-to-use interface to perform data logging, display and recording. Without spending any time on programming, engineers can benefit from flexibility to acquire and store data from various Advantech data acquisition devices for their data logging tasks.

Features Details

Data Acquisition Devices Configuration

Before data logging measurement, engineers can do all necessary analog and digital input channels configuration using built-in DAQNavi wizard. Step-by-step instructions by intuitive window can help engineer easily complete related settings. Except real data acquisition devices, DAQNavi Data Logger also offer simulated device that engineers can do all operation without any hardware installed on computer.
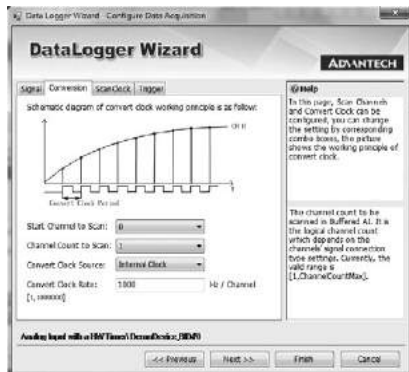
Configuration Management by Project Files

Engineer can create and edit a project to include one or several data logging tasks.

Within one project, data can be acquired and displayed from one or multiple data acquisition devices. Current input channels configurations and logging settings can be saved as a specific project file. Afterwards, engineer can open previous project file to load all configurations and start data logging tasks immediately.

Real-time Data Logging, Display and Recording

After data acquisition configuration is done, engineers can immediately start data acquisition and display the logging data on a real-time graph. The graph can be zoom in, zoom out or pan dynamically during data logging. Engineers can decide if they want to record the data (save data into a pre-defined file) during data logging.

Historical Data Playback

Previous recorded data can be loaded back to DANNavi Data Logger software and viewed by Playback function. Related zoom in, zoom out and pan operation is also available for historical data display.

Specifications

Supported Hardware

- PCI Express multifunction, analog input and digital input cards
- PCI multifunction, analog input and digital input cards
- USB multifunction, analog input and digital input modules
- PC/104 and PCI-104 multifunction, analog input and digital input cards

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

Analog I/O & Multifunction Card Selection Guide

Category			Multifunction						
Bus			PCI						
Model			PCI-1710U/UL	PCI-1710HGU	PCI-1711U/UL	PCI-1712/L	PCI-1716/L	PCI-1706U/UL	PCI-1718HDU
Analog Input	General Spec.	Resolution	12 bits	12 bits	12 bits	12 bits	16 bits	16 bits	12 bits
		Channels	16 SE/8 Diff.	16 SE/8 Diff.	16 SE	16 SE/8 Diff.	16 SE/8 Diff.	8 Diff.	16 SE/8 Diff.
		Onboard FIFO	4,096 samples	4,096 samples	1,024 samples	1,024 samples	1,024 samples	8,192 samples	1,024 samples
		Sampling Rate	100 kS/s	100 kS/s	100 kS/s	1 MS/s	250 kS/s	250 kS/s	100 kS/s
	Input Ranges	Unipolar Inputs (V)	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25	0 ~ 10, 0 ~ 1, 0 ~ 0.1, 0 ~ 0.01	-	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25	-	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25
		Bipolar Inputs (V)	±10, 5, 2.5, 1.25, 0.625	±10, 5, 1, 0.5, 0.1, 0.05, 0.01, 0.005	±10, 5, 2.5, 1.25, 0.625	±10, 5, 2.5, 1.25, 0.625	±10, 5, 2.5, 1.25, 0.625	±10, 5, 2.5, 1.25	±10, 5, 2.5, 1.25, 0.625
		Configurable Per-Channel	✓	✓	✓	✓	✓	✓	✓
	Trigger Modes	Pacer/Software/External Pulse	✓	✓	✓	✓	✓	✓	✓
		Analog Slope	-	-	-	✓	-	✓	-
		Advanced Trigger	-	-	-	✓	-	✓	-
	Data Transfer Modes	Software	✓	✓	✓	✓	✓	✓	✓
		DMA	-	-	-	Bus-mastering	Bus-mastering	✓	-
Analog Output		Resolution	12 bits	12 bits	12 bits	12 bits	16 bits	12 bits	12 bits
		Channels	2 (PCI-1710U only)	2	2 (PCI-1711U only)	2 (PCI-1712 only)	2 (PCI-1716 only)	2 (PCI-1706U only)	1
		Onboard FIFO	-	-	-	32,768 samples	-	-	-
		Output Range (V)	0 ~ 5, 0 ~ 10	0 ~ 5, 0 ~ 10	0 ~ 5, 0 ~ 10	0 ~ 5, 0 ~ 10, ±5, ±10	0 ~ 5, 0 ~ 10, ±5, ±10	0 ~ 5, 0 ~ 10, ±5, ±10, 0 ~ 20 mA, 0 ~ 24 mA, 4 ~ 20 mA	0 ~ 5, 0 ~ 10
		Output Rate	Static update	Static update	Static update	1 MS/s	Static update	Static update	Static update
		DMA Transfer	-	-	-	✓	-	-	-
Digital I/O		Input Channels	16	16	16	16 (shared)	16	16 (shared)	16
		Output Channels	16	16	16		16		16
Timer/ Counter		Channels	1	1	1	3	1	2	1
		Resolution	16 bits	16 bits	16 bits	16 bits	16 bits	32 bits	16 bits
		Max. Input Frequency	10 MHz	10 MHz	10 MHz	10 MHz	10 MHz	10 MHz	10 MHz
Isolation Voltage			-	-	-	-	-	-	-
Auto Calibration			-	-	-	✓	✓	✓	-
BoardID Switch			✓	✓	✓	-	✓	✓	✓
Dimensions (mm)			175 x 100	175 x 100	175 x 100	175 x 100	175 x 100	175 x 100	175 x 100
Connector			68-pin SCSI	68-pin SCSI	68-pin SCSI	68-pin SCSI	68-pin SCSI	68-pin SCSI	DB37
Legacy Driver		Windows XP/2000	✓	✓	✓	✓	✓	✓	✓
		WinCE	✓	-	-	-	-	-	-
		Linux	✓	✓	✓	✓	✓	✓	✓
DAQNavi Driver		Windows 8/7/Vista/XP/2000	✓	✓	✓	✓	✓	✓	✓
		WinCE	✓	-	-	-	-	-	-
		Linux	-	-	✓	-	-	-	-
LabVIEW Driver			✓	✓	✓	✓	✓	✓	✓
Page			19-23	19-23	19-24	19-25	19-26	online	online

* All channels should be set to the same range.
** SS: Single DMA channel, Single A/D channel scan; SM: Single DMA channel, Multiple A/D channel scan

ADVANTECH **Data Acquisition Boards**

Category			Multifunction						
Bus			PCI		ISA				
Model			PCI-1741U	PCI-1742U	PCL-711B	PCL-812PG	PCL-818L	PCL-818HD	PCL-818HG
Analog Input	General Spec.	Resolution	16 bits	16 bits	12 bits	12 bits	12 bits	12 bits	12 bits
		Channels	16 SE/8 Diff.	16 SE/8 Diff.	8 SE	16 SE	16 SE/8 Diff	16 SE/8 Diff	16 SE/8 Diff
		Onboard FIFO	1,024 samples	1,024 samples	-	-	-	1,024 samples	1,024 samples
		Sampling Rate	200 kS/s	1 MS/s	40 kS/s	30 kS/s	40 kS/s	100 kS/s	100 kS/s
	Input Ranges	Unipolar Inputs (V)	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25*	0 ~ 10, 0 ~ 5 0 ~ 2.5, 0 ~ 1.25	-	-	-	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25	0 ~ 10, 0 ~ 1, 0 ~ 0.1, 0 ~ 0.01
		Bipolar Inputs (V)	±10, 5, 2.5, 1.25, 0.625*	±10, 5, 2.5, 1.25, 0.625	±5, 2.5, 1.25, 0.625, 0.3125	±10, 5, 2.5, 1.25, 0.625, 0.3125	±10, 5, 2.5, 1.25, 0.625	±10, 5, 2.5, 1.25, 0.625	±10, 5, 1, 0.5, 0.1, 0.05, 0.01, 0.005
		Configurable Per-Channel	-	✓	✓	✓	✓	✓	✓
	Trigger Modes	Pacer/Software/ External Pulse	✓	✓	✓	✓	✓	✓	✓
		Analog Slope	-	-	-	-	-	-	-
		Advanced Trigger	-	-	-	-	-	-	-
	Data Transfer Modes	Software	✓	✓	✓	✓	✓	✓	✓
		DMA	-	Bus-mastering	-	SS**	SM**	SM**	SM**
Analog Output		Resolution	16 bits	16 bits	12 bits	12 bits	12 bits	12 bits	12 bits
		Channels	1	2	1	2	1	1	1
		Onboard FIFO	-	-	-	-	-	-	-
		Output Range (V)	±5, ±10	0 ~ 5, 0 ~ 10, ±5, ±10	0 ~ 5, 0 ~ 10	0 ~ 5, 0 ~ 10	0 ~ 5, 0 ~ 10	0 ~ 5, 0 ~ 10, ±10	0 ~ 5, 0 ~ 10, ±10
		Output Rate	Static update	Static update	Static update	Static update	Static update	Static update	Static update
		DMA Transfer	-	-	-	-	-	-	-
Digital I/O		Input Channels	16	16	16	16	16	16	16
		Output Channels	16	16	16	16	16	16	16
Timer/ Counter		Channels	1	1	-	1	1	1	1
		Resolution	16 bits	16 bits	-	16 bits	16 bits	16 bits	16 bits
		Max. Input Frequency	10 MHz	10 MHz	-	2 MHz	10 MHz	10 MHz	10 MHz
		Isolation Voltage	-	-	-	-	-	-	-
		Auto Calibration	✓	✓	-	-	-	-	-
		BoardID Switch	✓	✓	-	-	-	-	-
		Dimensions (mm)	175 x 100	175 x 100	175 x 100	185 x 100	155 x 100	185 x 100	185 x 100
		Connector	68-pin SCSI	68-pin SCSI	3 x 20-pin	5 x 20-pin	DB37	DB37	DB37
Legacy Driver		Windows XP/2000	✓	✓	✓	✓	✓	✓	✓
		WinCE	-	-	-	-	-	-	-
		Linux	✓	✓	-	-	-	-	-
DAQNavi Driver		Windows 8/7/Vista/XP/2000	✓	✓	-	-	✓	✓	✓
		WinCE	-	-	-	-	-	-	-
		Linux	✓	-	-	-	-	-	-
		LabVIEW Driver	✓	✓	✓	✓	✓	✓	✓
		Page	19-27	19-27	online	online	online	online	online

* All channels should be set to the same range.

** SS: Single DMA channel, Single A/D channel scan; SM: Single DMA channel, Multiple A/D channel scan

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Analog I/O & Multifunction Card Selection Guide

Category			Multifunction					
Bus			PC/104			PCI-104	PCIE		
Model			PCM-3718H	PCM-3718HG	PCM-3718HO	PCM-3810I	PCIE-1810	PCIE-1816	PCIE-1816H
Analog Input	General Spec.	Resolution	12 bits	12 bits	12 bits	12 bits	12 bits	16 bits	16 bits
		Channels	16 SE/8 Diff.	16 SE/8 Diff.	16 SE/8 Diff.	16 SE/8 Diff.	16 SE/8 Duff.	16 SE/8 Duff.	16 SE/8 Duff.
		Onboard FIFO	-	-	1,024 samples	4,096 samples	4,096 samples	4,096 samples	4,096 samples
		Sampling Rate	100 kS/s	100 kS/s	100 kS/s*	250 kS/s	800 kS/s	1 MS/s	5 MS/s
	Input Ranges	Unipolar Inputs (V)	0 ~ 10, 0 ~ 5 0 ~ 2.5, 0 ~ 1.25	0 ~ 10, 0 ~ 1 0 ~ 0.1, 0 ~ 0.01	0 ~ 10, 0 ~ 5 0 ~ 2.5, 0 ~ 1.25	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25
		Bipolar Inputs (V)	±10, 5, 2.5, 1.25, 0.625	±10, 5, 1, 0.5, 0.1, 0.05, 0.01, 0.005	±10, 5, 2.5, 1.25, 0.625	±10, 5, 2.5, 1.25, 0.625	±10, ±5, 2.5, 1.25, 0.625	±10, ±5, 2.5, 1.25, 0.625	±10, ±5, 2.5, 1.25, 0.625
		Configurable Per-Channel	✓	✓	✓	✓	✓	✓	✓
	Trigger Modes	Pacer/ Software/ External Pulse	✓	✓	✓	✓	✓	✓	✓
		Analog Slope	-	-	-	-	✓	✓	✓
		Advanced Trigger	-	-	-	✓	Start/ Stop/ Delay to Start/ Delay to Stop	Start/ Stop/ Delay to Start/ Delay to Stop	Start/ Stop/ Delay to Start/ Delay to Stop
	Data Transfer Modes	Software	✓	✓	✓	✓	✓	✓	✓
		DMA	SS**	SS**	SS**	-	Bus-mastering	Bus-mastering	Bus-mastering
Analog Output		Resolution	-	-	12 bits	12 bits	12 bits	16 bits	16 bits
		Channels	-	-	1	2	2 (Waveform Output)	2 (Waveform Output)	2 (Waveform Output)
		Onboard FIFO	-	-	-	-	4,096 samples	4,096 samples	4,096 samples
		Output Range (V)	-	-	0 ~ 5, 0 ~ 10	0 ~ 5, 0 ~ 10, ±5, ±10	0 ~ 5, 0 ~ 10, ±5, ±10	0 ~ 5, 0 ~ 10, ±5, ±10	0 ~ 5, 0 ~ 10, ±5, ±10
		Output Rate	-	-	Static update	250 kS/s	500 kS/s/s	3 MS/s	3 MS/s
		DMA Transfer	-	-	-	-	Bus-mastering	Bus-mastering	Bus-mastering
Digital I/O		Input Channels	16 (shared)	16 (shared)	16 (shared)	16 (shared)	24 (shared)	24 (shared)	24 (shared)
		Output Channels							
Timer/ Counter		Channels	1	1	1	3	2	2	2
		Resolution	16 bits	16 bits	16 bits	16 bits	32-bit	32-bit	32-bit
		Max. Input Frequency	10 MHz	10 MHz	10 MHz	10 MHz	10 MHz	10 MHz	10 MHz
		Isolation Voltage	-	-	-	-	-	-	-
		Auto Calibration	-	-	-	✓	✓	✓	✓
		BoardID Switch	-	-	-	-	✓	✓	✓
		Dimensions (mm)	96 x 90	96 x 90	96 x 90	96 x 90	168 x 100	168 x 100	168 x 100
		Connector	2 x 20-pin	2 x 20-pin	2 x 20-pin	50-pin/26-pin box header	68-pin SCSI	68-pin SCSI	68-pin SCSI
Legacy Driver		Windows XP/2000	✓	✓	✓	✓	-	-	-
		WinCE	✓	✓	✓	-	-	-	-
		Linux	✓	✓	✓	-	-	-	-
DAQNavi Driver		Windows 8/7/Vista/ XP/2000	✓	✓	✓	✓	✓	✓	✓
		WinCE	-	-	-	-	-	-	-
		Linux	-	-	-	✓	-	-	-
		LabVIEW Driver	✓	✓	✓	✓	✓	✓	✓
		Page	19-49	19-49	19-49	19-47	19-21	19-22	19-22

* 80 kHz on Pentium 4-based (or upper) system
** SS: Single DMA channel, Single A/D channel scan

ADVANTECH Data Acquisition Boards

Category		Analog Input							Analog Output	
Bus		PCI					ISA	PCI-104	PCI	
Model		PCI-1713U	PCI-1714U	PCI-1714UL	PCI-1715U	PCI-1747U	PCL-813B	PCM-3813I	PCI-1720U	PCI-1721
Analog Input General Spec.	Resolution	12 bits	12 bits	12 bits	12 bits	16 bits	12 bits	12 bits	-	-
	Channels	32 SE/16 Diff.	4 SE	4 SE	32 SE/16 Diff.	64 SE/32 Diff.	32 SE	32 SE/16 Diff.	-	-
	Onboard FIFO	4,096 samples	32,768 samples	8,192 samples	1,024 samples	1,024 samples	-	1,024 samples	-	-
	Sampling Rate	100 kS/s	30 MS/s	10 MS/s	500 kS/s	250 kS/s	25 kS/s	100 kS/s	-	-
Input Ranges	Unipolar Inputs (V)	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25	-	-	0 ~10, 0 ~ 5 0 ~ 2.5, 0 ~1.25	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25		
	Bipolar Inputs (V)	±10, 5, 2.5, 1.25, 0.625	±5, 2.5, 1, 0.5	±5, 2.5, 1, 0.5	±10, 5, 2.5, 1.25, 0.625	±10, 5, 2.5, 1.25, 0.625	±5, 2.5, 1.25, 0.625	±5, 2.5, 1.25, 0.625	-	-
	Configurable Per-Channel	✓	✓	✓	✓	✓	✓	✓	-	-
Trigger Modes	Pacer/ Software/ External Pulse	✓	✓	✓	✓	Pacer/ Software	Software	✓	-	-
	Analog Slope	-	✓	✓	-	-	-	-	-	-
	Advanced Trigger	-	✓	✓	-	-	-	-	-	-
Data Transfer Modes	Software	✓	✓	✓	✓	✓	✓	✓	-	-
	DMA	-	Bus-mastering	Bus-mastering	Bus-mastering	Bus-mastering	-	-	-	-
Analog Output	Resolution	-	-	-	-	-	-	-	12 bits	12 bits
	Channels	-	-	-	-	-	-	-	4	4 (Waveform Output)
	Onboard FIFO	-	-	-	-	-	-	-	-	1,024 samples
	Output Range (V)								0 ~ 5, 0 ~ 10, ±5, ±10, 0 ~ 20 mA, 4 ~ 20 mA	0 ~ 5, 0 ~ 10, ±5, ±10, 0 ~ 20 mA, 4 ~ 20 mA
	Output Rate	-	-	-	-	-	-	-	Static update	10 MS/s
	DMA Transfer	-	-	-	-	-	-	-	-	Bus-mastering
Digital I/O	Input Channels	-	-	-	-	-	-	-	-	16 (shared)
	Output Channels	-	-	-	-	-	-	-	-	
Timer/ Counter	Channels	-	-	-	-	-	-	-	-	1
	Resolution	-	-	-	-	-	-	-	-	16 bits
	Max. Input Frequency	-	-	-	-	-	-	-	-	10 MHz
Isolation Voltage		2,500 V$_{DC}$	-	-	2,500 V$_{DC}$	-	500 V$_{DC}$	2,500 V$_{DC}$	2,500 V$_{DC}$	-
Auto Calibration		-	✓	✓	-	✓	-	-	-	✓
BoardID Switch		-	✓	✓	✓	✓	-	-	✓	✓
Dimensions (mm)		175 x 100	175 x 100	175 x 100	175 x 100	175 x 100	219 x 100	96 x 90	175 x 100	175 x 100
Connector		DB37	4 x BNC	4 x BNC	DB37	68-pin SCSI	DB37	40-pin	DB37	68-pin SCSI
Legacy Driver	Windows XP/2000	✓	✓	✓	✓	✓	✓	✓	✓	✓
	WinCE	✓	-	-	-	✓	-	-	✓	-
	Linux	✓	v	✓	✓	✓	✓	-	✓	✓
DAQNavi Driver	Windows 8/7/Vista/ XP/2000	✓	✓	✓	✓	✓	✓	✓	✓	✓
	WinCE	-	-	-	-	-	-	-	✓	-
	Linux	-	✓	✓	✓	✓	-	-	-	✓
LabVIEW Driver		✓	✓	✓	✓	✓	✓	✓	✓	✓
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* 80 kHz on Pentium 4-based (or upper) system
** SS: Single DMA channel, Single A/D channel scan

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Category			Analog Output					
Bus			PCI			ISA		
Model			PCI-1723	PCI-1724U	PCI-1727U	PCL-726	PCL-727	PCL-728
Analog Input	General Spec.	Resolution	-	-	-	-	-	-
		Channels	-	-	-	-	-	-
		Onboard FIFO	-	-	-	-	-	-
		Sampling Rate	-	-	-	-	-	-
	Input Ranges	Unipolar Inputs (V)	-	-	-	-	-	-
		Bipolar Inputs (V)	-	-	-	-	-	-
		Configurable Per-Channel	-	-	-	-	-	-
	Trigger Modes	Pacer/Software/External Pulse	-	-	-	-	-	-
		Analog Slope	-	-	-	-	-	-
		Advanced Trigger	-	-	-	-	-	-
	Data Transfer Modes	Software	-		-	-	-	-
		DMA	-	-	-	-	-	-
Analog Output		Resolution	16 bits	14 bits	14 bits	12 bits	12 bits	12 bits
		Channels	8	32	12	6	12	2
		Onboard FIFO	-	-	-	-	-	-
		Output Range (V)	±10, 0 ~ 20 mA, 4 ~ 20 mA	±10, 0 ~ 20 mA	±10, 0~20 mA	0 ~ 5, 0 ~ 10, ±5, ±10, 4 ~ 20 mA	0 ~ 5, 0 ~ 10, ±5, 4 ~ 20 mA	0 ~ 5, 0 ~ 10, ±5, ±10, 0 ~ 20 mA, 4 ~ 20 mA
		Output Rate	Static update	Static update	Static update	Static update	Static update	Static update
		DMA Transfer	-	-	-	-	-	-
Digital I/O		Input Channels	16 (shared)	-	16	16	16	-
		Output Channels		-	16	16	16	-
Timer/Counter		Channels	-	-	-	-	-	-
		Resolution	-	-	-	-	-	-
		Max. Input Frequency	-	-	-	-	-	-
Isolation Voltage			-	1,500 V_{DC}	-	-	-	2,500 V_{DC}
Auto Calibration			✓	-	-	-	-	-
BoardID Switch			✓	✓	✓	-	-	-
Dimensions (mm)			175 x 100	175 x 100	175 x 100	337 x 112	337 x 112	185 x 120
Connector			68-pin SCSI	DB62	2 x 2-pin, DB37	4 x 20-pin	2 x 20-pin, DB37	2 x DB9
Legacy Driver		Windows XP/2000	✓	✓	✓	✓	✓	✓
		WinCE	-	✓	-	-	-	-
		Linux	✓	✓	✓	-	-	-
DAQNavi Driver		Windows 8/7/Vista/XP/2000	✓	✓	✓	-	-	-
		WinCE	-	-	-	-	-	-
		Linux	-	✓	✓	-	-	-
LabVIEW Driver			✓	✓	✓	✓	✓	✓
Page			19-33	19-31	19-33	online	online	online

Category			Non-Isolated Digital I/O						
Bus			PCI						
Model			PCI-1735U	PCI-1737U	PCI-1739U	PCI-1751	PCI-1753	PCI-1755	PCI-1757UP
TTL DI/O	Input Channels		32	24 (shared)	48 (shared)	48 (shared)	96 (shared)	32 (shared)	24 (shared)
	Output Channels		32						
	Output Channel	Sink Current	24 mA @ 0.5V	24 mA @ 0.4 V	24 mA @ 0.4 V	24 mA @ 0.4 V	24 mA @ 0.44 V	24 mA @ 0.5V	24 mA @ 0.5 V
		Source Current	15 mA @ 2.0V	15 mA @ 2.4 V	15 mA @ 2.4 V	15 mA @ 2.4 V	24 mA @ 3.76 V	15 mA @ 2.0V	24 mA @ 3.7 V
Isolated DI/O	Input	Channels	-	-	-	-	-	-	-
		Isolation Voltage	-	-	-	-	-	-	-
		Input Range	-	-	-	-	-	-	-
	Output	Channels	-	-	-	-	-	-	-
		Isolation Voltage	-	-	-	-	-	-	-
		Output Range	-	-	-	-	-	-	-
		Max. Sink Current	-	-	-	-	-	-	-
Timer/ Counter	Channels		3	-	-	3	-	3	-
	Resolution		16 bits	-	-	16 bits	-	16 bits	-
	Max. Input Frequency		10 MHz	-	-	10 MHz	-	10 MHz	-
Advanced Function	Pattern Match		-	-	-	-	✓	✓	-
	Change of State		-	-	-	-	✓	✓	-
	BoardID Switch		✓	✓	✓	✓	✓	✓	✓
	Channel-Freeze Function		-	-	-	-	-	✓	-
	Output Status Read Back		✓	✓	✓	✓	✓	-	✓
	Dry/Wet Contact*		-	✓	✓	✓	✓	-	✓
Dimensions (mm)			175 x 100	175 x 100	175 x 100	175 x 100	175 x 100	175 x 100	120 x 65
Connector			5 x 20-pin	1 x 50-pin	2 x 50-pin	68-pin SCSI	100-pin SCSI	100-pin SCSI-II	1 x DB25
Legacy Driver	Windows XP/2000		✓	✓	✓	✓	✓	✓	✓
	WinCE		-	-	-	-	-	-	-
	Linux		✓	✓	✓	✓	✓	-	✓
DAQNavi Driver	Windows 8/7/Vista/ XP/2000		✓	✓	✓	✓	✓	-	✓
	WinCE		-	-	-	-	-	-	-
	Linux		-	-	-	✓	-	-	-
LabVIEW Driver			✓	✓	✓	✓	✓	✓	✓
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* Dry/wet contact can be mixed at the same time within one group.

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Digital I/O & Counter Card Selection Guide

Category	Non-Isolated Digital I/O					
Bus	ISA				PC/104	PCI-104
Model	PCL-720+	PCL-722	PCL-724	PCL-731	PCM-3724	PCM-3753I
TTL DI/O — Input Channels	32	144 (shared)	24 (shared)	48 (shared)	48 (shared)	96 (shared)
Output Channels	32					
Output Channel — Sink Current	24 mA @ 0.5 V	24 mA @ 0.4 V	24 mA @ 0.4 V	24 mA @ 0.4 V	24 mA @ 0.5 V	24 mA @ 0.4 V
Output Channel — Source Current	15 mA @ 2.0 V	-15 mA @ 2.4 V	15 mA @ 2.4 V	15 mA @ 2.4 V	15 mA @ 2.0 V	15 mA @ 2.4 V
Isolated DI/O — Input — Channels	-	-	-	-	-	-
Input — Isolation Voltage	-	-	-	-	-	-
Input — Input Range	-	-	-	-	-	-
Output — Channels	-	-	-	-	-	-
Output — Isolation Voltage	-	-	-	-	-	-
Output — Output Range	-	-	-	-	-	-
Output — Max. Sink Current	-	-	-	-	-	-
Timer/Counter — Channels	3	-	-	-	-	-
Resolution	16 bits	-	-	-	-	-
Max. Input Frequency	1 MHz	-	-	-	-	-
Advanced Function — Pattern Match	-	-	-	-	-	✓
Change of State	-	-	-	-	-	✓
BoardID Switch	-	-	-	-	-	-
Channel-Freeze Function	-	-	-	-	-	-
Output Status Read Back	-	✓	✓	✓	✓	✓
Dry/Wet Contact*	-	-	-	-	-	-
Dimensions (mm)	185 x 100	334 x 100	125 x 100	185 x 100	96 x 90	96 x 90
Connector	5 X 20-pin	6 x 50-pin	1 x 50-pin	2 x 50-pin	2 x 50-pin	4 x 50-pin
Legacy Driver — Windows XP/2000	✓	✓	✓	✓	✓	✓
WinCE	-	-	-	-	✓	✓
Linux	-	-	-	-	✓	✓
DAQNavi Driver — Windows 8/7/Vista/XP/2000	-	-	-	-	✓	✓
WinCE	-	-	-	-	-	-
Linux	-	-	-	-	-	-
LabVIEW Driver	✓	✓	✓	✓	✓	✓
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* Dry/wet contact can be mixed at the same time within one group.

ADVANTECH **Data Acquisition Boards**

Category	Isolated Digital I/O					Non-isolated Digital I/O	
Bus	PCI Express						
Model	PCIE-1730	PCIE-1752	PCIE-1754	PCIE-1756	PCIE-1760	PCIE-1751	PCIE-1753
TTL DI/O — Input Channels	16	-	-	-	-	48 (shared)	96 (shared)
TTL DI/O — Output Channels	16	-	-	-	-		
TTL DI/O — Output Channel — Sink Current	24 mA @ 0.5 V	-	-	-	-	15 mA @ 0.8 V	15 mA @ 0.8 V
TTL DI/O — Output Channel — Source Current	15 mA @ 2.4 V	-	-	-	-	15 mA @ 2.0 V	15 mA @ 2.0 V
Isolated DI/O — Input — Channels	16	-	64	32	8	-	-
Isolated DI/O — Input — Isolation Voltage	2,500 V$_{DC}$	-	2,500 V$_{DC}$	2,500 V$_{DC}$	2,500 V$_{DC}$	-	-
Isolated DI/O — Input — Input Range	10 ~ 30 V$_{DC}$	-	10 ~ 30 V$_{DC}$	10 ~ 30 V$_{DC}$	4.5 ~ 12 V$_{DC}$	-	-
Isolated DI/O — Output — Channels	16 (Sink)	64 (Sink)	-	32 (Sink)	6 x Form A 2 x Form C	-	-
Isolated DI/O — Output — Isolation Voltage	2,500 V$_{DC}$	2,500 V$_{DC}$	-	2,500 V$_{DC}$	2,500 V$_{DC}$	-	-
Isolated DI/O — Output — Output Range	5 ~ 40 V$_{DC}$	5 ~ 40 V$_{DC}$	-	5 ~ 40 V$_{DC}$	1 A @ 125 V$_{AC}$ 2 A @ 30 V$_{AC}$	-	-
Isolated DI/O — Output — Max. Sink Current	500 mA	500 mA	-	500 mA		-	-
Timer/Counter — Channels	-	-	-	-	8 x UP CTR 2 x PWM	3	-
Timer/Counter — Resolution	-	-	-	-	16 bits	32 bits	-
Timer/Counter — Max. Input Frequency	-	-	-	-	500 Hz	10 MHz	-
Advanced Function — Pattern Match	-	-	-	-	✓	✓	✓
Advanced Function — Change of State	-	-	-	-	✓	✓	✓
Advanced Function — BoardID Switch	✓	✓	✓	✓	✓	✓	✓
Advanced Function — Channel-Freeze Function	✓	✓	-	✓	-	-	-
Advanced Function — Output Status Read Back	✓	✓	-	✓	✓	✓	✓
Advanced Function — Dry/Wet Contact*	✓	-	-	-	-	✓	✓
Dimensions (mm)	168 x 100	168 x 100	168 x 100	168 x 100	168 x 100	168 x 100	168 x 100
Connector	1 x DB37 4 x 20-pin	100-pin SCSI	100-pin SCSI	100-pin SCSI	1 x DB37	68-pin SCSI	68-pin SCSI
Legacy Driver — Windows XP/2000	-	-	-	-	-	-	-
Legacy Driver — WinCE	-	-	-	-	-	-	-
Legacy Driver — Linux	-	-	-	-	-	-	-
DAQNavi Driver — Windows 8/7/Vista/XP/2000	✓	✓	✓	✓	✓	✓	✓
DAQNavi Driver — WinCE	-	-	-	-	-	-	-
DAQNavi Driver — Linux	-	-	-	-	✓	-	-
LabVIEW Driver	✓	✓	✓	✓	✓	✓	✓
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* Dry/wet contact can be mixed at the same time within one group.

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Digital I/O & Counter Card Selection Guide

Category			Isolated Digital I/O					
Bus			PCI					
Model			PCI-1730U	PCI-1733	PCI-1734	PCI-1750	PCI-1752U	PCI-1754
TTL DI/O	Input Channels		16	-	-	-	-	-
	Output Channels		16	-	-	-	-	-
	Output Channel	Sink Current	24 mA @ 0.5 V	-	-	-	-	-
		Source Current	15 mA @ 2.4 V	-	-	-	-	-
Isolated DI/O	Input	Channels	16	32	-	16	-	64
		Isolation Voltage	2,500 V_{DC}	2,500 V_{DC}	-	2,500 V_{DC}	-	2,500 V_{DC}
		Input Range	5 ~ 30 V_{DC}	5 ~ 30 V_{DC}	-	5 ~ 50 V_{DC}	-	10 ~ 50 V_{DC}
	Output	Channels	16 (Sink)	-	32 (Sink)	16 (Sink)	64 (Sink)	-
		Isolation Voltage	2,500 V_{DC}	-	2,500 V_{DC}	2,500 V_{DC}	2,500 V_{DC}	-
		Output Range	5 ~ 40 V_{DC}	-	5 ~ 40 V_{DC}	5 ~ 40 V_{DC}	5 ~ 40 V_{DC}	-
		Max. Sink Current	300 mA	-	200 mA	200 mA	200 mA	-
Timer/ Counter	Channels		-	-	-	1	-	-
	Resolution		-	-	-	16 bits	-	-
	Max. Input Frequency		-	-	-	1 MHz	-	-
Advanced Function	Pattern Match		-	-	-	-	-	-
	Change of State		-	-	-	-	-	-
	BoardID Switch		✓	✓	✓	-	✓	✓
	Channel-Freeze Function		✓	-	-	-	✓	-
	Output Status Read Back		✓	-	✓	-	✓	-
	Dry/Wet Contact*		✓	✓	-	✓	-	-
Dimensions (mm)			175 x 100	175 x 100	175 x 100	175 x 100	175 x 100	175 x 100
Connector			1 x DB37 4 x 20-pin	1 x DB37	1 x DB37	1 x DB37	100-pin SCSI	100-pin SCSI
Legacy Driver	Windows XP/2000		✓	✓	✓	✓	✓	✓
	WinCE		✓	-	✓	✓	✓	✓
	Linux		✓	✓	✓	✓	✓	✓
DAQNavi Driver	Windows 8/7/Vista/XP/2000		✓	✓	✓	✓	✓	✓
	WinCE		-	-	-	-	-	-
	Linux		✓	-	-	✓	✓	-
LabVIEW Driver			✓	✓	✓	✓	✓	✓
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* Dry/wet contact can be mixed at the same time within one group.

Category			Isolated Digital I/O						
Bus			PCI						
Model			PCI-1756	PCI-1758UDI	PCI-1758UDO	PCI-1758UDIO	PCI-1760U	PCI-1761	PCI-1762
TTL DI/O	Input Channels		-	-	-	-	-	-	-
	Output Channels		-	-	-	-	-	-	-
	Output Channel	Sink Current	-	-	-	-	-	-	-
		Source Current	-	-	-	-	-	-	-
Isolated DI/O	Input	Channels	32	128	-	64	8	8	16
		Isolation Voltage	2,500 V_{DC}	2,500 V_{RMS}	-	2,500 V_{DC}	2,500 V_{DC}	3,750 V_{DC}	2,500 V_{DC}
		Input Range	10 ~ 50 V_{DC}	5 ~ 25 V_{DC}	-	5 ~ 25 V_{DC}	4.5 ~ 12 V_{DC}	5 ~ 50 V_{DC}	10 ~ 50 V_{DC}
	Output	Channels	32 (Sink)	-	128	64	6 x Form A 2 x Form C	4 x Form A 4 x Form C	16**
		Isolation Voltage	2,500 V_{DC}	-	2,500 V_{RMS}	2,500 V_{DC}	2,500 V_{DC}	2,500 V_{DC}	2,500 V_{DC}
		Output Range	5 ~ 40 V_{DC}	-	5 ~ 40 V_{DC}	5 ~ 40 V_{DC}	1 A @ 125 V_{AC} 2 A @ 30 V_{DC}	8 A @ 250 V_{AC} 2 A @ 30 V_{DC}	0.25 A @ 250 V_{AC} 2 A @ 30 V_{DC}
		Max. Sink Current	200 mA	-	90 mA	90 mA			
Timer/Counter	Channels		-	-	-	-	8 x Up CTR 2 x PWM	-	-
	Resolution		-	-	-	-	16 bits (2,500 Isolation)	-	-
	Max. Input Frequency		-	-	-	-	500 Hz for Up CTR	-	-
Advanced Function	Pattern Match		-	-	-	-	✓	-	-
	Change of State		-	-	-	-	✓	-	-
	BoardID Switch		✓	✓	✓	✓	✓	✓	✓
	Channel-Freeze Function		✓	-	-	-	-	-	✓
	Output Status Read Back		✓	-	✓	✓	✓	✓	✓
	Dry/Wet Contact*		-	-	-	-	-	-	-
Dimensions (mm)			175 x 100	175 x 100	175 x 100	175 x 100	175 x 100	175 x 100	175 x 100
Connector			100-pin SCSI	Dual 100-pin mini-SCSI	Dual 100-pin mini-SCSI	Dual 100-pin mini-SCSI	1 x DB37	1 x DB37	1 x DB62
Legacy Driver	Windows XP/2000		-	✓	✓	✓	-	✓	✓
	WinCE		✓	✓	✓	✓	✓	✓	✓
	Linux		-	✓	✓	v	-	✓	✓
DAQNavi Driver	Windows 8/7/Vista/XP/2000		✓	✓	✓	✓	✓	✓	✓
	WinCE		-	-	-	-	-	-	-
	Linux		-	✓	✓	✓	-	✓	✓
LabVIEW Driver			✓	✓	✓	✓	✓	✓	✓
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* Dry/wet contact can be mixed at the same time within one group.

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13 DIN-Rail IPCs

14 CompactPCI Systems

15 IoT Wireless I/O Modules

16 IoT Ethernet I/O Modules

17 RS-485 I/O Modules

18 Data Acquisition Boards

Digital I/O & Counter Card Selection Guide

Category			Isolated Digital I/O						Counter		
Bus			ISA	ISA	PC/104	PC/104	PCI-104	PCI-104	PCI	ISA	PC/104
Model			PCL-725	PCL-735	PCM-3725	PCM-3730	PCM-3730I	PCM-3761I	PCI-1780U	PCL-836	PCM-3780
TTL DI/O	Input Channels		-	-	8	16	-	-	8	16	24 (shared)
	Output Channels		-	-	8	16	-	-	8	16	24 (shared)
	Output Channel	Sink Current	-	-	-	0.5 V @ 8 mA	-	-	24 mA @ 0.5 V	8 mA @ 0.5 V	24 mA @ 0.5 V
		Source Current	-	-	-	0.4 mA @ 2.4 V	-	-	15 mA @ 2.4 V	0.4 mA @ 2.4 V	15 mA @ 2.0 V
Isolated DI/O	Input	Channels	8	-	8	8	16	8	-	-	-
		Isolation Voltage	1,500 V_{DC}	-	2,500 V_{DC}	2,500 V_{DC}	2,500 V_{DC}	2,500 V_{DC}	-	-	-
		Input Range	5 ~ 24 V_{DC}	-	10 ~ 50 V_{DC}	5 ~ 24 V_{DC}	5 ~ 30 V_{DC}	5 ~ 30 V_{DC}	-	-	-
	Output	Channels	4 x Form A 4 x Form C	12 x Form C	8 x Form C	8	16	8 x Form C	-	-	-
		Isolation Voltage	1,000 V_{DC}	1,000 V_{DC}	2,000 V_{DC}	2,500 V_{DC}	2,500 V_{DC}	2,000 V_{DC}	-	-	-
		Output Range	0.5A @ 120 V_{AC} 1A @ 30 V_{DC}	1A @ 125 V_{AC} 2A @ 30 V_{DC}	0.25A @ 240 V_{DC} 1A @ 30 V_{DC}	5 ~ 40 V_{DC}	5 ~ 30 V_{DC}	0.25 A @ 250 V_{AC} 2 A @ 30 V_{DC}	-	-	-
		Max. Sink Current				200 mA	300 mA		-	-	-
Timer/Counter	Channels		-	-	-	-	-	-	8 x CTR	6 x CTR 3 x PWM	2
	Resolution		-	-	-	-	-	-	16 bits	16 bits	16 bits
	Max. Input Frequency		-	-	-	-	-	-	20 MHz	10 MHz	20 MHz
Advanced Function	Pattern Match		-	-	-	-	-	-	-	-	-
	Change of State		-	-	-	-	-	-	-	-	-
	BoardID Switch		-	-	-	-	-	✓	✓	-	-
	Channel-Freeze Function		-	-	-	-	-	-	-	-	-
	Output Status Read Back		-	-	-	-	-	✓	-	-	-
	Dry/Wet Contact*		-	-	-	-	-	-	-	-	-
Dimensions (mm)			147 x 95	155 x 100	96 x 90	96 x 90	96 x 90	96 x 90	175 x 100	185 x 100	96 x 90
Connector			1 x DB37	1 x DB37	1 x 20-pin 1 x 50-pin	3 x 20-pin	2 x 20-pin	1 x 20-pin 1 x 50-pin	68-pin SCSI	1 x DB37 2 x 20-pin	1 x 50-pin 1 x 20-pin
Legacy Driver	Windows XP/2000		✓	✓	✓	✓	✓	✓	✓	✓	✓
	WinCE		-	-	✓	✓	✓	✓	-	-	✓
	Linux		-	-	✓	✓	✓	✓	✓	-	-
DAQNavi Driver	Windows 8/7/Vista/XP/2000		-	-	✓	✓	✓	✓	✓	-	✓
	WinCE		-	-	-	-	-	-	-	-	-
	Linux		-	-	-	-	-	✓	-	-	-
LabVIEW I/O Driver			✓	✓	✓	✓	✓	✓	✓	✓	✓
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* Dry/wet contact can be mixed at the same time within one group.
** Jumper selectable Form A/Form B-type relay output

PCIE-1730
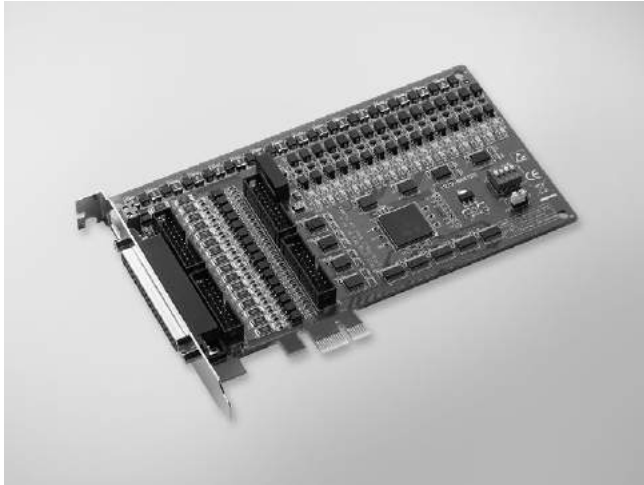
Features

- 32-ch isolated DI/O (16-ch digital input, 16-ch digital output)
- 32-ch TTL DI/O (16-ch digital input,16-ch digital output)
- High output driving capacity
- Interrupt handling capability
- 2 x 20-pin connectors for isolated DI/O channels and 2 x 20-pin connectors for TTL DI/O channels
- D-type connector for isolated input and output channels
- High-voltage isolation on output channels (2,500 V_{DC})

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Introduction

PCIE-1730 offers isolated digital input channels as well as isolated digital output channels with isolation protection up to 2,500 V_{DC}, which makes them ideal for industrial applications where high-voltage isolation is required. There are also 32 TTL digital I/O channels on PCIE-1730.

Specifications

Digital Input

- **Channels**   16
- **Compatibility**   5 V/TTL
- **Input Voltage**   Logic 0: 0.8 V max.
  Logic 1: 2.0 V min.
- **Interrupt Capable Ch.**   2 (DI0, DI8)

Isolated Digital Input

- **Channels**   16
- **Input Voltage**   Logic 0: 3 V max.
  Logic 1: 10 V min. (30 V max.)
- **Interrupt Capable Ch.**   2 (IDI0, IDI8)
- **Isolation Protection**   2,500 V_{DC}
- **Opto-Isolator Response**   50 µs
- **Input Resistance**   2.7 kΩ @ 1 W

Digital Output

- **Channels**   16
- **Compatibility**   5 V/TTL
- **Output Voltage**   Logic 0: 0.5V max.
  Logic 1: 2.4V min.
- **Output Capability**   Sink: 24mA @ 0.5V
  Source: 15mA @ 2.4V

Isolated Digital Output

- **Channels**   16
- **Output Type**   Sink type (NPN)
- **Isolation Protection**   2,500 V_{DC}
- **Output Voltage**   5 ~ 40 V_{DC}
- **Sink Current**   500 mA max./channel
- **Opto-Isolator Response**   50 µs

General

- **Bus Type**   PCI Express V1.0
- **I/O Connectors**   1 x DB37 female connector
  4 x 20-pin box header
- **Dimensions (L x H)**   168 x 100 mm (6.6" x 3.9")
- **Power Consumption**   Typical:3.3 V @ 280 mA, 12 V @ 330 mA
  Max.: 3.3 V @ 420 mA, 12 V @ 400 mA
- **Operating Temperature**   0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature**   -25 ~ 85°C (-13 ~ 185°F)
- **Storage Humidity**   5 ~ 95% RH, non-condensing

Ordering Information

- **PCIE-1730**   32-ch Isolated Digital I/O PCIe Card

Accessories

- **PCL-10120-1E**   20-pin Flat Cable, 1 m
- **PCL-10120-2E**   20-pin Flat Cable, 2 m
- **ADAM-3920**   20-pin DIN-rail Flat Cable Wiring Board
- **PCLD-782**   16-ch Isolated DI Board w/ 1m 20-pin Flat Cable
- **PCLD-885**   16-ch Power Relay Board w/ 20p & 50p Flat Cables
- **PCLD-785**   16-ch Relay Board w/ One 1m 20-pin Flat Cable
- **ADAM-3937**   DB37 DIN-rail Wiring Board
- **PCL-10137-1E**   DB37 Cable, 1 m
- **PCL-10137-2E**   DB37 Cable, 2 m
- **PCL-10137-3E**   DB37 Cable, 3 m

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PCIE-1751
PCIE-1753

48-ch Digital I/O and 3-ch Counter PCI Express Card

96-ch Digital I/O PCI Express Card
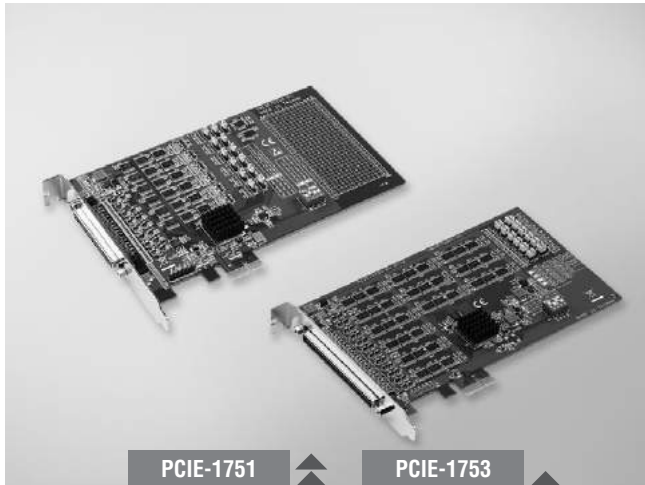
PCIE-1751   PCIE-1753

Features

- Emulates mode 0 of 8255 PPI (every port with nibble)
- Buffered circuits for higher driving capacity than the 8255
- Interrupt handling capability
- Timer/Counter interrupt capability
- Supports both dry and wet contact
- Keeps the I/O port setting and DO state after system reset
- BoardID switch
- Pattern match interrupt function for DI
- "Change of state" interrupt function for DI
- Programmable digital filter function for DI
- Output status read back

Introduction

PCIE-1751 is a 48-bit digital I/O card for the PCI Express bus. Its 48 channels are divided into six 8-bit I/O ports and users can configure each 4-channel per port (nibble) as input or output via software. PCIE-1751 also provides three 32-bit counters..

Specifications

Digital Input

- **Channels**   48 (shared with output)
- **Compatibility**   5 V/TTL
- **Input Voltage**   Logic 0: 0.8 V max.
                          Logic 1: 2 V min.
- **Interrupt Capable Ch.** 6

Digital Output

- **Channels**   48 (shared with input)
- **Compatibility**   5 V/TTL
- **Output Voltage**   Logic 0: 0.4 V max.
                          Logic 1: 2.4 V min.
- **Output Capability**   Sink: 24mA @ 0.4 V
                          Source: 15mA @ 2.4 V

Counter/Timer

- **Channels**   3
- **Resolution**   3 x 32-bit counter
- **Compatibility**   5 V/TTL
- **Max. Input Frequency** 10 MHz
- **Reference Clock**   Internal: 20K / 200K / 2M / 20MHz
                          External Clock Frequency: 10 MHz
                          External Voltage Range: 5 V/TTL

General

- **Bus Type**   Universal PCI Express
- **I/O Connectors**   1 x 68-pin SCSI female connector
- **Dimensions (L x H)** 168 x 100 mm (6.6" x 3.9")
- **Power Consumption**   Typical: 3.3 V @ 850 mA
                          Max.: 3.3V @ 2.63 A
                          Note: The maximum power consumption includes
                          power consumption for +5 V output (on pin 34 and pin
                          68, with 0.5 A)
- **Operating Temperature** 0~60°C (32~140°F)
- **Storage Temperature** -20 ~ 70°C (-4 ~ 158°F)
- **Storage Humidity**   5 ~ 95% RH, non-condensing

Ordering Information

- **PCIE-1751**   48-ch Digital I/O and 3-ch Counter PCI Express

Accessories

- **PCL-10168-1E**   68-pin SCSI Shielded Cable, 1 m
- **PCL-10168-2E**   68-pin SCSI Shielded Cable, 2 m
- **ADAM-3968**   68-pin DIN-rail SCSI Wiring Board
- **ADAM-3968/20**   68-pin SCSI to 3 20-pin Box Header Board
- **ADAM-3968/50**   68-pin SCSI to 2 50-pin Box Header Board
- **PCLD-8751**   48-ch Isolated Digital Input Board
- **PCLD-8761**   24-ch Replay/ Isolated Digital Input Board
- **PCLD-8762**   48-ch Relay Board

Pin Assignment

PCIE-1752
PCIE-1754
PCIE-1756

64-ch Isolated Digital Output PCI Express Card

64-ch Isolated Digital Input PCI Express Card

64-ch Isolated Digital I/O PCI Express Card

| PCIE-1752 | PCIE-1754 | PCIE-1756 |

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Features

PCIE-1752/1756

- Wide output range (5 ~ 40 V_{DC})
- High sink current on isolated output channels (500mA max./ch)
- 2,000 V_{DC} ESD protection
- High-voltage isolation (2,500 V_{DC})
- Interrupt handling capability

PCIE-1754/1756

- Wide input range (10 ~ 30 V_{DC})
- Either +/- voltage input for DI by group
- High over-voltage protection (70 V_{DC})
- High-voltage isolation (2,500 V_{DC})
- Output status read-back
- Keeps the output settings and values after system hot reset
- Channel-freeze function

Introduction

The Advantech PCIE-1752, PCIE-1754 and PCIE-1756 series products offer 64 isolated digital input and output channels with 2,500 V_{DC} isolation protection. They feature a wide input range (10 ~ 30 V_{DC}), wide output range (5 ~ 40 V_{DC}) and high sink current (500mA max./channel) can make PCIE-1752/1754/1756 series products easily used in industrial automation control systems. With the help of the latest Advantech driver - DAQNavi, users can perform the configuration and setting easily and efficiently in the programming.

Specifications

Isolated Digital Input

- **Channels**
  PCIE-1754: 64
  PCIE-1756: 32
- **Input Voltage**
  Logic 0: 3 V max.
  Logic 1: 10 V min. (30 V_{DC} max.)
- **Input Current**
  10 V_{DC} @ 2.97 mA
  20 V_{DC} @ 6.35 mA
  30 V_{DC} @ 9.73 mA
- **Interrupt Capable Ch.**
  PCIE-1754: 4
  PCIE-1756: 2
- **Isolation Protection** 2,500 V_{DC}
- **Overvoltage Protection** 70 V_{DC}
- **ESD Protection** 2,000 V_{DC}
- **Opto-Isolator Response** 50 µs

Isolated Digital Output

- **Channels**
  PCIE-1752: 64
  PCIE-1756: 32
- **Output Type** Sink (NPN)
- **Isolation Protection** 2,500 V_{DC}
- **Output Voltage** 5 ~ 40 V_{DC}
- **Sink Current** 500 mA max./channel
- **Opto-isolator Response** 50 µs

General

- **Bus Type** PCI Express V1.0
- **I/O Connectors** 1 x 100-pin SCSI female connector
- **Dimensions (L x H)** 168 x 100 mm (6.6" x 3.9")
- **Power Consumption**
  PCIE-1752
  Typical: 3.3 V @ 485 mA
  Max.: 3.3 V @ 530 mA; 12V @ 90 mA
  PCIE-1754
  Typical: 3.3 V @ 285 mA
  Max.: 3.3 V @ 330 mA
  PCIE-1756
  Typical: 3.3 V @ 385 mA
  Max.: 3.3 V @ 430 mA; 12V @ 55 mA
- **Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature** -20 ~ 70°C (-4 ~ 158°F)
- **Storage Humidity** 5 ~ 95% RH, non-condensing

Ordering Information

- **PCIE-1752**   64-ch Isolated Digital Output PCI Express Card
- **PCIE-1754**   64-ch Isolated Digital Input PCI Express Card
- **PCIE-1756**   64-ch Isolated Digital I/O PCI Express Card

Accessories

- **PCL-10250-1E**   100-pin SCSI to Two 50-pin SCSI Cable, 1 m
- **PCL-10250-2E**   100-pin SCSI to Two 50-pin SCSI Cable, 2 m
- **ADAM-3951**   50-pin DIN-rail Wiring Board w/ LED Indicators
- **PCL-101100M-3E**   100-pin SCSI to 100-pin SCSI Cable, 3 m
- **ADAM-39100**   100-pin DIN-rail Wiring Board

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PCIE-1760

8-ch Relay and 8-ch Isolated Digital Input PCI Express Card

Features

- 8 opto-isolated digital input channels with counter/timer function
- 8 relay actuator output channels
- 2 opto-isolated PWM outputs
- LED indicators to show activated relays
- Jumper selectable dry contact/wet contact input signals
- Up event counters for DI
- Programmable digital filter function for DI
- Pattern match interrupt function for DI
- "Change of state" interrupt function for DI
- BoardID switch

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Introduction

PCIE-1760 relay actuator and isolated digital input card is a PC add-on card for the PCI Express bus. It meets the PCI Express standard Rev. 1.0. It provides 8 opto-isolated digital inputs with isolation protection of 2,500 V_{DC} for collecting digital inputs in noisy environments, 8 relay actuators that can be used as a on/off control devices or small power switches, and 2 isolated PWM (Pulse Width Modulation) outputs for custom applications.

For easy monitoring, each relay is equipped with one red LED to show its on/off status. Each isolated input supports both dry contact and wet contact so that it can easily interface with other devices when no voltage is present in the external circuit.

Specifications

Isolated Digital Input

- **Channels** — 8
- **Input Voltage** — Logic 0: 1.0 V max.
  Logic 1: 4.5 V min. (12 V max.)
- **Interrupt Capable Ch.** — 8
- **Isolation Protection** — 2,500 V_{DC}
- **Opto-Isolator Response** — 25 μs
- **Input Resistance** — 2 kΩ 1/4 W

Counter/Timer

- **Channels** — 8
- **Resolution** — 16 bits
- **Compatibility** — 5 V/TTL
- **Max. Input Frequency** — 500 Hz
- **Isolation Protection** — 2,500 V_{DC}
- **PWM Channels** — 2
- **Digital Noise Filter** — Min. effective high input period ≥ [(2 ~ 65535) x 5 ms] + 5 ms
  Min. effective low input period ≥ [(2 ~ 65535) x 5 ms] + 5 ms

Relay Output

- **Channels** — 8
- **Relay Type** — 2 x Form C, and 6 x Form A
- **Contact Rating** — 1 A @ 125 V_{AC}, 2 A @ 30 V_{DC}
- **Max. Switching Power** — 125 VA, 60 W
- **Max. Switching Voltage** — 250 V_{AC}, 220 V_{DC}
- **Max. Switching Current** — 2 A
- **Operate/Release Time** — 5 / 3.5 ms max
- **Resistance** — Contact: 50 mΩ max.
  Insulation: 100 MΩ min. @ 500 V_{DC}
- **Life Expectancy (Electrical)** — 3 x 10^5 cycles min.: 2 A @ 30 V_{DC}, 1 A @ 125 V_{AC}
  10^6 cycles min.: 1 A @ 30 V_{DC}, 0.5 A @ 125 V_{AC}

General

- **Bus Type** — PCI Express V1.0
- **I/O Connectors** — 1 x DB37 female connector
- **Dimensions (L x H)** — 168 x 100 mm (6.6" x 3.9")
- **Power Consumption** — Typical: 5 V @ 450 mA
  Max.: 5 V @ 850 mA
- **Operating Temperature** — 0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature** — -20 ~ 70°C (-4 ~ 158°F)
- **Storage Humidity** — 5 ~ 95 % RH, non-condensing
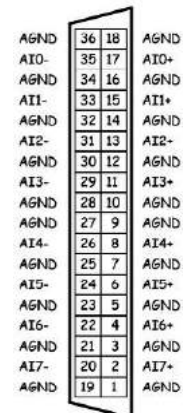
Ordering Information

- **PCIE-1760** — 8-ch Relay/IDI PCIe Card w/ 10-ch Counter/Timer

Accessories

- **PCL-10137-1E** — DB37 Cable, 1 m
- **PCL-10137-2E** — DB37 Cable, 2 m
- **PCL-10137-3E** — DB37 Cable, 3 m
- **ADAM-3937** — DB37 DIN-rail Wiring Board

ADVANTECH | **Data Acquisition Boards**

PCIE-1810

800 kS/s, 12-bit, 16-ch PCI Express Multifunction DAQ Car

NEW
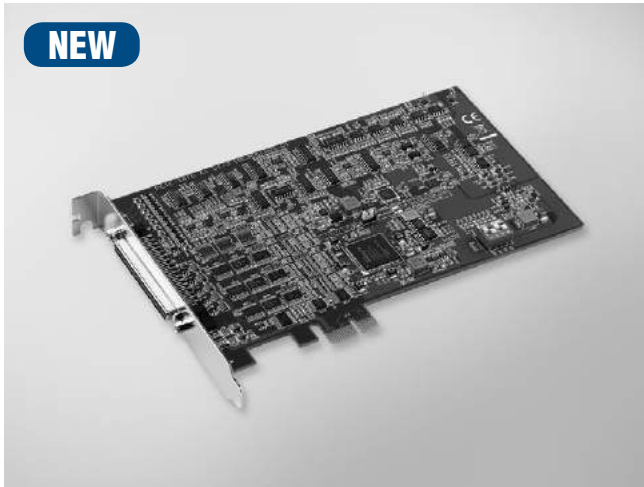
Features

- 16 analog inputs, up to 800 kS/s, 12-bit resolution
- 2 analog outputs, up to 500 kS/s, 12-bit resolution
- Support for digital trigger and analog trigger
- 24 programmable digital I/O lines
- Two 32-bit programmable counter/timers
- Onboard FIFO memory (4k samples)
- Automatic channel/gain scanning

FCC CE RoHS COMPLIANT 2002/95/EC

Introduction

The PCIE-1810 is a multifunction PCI Express card that includes digital I/O, analog I/O and counter functions. It also features a 800 kS/s 12-bit A/D converter and supports analog trigger for A/D data accquisition.

Specifications

Analog Input

- **Channels**   Single-end   16-ch
                        Differential   8-ch
- **Resolution**   12 bits
- **Sample Rate**   Single Channel 800 kS/s max.
                        Multi-Channel 500 kS/s max.

Note: The sampling rate for each channels will be affected by used channel number.
For example, if 4 channels of PCIE-1810 are used, the sampling rate is 500k/4 = 125 kS/s per channel.

- **Trigger Reference**   Digital Trigger,
                             Analog Trigger
- **Trigger Mode**   Start trigger, Delay to Start trigger
                             Stop trigger, Delay to Stop trigger
- **FIFO Size**   4k samples
- **Overvoltage Protection** 30 Vp-p
- **Input Impedance**   1 GΩ
- **Sampling Modes**   Software and external clock
- **Input Range**   Software programmable

Gain	0.5	1	2	4	8
Bipolar	±10V	±5	±2.5	±1.25	±0.625
Unipolar	N/A	0 ~ 10	0 ~ 5	0 ~ 2.5	0 ~ 1.25
Absolute Accuracy (% of FSR)*	0.1	0.1	0.2	0.2	0.4

Analog Output

- **Channels**   2
- **Resolution**   12 bits
- **Output Rate**   Static- Software Polling
                     500 KS/s max.
- **Output Range**   Software programmable

Internal Reference	Unipolar	0 ~ 5 V
		0 ~ 10 V
	Bipolar	-5 V ~ 5 V
		-10 V ~ 10 V
External Reference		0 ~ +x V @ -x V (-10 ≤ x ≤ 10)

- **Slew Rate**   20 V/µs
- **Driving Capability**   5 mA
- **Operation Mode**   Static update, Waveform generation
- **Accuracy**   INLE: ± 1 LSB, DNLE: ± 1 LSB

Digital I/O

- **Channels**   24
- **Compatibility**   5 V/TTL
- **Input Voltage**   Logic 0: 0.8 V max.
                        Logic 1: 2.0 V min.
- **Output Voltage**   Logic 0: 0.8 V max.
                        Logic 1: 2.0 V min.
- **Output Capability** Sink: 15 mA @ 0.8 V
                        Source: 15 mA @ 2.0 V

Counter

- **Channels**   2
- **Resolution**   32 bits
- **Compatibility**   5 V/TTL
- **Max. Input Frequency**   10 MHz
- **Pulse Generation**   Yes
- **Timebase Stability**   50 ppm

General

- **Form factor**   PCI Express x 1
- **Triggering**   12 bits Analog x 2 / Digital x 2
- **I/O Connector**   68-pin SCSI female connector
- **Dimensions (L x W)** 167 x 100 mm
- **Power Consumption**   Typical: 3.3 V @ 488 mA
                                    12 V @ 112 mA
                          Max.:   3.3 V @ 2.25 A
                                    12 V @ 390 mA
- **Operating Temperature** 0 ~ 60°C (32 ~ 140°F) (refer to IEC 60068-2-1, 2)
- **Storage Temperature**   -40 ~ 70°C (-40 ~ 158°F)
- **Storage Humidity**   5 ~ 95% RH non-condensing (refer to IEC 60068-2-3)

Ordering Information

- **PCIE-1810**   800 kS/s, 12-bit Multifunction Card

Accessories

- **PCL-10168H-1E**   68-pin SCSI Shielded Cable with Noise Rejecting, 1 m
- **PCL-10168H-2E**   68-pin SCSI Shielded Cable with Noise Rejecting, 2 m
- **PCL-10168-1E**   68-pin SCSI Shielded Cable, 1 m
- **PCL-10168-2E**   68-pin SCSI Shielded Cable, 2 m
- **ADAM-3968**   68-pin DIN-rail SCSI Wiring Board

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
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15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

PCIE-1816
PCIE-1816H

1 MS/s, 16-bit, 16-ch PCI Express Multifunction DAQ Card

5 MS/s, 16-bit, 16-ch PCI Express Multifunction DAQ Card

NEW

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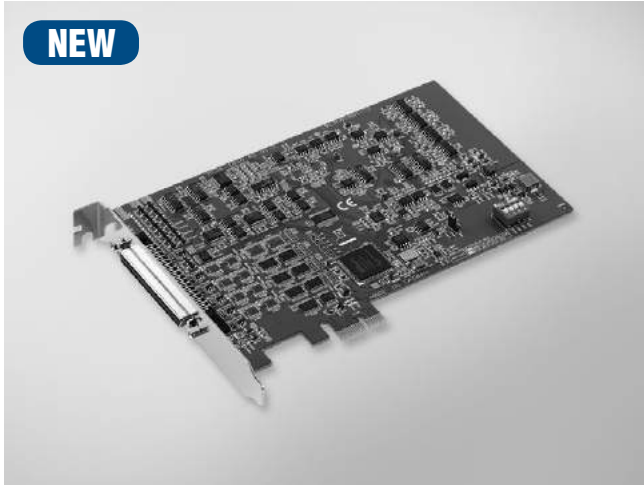
Features

PCIE-1816
- 16 analog inputs, up to 1 MS/s, 16-bit resolution

PCIE-1816H
- 16 analog inputs, up to 5 MS/s, 16-bit resolution

PCIE-1816/1816H
- 2 analog outputs up to 3 MS/s, 16-bit resolution
- Support Analog and Digital Trigger for AI/O
- Support Waveform generation for AO
- 24 programmable digital I/O lines
- Two 32-bit programmable counter/timers
- Onboard FIFO memory (4k samples)
- Support for Microsoft Windows 8 (desktop mode only)/7/XP

Introduction

PCIE-1816/1816H is a 16-ch, up to 5 MS/s multi-function DAQ card and integrates digital I/O, analog I/O, and counter functions. The PCIE-1816/1816H also features analog and digital triggering, 2-ch 16 bit analog outputs with waveform generation capability, 24-ch programmable digital I/O lines, and two 32-bit general-purpose timer/counters.

Specifications

Analog Input
- **Channels**   Single-end   16-ch
                          Differential   8-ch
- **Resolution**   16 bits
- **Sample Rate**   PCIE-1816   Single Channel 1 MS/s max.
                                       Multi-Channel 500 kS/s max.
                          PCIE-1816H   Single Channel 5 MS/s max.
                                        Multi-Channel 1 MS/s max.

Note: The sampling rate for each channels will be affected by used channel number. For example, if 4 channels of PCIE-1816H are used, the sampling rate is 1M/4 = 250 kS/s per channel.

- **Trigger Reference**   Analog Trigger, Digital Trigger
- **FIFO Size**   4k samples
- **Overvoltage Protection** 30 Vp-p
- **Input Impedance**   1 GΩ
- **Sampling Mode**   Software and external clock
- **Input Range**   Software programmable

PCIE-1816

Gain	0.5	1	2	4	8
Bipolar	±10V	±5	±2.5	±1.25	±0.625
Unipolar	N/A	0 ~ 10	0 ~ 5	0 ~ 2.5	0 ~ 1.25
Absolute Accuracy (% of FSR)*	0.0075	0.0075	0.0075	0.008	0.008

Analog Output
- **Channels**   2
- **Resolution**   16 bits
- **Output Rate**   3 MS/s max.
- **Output Range**   Software programmable

Internal Reference	Unipolar	0 ~ 5 V
		0 ~ 10 V
	Bipolar	-5 V ~ 5 V
		-10 V ~ 10 V
External Reference		0 ~ +x V @ -x V (-10 ≤ x ≤ 10)

- **Slew Rate**   20 V/µs
- **Driving Capability** 5 mA
- **Operation Mode**   Static update, Waveform Generation
- **Accuracy**   INLE: ± 4 LSB, DNLE: ± 1 LSB

Digital I/O
- **Channels**   24
- **Compatibility**   5 V/TTL
- **Input Voltage**   Logic 0: 0.8 V max.
                          Logic 1: 2.0 V min.
- **Output Voltage**   Logic 0: 0.8 V max.
                          Logic 1: 2.0 V min.
- **Output Capability** Sink: 15 mA @ 0.8 V
                          Source: 15 mA @ 2.0 V

Counter
- **Channels**   2
- **Resolution**   32 bits
- **Compatibility**   5 V/TTL
- **Max. Input Frequency** 10 MHz
- **Pulse Generation**   Yes
- **Timebase Stability**   50 ppm

General
- **Form factor**   PCI Express x 1
- **Triggering**   16 bits Analog x 2 / Digital x 2
- **I/O Connector**   68-pin SCSI female connector
- **Dimensions (L x W)**   167 x 100 mm
- **Power Consumption**   Typical: 3.3 V @ 488 mA
                                     12 V @ 112 mA
                            Max.:   3.3 V @ 2.25 A
                                     12 V @ 390 mA
- **Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature**   -40 ~ 70°C (-40 ~ 158°F)
- **Storage Humidity**   5 ~ 95% RH non-condensing

Ordering Information
- **PCIE-1816**   1 MS/s, 16-bit Multifunction Card
- **PCIE-1816H**   5 MS/s, 16-bit Multifunction Card

Accessories
- **PCL-10168H-1E** 68-pin SCSI Shielded Cable with Noise Rejecting, 1 m
- **PCL-10168H-2E** 68-pin SCSI Shielded Cable with Noise Rejecting, 2 m
- **PCL-10168-1E**   68-pin SCSI Shielded Cable, 1 m
- **PCL-10168-2E**   68-pin SCSI Shielded Cable, 2 m
- **ADAM-3968**   68-pin DIN-rail SCSI Wiring Board

PCIE-1802

8-ch, 24-Bit, 216 kS/s Dynamic Signal Acquisition PCI Express Card

Preliminary
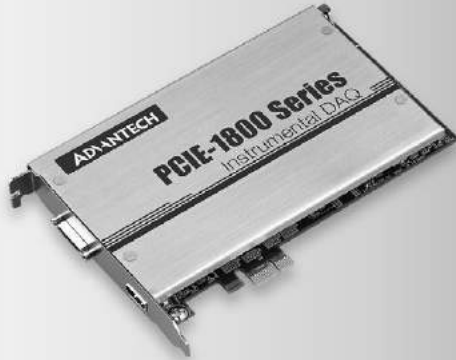
Features

- 8 simultaneously sampled analog inputs up to 216 kS/s
- 24-bit resolution ADCs with 115 dB dynamic range
- Wide input ranges from ±0.2 V to ±10 V
- Built-in anti-aliasing filter
- Software configurable 4 or 10 mA Integrated Electronic Piezoelectric Excitation (IEPE)
- Software selectable AC/DC coupling
- Full auto-calibration
- Multiple card synchronization

Introduction

The Advantech PCIE-1802 is a 24-bit high-accuracy data acquisition PCI Express module specifically designed for sound and vibration applications. This module has built-in 4 or 10 mA excitation currents for IEPE sensors such as accelerometers and microphones.

Specifications

Analog Input

- **Channels** — 8 (simultaneously sample, differential or 50 Ω pseudo-differential)
- **Resolution** — 24 bits (Delta-sigma)
- **Max. Sampling Rate** — 100 S/s to 204.8 kS/s (with resolution ≤ 363.80 µS/s)
- **Input Coupling** — AC/DC, selectable per channel
- **AC Cut-Off Frequency** — 0.016 Hz (-3 dB)
- **DC Offset Adjustment** — ±50 % of input range
- **Trigger Modes** — Start trigger, Delay to Start trigger Stop trigger, Delay to Stop trigger
- **Input Range** — ±0.2, ±0.5, ±1, ±2, ±5, ±10 Vpp
- **Offset Error** — < ±0.002 %
- **Gain Error** — < ±0.2 %
- **Total Harmonic Distortion (THD)** — 100 dB
- **Dynamic Range** — 115 dB
- **IEPE Excitation** — 0, 4, or 10 mA, selectable per channel (open/short detect)
- **Data Transfer** — Direct memory access (DMA)
- **Multiple Card Synchronization** — For more than 8 AI channels

Digital Input/Output

- **DI Channels** — 1 (edge detect, noise filter)
- **DO Channels** — 2

General

- **Bus Type** — PCI Express x1
- **I/O Connectors** — CN600 36-pin Mini-SCSI (for AI) CN601 HDMI (for clock, trigger, and DI/Os)
- **Dimensions (L x H)** — 175 x 100 mm (6.9" x 3.9")
- **Operating Temperature** — 0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature** — -40 ~ 70°C (40 ~ 158°F)
- **Storage Humidity** — 5 ~ 95 % RH, non-condensing

Pin Assignments

CN601

DGND	2	1	REF_CLK_IN
REF_CLK_OUT	4	3	DGND
DGND	6	5	DGND
DGND	8	7	DTRG0
TRIGOUT0	10	9	DTRG1
TRIGOUT1	12	11	DGND
DO1	14	13	DO0
SYNC_OUT	16	15	SYNC_IN
RESERVED	18	17	DGND
		19	DIO

CN600

AGND	36	18	AGND
AI0-	35	17	AI0+
AGND	34	16	AGND
AI1-	33	15	AI1+
AGND	32	14	AGND
AI2-	31	13	AI2+
AGND	30	12	AGND
AI3-	29	11	AI3+
AGND	28	10	AGND
AGND	27	9	AGND
AI4-	26	8	AI4+
AGND	25	7	AGND
AI5-	24	6	AI5+
AGND	23	5	AGND
AI6-	22	4	AI6+
AGND	21	3	AGND
AI7-	20	2	AI7+
AGND	19	1	AGND

Ordering Information

- **PCI-1802** — 8-ch, 24-Bit, 216 kS/s Dynamic Signal Acquisition PCI Express Card

PCIE-1840

NEW

Features

- 4 simultaneously sample analog inputs, up to 125 MS/s, 16-bit resolution
- 500 MS/s Time Interleaved Sampling
- Non-stop data streaming capable
- 2 GB on-board memory
- 1M or 50 Ohm selectable input impedance
- On-Board tunable anti-aliasing filter
- AC/DC Coupling

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Introduction

The PCIE-1840 high-speed digitizers feature four 125 MS/s simultaneously sampled analog input channels with 16-bit resolution, 100 MHz bandwidth, and up to 2 GB of memory in a PCI Express device.

Specifications

Analog Input

- **Channels** — 4 single-ended , simultaneously sampling
- **Resolution** — 16 bits
- **Max. Sampling Rate** — 125 MS/s per channel
- **Memory Size** — 2GB
- **Over Voltage Protection** — 30 Vp-p
- **Input Impedance** — 50 Ω / 1M Ω
- **Input Coupling** — AC/DC (only for 1MΩ input impedance)
- **Sampling Modes** — Software and external clock
- **Trigger Modes** — Start trigger, Delay to Start trigger
  Stop trigger, Delay to Stop trigger
- **Input Range** — 0.2 / 0.4 / 1 / 2 / 4 / 10 /
  20 Vpp (input Impedance must be 1 MΩ)
- **Time Interleaved Sampling** — - 4 channels combined, 500 MSPS max.
  - 2 channels combined, 250 MSPS max.
  - No time interleaved, 125 MSPS max.
  - Configured automatically by setting sampling rate

General

- **Bus Type** — PCI Express x 4
- **I/O Connectors** — 4 x BNC connector (for AI)
  1 x HDMI connector (for Ext. clock and trigger)
- **Dimensions (L x H)** — 175 x 100 mm (6.9" x 3.9")
- **Operating Temperature** — 0 ~ 50°C (32 ~ 140°F)
- **Storage Temperature** — -40 ~ 70°C (40 ~ 158°F)
- **Storage Humidity** — 5 ~ 95% RH, non-condensing

Ordering Information

- **PCIE-1840** — 4-ch 16Bit 125 MS/s High-Speed PCI Express Digitizer

Pin Assignments

DGND	2	1	REF_CLK_IN+
REF_CLK_OUT+	4	3	REF_CLK_IN-
REF_CLK_OUT-	6	5	DGND
DGND	8	7	DTRG0
TRIGOUT0	10	9	DTRG1
TRIGOUT1	12	11	DGND
RESERVED	14	13	RESERVED
RESERVED	16	15	RESERVED
RESERVED	18	17	DGND
		19	RESERVED
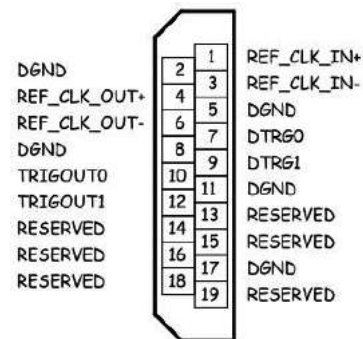
PCI-1710U/UL
PCI-1710HGU

100 kS/s, 12-bit, 16-ch Universal PCI Multifunction DAQ Card

100 kS/s, 12-bit, 16-ch Universal PCI Multifunction DAQ Card with High Gain

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

Features

- 16-ch single-ended or 8-ch differential or a combination of analog input
- 12-bit A/D converter, with up to 100 kHz sampling rate
- Programmable gain
- Automatic channel/gain scanning
- Onboard FIFO memory (4,096 samples)
- Two 12-bit analog output channels (PCI-1710U/HGU only)
- 16-ch digital input and 16-ch digital output
- Onboard programmable counter
- BoardID™ switch

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Specifications

Analog Input

- **Channels** 16 single-ended/ 8 differential (software programmable)
- **Resolution** 12 bits
- **FIFO Size** 4,096 samples
- **Overvoltage Protection** 30Vp-p
- **Input Impedance** 1 GΩ
- **Sampling Modes** Software, onboard programmable pacer and external
- **Input Range (V, software programmable) & Absolute Accuracy**

PCI-1710U/UL

Gain	0.5	1	2	4	8
Bipolar	±10	±5	±2.5	±1.25	±0.625
Unipolar	N/A	0 ~ 10	0 ~ 5	0 ~ 2.5	0 ~ 1.25
Absolute Accuracy (% of FSR)*	0.1	0.1	0.2	0.2	0.4

PCI-1710HGU

Gain	0.5	1	5	10	50	100	500	1000
Bipolar	±10	±5	±1	±0.5	±0.1	±0.05	±0.01	±0.005
Unipolar	N/A	0 ~ 10	N/A	0 ~ 1	N/A	0 ~ 0.1	N/A	0 ~ 0.01
Absolute Accuracy (% of FSR)*	0.1	0.1	0.2	0.2	0.4	0.4	0.8	0.8

* ±1 LSB is added as the derivative for absolute accuracy

- **Maximum Sampling Rate**

Model	Gain	Max. Sampling Rate
PCI-1710U/UL	0.5, 1, 2, 4, 8	100 kS/s
PCI-1710HGU	0.5, 1	100 kS/s
	5, 10	35 kS/s
	20, 100	7 kS/s
	500, 1000	770 S/s

Note: The sampling rate for each channels will be affected by used channel number. For example, if 4 channels of PCI-1710U are used, the sampling rate is 100k/4 = 25 kS/s per channel.

Analog Output (PCI-1710U/HGU only)

- **Channels** 2
- **Resolution** 12 bits
- **Output Rate** Static update
- **Output Range** (Software programmable)

Internal Reference	Unipolar	0 ~ 5 V
		0 ~ 10 V
External Reference		0 ~ +x V @ -x V (-10 ≤ x ≤ 10)

- **Slew Rate** 10 V/µs
- **Driving Capability** 3 mA
- **Operation Mode** Static update
- **Accuracy** INLE: ±1 LSB, DNLE: ±1 LSB

Digital Input

- **Channels** 16
- **Compatibility** 5 V/TTL
- **Input Voltage** Logic 0: 0.8 V max.
  Logic 1: 2.0 V min.

Digital Output

- **Channels** 16
- **Compatibility** 5 V/TTL
- **Output Voltage** Logic 0: 0.4 V max.
  Logic 1: 2.4 V min.
- **Output Capability** Sink: 8.0 mA @ 0.8 V
  Source: 0.4 mA @ 2.0 V

Pacer/Counter

- **Channels** 1
- **Resolution** 16 bits
- **Compatibility** 5 V/TTL
- **Max. Input Frequency** 1 MHz

General

- **Bus Type** Universal PCI V2.2
- **I/O Connector** 1 x 68-pin SCSI female connector
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Typical: 5 V @ 850 mA
  Max.: 5 V @ 1.0 A
- **Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature** -20 ~ 70°C (-4 ~ 158°F)
- **Storage Humidity** 5 ~ 95% RH non-condensing

Ordering Information

- **PCI-1710U** 100 kS/s, 12-bit Multifunction Card
- **PCI-1710UL** 100 kS/s, 12-bit Multifunction Card w/o AO
- **PCI-1710HGU** 100 kS/s, 12-bit High-gain Multifunction Card

Accessories

- **PCLD-8710** DIN-rail Wiring Board w/ CJC
- **PCL-10168-1E** 68-pin SCSI Shielded Cable, 1 m
- **PCL-10168-2E** 68-pin SCSI Shielded Cable, 2 m
- **ADAM-3968** 68-pin DIN-rail SCSI Wiring Board

PCI-1711U/UL

100 kS/s, 12-bit, 16-ch Universal PCI Multifunction DAQ Card

Features

- 16-ch single-ended analog input
- 12-bit A/D converter, with up to 100 kHz sampling rate
- Programmable gain
- Automatic channel/gain scanning
- Onboard FIFO memory (1,024 samples)
- Two 12-bit analog output channels (PCI-1711U only)
- 16-ch digital input and 16-ch digital output
- Onboard programmable counter

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Specifications

Analog Input

- **Channels**   16 single-ended
- **Resolution**   12 bits
- **Max. Sampling Rate**   100 kS/s

Note: The sampling rate for each channels will be affected by used channel number. For example, if 4 channels are used, the sampling rate is 100k/4 = 25 kS/s per channel.

- **FIFO Size**   1,024 samples
- **Overvoltage Protection**   30 Vp-p
- **Input Impedance**   2 MΩ/5 pF
- **Sampling Modes**   Software, onboard programmable pacer, or external
- **Input Range (V, software programmable) & Absolute Accuracy**

Bipolar	± 10	± 5	± 2.5	± 1.25	± 0.625
Absolute Accuracy (% of FSR)*	0.1	0.1	0.2	0.2	0.4

* ±1 LSB is added as the derivative for absolute accuracy

Analog Output (PCI-1711U only)

- **Channels**   2
- **Resolution**   12 bits
- **Output Rate**   Static update
- **Output Range**   (Software programmable)

Internal Reference	Unipolar	0 ~ 5 V, 0 ~ 10 V
External Reference		0 ~ +x V @ -x V (-10 ≤ x ≤ 10)

- **Slew Rate**   11 V/µs
- **Driving Capability**   3 mA
- **Output Impedance**   0.81 Ω
- **Operation Mode**   Static update
- **Accuracy**   INLE: ±0.5 LSB
  DNLE: ±0.5 LSB

Digital Input

- **Channels**   16
- **Compatibility**   5 V/TTL
- **Input Voltage**   Logic 0: 0.8 V max.
  Logic 1: 2.0 V min.

Digital Output

- **Channels**   16
- **Compatibility**   5 V/TTL
- **Output Voltage**   Logic 0: 0.8 V
  Logic 1: 2.0 V
- **Output Capability**   Sink: 8.0 mA @ 0.8 V
  Source: 0.4 mA @ 2.0 V

Pacer/Counter

- **Channels**   1
- **Resolution**   16 bits
- **Compatibility**   5 V/TTL
- **Max. Input Frequency**   10 MHz
- **Reference Clock**   Internal: 10 MHz

General

- **Bus Type**   Universal PCI V2.2
- **I/O Connector**   1 x 68-pin SCSI female connector
- **Dimensions (L x H)**   175 x 100 mm (6.9" x 3.9")
- **Power Consumption**
  PCI-1711U   Typical: 5 V @ 850 mA
  Max.: 5 V @ 1.0 A
  PCI-1711UL   Typical: 5 V @ 700 mA
  Max.: 5 V @ 1.0 A
- **Operating Temperature**   0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature**   -20 ~ 70°C (-4 ~ 158°F)
- **Storage Humidity**   5 ~ 95% RH non-condensing

Ordering Information

- **PCI-1711U**   Entry-level 100 kS/s, 12-bit Multifunction Card
- **PCI-1711UL**   Entry-level 100 kS/s, 12-bit Multi. Card w/o AO

Accessories

- **PCLD-8710**   DIN-rail Wiring Board w/ CJC
- **PCL-10168-1E**   68-pin SCSI Shielded Cable, 1 m
- **PCL-10168-2E**   68-pin SCSI Shielded Cable, 2 m
- **ADAM-3968**   68-pin DIN-rail SCSI Wiring Board

ADVANTECH | **Data Acquisition Boards**

PCI-1712/L

1 MS/s, 12-bit, 16-ch PCI Multifunction DAQ Card

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

Features

- 16 single-ended or 8 differential or a combination of analog inputs
- 12-bit A/D converter, with up to 1 MHz sampling rate
- Programmable gain
- Automatic channel/gain scanning
- Onboard FIFO memory (AI: 1,024 samples AO: 32,768 samples)
- Two 12-bit analog output channels with continuous waveform output function (PCI-1712 only)
- 16-ch digital input or output (programmable)
- Three 16-bit programmable multifunction counter/timers on 10 MHz
- Auto-calibration (AI/AO)
- PCI-Bus mastering data transfer
- Pre-, post-, about- and delay-trigger data acquisition modes for analog input channels
- Flexible triggering and clocking capabilities

Specifications

Analog Input

- **Channels** — 16 single-ended/ 8 differential (software programmable)
- **Resolution** — 12 bits
- **Max. Sampling Rate** — Multi-channel, single gain: 1 MS/s
  Multi-channel, multi gain: 600 kS/s
  Multi-channel, multi gain, unipolar/bipolar: 400 kS/s
- **FIFO Size** — 1,024 samples

Note: The sampling rate for each channels will be affected by used channel number. For example, if 4 channels are used, the sampling rate is 600k/4 = 125 kS/s per channel. (multi gain, without unipolar/bipolar mixed)

- **Overvoltage Protection** — 30 Vp-p
- **Input Impedance** — 100 MΩ/10 pF (Off), 100 MΩ/100 pF (On)
- **Sampling Modes** — Software, onboard programmable pacer and external
- **Trigger Modes** — Pre-trigger, post-trigger, delay-trigger and about-trigger
- **Input Range (V, software programmable) & Absolute Accuracy**

Unipolar	N/A	0 ~ 10	0 ~ 5	0 ~ 2.5	0 ~ 1.25
Bipolar	±10	±5	±2.5	±1.25	±0.625
Absolute Accuracy (% of FSR)*	0.1	0.1	0.2	0.2	0.4

* ±1 LSB is added as the derivative for absolute accuracy

Analog Output (PCI-1712 only)

- **Channels** — 2
- **Resolution** — 12 bits
- **Output Rate** — 1 MS/s max.
- **FIFO Size** — 32,768 samples
- **Output Range** — (Software programmable)

Internal Reference	Bipolar	±5 V, ±10 V
	Unipolar	0 ~ 5 V, 0 ~ 10 V
External Reference		0 ~ +x V @ +x V (-10 ≤ x ≤ 10) -x ~ +x V @ +x V (-10 ≤ x ≤ 10)

- **Slew Rate** — 20 V/μs
- **Driving Capability** — 10 mA
- **Output Impedance** — 0.1 Ω max.
- **Operation Mode** — Static update, waveform generation
- **Accuracy** — INLE: ±1 LSB
  DNLE: ±1 LSB

Digital I/O

- **Channels** — 16
- **Compatibility** — 5 V/TTL
- **Input Voltage** — Logic 0: 0.8 V max.
  Logic 1: 2.0 V min.
- **Output Voltage** — Logic 0: 0.8 V max.
  Logic 1: 2.0 V min
- **Output Capability** — Sink: 8.0 mA @ 0.8 V
  Source: 0.4 mA @ 2.0 V

Pacer/Counter

- **Channels** — 3
- **Resolution** — 16 bits
- **Compatibility** — 5 V/TTL
- **Max. Input Frequency** — 10 MHz
- **Reference Clock** — Internal: 10 MHz, 1 MHz, 100 kHz, 10 kHz
  External Frequency: 10 MHz max.

General

- **Bus Type** — PCI V 2.2
- **I/O Connector** — 1 x 68-pin SCSI female connector
- **Dimensions (L x H)** — 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** — Typical: 5 V @ 850 mA, 12 V @ 600 mA
  Max.: 5 V @ 1.0 A, 12 V @ 700 mA
- **Operating Temperature** — 0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature** — -20 ~ 85°C (-4 ~ 185°F)
- **Storage Humidity** — 5 ~ 95% RH non-condensing

Ordering Information

- **PCI-1712** — 1 MS/s, 12-bit High-speed Multifunction PCI Card
- **PCI-1712L** — 1 MS/s, 12-bit High-speed Multi. PCI Card w/o AO

Accessories

- **PCLD-8712** — DIN-rail Wiring Board for PCI-1712/L
- **PCL-10168-1E** — 68-pin SCSI Shielded Cable, 1 m
- **PCL-10168-2E** — 68-pin SCSI Shielded Cable, 2 m
- **ADAM-3968** — 68-pin DIN-rail SCSI Wiring Board

PCI-1716/L

250 kS/s, 16-bit, 16-ch PCI Multifunction DAQ Card

FCC CE RoHS COMPLIANT 2002/95/EC

Features

- 16 single-ended or 8 differential or a combination of analog inputs
- 16-bit A/D converter, with up to 250 kHz sampling rate
- Onboard FIFO memory (1,024 samples)
- Auto-calibration
- PCI-Bus mastering data transfer
- 2 analog output channels (PCI-1716 only)
- 16-ch digital input and 16-ch digital output
- Onboard programmable counter
- BoardID switch

Specifications

Analog Input

- **Channels**   16 single-ended/ 8 differential (software programmable)
- **Resolution**   16 bits
- **Max. Sampling Rate**   250 kS/s

Note: The sampling rate for each channels will be affected by used channel number. For example, if 4 channels are used, the sampling rate is 250k/4 = 62.5 kS/s per channel.

- **FIFO Size**   1,024 samples
- **Overvoltage Protection** 30 Vp-p
- **Input Impedance**   100 MΩ/10 pF (off), 100 MΩ/100 pF (on)
- **Sampling Modes**   Software, onboard programmable pacer and external
- **Input Range (V, software programmable) & Absolute Accuracy**

Unipolar	N/A	0 ~ 10	0 ~ 5	0 ~ 2.5	0 ~ 1.25
Bipolar	±10	±5	±2.5	±1.25	±0.625
Absolute Accuracy (% of FSR)*	0.05	0.03	0.03	0.05	0.1

* ±1 LSB is added as the derivative for absolute accuracy

Analog Output (PCI-1716 only)

- **Channels**   2
- **Resolution**   16 bits
- **Output Rate**   Static update
- **Output Range**   (Software programmable)

Internal Reference	Unipolar	0 ~ 5 V , 0 ~ 10 V
	Bipolar	±5 V, ±10 V
External Reference		0 ~ +x V @ +x V (-10 ≤ x ≤ 10)
		-x ~ +x V @ +x V (-10 ≤ x ≤ 10)

- **Slew Rate**   20 V/µs
- **Driving Capability**   20 mA
- **Output Impedance**   0.1 Ω max.
- **Operation Mode**   Static update
- **Accuracy**   INLE: ±1 LSB

Digital Input

- **Channels**   16
- **Compatibility**   5 V/TTL
- **Input Voltage**   Logic 0: 0.8 V max.
                           Logic 1: 2.0 V min.

Digital Output

- **Channels**   16
- **Compatibility**   5 V/TTL
- **Output Voltage**   Logic 0: 0.4 V max.
                           Logic 1: 2.4 V min.
- **Output Capability**   Sink: 0.8 mA @ 0.8 V
                           Source: 2.4 mA @ 2.0 V

Pacer/Counter

- **Channels**   1
- **Resolution**   16 bits
- **Compatibility**   5 V/TTL
- **Max. Input Frequency** 1 MHz
- **Reference Clock**   Internal: 10 MHz
                           External Clock Frequency: 10 MHz max.

General

- **Bus Type**   PCI V2.2
- **I/O Connector**   1 x 68-pin SCSI female connector
- **Dimensions (L x H)**   175 x 100 mm (6.9" x 3.9")
- **Power Consumption**   Typical: 5 V @ 850 mA, 12 V @ 600 mA
                           Max.: 5 V @ 1 A, 12 V @ 700 mA
- **Operating Temperature** 0 ~ 70°C (32 ~ 158°F)
- **Storage Temperature** -20 ~ 85°C (-4 ~ 185°F)
- **Operating Humidity**   5 ~ 85% RH non-condensing
- **Storage Humidity**   5 ~ 95% RH non-condensing

Ordering Information

- **PCI-1716**   250 kS/s, 16-bit High-resolution Multi. Card
- **PCI-1716L**   250 kS/s, 16-bit High-res. Multi. Card w/o AO

Accessories

- **PCLD-8710**   DIN-rail Wiring Board w/ CJC
- **PCL-10168-1E**   68-pin SCSI Shielded Cable, 1 m
- **PCL-10168-2E**   68-pin SCSI Shielded Cable, 2 m
- **ADAM-3968**   68-pin DIN-rail SCSI Wiring Board

PCI-1741U

200 kS/s, 16-bit, 16-ch Universal PCI Multifunction Card

PCI-1742U

1 MS/s, 16-bit, 16-ch Universal PCI Multifunction Card

Features

- 16-ch single-ended or 8-ch differential analog input
- PCI-1741U: 16-bit A/D converter, with up to 200 kHz sampling rate
  PCI-1742U: 16-bit A/D converter, with up to 1 MHz sampling rate
- Onboard FIFO memory (1,024 samples)
- Auto calibration
- PCI-1741U: 1 x 16-bit analog output channel
  PCI-1742U: 2 x 16-bit analog output channels
- 16-ch digital input and 16-ch digital output
- Universal PCI bus (support 3.3 V or 5 V PCI bus signal)
- Onboard programmable counter
- BoardID™ switch
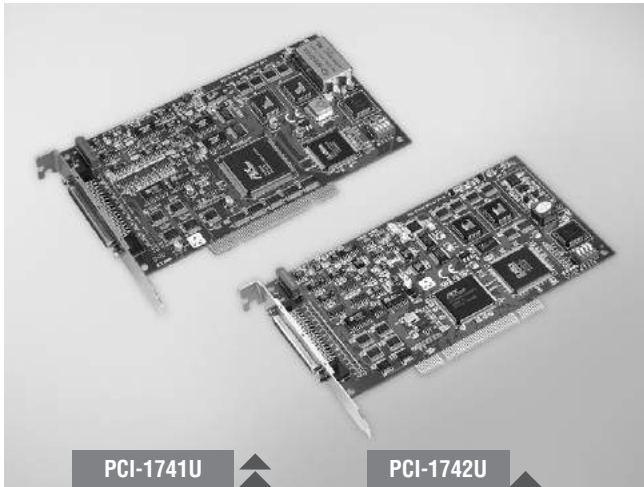
PCI-1741U   PCI-1742U

Specifications

Analog Input

- **Channels**   16 single-ended/8 differential (software programmable)
- **Resolution**   16 bits
- **Max. Sampling Rate** PCI-1741U: 200 kS/s
                         PCI-1742U: single-channel - 1 MS/s
                                    multi-channel - 800 kS/s
                                    unipolar bipolar mixed - 250 kS/s
- **FIFO Size**   1,024 samples
- **Overvoltage Protection** 30 Vp-p
- **Input Impedance**   100 MΩ/10pF (Off); 100 MΩ/100pF (On)
- **Sampling Mode**   Software, onboard programmable pacer and external
- **Input Range***   (V, software programmable)

Unipolar	N/A	0 ~ 10	0 ~ 5	0 ~ 2.5	0 ~ 1.25
Bipolar	±10	±5	±2.5	±1.25	±0.625
Accuracy (% of FSR ±1LSB)	0.02	0.02	0.02	0.03	0.04

* **Note:** All channels should be set to the same range

Analog Output

- **Channels**   PCI-1741U: 1
                        PCI-1742U: 2
- **Resolution**   16 bits
- **Output Rate**   Static update
- **Output Range**   (V, software programmable)

Internal Reference	Bipolar	±5, ±10
	Unipolar	0 ~ 5, 0 ~ 10
External Reference		0 ~ +xV @ +xV (-10 ≤ x ≤ 10) -x ~ +xV @ +xV (-10 ≤ x ≤ 10)

- **Slew Rate**   PCI-1741U: 20 V/us
                         PCI-1742U: 40 V/us
- **Driving Capability** ±20 mA
- **Output Impedance**   0.1 W max.
- **Operation Mode**   Software polling
- **Accuracy**   INLE: ±2LSB

Digital Input

- **Channels**   16
- **Compatibility** 5 V/TTL
- **Input Voltage** Logic 0: 0.8 V max.
                     Logic 1: 2.0 V min.

Digital Output

- **Channels**   16
- **Compatibility**   5 V/TTL
- **Output Voltage**   Logic 0: 0.8 V max.
                         Logic 1: 2.0 V min.
- **Output Capability** Sink: 24 mA @ 0.8 V
                         Source: -15 mA @ 2.0 V

Counter/Timer

- **Channels**   1
- **Compatibility**   5 V/TTL
- **Resolution**   16 bits
- **Max. Input Frequency** 10 MHz
- **Reference Clock**   Internal: 10 MHz
                           External Clock Frequency: 10 MHz

General

- **Bus Type**   Universal PCI V2.2
- **I/O Connector Type**   1 x 68-pin SCSI female connector
- **Dimensions (L x H)**   175 x 100 mm (6.9" x 3.9")
- **Power Consumption**   Typical: 5 V @ 850 mA, 12 V @ 600 mA
                            Max.: 5 V @ 1 A, 12 V @ 700 m A
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F) (refer to IEC 68-2-1, 2)
- **Storage Temperature**   -20 ~ 70° C (-4 ~ 158° F)
- **Storage Humidity**   5 ~ 95% RH, non-condensing (refer to IEC 68-2-3)

Ordering Information

- **PCI-1741U**   200 kS/s, 16-bit, 16-ch Univ. PCI Multi. Card
- **PCI-1742U**   1 MS/s, 16-bit, 16-ch Univ. PCI Multi. Card

### Accessories

- **PCL-10168-1**   68-pin SCSI Shielded Cable, 1 m
- **PCL-10168-2**   68-pin SCSI Shielded Cable, 2 m
- **ADAM-3968**   68-pin DIN-rail SCSI Wiring Board
- **PCLD-8710**   DIN-rail Wiring Board w/ CJC

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

PCI-1714U
PCI-1714UL

30 MS/s, 12-bit, Simultaneous 4-ch Analog Input Universal PCI Card

10 MS/s, 12-bit, Simultaneous 4-ch Analog Input Universal PCI Card

PCI-1714U   PCI-1714UL

FCC CE RoHS COMPLIANT 2002/95/EC

Features

- 4 single-ended analog input channels
- 12-bit A/D converter, with up to 30 MHz sampling rate
- Programmable gain
- Onboard FIFO memory (PCI-1714U: 32,768 samples each channel; PCI-1714UL: 8,192 samples, each channel)
- 4 A/D converters simultaneously sampling
- Multiple A/D triggering modes
- Programmable pacer/counter
- BoardID™ switch
- Universal PCI Bus (supports 3.3 V or 5 V PCI bus signals)

Introduction

PCI-1714U and PCI-1714UL are advanced high-performance data acquisition cards based on the PCI bus. With a large FIFO of 32,768 for each channel, the maximum sampling rate of PCI-1714U can get up to 30 MS/s, on each channel, with an emphasis on continuous, non-stop, high-speed, streaming data of samples to host memory. The low-cost PCI-1714UL offers 10 MS/s on each channel at a stable rate, and has also been equipped with a universal PCI interface.

Specifications

Analog Input

- **Channels**   4 single-ended
- **Resolution**   12 bits
- **Max. Sampling Rate** PCI-1741U: 30 MS/s per channel
                          PCI-1741UL: 10 MS/s per channel
- **FIFO Size**   PCI-1714U: 32,768 samples each channel
                          PCI-1714UL: 8,192 samples each channel
- **Overvoltage Protection** 30 Vp-p
- **Input Impedance**   50 Ω/1 MΩ/Hi Z jumper selectable/100 pF
- **Sampling Modes**   Software polling, pacer
- **Trigger Modes**   Post-trigger, pre-trigger, delay-trigger, about-trigger
- **Input Range (V, software programmable) & Absolute Accuracy**

Bipolar	±5	±2.5	±1	±0.5
Absolute Accuracy (% of FSR)*	0.1	0.2	0.2	0.4

* ±1 LSB is added as the derivative for absolute accuracy

General

- **Bus Type**   Universal PCI V2.2
- **I/O Connectors**   4 x BNC connector (for AI)
                          1 x PS/2 connector (for Ext. clock and trigger)
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption**   Typical: 5 V @ 850 mA ; 12 V @ 600 mA
                          Max.: 5 V @ 1 A; 12 V @ 700m A
- **Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature** -20 ~ 85°C (-4 ~ 185°F)
- **Storage Humidity**   5 ~ 95% RH, non-condensing

Ordering Information

- **PCI-1714U**   30 MS/s, 12-bit, Simultaneous 4-ch AI PCI Card
- **PCI-1714UL**   10 MS/s, 12-bit, Simultaneous 4-ch AI PCI Card

Accessories

- **ADAM-3909**   DB9 DIN-rail Wiring Board
- **PCL-1010B-1E**   BNC to BNC Wiring Cable, 1 m
- **PCL-10901-1E**   DB9 to PS/2 Cable, 1 m
- **PCL-10901-3E**   DB9 to PS/2 Cable, 3 m

Pin Assignments
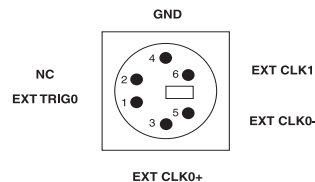
Onboard PS/2 Connector
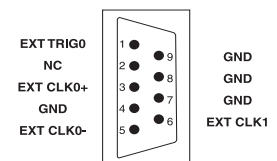
PS/2 To DB9 Cable Connector

ADVANTECH **Data Acquisition Boards**

PCI-1713U
PCI-1715U

100 kS/s, 12-bit, 32-ch Isolated Analog Input Universal PCI Card

500 kS/s, 12-bit, 32-ch Isolated Analog Input Universal PCI Card

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

Features

- 2,500 V_{DC} isolation protection
- 32-ch single-ended or 16-ch differential or a combination of analog input
- 12-bit resolution for A/D conversion
- Programmable gain for each input channel
- Onboard FIFO memory (PCI-1713U: 4,096 samples; PCI-1715U: 1,024 samples)
- Software, internal or external pacer sampling modes supported
- Universal PCI bus
- BoardID™ switch

PCI-1713U   PCI-1715U

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Specifications

Analog Input

- **Channels** — 32 single-ended/16 differential (software programmable)
- **Resolution** — 12 bits
- **Max. Sampling Rate** — PCI-1713U: 100 kS/s
  PCI-1715U: 500 kS/s

Note: The sampling rate for each channels will be affected by used channel number. For example, if 4 channels of PCI-1713U are used, the sampling rate is 100k/4 = 25 kS/s per channel.

- **FIFO Size** — PCI-1713U: 4,096 samples
  PCI-1715U: 1,024 samples
- **Overvoltage Protection** — 30 Vp-p
- **Isolation Protection** — 2,500 V_{DC}
- **Input Impedance** — 1 GΩ
- **Sampling Modes** — Software, onboard programmable pacer and external clock (TTL level)
- **Input Range (V, software programmable) & Absolute Accuracy**

Unipolar	N/A	0 ~10	0 ~ 5	0 ~ 2.5	0 ~ 1.25
Bipolar	±10	±5	±2.5	±1.25	±0.625
Absolute Accuracy (% of FSR)*	0.1	0.1	0.2	0.2	0.4

* ±1 LSB is added as the derivative for absolute accuracy

General

- **Bus Type** — Universal PCI V2.2
- **I/O Connector** — 1 x DB37 female connector
- **Dimensions (L x H)** — 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** — Typical: 5 V @ 850 mA
  Max.: 5 V @ 1.0 A
- **Operating Temperature** — 0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature** — -20 ~ 70°C (-4 ~ 158°F)
- **Storage Humidity** — 5 ~ 95% RH non-condensing

Ordering Information

- **PCI-1713U** — 100 kS/s, 12-bit, 32-ch Isolated AI PCI Card
- **PCI-1715U** — 500 kS/s, 12-bit, 32-ch Isolated AI PCI Card

Accessories

- **ADAM-3937** — DB37 DIN-rail Wiring Board
- **PCL-10137-1E** — DB37 Cable, 1 m
- **PCL-10137-2E** — DB37 Cable, 2 m
- **PCL-10137-3E** — DB37 Cable, 3 m

Pin Assignments

Pin	Signal		Pin	Signal
1	AI0		20	AI1
2	AI2		21	AI3
3	AI4		22	AI5
4	AI6		23	AI7
5	AI8		24	AI9
6	AI10		25	AI11
7	AI12		26	AI13
8	AI14		27	AI15
9	GND		28	GND
10	GND		29	GND
11	AI16		30	AI17
12	AI18		31	AI19
13	AI20		32	AI21
14	AI22		33	AI23
15	AI24		34	AI25
16	AI26		35	AI27
17	AI28		36	AI29
18	AI30		37	AI31
19	EXT_TRG			

PCI-1747U

250 kS/s, 16-bit, 64-ch Analog Input Universal PCI Card
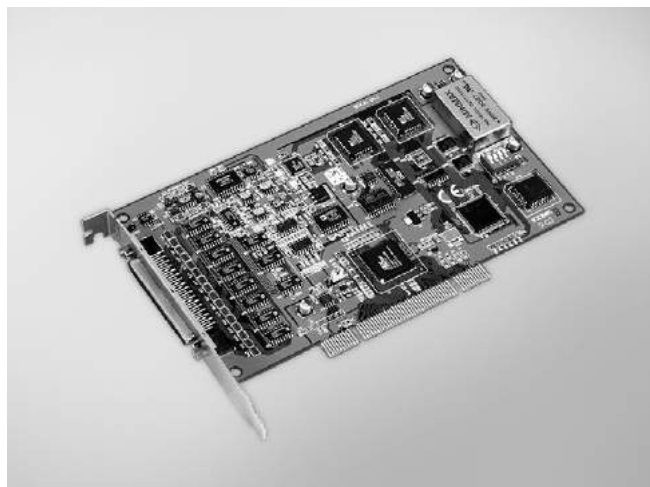
Features

- 64-ch single-ended or 32-ch differential or a combination of analog input
- 16-bit A/D converter, with up to 250 kHz sampling rate
- Auto calibration
- Onboard FIFO memory (1,024 samples)
- PCI-Bus mastering data transfer
- Universal PCI Bus (support 3.3 V or 5 V PCI bus signal)
- BoardID™ switch

RoHS COMPLIANT 2002/95/EC FCC C€

Introduction

PCI-1747U is a high-resolution, high-channel-count analog input card for the PCI bus. Its sampling rate is up to 250 kS/s and 16-bit resolution provides the resolution needed for most data acquisition applications. PCI-1747U provides 64 single-ended, 32 differential analog input channels or a combination of these. It also has built in a 1,024 FIFO buffer for analog input data.

Specifications

Analog Input

- **Channels** 64 single-ended, 32 differential, or combination
- **Resolution** 16 bits
- **Max. Sampling Rate** 250 kS/s
- **FIFO Size** 1,024 samples
- **Overvoltage Protection** 30 Vp-p
- **Input Impedance** 100 MΩ/10 pF (Off); 100 MΩ/100 pF (On)
- **Sampling Modes** Software and onboard programmable pacer
- **Input Range** (V, software programmable)

Unipolar	N/A	0 ~ 10	0 ~ 5	0 ~ 2.5	0 ~ 1.25
Bipolar	±10	±5	±2.5	±1.25	±0.625
Accuracy (% of FSR ±1LSB)	0.03	0.02	0.02	0.03	0.04

General

- **Bus Type** Universal PCI V2.2
- **I/O Connector** 1 x 68-pin SCSI female connector
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Typical: 5 V @ 850 mA, 12 V @ 600 mA
  Max.: 5 V @ 1 A, 12 V @ 700 m A
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F) (refer to IEC 68-2-1, 2)
- **Storage Temperature** -20 ~ 70° C (-4 ~ 158° F)
- **Storage Humidity** 5 ~ 95% RH, non-condensing (refer to IEC 68-2-3)

Ordering Information

- **PCI-1747U** 250 kS/s, 16-bit, 64-ch AI Universal PCI Card

Accessories

- **ADAM-3968** 68-pin DIN-rail SCSI Wiring Board
- **PCL-10168-1** 68-pin SCSI Shielded Cable, 1 m
- **PCL-10168-2** 68-pin SCSI Shielded Cable, 2 m

Pin Assignments

AI0	68	34	AI1
AI2	67	33	AI3
AI4	66	32	AI5
AI6	65	31	AI7
AI8	64	30	AI9
AI10	63	29	AI11
AI12	62	28	AI13
AI14	61	27	AI15
AGND	60	26	AGND
AI16	59	25	AI17
AI18	58	24	AI19
AI20	57	23	AI21
AI22	56	22	AI23
AI24	55	21	AI25
AI26	54	20	AI27
AI28	53	19	AI29
AI30	52	18	AI31
AI32	51	17	AI33
AI34	50	16	AI35
AI36	49	15	AI37
AI38	48	14	AI39
AI40	47	13	AI41
AI42	46	12	AI43
AI44	45	11	AI45
AI46	44	10	AI47
AGND	43	9	AGND
AI48	42	8	AI49
AI50	41	7	AI51
AI52	40	6	AI53
AI54	39	5	AI55
AI56	38	4	AI57
AI58	37	3	AI59
AI60	36	2	AI61
AI62	35	1	AI63

ADVANTECH **Data Acquisition Boards**

PCI-1720U
PCI-1724U

12-bit, 4-ch Isolated Analog Output Universal PCI Card

14-bit, 32-ch Isolated Analog Output Universal PCI Card

PCI-1720U

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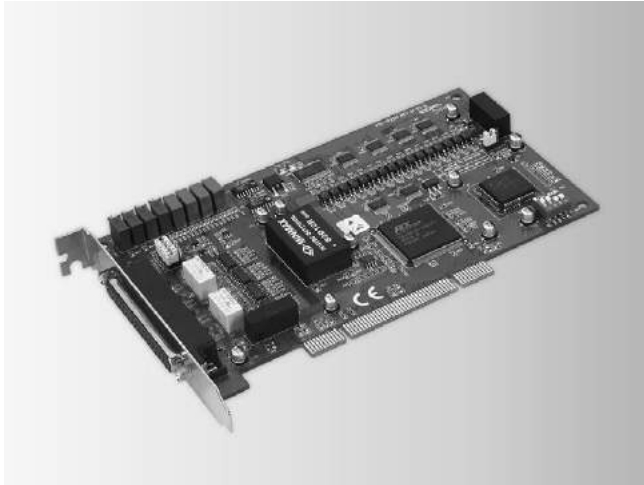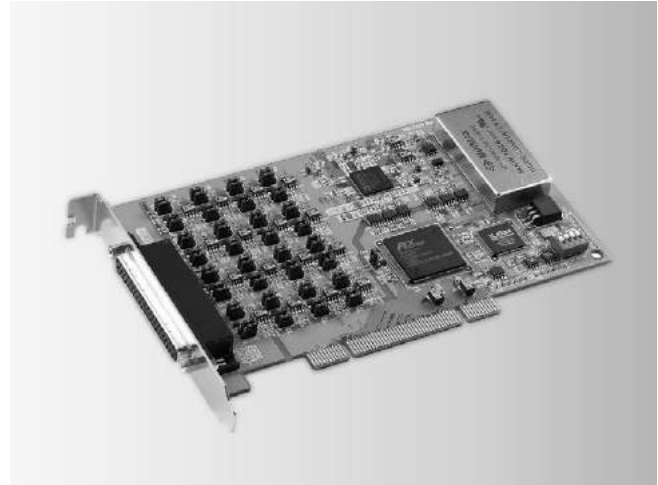
PCI-1724U

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Specifications

Analog Output

- **Channels**   4 isolated
- **Resolution**   12 bits
- **Output Rate**   Static update
- **Output Range**

Bipolar (V)	±5, ±10
Unipolar (V)	0 ~ 5, 0 ~ 10
Current Loop (mA)	0 ~ 20, 4 ~ 20 (software programmable)

- **Slew Rate**   2 V/µs
- **Isolation Protection** 2,500 V_{DC}
- **Driving Capability** 5 mA
- **Operation Modes**   Software polling
- **Accuracy**   Relative: ±1 LSB; Differential Non-Linearity: ±1 LSB (monotonic)
- **Excitation Voltage** 50 V (max.)

General

- **Bus Type**   Universal PCI V2.2
- **I/O Connectors**   1 x DB37 female connector
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** 5 V @ 350 mA (typical), 500 mA (max.)
                         12 V @ 200 mA (typical), 350 mA (max.)
- **Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature** -20 ~ 70°C (-4 ~ 158°F)
- **Storage Humidity** 5 ~ 95% RH, non-condensing

Ordering Information

- **PCI-1720U**   12-bit, 4-ch Isolated AO Universal PCI Card

Accessories

- **PCL-10137-1E**   DB37 Cable, 1 m
- **PCL-10137-2E**   DB37 Cable, 2 m
- **PCL-10137-3E**   DB37 Cable, 3 m
- **ADAM-3937**   DB37 DIN-rail Wiring Board

Specifications

Analog Output

- **Channels**   32 isolated
- **Resolution**   14 bits
- **Output Rate**   Static update
- **Output Range**

Bipolar (V)	±10
Current Loop (mA)	0 ~ 20, 4 ~ 20 (software programmable)

- **Isolation Protection** 1,500 V_{DC} system isolation
- **Output Impedance** 0.1 Ω max.
- **Operation Modes**   Software polling, synchronized output
- **Accuracy**   Relative: ±4 LSB
                        Differential Non-linearity: ±2 LSB (monotonic)
- **Driving Capacity** 10 mA

General

- **Bus Type**   Universal PCI V2.2
- **I/O Connectors**   1 x DB62 female connector
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption 5** V @ 400 mA, 12 V @ 270 mA max.
- **Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature** -20 ~ 70°C (-4 ~ 158°F)
- **Storage Humidity** 5 ~ 95 % RH, non-condensing

Ordering Information

- **PCI-1724U**   14-bit, 32-ch Isolated AO Universal PCI Card

Accessories

- **PCL-10162-1E**   DB62 Cable, 1 m
- **PCL-10162-3E**   DB62 Cable, 3 m
- **ADAM-3962**   DB62 DIN-rail Wiring Board

PCI-1721

12-bit, 4-ch Analog Output PCI Card with 16-ch Digital I/O
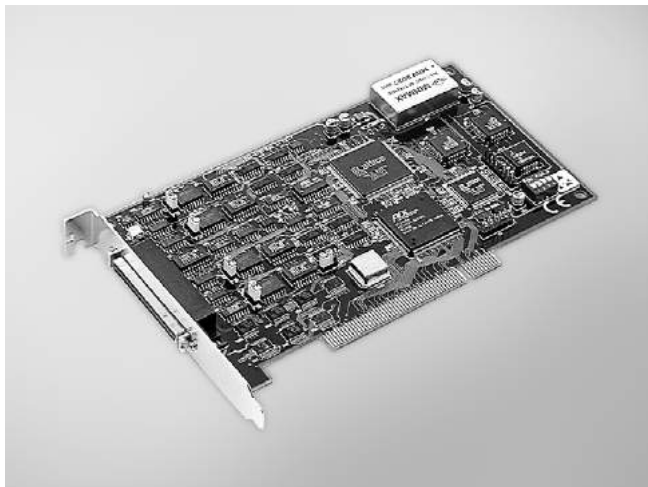
Features

- 10 MHz maximum digital update rate
- Auto calibration function
- Four analog output channels with 1,024 samples FIFO buffer
- A 12-bit DAC is equipped for each of analog output channels
- Real-time waveform output function with internal/external pacer
- Synchronized output function
- Flexible output types and range settings
- Keeps the output settings and values after system hot reset
- 16-ch DI/O and one 10 MHz 16-bit resolution counter
- BoardID™ switch

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Introduction

PCI-1721 is an advanced high-speed analog output card for the PCI bus, and each of analog output channels are equipped with a 12-bit, double-buffered DAC. It features many powerful and unique functions, like a waveform output function with 10 MHz maximum update rate, auto-calibration and a BoardID switch. PCI-1721 is an ideal solution for industrial applications where high-speed continuous analog output or real-time waveform output functions are required.

Specifications

Analog Output

- **Channels** 4
- **Resolution** 12 bits
- **FIFO Size** 1,024 samples
- **Output Rate** 10 MHz or static update
- **Reference Clock** Internal: 10 MHz
  External Clock Frequency: 10 MHz max.
  External Voltage Range: 0.8 V max., 2 V min.
- **Output Range**

Internal Reference	Unipolar	0 ~ 5 V, 0 ~ 10 V,
	Bipolar	±5 V, ±10 V
	Current Loop	0 ~ 20 mA, 4 ~ 20 mA (software programmable)
External Reference		0 ~ +x V @ +x V (-10 ≤ x ≤ 10) -x ~ +x V @ +x V (-10 ≤ x ≤ 10)

- **Slew Rate** 10 V/μs
- **Driving Capability** 10 mA
- **Output Impedance** 0.1 Ω max.
- **Operation Modes** Single/continuous/waveform/synchronized output
- **Accuracy** Relative: ±1 LSB
  Differential Non-linearity: ±1 LSB (monotonic)

Digital Input/Output

- **Channels** 16 (shared by input/output)
- **Compatibility** 5 V/TTL
- **Input Voltage** Logic 0: 0.8 V max.
  Logic 1: 2.0 V min.
- **Output Capability** Sink: 0.5 V @ 24 mA
  Source: 2.0 V @ -15 mA

Counter/Timer

- **Channels** 1
- **Resolution** 16 bits
- **Compatibility** 5 V/TTL
- **Max. Input Frequency** 10 MHz
- **Reference Clock** Internal: 10 MHz
  External Clock Frequency: 10 MHz max.
  External Voltage Range: 0.8 V max, 2.0 V min.

General

- **Bus Type** PCI V2.2
- **I/O Connectors** 1 x 68-pin SCSI female connector
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Typical: 5 V @ 850 mA, 12 V @ 600 mA
  Max.: 5 V @ 1 A, 12 V @ 700 mA
- **Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature** -20 ~ 85°C (-4 ~ 185°F)
- **Storage Humidity** 5 ~ 95% RH, non-condensing

Ordering Information

- **PCI-1721** 12-bit, 4-ch Advanced PCI Analog Output Card

Accessories

- **PCL-10168-1E** 68-pin SCSI Shielded Cable, 1 m
- **PCL-10168-2E** 68-pin SCSI Shielded Cable, 2 m
- **ADAM-3968** 68-pin DIN-rail SCSI Wiring Board

ADVANTECH | **Data Acquisition Boards**

PCI-1723
PCI-1727U

16-bit, 8-ch Analog Output PCI Card with 16-ch Digital I/O

14-bit, 12-ch Analog Output Universal PCI Card with 32-ch Digital I/O

PCI-1723

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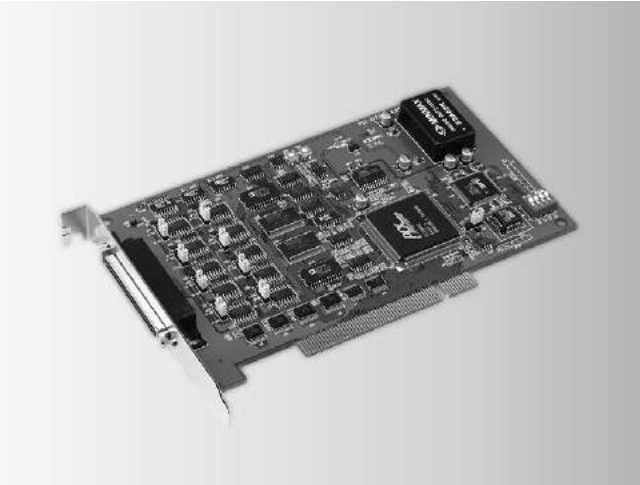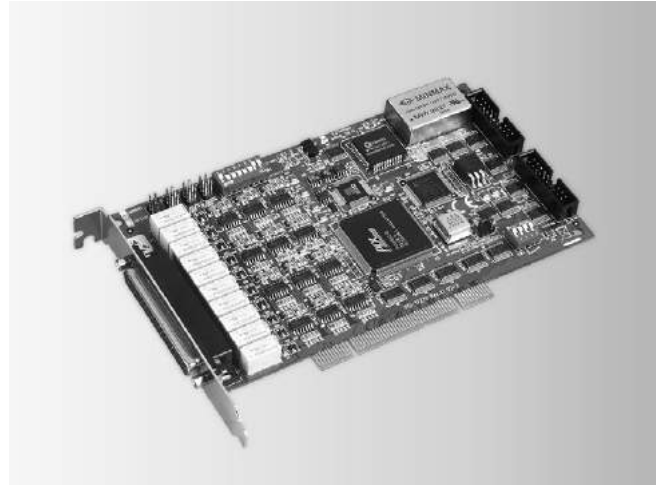
PCI-1727U

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Specifications

Analog Output
- **Channels** 8
- **Resolution** 16 bits
- **Output Rate** Static update
- **Output Range**

Bipolar (V)	±10
Current Loop (mA)	0 ~ 20, 4 ~ 20 (software programmable)

- **Driving Capability** 5 mA
- **Output Impedance** 0.1 Ω max.
- **Operation Modes** Software polling, synchronized output
- **Accuracy** Relative: ±6 LSB
  Differential Non-linearity: ±6 LSB (monotonic)

Digital Input/Output
- **Channels** 16 (shared by input/output)
- **Compatibility** 5 V/TTL
- **Input Voltage** Logic 0: 0.8 V max.
  Logic 1: 2.0 V min.
- **Output Capability Sink** Sink: 0.5 V @ 24 mA
  Source: 2.0 V @ 15 mA

General
- **Bus Type** PCI V2.2
- **I/O Connectors** 1 x 68-pin SCSI female connector
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Typical: 5 V @ 850 mA, 12 V @ 600 mA
  Max.: 5 V @ 1 A, 12 V @ 700 mA
- **Operating Temperature** 0 ~ 60°C (32 ~ 158°F)
- **Storage Temperature** -20 ~ 85°C (-4 ~ 185°F)
- **Storage Humidity** 5 ~ 95% RH non-condensing

Ordering Information

- **PCI-1723** 16-bit, 8-ch Non-isolated Analog Output PCI Card

Accessories
- **PCL-10168-1E** 68-pin SCSI Shielded Cable, 1 m
- **PCL-10168-2E** 68-pin SCSI Shielded Cable, 2 m
- **ADAM-3968** 68-pin DIN-rail SCSI Wiring Board

Specifications

Analog Output
- **Channels** 12
- **Resolution** 14 bits
- **Output Rate** Static update
- **Output Range**

Bipolar (V)	±5
Unipolar (V)	0 ~ 5, 0 ~ 10
Current Loop (mA)	0 ~ 20

- **Slew Rate** 0.7 V/μs
- **Driving Capability** 15 mA
- **Operation Modes** Software polling, synchronized output
- **Current Loop Excitation** 8 ~ 36 V

Digital Input
- **Channels** 16
- **Compatibility** 5 V/TTL
- **Input Voltage** Logic 0: 0.8 V max.
  Logic 1: 2.0 V min.
- **Input Loading** 0.5 V @ 0.4 mA max. (low)
  2.7 V @ 50 μA max. (high)

Digital Output
- **Channels** 16
- **Compatibility** 5 V/TTL
- **Output Voltage** Logic 0: 0.5 V, Logic 1: 2.4 V
- **Output Capability** Sink: 0.5 V @ 8 mA
  Source: 2.4 V @ 0.4 mA

General
- **Bus Type** Universal PCI V2.2
- **I/O Connectors** 1 x 37-pin D-type female connector
  2 x 20-pin box header
- **Power Consumption** 5 V @ 460 mA typical, 500 mA max
  12 V @ 150 mA typical,100 mA max
- **Dimensions (L x H)** 175 × 100 mm (6.9" ×3.9")
- **Operating Temperature** 0 ~ 50°C (32 ~ 122°F)
- **Storing Temperature** -20 ~ 65°C (-4 ~ 149°F)
- **Storing Humidity** 5 ~ 95% RH, non-condensing

Ordering Information

- **PCI-1727U** 14-bit, 12-ch Universal Analog Output Card

Accessories
- **PCL-10120-1E** 20-pin flat cable, 1 m
- **PCL-10137-1E** DB37 cable assembly, 1 m
- **ADAM-3937** DB37 wiring terminal for DIN-rail mounting

PCI-1735U
PCI-1737U
PCI-1739U

64-ch Digital I/O and Counter Universal PCI Card

24-ch Digital I/O Universal PCI Card

48-ch Digital I/O Universal PCI Card

PCI-1735U PCI-1737U PCI-1739U

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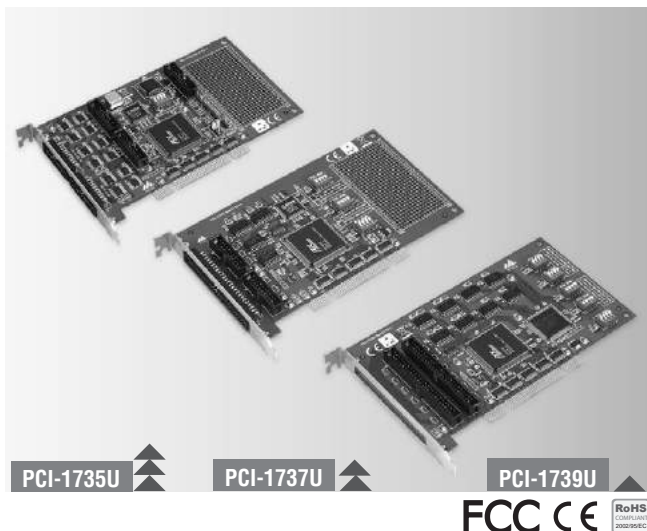
Features

- ISA-Compatible with PCL-720+ (PCI-1735U), PCL-724 (PCI-1737U) and PCL-731 (PCI-1739U)
- TTL-level digital input and output compatibility
- Emulates mode 0 of 8255 PPI (PCI-1737U and PCI-1739U)
- Interrupt handling capability (PCI-1737U and PCI-1739U)
- Output status readback (PCI-1737U and PCI-1739U)
- 3 programmable counter/timer channels and User configurable clock source (PCI-1735U)
- Breadboard area for custom circuits (PCI-1735U and PCI-1739U)
- PCI universal card

Specifications

Digital Input

- **Channels**
  PCI-1735U: 32
  PCI-1737U: 24 (shared with output)
  PCI-1739U: 48 (shared with output)
- **Compatibility** 5 V/TTL
- **Input Voltage**
  PCI-1735:   Logic 0: 0.8V max.
                Logic 1: 2.0V min.
  PCI-1737U/1739U: Logic 0: 0.4V max.
                Logic 1: 2.4V min.
- **Interrupt Capable Ch.**
  PCI-1737U: 1
  PCI-1739U: 2

Digital Output

- **Channels**
  PCI-1735U: 32
  PCI-1737U: 24 (shared with input)
  PCI-1739U: 48 (shared with input)
- **Compatibility** 5 V/TTL
- **Output Voltage**
  PCI-1735U: Logic 0: 0.5 V max.
                Logic 1: 2.4 V min.
  PCI-1737U/1739U: Logic 0: 0.4 V max.
                Logic 1: 2.4 V min.
- **Output Capability**
  PCI-1735U: Sink: 0.5 V @ 24 mA
                Source: 2.4 V @ 15 mA
  PCI-1737U/1739U: Sink: 0.4 V @ 24 mA
                Source: 2.4 V @ 15 mA

Counter/Timer (PCI-1735U)

- **Channels** 3
- **Resolution** 16 bits
- **Compatibility** 5 V/TTL
- **Max. Input Frequency** 1 MHz
- **Re. Clock Internal** Selectable 1 MHz, 100 kHz, or 10 kHz base clock
- **Ext. Clock Frequency** Jumper selectable divider: x2, x1, x0.5, and x0.25

- **Prog.Counter Modes** 6

General

- **Bus Type** Universal PCI V2.2
- **I/O Connectors**
  PCI-1735U: 5 x 20-pin box header
  PCI-1737U: 2 x 20-pin & 1 x 50-pin box header
  PCI-1739U: 2 x 50-pin box header
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption**
  PCI-1735U: 5V @365 mA (max.)
  PCI-1737U: 5V @300 mA (max.)
  PCI-1739U: 5V @720 mA (max.)
- **Operating Temperature** 0 ~ 65°C (32 ~ 149°F)
- **Storage Temperature** -25 ~ 80°C (-13 ~ 176°F)
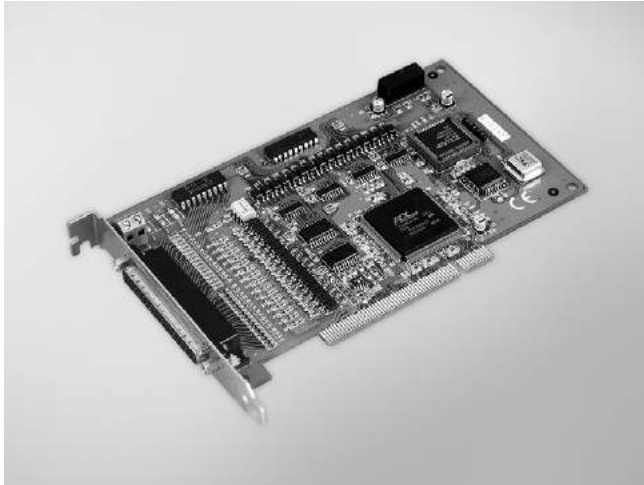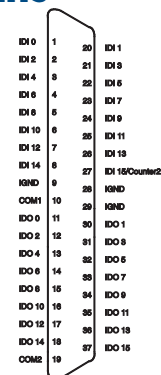- **Storage Humidity** 5 ~ 95% RH, non-condensing

Ordering Information

- **PCI-1735U** 64-ch Digital I/O and Counter Card
- **PCI-1737U** 24-ch Digital I/O Universal PCI Card
- **PCI-1739U** 48-ch Digital I/O Universal PCI Card

Accessories

- **PCL-10120-1E** IDC-20 Flat Cable, 1 m
- **PCL-10120-2E** IDC-20 Flat Cable, 2 m
- **PCL-10150-1.2E** 50-pin Flat Cable, 1.2 m
- **ADAM-3920** 20-Pin Flat Cable Terminal, DIN-rail Mount
- **ADAM-3950** 50-pin DIN-rail Flat Cable Wiring Board

PCI-1751

48-ch Digital I/O and 3-ch Counter PCI Card
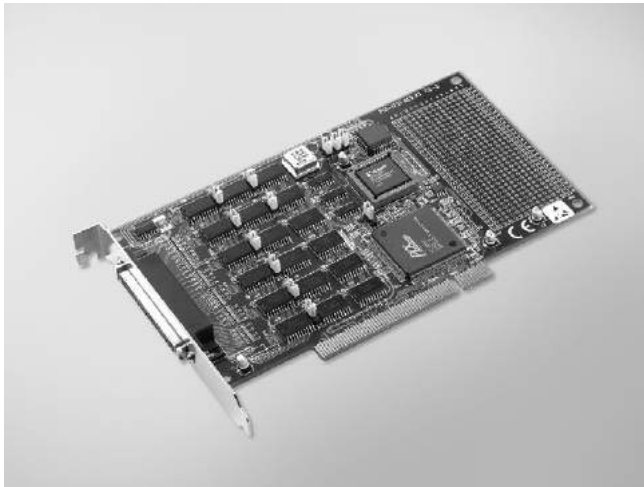
Features

- 48 TTL digital I/O lines
- Emulates mode 0 of 8255 PPI
- Buffered circuits for higher driving capacity than the 8255
- Interrupt handling capability
- Timer/Counter interrupt capability
- Supports both dry and wet contact
- Keeps the I/O port setting and DO state after system reset
- BoardID switch

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Introduction

PCI-1751 is a 48-bit digital I/O card for the PCI bus. Its 48 bits are divided into six 8-bit I/O ports and users can configure each port as input or output via software. PCI-1751 also provides one event counter and two 16-bit timers, which can be cascaded to become a 32-bit timer.

Specifications

Digital Input

- **Channels** 48 (shared with output)
- **Compatibility** 5 V/TTL
- **Input Voltage** Logic 0: 0.8 V max.
  Logic 1: 2 V min.
- **Interrupt Capable Ch.** 2

Digital Output

- **Channels** 48 (shared with input)
- **Compatibility** 5 V/TTL
- **Output Voltage** Logic 0: 0.4 V max.
  Logic 1: 2.4 V min.
- **Output Capability** Sink: 0.4 V @ 24 mA
  Source: 2.4 V @ 15 mA

Counter/Timer

- **Channels** 3
- **Resolution** 2 x 16-bit counters, or 1 x 32-bit counter (jumper selectable)
  1 x 16-bit event counter
- **Compatibility** 5 V/TTL
- **Max. Input Frequency** 10 MHz
- **Reference Clock** Internal: 10 MHz
  External Clock Frequency: 10 MHz
  External Voltage Range: 5 V/TTL

General

- **Bus Type** Universal PCI V2.2
- **I/O Connectors** 1 x 68-pin SCSI female connector
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Typical: 5 V @ 850 mA
  Max.: 5 V @ 1.0 A
- **Operating Temperature** 0 ~ 70°C (32 ~ 158°F)
- **Storage Temperature** -20 ~ 80°C (-4 ~ 176°F)
- **Storage Humidity** 5 ~ 95% RH, non-condensing

Ordering Information

- **PCI-1751** 48-ch Digital I/O and Counter PCI Card

Accessories

- **PCL-10168-1E** 68-pin SCSI Shielded Cable, 1 m
- **PCL-10168-2E** 68-pin SCSI Shielded Cable, 2 m
- **ADAM-3968** 68-pin DIN-rail SCSI Wiring Board
- **ADAM-3968/20** 68-pin SCSI to 3 20-pin Box Header Board
- **ADAM-3968/50** 68-pin SCSI to 2 50-pin Box Header Board
- **PCLD-8751** 48-ch Isolated Digital Input Board
- **PCLD-8761** 24-ch Replay/ Isolated Digital Input Board
- **PCLD-8762** 48-ch Relay Board

Pin Assignments

PA00	1	35	PA10
PA01	2	36	PA11
PA02	3	37	PA12
PA03	4	38	PA13
PA04	5	39	PA14
PA05	6	40	PA15
PA06	7	41	PA16
PA07	8	42	PA17
GND	9	43	GND
PB00	10	44	PB10
PB01	11	45	PB11
PB02	12	46	PB12
PB03	13	47	PB13
PB04	14	48	PB14
PB05	15	49	PB15
PB06	16	50	PB16
PB07	17	51	PB17
GND	18	52	GND
PC00	19	53	PC10
PC01	20	54	PC11
PC02	21	55	PC12
PC03	22	56	PC13
PC04	23	57	PC14
PC05	24	58	PC15
PC06	25	59	PC16
PC07	26	60	PC17
GND	27	61	GND
CNT0_OUT	28	62	CNT0_CLK
GND	29	63	CNT0_G
CNT1_OUT	30	64	CNT1_CLK
GND	31	65	CNT1_G
CNT2_OUT	32	66	CNT2_CLK
INT_OUT	33	67	CNT2_G
VCC	34	68	VCC

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

PCI-1753
PCI-1753E
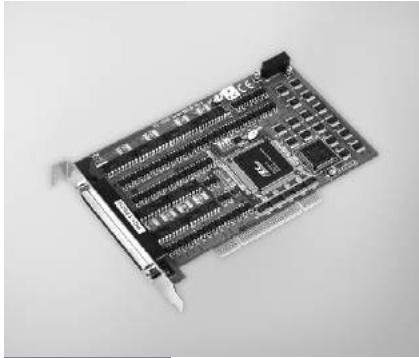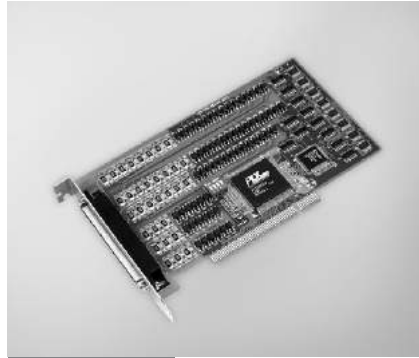
96-ch Digital I/O PCI Card

96-ch Digital I/O Extension Card for PCI-1753
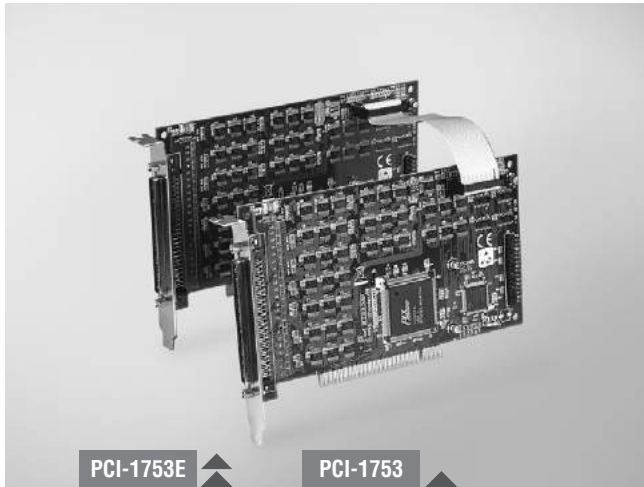
Features

- Up to 96 TTL digital I/O lines
- Emulates mode 0 of 8255 PPI
- Buffered circuits for higher driving capacity than the 8255
- Multiple-source interrupt handling capability
- Interrupt output pin for simultaneously triggering external devices with the interrupt
- Output status read-back
- "Pattern match" and "Change of state" interrupt functions for critical I/O monitoring
- Keeps the output settings and values after system hot reset
- Supports both dry and wet contact
- High-density 100-pin SCSI connector

PCI-1753E   PCI-1753

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Introduction

PCI-1753 is a 96-bit digital I/O card for the PCI bus, which can be extended to 192 digital I/O channels by connecting its extension board - PCI-1753E. The card emulates mode 0 of the 8255 PPI chip, but the buffered circuits offer a higher driving capability than the 8255. The 96 I/O lines are divided into twelve 8-bit I/O ports: A0, B0, C0, A1, B1, C1, A2, B2, C2, A3, B3 and C3. You can configure each port as input or output via software.

Specifications

Digital Input/Output

- **Channels**   96 digital I/O lines for PCI-1753
                          192 digital I/O lines if extending with PCI-1753E
- **Programming Mode**   8255 PPI mode 0
- **Compatibility**   5 V/TTL
- **Input Voltage**   Logic 0: 0.8 V max.
                          Logic 1: 2.0 V min.
- **Output Voltage**   Logic 0: 0.44 V max.
                          Logic 1: 3.76 V min.
- **Output Capability**   Sink: 0.44 V @ 24 mA
                          Source: 3.76 V @ 24 mA

General

- **Bus Type**   PCI V2.2
- **I/O Connector**   1 x 100-pin SCSI female connector
- **Dimensions (L x H)**   175 x 100 mm (6.9" x 3.9")
- **Power Consumption**   Typical: 5 V @ 400 mA
                              Max.: 5 V @ 2.7 A
- **Operating Temperature**   0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature**   -20 ~ 70°C (-4 ~ 158°F)
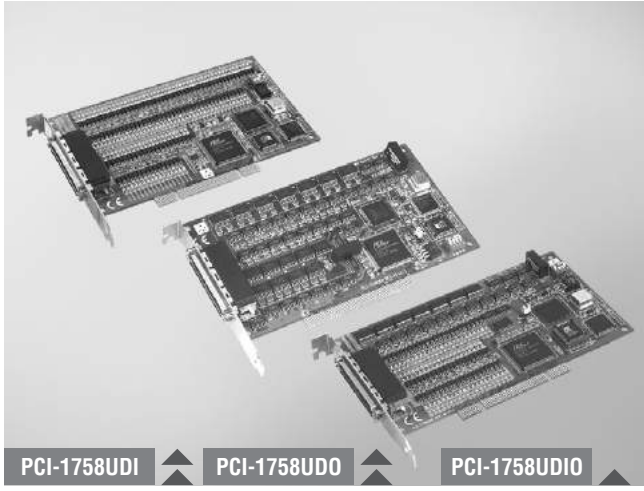- **Storage Humidity**   5 ~ 95% RH, non-condensing

Ordering Information

- **PCI-1753**   96-ch Digital I/O PCI Card
- **PCI-1753E**   Extension Board for PCI-1753

Accessories

- **ADAM-3968**   68-pin DIN-rail SCSI Wiring Board
- **ADAM-3968/20**   68-pin SCSI to 3 20-pin Box Header Board
- **ADAM-3968/50**   68-pin SCSI to 2 50-pin Box Header Board
- **PCLD-8751**   48-ch Isolated Digital Input Board
- **PCLD-8761**   24-ch Replay/ Isolated Digital Input Board
- **PCLD-8762**   48-ch Relay Board
- **PCL-10268-2E**   100-pin to Two 68-pin SCSI Cables, 1 m and 2 m

Pin Assignments

PA00	1	51	PA20
PA01	2	52	PA21
PA02	3	53	PA22
PA03	4	54	PA23
PA04	5	55	PA24
PA05	6	56	PA25
PA06	7	57	PA26
PA07	8	58	PA27
PB00	9	59	PB20
PB01	10	60	PB21
PB02	11	61	PB22
PB03	12	62	PB23
PB04	13	63	PB24
PB05	14	64	PB25
PB06	15	65	PB26
PB07	16	66	PB27
PC00	17	67	PC20
PC01	18	68	PC21
PC02	19	69	PC22
PC03	20	70	PC23
PC04	21	71	PC24
PC05	22	72	PC25
PC06	23	73	PC26
PC07	24	74	PC27
GND	25	75	GND
PA10	26	76	PA30
PA 11	27	77	PA31
PA12	28	78	PA32
PA13	29	79	PA33
PA14	30	80	PA34
PA15	31	81	PA35
PA16	32	82	PA36
PA17	33	83	PA37
PB10	34	84	PB30
PB1 1	35	85	PB31
PB12	36	86	PB32
PB13	37	87	PB33
PB14	38	88	PB34
PB15	39	89	PB35
PB16	40	90	PB36
PB17	41	91	PB37
PC10	42	92	PC30
PC1 1	43	93	PC31
PC12	44	94	PC32
PC13	45	95	PC33
PC14	46	96	PC34
PC15	47	97	PC35
PC16	48	98	PC36
PC17	49	99	PC37
VCC	50	100	VCC

PA00 ~PA07: I/O pins of Port A0
PA10 ~PA17: I/O pins of Port A1
PA20 ~PA27: I/O pins of Port A2
PA30 ~PA37: I/O pins of Port A3
PB00 ~PB07: I/O pins of Port B0
PB10 ~PB17: I/O pins of Port B1
PB20 ~PB27: I/O pins of Port B2
PB30 ~PB37: I/O pins of Port B3
PC00 ~PC07: I/O pins of Port C0
PC10 ~PC17: I/O pins of Port C1
PC20 ~PC27: I/O pins of Port C2
PC30 ~PC37: I/O pins of Port C3
GND: Ground
VCC: +5V voltage output

ADVANTECH   **Data Acquisition Boards**

PCI-1755

80 MB/s, 32-ch Digital I/O PCI Card
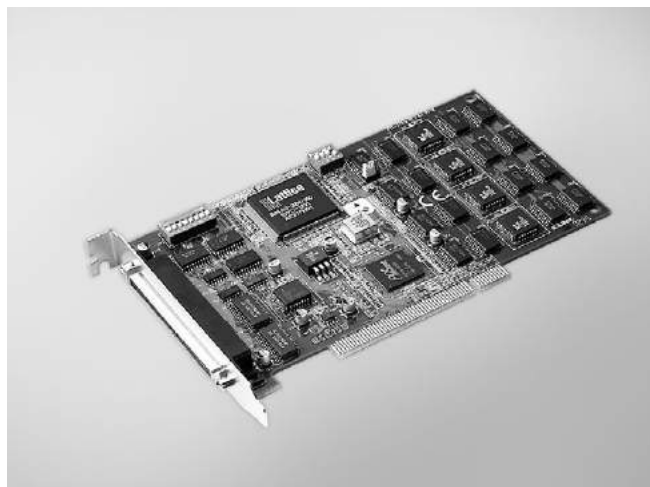
FCC CE

Features

- Bus-mastering DMA data transfer with scatter gather technology
- 32/16/8-bit pattern I/O with start and stop trigger function, 2 modes handshaking I/O Interrupt handling capability
- Onboard active terminators for high speed and long distance transfer
- Pattern match and change state detection interrupt function
- General-purpose 8-ch digital I/O

Introduction

The PCI-1755 supports PCI-bus mastering DMA for high-speed data transfer. By setting aside a block of memory in the PC, the PCI-1755 performs bus-mastering data transfers without CPU intervention, setting the CPU free to perform other more urgent tasks such as data analysis and graphic manipulation. The function allows users to run all I/O functions simultaneously at full speed without losing data.

Specifications

Digital Input

- **Channels**   General: 8 (shared with output)
                          High speed: 32 (shared with output)
- **Compatibility**   5V/TTL
- **Input Voltage**   Logic 0: 0.8 V max.
                          Logic 1: 2.0 V min.
- **Interrupt Capable Ch.** DIO0~DIO7

Digital Output

- **Channels**   General: 8 (shared with input)
                          High speed: 32 (shared with input)
- **Compatibility**   5V/TTL
- **Output Voltage**   Logic 0: 0.5 V max.
                          Logic 1: 2.7 V min.
- **Output Capacity**   Sink: 0.5 V @ 48 mA
                          Source: 2.4 V @ 15 mA

Transfer Characteristics

- **Onboard FIFO**   16 KB for DI & 16 KB DO channels
- **Data Transfer Mode** Bus Mastering DMA with Scatter-Gather
- **Data Transfer Bus Width** 8/16/32 bits (programmable)
- **Max. Transfer Rate** DI: 80 M bytes/sec, 32-bit @ 20 MHz
                          120 M bytes/sec, 32-bit @ 40 MHz
                          external pacer when data length is less than FIFO size
                          DO: 80 MBytes/sec, 32-bit @ 20 MHz
- **Operation Mode**   Handshaking

General

- **Bus Type**   PCI V2.2
- **I/O Connectors**   1 x 100-pin SCSI female connector
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption**   Typical: 5 V @ 1 A
                          Max.: 5 V @ 1 A
- **Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature** -20 ~ 85°C (-4 ~ 185°F)
- **Storage Humidity**   5 ~ 95% RH, non-condensing

Ordering Information

- **PCI-1755**   80 MB/s, 32-ch Digital I/O PCI Card

Accessories

- **ADAM-39100**   100-pin DIN-rail SCSI Wiring Board
- **PCL-101100-1E**   100-pin SCSI High-Speed Cable, 1 m

PCI-1730U
PCI-1733
PCI-1734

32-ch Isolated Digital I/O Universal PCI Card

32-ch Isolated Digital Input PCI Card

32-ch Isolated Digital Output PCI Card

PCI-1730U   PCI-1733   PCI-1734

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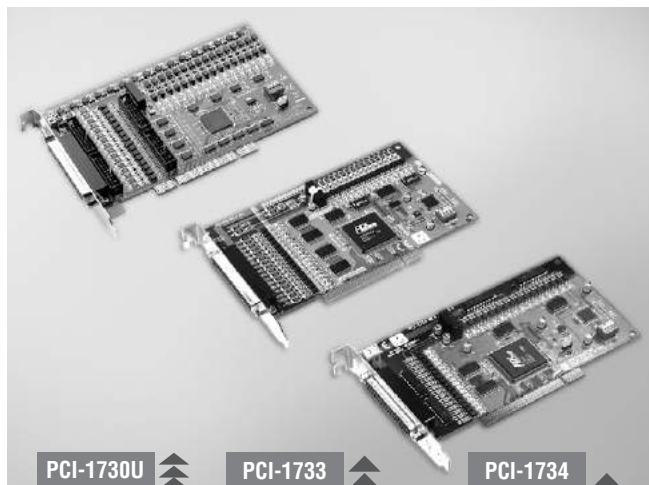
Features

- ISA-compatible with PCL-730/733/734
- 32-ch isolated DI/O (16-ch digital input, 16-ch digital output)
- 32-ch TTL DI/O (16-ch digital input,16-ch digital output) (PCI-1730U only)
- High output driving capacity
- Interrupt handling capability
- 2 x 20-pin connectors for isolated DI/O channels (PCI-1730U only)
- 2 x 20-pin connectors for TTL DI/O channels (PCI-1730U only)
- D-type connector for isolated input and output channels
- High-voltage isolation on output channels

Introduction

PCI-1730U, PCI-1733, and PCI-1734 offer isolated digital input channels as well as isolated digital output channels with isolation protection up to 2,500 V_{DC}, which makes them ideal for industrial applications where high-voltage isolation is required. There are also 32 TTL digital I/O channels on PCI-1730U.

Specifications

Digital Input (PCI-1730U only)

- **Channels**   16
- **Compatibility**   5 V/TTL
- **Input Voltage**   Logic 0: 0.8 V max.
                        Logic 1: 2.0 V min.
- **Interrupt Capable Ch.** 2 (DI0, DI1)

Isolated Digital Input (PCI-1730U/ PCI-1733)

- **Channels**   PCI-1730U: 16
                        PCI-1733: 32
- **Input Voltage**   Logic 0: 1 V max. (2 V max.)
                        Logic 1: 5V min. (30 V max.)
- **Interrupt Capable Ch.** PCI-1730U: 2 (IDI0, IDI1)
                        PCI-1733: 4 (IDI0, IDI1, IDI16, IDI17)
- **Isolation Protection** 2,500 V_{DC}
- **Opto-Isolator Response** 25 µs
- **Input Resistance** 2.7 kΩ @ 1 W

Digital Output (PCI-1730U only)

- **Channels**   16
- **Compatibility**   5 V/TTL
- **Output Voltage**   Logic 0: 0.8 V max.
                        Logic 1: 2.0 V min.
- **Output Capability** Sink: 0.8 V @ 24 mA
                        Source: 2.0 V @ 15 mA

Isolated Digital Output (PCI-1730U/ PCI-1734)

- **Channels**   16
- **Output Type**   Sink type (NPN)
- **Isolation Protection** 2,500 V_{DC}
- **Output Voltage**   5 ~ 40 V_{DC}
- **Sink Current**   PCI-1730U: 300 mA max./channel
                        PCI-1734: 200 mA max./channel

- **Opto-Isolator Response** 25 µs

General

- **Bus Type**   PCI V2.2 (Universal PCI V2.2 for PCI-1730U)
- **I/O Connectors**   1 x DB37 female connector
                        4 x 20-pin box header (PCI-1730U only)
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Typical: 5 V @ 250 mA, 12 V @ 35 mA
                        Max.: 5 V @ 400 mA, 12 V @ 60 mA
- **Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature** -25 ~ 85°C (-13 ~ 185°F)
- **Storage Humidity** 5 ~ 95% RH, non-condensing
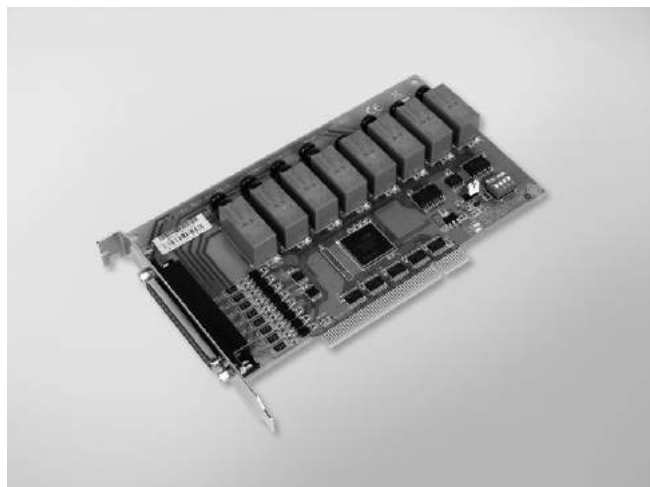
Ordering Information

- **PCI-1730U**   32-ch Isolated Digital I/O Univ. PCI Card
- **PCI-1733**   32-ch Isolated Digital Input PCI Card
- **PCI-1734**   32-ch Isolated Digital Output PCI Card

Accessories

- **PCL-10120-1E**   20-pin Flat Cable, 1 m
- **PCL-10120-2E**   20-pin Flat Cable, 2 m
- **ADAM-3920**   20-pin DIN-rail Flat Cable Wiring Board
- **PCLD-782**   16-ch Isolated DI Board w/ 1m 20-pin Flat Cable
- **PCLD-885**   16-ch Power Relay Board w/ 20p & 50p Flat Cables
- **PCLD-785**   16-ch Relay Board w/ One 1m 20-pin Flat Cable
- **ADAM-3937**   DB37 DIN-rail Wiring Board
- **PCL-10137-1E**   DB37 Cable, 1 m
- **PCL-10137-2E**   DB37 Cable, 2 m
- **PCL-10137-3E**   DB37 Cable, 3 m

PCI-1750

32-ch Isolated Digital I/O and 1-ch Counter PCI Card

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
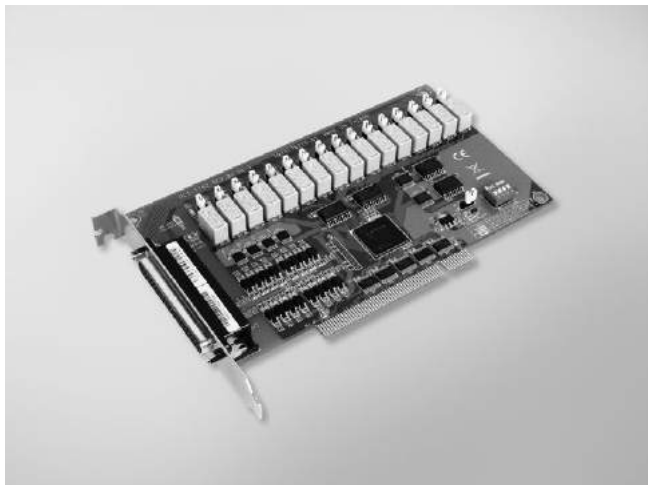13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

Features

- 16 isolated DI and 16 isolated DO channels
- High voltage isolation on all isolated channels (2,500 V_{DC})
- High sink current on isolated output channels (200 mA/channel)
- Supports dry contact or 5 ~ 50 V_{DC} isolated inputs
- Interrupt handling capability
- Timer/counter interrupt capability

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Introduction

PCI-1750 offers 16 isolated digital input channels, 16 isolated digital output channels, and one isolated counter/timer for the PCI bus. With isolation protection of 2,500 V_{DC}, and dry contact support, PCI-1750 is ideal for industrial applications where high-voltage protection is required. Each I/O channel of the PCI-1750 corresponds to a bit in a PC I/O port. This makes PCI-1750 very easy to program. This card also offers a counter or timer interrupt and two digital input interrupt lines to a PC, so you can then easily configure the card with software.

Specifications

Isolated Digital Input

- **Channels** 16
- **Input Voltage** Logic 0: 2 V max.
  Logic 1: 5 V min. (30 V_{DC} max.) or dry contact
- **Interrupt Capable Ch.** 2
- **Isolation Protection** 2,500 V_{DC}
- **Opto-Isolator Response** 100 µs

Isolated Digital Output

- **Channels** 16
- **Output Type** Sink (NPN)
- **Isolation Protection** 2,500 V_{DC}
- **Output Voltage** 5 ~ 40 V_{DC}
- **Sink Current** 200 mA max. per channel
- **Opto-Isolator Response** 100 µs

Counter/Timer

- **Channels** 1
- **Resolution** 1 x 16-bit isolated counter
- **Input Voltage** Logic 0: 2V max.
  Logic 1: 5V min. (30V_{DC} max.)
- **Max. Input Frequency** 1 MHz
- **Isolation Protection** 2,500 V_{DC}

General

- **Bus Type** PCI V2.2
- **I/O Connectors** 1 x DB37 female connector
  1 x 2-pin terminal block for extended ground
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Typical: 5 V @ 850 mA
  Max.: 5 V @ 1.0 A
- **Operating Temperature** 0 ~ 70°C (32 ~ 158°F)
- **Storage Temperature** -20 ~ 80°C (-4 ~ 176°F)
- **Storage Humidity** 5 ~ 95% RH, non-condensing
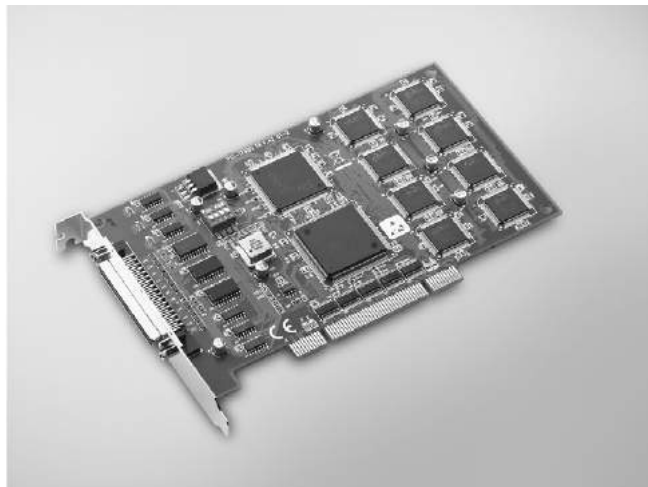
Ordering Information

- **PCI-1750** 32-ch Isolated Digital I/O and Counter PCI Card

Accessories

- **PCL-10137-1E** DB37 Cable, 1 m
- **PCL-10137-2E** DB37 Cable, 2 m
- **PCL-10137-3E** DB37 Cable, 3 m
- **ADAM-3937** DB37 DIN-rail Wiring Board

Pin Assignments

IDI 0	1	20	IDI 1
IDI 2	2	21	IDI 3
IDI 4	3	22	IDI 5
IDI 6	4	23	IDI 7
IDI 8	5	24	IDI 9
IDI 10	6	25	IDI 11
IDI 12	7	26	IDI 13
IDI 14	8	27	IDI 15/Counter2
IGND	9	28	IGND
COM1	10	29	IGND
IDO 0	11	30	IDO 1
IDO 2	12	31	IDO 3
IDO 4	13	32	IDO 5
IDO 6	14	33	IDO 7
IDO 8	15	34	IDO 9
IDO 10	16	35	IDO 11
IDO 12	17	36	IDO 13
IDO 14	18	37	IDO 15
COM2	19		

PCI-1752U
PCI-1754
PCI-1756

64-ch Isolated Digital Output Universal PCI Card

64-ch Isolated Digital Input PCI Card

64-ch Isolated Digital I/O PCI Card

PCI-1752U	FCC CE	RoHS COMPLIANT 2002/95/EC
PCI-1754	FCC CE	RoHS COMPLIANT 2002/95/EC
PCI-1756	FCC CE	RoHS COMPLIANT 2002/95/EC
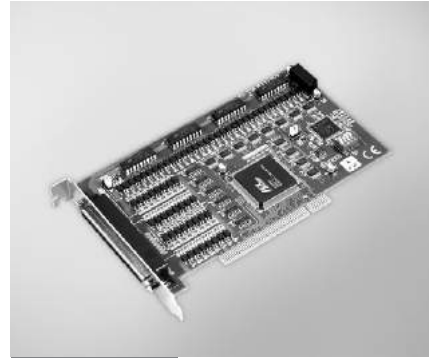
Features

- 64 isolated digital output channels
- High-voltage isolation on output channels (2,500 V_{DC})
- Wide output range (5 ~ 40 V_{DC})
- High-sink current on isolated output channels (200 mA max./channel)
- Output status readback
- Keeps the output settings and values after system hot reset
- Channel-freeze function
- High-density 100-pin SCSI connector

Features

- 64 isolated digital input channels
- Either ± voltage input for DI by group
- High-voltage isolation on input channels (2,500 V_{DC})
- High over-voltage protection (70 V_{DC})
- Wide input range (10 ~ 50 V_{DC})
- 2,000 V_{DC} ESD protection
- Interrupt handling capability
- High-density 100-pin SCSI connector

Features

- Either ± voltage input for DI by group
- High-voltage isolation input/output channels (2,500 V_{DC})
- 2,000 V_{DC} ESD protection for DI
- High over-voltage protection (70 V_{DC}) for DI
- High-sink current on isolated output channels (200 mA max./channel)
- Output status readback
- Keeps output settings/ values after system hot reset
- Interrupt handling capability
- High-density 100-pin SCSI connector

Specifications

Isolated Digital Output

- **Channels** — 64 (16-ch/group)
- **Output Type** — Sink (NPN)
- **Isolation Protection** — 2,500 V_{DC}
- **Output Voltage** — 5 ~ 40 V_{DC}
- **Sink Current** — 200 mA max./channel
- **Opto-isolator Response** — 25 μs

General

- **Bus Type** — Universal PCI V2.2
- **I/O Connectors** — 1 x 100-pin SCSI female connector
- **Dimensions (L x H)** — 175 x 100mm (6.9" x 3.9")
- **Power Consumption** — Typical: 5 V @ 230 mA Max.: 5 V @ 500 mA
- **Operating Temperature** — 0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature** — -20 ~ 70°C (-4 ~ 158°F)
- **Storage Humidity** — 5 ~ 95%, RH non-condensing

Ordering Information

- **PCI-1752U** — 64-ch Isolated Digital Output Universal PCI Card

Accessories

- **PCL-10250-1E** — 100-pin SCSI to Two 50-pin SCSI Cable, 1 m
- **ADAM-3951** — 50-pin DIN-rail Wiring Board w/ LED Indicators

Specifications

Isolated Digital Input

- **Channels** — 64 (16-ch/group)
- **Input Voltage** — Logic 0: 3 V max. Logic 1: 10 V min. (50 V max.)
- **Input Current (Typical)** — 10 V_{DC} @ 1.7 mA, 12 V_{DC} @ 2.1 mA 24 V_{DC} @ 4.4 mA, 48 V_{DC} @ 9.0 mA 50 V_{DC} @ 9.4 mA
- **Interrupt Capable Ch.** — 4
- **Isolation Protection** — 2,500 V_{DC}
- **Overvoltage Protection** — 70 V_{DC}
- **ESD** — 2,000 V_{DC}
- **Opto-Isolator Response** — 25 μs

General

- **Bus Type** — PCI V2.2
- **I/O Connectors** — 1 x 100-pin SCSI female connector
- **Dimensions (L x H)** — 175 x 100mm (6.9" x 3.9")
- **Power Consumption** — Typical: 5 V @ 340 mA Max.: 5 V @ 450 mA
- **Operating Temperature** — 0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature** — -20 ~ 70°C (-4 ~ 158°F)
- **Storage Humidity** — 5 ~ 95% RH, non-condensing

Ordering Information

- **PCI-1754** — 64-ch Isolated Digital Input PCI Card

Accessories

- **PCL-10250-1E** — 100-pin SCSI to Two 50-pin SCSI Cable, 1 m
- **ADAM-3951** — 50-pin DIN-rail Wiring Board w/ LED Indicators

Specifications

Isolated Digital Input

- **Channels** — 32 (16-ch/group)
- **Input Voltage** — Logic 0: 3 V max. Logic 1: 10 V min. (50 V max.)
- **Interrupt Capable Ch.** — 2 (IDI0, IDI16)
- **Isolation Protection** — 2,500 V_{DC}
- **Overvoltage Protection** — 70 V_{DC}
- **ESD** — 2,000 V_{DC}
- **Opto-Isolator Response** — 25 μs
- **Input Current** — 10 V_{DC} @ 1.7 mA, 12 V_{DC} @ 2.1 mA 24 V_{DC} @ 4.4 mA, 48 V_{DC} @ 9.0 mA 50 V_{DC} @ 9.4 mA

Isolated Digital Output

- **Channels** — 32 (16-ch/group)
- **Output Type** — Sink (NPN)
- **Isolation Protection** — 2,500 V_{DC}
- **Output Voltage** — 5 ~ 40 V_{DC}
- **Sink Current** — 200 mA max./channel
- **Opto-isolator Response** — 25 μs

General

- **Bus Type** — PCI V2.2
- **I/O Connectors** — 1 x 100-pin SCSI female connector
- **Dimensions (L x H)** — 175 x 100mm (6.9" x 3.9")
- **Power Consumption** — Typical: 5 V @ 285 mA Max.: 5 V @ 475 mA
- **Operating Temperature** — 0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature** — -20 ~ 70°C (-4 ~ 158°F)
- **Storage Humidity** — 5 ~ 95%, non-condensing

Ordering Information

- **PCI-1756** — 64-ch Isolated Digital I/O PCI Card

Accessories

- **PCL-10250-1E** — 100-pin SCSI to Two 50-pin SCSI Cable, 1 m
- **ADAM-3951** — 50-pin DIN-rail Wiring Board w/ LED Indicators

ADVANTECH | **Data Acquisition Boards**

PCI-1758UDI
PCI-1758UDO
PCI-1758UDIO

128-ch Isolated Digital Input Universal PCI Card

128-ch Isolated Digital Output Universal PCI Card

128-ch Isolated Digital I/O Universal PCI Card

PCI-1758UDI　PCI-1758UDO　PCI-1758UDIO

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Features

PCI-1758UDO and PCI-1758UDIO
- 128 isolated digital output channels (64 channels for PCI-1758UDIO)
- High-voltage isolation on output channels (2,500 V_{DC})
- Wide output range (5 ~ 40 V_{DC})
- High-sink current for isolated output channels (90 mA max./channel)
- Current protection for each port
- BoardID™ switch
- Output status read-back
- Digital output value retained after hot system reset
- Programmable Power-up States
- Watchdog timer

PCI-1758UDI and PCI-1758UDIO
- 128 isolated digital input channels (64 channels for PCI-1758UDIO)
- Wide input range (5 ~ 25 V_{DC})
- High ESD protection (2,000 V_{DC})
- Digital Filter function
- BoardID™ switch
- Interrupt handling capability for each channel

Specifications

Isolated Digital Input
- **Channels**　　PCI-1758UDI: 128
　　　　　　　　PCI-1758UDIO: 64
- **Input Voltage**　Logic 0: 2.5 V max.
　　　　　　　　Logic 1: 5 V min. (25 V max.)
- **Interrupt Capable Ch.**　PCI-1758UDI: 128
　　　　　　　　PCI-1758UDIO: 64
- **Isolation Protection**　2,500 V_{DC}
- **Opto-Isolator Response**　20 µs
- **Input Resistance**　3 kΩ

Isolated Digital Output
- **Channels**　　PCI-1758UDO: 128
　　　　　　　　PCI-1758UDIO: 64
- **Output Type**　Sink (NPN)
- **Isolation Protection**　2,500 V_{DC}
- **Output Voltage**　5 ~ 40 V_{DC}
- **Sink Current**　90 mA max./channel
- **Opto-isolator Response**　20 µs

General
- **Bus Type**　Universal PCI V2.2
- **I/O Connectors**　1 x mini-SCSI HDRA-E100 female connector
- **Dimensions (L x H)**　175 x 100 mm (6.9" x 3.9")
- **Power Consumption**

	PCI-1758UDI	PCI-1758UDO	PCI-1758UDIO
Typical	5 V @ 0.3 A	5 V @ 1.1 A	5 V @ 1.2 A
Max.	5 V @ 0.6 A	5 V @ 2.2 A	5 V @ 1.8 A

- **Operating Temperature**　0 ~ 60°C (32 ~ 140°F) (IEC 68-2-1, 2)
- **Storage Temperature**　-20 ~ 70°C (-4 ~ 158°F)
- **Storage Humidity**　5 ~ 95% non-condensing

Ordering Information
- **PCI-1758UDI**　128-ch Isolated DI Universal PCI Card
- **PCI-1758UDO**　128-ch Isolated DO Universal PCI Card
- **PCI-1758UDIO**　128-ch Isolated Digital I/O Universal PCI Card

Accessories
- **PCL-101100S-1E**　100-pin Mini-SCSI Cable, 1 m
- **PCL-101100S-2E**　100-pin Mini-SCSI Cable, 2 m
- **ADAM-39100**　100-pin DIN-rail SCSI Wiring Board

Feature Details

Interrupt Function (PCI-1758UDI/PCI-1758UDIO)

PCI-1758UDI and PCI-1758UDIO provide an interrupt function for every digital input channel. You can disable/enable the interrupt functions, and select trigger type by setting the Rising Edge Interrupt Registers or Falling Edge Interrupt Registers of the card. When the interrupt request signals occur, software will service these interrupt requests by ISR. The multiple interrupt sources provide the card with more flexibility.

Digital Filter Function (PCI-1758UDI/PCI-1758UDIO)

The digital filter function is used to eliminate glitches on input data and reduce the number of changes to examine and process. The filter blocks pulses that are shorter than the specified timing interval and passes pulses that are twice as long as the specified interval. Intermediate-length pulses that are longer than half of the interval, but less than the interval, may or may not pass the filter.

Pin Assignments

CNB

PEF_COMM	100	50	PAB_COMM
PEF_COMM	99	49	PAB_COMM
PF_IDI07	98	48	PB_IDI07
PF_IDI06	97	47	PB_IDI06
PF_IDI05	96	46	PB_IDI05
PF_IDI04	95	45	PB_IDI04
PF_IDI03	94	44	PB_IDI03
PF_IDI02	93	43	PB_IDI02
PF_IDI01	92	42	PB_IDI01
PF_IDI00	91	41	PB_IDI00
PE_IDI07	90	40	PA_IDI07
PE_IDI06	89	39	PA_IDI06
PE_IDI05	88	38	PA_IDI05
PE_IDI04	87	37	PA_IDI04
PE_IDI03	86	36	PA_IDI03
PE_IDI02	85	35	PA_IDI02
PE_IDI01	84	34	PA_IDI01
PE_IDI00	83	33	PA_IDI00
NC	82	32	NC
NC	81	31	NC
NC	80	30	NC
NC	79	29	NC
NC	78	28	P01_COMM
NC	77	27	P01_COMM
NC	76	26	NC
NC	75	25	NC
PCD_COMM	74	24	P89_COMM
PCD_COMM	73	23	P89_COMM
PD_IDI07	72	22	P9_IDI07
PD_IDI06	71	21	P9_IDI06
PD_IDI05	70	20	P9_IDI05
PD_IDI04	69	19	P9_IDI04
PD_IDI03	68	18	P9_IDI03
PD_IDI02	67	17	P9_IDI02
PD_IDI01	66	16	P9_IDI01
PD_IDI00	65	15	P9_IDI00
PC_IDI07	64	14	P8_IDI07
PC_IDI06	63	13	P8_IDI06
PC_IDI05	62	12	P8_IDI05
PC_IDI04	61	11	P8_IDI04
PC_IDI03	60	10	P8_IDI03
PC_IDI02	59	9	P8_IDI02
PC_IDI01	58	8	P8_IDI01
PC_IDI00	57	7	P8_IDI00
NC	56	6	NC
NC	55	5	NC
NC	54	4	NC
NC	53	3	NC
NC	52	2	NC
NC	51	1	NC

CNA

NC	1	51	NC
NC	2	52	NC
NC	3	53	NC
NC	4	54	NC
NC	5	55	NC
NC	6	56	NC
P0_IDI00	7	57	P4_IDI00
P0_IDI01	8	58	P4_IDI01
P0_IDI02	9	59	P4_IDI02
P0_IDI03	10	60	P4_IDI03
P0_IDI04	11	61	P4_IDI04
P0_IDI05	12	62	P4_IDI05
P0_IDI06	13	63	P4_IDI06
P0_IDI07	14	64	P4_IDI07
P1_IDI00	15	65	P5_IDI00
P1_IDI01	16	66	P5_IDI01
P1_IDI02	17	67	P5_IDI02
P1_IDI03	18	68	P5_IDI03
P1_IDI04	19	69	P5_IDI04
P1_IDI05	20	70	P5_IDI05
P1_IDI06	21	71	P5_IDI06
P1_IDI07	22	72	P5_IDI07
P01_COMM	23	73	P45_COMM
P01_COMM	24	74	P45_COMM
NC	25	75	NC
NC	26	76	NC
NC	27	77	NC
NC	28	78	NC
NC	29	79	NC
NC	30	80	NC
NC	31	81	NC
NC	32	82	NC
P2_IDI00	33	83	P6_IDI00
P2_IDI01	34	84	P6_IDI01
P2_IDI02	35	85	P6_IDI02
P2_IDI03	36	86	P6_IDI03
P2_IDI04	37	87	P6_IDI04
P2_IDI05	38	88	P6_IDI05
P2_IDI06	39	89	P6_IDI06
P2_IDI07	40	90	P6_IDI07
P3_IDI00	41	91	P7_IDI00
P3_IDI01	42	92	P7_IDI01
P3_IDI02	43	93	P7_IDI02
P3_IDI03	44	94	P7_IDI03
P3_IDI04	45	95	P7_IDI04
P3_IDI05	46	96	P7_IDI05
P3_IDI06	47	97	P7_IDI06
P3_IDI07	48	98	P7_IDI07
P23_COMM	49	99	P67_COMM
P23_COMM	50	100	P67_COMM

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

PCI-1760U

8-ch Relay and 8-ch Isolated Digital Input Universal PCI Card with 8-ch Counter/Timer

Features

- 8 opto-isolated digital input channels
- 8 relay actuator output channels
- 2 opto-isolated PWM outputs
- LED indicators to show activated relays
- Jumper selectable dry contact/wet contact input signals
- Up event counters for DI
- Programmable digital filter function for DI
- Pattern match interrupt function for DI
- "Change of state" interrupt function for DI
- Universal PCI and BoardID switch

RoHS COMPLIANT 2002/95/EC   FCC CE

Introduction

PCI-1760U relay actuator and isolated digital input card is a PC add-on card for the PCI bus. It meets the PCI standard Rev. 2.2 (Universal PCI expansion card), and works with both 3.3 V and 5 V PCI slots. It provides 8 opto-isolated digital inputs with isolation protection of 2,500 V_{DC} for collecting digital inputs in noisy environments, 8 relay actuators that can be used as a on/off control devices or small power switches, and 2 isolated PWM (Pulse Width Modulation) outputs for custom applications.

For easy monitoring, each relay is equipped with one red LED to show its on/off status. Each isolated input supports both dry contact and wet contact so that it can easily interface with other devices when no voltage is present in the external circuit.

Specifications

Isolated Digital Input

- **Channels**   8
- **Input Voltage**   Logic 0: 1.0 V max.
  Logic 1: 4.5 V min. (12 V max.)
- **Interrupt Capable**   Ch. 8 (IDI0 ~ IDI7)
- **Isolation Protection**   2,500 V_{DC}
- **Opto-Isolator Response**   100 µs
- **Input Resistance**   2 k Ohm @ 1/4 W

Counter/Timer

- **Channels**   8
- **Resolution**   16 bits
- **Compatibility**   5 V/TTL
- **Max. Input Frequency**   500 Hz
- **Isolation Protection**   2,500 V_{DC}
- **PWM Channels**   2
- **Digital Noise Filter**   Min. effective high input period $\geq$ [(2 ~ 65535) x 5 ms] + 5 ms
  Min. effective low input period $\geq$ [(2 ~ 65535) x 5 ms] + 5 ms

Relay Output

- **Channels**   8
- **Relay Type**   2 x Form C, and 6 x Form A
- **Contact Rating**   1 A @ 125 V_{AC}, 2 A @ 30 V_{DC}
- **Max. Switching Power**   125 VA, 60 W
- **Max. Switching Voltage**   250 V_{AC}, 220 V_{DC}
- **Max. Switching Current**   2 A
- **Operate/Release Time**   max. 5 / 3.5 ms
- **Resistance**   Contact: 50 mW max.
- **Life Expectancy (Electrical)**   3 x 10^5 cycles min.: 2 A @ 30 V_{DC}, 1 A @ 125 V_{AC}
  10^6 cycles min.: 1 A @ 30 V_{DC}, 0.5 A @ 125 V_{AC}

General

- **Bus Type**   Universal PCI V2.2
- **I/O Connectors**   1 x DB37 female connector
- **Dimensions (L x H)**   175 x 100 mm (6.9" x 3.9")
- **Power Consumption**   Typical: 5 V @ 450 mA
  Max.: 5 V @ 850 mA
- **Operating Temperature**   0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature**   -20 ~ 70°C (-4 ~ 158°F)
- **Storage Humidity**   5 ~ 95 % RH, non-condensing

Ordering Information

- **PCI-1760U**   8-ch Relay/IDI PCI Card w/ 8-ch Counter/Timer

Accessories

- **PCL-10137-1E**   DB37 Cable, 1 m
- **PCL-10137-2E**   DB37 Cable, 2 m
- **PCL-10137-3E**   DB37 Cable, 3 m
- **ADAM-3937**   DB37 DIN-rail Wiring Board

ADVANTECH | **Data Acquisition Boards**

PCI-1761

8-ch Relay and 8-ch Isolated Digital Input PCI Card

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

Features

- 8 opto-isolated digital input channels
- 8 relay actuator output channels
- LED indicators to show activated relays
- BoardID switch

RoHS COMPLIANT 2002/95/EC   FCC   CE

Introduction

The PCI-1761 provides 8 opto-isolated digital inputs with isolation protection of 2,500 V_{DC} for collecting digital inputs in noisy environments, 8 relay actuators that can be used as a on/off control devices or small power switches.

For easy monitoring, each relay is equipped with one red LED to show its on/off status. Each isolated input supports both dry contact and wet contact so that it can easily interface with other devices when no voltage is present in the external circuit.

Specifications

Isolated Digital Input

- **Channels** 8
- **Input Voltage** Logic 0: 3.0 V max.
  Logic 1: 10 V min. (50 V max.)
- **Interrupt Capable Ch.** 8 (IDI0 ~ IDI7)
- **Isolation Protection** 2,500 V_{DC}
- **Opto-Isolator Response** 100 µs
- **Input Resistance** 5.7 k Ohm @ 1 W

Relay Output

- **Channels** 8
- **Relay Type** 4 x Form C, and 4 x Form A
- **Contact Rating** 2 A @ 250 V_{AC}, 2 A @ 30 V_{DC}
- **Max. Switching Power** 500 VA, 60 W
- **Max. Switching Voltage** 400 V_{AC}, 300 V_{DC}
- **Operating Time** Typical: 7 ms, Max: 15 ms
- **Release Time** Typical: 2 ms, Max: 6 ms
- **Resistance** Contact: 100 m Ohm max.
- **Life Expectancy** 2 x 10^5 cycles min. @ 2A/ 250V_{AC}

General

- **I/O Connectors** 1 x DB37 female connector
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Typical: 5 V @ 220 mA
  Max.: 5 V @ 750 mA
- **Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature** -20 ~ 70°C (-4 ~ 158°F)
- **Storage Humidity** 5 ~ 95 % RH, non-condensing

Ordering Information

- **PCI-1761** 8-ch Relay and 8-ch Isolated Digital Input PCI Card

Accessories

- **PCL-10137-1E** DB37 Cable, 1 m
- **PCL-10137-2E** DB37 Cable, 2 m
- **PCL-10137-3E** DB37 Cable, 3 m
- **ADAM-3937** DB37 DIN-rail Wiring Board

PCI-1762

Features

- 16 opto-isolated digital input channels
- 16 relay actuator output channels
- LED indicators to show activated relays
- Jumper selectable dry contact/wet contact input signals
- BoardID switch

RoHS COMPLIANT 2002/95/EC FCC CE

Introduction

The PCI-1762 provides 16 opto-isolated digital inputs with isolation protection of 2,500 V_{DC} for collecting digital inputs in noisy environments, 16 relay actuators that can be used as a on/off control devices or small power switches.

For easy monitoring, each relay is equipped with one red LED to show its on/off status. Each isolated input supports both dry contact and wet contact so that it can easily interface with other devices when no voltage is present in the external circuit.

Specifications

Isolated Digital Input

- **Channels**   16
- **Input Voltage**   Logic 0: 3.0 V max.
  Logic 1: 10 V min. (50 V max.)
- **Interrupt Capable Ch.**   2 (IDI0,IDI8)
- **Isolation Protection**   2,500 V_{DC}
- **Opto-Isolator Response**   100 µs
- **Input Resistance**   5.7 k Ohm 1 W

Relay Output

- **Channels**   16
- **Relay Type**   Form A or Form B (Jumper selectable)
- **Contact Rating**   0.5 A @ 250 V_{AC}, 0.5 A @ 30 V_{DC}
- **Max. Switching Power**   125 VA, 15 W
- **Max. Switching Voltage**   250 V_{AC}, 220 V_{DC}
- **Operate Time**   Typical: 3 ms, Max.: 5 ms
- **Release Time**   Typical: 2 ms, Max.: 4 ms
- **Resistance**   Contact: 50 m Ohm max.
- **Life Expectancy** 2×10^5 cycles min. @ 0.5A/ 250V_{AC}

General

- **I/O Connectors**   1 x DB62 female connector
- **Dimensions (L x H)**   175 x 100 mm (6.9" x 3.9")
- **Power Consumption**   Typical: 5 V @ 250 mA
  Max.: 5 V @ 620 mA
- **Operating Temperature**   0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature**   -20 ~ 70°C (-4 ~ 158°F)
- **Storage Humidity**   5 ~ 95 % RH, non-condensing

Ordering Information

- **PCI-1762**   16-ch Relay and 16-ch Isolated Digital Input PCI Card

Accessories

- **PCL-10162-1E**   DB62 Cable, 1 m
- **PCL-10162-3E**   DB62 Cable, 3 m
- **ADAM-3962**   DB62 DIN-rail Wiring Board

PCI-1780U

8-ch, 16-bit Counter/Timer Universal PCI Card

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Intelligent Operator Panel
6 Automation Panels
7 Panel PCs
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 DIN-Rail IPCs
14 CompactPCI Systems
15 IoT Wireless I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

Features

- 8 independent 16-bit counters
- 8 programmable clock source
- 8 digital TTL outputs and 8 digital TTL inputs
- Up to 20 MHz input frequency
- Multiple counter clock source selectable
- Counter output programmable
- Counter gate function
- Flexible interrupt source select
- BoardID™ switch

FCC CE RoHS COMPLIANT 2002/95/EC

Introduction

PCI-1780U is a general purpose multi-channel counter/timer PCI card. It targets the AM9513 to implement the counter/timer function by CPLD. It provides eight 16-bit counter channels, 8 digital outputs and 8 digital inputs. Its powerful counter functions cater to a broad range of industrial and laboratory applications.

The card features 12 programmable counter modes, to provide one shot output, PWM output, periodic interrupt output, time-delay output, and to measure the frequency and the pulse width. The PCL-10168 shielded cable works well with PCI-1780U to reduce noise. Its wires are all twisted pairs, and the input signals and output signals are separately shielded, providing minimal cross talk between signals and the best protection against EMI/EMC problems.

Specifications

Digital Input

- **Channels** 8
- **Compatibility** 5 V/TTL
- **Input Voltage** Logic 0: 0.8 V max.
  Logic 1: 2.0 V min.
- **Interrupt Capable Ch.** Ch. 0

Digital Output

- **Channels** 8
- **Compatibility** 5 V/TTL
- **Output Voltage** Logic 0: 0.8 V
  Logic 1: 2.0 V
- **Output Capability** Sink: 24 mA @ 0.8V
  Source: -15 mA @ 2.0V

Counter/Timer

- **Channels** 8 (independent)
- **Resolution** 16 bits
- **Compatibility** 5 V/TTL
- **Max. Input Frequency** 20 MHz
- **Reference Clock** Internal: 20 MHz
  External clock: 20 MHz max.
- **Counter Modes** 12 (programmable)
- **Interrupt Capable Ch.** 8
- **PWM Channels** 8

General

- **Bus Type** Universal PCI V2.2
- **I/O Connectors** 1 x 68-pin SCSI female connector
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Typical: 5 V @ 900 mA
  Max.: 5 V @ 1.2 A
- **Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature** -20 ~ 70°C (-4 ~ 158°F)
- **Storage Humidity** 5 ~ 95% RH, non-condensing

Ordering Information

- **PCI-1780U** 8-ch, 16-bit Counter/Timer Universal PCI Card

Accessories

- **PCL-10168-1E** 68-pin SCSI Shielded Cable, 1 m
- **PCL-10168-2E** 68-pin SCSI Shielded Cable, 2 m
- **ADAM-3968** 68-pin DIN-rail SCSI Wiring Board

PCI-1784U

4-ch, 32-bit Encoder Counter Universal PCI Card with 8-ch Isolated Digital I/O
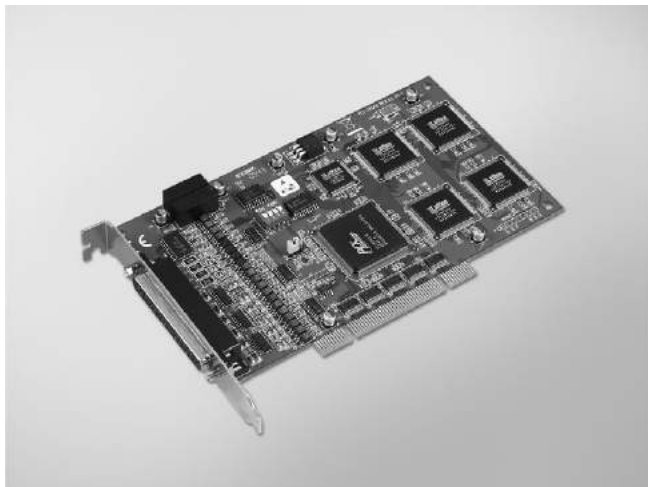
Features

- Four 32-bit encoder counters
- Single-ended or differential inputs
- Quadrature (x1, x2, x4), pulse/direction, and up/down counting modes
- Optically isolated up to 2,500 VDC
- 4-stage digital filter with selectable sampling rate
- On-board 8-bit timer with wide range time-base selector
- Multiple interrupt sources for precision applications
- 4 isolated digital inputs and 4 isolated digital outputs
- BoardID™ switch

Introduction

PCI-1784U is a 4-ch encoder counter universal PCI card. It includes four 32-bit encoder counters, 8-bit timer with multiple range time-base selector, 4 isolated digital inputs, and 4 isolated digital outputs. Its flexible interrupt sources are suitable for motor control and position monitoring.

Specifications

Encoder Counter

- **Channels**   4
- **Resolution**   32 bits
- **Counting Modes**   Quadrature, pulse/direction, or up/down
- **Max. Input Frequency**   8 MHz for pulse/direction and up/down modes
  2 MHz for quadrature mode without digital filter
  1 MHz for quadrature mode with digital filter
- **Digital Filter**   4 stages
- **Isolation**   2,500 V_{DC}
- **Sample Clock Frequency** 8, 4, 2, or 1 MHz
- **Interrupt Sources**   Overflow, underflow, index status, counter over compare, counter under compare
- **Input Voltage**   Single-ended:
  Logic 0: 0.8 V max.
  Logic 1: 2.8 V min. (12 V max.)
  Differential:
  Logic 0: -0.2 V max. (-12 V min.)
  Logic 1: 0.2 V min. (12 V max.)

Isolated Digital input

- **Channels**   4
- **Input Voltage**   Logic 0: 3 V max
  Logic 1: 10 V min. (30 V max.)
- **Interrupt Capable**   All 4 channels
- **Isolation**   2,500 V_{DC}
- **Opto-Isolator Response** 100 μs
- **Overvoltage Protection** 70 V_{DC}

Isolated Digital Output

- **Channels**   4
- **Output Voltage**   Logic 0: 0.8 V max.
  Logic 1: 2.0 V min.
- **Output Capability**   50 mA @ 0.8 V
  -50 mA @ 2.0 V
- **Isolation**   2,500 V_{DC}
- **Opto-Isolator Response** 2 μs

General

- **Bus Type**   Universal PCI V2.2
- **Connector**   37-pin D-sub female
- **Dimension (L x H)**   175 x 100 mm^2 (6.9" x 3.9")
- **Power Consumption**   Typical: +5 V @ 200 mA
  Max.: +5 V @ 450 mA
- **Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature**   -20 ~ 70°C (-4 ~ 158°F)
- **Storage Humidity**   5 ~ 95% RH, non-condensing (refer to IEC 68-2-3)
- **Certification**   CE

Ordering Information

- **PCI-1784U**   4-ch encoder counter universal PCI card
- **PCL-10137H-3E**   High-speed DB37 cable, 3 m
- **ADAM-3937**   DB37 DIN-rail wiring board

Signal Conditioning Modules and Terminal Boards

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To view all of Advantech's Signal Conditioning Modules and Terminal Boards, please visit www.advantech.com/products.

ADAM-3000 Series
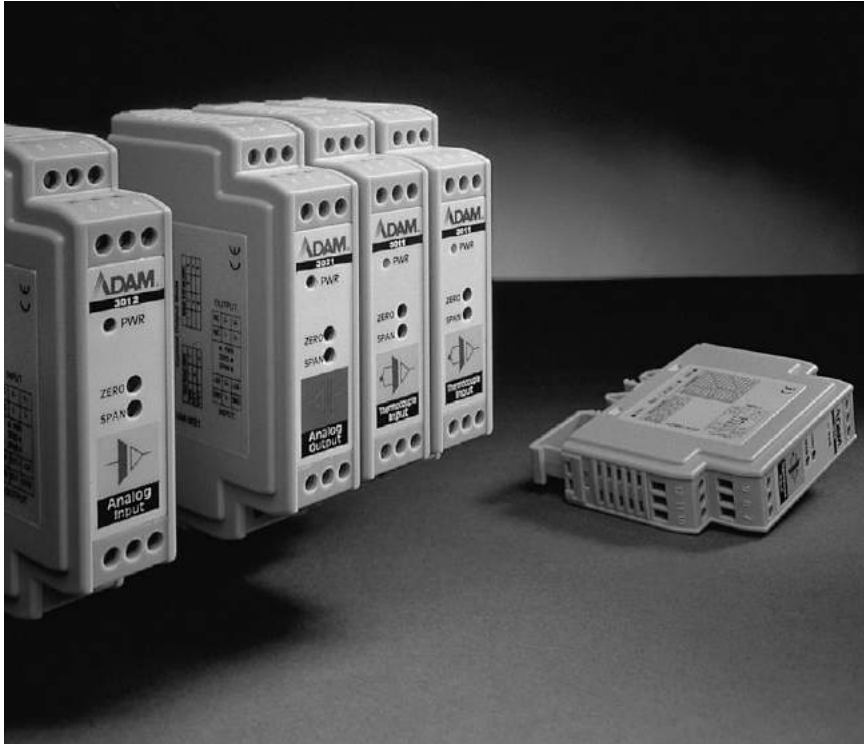
Features

- 1,000 V_{DC} three-way isolation
- Easy input/output range configuration
- Flexible DIN-rail mounting
- Linearized thermocouple/RTD measurement
- Low power consumption
- Wide input bandwidth

Introduction

The ADAM-3000 Series consist of the most cost-efficient, field configurable, isolation-based, signal conditioners on the market today. The modules are easily installed to protect your instruments and process signals from the harmful effects of ground loops, motor noise, and other electrical interferences.

Affordable Signal Isolation Solution

Featuring optical isolation technology, the ADAM-3000 modules provide three-way (input/output/power) 1,000 V_{DC} isolation. Optical isolation provides pin-point accuracy and stability over a wide range of operations at minimal power consumption.

Flexible Analog Data Conversion

The input/output range for the ADAM-3000 modules can be configured through switches located inside the module. The modules accept voltage, current, thermocouple or RTD as input, and pass voltage or current as output.

Thermocouple input is handled by the built-in input thermocouple linearization circuitry and a cold junction compensation function. These ensure accurate temperature measurement and accurate conversion of this information to the voltage or current output.

Configuration

The ADAM-3000 modules use 24 V_{DC} power. This electrical power wiring can be acquired from adjacent modules, which greatly simplifies wiring and maintenance. The I/O configuration switches are located inside the modules. To reach the switches, simply remove the modules from the DIN-rail bracket by sliding the modules downward.

Modular Industrial Design

The ADAM-3000 modules can be easily mounted on a DIN-rail, and signal wires can be connected through screw terminals. The screw terminals and input/output configuration switches are built inside the industrial grade plastic casing. With simple two-wire input/output cables, wiring is easy and reliable in harsh industrial environments.

Applications

- Signal isolation
- Signal transmitters
- Thermocouple/RTD/strain gauge measurements
- Signal amplifiers
- Noise filter

Common Specifications

- **Isolation** — 1,000 V_{DC}
- **Indicators** — Power LED indicator
- **Power Requirement** — 24 V_{DC} ± 10%
- **Case** — ABS
- **Screw Terminal** — Accepts 0.5 mm² ~ 2.5 mm²
  1- #12 or 2- #14 ~ #22 AWG
- **Operating Temperature** — 0 ~ 70°C (32 ~ 158°F)
  (ADAM-3011: 0 ~ 50°C (32 ~ 122°F))
- **Storage Temperature** — -25 ~ 85°C (-13 ~ 185°F)
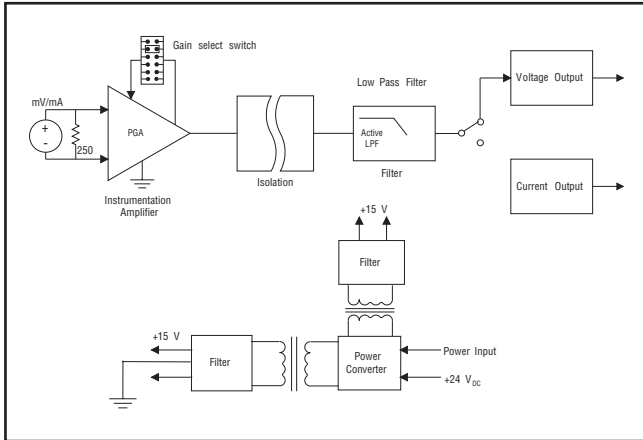
Block Diagram

Block Diagram of ADAM-3014

Dimensions

Unit: mm

ADAM-3000 Series Modules

Three-way Signal Isolation

Three-way (input/output/power) 1,000 V_{DC} isolation.
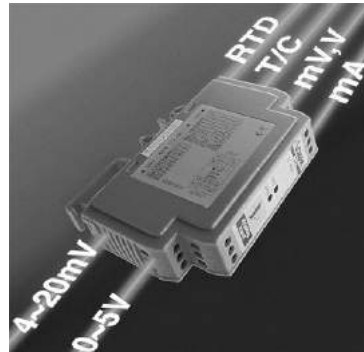
Field Configurable I/O Range

The I/O range can be configured on site with switches inside the module.
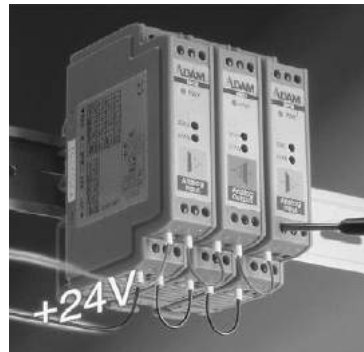
Easy Daisy Chain Power Wiring

Power can be connected conveniently from adjacent modules.
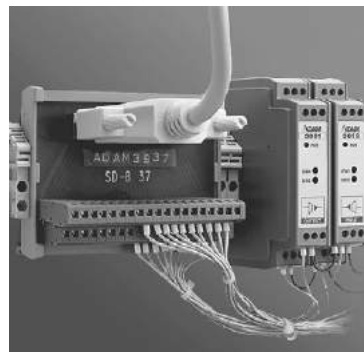
Interfacing to DAQ Cards

A wiring adapter can connect modules to a data acquisition card.

ADAM-3011
ADAM-3013
ADAM-3014

Isolated Thermocouple Input Module

Isolated RTD Input Module

Isolated DC Input/Output Module

| ADAM-3011 | C€ FCC ⟨FM⟩ | ADAM-3013 | C€ FCC ⟨FM⟩ | ADAM-3014 | C€ FCC ⟨FM⟩ |

Specifications

Thermocouple Input

- **Common Mode Rejection**   115 dB min
- **Input Type**

T/C type	Temperature Range (°C)	Accuracy at 25°C (°C)
J	-40 ~ 760	±2
K	0 ~ 1,000	±2
T	-100 ~ 400	±2
E	0 ~ 1,000	±2
S	500 ~ 1,750	±4
R	500 ~ 1,750	±4
B	500 ~ 1,800	±4

- **Isolation**   1,000 V_{DC} (Three-way)
- **Output Impedance**   0.5 Ω
- **Stability (Temperature Drift)**   ±2°C
- **Voltage Output**   0 ~ 10 V

General

- **Connectors**   Screw terminal
- **Enclosure**   ABS
- **Indicators**   Power LED indicator
- **Isolation**   1,000 V_{DC}
- **Power Consumption**   1.4 W
- **Power Input**   24 V_{DC} ± 10%
- **Operating Temperature**   0 ~ 50°C (32 ~ 122°F)
- **Storage Temperature**   -25 ~ 85°C (-13 ~ 185°F)

Ordering Information

- **ADAM-3011**   Isolated Thermocouple Input Module

Specifications

RTD Input

- **Accuracy**   ± 0.1% of full range (voltage) or +/- 0.15°C (voltage) ± 0.2% of full range (current)
- **Bandwidth**   4 Hz
- **Input CMR at DC**   92 dB min.
- **Input Connections**   2, 3 or 4 wires
- **Input Type**

RTD type	α	Temperature Range (°C)
Pt	0.00385	-100 ~ 100
Pt	0.00385	0 ~ 100
Pt	0.00385	0 ~ 200
Pt	0.00385	0 ~ 600
Pt	0.00385	-100 ~ 0
Pt	0.00385	-100 ~ 200
Pt	0.00385	-50 ~ 50
Pt	0.00385	-50 ~ 150
Pt	0.00392	-100 ~ 100
Pt	0.00392	0 ~ 100
Pt	0.00392	0 ~ 200
Pt	0.00392	0 ~ 600
Ni	N/A	0 ~ 100
Ni	N/A	-80 ~ 100

- **Output Range**   0 ~ 5 V, 0 ~ 10 V, 0 ~ 20 mA
- **Output Resistance**   < 5 Ω
- **Temperature Drift**   ± 30 ppm of full range

General

- **Connectors**   Screw terminal
- **Enclosure**   ABS
- **Indicators**   Power LED indicator
- **Isolation**   1,000 V_{DC}
- **Power Consumption**   < 0.95 W
- **Power Input**   24 V_{DC} ±10%
- **Operating Temperature**   0 ~ 70°C (32 ~ 158°F)
- **Storage Temperature**   -25 ~ 85°C (-13 ~ 185°F)

Ordering Information

- **ADAM-3013**   Isolated RTD Input Module

Specifications

I/O

- **Accuracy**   ±0.1% of full range (typical)
- **Common Mode Rejection**   > 100 dB @ 50 Hz/60 Hz
- **Current Input**   Bipolar: ±20 mA Unipolar: 0 ~ 20 mA Input impedance: 250 Ω
- **Current Output**   0 ~ 20 mA
- **Stability (Temperature Drift)**   150 ppm (typical)
- **Voltage Input**   Bipolar input: ±10 mV, ±50 mV, ±100 mV, ±0.5 V, ±1.0 V, ±5 V, ±10 V Unipolar input: 0 ~ 10 mV, 0 ~ 50 mV, 0 ~ 100 mV, 0 ~ 0.5 V, 0 ~ 1 V, 0 ~ 5 V, 0 ~ 10 V Input impedance: 2 MΩ Input bandwidth: 2.4 kHz (typical)
- **Voltage Output**   Bipolar: ±5 V, ±10 V Unipolar: 0 ~ 10 V Impedance: < 50 Ω Drive: 10 mA max.

General

- **Connectors**   Screw terminal
- **Enclosure**   ABS
- **Indicators**   Power LED indicator
- **Isolation (Three-way)**   1,000 V_{DC}
- **Power Consumption**   0.85 W (voltage output) 1.2 W (current output)
- **Power Input**   24 V_{DC} ±10%
- **Operating Temperature**   -10 ~ 70°C (14 ~ 158°F)
- **Storage Temperature**   -25 ~ 85°C (-13 ~ 185°F)

Ordering Information

- **ADAM-3014**   Isolated DC Input/Output Module

ADAM-3016
ADAM-3112
ADAM-3114

Isolated Strain Gauge Input Module

Isolated AC Voltage Input Module

Isolated AC Current Input Module

ADAM-3016 CE FCC FM APPROVED

ADAM-3112 CE FCC FM APPROVED

ADAM-3114 CE FCC FM APPROVED

Specifications

I/O

- **Accuracy** ±0.1% of full range
- **Bandwidth** 2.4 kHz (typical)
- **Isolation Mode Rejection** >100 dB @ 50 Hz/60 Hz
- **Current Output** Current: 0 ~ 20 mA
  Current load resistor:
  0 ~ 500 Ω (Source)
- **Stability (Temperature Drift)** 150 ppm (typical)
- **Voltage Specifications** Electrical input: ±10 mV,
  ±20 mV, ±30 mV, ±100 mV
  Excitation voltage:
  1 ~ 10 V_{DC} (60 mA max)
- **Voltage Output** Bipolar: ±5 V, ±10 V
  Unipolar: 0 ~ 10 V
  Impedance: < 50 Ω

General

- **Connectors** Screw terminal
- **Enclosure** ABS
- **Indicators** Power LED indicator
- **Isolation** 1,000 V_{DC} (Three-way)
- **Power Consumption** ≤ 1.85 W (voltage output)
  ≤ 2.15 W (current output)
- **Power Input** 24 V_{DC} ±10%
- **Operating Temperature** -10 ~ 70°C (14 ~ 158°F)
- **Storage Temperature** -25 ~ 85°C (-13 ~ 185°F)

Ordering Information

- **ADAM-3016** Isolated Strain Gauge Input Module

Specifications

Voltage Input

Full Range Mode		400 V	250 V	120 V
Input Voltage	AC (V_{RMS})	0 ~ 400	0 ~ 250	0 ~ 120
	DC (V)	0 ~ 400	0 ~ 250	0 ~ 120
Input Impedance		48 k	30 k	14.4 k

Voltage Output

- **Output Signal** 0 ~ 5 V_{DC}
- **Accuracy** < ±1.0 % for full range
- **Output Impedance** < 10 Ω @
  operating frequency <60 Hz
- **Load** > 10 k Ω
- **Ripple** < 120mVp-p
- **Temperature Coefficient** 400 ppm/°C
- **Input Bandwidth** 6 kHz

Power Consumption

- **Supply Voltage** 24 V_{DC} ± 10 %
- **Current Consumption** 40 mA

General

- **Isolation Protection** 1,000 V_{DC} (output to power)
  2,500 V_{RMS} (input to output, input to power)
- **Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature** -20 ~ 70°C (-4 ~ 158°F)
- **Storage Humidity** 5 ~ 95 %

Ordering Information

- **ADAM-3112** Isolated AC Voltage Input Module

Specifications

Current Input

- **AC Current Input** 0 ~ 5 A_{RMS}
- **DC Current Input** 0 ~ 5 A

Voltage Output

- **Output Signal** 0 ~ 5 V_{DC}
- **Accuracy** < ±1.0 % for full range
- **Output Impedance** <10 Ω @
  operating frequency <60 Hz
- **Load** > 10 kΩ
- **Ripple** < 120 mVp-p
- **Temperature Coefficient** 400 ppm/°C
- **Input Bandwidth** 10 kHz

Power Consumption

- **Supply Voltage** 24 V_{DC} ± 10 %
- **Current Consumption** 40 mA

General

- **Isolation Protection** 1,000 V_{DC} (output to power)
  2,500 V_{RMS} (input to output, input to power)
- **Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature** -20 ~ 70°C (-4 ~ 158°F)
- **Storage Humidity** 5 ~ 95 %

Ordering Information

- **ADAM-3114** Isolated AC Current Input Module

Terminal Board Selection Guide

Recommended Cables, I/O Wiring Terminal Boards and Isolated Digital I/O Terminals for Connecting to PCI & USB Data Acquisition (DAQ) Products

PCI & USB Product	Cable	I/O Wiring Terminal Board	Cable	Digital I/O Terminal
PCI-1710U/1710UL/1710HGU PCI-1711U/1711UL PCI-1716/1716L PCI-1706U/UL PCI-1741U/1742U PCIE-1810/ PCIE-1816/ PCIE-1816H	PCL-10168 PCL-10168H	PCLD-8710	PCL-10120 PCL-10121	ADAM-3920
		ADAM-3968		
PCI-1712/1712L	PCL-10168 PCL-10168H	PCLD-8712		
PCI-1718HDU/HGU	PCL-10137	ADAM-3937, PCLD-880 PCLD-8115, PCLD-789D		PCLD-782
PCI-1727U PCI-1730U PCIE-1730	PCL-10120 PCL-10121	PCL-10502+ PCL-10120, PCL-10121		
	PCL-10137 / ADAM-3937 PCLD-880	PCL-10503+ PCL-10137, ADAM-3937		
PCI-1751	PCL-10168	ADAM-3968	PCL-10150+ ADAM-3950 PCLD-782B PCLD-785B PCLD-885 PCLD-7216	PCLD-782B
		PCLD-8751, PCLD-8761 PCLD-8762		
PCI-1753	PCL-10268	ADAM-3968/50		PCLD-785
		ADAM-3968/20	PCL-10120	
PCI-1713U, PCI-1715U	PCL-10137	ADAM-3937 PCLD-880 PCLD-881B		
PCI-1720U, PCI-1733, PCI-1734 PCI-1750, PCIE-1760, PCI-1760U, PCI-1761, USB-4702	PCL-10137	ADAM-3937		PCLD-785B
PCI-1784U	PCI-10137H			
PCI-1752U, PCI-1754, PCI-1756 PCIE-1752, PCIE-1754, PCIE-1756	PCL-10250	ADAM-3951		
	PCL-101100M	ADAM-39100		
PCI-1724U, PCI-1762	PCL-10162	ADAM-3962		PCLD-786
PCI-1737U PCI-1739U USB-4751/L	PCL-10150	ADAM-3950, PCLD-782B PCLD-785B, PCLD-885 PCLD-7216		
PCI-1714U/1714UL, PCIE-1744	PCL-10901	ADAM-3909		PCLD-788
	PCL-1010B			
PCI-1757UP	PCL-10125	ADAM-3925		
PCI-1747U, PCI-1721 PCI-1723, PCI-1780U	PCL-10168	ADAM-3968		PCLD-885
PCI-1735U	PCL-10120 PCL-10121	PCL-10502+ PCL-10120, PCL-10121		
		PCL-10503+ PCL-10137, ADAM-3937		
PCI-1755	PCL-101100	ADAM-39100		PCLD-7216
PCI-1758UDI/1758UDO/1758UDIO	PCL-101100S			
PCI-1671UP, USB-4671	PCL-10488			

Recommended Cables, I/O Wiring Terminal Boards and Isolated Digital I/O Terminals for Connecting to PC/104 & PCI-104 Data Acquisition (DAQ) Products

PC/104 & PCI-104 Product	Cable	I/O Wiring Terminal Board	Digital I/O Terminal
PCM-3718H/HO/HG PCM-3730	PCL-10120 PCL-10121		ADAM-3920
			PCLD-780
PCM-3724 PCM-3753I	PCL-10150	ADAM-3950, PCLD-782B PCLD-785B, PCLD-885 PCLD-7216	PCLD-782
			PCLD-782B
PCM-3725 PCM-3780 PCM-3761I	PCL-10120 PCL-10121	ADAM-3920	PCLD-785
	PCL-10150	ADAM-3950	PCLD-785B
PCM-3810I	PCL-10126	PCL-10125 — ADAM-3925	PCLD-786
	PCL-10150	ADAM-3950	PCLD-788
PCM-3813I	PCL-10141	PCL-10137 — ADAM-3937	PCLD-885
PCM-3730I	PCL-10120 PCL-10121	ADAM-3920	PCLD-7216

Cable Accessories

Model	Description
PCL-1010B-1E	BNC to BNC Wiring Cable, 1 m
PCL-101100-1E	100-pin SCSI High-Speed Cable, 1 m
PCL-101100S-1E	100-pin Mini-SCSI Cable, 1 m
PCL-101100S-2E	100-pin Mini-SCSI Cable, 2 m
PCL-101100S-3E	100-pin Mini-SCSI Cable, 3 m
PCL-101100M-3E	100-pin SCSI Shielded Cable, 3 m
PCL-10120-0.4E	20-pin Flat Cable, 0.4 m
PCL-10120-1E	20-pin Flat Cable, 1 m
PCL-10120-2E	20-pin Flat Cable, 2 m
PCL-10121-2E	20-pin Shielded Cable, 2 m
PCL-10125-1E	DB25 Cable, 1 m
PCL-10125-3E	DB25 Cable, 3 m
PCL-10126-0.2E	IDE#2 26-pin to DB25(F) Flat CABLE, 0.2m
PCL-10137-1E	DB37 Cable, 1 m
PCL-10137-2E	DB37 Cable, 2 m
PCL-10137-3E	DB37 Cable, 3 m
PCL-10137H-1E	DB37 High-Speed Cable, 1 m

Model	Description
PCL-10137H-3E	DB37 High-Speed Cable, 3 m
PCL-10141-0.2E	IDE#2 40-pin to DB37(F) Flat CABLE, 0.2m
PCL-10150-1.2E	50-pin Flat Cable, 1.2 m
PCL-10162-1E	DB62 Cable, 1 m
PCL-10162-3E	DB62 Cable, 3 m
PCL-10168-1E	68-pin SCSI Shielded Cable, 1 m
PCL-10168-2E	68-pin SCSI Shielded Cable, 2 m
PCL-10168H-1E	68-pin SCSI Shielded Cable with Noise Rejecting, 1m
PCL-10168H-2E	68-pin SCSI Shielded Cable with Noise Rejecting, 2m
PCL-10250-1E	100-pin SCSI to Two 50-pin SCSI Cable, 1 m
PCL-10250-2E	100-pin SCSI to Two 50-pin SCSI Cable, 2 m
PCL-10268-1E	100-pin SCSI to Two 68-pin SCSI Cables, 1 m
PCL-10268-2E	100-pin SCSI to Two 68-pin SCSI Cables, 2 m
PCL-10488-2	IEEE-488 Cable, 2 m
PCL-10502-AE	Extender, Extend Dual 20-pin to PC Slot-Plate
PCL-10503-AE	Adapter Dual 20-pin to DB37
PCL-10901-3E	DB9 to PS/2 Cable, 3 m

ADAM-3854
ADAM-3864

4-ch Power Relay Module

4-ch Solid State Digital I/O Module Carrier Backplane
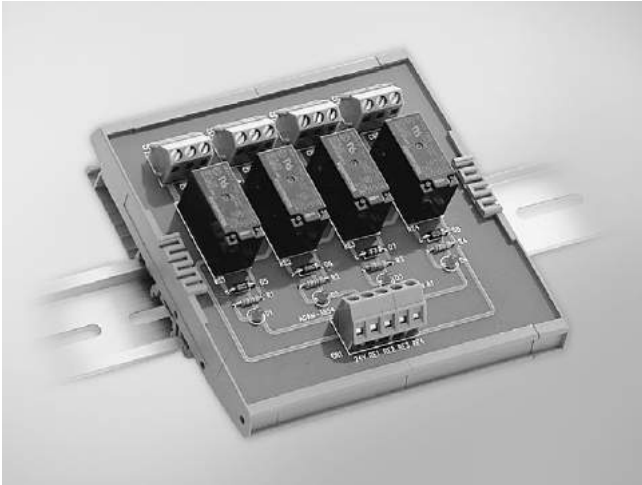
ADAM-3854

Features

- High power relays can handle up to 5 A @ 250 V_{AC} and 5 A @ 30 V_{DC}
- 4 single-pole double-throw (SPDT) relays
- Industrial screw terminals for easy output wiring
- LED status indicators
- Onboard varistor protects relay contact points
- DIN-rail mounting

Specifications

I/O

- **Channels**   4
- **Contact Rating**   250 V_{AC} @ 5 A
     30 V_{DC} @ 5 A
- **Contact Resistance**   100 mΩ
- **Operation Time**   15 ms max.
- **Relay Type**   SPDT (Form C)
- **Release Time**   5 ms max.
- **Life Expectancy** 1.7×10^5 at rated load

Varistor

- **Clamping Voltage**   760 V (10 A)
- **Max. Applied Voltage**   300 V_{RMS}
- **Max. Peak Current**   1,200 A for 8 ms
- **Varistor Voltage**   470 V (current = 1 mA)

General

- **Connectors**   Screw terminals
- **Dimensions (L x W x H)**   112.5 x 118.4 x 46 mm (4.43" x 4.66" x 1.81")
- **LED Indicators**   Status displayed for each relay
- **Mounting**   DIN-rail
- **Power Consumption**   2.2 W
- **Power Input**   24 V_{DC}

Ordering Information

- **ADAM-3854**   4-ch DIN-rail Power Relay Module
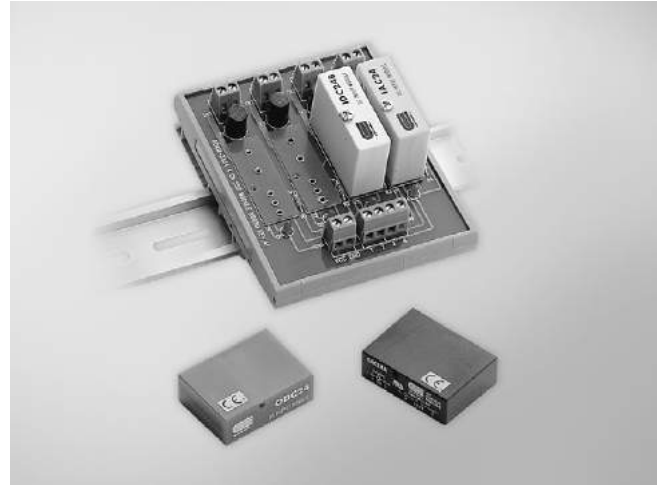
ADAM-3864

Features

- 2,500 V_{RMS} optical isolation
- LED status indicators
- Onboard fuse protection
- DIN-rail mounting

Specifications

Input Modules
Field Side:

- **Input On/Off Voltage Range**   IAC24A series: 180 ~ 280 V/80 V_{RMS}
     IDC24B series: 3 ~ 32 V/1 V_{DC}
- **Input Resistance**   IAC24A series: 44 kΩ
     IDC24B series: 1.5 kΩ

Logic Side:

- **Breakdown Voltage**   30 V_{DC}
- **Output Current**   100 mA max.
- **Output Voltage Drop**   0.4 V max.
- **Supply Current**   12 mA max.
- **Supply Voltage**   24 V_{DC}

Output Modules
Field Side:

- **Contact Voltage Drop**   1.6 V max.
- **Current Rating**   3 A max. (@ 25°C)

Logic Side:

- **Input Resistance**   220 Ω
- **Supply Current**   12 mA max.
- **Supply Voltage**   24 V

General

- **Dimensions (L x H x W)**   118.4 x 90 x 59 mm (4.66" x 3.54" x 2.32")
- **Mounting**   DIN-rail

Ordering Information

- **ADAM-3864**   4-ch Solid State Module Carrier Backplane
- **OAC24A**   AC Output Module (24-280 V_{AC}, 3 A)
- **ODC24**   DC Output Module (5-60 V_{DC}, 3 A)
- **PCLM-ODC5**   Single Piece DC SSR Module (60 V_{DC}, 3 A)
- **IAC24A**   AC Input Module (180-280 V_{AC})
- **IDC24B**   DC Input Module (3-32 V_{DC})

Industrial USB I/O Modules

To view all of Advantech's Industrial USB I/O Modules, please visit www.advantech.com/products.

USB-4620
USB-4622

5-port Full-speed Isolated USB 2.0 Hub

5-port High-speed USB 2.0 Hub

USB-4620

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USB-4622

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Features

- 5 downstream USB 2.0 ports
- Compatible with USB 2.0 Full-speed
- 3,000 V_{DC} voltage isolation for each downstream port
- Suitable for DIN-rail mounting
- One lockable USB cable included
- 10 ~ 30 V_{DC} power input (power adapter not included*)

Features

- 5 downstream USB 2.0 ports
- Compatible with USB 2.0 High-speed, USB 2.0 Full-speed, USB 1.0
- 480 Mbps high-speed data transfer
- LED indicator
- Suitable for DIN-rail mounting
- One lockable USB cable included
- 10 ~ 30 V_{DC} power input (power adapter not included*)

Specifications

Connectivity
- **Ports**   Upstream x 1 (Type B) Downstream x 5 (Type A)
- **Compatibility**   USB 2.0 Full-speed
- **Transfer Speed**   12 Mbps
- **Supply Current**   500 mA max. per channel

General
- **Housing**   Plastic (ABS+PC)
- **Dimensions (L x W x H)**   132 x 80 x 32 mm (5.2" x 3.15" x 1.26")
- **DC Input**   10 ~ 30 V_{DC}
- **Power Consumption**   24 V @ 36 mA
- **Operating Temperature**   0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature**   -20 ~ 70°C (-4 ~ 158°F)
- **Storage Humidity**   5 ~ 95% RH non-condensing

Protection
- **Isolation Protection**   3,000 V_{DC}

Ordering Information

- **USB-4620-AE**   5-port Full-speed Isolated USB 2.0 Hub

Accessories
- **PWR-242-AE**   DIN-rail Power Supply
- **1960004544**   Wallmount Bracket
- **1960005788**   VESA Mount Bracket
- **USB-LOCKCABLE-AE**   1.8 M Lockable USB 2.0 Cable with Screw Kit

Specifications

Connectivity
- **Ports**   Upstream x 1 (Type B) Downstream x 5 (Type A)
- **Compatibility**   USB 2.0 High-speed, USB 2.0 Full-speed, USB 1.0
- **Transfer Speed**   480 Mbps/12 Mbps/1.5 Mbps
- **Supply Current**   500 mA max. per channel

General
- **Housing**   Plastic (ABS+PC)
- **Dimensions (L x W x H)**   132 x 80 x 32 mm (5.2" x 3.15" x 1.26")
- **DC Input**   10 ~ 30 V_{DC}
- **Power Consumption**   24 V @ 36 mA
- **Operating Temperature**   0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature**   -20 ~ 70°C (-4 ~ 158°F)
- **Storage Humidity**   5 ~ 95% RH non-condensing

Ordering Information

- **USB-4622-BE**   5-port High-speed USB 2.0 Hub

Accessories
- **PWR-242-AE**   DIN-rail Power Supply
- **1960004544**   Wallmount Bracket
- **1960005788**   VESA Mount Bracket
- **USB-LOCKCABLE-AE**   1.8 M Lockable USB 2.0 Cable with Screw Kit

ADVANTECH | **Industrial USB I/O Modules**

USB-4702
USB-4704

10 kS/s, 12-bit, 8-ch Multifunction DAQ USB Module
48 kS/s, 14-bit, 8-ch Multifunction DAQ USB Module
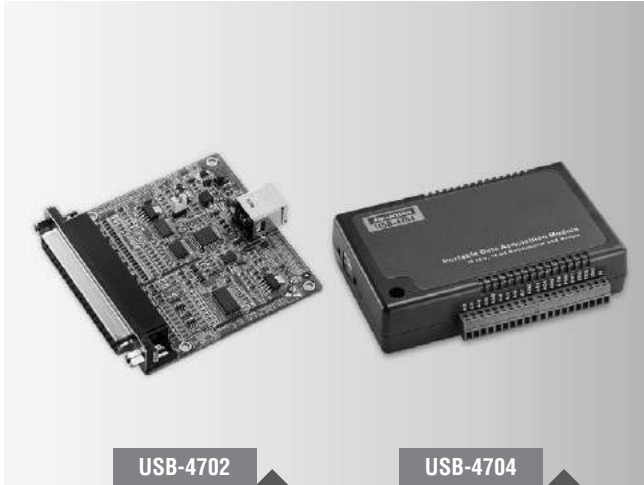
Features

- Supports USB 2.0
- Portable
- Bus-powered
- 8 analog input channels
- 12-bit (USB-4702), 14-bit (USB-4704) resolution AI
- Sampling rates up to 10 kS/s (USB-4702), 48 kS/s (USB-4704)
- 8-ch DI/8-ch DO, 2-ch AO and one 32-bit counter

USB-4702   USB-4704

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Introduction

USB-4702/4704 are low-cost USB data acquisition modules. You no longer need to open the chassis to install DAQ modules. Just plug in the module, then get the data. It's easy to use and efficient. Reliable and rugged enough for industrial applications, yet affordable for home projects, USB-4702/4704 are the perfect way to add measurement and control capability to any USB capable computer. It obtains all required power from the USB port, so no external power connection is ever required. With the features of USB-4702/4704, they are your most cost effective choice of lab or production line test & measurement tool.

Specifications

Analog Input

- **Channels** 8 single-ended/4 differential (software programmable)
- **Resolution** USB-4702: Single-ended: 11 bits
  Differential: 12 bits
  SUB-4704: Single-ended: 13 bits
  Differential: 14 bits
- **Max. Sampling Rate** USB-4702: 10 kS/s max.
  USB-4704: 48 kS/s max.

Note: The sampling rate for each channels will be affected by used channel number. For example, if 4 channels of USB-4702 are used, the sampling rate is 10k/4 = 2.5 kS/s per channel.

- **FIFO Size** 512 samples
- **Overvoltage Protection** 30 Vp-p
- **Input Impedance** 127 kΩ
- **Sampling Modes** Software, onboard programmable pacer, and external
- **Input Range (V, software programmable) & Absolute Accuracy**

Single Ended		±10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Differential		N/A	±1	±1.25	±2	±2.5	±4	±5	±10	±20
Absolute Accuracy (% of FSR)*	USB-4702	0.2	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
	USB-4704	0.15	0.1	0.1	0.1	0.1	0.1	0.1	0.15	0.15

*: ±1 LSB is added as the derivative for absolute accuracy

Analog Output

- **Channels** 2
- **Resolution** 12 bits
- **Output Rate** Static update
- **Output Range** (V, software programmable) 0~5
- **Slew Rate** 0.7 V/µs
- **Driving Capability** 5 mA
- **Output Impedance** 51 Ω
- **Operation Mode** Single output
- **Accuracy** Relative: ±12 LSB
  Differential non-linearity: ±5 LSB

Digital Input

- **Channels** 8
- **Compatibility** 3.3 V/5 V/TTL
- **Input Voltage** Logic 0: 0.8 V max.
  Logic 1: 2.0 V min.

Digital Output

- **Channels** 8
- **Compatibility** TTL
- **Output Voltage** Logic 0: 0.4 V max.@ 4 mA (sink)
  Logic 1: 3.5 V min.@ 4 mA (source)

Counter

- **Channels** 1
- **Resolution** 32 bits
- **Compatibility** 3.3 V/TTL
- **Max. Input Frequency** 5 MHz

General

- **Bus Type** USB 2.0
- **I/O Connector** USB-4702: 1 x DB37 female connector
  USB-4704: Onboard screw terminal
- **Dimensions (L x W)** USB-4702: 70 x 70 mm (2.76" x 2.76")
  USB-4704: 132 x 80 x 32 mm (5.2" x 3.15" x 1.26")
- **Power Consumption** Typical: 5 V @ 100 mA
  Max.: 5 V @ 500 mA
- **Operating Temperature** 0 ~ 55°C (32 ~ 131°F)
- **Storage Temperature** -20 ~ 70°C (-4 ~ 158°F)
- **Storage Humidity** 5 ~ 95% RH non-condensing

Ordering Information

- **USB-4702-AE** 10 kS/s, 12-bit, 8-ch Multi. USB Module
- **USB-4704-AE** 48 kS/s, 14-bit, 8-ch Multi. USB Module

Accessories

- **PCL-10137-1E** DB37 Cable, 1m
- **PCL-10137-2E** DB37 Cable, 2m
- **PCL-10137-3E** DB37 Cable, 3m
- **ADAM-3937-BE** DB37 DIN-rail Wiring Board
- **1960004544** Wallmount Bracket
- **1960005788** VESA Mount Bracket

USB-4711A

150 kS/s, 12-bit, 16-ch Multifunction DAQ USB Module

Features

- Supports USB 2.0
- Portable
- Bus-powered
- 16 analog input channels
- 12-bit resolution AI
- Sampling rate up to 150 kS/s
- 8-ch DI/8-ch DO, 2-ch AO and one 32-bit counter
- Detachable screw terminal on modules
- Suitable for DIN-rail mounting
- One lockable USB cable for secure connection included

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Introduction

The USB-4700 series consists of true plug & play data acquisition modules. You no longer need to open the chassis to install DAQ modules. Just plug in the module, then get the data. It's easy to use and efficient. Reliable and rugged enough for industrial applications, yet affordable for home projects, the USB-4700 series module is the perfect way to add measurement and control capability to any USB capable computer. The USB-4700 series is fully plug & play and with onboard terminal block for easy usage. It obtains all required power from the USB port, so no external power connection is ever required. USB-4711A is a multifunction module, with 16-ch Analog Input, 2-ch Analog Output, 16-ch Digital I/O and counter channel which is able to output a constant frequency square wave. With the features of USB-4700 series; USB-4711A is your most cost effective choice of lab or production line test & measurement tool.

Specifications

Analog Input

- **Channels** 16 single-ended/8 differential (software programmable)
- **Resolution** 12 bits
- **Max. Sampling Rate** 150 kS/s max.

Note: The sampling rate for each channels will be affected by used channel number.
Eg. if 4 channels are used, the sampling rate is 150k/4 = 37.5 kS/s per channel.

- **FIFO Size** 1,024 samples
- **Overvoltage Protection** 30 Vp-p
- **Input Impedance** 1 GΩ
- **Sampling Modes** Software, onboard programmable pacer, and external
- **Input Range (V, software programmable) & Absolute Accuracy**

Bipolar	± 10	± 5	± 2.5	± 1.25	± 0.625
Absolute Accuracy (% of FSR)*	0.1	0.1	0.2	0.2	0.4

*: ± 1 LSB is added as the derivative for absolute accuracy

Analog Output

- **Channels** 2
- **Resolution** 12 bits
- **Output Rate** Static update
- **Output Range** (V, software programmable)

Internal Reference	Unipolar	0 ~ 5, 0 ~ 10
	Bipolar	$\pm 5, \pm 10$

- **Slew Rate** 0.125 V/us
- **Driving Capability** 5 mA
- **Output Impedance** 0.1 Ω
- **Operation Mode** Single output
- **Accuracy** Relative: ± 1 LSB
  Differential non-linearity: ± 1 LSB

Digital Input

- **Channels** 8
- **Compatibility** 3.3 V/5 V/TTL
- **Input Voltage** Logic 0: 0.8 V max.
  Logic 1: 2.0 V min.

Digital Output

- **Channels** 8
- **Compatibility** 3.3 V/TTL
- **Output Voltage** Logic 0: 0.4 V max.@ 6 mA
  Logic 1: 2.6 V min.@ 6 mA

Event Counter

- **Channels** 1
- **Compatibility** 3.3 V/TTL
- **Max. Input Frequency** 1 kHz

General

- **Bus Type** USB 2.0
- **I/O Connector** Onboard screw terminal
- **Dimensions (L x W x H)** 132 x 80 x 32 mm (5.2" x 3.15" x 1.26")
- **Power Consumption** Typical: 5 V @ 360 mA
  Max.: 5 V @ 450 mA
- **Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature** -20 ~ 70°C (-4 ~ 158°F)
- **Storage Humidity** 5 ~ 95% RH non-condensing

Ordering Information

- **USB-4711A-AE** 150 kS/s, 12-bit, 16-ch Multi. USB Module

Accessories

- **1960004544** Wallmount Bracket
- **1960005788** VESA Mount Bracket

USB-4716

200 kS/s, 16-bit, 16-ch Multifunction DAQ USB Module

Features

- Supports USB 2.0
- Portable
- Bus-powered
- 16 analog input channels
- 16-bit resolution AI
- Sampling rate up to 200 kS/s
- 8-ch DI/8-ch DO, 2-ch AO and one 32-bit counter
- Detachable screw terminal on modules
- Suitable for DIN-rail mounting
- One lockable USB cable for secure connection included

CE FCC RoHS COMPLIANT 2002/95/EC

Introduction

The USB-4700 series consists of true plug & play data acquisition devices. No more opening up your computer chassis to install boards just plug in the module, then get the data. It's easy to use and efficient. USB-4716 offers 16 single-ended/ 8 differential analog inputs with 16-bit resolution, up to 200 kS/s throughput, 16 digital I/Os, and 1 user counter, plus 2 16-bit analog outputs. The high performance makes USB-4716 your best choice for test & measurement applications in the production line or in the lab.

Reliable and rugged enough for industrial applications, yet affordable for home projects, the USB-4716 is the perfect way to add measurement and control capability to any USB capable computer. The USB-4700 series is fully plug & play and easy to use. It obtains all required power from the USB port, so no external power connection is ever required.

Specifications

Analog Input

- **Channels** 16 single-ended/ 8 differential (software programmable)
- **Resolution** 16 bits
- **Max. Sampling Rate** 200 kS/s (for USB 2.0)

Note: The sampling rate for each channels will be affected by used channel number. For example, if 4 channels are used, the sampling rate is 200k/4 = 50 kS/s per channel.

- **FIFO Size** 1,024 samples
- **Overvoltage Protection** 30 Vp-p
- **Input Impedance** 1 GΩ
- **Sampling Modes** Software, onboard programmable pacer, or external
- **Input Range (V, software programmable) & Absolute Accuracy**

Single Ended	N/A	0 ~ 10	0 ~ 5	0 ~ 2.5	0 ~ 1.25
Differential	±10	±5	±2.5	±1.25	±0.625
Absolute Accuracy (% of FSR)*	0.015	0.03	0.03	0.05	0.1

*: ±1 LSB is added as the derivative for absolute accuracy

Analog Output

- **Channels** 2
- **Resolution** 16 bits
- **Output Rate** Static update
- **Output Range** (V, software programmable)

Internal Reference	Unipolar	0 ~ 5 , 0 ~ 10
	Bipolar	±5, ±10

- **Slew Rate** 0.125 V/µs
- **Driving Capability** 5 mA
- **Output Impedance** 0.1 Ω max.
- **Operation Mode** Single output
- **Accuracy** Relative: ±1 LSB

Digital Input

- **Channels** 8
- **Compatibility** 3.3 V/5 V/TTL
- **Input Voltage** Logic 0: 1.0 V max.
  Logic 1: 2.0 V min.

Digital Output

- **Channels** 8
- **Compatibility** 3.3 V/TTL
- **Output Voltage** Logic 0: 0.4 V max.
  Logic 1: 2.4 V min.
- **Output Capability** Sink: 6 mA (sink)
  Source: 6 mA (source)

Event Counter

- **Channels** 1
- **Compatibility** 3.3V/TTL
- **Max. Input Frequency** 1 kHz

General

- **Bus Type** USB 2.0
- **I/O Connector** Onboard screw terminal
- **Dimensions (L x W x H)** 132 x 80 x 32 mm (5.2" x 3.15" x 1.26")
- **Power Consumption** Typical: 5 V @ 360 mA
  Max.: 5 V @ 450 mA
- **Operating Temperature** 0 ~ 60°C (32 ~ 158°F)
- **Storage Temperature** -20 ~ 70°C (-4 ~ 158°F)
- **Operating Humidity** 5 ~ 85% RH non-condensing
- **Storage Humidity** 5 ~ 95% RH non-condensing

Ordering Information

- **USB-4716-AE** 200 kS/s, 16-bit, 16-ch Multi. USB Module

Accessories

- **1960004544** Wallmount Bracket
- **1960005788** VESA Mount Bracket

USB-4718

8-ch Thermocouple Input USB Module with 8-ch Isolated Digital Input

Features

- Supports USB 2.0
- Supports voltage, current, and thermocouple inputs
- Bus-powered
- 8 thermocouple input channels
- 2,500 V_{DC} isolation
- Supports 4 ~ 20 mA current input
- Detachable screw terminal on modules
- 8-ch isolated DI and 8-ch isolated DO
- Suitable for DIN-rail mounting
- One lockable USB cable for secure connection included

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Introduction

The USB-4700 series consists of true plug & play data acquisition devices. No more opening up your computer chassis to install boards just plug in the module, then get the data. It's easy to use and efficient. USB-4718 offers 8 thermocouple inputs with 16-bit resolution, up to 0.1% input range accuracy. Portable design makes the USB-4718 suitable for field research. Also, the input channels can be set separately making handling multiple type of sensors with just one USB-4718 module possible.

Reliable and rugged enough for industrial applications, yet affordable for home projects, the USB-4718 is the perfect way to add measurement and control capability to any USB capable computer. The USB-4700 series is fully plug and play and easy to use. It obtains all required power from the USB port, so no external power connection is ever required.

Specifications

Analog Input

- **Accuracy** ±0.1% for voltage input
- **Bandwidth** 13.1 Hz @ 50 Hz, 15.72 Hz @ 60 Hz
- **Channels** 8 differential
- **Ch. Independent Conf.** Yes
- **CMR @ 50/60 Hz** 92 dB min.
- **Resolution** 16 bits
- **Input Impedance** 1.8 MΩ
- **Input Range** 0 ~ 15 mV, 0 ~ 50 mV, 0 ~ 100 mV, 0 ~ 500 mV, 0 ~ 1 V, 0 ~ 2.5 V, 0 ~ 20 mA, 4 ~ 20 mA
- **Input Types** Thermocouple, mV, V, mA
- **Sampling Rate** 10 S/s (shared for all channels)

Note: The sampling rate for each channel is fixed due to the hardware design. It is 10/8 = 1.25 S/s per channel no matter how many channels you use.

- **Span Drift** ±25 ppm/°C
- **T/C Type and Temperature Ranges**

J	0 ~ 760°C	R	500 ~ 1750°C
K	0 ~ 1370°C	S	500 ~ 1750°C
T	-100 ~ 400°C	B	500 ~ 1800°C
E	0 ~ 1000°C		

- **TVS/ESD Protection** Built-in
- **Zero Drift** ±0.3 µV/°C

Isolated Digital Input

- **Channels** 8
- **Input Voltage** Logic 0: 3 V max.
  Logic 1: 5 V min. (30 V max.)
- **Isolation Protection** 2,500 V_{DC}
- **Opto-isolator Response** 25 µs

Isolated Digital Output

- **Channels** 8
- **Output Type** Sink (NPN)
- **Isolation Protection** 2,500 V_{DC}
- **Output Voltage** 5 ~ 30 V_{DC}, 1.1 A max./ total
- **Sink Current** 200 mA max./channel
- **Opto-isolator Response** 25 µs

General

- **Bus Type** USB 2.0
- **I/O Connector** Onboard screw terminal
- **Dimensions (Lx W x H)** 132 x 80 x 32 mm (5.2" x 3.15" x 1.26")
- **Power Consumption** 100 mA @ 5 V
- **Watchdog Timer** 1.6 sec. (system)
- **Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature** -20 ~ 70°C (-4 ~ 158°F)
- **Storage Humidity** 5 ~ 95% RH non-condensing

Ordering Information

- **USB-4718-AE** 8-ch Thermocouple Input USB Module

Accessories

- **1960004544** Wallmount Bracket
- **1960005788** VESA Mount Bracket

USB-4750

32-ch Isolated Digital I/O USB Module

Features

- Compatible with USB 1.1/2.0
- Bus-powered
- 16 isolated DI and 16 isolated DO channels
- High voltage isolation on all channels (2,500 V_{DC})
- High sink current on isolated output channels (100 mA/Channel)
- Supports 5 ~ 60 V_{DC} isolated input channels
- Interrupt handling capability
- Timer/counter capability
- Suitable for DIN-rail mounting
- One lockable USB cable for secure connection included

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Introduction

The USB-4700 series consists of true plug & play data acquisition devices. No more opening up your computer chassis to install boards-just plug in the module, then get the data. It's easy to use and efficient. USB-4750 is a 32-channel isolated digital I/O module. With isolation protection of 2,500 V_{DC}, and dry contact support, USB-4750 is ideal for industrial applications where high-voltage protection is required. Each I/O channel of the USB-4750 corresponds to a bit in an I/O port. This makes USB-4750 very easy to program. This module also offers a counter or timer and one digital input interrupt to a PC so users can then easily configure by software.

Reliable and rugged enough for industrial applications, yet affordable for home projects, the USB-4750 is the perfect way to add measurement and control capability to any USB capable computer. The USB-4750 is fully compatible with USB plug & play and easy to use. It obtains all required power from the USB port, so no external power connection is ever required.

Specifications

Isolated Digital Input

- **Channels** 16
- **Input Voltage** Logic 0: 5 V max.
  Logic 1: 5 V min. (60 V max.) or dry contact
- **Interrupt Capable Ch.** 2
- **Isolation Protection** 2,500 V_{DC}

Isolated Digital Output

- **Channels** 16
- **Output Type** Sink (NPN)
- **Isolation Protection** 2,500 V_{DC}
- **Output Voltage** 5 ~ 40 V_{DC}
- **Sink Current** 100 mA max. per channel
  Total 1.1 A max.

Isolated Counter

- **Channels** 2
- **Resolution** 32-bit
- **Max. Input Frequency** 8 MHz
- **Isolation Protection** 2,500 V_{DC}

General

- **Bus Type** USB 1.1/2.0
- **I/O Connector** Onboard screw terminal
- **Dimensions (L x W x H)** 132 x 80 x 32 mm (5.2" x 3.15" x 1.26")
- **Power Consumption** Typical: 5 V @ 200 mA
  Max.: 5 V @ 350 mA
- **Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature** -20 ~ 70°C (-4 ~ 158°F)
- **Storage Humidity** 5 ~ 95% RH, non-condensing

Ordering Information

- **USB-4750-AE** 32-ch Isolated Digital I/O USB Module

Accessories

- **1960004544** Wallmount Bracket
- **1960005788** VESA Mount Bracket

USB-4751
48-ch Digital I/O USB Module

USB-4751L
24-ch Digital I/O USB Module

Features

- Compatible with USB 1.1/2.0
- Portable
- Bus-powered
- 48/24 TTL digital I/O lines
- Emulates mode 0 of 8255 PPI
- Buffered circuits for higher driving capacity than the 8255
- Interrupt handling capability
- Timer/Counter interrupt capability
- Supports both dry and wet contact
- 50-pin Opto-22 compatible box header
- Suitable for DIN-rail mounting
- One lockable USB cable for secure connection included

CE FCC RoHS COMPLIANT 2002/95/EC

Introduction

The USB-4700 series consists of true plug & play data acquisition devices. No more opening up your computer chassis to install boards; just plug in the module, then get the data. It's easy to use and efficient. USB-4751/4751L is a 48/24-bit digital I/O module with USB interface. Its 48/24 bits are divided into six/three 8-bit I/O ports and users can configure each port as input or output via software. USB-4751/USB-4751L also provides one event counter and three 16-bit timers, which can be cascaded to become a 32-bit timer.

Specifications

Digital Input

- **Channels**   USB-4751: 48 (shared with output)
                        USB-4751L: 24 (shared with output)
- **Compatibility**   5 V/TTL
- **Input Voltage**   Logic 0: 0.8 V max.
                        Logic 1: 2 V min.

Digital Output

- **Channels**   USB-4751: 48 (shared with input)
                        USB-4751L: 24 (shared with input)
- **Compatibility**   5 V/TTL
- **Output Voltage**   Logic 0: 0.5 V max.
                        Logic 1: 3.8 V min.
- **Output Capability** Sink: 12 mA @ 0.5 V
                        Source: 12 mA @ 3.8 V for single channels
                                5 mA @ 3.8 V for all channels in high status

Counter/Timer

- **Channels**   2
- **Resolution**   32-bit
- **Max. Input Frequency** 8 MHz

General

- **Bus Type**   USB 1.1/2.0
- **I/O Connector**   50-pin box headers, pin assignments are fully compatible with Opto-22 I/O module racks
- **Dimensions (L x W x H)** 132 x 80 x 32 mm (5.2" x 3.15" x 1.26")
- **Power Consumption** Typical: 5 V @ 200 mA
                        Max.: 5 V @ 500 mA
- **Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature** -20 ~ 70°C (-4 ~ 158°F)
- **Storage Humidity** 5 ~ 95% RH, non-condensing

Ordering Information

- **USB-4751-AE**   48-ch Digital I/O USB Module
- **USB-4751L-AE**   24-ch Digital I/O USB Module

Accessories

- **1960004544**   Wallmount Bracket
- **1960005788**   VESA Mount Bracket
- **PCL-10150-1.2E**   50-pin Flat Cable, 1.2 m
- **ADAM-3950-AE**   50-pin DIN-rail Flat Cable Wiring Board
- **PCLD-782B-AE**   24-ch IDI Board w/ 20-pin & 50-pin Flat Cables
- **PCLD-785B-AE**   24-ch Relay Board w/ 20- pin & 50-pin Flat Cables

USB-4761

8-ch Relay and 8-ch Isolated Digital Input USB Module

Features

- Compatible with USB 1.1/2.0
- Portable
- Bus-powered
- 8 relay output channels and 8 isolated digital input channels
- LED indicators to show activated relays
- 8 Form C type relay output channels
- High-voltage isolation on input channels (2,500 V_{DC})
- High ESD protection (2,000 V)
- Wide input range (5 ~ 30 V_{DC})
- Interrupt handling capability
- Detachable screw terminal on modules
- Suitable for DIN-rail mounting
- One lockable USB cable for secure connection included

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Introduction

The USB-4761 is a relay actuator and isolated digital input module with USB interface. It provides 8 optically-isolated digital inputs with isolation protection of 2,500 V_{DC} for collecting digital signals in noisy environments and 8 relay actuators for serving as on/off control devices or small power switches. For easy monitoring, each relay is equipped with one green LED to show its on/off status.

Rugged Protection

The USB-4761's digital input channels feature a rugged isolation protection for industrial, lab and machinery automation applications. They durably withstand voltages up to 2,500 V_{DC}, protecting your host system from any incidental harms. If connected to an external input source with surge-protection, the USB-4761 can offer up to a maximum of 2,000 V ESD (Electrostatic Discharge) protection.

Specifications

Isolated Digital Input

- **Channels** 8
- **Input Voltage** Logic 0: 2 V max.
  Logic 1: 5 V min. (30 V max.)
- **Isolation Protection** 2,500 V_{DC}
- **Opto-Isolator Response** 25 μs

Relay Output

- **Contact Rating** 0.25 A @ 250 V_{AC}, 2 A @ 30 V_{DC}
- **Max. Switching Power** 62.5 VA, 60 W
- **Max. Switching Voltage** 250 V_{AC}, 220 V_{DC}
- **Max. Switching Current** 5 A
- **Min. Switching Voltage** 100 μV
- **Operate/Release Time** typ. 3 / 2 ms, max. 5 / 4 ms
- **Resistance** Contact: 50 mΩ max. @ 10 mA/20 mV
  Insulation: 1 GΩ min. @ 500 V_{DC}
- **Life Expectancy** 5×10^7 cycles typ. @ 10 mA/12 V
  (Electrical) 2×10^5 cycles typ. @ 2000 mA/30 V

General

- **Bus Type** USB 1.1/2.0
- **I/O Connector** Onboard screw terminal
- **Dimensions (L x W x H)** 132 x 80 x 32 mm (5.2" x 3.15" x 1.26")
- **Power Consumption** Typical: 5 V @ 60 mA
  Max.: 5 V @ 400 mA
- **Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature** -20 ~ 70°C (-4 ~ 158°F)
- **Storage Humidity** 5 ~ 95 % RH, non-condensing

Ordering Information

- **USB-4761-AE** 8-ch Relay/Isolated Digital Input USB Module

Accessories

- **1960004544** Wallmount Bracket
- **1960005788** VESA Mount Bracket

USB-4671

GPIB USB Module

Features

- Supports USB 2.0
- Convenient portable design
- Bus-powered
- Complete IEEE 488.1 & 488.2 compatibility
- Full driver, library, and example support, including; Visual C++®, Visual C#®, Visual Basic®, Visual Basic .NET®, Delphi®, and LabView
- Provides powerful and easy-to-use configuration utility
- No GPIB cable required for instrument connection
- Plug & Play installation and configuration

CE FCC

Introduction

USB-4671 is a high-performance USB Module with a GPIB interface. The module is fully compatible with IEEE 488.1 and 488.2 standards with USB 2.0 specification. With two driver control modes: controller mode and slave mode; USB-4671 can perform basic IEEE 488 talker, listener and controller functions required by IEEE 488.2. You can also connect up to 15 GPIB instruments. Therefore, USB-4671 is especially suitable for instrument measurements and control.

Furthermore, USB-4671 also offers powerful testing features and a configuration utility that allows users to easily access and control instruments. USB-4671 offers a comprehensive supplementary controller driver database and provides standard IEEE-488 commands to help users develop applications. Users can use an interactive GPIB window interface to control devices directly without any need of programming.

Specifications

GPIB

- **Compatibility**   IEEE 488.1 & IEEE 488.2
- **GPIB Transfer Rate**   1.8 MB/s
- **OS Support**   Windows 2000/XP/Vista and Win 7
- **Library Support**   Visual C++, Visual C#, Visual Basic, Visual Basic .NET, Delphi, LabView
- **Max. GPIB Connections** 15

General

- **Bus Type**   USB 2.0
- **I/O Connector**   1 x 24-pin IEEE 488
- **Storage Temperature**   -20 ~ 70°C (-4 ~ 158°F)
- **Operating Humidity**   10 ~ 90% RH, non-condensing
- **Dimensions (L x W x H)** 107 x 66 x 26 mm (4.21" x 2.6" x 1.02")

Ordering Information

- **USB-4671-A**   GPIB USB Module

Accessories

- **PCL-10488-2**   IEEE-488 Cable, 2 m

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