

AUTOMATION INTERFACE ELECTRONIC

Supplementary Catalog to
Full Line Catalogs, Volumes 3/4
Edition 2013/2

3/4

WAGO[®]

The new items in this catalog supplement products found in the following main catalogs

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INTERFACE ELECTRONIC



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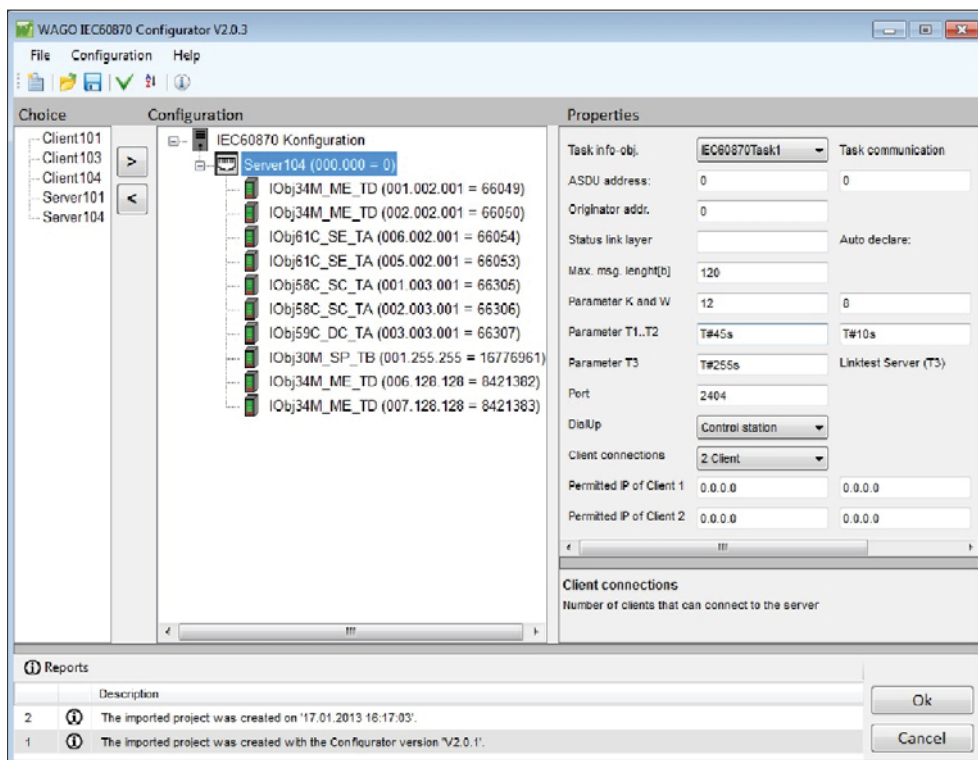
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1 IEC 60870 Configurator

4

Configuration dialog integrated in WAGO-I/O-PRO v2.3 for IEC 60870-5-101/-103/-104 communication parameterization

AUTOMATION

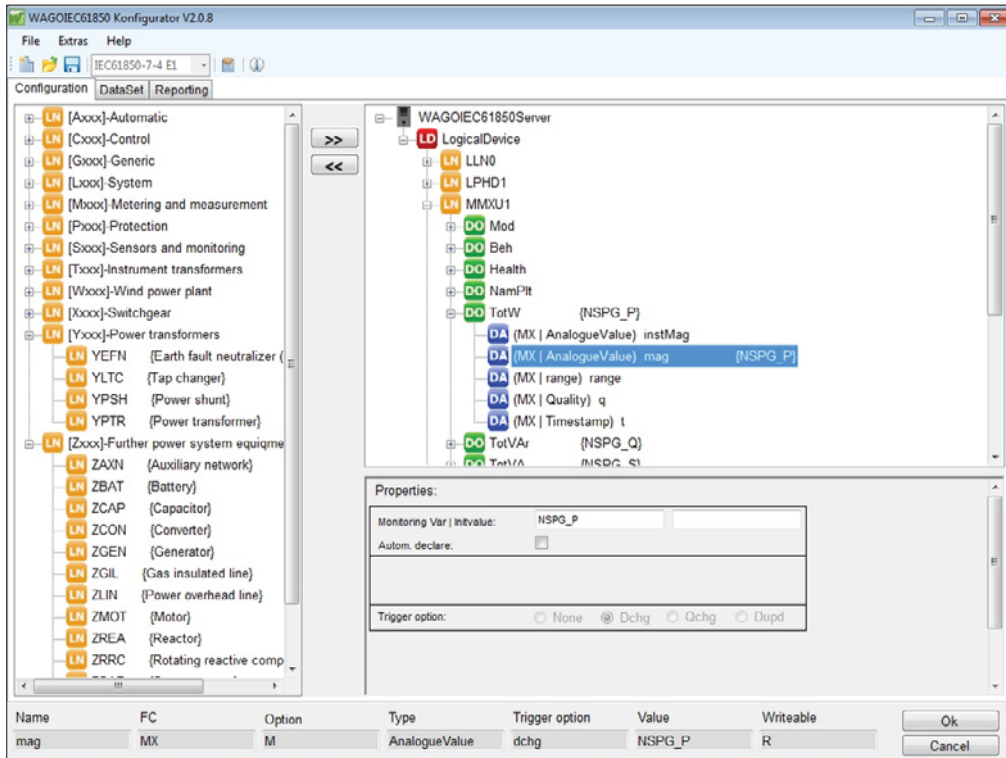


IEC 60870 Configuration Dialog

Description	
<p>IEC 60870 Configurator</p>	
<p>The IEC 60870 Configurator is part of the WAGO-I/O-PRO v2.3 software. The configurator fully supports the IEC 60870-5-101/-103/-104 specific functions of all WAGO telecontrollers. The configurator sets up IEC 60870 objects, while configuring data exchange to the PLC application or I/O modules. Import and export functions in CSV format allow configured data to be transmitted to other engineering tools.</p> <p>The IEC 60870-5-101 and -104 protocols are supported on both client and server side, while the IEC 60870-5-103 protocol is exclusively supported on the client side. This permits the creation of gateways used to convert one protocol into another, e.g., allowing protection devices to be read out via IEC 60870-5-103 and data to be transmitted to the network control system via IEC 60870-5-104. Various options are available for the time synchronization of tele-control substations (server). Time synchronization can be performed either via the IEC 60870 protocol with object 103 or via (S)NTP. Using the WAGO 750-640 Module, clock time can also be synchronized via DCF77 or GPS.</p>	<p>IEC-60870-5-101/-104 information objects can be used in monitoring direction for single, double and step messages. Bit patterns, counter values, as well as normalized, scaled and floating-point measurement values can also be used. All information objects can be transmitted with or without time stamp. This also applies to information objects in control direction. An IEC 60870-5-104 server can simultaneously maintain up to 4 connections to the control system (client).</p>
<p>System requirements:</p> <p>WAGO-I/O-PRO Version 2.3.9.40 or higher</p> <p>Function:</p> <p>IEC-60870-5-101 Server and client IEC 60870-5-103 Client IEC 60870-5-104 Server and client</p>	<p>Supported controllers:</p> <p>Programmable Fieldbus Controllers 0750-0872, 0750-0872/0020-0000 0750-0880/0025-0001, 0750-0880/0025-0002</p> <p>PFC200 0750-8202/0025-0001</p> <p>I/O-IPC 0758-0874/0000-0130, 0758-0874/0000-0131 0758-0875/0000-0130, 0758-0875/0000-0131</p>

IEC 61850 Configurator

Configuration dialog integrated in WAGO-I/O-PRO v2.3 for IEC 61850 communication parameterization

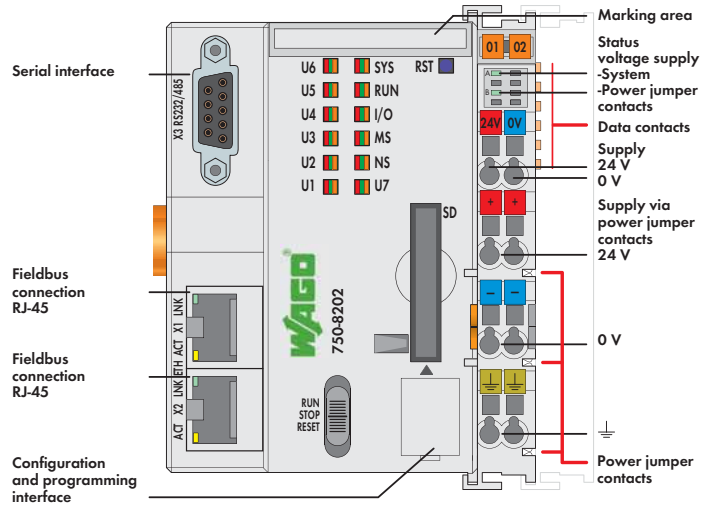


IEC 61850 Configuration Dialog

Description	
IEC 61850 Configurator	
<p>The IEC 61850 Configurator is part of the WAGO-I/O-PRO v2.3 software. The configurator fully supports the IEC 61850 specific functions of the WAGO telecontrollers.</p> <p>The configurator sets up IEC 61850 objects, while configuring data exchange to the PLC application or I/O modules. Import and export functions in IEC 61850 SCL exchange format allow configured data to be transmitted to other engineering tools.</p> <p>On the server side, the IEC 61850 protocol is supported for MMS* communication to the control system. Some types of controllers can also be operated as GOOSE publisher or subscriber. This permits the creation of gateways used to convert one protocol into another, e.g., allowing data from protection devices to be received via GOOSE, while being transmitted to the network control system via IEC 60870-5-104 protocol.</p> <p>Time synchronization is performed via SNTP, NTP, DCF77 and GPS (750-640 Module is also required for GPS).</p> <p>Various options are available for the time synchronization of telecontrol substations (server). Synchronization can be performed via (S)NTP or clock time can be synchronized via DCF77 or GPS using the WAGO 750-640 Module.</p> <p>The IEC 61850 MMS server can simultaneously maintain up to 5 connections to the control system (client).</p>	<p>*MMS = Manufacturing Messaging Specification</p>
<p>System requirements:</p> <p>WAGO-I/O-PRO Version 2.3.9.40 or higher</p> <p>Function: IEC 61850 server</p> <p>Object types: IEC 61850-7-4 and IEC 61400-25</p> <p>Data sets: static and dynamic</p> <p>Reporting: buffered and unbuffered</p>	<p>Supported controllers:</p> <p>with MMS communication 0750-0872 0750-0880/0025-0001, 0750-0880/0025-0002</p> <p>with MMS and GOOSE communication 0750-8202/0025-0001 0758-0874/0000-0130, 0758-0874/0000-0131 0758-0875/0000-0130, 0758-0875/0000-0131</p>


PLC – PFC200 Controller

PFC200 CS 2ETH RS

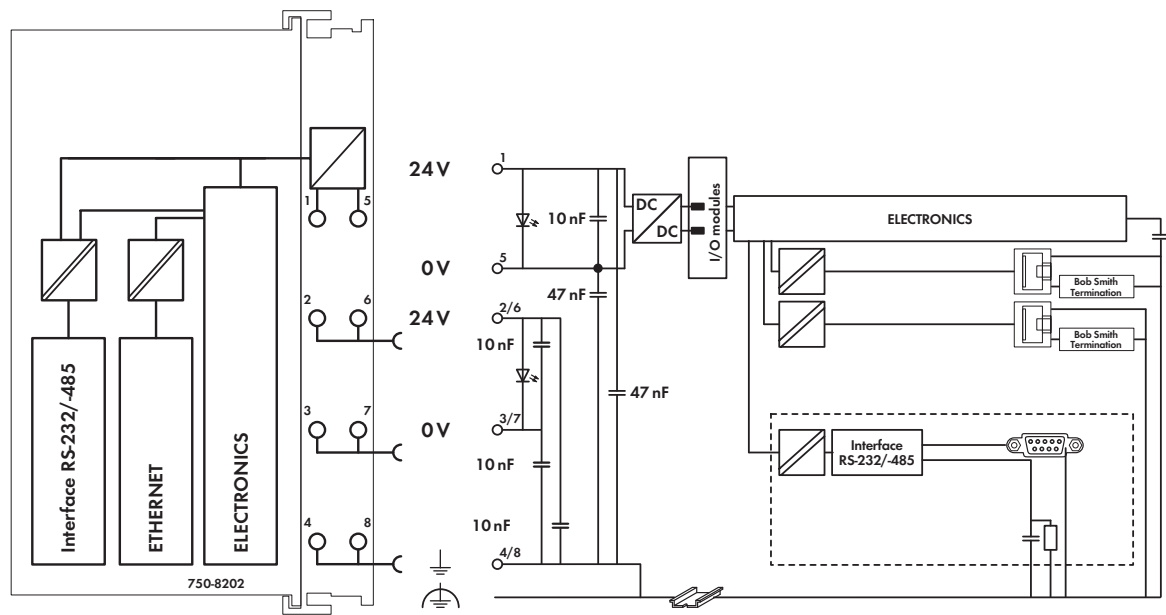


The PFC200 Controller is a compact PLC for the modular WAGO-I/O-SYSTEM. Besides network and fieldbus interfaces, the controller supports all digital, analog and specialty modules found within the 750/753 Series. Two ETHERNET interfaces and integrated switch enable line topology wiring. An integrated Web server provides the user with configuration options and status information from the PFC200. Besides the processing industry and building automation, typical markets for the PFC200 include the standard machine and plant industries (e.g., packaging, bottling, textiles, production and metal & wood processing).

- Programmable to IEC 61131-3
- Programmable via WAGO-I/O-PRO V2.3
- Direct connection of WAGO I/O modules
- 2 x ETHERNET (switched), RS-232/-485
- Linux 3.6 operating system with RT-Preemption patch
- Configuration via CODESYS or Web-based management interface
- Maintenance-free

Description	Item No.	Pack. Unit
PFC200 CS 2ETH RS	750-8202	1
PFC200 CS 2ETH RS Telecontrol/T	750-8202/025-001	1
Extended temperature range: -20 °C ... +60 °C		
PFC200 CS 2ETH RS Telecontrol ECO/T	750-8202/025-002	1
Extended temperature range: -20 °C ... +60 °C		
Accessories		
WAGO-I/O-PRO V2.3, RS-232 kit	759-333	1
SD memory card, 1 GB	758-879/000-001	1
Miniature WSB Quick marking system		
 plain	248-501	5
with marking	see Full Line Catalog AUTOMATION 2012/2013	
Approvals		
Conformity marking	CE	
Shipbuilding	GL, pending	
UL 508	pending	

System Data	
CPU	Cortex A8, 600 MHz
Operating system	Real-time Linux 3.6 (with RT-Preemption patch)
Main memory (RAM)	256 Mbytes
Internal memory (flash)	256 Mbytes
Retain memory	128 Kbytes
ETHERNET	2 x RJ-45 (switched)
Transmission medium	Twisted Pair S-UTP
	100 Ω, Cat 5;
	Max. line length: 100 m
Baud rate	10/100 Mbit/s; 10Base-T/100Base-TX
Interface (serial)	RS-232/-485 (switchable)
Protocols	DHCP, DNS, NTP, FTP, FTPS, SNMP, HTTP, HTTPS, SSH, MODBUS (TCP, UDP, RTU)
	750-8202/025-001 and -002
	IEC 60870-5-101/-103/-104, IEC 61850-7-4, IEC 61400-25
Programming	WAGO-I/O-PRO V2.3
IEC 61131-3	IL, LD, FBD, ST, FC
SD card slot	Push-push mechanism, sealable cover lid
Type of memory card	SD and SDHC up to 32 GB (All guaranteed properties are only valid in connection with the WAGO 758-879/000-001 memory card.)



Technical Data

Number of I/O modules (per node)	64
with bus extension	250
750-8202/025-002	4
Input and output process image (max.)	
Internal data bus	1000 words
MODBUS	1000 words
PROFIBUS	244 bytes in 80 slots
CAN	2000 words
I/O interfaces (serial)	1 x serial interface per TIA/EIA 232 and TIA/EIA 485 (switchable), 9-pole D-sub female connector
Diagnostic LEDs	Power supply; SYS; RUN; FIELDBUS (MS, NS); USER (U1 ... U7);
User LEDs	Internal data bus via CODESYS library
Program memory	16 MB
Data memory	64 MB
Non-volatile memory (retain)	128 Kbytes
Power supply	24 V DC (-25 % ... +30 %)
Max. input current (24 V)	550 mA
Total current for I/O modules (5 V)	1700 mA
Isolation	500 V system/supply

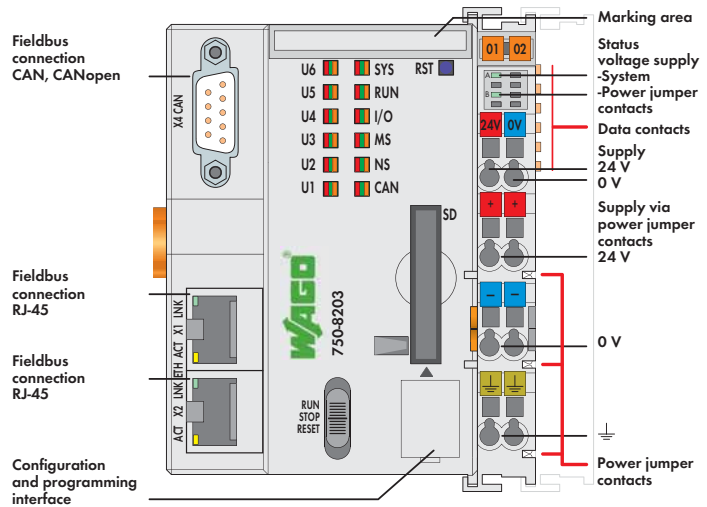
General Specifications

Dimensions (mm) W x H x L	79 x 65 x 100
	Height from upper-edge of DIN 35 rail
Weight	210 g
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)
EMC: CE - emission of interference	acc. to EN 61000-6-2 (2005)
EMC: marine applications	
- immunity to interference	pending
EMC: marine applications	
- emission of interference	pending
Degree of protection	IP20 acc. to DIN 60529
Type of mounting	DIN 35 rail
Housing material	PC
Ambient conditions	
Operating temperature	0 °C ... +55 °C
Storage temperature	-10 °C ... +85 °C
Relative air humidity (no condensation)	95 %
Altitude	
Operation	0 m ... 2000 m
Storage/transit	0 m ... 3000 m
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm ² ... 2.5 mm ² / AWG 28 ... 14
Strip lengths	8 ... 9 mm / 0.33 in

PLC – PFC200 Controller

PFC200 CS 2ETH CAN

AUTOMATION

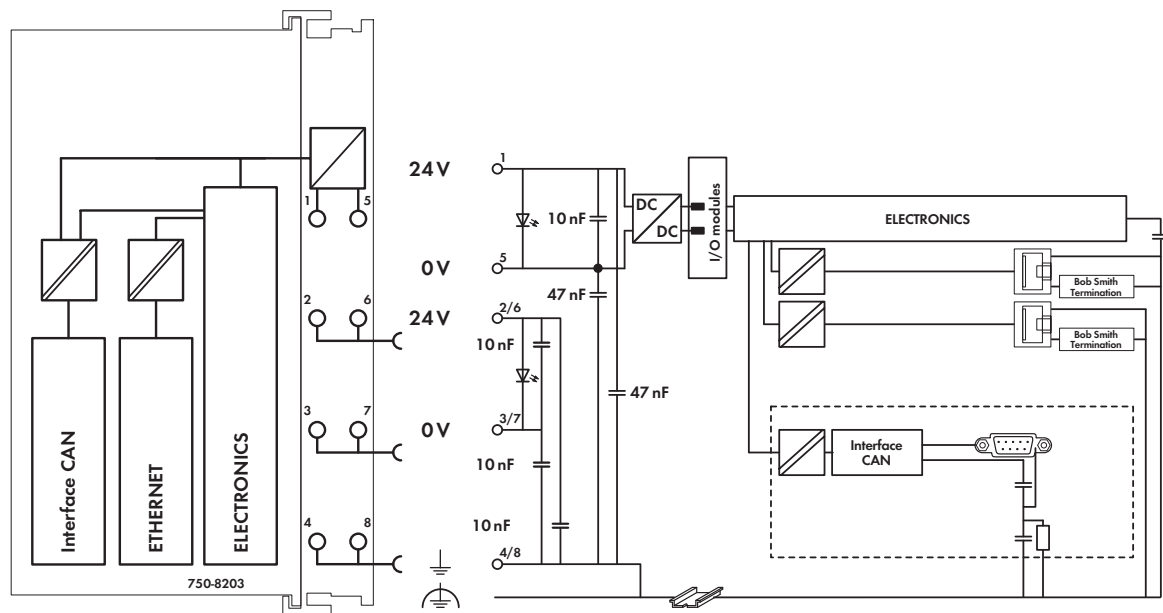


The PFC200 Controller is a compact PLC for the modular WAGO-I/O-SYSTEM. Besides network and fieldbus interfaces, the controller supports all digital, analog and specialty modules found within the 750/753 Series. Two ETHERNET interfaces and integrated switch enable line topology wiring. An integrated Web server provides the user with configuration options and status information from the PFC200. Besides the processing industry and building automation, typical markets for the PFC200 include the standard machine and plant industries (e.g., packaging, bottling, textiles, production and metal & wood processing).

- Programmable to IEC 61131-3
- Programmable via WAGO-I/O-PRO V2.3
- Direct connection of WAGO I/O modules
- 2 x ETHERNET (switched), CAN, CANopen
- Linux 3.6 operating system with RT-Preemption patch
- Configuration via CODESYS or Web-based management interface
- Maintenance-free

Description	Item No.	Pack. Unit
PFC200 CS 2ETH CAN	750-8203	1
Accessories		
WAGO-I/O-PRO V2.3, RS-232 kit	759-333	1
SD memory card, 1 GB	758-879/000-001	1
Miniature WSB Quick marking system		
plain	248-501	5
with marking	see Full Line Catalog AUTOMATION 2012/2013	
Approvals		
Conformity marking	CE	
Shipbuilding	GL, pending	
UL 508	pending	

System Data	
CPU	Cortex A8, 600 MHz
Operating system	Real-time Linux 3.6 (with RT-Preemption patch)
Main memory (RAM)	256 Mbytes
Internal memory (flash)	256 Mbytes
Retain memory	128 Kbytes
ETHERNET	2 x RJ-45 (switched)
Transmission medium	Twisted Pair S-UTP 100 Ω, Cat 5; Max. line length: 100 m
Baud rate	10/100 Mbit/s; 10Base-T/100Base-TX
Fieldbus	CAN, CANopen
Protocols	DHCP, DNS, NTP, FTP, FTPS, SNMP, HTTP, HTTPS, SSH, MODBUS (TCP, UDP)
Programming	WAGO-I/O-PRO V2.3
IEC 61131-3	IL, LD, FBD, ST, FC
SD card slot	Push-push mechanism, sealable cover lid
Type of memory card	SD and SDHC up to 32 GB (All guaranteed properties are only valid in connection with the WAGO 758-879/000-001 memory card.)



Technical Data

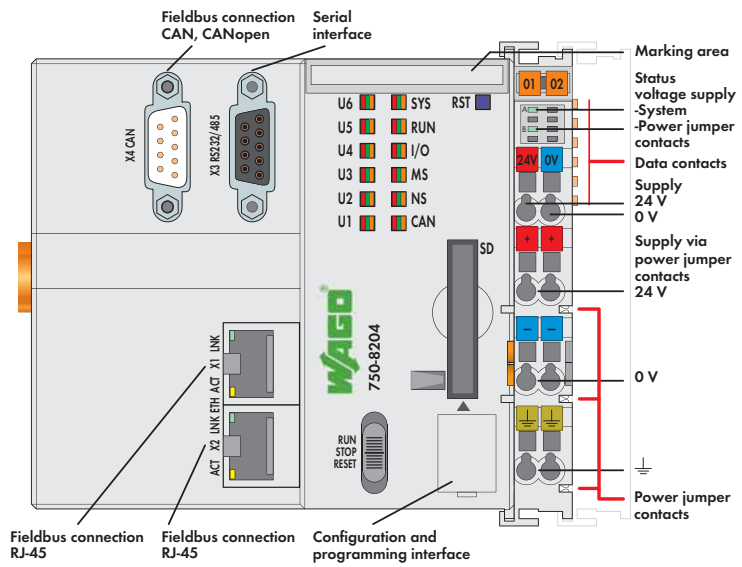
Number of I/O modules (per node)	64
with bus extension	250
Input and output process image (max.)	
Internal data bus	1000 words
MODBUS	1000 words
PROFIBUS	244 bytes in 80 slots
CAN	2000 words
Diagnostic LEDs	Power supply; SYS; RUN; FIELDBUS (CAN, MS, NS); USER (U1 ... U6); Internal data bus
User LEDs	via CODESYS library
Program memory	16 MB
Data memory	64 MB
Non-volatile memory (retain)	128 Kbytes
Power supply	24 V DC (-25 % ... +30 %)
Max. input current (24 V)	550 mA
Total current for I/O modules (5 V)	1700 mA
Isolation	500 V system/supply

General Specifications

Dimensions (mm) W x H x L	79 x 65 x 100
	Height from upper-edge of DIN 35 rail
Weight	210 g
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)
EMC: CE - emission of interference	acc. to EN 61000-6-2 (2005)
EMC: marine applications	
- immunity to interference	pending
EMC: marine applications	
- emission of interference	pending
Degree of protection	IP20 acc. to DIN 60529
Type of mounting	DIN 35 rail
Housing material	PC
Ambient conditions	
Operating temperature	0 °C ... +55 °C
Storage temperature	-10 °C ... +85 °C
Relative air humidity (no condensation)	95 %
Altitude	
Operation	0 m ... 2000 m
Storage/transit	0 m ... 3000 m
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm ² ... 2.5 mm ² / AWG 28 ... 14
Strip lengths	8 ... 9 mm / 0.33 in

PLC – PFC200 Controller

PFC200 CS 2ETH RS CAN

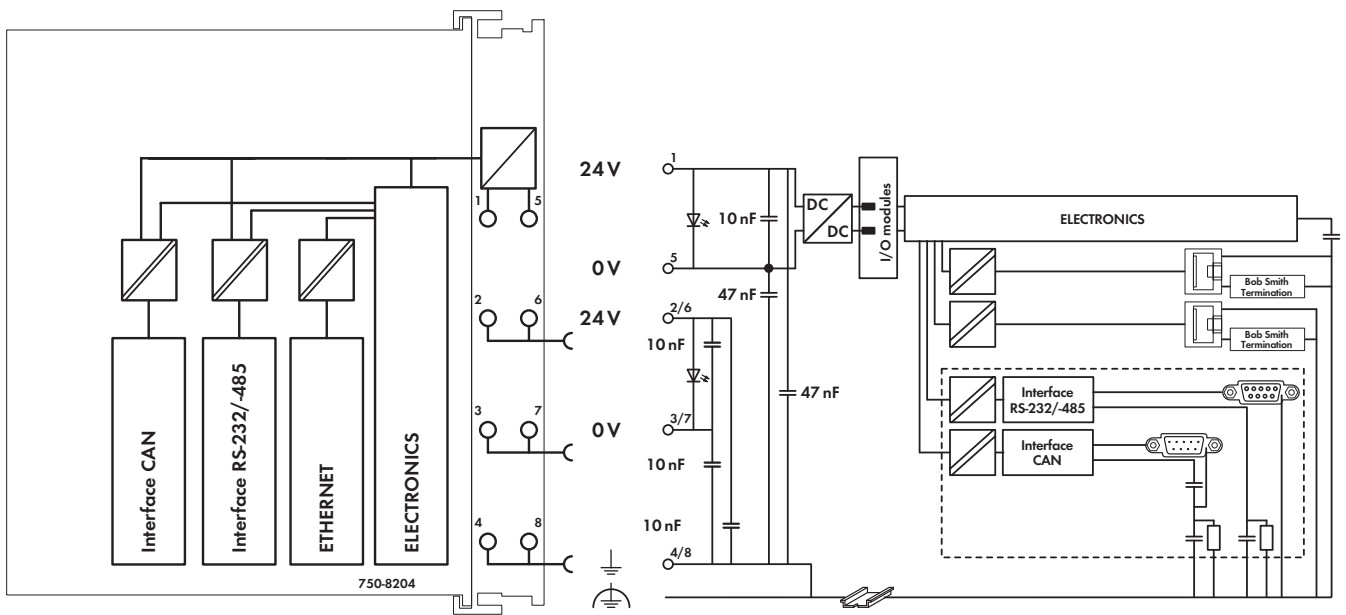


The PFC200 Controller is a compact PLC for the modular WAGO-I/O-SYSTEM. Besides network and fieldbus interfaces, the controller supports all digital, analog and specialty modules found within the 750/753 Series. Two ETHERNET interfaces and integrated switch enable line topology wiring. An integrated Web server provides the user with configuration options and status information from the PFC200. Besides the processing industry and building automation, typical markets for the PFC200 include the standard machine and plant industries (e.g., packaging, bottling, textiles, production and metal & wood processing).

- Programmable to IEC 61131-3
- Programmable via WAGO-I/O-PRO V2.3
 - Direct connection of WAGO I/O modules
 - 2 x ETHERNET (switched), RS-232/-485, CAN, CANopen
 - Linux 3.6 operating system with RT-Preemption patch
 - Configuration via CODESYS or Web-based management interface
 - Maintenance-free

Description	Item No.	Pack. Unit
PFC200 CS 2ETH RS CAN	750-8204	1
Accessories		
WAGO-I/O-PRO V2.3, RS-232 kit	759-333	1
SD memory card, 1 GB	758-879/000-001	1
Miniature WSB Quick marking system		
plain	248-501	5
with marking	see Full Line Catalog AUTOMATION 2012/2013	
Approvals		
Conformity marking	CE	
Shipbuilding	GL, pending	
UL 508	pending	

System Data	
CPU	Cortex A8, 600 MHz
Operating system	Real-time Linux 3.6 (with RT-Preemption patch)
Main memory (RAM)	256 Mbytes
Internal memory (flash)	256 Mbytes
Retain memory	128 Kbytes
ETHERNET	2 x RJ-45 (switched)
Transmission medium	Twisted Pair S-UTP
	100 Ω, Cat 5;
	Max. line length: 100 m
Baud rate	10/100 Mbit/s; 10Base-T/100Base-TX
Interface (serial)	RS-232/-485 (switchable)
Fieldbus	CAN, CANopen
Protocols	DHCP, DNS, NTP, FTP, FTPS, SNMP, HTTP, HTTPS, SSH, MODBUS (TCP, UDP, RTU)
Programming	WAGO-I/O-PRO V2.3
IEC 61131-3	IL, LD, FBD, ST, FC
SD card slot	Push-push mechanism, sealable cover lid
Type of memory card	SD and SDHC up to 32 GB (All guaranteed properties are only valid in connection with the WAGO 758-879/000-001 memory card.)



Technical Data

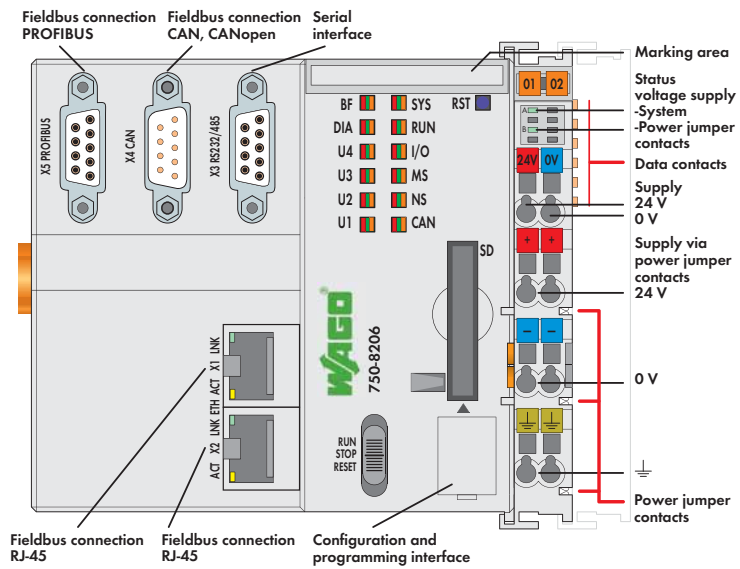
Number of I/O modules (per node)	64
with bus extension	250
Input and output process image (max.)	
Internal data bus	1000 words
MODBUS	1000 words
PROFIBUS	244 bytes in 80 slots
CAN	2000 words
I/O interfaces (serial)	1 x serial interface per TIA/EIA 232 and TIA/EIA 485 (switchable), 9-pole D-sub female connector
Diagnostic LEDs	Power supply; SYS; RUN; FIELDBUS (MS, NS, CAN); USER (U1 ... U6); Internal data bus
User LEDs	via CODESYS library
Program memory	16 MB
Data memory	64 MB
Non-volatile memory (retain)	128 Kbytes
Power supply	24 V DC (-25 % ... +30 %)
Max. input current (24 V)	550 mA
Total current for I/O modules (5 V)	1700 mA
Isolation	500 V system/supply

General Specifications

Dimensions (mm) W x H x L	112 x 65 x 100
	Height from upper-edge of DIN 35 rail
Weight	250 g
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)
EMC: CE - emission of interference	acc. to EN 61000-6-2 (2005)
EMC: marine applications	
- immunity to interference	pending
EMC: marine applications	
- emission of interference	pending
Degree of protection	IP20 acc. to DIN 60529
Type of mounting	DIN 35 rail
Housing material	PC
Ambient conditions	
Operating temperature	0 °C ... +55 °C
Storage temperature	-10 °C ... +85 °C
Relative air humidity (no condensation)	95 %
Altitude	
Operation	0 m ... 2000 m
Storage/transit	0 m ... 3000 m
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm ² ... 2.5 mm ² / AWG 28 ... 14
Strip lengths	8 ... 9 mm / 0.33 in

PLC – PFC200 Controller

PFC200 CS 2ETH RS CAN DPS

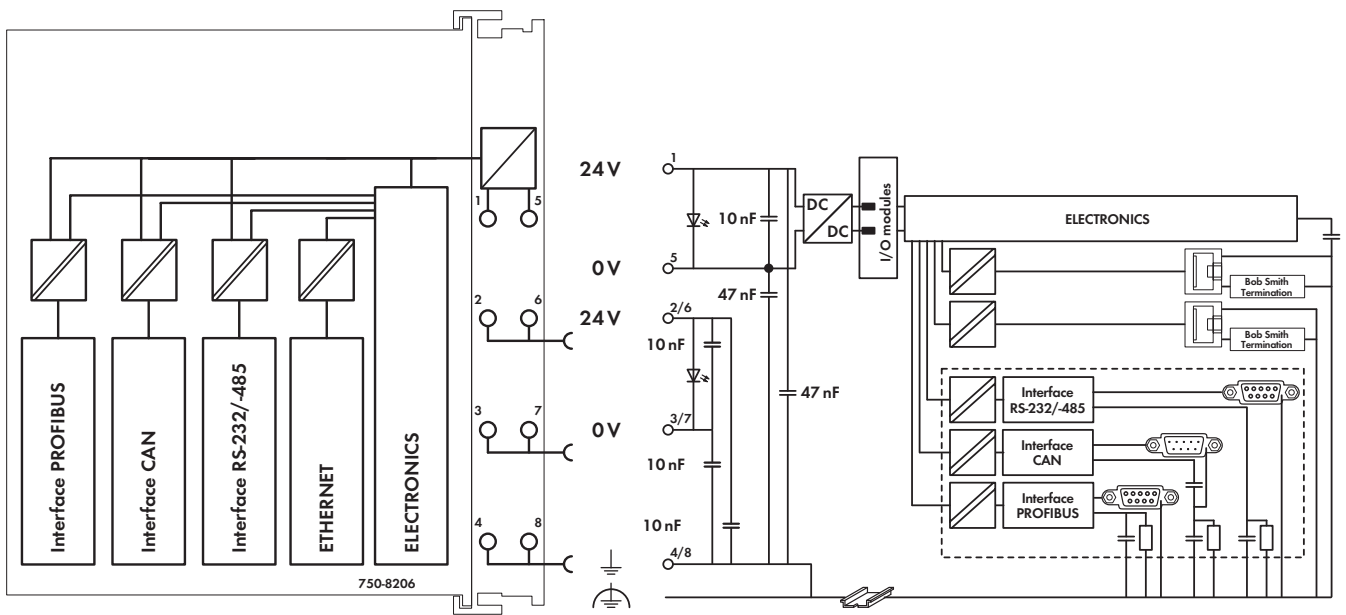


The PFC200 Controller is a compact PLC for the modular WAGO-I/O-SYSTEM. Besides network and fieldbus interfaces, the controller supports all digital, analog and specialty modules found within the 750/753 Series. Two ETHERNET interfaces and integrated switch enable line topology wiring. An integrated Web server provides the user with configuration options and status information from the PFC200. Besides the processing industry and building automation, typical markets for the PFC200 include the standard machine and plant industries (e.g., packaging, bottling, textiles, production and metal & wood processing).

- Programmable to IEC 61131-3
- Programmable via WAGO-I/O-PRO V2.3
- Direct connection of WAGO I/O modules
- 2 x ETHERNET (switched), RS-232/-485, CAN, CANopen, PROFIBUS DP Slave
- Linux 3.6 operating system with RT-Preemption patch
- Configuration via CODESYS or Web-based management interface
- Maintenance-free

Description	Item No.	Pack. Unit
PFC200 CS 2ETH RS CAN DPS	750-8206	1
Accessories		
WAGO-I/O-PRO V2.3, RS-232 kit	759-333	1
SD memory card, 1 GB	758-879/000-001	1
Miniature WSB Quick marking system		
plain	248-501	5
with marking	see Full Line Catalog AUTOMATION 2012/2013	
Approvals		
Conformity marking	CE	
Shipbuilding	GL, pending	
UL 508	pending	

System Data	
CPU	Cortex A8, 600 MHz
Operating system	Real-time Linux 3.6 (with RT-Preemption patch)
Main memory (RAM)	256 Mbytes
Internal memory (flash)	256 Mbytes
Retain memory	128 Kbytes
ETHERNET	2 x RJ-45 (switched)
Transmission medium	Twisted Pair S-UTP 100 Ω, Cat 5; Max. line length: 100 m
Baud rate	10/100 Mbit/s; 10Base-T/100Base-TX
Interface (serial)	RS-232/-485 (switchable)
Fieldbus	PROFIBUS DP Slave, CAN, CANopen
Protocols	DHCP, DNS, NTP, FTP, FTPS, SNMP, HTTP, HTTPS, SSH, MODBUS (TCP, UDP, RTU)
Programming	WAGO-I/O-PRO V2.3
IEC 61131-3	IL, LD, FBD, ST, FC
SD card slot	Push-push mechanism, sealable cover lid
Type of memory card	SD and SDHC up to 32 GB (All guaranteed properties are only valid in connection with the WAGO 758-879/000-001 memory card.)



Technical Data

Number of I/O modules (per node)	64
with bus extension	250
Input and output process image (max.)	
Internal data bus	1000 words
MODBUS	1000 words
PROFIBUS	244 bytes in 80 slots
CAN	2000 words
I/O interfaces (serial)	1 x serial interface per TIA/EIA 232 and TIA/EIA 485 (switchable), 9-pole D-sub female connector
Diagnostic LEDs	Power supply; SYS; RUN; FIELD BUS (MS, NS, CAN, DIA, BF); USER (U1 ... U4);
User LEDs	Internal data bus via CODESYS library
Program memory	16 MB
Data memory	64 MB
Non-volatile memory (retain)	128 Kbytes
Power supply	24 V DC (-25 % ... +30 %)
Max. input current (24 V)	550 mA
Total current for I/O modules (5 V)	1700 mA
Isolation	500 V system/supply

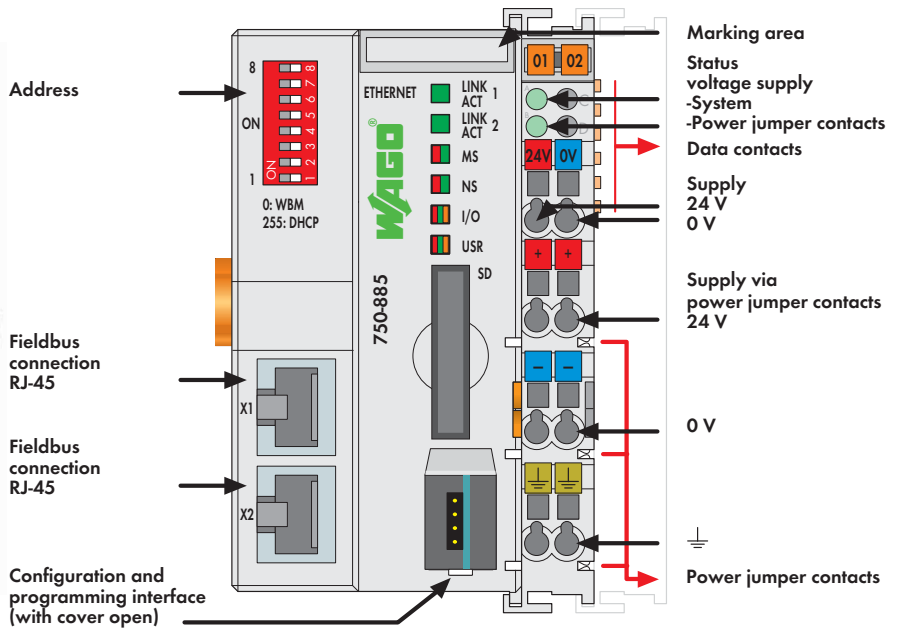
General Specifications

Dimensions (mm) W x H x L	112 x 65 x 100
	Height from upper-edge of DIN 35 rail
Weight	250 g
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)
EMC: CE - emission of interference	acc. to EN 61000-6-2 (2005)
EMC: marine applications	
- immunity to interference	pending
EMC: marine applications	
- emission of interference	pending
Degree of protection	IP20 acc. to DIN 60529
Type of mounting	DIN 35 rail
Housing material	PC
Ambient conditions	
Operating temperature	0 °C ... +55 °C
Storage temperature	-10 °C ... +85 °C
Relative air humidity (no condensation)	95 %
Altitude	
Operation	0 m ... 2000 m
Storage/transit	0 m ... 3000 m
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm ² ... 2.5 mm ² / AWG 28 ... 14
Strip lengths	8 ... 9 mm / 0.33 in

PLC - ETHERNET Programmable Media Redundancy Fieldbus Controller


32-bit CPU, multitasking, with memory card slot

AUTOMATION

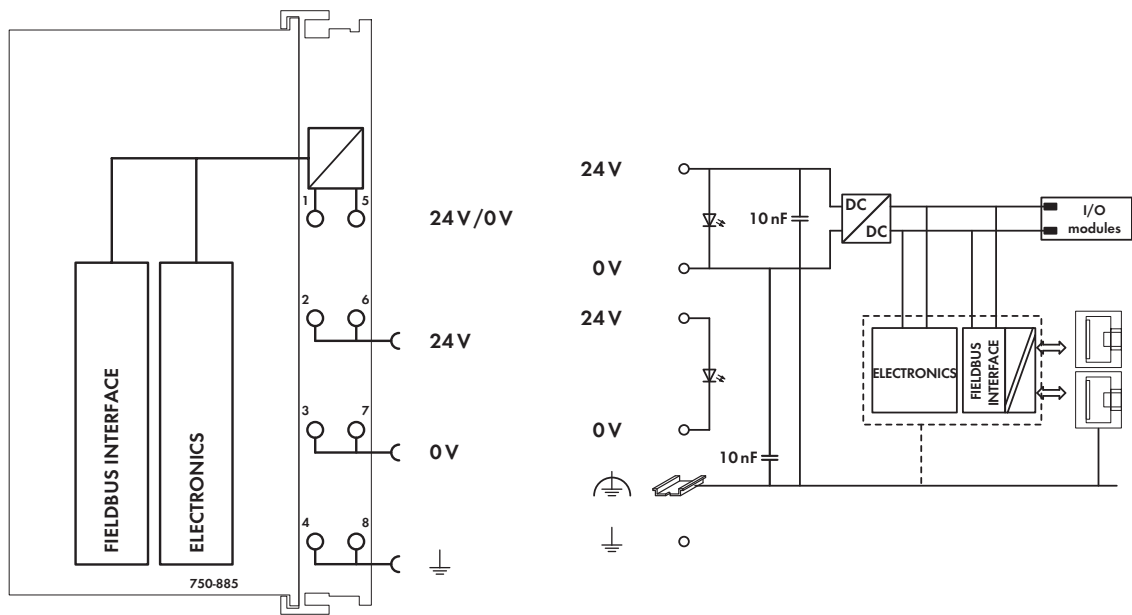


In conjunction with the WAGO-I/O-SYSTEM, the 750-885 ETHERNET PLC serves ETHERNET networks requiring fast and safe media redundancy. The PLC supports all digital, analog and specialty modules found within the 750/753 Series, and is suitable for data rates of 10/100 Mbit/s. Media redundancy is achieved by operating the controller in two separate networks – which is accessible via two different IP addresses (including two MAC IDs). Cross communication between separate channels is not possible. The two separate ETHERNET interfaces allow redundant connection of two transmission paths (no hub or switch required). Both interfaces support Auto-Negotiation and Auto-MDI(X). The DIP switch configures the last byte of both default IP addresses and may be used for IP address assignment (DHCP, BootP).

The media redundancy PLC is designed for fieldbus communication via MODBUS/TCP in ETHERNET networks. It also supports a wide variety of standard ETHERNET protocols (e.g., HTTP, BootP, DHCP, DNS, FTP). An integrated Web server provides configuration options to the user, while displaying PLC status information. The IEC 61131-3 programmable controller is multitasking-capable and features a battery-backed RTC. A data memory of 1 Mbyte is available. For memory expansion, the 750-885 PLC is equipped with a removable memory card slot.

Description	Item No.	Pack. Unit
ETHERNET MR/SD Fieldbus Controller	750-885	1
ETHERNET MR/SD Fieldbus Controller/T	750-885/025-000	1
Extended temperature range: -20 °C ... +60 °C		
Accessories	Item No.	Pack. Unit
SD memory card, 1 GB	758-879/000-001	1
WAGO-I/O-PRO V2.3, RS-232 kit	759-333	1
Miniature WSB Quick marking system		
 plain	248-501	5
with marking	see Full Line Catalog AUTOMATION 2012/2013	
Approvals		
Conformity marking	CE	
Shipbuilding	GL, pending	
UL 508	pending	

System Data	
No. of controllers connected to Master	limited by ETHERNET specification
Transmission medium	Twisted Pair S-UTP
	100 Ω, Cat 5;
	Max. line length: 100 m
Baud rate	10/100 Mbit/s
Transmission performance	Class D acc. to EN 50173
Buscoupler connection	2 x RJ-45
Protocols	MODBUS/TCP (UDP), HTTP, BootP, DHCP, DNS, FTP
Programming	WAGO-I/O-PRO V2.3
IEC 61131-3	IL, LD, FBD, ST, FC
Redundancy function	via two logically separated ETHERNET interfaces
SD card slot	Push-push mechanism, sealable cover lid
Type of memory card	SD and SDHC up to 32 Gbytes (All guaranteed properties are only valid in combination with the WAGO 758-879/000-001 memory card.)



Technical Data

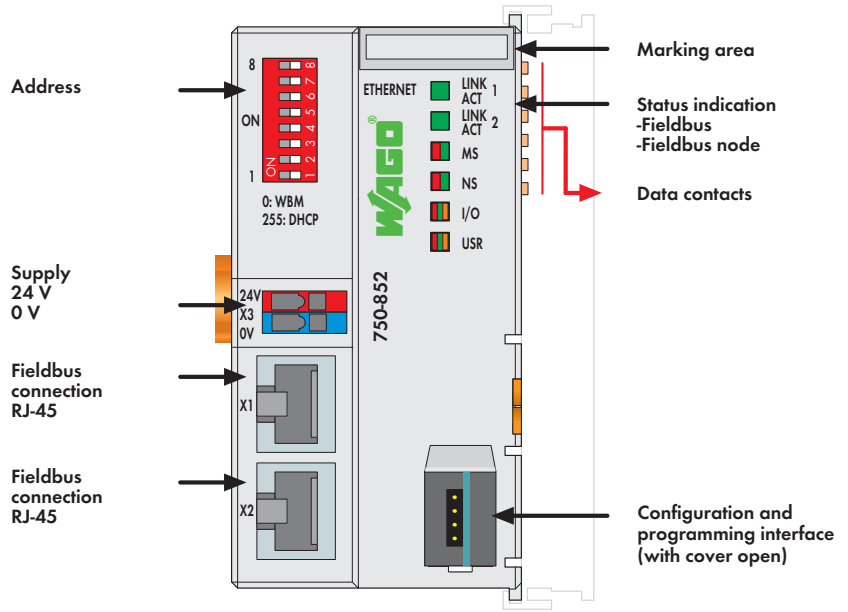
Number of I/O modules	64
with bus extension	250
Fieldbus	
Max. input process image	1020 words
Max. output process image	1020 words
Configuration	via PC
Program memory	1024 Kbytes
Data memory	1024 Kbytes
Non-volatile memory (retain)	32 Kbytes
Power supply	24 V DC (-25 % ... +30 %)
Input current typ. at rated load (24 V)	500 mA
Efficiency of the power supply (typ.) at nominal load (24 V)	90 %
Internal current consumption (5 V)	450 mA
Total current for I/O modules (5 V)	1700 mA
Isolation	500 V system/supply

General Specifications

Operating temperature	0 °C ... +55 °C
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm ² ... 2.5 mm ² / AWG 28 ... 14
Strip lengths	8 ... 9 mm / 0.33 in
Dimensions (mm) W x H x L	62 x 65 x 100
	Height from upper-edge of DIN 35 rail
Weight	164 g
Storage temperature	-25 °C ... +85 °C
Relative air humidity (no condensation)	95 %
Vibration resistance	acc. to IEC 60068-2-6
Shock resistance	acc. to IEC 60068-2-27
Degree of protection	IP20
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)
EMC: CE - emission of interference	acc. to EN 61000-6-3 (2007)
EMC: marine applications	
- immunity to interference	acc. to Germanischer Lloyd (2003)
EMC: marine applications	
- emission of interference	acc. to Germanischer Lloyd (2003)

PLC - ETHERNET Programmable Fieldbus Controller ECO

32-bit CPU



The 750-852 ETHERNET PLC connects ETHERNET to the modular WAGO-I/O-SYSTEM.

The PLC automatically configures, creating a local process image which may include analog, digital or specialty modules. Analog and specialty module data is sent via words and/or bytes; digital data is sent bit by bit.

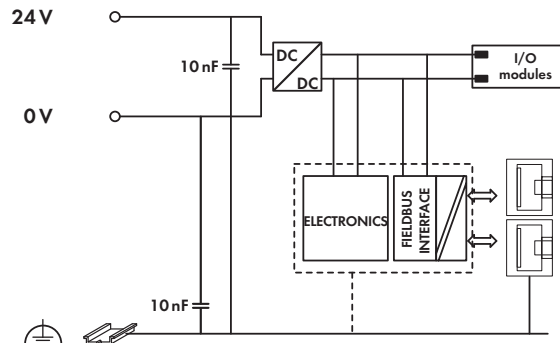
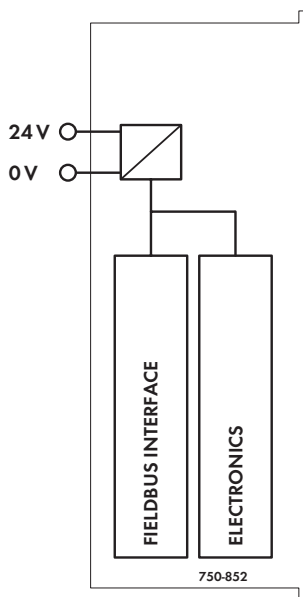
Two ETHERNET interfaces and an integrated switch allow the fieldbus to be wired in a line topology. This eliminates additional network devices, such as switches or hubs. Both interfaces support Auto-Negotiation and Auto-MDI(X).

The DIP switch configures the last byte of the IP address and may be used for IP address assignment.

The PLC is designed for fieldbus communication in both EtherNet/IP and MODBUS networks. It also supports a wide variety of standard ETHERNET protocols (e.g., HTTP, BootP, DHCP, DNS, SNTP, FTP). An integrated Web server provides the user with configuration options and status information from the controller. The IEC 61131-3 programmable controller is multitasking-capable.

Description	Item No.	Pack. Unit
ETHERNET ECO Controller	750-852	1
Accessories		
WAGO-I/O-PRO V2.3, RS-232 kit	759-333	1
Miniature WSB Quick marking system		
plain	248-501	5
with marking	see Full Line Catalog AUTOMATION 2012/2013	
Approvals		
Conformity marking	CE	
Shipbuilding	GL applied for	
UL 508	applied for	

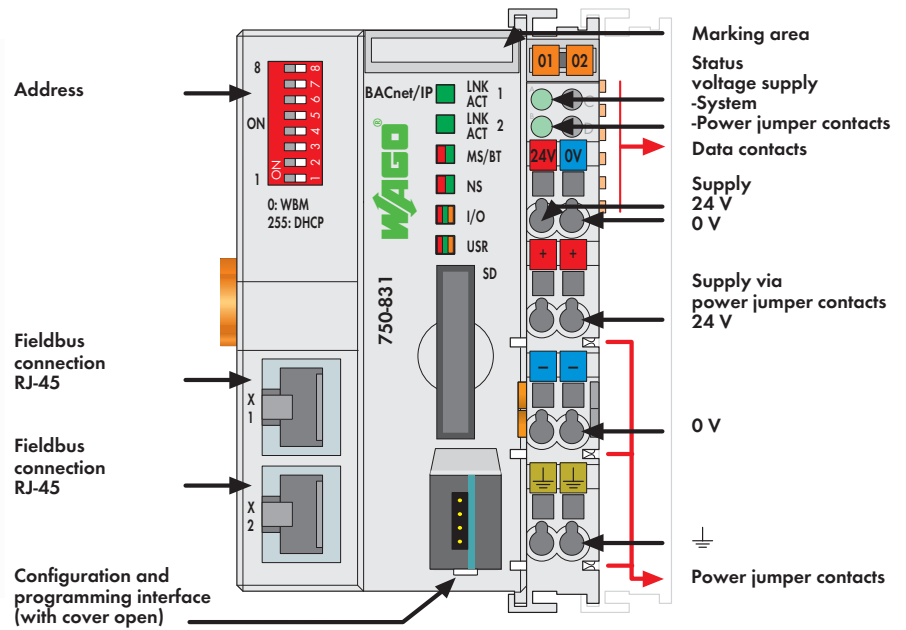
System Data	
No. of controllers connected to Master	limited by ETHERNET specification
Transmission medium	Twisted Pair S-UTP
	100 Ω, Cat 5;
	Max. line length: 100 m
Baud rate	10/100 Mbit/s
Transmission performance	Class D acc. to EN 50173
Buscoupler connection	2 x RJ-45
Protocols	EtherNet/IP, MODBUS/TCP (UDP), HTTP, BootP, DHCP, DNS, SNTP, FTP
Programming	WAGO-I/O-PRO V2.3
IEC 61131-3	IL, LD, FBD, ST, FC



Technical Data		General Specifications	
Number of I/O modules	64	Operating temperature	0 °C ... +55 °C
with bus extension	250	Wire connection	CAGE CLAMP®
Fieldbus		Cross sections	0.08 mm ² ... 1.5 mm ² / AWG 28 ... 14
Max. input process image	1020 words	Strip lengths	5 ... 6 mm / 0.22 in
Max. output process image	1020 words	Dimensions (mm) W x H x L	50 x 65 x 97
Configuration	via PC		Height from upper-edge of DIN 35 rail
Program memory	512 Kbytes	Weight	110.5 g
Data memory	256 Kbytes	Storage temperature	-25 °C ... +85 °C
Non-volatile memory (retain)	8 Kbytes	Relative air humidity (no condensation)	95 %
Power supply	24 V DC (-25 % ... +30 %)	Vibration resistance	acc. to IEC 60068-2-6
Input current typ. at rated load (24 V)	300 mA	Shock resistance	acc. to IEC 60068-2-27
Efficiency of the power supply (typ.) at nominal load (24 V)	90 %	Degree of protection	IP20
Internal current consumption (5 V)	400 mA	EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)
Total current for I/O modules (5 V)	700 mA	EMC: CE - emission of interference	acc. to EN 61000-6-3 (2007)
Isolation	500 V system/supply	EMC: marine applications	
		- immunity to interference	acc. to Germanischer Lloyd (2003)
		EMC: marine applications	
		- emission of interference	acc. to Germanischer Lloyd (2003)

1 BACnet/IP Programmable Fieldbus Controller

18 32-bit CPU, multitasking



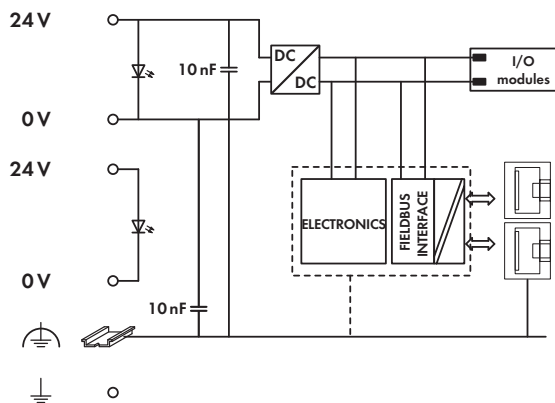
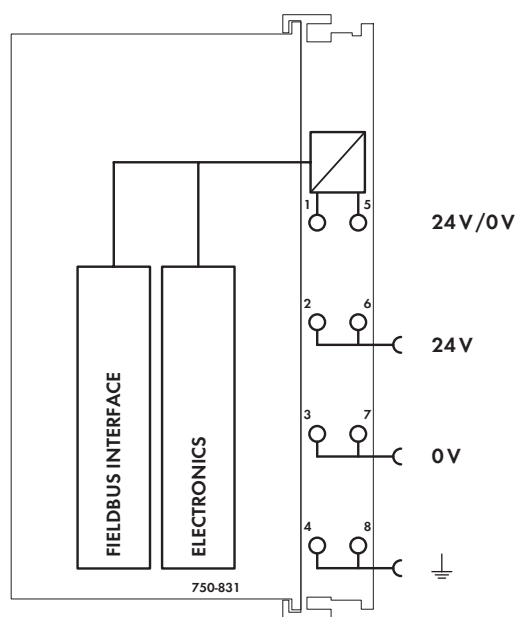
The 750-831 BACnet/IP Controller connects the WAGO-I/O-SYSTEM to the BACnet protocol. The 750-831 Controller supports the B-BC BACnet device profile according to DIN EN ISO 16484-5. It communicates with other BACnet devices via BACnet/IP.

- The controller provides the three following functionalities:
- 1. Native server: For each channel, appropriate BACnet objects are generated automatically for the digital/analog input and output modules that are connected to the controller.
 - 2. Application server: Other supported BACnet objects can be created via IEC 61131-3 programming environment and made available to a BACnet network.
 - 3. Application client: Using the client functionality, objects and their properties can be accessed by other BACnet devices.

Two ETHERNET interfaces and an integrated switch allow the fieldbus to be wired in a line topology. This eliminates additional network devices, such as switches or hubs. Both interfaces support Auto-Negotiation and Auto-MDI(X). The DIP switch configures the last byte of the IP address and may be used for IP address assignment. An integrated Web server provides configuration options to the user, while displaying controller's status information. The IEC 61131-3 programmable controller is multitasking-capable and features a battery-backed RTC. A data memory of 1 MB is available. The 750-831 Controller has a slot for a removable memory card, allowing device parameters or files (e.g., boot files) to be transferred from one controller to another. The memory card can be accessed via FTP and be used as an additional drive. Start-up and configuration of the BACnet networks is performed using the Windows-compliant WAGO BACnet Configurator.

Description	Item No.	Pack. Unit
BACnet/IP Controller	750-831	1
Accessories		
WAGO BACnet configurator	see Full Line Catalog AUTOMATION 2012/2013 Download: www.wago.com	
WAGO-I/O-PRO V2.3, RS-232 kit	759-333	1
Miniature WSB Quick marking system		
plain	248-501	5
with marking	see Full Line Catalog AUTOMATION 2012/2013	
SD memory card, 1 GB	758-879/000-001	1
Approvals		
BACnet approvals		
WSPCert certification	pending	
BTL listing	pending	
Conformity marking	CE	

System Data	
No. of controllers connected to Master	limited by ETHERNET specification
Transmission medium	Twisted Pair S-UTP 100 Ω, Cat 5; Max. line length: 100 m
Baud rate	10/100 Mbit/s
Transmission performance	Class D acc. to EN 50173
Buscoupler connection	2 x RJ-45
Protocols	BACnet/IP, MODBUS/TCP (UDP), HTTP, BootP, DHCP, DNS, SNTP, FTP, SNMP
Programming	WAGO-I/O-PRO V2.3
IEC 61131-3	IL, LD, FBD, ST, FC
SD card slot	Push-push mechanism, sealable cover lid
Type of memory card	SD and SDHC up to 32 GB (All guaranteed properties are only valid in connection with the WAGO 758-879/000-001 memory card.)
BACnet device profile	B-BC (BACnet Building Controller)
BACnet version	1.7



Technical Data

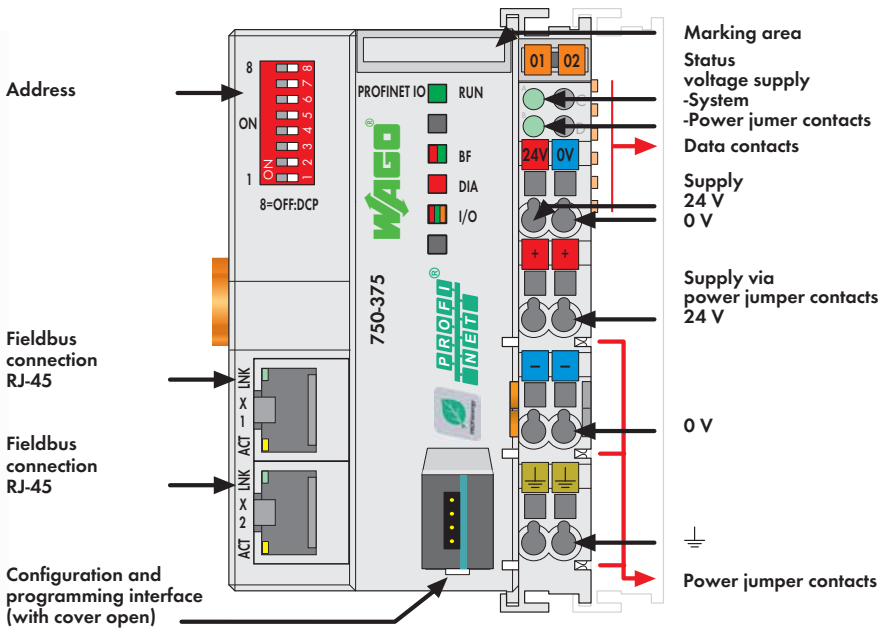
Number of I/O modules	64
with bus extension	99
Fieldbus	
Max. input process image	1020 words
Max. output process image	1020 words
Configuration	via PC
Program memory	1024 Kbytes
Data memory	1024 Kbytes
Non-volatile memory (retain)	28 Kbytes
Flash	4.5 Mbytes
Power supply	24 V DC (-25 % ... +30 %)
Input current typ. at rated load (24 V)	500 mA
Efficiency of the power supply (typ.) at nominal load (24 V)	90 %
Internal current consumption (5 V)	450 mA
Total current for I/O modules (5 V)	1700 mA
Isolation	500 V system/supply

General Specifications


Operating temperature	0 °C ... +55 °C
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm ² ... 2.5 mm ² / AWG 28 ... 14
Strip lengths	8 ... 9 mm / 0.33 in
Dimensions (mm) W x H x L	62 x 65 x 100
	Height from upper-edge of DIN 35 rail
Weight	164 g
Storage temperature	-25 °C ... +85 °C
Relative air humidity (no condensation)	95 %
Vibration resistance	acc. to IEC 60068-2-6
Shock resistance	acc. to IEC 60068-2-27
Degree of protection	IP20
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)
EMC: CE - emission of interference	acc. to EN 61000-6-3 (2007)

1 PROFINET IO advanced Fieldbus Coupler

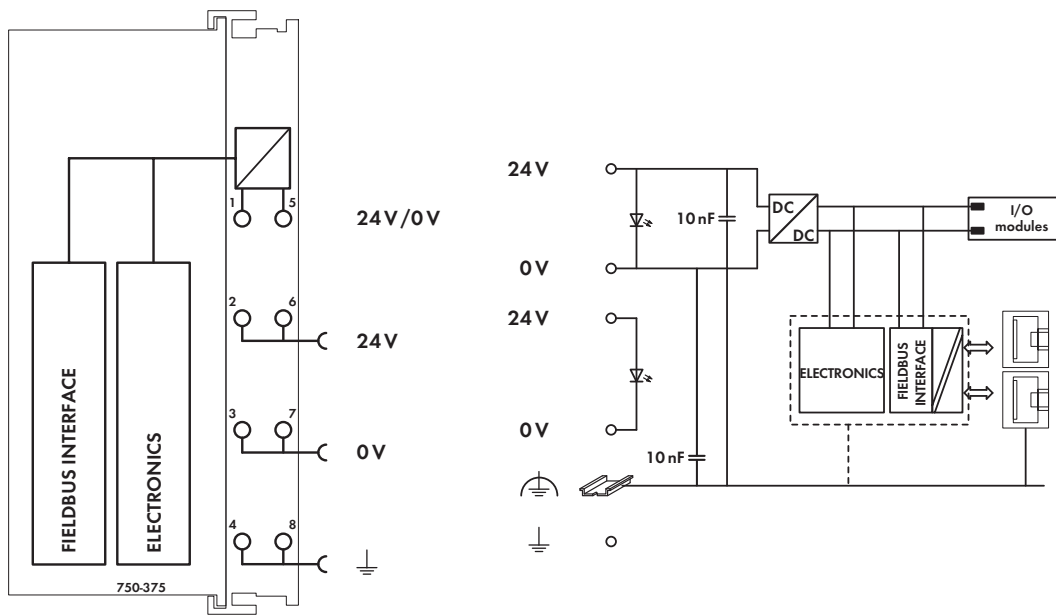
20 2-port switch; 100 Mbit/s; digital, analog and complex signals



The 750-375 Fieldbus Coupler connects the WAGO I/O-SYSTEM 750 to PROFINET IO (open, real-time industrial ETHERNET automation standard). The coupler identifies the connected I/O modules and creates local process images for maximum two IO controllers and one IO supervisor according to preset configurations. The process images may include a mixed arrangement of analog, digital or specialty modules. Analog and specialty module data is sent via words and/or bytes; digital data is sent bit by bit. The fieldbus coupler operates as an IO device in the network. It features an integrated 2-port switch, simplifying the creation of a line structure without additional network components. The device name can be assigned via DCP protocol or set via DIP switch.

Description	Item No.	Pack. Unit
PROFINET IO adv. 2-Port	750-375	1
Accessories		
Miniature WSB Quick marking system		
 plain	248-501	5
with marking	see Full Line Catalog AUTOMATION 2012/2013	
Approvals		
Conformity marking	CE	
Shipbuilding	pending	
UL 508		

System Data	
No. of couplers connected to Master	limited by PROFINET specification
Transmission medium	Twisted Pair S-UTP 100 Ω cat. 5
Max. length of fieldbus segment	100 m between hub station and 750-375; max. length of network limited by PROFINET specification
Baud rate	10 Mbit/s (ETHERNET protocols), 100 Mbit/s full duplex (PROFINET IO)
Transmission method	100Base-TX
Buscoupler connection	2 x RJ-45
PROFINET IO standard	V2.2 (conformance class C, pending)



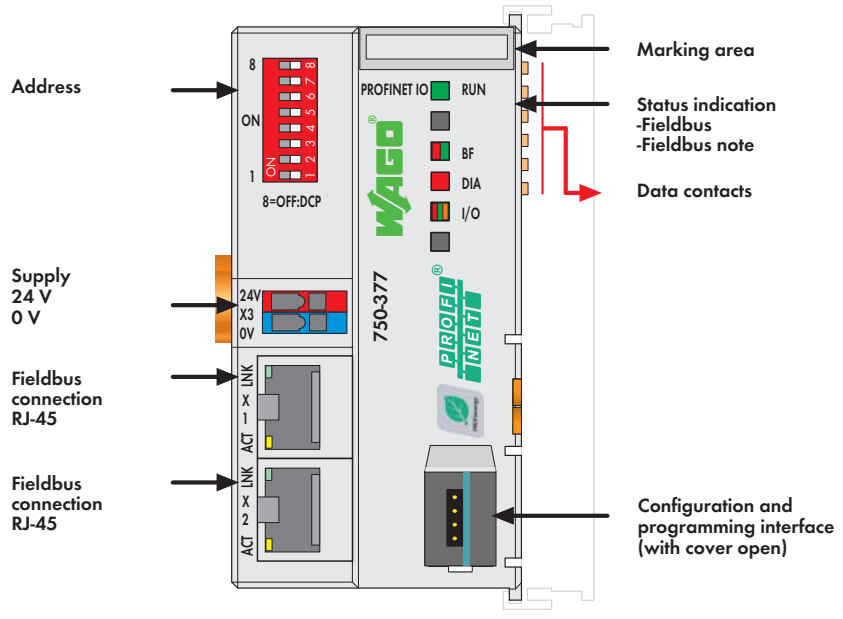
Technical Data	
Number of I/O modules	64
with bus extension	250
Fieldbus	
Max. input process image	512 bytes
Max. output process image	512 bytes
Configuration	via PC
PROFINET IO features	Integrated 2-port switch; Auto-negotiation, Auto-MDIX; Isochronous real-time communication (pending); Transmission clock: 1 ms (RT), 1, 2, 4 ms (IRT); Device replacement without programming tool; Shared device
Protocols	Topology detection / LLDP, Network diagnostics / SNMP / MIB-2, media redundancy / MRP (pending), Web server / HTTP
Profiles supported	PROFIsafe V2, PROFINergy V1.0
ID code	Vendor ID: 0x011D; Device ID: 0x02EE; Coupler ID: 0x01000177
Power supply	24 V DC (-25 % ... +30 %)
Input current typ. at rated load (24 V)	500 mA
Efficiency of the power supply (typ.) at nominal load (24 V)	90 %
Internal current consumption (5 V)	450 mA
Total current for I/O modules (5 V)	1700 mA
Isolation	500 V system/supply

General Specifications	
Operating temperature	0 °C ... +55 °C
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Strip lengths	8 ... 9 mm / 0.33 in
Dimensions (mm) W x H x L	62 x 65 x 100
	Height from upper-edge of DIN 35 rail
Weight	160 g
Storage temperature	-25 °C ... +85 °C
Relative air humidity (no condensation)	95 %
Vibration resistance	acc. to IEC 60068-2-6
Shock resistance	acc. to IEC 60068-2-27
Degree of protection	IP20
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)
EMC: CE - emission of interference	acc. to EN 61000-6-3 (2007)
EMC: marine applications	
- immunity to interference	pending
EMC: marine applications	
- emission of interference	pending


PROFINET IO advanced ECO Fielbus Coupler

2-port switch; 100 Mbit/s; digital, analog and complex signals

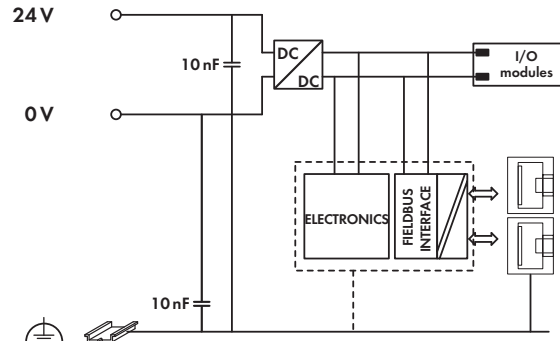
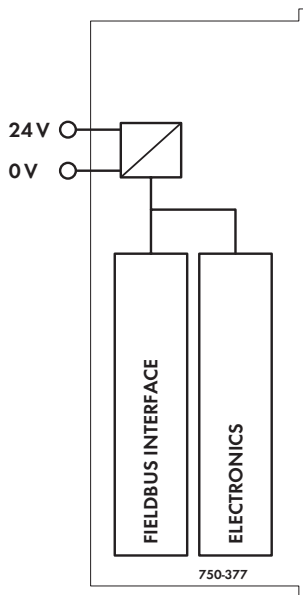
AUTOMATION



The 750-377 Fielbus Coupler connects the WAGO I/O-SYSTEM 750 to PROFINET IO (open, real-time industrial ETHERNET automation standard). The coupler identifies the connected I/O modules and creates local process images for one IO controller and one IO supervisor according to preset configurations. The process images may include a mixed arrangement of analog, digital or specialty modules. Analog and specialty module data is sent via words and/or bytes; digital data is sent bit by bit. The fieldbus coupler operates as an IO device in the network. It features an integrated 2-port switch, simplifying the creation of a line structure without additional network components. The device name can be assigned via DCP protocol or set via DIP switch.

Description	Item No.	Pack. Unit
PROFINET IO adv. ECO 2-Port	750-377	1
Accessories		
Miniature WSB Quick marking system		
 plain	248-501	5
with marking	see Full Line Catalog AUTOMATION 2012/2013	
Approvals		
Conformity marking	CE	
Shipbuilding	pending	
UL 508		

System Data	
No. of couplers connected to Master	limited by PROFINET specification
Transmission medium	Twisted Pair S-UTP 100 Ω cat. 5
Max. length of fieldbus segment	100 m between hub station and 750-377; max. length of network limited by PROFINET specification
Baud rate	10 Mbit/s (ETHERNET protocols), 100 Mbit/s full duplex (PROFINET IO)
Transmission method	100Base-TX
Buscoupler connection	2 x RJ-45
PROFINET IO standard	V2.2 (conformance class C, pending)



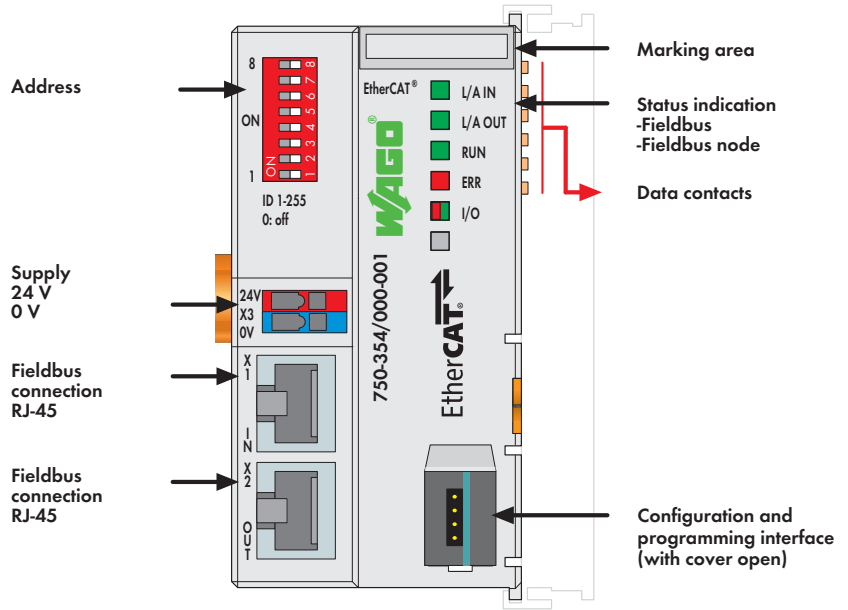
Technical Data	
Number of I/O modules	64
Fieldbus	
Max. input process image	256 bytes
Max. output process image	256 bytes
Configuration	via PC
PROFINET IO features	Integrated 2-port switch;
	Auto-negotiation, Auto-MDIX;
	Isochronous real-time communication
	(pending);
	Transmission clock: 1 ms (RT), 1, 2, 4 ms
	(IRT);
	Device replacement without programming
	tool
Protocols	Topology detection / LLDP,
	Network diagnostics / SNMP / MIB-2,
	media redundancy / MRP (pending),
	Web server / HTTP
Profiles supported	PROFIsafe V2, PROFInergy V1.0
ID code	Vendor ID: 0x011D;
	Device ID: 0x02EE;
	Coupler ID: 0x01000179
Power supply	24 V DC (-25 % ... +30 %)
Input current typ. at rated load (24 V)	280 mA
Efficiency of the power supply (typ.) at	
nominal load (24 V)	90 %
Internal current consumption (5 V)	450 mA
Total current for I/O modules (5 V)	700 mA
Isolation	500 V system/supply

General Specifications	
Operating temperature	0 °C ... +55 °C
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm ² ... 1.5 mm ² / AWG 28 ... 14
Strip lengths	5 ... 6 mm / 0.22 in
Dimensions (mm) W x H x L	50 x 65 x 97
	Height from upper-edge of DIN 35 rail
Weight	110 g
Storage temperature	-25 °C ... +85 °C
Relative air humidity (no condensation)	95 %
Vibration resistance	acc. to IEC 60068-2-6
Shock resistance	acc. to IEC 60068-2-27
Degree of protection	IP20
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)
EMC: CE - emission of interference	acc. to EN 61000-6-3 (2007)
EMC: marine applications	
- immunity to interference	pending
EMC: marine applications	
- emission of interference	pending

1 EtherCAT® Fieldbus Coupler, ID Switch

24 100 Mbit/s; digital and analog signals

AUTOMATION




The 750-354 EtherCAT® Fieldbus Coupler connects EtherCAT® to the modular WAGO-I/O-SYSTEM.

The fieldbus coupler automatically configures, creating a local process image which may include analog, digital or specialty modules. Analog and specialty module data is sent via words and/or bytes; digital data is sent bit by bit.

The upper EtherCAT® interface connects the coupler to the network. The lower RJ-45 socket connects additional EtherCAT® devices to the same line.

EtherCAT® (Ethernet Control Automation Technology) is a real-time ETHERNET solution designed for industrial automation applications and characterized by high performance, flexible topology and simple configuration. With EtherCAT®, the costly ETHERNET star topology can be replaced with a simple line or tree structure.

The address selection switch is used to set an Explicit Device ID (EDI), which allows a fixed address to be assigned to an EtherCAT® slave.

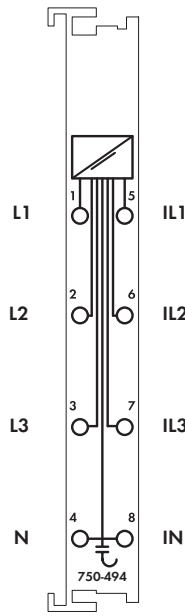
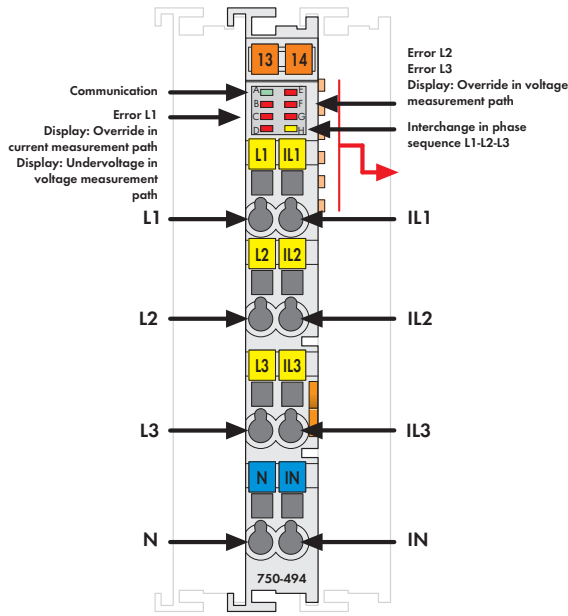
Description	Item No.	Pack. Unit
EtherCAT® Fieldbus Coupler, ID Switch	750-354/000-001	1
Accessories		
Miniature WSB Quick marking system		
 plain	248-501	5
with marking	see Full Line Catalog AUTOMATION 2012/2013	
Approvals		
Conformity marking	CE	
UL 508		

System Data	
No. of couplers connected to Master	limited by EtherCAT specification
Transmission medium	Twisted Pair 2 x 2 or 4 x 2; AWG 26/7 to AWG 22/1; SF/FTP, SF/UTP or S/FTP; 100 Ω, Cat 5; Max. line length: 100 m
Baud rate	100 Mbit/s
Transmission performance	Class D acc. to EN 50173-1
Buscoupler connection	2 x RJ-45
Protocols	EtherCAT (direct mode)

*EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.

1 3-Phase Power Measurement Module

AUTOMATION



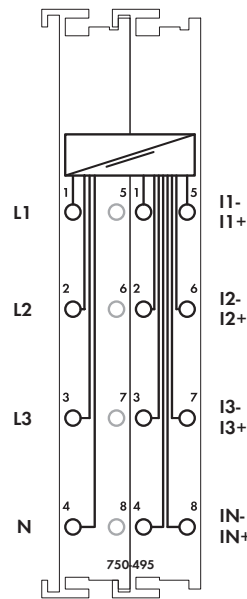
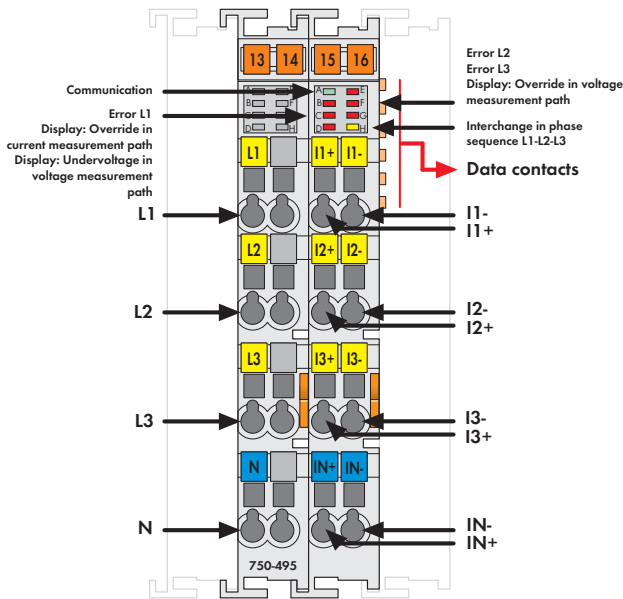
Delivered without miniature WSB markers

The 750-494 3-Phase Power Measurement Module measures electrical data in a three-phase supply network. The voltage is measured via network connection to L1, L2, L3 and N. The current of the three phases is fed to IL1, IL2, IL3 and IN via current transformers. The 750-494 Module transmits metrics (e.g., reactive/apparent/effective power, energy consumption, power factor, phase angle, frequency, over-/undervoltage) directly into the process image, without requiring high computing power from the controller. Both comprehensive metrics and harmonic analysis up to the 41st harmonic permit an extensive network analysis via the fieldbus.

Metrics allow the operator to optimize the supply to a drive or machine, protecting the system from damage and failure. The 4-quadrant display indicates the type of load (inductive, capacitive) and whether it is an energy consumer or producer.

Description	Item No.	Pack. Unit
3-Phase Power Measurement Module (480V/1A)	750-494	1
3-Phase Power Measurement Module (480V/5A)	750-494/000-001	1
3-Phase Power Measurement Module (480V/1A)/T	750-494/025-000	1
Extended temperature range: -20 °C ... +60 °C		
3-Phase Power Measurement Module (480V/5A)/T	750-494/025-001	1
Extended temperature range: -20 °C ... +60 °C		
Accessories	Item No.	Pack. Unit
Miniature WSB Quick marking system		
plain	248-501	5
with marking	see Full Line Catalog AUTOMATION 2012/2013	
Approvals		
Conformity marking	CE	
UL 508		
ANSI/ISA 12.12.01	applied for	
TÜV 07 ATEX 554086 X	I M2 Ex d I Mb, II 3 G Ex nA IIC T4 Gc, II 3 D Ex tc IIIC T135 °C Dc	
Permissible ambient temperature 0 °C ... +60 °C		
TUN 09.0001 X	Ex d I Mb, Ex nA IIC T4 Gc, Ex tc IIIC T135 °C Dc	
Permissible ambient temperature 0 °C ... +60 °C		
Technical Data		
Wire connection	CAGE CLAMP®	
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	
Strip lengths	8 ... 9 mm / 0.33 in	
Width	12mm	
Weight	48.5 g	
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)	
EMC: CE - emission of interference	acc. to EN 61000-6-3 (2007)	


Technical Data	
Number of measurement inputs	6 (3 voltage measurement inputs, 3 current measurement inputs)
Rated voltage	$V_{in} = 277 \text{ V AC/DC}; V_{II} = 480 \text{ V AC}$
Input resistance voltage path (typ.)	1072 kΩ
Measuring current (max.)	1 A (750-494, 750-494/025-000) 5 A (750-494/000-001, 750-494/025-001)
Input resistance current path (typ.)	22 mΩ (750-494, 750-494/025-000) 5 mΩ (750-494/000-001, 750-494/025-001)
Resolution	24 bits
Frequency range - frequency of supply network	45 Hz ... 65 Hz
Frequency range - analysis of harmonics	0 Hz ... 3300 Hz
Max. operating frequency	15.9 kHz
Signal form	any periodic signals (taking the maximum frequency into account)
Measuring error for current and voltage	AC: Max. 0.5 %; DC: 1.0 % (of the upper range value); DC measurement (2 channels only)
Measuring procedure	True RMS measurement
Measuring cycle time	Adjustable for arithmetic mean value, Min_Max_Values
Measured values	Line-to-line voltage, power output, energy, power factors, mains frequency, harmonic analysis (up to the 41st harmonic), THD via system voltage internal bus (5 V)
Power supply	
Current consumption (internal)	100 mA
Rated surge voltage	4 kV
Overvoltage category	III
Degree of pollution	2
Bit width	2 x 128 bits data 2 x 64 bits control/status



Delivered without miniature WSB markers

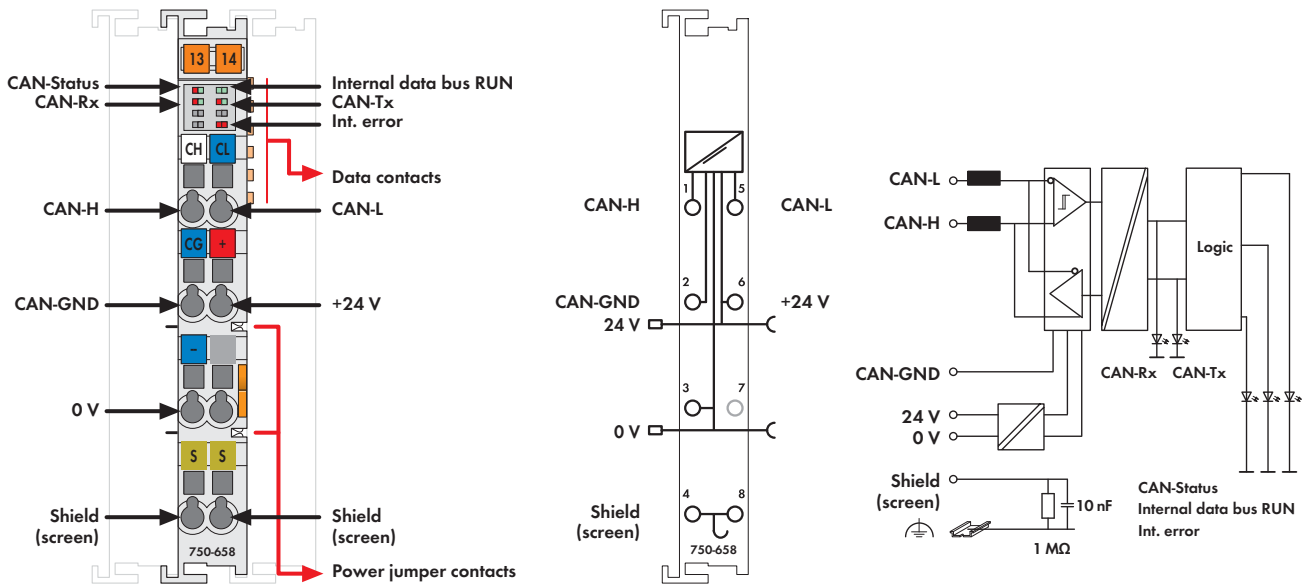
The 750-495 3-Phase Power Measurement Module measures electrical data in a three-phase supply network. The voltage is measured via network connection to L1, L2, L3 and N. The current of the three phases is fed to IL1, IL2, IL3 and IN (two clamping points each +,-) via current transformers or via Rogowski coils for the 750-495/000-002 module. The 750-495 Module transmits metrics (e.g., reactive/apparent/effective power, energy consumption, power factor, phase angle, frequency, over-/undervoltage) directly into the process image, without requiring high computing power from the controller. Both comprehensive metrics and harmonic analysis up to the 41st harmonic permit extensive network analysis via the fieldbus.

Metrics allow the operator to optimize the supply to a drive or machine, protecting the system from damage and failure. Insulation failures can be detected and prevented via current measurement performed in the neutral conductor. The 4-quadrant display indicates the type of load (inductive, capacitive) and whether it is an energy consumer or producer.

Description	Item No.	Pack. Unit	
3-Phase Power Measurement Module (690V/1A)	750-495	1	
3-Phase Power Measurement Module (690V/5A)	750-495/000-001	1	
3-Phase Power Measurement Module (690V/RC) Rogowski Coils	750-495/000-002	1	
Accessories	Item No.	Pack. Unit	
Miniature WSB Quick marking system 	plain	248-501	5
	with marking	see Full Line Catalog AUTOMATION 2012/2013	
Approvals			
Conformity marking	CE		
Technical Data			
Wire connection	CAGE CLAMP®		
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14		
Strip lengths	8 ... 9 mm / 0.33 in		
Width	24mm		
Weight	48.5 g		
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)		
EMC: CE - emission of interference	acc. to EN 61000-6-3 (2007)		

Technical Data	
Number of measurement inputs	7 (3 voltage measurement inputs, 4 differential current measurement inputs)
Rated voltage	$V_{LN} = 400 \text{ V AC}$; $V_{UL} = 690 \text{ V AC}$
Input resistance voltage path (typ.)	1429 kΩ
Measuring current (max.)	1 A (750-495) 5 A (750-495/000-001) Rogowski Coils RT500/RT2000 (750-495/000-002)
Input resistance current path (typ.)	22 mΩ (750-495) 5 mΩ (750-495/000-001) 44 kΩ (750-495/000-002)
Resolution	24 bits
Frequency range - frequency of supply network	45 Hz ... 65 Hz
Frequency range - analysis of harmonics	0 Hz ... 3300 Hz
Max. operating frequency	15.9 kHz
Signal form	any periodic signals (taking the maximum frequency into account)
Measuring error for current and voltage	Max. 0.5 % (of the upper range value)
Measuring procedure	True RMS measurement
Measuring cycle time	Adjustable for arithmetic mean value, Min_Max_Values
Measured values	Line-to-line voltage, power output, energy, power factors, mains frequency, harmonic analysis (up to the 41st harmonic), THD
Power supply	via system voltage internal bus (5 V)
Current consumption (internal)	100 mA
Rated surge voltage	6 kV
Overvoltage category	III
Degree of pollution	2
Bit width	2 x 128 bits data 2 x 64 bits control/status


CAN Gateway



The CAN Gateway supports CAN Layer 2, while meeting CAN specifications 2.0A (11-bit identifier) and 2.0B (29-bit identifier). Function blocks allow the gateway to read and write higher-protocol telegrams (e.g., CANopen).

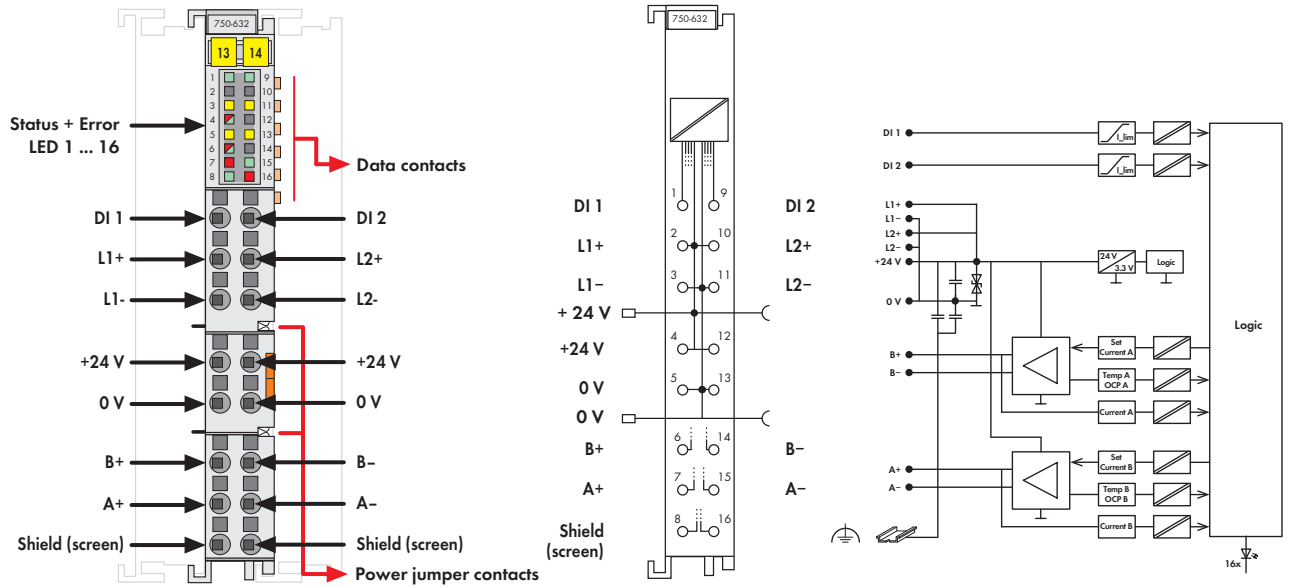
The gateway adjusts itself to baud rates between 10 kbit/s to 1 Mbit/s via automatic bit-rate detection (Auto Baud Rate). It is also possible to set a fixed transmission rate. Six configurable filters for input telegrams allow CAN messages to be filtered via the CAN identifiers.

Three operation modes are available: Sniffer mode provides a detailed CAN bus analysis without interactions. In transparent mode, the gateway works as an active CAN device that can send and receive any type of CAN telegrams. Mapped mode enables CAN telegrams to be generated directly from the process image. It also allows select process values to be copied from received telegrams into the input process image. A CAN telegram may be sent cyclically, manually or event-triggered (change of process value).

Description	Item No.	Pack. Unit
CAN Gateway	750-658	1
Accessories		
Miniature WSB Quick marking system		
 plain	248-501	5
with marking	see Full Line Catalog AUTOMATION 2012/2013	
Approvals		
Conformity marking	CE	
Shipbuilding	pending	
UL 508	pending	

Technical Data	
Number of CAN interfaces	1
Supported baud rates	10 kbit/s, 20 kbit/s, 50 kbit/s, 125 kbit/s, 250 kbit/s, 500 kbit/s, 800 kbit/s, 1 Mbit/s, Auto Baud Rate
CAN data formats	acc. to 2.0A (Standard: 11-bit ID), acc. to 2.0B (Extended: 29-bit ID)
Operation modes	Sniffer mode, transparent mode, mapped mode
Internal bit width	8, 12, 16, 20, 24, 32, 40, 48 bytes configurable; incl. control/status byte
Isolation (peak value)	$V_M = 500$ V system/supply
Current consumption typ. (24 V)	12 mA
Current consumption typ. (KBUS)	50 mA
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm ² ... 2.5 mm ² / AWG 28 ... 14
Strip lengths	8 ... 9 mm / 0.33 in
Width	12mm
Weight	55 g
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005), EN 61131-2 (2007)
EMC: CE - emission of interference	acc. to EN 61000-6-3 (2007), EN 61131-2 (2007)
EMC: marine applications - immunity to interference	pending
EMC: marine applications - emission of interference	pending

Proportional Valve Module



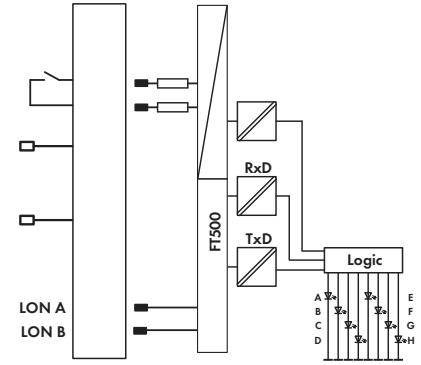
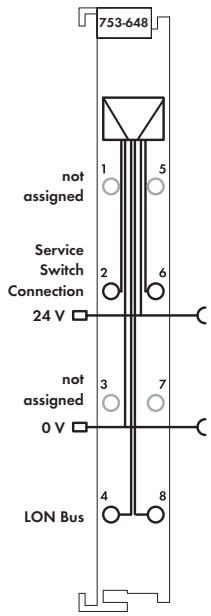
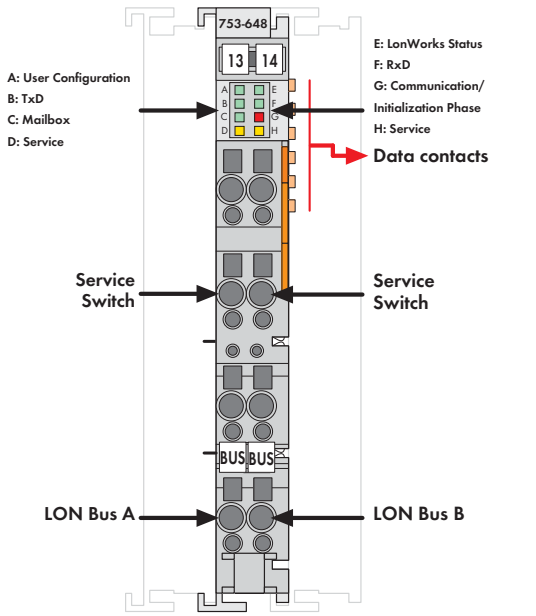
The 750-632 Proportional Valve Module controls two single-coil valves with up to 24V/1.6A, or one valve with up to 24V/2A. The module features two current-controlled PWM* outputs with adjustable dither. Both unipolar and bipolar valve control are possible. Operating a valve with two unipolar coils is also possible via a single-channel module. Characteristic curve adaptations, such as zero offset, dual gain compensation or range limitations, can be adjusted via parameters. Scaling and configurable up/down ramps permit set point adjustment to the application. For example, monitoring threshold value switches is performed via two additional digital inputs. Start-up and valve parameters adjustment are performed via WAGO-I/O-CHECK software or the controller.

*PWM = Pulse width modulation

Description	Item No.	Pack. Unit
Proportional Valve Module	750-632	1
Accessories	Item No.	Pack. Unit
WAGO-I/O-CHECK, RS-232 kit	759-302	1
Miniature WSB Quick marking system		
plain	248-501	5
with marking	see Full Line Catalog AUTOMATION 2012/2013	
Approvals		
Conformity marking	CE	
Shipbuilding	GL	
UL 508	pending	
ANSI/ISA 12.12.01	pending	
TUN approval	pending	
Technical Data		
Wire connection	CAGE CLAMP® S	
Cross sections	solid: 0.08 mm² ... 1.5 mm² / AWG 28 ... 16 fine-stranded: 0.25 mm² ... 1.5 mm² / AWG 22 ... 16	
Coil terminals A+/A-/B+/B-:	1.5 mm²/AWG 16	
	For applications acc. to UL 508: AWG 16 for all terminals	
Strip lengths	8 ... 9 mm / 0.33 in	
Width	12 mm	
Weight	50 g	
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)	
EMC: CE - emission of interference	acc. to EN 61000-6-4 (2007)	

Technical Data	
Outputs	
No. of outputs	2 bipolar outputs (A+, A- and B+, B-)
Output current (max.)	1-channel operation: 2 A (Derating must be observed); 2-channel operation: 1.6 A per channel (Derating must be observed)
Output type	H-bridge output with current-regulated PWM output (short-circuit proof and thermal overload-proof for each channel)
PWM frequency (typ.)	50 kHz
Dither frequency	250 Hz; 125 Hz; 62.5 Hz; ... 1 Hz (parameterizable)
Nominal output voltage	24 V DC (-25 % ... +30 %)
Type of load	inductive > 1 mH, valves, coils
Max. errors (setpoint/actual value deviation)	±4.5 mA
Inputs	
Number of inputs	2 (DI 1, DI 2), Type 1 acc. to IEC 61131-1; high-side switching
Input current	2.7 mA at 24 V
Module	
Max. current consumption (internal)	125 mA
Current consumption max. (field side)	20 mA + load
Supply voltage	24 V DC (-25 % ... +30 %)
Isolation	500 V system/supply
Data width process image	6 bytes: single-channel operating mode; 12 bytes: dual-channel operating mode

1 LON FTT Module



The 753-648 LON FTT Module complies with the ISO/IEC 14908 standard. The 1/2 inch (12 mm) wide I/O module connects LON to 750 Series Controller and Modules (e.g., BACnet, KNX, EnOcean, DALI, MODBUS). It is a full-fledged and flexible LON device within LonWorks FT or LP networks. The module's network variable interface defines 249 network variables of any type and supports both LonMark objects and configuration properties. LON network interface is defined via LON Configurator, a comprehensive and easy-to-use WAGO-I/O-PRO software tool. Interface representations are programmed via IEC-61131-3 and can be easily used for further applications. Fieldbus nodes are programmed via WAGO-I/O-PRO software. WAGO provides a comprehensive IEC-61131-3 library of function blocks, simplifying the creation of complex control applications.

A maximum of two modules may be connected to one controller. However, the number of modules depends on the memory required by the IEC application and the type of controller. The module is supplied via 24V power jumper contacts.

Description	Item No.	Pack. Unit
LON FTT Module	753-648	
Accessories		
LON-LIB	Download: www.wago.com	
LON Configurator	see page 31	
WAGO-I/O-PRO V2.3, RS-232 kit	759-333	1
Miniature WSB Quick marking system		
plain	248-501	5
with marking	see Full Line Catalog AUTOMATION 2012/2013	
753 Series Connectors	753-110	25
Coding fingers	753-150	100
753 Series pluggable connectors and coding fingers are included.		
Approvals		
Conformity marking	CE	
UL 508	pending	

Technical Data	
Transmission medium	Twisted Pair - FTT
Max. length of fieldbus segment	500 m (free topology); 2700 m (bus topology)
Topology	acc. to LON specification
Baud rate	78 kbps
Commissioning	via WAGO-I/O-CHECK
Programming	via WAGO-I/O-PRO
Interface to LON network	programmable via WAGO-I/O-PRO
Number of network variables	max. 254 (249 for application)
Number of aliases	max. 127
ISI (Interoperable Self-Installation)	no
DMF (Direct Memory Files)	no
Processor	FT5000
Transceiver	FTX2
Transmission channel	1
Current consumption (internal)	30 mA
Power supply	via system power
Isolation	500 V system/supply
Internal bit width	24-byte data
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Stripped lengths	9 ... 10 mm / 0.37 in
Width	12 mm
Weight	55 g
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)
EMC: CE - emission of interference	acc. to EN 61000-6-3 (2007)
EMC: marine applications	
- immunity to interference	acc. to Germanischer Lloyd (2003)
EMC: marine applications	
- emission of interference	acc. to Germanischer Lloyd (2003)
LON®, LonWorks® and LonMark® are registered trademarks of Echelon Corporation.	

LON Configurator

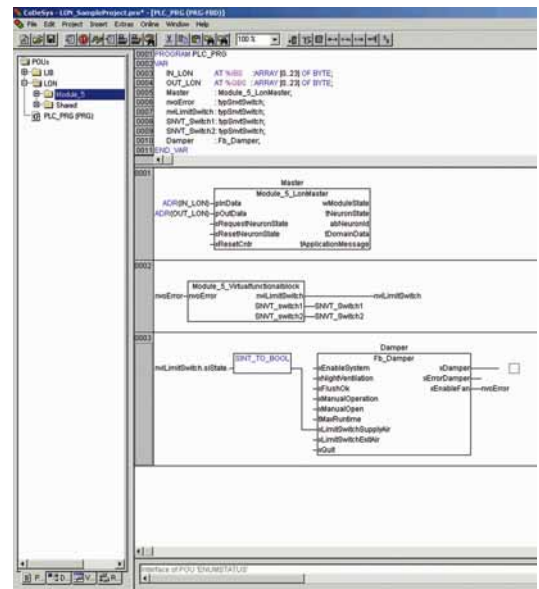
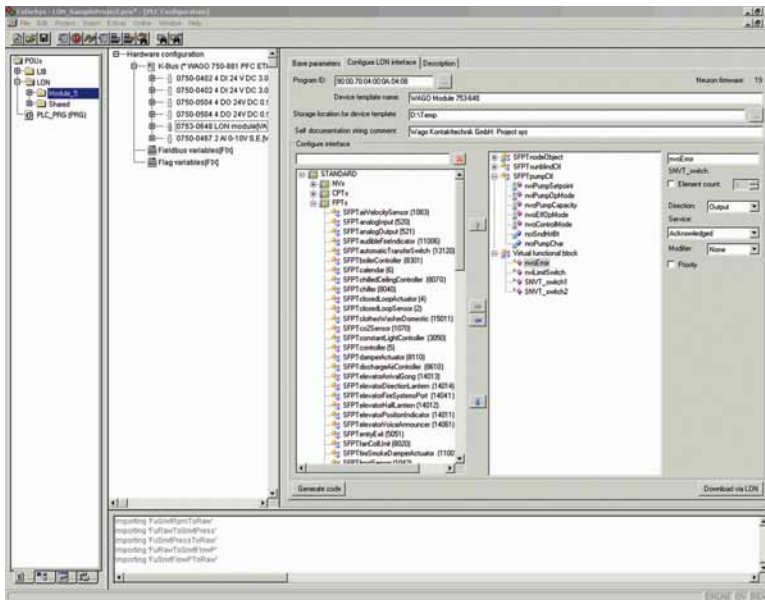
LON Configurator is an integral part of the WAGO-I/O-PRO IEC-61131-3 programming environment. The configurator supports both 753-648 LON Module's LonWorks network interface configuration and WAGO-I/O-PRO project integration. Network variables of any type can be defined. In addition to standard network variable types (SNVTs) and standard configuration property types (SCPTs), user-defined types (UNVTs/UCPTs) as well as LonMark functional profiles are also supported. Network variables are defined using the types and objects of the LonMark resources installed on your computer.

IEC-61131-3 function blocks are automatically created in the IEC application, simplifying operation. The function blocks represent the LON network interface in this application. When starting the control unit, both network variable interface and configuration data are automatically downloaded into the module.

An external interface file (XIF) is created for offline configuration in a network management tool.

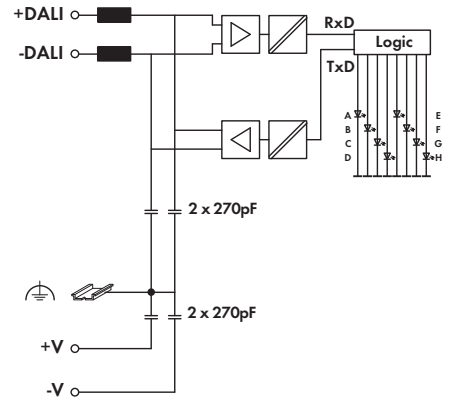
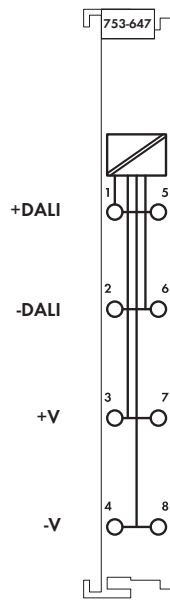
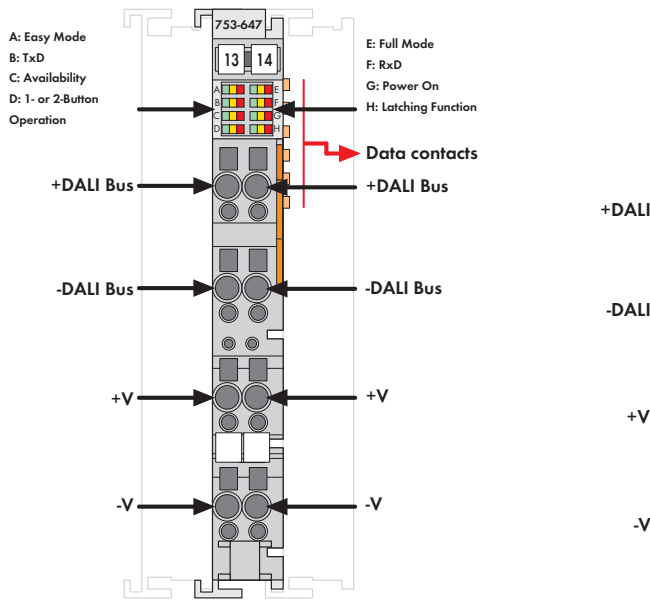
Features:

- Integral part of WAGO-I/O-PRO programming software
- Defines and implements a LON network interface
- Automatically generates IEC-61131-3 function blocks representing the LON network interface in the IEC application
- Downloads both network interfaces and configuration data when starting the control unit
- Generates XIF files
- Configuration check



LON Configurator is available as part of WAGO-I/O-PRO (Version 2.3.9.34 and higher)

1 DALI Multi-Master Module



The 753-647 DALI Multi-Master Module complies with DALI standard according to IEC 62386. This manufacturer-independent protocol ensures interoperability of DALI devices in lighting applications. The 1/2 inch (12 mm) wide module is a DALI interface used in combination with WAGO 750 Series Controllers and Modules (e.g., BACnet, KNX, EnOcean, LON, MODBUS). Each DALI Multi-Master Module supports 64 addresses for electronic control gears (ECGs) and 64 addresses for DALI sensors. Each DALI ECG can be assigned to 16 groups and 16 scenes. The 753-647 Module also offers 16 additional virtual groups on the DALI bus. Using the WAGO-I/O-SYSTEM, DALI control devices are seamlessly integrated with all supported BA and fieldbus protocols. Several DALI masters can be connected to a single fieldbus node. The maximum number of modules that can be connected to a controller depends on the memory required by the application. Fieldbus nodes are programmed via WAGO-I/O-PRO software. WAGO provides a comprehensive IEC-61131-3 library of function blocks, simplifying the creation of complex lighting applications.

Alternatively an "Easy Mode" allows lighting functions to be easily controlled without any complicated PLC programming. The 753-647 Module is future-proof and upgradable to the latest DALI release. A comprehensive and easy-to-use commissioning and maintenance tool is available as stand-alone application or as integrated WAGO-I/O-CHECK software component. The two following power supply options are available for the 753-647 Series:

1. The 753-620 DALI Multi-Master DC/DC Converter is used to supply one single module.
2. The 787-1007 Power Supply is used to supply several modules.

Description	Item No.	Pack. Unit
DALI Multi-Master Module	753-647	
Accessories		
DALI Configurator	see page 33 or download: www.wago.com	
WAGO-I/O-CHECK, RS-232 kit	759-302	1
Miniature WSB Quick marking system		
plain	248-501	5
with marking	see Full Line Catalog AUTOMATION 2012/2013	
753 Series Connectors	753-110	25
Coding fingers	753-150	100
753 Series pluggable connectors and coding fingers are included.		
Approvals		
Conformity marking	CE	
UL 508	pending	
EN 60079-0, -15	pending	
EN 61241-0, -1		

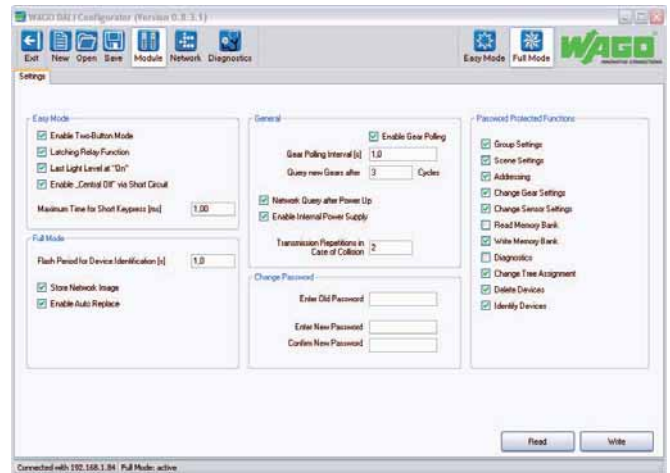
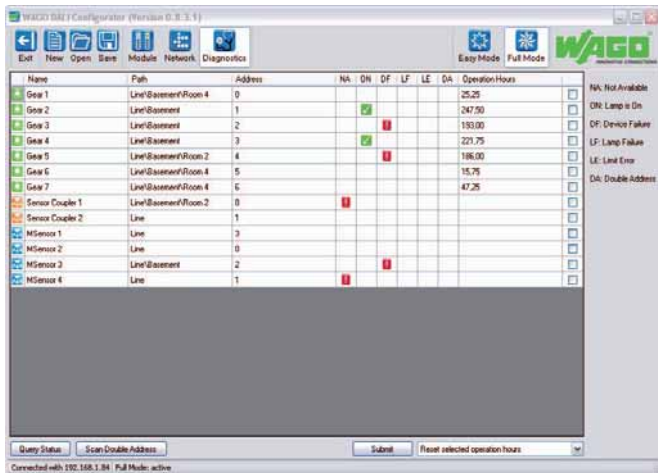
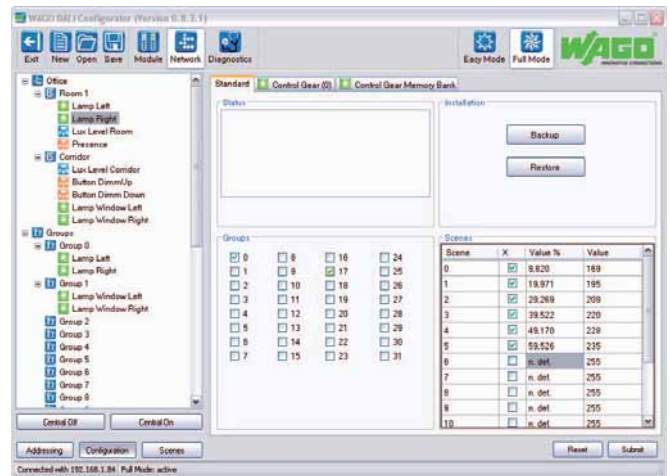
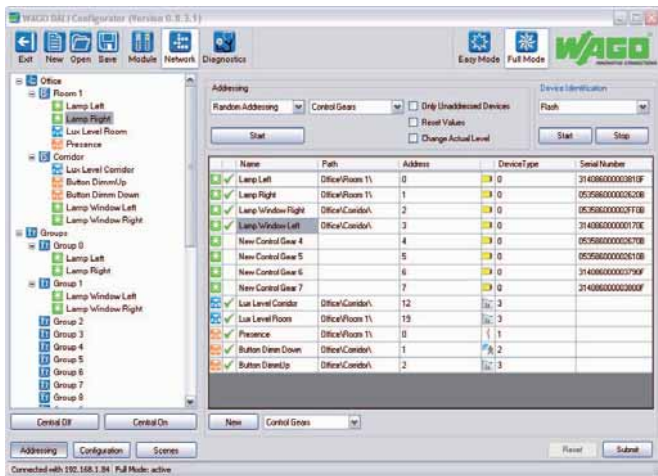
Technical Data	
DALI specification	DIN IEC 62386 only in conjunction with 753-620 or 787-1007 Power Supplies
Number of slaves (DALI)	addressable: 64 control devices + 64 control gears
Module power supply at +V and -V	18 V via 753-620 / 787-1007 Power Supplies
Transmission channel	1
Technical information acc. to DALI specification	
Maximum supply current	250 mA
Guaranteed supply current	200 mA
Current consumption (internal)	30 mA
Power supply	via system voltage (DC/DC)
Isolation	1500 V DC DALI bus/Internal data bus
Internal bit width	24-byte data
Commissioning	via WAGO-I/O-CHECK
Configuration	with WAGO DALI Configurator
Programming	via WAGO-I/O-PRO
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Stripped lengths	9 ... 10 mm / 0.37 in
Width	12 mm
Weight	55 g
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005) *
EMC: CE - emission of interference	acc. to EN 61000-6-3 (2007) *
	* Only in conjunction with 753-620 / 787-1007 DC/DC Converter
EMC: marine applications	
- immunity to interference	acc. to Germanischer Lloyd (2003)
EMC: marine applications	
- emission of interference	acc. to Germanischer Lloyd (2003)

DALI Configurator

The DALI Configurator allows easy commissioning of a DALI network via 753-647 DALI Multi-Master Module. The configurator is available as stand-alone Windows application or for use with WAGO-I/O-CHECK software. It provides the following functions: easy commissioning, configuration, service, support and maintenance of a DALI network. Comprehensive backup & restore features, as well as offline configuration option for the entire DALI network (including ECGs and sensors) are available.

Features:

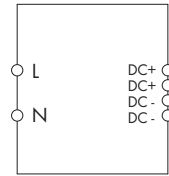
- Stand-alone software or for use with WAGO-I/O-CHECK
- Commissioning functions:
 - Addressing
 - Formation of scenes and groups
 - Control gear configuration
 - Offline configuration option
- Service, support and maintenance functions:
 - Backup & restore
 - Status messages from defective ECGs/lamps
 - Identification of double addresses
 - Operating hours display
- Windows-conform user interface:
 - Multiple selection for time-optimized configuration
 - Displays network in a clear tree structure
 - Supports different commissioning workflows



DALI Configurator is available as part of WAGO-I/O-CHECK (Version 3.4.1.9 and higher) or as a stand-alone application (www.wago.com).

Power Supply

for 753-647 DALI Multi-Master Module



The 787-1007 Primary Switch Mode Power Supply is specially designed to supply the 753-647 DALI Multi-Master Module. The 787-1007 features a 54mm-wide DIN-rail mount enclosure with input voltage range of 85 to 264VAC (120 - 373VAC). The power supply provides an output voltage of 18VDC and a maximum output current of 1100mA – enough to supply up to five parallel modules. The maximum current per DALI line is limited to 200mA in each DALI Multi-Master Module.

- Supplies up to five 753-647 DALI Multi-Master Modules*
- Prepared for class II equipment
- Natural convection cooling when horizontally mounted
- Stage profile, ideal for distribution boards or distribution boxes

Technical Data

Input:

Nominal input voltage $V_{i \text{ nom}}$	100 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 ... 373 VDC
Frequency	44 ... 66 Hz; 0 Hz
Input current I_i	0.6 A at 110 VAC / 0.4 A at 230 VAC
Inrush current	< 30 A, NTC
Mains failure hold-up time	> 10 ms at 110 VAC / > 80 ms at 230 VAC

Output:

Nominal output voltage $V_{o \text{ nom}}$	18 VDC
Output current I_o	1.1 A at 18 VDC max. 0.8 A (18 VDC) in any mounting position
Factory preset	18 VDC
Adjustment accuracy	2 %
Residual ripple	< 150 mV (peak-peak)
Current limitation	1.1 x I_o typ.
Overload behavior	Constant current
Operational indication	LED green (V_a)

Efficiency / power losses:

Efficiency	80 % typ.
Power loss P_V	3 W (no load) / 6 W (rated load)

Fuse protection:

Internal fuse	2 AT
External fuse	Wire breaking 10 A, 16 A, Characteristic B, C An external DC fuse is required for the DC input voltage

* **Note:** The 787-1007 Power Supply must be operated in a DALI network with interconnected 753-647 DALI Multi-Master Module. Otherwise the connected DALI devices will be destroyed.

Description

Primary Switch Mode Power Supply,
18 VDC / 1.1A

Item No.

787-1007

Pack. Unit

1

Technical Data

Environmental requirements:

Ambient operating temperature	-25 °C ... +55 °C
Storage temperature	-25 °C ... +80 °C
Rel. humidity	30 % ... 85 % (no condensation)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)

Safety and protection:

Enclosure	Plastic, light gray, Flammability class V0 acc. to UL94
Test voltage pri. - sec.	4.2 kV DC
Protection class	Prepared for class II equipment
Degree of protection	IP20 (acc. to EN 60529)
No-load proof	yes
Feedback voltage	max. 20 VDC
Short circuit protection	yes
MTBF	500000 h

Connection and type of mounting:

Wire connection	Input/Output: WAGO Series 740
Cross sections	Input/Output: 0.08 mm ² ... 2.5 mm ² / AWG 28 ... 12
Stripped lengths	Input/Output: 6 ... 7 mm / 0.24 ... 0.28 in
Type of mounting	DIN-rail mount (EN 60715)

Dimensions and weight:

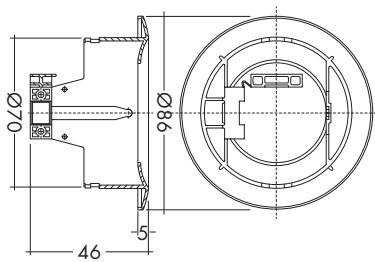
Dimensions (mm) W x H x L	54 x 89 x 59 Length: 55 mm, from upper-edge of DIN 35 rail
Weight	170 g

Standards and approvals:

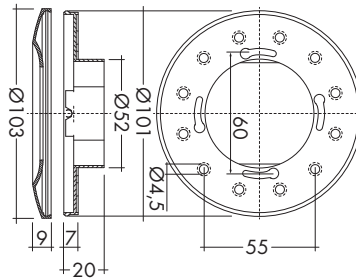
Standards/Specifications	EN 60950 (SELV), EN 61204-3, GL (Environmental Category A, EMC 2), UL 60950**, UL 508** (** pending)
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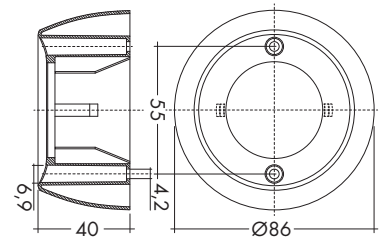
Ceiling Installation



Box Installation



Surface Mounting



The WAGO DALI MSensor 02 is used with WAGO DALI Modules (753-647 DALI Multi-Master Module or 750-641 DALI/DSI Module).

It has been designed for the following principal applications:

- Individual offices
- Open-plan offices
- Training/presentation rooms
- Corridors, passageways and garages

The Multi-Sensor features both motion and light detection. As an option, the sensor can be operated via remote control (from Tridonic). The sensor enables both motion detection and daylight-dependent lighting control; both of which can also be deactivated.

Addressing is performed via rotary switch or WAGO DALI Configurator. Parameters can be adjusted individually via WAGO DALI Configurator. Power supply is provided via DALI line.

The number of sensors, which can be operated on a DALI line, depends on the total power consumption of the specific devices and address range for the actuators and sensors. Due to the capacity of the DALI bus, a maximum of 16 DALI sensor couplers must be operated on the DALI Multi-Master Module (753-647).

Installation notes:

- The DALI MSensor 02 is supplied directly via DALI line.
- DALI is not SELV (Safety Extra Low Voltage). The installation instructions for mains voltage therefore apply.
- The detection range of the sensor must be within the lighting area of the controlled luminaires.
- The detection ranges of the sensors must not overlap as this may influence the lighting control.
- When installed at a height other than the recommended installation height (2.5 m), the presence and light sensor might show different characteristics. When mounted at a higher level, its sensitivity is reduced. If mounted at a lower level, its range is diminished.
- Heaters, fans, printers and copiers located in the detection range may cause incorrect presence detection.

Description	DALI MSensor 02 5DPI 41rc (Ceiling Installation)	DALI MSensor 02 5DPI 41w (Box Installation)	DALI MSensor 02 5DPI 41rs (Surface Mounting)
Item Number	2851-8301	2851-8302	2851-8303
Technical Data			
Ø of detection range, mounted at a height of 2.5 m	5 m		
Extension of the detection range	2 m (if mounted at a height of 2.5 m and swivelled through 15°)	2 m (if mounted at a height of 2.5 m and swivelled through 15°)	-
Swivel design	yes	yes	no
Swivel range	± 15°	± 15°	0°
Detection angle	360°		
Light measurement at the sensor head	10 ... 650 lx (The measured value at the sensor head corresponds to approx. 15 to 2,000 lux on the surface measured.)		
Remote control range	5 m		

Technical Data

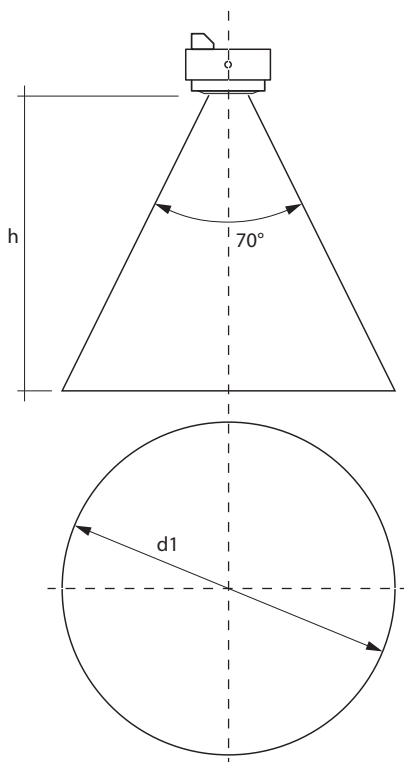
Power supply	via DALI line
Current consumption	6 mA from DALI line
Operating temperature	0 °C ... +50 °C
Storage temperature	-25 °C ... +55 °C
Degree of protection	IP20
Wire type and cross-section	Solid or fine-stranded wires ranging from 0.5 mm ² to 1.5 mm ² (AWG 20-16)

Technical Data

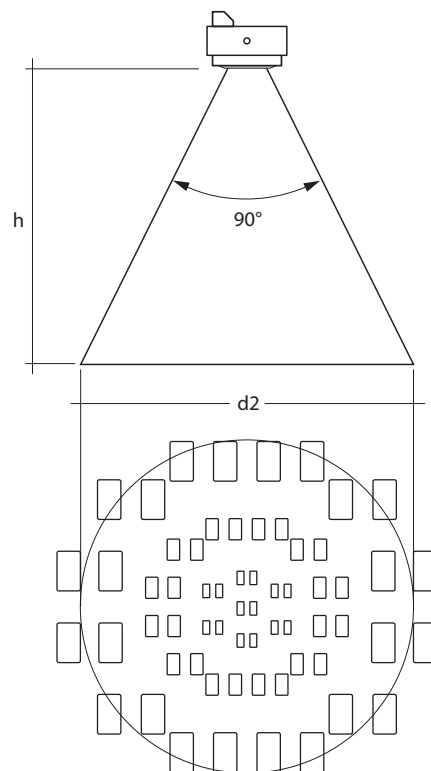
General settings:	
Motion detection	enabled, on/off
Lighting control	enabled
Setpoint, lighting control	150 lx
Power-on setting	no action
Bright-out timeout	10 min.
Bright-out threshold	150 %
Control speed	4
Switch-on value	auto (calculated)
Rotary switch	0, broadcast

Motion detector settings:

Fade-in time	< 0.7 s
Presence value	regulated
Run-on time	20 min.
Fade time	5.6 s
Absence value	3 %
Switch-off delay	10 min.
Fade-off time	5.6 s
Manual-off	10 min.

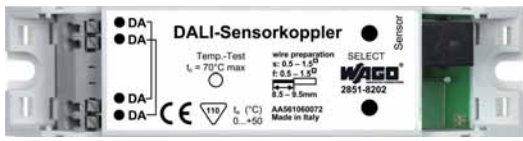
Light detection

h *	d1	d2
1,7m	2,4m	3,4m
2,0m	2,8m	4,0m
2,3m	3,2m	4,6m
2,5m	3,5m	5,0m
2,7m	3,8m	5,4m
3,0m	4,2m	6,0m
3,5m	4,9m	7,0m
4,0m	5,6m	8,0m

Motion detection

* The recommended maximum room height for office applications is 3 m and for corridor applications 4 m, for example.

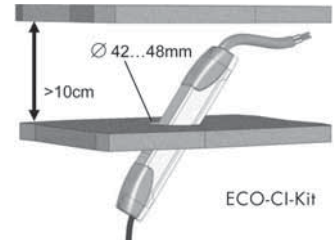
Calculation of the diameter:
 $d = 2 \times \tan(0.5 \times \alpha) \times h$



DALI Sensor Coupler



MULTI 3 CI Sensor



ECO CI Kit

The WAGO DALI Multi-Sensor Kit is paired with the WAGO 753-647 DALI Multi-Master Module and includes the following three components:

- DALI Sensor Coupler (also available individually)
- ECO CI Kit
- MULTI 3 CI Sensor

The DALI Sensor Coupler connects the MULTI 3 CI Sensor to a DALI bus system. For this, the MULTI 3 CI Sensor is connected to the DALI Sensor Coupler via RJ-10 socket. DALI terminals connect the DALI Sensor Coupler to both the DALI network and WAGO DALI Module. The ECO CI Kit contains two covers, which can be used as touch guards and strain relief for cables within the ceiling installation of the DALI Sensor Coupler.

The MULTI 3 CI Sensor has a motion and light sensor, enabling both motion detection and daylight-dependent lighting control. Power supply to the DALI Sensor Coupler is provided via DALI line. The DALI Sensor Coupler transmits measured values from the connected sensor channels as telegrams to the WAGO DALI Module via DALI line. Parameters can be adjusted individually via WAGO DALI Configurator.

The number of sensors, which can be operated on a DALI line, depends on the total power consumption of the specific devices and the address range for the actuators and sensors. Due to the capacity of the DALI bus, a maximum of 16 DALI sensor couplers must be operated on the DALI Multi-Master Module (753-647).

Assembly

Sensor connection

The MULTI 3 CI Sensor is connected to a 4-pole RJ-10 socket (4P4C), which is marked as "Sensor" on the housing cover.

For easy connection, the sensor plug is equipped with a quick-connect latch. Only one MULTI 3 CI Sensor must be connected to sensor coupler.

Ceiling installation

For installation outside of a lighting fixture (e.g., suspended ceiling), the ECO CI Kit must also be attached to both sides of the unit to ensure strain relief and touch protection. The DALI Sensor Coupler can also be installed in lighting fixtures. The installation spaces available in lighting fixtures can be used, as the dimensions correspond to those of an electronic ballast.

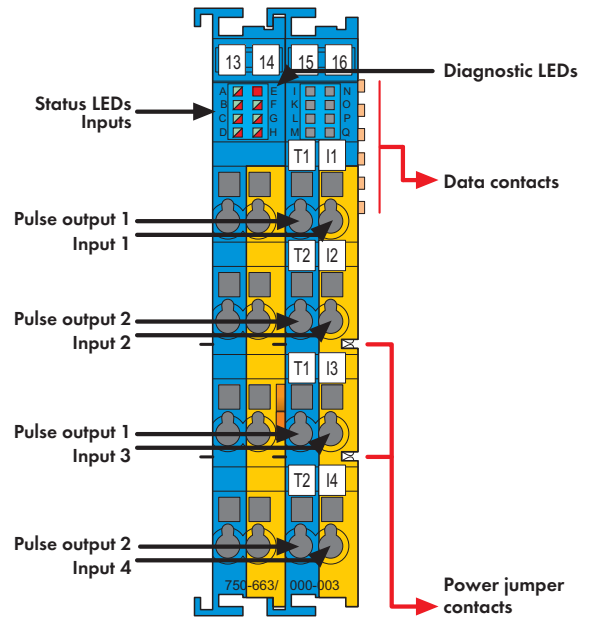
Note:

The DALI Sensor Coupler is also available individually, allowing the unit to be combined with other multi-sensor models from Osram.

Description	Item No.	Pack. Unit
WAGO DALI Multi-Sensor Kit	2851-8201	1
DALI Sensor Coupler	2851-8202	1
Approvals		
Conformity mark	CE	


Technical Data	
DALI Sensor Coupler	
Power supply	via DALI line
Current consumption	5 mA (from the DALI line)
Input signal voltage/current:	according to MULTI 3 CI Sensor
Operating temperature	0 °C ... +50 °C
Connections	Inputs: for MULTI 3 CI Sensor's modular plug 4P4C (RJ-10), sensor cable length, max. 5 m
	DALI connection: Push-wire connectors, 8.5 - 9.5 mm strip length
Cross sections	0.5 - 1.5 mm ² (s + f-st) / AWG 20 - 16
Dimensions (mm) W x H x D	118 x 21 x 30
Weight	35 g
Storage temperature	-25 °C ... +70 °C
Relative humidity (non-condensing)	5 - 93 %
Degree of protection	IP20
ECO CI Kit	
Installation opening diameter	42 - 48 mm
Minimum suspended ceiling distance	25 mm
MULTI 3 CI Sensor	
Maximum total length of signal line (incl. all connections to the control units)	100 m
Dimensions (Diameter x H)	50 x 25 mm
Light sensor detection area	20 - 600 lx (measured on the sensor), opening angle approx. 90°
Recommended installation height	2 - 4 m
Motion detection area	Conical, opening angle approx. 80°, depending on installation height 4 - 8 m

1 Intrinsically Safe, 4-Channel Digital Input Module with Inputs for Functional Safety, PROFIsafe V2 iPar

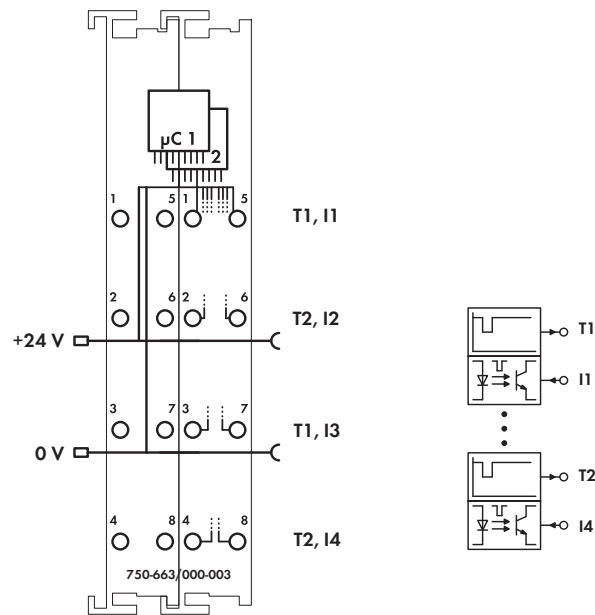


The intrinsically safe 750-663/000-003 PROFIsafe Input Module for functional safety provides risk reductions up to SIL 3, Cat. 4, PL e, and connects to potential-free, contact-based emergency stop switches, safety door switches, mode selectors, as well as safety sensors, that are located hazardous environments 0, 1 and 2. The fail-safe input module must be located in Zone 2.
 The input module has 4 clock sensitive inputs (I1 ... I4) that are fed by 2 differently clocked, short-circuit proof outputs (T1 ... T2). Inputs are continually monitored for cross circuits and voltage supply from separate sources.
 Additional safety-relevant functions (e.g., operating modes, switching off test pulses, discrepancy or filter times) can be configured via WAGO-I/O-CHECK.
 This configuration tool supports both CC2 and CC3 tool calling interfaces (TCI).
 When exchanging the module, parameters are automatically downloaded by the controller via PROFIsafe-compatible iPar server – depending on settings. The module supports both PROFIsafe V1 and V2 (PROFIBUS, PROFINET) protocols.

Individual I/O modules can be arranged in any combination within the fieldbus node's Ex segment.
 Note 1:
 The PROFIsafe input module shall only be operated using an Ex i 24VDC power supply (e.g., 750-606, 750-625/000-001)! General information (e.g., installation regulations) on explosion protection is available in the WAGO-I/O-SYSTEM 750 manuals!
 Note 2:
 To protect the module against surge voltages (surge protection acc. to IEC 61000-4-5), a filter module (750-626 or 750-624) or an external surge filter must be used before the Ex i 24VDC power supply.
 Reference the product manual for further information!

Description	Item No.	Pack. Unit
4F Ex i DI 24V PROFIsafe V2 iPar	750-663/000-003	1
Accessories	Item No.	Pack. Unit
Miniature WSB Quick marking system		
 plain	248-501	5
with marking	see Full Line Catalog AUTOMATION 2012/2013	

Technical Data	
Inputs:	
Sensor inputs	I1 ... I4; clock sensitive to T1 ... T2
	Type 1 acc. to IEC 61131
Input current (typ.)	3 mA
Input frequency (max.)	50 Hz
Input filter	0 ms ... 200 ms, configurable in steps
Clock outputs	T1 ... T2
Output current (max.)	≤ 5 mA
Short-circuit current	≤ 25 mA
General specifications:	
Voltage supply	5 V system voltage via internal bus
Voltage via power jumper contacts	Supply via 24 V DC Ex i supply module
Isolation (peak value)	V _M = 375 V system/supply
Line length (max.)	100 m



Technical Data

Wire connection	CAGE CLAMP [®]
Cross sections	0.08 mm ² ... 2.5 mm ² / AWG 28 ... 14
Strip lengths	8 ... 9 mm / 0.33 in
Width	24mm
Weight	100 g
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)
EMC: CE - emission of interference	acc. to EN 61000-6-4 (2007)
EMC: marine applications	
- immunity to interference	pending
EMC: marine applications	
- emission of interference	pending

Explosion Protection

Electric circuit, safety-relevant data	$V_0 = 27.3 \text{ V}$; $I_0 = 23 \text{ mA}$; $P_0 = 157 \text{ mW}$; Characteristic: Linear
Reactances Ex ia IIC	$L_0 = 61 \text{ mH}$; $C_0 = 64 \text{ nF}$
Reactances Ex ia IIB	$L_0 = 100 \text{ mH}$; $C_0 = 552 \text{ nF}$
Reactances Ex ia I	$L_0 = 100 \text{ mH}$; $C_0 = 2.95 \text{ }\mu\text{F}$ (The above-listed ratings do not account for the coincidental occurrence of capacitances and inductances. For ratings taking the coincidental occurrence of capacitances and inductances into account, see manual)

Functional Safety

Achievable risk reduction	SIL 3 acc. to IEC 61508:2010; SIL 3 acc. to IEC 61511:2005; SIL 3 acc. to IEC 62061:2005; Cat. 4, PL e acc. to EN ISO 13849:2008
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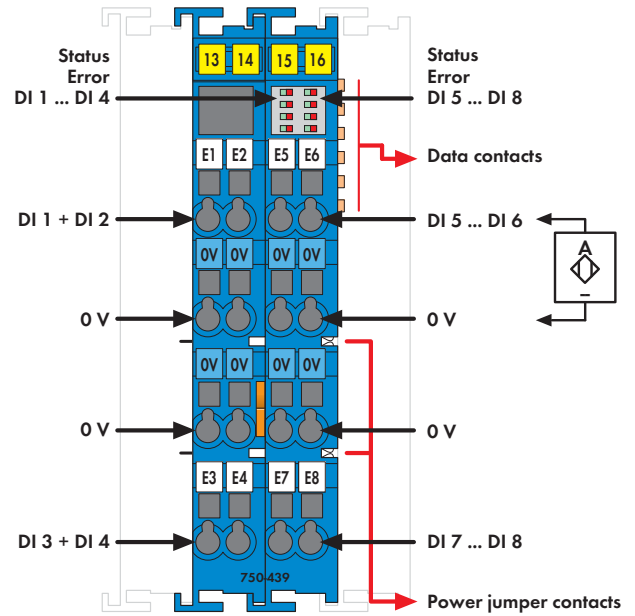
Standards, Guidelines and Approvals

EC EMC guideline	2004/108/EC
Ex directive 94 / 9 / EG	EN 60079-0:2012, EN 60079-11:2012 EN 60079-15:2010, EN 60079-31:2009
Conformity marking	CE
Safety standards	IEC 61508:2010; IEC 62061:2005; EN ISO 13849:2008; IEC 61511:2005
Shipbuilding	pending
UL 508	pending
ANSI/ISA 12.12.01	pending
TÜV 12 ATEX 106032 X	I M2 (M1) Ex d [ia Ma] I Mb II 3 (1) G Ex nA [ia Ga] IIC T4 Gc II 3 (1) D Ex tc [ia Da] IIIC T135 °C Dc Permissible ambient temperature: $0 \text{ }^\circ\text{C} \leq T_A \leq +60 \text{ }^\circ\text{C}$
IECEx TUN 12.0039 X	Ex d [ia Ma] I Mb Ex nA [ia Ga] IIC T4 Gc Ex tc [ia Da] IIIC T135 °C Dc Permissible ambient temperature: $0 \text{ }^\circ\text{C} \leq T_A \leq +60 \text{ }^\circ\text{C}$

8-Channel Digital Input Module NAMUR, Ex i

Proximity switch acc. to DIN EN 50227

AUTOMATION



The 750-439 Digital Input Module records binary signals from sensors operating in hazardous environments of Zones 0 and 1, permitting channel-by-channel short-circuit and wire-break diagnostics. NAMUR sensors, optocouplers, mechanical contacts (LED diagnostics can be turned off via control byte) or other actuating elements can be connected via intrinsically safe devices.

The WAGO-I/O-SYSTEM 750 must be installed either in Zone 2 or in a non-hazardous area. Each sensor is supplied with a short-circuit-protected voltage of 8.2V.


Field and system levels are electrically isolated.

LED displays:

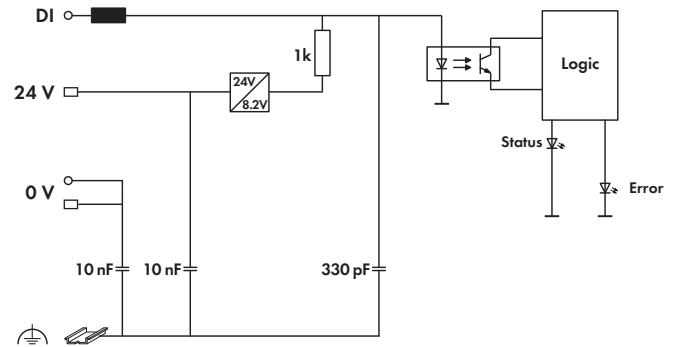
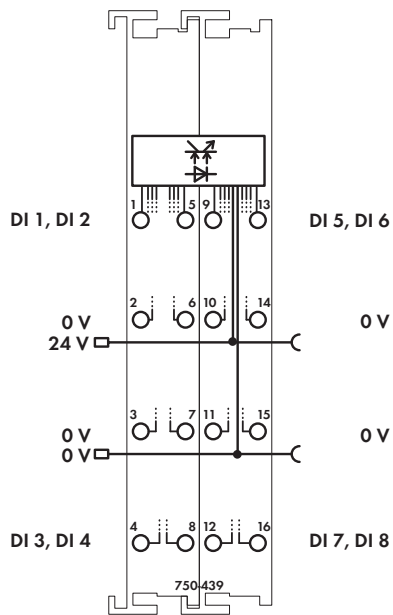
- Green LED (signal ON)
- Red LED (short-circuit)
- Red flashing LED (wire-break)

Note: The digital input module must only be operated via Ex i 24VDC power supply!

General information (e.g., installation regulations) on explosion protection is available in the WAGO-I/O-SYSTEM 750 manuals!

Description	Item No.	Pack. Unit
8DI NAMUR Ex i	750-439	1
Accessories	Item No.	Pack. Unit
Miniature WSB Quick marking system		
 plain	248-501	5
with marking	see Full Line Catalog AUTOMATION 2012/2013	

Technical Data	
Number of inputs	8
Current consumption typ. (internal)	56 mA
Voltage via power jumper contacts	Supply via 24 VDC Ex i supply module
Open-circuit voltage	8.2 VDC
Sensor supply	$V_V = 8.2 \text{ V } (\pm 0.2 \text{ V})$
Signal current (0)	$\leq 1.2 \text{ mA}$
Signal current (1)	$\geq 2.1 \text{ mA}$
Input filter	3.0 ms
Switching hysteresis	0.2 mA
Open-circuit voltage	8.2 VDC
Input resistance	1 kΩ
Input pulse duration	$\geq 5 \text{ ms}$
Input pulse separation	$\geq 3 \text{ ms}$
Short-circuit current	$\leq 8.2 \text{ mA } (\pm 0.2 \text{ mA})$
Short-circuit monitoring	$> 6.4 \text{ mA}$
Line break monitoring	$< 0.3 \text{ mA}$
Current consumption typ. (field side)	11 mA + load
Power consumption P (max.)	1.2 W
Power loss P_V	0.54 W
Isolation (peak value)	$U_M = 375 \text{ V system/supply}$
Bit width	16 bits (status)



Technical Data

Wire connection	CAGE CLAMP [®]
Cross sections	0.08 mm ² ... 2.5 mm ² / AWG 28 ... 14
Strip lengths	8 ... 9 mm / 0.33 in
Width	24mm
Weight	92 g
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)
EMC: CE - emission of interference	acc. to EN 61000-6-4 (2007)

Explosion Protection

Ex directive 94 / 9 / EG	EN 60079-0:2012, EN 60079-11:2012 EN 60079-15:2010, EN 60079-31:2009
Electric circuit, safety-relevant data	$V_0 = 11.76 \text{ V}$; $I_0 = 12.4 \text{ mA}$; $P_0 = 36.67 \text{ mW}$; Characteristic: Linear
Reactances Ex ia IIC	$L_0 = 100 \text{ mH}$; $C_0 = 1 \text{ }\mu\text{F}$
Reactances Ex ia IIB	$L_0 = 100 \text{ mH}$; $C_0 = 9.9 \text{ }\mu\text{F}$
Reactances Ex ia I	$L_0 = 100 \text{ mH}$; $C_0 = 30 \text{ }\mu\text{F}$
Reactances	(The above-listed ratings do not account for the coincidental occurrence of capacitances and inductances. For ratings taking the coincidental occurrence of capacitances and inductances into account, see manual)

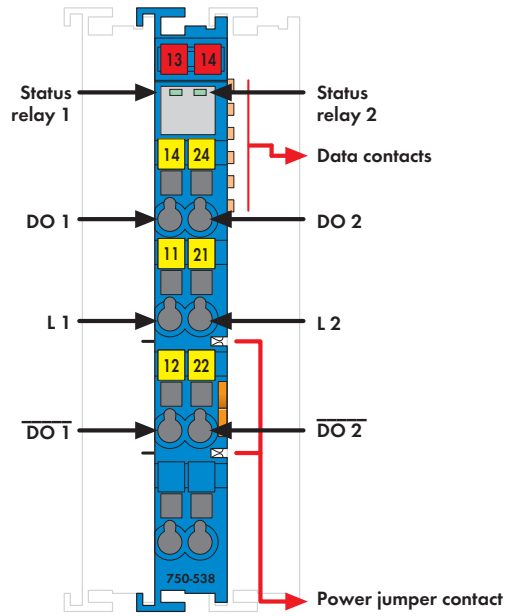
Standards, Guidelines and Approvals

EC EMC guideline	2004/108/EC
Conformity marking	CE
Shipbuilding	GL
UL 508	pending
ANSI/ISA 12.12.01	pending
TÜV 12 ATEX 106032 X	I M2 (M1) Ex d [ia Ma] I Mb, II 3 (1) G Ex nA [ia Ga] IIC T4 Gc, II 3 (1) D Ex tc [ia Da] IIIC T135 °C Dc
Permissible ambient temperature: $0 \text{ }^\circ\text{C} \leq T_A \leq +60 \text{ }^\circ\text{C}$	
IECEx TUN 12.0039 X	Ex d [ia Ma] I Mb, Ex nA [ia Ga] IIC T4 Gc, Ex tc [ia Da] IIIC T135 °C Dc
Permissible ambient temperature: $0 \text{ }^\circ\text{C} \leq T_A \leq +60 \text{ }^\circ\text{C}$	

2-Channel Relay Output Module 100 V AC, 30 V DC, Ex i


Isolated outputs; 2 changeover contacts

AUTOMATION

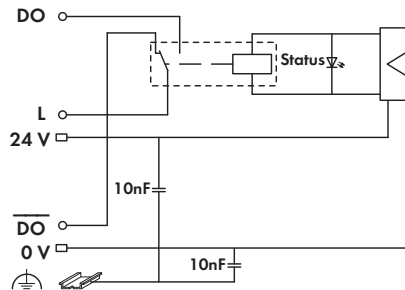
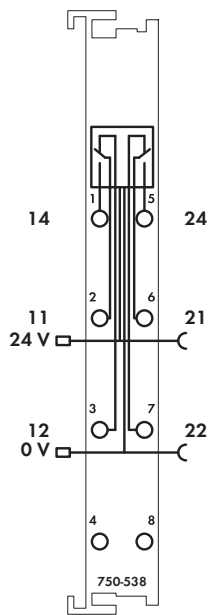


The digital output module switches intrinsically safe circuits of Zone 0+1 (e.g., magnetic valves, contactors, optical/acoustic encoders).
 The internal system voltage triggers the relay.
 Both maximum switching current and voltage must comply with EN 60079-11.
 The switched status of the relays is shown by an LED.
 The NO contacts are electrically isolated.
 The WAGO-I/O-SYSTEM 750 must be installed either in Zone 2 or in a non-hazardous area.

Note: The digital output module must only be operated via Ex i 24VDC power supply!
 General information (e.g., installation regulations) on explosion protection is available in the WAGO-I/O-SYSTEM 750 manuals!

Description	Item No.	Pack. Unit
2DO RELAY Ex i	750-538	1
Accessories		
Miniature WSB Quick marking system		
 plain	248-501	5
with marking	see Full Line Catalog AUTOMATION 2012/2013	

Technical Data	
No. of outputs	2 changeover contacts
Current consumption typ. (internal)	26 mA
Voltage via power jumper contacts	Supply via 24 VDC Ex i supply module
Type of load	resistive, inductive, lamps
Max. switching frequency	20/min
Max. switching voltage	100 V AC / 30 V DC
Max. switching current	0.5 A AC / 1 A DC
Min. switching current	0.01 mA / 10 mV DC
Switching power	50 VA / 30 W
Pull-in time (max.)	4 ms
Drop-out time (max.)	4 ms
Contact material	Silver alloy, gold-plated
Mechanical life (min.)	1 x 10 ⁸ switching operations
Electrical life (min.)	1 x 10 ⁵ (0.5 A / 100 V AC) 2 x 10 ⁵ (1 A / 30 V DC)
Isolation	V _M = 375 V system/supply
Power consumption P _{max}	0.8 W
Power loss P _v	0.8 W
Bit width	2 bits (status)



Technical Data

Wire connection	CAGE CLAMP [®]
Cross sections	0.08 mm ² ... 2.5 mm ² / AWG 28 ... 14
Strip lengths	8 ... 9 mm / 0.33 in
Width	12mm
Weight	48.5 g
EMC: CE - immunity to interference	acc. to EN 61000-6-2:2005
EMC: CE - emission of interference	acc. to EN 61000-6-4:2007

Explosion Protection

Ex directive 94 / 9 / EG	EN 60079-0:2012, EN 60079-11:2012, EN 60079-15:2010, EN 60079-31:2009
Electric circuit, safety-relevant data	Relay output: $V_i = 30 \text{ V DC}$; $I_i = 1 \text{ A}$; $P_i = 30 \text{ W}$; $V_i = 100 \text{ V AC}$; $I_i = 0.5 \text{ A}$; $P_i = 50 \text{ VA}$; $L_i = \text{negligible}$; $C_i = \text{negligible}$

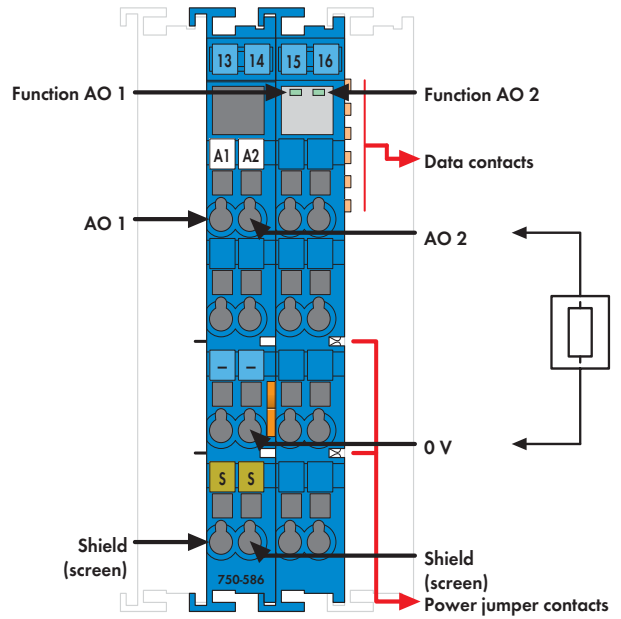
Both maximum switching current and voltage must comply with EN 60079-11

Standards, Guidelines and Approvals

EC EMC guideline	2004/108/EC
EC low voltage guideline	2006/95/EC
Conformity marking	CE
Shipbuilding	GL
UL 508	pending
ANSI/ISA 12.12.01	pending
TÜV 12 ATEX 106032 X	I M2 (M1) Ex d [ia Ma] I Mb, II 3 (1) G Ex nA [ia Ga] IIC T4 Gc, II 3 (1) D Ex tc [ia Da] IIIC T135 °C Dc
Permissible ambient temperature: $0 \text{ °C} \leq T_A \leq +60 \text{ °C}$	
IECEx TUN 12.0039 X	Ex d [ia Ma] I Mb, Ex nA [ia Ga] IIC T4 Gc, Ex tc [ia Da] IIIC T135 °C Dc
Permissible ambient temperature: $0 \text{ °C} \leq T_A \leq +60 \text{ °C}$	

2-Channel Analog Output Module 4-20 mA, Ex i

AUTOMATION



The analog output module transmits intrinsically safe 4-20mA signals in the hazardous Zone 0+1.
The WAGO-I/O-SYSTEM 750 must be installed either in Zone 2 or in a non-hazardous area.
Power is derived from the power jumper contacts.
The outputs are short-circuit proof.

LED indicators:
• Green LED (output status)


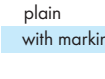
An optocoupler provides electrical isolation between the bus and the field side.

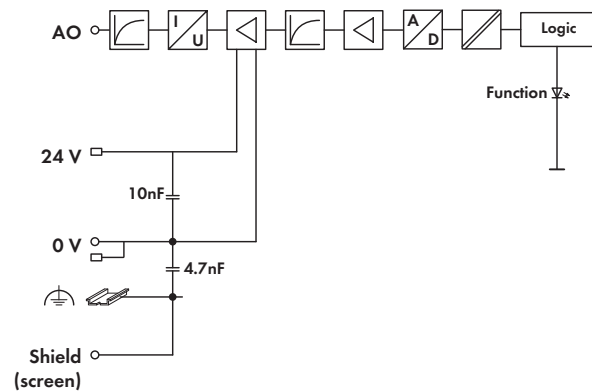
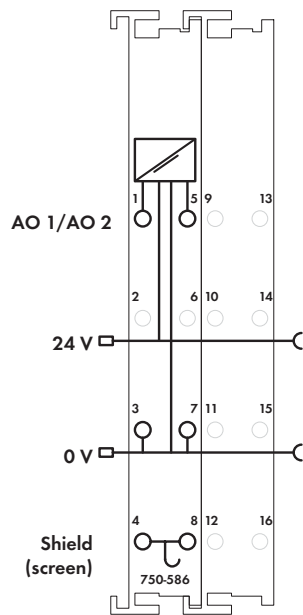
Note:

Only use the analog output module in connection with the 24VDC Ex i Supply Module (note the power supply instructions)!
General information (e.g., installation regulations) on explosion protection is available in the WAGO-I/O-SYSTEM 750 manuals!

Description	Item No.	Pack. Unit
2AO 4-20 mA Ex i	750-586	1

Technical Data	
No. of outputs	2
Max. current consumption (internal)	21 mA
Voltage via power jumper contacts	Supply via 24 V DC Ex i supply module
Signal current	4 mA ... 20 mA
Load impedance	< 500 Ω
Linearity	± 2 LSB
Resolution	12 bits
Conversion time	< 2 ms
Measuring error (25°C)	< ± 0.2 % of the full scale value
Temperature coefficient	< ± 0.01 % / K of the full scale value
Current consumption typ. (field side)	19 mA / module + load (2 x 20 mA)
Power consumption P (max.)	1.5 W
Power loss P _v	0.9 W
Isolation	375 V system/supply
Bit width	2 x 16 bits data

Accessories		
	Item No.	Pack. Unit
Miniature WSB Quick marking system		
 plain	248-501	5
 with marking	see Full Line Catalog AUTOMATION 2012/2013	



Technical Data

Wire connection	CAGE CLAMP [®]
Cross sections	0.08 mm ² ... 2.5 mm ² / AWG 28 ... 14
Strip lengths	8 ... 9 mm / 0.33 in
Width	24mm
Weight	91.6 g
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)
EMC: CE - emission of interference	acc. to EN 61000-6-4 (2007)

Explosion Protection

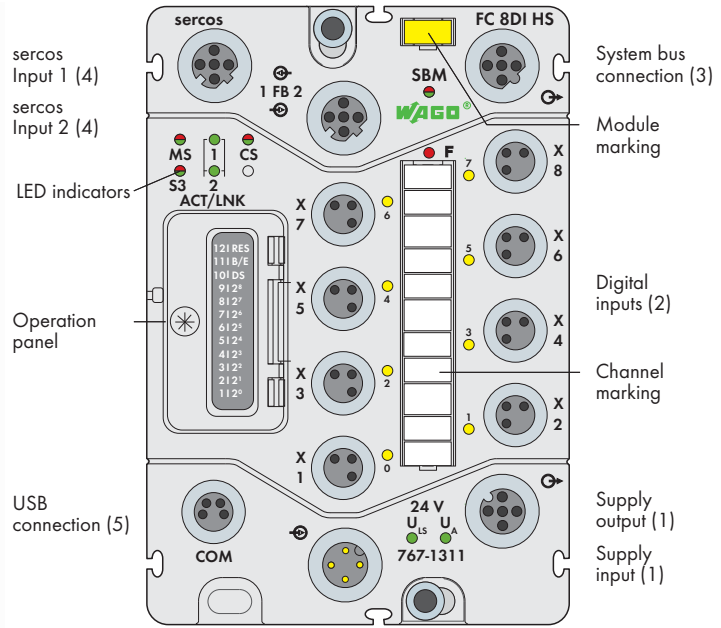
Ex directive 94 / 9 / EG	EN 60079-0:2012, EN 60079-11:2007, EN 60079-15:2010, EN 60079-31:2009
Electric circuit, safety-relevant data	$V_0 = 27.3 \text{ V}$; $I_0 = 57.5 \text{ mA}$; $P_0 = 392 \text{ mW}$; Characteristic: Linear
Reactances Ex ia IIC	$L_0 = 11 \text{ mH}$; $C_0 = 88 \text{ nF}$
Reactances Ex ia IIB	$L_0 = 56 \text{ mH}$; $C_0 = 680 \text{ nF}$
Reactances Ex ia I	$L_0 = 110 \text{ mH}$; $C_0 = 3.5 \mu\text{F}$ (The above-listed ratings do not account for the coincidental occurrence of capacitances and inductances. For ratings taking the coincidental occurrence of capacitances and inductances into account, see manual)

Standards, Guidelines and Approvals

EC EMC guideline	2004/108/EC
EC low voltage guideline	2006/95/EC
Conformity marking	CE
Shipbuilding	pending
UL 508	
ANSI/ISA 12.12.01	pending
TÜV 07 ATEX 554086 X	I M2 (M1) Ex d [ia Ma] I Mb, II 3 (1) G Ex nA [ia Ga] IIC T4 Gc, II 3 (1) D Ex tc [ia Da] IIIC T135 °C Dc Permissible ambient temperature: $0 \text{ °C} \leq T_A \leq +60 \text{ °C}$
IECEx TUN 09.0001X	Ex d [ia Ma] I Mb, Ex nA [ia Ga] IIC T4 Gc, Ex tc [ia Da] IIIC T135 °C Dc Permissible ambient temperature: $0 \text{ °C} \leq T_A \leq +60 \text{ °C}$

sercos Fieldbus Coupler

incl. 8 digital high-speed inputs (8 x M8)



Short description:

This fieldbus coupler links the WAGO SPEEDWAY 767 system to the sercos network. It determines station structure and generates the required process images of the configured inputs and outputs. Setting up the station can involve a mixed arrangement of analog, digital or specialty I/O modules. The fieldbus coupler application allows access to the device as a sercos I/O device on the network. The sercos service channel (SVC), real-time channel (RTC) and IP channel (NRT) are supported for standard TCP/IP communication. Two integrated ETHERNET ports allow easy creation of a line and ring structure without requiring additional components. Each port supports Auto MDI/MDI-X and automatically detects the direction of transmission, allowing both patch and crossover cables to be used. Assigning the sercos address can be performed via switch 10, either using the operation panel (switches) or software (retentive memory). In addition, the fieldbus coupler has 8 digital inputs to capture binary signals from switches and sensors.

Characteristics:

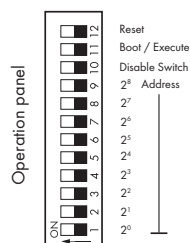
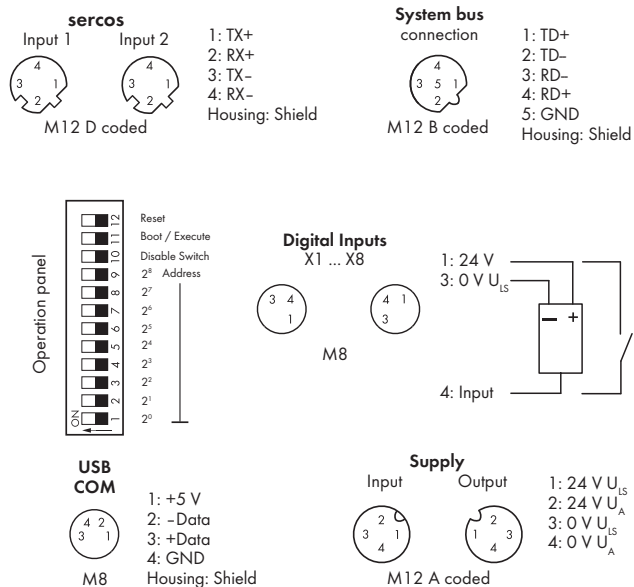
- 8 digital high-speed inputs, type 1 (IEC 61131)
- Hardware delay: 10 µs
- Modular and extendable by up to 64 I/O modules (via system port)
- USB interface for service purposes
- Configuration and parameter setting via SDDML device description file
- Parameter setting via FDT/DTM (incl. diagnostics and simulation)
- Sealable operation panel (operating mode and address switches)

Included:

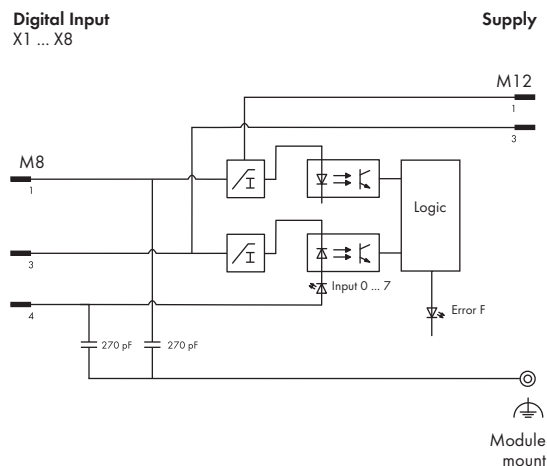
- 1 x WMB marker, yellow
- 1 x channel marking strip
- 2 x M8 protective cap

Description	Item No.	Pack. Unit
FC sercos 8DI 24V DC HS	767-1311	1
Accessories		
ETHERNET cable + accessories		
System bus/power supply cable + accessories		
General accessories	see Full Line Catalog AUTOMATION 2012/2013	
DTM (Device Type Manager)	Download: www.wago.com	
SDDML files	Download: www.wago.com	

Technical Data	
Fieldbus:	
Device type	sercos I/O device
Connection type (4)	M12 connectors, D coded, 5 poles
Baud rate	100 Mbit/s, full duplex
Transmission medium	Copper cable (Cat. 5e, Class D)
Station address	0 - 511 (adjustable via operation panel or software)
Protocols	sercos v1.1.2, TCP/IP, FTP, HTTP
sercos services	SVC, RTC, CC, IP
sercos profiles	GDP_Basic, SCP_VarCfg, SCP_Sync, SCP_Diag, SCP_WD, SCP_NRT, FSP_IO
Module supply:	
Connection type (1)	M12 connectors, A coded, 4 poles
Current carrying capacity of supply connections	Max. 8 A (U _{IS} : 4 A, U _A : 4 A)
Supply voltage	
Logic and sensor voltage U _{IS}	24 VDC (-25 % ... +30 %)
Actuator voltage U _A	24 V DC (-25 % ... +30 %); Also required for power supply transmission
Supply current	
Logic and sensor current I _{IS}	typ. 140 mA + sensors (max. 400 mA)
Actuator current I _A	5mA
Protection	Reverse voltage protection for U _{IS} + U _A ; short circuit protection for sensor supply



Block diagram of an input

**Technical Data**

Digital inputs:	
Number of inputs	8
Connection type (2)	M8 connectors, 3 poles
Wire connection	2- or 3-wire
Input filter	Hardware: $\leq 10 \mu\text{s}$, software parametrizable depending on operating mode
Hardware delay	
up to fieldbus	$10 \mu\text{s}$ (direct mode)
Input characteristic	Type 1, acc. to IEC 61131-2
Signal voltage (0)	-3 V ... +5 V DC
Signal voltage (1)	+15 V ... +30 V DC
Input wiring	high-side switching
Input voltage	24 VDC (-30 VDC $< U_{IN} < +30$ VDC)
Input current (typ.)	2.8 mA
Cable length, unshielded	≤ 30 m
Wrong connection of inputs	No effect
System bus:	
Cycle time	min. 250 μs
Number of expendable modules	64
Connection type (3)	M12 connectors, B coded, 5 poles, shielded
Distance between two modules	20 m
Total extension per station	200 m
Isolation:	
Channel - Channel	No
U _{IS} , U _A , system bus, fieldbus	500 VDC each
Service:	
Type	USB standard 1.1
Connection type (5)	M8 connectors, 4 poles
Standards and approvals:	
UL 508	
Conformity marking	CE
Configurable functions:	
Fieldbus coupler	see manual
Digital Inputs	depending on operating mode
Input filter (per channel)	0.1 / 0.5 / 3 / 15 / 20 ms / filter off
Inversion (per channel)	On/off
Online simulation (per channel)	Lock/unlock, simulation value: 0/1
I/O diagnostics:	
I/O diagnostics (per module)	Short circuit of sensor supply Undervoltage (U _{IS} + U _A)

Technical Data

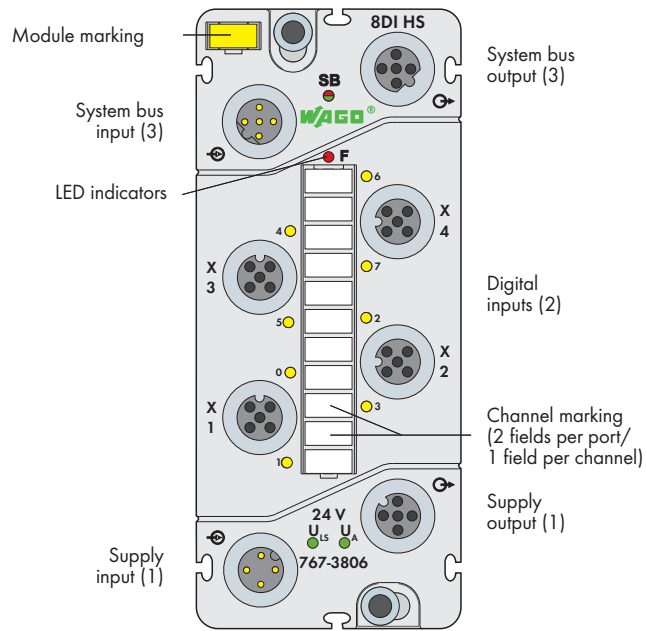
Process image:	
Input process image	2048 bytes
Output process image	2048 bytes
LED indicators:	
MS: Module status	LED (green/red)
S3: sercos status	LED (green/red)
ACT/LNK 1 : ETHERNET data exchange/network connection	LED (green)
ACT/LNK 2 : ETHERNET data exchange/network connection	LED (green)
CS : Fieldbus coupler status	LED (green/red)
SBM : System bus master status	LED (green/red)
F: Error status	LED (red)
0 ... 7: Input signal status	LED (yellow)
U _{IS} + U _A : Supply status	LED (green)
Indicators	Non-latching
Advanced features:	
Operating hours counter	Values in [h]
High-speed inputs	parametrizable, depending on operating mode (see manual)

General Specifications

Dimensions (mm) W x H x L	75 x 35.7 x 117
Weight	400 g

Digital Input Module, 24 VDC, High Speed

8 inputs (4 x M12, two inputs per connector)



Short description:

This digital input module records binary signals from sensors with short response times.

The 767-3806 Module features high-speed inputs - ideal for use with fast ETHERNET-based fieldbus systems (e.g., sercos).

Features:

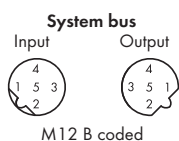
- 8 digital inputs, 24 VDC
- Front-end cycle time (hardware) max. 6 μs
- Diagnostic-capable (module by module)
- Parametrizable (filter, inversion, online simulation and diagnostics)

Included:

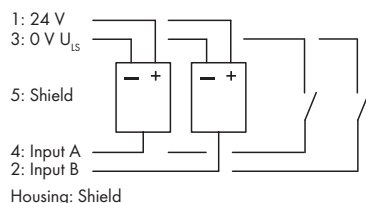
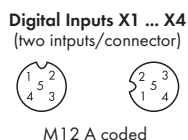
- 1 x WMB marker, yellow
- 1 x marking strip
- 2 x M12 protective cap

Description	Item No.	Pack. Unit
8DI 24VDC HS (4xM12)	767-3806	1
Accessories	Item No.	
Marking strips, marking pen, spacer module and protective caps		
IP67 cables and connectors	see Full Line Catalog AUTOMATION 2012/2013	

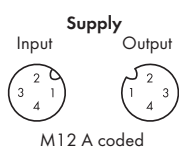
Technical Data	
Module supply:	
Connection type (1)	M12 connectors, A coded, 4 poles; Derating must be observed
Current carrying capacity of supply connections	Max. 8 A (U _{IS} : 4 A, U _A : 4 A)
Supply voltage	
Logic and sensor voltage U _{LS}	24 V DC (-25 % ... +30 %)
Actuator voltage U _A	24 V DC (-25 % ... +30 %); Also required for power supply transmission
Supply current	
Logic and sensor current I _{LS}	typ. 45 mA + sensors (max. 1.0 A)
Actuator current I _A	5 mA
Protection	Reverse voltage protection for U _{IS} + U _A ; short circuit protection for sensor supply
Digital inputs:	
Number of inputs	8
Connection type (2)	M12 connectors, A coded, 5 poles, shielded
Wire connection	2- or 3-wire
Front-end cycle time (hardware)	max. 6 μs
Front-end jitter/skew (input)	< 2 μs
Input characteristic	Type 3, acc. to IEC 61131-2
Signal voltage (0)	-3 V ... +5 V DC
Signal voltage (1)	+11 V ... +30 V DC
Input wiring	high-side switching
Input voltage	24 VDC (-3 VDC < U _{IN} < +30 VDC)
Input current (typ.)	2.8 mA
Connection of 2-wire BEROs	max. 1.5 mA admissible closed current
Cable length, unshielded	≤ 30 m
Wrong connection of inputs	No effect



- 1: RD+/TD+
 - 2: RD-/TD-
 - 3: TD-/RD-
 - 4: TD+/RD+
 - 5: GND
- Housing: Shield

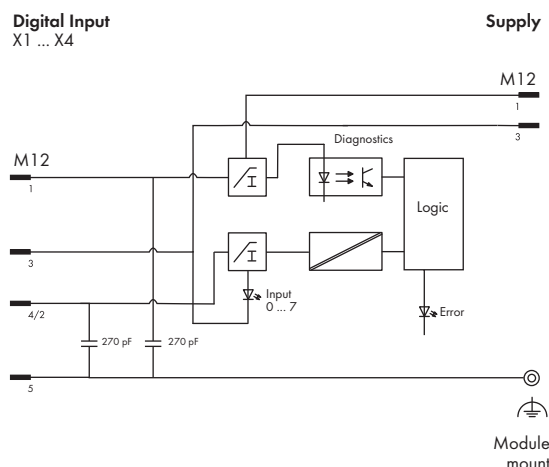


- 1: 24 V
 - 2: 24 V U_A
 - 3: 0 V U_{IS}
 - 4: Input A
 - 5: Shield
- Housing: Shield



- 1: 24 V U_{IS}
- 2: 24 V U_A
- 3: 0 V U_{IS}
- 4: 0 V U_A

Block diagram of an input



Technical Data

Input characteristic:

Input voltage	Typical input current
0 V	0 mA
5 V	1.6 mA
11 V	2.7 mA
24 V	2.8 mA
30 V	2.8 mA

System bus:

Connection type (3)	M12 connectors, B coded, 5 poles, shielded
---------------------	--

Standards and approvals:

UL 508	
Conformity marking	CE

Technical Data

Isolation:

Channel - Channel	No
U_{IS} , U_A system bus	500 VDC each

Configurable functions:

Input filter (per channel)	10/ 25/ 50/ 100/ 200 μ s/ 1/ 3 ms/ filter off
Inversion (per channel)	On/off
Online simulation (per channel)	Lock/unlock, simulation value: 0/1
Online simulation (per module)	Diagnostics

I/O diagnostics:

I/O diagnostics (per module)	Short circuit of sensor supply Undervoltage (U_{IS} + U_A)
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Process image:

Process data width	1-byte data + status
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LED indicators:

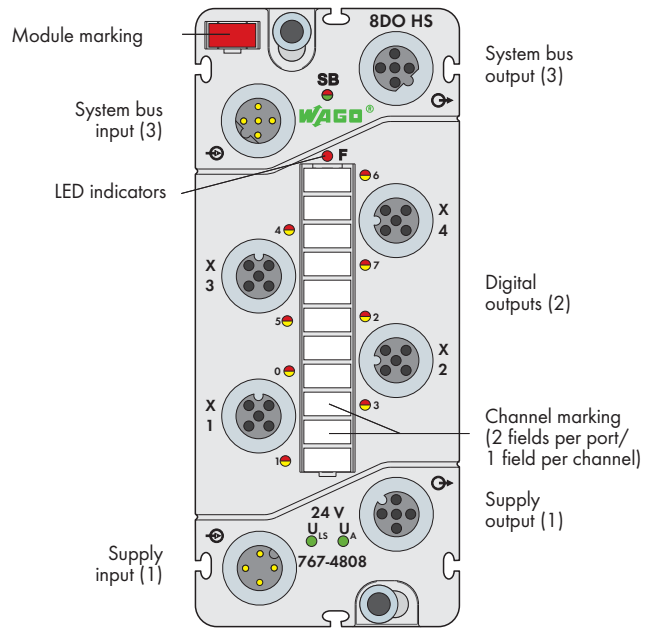
SB: System bus status	LED (green/red/orange)
F: Error status	LED (red)
0 ... 7: Input signal status	LED (yellow)
U_{IS} + U_A : Supply status	LED (green)
Indicators	Non-latching

General Specifications

Dimensions (mm) W x H x L	50 x 35.7 x 117
Weight	270 g

Digital Output Module, 24 VDC, 0.1 A, High Speed

8 outputs (4 x M12, two outputs per connector)



Short description:

This digital output module outputs signals from actuators with short response times. The 767-4808 Module features high-speed outputs - ideal for use with fast ETHERNET-based fieldbus systems (e.g., sercos).

Features:

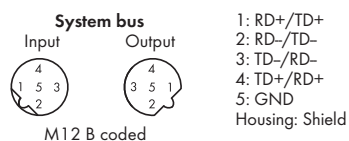
- 8 digital outputs, 24 VDC / 0.1 A
- Front-end cycle time (hardware) max. 0,5 μ s
- Diagnostic-capable (channel by channel/module by module)
- Parametrizable (inversion, substitute value strategy, substitute value, manual mode, online simulation and diagnostics)

Included:

- 1 x WMB marker, red
- 1 x marking strip
- 2 x M12 protective cap

Description	Item No.	Pack. Unit
8DO 24VDC 0,1A HS (4xM12)	767-4808	1
Accessories		
Marking strips, marking pen, spacer module and protective caps		
IP67 cables and connectors	see Full Line Catalog AUTOMATION 2012/2013	

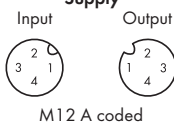
Technical Data	
Module supply:	
Connection type (1)	M12 connectors, A coded, 4 poles; Derating must be observed
Current carrying capacity of supply connections	Max. 8 A (U_{IS} : 4 A, U_A : 4 A)
Supply voltage	
Logic and sensor voltage U_{LS}	24 V DC (-25 % ... +30 %)
Actuator voltage U_A	24 V DC (-25 % ... +30 %)
Supply current	
Logic and sensor current I_{LS}	typ. 40 mA (logic component only)
Actuator current I_A	typ. 35 mA + actuator supply (≤ 1 A) + load
Protection	Reverse voltage protection for $U_{IS} + U_A$, short-circuit protection for actuator supply
Digital outputs:	
No. of outputs	8
Connection type (2)	M12 connectors, A coded, 5 poles, shielded
Wire connection	2- or 3-wire
Output voltage	$\leq U_A$
Output current (per channel)	0.1 A, short-circuit/overload proof (thermal disconnection)
Voltage drop against U_A at nominal load	Max. 1.7 V DC
Output current (module)	max. 0.8A
Leakage current in OFF state	typ. 50 μ A
Output circuit	Push/Pull



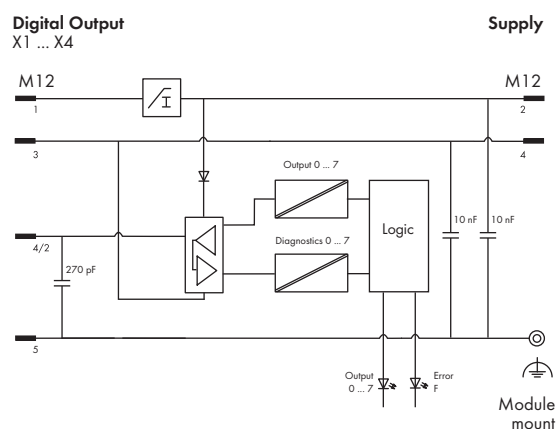
Digital Outputs X1 ... X4
(two outputs/connector)



Supply



Block diagram of an output



Technical Data

Information on actuator selection:

Front-end cycle time 90% (hardware)	max. 0,5 µs
Edge steepness	T _{ON/OFF} : typ. < 0,2 µs
Front-end jitter/skew (output)	< 0,2 µs
Cable length	≤ 30 m
Type of load	Inductive, resistive loads and lamps
Switching frequency	Inductive load upon request Resistive load upon request Lamp load upon request
Type of protective circuit	External protection (e.g., recovery diodes)

Operating state influence on output:

PLC CPU stop	Acc. to substitute value strategy
Fieldbus disruption	Acc. to substitute value strategy
S-bus (system bus) disruption	0 V status
Supply voltage under rated voltage tolerance	0 V status
Interruption of supply voltage	0 V status
Output operation	Non-latching
Overload behavior	Automatic restart

System bus:

Connection type (3)	M12 connectors, B coded, 5 poles, shielded
---------------------	--

Standards and approvals:

UL 508	
Conformity marking	CE

Technical Data

Isolation:

Channel - Channel	No
U _{LS} , U _A system bus	500 VDC each

Configurable functions:

Inversion (per channel)	On/off
Substitute value strategy (per channel)	Switch substitute value/hold last value
Substitute value (per channel)	0/1
Manual mode (per channel)	On/off
Manual mode value (per channel)	0/1
Online simulation (per channel)	Lock/Unlock; simulation value: 0/1; diagnostics

I/O diagnostics:

I/O diagnostics (per channel)	Overtemperature, actuators
I/O diagnostics (per module)	Undervoltage (U _{LS} + U _A)

Process image:

Process data width	1-byte data + status
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LED indicators:

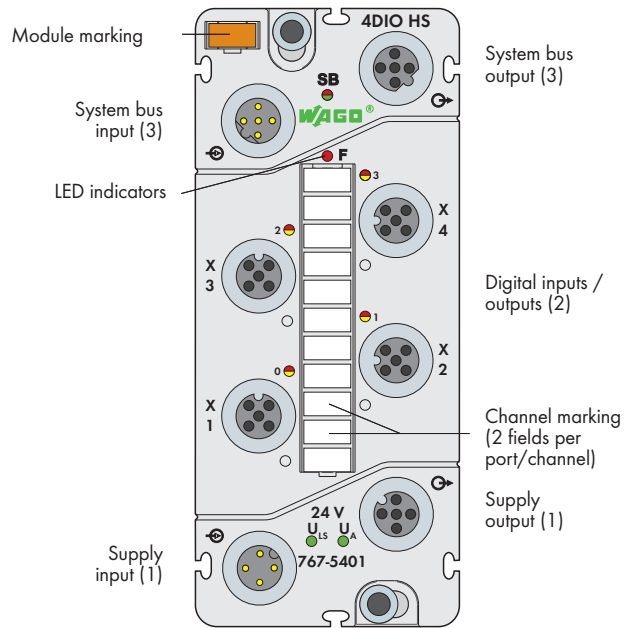
SB: System bus status	LED (green/red/orange)
F: Error status	LED (red)
0 ... 7: Output signal status	LED (yellow/red)
U _{LS} + U _A : Supply status	LED (green)
Indicators	Non-latching

General Specifications

Dimensions (mm) W x H x L	50 x 35,7 x 117
Weight	260 g

Digital Input/Output Module, 24 VDC / 0.2 A, High Speed

4 inputs/outputs (4 x M12)

**Short description:**

This digital input/output module records/outputs binary signals from sensors/actuators with short response times. The 767-5401 Module features high-speed inputs/outputs - ideal for use with fast ETHERNET-based fieldbus systems (e.g., sercos).

Features:

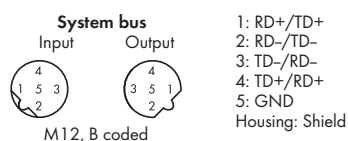
- 4 digital inputs/outputs, 24 VDC / 0.2 A, incl. counter function
- Front-end cycle time (hardware) max. 3 μ s
- Diagnostic-capable (channel by channel/module by module)
- Parametrizable (operating mode, filter, inversion, substitute value strategy, substitute value, manual mode, online simulation and diagnostics)

Included:

- 1 x WMB marker, orange
- 1 x marking strip
- 2 x M12 protective cap

Description	Item No.	Pack. Unit
4DIO 24VDC 0.2A HS (4xM12)	767-5401	1
Accessories		
Marking strips, marking pen, spacer module and protective caps		
IP67 cables and connectors	see Full Line Catalog AUTOMATION 2012/2013	
Technical Data		
Module supply:		
Connection type (1)	M12 connectors, A coded, 4 poles;	
	Derating must be observed	
Current carrying capacity of supply connections	Max. 8 A (U _{IS} : 4 A, U _A : 4 A)	
Supply voltage		
Logic and sensor voltage U _{LS}	24 V DC (-25 % ... +30 %)	
Actuator voltage U _A	24 V DC (-25 % ... +30 %)	
Supply current		
Logic and sensor current I _{LS}	typ. 40 mA (logic component only)	
Actuator current I _A	typ. 30 mA + sensors/actuators (max. 1000 mA) + load	
Protection	Reverse voltage protection for U _{IS} + U _A	
	Short-circuit protection for sensor/actuator supply	

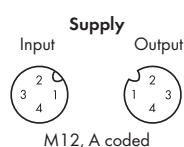
Technical Data	
Digital inputs:	
Number of inputs	4
Connection type (2)	M12 connectors, A coded, 5 poles, shielded
Wire connection	2- or 3-wire
Front-end cycle time (hardware)	max. 3 μ s
Front-end jitter/skew (input)	< 2 μ s
Input characteristic	Type 1, acc. to IEC 61131-2
Signal voltage (0)	-3 V ... +5 V DC
Signal voltage (1)	+15 V ... +30 V DC
Input wiring	high-side switching
Input voltage	24 VDC (-3 VDC < U _{IN} < +30 VDC); Power from U _A strongly recommended
Input current (typ.)	2.9 mA
Connection of 2-wire BEROs	max. 1.5 mA admissible closed current
Cable length, shielded	≤ 30 m
Input characteristic:	
Input voltage	Typical input current
0 V	0 mA
5 V	2.0 mA
15 V	2.5 mA
24 V	2.9 mA
30 V	3.2 mA
Counters:	
No. of counters	1
Counter type	Event, gateway time, pulse duration
Counting/switching frequency	0 Hz ... 1 kHz



Digital Inputs/Outputs
X1 ... X4

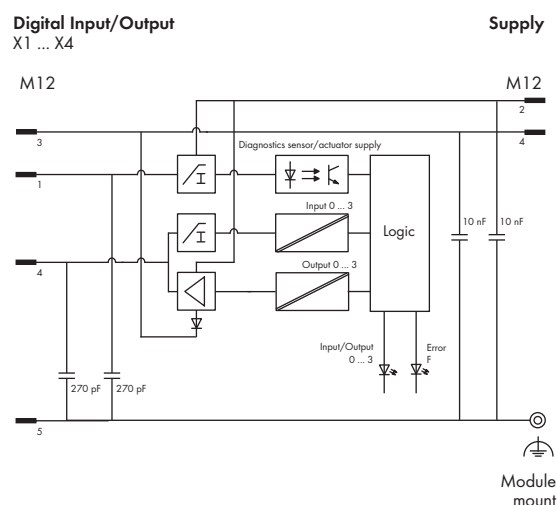


1: 24 V
3: 0 V U_A
5: Shield
4: In-/Output
Housing: Shield



1: 24 V U_{IS}
2: 24 V U_A
3: 0 V U_{IS}
4: 0 V U_A

Block diagram of an input/output



Technical Data

Digital outputs:

No. of outputs	4
Connection type (2)	M12 connectors, A coded, 5 poles, shielded
Wire connection	2- or 3-wire
Output voltage	≤ U _A
Output current (per channel)	0.2 A, short-circuit/overload proof (thermal disconnection)
Voltage drop against U _A at 200 mA	Max. 2.0 V DC
Output current (module)	max. 0.8 A
Leakage current in OFF state	typ. 100 μA
Output circuit	Push/Pull

Information on actuator selection:

Front-end cycle time 90% (hardware)	max. 0,5 μs
Edge steepness	T _{ON/OFF} : typ. < 0,2 μs
Front-end jitter/skew (output)	< 0,2 μs
Type of load	Inductive, resistive loads and lamps
Switching frequency	Inductive load upon request Resistive load upon request Lamp load upon request
Type of protective circuit	External protection (e.g., recovery diodes)

Operating state influence on output:

PLC CPU stop	Acc. to substitute value strategy
Fieldbus disruption	Acc. to substitute value strategy
S-bus (system bus) disruption	0 V status
Supply voltage under rated voltage tolerance	0 V status
Interruption of supply voltage	0 V status
Output operation	Non-latching
Overload behavior	Automatic restart

Technical Data

System bus:

Connection type (3)	M12 connectors, B coded, 5 poles, shielded
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Standards and approvals:

UL 508	CE
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Conformity marking

Conformity marking	CE
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Isolation:

Channel - Channel	No
U _{IS} , U _A system bus	500 VDC each

Configurable functions:

Operating mode (per module)	DO module/DI module/DIO module/DIO + 1 counter
Input filter (per channel)	10/ 25/ 50/ 100/ 200 μs/ 1/ 3 ms/ filter off
Inversion (per channel)	On/off
Substitute value strategy (per channel)	Switch substitute value/hold last value
Substitute value (per channel)	0/1
Manual mode (per channel)	On/off
Manual mode value (per channel)	0/1
Online simulation (per channel)	Lock/unlock, simulation value: 0/1
Online simulation (per channel/	Diagnostics

I/O diagnostics:

I/O diagnostics (per channel)	Overtemperature
I/O diagnostics (per module)	Short-circuit of sensor/actuator supply Undervoltage (U _{IS} + U _A)

Process image:

Process data width	depends on operating mode
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LED indicators:

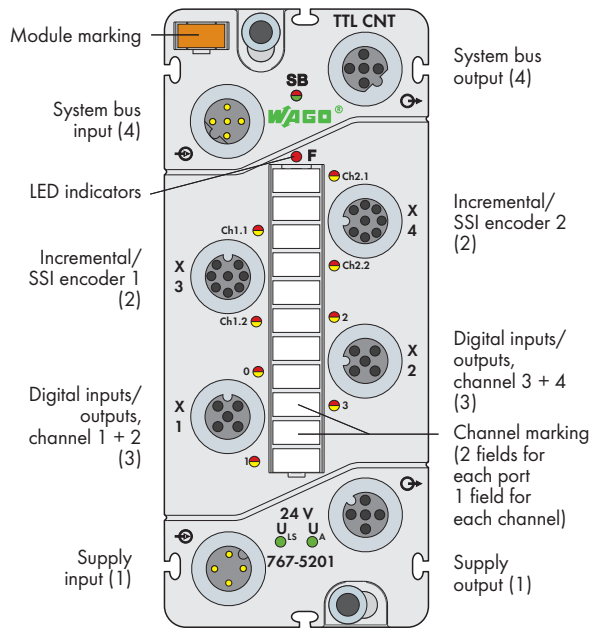
SB: System bus status	LED (green/red/orange)
F: Error status	LED (red)
0 - 3: Signal status, inputs/outputs	LED (yellow/red)
0 - 3: Diagnostics, outputs	LED (red)
U _{IS} + U _A : Supply status	LED (green)

General Specifications

Dimensions (mm) W x H x L	50 x 35.7 x 117
Weight	255 g

2 TTL Incremental/SSI Encoder Interface

Two encoder interfaces (2 x M12) + 4 digital inputs/outputs (2 x M12, two inputs/outputs per connector)



Short description:

The 767-5201 Module evaluates both incremental and absolute encoders with RS-422 signal levels. Integrated DIOs allow outputs to be directly set depending on counter states. Two of the four DIO channels can also be used as PWM outputs*.

Characteristics:

- Two incremental/SSI encoder interfaces
- Four digital inputs/outputs 24 VDC/0.1 A (incl. 2 PWM* outputs)
- Configurable (incremental/SSI encoder, DIOs)
- Diagnostic-capable (channel by channel/module by module)

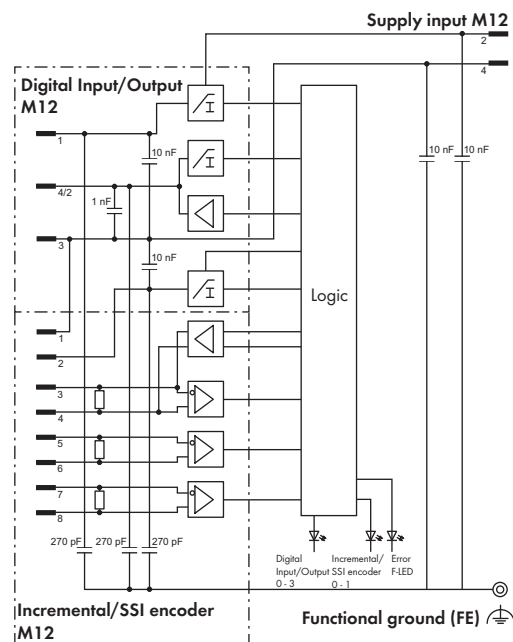
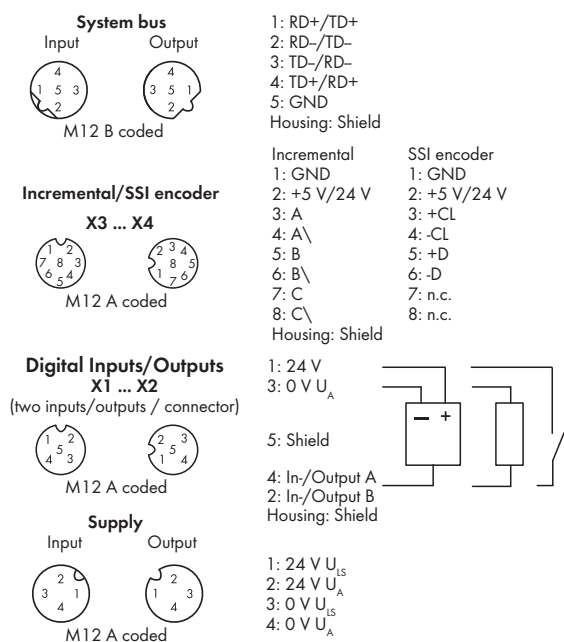
Included:

- 1 x WMB marker, orange
- 1 x marking strip
- 2 x M12 protective cap

*Pulse-Width Modulated outputs

Description	Item No.	Pack. Unit
TTL Incremental/SSI Encoder	767-5201	1
Accessories		
Marking strips, marking pen, spacer module and protective caps	see Full Line Catalog AUTOMATION	
IP67 cables and connectors	2012/2013	
Technical Data		
Module supply:		
Connection type (1)	M12 connectors, A coded, 4 poles	
Current carrying capacity of supply connections	max. 8 A (U _{IS} : 4 A, U _A : 4 A)	
Supply voltage		
Logic and sensor voltage U _{LS}	24 V DC (-25 % ... +30 %)	
Actuator voltage U _A	24 V DC (-25 % ...+30 %)	
Supply current		
Logic and sensor current I _{LS}	typ. 50 mA	
Actuator current I _A	typ. 25 mA + actuators (max. 800 mA)	
Protection	Reverse voltage protection for U _{IS} + U _A Short-circuit protection for sensor/actuator supply	
Incremental encoder:		
Number of inputs (incremental)	2	
Connection type (2)	M12 connectors, A coded, 8 poles, shielded	
Sensor supply	5 V/24 V, max. 300 mA	
Encoder connection (incremental)	A, A', B, B', C, C'	

Technical Data	
Signal input (incremental)	RS-422 differential signal
Counter	32 bits
Max. operating frequency	1 MHz
Zero impulse latch	32 bits
Type of cable, cable length	shielded, ≤ 30 m
SSI encoder:	
Number of inputs (SSI encoder)	2
Connection type (2)	M12 connectors, A coded, 8 poles, shielded
Sensor supply	5 V/24 V, max. 300 mA
Encoder connection (SSI)	D+, D-, CL+, CL-
Signal input (SSI encoder)	+D, -D: RS-422 differential signal
Signal output (SSI encoder)	CL+, CL-: RS-422 differential signal
Bit width	32 bits
Baud rate	62.5 kHz ... 2 MHz
Method of conversion	Binary/Gray
Type of cable, cable length	shielded, ≤ 30 m
Digital inputs:	
Number of inputs	4
Connection type (3)	M12 connectors, A coded, 5 poles, shielded
Wire connection	2- or 3-wire
Front-end cycle time (hardware)	max. 3 μs
Input characteristic	Type 3, acc. to IEC 61131-2
Signal voltage (0)	-3 V ... +5 V DC
Signal voltage (1)	+15 V ... +30 V DC
Input wiring	High-side switching
Input voltage	24 VDC (-3 VDC < U _{IN} < +30 VDC)
Connection of 2-wire BEROs	max. 1.5 mA admissible closed current
Type of cable, cable length (digital inputs)	shielded, ≤ 30 m

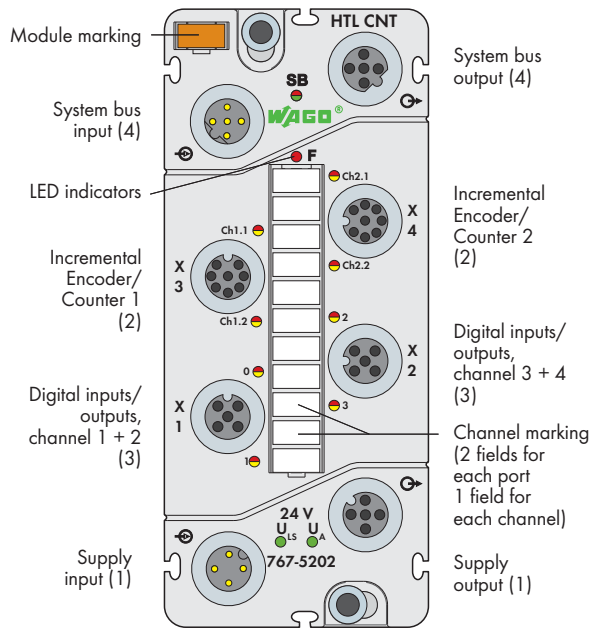


Technical Data	
Input characteristic:	
Input voltage	Typical input current
0 V	0 mA
5 V	2.0 mA
15 V	2.5 mA
24 V	2.9 mA
30 V	3.2 mA
Digital outputs (see manual for actuator selection information)	
No. of outputs	4
Connection type (3)	M12 connectors, A coded, 5 poles, shielded
Wire connection	2- or 3-wire
Output voltage	$\leq U_A$
Output current (channel/module)	0.1 A/0.4 A
Output current, short time, 1 s (channel)	0.2 A
Output protection	Short-circuit/overload protection, thermal shutdown
Response time	approx. 10 μ s (output, 90 %)
Pulse width modulation (PWM)	
Pulse frequency	100 Hz ... 10 kHz
Pulse duty factor	0 ... 100 %
Resolution	16 bits (≤ 1 kHz), 12 bits (> 1 kHz)
Voltage drop against U _A	max. 1.7 V at 100 mA
Leakage current in OFF state	typ. 150 μ A
Output circuit	push-pull
System bus:	
Connection type (4)	M12 connectors, B coded, 5 poles, shielded
Standards and approvals:	
UL 508	
Conformity marking	CE
Isolation:	
Channel - Channel	no
U _{IS} , U _A , system bus	500 V DC each

Technical Data	
Configurable functions:	
(see manual for configuration details)	
Incremental encoder (channel by channel)	Evaluation, filter
SSI encoder (channel by channel)	Data width/length, transmission rate, etc.
Cam (channel-by-channel)	Upper/lower value, output, etc.
Pulse-width modulation (channel-by-channel)	Pulse duty factor, frequency, etc..
DIOs (channel by channel/module by module)	Operating mode, filter, substitute value strategy, etc.
Configurable functions (channel by channel/module by module)	Online simulation and diagnostics
I/O diagnostics:	
I/O diagnostics (per channel)	Encoder: Over-/underflow, wire break, limit value violation (min./max.); DIO: Overtemperature (actuators)
I/O diagnostics (per module)	Supply: Short-circuit/Overload of sensor/actuator supply, undervoltage (U _{IS} + U _A)
Process image:	
Process data width	2 x 4-byte encoder value, 2 x 2-byte control data, 1-byte status DI/control DO
Synchronous diagnostics (optional)	2 bytes
LED indicators:	
SB: System bus status	LED (green/red/orange)
F: Error status	LED (red)
0 - 3: Signal status, inputs/outputs	LED (yellow/red)
Ch1 + Ch2: Encoder status	LED (green/yellow/red)
U _{IS} + U _A : Supply status	LED (green)
Indicators	Non-latching
General Specifications	
Dimensions (mm) W x H x L	50 x 35.7 x 117
Weight	270 g

HTL Incremental Encoder/Counter Interface

Two encoder/counter interfaces (2 x M12) + 4 digital inputs/outputs (2 x M12, two inputs/outputs per connector)



Short description:

The 767-5202 Module evaluates incremental encoders and counts binary signals with 24V signal levels. Integrated DIOs allow outputs to be directly set depending on counter states. Two of the four DIO channels can also be used as PWM outputs*.

Characteristics:

- Two incremental encoder/counter interfaces
- Four digital inputs/outputs 24 VDC/0.1 A (incl. 2 PWM outputs)
- Configurable (incremental encoder, counter, DIOs)
- Diagnostic-capable (channel by channel/module by module)

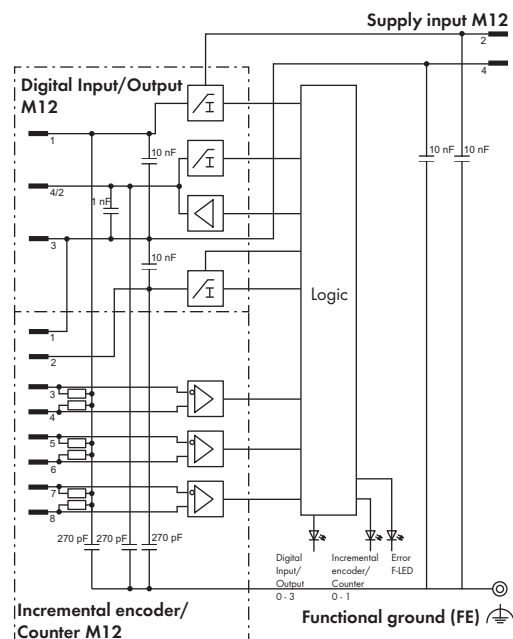
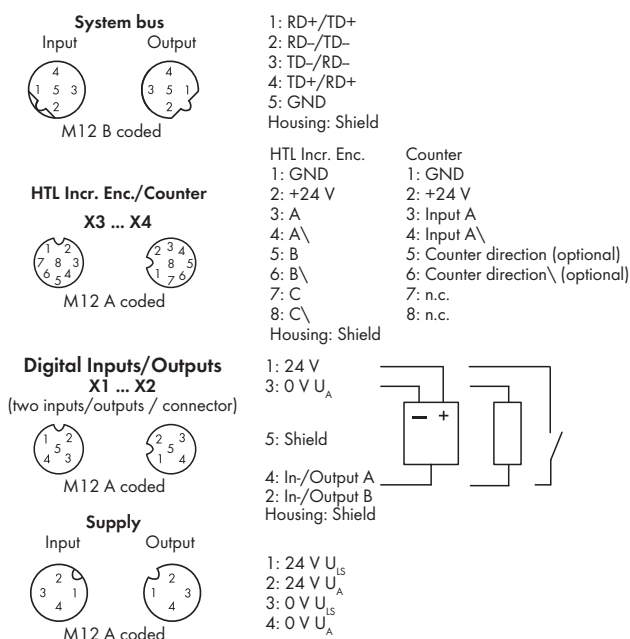
Included:

- 1 x WMB marker, orange
- 1 x marking strip
- 2 x M12 protective cap

*Pulse-Width Modulated outputs

Description	Item No.	Pack. Unit
HTL Incremental Encoder/Counter	767-5202	1
Accessories		
Marking strips, marking pen, spacer module and protective caps	see Full Line Catalog AUTOMATION	
IP67 cables and connectors	2012/2013	
Technical Data		
Module supply:		
Connection type (1)	M12 connectors, A coded, 4 poles	
Current carrying capacity of supply connections	max. 8 A (U _{IS} : 4 A, U _A : 4 A)	
Supply voltage		
Logic and sensor voltage U _{LS}	24 V DC (-25 % ... +30 %)	
Actuator voltage U _A	24 V DC (-25 % ...+30 %)	
Supply current		
Logic and sensor current I _{LS}	typ. 50 mA	
Actuator current I _A	typ. 25 mA + actuators (max. 800 mA)	
Protection	Reverse voltage protection for U _{IS} + U _A Short-circuit protection for sensor/actuator supply	
Incremental encoder:		
Number of inputs (incremental)	2	
Connection type (2)	M12 connectors, A coded, 8 poles, shielded	
Sensor supply	5 V/24 V, max. 300 mA	
Encoder connection (incremental)	A, A _V , B, B _V , C, C _V	

Technical Data	
Signal input (incremental)	HTL, differential/single-ended
Counter	32 bits
Max. operating frequency	250 kHz
Zero impulse latch	32 bits
Type of cable, cable length	shielded, ≤ 30 m
Counters:	
Number of inputs (counter)	2
Connection type (2)	M12 connectors, A coded, 8 poles, shielded
Counter type	Up/Down counter, gate-time/frequency counter gate-time/cycle-time counter, pulse-duration counter, pulse-width counter
Counter input	DC 24 V
Power supply	max. 300 mA
Bit width	32 bits
Counter frequency	250 kHz
Digital inputs:	
Number of inputs	4
Connection type (3)	M12 connectors, A coded, 5 poles, shielded
Wire connection	2- or 3-wire
Front-end cycle time (hardware)	max. 3 μs
Input characteristic	Type 3, acc. to IEC 61131-2
Signal voltage (0)	-3 V ... +5 V DC
Signal voltage (1)	+15 V ... +30 V DC
Input wiring	High-side switching
Input voltage	24 VDC (-3 VDC < U _{IN} < +30 VDC)
Connection of 2-wire BEROs	max. 1.5 mA admissible closed current
Type of cable, cable length (digital inputs)	shielded, ≤ 30 m



Technical Data

Input characteristic:

Input voltage	Typical input current
0 V	0 mA
5 V	2.0 mA
15 V	2.5 mA
24 V	2.9 mA
30 V	3.2 mA

Digital outputs (see manual for actuator selection information)

No. of outputs	4
Connection type (3)	M12 connectors, A coded, 5 poles, shielded
Wire connection	2- or 3-wire
Output voltage	$\leq U_A$
Output current (channel/module)	0.1 A/0.4 A
Output current, short time, 1 s (channel)	0.2 A
Output protection	Short-circuit/overload protection, thermal shutdown
Response time	approx. 10 μ s (output, 90 %)
Pulse width modulation (PWM)	
Pulse frequency	100 Hz ... 10 kHz
Pulse duty factor	0 ... 100 %
Resolution	16 bits (≤ 1 kHz), 12 bits (> 1 kHz)
Voltage drop against U _A	max. 1.7 V at 100 mA
Leakage current in OFF state	typ. 150 μ A
Output circuit	push-pull

System bus:

Connection type (4)	M12 connectors, B coded, 5 poles, shielded
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Standards and approvals:

UL 508	
Conformity marking	CE

Isolation:

Channel - Channel	no
U _{IS} , U _A , system bus	500 V DC each

Technical Data

Configurable functions:

(see manual for configuration details)

Incremental encoder (channel by channel)	Evaluation, filter
Counter (channel by channel)	Gate, direction, gate time, preset, etc.
Cam (channel-by-channel)	Upper/lower value, output, etc.
Pulse-width modulation (channel-by-channel)	Pulse duty factor, frequency, etc.
DIOs (channel by channel/module by module)	Operating mode, filter, substitute value strategy, etc.
Configurable functions (channel by channel/module by module)	Online simulation and diagnostics

I/O diagnostics:

I/O diagnostics (per channel)	Encoder: Over-/underflow, wire break, limit value violation (min./max.); DIO: Overtemperature (actuators)
I/O diagnostics (per module)	Supply: Short-circuit/Overload of sensor/actuator supply, undervoltage (U _{IS} + U _A)

Process image:

Process data width	2 x 4-byte encoder value, 2 x 2-byte control data, 1-byte status DI/control DO
Synchronous diagnostics (optional)	2 bytes

LED indicators:

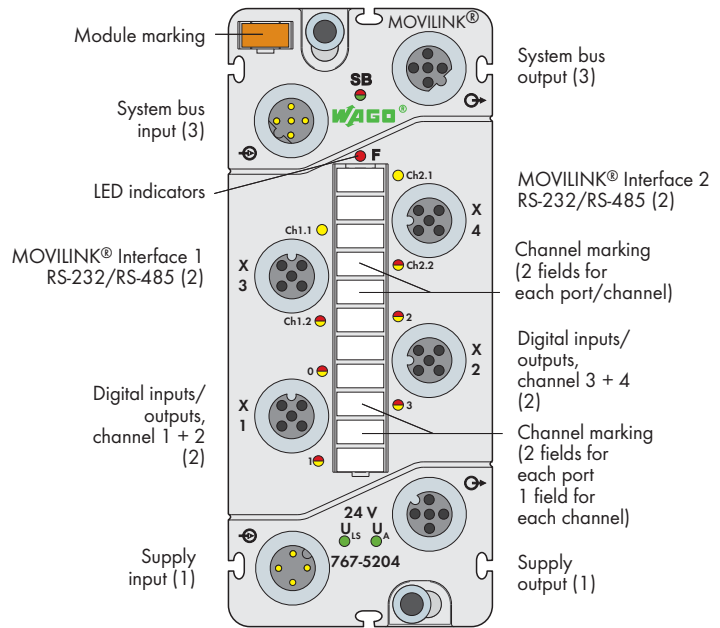
SB: System bus status	LED (green/red/orange)
F: Error status	LED (red)
0 - 3: Signal status, inputs/outputs	LED (yellow/red)
Ch1 + Ch2: Encoder status	LED (green/yellow/red)
U _{IS} + U _A : Supply status	LED (green)
Indicators	Non-latching

General Specifications

Dimensions (mm) W x H x L	50 x 35.7 x 117
Weight	270 g

MOVILINK® Interface (RS-232, RS-485)

2 interfaces (2 x M12) + 4 digital inputs/outputs (2 x M12, two inputs/outputs per connector)

**Short description:**

Interface module for drive control via MOVILINK® protocol (see note). The maximum number of drives per interface depends on the type of application and is described in more detail in the manual.

Features:

- 2 MOVILINK® interfaces (RS-232, RS-485)
- 4 digital inputs/outputs, 24 VDC / 0.5 A
- Diagnostic-capable (per channel/per module)
- Parametrizable (operating mode, baud rate, filter, inversion, substitute value strategy, manual mode, online simulation and diagnostics)

Included:

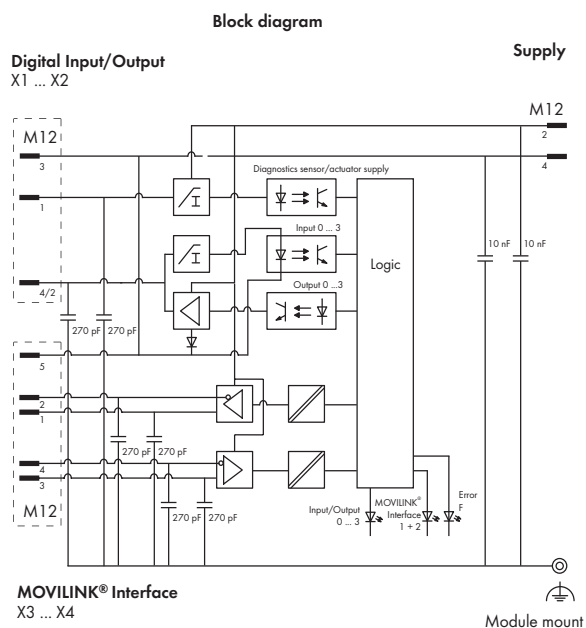
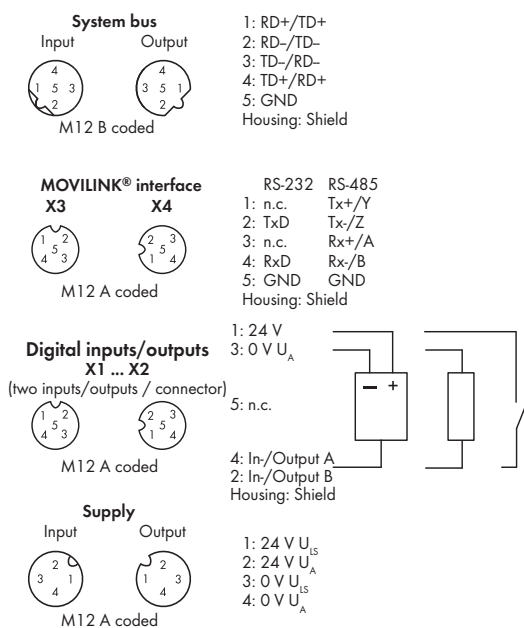
- 1 x WMB marker, orange
- 1 x marking strip
- 2 x M12 protective cap

Note:

MOVILINK® is a registered trademark of SEW-EURODRIVE GmbH & Co. KG

Description	Item No.	Pack. Unit
MOVILINK® Interface (RS-232, RS-485)	767-5204	1
Technical Data		
Module supply:		
Connection type (1)	M12 connectors, A coded, 4 poles; Derating must be observed	
Current carrying capacity of supply connections	max. 8 A (U_{IS} : 4 A, U_A : 4 A)	
Supply voltage		
Logic and sensor voltage U_{IS}	24 V DC (-25 % ... +30 %)	
Actuator voltage U_A	24 V DC (-25 % ... +30 %)	
Supply current		
Logic and sensor current I_{IS}	typ. 75 mA	
Actuator current I_A	typ. 25 mA + sensors (max. 400 mA) + actuators 2.4 A (4 x 600 mA)	
Protection	Reverse voltage protection for U_{IS} + U_A Short-circuit protection for sensor/actuator supply	
MOVILINK® Interface		
Interfaces	2	
Connection type (2)	M12 connectors, A coded, 5 poles, shielded	
Transmission channels	1 Rx/D / 1 Tx/D (half duplex)	
Cable length	max. 15 m (RS-232); max. 200 m (RS-485)	
Baud rate	9,600 Baud; 57,600 Baud	
Protocols	MOVILINK® PDU types, 0x05 (cyclic) and 0x85 (acyclic)	
Data bits	8	
Parity	Even	
Stop bits	1	

Accessories	
Marking strips, marking pen, spacer module and protective caps	see Full Line Catalog AUTOMATION 2012/2013
IP67 cables and connectors	
Technical Data	
Digital inputs:	
Number of inputs	4
Connection type (2)	M12 connectors, A coded, 5 poles, shielded
Wire connection	2- or 3-wire
Input filter	Hardware: $\leq 110 \mu s$ Software: parametrizable
Input characteristic	Type 2, acc. to IEC 61131-2
Signal voltage (0)	-3 ... +5 VDC
Signal voltage (1)	+ 11 VDC ... U_A
Input wiring	High-side switching
Input voltage	24 VDC (-3 VDC < U_{IN} < +30 VDC); Power from U_A is strongly recommended, recovery for voltages > U_A
Input current (typ.)	7.3 mA
Connection of 2-wire BEROs	max. 1.5 mA admissible closed current
Cable length, unshielded	≤ 30 m
Wrong connection of inputs	No effect
Input characteristic:	
Input voltage	Typical input current
-3 V < U_A < 0 V	0 mA
5 V	2.3 mA ... 2.5 mA
11 V	6.4 mA ... 6.7 mA
24 V < U_A < 31.2 V	7.3 mA ... 7.5 mA



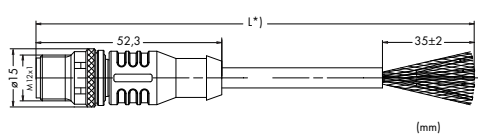
Technical Data	
Digital outputs:	
No. of outputs	4
Connection type (2)	M12 connectors, A coded, 5 poles, shielded
Wire connection	2- or 3-wire
Output voltage	≤ U _A
Output current (per channel)	0.5 A (max. 0.6 A), short-circuit/overload proof (thermal disconnection)
Voltage drop against U _A at 500 mA	max. 0.2 V DC
Output current (module)	max. 2A
Leakage current in OFF state	typ. 5 μA
Output circuit	High-side switching
Information on actuator selection:	
Delay time HW from "0" to "1" (0-90%)	typ. 90 μs (resistive load)
Delay time HW from "1" to "0" (0-90%)	typ. 310 μs (resistive load)
Rise time from "0" to "1"	typ. 60 μs (resistive load)
Fall time from "1" to "0"	typ. 45 μs (resistive load)
Cable length	≤ 30 m
Reverse current (in case of recovery for voltages > U _A)	≤ 1 A (error: 1 channel)
Type of load	Inductive, resistive loads and lamps
Switching frequency	Inductive load approx. 20 Hz Resistive load approx. 500 Hz Lamp load approx. 500 Hz
Parallel connection of 2 outputs	for power boost for redundant actuation of a load
Type of protective circuit	External protection (e.g., recovery diodes)
Output resistance	< 0,4 Ω
Operating state influence on output:	
PLC CPU stop	Acc. to substitute value strategy
Fieldbus disruption	Acc. to substitute value strategy
S-bus (system bus) disruption	0 V status
Supply voltage under rated voltage	
tolerance	0 V status
Interruption of supply voltage	0 V status
Output operation	Non-latching
Overload behavior	Automatic restart

Technical Data	
System bus:	
Connection type (3)	M12 connectors, B coded, 5 poles, shielded
Standards and approvals:	
UL 508	CE
Conformity marking	CE
Isolation:	
Channel - Channel	no
U _{IS} , U _A , system bus	500 V DC each
Parameterizable functions, MOVILINK® interface	
Operating mode (per module)	Easy mode; Mailbox mode
Type (per channel)	RS-232; RS-485
Baud rate (per channel)	9,600; 57,600 baud
Parameterizable functions, digital inputs/outputs	
Operating mode, input filter, inversion, substitute value strategy, manual mode, online simulation and diagnostics	For details, see manual.
I/O diagnostics:	
I/O diagnostics (per channel)	Overtemperature (DO)
I/O diagnostics (per module)	Short-circuit of sensor/actuator supply Undervoltage (U _{IS} + U _A)
Process image:	
Process data width	Interface: 8-bytes data in/out; DIO: 1-byte data in/out + 1-byte status
LED indicators:	
SB: System bus status	LED (green/red/orange)
F: Error status	LED (red)
0 - 3: Signal status, inputs/outputs	LED (yellow/red)
Ch1.1 + Ch2.1: Transmission status	LED (yellow)
Ch1.2 + Ch2.2: Reception status	LED (yellow/red)
U _{IS} + U _A : Supply status	LED (green)
Indicators	Non-latching
General Specifications	
Dimensions (mm) W x H x L	50 x 35.7 x 117
Weight	260 g

WAGO SPEEDWAY 767

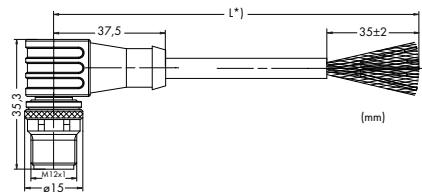
sercos cabel, fitted at one or at both ends

AUTOMATION



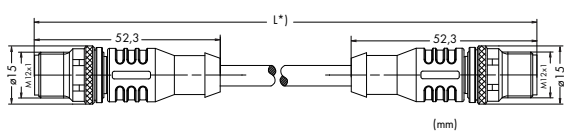
Pin 1 - 4: 0.34 mm²
 1 yellow
 2 white
 3 orange
 4 blue

M12 plug, straight, D coded	Item No.	Pack. Unit
M12 plug, straight, one free cable end, 2.0 m	756-1601/060-020	1
M12 plug, straight, one free cable end, 5.0 m	756-1601/060-050	1
M12 plug, straight, one free cable end, 10.0 m	756-1601/060-100	1
M12 plug, straight, one free cable end, 20.0 m	756-1601/060-200	1



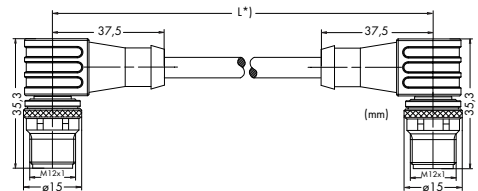
Pin 1 - 4: 0.34 mm²
 1 yellow
 2 white
 3 orange
 4 blue

M12 plug, right angle, D coded	Item No.	Pack. Unit
M12 plug, right angle, one free cable end, 2.0 m	756-1602/060-020	1
M12 plug, right angle, one free cable end, 5.0 m	756-1602/060-050	1
M12 plug, right angle, one free cable end, 10.0 m	756-1602/060-100	1
M12 plug, right angle, one free cable end, 20.0 m	756-1602/060-200	1



Pin 1 - 4: 0.34 mm²
 1 yellow
 2 white
 3 orange
 4 blue

M12 plug, straight / M12 plug, straight, D coded	Item No.	Pack. Unit
M12 plug, straight, M12 plug, straight, 2.0 m	756-1603/060-020	1
M12 plug, straight, M12 plug, straight, 5.0 m	756-1603/060-050	1
M12 plug, straight, M12 plug, straight, 10.0 m	756-1603/060-100	1
M12 plug, straight, M12 plug, straight, 20.0 m	756-1603/060-200	1



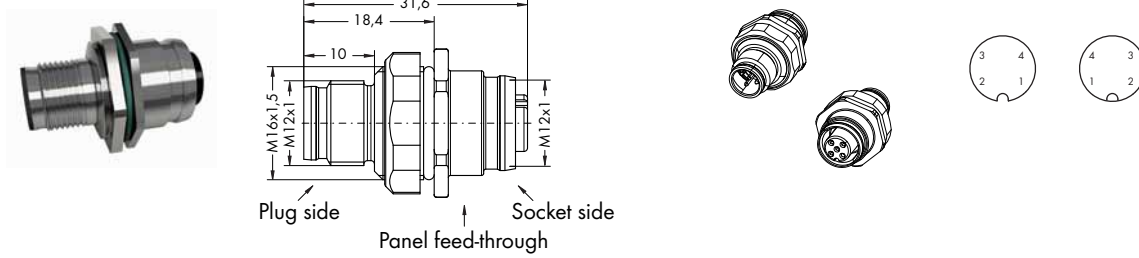
Pin 1 - 4: 0.34 mm²
 1 yellow
 2 white
 3 orange
 4 blue

M12 plug, right angle / M12 plug, right angle, D coded	Item No.	Pack. Unit
M12 plug, right angle, M12 plug, right angle, 2.0 m	756-1604/060-020	1
M12 plug, right angle, M12 plug, right angle, 5.0 m	756-1604/060-050	1
M12 plug, right angle, M12 plug, right angle, 10.0 m	756-1604/060-100	1
M12 plug, right angle, M12 plug, right angle, 20.0 m	756-1604/060-200	1

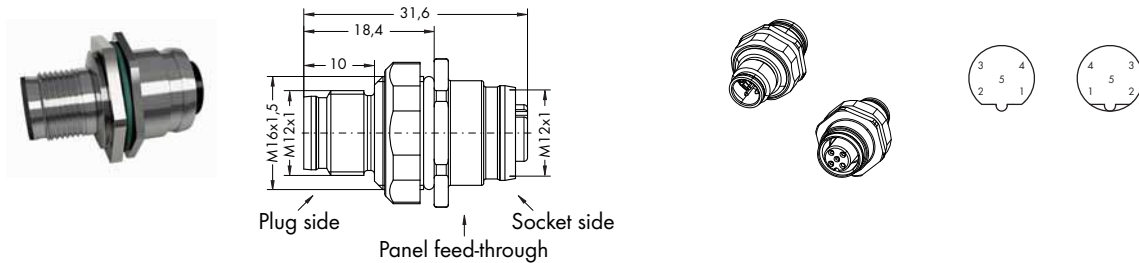
* Cable length

WAGO SPEEDWAY 767

M12 panel feed-through connectors



M12 socket / M12 plug, A coded	Item No.	Pack. Unit
M12 panel feed-through connectors, A coded	756-9217/050-000	1

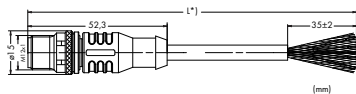


M12 socket / M12 plug, B coded	Item No.	Pack. Unit
M12 panel feed-through connectors, B coded	756-9406/050-000	1

Carrier rail and profile adapters

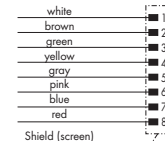
Carrier rail adapters and profile adapters	Item No.	Pack. Unit
Carrier rail adapter for I/O module 8 x M12	767-125	1
Profile adapter for I/O module 8 x M12	767-126	1

Sensor/actuator cables, with one end of cable fitted

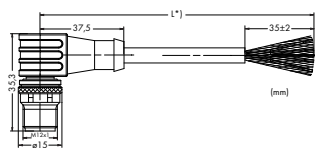


M12 plug

Pin 1 ... 8: 0.25 mm²

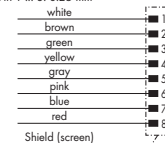


M12 Sensor/actuator cables, with one end of cable fitted		Item No.	Pack. Unit
8-pole, shielded	M12 plug, straight, one free cable end, 1.5 m	756-5311/090-015	10
	M12 plug, straight, one free cable end, 5 m	756-5311/090-050	10
	M12 plug, straight, one free cable end, 10 m	756-5311/090-100	10



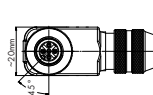
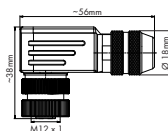
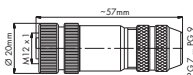
M12 plug

Pin 1 ... 8: 0.25 mm²



M12 Sensor/actuator cables, with one end of cable fitted		Item No.	Pack. Unit
8-pole, shielded	M12 plug, right angle, one free cable end, 1.5 m	756-5312/090-015	10
	M12 plug, right angle, one free cable end, 5 m	756-5312/090-050	10
	M12 plug, right angle, one free cable end, 10 m	756-5312/090-100	10

Configurable connectors



M12 socket

Conductor size
Ø 6 ... 8 mm / 0.14 ... 0.50 mm²

M12 Plug, for self assembly		Item No.	Pack. Unit
8-pole, shielded	M12 socket, straight, screw clamp connection	756-9211/090-000	1
	M12 socket, right angle, screw clamp connection	756-9214/090-000	1

* Cable length



WAGO's 757-801 Bluetooth® Module wirelessly connects a serial interface to external Bluetooth® devices (e.g., PCs/notebooks with Bluetooth®). Data is exchanged via Bluetooth® SPP (Serial Port Profile).

Substitute cabling between two serial devices by automatically restoring the outgoing wireless connection (e.g., to a second Bluetooth® module). High protection class provides enhanced, wireless Bluetooth® module's installation outside of control cabinets.

Coexistence properties:

- AFH (Adaptive Frequency Hopping)
- Adaptive transmission power with configurable upper limits for data exchange and device discovery
- Configurable channel blacklist for FHSS (Frequency Hopping Spread Spectrum)
- Coexistence optimized device discovery supported (media allocation < 5 %, allocation duration < 100 ms)

Description	Item No.	Pack. Unit
Bluetooth® Module	757-801	1
Accessories		
Marking strips, felt-tip pen	see Full Line Catalog AUTOMATION 2012/2013	
Approvals		
Conformity marking	CE	
Bluetooth	Bluetooth® approval	
Technical Data		
Version	2.1	
Radio class	Class 1/max. 100 m	
Antenna	integrated	
RF output power	max. +10 dBm	
RF input sensitivity	typ. -82 dBm	
Frequency range	2.402 ... 2.483 GHz (ISM band)	
Type of communication	Point-to-point connection	
Profiles supported	Serial Port Profile (SPP)	
Security encryption	Bluetooth® security mode 4 "Secure Simple Pairing" 128-bit encryption	
Dimensions (mm) W x H x L	30 x 20 x 117 (without cable)	
Weight	418 g	
Fixing	Screw mounting	
Ports	RS-232 interface (RX/TX) with hardware flow control (CTS/RTS) Bluetooth® radio interface	

Technical Data	
Baud rate	9600 ... 115200 bps
Indicators	five LEDs
Voltage supply	+24 VDC
Voltage range	+10 V ... +32 VDC
Current input (at 24 VDC)	< 50 mA
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)
EMC: CE - emission of interference	acc. to EN 61000-6-3 (2007)
Permissible temperature range	-20 °C ... +60 °C (static); -5 °C ... +60 °C (moving)
Storage temperature	-30 °C ... +80 °C
Degree of protection	IP67
Connecting cable	
Cable length	approx 5 m
Cable design	Outer sheath PUR halogen-free Black
Cable Ø	6.6 mm (± 0.2 mm)
Screening	Copper braiding, tin-plated, 0.10 mm single-wire diameter
Conductor design	4 x 0.34 mm ² + 2 x 0.75 mm ² conductor 0.34 mm ² , extra-fine stranded, 43 x 0.10 mm conductor 0.75 mm ² , extra-fine stranded, 21 x 0.205 mm
bending radius	10 x cable diameter for flexible application
Bending cycles	1 million cycles

WLAN ETHERNET Gateway

Wireless transmission link for ETHERNET protocols



Power connector:

M12 plug, A-coded



- 1: Vin + (DC 9 ... 30 V)
- 2: External Trigger Ground
- 3: Vin GND (0 V)
- 4: External Trigger + (DC 9 ... 30 V)
- 5: n.c.

ETHERNET connector:

M12 socket, D-coded



- 1: Transmit +
- 2: Receive +
- 3: Transmit -
- 4: Receive -

WAGO WLAN ETHERNET Gateways simplify creation of a wireless transmission link for ETHERNET protocols (e.g., PROFINET, MODBUS/TCP, Ethernet/IP).

The gateway is used as a cable substitute to create a robust, industry-proven WLAN link between two automation devices.

The IP65 housing and circularly polarized antenna allow the gateway to be used even in harsh industrial environments. Simple, push-button operation provides very fast connection between two WLAN ETHERNET Gateways.

Note:

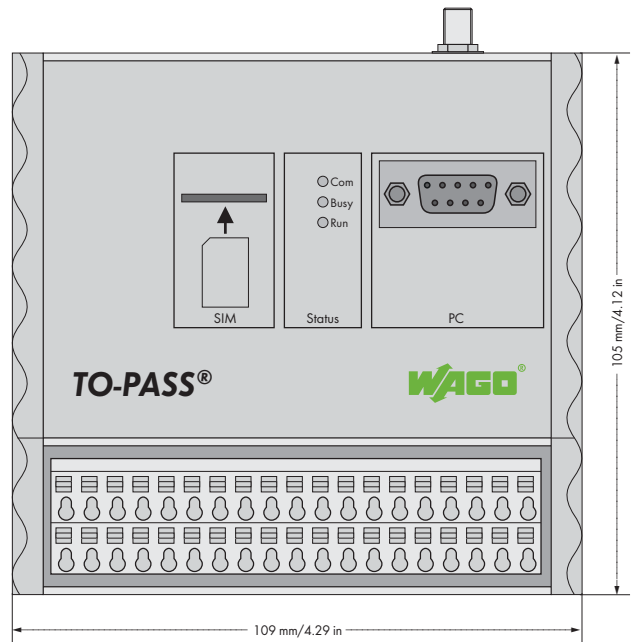
Two WLAN ETHERNET Gateways of the same type are required to establish a point-to-point connection.

Description	Item No.	Pack. Unit
WLAN ETHERNET Gateway, 2.4 GHz	758-916	1
WLAN ETHERNET Gateway, 5 GHz	758-917	1
Accessories	Item No.	Pack. Unit
IP67 cables and connectors	see Full Line Catalog 2012/2013, Volume 3, Sections 2 and 5	
Approvals		
	R&TTE (Europe)	
	FCC/CFR 47 part 15	
	IC (Industry Canada)	
Conformity marking	CE	

Technical Data	
Wireless technology	IEEE 802.11 bgn (758-916) IEEE 802.11 an (758-917)
Topology	Point-to-point connection
Security authentication	Open, Shared, WPA/WPA2 PSK, LEAP, PEAP
Security encryption	None, WEP64, WEP128, TKIP, AES/CCMP
Frequency band	License-free ISM band, 2.4 GHz (758-916) License-free ISM band, 5 GHz (758-917)
Transmission range	up to 400 m (758-916) up to 200 m (758-917)
Antenna	Internal, circularly polarized, directional antenna
Voltage supply	24 V DC
Voltage range	9 V ... 30 V DC
Ports	ETHERNET connector: M12 socket, D-coded Power connector: M12 plug, A-coded
Configuration	Simple, push-button operation and Web-based management
Number of inputs	1 (trigger input 9 V ... 30 VDC)
Dimensions (mm) W x H x L	66 x 36.2 x 91
Weight	120 g
Operating temperature	-30 °C ... +65 °C
Storage temperature	-40 °C ... +85 °C
Degree of protection	IP65
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)

TO-PASS® Compact, 2 AI, Web, MODBUS, RS-485

Telecontrol module for fault detection/indication, monitoring and remote control



Compact telecontrol module provides fault detection/indication and Internet connectivity for machines and installations over a GSM network. The module can be used in many countries via an integrated quad-band GSM modem. Messages are sent via SMS, e-mail, fax or phone call. In addition, the process image can be transmitted in an adjustable cycle to a user-selected Internet address. A MODBUS slave (e.g., 750-815) can be connected via RS-485 interface to link additional process values. Switching of outputs is performed via SMS or TO-PASS® Web Portal. The module is equipped with 4 digital inputs, 4 analog outputs and 2 digital inputs, including an integrated GSM modem. Ideal for applications in distributed stations for temperatures ranging from -20 °C to +70 °C. Ability to mount on DIN-rail and intuitive user software make unit easy to use. Operating voltage ranges from +10 to +30 VDC.

Specialty functions:

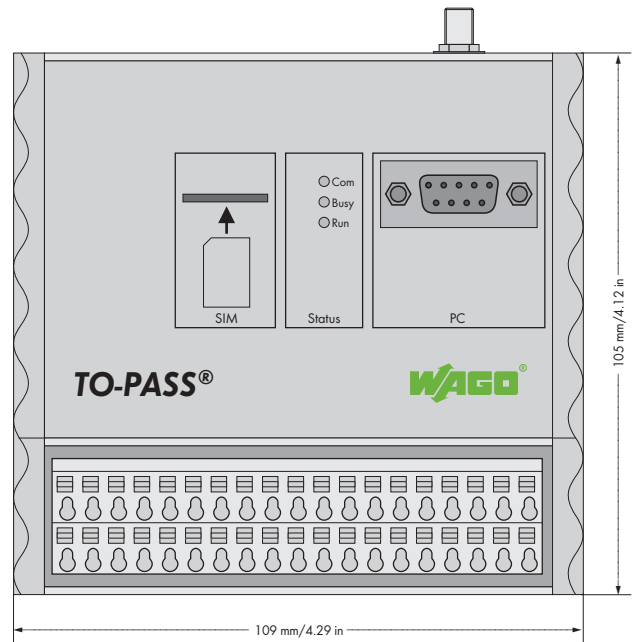
- Acknowledgement: Any fault message
- Stand-by: Automatic remote switching of stand-by service
- Remote parameterization: Programming and process visualization conveniently performed from the office
- GPRS-dedicated line: Permanent online connection to the process on a Web server or PC with fixed IP address (e.g., DSL connection)
- Counter function: Maximum four of the digital inputs can be used as up or down counter. The maximum operating frequency is 1250 Hz.

Description	Item No.	Pack. Unit
TO-PASS® Compact, 2 AI, Web, MODBUS, RS-485	761-114	1
Accessories		
Antennas, USB adapter, GSM modem and power supply units	see Full Line Catalog AUTOMATION 2012/2013	
Approvals		
Approvals	for all EU countries	
UL 508	Approvals for other countries on request pending	
Technical Data		
Operating temperature	-20 °C ... +70 °C	
Type of mounting	DIN 35 rail	
Antenna connection	SMA	
Wire connection	Terminal strips (WAGO 250 Series) with PUSH WIRE® connection	
Cross sections	0.5 mm ² ... 1.5 mm ² / AWG 22 ... 14	
Strip lengths	9 mm / 0.35 in	
Dimensions (mm) W x H x L	109 x 105 x 78	
Weight	412 g	
Storage temperature	-40 °C ... +85 °C	
Degree of protection	IP20	
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)	
EMC: CE - emission of interference	acc. to EN 61000-6-3 (2007)	

Technical Data	
MODBUS	
Transmission modes	RS-485 (2-conductor), RTU Master
Baud rate	9.6 and 19.2 kbaud (8N1, 8E1, 8O1, 8N1)
Read-out register	max. 64 registers (input or holding)
Digital inputs:	
Number of inputs	4 (Type 3)
Input current	max. 2.9 mA at 30 V DC
Signal voltage (0)	0 V ... 5 V DC
Signal voltage (1)	7 V ... 30 V DC
Analog inputs:	
Number of inputs	2 (0/4 mA ... 20 mA)
Internal resistance	approx. 200 Ω / 20 mA
Measuring error (25 °C)	< ± 1 % of the full scale value
Temperature coefficient	< ± 0.1 % / K of the full scale value
Digital outputs:	
No. of outputs	4 contacts
Output current (max.)	0.5 A / 30 V DC, short-circuit protected
Analog outputs:	
Measuring error (25 °C)	< ± 1 % of the full scale value
Temperature coefficient	< ± 0.1 % / K of the full scale value
Communication	GSM quad-band
Communication types	SMS (bidirectional), telecommunication dial-up connection (CSD)
	GPRS connection to Internet
Signaling	3 LEDs for operating status indication
Operating voltage	+10 V ... +30 V DC
Closed current	approx. 20 mA at +24V operating voltage
Current during transmission	< 500 mA at +24V operating voltage

TO-PASS[®] Compact, 8 AI, Web, MODBUS, RS-485

Telecontrol module for fault detection/indication, monitoring and remote control



Universal telecontrol module provides fault detection/indication and Internet connectivity for machines and installations over a GSM network. The module can be used in many countries via an integrated quad-band GSM modem. Messages are sent via SMS, e-mail, fax or phone call. The data memory stores up to 4096 process images in an adjustable cycle time. In addition, the process image can be transmitted in an adjustable cycle to a user-selected Internet address. A MODBUS slave (e.g., 750-815) can be connected via RS-485 interface to link additional process values. Switching of outputs is performed via SMS or TO-PASS[®] Web Portal. The module is equipped with 8 digital inputs, 8 analog inputs, 4 digital outputs and 2 analog outputs, including an integrated GSM modem. Ideal for applications in distributed stations for temperatures ranging from -20 °C to +70 °C. Ability to mount on DIN-rail and intuitive user software make unit easy to use. Operating voltage ranges from +10 to +30 VDC.

Specialty functions:

- Acknowledgement: Any fault message
- Stand-by: Automatic remote switching of stand-by service
- Remote parameterization: Programming and process visualization conveniently performed from the office
- GPRS-dedicated line: Permanent online connection to the process on a Web server or PC with fixed IP address (e.g., DSL connection)
- Event logger: Saves all occurring status changes
- Data logger: Saves all process values with adjustable cycle
- Counter function: Maximum four of the digital inputs can be used as up or down counter. The maximum operating frequency is 1250 Hz.

Description	Item No.	Pack. Unit
TO-PASS[®] Compact, 8 AI, Web, MODBUS, RS-485	761-217	1
Accessories		
Antennas, USB adapter, GSM modem and power supply units	see Full Line Catalog AUTOMATION 2012/2013	
Approvals		
Approvals	for all EU countries	
UL 508	Approvals for other countries on request pending	
Technical Data		
Operating temperature	-20 °C ... +70 °C	
Type of mounting	DIN 35 rail	
Antenna connection	SMA	
Wire connection	Terminal strips (WAGO 250 Series) with PUSH WIRE [®] connection	
Cross sections	0.5 mm ² ... 1.5 mm ² / AWG 22 ... 14	
Strip lengths	9 mm / 0.35 in	
Dimensions (mm) W x H x L	109 x 105 x 78	
Weight	412 g	
Storage temperature	-40 °C ... +85 °C	
Degree of protection	IP20	
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)	
EMC: CE - emission of interference	acc. to EN 61000-6-3 (2007)	

Technical Data	
MODBUS	
Transmission modes	RS-485 (2-conductor), RTU Master
Baud rate	9.6 and 19.2 kbaud (8N1, 8E1, 8O1, 8N1)
Read-out register	max. 64 registers (input or holding)
Digital inputs:	
Number of inputs	8 (Type 3)
Input current	max. 2.9 mA at 30 V DC
Signal voltage (0)	0 V ... 5 V DC
Signal voltage (1)	7 V ... 30 V DC
Analog inputs:	
Number of inputs	8 (0/4 mA ... 20 mA)
Internal resistance	approx. 200 Ω / 20 mA
Measuring error (25 °C)	< ± 1 % of the full scale value
Temperature coefficient	< ± 0.1 % / K of the full scale value
Digital outputs:	
No. of outputs	4 contacts
Output current (max.)	0.5 A / 30 V DC, short-circuit protected
Analog outputs:	
No. of outputs	2 (0/4 mA ... 20 mA)
Load impedance	≤ 600 Ω
Measuring error (25 °C)	< ± 1 % of the full scale value
Temperature coefficient	< ± 0.1 % / K of the full scale value
Communication	GSM quad-band
Communication types	SMS (bidirectional), telecommunication dial-up connection (CSD), GPRS connection to Internet
Signaling	3 LEDs for operating status indication
Operating voltage	+10 V ... +30 V DC
Closed current	approx. 20 mA at +24V operating voltage
Current during transmission	< 500 mA at +24V operating voltage

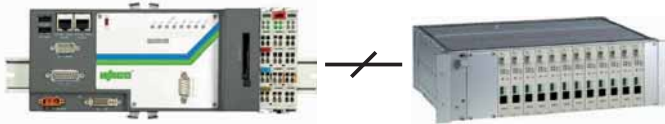
8 WAGO Telecontrol Gateway

AUTOMATION



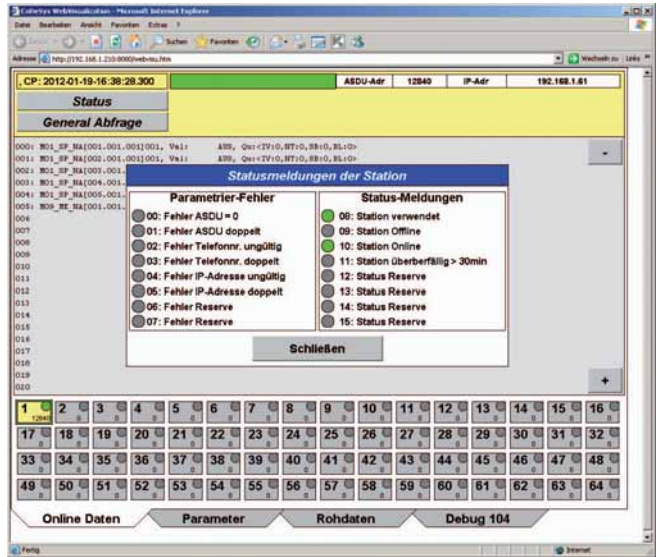
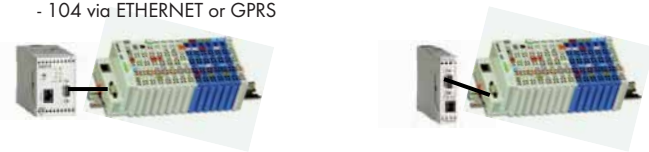
Connection to control system acc. to IEC 60870-5-101/-104

Max. 12 RS-232/-485 I/O modules and ISDN/analog modem (19" plug-in card)



Max. 64 substations can be connected via fieldbus controller acc. to IEC 60870-5:

- 101 via analog, GSM or ISDN dial-up connections
- 103 via RS-485 I/O module
- 104 via ETHERNET or GPRS



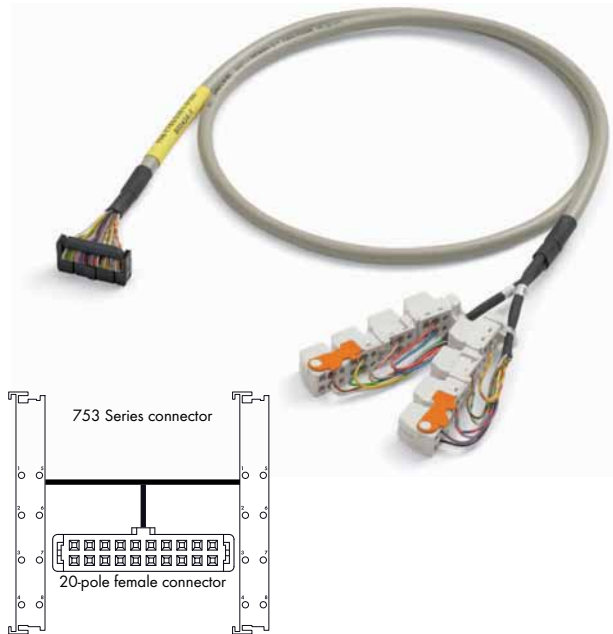
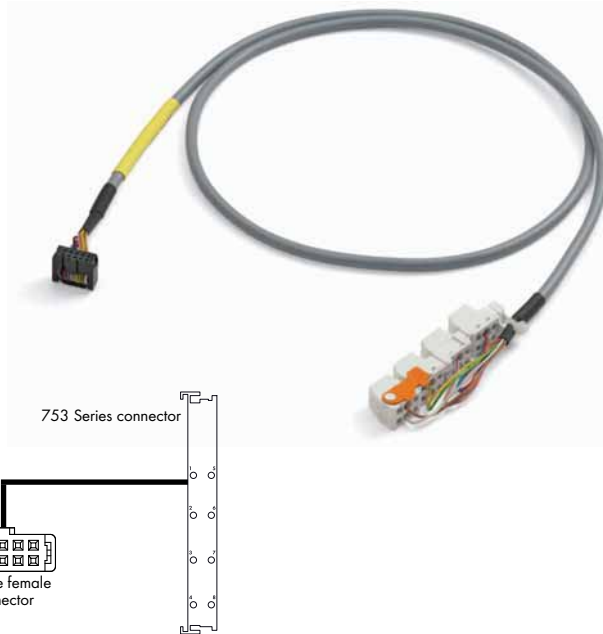
Parameter setting and diagnostics via Web server

WAGO Telecontrol Gateway (WTG), in connection with the controllers mentioned below, is a gateway software for communication between max. 64 telecontrol substations (IEC 60870-5-101/-103/-104) and a control system equipped with interface (IEC 60870-5-101/-104). This gateway is ideal for connecting telecontrol substations and for control system applications being restricted by the transmission protocol or the number of connections. In addition to data transfer bundling, the WTG also supports coordination of incoming and outgoing analog, GSM or ISDN dial-up connections to substations.

Description	Item No.	Pack. Unit
WAGO Telecontrol Gateway Software		
for 758-875/000-130	759-200	1
for 750-880/025-002	759-200/000-002	1
Technical Data		
Number of I/O modules		
for 758-875/000-130	max. 12 I/O module 750-652	
for 750-880/025-002	max. 4 I/O module 750-652	
Number of connectable telecontrol substations		
for 758-875/000-130	max. 64	
for 750-880/025-002	max. 16	

Accessories
Accessories for WAGO Telecontrol Gateway:
Telecontrol I/O-IPC-C10: 758-875/000-130 or Controller 750-880/025-002
RS-232/-485 module, WAGO-I/O-SYSTEM: 750-652
End module, WAGO-I/O-SYSTEM: 750-600
19" rack, INSYS: 11-02-05-01-01.006
19" plug-in card (ISDN modem), INSYS: 11-02-05-03-01.003
Alternative: 19" plug-in card (analog modem), INSYS: 11-02-05-02-03.003
Telecontrol substation with ISDN dial-up modem:
WAGO Telecontroller: 750-872
Additional 750/753 Series I/O modules, if necessary
End module, WAGO-I/O-SYSTEM: 750-600
RS-232 null modem cable: 761-9011
ISDN modem (for DIN rail mounting), INSYS ISDN-TA 4.0: 11-02-01-02-00.018
Telecontrol substation with analog dial-up modem:
WAGO Telecontroller: 750-872
Additional 750/753 Series I/O modules, if necessary
End module, WAGO-I/O-SYSTEM: 750-600
RS-232 null modem cable: 761-9011
Analog modem (for DIN rail mounting), INSYS Modem 56k 4.2: 11-02-01-01-40.039
Telecontrol substation with GSM connection:
WAGO Telecontroller: 750-872
Additional 750/753 Series I/O modules, if necessary
End module, WAGO-I/O-SYSTEM: 750-600
RS-232 null modem cable: 761-9011
GSM modem (for DIN rail mounting), INSYS GSM 4.3: 11-02-01-03-01.042
Magnetic foot antenna for INSYS GSM 4.3: 31-01-01.007
Telecontrol substation with DSL/ETHERNET connection:
WAGO Telecontroller: 750-872
Alternative: WAGO Telecontroller: 750-880/025-001
Additional 750/753 Series I/O modules, if necessary
End module, WAGO-I/O-SYSTEM: 750-600

WAGO Ribbon Cables



WAGO ribbon cables provide fast and easy connection of WAGO I/O modules equipped with pluggable connectors (e.g., 753-430, -431, -530) to appropriate interface or relay modules featuring a 10-pole female connector.

WAGO ribbon cables provide fast and easy connection of WAGO I/O modules equipped with pluggable connectors (e.g., 753-430, -431, -530) to appropriate interface or relay modules featuring a 20-pole female connector.

For example, this cable connects two WAGO I/O modules to one relay output module (16-channel).

Description	Item No.	Pack. Unit
WAGO ribbon cable, 1 x 753 Series pluggable connector/10-pole female connector, 1 m long	706-7753/300-100	1
For other cable lengths, please contact factory.		
Technical Data		
Wire cross-section	0.14 mm ² LiYY	
Color coding	acc. to DIN VDE 47100	
Current per channel	max. 1 A	
Operating temperature *	-25 °C ... +70 °C	
Degree of protection	IP20	
Length	1 m	

Description	Item No.	Pack. Unit
WAGO ribbon cable, 2 x 753 Series pluggable connector/20-pole female connector, 2 m long	706-7753/301-200	1
For other cable lengths, please contact factory.		
Technical Data		
Wire cross-section	0.14 mm ² LiYY	
Color coding	acc. to DIN VDE 47100	
Current per channel	max. 1 A	
Operating temperature	-25 °C ... +70 °C	
Degree of protection	IP20	
Length	2 m	

* Observe maximum operating temperature of the WAGO I/O modules used.

WAGO flexROOM® Distribution Box, 2854 Series



WAGO flexROOM® office distribution boxes support the automation of commercial and functional buildings (offices) with floor plans based on a room axis concept. The boxes automate both lighting and sun protection, while performing single-room control (heating/cooling) for up to 24 room axes. In addition to the room axes, special areas (e.g., stairways, corridors, sanitary facilities) may be automated via specialty flexROOM® distribution boxes.

Control is performed via WAGO 750-884 Application Controller, which is included in the flexROOM® distribution box and preloaded with a flexROOM® office application. Initial commissioning (IP address assignment via BootP server) can be performed via WAGOupload PC software.

A standard Web browser performs both initial room axis configuration and later reconfiguration directly on the distribution box's controller.

Several flexROOM® distribution boxes can be combined into a network via ETHERNET. A standard Web browser also establishes communication between the distribution boxes.

A flexROOM® distribution box for weather stations can transmit weather data (e.g., outside temperature or wind alarms) to other flexROOM® distribution boxes for further processing.

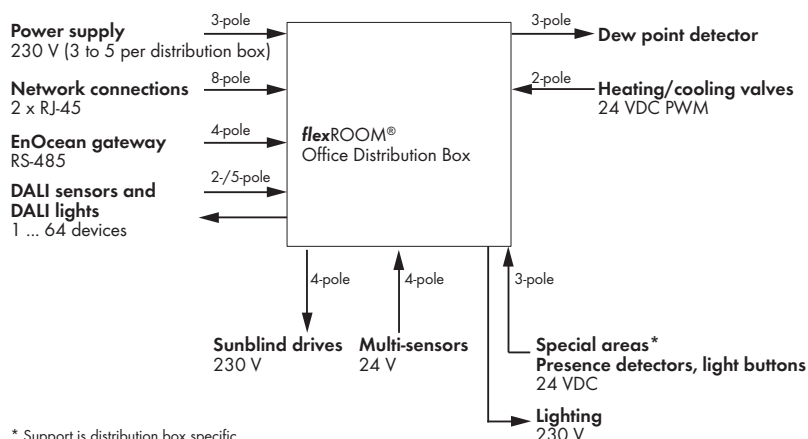
For the connection of higher-level management stations, each flexROOM® distribution box provides data in MODBUS tables, that can be read and partly be written by the stations.

Configuration data of the flexROOM® distribution box can cyclically be saved either directly on the included controller or on a separate computer.

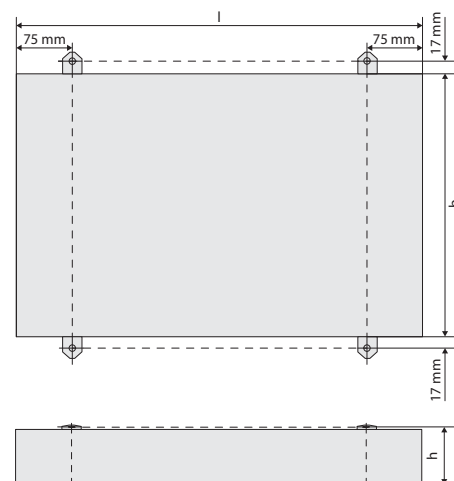
The flexROOM® distribution box is equipped with WAGO WINSTA® connectors. The flexROOM® distribution boxes differ from each other in the number of room axes, the support of specialty application areas, various functions depending on the inputs and outputs used.

Description	Item No.	Pack. Unit
Type 1 - 8 axes	2854-0300/1008-0032	1
Type 1 - 16 axes	2854-0300/1016-0032	1
Type 1 - 24 axes	2854-0300/1024-0032	1
Type 1 - 8 axes with specialty areas	2854-0300/1008-8032	1
Type 1 - 16 axes with specialty areas	2854-0300/1016-8032	1
Type 3 - 8 axes	2854-0300/1008-0002	1
Type 3 - 16 axes	2854-0300/1016-0002	1
Type 3 - 24 axes	2854-0300/1024-0002	1
Type 3 - 8 axes with specialty areas	2854-0300/1008-8002	1
Type 3 - 16 axes with specialty areas	2854-0300/1016-8002	1
Connector set for flexROOM® Office Distribution Box (upon request)		1
For detailed information on WINSTA® connection technology, see "Distribution Box" documentation.		
WINSTA® accessories		
WINSTA® Distribution Box	770-631/100-000	1
Three-phase to single-phase distribution connector with phase selection	770-640	1
h-distribution connector for 2 sockets	770-993	1
Distribution connector, 3-way,	770-609	1
Fixing pin	890-601	1
Interconnecting cable, plug/socket, 3 x 2.5 mm ² , 40 cm	771-9993/007-041	1

Technical Data	
Power supply	
Supply voltage	230 VAC, 50 ... 60 Hz
Voltage range	+/- 10 %
Fuse protection	In accordance with applicable regulations and electrotechnical provisions outside the enclosure; SCPD 16 A (B)
Connectors	3-pole plug-in connectors, WAGO 770-713
Configuration	
Configuration	via Web server
Bus connection (ETHERNET)	
Transmission medium	Twisted Pair S-UTP, 100 Ohm, Cat. 5; 100 m maximum cable length
Baud rate	10/100 Mbit/s
Transmission performance	Class D acc. to EN 50173
Bus connection	2 x RJ-45
Room axes	
Inputs	
Dew point detector	
Signaling	24 VDC
Multi-sensors	
Signaling, presence	24 VDC
Signaling, brightness	0 ... 10 VAC
Outputs	
Sunblind drive	
Switching voltage	230 VAC, 50 ... 60 Hz
Voltage range	+/- 10 %
Switching current	1.5 A at 230 VAC
Switching power (relay)	300 W (AC3)
Output short-circuit protection	Not short-circuit protected
Lighting (DALI)	
Switching voltage	230 VAC; +/-10%
Voltage range	+/- 10 %
Switching current	max. 16 A in total
Switching power	3.600 VA in total
Heating/Cooling valves	
Switching voltage	24 VDC; +/-10%
Switching current	250 mA
Switching power	6 W (temporary), 3 W (average)



* Support is distribution box specific



Technical Data

Special areas

Inputs

Sunblind, light buttons, presence detector

Signalizing 24 VDC

Outputs

Sunblind drives see room axes

Lighting (relay)

Switching voltage 230 VAC; +/-10%

Voltage range +/- 10 %

Switching current_{max} 16 A in total with DALI lighting fixtures

Switching power_{max} 3600 VA in total with DALI lighting fixtures

Standards and approvals

CE conformity DIN EN 61439-1/2:2009

General specifications

Operating temperature -5 °C ... +45 °C, non-condensing

Storage temperature -20 °C ... +70 °C

Type of mounting Wall, screw fixing

Assembly Interior area, e.g., intermediate floors, suspended ceiling

Mounting position any

Degree of protection IP20

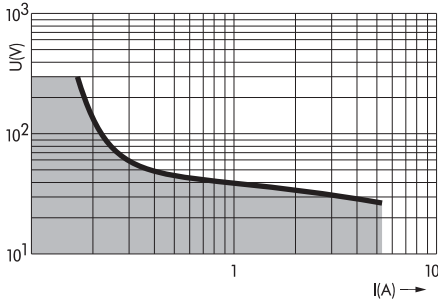
Pollution degree 2

Housing material Galvanized steel plate, material DC01 hot-dip galvanized, raw

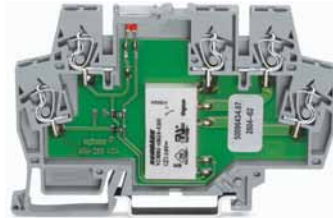
	Subsystems		Office areas						Special areas			General			Abbreviation				
	DALI	EnOcean	Inputs			Outputs			Inputs			Outputs				Dimensions			Weight
			Dew point detector	Multi-sensors (conventional)*	DALI sensors*	Heating/Cooling	Lighting (DALI)	Sunblinds (relays)	Sunblind button	Light button	Presence detector	Heating/Cooling	Lighting (relay)	Sunblinds (relays)		L in [mm]	W in [mm]	H in [mm] incl. accessories	
2854-0300/1008-0032	x	x	2	4	x	8	16	8	-	-	-	-	-	-	550	350	120	8.8	T1 A8
2854-0300/1016-0032	x	x	2	8	x	16	32	16	-	-	-	-	-	-	550	500	150	12.7	T1 A16
2854-0300/1024-0032	x	x	2	12	x	24	48	24	-	-	-	-	-	-	750	500	140	17	T1 A24
2854-0300/1008-8032	x	x	2	4	x	8	16	8	4	4	4	2	4	4	650	500	150	14.3	T1 A8S
2854-0300/1016-8032	x	x	2	8	x	16	32	16	4	4	4	2	4	4	650	500	150	16	T1 A16S
2854-0300/1008-0002	x	x	2	-	x	8	16	8	-	-	-	-	-	-	550	350	120	8.5	T3 A8
2854-0300/1016-0002	x	x	2	-	x	16	32	16	-	-	-	-	-	-	550	500	150	12.3	T3 A16
2854-0300/1024-0002	x	x	2	-	x	24	48	24	-	-	-	-	-	-	750	500	140	16.5	T3 A24
2854-0300/1008-8002	x	x	2	-	x	8	16	8	4	4	4	2	4	4	650	500	150	13.8	T3 A8S
2854-0300/1016-8002	x	x	2	-	x	16	32	16	4	4	4	2	4	4	650	500	150	15.5	T3 A16S

* Either Multi-sensors or DALI sensors can be used.

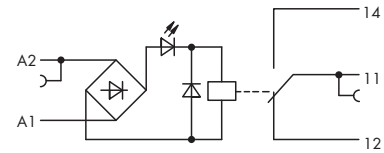
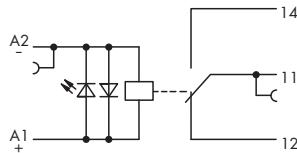
	<p>Relay with 1 changeover contact (1 u) Gold-plated contacts, 5 µm for normal switching power Nominal input voltage V_N 5 VDC</p> <p>Coil voltage supplements 859-314</p>	<p>Relay with 1 changeover contact (1 u) for normal switching power Nominal input voltage V_N 60 V AC/DC</p> <p>Coil voltage supplements 859-353 ... -358 models</p>
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DC load limit curve



** To prevent damage to the gold layer, do not exceed 30 VDC switching voltages and 50 mA currents. Higher switching power can vaporize the gold layer. The resulting precipitate in the enclosure may cause arcing [spark-overs] between the coil and the contact.

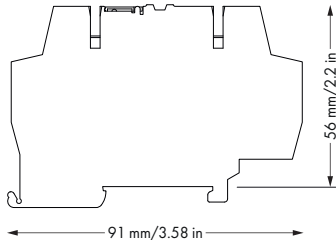


Description	V _N	I _N	Item No.	Pack. Unit	V _N	I _N	Item No.	Pack. Unit
Rail-mounted terminal blocks with miniature switching relay, for DIN 35 rail	5 VDC	31 mA	859-312	1	60 V AC/DC	4.1 mA	859-356	1

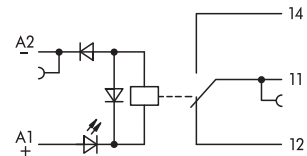
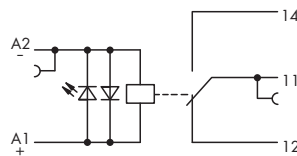
Technical Data	For accessories, see Full Line Catalog INTERFACE ELECTRONIC 2012/2013				For accessories, see Full Line Catalog INTERFACE ELECTRONIC 2012/2013			
	coil:				coil:			
Input voltage range	V _N -15 % ... +20 %				V _N -15 % ... +20 %			
Contacts:								
Contact material	AgNi + 5 µm Au				AgNi			
Max. continuous current	5 A **				5 A			
Max. make current (resistive) at 10 % OT *	-				-			
Max. switching voltage	250 VAC **				250 VAC			
Max. switching power (resistive)	1250 VA AC; DC see load curve **				1250 VA AC; DC see load curve			
Recommended minimum load	1 V / 1 mA / 1 mW				≥ 100 mA / 12 V AC/DC			
Pull-in/drop-out/bounce time typ.	5 ms / 6 ms / 5 ms				5 ms / 6 ms / 5 ms			
Mechanical life	5 x 10 ⁶ switching operations				5 x 10 ⁶ switching operations			
General specifications:								
Nominal voltage to EN 60664-1	250 V / 4 kV / 2				250 V / 4 kV / 2			
Dielectric strength, contact-coil (AC, 1 min)	4 kV _{rms}				4 kV _{rms}			
Dielectric strength open contact (AC, 1 min)	1 kV _{rms}				1 kV _{rms}			
Dielectric strength contact-contact (AC, 1 min)	-				-			
Ambient operating temperature at V _N	-25 °C ... +70 °C				-25 °C ... +50 °C			
Storage temperature	-40 °C ... +70 °C				-40 °C ... +70 °C			
Dimensions (mm) W x H x L	6 x 56 x 91				6 x 56 x 91			
Wire connection	Height from upper-edge of DIN 35 rail CAGE CLAMP®				Height from upper-edge of DIN 35 rail CAGE CLAMP®			
Cross sections	0.08 mm ² ... 2.5 mm ² / AWG 28 ... 14				0.08 mm ² ... 2.5 mm ² / AWG 28 ... 14			
Strip lengths	5 ... 6 mm / 0.22 in				5 ... 6 mm / 0.22 in			
Standards/Specifications	EN 60664-1; EN 61810-5; UL 508; EEx nC II T4; @				EN 60664-1; EN 61810-5; UL 508; EEx nC II T4; @			

* (OT = On-time)

	<p>Relay with 1 changeover contact (1 u) Gold-plated contacts, 5 µm Au Extended input voltage range: $V_N -30 \% \dots +25 \%$; Operating temperature range: $-25 \text{ °C} \dots +70 \text{ °C}$ Nominal input voltage V_N: 24 ... 48 VDC Railway applications Coil voltage supplements 859-317 model</p>	<p>Relay with 1 changeover contact (1 u) Extended input voltage range: $V_N \pm 40 \%$; Operating temperature range: $-25 \text{ °C} \dots +70 \text{ °C}$ Normal switching power Railway applications Coil voltage supplements 859-398 model</p>
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** To prevent damage to the gold layer, do not exceed 30 VDC switching voltages and 50 mA currents. Higher switching power can vaporize the gold layer. The resulting precipitate in the enclosure may cause arcing [spark-overs] between the coil and the contact.

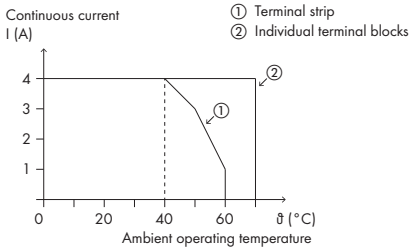


Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Rail-mounted terminal blocks with miniature switching relay, for DIN 35 rail	24 VDC	10 mA	859-392	1	48 VDC	7.9 mA	859-397	1
	36 VDC	10.1 mA	859-386	1	110 VDC	3.1 mA	859-399	1
	48 VDC	7.9 mA	859-384	1				

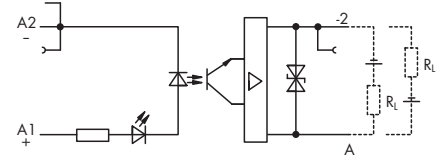
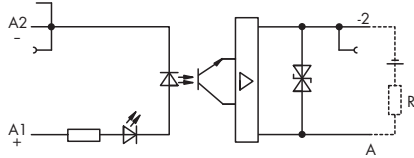
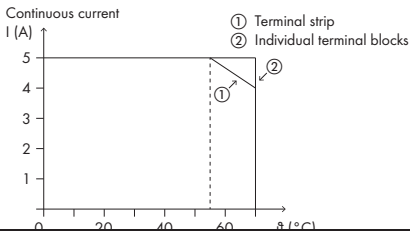
Technical Data	For accessories, see Full Line Catalog INTERFACE ELECTRONIC 2012/2013	For accessories, see Full Line Catalog INTERFACE ELECTRONIC 2012/2013
coil:		
Input voltage range	$V_N -30 \% \dots +25 \%$	$V_N \pm 40 \%$
Contacts:		
Contact material	AgNi + 5 µm Au	AgNi
Max. continuous current	50 mA **	3 A
Max. make current (resistive) at 10 % OT *		-
Max. switching voltage	30 V *	250 VAC
Max. switching power (resistive)	750 VA AC; DC see load limit curve	750 VA AC; DC see load curve
Recommended minimum load	1 V / 1 mA / 1 mW	$\geq 100 \text{ mA} / 12 \text{ V AC/DC}$
Pull-in/drop-out/bounce time typ.	5 ms / 6 ms / 5 ms	5 ms / 6 ms / 5 ms
Mechanical life	5×10^6 switching operations	5×10^6 switching operations
General specifications:		
Nominal voltage to EN 60664-1	250 V / 4 kV / 2	250 V / 4 kV / 2
Dielectric strength, contact-coil (AC, 1 min)	4 kV _{rms}	4 kV _{rms}
Dielectric strength open contact (AC, 1 min)	1 kV _{rms}	1 kV _{rms}
Dielectric strength contact-contact (AC, 1 min)	-	-
Ambient operating temperature at V_N	$-25 \text{ °C} \dots +70 \text{ °C}$	$-25 \text{ °C} \dots +70 \text{ °C}$
Storage temperature	$-40 \text{ °C} \dots +70 \text{ °C}$	$-40 \text{ °C} \dots +70 \text{ °C}$
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
Wire connection	Height from upper-edge of DIN 35 rail CAGE CLAMP®	Height from upper-edge of DIN 35 rail CAGE CLAMP®
Cross sections	0.08 mm ² ... 2.5 mm ² / AWG 28 ... 14	0.08 mm ² ... 2.5 mm ² / AWG 28 ... 14
Strip lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Standards/Specifications	859-384, 859-386: EN 60664-1; EN 61810-5; Ⓜ 859-392: EN 60664-1; EN 61810-5; UL 508; Ⓜ	EN 60664-1; EN 61810-5; Ⓜ

* (OT = On-time)

	Power optocoupler Input: 12 ... 48 VDC Output: 3 ... 53 VDC / 4 A	Power optocoupler Input: 24 VDC Output: 3 ... 30 VDC / 5 A
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Derating for 859-744



Description	V _N	I _N	Item No.	Pack. Unit	V _N	I _N	Item No.	Pack. Unit
Rail-mounted terminal blocks with optocoupler, for DIN 35 rail	48 VDC	5 mA	859-744	1	24 VDC	3.5 mA	859-737	1

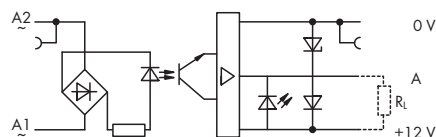
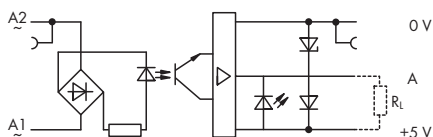
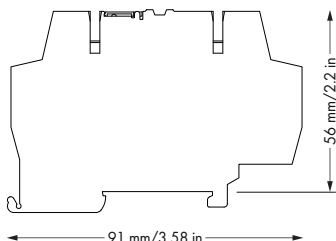
Technical Data

For accessories, see Full Line Catalog
INTERFACE ELECTRONIC 2012/2013

For accessories, see Full Line Catalog
INTERFACE ELECTRONIC 2012/2013

Control circuit:		
Input voltage range (low level)	0 ... 4 VDC	0 ... 5 VDC
Input voltage range (high level)	10 ... 53 VDC	15 ... 30 VDC
Load circuit:		
Output voltage range	3 ... 53 VDC	3 ... 30 VDC
Max. continuous current	4 A	5 A
Peak output current	30 A	25 A
Turn-on time	200 μs	200 μs
Turn-off time	450 μs	450 μs
Max. switching frequency	100 Hz	100 Hz
Max. voltage drop at output	0.2 V	0.2 V
Reverse voltage transistor/triac	80 V	55 V
General specifications:		
Dielectric strength, control/load circuit	2.5 kV _{rms}	2.5 kV _{rms}
Dielectric strength, channel/channel	-	-
Ambient operating temperature	-25 °C ... +70 °C (Derating must be observed)	-25 °C ... +70 °C (Derating must be observed)
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
Wire connection	Height from upper-edge of DIN 35 rail CAGE CLAMP®	Height from upper-edge of DIN 35 rail CAGE CLAMP®
Cross sections	0.08 mm ² ... 2.5 mm ² / AWG 28 ... 14	0.08 mm ² ... 2.5 mm ² / AWG 28 ... 14
Strip lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Standards/Specifications	EN 60664	EN 60664

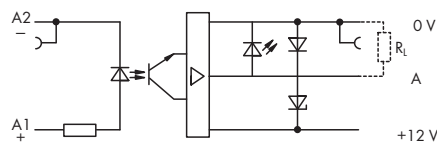
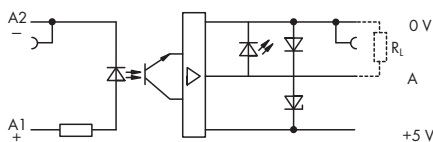
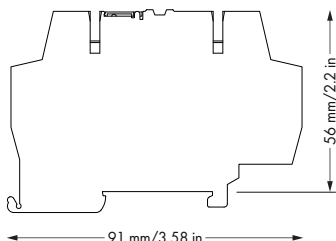
	Optocoupler Input: 230 VAC Output: 5 VDC / 500 mA Negative switching	Optocoupler Input: 230 VAC Output: 12 VDC / 500 mA Negative switching
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Description	V _N	I _N	Item No.	Pack. Unit	V _N	I _N	Item No.	Pack. Unit
Rail-mounted terminal blocks with optocoupler, for DIN 35 rail	230 VAC	0.6 mA	859-710	1	230 VAC	0.6 mA	859-711	1

Technical Data	For accessories, see Full Line Catalog INTERFACE ELECTRONIC 2012/2013				For accessories, see Full Line Catalog INTERFACE ELECTRONIC 2012/2013			
	Control circuit:							
Input voltage range (low level)		0 ... 90 VAC				0 ... 90 VAC		
Input voltage range (high level)		175 ... 250 VAC				175 ... 250 VAC		
Load circuit:								
Output voltage range		4 ... 6.25 VDC				8 ... 18 VDC		
Max. continuous current		500 mA				500 mA		
Peak output current		4 A				4 A		
Turn-on time		< 30 ms				< 30 ms		
Turn-off time		< 30 ms				< 30 ms		
Max. switching frequency		-				-		
Max. voltage drop at output		1.2 V				1.2 V		
Reverse voltage transistor/triac		80 V				80 V		
General specifications:								
Dielectric strength, control/load circuit		2.5 kV _{rms}				2.5 kV _{rms}		
Dielectric strength, channel/channel		-				-		
Ambient operating temperature		-25 °C ... +55 °C				-25 °C ... +55 °C		
Storage temperature		-40 °C ... +70 °C				-40 °C ... +70 °C		
Dimensions (mm) W x H x L		6 x 56 x 91				6 x 56 x 91		
Wire connection		Height from upper-edge of DIN 35 rail CAGE CLAMP®				Height from upper-edge of DIN 35 rail CAGE CLAMP®		
Cross sections		0.08 mm ² ... 2.5 mm ² / AWG 28 ... 14				0.08 mm ² ... 2.5 mm ² / AWG 28 ... 14		
Strip lengths		5 ... 6 mm / 0.22 in				5 ... 6 mm / 0.22 in		
Standards/Specifications		EN 60664				EN 60664		

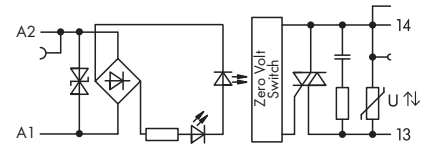
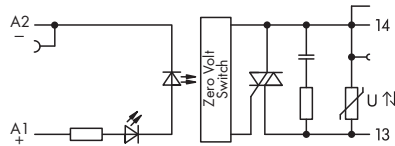
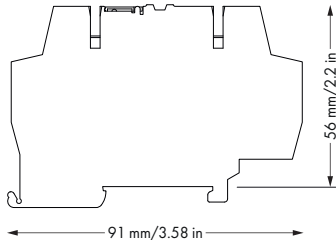
	Optocoupler Input: 5 VDC Output: 5 VDC / 500 mA Positive switching	Optocoupler Input: 5 VDC Output: 12 VDC / 500 mA Positive switching
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Description	V _N	I _N	Item No.	Pack. Unit	V _N	I _N	Item No.	Pack. Unit
Rail-mounted terminal blocks with optocoupler, for DIN 35 rail	5 VDC	8 mA	859-750	1	5 VDC	8 mA	859-751	1

Technical Data	For accessories, see Full Line Catalog INTERFACE ELECTRONIC 2012/2013				For accessories, see Full Line Catalog INTERFACE ELECTRONIC 2012/2013			
	Control circuit:							
Input voltage range (low level)			0 ... 1 VDC				0 ... 1 VDC	
Input voltage range (high level)			4 ... 6.25 VDC				4 ... 6 VDC	
Load circuit:								
Output voltage range			4 ... 6.25 VDC				8 ... 18 VDC	
Max. continuous current			500 mA				500 mA	
Peak output current			4 A				4 A	
Turn-on time			< 15 μs				< 15 μs	
Turn-off time			< 30 μs				< 30 μs	
Max. switching frequency			10 kHz				10 kHz	
Max. voltage drop at output			1.2 V				1.2 V	
Reverse voltage transistor/triac			80 V				80 V	
General specifications:								
Dielectric strength, control/load circuit			2.5 kV _{rms}				2.5 kV _{rms}	
Dielectric strength, channel/channel			-				-	
Ambient operating temperature			-25 °C ... +40 °C				-25 °C ... +40 °C	
Storage temperature			-40 °C ... +70 °C				-40 °C ... +70 °C	
Dimensions (mm) W x H x L			6 x 56 x 91				6 x 56 x 91	
Wire connection			Height from upper-edge of DIN 35 rail CAGE CLAMP®				Height from upper-edge of DIN 35 rail CAGE CLAMP®	
Cross sections			0.08 mm ² ... 2.5 mm ² / AWG 28 ... 14				0.08 mm ² ... 2.5 mm ² / AWG 28 ... 14	
Strip lengths			5 ... 6 mm / 0.22 in				5 ... 6 mm / 0.22 in	
Standards/Specifications			EN 60664; UL 508; EEx nA II T4 / DEMKO 02 ATEX 132280U				EN 60664; UL 508; EEx nA II T4 / DEMKO 02 ATEX 132280U	

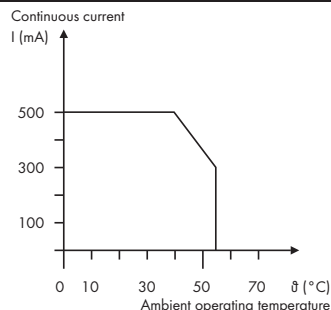
	<p>Optocoupler Input: 24 VDC Output: 24 ... 260 VAC / 500 mA Zero-voltage switching</p>	<p>Optocoupler Input: 24 VAC Output: 24 ... 260 VAC / 500 mA Zero-voltage switching</p>
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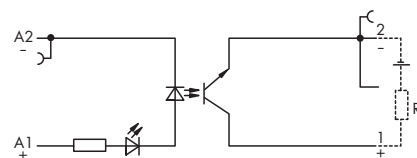
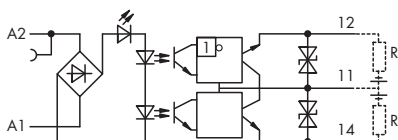
Description	V _N	I _N	Item No.	Pack. Unit	V _N	I _N	Item No.	Pack. Unit
Rail-mounted terminal blocks with optocoupler, for DIN 35 rail	24 VDC	6 mA	859-734	1	24 VAC	7.5 mA	859-760	1

Technical Data	For accessories, see Full Line Catalog INTERFACE ELECTRONIC 2012/2013				For accessories, see Full Line Catalog INTERFACE ELECTRONIC 2012/2013			
Control circuit:								
Input voltage range (low level)	0 ... 5 VDC				0 ... 5 VAC			
Input voltage range (high level)	19 ... 28.8 VDC				16.8 ... 28.8 VAC			
Load circuit:								
Output voltage range	24 ... 260 VAC (50 Hz ... 60 Hz)				24 ... 260 VAC (50 Hz ... 60 Hz)			
Max. continuous current	500 mA				500 mA			
Peak output current	30 A				30 A			
Turn-on time	10 ms				10 ms			
Turn-off time	10 ms				10 ms			
Max. switching frequency	-				-			
Max. voltage drop at output	1 V				1 V			
Reverse voltage transistor/triac	600 V				600 V			
General specifications:								
Dielectric strength, control/load circuit	2.5 kV _{rms}				2.5 kV _{rms}			
Dielectric strength, channel/channel	-				-			
Ambient operating temperature	-25 °C ... +55 °C				-25 °C ... +55 °C			
Storage temperature	-40 °C ... +70 °C				-40 °C ... +70 °C			
Dimensions (mm) W x H x L	6 x 56 x 91				6 x 56 x 91			
Wire connection	Height from upper-edge of DIN 35 rail CAGE CLAMP®				Height from upper-edge of DIN 35 rail CAGE CLAMP®			
Cross sections	0.08 mm ² ... 2.5 mm ² / AWG 28 ... 14				0.08 mm ² ... 2.5 mm ² / AWG 28 ... 14			
Strip lengths	5 ... 6 mm / 0.22 in				5 ... 6 mm / 0.22 in			
Standards/Specifications	EN 60664; UL 508				EN 60664			

	Optocoupler Input: 24 VDC Output: 3 ... 30 VDC / 500 mA Changeover contact output	Optocoupler Input: 12 VDC Output: 24 VDC/100 mA
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Derating



Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Rail-mounted terminal blocks with optocoupler, for DIN 35 rail	24 VDC	5.3 mA	859-732	1	12 VDC	4 mA	859-798	1

Technical Data

For accessories, see Full Line Catalog
INTERFACE ELECTRONIC 2012/2013

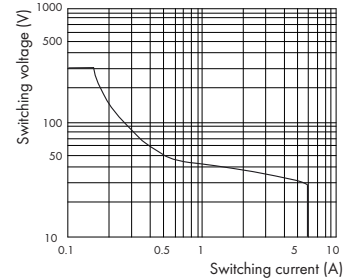
For accessories, see Full Line Catalog
INTERFACE ELECTRONIC 2012/2013

Control circuit:		
Input voltage range (low level)	0 ... 5 VDC	0.4 ... 4.8 VDC
Input voltage range (high level)	1.5 V ... 42 VDC	8.4 ... 15 VDC
Load circuit:		
Output voltage range	3 ... 30 VDC	9 ... 60 VDC
Max. continuous current	500 mA	100 mA
Peak output current	4 A	
Turn-on time	< 25 μ s	20 μ s
Turn-off time	150 μ s	120 μ s
Max. switching frequency	1.5 kHz at I_N	1.5 kHz
Max. voltage drop at output	1.5 V	2 V
Reverse voltage transistor/triac	80 V	300 V
General specifications:		
Dielectric strength, control/load circuit	3.75 kV _{rms}	2.5 kV _{rms}
Dielectric strength, channel/channel	-	-
Ambient operating temperature	-25 °C ... +55 °C (Derating must be observed)	-25 °C ... +40 °C (-25 °C ... +70 °C at 50 mA)
Storage temperature	-25 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
Wire connection	Height from upper-edge of DIN 35 rail CAGE CLAMP®	Height from upper-edge of DIN 35 rail CAGE CLAMP®
Cross sections	0.08 mm ² ... 2.5 mm ² / AWG 28 ... 14	0.08 mm ² ... 2.5 mm ² / AWG 28 ... 14
Strip lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Standards/Specifications	EN 60664; UL 508	EN 60664-1

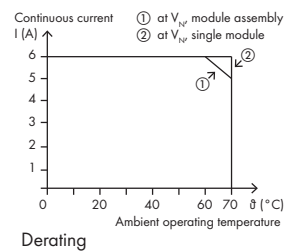
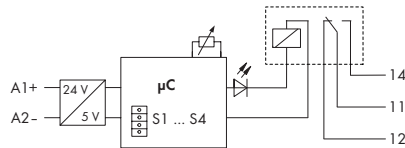
Multifunction Time Relay with Plugged Miniature Switching Relay

**Multifunction time relay with
1 changeover contact (1 u)
4 time ranges, 4 functions
Temperature range: -25 °C ... +70 °C
For railway applications**

- 4 functions:
 - On-delay
 - Single-shot trailing edge
 - On-delay and single-shot leading edge (1 s fixed)
 - Blinking
- Function and time range adjustable via DIP switch



DC load limit curve



Derating

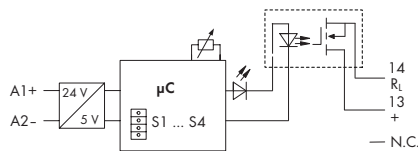
Description	V_N	I_N	Item No.	Pack. Unit
Multifunction time relay, for DIN 35 rail	24 VDC	17.5 mA	857-604	1

Technical Data		For accessories, see Full Line Catalog INTERFACE ELECTRONIC 2012/2013	
Coil:			
Input voltage range		$V_N -30\% \dots +30\%$	
Power consumption at V_N		17.5 mA (active) / 2.3 mA (passive)	
Contacts:			
Contact material		AgNi	
Max. continuous current		6 A	
Max. switching voltage		250 VAC	
Max. switching power (resistive)		1250 VA AC, DC see load curve	
Recommended minimum load		$\geq 5 \text{ mA}/24 \text{ VAC} / \geq 100 \text{ mA}/5 \text{ VDC}$	
Pull-in/drop-out/bounce time typ.		5 ms / 6 ms / 5 ms	
Mechanical life		5×10^6 switching operations	
General specifications:			
Time range		adjustable: 0.1 ... 10 s; 3 ... 300 s; 0.3 ... 30 min; 3 ... 300 min	
Reset time		50 ms	
Repeat accuracy		$\pm 1\%$	
Nominal voltage to EN 60664-1		250 V / 2.5 kV / 2	
Dielectric strength, contact-coil (AC, 1 min)		2.5 kV _{rms}	
Dielectric strength open contact (AC, 1 min)		1 kV _{rms}	
Ambient operating temperature		-25 °C ... +70 °C	
Storage temperature		-40 °C ... +70 °C	
Dimensions (mm) W x H x L		6 x 81 x 94	
Wire connection		Height from upper-edge of DIN 35 rail CAGE CLAMP® S	
Cross sections		solid: 0.08 ... 2.5 mm ² / AWG 28 ... 12 fine-stranded: 0.34 ... 2.5 mm ² / AWG 22 ... 12	
Strip lengths		9 ... 10 mm / 0.35 ... 0.39 in	
Standards/Specifications		VDE 0110/EN 60664-1; EN 61812-1; EN 61373; EN50121-3-2	
Approvals		CE	

Multifunction Time Relay with SSR

	Multifunction time relay with SSR 1 make contact (1 a) 4 time ranges, 4 functions Switching voltage: 0 ... 24 VDC	
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- 4 functions:
 - On-delay
 - Single-shot trailing edge
 - On-delay and single-shot leading edge (1 s fixed)
 - Blinking
- Function and time range adjustable via DIP switch



Description	V _N	I _N	Item No.	Pack. Unit
Multifunction time relay with SSR, for DIN 35 rail	24 VDC	11.5 mA	857-624	1

Technical Data

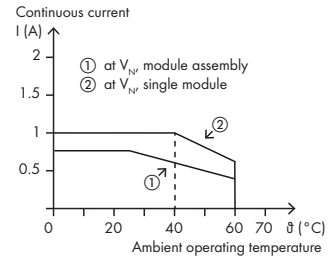
For accessories, see Full Line Catalog
INTERFACE ELECTRONIC 2012/2013

Control circuit:	
Input voltage range	V _N -15 % ... +30 %
Power consumption at V _N	11.5 mA (active) / 2.5 mA (passive)
Load circuit:	
Switching voltage	0 V ... 24 V DC
Peak reverse voltage	33 V
Max. switching current	2 A
Turn-on time	100 µs
Turn-off time	2 ms
Forward voltage at max. switching current	< 120 mV DC
General specifications:	
Time range	adjustable: 0.1 ... 10 s; 3 ... 300 s; 0.3 ... 30 min; 3 ... 300 min
Reset time	50 ms
Repeat accuracy	±1 %
Dielectric strength, control/load circuit	2.5 kV _{rms}
Ambient operating temperature	-20 °C ... +60 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 81 x 94
Wire connection	Height from upper-edge of DIN 35 rail CAGE CLAMP® S
Cross sections	solid: 0.08 ... 2.5 mm ² / AWG 28 ... 12 fine-stranded: 0.34 ... 2.5 mm ² / AWG 22 ... 12
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in
Standards/Specifications	VDE 0110/EN 60664-1; EN 61812-1; EN 61373; EN50121-3-2
Approvals	CE

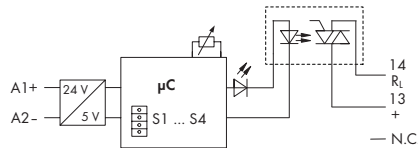
1 Multifunction Time Relay with SSR

	Multifunction time relay with SSR 1 make contact (1a) 4 time ranges, 4 functions Switching voltage: 24 ... 230 VAC	
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- 4 functions:
 - On-delay
 - Single-shot trailing edge
 - On-delay and single-shot leading edge (1 s fixed)
 - Blinking
- Function and time range adjustable via DIP switch



Derating



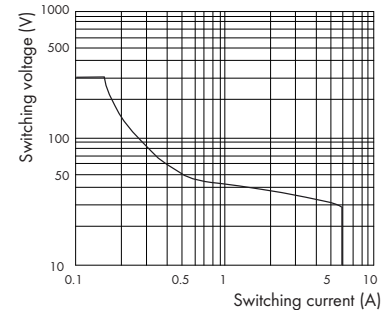
Description	V_N	I_N	Item No.	Pack. Unit
Multifunction time relay with SSR, for DIN 35 rail	24 VDC	8.75 mA	857-634	1

Technical Data		For accessories, see Full Line Catalog INTERFACE ELECTRONIC 2012/2013	
Control circuit:			
Input voltage range	$V_N - 15\% \dots +30\%$		
Power consumption at V_N	8.75 mA (active) / 2.5 mA (passive)		
Load circuit:			
Switching voltage	24 V ... 230 V AC		
Peak reverse voltage	600 V		
Max. switching current	1 A		
Turn-on time	1 ms		
Turn-off time	10 ms		
Forward voltage at max. switching current	< 1 V AC		
General specifications:			
Time range	adjustable: 0.1 ... 10 s; 3 ... 300 s; 0.3 ... 30 min; 3 ... 300 min		
Reset time	50 ms		
Repeat accuracy	$\pm 1\%$		
Dielectric strength, control/load circuit	2.5 kV _{rms}		
Ambient operating temperature	-20 °C ... +60 °C		
Storage temperature	-40 °C ... +70 °C		
Dimensions (mm) W x H x L	6 x 81 x 94		
Wire connection	Height from upper-edge of DIN 35 rail CAGE CLAMP® S		
Cross sections	solid: 0.08 ... 2.5 mm ² / AWG 28 ... 12 fine-stranded: 0.34 ... 2.5 mm ² / AWG 22 ... 12		
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in		
Standards/Specifications	VDE 0110/EN 60664-1; EN 61812-1; EN 61373; EN50121-3-2		
Approvals	CE		

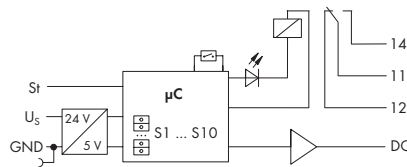
Multifunction Time Relay

	Multifunction time relay with 1 changeover contact (1 u) 8 time ranges, 14 functions Temperature range: -25 °C ... +70 °C For railway applications	
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- 14 functions:
 - On-delay
 - On-delay with control input
 - Off-delay with control input
 - On- and off-delay with control input
 - Single-shot leading edge
 - Single-shot leading edge with control input
 - Single-shot trailing edge with control input
 - Single-shot leading and trailing edge with control input
 - On-delay and single-shot leading edge
 - On-delay and single-shot leading edge with control input
 - Step switching
 - Blinking, pulse start
 - Blinking, interval start
 - Relay switching
- Function and time range adjustable via DIP switch
- Digital output (DO): max. 31.2 VDC, 100 mA
- Control input: max. 31.2 VDC, pulse length 10 ms



DC load limit curve



Description	V _N	I _N	Item No.	Pack. Unit
Multifunction time relay, for DIN 35 rail	24 VDC	18 mA	857-640	1

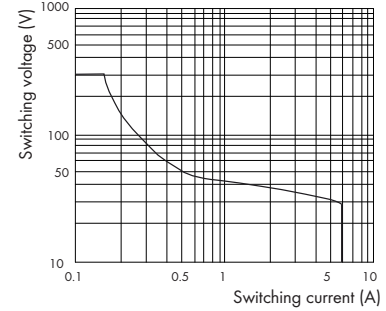
Technical Data

For accessories, see Full Line Catalog
INTERFACE ELECTRONIC 2012/2013

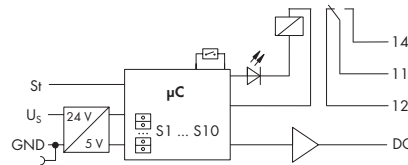
Coil:	
Input voltage range	V _N -30 % ... +30 %
Power consumption at V _N	18 mA (active) / 4.5 mA (passive)
Contacts:	
Contact material	AgNi
Max. continuous current	6 A (up to 60 °C) 2 A (60 °C ... 70 °C)
Max. switching voltage	250 VAC
Max. switching power (resistive)	1250 VA AC, DC see load curve
Recommended minimum load	≥ 5 mA/24 VAC / ≥ 100 mA/5 VDC
Pull-in/drop-out/bounce time typ.	5 ms / 6 ms / 5 ms
Mechanical life	5 x 10 ⁶ switching operations
General specifications:	
Time range	adjustable: 0.01 ... 0.1 s; 0.1 ... 1 s; 1 ... 10 s; 10 ... 100 s; 1 ... 10 min; 10 ... 100 min; 1 ... 10 h; 10 ... 100 h
Reset time	50 ms
Nominal voltage to EN 60664-1	250 V / 2.5 kV / 2
Dielectric strength, contact-coil (AC, 1 min)	2.5 kV _{rms}
Dielectric strength open contact (AC, 1 min)	1 kV _{rms}
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 96 x 94
Wire connection	Height from upper-edge of DIN 35 rail CAGE CLAMP® S
Cross sections	solid: 0.08 ... 2.5 mm ² / AWG 28 ... 12 fine-stranded: 0.34 ... 2.5 mm ² / AWG 22 ... 12
Strip lengths	9 ... 10 mm / 0.35 ... 0.39 in
Standards/Specifications	VDE 0110/EN 60664-1; EN 61812-1; EN 61373; EN50121-3-2
Approvals	CE

**Multifunction time relay with
1 changeover contact (1 u)
8 time ranges, 7 functions
2 adjustable time ranges
Temperature range: -25 °C ... +70 °C
For railway applications**

- 7 functions:
 - On- and off-delay with control input
 - On-delay and single-shot leading edge
 - On-delay and single-shot leading edge with control input
 - Single-shot leading and trailing edge with control input
 - Pulse sequence evaluation with control input
 - Repeat cycle timer, pulse start
 - Repeat cycle timer, interval start, control input
 - 2 separately adjustable time ranges
- Function and time range adjustable via DIP switch
- Digital output (DO): max. 31.2 VDC, 100 mA
- Control input: max. 31.2 VDC, pulse length 10 ms



DC load limit curve

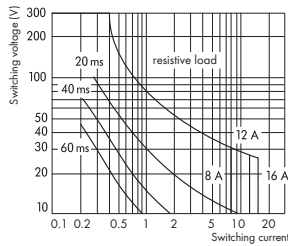


Description	V _N	I _N	Item No.	Pack. Unit
Multifunction time relay, for DIN 35 rail	24 VDC	18 mA	857-642	1

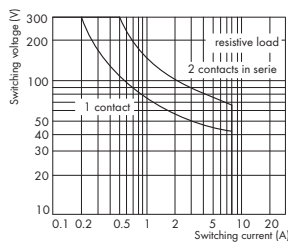
Technical Data		For accessories, see Full Line Catalog INTERFACE ELECTRONIC 2012/2013	
Coil:			
Input voltage range		V _N -30 % ... +30 %	
Power consumption at V _N		18 mA (active) / 4.5 mA (passive)	
Contacts:			
Contact material		AgNi	
Max. continuous current		6 A (up to 60 °C) 2 A (60 °C ... 70 °C)	
Max. switching voltage		250 VAC	
Max. switching power (resistive)		1250 VA AC, DC see load curve	
Recommended minimum load		≥ 5 mA/24 VAC / ≥ 100 mA/5 VDC	
Pull-in/drop-out/bounce time typ.		5 ms / 6 ms / 5 ms	
Mechanical life		5 x 10 ⁶ switching operations	
General specifications:			
Time range		adjustable: 0.01 ... 0.1 s; 0.1 ... 1 s; 1 ... 10 s; 10 ... 100 s; 1 ... 10 min; 10 ... 100 min; 1 ... 10 h; 10 ... 100 h	
Reset time		50 ms	
Nominal voltage to EN 60664-1		250 V / 2.5 kV / 2	
Dielectric strength, contact-coil (AC, 1 min)		2.5 kV _{rms}	
Dielectric strength open contact (AC, 1 min)		1 kV _{rms}	
Ambient operating temperature		-25 °C ... +70 °C	
Storage temperature		-40 °C ... +70 °C	
Dimensions (mm) W x H x L		6 x 96 x 94	
Wire connection		Height from upper-edge of DIN 35 rail CAGE CLAMP® S	
Cross sections		solid: 0.08 ... 2.5 mm ² / AWG 28 ... 12 fine-stranded: 0.34 ... 2.5 mm ² / AWG 22 ... 12	
Strip lengths		9 ... 10 mm / 0.35 ... 0.39 in	
Standards/Specifications		VDE 0110/EN 60664-1; EN 61812-1; EN 61373; EN50121-3-2	
Approvals		CE	

Sockets with Miniature Switching Relay

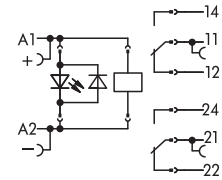
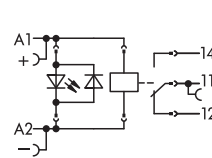
	<p>Relay with 1 changeover contact and status indication (25 mm high) Nominal input voltage V_N: 12 VDC Coil voltage supplements 788-324 model</p>	<p>Relay with 2 changeover contacts and status indication (25 mm high) Nominal input voltage V_N: 12 VDC, 110 VDC Coil voltage supplements 788-334 model</p>
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DC load limit curve 788-323



DC load limit curve 788-333 and 788-337

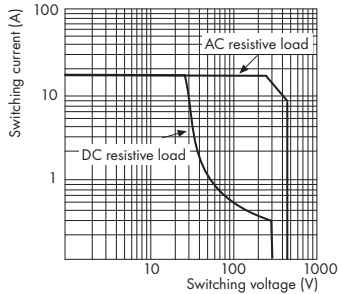


Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Sockets with miniature switching relay, for DIN 35 rail	12 VDC	45 mA	788-323	1	12 VDC	45 mA	788-333	1
					110 VDC	6.8 mA	788-337	1

Technical Data	For accessories, see Full Line Catalog INTERFACE ELECTRONIC 2012/2013				For accessories, see Full Line Catalog INTERFACE ELECTRONIC 2012/2013			
	Coil:							
Input voltage range	$V_N \pm 10\%$				$V_N \pm 10\%$			
Contacts:								
Contact material	AgCdO				AgCdO			
Max. continuous current	16 A				2 x 8 A			
Max. make current (resistive) at 10 % OT *	25 A / 4 s (AC)				14 A / 4 s (AC)			
Max. switching voltage	250 VAC				250 VAC			
Max. switching power (resistive)	4 kVA AC, DC see load curve				2 x 2 kVA AC, DC see load curve			
Recommended minimum load	-				-			
Pull-in/drop-out/bounce time typ.	8 ms / 2 ms / 4 ms				9 ms / 3 ms / 3 ms			
Mechanical life	30 x 10 ⁶ switching operations				20 x 10 ⁶ switching operations			
General specifications:								
Nominal voltage to EN 60664-1	250 V / 4 kV / 3				250 V / 4 kV / 3			
Dielectric strength, contact-coil (AC, 1 min)	4 kV _{rms}				4 kV _{rms}			
Dielectric strength open contact (AC, 1 min)	1 kV _{rms}				1 kV _{rms}			
Dielectric strength contact-contact (AC, 1 min)	-				2.5 kV _{eff}			
Ambient operating temperature at V_N	-25 °C ... +50 °C				-25 °C ... +50 °C			
Storage temperature	-40 °C ... +70 °C				-40 °C ... +70 °C			
Dimensions (mm) W x H x L	15 x 63 x 86				15 x 64 x 86			
Wire connection	Height from upper-edge of DIN 35 rail				Height from upper-edge of DIN 35 rail			
Cross sections	0.34 mm ² ... 2.5 mm ² / AWG 22 ... 12				0.34 mm ² ... 2.5 mm ² / AWG 22 ... 12			
Strip lengths	9 ... 10 mm / 0.37 in				9 ... 10 mm / 0.37 in			
Standards/Specifications	EN 61810-1, EN 60664-1, EN 61140, UL 508 (max. 40 °C/10 A)				EN 61810-1, EN 60664-1, EN 61140, UL 508 (max. 40 °C/10 A)			

* (OT = On-time)

	Relay with 1 changeover contact and status indication (15 mm high) Nominal input voltage V_N 24 VDC	
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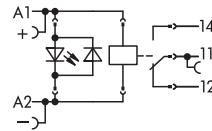


Load limit curve



Contact life, type of load	Capability	Electrical life
Incandescent lamp	2200 W	20,000
Halogen lamp 230 VAC	1400 W	50,000
Halogen trafo	120 VA	20,000
Fluorescent lamp not comp., CCG ①, cos φ 0.406	20 x 58 W	25,000
Fluorescent lamp comp., CCG ①, C parallel	9 x 58 W	25,000
Fluorescent lamp comp., CCG ①, Duo-circuit	600 W	20,000
Fluorescent lamp with ECG ②	12 x 58 W	25,000
Energy saving lamp 15 W	25 pcs	20,000
Energy saving lamp 13 W	30 pcs	20,000
Energy saving lamp 9 W	38 pcs	20,000
Gas discharge lamp	1000 W	20,000
Dulux-Lamp not compensated	800 W	20,000
Dulux-Lamp compensated	500 W	20,000
Max. capacitance at 230 VAC	60 µF	> 5,000

① CCG = Conventional Control Gear
 ② ECG = Electronic Control Gear

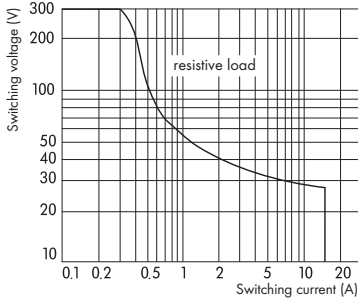


Description	V_N	I_N	Item No.	Pack. Unit
Sockets with miniature switching relay, for DIN 35 rail	12 VDC	35 mA	788-353	1

Technical Data		For accessories, see Full Line Catalog INTERFACE ELECTRONIC 2012/2013	
Coil:			
Input voltage range		$V_N - 15\% \dots +20\%$	
Contacts:			
Contact material		Ag alloy	
Max. continuous current		16 A	
Max. make current (resistive) at 10 % OT *		120 A / 50 ms (at 230 VAC)	
Max. switching voltage		250 VAC	
Max. switching power (resistive)		4 kVA AC, DC see load curve	
Recommended minimum load		> 100 mA / 12 V AC/DC	
Pull-in/drop-out/bounce time typ.		15 ms / 5 ms / -	
Mechanical life		10×10^6 switching operations	
General specifications:			
Nominal voltage to EN 60664-1		250 V / 4 kV / 3	
Dielectric strength, contact-coil (AC, 1 min)		5 kV _{rms}	
Dielectric strength open contact (AC, 1 min)		1 kV _{rms}	
Ambient operating temperature at V_N		-25 °C ... +50 °C	
Storage temperature		-40 °C ... +70 °C	
Dimensions (mm) W x H x L		15 x 54 x 86	
Wire connection		Height from upper-edge of DIN 35 rail CAGE CLAMP® S	
Cross sections		0.34 mm ² ... 2.5 mm ² / AWG 22 ... 14	
Strip lengths		9 ... 10 mm / 0.37 in	
Standards/Specifications		EN 61140; EN 60664-1; EN 50178; UL 508 (max. 10 A)	

* (OT = On-time)

Relay with 1 make contact and status indication (15 mm high)
Nominal input voltage V_N : 24 VDC
for lamp loads

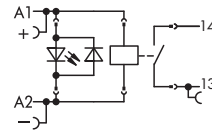


DC load limit curve



Contact life, type of load	Electrical life
3000 W, incandescent lamp, 230 VAC, OT 8.3 % ①, 5 min ⁻¹	12,000
620 W, gas discharge lamp, CCG ②, 120/277 VAC, UL 508, 50 °C	6,000
1200 W, tungsten lamp, 120/277 VAC, UL 508, 50 °C	6,000
16 A, 250 VAC, cos φ = 1, 85 °C, IEC 61810	5,000

① OT= On-Time
 ② CCG = Conventional Control Gear



Description	V_N	I_N	Item No.	Pack. Unit
Socket with miniature switching relay, for DIN 35 rail	24 VDC	17 mA	788-357	1

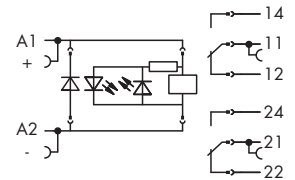
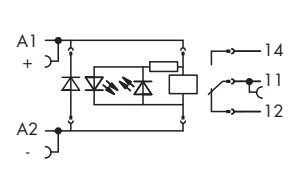
Technical Data

For accessories, see Full Line Catalog
 INTERFACE ELECTRONIC 2012/2013

Coil:		
Input voltage range	$V_N - 10 \% \dots + 20 \%$	
Contacts:		
Contact material	AgSnO ₂ , W pre-make contact	
Max. continuous current	16 A	
Max. make current (resistive) at 10 % OT *	165 A / 20 ms (AC)	
Max. switching voltage	250 VAC	
Max. switching power (resistive)	4 kVA AC, DC see load curve	
Recommended minimum load	-	
Pull-in/drop-out/bounce time typ.	10 ms / 5 ms / 4 ms	
Mechanical life	5×10^6 switching operations	
General specifications:		
Nominal voltage to EN 60664-1	250 V / 4 kV / 3	
Dielectric strength, contact-coil (AC, 1 min)	4 kV _{rms}	
Dielectric strength open contact (AC, 1 min)	1.25 kV _{rms}	
Dielectric strength contact-contact (AC, 1 min)	-	
Ambient operating temperature at V_N	-25 °C ... +50 °C	
Storage temperature	-40 °C ... +70 °C	
Dimensions (mm) W x H x L	15 x 53 x 86	
Wire connection	Height from upper-edge of DIN 35 rail	
Cross sections	0.34 mm ² ... 2.5 mm ² / AWG 22 ... 12	
Strip lengths	9 ... 10 mm / 0.37 in	
Standards/Specifications	EN 61810-1, EN 60664-1, EN 61140	
* (OT = On-time)		

1 Sockets with Miniature Switching Relay

	Relay with 1 changeover contact Electrical and mechanical status indication (25 mm high) Nominal input voltage V_N: 24 VDC Railway applications	Relay with 2 changeover contact Electrical and mechanical status indication (25 mm high) Nominal input voltage V_N: 24 VDC Railway applications
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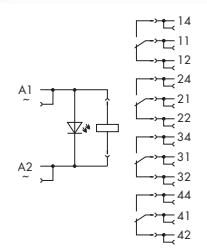
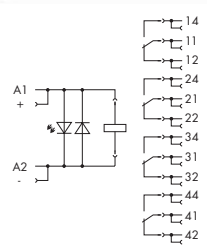


Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Sockets with miniature switching relay, for DIN 35 rail	24 VDC	19.1 mA	788-391	1	24 VDC	19.1 mA	788-390	1

Technical Data		For accessories, see Full Line Catalog INTERFACE ELECTRONIC 2012/2013			For accessories, see Full Line Catalog INTERFACE ELECTRONIC 2012/2013		
Coil:		V_N -30 % ... +25 %			V_N -30 % ... +25 %		
Contacts:							
Contact material		AgNi			AgNi		
Max. continuous current		3 A (single socket)			2 x 3 A (single socket)		
Max. make current (resistive) at 10 % OT *		16 A			2 x 8 A		
Max. switching voltage		250 VAC			250 VAC		
Max. switching power (resistive)		750 VA AC			2 x 750 VA AC		
Recommended minimum load		≥ 10 mA / 12 V AC/DC			≥ 10 mA / 12 V AC/DC		
Pull-in/drop-out/bounce time typ.		15 ms / 8 ms / -			15 ms / 8 ms / -		
Mechanical life		5×10^6 switching operations			5×10^6 switching operations		
General specifications:							
Nominal voltage to EN 60664-1		250 V / 4 kV / 3			250 V / 4 kV / 3		
Dielectric strength, contact-coil (AC, 1 min)		5 kV _{rms}			5 kV _{rms}		
Dielectric strength open contact (AC, 1 min)		1 kV _{rms}			1 kV _{rms}		
Dielectric strength contact-contact (AC, 1 min)		-			2.5 kV _{eff}		
Ambient operating temperature at V_N		-25 °C ... +70 °C			-25 °C ... +70 °C		
Storage temperature		-40 °C ... +70 °C			-40 °C ... +70 °C		
Dimensions (mm) W x H x L		15 x 73 x 86			15 x 73 x 86		
Wire connection		Height from upper-edge of DIN 35 rail			Height from upper-edge of DIN 35 rail		
Cross sections		0.34 mm ² ... 2.5 mm ² / AWG 22 ... 12			0.34 mm ² ... 2.5 mm ² / AWG 22 ... 12		
Strip lengths		9 ... 10 mm / 0.37 in			9 ... 10 mm / 0.37 in		
Standards/Specifications		EN 61810-1, EN 60664-1, EN 61140			EN 61810-1, EN 60664-1, EN 61140		

* (OT = On-time)

	Relay sockets with industrial relay Coil voltage: 48 V, 110 V, 220 V DC 4 changeover contacts Coil voltage supplements 858-304 model	Relay sockets with industrial relay Coil voltage: 24 V, 115 V AC 4 changeover contacts Coil voltage supplements 858-508 model
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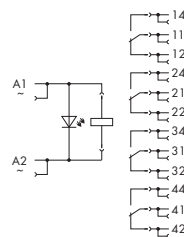


Description	V _N	I _N	Item No.	Pack. Unit	V _N	I _N	Item No.	Pack. Unit
Relay sockets with industrial relay, for DIN 35 rail	48 VDC	18.5 mA	858-305	1	24 VAC	50 mA	858-504	1
	110 VDC	10 mA	858-307	1	115 VAC	10 mA	858-507	1
	220 VDC	4.1 mA	858-308	1				

Technical Data		For accessories, see Full Line Catalog INTERFACE ELECTRONIC 2012/2013		For accessories, see Full Line Catalog INTERFACE ELECTRONIC 2012/2013	
		V _N	I _N	V _N	I _N
Coil:					
Input voltage range		V _N -20 % ... +10 %		V _N -20 % ... +10 %	
Contacts:					
Contact material		AgCe		AgCe	
Max. continuous current		5 A		5 A	
Max. make current (resistive) at 10 % OT *		15 A / 4 s		15 A / 4 s	
Max. switching voltage		250 VAC		250 VAC	
Max. switching power (resistive)		1250 VA AC		1250 VA AC	
Recommended minimum load		≥ 100 mA / 12 V AC/DC		≥ 100 mA / 12 V AC/DC	
Pull-in/drop-out/bounce time typ.		25 ms / 25 ms / 4 ms		25 ms / 25 ms / 4 ms	
Mechanical life		20 x 10 ⁶ switching operations		20 x 10 ⁶ switching operations	
General specifications:					
Nominal voltage to EN 60664-1		250 V / 2.5 kV / 2		250 V / 2.5 kV / 2	
Dielectric strength, contact-coil (AC, 1 min)		1.5 kV _{rms}		1.5 kV _{rms}	
Dielectric strength open contact (AC, 1 min)		1 kV _{rms}		1 kV _{rms}	
Dielectric strength contact-contact (AC, 1 min)		1.5 kV _{eff}		1.5 kV _{eff}	
Ambient operating temperature at V _N		-25 °C ... +70 °C		-25 °C ... +70 °C	
Storage temperature		-40 °C ... +80 °C		-40 °C ... +80 °C	
Dimensions (mm) W x H x L		31 x 73 x 97		31 x 73 x 97	
Wire connection		Height from upper-edge of DIN 35 rail		Height from upper-edge of DIN 35 rail	
Cross sections		2 x 0.34 mm ² ... 2 x 1.5 mm ² / 1 x 2.5 mm ² / AWG 22 ... 16		2 x 0.34 mm ² ... 2 x 1.5 mm ² / 1 x 2.5 mm ² / AWG 22 ... 16	
Strip lengths		9 ... 10 mm / 0.37 in		9 ... 10 mm / 0.37 in	
Standards/Specifications		EN 61810-1, EN 60664-1		EN 61810-1, EN 60664-1	

* (OT = On-time)

	<p>Relay sockets with industrial relay Coil voltage: 24 V, 115 V AC 4 changeover contacts (gold plating)</p> <p>Coil voltage supplements 858-518 model</p>	
--	--	--



** In order to prevent the gold layer from being damaged, 30 VDC switching voltages and 50 mA currents shall not be exceeded.

Higher switching power leads to evaporation of the gold layer. The resulting deposits in the enclosure may cause sparkovers between the coil and the contact.

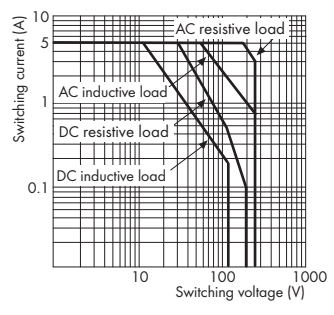
Description	V _N	I _N	Item No.	Pack. Unit
Relay sockets with industrial relay, for DIN 35 rail	24 VAC	50 mA	858-514	1
	115 VAC	10 mA	858-517	1

Technical Data

For accessories, see Full Line Catalog
 INTERFACE ELECTRONIC 2012/2013

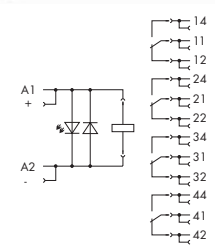
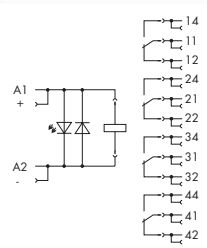
Coil:	
Input voltage range	V _N -20 % ... +10 %
Contacts:	
Contact material	AgCe + 5 μm Au
Max. continuous current	5 A **
Max. make current (resistive) at 10 % OT *	15 A / 4 s
Max. switching voltage	250 VAC **
Max. switching power (resistive)	1250 VA AC
Recommended minimum load	≥ 1 mA / 1 V / 50 mW
Pull-in/drop-out/bounce time typ.	25 ms / 25 ms / 4 ms
Mechanical life	20 x 10 ⁶ switching operations
General specifications:	
Nominal voltage to EN 60664-1	250 V / 2.5 kV / 2
Dielectric strength, contact-coil (AC, 1 min)	1.5 kV _{rms}
Dielectric strength open contact (AC, 1 min)	1 kV _{rms}
Dielectric strength contact-contact (AC, 1 min)	1.5 kV _{eff}
Ambient operating temperature at V _N	-25 °C ... +70 °C
Storage temperature	-40 °C ... +80 °C
Dimensions (mm) W x H x L	31 x 73 x 97
Wire connection	Height from upper-edge of DIN 35 rail
Cross sections	2 x 0.34 mm ² ... 2 x 1.5 mm ² / 1 x 2.5 mm ² / AWG 22 ... 16
Strip lengths	9 ... 10 mm / 0.37 in
Standards/Specifications	EN 61810-1, EN 60664-1
* (OT = On-time)	

	Relay socket with industrial relay Coil voltage: 24 VDC 4 changeover contacts Railway applications	Relay socket with industrial relay Coil voltage: 24 VDC 4 changeover contacts (gold plating) Railway applications
--	---	--



Load limit curve

** In order to prevent the gold layer from being damaged, 30 VDC switching voltages and 50 mA currents shall not be exceeded.
 Higher switching power leads to evaporation of the gold layer. The resulting deposits in the enclosure may cause sparkovers between the coil and the contact.

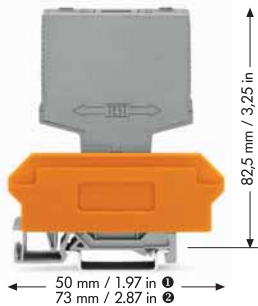


Description	V _N	I _N	Item No.	Pack. Unit	V _N	I _N	Item No.	Pack. Unit
Relay socket with industrial relay, for DIN 35 rail	24 VDC	42 mA	858-354	1	24 VDC	42 mA	858-355	1

Technical Data	For accessories, see Full Line Catalog INTERFACE ELECTRONIC 2012/2013				For accessories, see Full Line Catalog INTERFACE ELECTRONIC 2012/2013			
Coil:								
Input voltage range	V _N -30 % ... +25 %				V _N -30 % ... +25 %			
Contacts:								
Contact material	AgCe				AgCe + 5 μm Au			
Max. continuous current	5 A				5 A **			
Max. make current (resistive) at 10 % OT *	15 A / 4 s							
Max. switching voltage	250 VAC				250 VAC **			
Max. switching power (resistive)	1 kVA AC, DC see load curve							
Recommended minimum load	≥ 100 mA / 12 V AC/DC				1 V / 1 mA / 1 mW			
Pull-in/drop-out/bounce time typ.	25 ms / 25 ms / 4 ms				25 ms / 25 ms / 4 ms			
Mechanical life	20 x 10 ⁶ switching operations				20 x 10 ⁶ switching operations			
General specifications:								
Nominal voltage to EN 60664-1	250 V / 2.5 kV / 2				250 V / 2.5 kV / 2			
Dielectric strength, contact-coil (AC, 1 min)	1.5 kV _{rms}				1.5 kV _{rms}			
Dielectric strength open contact (AC, 1 min)	1 kV _{rms}				1 kV _{rms}			
Dielectric strength contact-contact (AC, 1 min)	1.5 kV _{eff}				1.5 kV _{eff}			
Ambient operating temperature at V _N	-25 °C ... +70 °C				-25 °C ... +70 °C			
Storage temperature	-40 °C ... +80 °C				-40 °C ... +80 °C			
Dimensions (mm) W x H x L	31 x 72 x 96				31 x 72 x 96			
Wire connection	Height from upper-edge of DIN 35 rail				Height from upper-edge of DIN 35 rail			
Cross sections	2 x 0.34 mm ² ... 2 x 1.5 mm ² / 1 x 2.5 mm ² / AWG 22 ... 16				2 x 0.34 mm ² ... 2 x 1.5 mm ² / 1 x 2.5 mm ² / AWG 22 ... 16			
Strip lengths	9 ... 10 mm / 0.37 in				9 ... 10 mm / 0.37 in			
Standards/Specifications	EN 61810-1, EN 60664-1				EN 61810-1, EN 60664-1			

* (OT = On-time)

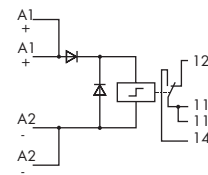
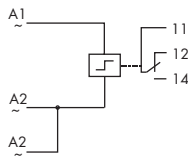
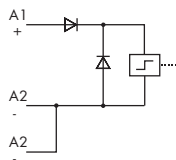
	Latching relays with 1 changeover contact (1 u)	Latching relay with 1 changeover contact (1 u) Extended input voltage and temperature range Railway applications
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WSB marker cards

- Marking K; Item No.: 209-782
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A1, A2, A2, 11, 12, 13, 14, 23, 24; Item No.: 209-693
- Marking A1, A3, A2, 11, 12, 14; Item No.: 249-607

5 cards, each containing 10 strips with 10 markers



Description	V _N	I _N	Item No.	Pack. Unit	V _N	I _N	Item No.	Pack. Unit
Latching Relay	24 VDC	40 mA	286-573	1	24 VDC	70 mA	286-575	1
	230 VAC	10 mA	286-574	1				

Technical Data

For accessories, see Full Line Catalog
INTERFACE ELECTRONIC 2012/2013

For accessories, see Full Line Catalog
INTERFACE ELECTRONIC 2012/2013

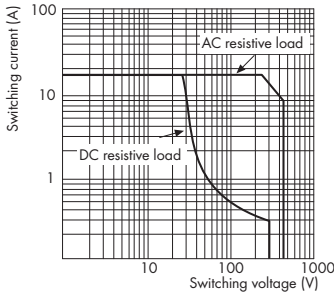
Coil:		
Input voltage range	V _N -15 % ... +10 %	V _N -30 % ... +25 %
Contacts:		
Contact material	AgSnO ₂	AgSnO ₂
Max. continuous current	6 A	3 A (6 A at 50 °C)
Max. make current (resistive) at 10 % OT *	50 A (20 ms)	50 A (20 ms)
Max. switching voltage	250 V	250 V
Max. switching power (resistive)	1500 VA	1500 VA
Recommended minimum load	≥ 10 mA / 10 V	≥ 10 mA / 10 V
Mechanical life	10 x 10 ⁶ switching operations at DC 1 x 10 ⁵ switching operations at AC	10 x 10 ⁶ switching operations
General specifications:		
Nominal voltage to EN 60664-1	250 V / 4 kV / 2	250 V / 4 kV / 2
Dielectric strength, contact-coil (AC, 1 min)	4 kV _{rms}	4 kV _{rms}
Dielectric strength open contact (AC, 1 min)	1.5 kV _{rms}	1.5 kV _{rms}
Dielectric strength contact-contact (AC, 1 min)	-	-
Ambient operating temperature at V _N	-25 °C ... +50 °C	-25 °C ... +70 °C (I _a < 3 A)
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	17 x 82.5 x 73	22 x 82.5 x 73
Standards/Specifications	Height from upper-edge of DIN 35 rail EN 60664	Height from upper-edge of DIN 35 rail EN 60664

* (OT = On-time)

Accessories	Item No.	Pack. Unit	Item No.	Pack. Unit
Terminal block for pluggable modules, with 2-conductor terminal blocks, orange separator ①	17 mm / 0.669 in 280-619	1	22 mm / 0.866 in 280-638	1
with 4-conductor terminal blocks, orange separator ②	17 mm / 0.669 in 280-609	1	22 mm / 0.866 in 280-628	1
with 4-conductor terminal blocks, marker plate ③	20 mm / 0.787 in 280-763	1	25 mm / 0.984 in 280-764	1

1 Relay Modules in DIN-Rail Mount Enclosure

	Relay with 1 make contact (1 a) Nominal input voltage V_N: 24 VDC for lamp loads	
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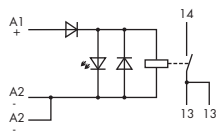
Load limit curve



Similar to picture

Contact life, type of load	Capability	Electrical life
Incandescent lamp	2200 W	20,000
Halogen lamp 230 VAC	1400 W	50,000
Halogen trafo	120 VA	20,000
Fluorescent lamp not comp., CCG ①, cos φ 0.406	20 x 58 W	25,000
Fluorescent lamp comp., CCG ①, C parallel	9 x 58 W	25,000
Fluorescent lamp comp., CCG ①, Duocircuit	600 W	20,000
Fluorescent lamp with ECG ②	12 x 58 W	25,000
Energy saving lamp 15 W	25 pcs	20,000
Energy saving lamp 13 W	30 pcs	20,000
Energy saving lamp 9 W	38 pcs	20,000
Gas discharge lamp	1000 W	20,000
Dulux-Lamp not compensated	800 W	20,000
Dulux-Lamp compensated	500 W	20,000
Max. capacitance at 230 VAC	60 μF	> 5,000

① CCG = Conventional Control Gear
② ECG = Electronic Control Gear



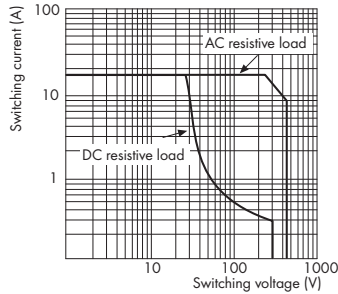
Note: Inductive loads have to be attenuated by an appropriate protective circuit in order to protect relay coils and contacts.

Description	V_N	I_N	Item No.	Pack. Unit
Relay modules in DIN-rail mount enclosure, for DIN 35 rail	24 VDC	19 mA	789-320	1

Technical Data		For accessories, see Full Line Catalog INTERFACE ELECTRONIC 2012/2013
Coil:	Input voltage range	$V_N -15\% \dots +20\%$
Contacts:	Contact material	Ag alloy
	Max. continuous current	16 A
	Max. make current (resistive) at 10 % OT *	120 A / 50 ms (AC)
	Max. switching voltage	250 VAC
	Max. switching power (resistive)	4 kVA AC, DC see load curve
	Recommended minimum load	≥ 100 mA / 12 V AC/DC
	Pull-in/drop-out/bounce time typ.	15 ms / 5 ms / -
	Mechanical life	10×10^6 switching operations
General specifications:	Nominal voltage to EN 60664-1	250 V / 4 kV / 3
	Dielectric strength, contact-coil (AC, 1 min)	4 kV _{rms}
	Dielectric strength open contact (AC, 1 min)	1 kV _{rms}
	Dielectric strength contact-contact (AC, 1 min)	-
	Ambient operating temperature at V_N	-25 °C ... +40 °C
	Storage temperature	-40 °C ... +70 °C
	Dimensions (mm) W x H x L	17.5 x 55 x 90
	Wire connection	Height from upper-edge of DIN 35 rail CAGE CLAMP®
	Cross sections	0.08 mm ² ... 2.5 mm ² / AWG 28 ... 14
	Strip lengths	5 ... 6 mm / 0.22 in
	Standards/Specifications	EN 61810-1, EN 60664-1, EN 61140, EN 50178

* (OT = On-time)

	Relay with 1 make contact (1 a) Nominal input voltage V_N: 24 V, 230 V AC for lamp loads	
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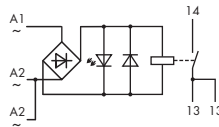
Load limit curve



Similar to picture

Contact life, type of load	Capability	Electrical life
Incandescent lamp	2200 W	20,000
Halogen lamp 230 VAC	1400 W	50,000
Halogen trafo	120 VA	20,000
Fluorescent lamp not comp., CCG ①, cos φ 0.406	20 x 58 W	25,000
Fluorescent lamp comp., CCG ①, C parallel	9 x 58 W	25,000
Fluorescent lamp comp., CCG ①, Duocircuit	600 W	20,000
Fluorescent lamp with ECG ②	12 x 58 W	25,000
Energy saving lamp 15 W	25 pcs	20,000
Energy saving lamp 13 W	30 pcs	20,000
Energy saving lamp 9 W	38 pcs	20,000
Gas discharge lamp	1000 W	20,000
Dulux-Lamp not compensated	800 W	20,000
Dulux-Lamp compensated	500 W	20,000
Max. capacitance at 230 VAC	60 µF	> 5,000

① CCG = Conventional Control Gear
 ② ECG = Electronic Control Gear



Note: Inductive loads have to be attenuated by an appropriate protective circuit in order to protect relay coils and contacts.

Description	V_N	I_N	Item No.	Pack. Unit
Relay modules in DIN-rail mount enclosure, for DIN 35 rail	24 VAC	32 mA	789-520	1
	230 VAC	15 mA	789-321	1

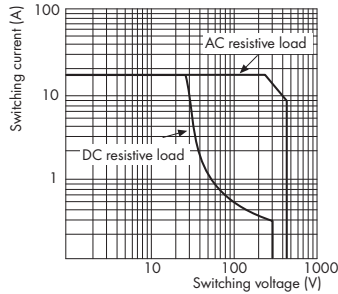
Technical Data

For accessories, see Full Line Catalog
 INTERFACE ELECTRONIC 2012/2013

Coil:	
Input voltage range	$V_N - 15\% \dots +20\%$
Contacts:	
Contact material	Ag alloy
Max. continuous current	16 A
Max. make current (resistive) at 10 % OT *	120 A / 50 ms (AC)
Max. switching voltage	250 VAC
Max. switching power (resistive)	4 kVA AC, DC see load curve
Recommended minimum load	≥ 100 mA / 12 V AC/DC
Pull-in/drop-out/bounce time typ.	15 ms / 5 ms / -
Mechanical life	10×10^6 switching operations
General specifications:	
Nominal voltage to EN 60664-1	250 V / 4 kV / 3
Dielectric strength, contact-coil (AC, 1 min)	4 kV _{rms}
Dielectric strength open contact (AC, 1 min)	1 kV _{rms}
Dielectric strength contact-contact (AC, 1 min)	-
Ambient operating temperature at V_N	-25 °C ... +40 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	17.5 x 55 x 90
Wire connection	Height from upper-edge of DIN 35 rail CAGE CLAMP®
Cross sections	0.08 mm ² ... 2.5 mm ² / AWG 28 ... 14
Strip lengths	5 ... 6 mm / 0.22 in
Standards/Specifications	EN 61810-1, EN 60664-1, EN 61140, EN 50178

* (OT = On-time)

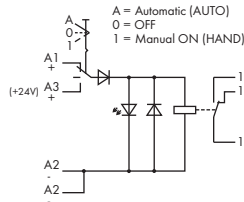
**Relay with 1 changeover contact (1 u),
Manual/OFF/Auto switch
for lamp loads**



Contact life, type of load	Capability	Electrical life
Incandescent lamp	2200 W	20,000
Halogen lamp 230 VAC	1400 W	50,000
Halogen trafo	120 VA	20,000
Fluorescent lamp not comp., CCG ①,		
cos φ 0.406	20 x 58 W	25,000
Fluorescent lamp comp., CCG ①, C parallel	9 x 58 W	25,000
Fluorescent lamp comp., CCG ①, Duocircuit	600 W	20,000
Fluorescent lamp with ECG ②	12 x 58 W	25,000
Energy saving lamp 15 W	25 pcs	20,000
Energy saving lamp 13 W	30 pcs	20,000
Energy saving lamp 9 W	38 pcs	20,000
Gas discharge lamp	1000 W	20,000
Dulux-Lamp not compensated	800 W	20,000
Dulux-Lamp compensated	500 W	20,000
Max. capacitance at 230 VAC	60 µF	> 5,000

① CCG = Conventional Control Gear
② ECG = Electronic Control Gear

Load limit curve



Note: Inductive loads have to be attenuated by an appropriate protective circuit in order to protect relay coils and contacts.

Description	V _N	I _N	Item No.	Pack. Unit
Relay modules in DIN-rail mount enclosure, for DIN 35 rail	24 VDC	19 mA	789-326	1

Technical Data

For accessories, see Full Line Catalog
INTERFACE ELECTRONIC 2012/2013

Coil:		
Input voltage range	V _N -15 % ... +20 %	
Contacts:		
Contact material	Ag alloy	
Max. continuous current	12 A	
Max. make current (resistive) at 10 % OT *	120 A / 50 ms (AC)	
Max. switching voltage	250 VAC	
Max. switching power (resistive)	4 kVA AC, DC DC see load curve	
Recommended minimum load	≥ 100 mA / 12 V AC/DC	
Pull-in/drop-out/bounce time typ.	15 ms / 5 ms / -	
Mechanical life	10 x 10 ⁶ switching operations	
General specifications:		
Nominal voltage to EN 60664-1	250 V / 4 kV / 3	
Dielectric strength, contact-coil (AC, 1 min)	4 kV _{rms}	
Dielectric strength open contact (AC, 1 min)	1 kV _{rms}	
Dielectric strength contact-contact (AC, 1 min)	-	
Ambient operating temperature at V _N	-20 °C ... +40 °C	
Storage temperature	-40 °C ... +70 °C	
Dimensions (mm) W x H x L	17.5 x 55 x 90	
Wire connection	Height from upper-edge of DIN 35 rail CAGE CLAMP®	
Cross sections	0.08 mm ² ... 2.5 mm ² / AWG 28 ... 14	
Strip lengths	5 ... 6 mm / 0.22 in	
Standards/Specifications	EN 61810-1, EN 60664-1, EN 61140, EN 50178	

* (OT = On-time)



Short description:

The Pilot-Box is a control unit for electric vehicle supply equipment (EVSE). It is typically mounted in a distribution box that also contains the following components: residual current operated device (RCD), miniature circuit breaker (MCB), charging contactor, power supply and socket outlet.

The unit is designed as a charging control unit without billing system (e.g., for private charging stations). It can be combined with a logic controller (PLC) for intelligent charging station management.

In conductive EVSEs, the Pilot-Box permits communication between EV and power supply system according to IEC 61851-1 (Mode 3, Case "B").

In addition, it also monitors both charging process and charging infrastructure.

Standard functions:

- Checking for proper EV connection
- Continuous ground conductor contact monitoring
- System powering on/off
- Charging current setting

Additional functions:

- Defining ventilation requirements during charging process
- Detecting/Adjusting the load current being supplied
- Connector locking/unlocking
- Connector emergency release

The Pilot-Box also provides the following indications:

- Charging cable plug-in detection
- Maximum charging current
- EV's ventilation requirements

Description	Item No.	Pack. Unit
Pilot-Box	879-101	1
Technical Data		
General specifications:		
Supply voltage	12 ... 24 VDC ($\pm 10\%$)	
Protection class	III (Safety extra-low voltage)	
Power consumption P (max.)	< 2 W	
Input:		
Level inputs	inactive: < 5 V; active: > 10 V, max. 24 V	
Current consumption of an active input	< 1 mA	
Output:		
Switch output		
Charge, Ventilation, Interlock_1/2	Relay contact against operating voltage, max. 2 A	
Signal output		
Act_Max_Current, PlugIn_Detection	Electronic switch against operating voltage, max. 100 mA	

Technical Data	
Environmental requirements:	
Ambient operating temperature	-30 °C ... +75 °C
Storage temperature	-30 °C ... +75 °C
Maximum permissible humidity	95% non-condensing
Degree of pollution	3
Degree of protection	IP40 housing, IP20 connection
Enclosure	acc. to DIN 43880 (built-in installation devices)
Plug interlock control	Suitable for Mennekes (31015, 31016) or Walther (741xx, 743xx, 746xx) sockets
Connection and type of mounting:	
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm ² ... 1.5 mm ² / AWG 28 ... 14
Strip lengths	6 ... 7 mm / 0.28 in
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Weight	172 g
Dimensions (mm) W x H x L	54 x 90 x 62 (without connectors)
Standards and approvals:	
Standards/Specifications	IEC 61851-1

879-101

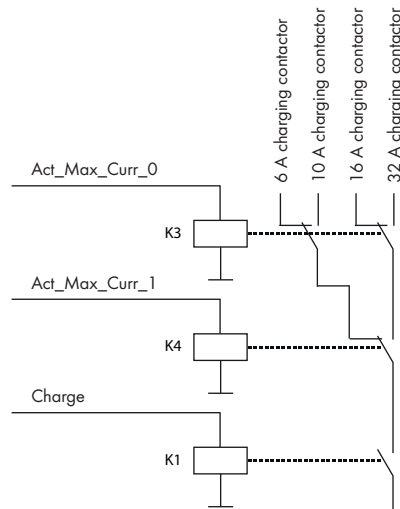
LED Displays

LED Display	Meaning
Power	
LED "OFF"	No supply voltage available
LED "green"	Supply voltage available
Release	
LED "OFF"	Release input for charging inactive; charging blocked
LED blinks "yellow" slowly	Start delay active. Approx. 15 seconds for charging the internal buffer for charging plug emergency release
LED "yellow"	Release input for charging active; charging released
LED blinks "red"	Error with connector locking (feedback faulty)
Plug-In Detection / Charge	
LED "OFF"	No charging cable detected
LED blinks "yellow" slowly	Charging cable detected, state A
LED blinks "yellow" quickly	EV detected; charging not yet started; state B
LED "yellow"	Charging started (charging contactor closed); state C

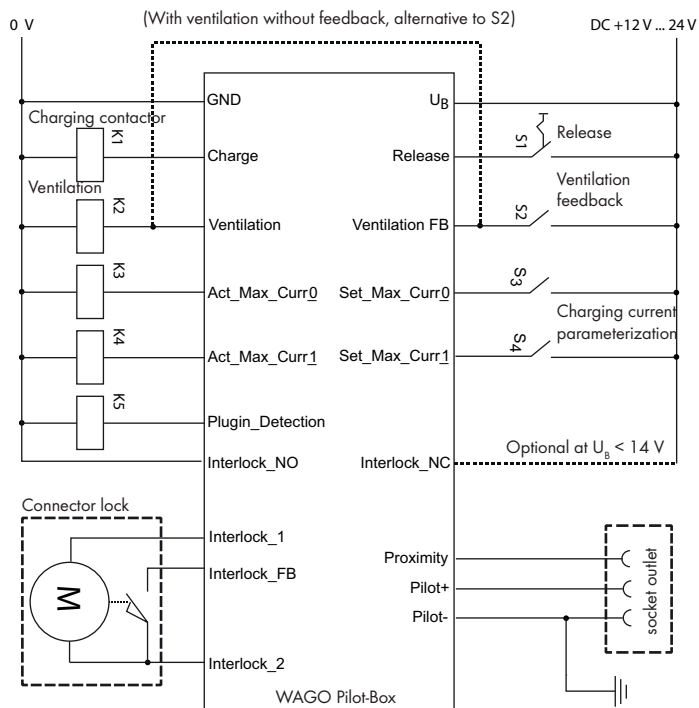
Setting/Feedback of Maximum Possible Charging Current

Set_Max_Curr_0 Act_Max_Curr_0	Set_Max_Curr_1 Act_Max_Curr_1	Power
inactive	inactive	6 A
active	inactive	10 A
inactive	active	16 A
active	active	32 A

According to IEC 61851-1: section 10.1, the installation contractor must ensure that the rated current of the charging cable assembly corresponds to the rated value of the miniature circuit breaker. In this case, the "Act_Max_Current" digital outputs can be switched accordingly.



Application Example



1 Pilot-Box for eMobility

6/10/16/32 A, Case "C" (connection)



Short description:

The Pilot-Box is a control unit for electric vehicle supply equipment (EVSE). It is typically mounted in a distribution box that also contains the following components: residual current operated device (RCD), miniature circuit breaker (MCB), charging contactor, power supply and charging cable assembly. The Pilot-Box complies with the IEC 61851-1 charging standard (Mode 3, Case "C"). It is designed as a charging control unit without billing system (e.g., for private charging stations). The unit can be combined with a logic controller (PLC) for intelligent charging station management. In conductive EVSEs, the Pilot-Box permits communication between EV and power supply system. In addition, it also monitors both charging process and charging infrastructure.

Standard functions:

- Checking for proper EV connection
- Continuous ground conductor contact monitoring
- System powering on/off
- Charging current setting

Additional functions:

- Defining ventilation requirements during charging process
- Detecting/Adjusting the load current being supplied

The Pilot-Box also provides the following indications:

- Maximum charging current
- EV's ventilation requirements

Description	Item No.	Pack. Unit
Pilot-Box	879-111	1
Technical Data		
General specifications:		
Supply voltage	12 ... 24 VDC ($\pm 10\%$)	
Protection class	III (Safety extra-low voltage)	
Power consumption P (max.)	< 2 W	
Input:		
Level inputs	inactive: < 5 V; active: > 10 V, max. 24 V	
Current consumption of an active input	< 1 mA	
Output:		
Switch output		
Charge, Ventilation	Relay contact against operating voltage, max. 2 A	
Signal output		
Act_Max_Current	Electronic switch against operating voltage, max. 100 mA	

Technical Data	
Environmental requirements:	
Ambient operating temperature	-30 °C ... +75 °C
Storage temperature	-30 °C ... +75 °C
Maximum permissible humidity	95% non-condensing
Degree of pollution	3
Degree of protection	IP40 housing, IP20 connection
Enclosure	acc. to DIN 43880 (built-in installation devices)
Connection and type of mounting:	
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm ² ... 1.5 mm ² / AWG 28 ... 14
Strip lengths	6 ... 7 mm / 0.28 in
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Weight	172 g
Dimensions (mm) W x H x L	54 x 90 x 62 (without connectors)
Standards and approvals:	
Standards/Specifications	IEC 61851-1

879-111

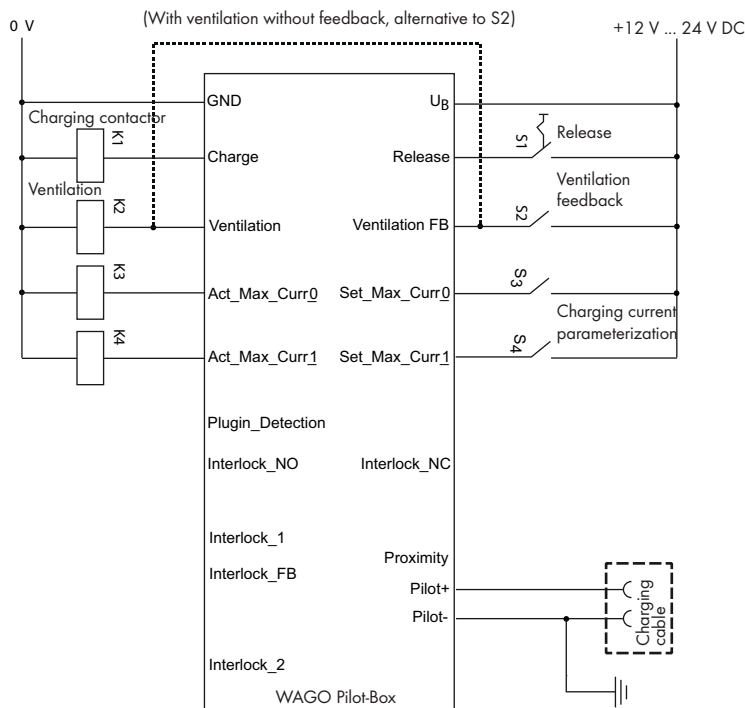
LED Displays

LED Display	Meaning
Power	
LED "OFF"	No supply voltage available
LED "green"	Supply voltage available
Release	
LED "OFF"	Release input for charging inactive; charging blocked
LED blinks "yellow" slowly	Start delay (approx. 1.5 s)
LED "yellow"	Release input for charging active; charging released
Charge	
LED "OFF"	No EV detected
LED blinks "yellow" quickly	EV detected; charging not yet started; state B
LED "yellow"	Charging started (charging contactor closed); state C

Setting/Feedback of Maximum Possible Charging Current

Set_Max_Curr_0 Act_Max_Curr_0	Set_Max_Curr_1 Act_Max_Curr_1	Power
inactive	inactive	6 A
active	inactive	10 A
inactive	active	16 A
active	active	32 A

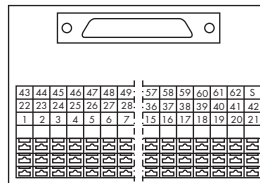
Application Example



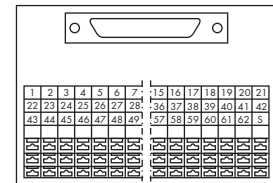
	Interface module with HD D-sub female connector, mounting carrier for DIN 35 rail	Interface module with HD D-sub male connector, mounting carrier for DIN 35 rail
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Picture: 289-708
Drawing: 289-708



Similar to picture
Drawing: 289-710

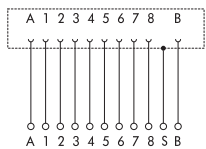


Description	No. of Poles	Width	Item No.	Pack. Unit	No. of Poles	Width	Item No.	Pack. Unit
Interface module	15	35	289-713	1	15	35	289-714	1
	44	79	289-707	1				
	62	108	289-708	1	62	62	289-710	1

Technical Data

Operating voltage	125 V AC/DC	125 V AC/DC
Nominal current	1 A	1 A
Connector contact	Copper alloy, gold-plated, 0.1 µm	Copper alloy, gold-plated, 0.1 µm
Contact resistance	≤ 10 mΩ	≤ 10 mΩ
Performance level	3	3
Nominal voltage to EN 60664-1	125 V / 0.8 kV / 2	125 V / 0.8 kV / 2
Mounting direction	vertical	vertical
Pull relief stud bolt	UNC 4-40	UNC 4-40
Ambient operating temperature	-20 °C ... +55 °C	-20 °C ... +55 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L		
incl. mounting feet or mounting carrier	W x 62 x 85	W x 62 x 85
Wire connection	Height from upper-edge of DIN 35 rail CAGE CLAMP® (WAGO 737 Series)	Height from upper-edge of DIN 35 rail CAGE CLAMP® (WAGO 737 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)	0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)
Strip lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Standards/Specifications	VDE 0660, EN 60947	VDE 0660, EN 60947
Accessories:		
WMB Multi marking system for mounting carrier	See Full Line Catalog INTERFACE ELECTRONIC 2012/2013	See Full Line Catalog INTERFACE ELECTRONIC 2012/2013
Marker strips for mounting carrier	White 709-198 / Transparent 709-197	White 709-198 / Transparent 709-197

	RJ-45 interface module with shield carrier for WAGO shield clamping saddle Mounting carrier for DIN 35 rail	
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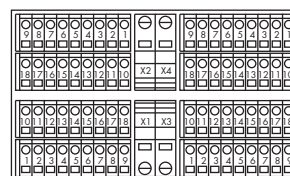
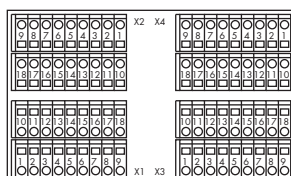
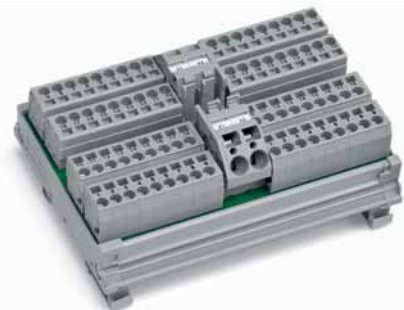
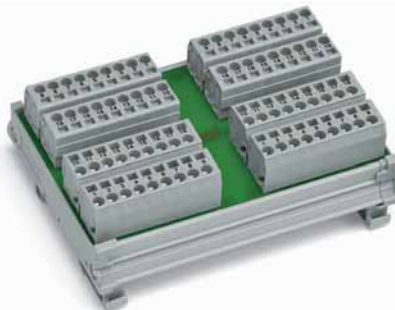
Description	Item No.	Pack. Unit	
Interface module	289-179	1	

Technical Data

Connecting cable	min. CAT5	
Max. transmission length	100 m	
Connector	RJ-45, shielded	
Min. mating cycles	1000	
Current load	≤ 2.1 A	
Voltage load	35 VAC / 50 VDC	
Insulation resistance	> 500 MΩ	
Dielectric strength contact-contact	1 kV _{rms}	
Contact resistance typ.	< 40 mΩ	
WAGO shield (screen) clamping saddle	790-108 (11 mm wide; up to 8 mm cable diameter)	
Ambient operating temperature	-20 °C ... +85 °C	
Dimensions (mm) W x H x L	30 x 67 x 85	
incl. mounting feet or mounting carrier	Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP® (WAGO 739 Series)	
Cross sections	0.08 mm² ... 1.5 mm² / AWG 28 ... 14	
Strip lengths	5 ... 6 mm / 0.22 in	
Standards/Specifications	ISO/IEC 11801: 2002-09; EN 55022	
Accessories:		
WMB Multi marking system for mounting carrier	See Full Line Catalog INTERFACE ELECTRONIC 2012/2013	

2 DIN-Rail Mount Potential Multiplication Modules

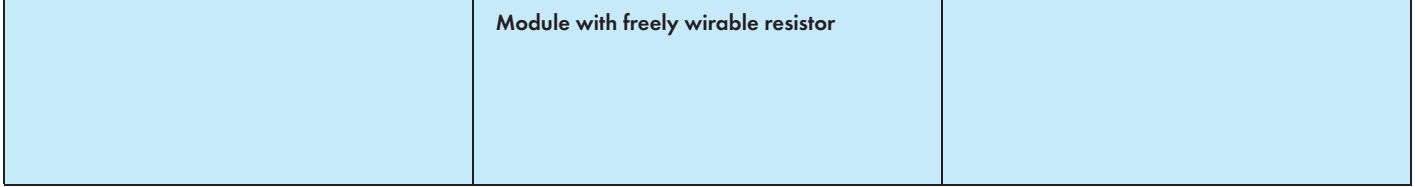
	DIN-rail mount potential multiplication module 4 potentials with each 18 connection points	DIN-rail mount potential multiplication module 4 potentials with each one power supply and 18 connection points, jumpable
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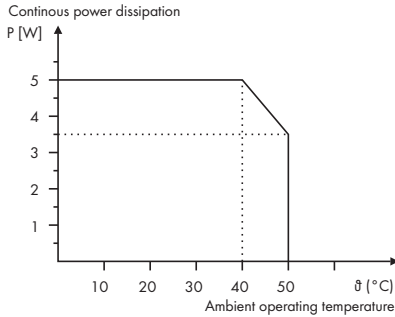
Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Potential multiplication module	288-825	1	288-837	1

Technical Data				
Max. operating voltage per potential	250 V AC/DC		250 V AC/DC	
Max. total current per potential	12 A		32 A	
Max. current per connection	12 A		12 A	
Nominal voltage to EN 60664-1	250 V / 4 kV / 3		250 V / 4 kV / 3	
Ambient operating temperature	-20 °C ... +50 °C		-20 °C ... +50 °C	
Storage temperature	-40 °C ... +80 °C		-40 °C ... +80 °C	
Dimensions (mm) W x H x L incl. mounting feet or mounting carrier	85 x 45 x 115		85 x 45 x 115	
Wire connection	Height from upper-edge of DIN 35 rail CAGE CLAMP® (WAGO 739 Series)		Height from upper-edge of DIN 35 rail Power supply: CAGE CLAMP® (WAGO 745 Series) Connection points: CAGE CLAMP® (WAGO 739 Series)	
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)		Power supply: 0.2 mm² ... 6 mm² / AWG 24 ... 10 Connection points: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)	
Strip lengths	8 ... 9 mm / 0.33 in		Power supply: 11 ... 12 mm / 0.45 in Connection points: 8 ... 9 mm / 0.33 in	
Accessories:				
Comb-style jumper bar, 2-pole			745-382	

DIN-Rail Mount Resistor Modules



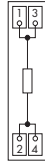
Module with freely wirable resistor



Picture: 289-128/003-000

Derating

Depending on operating conditions, the components' temperature may exceed the limit temperature for accessible parts.



For other resistors, please contact factory.

Description	Resistor	Item No.	Pack. Unit
Resistor modules	100R	289-128/005-000	1
	270R	289-128/006-000	1
	2K4	289-128/001-000	1
	4K7	289-128/002-000	1
	6K8	289-128/003-000	1
	9K1	289-128	1

Technical Data	
Temperature coefficient	50 ppm
Tolerance	± 10 %
Power dissipation	5 W
Ambient operating temperature	-20 °C ... +50 °C (Derating must be observed)
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	13 x 34 x 85
incl. mounting feet or mounting carrier	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 236 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)
Strip lengths	5 ... 6 mm / 0.22 in

WAGO System Wiring

Overview and Application Examples

WAGO-I/O-SYSTEM 753			WAGO Interface Cables		WAGO Interface Modules	
	I/O Modules		Item No.	pcs	Item No.	pcs
DI	753-430 (x1)	8 DI	706-7753/300-XXX	1	T8ES	1
	753-430 (x2)	16 DI	706-7753/301-XXX	1	T16ES	1
	753-431 (x1)	8 DI	706-7753/300-XXX	1	T8ES	1
	753-431 (x2)	16 DI	706-7753/301-XXX	1	T16ES	1
DO	753-530 (x1)	8 DO	706-7753/300-XXX	1	T8ES/T8S	1
	753-530 (x2)	16 DO	706-7753/301-XXX	1	T16ES/T16S	1

WAGO-I/O-SYSTEM 750			WAGO Interface Cables		WAGO Interface Modules	
	I/O Modules		Item No.	pcs	Type	pcs
DI	750-1400	16 DI	706-3057/300-XXX	1	T16ES	1
DO	750-1500	16 DO	706-3057/300-XXX	1	T16ES	1
DI/DO	750-1502	8 DI/8 DO	706-7753/302-XXX	1	T8ES/T8S	1/1
	750-1502	8 DI/8 DO	706-3057/300-XXX	1	T16ES	1

SIEMENS S7-300			WAGO Interface Cables		WAGO Interface Modules	
			Item No.	pcs	Type	pcs
CPU	6ES7 313-5BE01-0AB0	16 DI/16 DO	706-2300/301-XXX	1	T16ES/T16S	1/1
	6ES7 313-5BF03-0AB0	16 DI/16 DO	706-2300/301-XXX	1	T16ES/T16S	1/1
	6ES7 313-6BE01-0AB0	16 DI/16 DO	706-2300/301-XXX	1	T16ES/T16S	1/1
	6ES7 313-6BF03-0AB0	16 DI/16 DO	706-2300/301-XXX	1	T16ES/T16S	1/1
	6ES7 313-6CE01-0AB0	16 DI/16 DO	706-2300/301-XXX	1	T16ES/T16S	1/1
	6ES7 313-6CF03-0AB0	16 DI/16 DO	706-2300/301-XXX	1	T16ES/T16S	1/1
	6ES7 314-6BF01-0AB0	16 DI/16 DO	706-2300/301-XXX	1	T16ES/T16S	1/1
	6ES7 314-6BG03-0AB0	16 DI/16 DO	706-2300/301-XXX	1	T16ES/T16S	1/1
	6ES7 314-6CF01-0AB0	16 DI/16 DO	706-2300/301-XXX	1	T16ES/T16S	1/1
6ES7 314-6CG03-0AB0	16 DI/16 DO	706-2300/301-XXX	1	T16ES/T16S	1/1	
DI	6ES7 321-1BH02-0AA0	16 DI	706-2300/300-XXX	1	T16ES	1
	6ES7 321-1BH10-0AA0	16 DI	706-2300/300-XXX	1	T16ES	1
	6ES7 321-1BH80-0AA0	16 DI	706-2300/300-XXX	1	T16ES	1
	6ES7 321-1BL00-0AA0	32 DI	706-2300/301-XXX	1	T16ES	2
	6ES7 321-1BL80-0AA0	32 DI	706-2300/301-XXX	1	T16ES	2
	6ES7 321-1BP00-0AA0	64 DI	706-2300/100-XXX	2	T16ES	4
	6ES7 321-7BH01-0AA0	16 DI	706-2300/101-XXX	1	T16ES	1
	6ES7 321-7BH80-0AA0	16 DI	706-2300/101-XXX	1	T16ES	1
DO	6ES7 322-1BH01-0AA0	16 DO	706-2300/300-XXX	1	T16ES /T16S	1
	6ES7 322-1BH10-0AA0	16 DO	706-2300/300-XXX	1	T16ES /T16S	1
	6ES7 322-1BH80-0AA0	16 DO	706-2300/300-XXX	1	T16ES /T16S	1
	6ES7 322-1BL00-0AA0	32 DO	706-2300/301-XXX	1	T16ES /T16S	2
	6ES7 322-1BP00-0AA0	64 DO	706-2300/200-XXX	2	T16ES /T16S	4
	6ES7 322-1EH01-0AA0	16 DO	706-2300/300-XXX	1	T16ES /T16S	1
	6ES7 322-8BF00-0AB0	8 DO	706-2300/201-XXX	1	T8ES /T8S	1
AI	6ES7 331-7HF01-0AB0	8 AI	706-2300/400-XXX	1	A8ES	1
	6ES7 331-7KF02-0AB0	8 AI	706-2300/400-XXX	1	A8ES	1
	6ES7 331-7NF00-0AB0	8 AI	706-2300/404-XXX	1	A8ES	1
	6ES7 331-7NF10-0AB0	8 AI	706-2300/406-XXX	1	A8ES	1
	6ES7 331-7SF00-0AB0	8 AI	706-2300/400-XXX	1	A8ES	1
	6ES7 331-7TF00-0AB0	8 AI	706-2300/400-XXX	1	A8ES	1
	AO	6ES7 332-5HB01-0AB0	2 AO	706-2300/400-XXX	1	A4ES
6ES7 332-5HB81-0AB0		2 AO	706-2300/400-XXX	1	A4ES	1
6ES7 332-5HD01-0AB0		4 AO	706-2300/404-XXX	1	A4ES	1
6ES7 332-5HF00-0AB0		8 AO	706-2300/406-XXX	1	A8ES	1
6ES7 332-7ND02-0AB0		4 AO	706-2300/400-XXX	1	A4ES	1
6ES7 332-8TF00-0AB0		8 AO	706-2300/400-XXX	1	A8ES	1

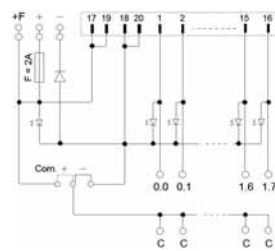
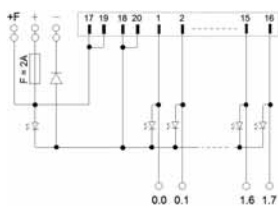
WAGO Interface Modules			
	Type	Item No.	
DI/DO	T8ES	289-611	see Full Line Catalog INTERFACE ELECTRONIC 2012/2013
		704-2003	see page 124
	T8S	704-5003	see Full Line Catalog INTERFACE ELECTRONIC 2012/2013
		704-5013	see Full Line Catalog INTERFACE ELECTRONIC 2012/2013
	T16ES	289-614	see Full Line Catalog INTERFACE ELECTRONIC 2012/2013
		704-2004	see page 125
		704-2024	see page 125
		704-2044	see page 126
		704-2054	see page 126
	T16S	704-5004	see Full Line Catalog INTERFACE ELECTRONIC 2012/2013
704-5014			
704-5024			
704-5034			
704-5044			
704-5054			
704-5064			
704-5074			
AI/AO	A4ES	704-8012	see page 127
	A8ES	704-8013	see page 127

WAGO Interface Cables			
	Type	Item No.	
DI/DO	WAGO-753 T8ES	706-7753/300-XXX	see Full Line Catalog INTERFACE ELECTRONIC 2012/2013
	WAGO-753 T16ES	706-7753/301-XXX	
	WAGO-750 HE T8E8S	706-7753/302-XXX	
	TSX T16ES	706-3057/300-XXX	
	S7-300 T16E	706-2300/101-XXX	see page 128
	S7-300 2 x T16E	706-2300/100-XXX	see page 128
	S7-300 T8S	706-2300/201-XXX	see page 129
	S7-300 2 x T16S	706-2300/200-XXX	see page 129
AI/AO	S7-300 T16ES	706-2300/300-XXX	see page 130
	S7-300 2 x T16ES	706-2300/301-XXX	see page 130
	S7-300 A8E	706-2300/400-XXX	see page 131
	S7-300 A8E11	706-2300/404-XXX	see page 132
	S7-300 A8E12	706-2300/406-XXX	see page 132
	S7-300 A4SI	706-2300/500-XXX	see page 133
	S7-300 A8SI	706-2300/502-XXX	see page 133

Cable Length Overview			
Item No.	-XXX	Length	Example
706-2300/201-XXX	-100	1 m	706-2300/201-100
	-200	2 m	706-2300/201-200
	-300	3 m	706-2300/201-300

Application Examples		
WAGO-I/O-SYSTEM 753	WAGO Interface Cables	WAGO Interface Modules
		
753-430 (x2), 16 DI	WAGO-753 T8ES, 2 m long 706-7753/301-200	T16ES 704-2004

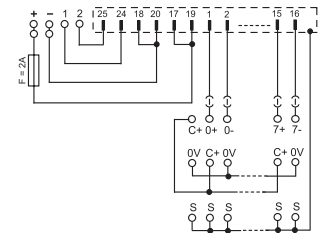
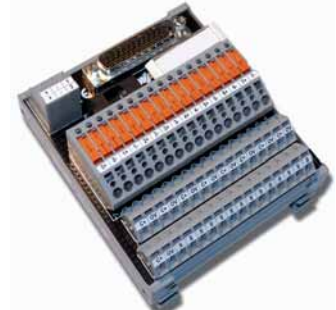
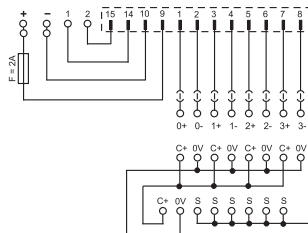
	<p>Interface module for direct wiring (1 conductor) 16 channels with integrated status indication, 20-pole male header acc. to DIN 41651</p>	<p>Interface module for direct wiring (2 conductors) 16 channels with integrated status indication, 20-pole male header acc. to DIN 41651</p>
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Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Interface module, for DIN 35 rail	704-2004	1	704-2024	1

Technical Data				
Operating voltage	24 V DC (± 10 %)		24 V DC (± 10 %)	
Max. continuous current	1 A per channel		1 A per channel	
Max. total current	2 A		2 A	
Fuse	2 A		2 A	
Status indication	LED green : Channel LED yellow : Power supply		LED green : Channel LED yellow : Power supply	
Power consumption LED	5 mA		5 mA	
Nominal voltage to EN 60664-1	50 V / 0.8 kV / 2		50 V / 0.8 kV / 2	
Ambient operating temperature	-20 °C ... +50 °C		-20 °C ... +50 °C	
Storage temperature	-40 °C ... +70 °C		-40 °C ... +70 °C	
Dimensions incl. mounting carrier (mm) W x H x L	55 x 85 x 50 Height from upper-edge of DIN 35 rail		85 x 85 x 50 Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP®		CAGE CLAMP®	
Cross sections	0.08 mm ² ... 2.5 mm ² / AWG 28 ... 12		0.08 mm ² ... 2.5 mm ² / AWG 28 ... 12	
Strip lengths	5 ... 6 mm / 0.22 in		5 ... 6 mm / 0.22 in	

	<p>Interface module for analog sensors (2 and 4 conductors) 4 channels with integrated disconnection, 15-pole D-subminiature female header acc. to DIN 41651</p>	<p>Interface module for analog sensors (2 and 4 conductors) 8 channels with integrated disconnection, 15-pole D-subminiature female header acc. to DIN 41651</p>
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Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Interface module, for DIN 35 rail	704-8012	1	704-8013	1

Technical Data

Operating voltage	max. 48 V DC	max. 48 V DC
Output current (per channel)	max. 1 A	max. 1 A
Fuse	2 A (Supply)	2 A (Supply)
Nominal voltage to EN 60664-1	50 V / 0.8 kV / 2	50 V / 0.8 kV / 2
Ambient operating temperature	-20 °C ... +50 °C	-20 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions incl. mounting carrier (mm) W x H x L	66 x 105 x 50 Height from upper-edge of DIN 35 rail	92 x 105 x 50 Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12	0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Strip lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in

WAGO Interface Cables

in connection with Siemens S7-300

INTERFACE ELECTRONIC



Description	Item No.	Pack. Unit
WAGO Interface Cable 2 x T16E, 1 m long	706-2300/100-100	1
WAGO Interface Cable 2 x T16E, 2 m long	706-2300/100-200	1
WAGO Interface Cable 2 x T16E, 3 m long	706-2300/100-300	1
Technical Data		
Ports	1 x Fujitsu FCN-367-J40 2 x 20-pole female connector acc. to DIN 41651	
Wire cross-section	0.14 mm ² LiYY	
Color coding	acc. to DIN VDE 47100	
Operating voltage	60 V	
Current per channel	max. 1 A	
Operating temperature	-20 °C ... +50 °C	
Degree of protection	IP20	
Length	1 m (706-2300/100-100) 2 m (706-2300/100-200) 3 m (706-2300/100-300)	

Description	Item No.	Pack. Unit
WAGO Interface Cable T16E, 1 m long	706-2300/101-100	1
WAGO Interface Cable T16E, 2 m long	706-2300/101-200	1
WAGO Interface Cable T16E, 3 m long	706-2300/101-300	1
Technical Data		
Ports	1 x Siemens 6ES7-392-1BJ00-0AA0 1 x 20-pole female connector acc. to DIN 41651	
Wire cross-section	0.14 mm ² LiYY	
Color coding	acc. to DIN VDE 47100	
Operating voltage	60 V	
Current per channel	max. 1 A	
Operating temperature	-20 °C ... +50 °C	
Degree of protection	IP20	
Length	1 m (706-2300/101-100) 2 m (706-2300/101-200) 3 m (706-2300/101-300)	



Similar to picture

Description	Item No.	Pack. Unit
WAGO Interface Cable 2 x T16S, 1 m long	706-2300/200-100	1
WAGO Interface Cable 2 x T16S, 2 m long	706-2300/200-200	1
WAGO Interface Cable 2 x T16S, 3 m long	706-2300/200-300	1
Technical Data		
Ports	1 x Fujitsu FCN-367-J40 2 x 20-pole female connector acc. to DIN 41651	
Wire cross-section	0.14 mm ² LiYY	
Color coding	acc. to DIN VDE 47100	
Operating voltage	60 V	
Current per channel	max. 1 A	
Operating temperature	-20 °C ... +50 °C	
Degree of protection	IP20	
Length	1 m (706-2300/200-100) 2 m (706-2300/200-200) 3 m (706-2300/200-300)	

Description	Item No.	Pack. Unit
WAGO Interface Cable T8S, 1 m long	706-2300/201-100	1
WAGO Interface Cable T8S, 2 m long	706-2300/201-200	1
WAGO Interface Cable T8S, 3 m long	706-2300/201-300	1
Technical Data		
Ports	1 x Siemens 6ES7-392-1BJ00-0AA0 1 x 10-pole female connector acc. to DIN 41651	
Wire cross-section	0.14 mm ² LiYY	
Color coding	acc. to DIN VDE 47100	
Operating voltage	60 V	
Current per channel	max. 1 A	
Operating temperature	-20 °C ... +50 °C	
Degree of protection	IP20	
Length	1 m (706-2300/201-100) 2 m (706-2300/201-200) 3 m (706-2300/201-300)	

2 WAGO Interface Cables

in connection with Siemens S7-300



Description	Item No.	Pack. Unit
WAGO Interface Cable T16ES, 1 m long	706-2300/300-100	1
WAGO Interface Cable T16ES, 2 m long	706-2300/300-200	1
WAGO Interface Cable T16ES, 3 m long	706-2300/300-300	1
Technical Data		
Ports	1 x Siemens 6ES7-392-1BJ00-0AA0 1 x 20-pole female connector acc. to DIN 41651	
Wire cross-section	0.14 mm ² LiYY	
Color coding	acc. to DIN VDE 47100	
Operating voltage	60 V	
Current per channel	max. 1 A	
Operating temperature	-20 °C ... +50 °C	
Degree of protection	IP20	
Length	1 m (706-2300/300-100) 2 m (706-2300/300-200) 3 m (706-2300/300-300)	

Description	Item No.	Pack. Unit
WAGO Interface Cable 2 x T16ES, 1 m long	706-2300/301-100	1
WAGO Interface Cable 2 x T16ES, 2 m long	706-2300/301-200	1
WAGO Interface Cable 2 x T16ES, 3 m long	706-2300/301-300	1
Technical Data		
Ports	1 x Siemens 6ES7-392-1BM00-0AA0 2 x 20-pole female connector acc. to DIN 41651	
Wire cross-section	0.14 mm ² LiYY	
Color coding	acc. to DIN VDE 47100	
Operating voltage	60 V	
Current per channel	max. 1 A	
Operating temperature	-20 °C ... +50 °C	
Degree of protection	IP20	
Length	1 m (706-2300/301-100) 2 m (706-2300/301-200) 3 m (706-2300/301-300)	

WAGO Interface Cables

in connection with Siemens S7-300



Description	Item No.	Pack. Unit
WAGO Interface Cable A8EI1, 1 m long	706-2300/404-100	1
WAGO Interface Cable A8EI1, 2 m long	706-2300/404-200	1
WAGO Interface Cable A8EI1, 3 m long	706-2300/404-300	1

Technical Data	
Ports	1 x Siemens 6ES7-392-1BM00-0AA0 1 x 25-pole D-sub female connector acc. to DIN 41651
Wire cross-section	0.25 mm ² Li YCY
Color coding	acc. to DIN VDE 47100
Operating voltage	125 V
Current per channel	max. 2 A
Operating temperature	-20 °C ... +50 °C
Degree of protection	IP20
Length	1 m (706-2300/404-100) 2 m (706-2300/404-200) 3 m (706-2300/404-300)

Description	Item No.	Pack. Unit
WAGO Interface Cable A8EI2, 1 m long	706-2300/406-100	1
WAGO Interface Cable A8EI2, 2 m long	706-2300/406-200	1
WAGO Interface Cable A8EI2, 3 m long	706-2300/406-300	1

Technical Data	
Ports	1 x Siemens 6ES7-392-1BM00-0AA0 1 x 25-pole D-sub female connector
Wire cross-section	0.25 mm ² Li YCY
Color coding	acc. to DIN VDE 47100
Operating voltage	125 V
Current per channel	max. 2 A
Operating temperature	-20 °C ... +50 °C
Degree of protection	IP20
Length	1 m (706-2300/406-100) 2 m (706-2300/406-200) 3 m (706-2300/406-300)



Description	Item No.	Pack. Unit
WAGO Interface Cable A4SI, 1 m long	706-2300/500-100	1
WAGO Interface Cable A4SI, 2 m long	706-2300/500-200	1
WAGO Interface Cable A4SI, 3 m long	706-2300/500-300	1
Technical Data		
Ports	1 x Siemens 6ES7-392-1BJ00-0AA0 1 x 15-pole D-sub female connector	
Wire cross-section	0.25 mm ² Li YCY	
Color coding	acc. to DIN VDE 47100	
Operating voltage	125 V	
Current per channel	max. 2 A	
Operating temperature	-20 °C ... +50 °C	
Degree of protection	IP20	
Length	1 m (706-2300/500-100) 2 m (706-2300/500-200) 3 m (706-2300/500-300)	

Description	Item No.	Pack. Unit
WAGO Interface Cable A8SI, 1 m long	706-2300/502-100	1
WAGO Interface Cable A8SI, 2 m long	706-2300/502-200	1
WAGO Interface Cable A8SI, 3 m long	706-2300/502-300	1
Technical Data		
Ports	1 x Siemens 6ES7-392-1BM00-0AA0 1 x 15-pole D-sub female connector	
Wire cross-section	0.25 mm ² Li YCY	
Color coding	acc. to DIN VDE 47100	
Operating voltage	125 V	
Current per channel	max. 2 A	
Operating temperature	-20 °C ... +50 °C	
Degree of protection	IP20	
Length	1 m (706-2300/502-100) 2 m (706-2300/502-200) 3 m (706-2300/502-300)	

JUMPFLEX® Transducers

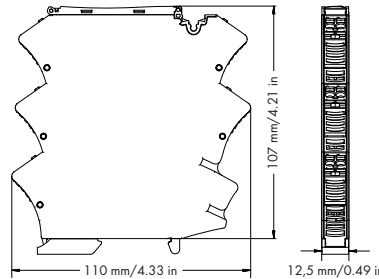
Universal Isolation Amplifier



Configuration via:



DIP switch Interface configuration software Interface configuration app Configuration display



1.1	U+	INPUT VOLTAGE	OUTPUT	OUT+ 4.1
1.2	U-			OUT- 4.2
2.1	I+	INPUT CURRENT	POWER	Us+ 5.1
2.2	I-			GND 5.2
3.1	DO (GND)	DO (HOLD)	JUMPER POWER	Us+ 6.1
3.2	DI (GND)	DI (HOLD)		GND 6.2

Short description:

The Universal Isolation Amplifier converts, amplifies, filters and electrically isolates analog signals.

Features:

- Analog unipolar/bipolar signals at input/output
- A digital signal output reacts to configured measuring range limits (switching ON/OFF delay and threshold value switch function configurable with up to two threshold values).
- A digital HOLD input freezes the output signal.
- Clipping capability provides analog signal limitation to output end values.
- Adjustable software/hardware filter
- Input/Output response simulation via configuration display
- Safe 3-way isolation with 4 kV test voltage acc. to EN 61140

Technical Data

Configuration:	
Configuration	DIP switch, interface configuration software, interface configuration app, configuration display
Input:	
Input signal	Current: ± 1 mA; 0 ... 1 mA; ± 10 mA; 0 ... 10 mA; 2 ... 10 mA; ± 20 mA; 0 ... 20 mA; 4 ... 20 mA; ± 100 mA; 0 ... 100 mA Voltage: ± 1 V; 0 ... 1 V; ± 10 V; 0 ... 10 V; 2 ... 10 V; ± 30 V; 0 ... 30 V; ± 100 V; 0 ... 100 V; ± 200 V; 0 ... 220 V
Input resistance	≥ 1 MΩ (U input); ≤ 50 Ω (I input)
Max. operating frequency	10 kHz / 5 kHz / 100 Hz / 30 Hz (configurable via DIP switch)
Input – Digital:	
HOLD signal	11.8 V ... U _S
Output:	
Output signal	Current: ± 10 mA; 0 ... 10 mA; 2 ... 10 mA; ± 20 mA; 0 ... 20 mA; 4 ... 20 mA Voltage: ± 5 V; 0 ... 5 V; 1 ... 5 V; ± 10 V; 0 ... 10 V; 2 ... 10 V
Load impedance	Current: ≤ 600 Ω; Voltage: ≥ 1 kΩ
Overload capacity	-250 V; +250 V / -120 mA; +120 mA
Output – Digital:	
Max. switching voltage	Supply voltage applied -0.3 V
Max. continuous current I _{BO}	100 mA (no internal restriction)

Description	Item No.	Pack. Unit
JUMPFLEX® Transducer, for DIN 35 rail Universal Isolation Amplifier	2857-401	1
Technical Data		
General specifications:		
Supply voltage U _S	24 VDC	
Supply voltage range	16.8 V ... 31.2 V (-30 % ... +30 %)	
Current consumption at 24 VDC	≤ 70 mA (+ IDO)	
Response time (T _{10,90})	< 1 ms	
Transmission error	≤ 0.1 % of the full scale value	
Temperature coefficient	≤ 0.01 %/K	
Environmental requirements:		
Ambient operating temperature	-40 °C ... +70 °C	
Storage temperature	-40 °C ... +85 °C	
Safety and protection:		
Test voltage (input/output/supply)	4 kV AC, 50 Hz, 1 min.	
Connection and type of mounting:		
Wire connection	CAGE CLAMP® S (picoMAX® 5.0)	
Cross sections	solid/fine-stranded: 0.2 ... 2.5 mm ² / AWG 24 ... 12	
Strip length	9 ... 10 mm / 0.35 ... 0.39 in	
Dimensions and weight:		
Dimensions (mm) W x H x L	12.5 x 107 x 110	
	Height from upper-edge of DIN 35 rail	
Weight	86 g	
Standards and approvals:		
Conformity marking	CE	
Standards/Specifications	DIN EN 61010-1:2010; DIN EN 60664-1:2008; Safe isolation acc. to DIN EN 61140:2002; IEC 61000-6-2; IEC 61000-6-4	
Accessories:	For accessories, see Full Line Catalog INTERFACE ELECTRONIC 2012/2013	

DIP Switch Adjustability

● = ON

2857-401

DIP Switch S1

Input													
1	Signal	2	Polarity	3	4	5	Range / mA	Range / V	6	Inverted Characteristic	7	8	Limit Frequency
	Current		Unipolar				0 ... 20	0 ... 10		Not inverted			10 kHz
●	Voltage	●	Bipolar *	●			0 ... 1	0 ... 1	●	Inverted	●		5 kHz
					●		0 ... 5	0 ... 5				●	100 Hz
				●	●		0 ... 10	1 ... 5				●	30 Hz
						●	2 ... 10	2 ... 10					
				●		●	4 ... 20	0 ... 30					
					●	●	0 ... 50	0 ... 100					
				●	●	●	0 ... 100	0 ... 220					

DIP Switch S1

DIP Switch S2

Output				Output			
9	Signal	10	Polarity	1	2	Range / mA	Range / V
	Current		Unipolar			0 ... 20	0 ... 10
●	Voltage	●	Bipolar *	●		4 ... 20	2 ... 10
					●	0 ... 10	0 ... 5
				●	●	2 ... 10	1 ... 5

DIP Switch S1

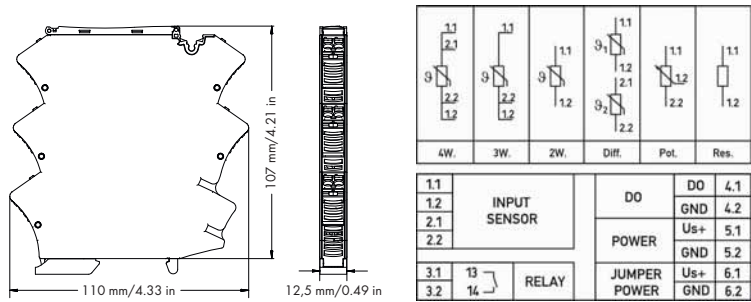
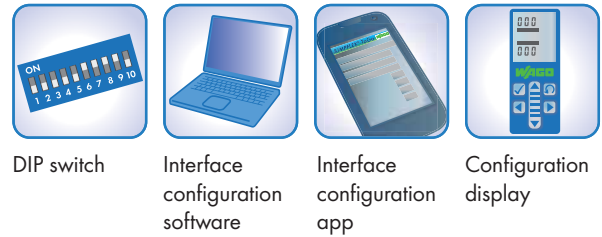
Output				Digital Output (DO)			
3	4	Measuring Range Underflow	Measuring Range Overflow	5	6		
		Lower limit of output range -5% **	Upper limit of output range +2.5% **			Off	
●		Lower limit of output range	Upper limit of output range +2.5%	●		DO U _s + switching	
	●	Lower limit of output range	Upper limit of output range		●	DO GND switching	
●	●	Lower limit of output range -5%	Upper limit of output range +5%	●	●	Off	

* Bipolar only applies to ranges starting with 0.

** acc. to NAMUR NE 43



Configuration via:



Short description:

WAGO's RTD Threshold Value Switch for RTD sensors, potentiometers and resistors monitors and reports signals of up to two switching thresholds.

Features:

- Both digital signal output and relay with make contact react to configured measuring range limits (switching ON/OFF delay and threshold value switch function configurable with up to two threshold values).
- Configurable RTD factor
- Adjustable software filter
- Input/Output response simulation via configuration display
- Safe 3-way isolation with 4 kV test voltage acc. to EN 61140

Technical Data	
Configuration:	
Configuration	DIP switch, interface configuration software, interface configuration app, configuration display
Input:	
Input signal	RTD sensors, potentiometers and resistors
Sensor types	Pt100, Pt200, Pt500, Pt1000, Pt5000, Pt10000, Pt10 ... Pt20000 (expanded)
Sensor connection	2-, 3-, and 4-wire connection technology
Sensor supply current	< 0.5 mA
Temperature range	-200 °C ... +850 °C
Resistor input	0 ... 100 kΩ
Output:	
Output - Digital:	
Max. switching voltage	Supply voltage applied -0.3 V
Max. continuous current I _{DO}	100 mA (no internal restriction)
Number of switching thresholds	1 or 2
Configurable rise and fall delay time	0 ... 10 s (via DIP switch); 0 ... 60 s (expanded)
Output - Relay:	
Contact type	1 make contact (1 a)
Contact material	AgNi (gold-plated)
Max. switching voltage	250 VAC
Max. continuous current (terminal blocks in a row)	6 A (up to 60 °C), 3 A (60 °C ... 70 °C)
Dielectric strength open contact (AC, 1 min)	1 kV _{rms}
Pull-in/drop-out/bounce time typ.	8 ms / 4 ms / 8 ms
Number of switching thresholds	1 or 2
Configurable rise and fall delay time	0 ... 10 s (via DIP switch); 0 ... 60 s (expanded)

Description	Item No.	Pack. Unit
JUMPFLEX® Transducer, for DIN 35 rail RTD Threshold Value Switch	2857-533	1
Technical Data		
General specifications:		
Supply voltage U _s	24 VDC	
Supply voltage range	16.8 V ... 31.2 V (-30 % ... +30 %)	
Current consumption at 24 VDC	≤ 30 mA (+ I _{DO})	
Measurement error	± 1 K	
Temperature coefficient	≤ 0.01 %/K	
Environmental requirements:		
Ambient operating temperature	-40 °C ... +70 °C	
Storage temperature	-40 °C ... +85 °C	
Safety and protection:		
Test voltage (input/output/supply)	4 kV AC, 50 Hz, 1 min.	
Connection and type of mounting:		
Wire connection	CAGE CLAMP® S (picoMAX® 5.0)	
Cross sections	solid/fine-stranded:	
	0.2 ... 2.5 mm ² / AWG 24 ... 12	
Strip length	9 ... 10 mm / 0.35 ... 0.39 in	
Dimensions and weight:		
Dimensions (mm) W x H x L	12.5 x 107 x 110	
Weight	Height from upper-edge of DIN 35 rail 86 g	
Standards and approvals:		
Conformity marking	CE	
Standards/Specifications	DIN EN 61010-1:2010; DIN EN 60664-1:2008; Safe isolation acc. to DIN EN 61140:2002; IEC 61000-6-2; IEC 61000-6-4	
Accessories:	For accessories, see Full Line Catalog INTERFACE ELECTRONIC 2012/2013	

DIP Switch Adjustability

● = ON

2857-533

DIP Switch S1

Sensor Type			Connection Technology		Hysteresis		Rise/Fall Delay Time Relay/ Digital Output (DO)					
1	2	3	4	5	6	T / K	7	8	9	t / s	10	Not assigned
			Pt100		2-wire connection		3			0		
●			Pt200	●	3-wire connection	●	5	●		1		
	●		Pt500		4-wire connection				●	2		
●	●		Pt1000	●	Difference			●	●	3		
		●	Pt5000							●	4	
●			Pt10000					●		5		
	●	●	Resistor						●	8		
●	●	●	Potentiometer					●	●	10		

DIP Switch S2

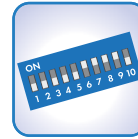
Starting Value						End Value									
1	2	3	4	5	Temperature / °C	Resistance / Ω	Potentiometer Position	6	7	8	9	10	Temperature / °C	Resistance / Ω	Potentiometer Position
					0	OFF	OFF						100	OFF	OFF
●					OFF	10	0 %	●					OFF	10	0 %
	●				-200	15	5 %		●				-200	15	5 %
●	●				-150	22	10 %	●	●				-150	22	10 %
		●			-100	33	15 %			●			-100	33	15 %
●		●			-50	47	20 %	●		●			-50	47	20 %
	●	●			-10	68	25 %		●	●			-10	68	25 %
●	●	●			10	100	30 %	●	●	●			10	100	30 %
			●		20	120	35 %				●		20	120	35 %
●			●		30	150	40 %	●			●		30	150	40 %
	●		●		40	220	45 %		●		●		40	220	45 %
●	●		●		50	330	50 %	●	●		●		50	330	50 %
		●	●		60	470	55 %			●	●		60	470	55 %
●		●	●		70	560	60 %	●		●	●		70	560	60 %
	●	●	●		80	680	65 %		●	●	●		80	680	65 %
●	●	●	●		90	1000	70 %	●	●	●	●		90	1000	70 %
			●		100	1200	75 %					●	100	1200	75 %
●			●		150	1500	80 %	●				●	150	1500	80 %
	●		●		200	2200	85 %		●			●	200	2200	85 %
●	●		●		250	3300	90 %	●	●			●	250	3300	90 %
		●	●		300	4700	95 %			●		●	300	4700	95 %
●		●	●		350	5600	100 %	●		●		●	350	5600	100 %
	●	●	●		400	6800	OFF		●	●		●	400	6800	OFF
●	●	●	●		450	10000	OFF	●	●	●		●	450	10000	OFF
			●	●	500	12000	OFF				●	●	500	12000	OFF
●			●	●	550	15000	OFF	●			●	●	550	15000	OFF
	●		●	●	600	22000	OFF		●		●	●	600	22000	OFF
●	●		●	●	650	33000	OFF	●	●		●	●	650	33000	OFF
		●	●	●	700	47000	OFF			●	●	●	700	47000	OFF
●		●	●	●	750	56000	OFF	●		●	●	●	750	56000	OFF
	●	●	●	●	800	68000	OFF		●	●	●	●	800	68000	OFF
●	●	●	●	●	850	100000	OFF	●	●	●	●	●	850	100000	OFF

Default Settings

Sensor Type	Pt100
Connection Technology	2-wire connection
Starting Value	0 °C
End Value	100 °C
Hysteresis	3 K
Rise/Fall Delay Time Relay/Digital Output (DO)	0 s



Configuration via:



DIP switch



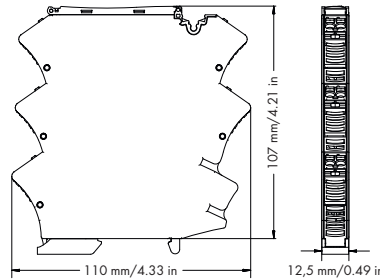
Interface configuration software



Interface configuration app



Configuration display



1.1	TC+	INPUT SENSOR	DO	DO	4.1
1.2	TC-			GND	4.2
2.1	11	RELAY	POWER	Us+	5.1
2.2	12			GND	5.2
3.1	11	JUMPER POWER	JUMPER POWER	Us+	6.1
3.2	14			GND	6.2

Short description:

WAGO's Thermocouple Threshold Value Switch for TC sensors monitors and reports signals of up to two switching thresholds.

Features:

- Both digital signal output and relay with changeover contact react to configured measuring range limits (switching ON/OFF delay and threshold value switch function configurable with up to two threshold values).
- Adjustable software filter
- Input/Output response simulation via configuration display
- Safe 3-way isolation with 4 kV test voltage acc. to EN 61140

Technical Data

Configuration:

Configuration	DIP switch, interface configuration software, interface configuration app, configuration display
---------------	--

Input:

Input signal	Thermocouples
Sensor types	Thermocouple's type J, K, E, R, N, S, T, B, S
Temperature range	Type J: -150 °C ... +1200 °C Type K: -150 °C ... +1350 °C
Cold junction compensation	On/Off (Default: On)
Cold junction error	3 K (type 2 K)

Output:

Output – Digital:

Max. switching voltage	Supply voltage applied -0.3 V
Max. continuous current I_{BO}	100 mA (no internal restriction)
Number of switching thresholds	1 or 2
Configurable rise and fall delay time	0 ... 10 s (via DIP switch); 0 ... 60 s (expanded)

Output – Relay:

Contact type	1 changeover contact (1 u)
Contact material	AgNi (gold-plated)
Max. switching voltage	250 VAC
Max. continuous current (terminal blocks in a row)	6 A (up to 60 °C), 3 A (60 °C ... 70 °C)
Dielectric strength open contact (AC, 1 min)	1 kV _{rms}
Pull-in/drop-out/bounce time typ.	8 ms / 4 ms / 8 ms
Number of switching thresholds	1 or 2
Configurable rise and fall delay time	0 ... 10 s (via DIP switch); 0 ... 60 s (expanded)

Description	Item No.	Pack. Unit
JUMPFLEX® Transducer, for DIN 35 rail TC Threshold Value Switch	2857-534	1
Technical Data		
General specifications:		
Supply voltage U_s	24 VDC	
Supply voltage range	16.8 V ... 31.2 V (-30 % ... +30 %)	
Current consumption at 24 VDC	≤ 30 mA (+ I_{BO})	
Measurement error	± 1 K	
Temperature coefficient	≤ 0.01 %/K	
Environmental requirements:		
Ambient operating temperature	-40 °C ... +70 °C	
Storage temperature	-40 °C ... +85 °C	
Safety and protection:		
Test voltage (input/output/supply)	4 kV AC, 50 Hz, 1 min.	
Connection and type of mounting:		
Wire connection	CAGE CLAMP® S (picoMAX® 5.0)	
Cross sections	solid/fine-stranded: 0.2 ... 2.5 mm ² / AWG 24 ... 12	
Strip length	9 ... 10 mm / 0.35 ... 0.39 in	
Dimensions and weight:		
Dimensions (mm) W x H x L	12.5 x 107 x 110	
Weight	Height from upper-edge of DIN 35 rail 87 g	
Standards and approvals:		
Conformity marking	CE	
Standards/Specifications	DIN EN 61010-1:2010; DIN EN 60664-1:2008; Safe isolation acc. to DIN EN 61140:2002; IEC 61000-6-2; IEC 61000-6-4	
Accessories:		
	For accessories, see Full Line Catalog INTERFACE ELECTRONIC 2012/2013	

DIP Switch Adjustability

● = ON

2857-534

DIP Switch S1

Sensor Type Thermocouple					Cold Junction Compensation	Hysteresis		Rise/Fall Delay Time Relay/Digital Output (DO)			10	
1	2	3	4	Type	5	6	T / K	7	8	9	t / s	Not assigned
				J	ON		3				0	
●				K	OFF	●	5	●			1	
	●			E					●		2	
●	●			R				●	●		3	
			●	N						●	4	
●		●		S				●		●	5	
	●	●		T					●	●	8	
●	●	●		B				●	●	●	10	
			●	C								

DIP Switch S2

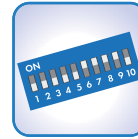
Lower Value					Upper Value					
1	2	3	4	5	6	7	8	9	10	
					0					1000
●					OFF	●				OFF
	●				-200		●			-200
●	●				-150		●	●		-150
			●		-100			●		-100
●		●			-50		●	●		-50
	●	●			50			●	●	50
●	●	●			100		●	●	●	100
			●		150				●	150
●			●		200		●		●	200
	●		●		250			●	●	250
●	●		●		300		●	●	●	300
		●	●		350			●	●	350
●		●	●		400		●	●	●	400
	●	●	●		450			●	●	450
●	●	●	●		500		●	●	●	500
			●		550				●	550
●			●		600		●		●	600
	●		●		650			●	●	650
●	●		●		700		●	●	●	700
		●	●		750			●	●	750
●		●	●		800		●	●	●	800
	●	●	●		850			●	●	850
●	●	●	●		900		●	●	●	900
			●	●	950				●	950
●			●	●	1000		●		●	1000
	●		●	●	1050			●	●	1050
●	●		●	●	1100		●	●	●	1100
		●	●	●	1150			●	●	1150
●		●	●	●	1200		●	●	●	1200
	●	●	●	●	1300			●	●	1300
●	●	●	●	●	1400		●	●	●	1400

Default Settings

Cold Junction Compensation	ON
Sensor Type	Thermocouple of type J
Lower Value	0 °C
Upper Value	1,000 °C
Hysteresis	3 K
Rise/Fall Delay Time Relay/Digital Output (DO)	0 s



Configuration via:



DIP switch



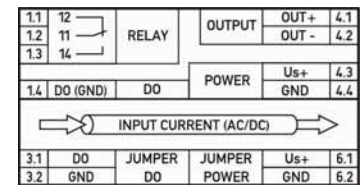
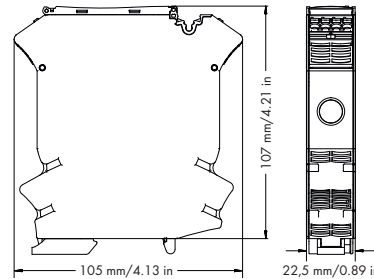
Interface configuration software



Interface configuration app



Configuration display



Short description:

The 2857-550 Current Transducer measures AC/DC currents up to 100 A, while converting the measured current into an analog standard signal at the output.

Features:

- Both digital signal output and relay with changeover contact react to configured measuring range limits (switching ON/OFF delay and threshold value switch function configurable with up to two threshold values).
- Clipping capability provides analog signal limitation to output end values.
- Adjustable software filter
- Input/Output response simulation via configuration display
- Safe 3-way isolation with 4 kV test voltage acc. to EN 61140

Technical Data

Configuration:	
Configuration	DIP switch, interface configuration software, interface configuration app, configuration display
Input:	
Input signal	AC/DC 100 A
Response threshold	10 mA (DC) / 500 mA (AC)
Resolution	10 mA
Frequency range	15 Hz ... 1000 Hz
Output:	
Output signal	Current: ± 10 mA; 0 ... 10 mA; 2 ... 10 mA; ± 20 mA; 0 ... 20 mA; 4 ... 20 mA Voltage: ± 5 V; 0 ... 5 V; 1 ... 5 V; ± 10 V; 0 ... 10 V; 2 ... 10 V
Overcurrent	0% or +5% (e.g., 10.5 V / 24 mA)
Measuring range overflow/underflow	0% or +2.5%
Load impedance	Current: ≤ 600 Ω; Voltage: ≥ 1 kΩ
Measuring procedure	True RMS measurement (TRMS) or Arithmetic mean value
Output – Digital:	
Max. switching voltage	Supply voltage applied -0.3 V
Output – Relay:	
Contact type	1 changeover contact (1 u)
Contact material	AgNi (gold-plated)
Max. switching voltage	250 VAC
Max. continuous current (terminal blocks in a row)	6 A (up to 60 °C), 3 A (60 °C ... 70 °C)
Dielectric strength open contact (AC, 1 min)	1 kV _{rms}
Pull-in/drop-out/bounce time typ.	8 ms / 4 ms / 8 ms
Max. continuous current I _{DO}	100 mA (no internal restriction)
General specifications:	
Supply voltage U _s	24 VDC
Supply voltage range	16.8 V ... 31.2 V (-30 % ... +30 %)
Current consumption at 24 VDC	≤ 50 mA (+ I _{DO})

Description	Item No.	Pack. Unit
JUMPFLEX® Transducer, for DIN 35 rail	2857-550	1
Current Transducer AC/DC 100 A		
Technical Data		
General specifications:		
Max. operating frequency	3.3 kHz	
Response time	Signal cycle duration + 1 ms	
Response time (T ₁₀₋₉₀)	max. 60 ms	
Filter (T ₁₀₋₉₀)	Software filter: 600 ms	
Linearity error	≤ 1 %	
Measurement error	≤ 0.2 % (bezogen auf Messbereichsende)	
Temperature coefficient	≤ 0.01 %/K	
Environmental requirements:		
Ambient operating temperature	-40 °C ... +70 °C	
Storage temperature	-40 °C ... +85 °C	
Safety and protection:		
Test voltage (input/output/supply)	2.5 kV AC, 50 Hz, 1 min.	
Test voltage (measuring circuit – output)	4 kV AC, 50 Hz, 1 min.	
Connection and type of mounting:		
Wire connection	CAGE CLAMP® S (picoMAX® 5.0)	
Cross sections	solid/fine-stranded: 0.2 ... 2.5 mm ² / AWG 24 ... 12	
Strip length	9 ... 10 mm / 0.35 ... 0.39 in	
Power cable feed-through	Ø 9.5 mm	
Recommended measurement conductor cross-section	16 mm ² ; max. 25 mm ²	
Dimensions and weight:		
Dimensions (mm) W x H x L	22.5 x 107 x 105	
	Height from upper-edge of DIN 35 rail	
Weight	106 g	
Standards and approvals:		
Conformity marking	CE	
Standards/Specifications	DIN EN 61010-1:2010; DIN EN 60664-1:2008; Safe isolation acc. to DIN EN 61140:2002; IEC 61000-6-2; IEC 61000-6-4	
Accessories:		
	For accessories, see Full Line Catalog	
	INTERFACE ELECTRONIC 2012/2013	

DIP Switch Adjustability

● = ON

2857-550

DIP Switch S1

Measuring Method		Filter		Analog Output Inverted		Output Signal (Bipolar for Arithmetic Mean Value)			
1		2		3		4	5	6	
	True RMS		inactive		not inverted				Analog Output (±) 0 ... 20 mA
●	Arithmetic mean value (bipolar output)	●	active	●	inverted		●		4 ... 20 mA
						●			(±) 0 ... 10 V
						●	●		2 ... 10 V
								●	(±) 0 ... 10 mA
							●	●	2 ... 10 mA
						●		●	(±) 0 ... 5 V
						●	●	●	1 ... 5 V

DIP Switch S1

Measuring Range Underflow		Measuring Range Overflow		Overcurrent (Input Signal - End Value +20%)		Digital Output (DO)/ Relay		
7	8					9	10	
		Lower measuring range -5% *	Upper measuring range +2.5% *	Upper measuring range +5%				Off
●		Lower measuring range	Upper measuring range +2.5%	Upper measuring range +5%		●		DO US+ switching - relay pulls in
	●	Lower measuring range	Upper measuring range	Lower measuring range			●	DO GND switching - relay drops out
●	●	Lower measuring range -5 %	Upper measuring range +5%	Upper measuring range		●	●	Off

* acc. to NAMUR NE 43

DIP Switch S2

Lower Value				Upper value		
1	2	3	4	A / % (RMS)	A / % (arithmetic mean value)	A / %
				Software configuration (0)	Software configuration (-100)	Software configuration (100)
●				0	-100	100
	●			5	-75	90
●	●			8	-50	70
		●		10	-25	50
●		●		12	-10	30
	●	●		14	0	20
●	●	●		16	5	10
			●	18	10	
●			●	20	15	
	●		●	25	20	
●	●		●	30	25	
		●	●	35	30	
●		●	●	40	35	
	●	●	●	45	40	
●	●	●	●	50	50	



Interface Configuration Software – DIP Switch Alternative

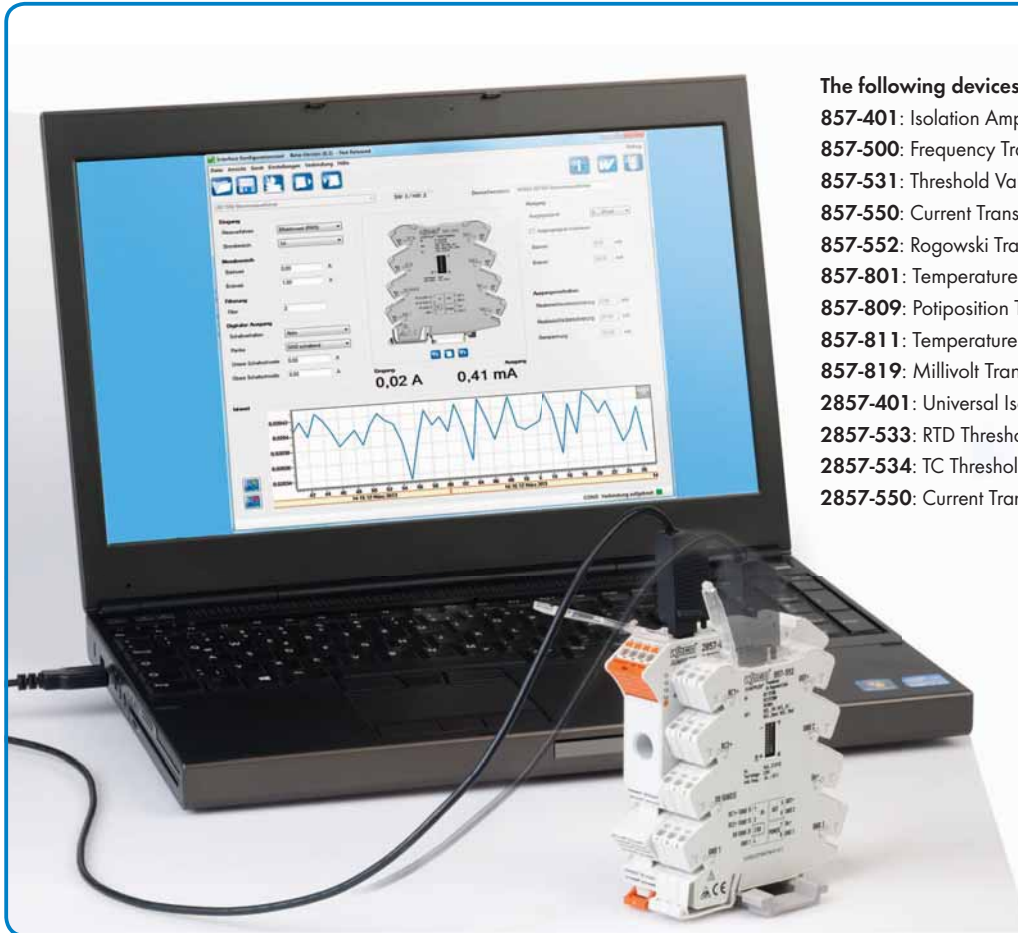
Software features:

- Automatic module recognition
- Visualization of process values
- Parameterization of the digital switch output (threshold functionality)
- Communication via 750-923 WAGO USB Service Cable or WAGO 750-921 Bluetooth® Adapter

Description

Interface Configuration Software

Download: www.wago.com



The following devices are already supported:

- 857-401**: Isolation Amplifier
- 857-500**: Frequency Transducer
- 857-531**: Threshold Value Switch
- 857-550**: Current Transducer
- 857-552**: Rogowski Transducer
- 857-801**: Temperature Transducer for Pt Sensors
- 857-809**: Potiposition Transducer
- 857-811**: Temperature Transducer for TC Sensors
- 857-819**: Millivolt Transducer
- 2857-401**: Universal Isolation Amplifier
- 2857-533**: RTD Threshold Value Switch
- 2857-534**: TC Threshold Value Switch
- 2857-550**: Current Transducer

Interface Configuration App



Interface Configuration App DIP Switch Alternative

WAGO's Interface Configuration App brings the power of a PC-based configuration software to mobile end-user devices. WAGO's 857 Series transducer's input and output parameters can be configured via finger swipe on an Android-based smartphone or tablet. Furthermore, both configuration data and actual measured values can be easily displayed. WAGO's 750-921 Bluetooth® Adapter communicates between a smartphone and transducer.

Description
WAGO Interface Configuration App (Android)
Download from Google Play

Device Information

Input Parameter

Output Parameter

Digital Output

Actual Value

The following devices are already supported:

- 857-401: Isolation Amplifier
- 2857-401: Universal Isolation Amplifier
- 857-500: Frequency Transducer
- 2857-533: RTD Threshold Value Switch
- 857-531: Threshold Value Switch
- 2857-534: TC Threshold Value Switch
- 857-550: Current Transducer
- 2857-550: Current Transducer
- 857-552: Rogowski Transducer
- 857-801: Temperature Transducer for Pt Sensors
- 857-809: Potiposition Transducer
- 857-811: Temperature Transducer for TC Sensors
- 857-819: Millivolt Transducer



Download from Google Play

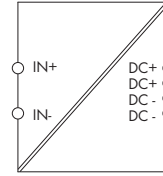
Switched-Mode Power Supply

EPSITRON® COMPACT Power



Similar to picture

- Primary switch mode power supply unit
- Suitable for protection class II equipment
- Natural convection cooling when horizontally mounted
- Stepped profile, ideal for distribution boards or distribution boxes
- Suitable for both parallel and series operation
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950



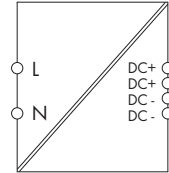
Description	Item No.	Pack. Unit
Switched-mode power supply, 24 VDC / 2.0 A	787-1014	1

Technical Data	
Input:	
Nominal input voltage $V_{i\text{nom}}$	100 VDC
Input voltage range	77 V ... 140 VDC
Frequency	0 Hz
Input current I_i	0.77 A at 77 VDC / 0.42 A at 140 VDC
Inrush current	< 30 A, NTC
Mains failure hold-up time	> 8 ms at 77 VDC / > 25 ms at 140 VDC
Output:	
Nominal output voltage $V_{o\text{nom}}$	24 VDC (SELV)
Output current I_o	2.0 A at 24 VDC max. 1.6 A in any mounting position
Factory preset	24 VDC
Adjustment accuracy	2 %
Residual ripple	< 100 mVpp at 20 MHz
Current limitation	1.1 x I_o typ.
Overload behavior	Constant current
Operational indication	LED green (Va)
Efficiency/Power losses:	
Efficiency	85 % typ.
Power loss P_V	1.9 W (110 VDC/no load), 9.9 W (110 VDC/nominal load)
Max. power loss P_V	9.9 W typ. (77 VDC / 24 VDC, 2 A)
Fuse protection:	
Internal fuse	4 AT (125 VDC)
External fuse	6 A, 10 A power circuit breakers, B, C characteristics

Technical Data	
Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +80 °C
Rel. humidity	30 % ... 80 % (varnished PCB)
Derating	-1.5 %/K (> 55 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Shock and vibration	Category 1, class B (acc. to EN 61373:2010)
Safety and protection:	
Enclosure	Plastic, light gray, Flammability class V0 acc. to UL94
Test voltage pri. - sec.	4.2 kV DC
Protection class	Prepared for class II equipment
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage protection	Varistor (input side); internal protective circuit, < 40 VDC (output side in case of an error)
Short circuit protection	yes
No-load proof	yes
Feedback voltage	max. 35 VDC
Parallel operation	yes
Series connection	yes
MTBF	> 500000 h
Connection and type of mounting:	
Wire connection	Input/Output: WAGO 740 Series
Cross sections	Input/Output: 0.08 mm ² ... 2.5 mm ² / AWG 28 ... 12
Strip lengths	Input/Output: 6 ... 7 mm / 0.24 ... 0.28 in
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	72 x 89 x 59
	Height: 55 mm, from upper-edge of DIN 35 rail
Weight	250 g
Standards and approvals:	
Standards/Specifications	EN 60950, EN 61204-3, UL 60950 *, UL 508 *, GL *
	* (pending)

Switched-Mode Power Supply

EPSITRON® COMPACT Power



- Primary switch mode power supply unit
- Prepared for class II equipment
- Natural convection cooling when horizontally mounted
- Stage profile, ideal for distribution boards or distribution boxes
- At reduced output current, any type of mounting positions are possible (e.g., horizontal, overhead mounting).
- Electrically isolated output voltage (SELV) acc. to EN / UL 60950-1

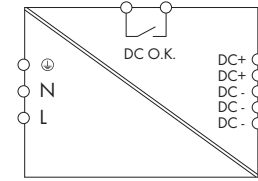
Description	Item No.	Pack. Unit
Switched-mode power supply, 15 ... 28 VDC / 2 A	787-1017	1

Technical Data	
Input:	
Nominal input voltage $V_{i, \text{nom}}$	100 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 ... 373 VDC
Input voltage derating	max. 2 A (< 100 VAC)
Frequency	44 Hz ... 66 Hz; 0 Hz
Input current I_i	0.9 A at 110 VAC / 0.5 A at 230 VAC
Discharge current	1 mA typ.
Inrush current	< 30 A, NTC
Mains failure hold-up time	> 10 ms at 110 VAC / > 130 ms at 230 VAC
Output:	
Nominal output voltage $V_{o, \text{nom}}$	18 VDC
Output voltage range	15 ... 28 VDC adjustable
Output current I_o	2.4 A at 18 VDC 2.0 A at 24 VDC in horizontal mounting position
Factory preset	18 VDC
Adjustment accuracy	2 %
Residual ripple	< 100 mVpp at 20 MHz
Current limitation	1.1 x I_o typ.
Overload behavior	Constant current
Operational indication	LED green (Va)
Efficiency/Power losses:	
Efficiency	84 % typ.
Power loss P_V	2.6 W (230 VAC / no load) 8.1 W (230 VAC / nominal load)
Max. power loss P_V	8.2 W (100 VAC / 18 VDC, 2.4 A)
Fuse protection:	
Internal fuse	2 AT
External fuse	Circuit breakers 10 A, 16 A, characteristic: B or C An external DC fuse is required for the DC input voltage

Technical Data	
Environmental requirements:	
Ambient operating temperature	-25 °C ... +55 °C
Storage temperature	-25 °C ... +80 °C
Rel. humidity	30 % ... 85 % (no condensation)
Derating	-3 % / K (> 45 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Enclosure	Plastic, light gray, Flammability class V0 acc. to UL94
Test voltage pri. - sec.	4.2 kV DC
Protection class	Prepared for class II equipment
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage protection	< 40 VDC (in the event of a fault)
Short circuit protection	yes
No-load proof	yes
Feedback voltage	max. 25 VDC
Parallel operation	yes
Series connection	yes
MTBF	500000 h
Connection and type of mounting:	
Wire connection	Input/Output: WAGO 740 Series
Cross sections	Input/Output: 0.08 ... 2.5 mm ² / AWG 28 ... 12
Strip lengths	Input/Output: 6 ... 7 mm / 0.24 ... 0.28 in
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	72 x 89 x 59 Length from upper-edge of DIN 35 rail
Weight	264 g
Standards and approvals:	
Standards/Specifications	EN 60950 (SELV), EN 61204-3, GL*, UL* (* pending)

4 Primary Switch Mode Power Supplies

EPSITRON® ECO Power



- Prepared for class I equipment
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Fast and tool-free termination via lever-actuated terminal blocks
- Bounce-free switching contact (DC OK)
- Parallel operation
- Electrically isolated output voltage (SELV) acc. to EN / UL 60950-1

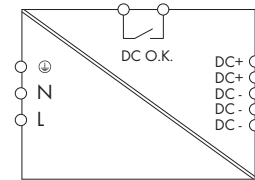
Description	Item No.	Pack. Unit
Switched-mode power supply, 24 VDC / 20 A	787-734	1

Technical Data	
Input:	
Nominal input voltage $V_{i\text{nom}}$	100 ... 240 VAC
Input voltage range	85 ... 264 VAC; 130 ... 373 VDC (use of DC requires external protection)
Frequency	47 Hz ... 63 Hz
Input current I_i	3 A typ. at 230 VAC; 6.0 A at 115 VAC
Discharge current	1.7 mA
Inrush current	< 30 A
Mains failure hold-up time	> 20 ms at 230 VAC
Output:	
Nominal output voltage $V_{o\text{nom}}$	24 VDC (SELV)
Output voltage range	22 ... 28 VDC adjustable
Output current I_o	20 A at 24 VDC
Factory preset	24 VDC
Adjustment accuracy	1 %
Residual ripple	< 100 mV (peak-peak)
Overload behavior	1.15 ... 1.4 x I_o , shutdown in the event of a short-circuit and permanent overload
Operational indication	LED green (24 V DC o.k.), LED red (overload)
Efficiency/Power losses:	
Efficiency	90 % typ.
Power loss P_V	65 W (230 VAC / nominal load)
Max. power loss P_V	107 W typ. (110 VAC / 24 VDC, 23 A)
Fuse protection:	
Internal fuse	16 AT / 250 V
External fuse	Circuit breakers 10 A, 16 A, characteristic: B or C An external DC fuse is required for the DC input voltage

Technical Data	
Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	95 % (no condensation)
Derating	see instruction manual
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage	
PRI-SEC/PRI-GND/SEC-GND	3 kV AC / 1.5 kV AC / 0.5 kV AC
Protection class	Prepared for class I equipment
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage protection	via varistor at primary circuit
Short circuit protection	yes
No-load proof	yes
Feedback voltage	29 VDC
Parallel operation	yes
Series connection	yes
MTBF	> 250000 h
Connection and type of mounting:	
Wire connection	Input/Signalising: WAGO 2706 Series Output: WAGO 2716 Series
Cross sections	Input/Signalising: 0.5 mm ² ... 6 mm ² / AWG 20 ... 10 Output: 1.5 mm ² ... 16 mm ² / AWG 16 ... 6
Strip lengths	Input/Signalising: 11 ... 12 mm / 0.45 in Output: 12 ... 13 mm / 0.47 in
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	115 x 136 x 144 Length from upper-edge of DIN 35 rail
Weight	2120 g
Standards and approvals:	
Standards/Specifications	EN 60950 (SELV), EN 61000-6-2, EN 61000-6-3 UL 60950*, UL 508* (* pending)

Switched-Mode Power Supply

EPSITRON® ECO Power



- Prepared for class I equipment
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Fast and tool-free termination via lever-actuated terminal blocks
- Bounce-free switching contact (DC OK)
- Parallel operation
- Electrically isolated output voltage (SELV) acc. to EN / UL 60950-1

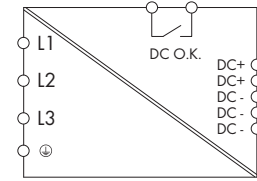
Description	Item No.	Pack. Unit
Switched-mode power supply, 24 VDC / 40 A	787-736	1

Technical Data	
Input:	
Nominal input voltage $V_{i, \text{nom}}$	100 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 ... 370 VDC (use of DC requires external protection)
Frequency	47 Hz ... 63 Hz
Input current I_i	< 6 A at 230 VAC; < 12 A at 115 VAC
Discharge current	< 3.5 mA
Inrush current	< 30 A at 230 VAC; < 25 A at 115 VAC
Mains failure hold-up time	> 17 ms at AC 230 V / nominal load
Power factor	> 0.94 at 230 VAC > 0.98 at 115 VAC
Output:	
Nominal output voltage $V_{o, \text{nom}}$	24 VDC (SELV)
Output voltage range	22 ... 28 VDC adjustable
Output current I_o	40 A at 24 VDC
Factory preset	24 VDC
Adjustment accuracy	1 %
Residual ripple	< 100 mV (peak-peak)
Overload behavior	Constant power (in overload range: 1.15 ... 1.4 x I_o); shutdown and automatic restart in the event of a short circuit
Operational indication	LED green (24 V DC o.k.), LED red (overload)
Signaling	Contact DC o.k.; make contact (max. 31.2 V / 20 mA)
Efficiency/Power losses:	
Efficiency	90 % typ.
Power loss P_v	107 W at AC 230 V / nominal load
Fuse protection:	
Internal fuse	20 AT / 250 V
External fuse	Circuit breakers 13 A, 16 A, 20 A, characteristic: B or C An external DC fuse is required for the DC input voltage

Technical Data	
Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Rel. humidity	95 % (no condensation)
Derating	-2.66 % / K (> 55 °C); -2 % / V ($V_i < 100$ VAC)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage PRI-SEC/PRI-GND/ SEC-GND/SEC-DC OK	3 kV AC / 1.5 kV AC / 0.5 kV AC / 0.5 kV AC
Protection class	Prepared for class I equipment
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage protection	via varistor at primary circuit
Short circuit protection	yes
No-load proof	yes
Feedback voltage	29 VDC
Parallel operation	yes
Series connection	yes
MTBF	> 250000 h
Connection and type of mounting:	
Wire connection	Input/Signalising: WAGO 2706 Series Output: WAGO 2716 Series
Cross sections	Input/Signalising: 0.5 mm ² ... 6 mm ² / AWG 20 ... 10 Output: 1.5 mm ² ... 16 mm ² / AWG 16 ... 6
Strip lengths	Input/Signalising: 11 ... 12 mm / 0.43 ... 0.47 in Output: 12 ... 13 mm / 0.47 ... 0.51 in
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	170 x 136 x 150
Weight	Length from upper-edge of DIN 35 rail 3500 g
Standards and approvals:	
Standards/Specifications	EN 60950 (SELV)*, EN 61000-6-2*, EN 61000-6-3*, UL 60950*, UL 508* (* pending)

Switched-Mode Power Supply

EPSITRON® ECO Power



- Suitable for protection class I equipment
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Fast and tool-free termination via lever-actuated terminal blocks
- DC O.K. contact
- Parallel operation
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1

Description	Item No.	Pack. Unit
Switched-mode power supply, 24 VDC / 6.25 A	787-738	1

Technical Data	
Input:	
Nominal input voltage $V_{i, nom}$	3 x (2 x) 400 V ... 500 VAC
Input voltage range	325 V ... 575 VAC; 460 V ... 800 VDC
Frequency	47 Hz ... 63 Hz
Input current I_i	3 x 0.4 A at 400 VAC and 6.25 ADC
Power factor	≥ 0.6
Discharge current	< 3.5 mA
Inrush current	< 25 A
Mains failure hold-up time	> 17 ms at 3x 400 VAC
Output:	
Nominal output voltage $V_{o, nom}$	24 VDC (SELV)
Output voltage range	22 ... 28 VDC adjustable
Output current I_o	6.25 A at 24 VDC
Factory preset	24 VDC
Adjustment accuracy	1 %
Residual ripple	< 80 mV _{pp}
Overload behavior	Power limitation at 1.15 ... 1.4 x I_o ; Shutdown in the event of a short-circuit and permanent overload
Operational indication	Green LED (V_o) Red LED (overload)
Signaling	DC O.K. contact; Make contact (max. 31.2 V / 20 mA)
Efficiency/Power losses:	
Efficiency	87 % typ.
Power loss P_V	18.5 W
Max. power loss P_V	20 W
Fuse protection:	
Internal fuse	3 x T2A
External fuse	3 x circuit breakers 10 A, 16 A, B or C characteristic, or motor circuit breakers
	External DC fuse required for DC input voltage
Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Rel. humidity	95% (no condensation permissible)

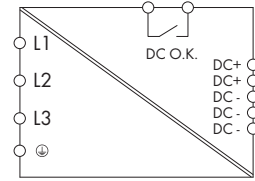
Technical Data	
Environmental requirements:	
Derating	-2 % / K ($> +50$ °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage PRI-SEC/PRI-GND/ SEC-GND/SEC-DC OK	3 kV AC / 1.5 kV AC / 0.5 kV AC / 0.5 kV AC
Protection class	Prepared for class I equipment
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage protection	yes
Short circuit protection	yes
No-load proof	yes
Feedback voltage	30 V
Parallel operation	yes
Series connection	yes
MTBF	> 250000 h
Connection and type of mounting:	
Wire connection	Input/Output: WAGO 2706 Series Signaling: WAGO 2091 Series
Cross sections	Input/Output: 0.5 mm ² ... 6 mm ² / AWG 20 ... 10 Signaling: 0.2 mm ² ... 1.5 mm ² / AWG 24 ... 14
Strip lengths	Input/Output: 11 ... 12 mm / 0.43 ... 0.47 in Signaling: 8 ... 9 mm / 0.31 ... 0.35 in
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	50 x 130 x 92 Length from upper-edge of DIN 35 rail
Weight	3500 g
Standards and approvals:	
Standards/Specifications	EN 60950, EN 61000-6-2, EN 61000-6-3, UL 60950*, UL 508* (* pending)

Switched-Mode Power Supply

EPSITRON® ECO Power



- Suitable for protection class I equipment
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Fast and tool-free termination via lever-actuated terminal blocks
- DC O.K. contact
- Parallel operation
- Electrically isolated output voltage (SELV) acc. to EN 60950-1/UL 60950-1



Description	Item No.	Pack. Unit
Switched-mode power supply, 24 VDC / 12.5 A	787-740	1

Technical Data

Input:

Nominal input voltage $V_{i, nom}$	3 x (2 x) 400 V ... 500 VAC
Input voltage range	325 V ... 575 VAC; 460 V ... 800 VDC
Frequency	47 Hz ... 63 Hz
Input current I_i	3 x 0.6 A at 400 VAC and 12.5 ADC
Power factor	≥ 0.6
Discharge current	< 3.5 mA
Inrush current	< 25 A
Mains failure hold-up time	> 17 ms at 3x 400 VAC

Output:

Nominal output voltage $V_{o, nom}$	24 VDC (SELV)
Output voltage range	22 ... 28 VDC adjustable
Output current I_o	12.5 A at 24 VDC
Factory preset	24 VDC
Adjustment accuracy	1 %
Residual ripple	< 80 mV _{pp}
Overload behavior	Power limitation at 1.15 ... 1.4 x I_o ; Shutdown in the event of a short-circuit and permanent overload

Operational indication	Green LED (V_o) Red LED (overload)
Signaling	DC O.K. contact; Make contact (max. 31.2 V / 20 mA)

Efficiency/Power losses:

Efficiency	89 % typ.
Power loss P_V	32.5 W
Max. power loss P_V	36 W

Fuse protection:

Internal fuse	3 x T2A
External fuse	3 x circuit breakers 10 A, 16 A, B or C characteristic, or motor circuit breakers
	External DC fuse required for DC input voltage

Environmental requirements:

Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Rel. humidity	95% (no condensation permissible)

Technical Data

Environmental requirements:

Derating	-2 % / K (> +50 °C)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)

Safety and protection:

Test voltage PRI-SEC/PRI-GND/ SEC-GND/SEC-DC OK	3 kV AC / 1.5 kV AC / 0.5 kV AC / 0.5 kV AC
Protection class	Prepared for class I equipment
Degree of protection	IP20 (acc. to EN 60529)
Oversvoltage protection	yes
Short circuit protection	yes
No-load proof	yes
Feedback voltage	30 V
Parallel operation	yes
Series connection	yes
MTBF	> 250000 h

Connection and type of mounting:

Wire connection	Input/Output: WAGO 2706 Series Signaling: WAGO 2091 Series
Cross sections	Input/Output: 0.5 mm ² ... 6 mm ² / AWG 20 ... 10 Signaling: 0.2 mm ² ... 1.5 mm ² / AWG 24 ... 14
Strip lengths	Input/Output: 11 ... 12 mm / 0.43 ... 0.47 in Signaling: 8 ... 9 mm / 0.31 ... 0.35 in
Type of mounting	DIN-rail mount (EN 60715)

Dimensions and weight:

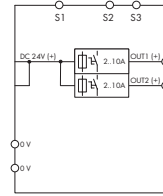
Dimensions (mm) W x H x L	65 x 130 x 130 Length from upper-edge of DIN 35 rail
Weight	2120 g

Standards and approvals:

Standards/Specifications	EN 60950, EN 61000-6-2, EN 61000-6-3, UL 60950*, UL 508* (* pending)
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Electronic Circuit Breaker

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- Space-saving electronic circuit breaker with 2 channels
- 2–10 A nominal current, adjustable for each channel via sealable selector switch
- Switch-on capacity > 50,000 μ F per channel
- One illuminated bi-color button per channel simplifies switching (on/off), resetting, and on-site diagnostics
- Time-delayed switching of channels
- Tripped message (group signal)
- Status message for each channel via pulse sequence
- Remote input resets tripped channels or switches on/off any number of channels via pulse sequence

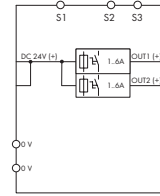
Description	Item No.	Pack. Unit
Electronic circuit breaker, 24 VDC / 2 x 10 A	787-1662	1

Technical Data	
Input:	
Nominal input voltage $V_{i\text{nom}}$	24 VDC
Input voltage range	18 ... 30 VDC
Output:	
Nominal output voltage $V_{o\text{nom}}$	2 x 24 VDC
Nominal current	max. 2 x 10 ADC (2, 3, 4, 6, 8, 10 A adjustable for each channel via selector switch)
Voltage drop	200 mV at 10 A
Trip time	Load-dependent (16 ms ... 100 s)
Switch-on capacity	> 50,000 μ F per channel
Switch-on behavior	Time-delayed channel switching (load-dependent, min. 50 ms / max. 5 s)
Operational indication	Green LED (O.K. channel), Red LED (tripped channel)
Signaling	2 x LED (green/red/orange)
Remote input	Reactivation of all tripped channels via 15–30 VDC pulse for min. 500 ms. Switching on/off any number of channels via pulse sequence.
Efficiency/Power losses:	
Efficiency	99 % typ.
Power loss P_V	5.5 W (nominal load)
Fuse protection:	
Internal fuse	15 AT per channel

Technical Data	
Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	30% ... 85% (no condensation permissible)
Derating	no derating
Safety and protection:	
Test voltage	500 VDC (connectors to housing)
Protection class	III
Reverse voltage protection	no
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage protection	via 33 V suppressor diode at input
Feedback voltage	max. 35 VDC
Series connection of several devices	not permitted
Parallel operation of single channels	not permitted
Connection and type of mounting:	
Wire connection	Input (+): WAGO 831 Series Input (-), output, signaling: WAGO 721 Series
Cross sections	Input (+): 0.5 mm ² ... 10 mm ² / AWG 20 ... 8 Input (-), output, signaling: 0.08 mm ² ... 2.5 mm ² / AWG 28 ... 12
Strip lengths	Input (+): 13 ... 15 mm / 0.55 in Input (-), output, signaling: 8 ... 9 mm / 0.33 in
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	45 x 90 x 115.5 Length from upper-edge of DIN 35 rail
Weight	200 g
Standards and approvals:	
Standards/Specifications	UL 508, UL 2367, GL*, EN 60950, EN 61000-6-2, EN 61000-6-3 (* pending)

Electronic Circuit Breaker

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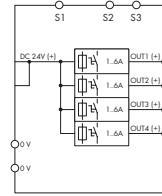


- Space-saving electronic circuit breaker with 4 channels
- 2–10 A nominal current, adjustable for each channel via sealable selector switch
- Switch-on capacity > 50,000 μ F per channel
- One illuminated bi-color button per channel simplifies switching (on/off), resetting, and on-site diagnostics
- Time-delayed switching of channels
- Tripped message (group signal)
- Status message for each channel via pulse sequence
- Remote input resets tripped channels or switches on/off any number of channels via pulse sequence

Description	Item No.	Pack. Unit
Electronic circuit breaker, 24 VDC / 2 x 6 A	787-1662/106-000	1

Technical Data	
Input:	
Nominal input voltage $V_{i, nom}$	24 VDC
Input voltage range	18 ... 30 VDC
Output:	
Nominal output voltage $V_{o, nom}$	2 x 24 VDC
Nominal current	max. 2 x 6 ADC
	(1, 2, 3, 4, 5, 6 A adjustable for each channel via selector switch)
Voltage drop	120 mV at 6 A
Trip time	Load-dependent (16 ms ... 100 s)
Switch-on capacity	> 50,000 μ F per channel
Switch-on behavior	Time-delayed channel switching (load-dependent, min. 50 ms / max. 5 s)
Operational indication	Green LED (O.K. channel), Red LED (tripped channel)
Signaling	2 x LED (green/red/orange)
Remote input	Reactivation of all tripped channels via 15–30 VDC pulse for min. 500 ms. Switching on/off any number of channels via pulse sequence.
Efficiency/Power losses:	
Efficiency	99 % typ.
Power loss P_V	2.5 W (nominal load)
Fuse protection:	
Internal fuse	15 AT per channel

Technical Data	
Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	30% ... 85% (no condensation permissible)
Derating	no derating
Safety and protection:	
Test voltage	500 VDC (connectors to housing)
Protection class	III
Reverse voltage protection	no
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage protection	via 33 V suppressor diode at input
Feedback voltage	max. 35 VDC
Series connection of several devices	not permitted
Parallel operation of single channels	not permitted
Connection and type of mounting:	
Wire connection	Input (+): WAGO 831 Series Input (-), output, signaling: WAGO 721 Series
Cross sections	Input (+): 0.5 mm ² ... 10 mm ² / AWG 20 ... 8 Input (-), output, signaling: 0.08 mm ² ... 2.5 mm ² / AWG 28 ... 12
Strip lengths	Input (+): 13 ... 15 mm / 0.55 in Input (-), output, signaling: 8 ... 9 mm / 0.33 in
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	45 x 90 x 115.5 Length from upper-edge of DIN 35 rail
Weight	170 g
Standards and approvals:	
Standards/Specifications	UL 508, UL 2367, GL*, EN 60950, EN 61000-6-2, EN 61000-6-3 (* pending)



- Space-saving electronic circuit breaker with 4 channels
- 1–6 A nominal current, adjustable for each channel via sealable selector switch
- Switch-on capacity > 50,000 μF per channel
- One illuminated bi-color button per channel simplifies switching (on/off), resetting, and on-site diagnostics
- Time-delayed switching of channels
- Tripped message (group signal)
- Status message for each channel via pulse sequence
- Remote input resets tripped channels or switches on/off any number of channels via pulse sequence

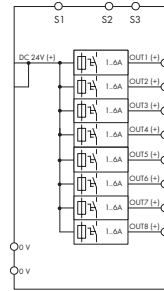
Description	Item No.	Pack. Unit
Electronic circuit breaker, 24 VDC / 4 x 6 A	787-1664/106-000	1

Technical Data	
Input:	
Nominal input voltage $V_{i\text{nom}}$	24 VDC
Input voltage range	18 ... 30 VDC
Output:	
Nominal output voltage $V_{o\text{nom}}$	4 x 24 VDC
Nominal current	max. 4 x 6 ADC
	(1, 2, 3, 4, 5, 6 A adjustable for each channel via selector switch)
Voltage drop	120 mV at 6 A
Trip time	Load-dependent (16 ms ... 100 s)
Switch-on capacity	> 50,000 μF per channel
Switch-on behavior	Time-delayed channel switching (load-dependent, min. 50 ms / max. 5 s)
Operational indication	Green LED (O.K. channel), Red LED (tripped channel)
Signaling	4 x LED (green/red/orange)
Remote input	Reactivation of all tripped channels via 15–30 VDC pulse for min. 500 ms. Switching on/off any number of channels via pulse sequence.
Efficiency/Power losses:	
Efficiency	99 % typ.
Power loss P_V	4.2 W (nominal load)
Fuse protection:	
Internal fuse	15 AT per channel

Technical Data	
Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	30% ... 85% (no condensation permissible)
Derating	no derating
Safety and protection:	
Test voltage	500 VDC (connectors to housing)
Protection class	III
Reverse voltage protection	no
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage protection	via 33 V suppressor diode at input
Feedback voltage	max. 35 VDC
Series connection of several devices	not permitted
Parallel operation of single channels	not permitted
Connection and type of mounting:	
Wire connection	Input (+): WAGO 831 Series Input (-), output, signaling: WAGO 721 Series
Cross sections	Input (+): 0.5 mm ² ... 10 mm ² / AWG 20 ... 8 Input (-), output, signaling: 0.08 mm ² ... 2.5 mm ² / AWG 28 ... 12
Strip lengths	Input (+): 13 ... 15 mm / 0.55 in Input (-), output, signaling: 8 ... 9 mm / 0.33 in
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	45 x 90 x 115.5 Length from upper-edge of DIN 35 rail
Weight	170 g
Standards and approvals:	
Standards/Specifications	UL 508, UL 2367, GL*, EN 60950, EN 61000-6-2, EN 61000-6-3 (* pending)

Electronic Circuit Breaker

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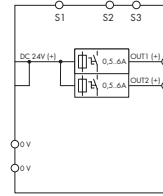


- Space-saving electronic circuit breaker with 8 channels
- 1–6 A nominal current, adjustable for each channel via sealable selector switch
- Switch-on capacity > 50,000 μF per channel
- One illuminated bi-color button per channel simplifies switching (on/off), resetting, and on-site diagnostics
- Time-delayed switching of channels
- Tripped message (group signal)
- Status message for each channel via pulse sequence
- Remote input resets tripped channels or switches on/off any number of channels via pulse sequence

Description	Item No.	Pack. Unit
Electronic circuit breaker, 24 VDC / 8 x 6 A	787-1668/106-000	1

Technical Data	
Input:	
Nominal input voltage $V_{i, \text{nom}}$	24 VDC
Input voltage range	18 ... 30 VDC
Output:	
Nominal output voltage $V_{o, \text{nom}}$	8 x 24 VDC
Nominal current	max. 8 x 6 ADC
	(1, 2, 3, 4, 5, 6 A adjustable for each channel via selector switch)
Voltage drop	120 mV at 6 A
Trip time	Load-dependent (16 ms ... 100 s)
Switch-on capacity	> 50,000 μF per channel
Switch-on behavior	Time-delayed channel switching (load-dependent, min. 50 ms / max. 5 s)
Operational indication	Green LED (O.K. channel), Red LED (tripped channel)
Signaling	8 x LED (green/red/orange)
Remote input	Reactivation of all tripped channels via 15–30 VDC pulse for min. 500 ms. Switching on/off any number of channels via pulse sequence.
Efficiency/Power losses:	
Efficiency	99 % typ.
Power loss P_V	8 W (nominal load)
Fuse protection:	
Internal fuse	15 AT per channel

Technical Data	
Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	30% ... 85% (no condensation permissible)
Derating	no derating
Safety and protection:	
Test voltage	500 VDC (connectors to housing)
Protection class	III
Reverse voltage protection	no
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage protection	via 33 V suppressor diode at input
Feedback voltage	max. 35 VDC
Series connection of several devices	not permitted
Parallel operation of single channels	not permitted
Connection and type of mounting:	
Wire connection	Input (+): WAGO 831 Series Input (-), output, signaling: WAGO 721 Series
Cross sections	Input (+): 0.5 mm ² ... 10 mm ² / AWG 20 ... 8 Input (-), output, signaling: 0.08 mm ² ... 2.5 mm ² / AWG 28 ... 12
Strip lengths	Input (+): 13 ... 15 mm / 0.55 in Input (-), output, signaling: 8 ... 9 mm / 0.33 in
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	42 x 127 x 142.5
	Length from upper-edge of DIN 35 rail
Weight	440 g
Standards and approvals:	
Standards/Specifications	UL 508, UL 2367, GL*, EN 60950, EN 61000-6-2, EN 61000-6-3 (* pending)



- Space-saving electronic circuit breaker with 2 channels
- 0.5–6 A nominal current, adjustable for each channel via sealable selector switch
- Active current limitation
- Switch-on capacity > 65000 μ F per channel
- One illuminated bi-color button per channel simplifies switching (on/off), resetting, and on-site diagnostics
- Time-delayed switching of channels
- Tripped message (group signal)
- Status message for each channel via pulse sequence
- Remote input resets tripped channels or switches on/off any number of channels via pulse sequence

Description	Item No.	Pack. Unit
Electronic circuit breaker, 24 VDC / 2 x 6 A	787-1662/006-1000	1

Technical Data

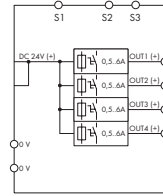
Input:	
Nominal input voltage $V_{i\text{nom}}$	24 VDC
Input voltage range	18 ... 30 VDC
Output:	
Nominal output voltage $V_{o\text{nom}}$	2 x 24 VDC
Nominal current	max. 2 x 6 ADC (0.5, 1, 2, 3, 4, 6 A adjustable for each channel via selector switch)
Voltage drop	145 mV at 6 A
Trip time	Load-dependent (16 ms ... 100 s)
Switch-on capacity	> 65,000 μ F per channel
Switch-on behavior	Time-delayed channel switching (load-dependent, min. 50 ms / max. 5 s)
Operational indication	Green LED (O.K. channel), Red LED (tripped channel)
Signaling	2 x LED (green/red/orange)
Remote input	Reactivation of all tripped channels via 15–30 VDC pulse for min. 500 ms. Switching on/off any number of channels via pulse sequence.
Efficiency/Power losses:	
Efficiency	99 % typ.
Power loss P_V	2.5 W (nominal load)
Fuse protection:	
Internal fuse	15 AT per channel

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	30% ... 85% (no condensation permissible)
Derating	no derating
Safety and protection:	
Test voltage	500 VDC (connectors to housing)
Protection class	III
Reverse voltage protection	no
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage protection	via 33 V suppressor diode at input
Feedback voltage	max. 35 VDC
Series connection of several devices	not permitted
Parallel operation of single channels	not permitted
Connection and type of mounting:	
Wire connection	Input (+): WAGO 831 Series Input (-), output, signaling: WAGO 721 Series
Cross sections	Input (+): 0.5 mm ² ... 10 mm ² / AWG 20 ... 8 Input (-), output, signaling: 0.08 mm ² ... 2.5 mm ² / AWG 28 ... 12
Strip lengths	Input (+): 13 ... 15 mm / 0.55 in Input (-), output, signaling: 8 ... 9 mm / 0.33 in
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	45 x 90 x 115.5 Length from upper-edge of DIN 35 rail
Weight	170 g
Standards and approvals:	
Standards/Specifications	UL 508*, UL 2367*, GL*, EN 60950, EN 61000-6-2, EN 61000-6-3 (* pending)

Electronic Circuit Breaker

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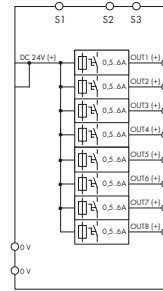


- Space-saving electronic circuit breaker with 4 channels
- 0.5–6 A nominal current, adjustable for each channel via sealable selector switch
- Active current limitation
- Switch-on capacity > 65000 µF per channel
- One illuminated bi-color button per channel simplifies switching (on/off), resetting, and on-site diagnostics
- Time-delayed switching of channels
- Tripped message (group signal)
- Status message for each channel via pulse sequence
- Remote input resets tripped channels or switches on/off any number of channels via pulse sequence

Description	Item No.	Pack. Unit
Electronic circuit breaker, 24 VDC / 4 x 6 A	787-1664/006-1000	1

Technical Data	
Input:	
Nominal input voltage $V_{i, nom}$	24 VDC
Input voltage range	18 ... 30 VDC
Output:	
Nominal output voltage $V_{o, nom}$	4 x 24 VDC
Nominal current	max. 4 x 6 ADC (0.5, 1, 2, 3, 4, 6 A adjustable for each channel via selector switch)
Voltage drop	145 mV at 6 A
Trip time	Load-dependent (16 ms ... 100 s)
Switch-on capacity	> 65,000 µF per channel
Switch-on behavior	Time-delayed channel switching (load-dependent, min. 50 ms / max. 5 s)
Operational indication	Green LED (O.K. channel), Red LED (tripped channel)
Signaling	4 x LED (green/red/orange)
Remote input	Reactivation of all tripped channels via 15–30 VDC pulse for min. 500 ms. Switching on/off any number of channels via pulse sequence.
Efficiency/Power losses:	
Efficiency	99 % typ.
Power loss P_V	4.3 W (nominal load)
Fuse protection:	
Internal fuse	15 AT per channel

Technical Data	
Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	30% ... 85% (no condensation permissible)
Derating	no derating
Safety and protection:	
Test voltage	500 VDC (connectors to housing)
Protection class	III
Reverse voltage protection	no
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage protection	via 33 V suppressor diode at input
Feedback voltage	max. 35 VDC
Series connection of several devices	not permitted
Parallel operation of single channels	not permitted
Connection and type of mounting:	
Wire connection	Input (+): WAGO 831 Series Input (-), output, signaling: WAGO 721 Series
Cross sections	Input (+): 0.5 mm ² ... 10 mm ² / AWG 20 ... 8 Input (-), output, signaling: 0.08 mm ² ... 2.5 mm ² / AWG 28 ... 12
Strip lengths	Input (+): 13 ... 15 mm / 0.55 in Input (-), output, signaling: 8 ... 9 mm / 0.33 in
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	45 x 90 x 115.5 Length from upper-edge of DIN 35 rail
Weight	170 g
Standards and approvals:	
Standards/Specifications	UL 508*, UL 2367*, GL*, EN 60950, EN 61000-6-2, EN 61000-6-3 (* pending)



- Space-saving electronic circuit breaker with 8 channels
- 0.5–6 A nominal current, adjustable for each channel via sealable selector switch
- Active current limitation
- Switch-on capacity > 65000 μF per channel
- One illuminated bi-color button per channel simplifies switching (on/off), resetting, and on-site diagnostics
- Time-delayed switching of channels
- Tripped message (group signal)
- Status message for each channel via pulse sequence
- Remote input resets tripped channels or switches on/off any number of channels via pulse sequence

Description	Item No.	Pack. Unit
Electronic circuit breaker, 24 VDC / 8 x 6 A	787-1668/006-1000	1

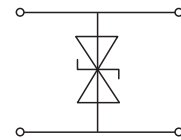
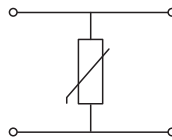
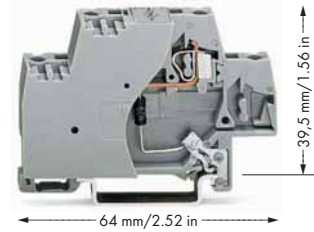
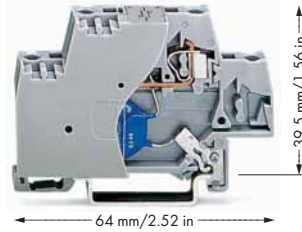
Technical Data

Input:	
Nominal input voltage $V_{i\text{nom}}$	24 VDC
Input voltage range	18 ... 30 VDC
Output:	
Nominal output voltage $V_{o\text{nom}}$	8 x 24 VDC
Nominal current	max. 8 x 6 ADC (0.5, 1, 2, 3, 4, 6 A adjustable for each channel via selector switch)
Voltage drop	155 mV at 6 A
Trip time	Load-dependent (16 ms ... 100 s)
Switch-on capacity	> 65,000 μF per channel
Switch-on behavior	Time-delayed channel switching (load-dependent, min. 50 ms / max. 5 s)
Operational indication	Green LED (O.K. channel), Red LED (tripped channel)
Signaling	8 x LED (green/red/orange)
Remote input	Reactivation of all tripped channels via 15–30 VDC pulse for min. 500 ms. Switching on/off any number of channels via pulse sequence.
Efficiency/Power losses:	
Efficiency	99 % typ.
Power loss P_V	8.6 W (nominal load)
Fuse protection:	
Internal fuse	15 AT per channel

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	30% ... 85% (no condensation permissible)
Derating	no derating
Safety and protection:	
Test voltage	500 VDC (connectors to housing)
Protection class	III
Reverse voltage protection	no
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage protection	via 33 V suppressor diode at input
Feedback voltage	max. 35 VDC
Series connection of several devices	not permitted
Parallel operation of single channels	not permitted
Connection and type of mounting:	
Wire connection	Input (+): WAGO 831 Series Input (-), output, signaling: WAGO 721 Series
Cross sections	Input (+): 0.5 mm ² ... 10 mm ² / AWG 20 ... 8 Input (-), output, signaling: 0.08 mm ² ... 2.5 mm ² / AWG 28 ... 12
Strip lengths	Input (+): 13 ... 15 mm / 0.55 in Input (-), output, signaling: 8 ... 9 mm / 0.33 in
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	42 x 127 x 142.5 Length from upper-edge of DIN 35 rail
Weight	440 g
Standards and approvals:	
Standards/Specifications	UL 508*, UL 2367*, GL*, EN 60950, EN 61000-6-2, EN 61000-6-3 (* pending)

	Varistor V_{BN} 24 V AC/DC ... 230 VAC; I_{SN} 300 A ... 1 kA Nominal current: 20 A Terminal block width: 10 mm/0.394 in.	Suppressor diode V_{BN} 24 V AC/DC ... 230 VAC; I_{SN} 37 ... 305 A Nominal current: 20 A Terminal block width: 10 mm/0.394 in.
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Description	V_N	Item No.	Pack. Unit	V_N	Item No.	Pack. Unit
Double-deck terminal blocks with surge suppression device	24 VDC	280-504/281-582	25	24 VDC	280-944/281-589	25
	48 VDC	280-504/281-583	25	48 VDC	280-944/281-590	25
	60 VDC	280-504/281-584	25	60 VDC	280-944/281-591	25
	110 VDC	280-502/281-585	25	110 VDC	280-944/281-592	25
	24 VAC	280-504/281-586	25	24 VAC	280-944/281-593	25
	115 VAC	280-504/281-587	25	115 VAC	280-944/281-594	25
	230 VAC	280-504/281-588	25	230 VAC	280-944/281-595	25

Technical Data	V_N	Max. Operating Voltage $V_{B \max.}$	Nominal Discharge Current I_{SN}	Max. Surge Current $I_{S \max.}$	Capacity	Protection Level
Terminal blocks with varistor and end plate	24 VDC	31 VDC	300 A	1 kA	≤ 4.6 nF	77 VDC
	48 VDC	56 VDC	300 A	1 kA	≤ 2.8 nF	135 VDC
	60 VDC	85 VDC	1 kA	4.5 kA	≤ 1.7 nF	165 VDC
	110 VDC	150 VDC	1 kA	4.5 kA	≤ 0.8 nF	300 VDC
	24 VAC	30 VAC	300 A	1 kA	≤ 3.5 nF	93 VAC
	115 VAC	150 VAC	1 kA	4.5 kA	≤ 0.57 nF	360 VAC
	230 VAC	275 VAC	1 kA	4.5 kA	≤ 0.32 nF	710 VAC
Terminal blocks with suppressor diode and end plate	24 VDC	28 VDC	305 A		≤ 2.7 nF	59 VDC
	48 VDC	53 VDC	162 A		≤ 1.7 nF	111 VDC
	60 VDC	70 VDC	123 A		≤ 1.35 nF	146 VDC
	110 VDC	128 VDC	68 A		≤ 0.85 nF	265 VDC
	24 VAC	26 VAC	258 A		≤ 2.4 nF	70 VAC
	115 VAC	133 VAC	46 A		≤ 0.63 nF	388 VAC
	230 VAC	253 VAC	37 A		≤ 0.4 nF	706 VAC

Technical Data		
Wire connection	CAGE CLAMP®	
Cross sections	0.08 mm ² ... 2.5 mm ² / AWG 28 ... 14	0.08 mm ² ... 2.5 mm ² / AWG 28 ... 14
Strip lengths	8 ... 9 mm / 0.33 in	8 ... 9 mm / 0.33 in

7 Modular Empty Housing, 2857 Series

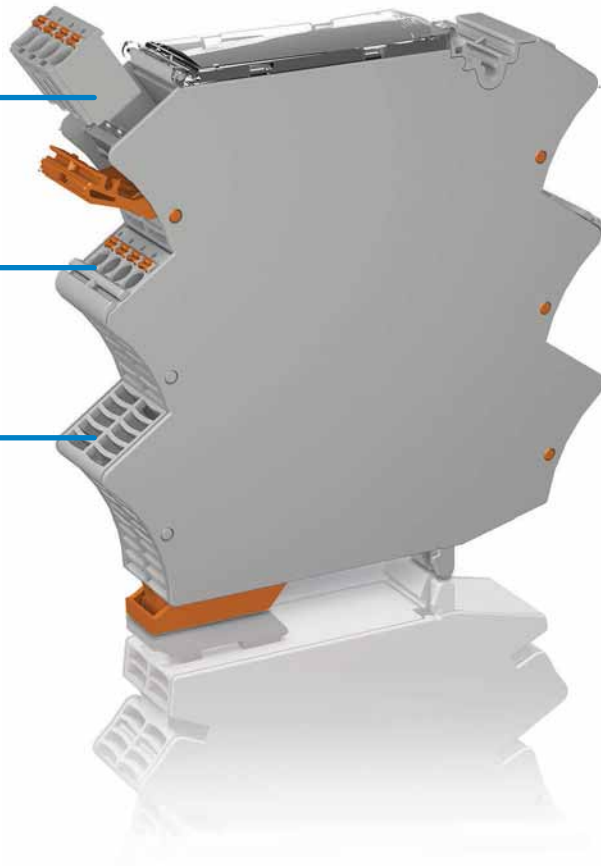
160 Overview and Configuration

Pluggable connection with *picoMAX*[®]

Fixed connection with *picoMAX*[®]

Empty slot without connection technology

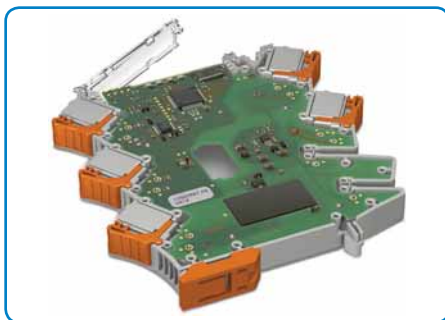
... freely selectable at each connection point



Supplied as a pre-assembled unit



1. Pre-assembled unit






2. Inserting and soldering the PCB.



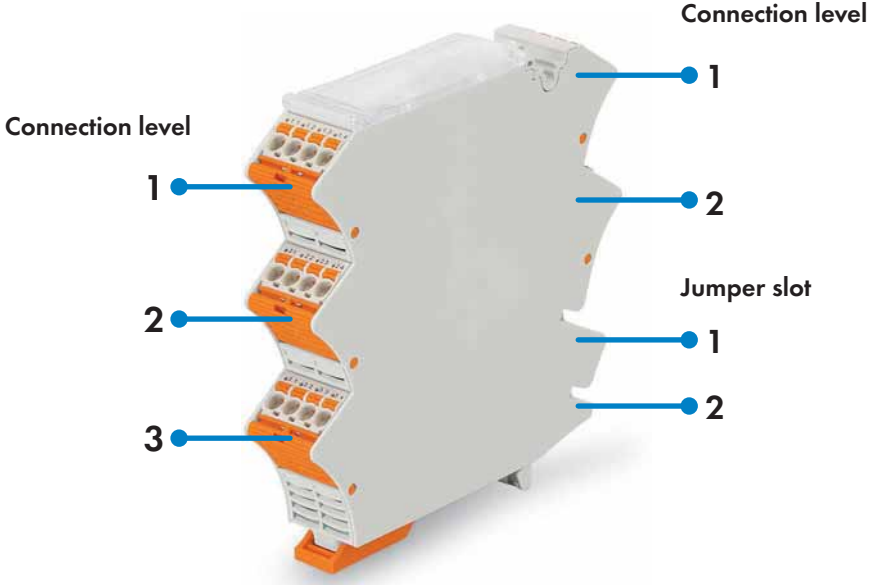
3. Snapping on side wall.

Housing configuration

Housing width: 12.5 mm	 2857-101	 2857-102	 2857-103	-
Housing width: 22.5 mm	 2857-121	 2857-122	 2857-123	 2857-124
Connection levels	2-2	3-2	3-3	1-1
Jumper slots	2-2	0-2	0-0	2-2

Mixed configuration (fixed/removable/empty slot) upon request.

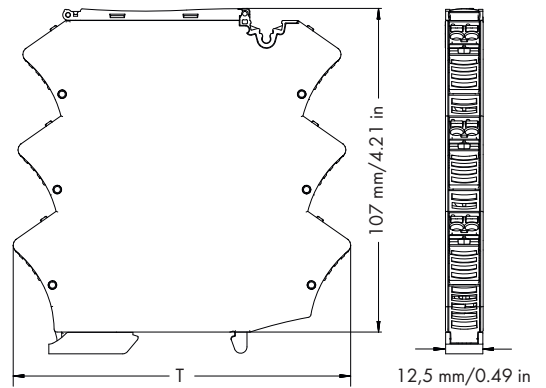
Example of connection level and jumper slot assignment:



Connection levels	3-2
Jumper slots	0-2

Modular Empty Housing

Housing width: 12.5 mm



Features:

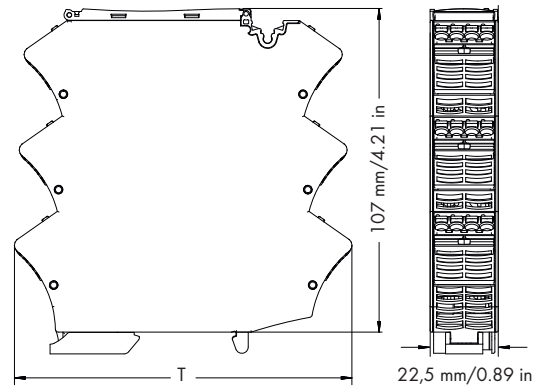
- picoMAX® female connectors, with coding keys, 2-pole
- Pre-assembled unit
- Flexible conductor termination
- Customization of connection levels
- Various marking options available
- Sealable, transparent cover
- Commoning option via 859-402 jumpers

Technical Data: Empty Housing	
Material Data:	
Housing material	PC
Flammability rating	V0
Environmental Requirements:	
Ambient operating temperature	-40 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Dimensions:	
Dimensions (mm) W x H x L	12.5 x 107 x 108 (2857-101)
	12.5 x 107 x 110 (2857-102)
	12.5 x 107 x 112 (2857-103)
	Height from upper-edge of DIN 35 rail
Technical Data:	
Power loss	2 W
Accessories	Coding key carrier: 2092-1610
	Jumpers: 859-402
	Marker strips, WMB and
	WMB Inline: see Full Line Catalog
	INTERFACE ELECTRONIC 2012/2013,
	pages 402 and 408

Description	Item No.	Pack. Unit
Modular Empty Housing, for DIN 35 rail		
Housing width: 12.5 mm		
2-2 connection levels, 2-2 jumper slots	2857-101	10
3-2 connection levels, 0-2 jumper slots	2857-102	10
3-3 connection levels, 0-0 jumper slots	2857-103	10
Technical Data: Female Connector with picoMAX® 5.0 Conductor Termination		
Technical Data:		
Pin spacing	5 mm / 0.197 in	
Ratings per	IEC/EN 60664-1	
Overvoltage category EN	III	II
Pollution degree	3	2
Rated voltage EN	250 V	320 V
Rated surge voltage	4 kV	4 kV
Nominal current	16 A	16 A
Approvals per	UL/CSA	
Use group UL 1059	B	C
Rated voltage	300 V	300 V
Nominal current UL	15 A	10 A
Conductor Data:		
Wire connection	CAGE CLAMP® S	
Solid sizes	0.2 ... 2.5 mm² / AWG 24 ... 12	
Fine-stranded wires	0.2 ... 2.5 mm² / AWG 24 ... 12	
Fine-stranded wires with insulated ferrule	0.2 ... 1.5 mm² / AWG 24 ... 16	
Fine-stranded wires with uninsulated ferrule	0.2 ... 2.5 mm² / AWG 24 ... 14	
Strip length	9 ... 10 mm / 0.35 ... 0.39 in	
Material Data:		
Clamping spring material	Chrome nickel spring steel (CrNi)	
Contact material	Electrolytic copper (Ecu)	
Contact plating	Tin-plated	
Insulating material	Polyphthalamide glass fiber (PPA-GF)	
Flammability rating	V0	
For additional technical data, see WAGO's picoMAX® catalog.		

Modular Empty Housing

Housing width: 22.5 mm



Features:

- *picoMAX*[®] female connectors, with coding keys, 4-pole
- Pre-assembled unit
- Flexible conductor termination
- Customization of connection levels
- Various marking options available
- Sealable, transparent cover
- Commoning option via 859-402 jumpers

Technical Data: Empty Housing

Material Data:	
Housing material	PC
Flammability rating	V0
Environmental Requirements:	
Ambient operating temperature	-40 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Dimensions:	
Dimensions (mm) W x H x L	22.5 x 107 x 108 (2857-121)
	22.5 x 107 x 110 (2857-122)
	22.5 x 107 x 112 (2857-123)
	22.5 x 107 x 105 (2857-124)
	Height from upper-edge of DIN 35 rail
Technical Data:	
Power loss	3 W
Accessories	Coding key carrier: 2092-1610
	Jumpers: 859-402
	Marker strips, WMB and
	WMB Inline: see Full Line Catalog
	INTERFACE ELECTRONIC 2012/2013,
	pages 402 and 408

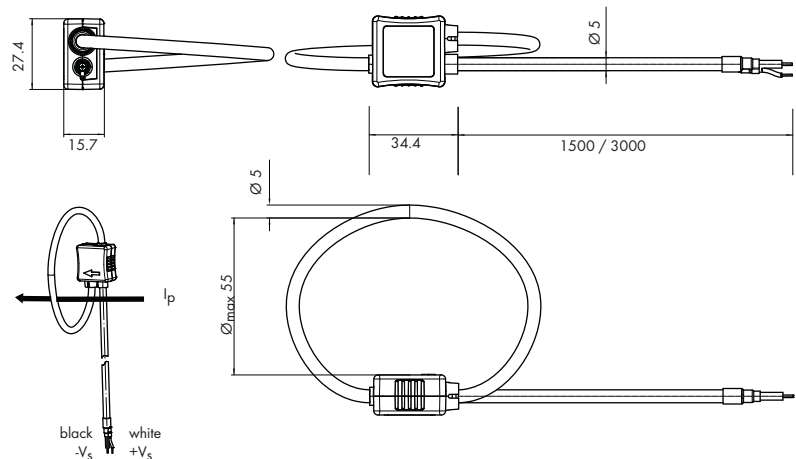
Description	Item No.	Pack. Unit
Modular Empty Housing, for DIN 35 rail		
Housing width: 22.5 mm		
2-2 connection levels, 2-2 jumper slots	2857-121	5
3-2 connection levels, 0-2 jumper slots	2857-122	5
3-3 connection levels, 0-0 jumper slots	2857-123	5
1-1 connection levels, 2-2 jumper slots	2857-124	5

Technical Data: Female Connector with *picoMAX*[®] 5.0 Conductor Termination

Technical Data:			
Pin spacing	5 mm / 0.197 in		
Ratings per	IEC/EN 60664-1		
Overtolerance category EN	III	III	II
Pollution degree	3	2	2
Rated voltage EN	250 V	320	630 V
Rated surge voltage	4 kV /	4 kV	4 kV
Nominal current	16 A	16 A	16 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	15 A	-	10 A
Conductor Data:			
Wire connection	CAGE CLAMP [®] S		
Solid sizes	0.2 ... 2.5 mm ² / AWG 24 ... 12		
Fine-stranded wires	0.2 ... 2.5 mm ² / AWG 24 ... 12		
Fine-stranded wires with insulated ferrule	0.2 ... 1.5 mm ² / AWG 24 ... 16		
Fine-stranded wires with uninsulated ferrule	0.2 ... 2.5 mm ² / AWG 24 ... 14		
Strip length	9 ... 10 mm / 0.35 ... 0.39 in		
Material Data:			
Clamping spring material	Chrome nickel spring steel (CrNi)		
Contact material	Electrolytic copper (Ecu)		
Contact plating	Tin-plated		
Insulating material	Polyphthalamide glass fiber (PPA-GF)		
Flammability rating	V0		

For additional technical data, see WAGO's *picoMAX*[®] catalog.

Rogowski Coils RT 500



Output voltage (open output, no load)

- dynamic	$V_{out} = M \times dI_p/dt$
- sinusoidal signal	$V_{out} = 2 \times \pi \times M \times f \times I_p AC$
	Example: $V_{out} = 2 \times \pi \times 0.064 \mu H \times 50 \text{ Hz} \times 500 \text{ A} = 10.05 \text{ mV}$

Short description:

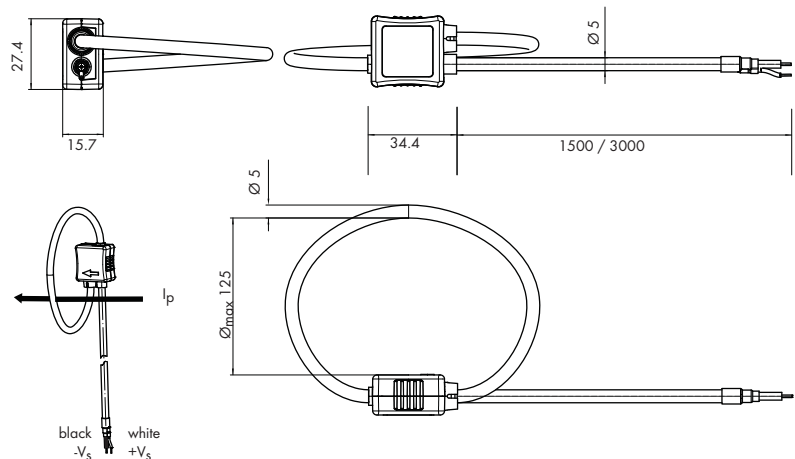
The Rogowski coil is a closed-air coil with non-magnetic split core, placed around a conductor or a current bar. The magnetic field produced by the AC current flowing through the conductor induces an output voltage in the coil. This measurement procedure provides galvanic isolation between the primary circuit (power) and secondary circuit (measurement). Easy placement of the Rogowski coils allows existing systems to be retrofitted without time-consuming installation or process interruption. The Rogowski coil can be used together with the 789-652 Signal Conditioner or the 857-552 Rogowski Transducer.

Features:

- Split-core style coil for easy installation
- Ø 55 mm coil aperture for non-contact measurement
- 1.5 m or 3 m output cable
- Insulated plastic case to UL 94-V0

Description	Item No.	Pack. Unit
Rogowski Coil RT 500, 1.5 m output cable	855-9100/500-000	3
Rogowski Coil RT 500, 3 m output cable	855-9300/500-000	3
Approvals		
Conformity marking	CE	
Standards/Specifications	IEC 61010-1:2001 (2nd edition), IEC 61010-2-032:2002, IEC 61010-031:2002 + A1:2008	
Technical Data		
Electrical data		
Primary rated current I_{pN}	500 A _{rms}	
Coil inductance ($\pm 5\%$)	125 μ H	
Coil resistance	40 Ω	
	(at 20 °C ambient operating temperature, typ.)	
Transfer ratio M	0.064 μ H (WAGO provides uncalibrated coils with 5% tolerance)	
Output signal	Example shown above 10.05 mV at $I_{pN} = 500 \text{ A}$, sinusoidal, 50 Hz (open output, no load)	
Max. operating frequency	700 kHz (open output, no load)	

Technical Data	
Accuracy and dynamic performance:	
Linearity error	none
Temperature coefficient	30 ppm/K, related to transfer ratio M
Positioning error	855-9100/500-000: max. 0.65 % 855-9300/500-000: max. 0.80 % (considering a primary conductor of at least Ø 15 mm perpendicular to the coil)
Safety and protection:	
Nominal isolation voltage	300 V _{rms} (between primary conductor and ground)
Voltage for isolation test	3.5 kV _{rms} AC / 50 Hz / 1 min
Impulse withstand voltage (1.2/50 μ s)	6.5 kV
Adjacent contacts	6 mm / 6 mm
Comparative Tracking Index (CTI, group I)	600 V (plastic parts)
Degree of protection	IP2X
General specifications:	
Cable length	855-9100/500-000: 1.5 m 855-9300/500-000: 3 m
Ambient operating temperature	-10 °C ... +65 °C
Storage temperature	-25 °C ... +70 °C
Weight	85 g



Output voltage (open output, no load)

- dynamic	$V_{out} = M \times dI_p/dt$
- sinusoidal signal	$V_{out} = 2 \times \pi \times M \times f \times I_p \text{ AC}$
	Example: $V_{out} = 2 \times \pi \times 0.064 \mu\text{H} \times 50 \text{ Hz} \times 2000 \text{ A} = 40.2 \text{ mV}$

Short description:

The Rogowski coil is a closed-air coil with non-magnetic split core, placed around a conductor or a current bar. The magnetic field produced by the AC current flowing through the conductor induces an output voltage in the coil. This measurement procedure provides galvanic isolation between the primary circuit (power) and secondary circuit (measurement). Easy placement of the Rogowski coils allows existing systems to be retrofitted without time-consuming installation or process interruption. The Rogowski coil can be used together with the 857-552 Rogowski Transducer.

Features:

- Split-core style coil for easy installation
- Ø 125 mm coil aperture for non-contact measurement
- 1.5 m or 3 m output cable
- Insulated plastic case to UL 94-V0

Description	Item No.	Pack. Unit
Rogowski Coil RT 2000, 1.5 m output cable	855-9100/2000-000	3
Rogowski Coil RT 2000, 3 m output cable	855-9300/2000-000	3
Approvals		
Conformity marking	CE	
Standards/Specifications	IEC 61010-1:2001 (2nd edition), IEC 61010-2-032:2002, IEC 61010-031:2002 + A1:2008	
Technical Data		
Electrical data		
Primary rated current I_{pN}	2000 A _{rms}	
Coil inductance ($\pm 5\%$)	190 μH	
Coil resistance	60 Ω	
	(at 20 °C ambient operating temperature, typ.)	
Transfer ratio M	0.064 μH (WAGO provides uncalibrated coils with 5% tolerance)	
Output signal	Example shown above 40.2 mV at $I_{pN} = 2000 \text{ A}$, sinusoidal, 50 Hz (open output, no load)	
Max. operating frequency	500 kHz (open output, no load)	

Technical Data	
Accuracy and dynamic performance:	
Linearity error	none
Temperature coefficient	30 ppm/K, related to transfer ratio M
Positioning error	855-9100/2000-000: max. 0,65 % 855-9300/2000-000: max. 0,80 % (considering a primary conductor of at least Ø 15 mm perpendicular to the coil)
Safety and protection:	
Nominal isolation voltage	300 V _{rms} (between primary conductor and ground)
Voltage for isolation test	3.5 kV _{rms} AC / 50 Hz / 1 min
Impulse withstand voltage (1.2/50 μs)	6.5 kV
Adjacent contacts	6 mm / 6 mm
Comparative Tracking Index (CTI, group I)	600 V (plastic parts)
Degree of protection	IP2X
General specifications:	
Cable length	855-9100/2000-000: 1.5 m 855-9300/2000-000: 3 m
Ambient operating temperature	-10 °C ... +65 °C
Storage temperature	-25 °C ... +70 °C
Weight	90 g

Plug-In Current Transformers

	Plug-In Current Transformers Secondary rated current: 1 A	Plug-In Current Transformers Secondary rated current: 5 A
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Short description:

The 855 Series Plug-In Current Transformers are inductive, single-conductor current transformers. Based on the principle of measurement, current transformers of this type are used exclusively in AC networks.

Features:

- Screwless CAGE CLAMP® connection technology
- Several mounting options available
- Vibration- and shock-resistant
- High mechanical retention forces
- High current-carrying capacity
- Continuous overload of 120 % the nominal primary current
- Low-voltage current transformer for max. operating voltages up to 1.2 kV
- Can be used in 690 V power networks
- UL Recognized Components



Description	I _{pN}	I _{sN}	S _N	G	Item No.	Pack. Unit	I _{pN}	I _{sN}	S _N	G	Item No.	Pack. Unit
Plug-In Current Transformers	50 A	1 A	1.25	3	855-301/050-103	1	50 A	5 A	1.25	3	855-305/050-103	1
	60 A	1 A	1.25	1	855-301/060-101	1	60 A	5 A	1.25	1	855-305/060-101	1
	75 A	1 A	2.5VA	1	855-301/075-201	1	75 A	5 A	2.5VA	1	855-305/075-201	1
	100 A	1 A	2.5VA	1	855-301/100-201	1	100 A	5 A	2.5VA	1	855-305/100-201	1
	150 A	1 A	5VA	1	855-301/150-501	1	150 A	5 A	5VA	1	855-305/150-501	1
	200 A	1 A	5VA	1	855-301/200-501	1	200 A	5 A	5VA	1	855-305/200-501	1
	250 A	1 A	5VA	1	855-301/250-501	1	250 A	5 A	5VA	1	855-305/250-501	1
I _{pN} = Primary rated current	400 A	1 A	10VA	1	855-301/400-1001	1	400 A	5 A	10VA	1	855-305/400-1001	1
I _{sN} = Secondary rated current	600 A	1 A	10VA	1	855-301/600-1001	1	600 A	5 A	10VA	1	855-305/600-1001	1
S _N = Rated power	400 A	1 A	5VA	1	855-401/400-501	1	400 A	5 A	5VA	1	855-405/400-501	1
G = Accuracy class	1000 A	1 A	10VA	1	855-501/1000-1001	1	1000 A	5 A	10VA	1	855-505/1000-1001	1

Technical Data

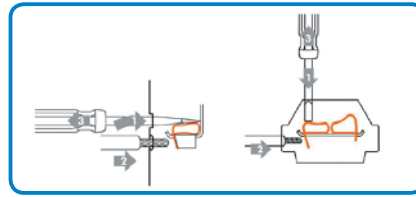
Input:		
Rated continuous thermal current I _{ctH}	1.2 x I _N	1.2 x I _N
Rated short-time thermal current I _{th}	60 x I _N (max.100 kA), 1 s	60 x I _N (max.100 kA), 1 s
Max. operating voltage V _m	1.2 kV	1.2 kV
Rated frequency	50 Hz ... 60 Hz	50 Hz ... 60 Hz
Overcurrent limiting factor	FS5 or FS10 (type-dependent, see type plate inscription)	FS5 or FS10 (type-dependent, see type plate inscription)
Environmental requirements:		
Ambient operating temperature	-5 °C ... +50 °C	-5 °C ... +50 °C
Storage temperature	-25 °C ... +70 °C	-25 °C ... +70 °C
Max. operating altitude	1000 m	1000 m
Safety and protection:		
Test voltage	6 kV _{rms} AC / 50 Hz / 1 min	6 kV _{rms} AC / 50 Hz / 1 min
Insulation class	E	E
Connection and type of mounting:		
Connection technology (1)	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm ² ... 4 mm ² / AWG 28 ... 12	0.08 mm ² ... 4 mm ² / AWG 28 ... 12
Strip lengths	9 ... 10 mm / 0.37 in	9 ... 10 mm / 0.37 in
Standards and approvals:		
Conformity marking	CE	CE
Standards/Specifications	DIN EN 60044-1 (12/2003) VDE 0414-1 (12/2003)	DIN EN 60044-1 (12/2003) VDE 0414-1 (12/2003)
UL (Recognized Components)	E356480	E356480

Accessories	Item No.	Pack. Unit
Carrier rail adapter for plug-in current transformers (for 855-3xx/xxx-xxxx and 855-4xx/xxx-xxxx)	855-9900	1
Quick-mount kit	855-9910	1
Operating tool, with partially insulated shaft, type 2, blade (3.5 x 0.5) mm	210-720	1

855 Series

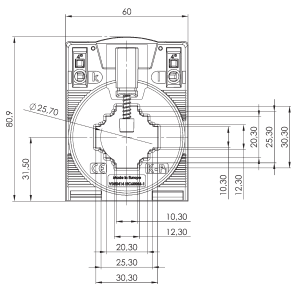
Connection / Connection Assignment

Implementation of the primary winding is designated with "K-P1" and "L-P2." Connections for the secondary winding are designated with the corresponding lower case letters "k-S1" and "l-S2."



Dimensions:

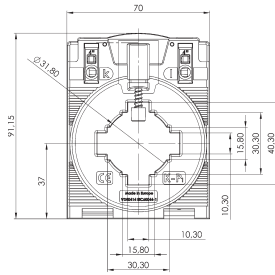
Item No.
855-3xx/xxxx-xxxx



Current bar 1: 30 x 10 mm
Current bar 2: 25 x 12 mm
Current bar 3: 20 x 20 mm
Round cable: 26 mm

Width: 60 mm
Overall height: 80.5 mm
Overall depth: 52 mm

Item No.
855-4xx/xxxx-xxxx

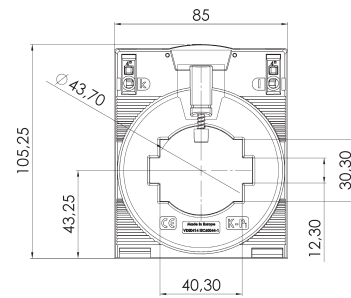


Current bar 1: 40 x 10 mm
Current bar 2: 30 x 15 mm

Round cable: 32 mm

Width: 70 mm
Overall height: 91 mm
Overall depth: 52 mm

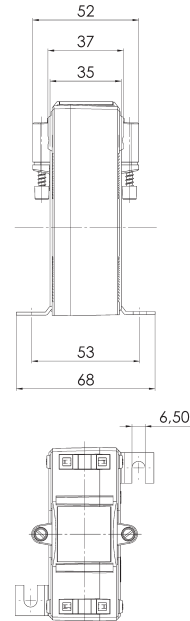
Item No.
855-5xx/xxxx-xxxx



Current bar 1: 50 x 12 mm
Current bar 2: 40 x 30 mm

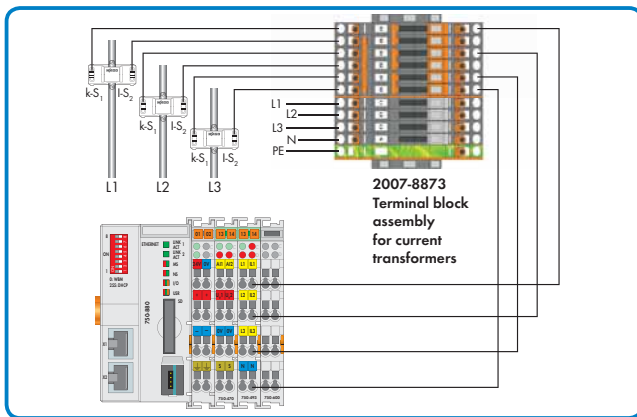
Round cable: 44 mm

Width: 85 mm
Overall height: 105.25 mm
Overall depth: 52 mm

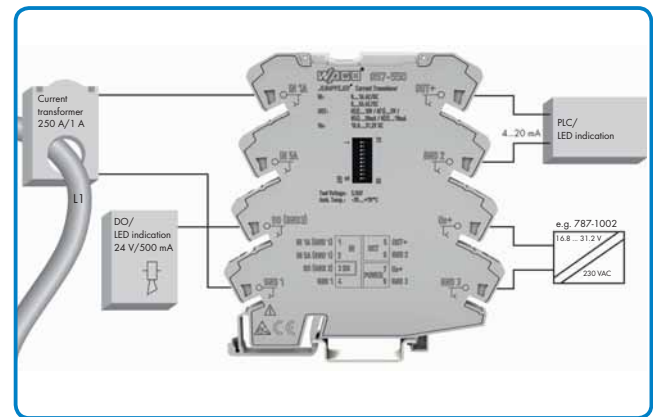


Application examples:

750 Series (3-Phase Power Measurement Module)



857 Series (JUMPFLEX® Current Transducer)



Mounting Options



Mounting on round cable



Mounting on copper current bar



Mounting on carrier rail with carrier rail adapter



Mounting on mounting plate



Quick-mount installation for conductors

Note:

* The carrier rail adapter is only suitable for 855-3xx/xxxx-xxxx and 855-4xx/xxxx-xxxx transformers.

Plug-In Current Transformers, 855 Series

with **picoMAX[®]** pluggable connector

Primary rated current: 35 A
Secondary rated current: 1 A

Primary rated current: 64 A
Secondary rated current: 1 A

Short description:

The 855 Series Plug-In Current Transformers are inductive, single-conductor current transformers. Due to the measurement principle used, these current transformers are exclusively designed for AC network applications.

Features:

- First current transformer featuring **picoMAX[®]** connection technology
- Also suitable for space-restricted applications
- Simple assembly permits 17.5 mm phase spacing, allowing perfect adjustment to any circuit breaker.
- Easy mounting on DIN rails or panels via carrier rail adapter
- Converts currents from 64 A or 35 A to 1 A
- Accuracy class 1



Description	I _{pN}	I _{sN}	S _N	G	Item No.	Pack. Unit	I _{pN}	I _{sN}	S _N	G	Item No.	Pack. Unit
Plug-In Current Transformers	35 A	1 A	0.2VA	1	855-2701/035-001	15	64 A	1 A	0.2VA	1	855-2701/064-001	15
I _{pN} = Primary rated current												
I _{sN} = Secondary rated current												
S _N = Rated power												
G = Accuracy class												
Technical Data												
Input:												
Rated continuous thermal current I _{cth}				100 %						100 %		
Rated short-time thermal current I _{th}				60 x I _{pr} / 1 s						60 x I _{pr} / 1 s		
Rated surge current I _{dyn}				2.5 x I _{th}						2.5 x I _{th}		
Max. operating voltage V _m				0.72/3/- kV						0.72/3/- kV		
Rated frequency f _R				50 Hz ... 60 Hz						50 Hz ... 60 Hz		
Overcurrent limiting factor				FS5						FS5		
Environmental requirements:												
Ambient operating temperature				-10 °C ... +55 °C						-10 °C ... +55 °C		
Storage temperature				-20 °C ... +70 °C						-20 °C ... +70 °C		
Rel. humidity				5 % ... 85 % (non-condensing)						5 % ... 85 % (non-condensing)		
Max. operating altitude				2000 m						2000 m		
Safety and protection:												
Degree of protection				IP20						IP20		
Insulation class				E (120 °C)						E (120 °C)		
Housing material				PA 6.6						PA 6.6		
Flammability rating				V2 (UL94)						V2 (UL94)		
Connection and type of mounting:												
Power cable feed-through				Ø 7.5 mm						Ø 7.5 mm		
Wire connection				CAGE CLAMP [®] S (picoMAX [®] 3.5, 2091-1122)						CAGE CLAMP [®] S (picoMAX [®] 3.5, 2091-1122)		
Cross sections				0.2 mm ² ... 1.5 mm ² / 24 ... 14						0.2 mm ² ... 1.5 mm ² / 24 ... 14		
Strip lengths				8 ... 9 mm / 0.31 ... 0.35 in						8 ... 9 mm / 0.31 ... 0.35 in		
Standards and approvals:												
Conformity marking				CE						CE		
Standards/Specifications				EN 61869-2:2012						EN 61869-2:2012		
Accessories					Item No.						Pack. Unit	
Carrier rail adapter for plug-in current transformer					855-9927						1	
Connector assembly for current transformer					2007-8873						1	
Operating tool, with partially insulated shaft, type 2, blade (3.5 x 0.5) mm					210-720						1	

855 Series

Termination



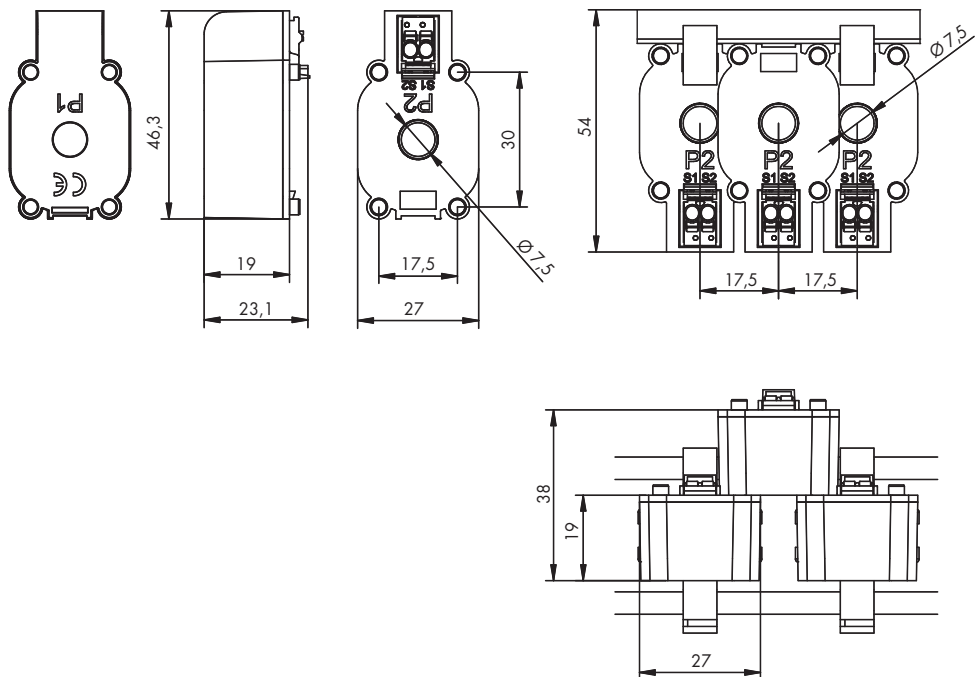
Mounting



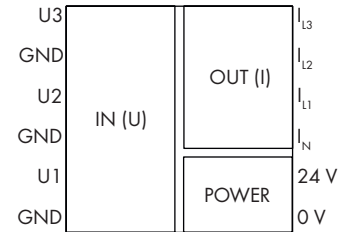
Application



Dimensions



Current Transducer for RT 2000 Rogowski Coils

**Short description:**

The Rogowski Current Transducer acquires 5–2000A alternating currents in a three-phase system.

The magnetic field produced around each conductor is sensed via three non-contact Rogowski coils and provided as a proportional voltage signal to the signal conditioner. The current transducer adjusts the phase of each of the three voltage signals, converting them into 100mA alternating current signals. These are then transmitted to the 750-494 3-Phase Power Measurement Module.

The 750-494 3-Phase Power Measurement Module within the WAGO-I/O-SYSTEM measures electrical data (e.g., voltages, currents, effective power and energy consumption) in a three-phase supply network. Thus, the user is always able to determine the load condition (imbalance, capacitive components), to optimize consumption and protect machines or systems from damage and breakdowns. Easy installation of Rogowski coils also allows existing systems to be retrofitted without process interruption.

Description	Item No.	Pack. Unit
Current Transducer for RT 2000 Rogowski Coils	789-654	1
Accessories		
Rogowski Coil RT 2000,		3
1.5 m output cable	855-9100/2000-000	
Rogowski Coil RT 2000,		3
3 m output cable	855-9300/2000-000	
Technical Data		
Input:		
Input signal	3 x RT 2000 (2000 A)	
Sensitivity	42.2 mV	
	50 Hz sinus	
Outputs		
Output signal	3 x 100 mA AC	
Rated output current	100 mA AC (for direct connection to 750-494 Phase Power Measurement Module)	
Overcurrent	3000 A (max. 150 mA per output)	

Technical Data	
General specifications:	
Supply voltage range	16.8 ... 32 V
Max. power consumption	4000 mW
Operational indication	LED, green
Degree of protection	IP20
Phase error	< 1°
Max. operating frequency	300 Hz (phase accuracy at 50 Hz only)
Linearity	≤ 0.1 %
Temperature coefficient	≤ 0.1 %/K
Transmission error	< 1.1 %
Response threshold	2 A
Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Safety and protection:	
Test voltage (input/output/supply)	2.5 kV AC, 50 Hz, 1 min.
Connection and type of mounting:	
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Strip lengths	5 ... 6 mm / 0.22 in
Dimensions and weight:	
Dimensions (mm) W x H x L	70 x 55 x 90
Weight	128.3 g
Standards and approvals:	
Conformity marking	CE
UL 508	(pending)

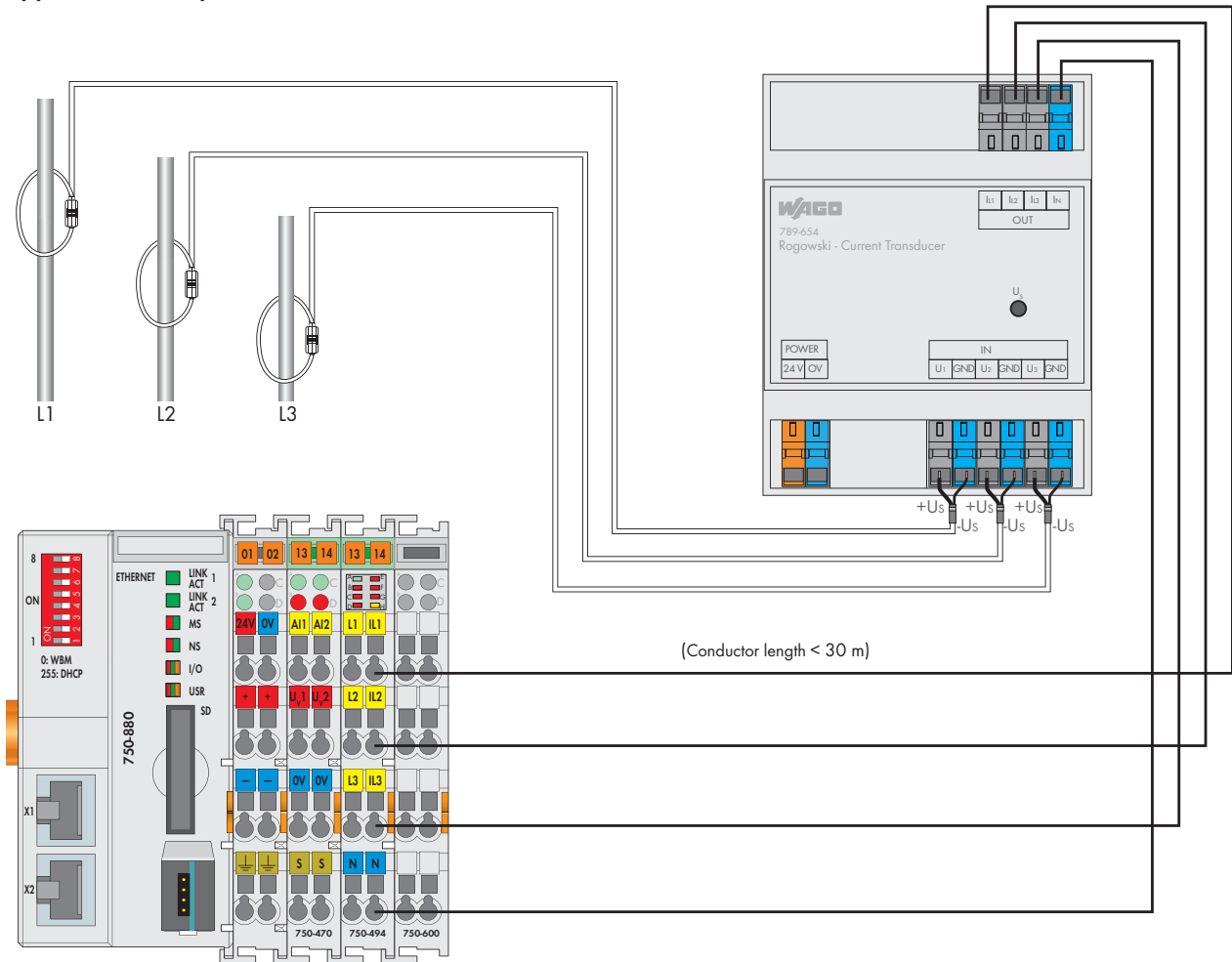
Recommended conductor sizes and lengths:

789-654

Conductor size in mm ²	Conductor length in m							
	1	2	3	5	10	15	20	25
0.14	0.26	0.51	0.77	1.28	2.55	3.83	5.10	6.38
0.34	0.11	0.21	0.32	0.53	1.05	1.58	2.10	2.63
0.5	0.07	0.14	0.21	0.36	0.71	1.07	1.43	1.79
0.75	0.05	0.10	0.14	0.24	0.48	0.71	0.95	1.19
1	0.04	0.07	0.11	0.18	0.36	0.54	0.71	0.89
1.25	0.03	0.06	0.09	0.14	0.29	0.43	0.57	0.71
1.5	0.02	0.05	0.07	0.12	0.24	0.36	0.48	0.60
2.5	0.01	0.03	0.04	0.07	0.14	0.21	0.29	0.36






Conductor resistance in Ω (total value for both outgoing and return conductors)
 Recommendation: Select the conductor size so that the conductor resistance is ≤ 0.3 Ω.

Application example:



Thermal Transfer Printer smartPRINTER



Description	Item No.	Pack. Unit
smartPRINTER		
includes:		
- Power supply unit and cable		
- USB cable		
- 1 x marking strip roll and WMB Inline markers		
- 2 x rollers		
- 1 x roll holder		
- 1 x ink ribbon		
- smartSCRIPT marking software and driver		
	258-5000	1
Accessories		
Ink ribbon for smartPRINTER		
	258-5005	1
Roller for markingSTRIP		
	258-5006	1
Roller for WMB Inline		
	258-5007	1
Roller for Mini-WSB Inline		
	258-5008	1
Carrying case for smartPRINTER		
light gray, with foam padding for printer		
Dimensions (W x H x D): 50 x 26 x 33 cm		
	258-5015	1

Technical Data	
Printing method	Thermal transfer
Print head	Glass layer, spring-mounted
Print speed	max. 127 mm/s (WAGO recommends 50.8 mm/s)
Print width (max.)	47 mm
Print length (max.)	762 mm
Print resolution	300 dpi (12 pixels/mm)
Transmissive/Reflective sensor	yes, centrally fixed
Operating display	Color TFT LCD with navigation button
Memory	8 MB Flash, 16 MB SDRAM
Interfaces	USB, RS-232, ETHERNET 10/100 Mbps
Operating voltage	100 ... 240 VAC, 50 ... 60 Hz (automatic adjustment)
Dimensions (W x H x D)	135 x 175 x 245 mm
Weight	2,000 g (without printing material)
Operating temperature	5 °C ... 40 °C (41 °F ... 104 °F)
Storage temperature	-20 °C ... 50 °C (-4 °F ... 122 °F)
Safety approvals	CE (EMC)
Ink ribbon	External roll diameter: 40 mm; Internal core diameter: 0.5" (12.7 mm); Max. length: 110 m; Max. width: 58 mm

Markers and Cable Marking

Markers	Cable Marking	Cable Marking
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Similar to picture

Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit
Mini-WSB Inline markers		Marker for marking sleeve		Marker for marking sleeve	
plain		12 x 4 mm		23 x 4 mm	
stretchable 5 ... 5.2 mm		2,500 pieces per roll		2,500 pieces per roll	
1,700 markers (5 mm) per roll		white	211-811	white	211-821
white	2009-145		1		1
Spare roller for TP 298+		Marking sleeve		Marking sleeve	
for accommodating the Mini-WSB Inline markers		Sleeve length: 12 mm		Sleeve length: 23 mm	
(for printer 04/2012 and later)		500 pcs		Mounting via cable tie	
	258-183	for 1.4-5 mm wire diameter		200 pcs	
	1	transparent	211-812	transparent	211-829
			1		1
		for 5-11 mm wire diameter			
		transparent	211-813		
			1		
		Marker for marking sleeve			
		23 x 4 mm			
		2,500 pieces per roll			
		white	211-821		
			1		
		Marking sleeve			
		Sleeve length: 23 mm			
		500 pcs			
		for 1.4-5 mm wire diameter			
		transparent	211-823		
			1		
		200 pcs			
		for 5-11 mm wire diameter			
		transparent	211-824		
			1		

Lables and Push-Button Markers

Continuous Labels	Push-Button Markers	Push-Button Markers
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Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit
Continuous labels		Push-button markers		Push-button markers	
Polyester, self-adhesive		semi-permanent adhesive		semi-permanent adhesive	
9 lengths at 25 m		1000 markers per roll		1000 markers per roll	
Width: 2.3 mm		26.5 x 18 mm		27 x 12.5 mm	
white	210-831	1	silver	210-850	1
Width: 3 mm		Plastic cover		Plastic cover	
white		100 covers		100 covers	
210-832		26.5 x 18 mm		27 x 12.5 mm	
5 lengths at 25 m		transparent		transparent	
Width: 5 mm		210-851		210-863	
white		1		1	
Width: 6 mm		Push-button markers		Push-button markers	
white		semi-permanent adhesive		permanent adhesive	
210-833		1000 markers per roll		350 markers per roll	
		27.5 x 17.5 mm		27 x 19 mm	
		silver		silver	
		210-856		210-852	
		1		1	
		Plastic cover		Universal push-button frame	
		100 covers		for 210-852	
		27.5 x 17.5 mm		100 pcs per bag	
		transparent		27 x 19 mm	
		210-857		black	
		1		210-853	
		1		1	
		Push-button markers		Push-button markers	
		semi-permanent adhesive		permanent adhesive	
		1000 markers per roll		350 markers per roll	
		22 x 22 mm		27 x 18 mm	
		silver		silver	
		210-858		210-855	
		1		1	
		Plastic cover		Label roll DD (device designation)	
		100 covers		Polyester	
		22 x 22 mm		500 labels per roll	
		transparent		28 x 28 mm	
		210-859		175 µm thick	
		1		silver	
		1		210-854	
		1		1	
		Push-button markers			
		semi-permanent adhesive			
		1000 markers per roll			
		27 x 27 mm			
		silver			
		210-860			
		1			
		Plastic cover			
		100 covers			
		27 x 27 mm			
		transparent			
		210-861			
		1			
		1			

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