RTD-Link™-LXRS®

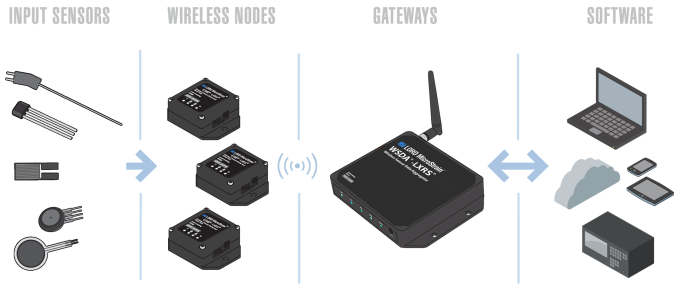
Wireless RTD Sensor Node

RTD-Link™-LXRS® - *specialized node designed for data acquisition from standard resistance temperature detectors*

LORD MicroStrain® LXRS® Wireless Sensor Networks enable simultaneous, high-speed sensing and data aggregation from scalable sensor networks. Our wireless sensing systems are ideal for sensor monitoring, data acquisition, performance analysis, and sensing response applications.

The **gateways** are the heart of the LORD MicroStrain wireless sensing system. They coordinate and maintain wireless transmissions across a network of distributed wireless sensor **nodes**. The LORD MicroStrain LXRS wireless communication protocol between LXRS nodes and gateways enable high-speed sampling, ±32 microseconds node- to- node synchronization, and lossless data throughput under most operating conditions.

Users can easily program nodes for data logging, continuous, and periodic burst sampling with the **Node Commander®** software. The web-based **SensorCloud™** interface optimizes data aggregation, analysis, presentation, and alerts for gigabytes of sensor data from remote networks.



Wireless Simplicity, Hardwired Reliability™

Product Highlights

- Features a standard resistance temperature detector (RTD) input and an embedded temperature sensor
- Software-programmable on-board linearization algorithms designed to support 2 or 4 wire PT100 RTD type sensors
- Small form factor, low power consumption, and wireless framework optimizes deployment in remote and long-term monitoring applications.
- High resolution data with 24-bit A/D converter
- User-programmable sample rates up to 64 Hz

Features and Benefits

High Performance

- Measurement accuracy to ±0.1% of full scale
- Lossless data throughput and node-to-node sampling synchronization of ±32 µS in LXRS-enabled modes
- Wireless range up to 2 km (800 m typical)

Ease of Use

- Scalable networks for easy expansion
- Remotely configure nodes, acquire and view sensor data with Node Commander®.
- Optional web-based SensorCloud™ interface optimizes data storage, viewing, alerts, and analysis.
- Easy custom integration with comprehensive SDK

Cost Effective

- Out-of-the box wireless sensing solution reduces development and deployment time.
- Volume discounts

Applications

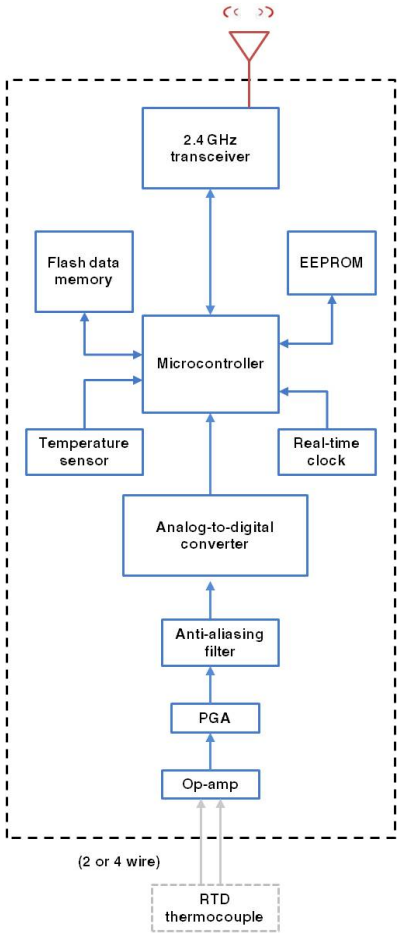
- Thermal profiling
- Refrigeration monitoring
- Production process monitoring
- Environmental monitoring

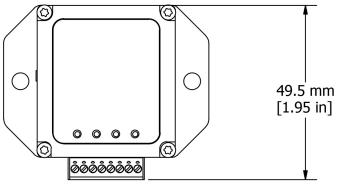
LORD MicroStrain®
SENSING SYSTEMS

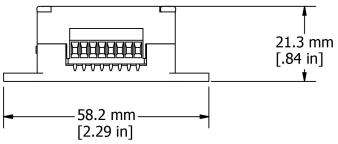
RTD-Link™-LXRS® Wireless RTD Sensor Node

Specifications

General	
Sensor input channels	**RTD sensor input**, 1 channel
Integrated sensors	**Temperature,** 1 channel
Data storage capacity	2 Megabytes (up to 500,000 data points)
Resistance Temperature Detector (RTD) Sensor Input	
Measurement range	-200 °C to 850 °C (depending on the RTD sensor)
Accuracy	± 0.1 % of full scale or ± 2 °C, whichever is greater (does not include error from sensor or wire)
Resolution	0.0625 °C, 24 bit
Repeatability	± 0.1 °C (does not include error from sensor or wire)
Integrated Temperature Channel	
Measurement range	-40 °C to 85 °C
Accuracy	± 0.5 °C (from 0 to 70 °C)
Resolution	12 bit
Sampling	
Sampling modes	Synchronized, low duty cycle
Sampling rates	**Continuous sampling:** 1 sample/hour to 64 Hz **Datalogging:** 1 sample/hour to 64 Hz
Sample rate stability	±3 ppm
Network capacity	Up to 2000 nodes per RF channel (and per gateway) depending on the number of active channels and sampling settings. Refer to the system bandwidth calculator: http://www.microstrain.com/configure-your-system
Synchronization between nodes	± 32 µsec
Operating Parameters	
Wireless communication range	Outdoor/line-of-sight: 2 km(ideal)*, 800 m (typical)** Indoor/obstructions: 50 m (typical)**
Radio frequency (RF) transceiver carrier	2.405 to 2.470 GHz direct sequence spread spectrum over 14 channels, license free worldwide, radiated power programmable from 0 dBm (1 mW) to 16 dBm (39 mW); low power option available for use outside the U.S.- limited to 10dBm (10mW)
RF communication protocol	IEEE 802.15.4
Power source	Internal: 3.7 V dc, 250 mAh, rechargeable Lithium polymer battery, External: 3.2 V dc to 9 V dc
Power consumption	25 mA at idle
Operating temperature	-20 ˚C to + 60 ˚C (extended temperature range available with custom battery/enclosure, -40 ˚C to + 85 ˚C electronics only)
Acceleration limit	500 *g* standard (high *g* option available)
Physical Specifications	
Dimensions	50 mm x 58 mm x 21 mm
Weight	49 grams
Enclosure material	ABS plastic
Environmental rating	Indoor use (unless mounted in a sealed enclosure)
Integration	
Compatible gateways	All WSDA® base stations and gateways
Compatible sensors	2 and 4 wire PT100 resistance temperature detectors (RTD)
Connectors	Screw terminal block
Software	SensorCloud™, SensorConnect™, Node Commander®, WSDA® Data Downloader, Live Connect™, Windows XP/Vista/7 compatible
Software development kit (SDK)	Data communications protocol available with EEPROM maps and sample code (OS and computing platform independent) http://www.microstrain.com/wireless/sdk
Regulatory compliance	FCC (U.S.), IC (Canada), ROHS







***Measured with antennas elevated, no obstructions, and no RF interferers.**
****Actual range varies depending on conditions such as obstructions, RF interference, antenna height, & antenna orientation.**

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