LORD **DATASHEET**

RTD-Link™-LXRS®

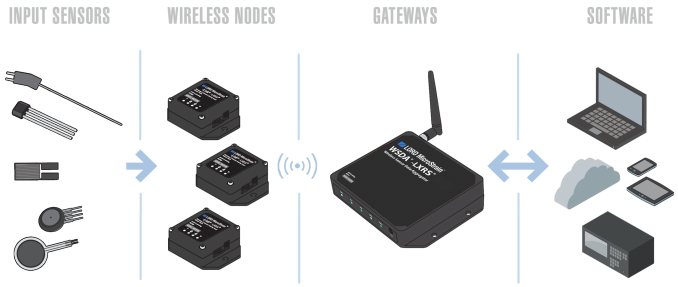
Wireless RTD Sensor Node

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 test and measurement, remote monitoring, system performance analysis, and embedded 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. Some nodes have integrated sensors, while others are designed with multi-sensor connectivity for application flexibility. 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.



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
- Remote configuration, acquisition, and display of sensor data with SensorConnect™ or Node Commander®
- Optional web-based SensorCloud™ platform optimizes data storage, viewing, alerts, and analysis.
- Easy custom integration with open-source, comprehensive communications and command library

Cost Effective

- End-to-end wireless sensing solution reduces development and deployment time
- Volume discounts

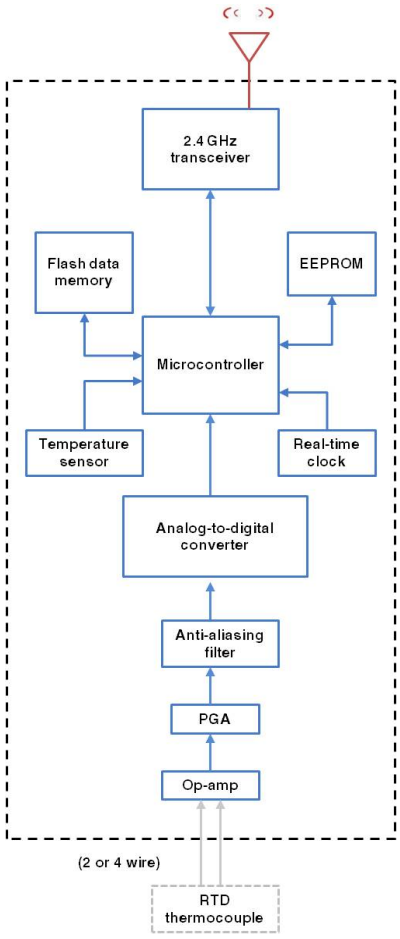
Applications

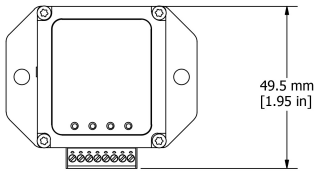
- Thermal profiling
- Refrigeration monitoring
- Production process monitoring
- Environmental monitoring

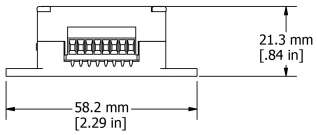
RTD-Link™-LXRS® Wireless RTD Sensor Node

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/software/mscl
Regulatory compliance	FCC (U.S.), IC (Canada), ROHS







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

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