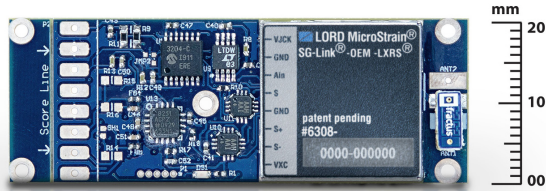


SG-Link[®]-OEM-LXRS[®]

Wireless 2 Channel Analog Input Sensor Node

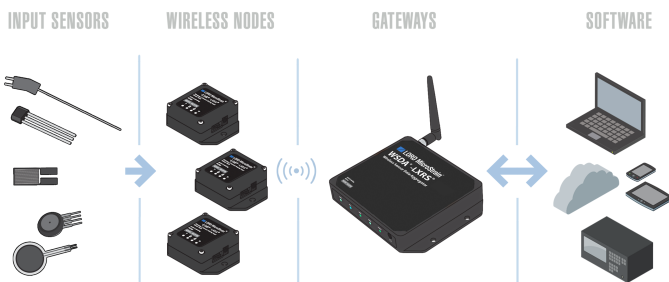


SG-Link[®]-OEM-LXRS[®] - small, low-cost two-channel analog sensor node ready for OEM integration

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

- One differential and one single-ended analog input channel and an internal temperature sensor
- Ideal for remote and long term measurement of many Wheatstone bridge and analog-type sensors including: strain, force, torque, pressure, acceleration, vibration, magnetic field, displacement, and geophones
- Continuous and periodic burst sampling modes, and datalogging to internal memory
- User-programmable sample rates up to 4096 Hz
- Comprehensive SDK and OEM form factor for rapid integration

Features and Benefits

High Performance

- Lossless data throughput and node-to-node sampling synchronization of $\pm 32 \mu\text{s}$ in LXRS[®]-enabled modes
- Wireless range up to 2 km (800 m typical)

Ease of Use

- Scalable networks for easy expansion
- Rapid deployment with wireless framework
- Low power consumption allows extended use
- Wide range of sample rates and duty cycles
- Optional web-based SensorCloud[™] platform optimizes data storage, viewing, alerts, and analysis.

Cost Effective

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

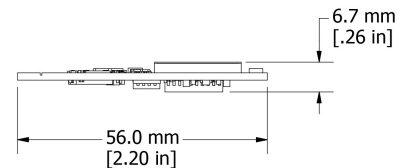
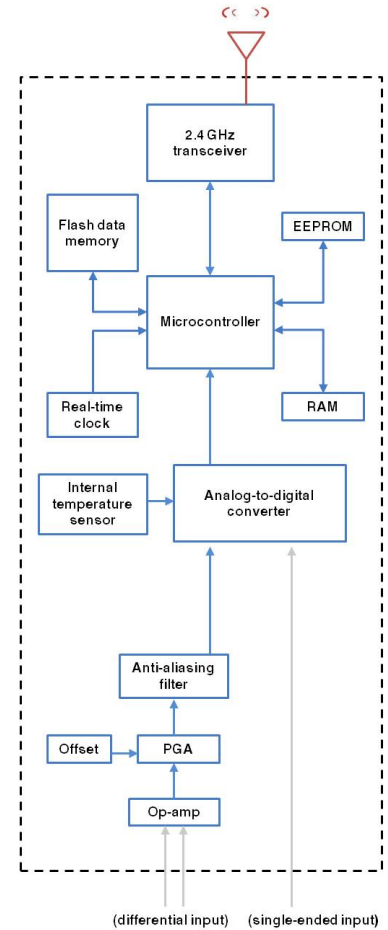
Applications

- Condition-based monitoring
- Structural health monitoring
- Test and measurement
- Robotics and machine control

SG-Link®-OEM-LXRS® Wireless 2 Channel Analog Input Sensor Node

Specifications

General	
Sensor input channels	Differential analog, 1 channel Single-ended analog, 1 channel
Integrated sensors	Internal temperature, 1 channel
Data storage capacity	2 M Bytes (up to 1 million data points)
Analog Input Channels	
Measurement range	Differential: full-bridge, $\geq 350 \Omega$ (bridge completion factory-configurable) Single-ended: 0 to 3 V dc
Resolution	12 bit
Accuracy	$\pm 0.1\%$ full scale typical
Anti-aliasing filter bandwidth	Single-pole Butterworth -3 dB cutoff @ 250 Hz (factory configurable)
Bridge excitation voltage	+3 V dc (pulsed @ sample rates ≤ 16 Hz to conserve power)
Measurement gain and offset	User-selectable in software on differential channels, gain values from 104 to 2560
Integrated Temperature Channel	
Measurement range	-40 °C to 85 °C
Accuracy	± 2 °C (at 25 °C) typical
Resolution	12 bit
Sampling	
Sampling modes	Synchronized, low duty cycle, datalogging
Sampling rates	Continuous sampling: 1 sample/hour to 512 Hz Periodic burst sampling: 32 Hz to 4096 Hz Datalogging: 32 Hz to 4096 Hz
Sample rate stability	± 3 ppm
Network capacity	Up to 2000 nodes per RF channel depending on sampling settings. Refer to the system bandwidth calculator: http://www.microstrain.com/configure-your-system
Synchronization between nodes	$\pm 32 \mu\text{sec}$
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 spread spectrum over 14 channels, power settings from 0 dBm (1 mW) to 16 dBm (39 mW)
RF communication protocol	IEEE 802.15.4
Power source	External: +3.2 to +9.0 V dc (9 V dc alkaline battery provided)
Power consumption	See power profile : http://files.microstrain.com/SG-Link-OEM-LXRS-Power-Profile.pdf
Operating temperature	-40 °C to +85 °C (excluding 9 V battery)
Acceleration limit	500 g standard (high g option available)
MTBF	1,300,000 hours (Telcordia method, SR332)
Physical Specifications	
Dimensions	56 mm x 20 mm x 6 mm
Weight	7 grams
Integration	
Compatible gateways	All WSDA® base stations and gateways
Compatible sensors	Differential analog sensors, 0 to 3 V dc analog sensors
Connectors	Solder pads or screw terminal connector
Shunt calibration	Internal shunt calibration resistor 499 K Ω
Software	SensorCloud™, Node Commander®, Windows 7 (or newer)
Software development kit (SDK)	Open-source MicroStrain Communications Library (MSCL) with sample code available in C++, Python, and .NET formats (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.

LORD SENSING

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