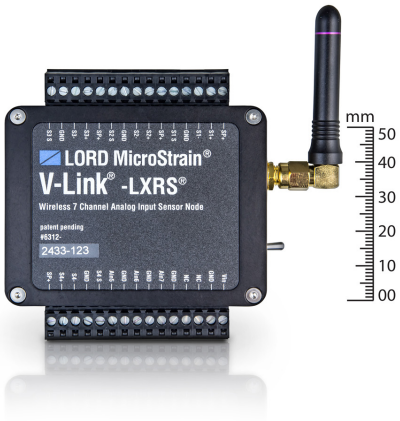
V-Link®-LXRS®

Wireless 7 Channel Analog Input Sensor Node

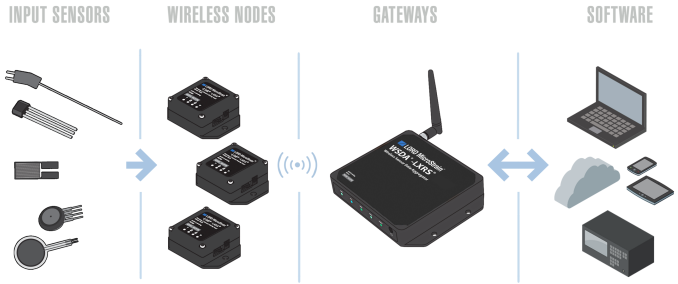


V-Link®-LXRS® - *versatile seven channel analog sensor node with high sample rates and datalogging capability*

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

- Four differential and three single-ended analog input channels 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
- Supports continuous, burst, and event-triggered sampling and datalogging to internal memory
- User-programmable sample rates up to 10 KHz
- IP65/66 environmental enclosures available

Features and Benefits

High Performance

- Lossless data throughput and node-to-node sampling synchronization of ±32 µS in LXRS-enabled modes
- High resolution data with 16-bit A/D converter
- Wireless range up to 2 km (800 m typical)

Ease of Use

- Scalable networks for easy expansion
- Rapid deployment with wireless framework
- 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

- Reduction of costs associated with wiring
- Low-cost per channel with 7 input channels per node

Applications

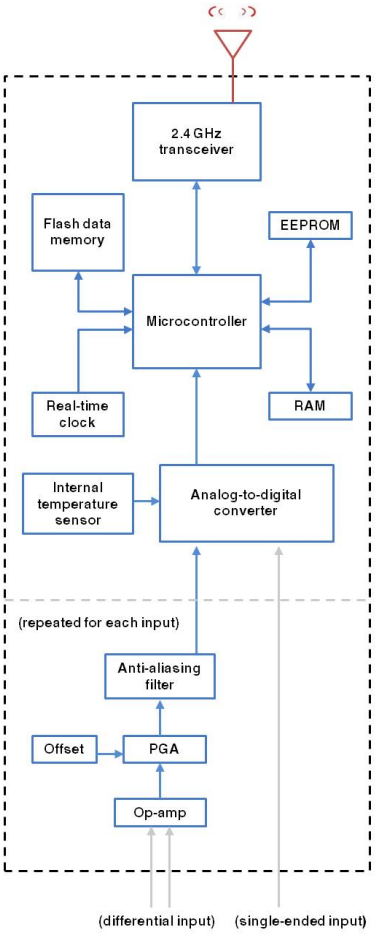
- Condition-based monitoring
- Structural load and stress monitoring
- Experimental test and measurement

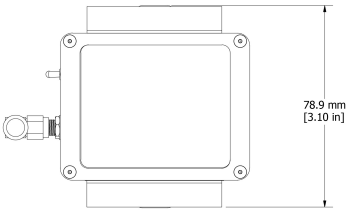
LORD MicroStrain®
SENSING SYSTEMS

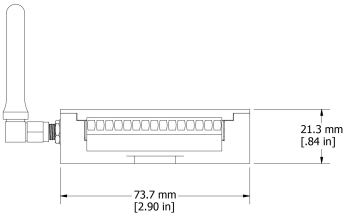
V-Link®-LXRS® Wireless 7 Channel Analog Input Sensor Node

Specifications

General	
Sensor input channels	**Differential analog,** 4 channels **Single-ended analog,** 3 channels
Integrated sensors	**Internal temperature,** 1 channel
Data storage capacity	4 M bytes (up to 2,000,000 data points, data type dependent)
Analog Input Channels	
Measurement range	Differential: full-bridge, ≥ 350 Ω (factory configurable) Single-ended: 0 to 3 V dc
Accuracy	± 0.1% full scale typical
Resolution	16 bit
Anti-aliasing filter bandwidth	Single-pole Butterworth -3 dB cutoff @ 250 Hz (factory configurable)
Bridge excitation voltage	+ 3 V dc, 50 mA total for all channels (pulsed @ sample rates ≤ 16 Hz to conserve power)
Measurement gain and offset	User-selectable in software on differential channels, gain values from 21 to 13074
Integrated Temperature Channel	
Measurement range	-40 °C to 85 °C
Accuracy	± 2 °C (at 25 °C) typical
Resolution	16 bit
Sampling	
Sampling modes	Synchronized, low duty cycle, datalogging, event-triggered
Sampling rates	**Continuous sampling:** 1 sample/hour to 512 Hz **Periodic burst sampling:** 32 Hz to 10 KHz **Datalogging:** 32 Hz to 10 KHz
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, 650 mAh Lithium ion rechargeable battery External: +3.2 to +9.0 V dc
Power consumption	See power profile : http://files.microstrain.com/V-Link-LXRS-Power-Profile.pdf
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	74 mm x 79 mm x 21 mm
Weight	141 grams
Environmental rating	Indoor use (IP65/66 enclosures available)
Enclosure material	Anodized aluminum
Integration	
Compatible gateways	All WSDA® base stations and gateways
Compatible sensors	Bridge type analog sensors, 0 to 3 V dc analog sensors
Connectors	Screw terminal block
Shunt calibration	Internal shunt calibration resistor 499 KΩ, differential channels
Software	SensorCloud™, SensorConnect™, Node Commander®, Windows XP/Vista/7
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), CE, 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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