

G-Link[®]-LXRS[®]

Wireless Accelerometer Node

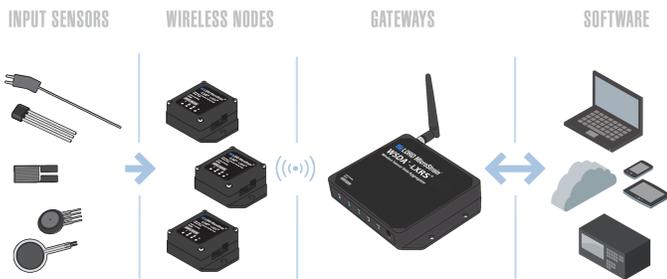


G-Link[®]-LXRS[®] - low-cost integrated accelerometer node with ± 2 or ± 10 g measurement range and many sampling options

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.



Wireless Simplicity, Hardwired Reliability[™]

Product Highlights

- On-board high-speed triaxial ± 2 g or ± 10 g MEMS accelerometer with an internal temperature sensor
- Wireless framework is ideal for measuring vibration, tilt, inclination, and acceleration in remote applications.
- Continuous, periodic burst, and event-triggered sampling, and datalogging to internal memory
- User-programmable sample rates up to 4096 Hz
- 2 MB on-board non-volatile data storage
- IP65/66 environmental enclosures available

Features and Benefits

High Performance

- Lossless data throughput and sampling synchronization of ± 32 μ S in LXRS[®]-enabled modes
- Wireless range up to 2 km (800 m typical)
- Standard, NIST, or ASTM factory calibration options

Ease of Use

- Rapid deployment with wireless framework
- Low power consumption allows extended use
- 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

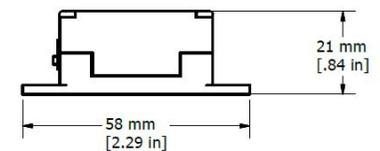
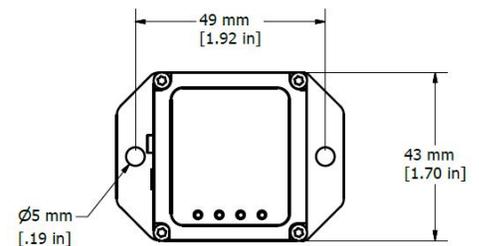
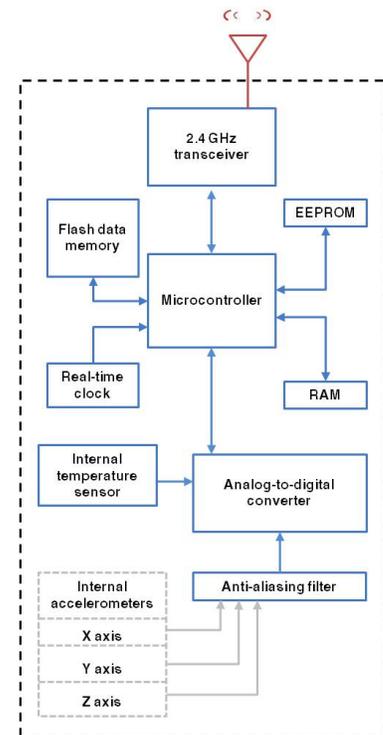
- Reduction of costs associated with wiring
- Volume discounts

Applications

- Condition-based monitoring
- Structural health monitoring
- Tilt and inclination testing
- Vibration monitoring
- Vehicle dynamics testing

Specifications

General	
Integrated sensors	Triaxial MEMS accelerometer, 3 channels Internal temperature, 1 channel
Data storage capacity	2 M bytes (up to 1,000,000 data points)
Accelerometer Channels	
Measurement range	$\pm 2 g$ or $\pm 10 g$ standard
Accelerometer bandwidth	0 to 500 Hz
Accuracy	10 mg
Resolution	12 bit
Anti-aliasing filter bandwidth	Standard and NIST option: Single-pole Butterworth, -3 dB cutoff at 500 Hz (factory adjustable) ASTM option: Six-pole Chebyshev filter at a user-specified cutoff frequency (typically 37 Hz)
Integrated Temperature Channel	
Measurement Range	-40 °C to 70 °C
Accuracy and resolution	± 2 °C (at 25 °C) typical, 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 (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 μ 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 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.A. - limited to 10 dBm (10 mW)
Power source	Internal: 3.7 V dc, 220 mAh, rechargeable lithium polymer battery, External: 3.2 V dc to 9 V dc
Power consumption	See power profile : http://files.microstrain.com/G-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 (high g option available)
Physical Specifications	
Dimensions	Standard and NIST option: 58 mm x 43 mm x 21 mm ASTM option: X mm x Y mm x Z mm
Weight	40 grams
Environmental rating	Indoor use (IP65/66 enclosures available)
Enclosure material	ABS plastic
Integration	
Compatible gateways	All WSDA® base stations and gateways
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
Calibration options	Standard, NIST, ASTM***



*Measured with antennas elevated, no obstructions, and no RF interferers.

**Actual range varies with conditions such as obstructions, RF interference, antenna height & orientation.

***ASTM option has different physical form factor and frequency filtering. Refer to applicable Technical Note, or contact Technical Support for more information.

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