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 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

- 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.
- Supports 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 node-to-node sampling synchronization of ±32 µS in LXRS-enabled modes
- Wireless range up to 2 km (800 m typical)
- Standard, NIST, or ASTM factory calibration options
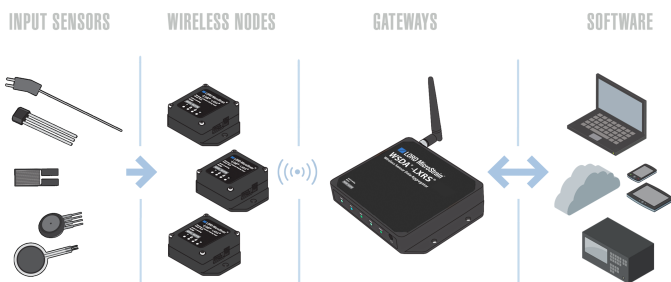
Ease of Use

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

Applications

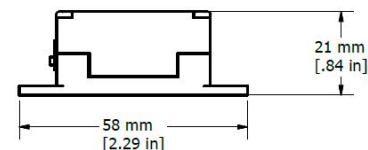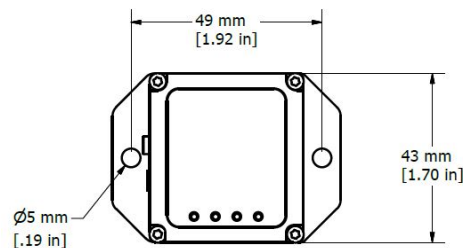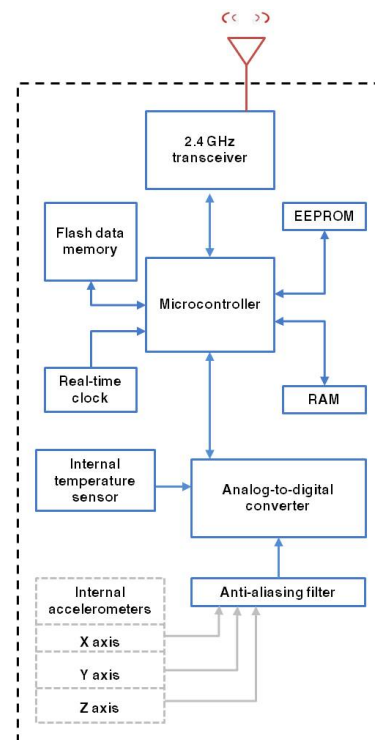- Condition-based monitoring
- Structural health monitoring
- Tilt and inclination testing
- Vibration monitoring
- Vehicle dynamics testing

LORD MicroStrain®
SENSING SYSTEMS

G-Link®-LXRS® Wireless Accelerometer Node

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, data type dependent)

Accelerometer Channels	
Measurement range	± 2 *g* or ± 10 *g* standard
Accelerometer bandwidth	0 to 500 Hz
Accuracy	10 m*g*
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 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.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/wireless/sdk
Regulatory compliance	FCC (U.S.), IC (Canada), CE, ROHS
Calibration options	Standard, NIST, ASTM***

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

49 mm [1.92 in]

43 mm [1.70 in]

Ø5 mm [.19 in]

21 mm [.84 in]

58 mm [2.29 in]

www.microstrain.com