

ENV-Link™-Mini-LXRS®

Wireless Environmental Sensor Node



ENV-Link™-Mini-LXRS® - ruggedized environmental sensing node that aggregates data from a relative humidity and temperature sensor (RHT), and three additional 0 - 5 V sensors

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, transmission range up to 2 kilometers, 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

- Inputs for a relative humidity/temperature (RHT) sensor and 3 additional 0 to 5 V dc sensors
- Ideal for remote, long-term environmental monitoring such as measurement of light, temperature, relative humidity, soil moisture, leaf wetness, precipitation, wind speed and direction, water level, barometric pressure, conductivity, strain, and more
- Simultaneously transmit real-time data and log to memory.
- Sealed IP67 enclosure for use outdoors and in harsh environments

Features and Benefits

High Performance

- High resolution data with 24-bit A/D converter
- Scalable, long range wireless sensor networks up to 2 km
- Lossless data throughput under most operating conditions

Ease of Use

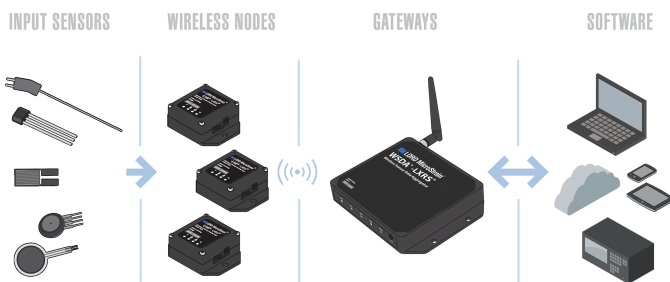
- Rapid deployment with wireless framework
- Low power consumption allows extended use.
- Remotely configure nodes, acquire and view sensor data with Node Commander®.
- Optional web-based SensorCloud™ interface optimizes data storage, viewing, and analysis.
- Easy integration via comprehensive SDK

Cost Effective

- Reduction of costs associated with wiring
- Volume discounts

Applications

- Smart building monitoring
- Environmental monitoring
- Precision agriculture
- Ecological research
- Solar and wind surveying



Wireless Simplicity, Hardwired Reliability™

Specifications

General	
Sensor input channels	RHT sensor input , 1 channel each (temperature and humidity) 0 to 5 V dc inputs , 3 channels
Data storage capacity	2 M bytes (up to 500,000 data points)
Relative Humidity and Temperature (RHT) Sensor Input	
Measurement range	0 to 100 % RH, -40 °C to 123 °C
Accuracy (RH)	± 2 % (10 to 90 % RH), ± 4 % (0 to 10% RH and 90 to 100% RH)
Accuracy (temperature)	± 0.3 °C typical
Resolution	12 bit
0 to 5 V DC inputs	
Measurement range	0 to 5 V dc
Accuracy	0.01 % typical (absolute accuracy)
Resolution	24 bit
Sensor excitation	2 or 3 V dc (user selectable)
Sampling	
Sampling modes	Synchronized, low duty cycle, datalogging
Sampling rates	Continuous sampling: 1 sample/hour to 2 Hz Datalogging: 1 sample/hour to 2 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	
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)
RF communication protocol	IEEE 802.15.4
RF range	70 m to 2 km line of sight with RF power setting
Power source	Internal: size D-cell 3.6 V dc Lithium thionyl chloride batteries (included), or size D-cell 1.5 V dc alkaline batteries (user supplied); External: 0.9 V dc to 6.0 V dc
Power consumption	See power profile : http://files.microstrain.com/ENV-Link-Mini-LXRS-Power-Profile.pdf
Operating temperature	-40 °C to + 85 °C (with Lithium thionyl chloride batteries)
Physical Specifications	
Dimensions	150 mm x 53 mm x 100 mm
Weight	298 grams
Environmental rating	IP67
Enclosure material	polycarbonate
Integration	
Compatible gateways	All WSDA® base stations and gateways
Compatible sensors	RHT input: LORD MicroStrain® RHT sensor 0 to 5 V dc inputs: pyranometer, photosynthetic photon flux, soil moisture, and leaf wetness sensors (available from LORD MicroStrain®), thermocouples, rain and strain gauges, anemometers, and other 0 to 5 V dc sensors
Connectors	M9 screw-on IP67 connector
Software	SensorCloud™, 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), ROHS

