V-Link® -LXRS®

Wireless 7 Channel Analog Input Sensor Node

The **V-Link® -LXRS®** Wireless 7 Channel Analog Input Sensor Node features 4 differential input channels with optional bridge completion, 3 single ended input channel with 0-3 volt excitation, and an internal temperature sensor channel. This array supports a wide range of user-supplied Wheatstone bridge and analog sensors including strain, load cells, torque, pressure, acceleration, vibration, magnetic fields, displacement, geophones and more. V-Link data is 16-bit resolution. The node can log data to internal memory, transmit real-time data, or support event driven triggers with both pre- and post- event buffers. **Node Commander®** software supports configuration of the wireless node including discovery, initialization, radio frequency, sample rate, reading/writing to node EEPROM, calibrating node sensors, managing node batteries, and upgrading node firmware. The V-Link is compatible with any **WSDA®** -Base, WSDA® -1000 or **SensorCloud™**.

Features & Benefits

Wireless Simplicity, Hardwired Reliability

- LXRS® reliable and synchronized wireless data
- Event driven triggers for efficient monitoring
- Long term deployment with low-power systems
- SensorCloud web-base data, report, & alerts

Ease of Evaluation & Integration

- No wires - scalably installed wireless form factor
- Rapid development via comprehensive SDK

Cost Effective

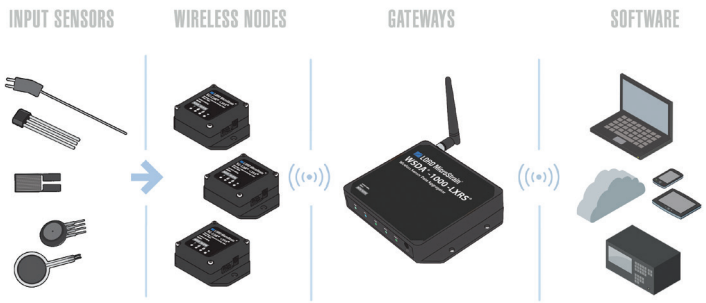
- Low-cost per channel with 7 input channels per node
- Aggressive volume discount schedule

Applications

- Rotating Component Health
- Condition-Based Monitoring of Machines
- Health Monitoring of Aircraft, Structures and Vehicles
- Experimental Test and Measurement
- Robotics and Machine Automation

System Overview

Lord **MicroStrain®** Sensing Systems offer wireless sensors for remote sensor data acquisition, storage, analysis, and response systems. A system comprises wireless sensor nodes, **WSDA®** gateways, and software. Using the MicroStrain® LXRS (Lossless Extended Range Synchronized) protocol, one gateway can coordinate thousands of unique nodes for synchronized and lossless data delivery. Bidirectional wireless communication allows gateways to collect data and configure nodes up to 2 km away (line of sight). Gateways can be connected locally by PC or DAQ, and remotely to the web, by Ethernet, cellular, or satellite. The selection of available nodes allows monitoring with most standard sensor types. Nodes are IEEE 802.15.4 compliant (license free worldwide) and can sample in a large range of rates and configurations to suit the widest possible variety of end user needs. Node Commander® and SensorCloud™ software platforms allow both local and remote network management from almost anywhere on the planet.

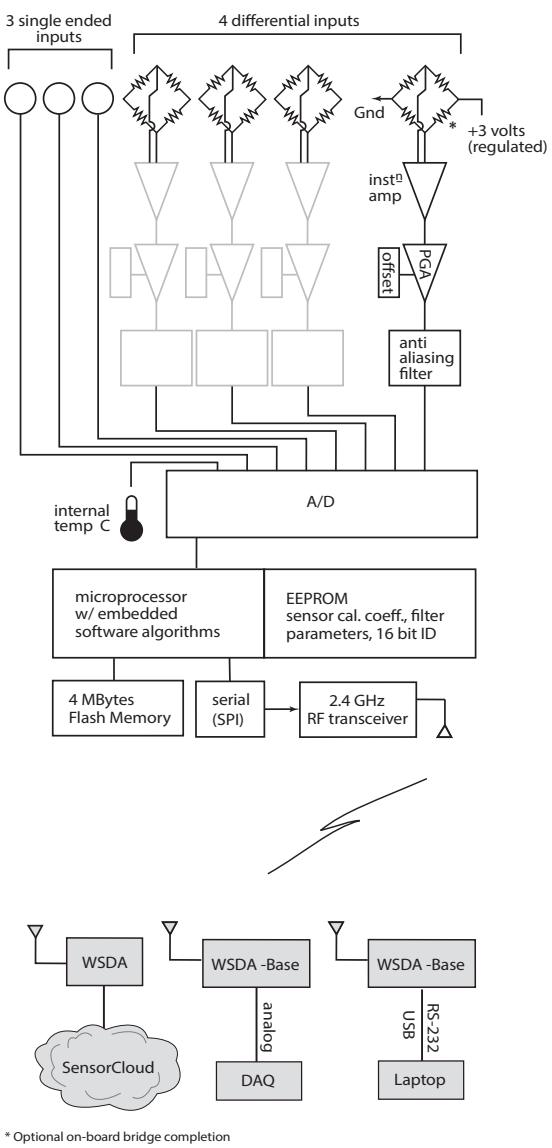


LORD MicroStrain®
SENSING SYSTEMS

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

Specifications

Input channels	up to 7 input channels: 4 full differential, 350 Ω resistance or higher (with optional bridge completion), and 3 single ended inputs (0-3 volts maximum), plus an internal temperature sensor
Temperature sensor	-40 °C to 70 °C range, typical accuracy ±2 °C (at 25 °C)
Anti-aliasing filter bandwidth	-3 dB cutoff at 250 Hz (factory adjustable)
Resolution	16 bit
DC bridge excitation	+3 volts DC at 50 mA maximum (pulsed to sensors for sample rates of 16 Hz and below to conserve power)
Programmable gain	software programmable for differential input channels from 21 to 13074 (can be reduced with hardware resistor change)
Programmable offset	software programmable
Data storage capacity	4 megabytes (approximately 2,000,000 data points)
Sampling modes	synchronized, armed datalogging, streaming, low duty cycle
Synchronized sampling rates	1 sample/hour - 512 Hz continuous
Synchronized sampling mode network capacity	transmit real time data from node to PC - rate depends on number of active channels and transmitting nodes. e.g.: 3 nodes, 1 channel, 512 Hz 15 nodes, 1 channel, 256 Hz 31 nodes, 1 channel, 128 Hz 63 nodes, 1 channel, 64 Hz 127 nodes, 1 channel, 32 Hz sample rates and # of channels are easily configured within Node Commander® Network Configuration Wizard
Synchronization between nodes	± 32 µsec with 10 second beacon interval
Synchronization rate stability	± 3 ppm
Armed datalogging sampling rates	1 channel enabled: 32 Hz to 4096 Hz; 2 or more channels enabled: 32 Hz to 2048 Hz
Streaming sampling rates (approximate)	1 channel enabled: 736 Hz; 3 channels enabled: 617 Hz per channel; 8 channels enabled: 424 Hz per channel
Low duty cycle sampling rates	1 sample/hour - 512 Hz
Event driven monitoring	user-definable event threashold trigger; 200,000 bytes pre- event datalogging and/or transmitting
Shunt calibration	channels 1 to 4, internal shunt calibration resistor 499 KΩ
Radio frequency (RF) transceiver carrier	2.4 GHz direct sequence spread spectrum, license free worldwide (2.405 to 2.480 GHz) – 14 channels, radiated power programmable from 0 dBm (1 mW) to 16 dBm (39 mW); limited to 10 dBm (10 mW) outside of US
RF data packet standard	IEEE 802.15.4, open communication architecture
RF data downloading	8 minutes to download full memory
Range for bi-directional RF link	programmable communication range from 70 meters to 2 kilometers los (line of sight); 70 m to 1 km los range outside of US
Status LEDs	battery charging, battery charged, node activity
Power	internal: 3.7 volt 650 mAh lithium ion rechargeable battery; external: +3.2 to +9.0 VDC
Power consumption	see power profiles at www.microstrain.com/wireless/v-link
Operating temperature	-20 ˚C to +60 ˚C with standard internal battery and enclosure, extended temperature range optional with custom battery and enclosure, -40 ˚C to +85˚C for electronics only
Maximum acceleration limit	500 g standard (high g option available)
Dimensions	74 mm x 79 mm x 20 mm without antenna
Weight	141 grams
Enclosure material	anodyzed aluminum
ROHS	compliant
Compatible base stations	all WSDA®-Base and WSDA®-1000
Software	Node Commander® Windows XP/Vista/7 compatible
Software development kit (SDK)	includes data communications protocol, EEPROM maps and sample code (OS and computing platform independent)
FCC ID	XJQMSLINK0003
IC ID	8505A-MSLINK0003



* Optional on-board bridge completion

8400-0012 rev 001
Specifications are subject to change without notice. 1.00c

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