

SG-Link[®]-200-OEM Wireless Analog Input Node



SG-Link[®]-200-OEM – Small, low-cost two-channel analog sensor node ready for OEM integration

LORD Sensing 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 SG-Link[®]-200-OEM allows users to remotely collect data from a range of sensor types, including strain gauges, pressure transducers, and accelerometers. The node supports high resolution, low noise data collection from 1 differential and 1 single-ended input channels at sample rates up to 1 kHz. A digital input allows compatibility with a hall effect sensor for reporting RPM and total pulses, making the sensor ideal for many torque sensing applications.

Users can easily program nodes for continuous, periodic burst, or event-triggered sampling with the SensorConnect software. The optional web-based SensorCloud interface optimizes data aggregation, analysis, presentation, and alerts for sensor data from remote networks.



PRODUCT HIGHLIGHTS

- 1 differential and 1 single-ended input channel
- Differential channel compatible with 120, 350, and 1k Ohm Wheatstone bridge sensing circuits
- On-board temperature sensor
- Digital input channel for RPM and pulse counting
- Supply power from 3.3 to 30 V
- Continuous, periodic burst, and event-triggered sampling
- Output raw data and/or derived channels such as mean, RMS and peak-peak
- LXRS protocol allows lossless data collection, scalable networks and node synchronization of $\pm 50 \mu\text{s}$
- Remote strain calibration using on-board shunt resistor

FEATURES AND BENEFITS

HIGH PERFORMANCE

- Up to 1024 Hz sampling
- Low noise 1.5 or 2.5 V sensor excitation
- Noise as low as $1 \mu\text{V p-p}$
- High resolution 24-bit data
- Datalog up to 8 million data points
- Low power operation, well-suited for battery powered applications.
- Wireless range up to 1 km (400 m typical)
- -40 to $+105^\circ\text{C}$ operating temperature range

APPLICATIONS

- Strain, load, force, pressure, acceleration, vibration, displacement, or torque sensing.
- Condition-based monitoring
- Structural load and stress monitoring
- Test and measurement
- RPM and Pulse counting

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Specifications

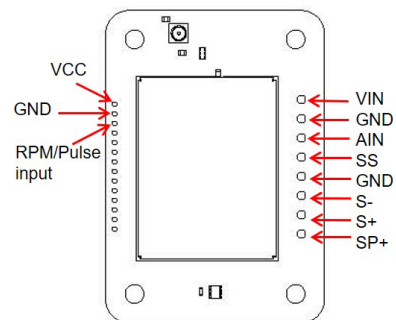
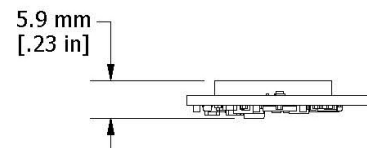
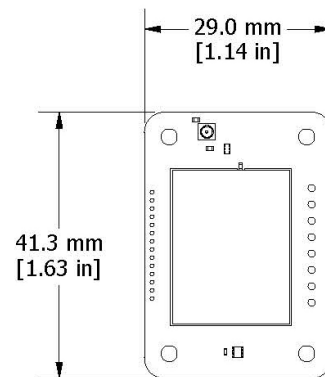
Analog Input Channels				
Sensor input channels	1 differential, 1 single-ended and 1 RPM/pulse input			
Sensor excitation output*	Configurable 1.5 or 2.5 V (100 mA)			
Measurement range	0 to Excitation voltage (1.5 or 2.5 V)			
Adjustable gain	1 to 128			
ADC resolution	24-bit			
Noise (Gain = 128)	1 μ Vp-p to 20 μ Vp-p (filter selection dependent)			
Noise (Gain = 1)	15 to 250 μ Vp-p (filter selection dependent)			
Temperature stability (-40 to +105°C)	0.172 μ V/°C (typical)			
Digital filter**	Configurable SINC4 low pass filter for reducing noise			
Strain calibration	Onboard shunt resistor used for deriving strain calibration coefficients ($y = mx + b$)			
Shunt calibration resistor	499k Ohm ($\pm 0.1\%$)			
Integrated Temperature Channel				
Measurement range	-40°C to 105°C			
Accuracy	± 0.25 °C			
RPM Sensing				
Sensor input	Open collector, open drain or digital pulses from hall effect or other source			
Range	0.1 to 100 Hz (6 to 6000 RPM)			
Accuracy	$\pm 0.1\%$ (typical)			
Sampling				
Sampling modes	Continuous, periodic burst, event triggered			
Output options	Analog: Calibrated engineering units, adcounts and derived channels (mean, RMS and peak-peak) Digital: Speed (Hz or RPM) and pulse counts			
Sampling rates	Up to 1024 Hz			
Sample rate stability	± 5 ppm			
Network capacity	Up to 128 nodes per RF channel (bandwidth calculator:) www.microstrain.com/configure-your-system			
Node synchronization	± 50 μ sec			
Data storage capacity	16 M Bytes (up to 8,000,000 data points)			
Operating Parameters				
Wireless communication range	Outdoor/line-of-sight: 2 km (ideal), 800 m (typical) Onboard antenna: 1 km (ideal), 400 (typical) Indoor/obstructions: 50 m (typical)			
Antenna	Surface mount or external via U.FL connector			
Radio frequency (RF) transceiver carrier	License-free 2.405 to 2.480 GHz (16 channels)			
RF transmit power	User-set 0 dBm to 20 dBm. restricted regionally			
Power input range	3.3 V dc to 30 V dc			
Pulse Current***	Tx Power	VIN = 3.6 V	VIN = 5.0 V	VIN = 12 V
	+20 dBm	135 mA	100 mA	45 mA
	+16 dBm or less	100 mA	70 mA	32 mA
Operating temperature	-40°C to +105°C			
Angular acceleration limit	500g sustained, 1000g intermittent (high g option available)			
Mechanical Shock Limit	1000g/1.5ms			
ESD	4 kV			

Physical Specifications	
Dimensions	41.3 mm x 29 mm x 5.9 mm
Interface	Solder or screw-down terminal available
Weight	7 grams
Integration	
Compatible gateways	All WSDA gateways
Software	SensorCloud, SensorConnect, Windows 7, 8 & 10 compatible
Software development kit	http://www.microstrain.com/software/mscl
Regulatory compliance	FCC (USA), IC (Canada), CE (European Union), JET (Japan)

* Actual range varies with conditions

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

*** Power source must supply short duration pulse currents as determined by the transmit power setting and the supply voltage.



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