

WSDA[®]-2000

Wireless Sensor Data Aggregator



WSDA-2000 - network-ready gateway for high-speed, sophisticated data aggregation, with J1939 CAN and Ethernet interfaces

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 gateways are the heart of the LORD Sensing wireless sensing system. They coordinate and maintain wireless transmissions across a network of distributed wireless sensor nodes. The WSDA[®] - 2000 supports LORD Sensing's latest LXRS+ wireless communication protocol and all LXRS-enabled modes, providing high-speed sampling, ± 50 microseconds node-to-node synchronization and lossless data throughput under most operating conditions.



Product Highlights

- Compatible with LORD Sensing LXRS and LXRS+ sensor nodes
- USB and Ethernet-based gateway configures, coordinates, and collects sensor data from a scalable network of wireless sensor nodes
- Configurable to operate with a static IP, a DHCP-enabled LAN, or as a datalogger to local memory
- Push all or selected sensor data to a J1939 CAN bus
- Seamless integration with SensorCloud™ for secure, web-based data access from around the world

Features and Benefits

High Performance

- Lossless data throughput and synchronized node-to-node sampling of $\pm 50 \mu\text{s}$ in LXRS+ and LXRS-enabled modes
- Wireless range up to 2 km (800 m typical)

Ease of Use

- Remote configuration, acquisition, and display of sensor data with SensorConnect
- Data visualization through web-based SensorCloud portal for quick data navigation and analysis
- Easy custom integration with open-source, comprehensive communications and command library (API)
- Connect the gateway to a cellular or wi-fi modem for wireless connectivity to the host network

Cost Effective

- Hundreds of sensors managed from a single gateway
- Reduction of costs associated with wiring

Applications

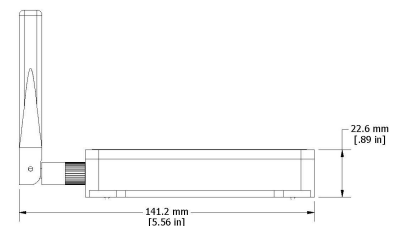
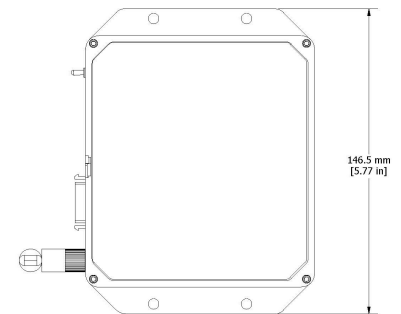
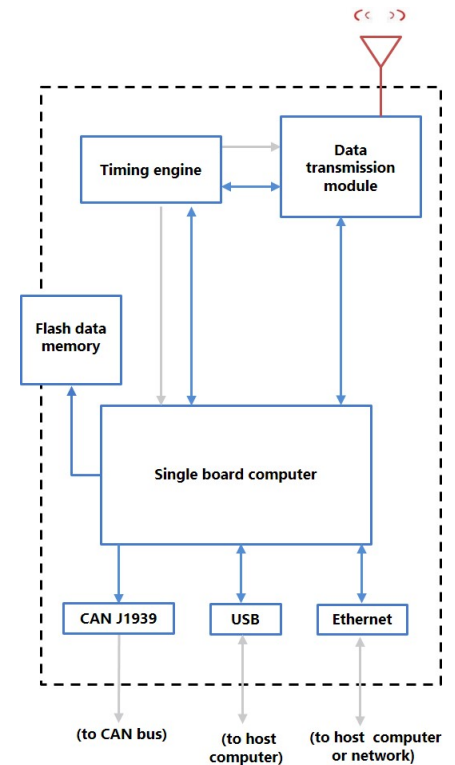
- Remote and web-based wireless sensor data acquisition
- Condition-based monitoring
- Equipment performance monitoring, verification, evaluation, and diagnostics
- System control

Specifications

General			
Processor	ARM [®] Cortex [™] A8, 1 GHz		
Operating system	Linux		
Connectivity	Ethernet IEEE 802.3 10/100 Mbps, IEEE 802.15.4 and Proprietary wireless, J1939 CAN (output only), and USB 2.0 virtual Ethernet port		
Internet standards	HTTP, HTTPS, TCP/IP, UPnP, UDP		
IP assignment	IPv4 Static or DHCP		
Data storage memory	4 G bytes Micro SD (optional upgrade to 8 or 16 GB)		
Time synchronization	Network time protocol (NTP), Real time clock (RTC), last used, manual entry		
CAN J1939 Output			
J1939 Bit Rate	250 K bps, 500 K bps, 1 M bps		
J1939 Source	Static or dynamic via SAE Name		
J1939 Destination	Static or SAE Name		
J1939 Modes	Tunnel data to destination using PGN 0xEF00, or broadcast data values using PGNs 0xFF00 - 0xFFFF		
Standard bus termination	120 Ω		
Sampling			
Supported node sampling modes	Synchronized, low duty cycle, continuous, periodic burst, event-triggered, and datalogging		
Synchronization beacon interval	1 Hz beacon provides ± 50 μsec node-to-node synchronization		
Synchronization beacon stability	± 5 ppm		
Network capacity	Up to 2000 nodes per RF channel (& per gateway) depending on number of active channels and sampling settings. See system bandwidth calculator: http://www.microstrain.com/configure-your-system		
Operating Parameters			
Wireless communication range		Typical*	Ideal**
	LXRS	1 km	2 km
	LXRS+	400 m	1 km
Radio frequency (RF) transceiver carrier	License-free 2.405 to 2.480 GHz with 16 channels		
RF communication protocol	IEEE 802.15.4 and Proprietary		
RF transmit power	User-adjustable from 0 dBm to 20 dBm. Power output restricted regionally to operate within legal requirements		
Power source	9.0 to 30.0 V dc (universal 15 V dc, 1.3 A AC/DC converter included in starter kit)		
Power consumption	2850 mW (max), 2400 mW (typ) @ 15 V		
Operating temperature	-40 °C to +85 °C		
Physical Specifications			
Dimensions	147 mm x 110 mm x 23 mm without antenna		
Weight	343 grams		
Enclosure material	Black anodized aluminum		
Integration			
Connectors	USB, RJ45 jack, 26 pin multi-port, 2.1mm power jack		
Communications cable	USB, Ethernet (CAT6 cable included in starter kit)		
Compatible nodes	All LORD Sensing LXRS [®] and LXRS+ nodes		
Firmware	Firmware and OS upgradeable through web interface		
Software	SensorCloud SensorConnect 8.3 or newer, Windows 7, 8 & 10 compatible		
Regulatory compliance	TBD		

*Actual range varies with conditions

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



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