PRODUCT DATA SHEET

# WSDA-2000: Wireless Sensor Data Aggregator

The WSDA-2000 supports MicroStrain's 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.

The MicroStrain 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 MicroStrain wireless sensing system. They coordinate and maintain wireless transmissions across a network of distributed wireless sensor nodes.

## PRODUCT HIGHLIGHTS

- Compatible with MicroStrain 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


## HIGH PERFORMANCE

- Lossless data throughput and synchronized node-to-node sampling of ±50 µS 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

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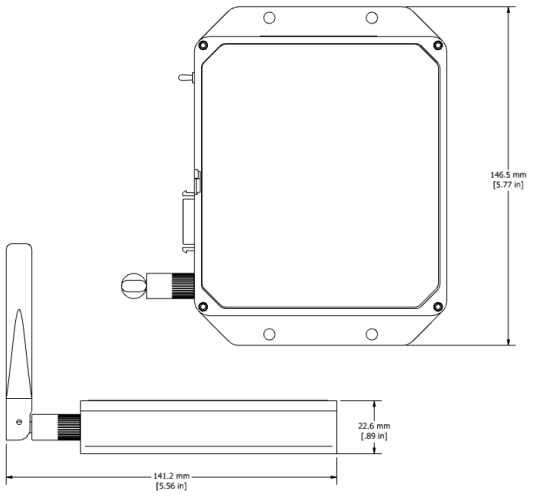
# MICROSTRAIN WSDA-2000 SPECIFICATIONS

| 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 GB Micro SD (optional upgrade to 8 GB) |
| **Time synchronization** | Network time protocol (NTP), Real time clock (RTC), last used, manual entry |
| **CAN J1939 Output** | |
| **J1939 Bit Rate** | 250 Kbps, 500 Kbps, 1 Mbps |
| **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 127 nodes per RF channel (& per gate-way) depending on number of active channels and sampling settings. See system bandwidth calculator: http://www.microstrain.com/configure-your-system |
| **Physical Specifications** | |
| **Dimensions** | 147 mm x 110 mm x 23 mm without antenna |
| **Weight** | 343 grams |
| **Enclosure material** | Black anodized aluminum |

| 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 | | |
| **Integration** | | | |
| **Connectors** | USB, RJ45 jack, 26 pin multi-port, 2.1 mm power jack | | |
| **Communications cable** | USB, Ethernet (CAT6 cable included in starter kit) | | |
| **Compatible nodes** | All MicroStrain 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** | FCC (U.S.), IC (Canada), CE, ROHAS (European Union) MIC (Japan), IMDA (Singapore) | | |




* Actual range varies with conditions.
** Measured with antennas elevated, no obstructions, no RF interferers.

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