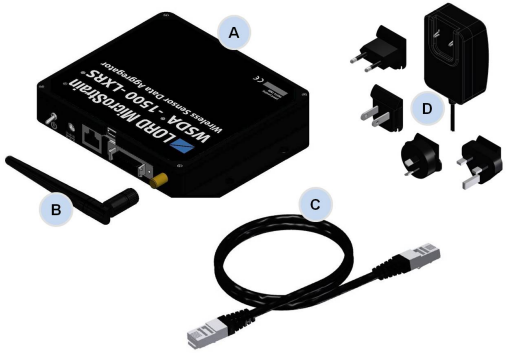
LORD QUICK START GUIDE

WSDA®-1500-LXRS®

Wireless Sensor Data Aggregator

The WSDA®-1500-LXRS® is a data acquisition gateway designed to configure, co-ordinate, and collect sensor data from LORD Sensing wireless sensor nodes. The gateway supports all data acquisition sessions between wireless nodes and host computers including: continuous sampling, burst sampling, and datalogging. The gateway also facilitates precision sampling synchronization between sensor nodes by transmitting a continuous, system-wide timing reference known as the beacon.

The WSDA-1500-LXRS utilizes an Ethernet interface to transfer data from the wireless nodes to a host computer for viewing, analysis, and storage.



Item	Description
A	WSDA-1500-LXRS
B	Antenna
C	Ethernet cable, 10 ft
D	Power supply & plug adapter kit
--	SensorConnect download at: http://www.microstrain.com/software

There are device status indicators on the front of the WSDA-1500-LXRS. The following table describes indicator behavior.

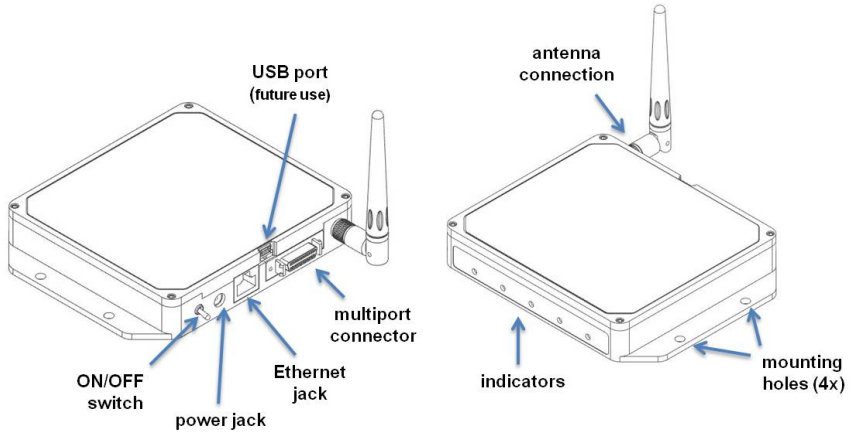


Figure 1 - Ports and Indicators

	Behavior	Node Status
Device Status Indicator	OFF	Gateway is off
	ON green	Gateway is powered & idle
	Flashing blue	Sync sampling beacon enabled or incoming data from other sampling modes
	Pulsing green	Stop node
	Flashing red	WARNING: another gateway beacon is detected on the same frequency

1. Install Software

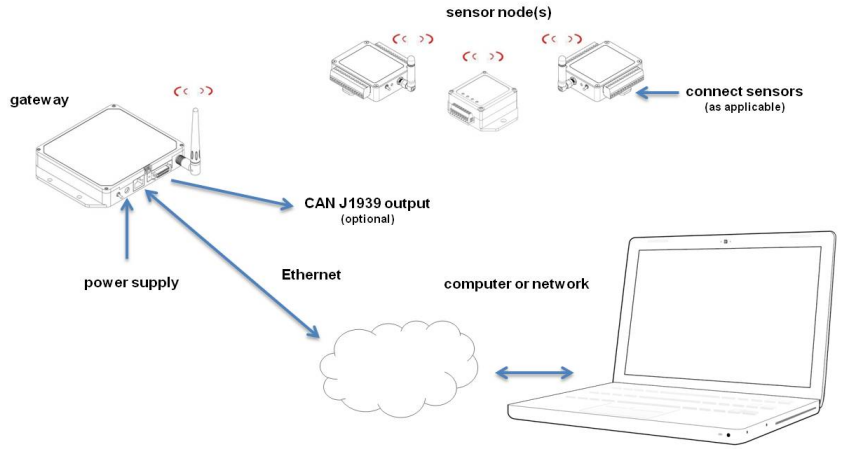
Install the **SensorConnect** software on the host computer before connecting any hardware. Access the free software download on the LORD Sensing website at:

SensorConnect™

http://www.microstrain.com/software

2. Make System Connections

To acquire sensor data, the WSDA-1500-LXRS is compatible with all LORD Sensing LXRS and LXRS+ sensor nodes.



Gateway Operation

NOTE

The default configuration of Ethernet gateways is for DHCP network connectivity. In order to change the gateway communication settings, initial connection to a DHCP-enabled network is required.

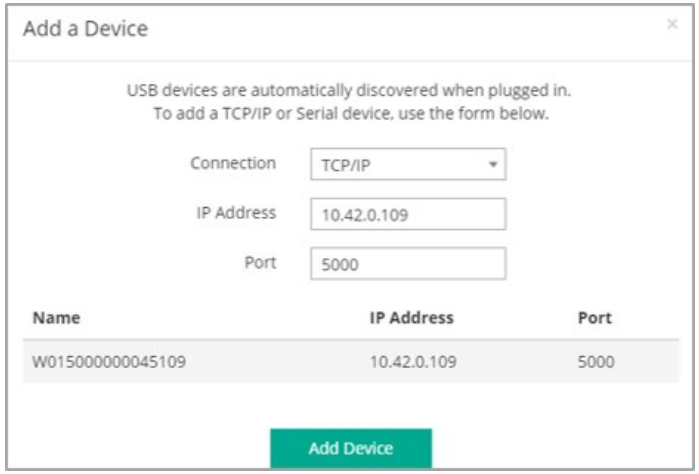
The Ethernet gateway has three primary operating sequences including gateway configuration, node configuration, and data acquisition, viewing and analysis.

3. Establish Gateway Communication

a. Power is applied to the gateway through the power jack on the back of the WSDA-1500-LXRS. The Ethernet jack must be connected to a DHCP Ethernet network using a CAT5 or better Ethernet cable. Turn the ON/OFF switch to the On position to power the gateway.

b. Open the SensorConnect software and select Add Device

c. Select the gateway and confirm that its IP address shows in the IP Address field. The IP address can be entered manually in the IP Address field above the Discovered Gateways section. If the gateway does not appear, confirm that the host computer and the gateway are connected to the same Ethernet network.



d. Click the green Add Device button.

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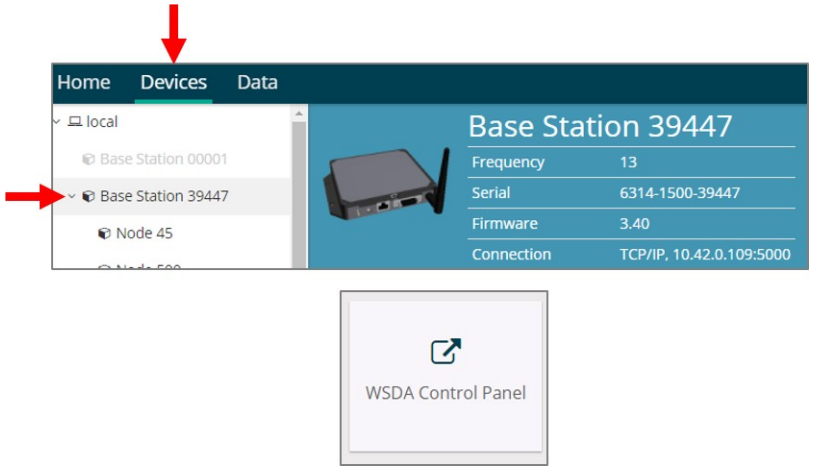
e. The gateway will appear in the Controller window.

4. Configure the Gateway

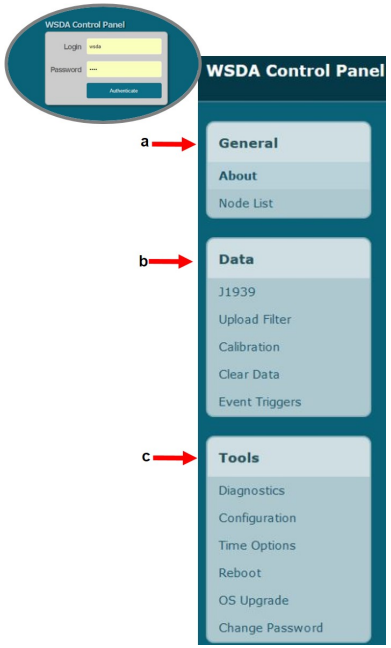
From the Devices window, highlight the base station and select the WSDA Control Panel tile.



Log in to the gateway Control Panel with the default credentials:

- Login: wsda
- Password: wsda

There is a navigation panel on the left that contains three menu categories; General, Data, and Tools (4. Configure the Gateway).



5. Connect to Nodes

Several methods can be used in SensorConnect to establish communication with the nodes: the automatic node discovery feature, manually entering the node address, and scanning transmission frequency and node address ranges.

NOTE

Automatic discovery in nodes **not** included in the LORD Sensing 200 Series **will only occur** if the node is set to idle mode. To force boot-up into idle mode, cycle the node power rapidly two times, and then leave it

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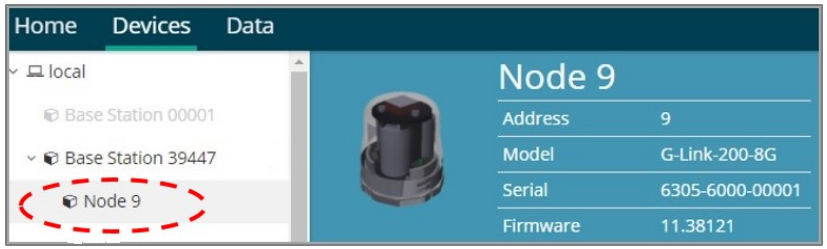
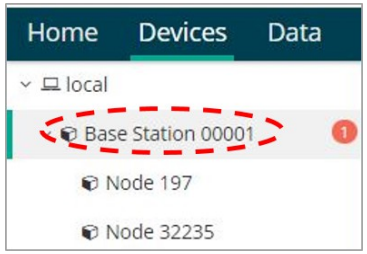
on. The status indicator on the node will pulse once per second to indicate it is in idle mode .

A. Add Node Via Node Discovery

If the base and node are on the same operating frequency, the node will populate below the Base Station listing when powering on the WSDA-1500-LXRS.

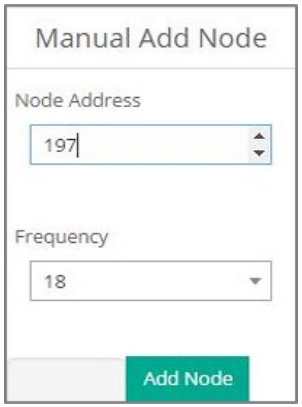


If a red circle with a number appears next to the Base Station, the node is operating on a separate radio channel (see Connect to Nodes on page 3.).

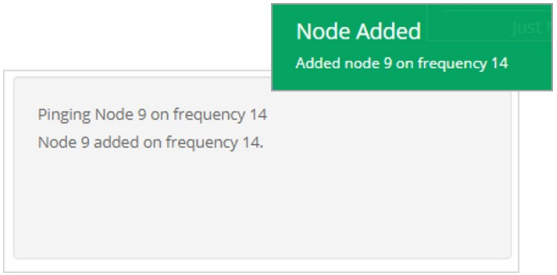


B. Add Node Manually

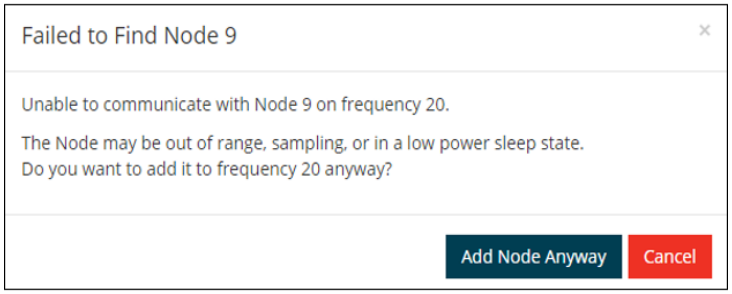
Adding a node manually requires entering the node address and its current frequency setting.



If the node was successfully added, two confirmation messages will appear and it will be listed under the Base Station.

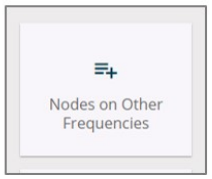


If the node failed to be added, a failure message will appear. This means the node did not respond to the base station which could indicate the node is not in idle mode or it may be on another frequency. If "Add Node Anyway" is selected, it will associate that node with the channel entered but it is likely there will be a communication error. If the node was not in idle, move the base station to the frequency of the node and issue a "Set to Idle" command.

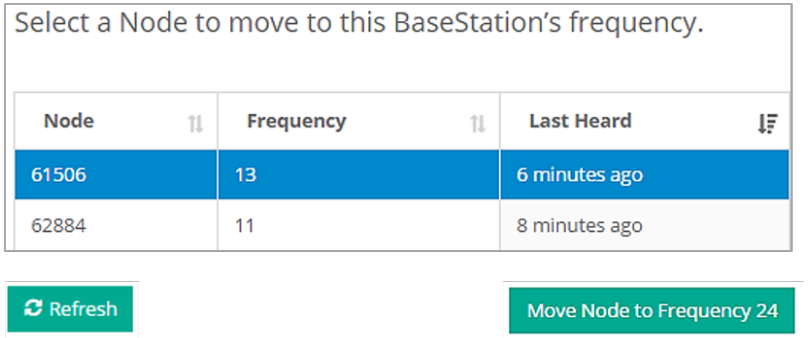


C. Move Node to Base Station Frequency

If a red circle with a number appears next to Base Station, the node is operating on a separate radio channel. Select the Base Station and then select the Nodes on Other Frequencies tile.

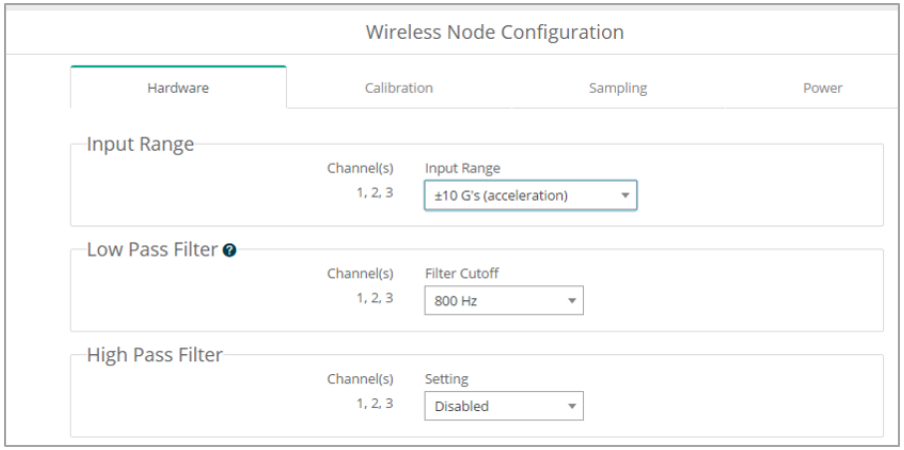


Highlight the new node being added and select Move Node to Frequency (#).



6. Configure Node

Node settings are stored to non-volatile memory and may be configured using SensorConnect. The configuration menus show the channels and configuration options available for the type of node being used.



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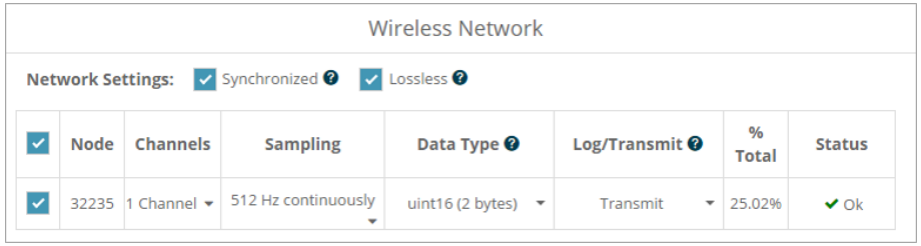
7. Sampling Configuration

The Network Settings menu includes Synchronized and Lossless sampling options, while the Node settings menu offers multiple configuration options to customize the data sampling for a single node, or a group of nodes.



8. Gateway Settings

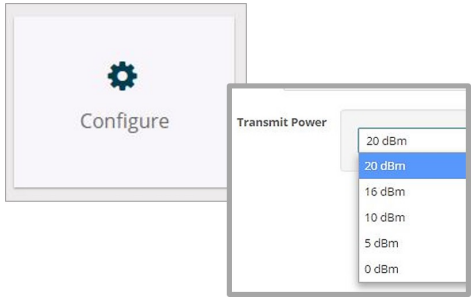
A. Transmit Power

Setting	Power Output	Maximum Range	
		Ideal*	Typical**
Extended	16 dBm (39mW)	2 km	800 m
Standard	10dBm (10mW)	2 km	800 m
Low	0dBm (1mW)	2 km	800 m

*Measured with antenna elevated, no obstructions, and no RF interferers.

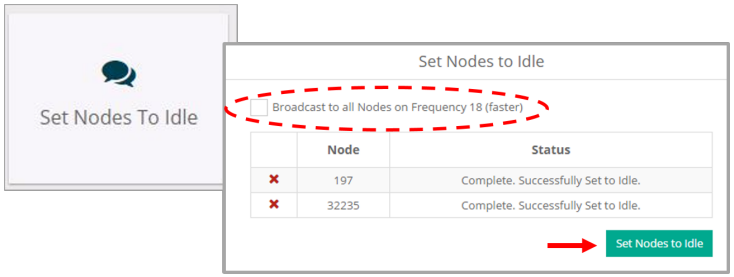
** Actual range varies depending on conditions such as obstructions, RF interference, antenna height, and antenna orientation.

From the Base Station, select Configure > Transmit Power for a drop down menu of five power options ranging from 0 dBm to 20 dBm.



C. Set Nodes to Idle

To stop all (or selected) nodes on a network, select the Set Nodes to Idle tile and indicate with a check mark which nodes are to be set to idle mode. If the Broadcast option is enabled, a signal to all nodes (including unsolicited nodes) will be sent out to request they return to idle.



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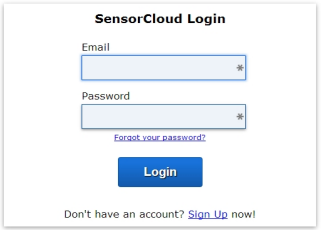
Viewing Data

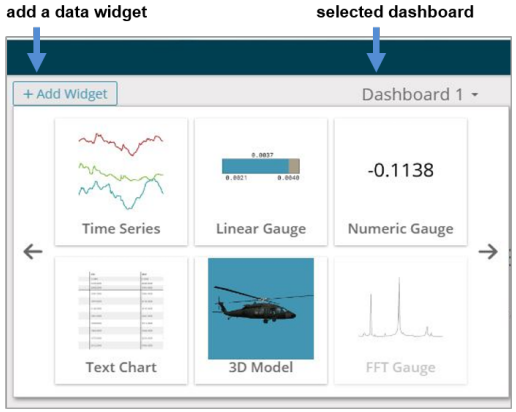
9. SensorCloud

Data acquired through SensorConnect is automatically saved on the host computer. Saved data can be uploaded to SensorCloud. Ethernet gateways provide the option to automatically port the data to SensorCloud during data acquisition for near real-time display and aggregation. Ethernet gateways can also be configured to save data locally to internal memory for future upload to the host computer or SensorCloud.



10. SensorConnect

Collected data is viewed on the Data page through the creation of dashboards and widgets. Think of dashboards as individual pages and widgets as an illustration on the page.

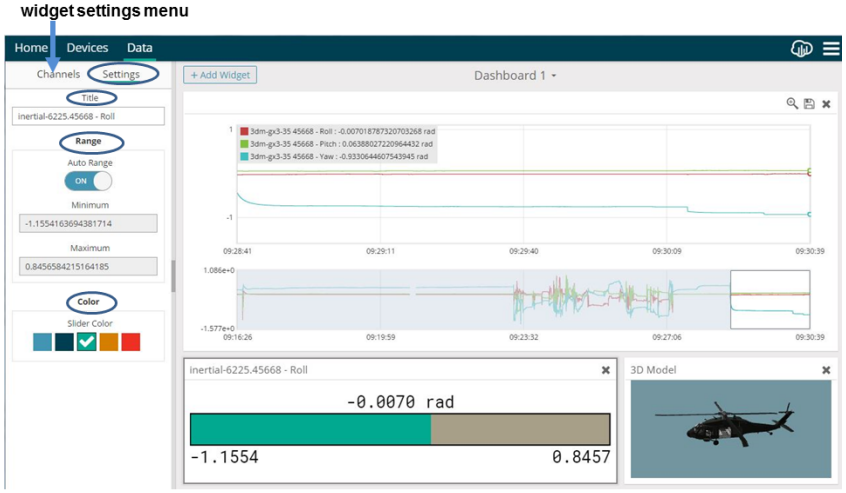


Use the mouse along with the shift and control keys inside the graph window to adjust the data view.

Control	Action
Mouse wheel	Zoom in/out on *x*-axis
Shift + mouse wheel	Zoom in/out on *y*-axis
Mouse double-click	Zoom to extends
Shift + mouse left-click, drag left/right	Zoom window left/right
Shift + mouse left-click, drag up/down	Zoom window up/down
Ctrl + mouse left-click, drag	Zoom box

The widget configuration menu is different for each type of widget but typically includes sensor or channel selections and widget settings such as titles and legends.

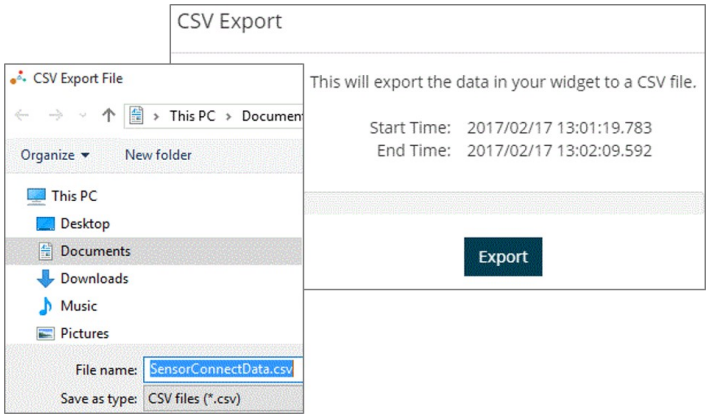
After adding a widget, left click to select and configure it in the Channels and Settings left sidebar menu. Under Channels, the channel(s) for the widget can be enabled and disabled.



The Time Series Widget menu has two features to help optimize sensor data collection for export to a .csv file. *Snap to Latest* captures the most recent data and *Zoom* isolates specific events from a larger data sample (see SensorConnect on page 7..)

Exporting Data Files

To export data to a .csv file, select the Export Data button on the Time Series widget > Export > name the document > save to the preferred location on the host computer.



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Support

Product Ordering

Products can be ordered directly from the LORD Sensing website by navigating to the product page and using the Buy feature.

http://www.microstrain.com/wireless

For further assistance, our sales team is available to help with product selection, ordering options, and questions.

Sales Support

sensing_sales@LORD.com

Phone: 802-862-6629
Fax: 802-863-4093

9:00 AM to 5:00 PM (Eastern Time US & Canada)

Technical Support

There are many resources for product support found on the LORD Sensing website, including technical notes, FAQs, and product manuals.

http://www.microstrain.com/support/documentation

For further assistance our technical support engineers are available to help with technical and applications questions.

Technical Support

sensing_support@LORD.com

Phone: 802-862-6629
Fax: 802-863-4093

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Document 8501-0057 Revision C. Subject to change without notice.

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