

mV TO RS-485 SIGNAL ADAPTER

QUICK START GUIDE



Figure 1: NexSens mV-RS485 Signal Adapter

Overview

The NexSens mV-RS485 signal adapter converts a standard mV output signal to RS-485, allowing multiple analog sensors to be integrated into a sensorBUS string. The adapter is compatible with LI-COR, Turner Designs, and many other voltage output sensors. The adapter is submersible to 200 feet.

Sensor mV Output Values

Sensors that output in mV should come with a calibration document detailing the mV scaling values. Have this document available while following the steps in this guide.

Note: The mV to RS-485 adapter is typically configured before shipment by NexSens. If this is the case, skip to the *NexSens Data Logger Connection* section.

Download and Register the iChart Software

- 1 Download the iChart software at the link below.
nexsens.com/support/downloads
- 2 Once downloaded, click **Register** and copy the iChart serial number.
 - a. Contact NexSens with the iChart serial number to receive a registration key.
 - Phone: 937-426-2703
 - Email: support@nexsens.com

- 3 Enter the registration key in the space provided.
 - a. The registration key is case-sensitive and all dashes must be entered manually.

Configure the mV-RS485 Adapter

- 1 Use a NexSens MCIL or UW RS485 USB cable to connect the mV-RS485 adapter to the PC containing the iChart software.
- 2 From the tool bar at the top, select **Advanced | T-Node FR/mV-RS485 Adapter | Setup...**
 - a. Select the appropriate COM port.
 - b. Set the connection type to *Direct to PC*.
 - c. Enter the Modbus address for the adapter.
 - The default Modbus address is 1; however, address 251 can be used when the address is unknown.

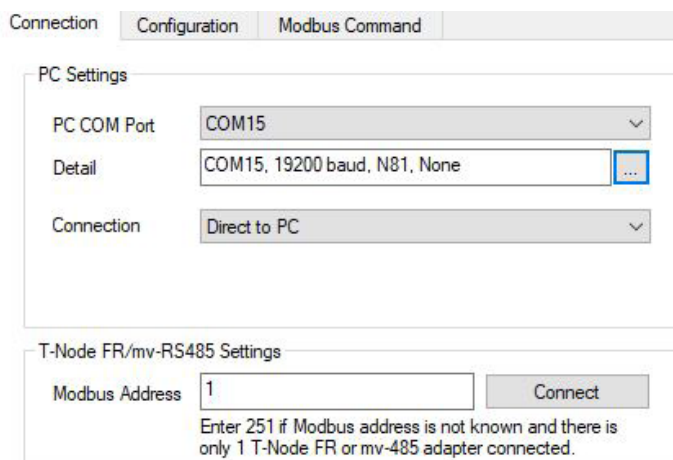


Figure 2: T-Node FR/mV-RS485 Adapter Setup

- 3 Click *Connect* and go to the **Configuration** tab.
 - a. The iChart software will now read and display the current settings for the adapter.

- 4 If necessary, click *Edit Modbus Address* to change the adapter to a unique address.
- 5 Check the *Edit Sensor* box and select the appropriate sensor from the drop-down list.
 - a. Select *Generic* for any sensor that is not listed.
- 6 Check the edit boxes for points 1 and 2.
 - a. Enter the appropriate scaling values for mV1, Value1, mV2, and Value2.
 - b. Click **Apply**

The screenshot shows the 'Configuration' tab of the NexSens interface. At the top, there are three tabs: 'Connection', 'Configuration', and 'Modbus Command'. Under 'Configuration', there are two checkboxes: 'Edit Modbus Address' (unchecked) and 'Edit Sensor' (checked). Next to 'Edit Modbus Address' is a text box containing the value '1'. Next to 'Edit Sensor' is a dropdown menu showing 'Li-Cor LI-190 (mV-485 Adapter)'. Below these are two sections for scaling points. 'Point 1' has an 'Edit' checkbox checked, with 'mV1' set to 0.000 and 'Value1' set to 0.000. 'Point 2' also has an 'Edit' checkbox checked, with 'mV2' set to 1.000 and 'Value2' set to 249.050.

Figure 3: Set mV scaling values.

NexSens Data Logger Connection

- 1 Program a mV adapter onto a NexSens data logger by following the included quick start guide with your order.
 - a. Plug the adapter into an available sensor port.
 - b. Enable the corresponding script.
 - c. Run the sensor auto detection.
- 2 After the next logger reading:
 - a. Confirm the adapter has been detected and recognized.
 - b. Ensure that valid readings are shown.
 - c. Gather a few readings before deployment.

Test the mV Response

- 1 Connect the corresponding sensor to the other end of the mV adapter.
 - a. If the sensor is already connected, skip to step 2 below.
- 2 To view real-time mV readings, open the **Modbus Command** tab. Select *Read mV (Reg: 0x0002)* from the command dropdown and click **Send**.
 - a. Before deployment, place the sensor in various environments and conditions to test the mV response.

IMPORTANT: Ensure to note serial numbers or place an identifier on the mV adapter and corresponding sensor. The mV scaling values are specific to each sensor. Switching the adapter to another sensor will give inaccurate readings.

For additional information, please reference the mV to RS-485 Adapter Resource Library on the NexSens Knowledge Base.

nexsens.com/mvrs485