

Application Note

Configuring a Sentinel-Modbus or Sentinel-Modbus/2DI with an Electrolab DLS2100

OVERVIEW

The Electrolab DLS2100 is a popular float stick found ubiquitously in upstream oil & gas. SignalFire provides a simple solution to make this sensor completely wireless with minimal setup. The Sentinel Modbus and Sentinel Modbus/2DI have a one-click option that automatically pulls in the core parameters needed to get a system up and running in no time. **This option requires SignalFire ToolKit v2.2.34.00 or higher.**

SETUP

First, wire the Electrolab to the 4 terminals of the Sentinel (Power, Ground, Modbus-A, Modbus-B) and set up the Electrolab for 2-wire Modbus as specified by its wiring diagram. For units with the Electrolab junction box the wiring is as follows:

Electrolab Terminal	Sentinel Terminal
TX/RX+	MB_A
TX/RX-	MB_B
GND	GND
12V	PWR

If the Electrolab is the OEM version with flying leads the connections are as follows

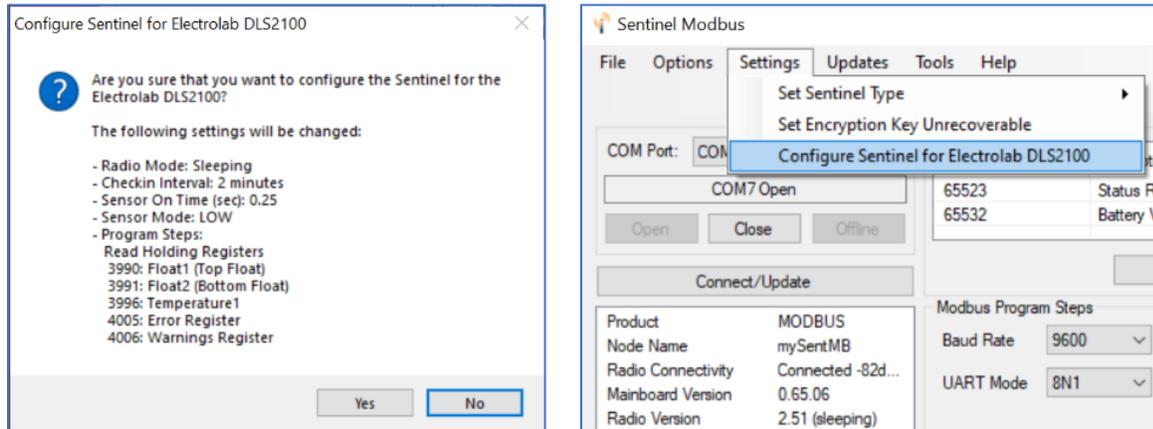
Electrolab Wire Color	Sentinel Terminal
GREEN/WHITE	MB_A
BLACK/BLACK	MB_B
BLACK	GND
RED	PWR

The RS-485 serial communication should be set to the default of 9600 baud rate, 8 data bits, no parity bit, and 1 stop bit (**9600 8N1**).

CONFIGURE SENTINEL TO READ SENSOR

Program the Sentinel Slave ID to match the Electrolab sensor Modbus ID (default 1), configure the Sentinel as normal to join the network and connect to the Gateway. (If the sensor Modbus ID is unknown, see section [FIND SENSOR MODBUS ID.](#))

To automatically populate the Sentinel with the pre-set registers, select **Settings → Configure Sentinel for Electrolab DLS2100**, then click **Yes** in the message box that appears to set parameters and registers listed in the window.

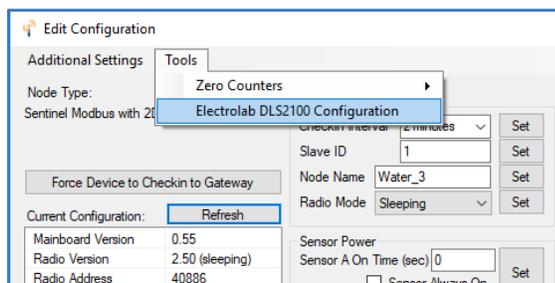


The Electrolab DLS2100 is now fully configured for wireless communication. When using **SignalFire ToolKit v2.2.34.00 or higher**, the program steps are set based on the register mode configured in the Electrolab. Otherwise, the program steps assume the default register mode of 16-bit unsigned integers. To set the register mode, see section [CONFIGURE ELECTROLAB SETTINGS](#).

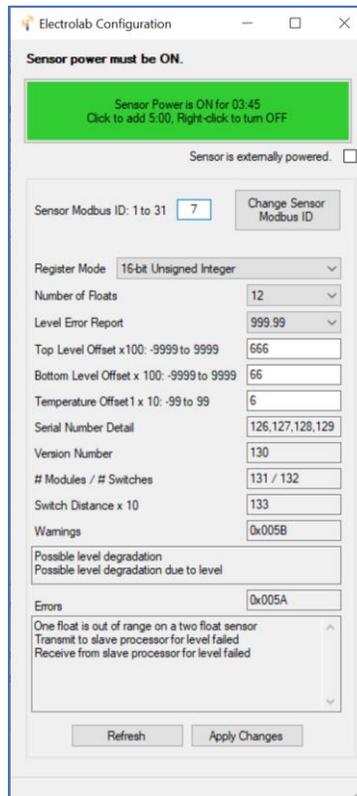
The following requires the following minimum firmware revisions: Gateway version 8.24, Sentinel-Modbus version r66, Modbus/2DI version r59. If the Sentinel is already connected to a Gateway, but not configured to read an Electrolab, the parameters can be set from the Gateway using the remote configuration feature. Enable remote configuration as normal and again go to **Settings → Configure for Electrolab DLS2100** and click **Yes**.

CONFIGURE ELECTROLAB SETTINGS

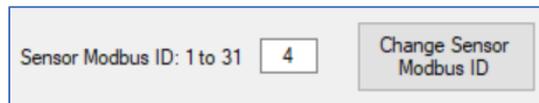
More options can be read and set either when connected locally or while in remote configuration mode through the Gateway. Select **Tools → Configure Electrolab DLS2100**.



The Sensor Modbus ID to Temperature Offset fields are settable, while the Serial Number to Errors fields are read-only. Control the sensor power as described in section [SENSOR POWER CONTROL](#).



To change the Sensor Modbus ID, type a number between 1 and 31. If it is different than the current Sensor Modbus ID, the button to **Change Sensor Modbus ID** will be enabled. Clicking it will change both the Sensor Modbus ID and the Sentinel Slave ID.



To change the settings, type or select from the pull-down menu a new value(s) and click **Apply Changes**. If a desired setting is out of range (such as setting the Temperature Offset to 150), the Sentinel will throw a warning.

FIND SENSOR MODBUS ID

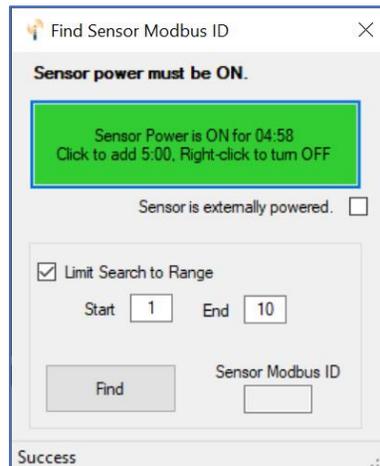
If the Electrolab Modbus ID is unknown, it can be found using the Electrolab HHC-1000 Handheld Communicator connected directly to the sensor or the SignalFire Toolkit connected to the Sentinel's serial port.

If using the Electrolab HHC-1000 Handheld Communicator, take note of the Electrolab sensor's Modbus ID (i.e., the sensor unit number). Keep in mind that if there are multiple units, they will each have to be configured with a unique ID.

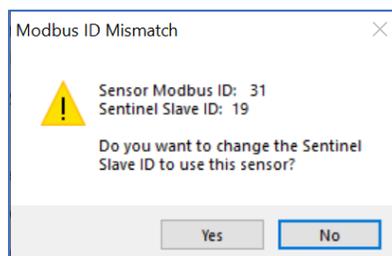
If using the SignalFire Toolkit, click **Find Sensor Modbus ID**.



Control the sensor power as described in section [SENSOR POWER CONTROL](#), select a limited search range or search the entire Modbus ID range (1 to 31), then click **Find**.

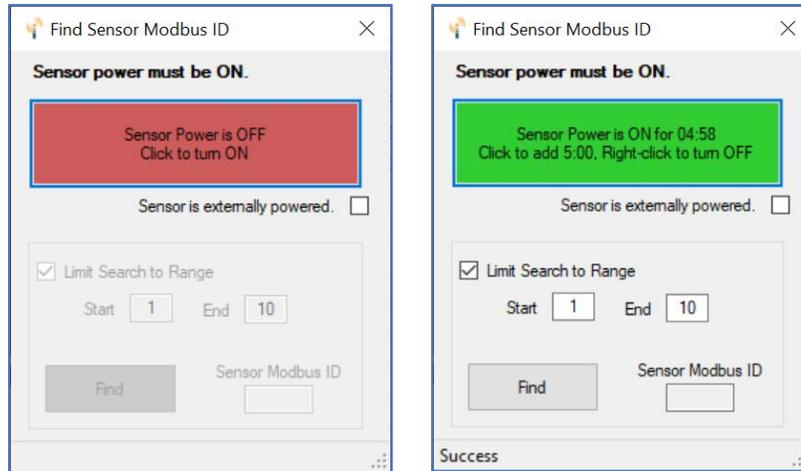


If the Sensor Modbus ID is found but does not match the Sentinel Slave ID, click **Yes** in the pop-up message box to change the Sentinel Slave ID.



SENSOR POWER CONTROL

If the power is not on, either check the box indicating that the sensor is externally powered or click the button to turn it on for 5 minutes. Once the power is on, additional mouse clicks will extend the on time in 5-minute increments. A right-click will turn the power off.



For further assistance, call SignalFire at (978)-212-2868 x2 or email support@signal-fire.com.