

Application Note

Configuring a Sentinel Modbus 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 v2.2.33.00 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

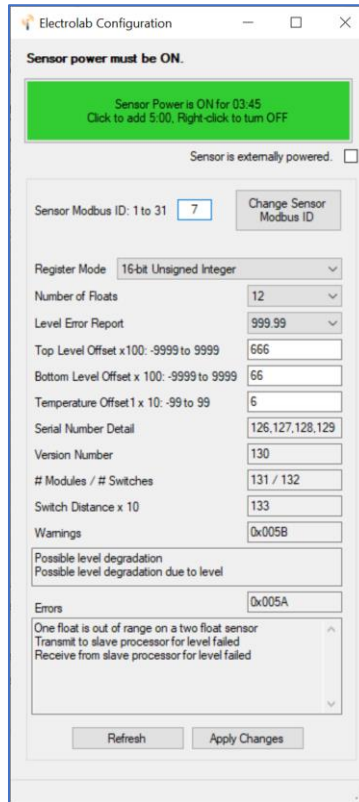
The RS-485 serial communication should be set to the default of 9600 baud rate, 8 data bits, no parity bit, and 1 stop bit (**9600 8N1**).

Program the Sentinel Slave ID to match the Sensor Modbus ID, i.e., the sensor unit number, (default 1) and configure the Sentinel as normal to join the network and connect to the Gateway. If the Sensor Modbus ID is unknown, see section [CONFIGURE ELECTROLAB](#)

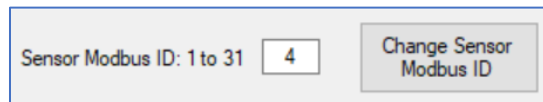
[More options](#) can be read and set either when connected locally or while in remote configuration mode through the Gateway. Select **Tools → Electrolab DLS2100 Configuration**.

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, simply 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, simply type or choose what to set one or more of the parameters to, and then click **Apply Changes**. If the desired setting is out of range (such as setting the Temperature Offset to 150), the Sentinel will throw a warning.

[REMOTE CONFIGURATION VIA GATEWAY](#)

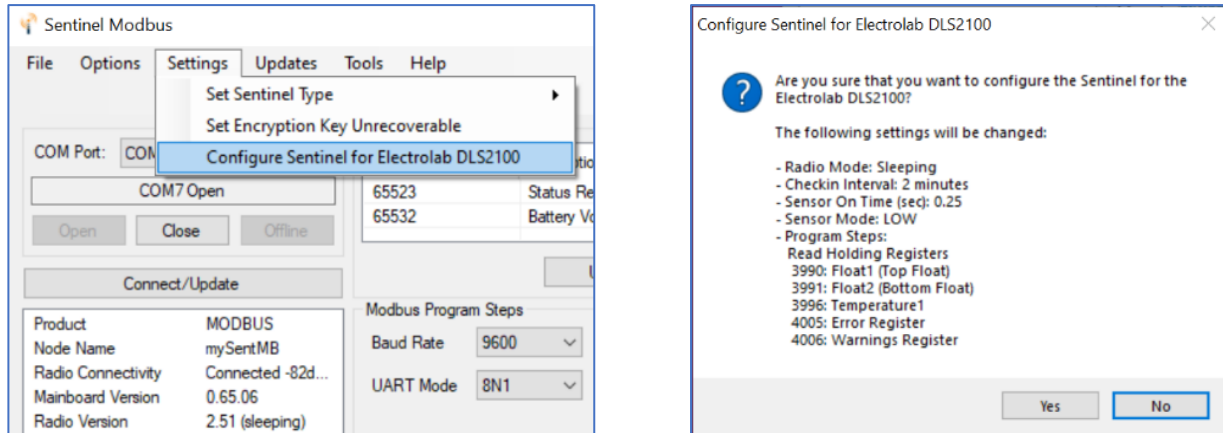
The following requires Gateway Firmware version 8.24. If the Sentinel Modbus is already connected to a Gateway, but not configured to read an Electrolab, the parameters can be set from the Gateway using the remote configuration feature. Enable remote configuration as normal and select **Settings** → **Configure for Electrolab DLS2100** and click **Yes** in the message box that appears.

The Electrolab sensor can be configured by selecting **Tools** → **Electrolab DLS2100 Configuration** and following the procedure described in section [CONFIGURE ELECTROLAB](#).

FIND SENSOR MODBUS ID.

CONFIGURE SENTINEL

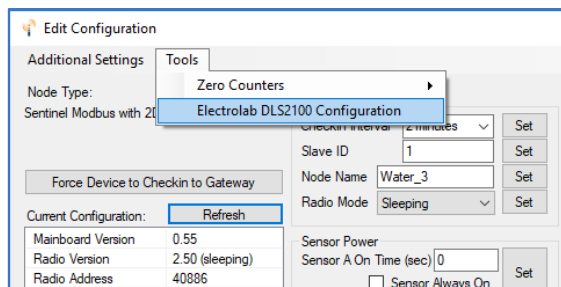
To automatically populate the Sentinel with the pre-set registers, select **Settings** → **Configure for Electrolab DLS2100** and click **Yes** in the message box that appears to set parameters and registers listed in the window.



The Electrolab DLS2100 is now fully configured for wireless communication. The program steps assume the default register mode of 16-bit unsigned integers.

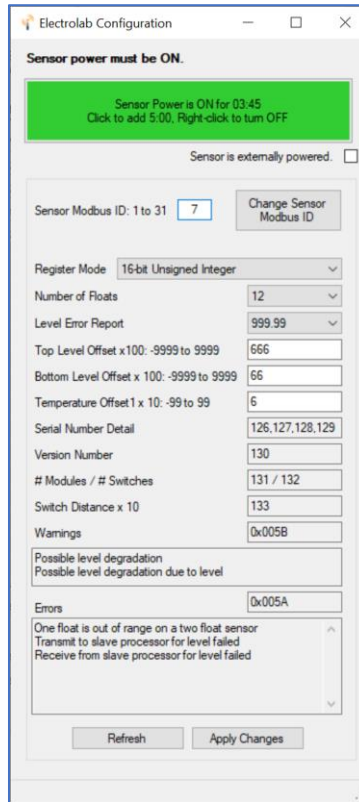
CONFIGURE ELECTROLAB

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

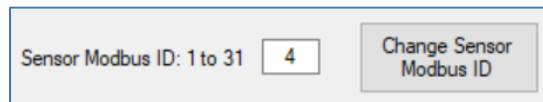


The Sensor Modbus ID to Temperature Offset fields are settable, while the Serial Number to Errors fields are read-only. Control the sensor power as described in section

[SENSOR POWER](#) CONTROL.



To change the Sensor Modbus ID, simply 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, simply type or choose what to set one or more of the parameters to, and then click **Apply Changes**. If the desired setting is out of range (such as setting the Temperature Offset to 150), the Sentinel will throw a warning.

REMOTE CONFIGURATION VIA GATEWAY

The following requires Gateway Firmware version 8.24. If the Sentinel Modbus 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 select **Settings** → **Configure for Electrolab DLS2100** and click **Yes** in the message box that appears.

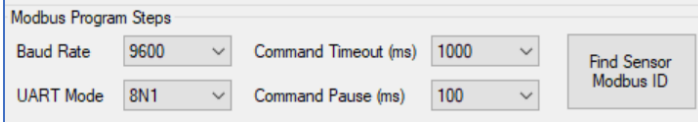
The Electrolab sensor can be configured by selecting **Tools** → **Electrolab DLS2100 Configuration** and following the procedure described in section [CONFIGURE ELECTROLAB](#).

FIND SENSOR MODBUS ID

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 the **Find Sensor Modbus ID** button.

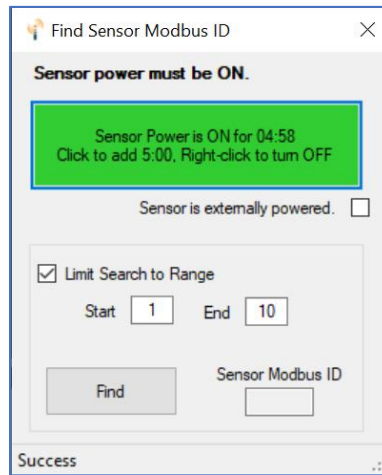


Modbus Program Steps			
Baud Rate	9600	Command Timeout (ms)	1000
UART Mode	8N1	Command Pause (ms)	100

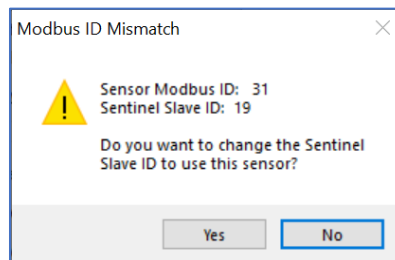
Find Sensor Modbus ID

Control the sensor power as described in section

SENSOR POWER CONTROL. Elect to limit the search range or search the entire Modbus ID range (1 to 31), then click **Find**.



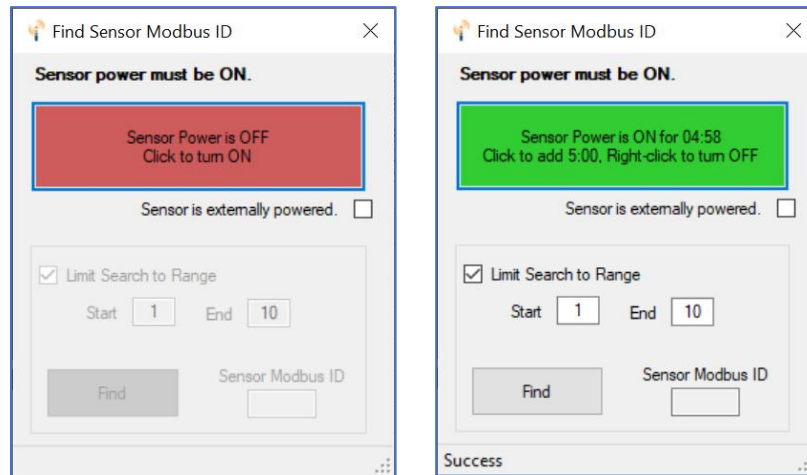
If the Sensor Modbus ID is found and does not match the Sentinel Slave ID, click **Yes** in the message box that appears to change the Sentinel Slave ID.



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.