



## Frequently Asked Questions About Troubleshooting Electrolab Digital Level Sensors (DLS)

The DLS is preconfigured with Unit Number, Baud Rate, and Modbus mode from the factory. The number of floats are programmed based on the Part Number, which includes the resolution and whether it is single or dual float.

If reconfiguration is necessary, configuring an Electrolab DLS is easiest when using our Handheld Communicator (HHC-1000). The HHC allows you to power up, configure and troubleshoot an Electrolab DLS. These FAQs discuss how to troubleshoot using the HHC. If you need to use Terminal Emulation software, refer to #12 of this document.

### 1. What if the HHC display is hard to see?

To set the contrast of the LCD screen:

- Press and Hold the Enter Key then press the (+) key multiple times to increase contrast.
- Press and Hold the Enter Key then press the (-) key multiple times to decrease contrast.

The LCD screen is difficult to see in low light condition:

- Press and Hold the Enter Key then press the ↑ arrow (W) to turn on the backlight.
  - The default time on is 10 seconds. This can be extended to 99 seconds
  - Select F3 System from main menu
  - Select F3 Backlight from System menu.
  - Enter 99 for max time on

### 2. What if the data response is difficult to read?

The HHC may be set to RAW mode and may not be clear on how to interpret the data:

- Select F3 System from main menu
- Select F1 Read Mode from System menu and select 1 for Smart Mode.  
This will make it easier to interpret the responses from the DLS

### 3. What is the default sensor communications configuration?

- The sensor communicates via 4-wire RS485, ASCII or MODBUS RTU (not MODBUS ASCII)
- External to the sensor, 2-wire RS485 is achieved via jumper settings on the fuse board or by using special connectors, such as Electrolab's Explosion Proof housing or by using one of our approved wireless partners' radio housings.
- Unit Number: 01
- Baud Rate and Parity: 9600 N81
- MODBUS: 16-bit Unsigned Integer

### 4. Can I find what the sensor settings are if I'm unsure of the configuration?

- Select F1 SET POINTS from the Main Menu.
- Select F1 Communications from the Set Points Menu.
- Select F1 Search For Sensor from the Communications Menu.
  - The HHC will start scanning for the sensor using a wildcard address and alternate the baud rate and parity until the sensor responds to the request.

- Once the sensor responds, the display will provide the sensor address and baud rate settings. Press Y to accept the settings and the HHC will switch to match the sensors settings. By pressing NO, the HHC will continue to scan.
- If the sensor does not respond to search for sensor, verify wiring on connectors to make sure there are not loose connections.

#### 5. How do I set the HHC to match the DLS unit number?

- Select the 1 key from the Main Menu.
- Enter the two digit address of the sensor
  - Enter 32 to set the HHC to use wildcard address of \*\* to communicate to any sensor when connected to one sensor.

#### 6. How do I change the DLS Baud Rate?

- Select F1 SET POINTS from the Main Menu.
- Select F1 Communications from the Set Points Menu.
- Select F2 Baud Rate from the Communications Menu.
- Select appropriate number for the baud rate desired.  
1 = 1200, 2 = 9600, 3 = 19,200, 4 = 38,400, 5 = 57,600
- Next select the parity desired.  
0 = None, 1 = Even, 2 = Odd
- Stop Bits are determined by parity setting.

#### 7. How do I change the DLS unit number?

- Select F1 SET POINTS from the Main Menu.
- Select F4 More from the Set Points Menu 1.
- Select F4 Assign Unit Number from the Communications Menu.
- Enter the new two digit Unit Number and the HHC will automatically send the command

#### 8. How do I change the DLS Modbus Mode?

- Select F1 SET POINTS from the Main Menu.
- Select F1 Communications from the Set Points Menu 1.
- Select F4 More from the Set Points Menu 2
- Select F2 Modbus Mode from the Set Points Menu 3.
- Enter the number for the Modbus Mode desired.
  - **0** = 16 bit unsigned, **1** = 32 Bit Float, **2** = 2 X 16 Bit float

#### 9. How do I set the correct number of floats?

To set the number of floats:

- Select F1 SET POINTS from the Main Menu.
- Select F2 LEVEL from the Set Points Menu.
- Select F1 NUMBER OF FLOATS from the LEVEL Menu.
- Press 1 for a SINGLE float or 2 for DUAL float  
**For 1/8" Resolution:** Press 3 for SINGLE float or 4 for DUAL float
- Press F5 EXIT.
- Press F5 EXIT again to return to the LEVEL Menu.
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## 10. How do troubleshoot the DLS?

If the HHC is communicating to the DLS, but not reading the correct level:

- Select F2 Data Request from the Main Menu.
- Select F4 More from the Data Request Menu 1.
- Select F2 Heath Status from the Data Request Menu 2.
  - First Screen will show closed switches by group and number.
  - Second Screen will show raw data string and input voltage value
  - Third Screen will show the error and warnings reported by sensor, with interpretation of the error code

## 11. How do I install/orient the floats?

Dual Float Sensors

- Install the Product float onto the sensor first, followed by the Water Interface float while observing the float orientation below. The Product float should always be placed above the Interface float (the Interface float is less buoyant)

Stainless Steel DLS:

- **For a standard Nitrophyl float**, align the yellow line on the stainless steel tube with the white line on the float.
- **For the Harsh Environment (HE) float**, align the yellow line on the stainless steel tube with the embossed grooves on the top of the float.

Fiberglass DLS:

- Align the white line on the float with the ¼" fiberglass rod on the tube.

RU Flex DLS:

- This float comes mounted on the hose from the factory. To change out the float, simply remove the sheet metal screws from the installed float and re-install the new float by removing the screws from the float and reinstalling them on the float when the float body is on the hose.

RediLevel DLS:

- This float has only one orientation.

## 12. What Terminal Emulation Software can be used to configure the DLS?

- The common programs are PuTTY, TeraTerm, Hyperterm and Procomm
- PuTTY and TeraTerm are free downloads (shareware) off the internet
- ASCII communications is limited to Capital Letters, 5 seconds/ keystroke and no backspaces

## 13. How do access the HHC-1000 and DLS User Manuals?

The *HHC-1000 Handheld Communicator User Manual* is available from the Electrolab website by clicking this link [HHC-1000 Handheld Communicator User Manual](#).