Temposonics

AN AMPHENOL COMPANY

Operation Manual

LP-Series Board Replacement
Magnetostrictive Liquid Level Transmitters with Temposonics® Technology

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2. Tools

- Computer
- Temposonics LP Dashboard Setup Software
- Phillips Head Screwdriver
- Common Head Screwdriver
- 12 or 24 Vdc linear regulated power supply
- Analog
    - HART® to USB Converter (Part #380068 or equivalent)
    - 250 Ohm Resistor
- Digital
    - RS485 to USB Converter (Part #380114 or equivalent)

3. Procedure

1. Install LP Dashboard from USB supplied with level transmitter or download from www.temposonics.com. Steps 1 through 11 can be done from the control room or any safe area and do not need to be done on the tank.
2. Connect level transmitter, power supply, computer, converter, and resistor (analog only) as shown in Figure 1 for analog and Figure 2 for digital.
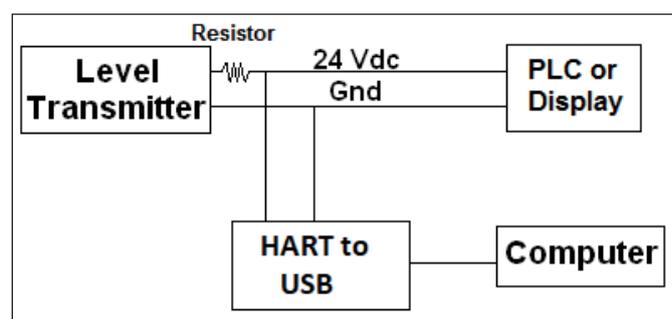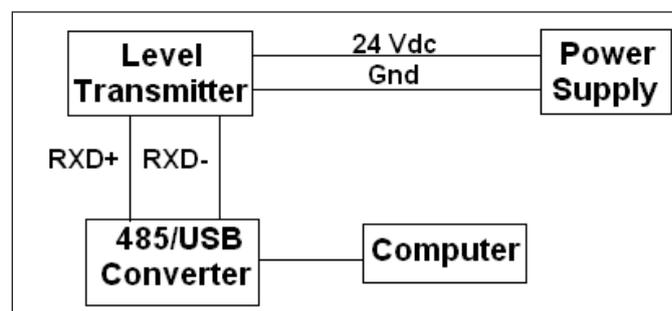

Fig. 1: Connection diagram for HART® outputs

Fig. 2: Connection diagram for Modbus or DDA

3. Open LP Dashboard and connect to level transmitter. Select the correct Protocol from the drop-down menu. Select the correct COM Port. Do note that only active COM Ports will be shown so make sure the converter is plugged into the computer before opening the LP Dashboard. Select the correct Device Address. Default address is 0 for HART®, 0 for SIL, 247 for Modbus, 192 for DDA, and 192 for USTD.
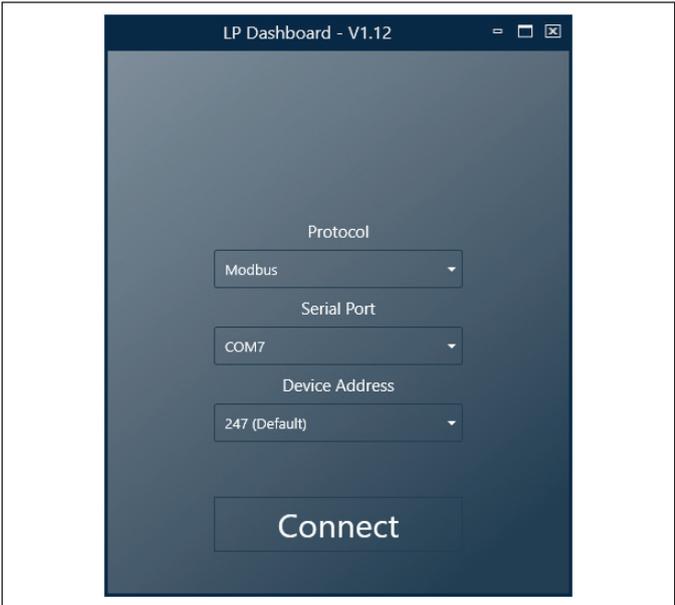

Fig. 3: LP Dashboard - Connect Screen

4. Click on the three white bars in the top left and select Save Settings. Click Read Settings from Gauge. All of the boxes will turn red. Wait for them to change two white signaling that the parameters have been updated.
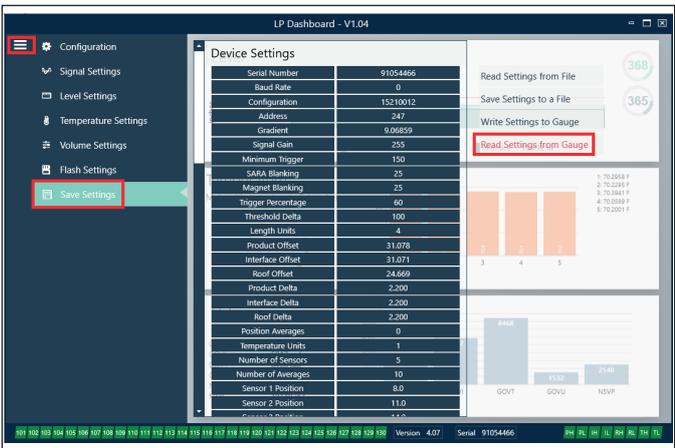

Fig. 4: LP Dashboard - Save Settings - Read from Gauge

5. Save a backup file of the settings for the level transmitter by clicking Save Settings to a File. Label the file with customer name, site, and tank number. The board set will come with the factory programming based off of the serial number but this will not include any changes made by the end user after receipt.
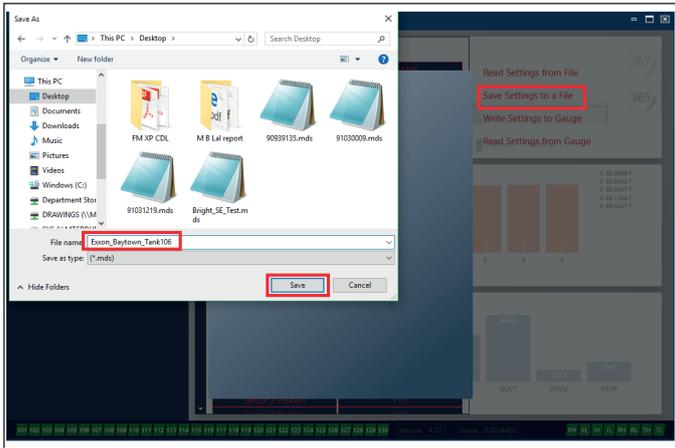

Fig. 5: LP Dashboard - Save Settings - File Save

6. Disconnect power to the tank before going to change the board set.
7. Load backup file into new board set. This can be done in the office before going on top of the tank. No SE or DT cable is required to program the board set. Connect as shown in Step 2.
8. Connect to the level transmitter as shown in Step 3.
9. Click on the three white bars and select Save Settings. Click Read Settings from File and select the previously saved file. Once the file loads click Write Settings to Gauge.
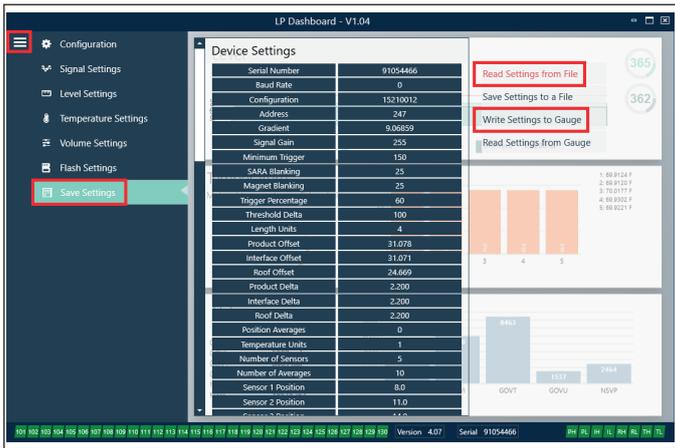

Fig. 6: LP Dashboard - Save Settings - Write to Gauge

10. If the customer supplied backup file is not used then you will need to set the address. To set the address click the three white bars and select Configuration. Change the address of the board set to the specific address needed.
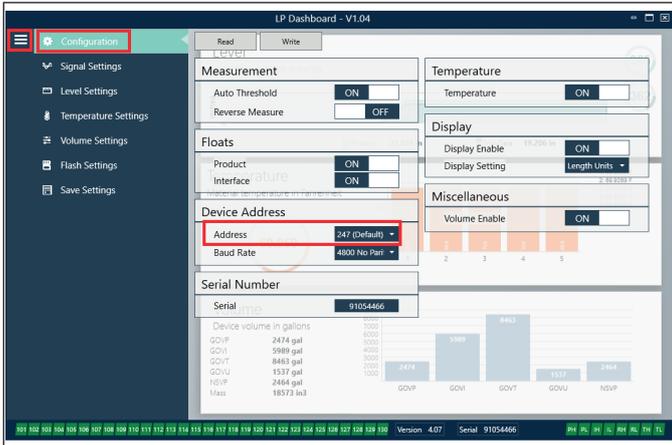

Fig. 7: LP Dashboard - Configuration - Address

11. Disconnect power. The new board set is ready for installation.
12. The following picture illustrate the single cavity aluminum housing. The same procedure can be adapted for any of the other housings with minimal difficulty. Remove the cover of the housing.

Fig. 8: Housing without Cover

13. Pull out display. The display is connected with a cable. The display can hang from the housing by the cable or it can be removed and secured.

Fig. 9: Display Removed

14. Remove the two Phillips head screw as shown below.

Fig. 10: Screw removal

15. Remove the top board from the board stack. The top board will remain with the housing as the white ground wire is connected to the ground lug.

Fig. 11: Top Board Removed

16. Pull the remaining board(s) up from plastic retainer. Do not pull all the way out as the sensing element and temperature cables are still connected. Digital level transmitters will have a total of two boards in addition to the display whereas analog level transmitters will have a total of three boards in addition to the display.

Fig. 12: All boards removed

17. Disconnect sensing element and temperature cables from the board. The white ribbon temperature cable will only be present if the level transmitter was ordered with the temperature option.

Fig. 13: Sensing Element disconnected

18. Remove the black plastic retainer by removing the two larger Phillips head screws.
19. Remove the ground lug, white ground wire, and top board by removing the Common head screw.

Fig. 14: Retainer removed

20. Replace the ground lug, white ground wire, and top board.
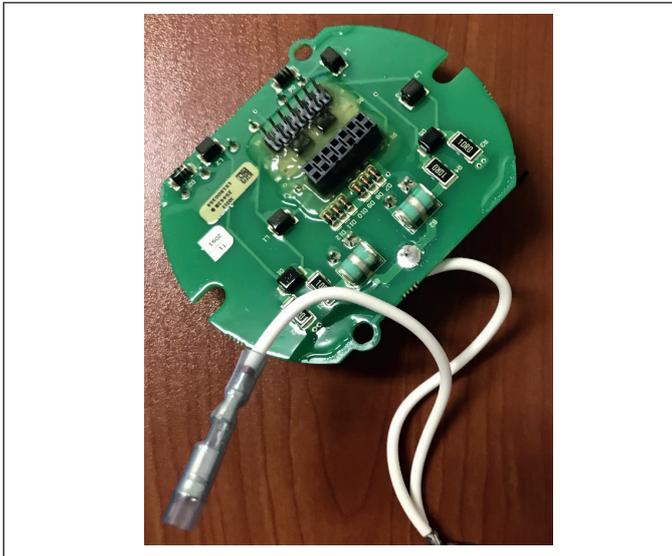21. Connect display to middle board (analog) or bottom board (digital).

Fig. 15: Ground Lug Removed

22. Connect sensing element and temperature cable. The gold pins on the temperature cable should face down towards the board. The sensing element cable is keyed and will only go in one way. It will snap when in correctly.

Fig. 16: Display connection

23. Install board set into plastic retainer. Be careful not to pinch the sensing element or temperature cable between the board set and the plastic retainer.
24. Insert screws.
25. Close housing.
26. Connect power and verify the level transmitter is now working correctly.

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