STM94442A modification for Vertical Propane Tanks.

1) Disconnect power to the monitor.

2) Remove the monitor lid.

3) Remove the two screws securing the LCD.

4) Unplug the LCD ribbon cable from the main board.

5) Remove the 40 pin PIC, and replace it with a PIC that has “VD” (for Vertical Dial) hand lettered on the label.

6) Re-attach the LCD ribbon cable to its header and re-attach the LCD to the standoffs that support it.

6) Power up the monitor.

The LCD will now display the same value that the needle of the dial points to.

A 0-5 Volt analog output is provided for each channel (pg 13 of manual). This output is typically used to connect to a remote monitoring device like a PLC.
When the STM is configured for horizontal tanks the output is directly proportional to the tank dial reading.
When the STM is configured for vertical tanks the following chart should be used to associate dial readings to Analog Output V

Dial Reading (%)	Analog Output V
10	0.3
20	0.7
30	1.3
40	2
50	2.9
60	3.6
70	4.2
80	4.8

The new chips are pre-configured for Vertical Dials, but the monitors can be easily reconfigured for standard horizontal propane tank dial using step e) of the attached configuration instructions.

Programming Low and High Set Points and selecting dial configuration

There are 5 pushbuttons on the main board that are used to program the set points. Four pushbuttons are blue and are marked SW1, SW2, SW3 and SW4 form left to right. The fifth pushbutton is red and is marked SW5 and is used to change the direction of the Set Point count when being programmed by the other pushbuttons as described below. Only one set point must be modified at a time i.e. pressing SW1-SW4 at the same time may result in error. Refer to figure 4 below for details.

a) Programming Tank 1 – Low Set Point

This set point is programmed by pressing the blue push button marked SW1. The low Set point for L1 will either increase or decrease. Set it to the desired value and the unit will automatically save it. The increase/decrease direction can be changed by pressing SW5 momentarily.

b) Programming Tank 1 – High Set Point

This set point is programmed by pressing the blue push button marked SW2. The High Set point for L1 will either increase or decrease. Set it to the desired value and the unit will automatically save it. The increase/decrease direction can be changed by pressing SW5 momentarily.

c) Programming Tank 2 – Low Set Point

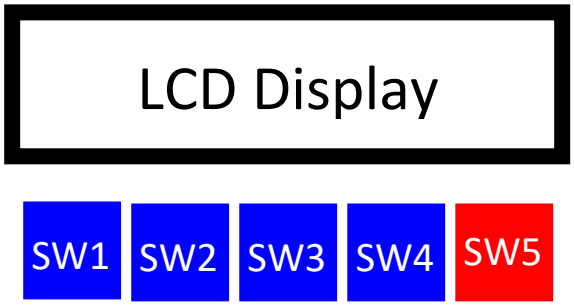
This set point is programmed by pressing the blue push button marked SW3. The low Set point for L1 will either increase or decrease. Set it to the desired value and the unit will automatically save it. The increase/decrease direction can be changed by pressing SW5 momentarily.

d) Programming Tank 2 – High Set Point

This set point is programmed by pressing the blue push button marked SW4. The High Set point for L1 will either increase or decrease. Set it to the desired value and the unit will automatically save it. The increase/decrease direction can be changed by pressing SW5 momentarily.

e) Programming Sensor type

Set the STM to use a Rochester 3-wire sensor by holding down the red button (SW5) and pressing SW1 to change value on the top line for channel 1 and SW3 to change value on the second line for channel 2. A value of 0 sets the channel to operate with a Rochester Vertical dial. A value of 1 sets the channel to operate with the Rochester Hall Effect 3-wire sensor for standard horizontal tanks.



Identifying dials for Horizontal Tanks and dials for Vertical Tanks

Dial for horizontal tank, the STM should be set to Dial Type 1

Dial for Vertical Tank, the STM should be set to Dial Type 0