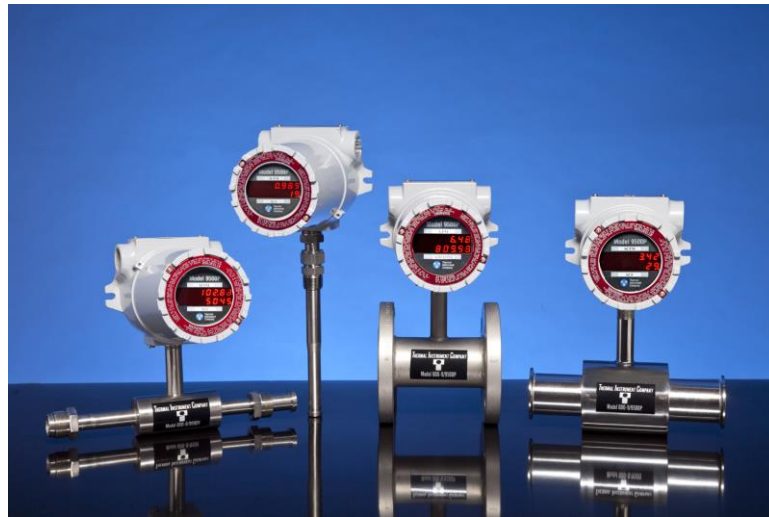


Integral Electronics with Local Menu System



THERMAL INSTRUMENT COMPANY

Trevose, PA

215-355-8400

New Menu Features & Benefits

- ▶ Available with either Hart Communication or Modbus output
- ▶ Visibility to current factory settings
- ▶ Ability to change:
 - ▶ Filter Factor
 - ▶ Zero Cutoff %
 - ▶ Flow Factor (K)
 - ▶ 20 mA Output
 - ▶ Pipe ID
 - ▶ Modbus Slave ID (If Modbus equipped)*

* Slave value of 1-16 is adjustable on menu system. TICO Parameter Setup Utility Software required to change slave ID from 17 - 250.

New Features & Benefits (Cont.)

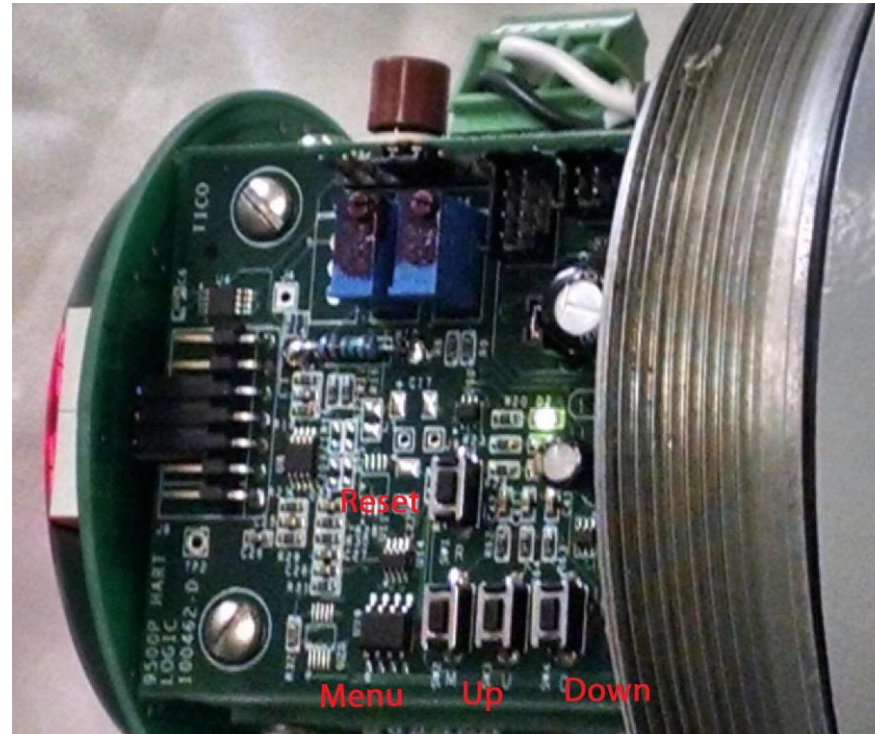
- ▶ NEW - 4 Button Menu System

- ▶ Consisting of:

- ▶ Reset Button
 - ▶ Menu Button
 - ▶ Up Button
 - ▶ Down Button

- ▶ NEW - Reset Totalizer Command

- ▶ Hold the button marked “Down” in picture for 5 seconds until Display flashes and resets.



Instructions

- ▶ Unscrew and remove lid. Logic board is on right side.
- ▶ Parameters can be viewed or changed using the Menu System. Content within the menu system is arranged in levels which are usually a category of items, or items which are the meter parameters.
- ▶ There are four buttons on the Logic board which are used to navigate the menu system. These buttons are labeled:
 - ▶ S1 R - This button is the Reset button, it resets the micro-controller or exits the menu system.
 - ▶ S2 M - This button is the Menu button, it is used to enter the menu system, select a level, item or parameter and save changes. Changes are saved by pressing and holding the button for about 3 seconds.
 - ▶ S3 U - This button is the Up button and is used to increment the level, item or parameter value.
 - ▶ S4 D - This button is the Down button and is used to decrement the level, item or parameter value.

Instructions (cont.)

- ▶ The menu system is entered by a single short press of the M button. The menu system will start in the level selection mode and the number 1 will be blinking in the upper display. A blinking number indicates that a selection has not yet been made. The level can now be changed by pressing the U or D buttons. Once the number representing the desired level is present in the display, that level can be selected by a single press of the M button.
- ▶ The item or parameter can now be changed by pressing the U or D button. Once the desired item or parameter is displayed, it can be saved by again pressing the M button. The display format of items and parameters is different depending on which level had been previously selected.
- ▶ When both the correct level and item have been selected, the item value can be saved by pressing and holding the M button until the meter resets.
- ▶ Once a level, item, or parameter is selected, that selection cannot be changed. If an incorrect value has been selected the only way to recover is to press the R button and reset the micro-controller and start over.

Instructions (Cont.)

Considerations when entering a floating point number

- ▶ The K Factor, Full scale 20 Ma and Pipe ID numbers operate somewhat differently than the other settings. Each number is entered one digit at a time. Each digit can be a 0 to 9 or a 0. to 9. or digits without or with a decimal point.. When digits are selected by pressing the up button, the first 10 do not have the decimal point and the second 10 digits have a decimal point
- ▶ For instance if the value 6.25 has to be entered the 6. would be entered by pressing the U button 15 times. When the desired value is on the display the M button is pressed. Now the U button would be pressed 2 times to display a 2 in the next digit location. The M button is again pressed to select the 2. Then the U button would be pressed 5 times to indicate a 5 on the third digit and again the M button is pressed. The display now reads 6.25, since this is the value to be saved, the M button is pressed and held down until the meter resets. The new value is now permanently saved.

Description of Levels & Items

Level 1 - Display Meter Info

- ▶ Item 1 View S/N
- ▶ Item 2 View Firmware Version
- ▶ Item 3 View Build Number
- ▶ Item 4 View Filter Factor
- ▶ Item 5 View Zero Cutoff %
- ▶ Item 6 View Flow Factor(K)
- ▶ Item 7 View Flow 20 MA
- ▶ Item 8 View Pipe ID
- ▶ Item 9 View ModBus Slave ID
- ▶ Item 10 View Totalizer Counts
- ▶ Item 11 View Totalizer Units
- ▶ Item 12 View Flow Full Range

Level 2 - Fixed Output Current

- ▶ Item 1 Set 4 Ma
- ▶ Item 2 Set 8 Ma
- ▶ Item 3 Set 12 Ma
- ▶ Item 4 Set 16 Ma
- ▶ Item 5 Set 20 Ma

Description of Levels & Items (cont.)

Level 3 - Read Internal Voltage

- ▶ Item E1 View +24 Voltage
- ▶ Item E2 View +5.3 Voltage
- ▶ Item E3 View Excitation Voltage
- ▶ Item E4 Not Used

Level 4 - Change Filter Factor

- ▶ Item = 0 - no filter
- ▶ Item = 1 - 1/16 second
- ▶ Item = 2 - 1/8 second
- ▶ Item = 3 - 1/4 second
- ▶ Item = 4 - 1/2 second
- ▶ Item = 5 - 1 second
- ▶ Item = 6 - 2 second
- ▶ Item = 7 - 4 second
- ▶ Item = 8 - 8 second
- ▶ Item = 9 - 16 second
- ▶ Item = 10 - 32 second
- ▶ Item = 11 - 1 minute
- ▶ Item = 12 - 2 minute
- ▶ Item = 13 - 4 minute
- ▶ Item = 14 - 8 minute
- ▶ Item = 15 - 16 minute
- ▶ Item = 16 - 32 minute

Description of Levels & Items (cont.)

- ▶ Level 5 - Change Zero Cutoff %
 - ▶ Item = % Full Scale (Display Cutoff Factor)
- ▶ Level 6 - Change Flow Factor (K)
 - ▶ Item = .4 to 2.0 (Contact Factory for factor numbers)
- ▶ Level 7 - Change 20 mA Full Scale
 - ▶ Item = Full Scale Value (float)
- ▶ Level 8 - Change Pipe ID
 - ▶ Item = Pipe ID (float)

Description of Levels & Items (cont.)

- ▶ Level 9 - Change Modbus Slave ID (If Modbus equipped)
 - ▶ Item = Modbus Slave ID - 1 to 16
- ▶ Level 10 - Change Totalizer Counts
 - ▶ Item = .001 to Full Range (float)
- ▶ Level 11 - Change Totalizer Units
 - ▶ Item1 = Seconds
 - ▶ Item 2 = Minutes
 - ▶ Item 3 = Hours
- ▶ **Modbus Standard Factory Configuration: (Use TI Parameter Setup Software to Change if necessary)**
 - ▶ Modbus Slave ID = 1
 - ▶ Baud Rate = 9600
 - ▶ Byte /Word (Float) = Normal
 - ▶ Parity = 8 Data, 1 Stop, Even