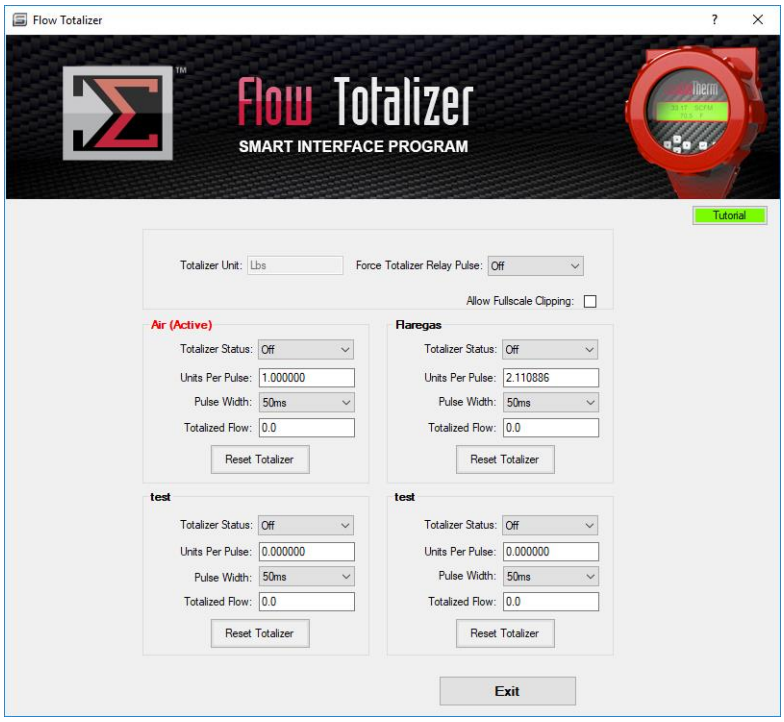
Flow Totalizer Feature

Totalize Multiple Gases with One Mass Flow Meter

Instruction Manual

Part Number: IM640i-tot Rev. V3
June 2019



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Flow Totalizer

Empower Your Flow Meter to Do More...

This flow totalizer feature is FREE to all QuadraTherm® 640i/780i customers. This feature is included in your Smart Interface Program (SIP) software.

Watch "How it Works" Video: http://www.sierrainstruments.com/library/videos/multigas-flow-totalizer.

Key Customer Benefits

With the totalizer feature, end-users can now perform the following (see Figure 1):

- View the totalized value of multiple gases
- Totalize up to four gases with one device and software package
- Set units per pulse and pulse width
- Turn totalizers on/off
- Reset totalizer

How to Get the Flow Totalizer

New Customers: Starting September 3, 2013 (firmware 1.0.74 or higher), all 640i/780i products include the totalization feature on the Smart Interface Program (SIP) Software. This feature is FREE of charge.

Existing Customers: Flowmeters shipped prior to September 3, 2013 (firmware 1.0.73 or lower) will need to send their meters back to the factory for a FREE firmware upgrade which activates the feature. Please return instrument to Sierra via the Return Materials Authorization (RMA) process.

Overview of Flow Totalizer Features

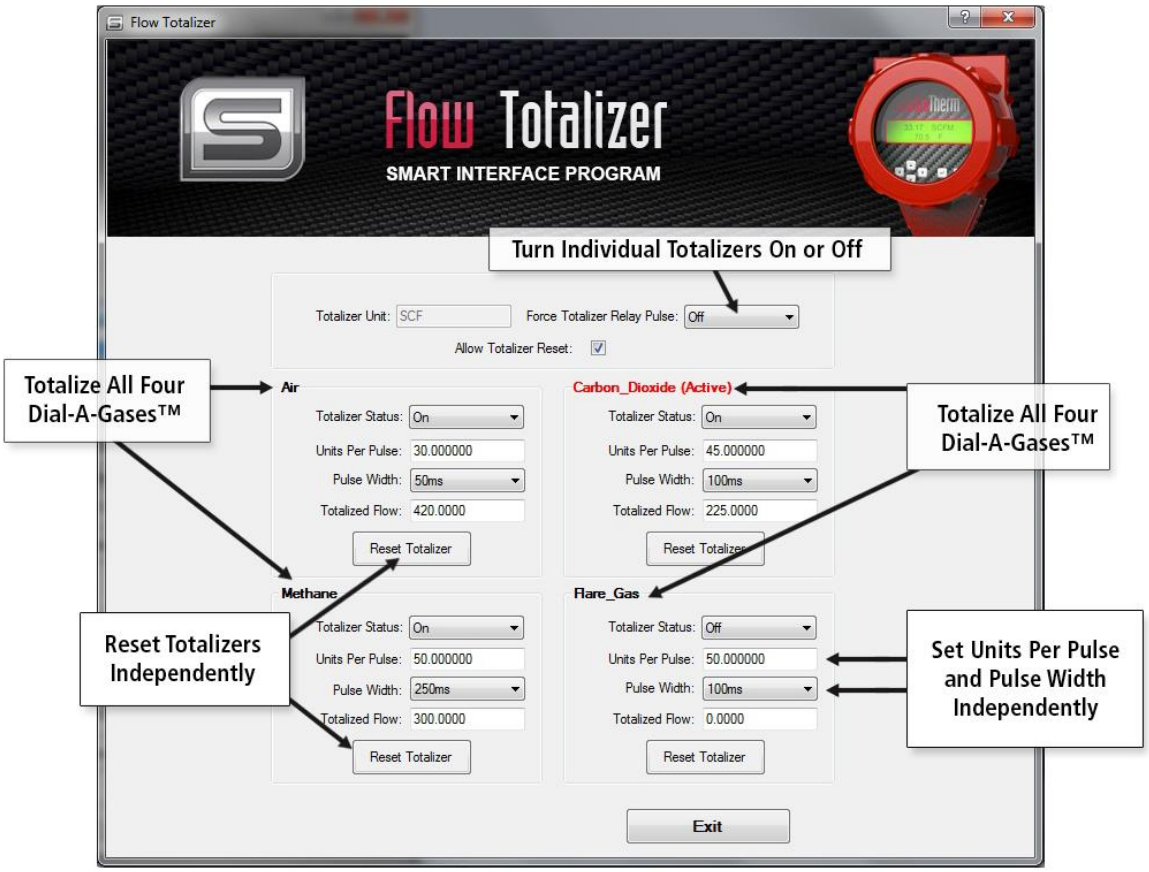


Figure 1. Flow Totalizer User Interface

Turn Totalizers On/Off, Test or Reset

Totalize accumulated flow for each of four loaded gases loaded into the instrument. The totalizer for each gas can be activated or reset independently of the others. Each gas also has its own value for pulse width and units per pulse. All totalizer counts are displayed in the current active flow units.

In Figure 2, the current active flow units are displayed at the top left. At the top right, there is a drop down menu for testing the totalizer relay. The totalizer of the active gas slot will accumulate flow if it is turned on. This is accomplished by using the Totalizer Status drop down menu.

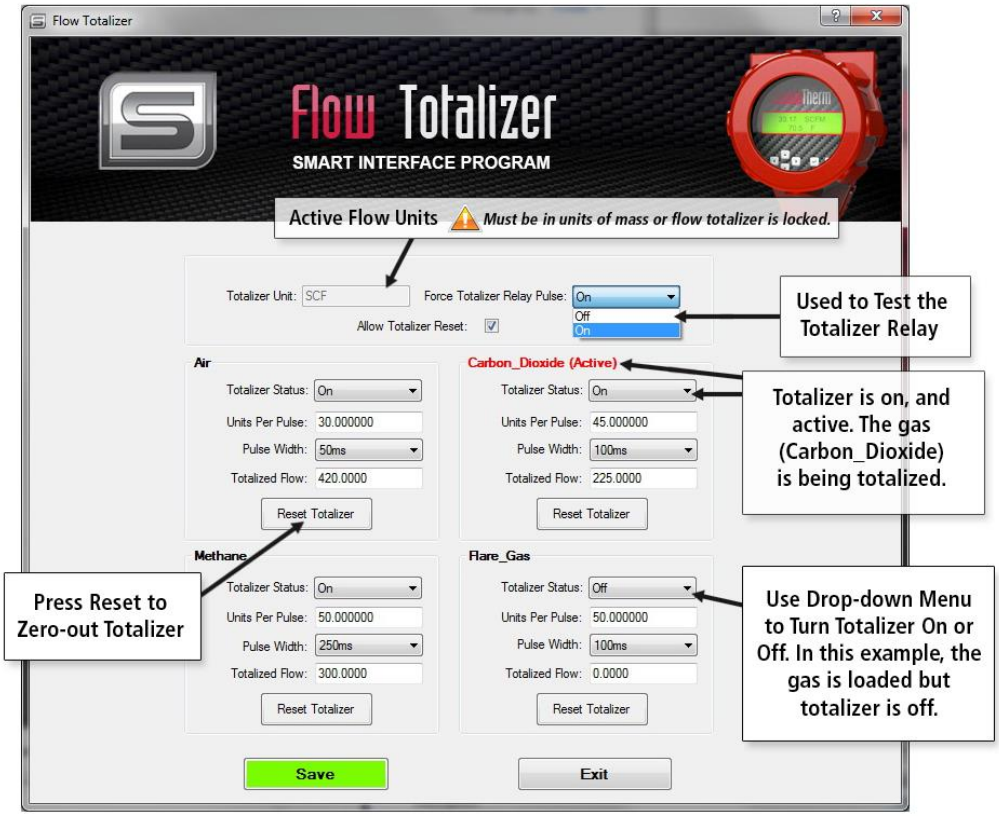


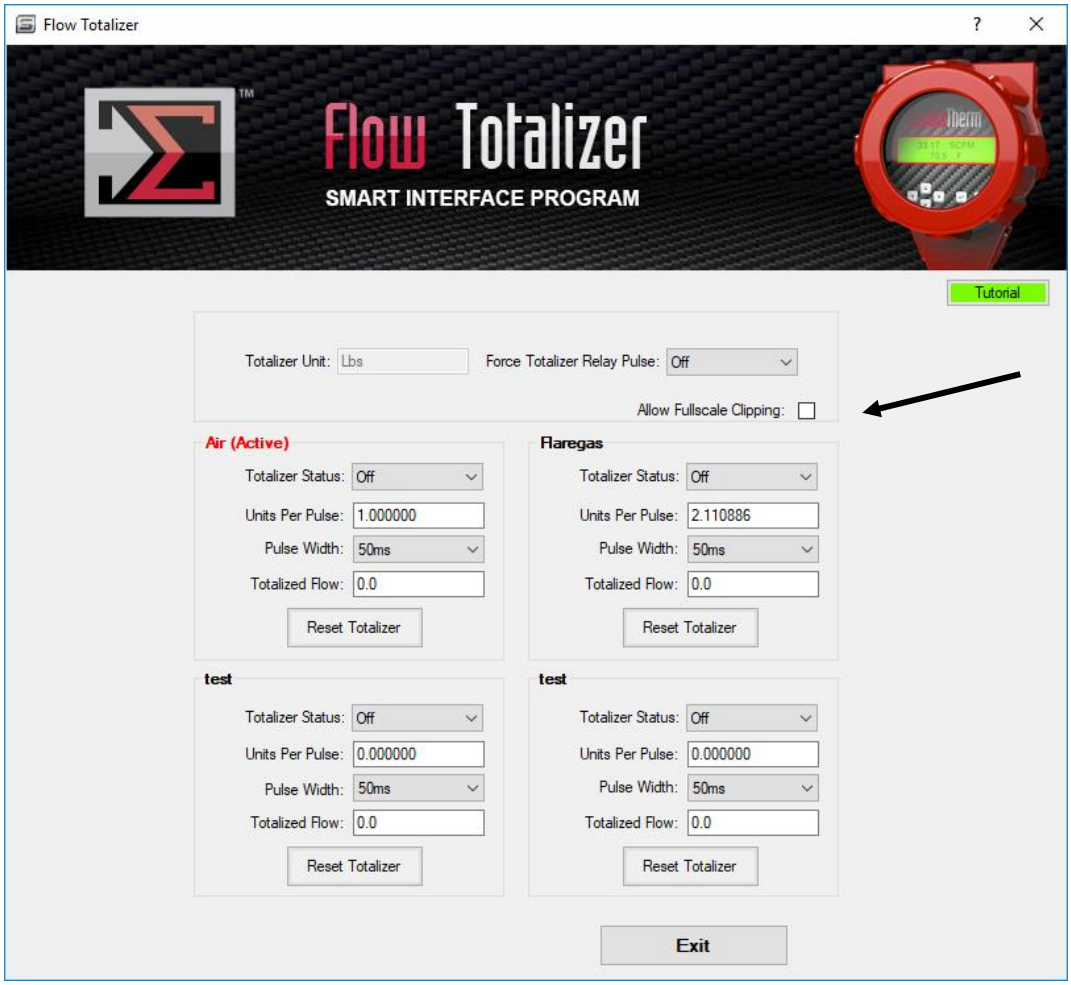
Figure 2. Turn Totalizers On/Off, Test and Reset

	**NOTE** If units are not mass flow, this menu is locked.

QuadraTherm Pulse Clipping Feature

This added feature allows the customer to opt out of totalization in situations where there is an over range. This can occur, for instance, with heavy moisture or water in the pipe. The totalizer continues to totalize internally, but can only put out one pulse per second, so it stores them up and continues to output them long after the condition is corrected.

Note: You need firmware level 1.0.98 or greater. From the latest SIP, you would select “Allow Full Scale Clipping” from the Totalizer menu.



Set Units Per Pulse and Pulse Width

Each totalizer can use a different unit per pulse and pulse width. The unit per pulse is the mass of the active gas that must accumulate before the meter generates a pulse. It will be in the mass units selected in the units menu. The pulse width is the amount of time the pulse lasts. It is selectable from a pull down menu. A typical pulse configuration is shown in Figure 3.

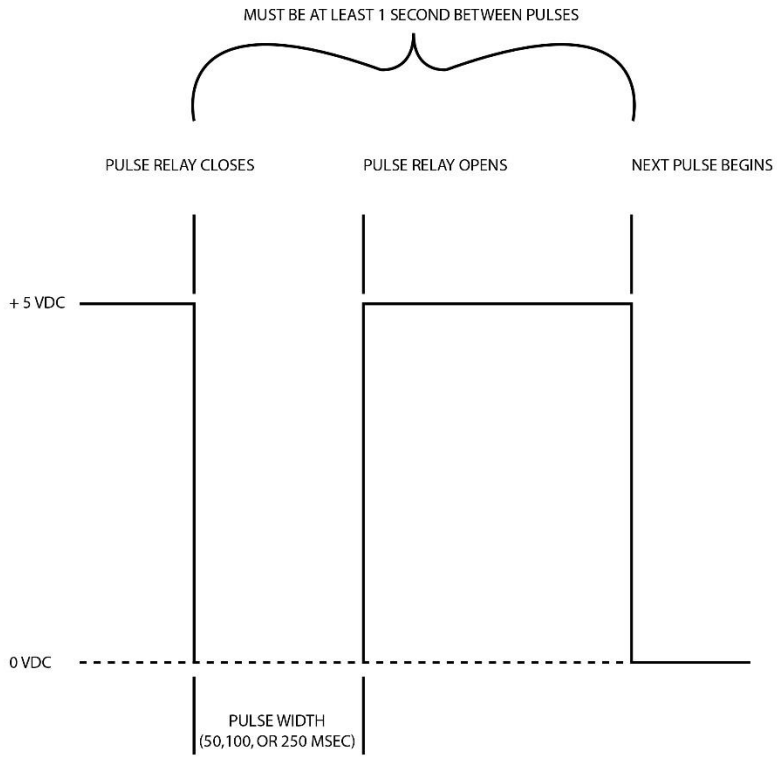


Figure 3. Typical Pulse Configuration

Each totalizer operates at a maximum frequency of 1Hz (1 pulse per second). This limits the maximum units per pulse. For example, if you have a flow of 60 scfm with a units-per-pulse set to 1 SCF. This means there is 1 pulse per second or 1 Hz. This is within the limits of the totalizer. A reduction in flow to 30 scfm means the totalizer will pulse once every two seconds. This is also within the limits of the totalizer.

However, an increase in flow to 120 scfm means the totalizer would pulse once every 0.5 sec. This is too rapid and outside the limits of the totalizer. The result is that the totalizer will not count properly (all the pulses will run together). This demonstrates a limit on the resolution of the totalizer at higher flows. You must convert the flow to units per second and ensure this number is greater than or equal to one. To set your Units Per Pulse and Pulse Width, see Figure 4.

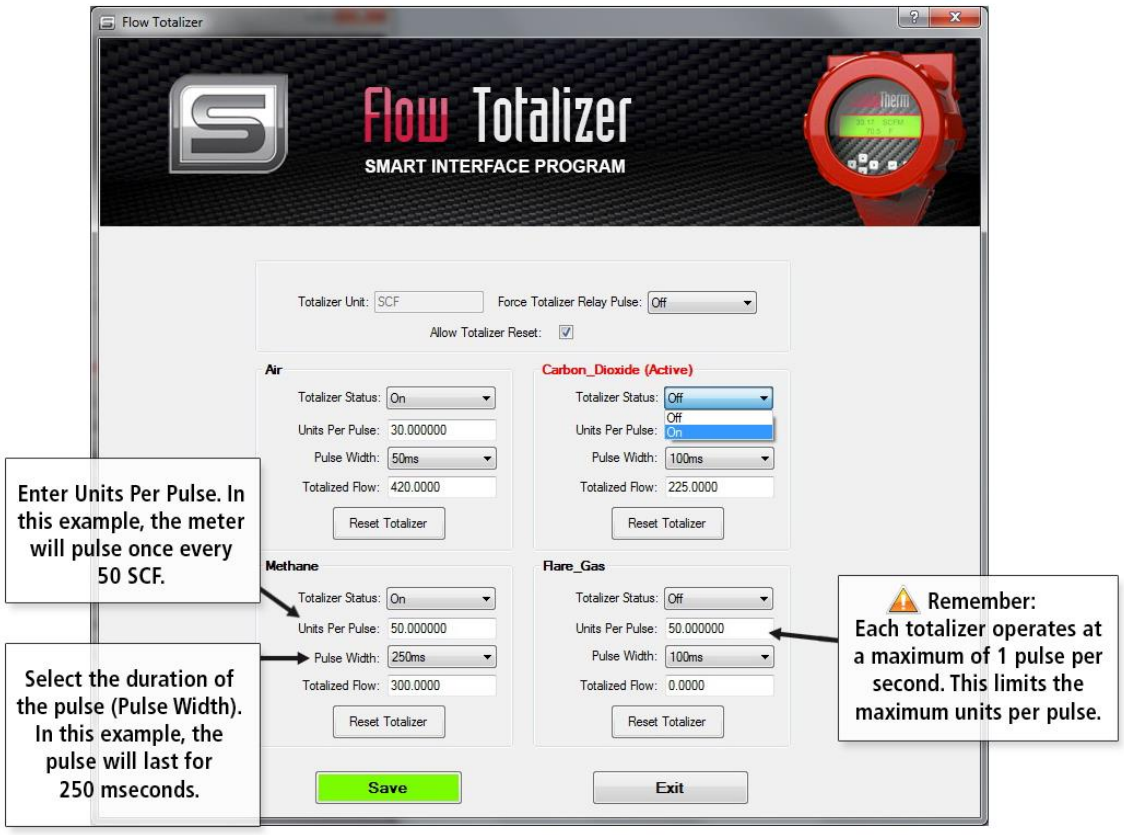


Figure 4. Setting Units Per Pulse and Pulse Width

	NOTE Each totalizer operates at a maximum frequency of 1 Hz (1 pulse per second). This limits the maximum units per pulse.

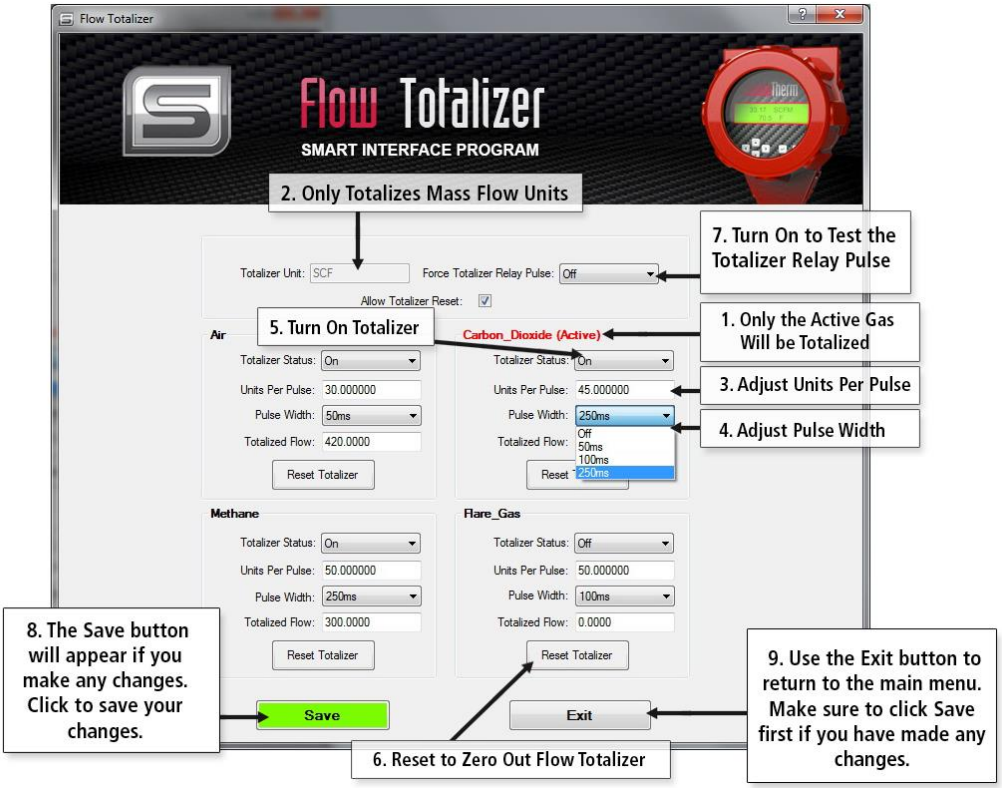


Figure 5. Setting Up a Gas to Totalize

Summary: Setting Up A Gas To Totalize (see Figure 5)

1. Only the active gas will be totalized. The active gas is selected from the Dial-A-Gas menu in the previous screen and cannot be changed from this screen.
2. Totalizer units are in the mass units as selected in the unit menu and cannot be changed from this screen.
3. For the gas you intend to totalize, adjust the Units Per Pulse to the desired value. This value determines how much flow is totalized with each pulse.
4. For the gas you intend to totalize, adjust the Pulse Width to the desired value. This value determines the interval of the pulse.
5. For the gas you intend to totalize, set the Totalizer Status to On and click the Save button. As flow accumulates, the value is displayed as Totalized Flow.
6. To zero out the flow totalizer for your intended gas and restart, click the Reset Totalizer button for that gas.
7. To test the totalizer relay pulse, set Force Totalizer Relay Pulse to On and click the Save button. Return to Off position when you wish to end the pulse testing.
8. Save your changes.
9. Use the Exit button to return to the main menu.