Totalizer

In flow applications it is often desirable to totalize the flow in order to know the accumulated volume or mass through the pipe/duct. One of the process variables measured by the flow meter is the accumulation of the total flow in volume using standard cubic feet (SCF) or standard cubic meters (SCM) or mass using pounds (lb) or kilograms (kg). This value can be monitored on the local LCD display, queried through the USB port, via a Modbus register or through HART. The flow meter also maintains the elapsed time in minutes since the last reset of the Flow Totalizer. The Flow Totalizer can be manually reset from *Program Mode*, through a Modbus command or a HART command. Additionally, it can be automatically reset at a pre-defined value like an electric utility meter or mechanical counter that roles back to zero when it reaches its limit.

Accuracy Limits

There are only about 7 significant digits for the totalizer so when the value has been accumulating for a long time, it will mistrack due to round off errors. To keep the mistracking errors below 1%, the totalizer must be reset every two years. This is independent of the flow rate; it depends only on the time since the last reset. The best way to deal with this mistracking issue is to select an automatic rollover value that will occur within two years.

> For example, say your typical flow rate is 100 SCFM. You have this flow for 10 hours/day. So your total flow per day is 100 x 10 x 60 = 60,000 CF. In 1 year we could accumulate 60,000 x 365 = 21,900,000 or 21.9 MCF per year. If the auto reset was at 10 MCF, then about every 6 months it would reset to zero and it would be easy to compute the usage using this convenient decade value of 10 MCF after a role over.

Viewing the Totalized Flow

To view the Flow Totalizer in *Display Mode*, press **D** and **2** to use the Quick Jump option entry method and select **Option #42** to invoke the Flow Data display menu. Press **P** repeatedly until a screen similar to the following is displayed

```
SCF =183747.5
ET 2036.256   MIN
```

This example shows standard cubic feet but it could be metric or mass depending on how the meter is configured.   Press **H** once to return to the *Display Mode* Option Entry menu and press **H** again to return to *Run Mode*.

The Run Mode Display can also be setup to continuously display and update the

Totalized Flow. An example of a Run Mode Display that shows the Totalized Flow along with the measured flow is shown below:

```
FLOW   25730    SCFM
FLTOT 4.620E+06
```

Totalizer Reset

To clear the totalizer value and its elapsed time, enter *Program Mode,* press **P,** the **654321** access code, and *E.* Press **2** to invoke the Quick Jump option entry method and select *Option #4* for the Setup Flow Totalizer menu. The first screen will prompt to select Manual Reset or Automatic Reset.

```
TOTALIZER RESET
>AUTO RESET     ^v
```

Use the **^** or **v** key to scroll between MAN RESET and AUTO RESET, then press **E** to accept the Totalizer Reset mode. If MAN RESET is selected, the meter will next prompt to reset the current Flow Totalizer Accumulator.

```
RESET FLOW TOTAL
>YES            ^v
```

Press **E** to select **YES** and reset the Flow Totalizer. Or use the **^** or **v** key to change the selection to **NO** and press **E** to keep the current value of the Flow Totalizer (alternatively, press **P** to skip over the reset prompt to keep the current value of the Flow Totalizer). If **YES** is selected, the following screens will display the status of the Flow Totalizer reset:

```
RESETTING FLOW
TOTALIZER...
```

```
TOTALIZER IS
RESET...
```

Press **C**, **P**, or **E** to return to the *Program Mode* Option Entry menu.

If AUTO RESET is selected for the Totalizer Reset mode,

```
TOTALIZER RESET
>AUTO RESET      ^v
```

The meter will prompt for a Reset Count. The Reset Count defines the maximum limit of the Flow Totalizer before it will be automatically reset to zero.

```
TOTAL RESET CNT
>1.000E+20    SCF
```

Use the numeric keys to enter a value for the Totalizer Reset Count and press **E** to accept the entry.

The meter will next prompt to reset the current Flow Totalizer Accumulator.

```
RESET FLOW TOTAL
>YES           ^v
```

Press **E** to reset the Flow Totalizer. Or use the **^** or **v** key to change the selection to **NO** and press **E** to keep the current value of the Flow Totalizer (alternatively, press **P** to skip over the reset prompt to keep the current value of the Flow Totalizer). If **YES** is selected, the following screens will display the status of the Flow Totalizer reset:

```
RESETTING FLOW
TOTALIZER...
```

```
TOTALIZER IS
RESET...
```

Press **C**, **P**, or **E** to return to the Program Mode Option Entry menu.