



TSI Flow

Operating Hints

TSI Flow is a program designed to demonstrate the operation and capabilities of TSI's line of general-purpose mass flowmeters. It is not intended to be a serious laboratory tool.

TSI Flow is written in LabVIEW®, a popular laboratory software package. Many users will want to develop their own LabVIEW applications to meet their exact needs. To help these users we have also included the source code for TSI Flow. This demonstrates common functions of the flowmeter such as communicating with the instrument, controlling the instrument, and dealing with returned data. See the Serial Command Set manual for a complete list of the available functions for each flowmeter.

Screen, Left Half

These are normal Windows commands. The data logging functions are not implemented in this Demo program.

The minimum and maximum values of the vertical scales can be changed by clicking on the values and entering the desired value.

The screenshot shows the TSI Flow LabVIEW interface. The menu bar at the top includes File, Edit, Operate, Windows, and Help. The main area contains three vertically stacked plots. The top plot has a red line, the middle a purple line, and the bottom a blue line. Each plot has a vertical scale on the left. The maximum values of the three scales are highlighted with yellow circles: 100.0 for the top plot, 35.0 for the middle plot, and 200.0 for the bottom plot. Arrows point from the text boxes to the menu bar and the maximum values of the three scales.

Screen, Right Half

The screenshot shows the right half of the TSI Flow Software interface. It features several measurement parameters and control elements:

- Channel Enable:** A checkbox for each measurement parameter, currently unchecked. It can only be changed in Standby mode.
- Digital Readout:** Displays the current value for each measurement parameter. The update rate is determined by the sample rate.
- Volume Measurement "arm" button:** A button to enable the volume measurement function. It can only be armed in Standby mode but can measure volume in either Run or Standby modes.
- Volume measurement "armed" indicator:** A small indicator showing that the flowmeter is ready to start volume measurement as soon as the beginning-trigger criteria are met.
- Volume Display:** A large display showing the volume measurement. Volume is displayed immediately after end-trigger criteria are met.
- Start/Stop Criteria:** Fields for "Begin trig level" (0.25 LPM, Positive), "Begin trig slope" (Positive), "End trig level" (0.10 LPM, Negative), and "End trig slope" (Negative).
- Run / Standby button:** A button currently set to "ON".
- Serial Number:** 41400003004
- Model Number:** 4140
- Sample Rate:** 10 milliseconds/sample
- Gas Calibration:** Set to "Air"
- Com Port:** Set to "2"

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<http://flowmeters.tsi.com>

Select Gas Calibration. This Demo program only supports Air and Oxygen choices. Different models of flowmeters offer additional choices such as N₂O and Air / Oxygen mixtures. Note that these calibration choices are internal to the flowmeter and are not correction factors from this Demo software