

FE Series Flow Element Calibration

The following is for calibrating Flow Performance FE series flow elements using an FP1 flow processor.

Versions 3.15.32 and earlier:

A flow rate calibration factor, **c**, can be adjusted to calibrate the FP1 to known flow rates or to different size conduits and ducts.

Versions 3.16.32 and later:

There are 6 separate calibrations available for bi-directional and multiple Pitot tube devices. The user can select the calibration to use with the Flow Mode command **M**. The user enters the calibration factors into **A** - **F**, and selects the calibration factor to use through the Flow Mode command **M**.

For instance, a user may use calibration **A** for the forward calibration of his flow element, and use calibration **B** for the reverse direction calibration. Selecting calibrations **A** or **B** tells the FP1 which calibration to use in calculating flow rates.

Another example: A particular application shows non-linearity from low to high velocity flow. A user may use calibrations **A** and **B** for low velocity forward and reverse flow directions, and use another set of calibrations **C** and **D** for higher velocity forward and reverse direction flow.

For a typical Pitot tube setup, the calibration factor is roughly the cross sectional area of the conduit in square feet.

When calibrating the flow calculation factor of the FP1, the user has two options:

- Option 1, enter calibration figures manually
- Option 2, use the System-On calibration feature

Calibrating

The user can enter a calibration factor for the FP1 processor to use in calculating the volume of air that is being measured.

The exact figure depends a lot on how much space your Pitot tube is occupying inside the conduit, the aerodynamic disturbance created by the Pitot tube, and the location that the static pressure is being measured in relation to the impact pressure measurement location. If impact and static pressure are measured on the same plane perpendicular to the conduit, at the same distance from the nearest boundary, and the pitot tube is of modest size in relation to the conduit and has an aerodynamic shape, the calibration factor will be very close to the actual cross sectional area of the conduit in square feet.

Manual Entry

When attempting to set the calibration factor to a conduit cross sectional area:

- Access the calibration mode through the keyboard **c** then RETURN or NEXT
- Enter the cross sectional area of the conduit being measured, in square feet, then touch RETURN or NEXT.

System-On Calibration

Normally, you would be flow testing an object with a known flow rate such as a calibration orifice while performing a System-On calibration.

When attempting to match the FP1 readings to a known flow rate:

FPcom1, 2 for Windows based desktops and laptops

- Press **c** and then RETURN. The FP1 will take a flow rate measurement and display the CFM.
- Press the + key (shift +) or - key to increment or decrement the Calibration factor, the FP1 will repeat the flow rate measurement and display the new CFM.
- Press RETURN when the FP1 flow rate measurement is satisfactory.

FPcom.p for Pocket PC

FE Series Flow Element Calibration

- Press the CAL software icon on the touch screen (if the keyboard is displayed, press the keyboard icon at the bottom of the screen to remove the keyboard).
- Press the UP or Down software icons on the touch screen to increment or decrement the Calibration factor, the FP1 will repeat the flow rate measurement and display the new CFM.
- Press the RESUME software icon when the FP1 flow rate measurement is satisfactory.

FPcom.pv for Casio Pocket Viewer

- Touch the screen to produce the keyboard, then enter **c** > RETURN or NEXT.
- In calibration mode, each press of the Casio up and down hardware buttons will increment or decrement the calibration factor, the FP1 will repeat the flow rate measurement and display the new CFM.
- When the CFM reading is satisfactory, press the RETURN or NEXT key to exit calibration and resume normal operation.

System-On calibrating is a bit course and may need to be fine tuned manually.