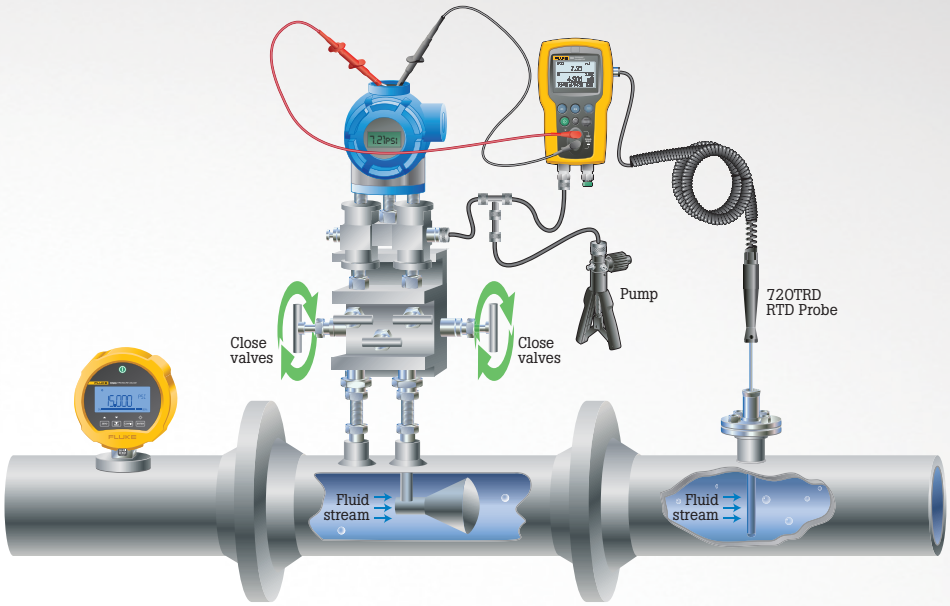

To perform the test:

To get started, isolate the flow computer from the pipeline. It is normally installed with a 5 valve manifold. If so, closing the valves on the pipeline side of the manifold should isolate it. Be sure to follow local policy and safety procedures when performing this isolation step. Set the P1 sensor of the 721 to measure inH20 and the P2 sensor to measure PSI and the temperature sensor to measure degrees Celsius or Fahrenheit as needed.

STEP 1 **Low pressure differential pressure calibration** is performed using atmospheric pressure as a low side reference. Vent the low connection of the flow computer or pressure transmitter and connect the high pressure connection of the flow computer or transmitter to the low pressure port (P1) on the calibrator.

Connect the computer (PC) to the flow computer serial or USB port. The PC will instruct the user to apply one or more test pressures to the flow computer or transmitter. For example, 0, 100 and 200 inH20. Squeeze the pump to get close to the test pressure and use the vernier or fine pressure adjust to dial in.

STEP 2 **Static pressure calibration** will normally be applied to either the same high pressure port of the flow computer or both the high and low pressure ports. Refer to the manufacturer's instructions for details. Connect the high pressure sensor input (P2) to the appropriate port on the flow computer or transmitter and to the high pressure test source. The PC will instruct the pressures for the user to apply from the pressure source.

STEP 3 **Temperature calibration** of the temperature measurement on the flow computer is done with a single temperature point at the pipeline operating temperature. Insert the RTD probe into the test thermowell and allow time for the measurement to stabilize.

The PC will prompt the user to enter the temperature measured by the calibrator. Remove the RTD from the test thermowell and the calibration is complete.

STEP 4 **Flow Computers with 4 to 20 mA inputs:** Many flow computers utilize a low pressure, static and temperature transmitter to convert the measured parameters into 4 to 20 mA signals. In this instance these transmitters may need individual calibration if the test results are not satisfactory (see HART Transmitter Calibration application note or video for more details). Another source for errors in this configuration is the input A/D cards of the flow computer. These can be independently tested using a mA signal source from a loop calibrator.

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TECH TIPS

- Always center the vernier of your hand pump before starting any pressure calibration. This will allow you to increase or decrease the pressure when making fine adjustments.
- Store the temperature probe in a protective case such as the built in slot of the 721 soft case. Exposing the RTD probe to mechanical stress can reduce the measurement accuracy of the probe.
- **Be careful to not connect the P1 low pressure side of the calibrator when doing high pressure calibrations or measurement or the sensor will be damaged and possibly rupture creating a dangerous condition.**
- Inserting the RTD probe prior to the pressure calibrations typically allows sufficient time to reach a stable temperature measurement.

Additional resources

For more in depth information about this application check out these videos and application notes from Fluke.

HART pressure and HART smart RTD transmitter 754 videos

Custody Transfer calibration application note

HART transmitter calibration