Gas custody transfer flow computer calibration

Gas custody transfer flow computers that calculate flow in pipelines by measuring the differential pressure across a flow restriction, such as an orifice plate or other differential pressure flow device, require special calibration to perform at optimum accuracy. Gas flow computers make three primary measurements to calculate flow: volumetric flow (difference in pressure across the orifice plate), static pressure in a pipeline and gas temperature. A calculation is performed using this data to determine the actual mass and volume of the gas flowing through the pipeline.

These calibrations can be made with three separate calibrators, a low pressure, high pressure and a temperature calibrator or use a multifunction calibration tool designed for this specific task.

An example of a calibrator purposed for this task is the Fluke 721 or 721Ex. It has two built-in pressure ranges and the ability to measure temperature. The most popular configuration is 16 psi/1 bar on the low pressure (P1) sensor side and 1500/100 bar or 3000 psi/200 bar on the high pressure (P2) sensor side. It measures temperature using a precision RTD accessory and can display all three measurements at once if desired.

Suggested test tools

Fluke 721 Precision Dual Range Pressure Calibrator

See pg 12

Fluke 700G Precision Pressure Gauge Calibrator

See pg 13

Fluke 754 Documenting Process Calibrator–HART

See pg 5

Fluke 750P Series Pressure Modules

See pg 12