

Gas Flow Monitoring for Heat Treating Processes Relies On Compact ST75V Direct Mass Flow Meter

Improves Process Control, Reduces Gas Costs and Increases Throughput



San Marcos, CA — Process and plant engineers will find that the compact [ST75V Air/Gas Flow Meter](#) from [Fluid Components International \(FCI\)](#) solves air/gas ratio mixing problems that improve heat treating process control, increase product output, reduce fuel gas consumption and lower total operating costs.

Poor fuel-to-air ratio mixing control and monitoring of consumable gases in many different types of heat treating processes is a common issue. The problem is that many existing flow measurement and control technologies fall short when it comes to being highly accurate, capable of measuring over a broad flow range, suitable to various gases and economical enough to be used throughout a facility.

The end result of this dilemma is a continuous series of compromises that negatively affect heat treating process quality and consumables cost objectives. The root cause of these issues is that not all air/gas flow meter sensing technologies can provide the proper air-to-gas mixture ratio within the typically required 4:1 turndown range and maintain the accuracy necessary for optimum heat treating processes.

Orifice plates, for example, which operate with differential pressure sensing technology, use additional pressure and temperature sensors to provide mass flow (rather than volumetric) measurement. They also require longer piping straight runs for accurate measurement, which is a problem when designing small footprint heat treating process production lines.

FCI's ST75V Air/Gas Flow Meter offers an alternative solution for heat treating process control that provides direct mass flow measurement for accuracy, operates over a wide turn-down range and supports all common and specialty fuel gases. It features integral advanced flow sensing electronics with the necessary measurement accuracy and repeatability for heat treating processes.

The ST75V flow meters are an in-line (spool-piece) design with no moving parts and are available for use in pipe diameters from 0.25 inches to 2 inches, [6 mm to 51 mm]. Process connection options include male NPT, female NPT, and flanged. These thermal flow meters feature wide 100:1 turndown and depending on pipe size, will measure from 0.01 SCFM to 559 SCFM [0,01 NCMH to 950 NCMH].

The ST75V meter's Vortab[®] flow conditioner is built into the spool-piece to provide accurate and repeatable flow measurement for installations with limited pipe straight-runs and/or for operating in transitional flow ranges. The sensing element is designed with precision, platinum RTDs in small diameter, "equal-mass," all-metal thermowells for high accuracy, repeatability and fast response. Standard accuracy is $\pm 1\%$ reading, $\pm 0.5\%$ full scale.

The ST75V's electronics are housed in a rugged, IP67 rated enclosure with dual conduit ports in either NPT or M20 threading. The instrument comes standard with dual 4-20 mA outputs and a 500 Hz pulse output.

Optionally, the model ST75AV meter includes HART as well as NAMUR compliant 4-20 mA outputs and SIL compliance rating. The flow meter's transmitter/electronics can be integrally mounted with the flow element (probe) or be remote mounted to best match the installation. The complete instrument carries global Ex agency approvals for Division I/Zone 1 installations.

The ST75V meter's fully scalable dual 4-20 mA standard outputs are user assignable to flow rate and/or temperature and a 0-1kHz pulse output of total flow. The instrument can be ordered for input power with either 18 to 36 Vdc or 85 to 265 Vac, with or without a built-in LCD digital display.

The durable ST75V flow meter withstands process temperatures from 0°F to 250 °F [-18°C to 121°C]. It operates at pressures up to 240 psig [16.5 bar (g)] with a standard t-fitting (NPT female) process connection. With a tube process connection, the meter withstands 600 psig [41 bar (g)].

Fluid Components International is a global company committed to meeting the needs of its customers through innovative solutions for the most challenging requirements for sensing, and measuring flow, pressure and temperature of gases.