

ST75 Thermal Flow Meter Accurately Measures Hydrogen in Biomass Gasification Processes

Supports Green Renewable Energy Resources To Prevent Global Warming



San Marcos, CA — Process engineers responsible for managing biomass gasification plants will find the [ST75 Series Air/Gas Flow Meter](#) from [Fluid Components International \(FCI\)](#) operates in hot, wet, dirty environments to provide highly accurate measurement of mixed composition gases, including: hydrogen (H₂), carbon monoxide (CO) and trace methane (CH₄).

Biomass gasification processes convert renewable organic resources, such as agricultural products and residues, into hydrogen fuel gas through the application of heat, steam and oxygen (O₂) in large biomass gasifier chambers. The gasification process converts the organic materials at high temperatures with a controlled amount of O₂ and or steam into a mixture of H₂, CO and CH₄. The extracted H₂ gas also contains water, tar or ash, which must be extracted via a separation tank.

Efficient biomass gasification process control depends on the accurate flow measurement of the fuel gas, the inlet air, the extracted H₂ gas and the other waste gases. With its advanced thermal dispersion mass flow sensing element, the ST75 Flow Meter measures mixed composition gases, can be configured to operate in cramped areas with limited pipe runs and is safe for potentially flammable or explosive combustible gas environments.

The ST75 Flow Meter operates over a wide flow range in mixed gas environments from 0.01 to 559 SCFM (0.01 to 950 NCMH), depending on line size. For variable process conditions such as those in biomass gasification plants, the ST75 meter is factory preset to a turndown range of 10:1 to 100:1.

With built-in process temperature compensation for accuracy, the precision ST75 Flow Meter maintains consistent performance in rugged, hot biomass gasification plant environments. It features highly dependable accuracy to ±2% of reading with ±0.5% repeatability in line sizes from 0.25 to 2 inches (6 to 51 mm).

The ST75 Flow Meter's precision flow element has a no-moving parts design, which employs platinum RTD sensors embedded in equal mass thermowells with its microprocessor

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electronics calibrated to laboratory standards for a wide variety of gases. This no-moving parts design provides extra reliability where process safety is a concern.

Ideal for crowded equipment areas in biomass gasification plants, the insertion style ST75 Flow Meter features remote mounting capabilities for hazardous plant environments. The transmitter, which includes a full digital display, can be mounted up to 50 feet (15 meters) away from its thermal mass flow sensor in the process piping and connected via two 0.50-inch FNPT or M conduit connections.

The ST75 Flow Meter's fully scalable dual 4-20mA 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 ST75 Flow Meter withstands process temperatures from 0 to 250°F (-18 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)].

Offering direct-flow measurement for higher performance at a lower cost with proven thermal dispersion technology, the ST75 Flow Meter eliminates the need for additional pressure and temperature sensors, flow computers, or other devices that are required with orifice plates, Venturis, Vortex shedding, and other volumetric meters. The ST75 meter also requires virtually no maintenance for both a low installed and low life-cycle cost.

The FM and CSA approved ST75 Flow Meter is enclosed in a rugged, all-metal, dust and water resistant NEMA Type 4X (IP66) rated package designed for Class 1, Div 1 hazardous area installations and includes a rugged sensing element constructed with all welded 316 stainless steel and Hastelloy-C tips. ATEX/IEC approvals include: Zone 1, II 2 G Ex d IIC T6 . . . T3; II 2 D Ex tD A21, IP67 T90° . . . T300°.

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.

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