ST51 Landfill Gas Flow Meter Overcomes Wet And Dirty Gas Conditions For Co-Gen Power Systems

Dependable Flow Accuracy and Repeatability Under Haz Ex Conditions

San Marcos, CA — Process and plant engineers challenged with measuring wet dirty mixed gases in solid waste operations with co-generation electric power systems will find the advanced **ST51 Series Thermal Mass Flow Meter** from **Fluid Components International (FCI)** provides continuously accurate measurement of landfill gas flow to the co-gen electric power engines.

Landfills produce a mixture of methane and carbon dioxide gases with traces of nitrogen, oxygen and other gases. These gases are extracted from multiple wellheads and collected through a network of pipes to a common header pipe. Typical systems also involve blowers, pumps, knock-out pots and a flare or oxidizer. The collected "greenhouse gas" can be disposed of or recovered as a fuel source for a co-generation engine to produce electric power.

Accurate measurement of the landfill gas flow throughout the system provides operators with information on the amount of gas being extracted for optimizing effectiveness, for reporting to environmental agencies and for carbon credit programs. Accurate flow measurement requires performance under challenging application conditions such as: wet and/or dirty gas, mixed composition gases, potentially explosive installation environments, wide variations in flow rates, seasonal swings in gas and ambient temperatures, and designed for larger line sizes.

Flow meters that perform accurately with repeatability and safely under these conditions must meet a number of other requirements. Their design must be multi-function, providing flow rate, totalized flow data and temperature outputs. They have to be calibrated for methane with mixed gases, require temperature compensation, have no moving parts or orifices that clog or foul, be available with single tap insertion designs and adjust automatically to wide turndowns over a wide flow range including extremely low flow sensitivity. In addition, they must be agency approved for use in Division 2 [Zone 2] and often Division 1 [Zone 1] hazardous environments.

FCI's ST51 flow meter is ideal for solid waste landfill gas flow measurement. It features a proven thermal dispersion flow sensor available in an insertion-style package that has been developed

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for use in pipe diameters from 2.5 inches to 24 inches [63 mm to 610 mm]. It is specifically designed for the flow measurement of methane-based gases such as biogas, digester gas, landfill gas, natural gas, and for air, compressed air or nitrogen.

The ST51 flow meter from FCI is an insertion style instrument that can be easily installed into the pipe via a 0.5 inch or 0.75 inch NPT compression fitting. It features a measurement range from 0.3 SFPS to 400 SFPS [0.08 MPS to 122 MPS] with turndown ratio of 100:1 and with accuracy of ±1 percent reading, ±0.5 percent full scale. Depending on the chosen configuration, they are suitable for process temperatures from up to 250°F [121°C] to 350°F [177°C] and pressures from 150 psig [10 bar(g)] to 500 psig [34 bar(g)].

Designed with a no-moving parts non-clogging thermal mass flow sensor, the ST51 meter features precision, lithography structured platinum RTD sensors embedded in FCI's equal mass small diameter, all metal thermowells. Combined with microprocessor electronics and precision calibration, this meter achieves excellent accuracy with a fast response. There is virtually no maintenance required over a long-life for an exceptionally low life-cycle cost.

The ST51 meter'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.

Optional features available include HART as well as a higher process temperature service range, NAMUR compliant 4-20 mA outputs and a SIL compliance rating. The transmitter/electronics can be integrally mounted with the flow element (probe) or be remote mounted to best match the installation requirements.

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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