

Biogas Moisture, Corrosion and Accuracy Issues Resolved With Rugged FCI Thermal ST100A Wet Gas Flow Meter

*Ideal Where Biogas Is Present in Wastewater Treatment Digesters, Landfill Operations,
Oil/Gas & Petrochemical Refinery Stacks and for Power Plant Rain Shielding*

San Marcos, CA — Featuring a rugged, highly accurate thermal dispersion flow sensor, the [ST100A Flow Meter](#) from [Fluid Components International](#) eliminates wet gas and entrained moisture issues affecting biogas measurement accuracy in wastewater treatment digester applications and landfill co-gen power systems, as well as providing down-the-pipe rain shielding in petrochemical refineries, power plants and other types of stack monitoring.



The ST100A Flow Meter with its innovative Wet Gas MASSter flow sensor is ideal for biogas measurement in challenging environments, including wastewater treatment plants, landfill operations, oil/gas refineries, power plants and in a wide range of other industries. It helps eliminate the effects of wet, sticky biogas that causes corrosion issues potentially affecting gas flow meter sensors, which lead to over-range and poor accuracy flow measurement issues. Wet gas is commonly composed of a mixture of carbon dioxide (CO₂), water and trace amounts of hydrogen sulfide (H₂S), which can corrode 316 stainless steel flow sensor elements over time. To solve this problem, the FCI Model ST100A Wet Gas MASSter Flow Meter with corrosion-resistant Hastelloy C-276 sensor tips eliminates these potential causes of corrosion.

The innovative shielded mechanical design of FCI's wet gas sensor shunts water vapor away before it reaches the sensor and prevents any water vapor from collecting on the sensor head to avoid corrosion and therefore any measurement accuracy or consistency issues. The ST100A Flow Meters when installed in wet gas applications across multiple industries have performed consistently without issue for years. By shunting moisture, condensation, and water droplets away from the ST100A's thermal mass flow sensor, accurate gas flow measurement is maintained while minimizing errors that could occur from a cooling effect on the sensor that might cause a spike or false high reading. FCI's wet gas sensor element option can be used in applications that have either moisture entrained in the gas (annular mist) or for protection against down the pipe rain in larger, vertical stacks.

The ST100A Flow Meters feature thermal dispersion mass flow sensors that are designed with constant power technology, which compensates for the variable temperatures commonly found in wet gas that can lead to poor measurement. They are calibrated to specific wet gas mixtures in FCI's NIST-approved Calibration Laboratory, and this meter is available with both built-in pressure sensing and multiple calibration groups for accuracy under difficult wet gas conditions. The ST100A Meter can be calibrated to measure virtually any wet gas composition, mixed gases, dirty gases and specialty gases. The basic insertion style air/gas flow meter features a thermal flow sensing element that measures flow from 0.25 to 1000 SFPS (0.07 to 305 NMPS) with accuracy of ± 0.75 percent of reading, ± 0.5 percent of full scale. Constant power type thermal mass flow sensors are designed with platinum reference temperature detectors (RTDs). These advanced sensors detect process temperature changes in real time and automatically calculate the corresponding change in the wet gas flow rate. They are free of lag effects because they are inherently multi-variable, providing both the flow and temperature data necessary for accurate measurement.

The ST100A meter's insertion style configuration is ideal for wet gas measurement in larger line sizes with standard adjustable insertion lengths from 1 inch (25 mm) up to 60 inches (1,524 mm). It sets an industry benchmark in process and plant air/gas flow measurement, offering the most feature-rich and function-rich electronics available for versatility and installed value. Whether the need is for 4-20 mA analog, frequency/pulse, alarm relays or digital bus communications such as HART, FOUNDATION™ Fieldbus, Profibus or Modbus, the ST100A Flow Meter is the perfect data communication solution in wet gas measurement. Should a plant's needs change over time or an upgrade be desirable, the ST100A Meter adapts as necessary with a plug-in card replacement that can be changed out by plant technicians in the field.

The ST100A Flow Meter's unique graphical, multi-variable, backlit LCD display/readout brings new meaning to the term "process information" for local viewing of wet gas flow data. It provides the industry's most comprehensive information with continuous display of all process measurements and alarm statuses, and the ability to interrogate for service diagnostics. The rugged ST100A Meters are suitable for service up to 850°F (454°C) and are available with integral or remote electronics (up to 1000 feet [300 meters]). They are agency approved for hazardous environments, including the entire instrument, the transmitter and the NEMA 4X/IP67 rated enclosure. In addition to SIL-1, approvals include ATEX, IECEx, FM and FMc. FCI solves flow and level measurement applications with advanced thermal dispersion technologies. With 60+ years' experience and the largest installed base of thermal flow meters, flow switches and level switches, count on FCI to know your application and have the solutions.