

ST51 Greenhouse Gas (GHG) Flow Meter For Process & Plant Flue Gas Applications

Chemical and Food Processing, Petroleum Refining, Pharmaceutical Production, Metals and
Advanced Materials, Paper Plants, Electric Power Generation Plants and More



San Marcos, CA — Process and plant engineers in a wide range of industries who are concerned about the US EPA's greenhouse gas (GHG) monitoring requirements, will find the [ST51 Mass Flow Meter](#) from [Fluid Components International](#) (FCI) provides the high performance and features required of these applications in an instrument that is easy-to-

install, safe and requires virtually no-maintenance to deliver a best cost solution.

The ST51 Flow Meter is ideal for the measurement and monitoring of industrial plant greenhouse gases. The ST51 features a no-moving parts design that's non-clogging and operates over a wide flow range with low-flow sensitivity. It's packaged in an explosion-proof transmitter, and the calibration is matched to the user's actual gas composition and installation conditions.

For years, industrial process and manufacturing plants have been required by the EPA, state and local authorities to monitor flue or stack emissions with flow meters in the fight against air pollution. Flue gases are the general name given to the mixed composition hydrocarbon greenhouse gases that are the by-product of an industrial plant combustion process. A flue is typically a large pipe, duct, stack, chimney or other venting attached to a process or industrial manufacturing plant system such as a boiler, furnace, steam generator, oven, etc., through which waste gases are exhausted from the combustion process.

Flue gases are produced by many industries, including chemical and food processing, petroleum refining, pharmaceutical production, metals and advanced materials, paper plants, electric power generation plants and others. Depending on the type of plant, processes, fuel used and efficiency, flue gases include: nitrogen, carbon dioxide, oxygen and water vapor, sulfur oxides, nitrogen oxide, carbon monoxide, particulates, ozone and methane. These gases in our atmosphere absorb and emit radiation within the thermal infrared range, which has been identified as the primary cause of global warming.

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FCI designed the ST51 Flow Meter to measure and monitor GHG per the EPA's requirements. It features a thermal mass, insertion-style flow element with flow accuracy to $\pm 1\%$ of reading over a broad flow range from 0.3 SFPS to 400 SFPS (0.08 MPS to 122 MPS), and repeatability of ± 0.5 percent of reading. The flow element is available for use in line sizes from 2 to 24 inches (51 mm to 610 mm). It operates over a wide turndown range of 100:1 and at temperatures from 0 °F to 250 °F (-18 °C to 121°C). It withstands pressures up to 500 psig [34 bar (g)].

The ST51 Flow Meter's robust thermal mass flow sensing element has no moving parts and no orifices to clog or foul to attain virtually maintenance-free service in wet, dirty biogas applications. The flow element is constructed with a 316L stainless steel body and Hastelloy C-22 thermowell sensors to resist corrosion. It includes built-in temperature compensation circuitry for accurate, repeatable measurement year-round as temperatures rise and fall seasonally.

For ease of use and applications flexibility, the ST51 flow meter is rich with outputs for user interfaces and information. Dual 4-20 mA analog outputs are user assignable to flow rate and/or temperature, and there is a 0-1 kHz pulse output for totalized flow. The transmitter's digital communications include an RS-232C port, and with units that have the digital display option there is a wireless IR link for PDA use.

The ST51's optional integral digital display features a two-line, 16-character LCD screen that is easy to read and can be rotated in 90-degree increments for optimum viewing and installation flexibility. The LCD screen's top line is assigned to flow rate, and the bottom line is user assignable for temperature readings or totalized flow.

For applications with difficult access or display readability, the ST51's flow transmitter is also available in a remote mount configuration that can be mounted up to 50 feet (15 m) away from the flow element inserted the pipe. Both the remote mount and integral transmitters are housed in an aluminum enclosure that is NEMA 4X approved and meets IP67 requirements for water and dust ingress protection. Input power for the ST51 can be selected as either 18 Vdc to 36 Vdc or 85 Vac to 265 Vac.

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