

FCI ST51 Mass Flow Meter Designed For Coal Mine Methane Gas Measurement



San Marcos, CA—Mine engineers and operators seeking to recover coal mine methane as a fuel resource and to reduce the effects of dangerous greenhouse gases will find the [ST51 Mass Flow Meter](#) from [Fluid Components International](#) provides excellent measurement accuracy in an explosion-proof instrument that's safe, simple to install, requires almost no maintenance and that

offers an economical low lifecycle cost.

With its no-moving parts thermal dispersion mass flow sensing element, the ST51 Flow Meter provides direct mass flow measurement of gas without the additional equipment required with other flow measurement technologies. Its non-clogging sensor design operates over a wide flow range with low-flow sensitivity, and the meter's calibration is matched to the user's actual gas composition and installation conditions. This proven, rugged design is ideal for wet, dirty coal mines and coal bed methane gas recovery environments.

Coal mining operations are a major contributor to the greenhouse gas pollution that results in global warming. There are three major sources of coal mine methane: degasification systems (drainage) both pre-mine and gob, ventilation air (VAM) and abandoned or closed mines. As requirements for pollution abatement increase, coal mine methane gas is an increasingly attractive fuel source for co-gen electric power. Precise measurement of methane gas also is required for methane oxidizer systems and to provide data for incentive credits.

The ST51 Flow Meter is ideal in mining methane gas recovery applications. It features an insertion-style flow element with flow accuracy to $\pm 1\%$ of reading over a broad flow range from 0.3 to 400 SFPS (0.08 to 122 MPS), and repeatability of ± 0.5 percent of reading. It is suitable for line sizes from 2 to 24 inches (51 to 610 mm) diameters.

The ST51 operates over a wide turndown range of 100:1, which is essential due to the variable gas flows in mining operations. It operates at temperatures from 0 to 250°F (-18 to 121°C) and withstands pressures up to 500 psig [34 bar (g)].,3 to 400 SFPS (0.08 to 122 MPS), and repeatability of ± 0.5 percent of reading.

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The ST51 Flow Meter's flow element is constructed with a 316L stainless steel body and Hastelloy C-22 thermowell sensors to resist corrosion. It is approved for use in hazardous environments with approvals that include: FM, CSA/CRN, Class 1, Div 1, Groups B, C, D; Class 1, Div II, Groups A-D, ATEX Zone 1, II 2 G Ex d IIC T6 ...T3, II 2 D Ex tD A21 IP67 T90°C...T300°C.

For applications flexibility, the ST51 flow meter is rich with outputs for user interfaces and information. Dual 4-20mA analog outputs are user assignable to flow rate and/or temperature, and there is a 0-1kHz 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.

In 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 (15m) 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 to 36 Vdc or 85 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.

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