ST100 Series Thermal Mass Flow Meter Measures CO_2 Gas in Enhanced Oil Recovery Operations

Supports Wellhead Gas Injection, Fluid Separation and CO_2 Re-Pressurization

San Marcos, CA — Petroleum engineers responsible for enhanced oil recovery (EOR) operations will find the **ST100 Series Thermal Flow Meter** from **Fluid Components International (FCI)** provides precision CO_2 gas mass flow measurement in a highly reliable and fully HazEx agency approved no-moving parts instrument.

Traditional drilling production technologies typically fail to recover all of the oil in a production field. Multiple industry sources have stated that EOR technologies such as CO_2 injection can deliver up to 25% more production volume. According to the U.S. Department of Energy (DOE), CO_2 is particularly useful as a gas in EOR operations because it is miscible — meaning that it is capable of mixing with oil underground into a fluid, which can then be "floated" to the surface with water.

The accurate measurement of CO_2 gas flow and pressure is critical to the success of the EOR process. In addition, accurate flow measurement is important for the efficient separation of the oil, natural gas, CO_2 gas and water components. The separated CO_2 gas and water components are then re-used to recover more oil. Accurately measuring the flow and pressure of the CO_2 gas is not only critical to the extraction process, but also helps reduce costs.

The ST100 Series Flow Meter can be calibrated to measure CO_2 gas and dozens of other specialty gases, as well as the mixed dirty or wet gases common in the EOR separation and re-pressurization applications. Featuring a sophisticated thermal dispersion technology air/gas flow sensor design with optional pressure measurement, the ST100 meter combines repeatable measurement with feature- and function-rich electronics. It provides direct gas mass flow measurement and requires no additional sensors or flow calculating devices. The instrument's no-moving parts design also virtually eliminates wear, breakage and maintenance.

The basic insertion-style ST100 Flow Meter measures air/gas flow from 0.25 SFPS to 1000 SFPS (0.07 NMPS to 305 NMPS) with accuracy of ±0.75 percent of reading, ±0.5 percent of full scale. A wide variety of pressure ranges can be specified from 0 to 1000 psig [0 to 70 bar (g)], depending on the specific model selected to support the most demanding applications.

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When selecting the ST100 Meter, users have multiple communication options. They can choose from: 4-20 mA analog, frequency/pulse, or certified digital bus communications such as HART, FOUNDATION Fieldbus, PROFIBUS PA or Modbus RS485. Should a production field or plant's communication needs change, a new replaceable card can be swapped out in the field.

Developed with a graphical, multivariable backlit LCD display, the ST100 meter brings new meaning to the term "process information". Its sophisticated readout continuously displays all process measurements and alarm status for easy on-site viewing by technicians, and it has the ability to query for service diagnostics.

The ST100 meter's electronics include a user selectable and programmable data logger. Readings are stored in a removable, internal micro-SD card. The micro-SD card has a 2 GB capacity capable of storing approximately 21 million readings. The recording time base is user selectable with a maximum rate of 1 reading per second. The logging feature is selectable via the front panel menu or via the serial port and configuration software tools.

The feature-rich ST100 meter utilizes constant power thermal mass flow sensing technology that measures flow with 100:1 turndowns in ranges from 0.006 to 1850 SCFM [0.01 to 3140 NCMH]. The transmitter/electronics are integrally mounted with the flow body or can be remote mounted to 1000 feet [305m] away. The transmitter enclosure is NEMA4X/IP67 rated and available in painted aluminum or stainless steel.

ST100 meters are agency approved for hazardous environment installations. FCI products undergo rigorous agency testing and obtain their approvals on the entire instrument, not just the enclosure. Approvals available for the ST100 Flow Meter include: FM, FMc, ATEX, IECEx, EAC/TRCU, CPA, NEPSI, InMetro, and CE Approved.

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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