The Model ST51 Flow Meter is an accurate, easy to install, no moving parts solution for measuring and controlling biogases, digester gases, methane and natural gas flow. Model ST51 utilizes FCI proven thermal dispersion technology to provide direct mass flow measurement resulting in higher performance at a lower cost than orifice plates, DP, Vortex shedding and other thermal devices.

Biogas and digester gas applications are challenged by wide flow variations and dirty, wet gas. Flow variation is experienced as these processes move from low production start-up phases to a consistent, sustainable process and by seasonal temperature change, where cold temperatures slow gas production and higher temperature accelerate gas production. While the primary composition of these gases is methane and CO$_2$, residual H$_2$S and wet vapor leave deposits and corrode surfaces. ST51 provides the solution to these challenges. It features a wide-turndown ratio, up to 100:1 and is highly sensitive to low flow measurement. To measure correctly in fluctuating temperatures, flow meters must include temperature compensation circuitry and it is standard in ST51. ST51 has no moving parts to foul or clog and is easily pulled from the pipe for occasional cleaning.

Model ST51 installs in line sizes ranging from 2” to 24” [51 mm to 610 mm] with 1/2” or 3/4” NPT.

The Model ST51 uses precision, lithography structured platinum RTD sensors embedded in FCI’s equal mass small diameter thermowells. Combined with microprocessor electronics and precision calibration, the Model ST51 achieves excellent accuracy, fast response and virtually maintenance free operation.
ST51 Specifications

Instrument

Media Compatibility: Biogas, Digester Gas, Methane, Natural Gas, Air, Compressed Air, Nitrogen

Pipe/Line Size Compatibility: 2” to 24” [51 mm to 610 mm]

Flow Range: 0.3 sfps to 400 sfps [0.08 mps to 122 mps]

Accuracy: (at ≥ 0.75 sfps [≥ 0.21 mps])
  - Standard: ± 2% reading ± 0.5% full scale
  - Optional: ± 1% reading ± 0.5% full scale

Repeatability: ± 0.5% reading

Temperature Compensation:
  - Standard: 40 °F to 100 °F [4 °C to 38 °C];
  - Optional: 0 °F to 250 °F [-18 °C to 121 °C]

Turndown Ratio: 3:1 to 100:1

Agency Approvals:
  - FM, CSA/CRN: Class I, Div. 1, Groups B, C, D; Class I, Div. 2, Groups A-D
  - ATEX/IECEx: Zone 1, II 2 G Ex d IIC T6...T3, II 2 D Ex tD A21 IP67 T90°C...T300°C

Warranty: 1 year

1 For line sizes 2” or smaller, see FCI ST75 Series
2 Contact FCI for accuracy below 0.75 sfps [0.21 mps]

Flow Element

Installation: Insertion, variable length with 1/2” or 3/4” NPT(M) compression fitting.

Type: Thermal Dispersion

Material of Construction: 316L stainless steel body with Hastelloy-C22 thermowell sensors, 316 stainless steel compression fitting with Teflon or stainless steel ferrule.

Pressure (Maximum Operating without Damage):
  - Stainless steel ferrule: 500 psig [34 bar(g)]
  - Teflon ferrule: 150 psig [10 bar(g)]

Operating Temperature:
  - Stainless steel ferrule: 0 °F to 250 °F [-18 °C to 121 °C]
  - Teflon ferrule: 0 °F to 200 °F [-18 °C to 93 °C]

Process Connection: 1/2” MNPT or 3/4” MNPT with stainless steel or Teflon ferrule.

Insertion Length (Field Adjustable):
  - 1” to 6” [25 mm to 152 mm]
  - 1” to 12” [25 mm to 305 mm]
  - 1” to 18” [25 mm to 457 mm]

Flow Transmitter

Enclosure: NEMA 4X [IP67], aluminum, dual conduit ports with either 1/2” FNPT or M20x1.5 entries. Epoxy coated.

Operating Temperature: 0 °F to 140 °F [-18 °C to 60 °C]

Input Power:
  - DC: 18 Vdc to 36 Vdc (6 watts max.)
  - AC: 85 Vac to 265 Vac (12 watts max; CE Mark Approval from 100 Vac to 240 Vac)

Analog Output Signals: Dual 4-20 mA, user assignable to flow rate and/or temperature and a pulse output for total flow.

Communication Port: RS-232C. Wireless IR to PDA with optional digital display models.

Digital Display: Two-line x 16 character LCD; displays measured value and engineering units. Top line assigned to flow rate, second line user assignable to temperature reading, as flow totalizer or alternating. Display can be rotated in 90° increments for optimum viewing orientation.

Installation and Mounting: Integral with sensor element or remote mountable up to 50’ [15 m].

Locally Represented By:

Visit FCI on the Worldwide Web: www.fluidcomponents.com

Headquarters: 1755 La Costa Meadows Drive
San Marcos, California 92078 USA
Phone: 760-744-6950 Toll Free: 800-854-1993 Fax: 760-736-6250

European Office: Persephonestraat 3-01 5047 TT Tilburg, The Netherlands
Phone: 31-13-5159989 Fax: 31-13-5799036

FCI is ISO 9001:2000 and AS9101 Certified