

FS2000H High Flow Rate, High Accuracy Flow Switch

For Water, Liquids, Slurries, Air, and Gas Applications

Features

- > Wide flow rangeability
- > Fast response time
- > Accurate, repeatable, no moving parts design
- > Relay and transistor output
- > Non-intrusive for unobstructed flow, maintenance free operation
- > Easy-to-install insertion type
- > No pressure drop
- > Field adjustable switch point
- > Temperature compensation

FS2000H Flow Switch delivers a combination of the highest flow range, accuracy and response time available with any thermal dispersion switch. It is equally well suited for water, liquid, slurries, air, and gases. The switch set point is fully field settable. Its unique "flat face" sensor is designed to be mounted flush to the inner pipe surface or can be extended into the media. FS2000H can be used in clean or dirty media and is unaffected by entrained bubbles or particulates. Its no moving parts technology ensures years of maintenance-free, non-clogging performance and creates no pressure drop in the system. FS2000H temperature compensation, not found in lesser switches, ensures highly repeatable switching in actual field conditions.

Input power can be 24 Vdc or Vac, 100/240 Vac, or loop power where instrument works off common 4-20 mA current loop. Signal for alarm or limit trips can be 6A, SPDT relay or transistor output. Rugged NEMA 4X [IP66] rated enclosure and 316L SS all-welded, sensor element delivers durable long life.

For accurate and superior repeatability in flow applications in water to 10 FPS, other liquids to 20 FPS or air to 750 SFPS with line sizes from 2.5 inch [63 mm] and larger, select FS2000H. (For smaller line sizes; see FCI model FS2000L)

Industries

- | | |
|----------------------------------|----------------------|
| > Power and Energy | > Chemical |
| > Oil and Gas | > Mining and Milling |
| > Water and Wastewater Treatment | > Pulp and Paper |
| > Nuclear | > Food and Beverage |
| > Petrochemical | > Steel and Metals |

Applications

- | | |
|-----------------------------------|-------------------------------|
| > High flow alarm | > Clean and purge lines |
| > Low flow alarm | > Pump protection |
| > High viscosity flow monitoring | > Relief valve flow detection |
| > Large line sizes | > Fill drain control |
| > Seal leak detection | > Chemical injection |
| > Fluids with entrained particles | > Lubricant monitoring |
| > Adhesive flow detection | > HVAC |
| > Coolant flow assurance | |



Flow Element Specification

Flow Range:

- > **Water:** 0.1 to 10 FPS [0.03 to 3 MPS]
- > **Ethylene glycol:** 0.1 TO 15 FPS [0.03 to 4.6 MPS]
- > **HydroCarbon:** 0.2 to 20 FPS [0.06 to 6 MPS]
- > **Air:** 0.25 to 750 SFPS [0.08 to 230 MPS]

Repeatability: 1% of flow range

Response Time:

- > **Water:** 0.5 to 3 seconds
- > **Ethylene glycol:** 0.5 to 7 seconds
- > **Hydrocarbon:** 0.5 to 6 seconds
- > **Air:** 1 to 5 seconds

Accuracy: 2% of range over any 100°F [37°C] of media temperature range

Temperature Range Media: -40 to 250°F [-40° to 121°C]

Ambient: 0 to 140°F [-18 to 60°C]

Material of Construction: All welded 316L SS

Process Connection: 1" NPT, 1" Compression fitting, or flanged (1 1/2" [38 mm]min)

Insertion Length: Optimum location is flush with I.D. of pipe. Available in 2 inch or 6 inch U-length with optional compression fitting for adjusting insertion depth

Operating Pressure: 0 to 500 psi

Enclosure

Aluminum; NEMA 4X [IP66] rated; CE marked; Single or dual conduit ports; Single port enclosure rated for hazardous locations Groups B - G. Dual port enclosure rated for hazardous locations Groups B - G and EEx d IIC

Control Circuit

Temperature Rating: T6 rated 0 to 140°F [-18° to 60°C]

Input Power: 24 Vac or Vdc at 4 watts, 100/240 Vac at 4 watts, or 2-wire loop power 4 to 20 mA at 22.5 to 30 Vdc

Signal Output:

- > **DC and AC Power:** SPDT 6 AMP relay resistive max 240 Vac, minimum 10 Vdc at 20 mA. Transistor (FET) output 250 mA max on alarm, field selectable transition for flow or no flow
- > **2-wire loop Power:** 2 step output, field selectable transition alarm at 14 mA (normal) to 18 mA (alarm), or 18 mA (normal) to 14 mA. (alarm)

Enclosures Compatible With Either Sense Element

Fig 1

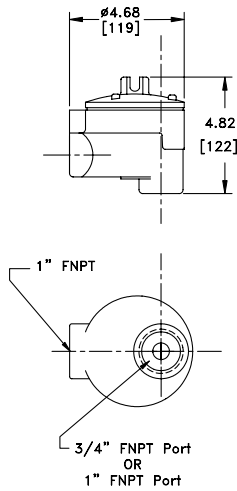


Fig 2A

Alarm with relay

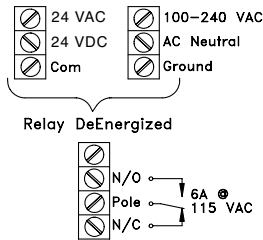
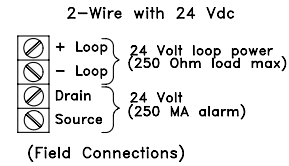


Fig 2B

Alarm with loop power and transistor output



Nema Type 4X [IP66] Rated For Hazardous Locations Groups B, C, D, E, F & G EExd II c

Sense Elements Compatible With Either Enclosure

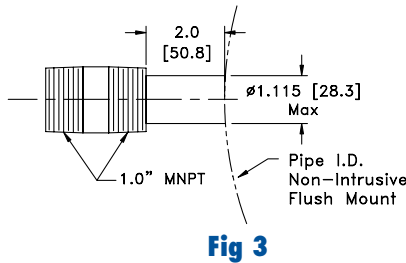


Fig 3

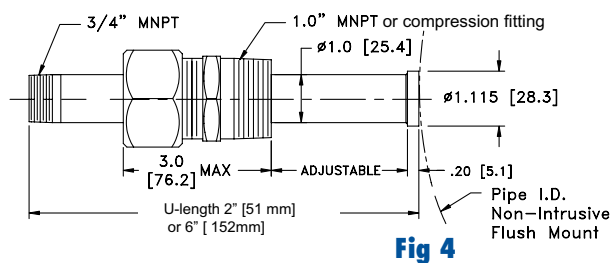


Fig 4

Signal retains slope at high velocities for accurate high flow monitoring

Fig 5

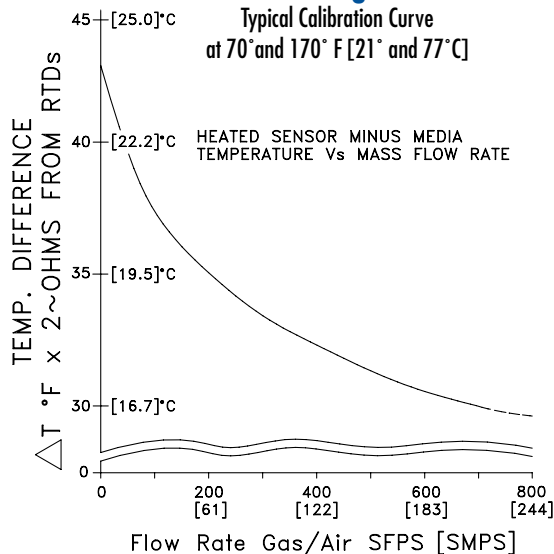
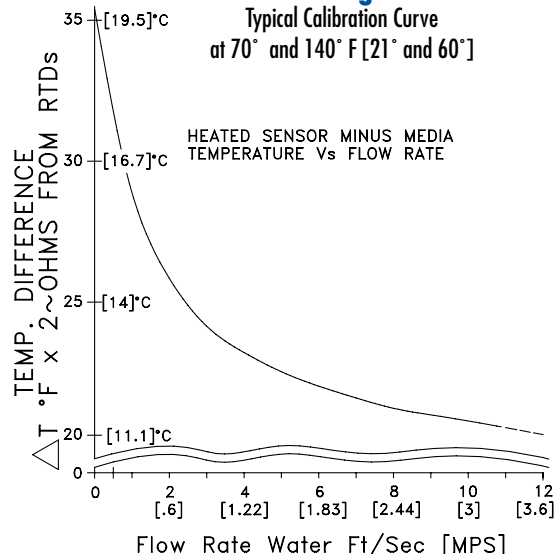


Fig 6



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FCI is ISO 9001:2000 and AS9100 certified

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