

FLT93S Flow Switch



Flow Switch Summary

The FLT93S insertion type FlexSwitch for flow and temperature monitoring represents the first true technological breakthrough in thermal technology in over a decade. This product was designed for heavy industrial environments including high temperature and high pressure. FCI is the only thermal manufacturer providing temperature compensation to ensure set point accuracy for process temperatures that vary up to $\pm 100^{\circ}\text{F}$. The FLT93S is easily field-configured or factory preset, providing unparalleled flexibility, accuracy and stability for all multiple process sensing and switching requirements.

- Applications
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Specifications

For Flow Service - Setpoint Range:

- Water-based Liquids:

0.01 to 3.0 fps [0.003 to 0.9 mps]

- Hydrocarbon-based Liquids:

0.01 to 5.0 fps [0.003 to 1.5 mps]

- Air/Gas:

0.25 to 120 sfps [0.08 to 37 smps] at standard conditions of 70° F [21.1° C] and 14.7 psia [1.013 bar(g)].

Accuracy: (whichever reading is higher)

- Liquids: $\pm 0.5\%$ reading or ± 0.04 fps [± 0.012 mps]
- Gases: $\pm 0.5\%$ reading or ± 2 sfps [± 0.06 nmps]

For Temperature Service:

Accuracy: $\pm 2^\circ$ F [$\pm 1^\circ$ C]

Repeatability: $\pm 1^\circ$ F [$\pm 0.6^\circ$ C]

Response Time: As low as 3 seconds.

Enclosure: NEMA 4X/IP66 Rated. Standard: Polyester powder coated aluminum, with single 1" NPT conduit port. Optional: Stainless steel. Optional: Dual-conduit port, aluminum with 1/2" NPT or M20 metric conduit ports.

Compliances and Agency Approvals: FM, FMc, ATEX, IECEx, EAC/TR CU, Inmetro. EQM/UCAS, CE mark. PED, CRN. (UKCA, UKEX pending)
Meets EC directives for EMC and LVD. Probe complies with Canadian Electrical code requirements of ANSI/ISA 12.27.01-2011 as a single seal device.

FM/FMc: XP, Class 1, Div. 1 Groups B,C,D, T3A or T4 Ta $\leq 60^\circ\text{C}$
DIP, Class II/III, Div. 1, Groups E,F,G, T3A or T4 Ta $\leq 60^\circ\text{C}$
Nonincendive for Class I, II and III, Division 2, Groups A,B,C,D,E,F, and G, T3A or T4 $-40^\circ\text{C} \leq \text{Ta} \leq 60^\circ\text{C}$; hazardous (classified) locations, indoors and outdoors.
Type 4X

ATEX:	Integral:	II 2 G Ex db IIC T4...T2 Gb II 2 D Ex tb IIIC T135°C...T300°C Db
	Remote enclosure	
	+ electronics:	II 2 G Ex db IIC T6 Gb II 2 D Ex tb IIIC T85°C Db
	Local enclosure	
	+ sensor	II 2 G Ex db IIC T4...T1 Gb II 2 D Ex tb IIIC T135°C...T345°C Db
	Pigtail version	II 2 G Ex db IIC T4...T3 Gb

II 2 D Ex tb IIIC T135°C...T200°C Db

IECEx (EQM/ECAS):	Integral:	Ex db IIC T4...T2 Gb Ex tb IIIC T135°C...T300°C Db
	Remote enclosure + electronics:	Ex db IIC T6 Gb Ex tb IIIC T85°C Db
	Local enclosure + sensor	Ex db IIC T4...T1 Gb Ex tb IIIC T135°C...T345°C Db
	Pigtail version	Ex db IIC T4...T3 Gb Ex tb IIIC T135°C...T200°C Db

Optional N.I.S.T. Flow Calibration Services

Factory N.I.S.T. calibration in air or water is available as an option for customer specified setpoint(s) or a flow curve based on the media ranges specified above.

Flow Element

Materials of Construction: All welded 316L stainless steel for all wetted surfaces.

Process Connection:

- Standard: 0.75 inch male NPT
- Optional: 1 inch male NPT, flanges or retractable sensing element.

Insertion Length:

- 1.2 inch [30 mm]
- 2 inches [51 mm]
- 4 inches [102 mm]
- 6 inches [152 mm]
- 9 inches [229 mm]
- 12 inches [305 mm]
- 18 inches [457 mm]

Customer specified lengths are available as an option.

Operating Temperature:

- Standard: -40° to +350° F [-40° to +177° C]
- Optional: -100° to +500° F [-73° to +260° C] or -100° to +850° F [-73° to +454° C]
- **Operating Pressure:** To 3500 psig [240 bar(g)]

Control Circuit

Operating Temperature: -40° to +140° F [-40° to +60° C]

Universal AC/DC supply. Input terminals and jumpers on circuit board select specific power.

AC	108-132V	13W, 100mA max.
AC	207-253V*	14W, 50mA max.
AC	18-28V	7W, 230mA max.
DC	21-30V	7W, 230mA max.

* AC mains preset by factory: FM & FMc as 108-132 Vac; All others as 207-240 Vac

Relay Contacts: Field configurable dual SPDT or single DPDT rated 6 amps at 115 Vac, 240 Vac or 24 Vdc.

Output Signal: Analog DC voltage related to flow or level/interface signal and proportional to temperature.

Electrical Connection: 1 inch female NPT

Remote Configuration: Available as an option with customer specified interconnecting cable length.