

FCI FlexSWITCH™ Series: Model FLT93B

Premium Flow, Level, and Temperature Switch



The FLT93B with *FlexSWITCH* technology represents the first true technological advance in flow, level, and temperature sensing and switching in over a decade. A single instrument, easily field-configured, provides unparalleled accuracy, flexibility, and stability for most flow, level, and temperature sensing and switching needs.

Applications

Flow:

- Low Flow Protection for Pumps
- Relief Valve Open or Leakage Detection
- HVAC Monitoring
- Monitoring Heat Exchanger or Filter Fouling
- Drain Line Flow Detection
- Pump Seal Leak Detection
- Pump Lubricant Leak Detection
- Chemical Additive Verification

Liquid Level/Interface:

- Wet/Dry Detection
- Sump Level Detection
- High/Low Level Alarm and Control
- Interface Control in Separation Vessels
- Foam and Sediment Interface Control
- Agitation Detection

Temperature:

- High and Low Temperature Alarm
- Boiling or Flash Point Detection
- Process Condition Interlock

Theory of Operation: Thermal Dispersion Technology

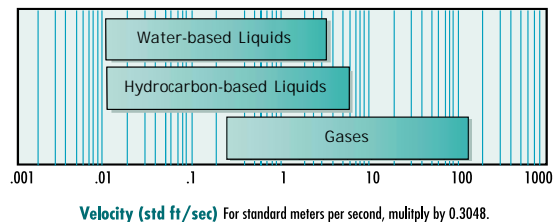
FCI's Thermal Dispersion sensing elements have established an unmatched record of superior performance and reliability. FCI's unique Thermal Dispersion technology provides exceptionally accurate, highly reliable and dependably repeatable indications of flow rate, liquid level/interface and temperature. The typical sensing element contains two thermowell-protected resistance temperature detectors (platinum RTDs). When placed in the process, one RTD is heated and the other RTD senses the process temperature. The temperature difference between the two RTDs is related to the process flow rate as well as the process medium. Increased flow conditions or denser media cause increased cooling of the heated RTD and a reduction in the temperature difference.

An electronic control circuit converts the RTD temperature difference into a DC signal. The temperature difference signal as well as the process temperature signal is provided at output terminals and is used to drive two adjustable-setpoint relay alarm circuits. Both alarms are independently field configurable for flow, liquid-level/interface or temperature operation.

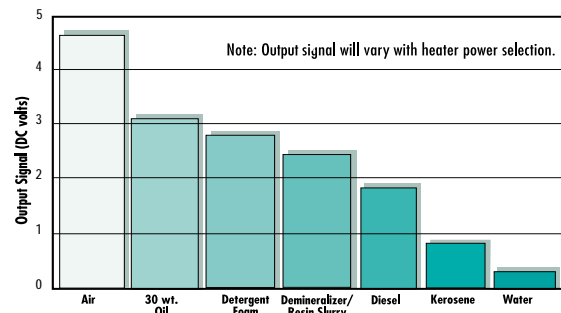
FCI's Thermal Dispersion Technology provides:

- Accuracy
- No Moving Parts
- Negligible Pressure Drop
- Reliability
- Analog Flow Output
- Calibration Mode Switch to Simulate Alarm Setpoint
- Dual Alarms, SPDT Relay
- Field Selected Input Power
- Field Selected Fail-Safe Configuration
- Low Flow Sensitivity
- No Orifices to Clog
- Simple Installation
- Temperature Compensation
- Analog Temperature Output
- Calibration Mode Potentiometer
- Field Selectable Single Setpoint/DPDT Relay Option
- Field Selected Application

Field Adjustable Setpoint Range for Typical Media



Typical Liquid Interface Output Signals



FCI FLUID COMPONENTS INTL
a limited liability company

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

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Specifications

Flow Switch Service - Setpoint Range

Water-based Liquids:

0.01 to 0.5 SFPS [0.003 to 0.15 SMPS], 0.75 watt heater power

0.01 to 3.0 SFPS [0.003 to 0.9 SMPS], 3 watt heater power

Hydrocarbon-based Liquids:

0.01 to 1.0 SFPS [0.003 to 0.3 SMPS], 0.75 watt heater power

0.01 to 5.0 SFPS [0.003 to 1.5 SMPS], 3.0 watt heater power

Gases:

0.25 to 120 SFPS [0.076 to 37 SMPS], 0.75 watt heater power at standard conditions: 70°F [21.1°C], and 14.7 psig [1.014 bar (g)]

Setpoint Accuracy

Based on a measured output voltage over the entire setpoint range and an operating temperature range of 40° to 140°F [4° to 60°C] and a pressure range of 0 to 2,000 psig [0 to 138 bar(g)] for liquids or 0 to 200 psig [0 to 14 bar(g)] for gases:

Liquids: ±5% reading or ±0.04 SFPS [±0.012 SMPS], whichever is larger.

Gases: ±10% reading or ±4 SFPS [±1.2 SMPS], whichever is larger.

Repeatability: ±0.5% reading.

Sensing Element Operating Conditions

Temperature: -40° to +350°F [-40° to +177°C]

Pressure: Maximum 3500 psig [240 bar(g)] at 70°F [21°C], derated to 2750 psig [190 bar(g)] at 350°F [177°C]

Control Circuit Operating Conditions

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

Input/Output

Input Power: Field selected 115 (±15), 230 (±30), or 24 (+2, -6) Vac, 50 to 60 Hz; or 24 (+4, -3) Vdc.

Alarm Application: Two alarms, independently field selected for flow, liquid-level/interface, or temperature operation.

Relay Contacts: Field selected dual SPDT or single DPDT, 6 amp resistive at 115 Vac or 24 Vdc.

Analog Voltage Outputs: One output varies with changes in the fluid flow rate or gas/liquid phase change. A second output varies with changes in the fluid temperature.

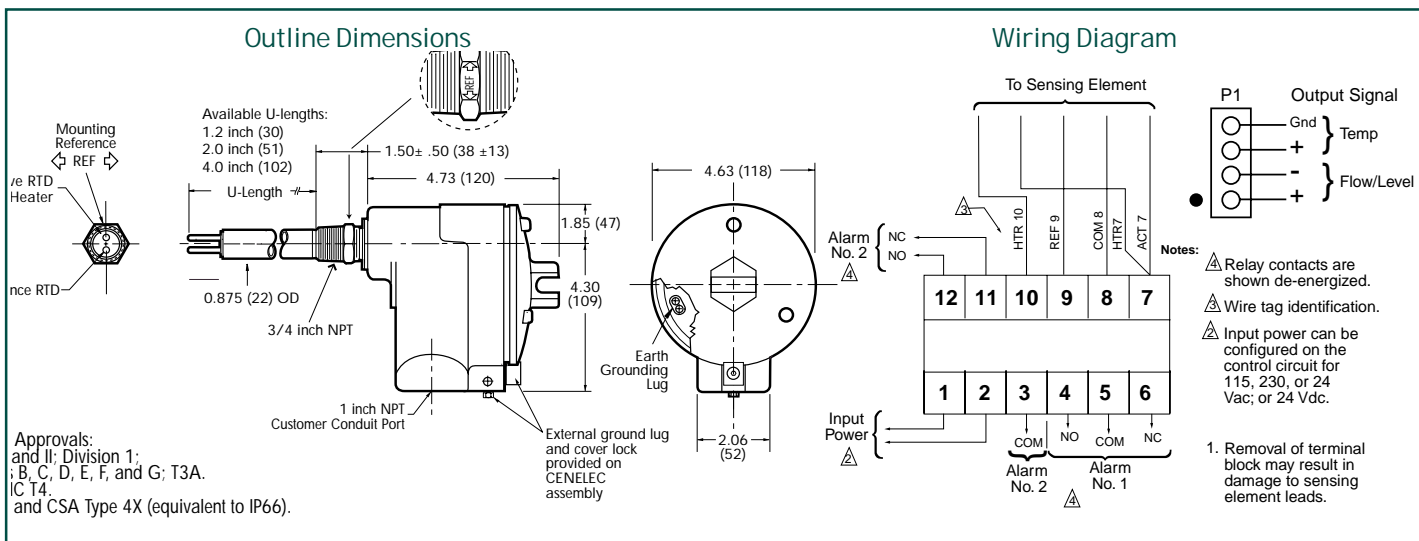
Liquid- Level/Interface Service

Accuracy: ±0.25 inch [±6 mm]

Repeatability: ±0.125 inch [±3 mm]



Refer to FLT Series Brochure for comprehensive performance specifications.



Ordering Information

FLT93B -

1 2 3 4

Option (Check box; extra cost)

Stainless Steel Tag: _____

(Five lines with 18 characters per line max.)

For more information, please call:

Ordering Procedure: To order a complete Model FLT93B, please fill in each numbered box to the left with the appropriate code from the categories below. Consult FCI on the cost of special data and documentation. Final acceptance of the part number is subject to FCI's approval.

1. Agency Approval	Code
Factory Mutual (FM)	A
CENELEC with CE Marking*	B
CSA*	C

2. Insertion U-Length	Code
1.2 inch [30 mm]	A
2.0 inch [51 mm]	B
4.0 inch [102 mm]	C

* Add four (4) working days to standard delivery.