

Ameritrol, Inc.

Manufacturer of Industrial Instrumentation

ELECTRONIC FLOW SWITCHES

Features

- No Moving Parts
- Operates in Liquids, Gases and Slurries
- Can Detect Increase or Decrease of Flow
- 316L Stainless Steel Sensor
- Lowest Cost, Designed for Industrial OEM and End Users



FD Series

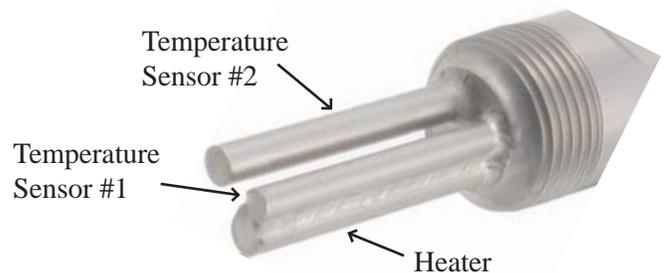
Applications

- Low Flow Shut Down of Pumps
- Flow Indication/Verification
- Pump or Valve Seal Leakage
- Bearing Lubrication Flow Sensor
- HVAC Flow Monitor
- Safety Shower Flow Switch

The FD series is designed to provide an extremely reliable flow switch at a very cost effective price. This series replaces the standard explosion proof enclosure utilized in our FX series with a NEMA 4X enclosure.

The principle of operation measures a temperature differential between a heated and a reference temperature sensor (see figure 1). The differential varies as flow across the sensor changes. This allows the flow switch to detect the increase or decrease of flow in virtually all liquids, gases and slurries. Flow ranges are shown on the next page of this brochure in the set-point range chart. A conversion chart is also provided to convert volumetric flow to velocity.

The electronics feature a SPDT relay switch output with power input of 24 VDC. Calibration is easily performed by adjusting a potentiometer on the circuit board.



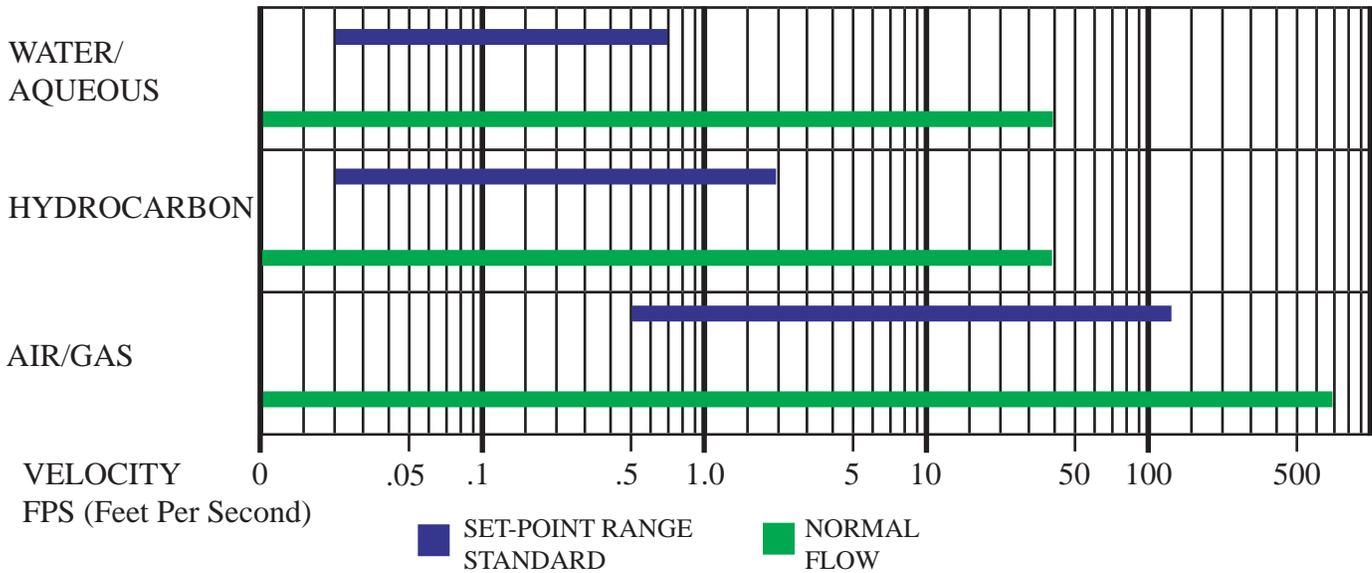
$$\text{Temperature Differential} = \text{Temperature Sensor \#1} \text{ Minus Temperature Sensor \#2}$$

Figure 1

Part Number/Order Entry Specification

	F	D	-	0	7	5	0	D	-			Probe Length
Process Connection	3/4" MNPT			0	7	5	0			0	1	1.2" PROBE
										0	2	1.8" PROBE
Power Input	24 VDC (±5%)							D				SPECIAL PROBE LENGTH, SPECIFY LENGTH IN INCHES

Flow Switch Set-Point Range



Conversion Table

Volumetric (GPM or CFM) to Velocity (Feet per Second - FPS)

Line Size	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1.25"	1.5"	2"	2.5"	3"	3.5"	4"	5"	6"
Liquid Multiplier	5.65	3.08	1.68	1.06	.602	.371	.215	.158	.096	.067	.0434	.0325	.0252	.0160	.0111
Air Multiplier	42.19	23.06	12.57	7.91	4.50	2.78	1.61	1.18	.716	.502	.325	.243	.188	.120	.083

Line Size	8"	10"	12"	14"	16"	18"	20"	24"
Liquid Multiplier	.0064	.00407	.00287	.00237	.00182	.00143	.00115	.000798
Air Multiplier	.0480	.0304	.0209	.0177	.0136	.0107	.00863	.00597

Examples:
 1) 100 CFM in 3" Line = 100 x .325 = 32.5 FPS
 2) 10 GPM in 3" Line = 10 x .0434 = .434 FPS

Specifications

Sensor Head

Material of Construction: 316L Stainless Steel Standard

Operating Temperature: -50 to +250F (-46 to +121C)

Operating Pressure: Vacuum to 4000 PSIG (275 Bar)

Response Time: From 3 Seconds

Repeatability ± 0.5% of Range at Constant Conditions

Process Connection: 3/4" MNPT

Probe Length: 1.8", 1.2" Option Customer Specified

Electronics

Housing: Powder Coated NEMA 4X

Temperature: -50 to +150F (-46 to +65C)

Power Input: 24 VDC ± 5%

Relay Output: SPDT 2 Amps Resistive at 24 VDC or 0.5 Amps at 120 VAC

Electrical Connection: 3/4" FNPT

Shipping Weight: 2 lbs

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