

Calorimetric Flow Switch



The ERDCO Cal-Flo™ monitors the flow of liquids or gasses providing a switch contact when the flow rate declines below the user adjustable set point. Due to the screw in probe design, the same sensor can be used on a wide variety of pipe sizes. There are no moving parts, so the sensor can be used in services where contaminants and particles may be present.

Features

- Calorimetric operating principal.
- No moving parts.
- Integral LED flow trend indicator.
- Adjustable switch point setting for flow rate.
- Use one probe for a wide range of pipe sizes.
- Monitor liquids or gasses.
- Fast response time.

Principle of Operation

The calorimetric principle utilized in the ERDCO Cal-Flo™ switch is based on two temperature sensors which are in close contact with the fluid, but which exhibit good thermal insulation with respect of each other. One of the two sensors is constantly heated. In a stationary (no flow) fluid condition, there is a constant temperature difference between the two temperature sensors. When flow occurs, heat energy is drawn from the heated temperature sensor and the temperature difference changes. The change is in proportion to the flow rate of the fluid.

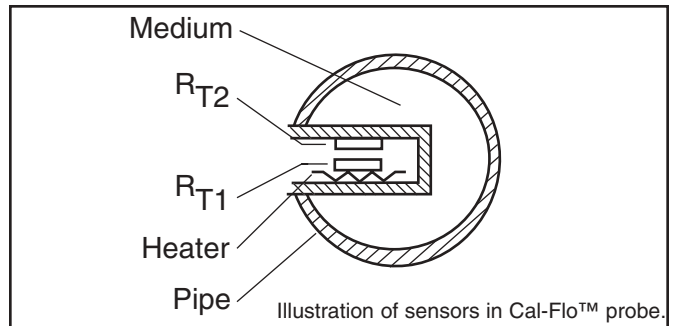
Response times from fluid will vary due to differing thermal conductivity. Generally, the lower the thermal conductivity of the fluid, the higher the flow velocity required for measurement.

Here are some examples of typical operating ranges for various fluids:

- Water - High heat conductivity, low flow threshold.
Approximately 8 to 20 in/s (20-50cm/s).
- Oil - Medium heat conductivity, medium flow threshold.
Approximately 40 to 60 in/s (100-150 cm/s).
- Air - Low heat conductivity, high flow threshold.
Approximately 10 to 20 ft/s (3-6 m/s).

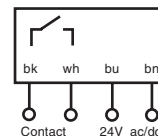
Applications

- Coolant monitoring on welding robots.
- Chiller systems.
- Dry running protection for pumps.
- Cooling tower water.



Specifications

Operating Ranges:	For water 8-20 inches / second For oil 40-60 inches / second For air 10-20 feet / second
Maximum Pressure:	400 psig
Operating Temperature:	-40 to 158°F
Temperature Gradient:	7°F / second
Display:	9 LEDs (red = limit, green 1 - 8 = min. to max. flow)
Set Point Adjustment:	Single turn potentiometer
Supply Voltage:	24 vDC / 24 vAC ± 20%
Current Consumption:	70mA
Output Contact:	Normally open - SPST
Contact Rating:	2.0A max @ 24 vDC 2.0A max @ 24 vAC 0.5A max @ 120 vAC
Short Circuit resistant:	Yes
Reverse Polarity Resistant:	Yes
Wetted Material:	316 stainless steel
Connection Diagram:	



Calorimetric Flow Switch

Technical Data

Connection	Model Number	Cover Style	Typical Pipe Size	H		X		Weight lbs. (kg)
				inch	(mm)	inch	(mm)	
½" NPT	FS-15592-40S	Standard Blank	½" and larger	1.77	(40)	0.47	(12)	1.1 (0.50)
½" NPT	FS-15592-40W	Window	½" and larger	1.77	(40)	0.73	(18.5)	1.2 (0.54)
½" NPT	FS-15592-78S	Standard Blank	6" and larger	3.07	(78)	0.47	(12)	1.2 (0.54)
½" NPT	FS-15592-78W	Window	6" and larger	3.07	(78)	0.73	(18.5)	1.3 (0.60)

Cable Length	Part Number
15 ft.	FS-15607-15
30 ft.	FS-15607-30

Dimensional Information

