

Sitron's Line of Flow Switch and Transmitters

Models:

- CF12AC
- CF12DC
- CF420
- F420 - RCF420

Introduction

Sitron's versatile and intelligent line of Thermal Dispersion Flow Switch are compact switches and transmitters, with no moving parts, that can monitor and control the flow of liquid and gas in pipes and ducts. They can also be used for single point level detection for liquids. Sitron's series of flow switches and transmitters are available in different models that provide for different power supply, output and connection requirements.


All models are manufactured using 316 S.S. and can be coated when necessary for aggressive mediums. All of the CF12 and CF420 models can operate in temperatures up to 248°F (120°C) and have a maximum working pressure of 4350 PSI (300 bar). A display chain of 8 LED's is available for all models to indicate flow rate (CF420) and to help the set point adjustment (CF12 series). Sitron also offers the option of sanitary connections such as Tri-Clamp as well as the standard threaded and flanged connections. In addition, the orientation of the enclosure can be rotated so that the LED display can be best viewed, after the process connection has been tightened.

Sitron's line of flow switch monitors are highly reliable industrial instruments that provide the durability and speed required for today's general as well as harsh process environments for flow and level.

Technology

Sitron's line of thermal flow switch is based on the principle of thermal dispersion. A typical configuration uses two platinum Resistance Temperature Detectors (RTD's) set within the tip of the sensor. One RTD is heated a few degrees above the temperature of the medium and the other RTD is used as a reference, sensing the actual process temperature. The second RTD also monitors the temperature of the medium, as any changes in temperature must be compensated for in the first RTD. As the process medium flows over the tip of the sensor it disperses some of the heat from the first RTD. The temperature change between the two RTDs signals the probe's electronics and the switch changes state once the set point has been reached. For the CF420, the microprocessor-based electronics constantly updates and reviews the signals received, in return putting out a 4-20mA analog output signal, which is proportional to the flow rate.

Features

- **Simple to install & low in cost**
- **No moving parts-maintenance free reliability**
- **Optimal temperature compensation**
- **Can operate in temperatures up to 248°F (120°C)**
- **Have a maximum working pressure of 4350PSI (300 bar).**
- **Choice of output signal**
- **Chain of 8 LED's-Integrated flow rate/set point indication**
- **Fast response time for flow or level**
- **Excellent low flow sensitivity**
- **Can be coated for aggressive mediums**
- **Insensitive to dirt and most particles**
- **Available in threaded, sanitary and adjustable insertion length connections**
- ** approved**



CF12AC

Power Supply: 85...240VAC

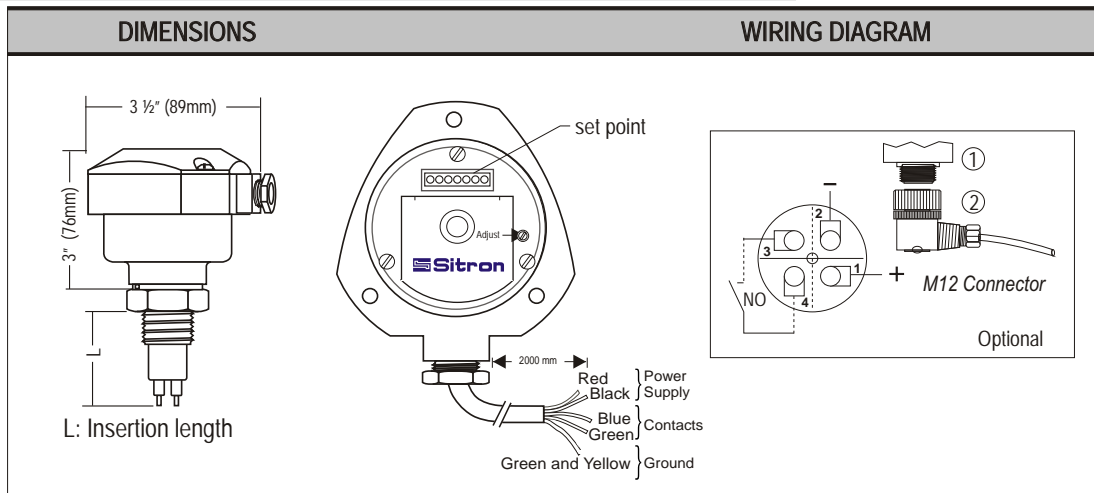
Output: Relay (NO or NC)

The **CF12AC** is a thermal flow switch designed to monitor flow status of liquids and gas and can also be used to detect level.

A chain of 8 LED's gives the user a visual indication to help the set point adjustment. In addition, there is also a di-chromatic LED, which shows the switch point status of the unit. The sensing element and connection of the CF12AC is made with 316 S.S., can be coated when necessary and the enclosure is glass filled nylon. The CF12AC can be made with a great variety of process connections such as threaded, flange, or sanitary.

For PTFE coating we recommend that the switches are made with flanged connections.

The CF12AC flow switches come with a NO (normally open) contact. It is necessary to specify when a NC (normally closed) contact is needed.



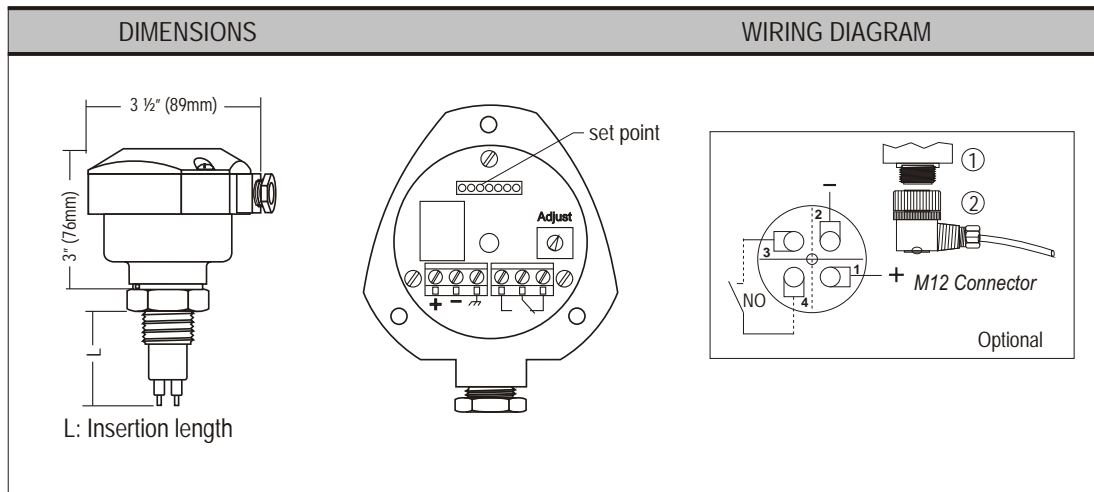


CF12DC Power Supply: 24 VDC Output: Relay (SPDT)

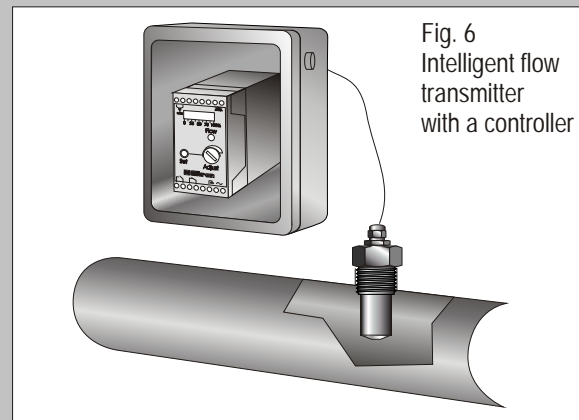
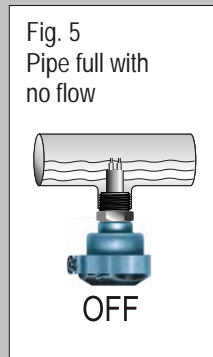
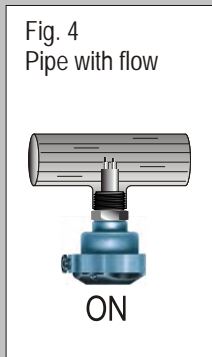
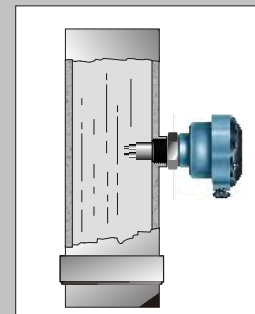
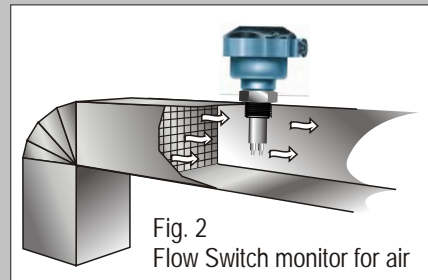
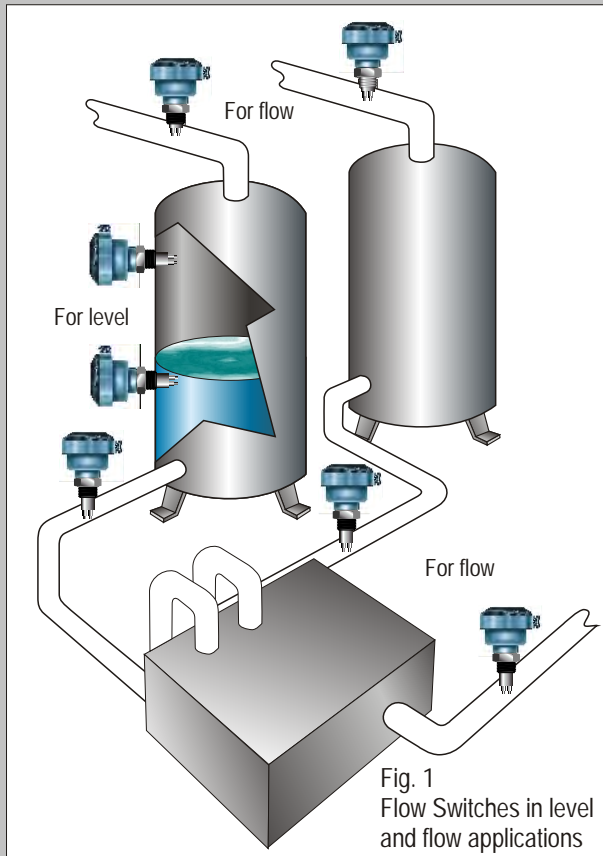
The **CF12DC** is a thermal flow switch designed to monitor flow status of liquids and gas and can also be used to detect level.

A chain of 8 LED's gives the user a visual indication to help the set point adjustment. In addition, there is also a di-chromatic LED, which shows the switch point status of the unit. The sensing element and connection of the CF12DC is made with 316 S.S., can be coated when necessary and the enclosure is glass filled nylon. The CF12DC can be made with a great variety of process connections such as threaded, flange, or sanitary.

For PTFE coating we recommend that the switches are made with flanged connections.

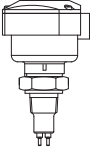


EXAMPLES OF APPLICATIONS

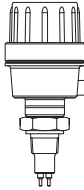


Technical Specifications

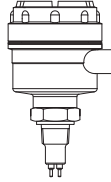
CF12AC



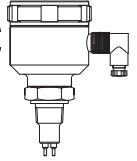
N1 Enclosure



G1 Enclosure



G2 Enclosure

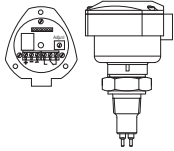


G3 Enclosure

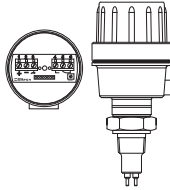
Application	Flow for liquids and gas level for liquids only
Operating Voltage	85-240Vac (50/60hz) & 125Vdc
Current Consumption	+/- 100mA
Output	Relay(SPDT) 5A - 250Vac (1 SPDT N1/G1/G3) (2 SPDT - G2 or GX) aluminum enclosure
Set Point Range	Liquid: 3 cm/s to 3 m/s - Gas: 5 cm/s to 5 m/s
Accuracy	+/- 10%
Repeatability	+/- 1% setpoint
Response Time	1 to 10s
Gradient Temperature	15°C/min
Flow Rate Indication	Red led - flow is below setpoint Yellow led - flow is at setpoint Green led - flow is above setpoint
Enclosure Material	Glass filled nylon (option - Aluminium)
Electrical Connection	Cable gland w/ 2000mm cable, M12 connector or ½" NPT
Process Connection	½" to 1 1/2" BSP or NPT, adjustable, sanitary or flanged connections
Wetted Material	316 Stainless Steel
Operating Temperature	14 to 176° F (-10 to 80°C) sanitary option to 248°F (120°C)
Max Pressure	1450 PSI (100 Bar)
Class Protection	IP65 (IEC 60529) NEMA 4X (G1 / G2)

Technical Specifications

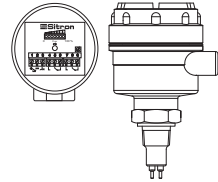
CF12DC



N1 Enclosure



G1 Enclosure



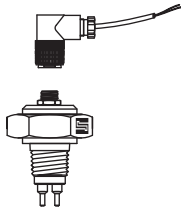
G2 Enclosure

Application	Flow for liquids and gas level for liquids only
Operating Voltage	24Vdc (+/- 10%)
Current Consumption	+/- 100mA
Output	Relay(SPDT) 5A - 250Vac (1 SPDT G1) (2 SPDT - G2 or GX) aluminum enclosure
Set Point Range	Liquid: 3 cm/s to 3 m/s - Gas: 5 cm/s to 5 m/s
Accuracy	+/- 10%
Repeatability	+/- 1% setpoint
Response Time	1 to 10s
Gradient Temperature	15°C/min
Flow Rate Indication	Red led - flow is below setpoint Yellow led - flow is at setpoint Green led - flow is above setpoint
Enclosure Material	Glass filled nylon (option - Aluminium)
Electrical Connection	Cable gland - 1/2" NPT conduit entry or M12 connector
Process Connection	½" to 1 1/2" BSP or NPT, adjustable, sanitary or flanged connections
Wetted Material	316 Stainless Steel
Operating Temperature	14 to 176° F (-10 to 80°C) sanitary option to 248°F (120°C)
Max Pressure	1450 PSI (100 Bar)
Class Protection	IP65 (IEC 60529) NEMA 4X (G1 / G2)

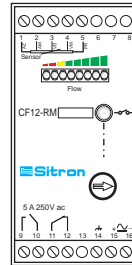
Technical Specifications

F12 + CF12RM

F12



CF12 - RM



Application	Flow for liquids and gas level for liquids only
Operating Voltage	DC - 24Vdc (+/- 10%) AC - 85-240Vac & 125Vdc
Current Consumption	+/- 100mA
Output	Relay (No + NC)
Set Point Range	Liquid.: 3 cm/s to 3 m/s Gas.: 5 cm/s to 5 m/s
Accuracy	+/- 10%
Response Time	1 to 10s
Gradient Temperature	15°C/min
Flow Rate Indication	Red led - flow is below setpoint Yellow led - flow is at setpoint Green led - flow is above setpoint
Enclosure Material	Without Enclosure (standard) or nylon (optional) Controller: ABS
Electrical Connection	M12 Connector
Process Connection	½" to 1 1/2" BSP or NPT, adjustable, sanitary or flanged connections
Wetted Material	316 Stainless Steel
Operating Temperature	14 to 176° F (-10 to 80°C) sanitary option to 248°F (120°C)
Max Pressure	1450 PSI (100 Bar)
Class Protection	Sensor: IP 65 Controller: IP 40

Ordering Information

MODEL	
CF12AC	
CF12DC	
F12	
SIZE	
3	1/2"
4	3/4"
5	1"
6	1 1/2"
7	2"
8	2 1/2"
9	3"
A	1 1/4"
B	Metric
Thread	
0	4"
X	OTHER
	PROCESS CONNECTION TYPE
	B BSP
	D FLANGE ANSI 150# - Carbon Steel Painted
	E FLANGE ANSI 150# - 316 SS
	F FLANGE ANSI 150# - PVC
	G FLANGE ANSI 300# - Carbon Steel Painted
	H FLANGE ANSI 300# - 316 SS
	J FLANGE ANSI 300# - PVC
	K FLANGE ANSI 150# - 304 SS
	L FLANGE ANSI 300# - 304 SS
	M Metric Thread
	N NPT
	R SMS Female
	S SMS Male
	T TRI-CLAMP
	Y FEMALE DIN - 316SS
	X OTHER - SPECIFY
	COATING
	S NONE
	H HALAR [®] Coated
	E EPOXY Coated
	INSERTION LENGTH
	L35 35mm
	L50 50mm
	L75 75mm
	L100 100mm
	L SPECIFY
	HOUSING
	SC NO ENCLOSURE
	N1 SMALL NYLON
	NB N1 SHIELDED
	NE N1 Encapsulated
	NT NB + NE
	G1 SMALL ALUMINUM (1SPDT) 5A-250Vac
	G2 LARGE ALUMINUM (2SPDT) 5A-250Vac
	G3 SMALL ALUMINUM w/ ACRYLIC WINDOW (1SPDT) 5A-250Vac
	GX EX proof (2SPDT) 5A-250Vac
	ELECTRICAL CONNECTION
	0 NONE
	1 1/2" BSP (N1/N2/G1/G2)
	2 CABLE GLAND W/ 1/2" BSP (N1)
	3 CABLE GLAND W/ 1/2" BSP - 2m CABLE (N1)
	4 3/4" BSP (G1)
	5 CABLE GLAND W/ 3/4" BSP (G1)
	6 1/2" NPT (N1/N2/G1/G2)
	7 CABLE GLAND W/ 1/2" NPT
	8 CABLE GLAND W/ 1/2" NPT- 2m CABLE (N1/N2/G1/G2)
	9 3/4" NPT (G1)
	C CABLE GLAND W/ 3/4" NPT (G1)
	J M15.8 Connector (9Pins) (N2/G2/G1)
	M M12 Connector (4 or 5 pins for CF12AC) (N1)
	P M20 threaded (N1, G1, G2)
	Y Steel Cable Gland M16 w/ 2m PVC cable (F12 & F420)
	OPTIONS
	MT Medium Temp - 50mm 316SS Neck (80-120C)
	AT High Temp - 100mm 316SS Neck (80-150C)
	HT Max High Temp - w/ Heat Dissipating Coils 100mm 316SS Neck (80-200C)
CF12DC	4
	G
	S
	N1
	7
	MT

MODEL	
CF12RM AC	Relay for F12 remote / switch supply V: 85-240 VAC or 125 VDC
CF12RM DC	Relay for F12 remote / switch supply V: 24 VDC (+/- 10%)