

CFL12 Flow, Level & Interface Monitor

A multi-function switch for various industrial applications

Features

- Flow, Level or Interface Switch (1X SPDT relay)
- Flow Velocity Transmitter (4...20mA) for Liquids
- Set-Point Adjustment
- Sensitivity Adjustment
- Factory Adjustment Feature
(Set the electronics based on the medium; Water, Oil or Gas)
- Corrosion resistant 316SS Body
- Quick response time for flow, level and interface
- Protection Class: IP66 (IEC 60529) or Hazardous Areas (GX housing)
- Set-Point Range:
3cm/s to 3m/s (Liquids)
5cm/s to 5m/s (Air)
- Protection: Reverse Polarity and Voltage Surge



Description

The CFL12 is a Flow, Level and Interface monitor that provides multiple process monitoring and control capabilities for the user.

The unit can either be used as a Flow or Level switch while at the same time providing a constant independent 4...20mA analog output monitoring both the flow velocity of the process.

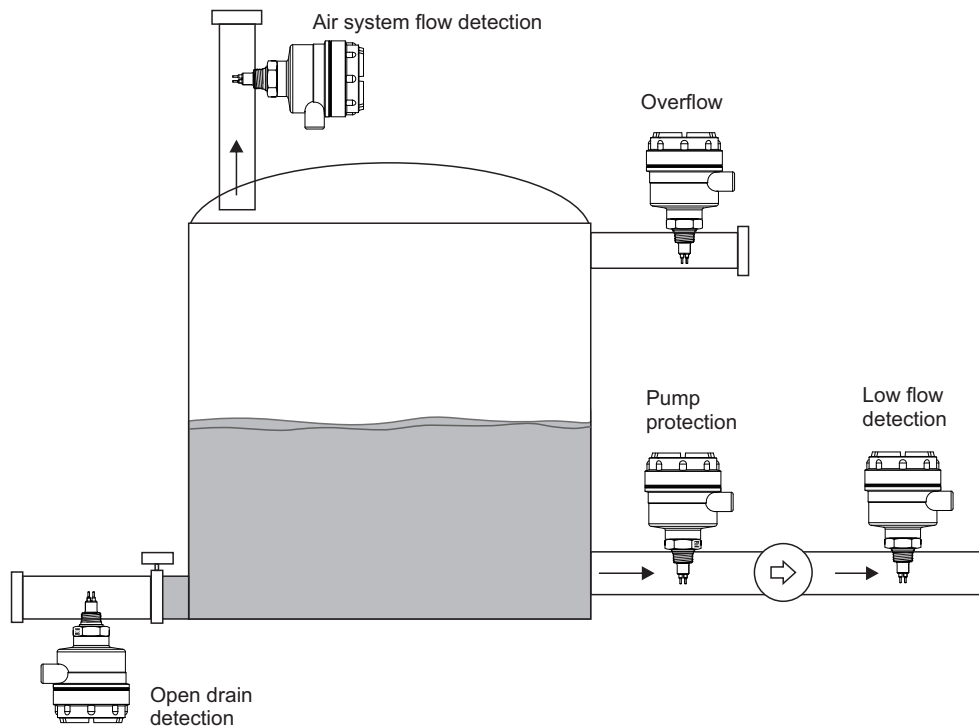
The CFL12 also enables customer access to the factory settings. The customer is able to field calibrate the unit to the particular medium, whether it is a water, oil or gas. The 4 and 20 mA settings are also field set.

The CFL12 comes standard with either an AC or DC Power Supply.

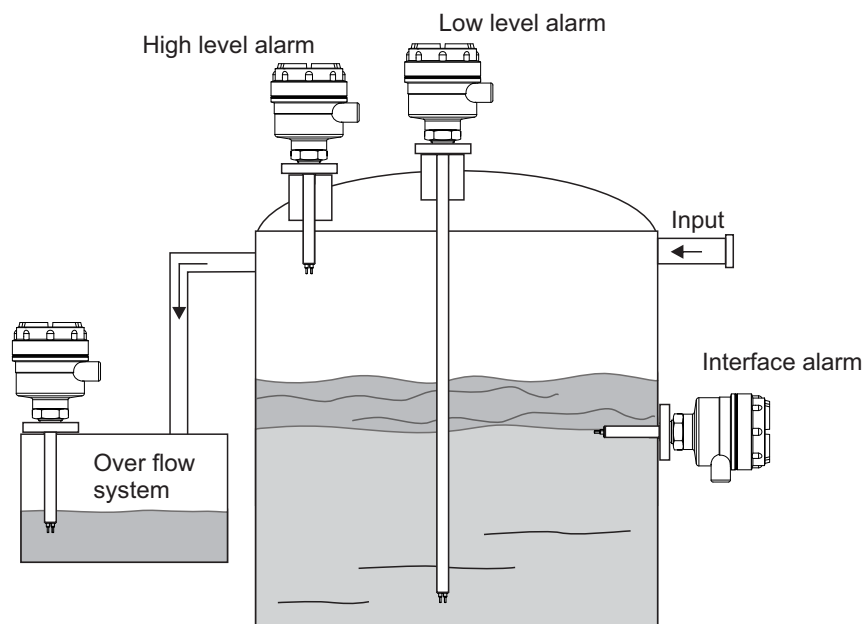
Like all of Sitron's products, it can be configured to accommodate the customer's unique process requirements. All models can be ordered with a great variety of threaded, flange or sanitary process connections as well as customer defined insertion length.

The GX housing version comes standard with a glass window which enables visualization of LED switch status. The GX housing comes with the following certifications: UL, cUL, CSA, IECEx and ATEX for installation in hazardous environments.

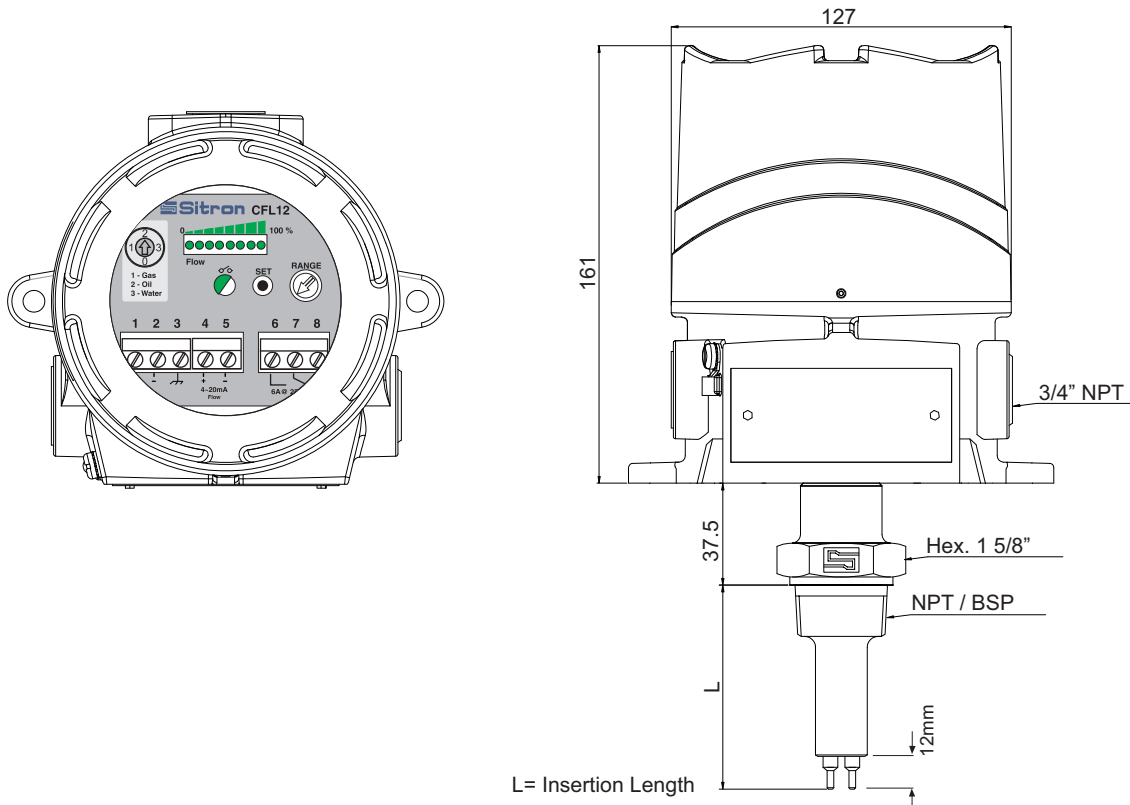
Flow Detection Example



Level Detection Example



Dimensions (mm) GX housing



Technical Specifications

CFL12 -X-X-X-X-GX

(1 SPDT + 4~20mA)

Power Supply: DC: 12~30V

AC: 85~264V 50/60Hz / 125Vdc

Consumption: 130mA

Output: Relay (1 SPDT) 6A @ 250Vac / 30Vdc

4~20mA (error +/- 10%) Flow for Liquids

Gain Adjustment: Switch for Gas / Oil / Water flow

Measuring Range: Liquids: 3cm/s...3m/s

Gas: 5cm/s...5m/s

Accuracy: ± 10%

Response time: 1...10 sec

Temperature Gradient: 15°C/min

Indication: Bargraph 8 led's

Housing: Aluminum painted (blue) with glass viewing window

Electrical Connection (cable entry): 2 x 3/4" NPT

Process Connection: BSP, NPT, flange or Sanitary

Body Material: 316 S.S

Halar coating for aggressive medium

Ambient Temperature: -10...+60°C

Work Temperature: -20...+80°C up to -20 to +200°C (w/ extended neck)

Halar Coating: -20 up to 150°C

Max Pressure: @ 50°C / 122 °F (100 bar / 1450 psi)

@ 150°C / 300 °F (90 Bar / 1300 psi)

@ 200°C / 390 °F (80 Bar / 1160 psi)

Class Protection: IP66

Approvals EX proof Housing (Optional): ATEX, DEMKO 07 ATEX 0622294,

0539 II 2 G EX d IIC Gb

0539 II 2 D Ex tb IIIC Db

IECEX

IECx UL 08.0005U

Ex d IIC Gb

Ex tb IIIC Db

Classifications: Class I, Div. 1, Groups B, C, D

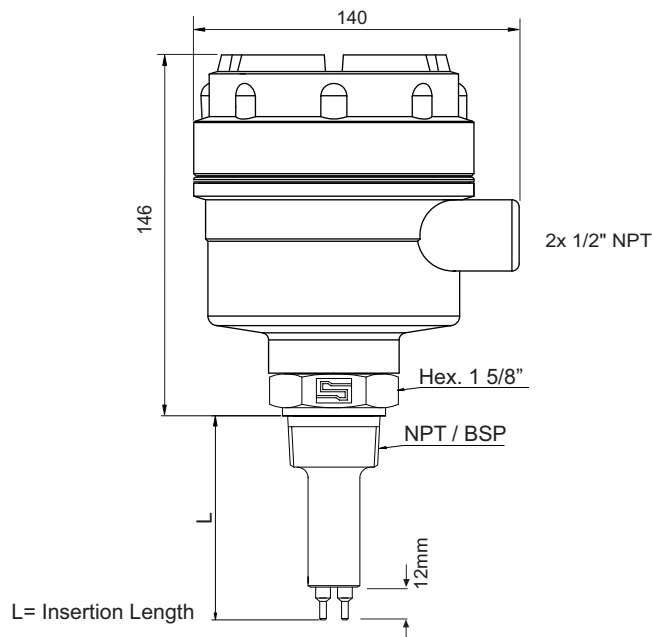
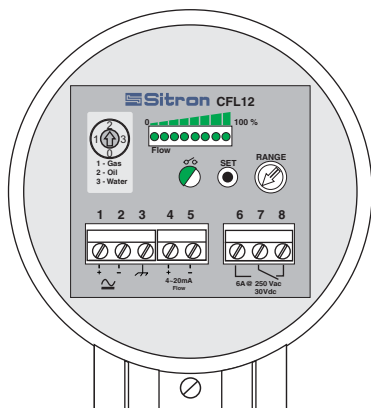
Class II, Div. 1, Groups E, F, G

Class III

NEMA Type 4X: Class I Zone 1 A Ex d IIC

Ex d IIC (Canada)

Dimensions (mm) G2 housing



Technical Specifications

CFL12 -X-X-X-X-GX

(1 SPDT) + 4~20mA

Power Supply: DC: 12...30Vdc

AC: 85~264Vac 50/60Hz / 125Vdc

Consumption: 130mA

Output: Relay (1 SPDT) 6A @ 250Vac / 30Vdc

4~20mA (error +/- 10%) Flow for Liquids

Gain Adjustment: Switch for Gas Flow / Oil Flow or Level / Water Flow or Level

Measuring Range: Liquids: 3cm/s...3m/s

Gas: 5cm/s...5m/s

Accuracy: ± 10%

Response time: 1...10 sec

Temperature Gradient: 15°C/min

Indication: Bargraph 8 led's

Housing: Aluminum painted (blue)

Electrical Connection (cable entry): 2 x 3/4" NPT

Process Connection: BSP, NPT, flange or Sanitary

Body Material: 316 S.S

Halar coating for aggressive medium

Ambient Temperature: -10...+60°C

Work Temperature: -20...+80°C up to -20 to +200°C (w/ extended neck)

Halar Coating: -20 up to 150°C

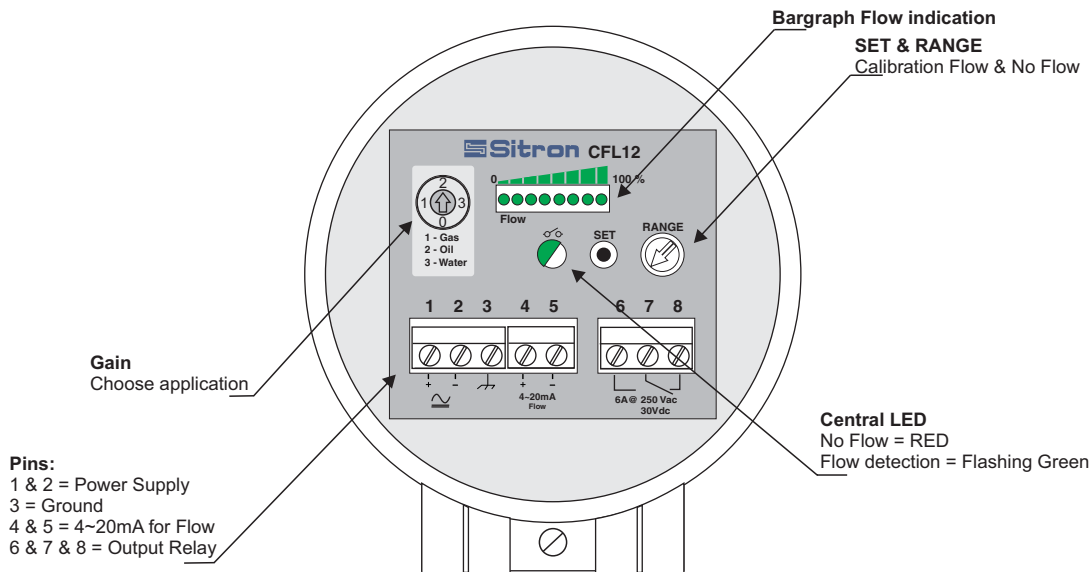
Max Pressure: @ 50°C / 122 °F (100 bar / 1450 psi)

@ 150°C / 300 °F (90 Bar / 1300 psi)

@ 200°C / 390 °F (80 Bar / 1160 psi)

Class Protection: IP66

Overview

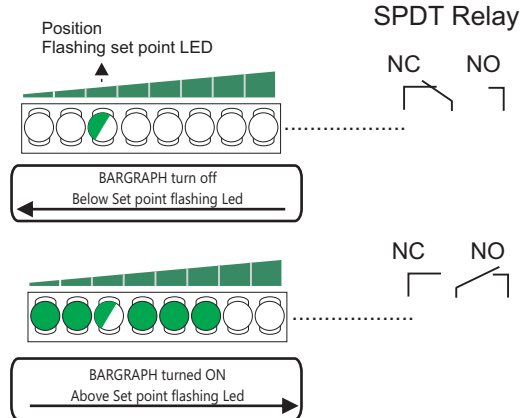


Switch status Relay

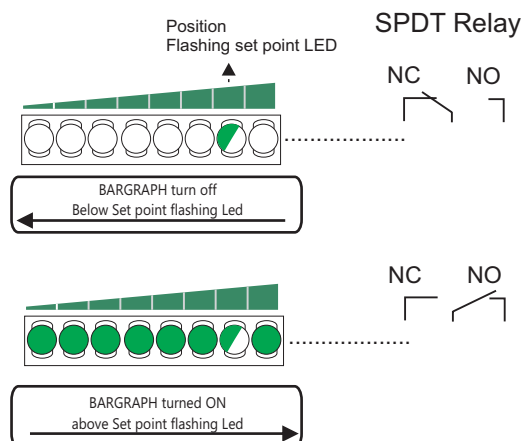
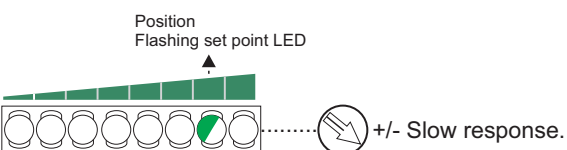
LED flashing.



Example: Switch status

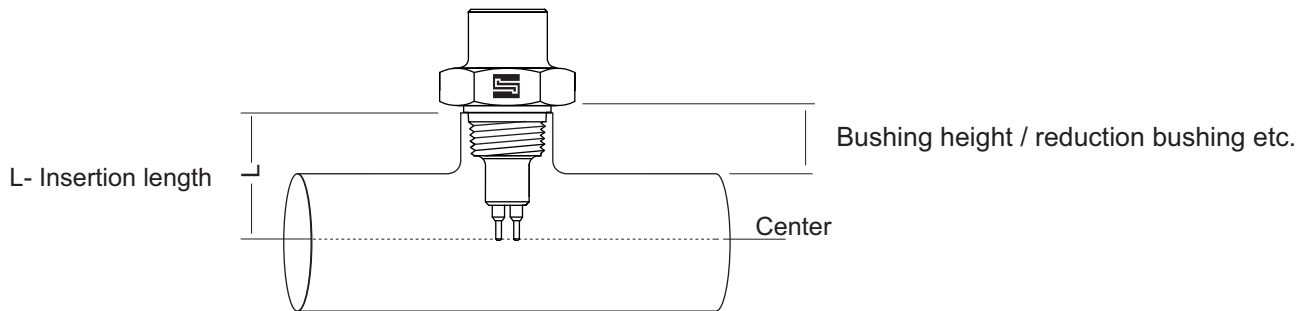


LED flashing.

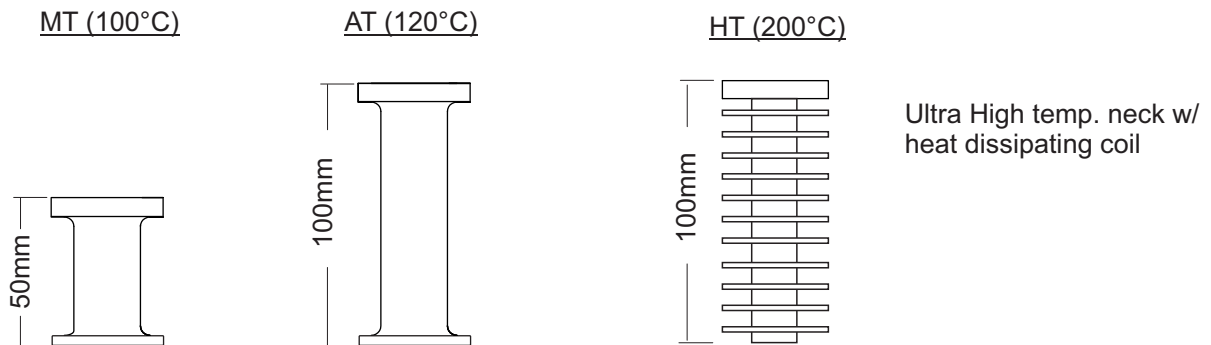


Insertion Length

Provide the measurement (L):

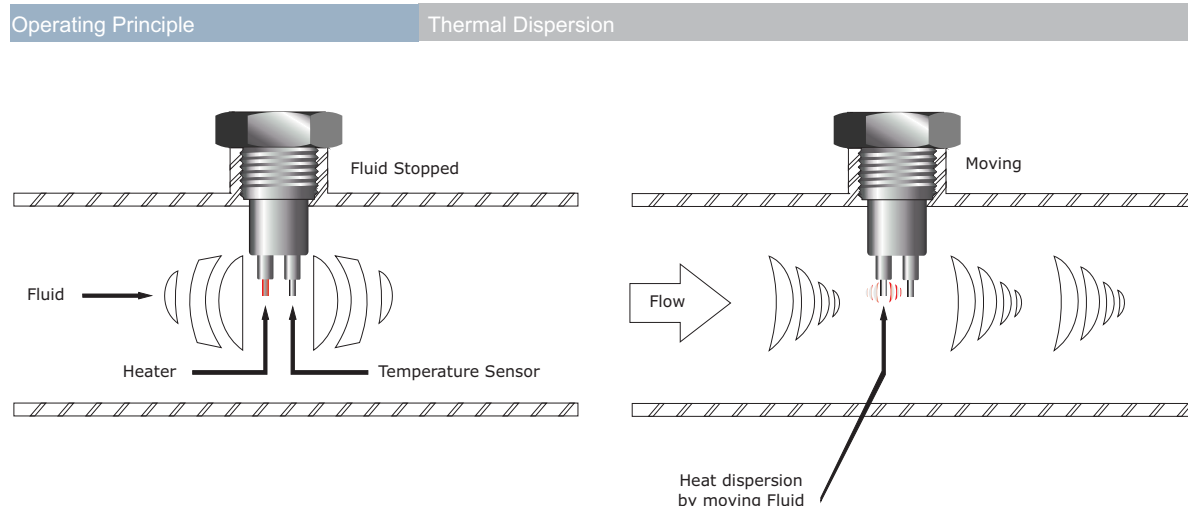


Extended neck for High temperatures

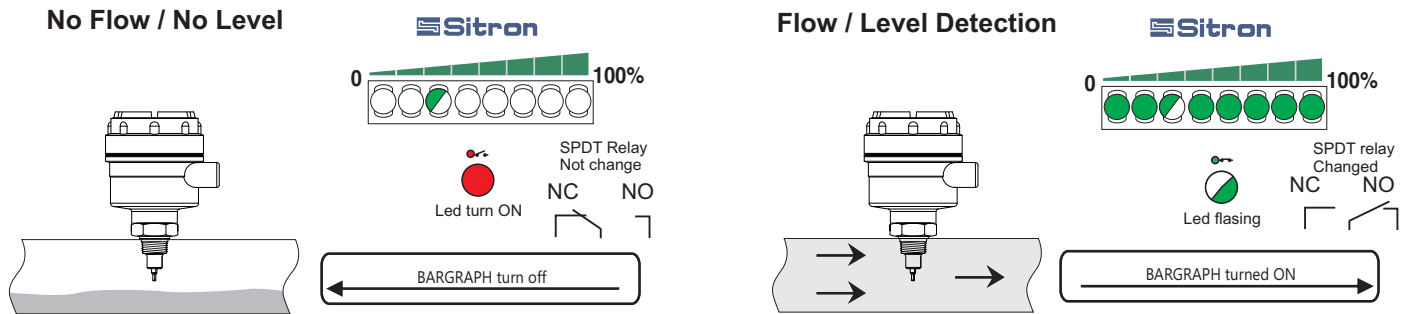


Technology

The CFL12 line of flow switches utilize the principle of thermal dispersion. A typical configuration for this flow switch technology incorporates at least two temperature resistance detectors (RTD's), installed within the tip of the sensor. One of the sensors is heated and the other is used as a reference by monitoring the fluid temperature. As the medium (air or fluid) flows over the sensor tip, there is a dispersion of thermal energy which is inversely proportional to the flow. The electronics of the CFL12 registers and measures the temperature change and indicates either the presence or absence of flow via LED indication as well as an SPDT relay alarm output.

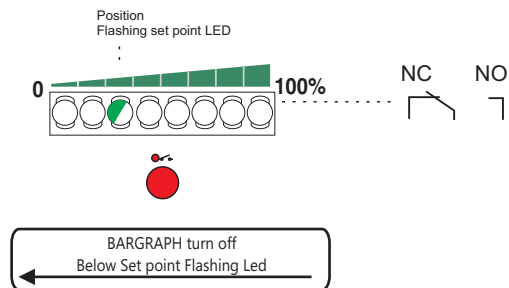
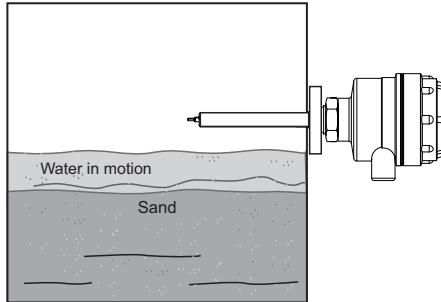


Switch Output and Bargraph status

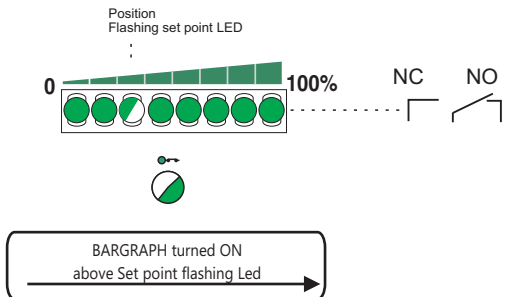
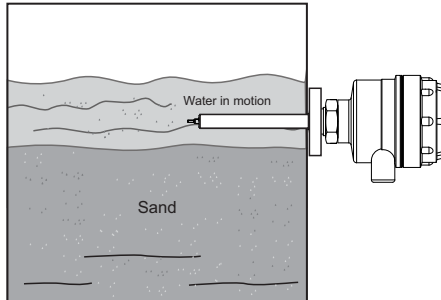


Interface Switch Status

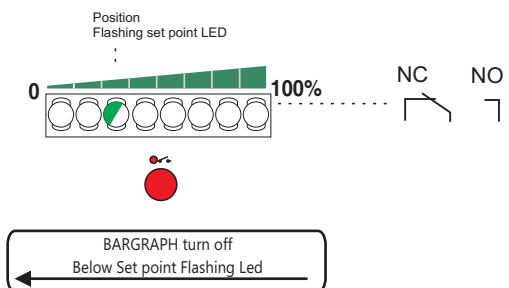
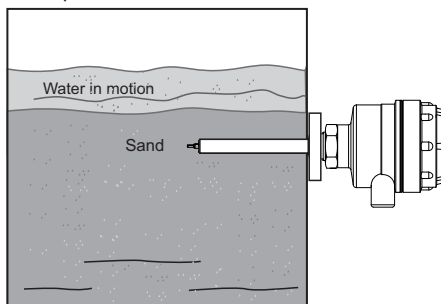
Air = No detection



Detects Fluid in motion



Sand prevents motion = No detection



Order Code

MODEL	
CFL12DC	Flow Switch Monitor (24Vdc)
CFL12AC	Flow Switch Monitor (85~264Vac / 125Vdc)
SIZE	
3	1/2"
4	3/4"
5	1"
PROCESS CONNECTION TYPE	
6	1 1/2" (L>=50mm) B BSP
7	2" (L>=50mm) D FLANGE ANSI 150# - Carbon Steel Painted
8	2 1/2" (L>=50mm) E FLANGE ANSI 150# - 316 SS
9	3" (L>=50mm) F FLANGE ANSI 150# - PVC
A	1 1/4" (L>=50mm) G FLANGE ANSI 300# - Carbon Steel Painted
B	Metric Thread H FLANGE ANSI 300# - 316 SS
0	4" J FLANGE ANSI 300# - PVC
X	OTHER 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 (L <=200mm / only CFL12) only for flow / temp. (-20~150°C)
INSERTION LENGTH	
L35	35mm
L50	50mm
L75	75mm
L100	100mm
L	SPECIFY
HOUSING	
G2	Large Aluminum
GX	Exd Proof Housing
ELECTRICAL CONNECTION	
7	Cable Gland 1/2" NPT (G2 housing)
9	3/4" NPT (GX housing)
OPTIONS	
MT	Medium Temp - 50mm 316SS Neck (up to 100°C)
AT	High Temp - 100mm 316SS Neck (up to 120°C)
HT	Max. Temp - 100mm 316SS Neck w/ heat dissipating coil (up to 200°C)
ST	Identification Tag

CFL12DC	4	B	S	L50	G2	7		
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Halar coating

Max. insertion length for Halar coating is 200mm

Insertion length over 100mm, process connection from 3/4" NPT/ BSP

Terms & Conditions

Design: Sitron reserves the right to make any alterations or changes necessary to improve the Products, correct defects or to make the Products safer, without prior notice or consent by Buyer.

Pricing: All stipulated amounts shall be in US dollars and all prices quoted are valid for thirty (30) days from date of offer, unless otherwise stated.

Safety and Instructions: The Buyer ensures that it and all its representatives and agents will observe all safety and technical instructions in Sitron's operating manuals, catalogs or other directions or instructions (either written or verbal).

Delivery and Freight: All goods are sold FOB point of shipment, Brasil. Transportation to the destination is the Buyer's responsibility and Buyer alone shall bear the cost of freight, optional or other shipping requirements, and or insurance. Sitron shall not be liable for loss or damage to the Products after said Products are delivered to or received by the shipper/carrier, and all risk of damage or loss shall immediately pass to Buyer. Receiving, unloading and storing of Products will be the responsibility of the Buyer. Buyer also accepts that courier may choose to return Products to Sitron if any local taxes or duties are not paid by Buyer at point of delivery. Buyer must make any and all claims for corrections or deductions within ten days of the delivery of the Products.

Shipment Delays: Sitron has no control over the length of time shipments may be held at customs, etc. For this reason, Sitron commits only to a "shipment date", not a "delivery date". Buyer shall not hold Sitron liable for claims resulting from delay in shipment except in cases where these terms are accepted in writing by Sitron. Acceptance of delivery of Products by Buyer shall constitute a waiver of all claims for delay.

Partial Deliveries: While Sitron strives to deliver all orders on time and complete, Sitron reserves the right to make partial deliveries when necessary.

Changes: Any changes initiated by the Buyer which affects the products specifications; quantities ordered; delivery schedule; method of shipment or packing; or delivery location, must be made in writing and signed by both parties. In this case, Sitron reserves the right to adjust the pricing and or delivery of the order, which will be agreed to by both parties before further work is performed on the order. Any such requests will be priced according to the scope of changes and the status of the current order. Customer must sign and return or acknowledge approval of drawings along with any Purchase Order. If approval drawings are not returned with order, the delivery date may be held or pushed back until Customer has acknowledged approval.

Cancellation: Any cancellation of the Contract by the Buyer shall be effective only if made in writing and accepted, in writing by the Sitron. In such a case, Sitron is entitled to reasonable cancellation charges including but not limited to labor, material and other related expenses.

Termination Fee Schedule:

Order entered but not released for manufacturing	10%
Order in any stage of production	75%
Order complete and ready for shipment	100%

Warranty: Sitron warrants its product against manufacturing defects in material and workmanship, when installed in applications approved by Sitron, for a period of one year from the date of original shipment, unless otherwise stated in writing by Sitron. Sitron is not responsible for damage to Sitron's Products or other equipment or products because of improper installation or misapplication of the Products by Buyer. Installation or startup of Sitron's equipment must be performed under the guidelines set forth in Sitron's instruction manuals, wiring diagrams, etc., or performed under the direct supervision of Sitron's field technicians or Sitron's authorized Sales Representatives, in order to be covered by Sitron's warranty. Sitron shall be under no liability in respect to any defect from fair wear and tear, willful damage, negligence, abnormal working conditions, failure to follow Sitron's instructions (whether written or verbal), misuse, modification or alteration or attempted repair of the Goods without Sitron's approval. Sitron shall not be liable under the above warranty (or any other warranty, condition or guarantee) if the total price for the Products or the payment of Services rendered has not been paid by the due date for payment.

The Buyer must make all tools, resources or personnel available to help Sitron to diagnose the defect without any back charge. In absence of Buyer's cooperation in this regard, there shall be no liability under the above Warranty. Sitron's liability under this warranty shall be limited to repair or replacement at Sitron's option of such defective Products, FOB factory, upon proof of defect satisfactory to Sitron. Warranty does not include transport.

Return Goods: No goods may be returned without Sitron's permission and an RMA number. Sitron assumes no responsibility for return shipments made without permission. In issuing credit for such shipments, Sitron reserves the right to charge a restocking fee dependent on Sitron's ability to recondition and resell the returned equipment.

Insurance: The responsibility for insuring the Goods after the risk in them has passed to the Buyer shall be that of the Buyer.

Confidential Information: All drawings, specifications, and technical information provided by either Buyer or Sitron shall be treated as confidential and shall not be disclosed to anyone other than those who require it as part of the fulfillment of the order. Buyer agrees that the designs and/or any other related material provided are and remain Sitron's exclusive property and that the Buyer acquires no right, title or interest to this intellectual property, whether in whole or in part.

Errors: Sitron reserves the right to correct all typographical or clerical errors or omissions, in its prices or specifications.

**Sitron Brasil**

R. Baronesa de Itu, 83
São Paulo - SP - CEP: 01231-001
Tel.: 11 3825-2111
vendas@sitron.com
sitron.com

Sitron EUA

1800 Prime Place Hauppauge,
NY 11788
Tel.: 516-935-8001
info@sitron.com