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.

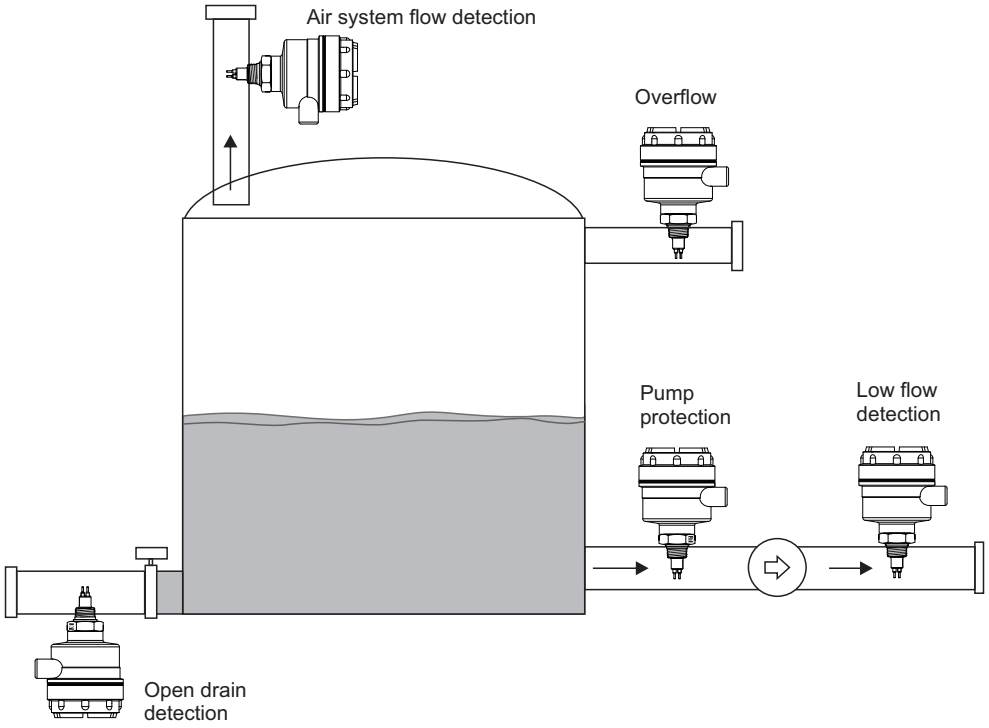
The CFL12 also enables customer access to the factory settings. The customer is able to field calibrate the unit to the particular medium, whether it is a water, oil or gas . The 4 and 20 mA settings are also field set.

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

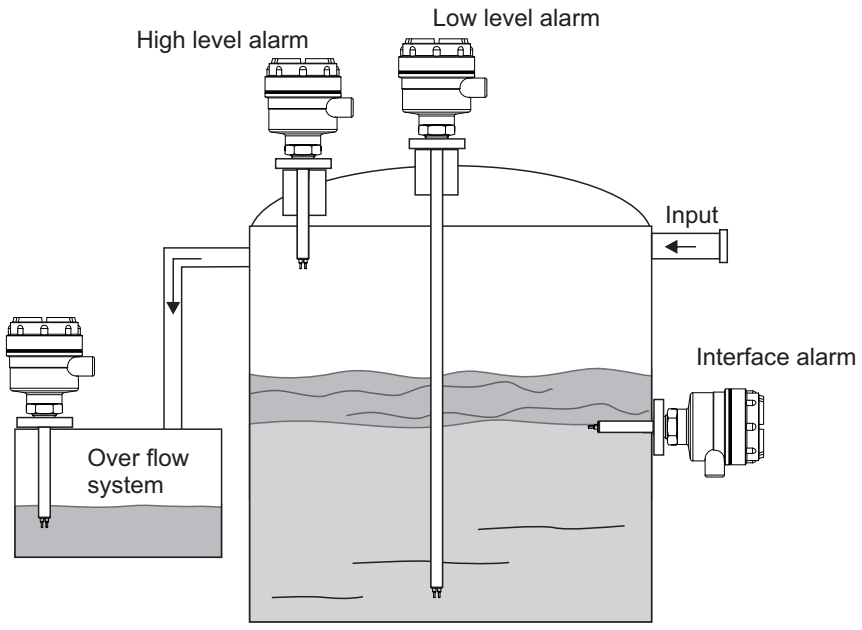
Like all of Sitron's products, it can be configured to accommodate the customer's unique process requirements. All models can be ordered with a great variety of threaded, flange or sanitary process connections as well as customer defined insertion length.

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.

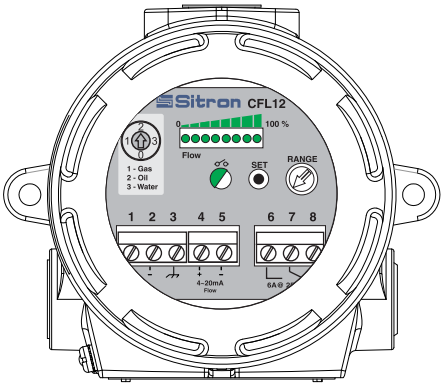
Flow Detection Example

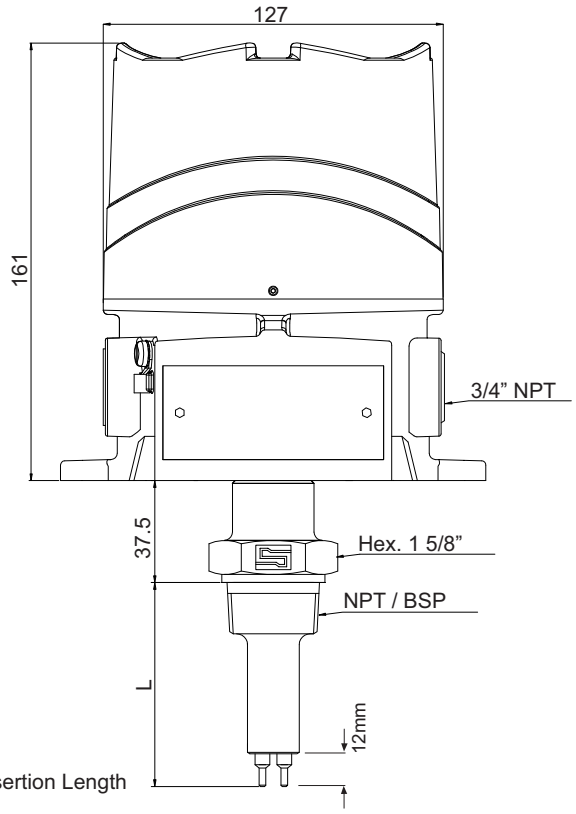


Level Detection Example



Dimensions (mm) GX housing





Technical Specifications

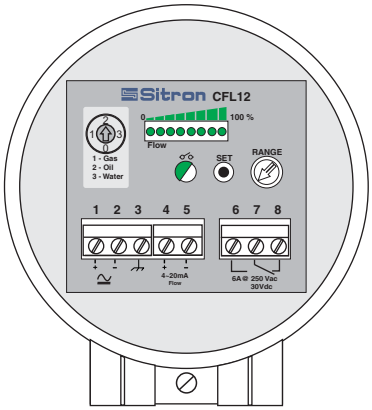
CFL12 -X-X-X-X-GX	(1 SPDT + 4~20mA)

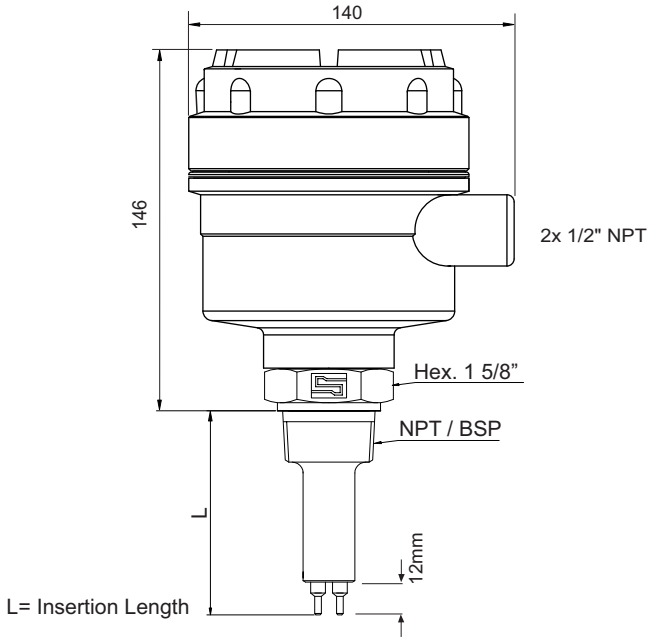
Power Supply: DC: 24Vdc (± 10%)
AC: 85~264V 50/60Hz **/** 125Vdc
Consumption: 130mA
Output: Relay (1 SPDT) 6A @ 250Vac / 30Vdc
4~20mA (error +/- 10%) Flow for Liquids
Gain Adjustment: Switch for Gas / Oil / Water flow
Measuring Range: Liquids: 3cm/s...3m/s
Gas: 5cm/s...5m/s
Accuracy: ± 10%
Response time: 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 agressive medium
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





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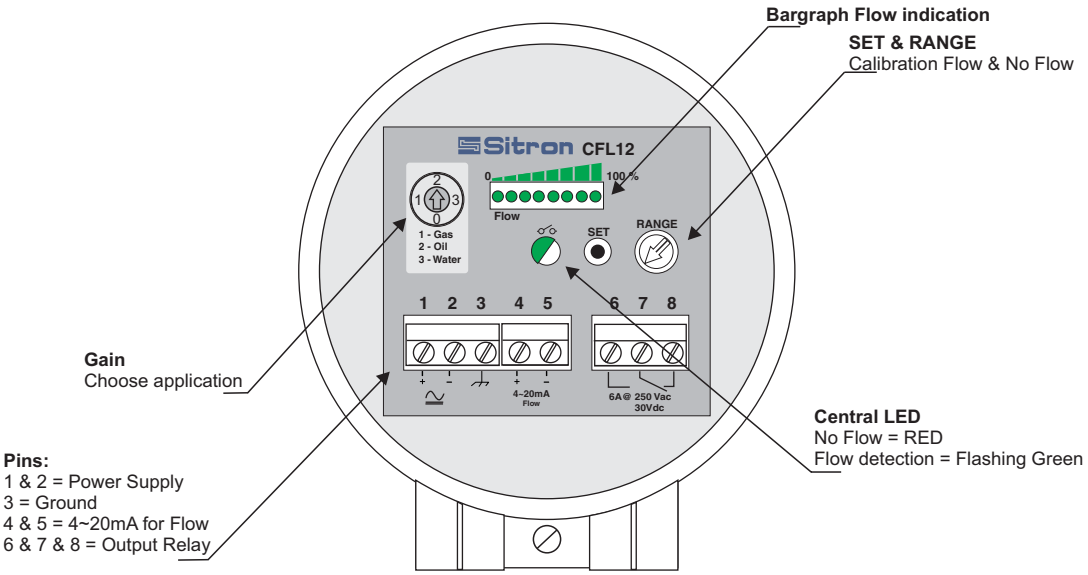
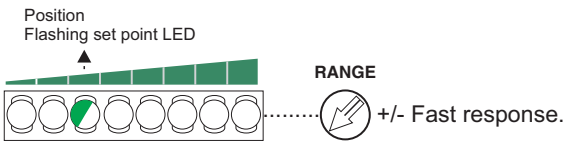
Class Protection: IP66

Overview

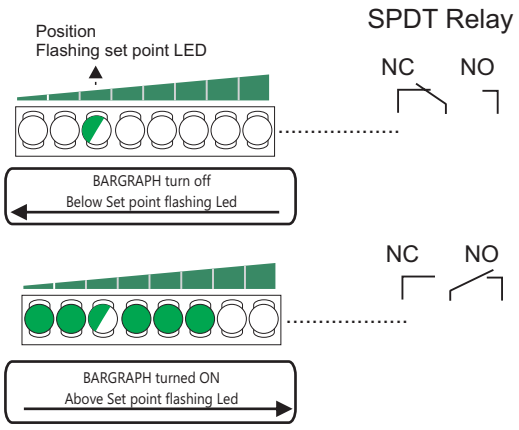


Switch status Relay

LED flashing.



Example:
Switch status



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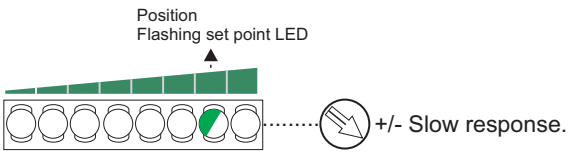
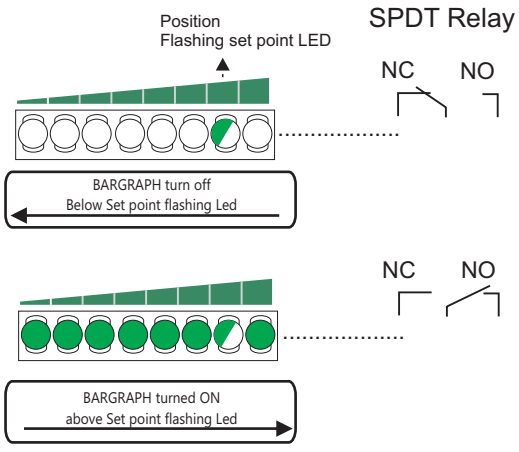
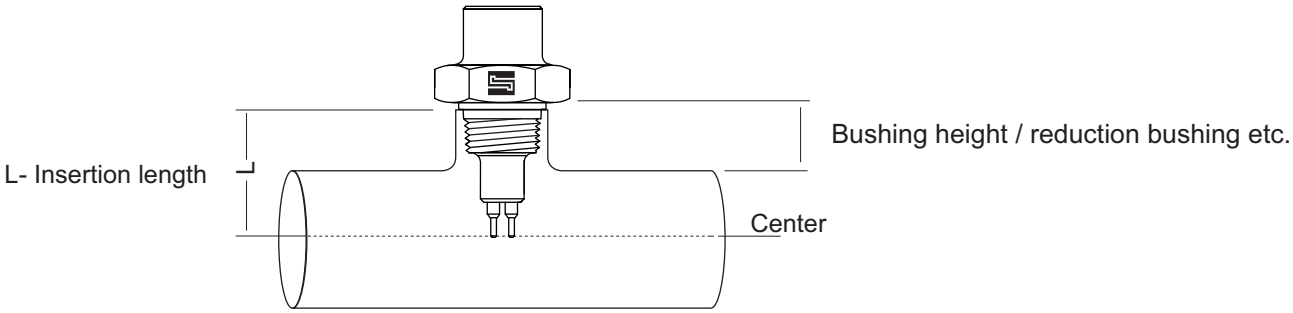


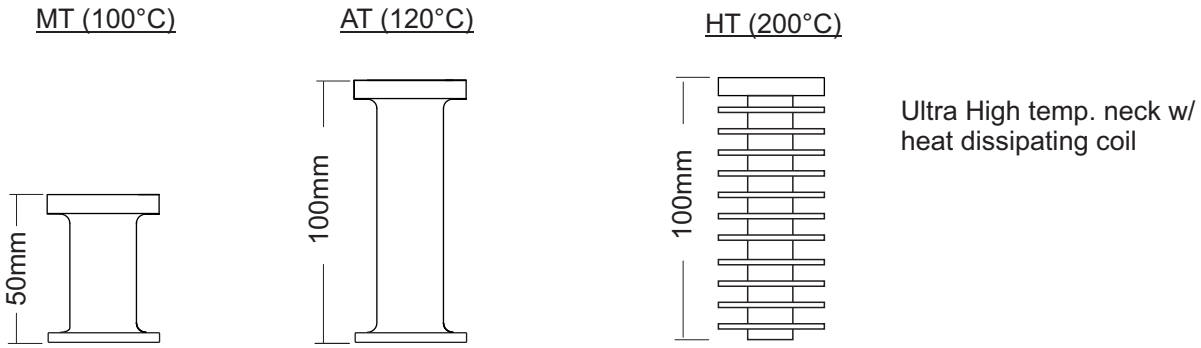


Insertion Length

Provide the measurement (L):



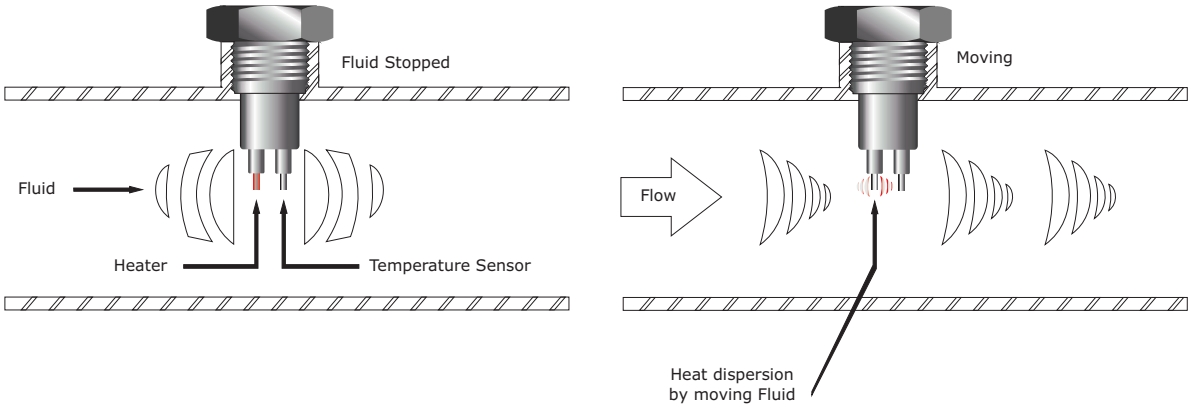
Extended neck for High temperatures



Technology

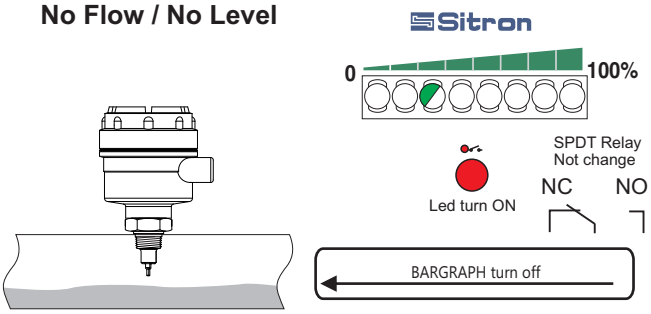
The CFL12 line of flow switches utilize the principle of thermal dispersion. A typical configuration for this flow switch technology incorporates at least two temperature resistance detectors (RTD's), installed within the tip of the sensor. One of the sensors is heated and the other is used as a reference 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.

Operating Principle	Thermal Dispersion

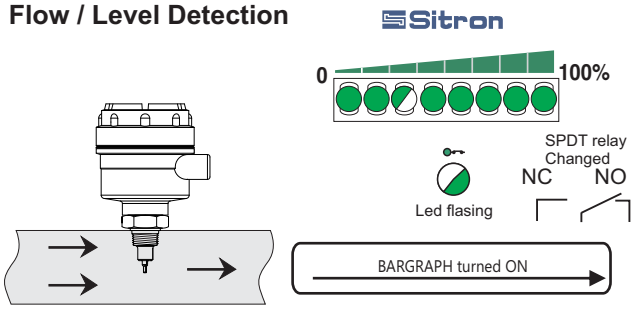


Switch Output and Bargraph status

No Flow / No Level

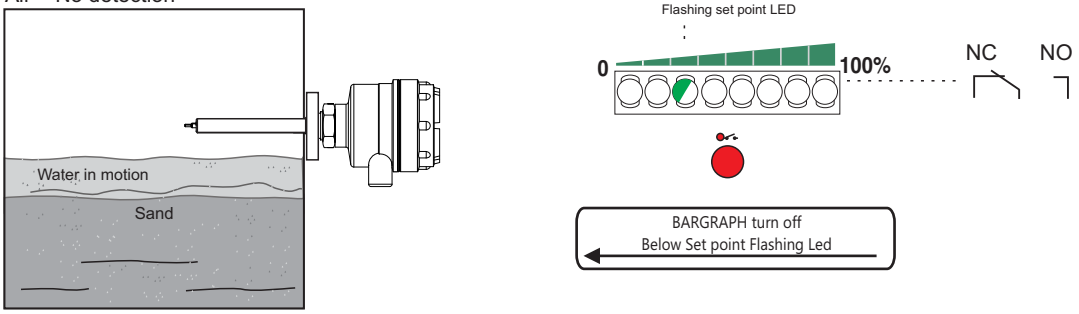


Flow / Level Detection

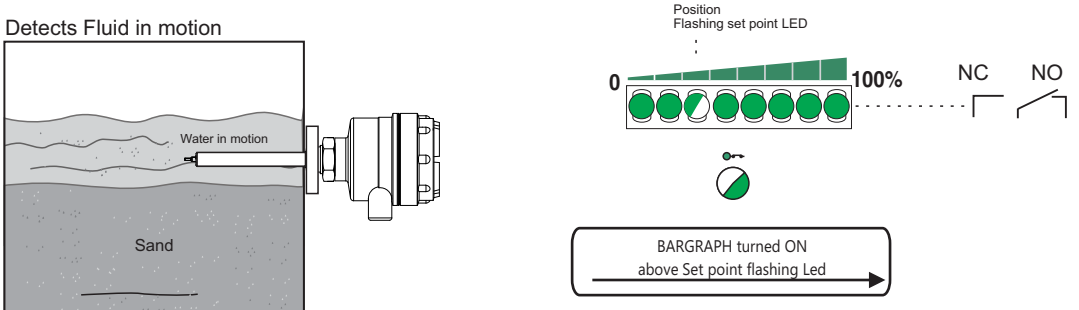


Interface Switch Status

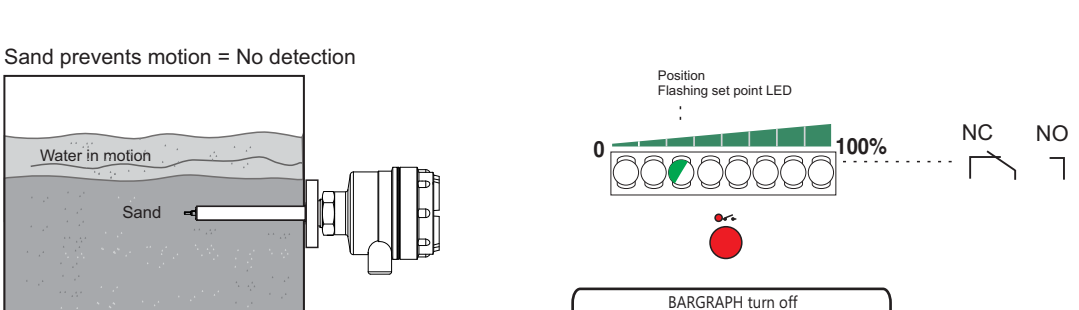
Air = No detection



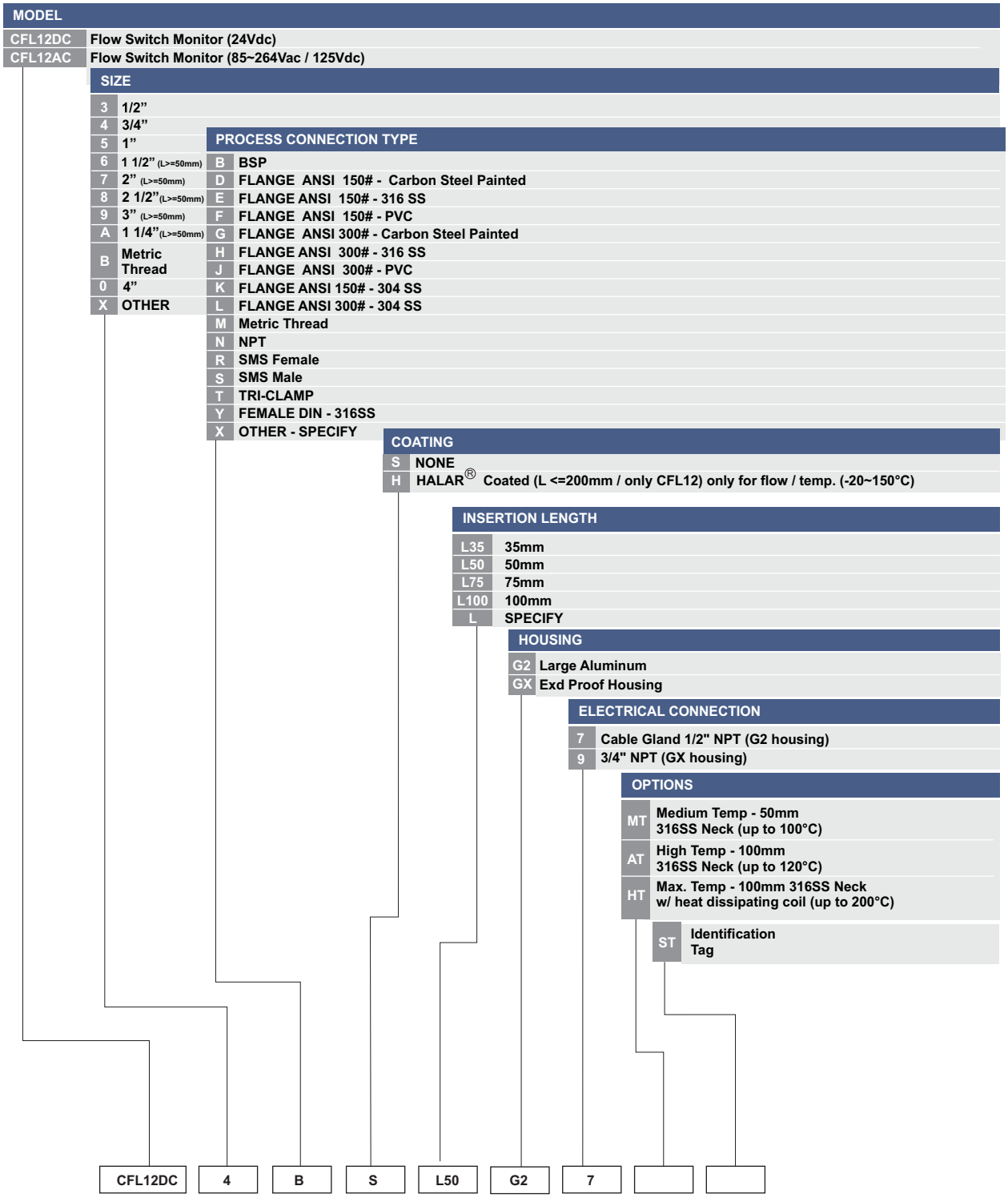
Detects Fluid in motion



Sand prevents motion = No detection



Order Code



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.

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