

CALORIMETRIC FLOW SWITCHES FS 10/11/15/20

217.01en

DESCRIPTION AND APPLICATION

It is a device that monitors the flow of fluid based on calorimetry principle. If the flow rate drops below a limit set by user, the status output is changed. The flow rate is displayed by ten LEDs and it is possible to select a boundary for contact making/breaking in the same graduation. The measuring cycle takes from 4 sec to 8 sec with the recommended measurement range 4 to 150 cm/sec. In case of an empty pipeline, the sensor behaves in the same way as with zero flow.

These calorimetric flow switches are available in four versions:

- FS 10 – 1× status output (depending on flow velocity)
- FS 11 – 2× status output (depending on flow velocity)
- FS 15 – 2× status output (1× depending on flow velocity and 1× depending on temperature)
- FS 20 – 1× status and 1× current output (depending on flow velocity)

Meter states displayed

The flow switch point on LED scale can be implemented using two colours (red LED or amber LED), indicating at the same time which contact is normally closed or normally, open. In case of FS15, the temperature switch point is indicated by the LED located between the control push buttons. If the temperature of media is above/below the set-point, the LED is red, indicating that PIN2 is open at the same time (the sensor supplied as standard is configured open at a temperature above the set limit with the LED turned ON). If the logic of the normally open/normally closed point is changed by the user, the logic of both outputs is changed at the same time (applicable to FS 11 and FS15 versions).

The flow switch has two flush-type control buttons, making it possible:

- the switching point/points for flow velocity (temperature in some case)
- to change the logic of the N.O./N.C. output
- to calibrate the minimum and maximum flow values of the monitoring device
- to reset the original parameters from factory



CE

ACCESSORIES

- FS adapter block

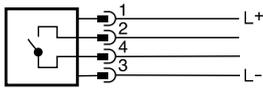
SPECIFICATIONS

Sensor type	FS 10/11/15/20
Power supply	24 V ± 10 % DV with polarity reversal protection
Input power	1.5 / 4 VA
Electrical connection	connector M12/1 (4 PIN)
Process connection	according to DIN 2353 with the M16 x 1.5 union nut through the 24° ring into the direct socket with pipe thread (G1/2"; G1/4"; M14 x 1.5; NPT1/4")
Sensor design	compact, separated (standard 3 m cable)
Display	10 x three-colour LED (flow velocity) 1 x LED (temperature - for FS 15 version only)
Outputs types relay	relay (for FS 10 version only), PNP, NPN, 4 to 20 mA (for FS 20 version only)
Contact rating	130 mA / 60 V / 500 mW
Time response *	1 to 6 s
Velocity flow range	4 to 400 cm/s
Accuracy	± 2 to ± 8 cm/s
Hysteresis	2 to 8 cm/s
Control	2 x flush-mounted button
Temperature of liquid	-10 to 80 °C
Ambient temperature	-20 to 55 °C
Material in contact with medium	stainless steel DIN 1.4404
Maximum pressure	64 bar
Ingress protection	IP 67 in accordance with EN 60529, as amended
Ambient humidity	max. 90 %
Status contact	SSR, passive, potential free, max. 350 V, AC/DC, 150 mA, 400 mW
Weight	290 g
Dimensions (h x w x d)	91 x 74 x 60 mm (v případě dlouhé verze je celková výška 151 mm)

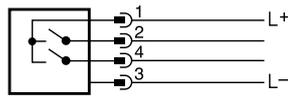
* for water (25 °C)

WIRING DIAGRAM

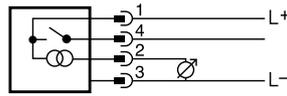
FS 10 – RELAY



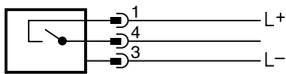
FS 11 / FS 15 – PNP



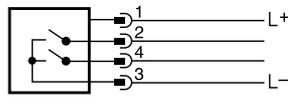
FS 20 – PNP



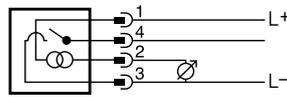
FS 10 – PNP



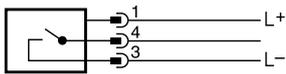
FS 11 / FS 15 – NPN



FS 20 – NPN



FS 10 – NPN



FS 10 RELAY

- PIN 1 – Supply voltage +24 V
- PIN 2 – Relay contact switch point
- PIN 3 – Supply voltage GND
- PIN 4 – Relay contact switch point

FS 10/FS 11/FS 15 PNP/NPN

- PIN 1 – Supply voltage +24 V
- PIN 2 – PNP/NPN contact of the flow switch point (FS 11 only) / / temp. (FS 15 only)
- PIN 3 – supply voltage GND
- PIN 4 – PNP/NPN contact of the flow switch point

FS 20 PNP/NPN

- PIN 1 – Supply voltage +24 V
- PIN 2 – 4–20 mA output
- PIN 3 – Supply voltage GND
- PIN 4 – PNP/NPN contact switch point

DIMENSIONAL DRAFT

