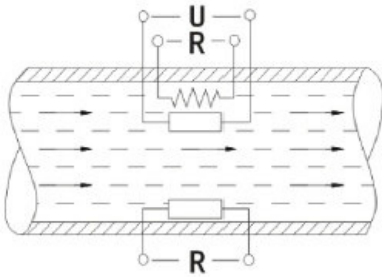


TTFS-F1-G1-45-F-R-G Thermal Flow Switch

I. Principle

TFS series electronic thermal flow switch is developed based on the thermal principle. The closed probe contains two resistors, one is heated as the sensing resistor and the other is not heated as the base quasi-resistance. When medium flows, the heat on the heated resistor is taken away, and the resistance value is changed. Two resistance differences are used as a basis for determining the flow rate. The probe is antifouling coating and can be effective, it prevents the dirt, rust and other dirt in the pipeline from adhering, has stronger anti-pollution ability and is more stable in work.



II. Features:

- LED indicator/display
- All in stainless steel wetted part and probe
- No moving parts, free maintenance
- Optional insertion probe length
- Easy installation
- Adjustable set point
- IP67

III. Technical details:

Measuring range:

Water: 3-300cm/s

Air: 200-3000cm/s

Oil: 3-300cm/s

Accuracy: $\pm 1-10$ cm/s

Settling time: 3 minutes

MAX pressure: 100bar

Medium temperature: $-20 \dots 80$ °C

Process thread: G1/2, G1/4 male, M18 female

Output: Relay / PNP / NPN

4-20mA (TFS-F2/FE only)

Power: 24VDC, 110/220VAC

Insertion probe length: 15 / 20 / 30 / 40 / 50 / 60mm

Display:

TFS-F1 : 6 LED

Current consumption:

TFS-F1 : <60mA

Setting method: Potentiometer or Buttons

Response time: 2 (2-10) second

Load:

4-20Ma: 250mA

Relay: 5A

MAX temperature gradient of medium: 300K/min

Output protection: Reverse/Short/Overload

Protection: IP67

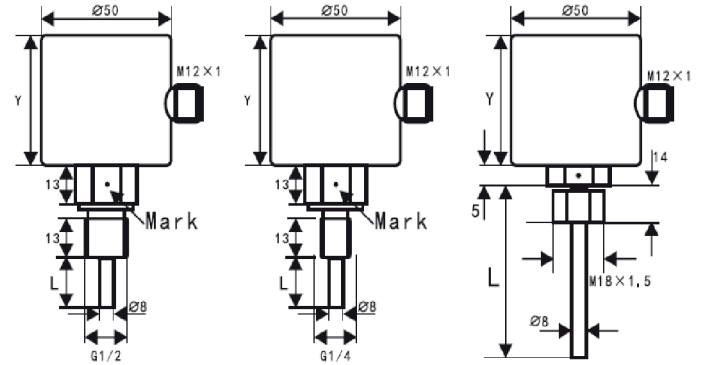
Electrical connector: M12*1 with 1m cable

Material:

Wetted part and Sensor: SS316L

Body: SS316L or PVC

IV. Dimensions:



The length of Y depends on the power:

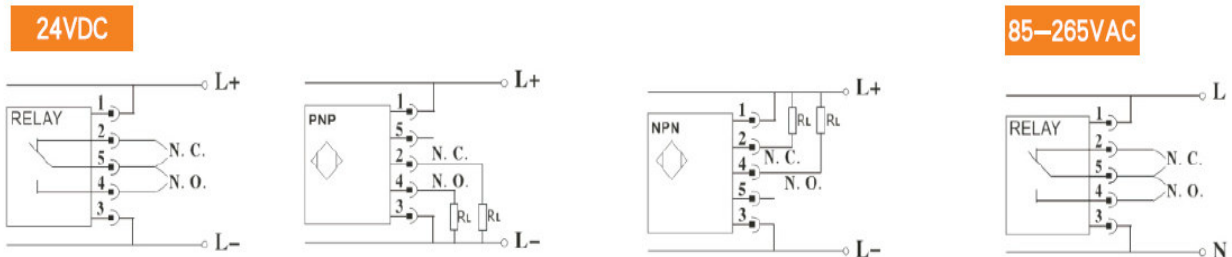
(the 24VDC:Y=45mm;85-265VAC:Y=60mm)

The L is the length of sensor that has 5 kinds:

(15mm, 20mm, 30mm, 45mm, 60mm)

V. Wiring:

****Wiring methods might change without notice. Please refer to manual for details.****



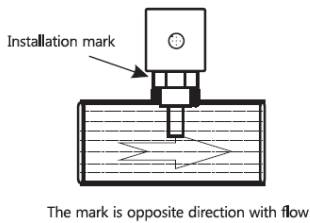
24VDC:

Brown to +, blue to -: High active (NO)
Brown to -, blue to +: High active (NC)

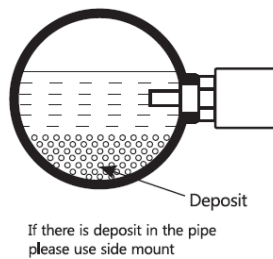
VI. Installation:

Please follow below instructions when do the mounting.

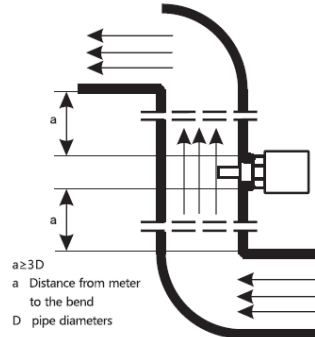
Horizontal installation



Side installation



Installation with bend pipe



VII. Model selection

Thread	-G1: G1/2 male -G2: G1/4 male -M: M18x1.5 female -N: Customize
Sensor length	15: 15mm 20: 20mm 30: 30mm 40: 40mm 50: 50mm N: Customize
Power supply	-F: 18-30VDC -T: 85-265VAC
Output	P: PNP N: NPN R: Relay
Electrical connector	-G: M12x5 pin straight type -W: M12x5 pin elbow type

Please note:

1. Minimum 12mm probe length MUST be inserted into liquid, when used in liquid applications.
2. If medium is liquid and pipe is not full, side-mount or bottom-mount is suggested.