

# **THERMAL DISPERSION FLOW SWITCH**

## Operational principle:

The Thermal Flow Switch Monitor SP-150 is based on the principle of thermal dispersion. A typical configuration uses two Temperature Detectors set within the tip of the sensor. One Temperature Detector is heated a few degrees above the other one. As the process medium flows over the tip of the sensor it disperses some of the heat from the heated Temperature Detector. The delta temperature is a function of flow velocity and converted into electronic signal. The open collector changes state once the set point has been reached.

## Features:

The Thermal Flow Switch Monitor SP-150 housing is made of stainless steel, suitable for high pressure, high temperature application. Because its rugged structure and there is no moving parts, it's can be maintenance-free for most application.

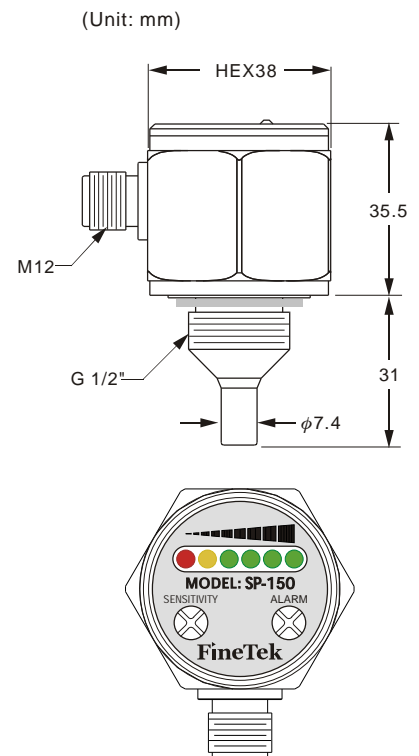
## Specifications: (Preliminary)

No.	Item	Specification
1	Measuring range(Velocity)	Water: 1~150 cm/s Oil: 3~300 cm/s
2	Working temperature(fluid)	-20 ~ +80°C
3	Alarm output	Open collector: NPN / PNP (<400mA)
4	Working pressure	100 bar (max.)
5	LED indication: --Velocity is below set point. -- Velocity is equal or above set point, Output engaged. -- Velocity above set point, Output engaged.	Red LED lit Yellow LED lit 4 green LED indicates a percentage of flow above the set point
6	Housing	SUS304 / SUS316 / PVDF
7	Enclosure	IP67
8	Response time	Approximate 10 seconds
9	Process connection	G1/2", G1/4", NPT1/2"
10	Power supply	19 ~ 30VDC
11	Power consumption	50mA max.
12	Cable connection	3 wires: Power(Brown) Ground(Blue) Output(Black)
13	Accessories	Plug Cable Length=2meters Washer

## SP-150 Series



## Dimensions: (G 1/2)



## Mounting instruction

When installing SP-150, please use supplied sealing ring.

- (1) Please assure the minimum distance to the tube bends and intersections greater than four times of pipe diameter. (See Fig. 1)
- (2) Please assure that there is no air bubble in the tube to achieve reliable alarm action. (See Fig. 2)
- (3) When the fluid does not completely fill the pipe, SP-150 must be installed below the pipe. And the fluid level must be higher than the tip of the SP-150. (See Fig. 3)
- (4) Please assure that SP-150 is mounted tightly to prevent leakage. SP-150 could be mounted on the pipe at any orientation, but the best sensitivity and fastest response will be realized at orientation shown in Fig. 4.
- (5) If there are any particle exists in the fluid, please install a suitable filtering element at the upstream of SP-150 to prevent contamination on the probe of SP-150.

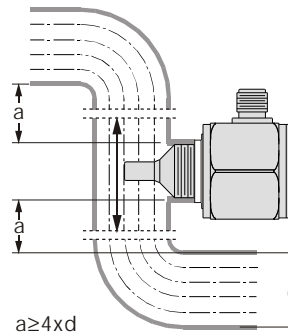


Fig. 1

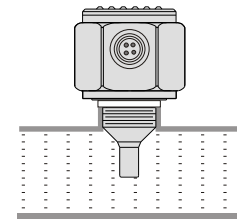
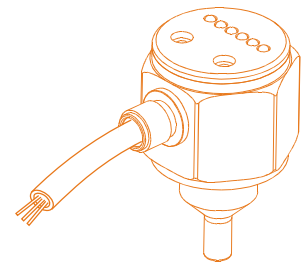


Fig. 2

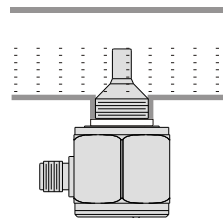


Fig. 3

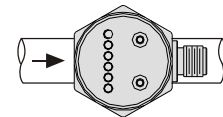
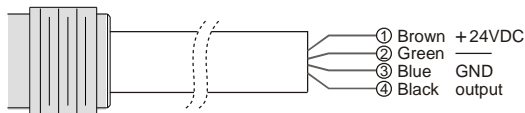
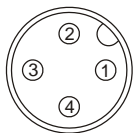


Fig. 4

## Pin assignment



## Connection:

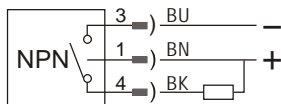


Fig. 6 Wiring of NPN Output

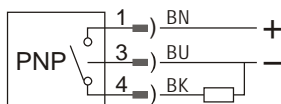


Fig. 7 Wiring of PNP Output

BN: BROWN  
BU: BLUE  
BK: BLACK

## Order Information:

SP150- [ ] - [ ] - [ ]

Material ————  
1: SUS304  
2: SUS316  
3: PVDF  
4: Special

Screw and length ————  
1V: G1/4", 25mm L  
2V: G1/2", 30mm L  
2U: NPT1/2", 40mmL  
2E: G1/2", Explosion proof  
SS: Special

Output ————  
N: NPN  
P: PNP



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