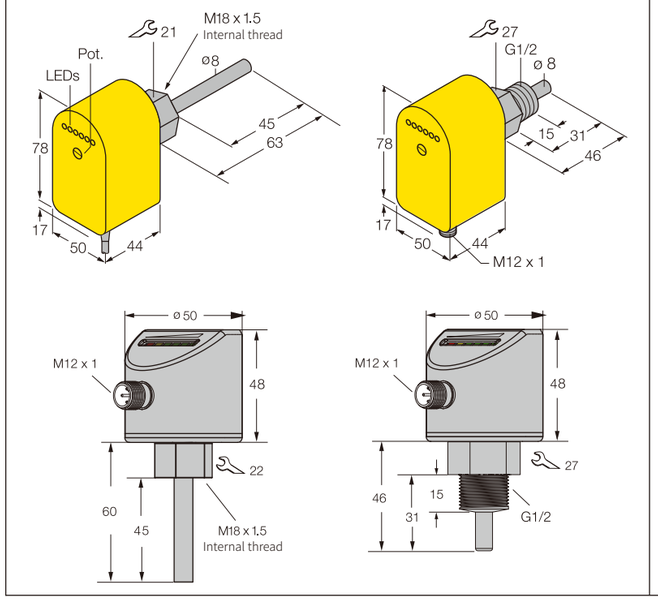
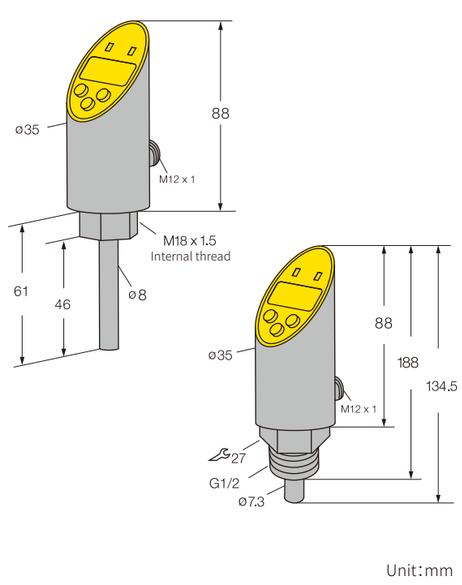
Operation Manual

PLS series flow sensor installation and use instructions

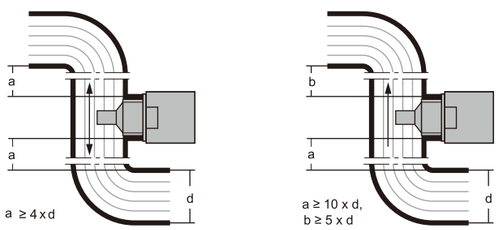
Potentiometer Adjustment Series	Button Programming Series
	

Unit：mm

Installation instructions：

The installation needs to be used with the welded casing or the tee

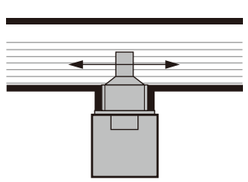
(A)



Potential adjustment series sensors must follow this installation distance. The distance between the sensor and the straight pipe of the elbow or intersection should not be less than 4 times the pipe diameter, that is, a≥4d

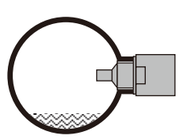
Button programming series sensors need to follow this installation distance. The distance between the front end of the sensor and the straight pipe at the bend or intersection should not be less than 10 times the pipe diameter, and the rear end should not be less than 5 times the pipe diameter. that is, a≥10d, b≥5d

(B)



When the medium cannot be fully filled the pipe, the sensor must be installed at the bottom of the pipe

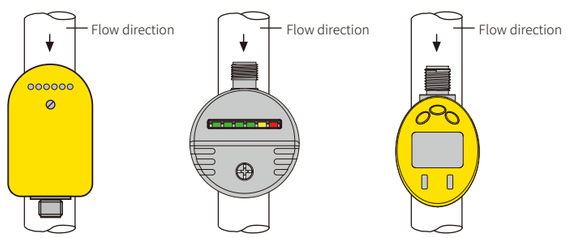
(C)



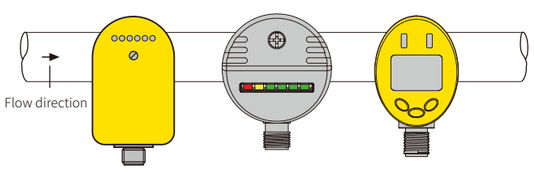
If there is sediment in the pipeline, install the sensor horizontally on the side and ensure that there is no air pocket near the probe.

When installing, the best installation direction is facing the mark point, that is, D1 installation direction, followed by D2 installation direction

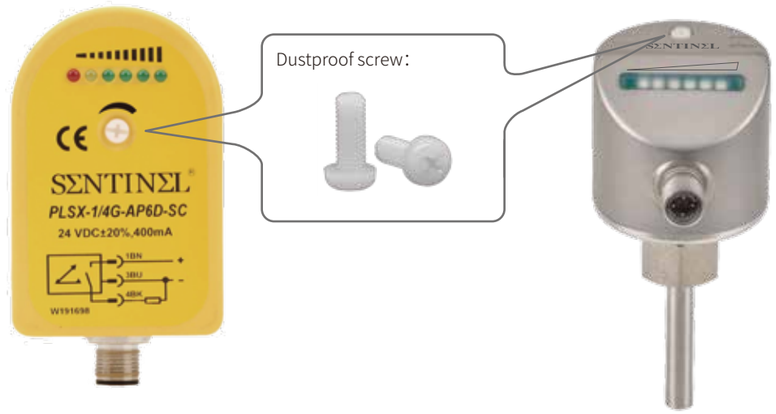
(D1) When choosing an analog output sensor, you should follow this installation position



(D2)



PLSX and PLSU series debugging methods



LED Meaning：

The flow sensor uses 6 LED to indicate the flow state.

Switch output：

4 Green LED: Over the setpoint (1,2,3, or 4 green LED lights on)
1 Yellow LED: Reach set point / exceed set point
1 Red LED: No setpoint was reached

According to the ⌒ indication, the light of the rotary potentiometer will increase or decrease in sequence.

Adjustment setting

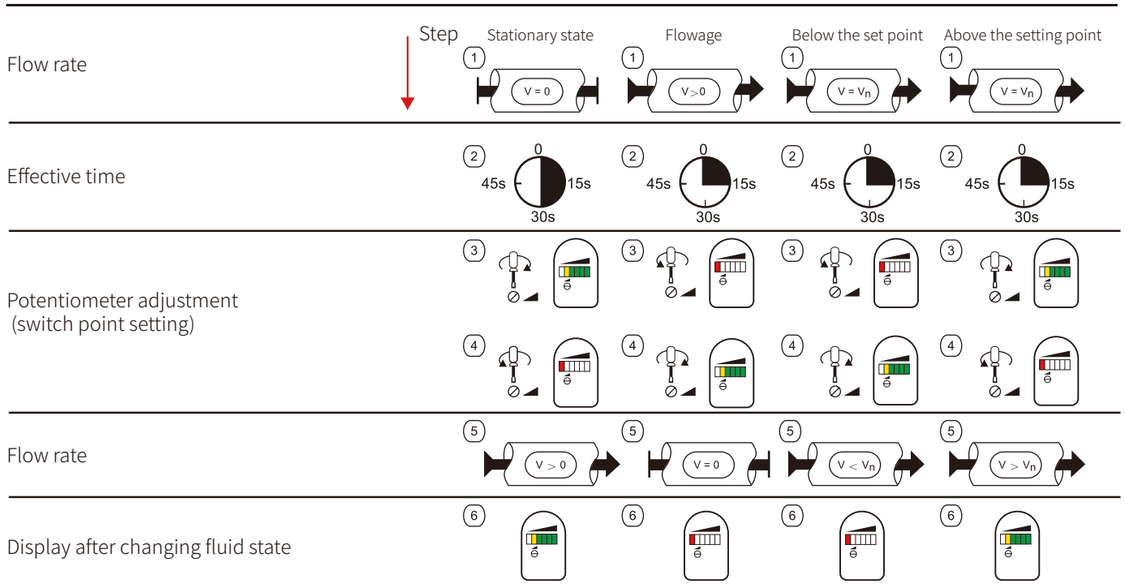
The flow sensor settings should follow the following steps:

(1) The sensor must have been installed on the pipeline, select the required flow rate (i.e. set point), and can be adjusted after the equipment is powered on for 8S.

(2) Open the Dustproof screw at the front end.

(3) a. Establish the minimum flow rate
b. Adjust the potentiometer to light up the red LED light
c. Return to the normal flow rate so that at least the yellow light and one green light are on

Setting rules of switch output: (the flow rate Vn needs to be within the detection range)



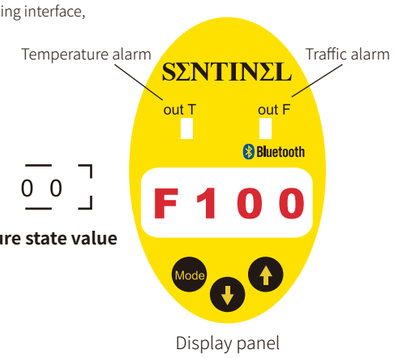
Intelligent programmable PLSN series debugging method

! The probe needs to be immersed in the measured medium when setting it up

Program — Press and hold Mode >10s *

- **L 0 0 0** — Low flow point setting: After a stable 30S, click on the ↓ or ↑ After displaying -OK- it becomes L000。 Mode return to the previous level
- **H 0 0 0** — High flow point setting: After a stable 30S, click on the ↓ or ↑ After displaying -OK- it becomes H100。 Then adjust the flow rate to the alarm point, and record the current value when H- - - is basically stable。 Mode return to the previous level
- **r F 0 0** — Flow rate alarm point: Click ↓ or ↑ to set the record value of the previous level H- - - Range:1%~95%。 Mode return to the previous level
- **d F 0 0** — Flow alarm delay: Click ↓ or ↑ to set it, ranging from 1 to 30S (it is recommended to set the minimum value of 3S) Mode return to the previous level
- **F L 0 4** — 4mA correction: Connect the ammeter to the mA position, and click ↓ or ↑ to fine-tune the output to 4mA. Mode return to the previous level
- **F H 2 0** — 20mA correction: Connect the ammeter to the mA position, and click ↓ or ↑ to fine-tune the output to 20mA. Mode return to the previous level
- **A T 0 0** — Temperature alarm point : Click ↓ or ↑ to set it, ranging from 0 to 90°C Mode return to the previous level
- **T 0 0 0** — Temperature alarm point correction: Click ↓ or ↑ to set it, ranging from -20 to 20°C Mode return to the previous level
- **d T 0 0** — Temperature alarm delay : C lick ↓ or ↑ to set it, ranging from 1 to 30S Mode return to the previous level
- **A 0 0 0** ** — Switch setting: (APP masks this bit, only displays it but does not set it), range: 000-255 Mode return to the previous level
- **A o** — Display settings: Ao represents the forward display, and oA represents the mirror display Mode return to the previous level
- **F A C** — Factory setting: Click ↓ or ↑ to restore the initial value Mode return to the previous level
- **E N D** — Save settings: Click ↓ or ↑ to save setting parameters and return to the working interface, or press Mode to continue parameter setting

Boot display → **R 0 0 1** (Version) → **F 0 0 0** (Velocity state value) ⇄ Interconversion / Hold for 15s → **T 0 0** (Temperature state value)



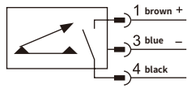
Display panel

* Switches without Bluetooth function do not need to set this step.

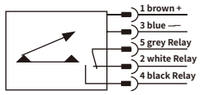
** If the sensor enters the setting interface without any operation, it will return to the working interface after 3min.

Wiring diagram

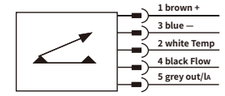
...AP6D...



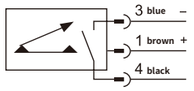
...VR6D...



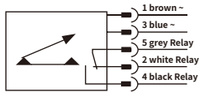
...PI6D...
...NI6D...



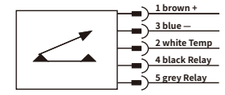
...AN6D...



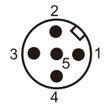
...VR8D...



...AR6D...



M12 x 1 Male



Technical data

(1) Model (2) Adjustable range W: Water O: Oil (3) Threaded type (4) Probe material (5) Response time: typical (6) Opening time: typical (7) Close time: typical (8) Temperature range (9) Pressure proof (10) Protection class (11) operating voltageUB (12) Output

(1)	(2)	(3)	(4)	(5)	(6)/(7)	(8)	(9)	(10)	(11)	(12)
PLSX(U)-...-AP6D... PLSX(U)-...-AN6D... PLSX(U)-...-VR6D... PLSX(U)-...-VR8D...	(W) 1...150cm/s (O) 3...300cm/s	1/4G 1/2G 1/2GL 18MN	304 Stainless steel	8 s	2 s/2 s	-20…+80 °C	100bar	IP67	24 VDC 24 VDC 24 VDC 230 VAC	PNP NPN Relays Relays
PLSN-...-PI6D... PLSN-...-NI6D... PLSN-...-AR6D...	(W) 1...150cm/s (O) 3...300cm/s	1/2G 18MN 50.5T	304 Stainless steel 316 Stainless steel	8 s	2 s/2 s	-20…+80 °C	100bar	IP67	24 VDC	4-20mA+PNP 4-20mA+NPN Relays

The SENTINEL's flow sensor can be used in the following applications

- Medium flow / flow rate decreases
- Medium flowing/stationary
- Media present/absent
- Liquid level detection

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