

Series 10-PSE550

Low differential pressure sensor

How to Order



10 — PSE550 — [] [] []

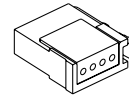
• Clean series

Output specifications

Nil	1 to 5V voltage output type
28	4 to 20mA current output type

Option 2 (Connector)

Nil	Without connector
C2	Connector for PSE300, pressure sensor monitor: 1 pc.



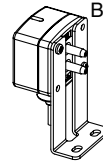
Note 1) The current output type cannot be connected to series PSE300.
Note 2) Connector is packed together without being connected to the cable.

Option/Part no.

Description	Part no.	Note
Bracket	10-ZS-30-A	With M3 x 5L (2 pcs.)
Connector for PSE300 pressure sensor monitor	10-ZS-28-C	1 pc.

Option 1 (Bracket)

Nil	Without bracket
A	Bracket



Note) Brackets are packed together without being assembled.

Specifications

Model	10-PSE550	10-PSE550-28
Rated differential pressure range	0 to 2kPa	
Operating pressure range	-50 to 50 kPa ^{Note)}	
Proof pressure	65kPa	
Fluid	Air, non-corrosive gas, non-flammable gas	
Power supply voltage	12 to 24VDC, Ripple (p-p) 10% or less (with power supply polarity protection)	
Current consumption	15 mA or less	—
Output specification	Analog output 1 to 5VDC (Within the rated differential pressure range) Output impedance: Approx. 1kΩ	Analog output 4 to 20 mADC (Within the rated differential pressure range) Allowable load impedance: 500Ω or less (at 24VDC) 100Ω or less (at 12VDC)
Accuracy (Operating temperature 25°C)	±1%F.S. or less	
Linearity	±0.5%F.S. or less	
Repeatability	±0.3%F.S. or less	
Indicator light	Orange (ON when energized)	
Environmental resistance	Enclosure	IP40
	Operating temperature range	Operating: 0 to 50°C, Stored: -20 to 70°C (with no condensation or freezing)
	Operating humidity range	Operating and stored: 35 to 85% RH (with no condensation)
	Withstand voltage	1000VAC, 50/60Hz, for 1 min, between live parts and case
	Insulation resistance	50 MW or more(measured by 500VDC mega meter) between live parts and case
	Vibration resistance	10 to 150Hz, at whichever smaller of 1.5mm amplitude or 100m/s ² acceleration, in X, Y and Z directions, for 2 hours each (de-energized)
Impact resistance	300m/s ² , 3 times each for X, Y and Z directions (de-energized)	
Temperature characteristics	±3%F.S. or less (based on 25°C)	
Port size	ø4.8 (ø4.4 in the end) resin piping (Applicable to ø4 air tubing)	
Wetted part material	Resin pipe: Nylon, Pressure sensor: Silicon	
Sensor cable	3-wire oval cable (0.15mm ²)	2-wire oval cable (0.15mm ²)
Weight	With sensor cable	75g
	Without sensor cable	35g
Particle generation grade (Refer to front matters 13 to 22 for details.)	Grade 2	

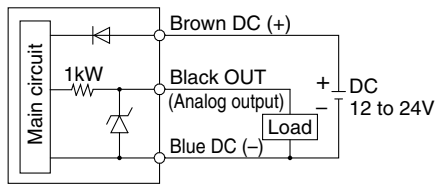
Note) The differential pressure of 0 to 2kPa can be detected within the range of -50 to 50kPa.

⚠ Caution

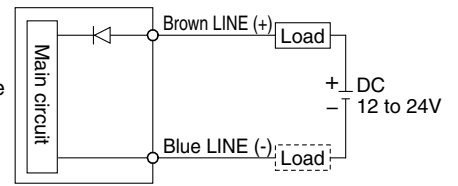
This product is blown with air and double packed in a Class M3.5 (ISO Class 5) cleanroom.

Internal circuit

10-PSE550
Voltage output type
1 to 5V
Output impedance
Approx. 1kΩ

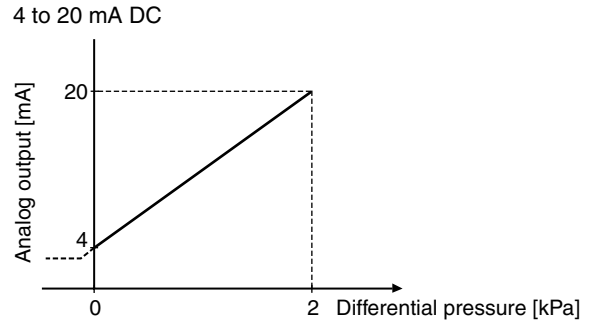
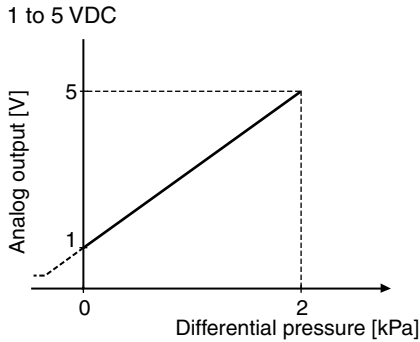


10-PSE550-28
Current output type
4 to 20mA
Allowable load impedance
500Ω or less (at 24VDC)
100Ω or less (at 12VDC)

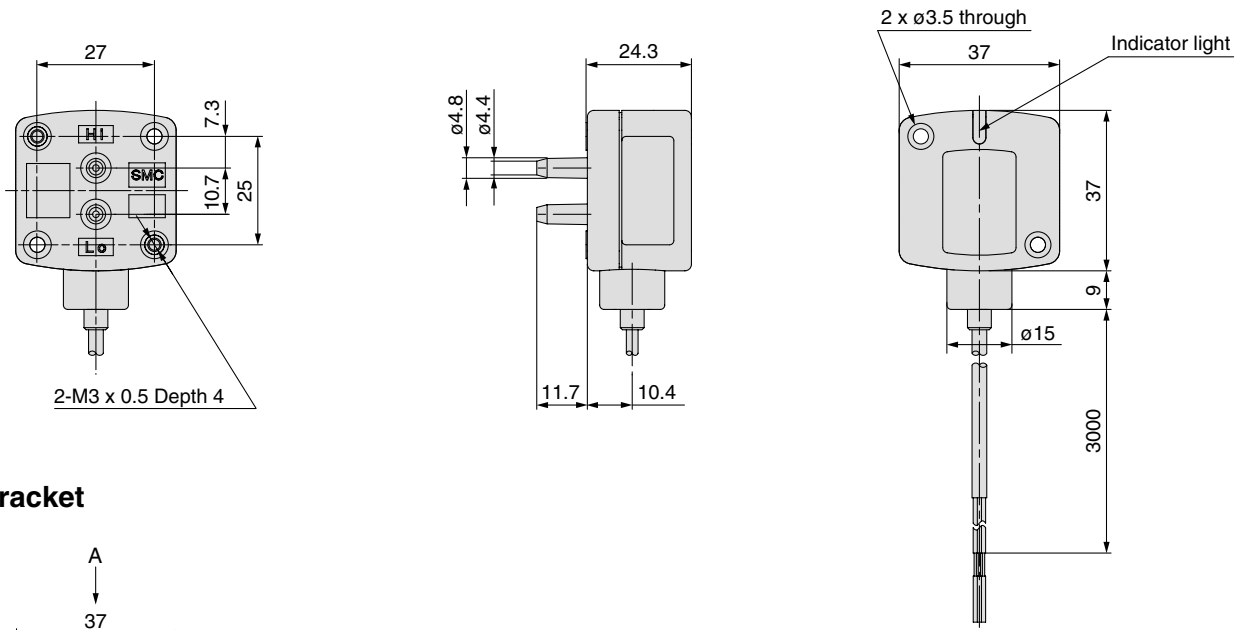


Install the load either on the LINE (+) or LINE (-) side.

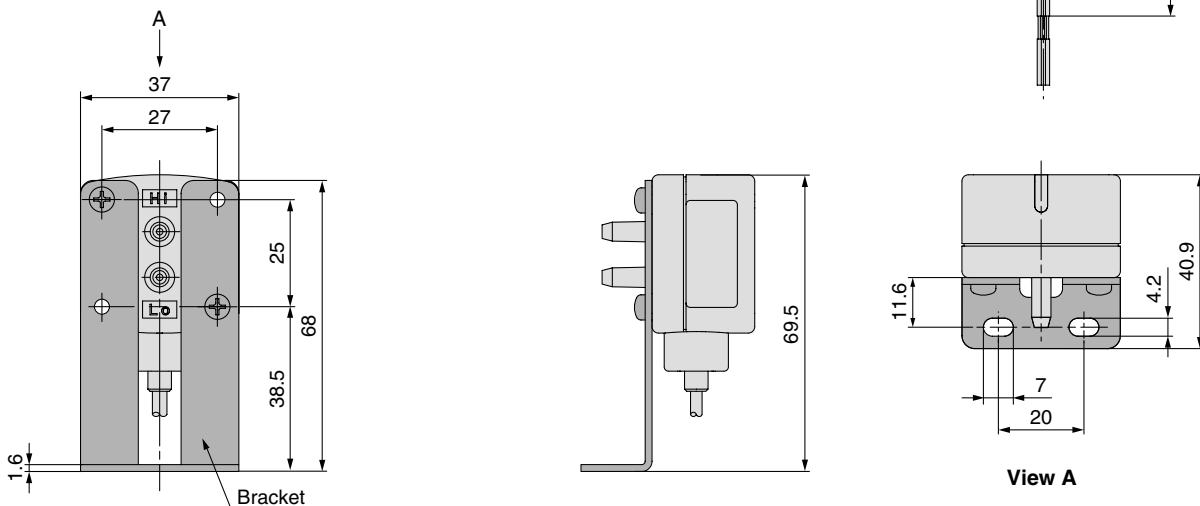
Analog output



Dimensions



With bracket





Specific Product Precautions 1

Be sure to read before handling.

Pressure sensor

Handling

Warning

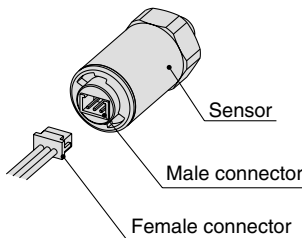
1. Do not drop, bump or apply excessive impacts (10-PSE530 and 540: 980m/s², 10-PSE560: 500m/s², PSE550: 300m/s²) while handling. Although the body of the sensor may not be damaged, the inside of the sensor could be damaged and lead to a malfunction.
2. The tensile strength of the cord is 23N for 10-PSE530 and not more than 50N for 10-PSE540, 550, and 560. If the applied force exceeds this specification, the sensor will be damaged.
3. Do not use pressure sensors with corrosive and/or inflammable gases or liquids.

(10-PSE530)

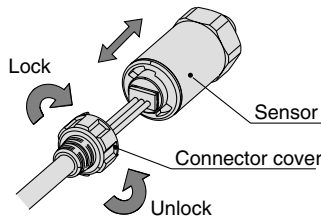
1. Do not exceed the screw-in torque of 3.5 N·m when installing piping. Exceeding this value may cause malfunction of the sensor.

2. Connecting the sensor cable (optional)

Hold the female connector of the sensor cable with your fingers and carefully insert it into the connector.

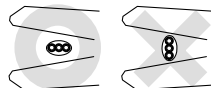


A connector cover is provided as part of the cable assembly. It is designed to keep the female connector from slipping out of the sensor. To lock the connector cover in place, first make sure it is facing in the right direction as you slip it over the female connector, then lock it to the sensor body by turning it clockwise. To remove the cover, first unlock it by turning it counterclockwise, then pull back on it. To remove the female connector, grab it with your fingers and pull back on it. Do not pull on the cable.



(10-PSE540/550)

1. Care should be taken when stripping the outer cable covering as the insulator may be accidentally torn or damaged if incorrectly stripped.

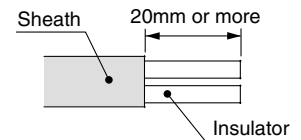


Wiring

Caution

1. Connecting sensor cable and connector

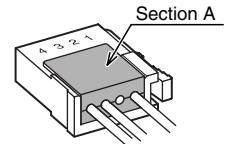
- Cut the sensor cable as illustrated to the right.
- Referring to the table below, insert each lead wire of the cable at the position marked with a number corresponding to the color of the lead wire.



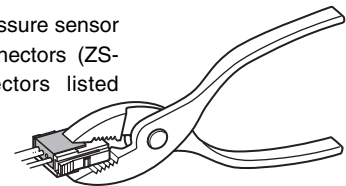
Connector no.	Wire core color
1	Brown (DC (+))
2	Unconnected
3	Blue (DC (-))
4	Black (OUT: 1 to 5V)

- Confirm that the numbers on the connector match the colors of the wires and that the wires are inserted to the bottom. Press Part A by hand for temporary fixing.

- Press in the central part of Part A vertically with a tool such as pliers.
- A sensor connector cannot be taken apart for reuse once it is crimped. If the wire arrangement is incorrect or if the wire insertion fails, use a new sensor connector.



- For connection to SMC pressure sensor monitors, use sensor connectors (ZS-28-C□) or e-con connectors listed below.



Sensor series	Sumitomo 3M	Tyco Electronics AMP K.K.	Omron Corporation
10-PSE53□	37104-3101-000FL	3-1473562-4	XN2A-1430
10-PSE54□	37104-3101-000FL	1-1473562-4	XN2A-1430
10-PSE55□	37104-3101-000FL	1-1473562-4	XN2A-1430
10-PSE56□	37104-3101-000FL	1473562-4	XN2A-1430

- For detailed information about e-con connectors, please consult the manufacturers of the respective connectors.



Specific Product Precautions

Be sure to read before handling.

Pressure source

Warning

(10-PSE560)

1. Use of toxic, corrosive or flammable gases

Do not use **toxic or corrosive gases** with the sensors.

2. Fluid

The fluid contact (wetted) areas are SUS316L (pressure sensor, fittings). Use fluid that will not corrode the materials.

(For corrosiveness of fluid, consult with the manufacturer of the fluid.)

(10-PSE56□-A₂-B₂ only)

Helium leakage test

Helium leakage test is conducted on the welding parts. Use a ferrule (Swagelok®) by Crawford Fitting Co. as the TSJ fittings, and packing, ground, etc. (VCR® fittings) by Cajon as the URJ fittings. If a ferrule, packing or ground by other manufacturers are to be used, conduct helium leakage test before using them.

Piping connection

Caution

(10-PSE550)

- Cut the air tubing vertically.
- Carefully hold the air tubing and slowly push it into the resin pipe, ensuring that it is inserted by more than 8mm. For your information, the pull strength is approx. 25 N when inserted by more than 8mm.
- Insert the low pressure tubing into “Lo” pipe, and the high pressure tubing into “Hi” pipe.
- When the air tubing of the brand other than SMC is to be used, its ID accuracy is required to be $\phi 4 \pm 0.3\text{mm}$.
- Air tubing should be inserted surely into the pipe so that it will not come off. (Pull strength is about 25N in 8mm insertion.)

