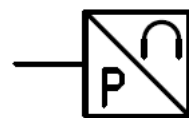




**Instruction Manual**  
**Low Differential Pressure Sensor**  
**PSE550**



The intended use of the pressure sensor is to measure the pressure of fluids and provide an analogue output signal.

**1 Safety Instructions**

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of "Caution," "Warning" or "Danger." They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC<sup>\*)</sup>, and other safety regulations.

<sup>\*)</sup> ISO 4414: Pneumatic fluid power - General rules relating to systems.  
ISO 4413: Hydraulic fluid power - General rules relating to systems.  
IEC 60204-1: Safety of machinery - Electrical equipment of machines. (Part 1: General requirements)

- ISO 10218-1: Manipulating industrial robots - Safety, etc.
- Refer to the product catalogue, operation manual and handling precautions for SMC products for additional information.
- Keep this manual in a safe place for future reference.
- To ensure safety of personnel and equipment the safety instructions in this manual must be observed, along with other relevant safety practices.

<b>Caution</b>	Caution indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.
<b>Warning</b>	Warning indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
<b>Danger</b>	Danger indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

**Warning**

- Ensure compliance with relevant safety laws and standards. All work must be carried out in a safe manner by a qualified person in compliance with applicable national regulations.

**2 Specifications**

**2.1 General Specifications**

Model	PSE550	PSE550-28
Rated Pressure range	0 to 2 kPa	
Operating pressure range	-50 to 50 kPa	
Extended Analogue output range	-0.2 to 0 kPa	-
Withstand pressure	65 kPa	
Applicable fluid	Air, inert gases and incombustible gases	
Power supply voltage	12 to 24 VDC ±10% (with 10% max. voltage ripple)	
Current consumption	15 mA or less	
Analogue output specification	Voltage output: 1 to 5 VDC (rated pressure range) 0.6 to 1 VDC (extended analogue output range) Output impedance: approx. 1 kΩ	Current output: 4 to 20 mA (rated differential pressure range) Maximum allowable load impedance: 500 Ω (at 24 VDC) 100 Ω (at 12 VDC)
Accuracy (at 25°C)	±1% F.S. (rated pressure range) ±3% F.S. (extended analogue output range)	
Linearity	±0.5% F.S.	
Repeatability	±0.3% F.S.	
Indicator light	Orange LED is ON when energized	
Environmental	Enclosure	IP40
	Ambient temperature	Operation: 0 to 50°C Storage: -20 to 70°C (no condensation or freezing)
	Ambient humidity	Operation, Storage: 35 to 85% RH (no condensation)
	Withstand voltage	1000 VAC or more (50/60 Hz), 1 minute (between lead block and case)
	Insulation resistance	50 MΩ or more at 500 VDC (between lead block and case)
Temperature characteristics	±3% F.S. (at 25°C)	
Port size	ø4.8 (ø4.4 at the end) resin piping (suitable for ø4 I.D. air tubing)	
Material of parts in contact with fluid	Resin pipe: Nylon, Piston area of sensor: Silicon	
Weight with cable	75 g	
Weight without cable	35 g	

**2.2 Cable Specification**

Cable details	3 cores	2 cores
Wire cross section	0.15 mm <sup>2</sup>	
Insulator O/D	0.9 mm	
Sheath material	Oil resistant heavy-duty vinyl chloride	
Sheath outside dimension	2.7 x 3.2 mm	
Cable Length	3 m	

**2.3 Specification when combined with PSE300 monitor**

Setting pressure range	Differential pressure range
Rated pressure range	0 to 2 kPa
Set resolution	0.01 kPa
Switch	Repeatability
	±0.4% F.S.
Analogue output	Linearity
	±0.7% F.S.
	Accuracy (Display)
	±1.5% F.S.
Accuracy (Operating temperature)	±1.5% F.S. ±1 digit
Temperature characteristic	±3.5% F.S. (25 °C standard)

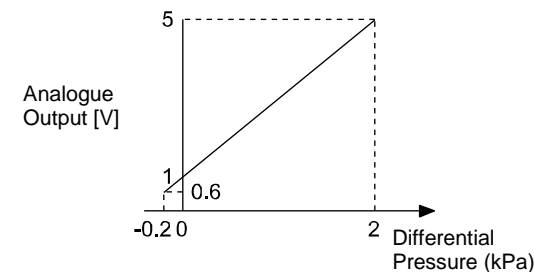
**Warning**

- Special products (-X) might have specifications which are different from those shown in this section. Contact SMC for specific drawings.

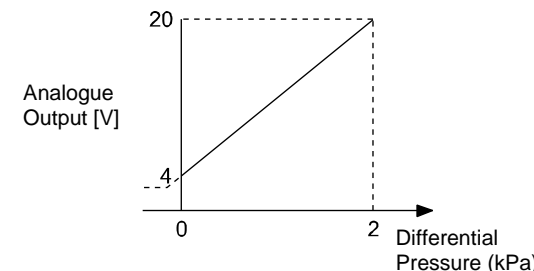
**2 Specifications (continued)**

**2.4 Analogue Output**

**PSE550: 1 to 5 VDC**



**PSE550-28: 4 to 20 mA**



**3 Installation**

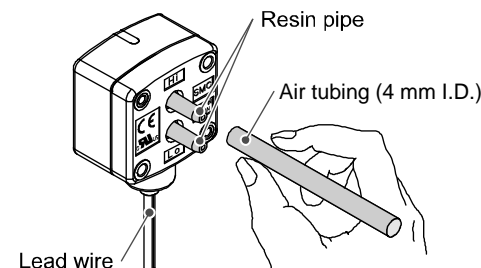
**Warning**

Do not install the product unless the safety instructions have been read and understood.

**3.1 Piping**

**Caution**

- Before piping make sure to clean up chips, cutting oil, dust etc.
- Install the piping correctly in a safe place away from water and dust.
- Cut the air tube perpendicularly.
- Grip the air tube and insert it into the resin pipe firmly by 8 mm or more from the end of the resin piping. The pulling force necessary for the piping inserted by 8 mm or more is approximate 25 N.
- Insert the air tube for low pressure to piping marked 'Lo' and the air tube for high pressure to piping marked 'Hi'.



**3.2 Environment**

**Warning**

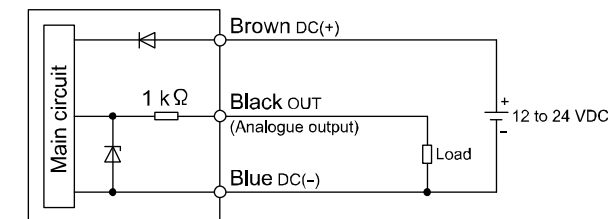
- Do not use in an environment where corrosive gases, chemicals, salt water or steam are present.
- Do not use in an explosive atmosphere.
- Do not expose to direct sunlight. Use a suitable protective cover.
- Do not install in a location subject to vibration or impact in excess of the product's specifications.
- Do not mount in a location exposed to radiant heat that would result in temperatures in excess of the product's specifications.

**4 Wiring**

**4.1 Internal circuit and wiring**

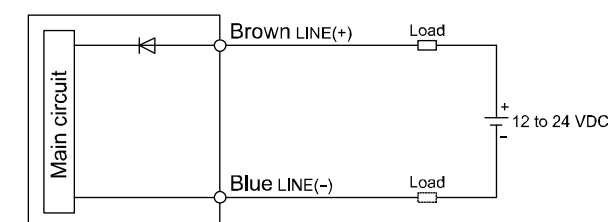
Output specification

**PSE550**  
Voltage output: 1 to 5 V  
Output impedance: Approx. 1 kΩ



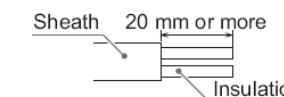
**PSE550-28**

Current output: 4 to 20 mA  
Allowable load impedance: 500Ω or less (at 24 VDC) 100Ω or less (at 12 VDC)



**4.2 Attaching a sensor connector to the lead wire**

- The sensor wire sheath should be stripped as shown in the figure.
- Do not cut the insulation.



- The corresponding wire colour shown in the table should be pushed fully into the correct pin number marked on the sensor connector.

Pin No.	Wire colour	
	PSE550	PSE550-28
1	Brown (DC+)	Brown (LINE(+))
2	N.C.	N.C.
3	Blue (DC-)	N.C.
4	Black (IN: 1 to 5 V)	Blue (LINE(-))

- Check that the above preparation has been performed correctly, then press part A by hand to make a temporary connection.
- Press part A fully home using a suitable tool.



- The sensor connectors cannot be re-used once they have been pressed fully closed. If connection failure or incorrect wiring occurs a new sensor connector must be used.
- When connecting the sensor to a PSE300 series monitor, use the connector for sensor lead wire (ZS-28-C) or an e-Con\* connector from the table below.

Maker	Model No.
Sumitomo 3M	37104-3101-000FL
Tyco Electronics	1-1473562-4
OMRON	XN2A-1430

\* Refer to the manufacturers e-Con connector catalogue.

## 5 How to Order

Refer to the catalogue or operation manual on the SMC website (URL: <https://www.smcworld.com>) for How to order information.

## 6 Outline Dimensions (mm)

Refer to the catalogue or operation manual on the SMC website (URL: <https://www.smcworld.com>) for outline dimensions.

## 7 Maintenance

### 7.1 General Maintenance

#### Caution

- Not following proper maintenance procedures could cause the product to malfunction and lead to equipment damage.
- If handled improperly, compressed air can be dangerous. Maintenance of pneumatic systems should be performed only by qualified personnel.
- Before performing maintenance, turn off the power supply and be sure to cut off the supply pressure. Confirm that the air is released to atmosphere.
- After installation and maintenance, apply operating pressure and power to the equipment and perform appropriate functional and leakage tests to make sure the equipment is installed correctly.
- If any electrical connections are disturbed during maintenance, ensure they are reconnected correctly and safety checks are carried out as required to ensure continued compliance with applicable national regulations.
- Do not make any modification to the product.
- Do not disassemble the product, unless required by installation or maintenance instructions.

## 8 Limitations of Use

### 8.1 Limited warranty and Disclaimer/Compliance Requirements

Refer to Handling Precautions for SMC Products.

## 9 Product disposal

This product should not be disposed of as municipal waste. Check your local regulations and guidelines to dispose of this product correctly, in order to reduce the impact on human health and the environment.

## 10 Contacts

Refer to [www.smcworld.com](https://www.smcworld.com) or [www.smc.eu](https://www.smc.eu) for your local distributor / importer.

## SMC Corporation

URL : <https://www.smcworld.com> (Global) <https://www.smc.eu> (Europe)  
SMC Corporation, 4-14-1, Sotokanda, Chiyoda-ku, Tokyo 101-0021, Japan  
Specifications are subject to change without prior notice from the manufacturer.  
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