



Instruction Manual

Pressure Sensor for General Fluids

PSE575-X501 / PSE576-X501 / PSE577-X501



The intended use of the pressure sensor is to measure the pressure of general 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) ¹⁾, and other safety regulations.

¹⁾ISO 4414: Pneumatic fluid power - General rules and safety requirements for systems and their components.

ISO 4413: Hydraulic fluid power - General rules and safety requirements for systems and their components.

IEC 60204-1: Safety of machinery - Electrical equipment of machines. Part 1: General requirements.

ISO 10218-1: Robotics-Safety requirements - Part 1: Industrial robots.

- Refer to product catalogue, Operation Manual and Handling Precautions for SMC Products for additional information.
- Keep this manual in a safe place for future reference.

	Danger	Danger indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.
	Warning	Warning indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
	Caution	Caution indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate 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		PSE575	PSE576	PSE577
Pressure	Rated Pressure range	0 to 2 MPa	0 to 5 MPa	0 to 10 MPa
	Proof Pressure	5 MPa	12.5 MPa	30 MPa
Temperature Characteristics		±5% F.S. (at 25°C)		

2.2 Electrical and Environmental specifications

Model		PSE57#-02-X501	PSE57#-02-28-X501
Applicable fluid		Gas or liquid that will not corrode materials of parts in contact with fluid	
Electrical	Power supply voltage	12 to 24 VDC ±10% (with 10% max. voltage ripple)	
	Current consumption	10 mA or less	
	Protection	Protected against reverse connection	
Analogue Output	Output type	Voltage output: 1 to 5 V Output impedance: approx. 1 kΩ	Current output: 4 to 20 mA Max. load impedance: 500 Ω (at 24 VDC) 100 Ω (at 12 VDC)
	Accuracy (at 25°C)	±2.5% F.S.	
	Response time	Max. 1 ms	
	Linearity	±0.5% F.S.	
Repeatability		±0.5% F.S. (at 25°C)	

Environmental	Enclosure	IP65
	Withstand voltage	500 VAC, 1 minute, (between terminals and housing)
	Insulation resistance	100 MΩ or more at 500 VDC (between terminals and housing)
	Ambient temperature	Operation: -10 to 60°C Storage: -20 to 70°C (no condensation or freezing)
	Ambient humidity	Operation, Storage: 35 to 85% RH (no condensation)

2.3 Piping specification

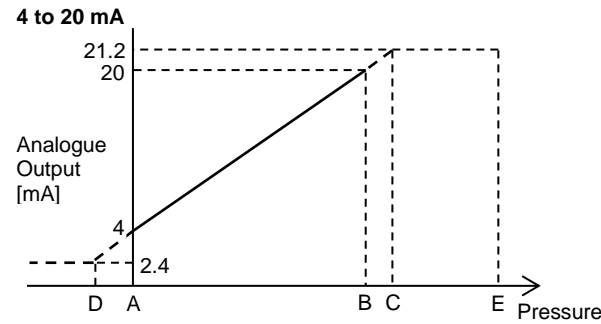
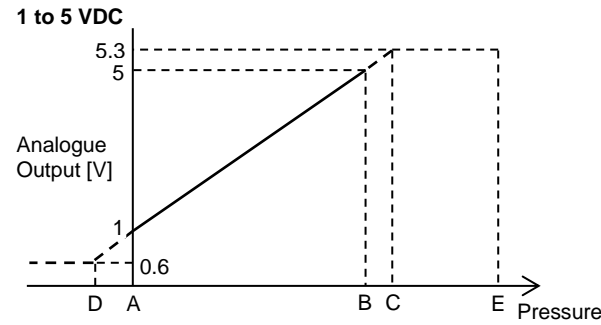
Port size		G1/8, M5 x 0.8
Materials of parts in contact with fluid		Piping port: C3604 + nickel plated Pressure sensor: Al ₂ O ₃ (aluminium oxide) Sensor seal: FKM Gasket: NBR, SUS304
Weight	Without lead wire	95 g
	With lead wire and connector	183 g

2.4 Cable specification

Wire	Nominal Cross section	AWG23
	Outside diameter	0.72 mm
Insulator	Material	Cross linked vinyl chloride
	Outside diameter	1.14 mm
	Colours	Brown, Blue, Black, White
Sheath material		Oil resistant vinyl chloride
Outside diameter		φ4 mm
Cable Length		3 m

2 Specifications (continued)

2.5 Analogue Output



Model	Rated pressure range	A	B	C	D	E
PSE575	0 to 2 MPa	0	2 MPa	2.15 MPa	-	5 MPa
PSE576	0 to 5 MPa	0	5 MPa	5.375 MPa	-	12.5 MPa
PSE577	0 to 10 MPa	0	10 MPa	10.75 MPa	-	30 MPa

3 Installation

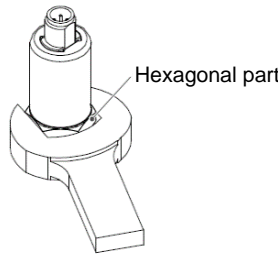
Warning

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.
- Tighten fittings to the specified tightening torque.
- When piping, apply a spanner to the piping section on the sensor.



Nominal Thread size	Tightening torque (N•m)
G1/8	3 to 5

3 Installation (continued)

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.

3.3 Lubrication

Caution

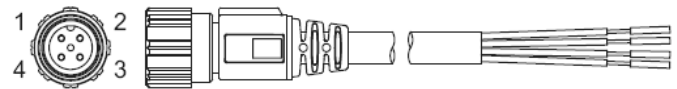
- SMC products have been lubricated for life at manufacture, and do not require lubrication in service.
- If a lubricant is used in the system, refer to the product catalogue for details.

4 Wiring

Wiring should be carried out with the power supply OFF.

4.1 Connector Pin numbers

When the lead wire and connector (ZS-37-A or ZS-37-B) designated for the PSE57# is used, the wire colours will apply as shown in the diagram below.



Pin number	Description	Colour
1	DC(+)	Brown
2	N.C.*	White
3	DC(-)	Blue
4	Analogue output	Black

* The unconnected terminals are used by SMC, so please do not connect them.

• **How to connect the lead wire with connector.**

- Align the lead wire connector with the connector key groove and insert.
- Connection is complete when the knurled part is fully tightened. Check that the connection is not loose.

4 Wiring (continued)

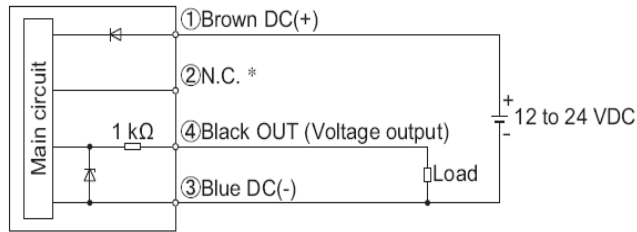
4.2 Internal circuit and wiring

- Output specification

PSE57#-02-X501

Voltage output: 1 to 5 V

Output impedance: Approx. 1 kΩ

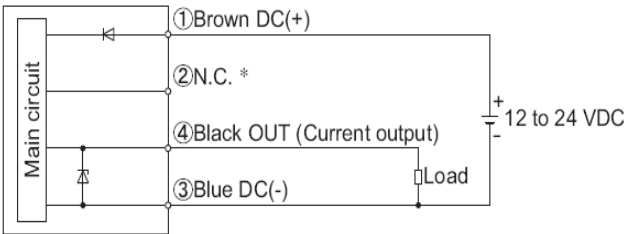


PSE57#-02-28-X501

Current output: 4 to 20 mA

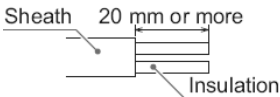
Allowable load impedance: 500 Ω or less (at 24 VDC)

100 Ω or less (at 12 VDC)



4.3 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	
	PSE57#	PSE57#-28
1	Brown (DC+)	Brown (DC+)
2	N.C. *	N.C. *
3	Blue (DC-)	Blue (DC-)
4	Black (IN: 1 to 5 V)	Black (IN: 4 to 20 mA)

*: The unconnected terminals are used by SMC, so please do not connect them.

- 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 the PSE200 / PSE300 series monitor, use the connector for sensor lead wire (ZS-28-CA-4) or an e-CON * connector from the table below.

Manufacturer	Model No.
Sumitomo 3M	37104-3122-000FL
Tyco Electronics	2-1473562-4
OMRON	XN2A-1430

* Refer to the manufacturers e-CON connector catalogue.

5 How to Order

To obtain information about this product, please contact SMC.

6 Outline Dimensions (mm)

To obtain information about this product, please contact SMC.

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 or www.smc.eu for your local distributor / importer.

SMC Corporation

URL : <https://www.smcworld.com> (Global) <https://www.smc.eu> (Europe)

SMC Corporation, 1-5-5, Kyobashi, Chuo-ku, Tokyo 104-0031, JAPAN

Specifications are subject to change without prior notice from the manufacturer.

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