

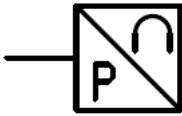


ORIGINAL INSTRUCTIONS

Instruction Manual

Pressure Sensor for General Fluids

PSE570 / 573 / 574 / 575 / 576 / 577



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) <sup>(\*)</sup>, and other safety regulations. <sup>(\*)</sup>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.

	<b>Danger</b>	Danger indicates a hazard with a high level of risk which, if not avoided, will result in death or serious 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>Caution</b>	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.
- Special products (-X) might have specifications which are different from those shown in the Specifications section. Contact SMC for specific drawings.

2 Specifications

2.1 General specifications

Model		PSE57#-#-(28)
Environmental	Enclosure	IP65 (IEC 60529)
	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 Specifications (continued)

2.2 Pressure sensor specifications

Model	PSE 570	PSE 573	PSE 574	PSE 575	PSE 576	PSE 577
Rated Pressure range	0 to 1 MPa	-100 to 100 kPa	0 to 500 kPa	0 to 2 MPa	0 to 5 MPa	0 to 10 MPa
Proof Pressure	3.0 MPa	600 kPa	1.5 MPa	5 MPa	12.5 MPa	30 MPa
Temperature characteristics 0 to 50°C (25°C ref)	±2% F.S.	±3% F.S.	±5% F.S.			
Temperature characteristics -10 to 60°C (25°C ref)	±3% F.S.	±4% F.S.	±5% F.S.			

2.3 Electrical specifications

Model	PSE570/573 /574-#	PSE575/576 /577-#	PSE570/573 /574-#-28	PSE575/576 /577-#-28
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		Current output: 4 to 20 mA
	Output impedance	1 kΩ approx.		500 Ω max. (at 24 VDC) 100 Ω max. (at 12 VDC)
	Accuracy (at 25°C)	±1.0% F.S.	±2.5% F.S.	±1.0% F.S.    ±2.5% F.S.
	Linearity	±0.5% F.S.		
	Repeatability (at 25°C)	±0.2% F.S.	±0.5% F.S.	±0.2% F.S.    ±0.5% F.S.

2.4 Piping Specification

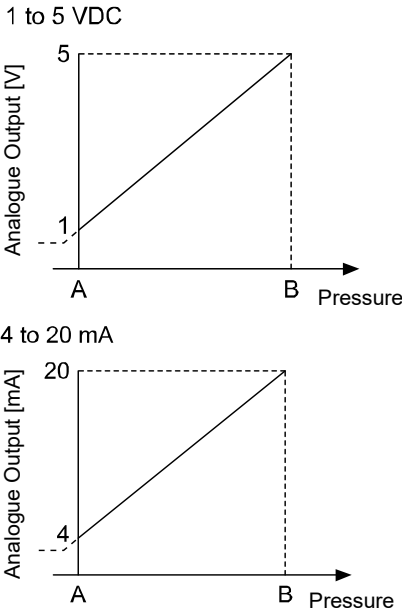
Model		PSE570/573 /574-01	PSE570/573 /574-02	PSE575/576 /577-02
Port size		R1/8, M5 x 0.8	R1/4, M5 x 0.8	
Materials of parts in contact with fluid		Piping port: C3604 + electroless nickel plated Pressure sensor: Al <sub>2</sub> O <sub>3</sub> (aluminium oxide) Sensor O ring: FKM (FKM + Grease for PSE570/573/574)		
Weight	Without lead wire	88 g	95 g	103 g
	With lead wire and connector	175 g	182 g	191 g

2.5 Cable Specification

Model		PSE57#-#-(28)
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		ø4 mm
Cable Length		3 m

2 Specifications (continued)

2.6 Analogue Output



Model	Range	Rated pressure range	A	B
PSE573	Compound pressure	-100 to 100 kPa	-100 kPa	100 kPa
PSE574	Positive pressure	0 to 500 kPa	0	500 kPa
PSE570		0 to 1 MPa		1 MPa
PSE575		0 to 2 MPa		2 MPa
PSE576		0 to 5 MPa		5 MPa
PSE577		0 to 10 MPa		10 MPa

3 Installation

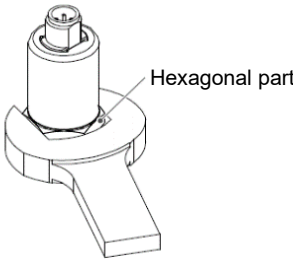
Warning

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.
- When installing piping or fittings, ensure sealant material does not enter inside the port. When using seal tape, leave 1.5 to 2 threads exposed on the end of the pipe/fitting.
- Tighten fittings to the specified tightening torque.
- Only fluids which are non-corrosive to C3604+nickel plated, Al<sub>2</sub>O<sub>3</sub> (aluminium oxide) and FKM should be used.
- When piping, apply a spanner to the piping section on the sensor.



Nominal Thread size	Tightening torque (N•m)
R 1/8	3 to 5
R 1/4	8 to 12

3 Installation (continued)

3.2 Environment

Warning

- Do not use in an environment where corrosive gases, chemicals, salt water, water or steam are present.
- Do not use in a place where the product could be splashed by oil or chemicals.
- Do not use in an area where electrical surges are generated (EMI or Electro Magnetic Interference).
- The product is CE/UKCA marked, but not immune to lightning strikes. Take measures against lightning strikes in the system.
- Do not install in a location subject to vibration or impact in excess of the product specifications.
- Prevent foreign matter such as remnant of wires from entering the Pressure Sensor.
- Do not use the product in an environment that is exposed to temperature cycles.
- Do not expose to direct sunlight. Use a suitable protective cover.
- Use the product within the specified fluid and ambient temperatures range.
- Do not operate close to a heat source, or in a location exposed to radiant heat.

3.3 Lubrication

Caution

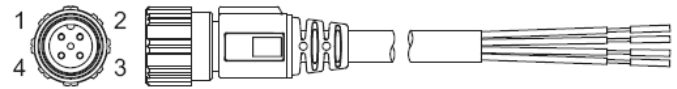
- SMC products have been lubricated for life at manufacture, and do not require lubrication in service.
- If a lubricant is used in the system, refer to the product catalogue for details.

4 Wiring

Wiring should be carried out with the power supply turned OFF.

4.1 Connector Pin numbers

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

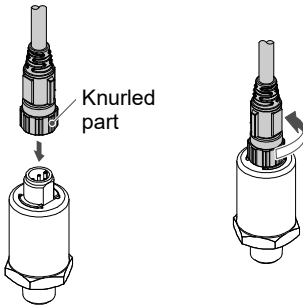


Pin number	Description	Colour
1	DC (+)	Brown
2	N.C. *	White
3	DC (-)	Blue
4	Analogue output	Black

\*: The unconnected terminals are used by SMC, so 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)

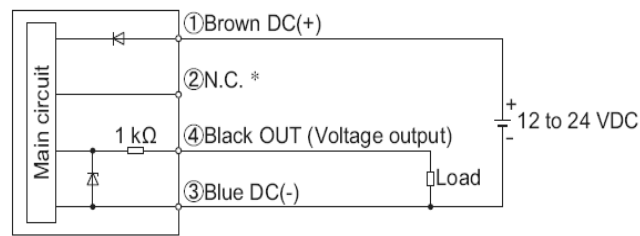
4.2 Internal circuit and wiring

- Output specification

PSE57#-#

Voltage output: 1 to 5 V

Output impedance: Approx. 1 kΩ

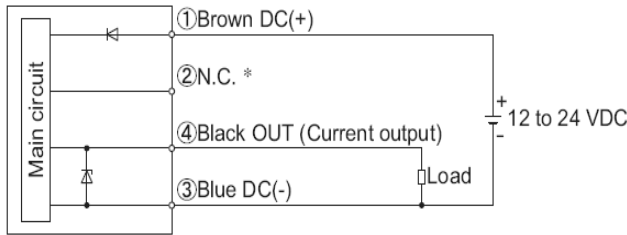


PSE57#-#-28

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 Connection to digital sensor monitor

For connecting the pressure sensor to a digital sensor monitor refer to the product catalogue on the SMC website (URL <https://www.smcworld.com>).

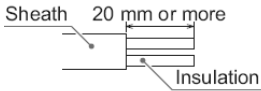
4.4 Attaching a sensor connector to the lead wire

- When connecting the Pressure sensor to the digital sensor monitor use e-Con \* connector from the table below.

Maker	Model No.
SMC Corporation	ZS-28-CA-4
Sumitomo 3M	37104-3122-000FL
Tyco Electronics	2-1473562-4
OMRON	XN2A-1430

\*: Refer to each connector manufacturer for the e-Con connector catalogue.

- The sensor wire sheath should be stripped as shown in the figure.
- Do not cut the insulation.
- The corresponding wire colour shown the table should be pushed fully into the correct pin number marked on the sensor connector.



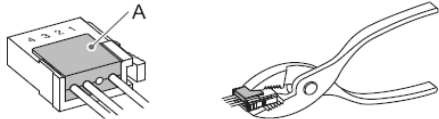
Pin No.	Wire colour	
	PSE57#	PSE57#-28
1	Brown (DC+)	Brown (DC+)
2	N.C. *	N.C. *
3	Blue (DC-)	Blue (DC-)
4	Black (IN: 1 to 5 V)	Black (IN: 4 to 20 mA)

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

- Cable wire colour is applicable when an SMC sensor with lead wire is used.

4 Wiring (continued)

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

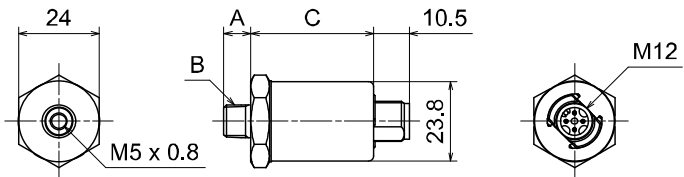


- The sensor connectors cannot be re-used once they have been pressed fully closed. If connection failure or incorrect wiring occurs a new sensor connector must be used.
- When the sensor is not connected correctly, [LLL] will be displayed.

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.

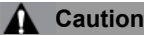
6 Outline Dimensions (mm)



Part No.	A	B	C
PSE570/573/574-01	8	R1/8	36.5
PSE570/573/574-02	12	R1/4	39.7
PSE575/576/577-02			

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