PSE570-TFS30-B

Installation & Maintenance Manual
Pressure Sensor for General Fluids
PSE570/PSE573/PSE574

1 Safety Instructions

This manual contains essential information for the protection of users and others from possible injury and/or equipment damage.
- Read this manual before using the product, to ensure correct handling, and read the manuals of related apparatus before use.
- Keep this manual in a safe place for future reference.
- These instructions indicate the level of potential hazard by label of "Caution", "Warning" or "Danger", followed by important safety information which must be carefully followed.
- To ensure safety of personnel and equipment the safety instructions in this manual and the product catalogue must be observed, along with other relevant safety practices.

⚠ **Caution**	CAUTION indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.
⚠ **Warning**	WARNING indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
⚠ **Danger**	DANGER indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

This product is class A equipment that is intended for use in an industrial environment.
There may be potential difficulties in ensuring electromagnetic compatibility in other environments due to conducted as well as radiated disturbances.

⚠ Warning

- **Do not disassemble, modify (including changing the printed circuit board) or repair.**
  An injury or failure can result.
- **Do not operate the product outside of the specifications.**
  Do not use for flammable or harmful fluids.
  Fire, malfunction, or damage to the product can result.
  Verify the specifications before use.
- **Do not operate in an atmosphere containing flammable or explosive gases.**
  Fire or an explosion can result.
  This product is not designed to be explosion proof.
- **Do not use the product in a place where static electricity is a problem.**
  Otherwise it can cause failure or malfunction of the system.
- **If using the product in an interlocking circuit:**
  - Provide a double interlocking system, for example a mechanical system.
  - Check the product regularly for proper operation.

  Otherwise malfunction can result, causing an accident.
- **The following instructions must be followed during maintenance:**
  - Turn off the power supply.
  - Stop the air supply, exhaust the residual pressure and verify that the air is released before performing maintenance.

  Otherwise an injury can result.

1 Safety Instructions (Continued)

⚠ Caution

- **After maintenance is complete, perform appropriate functional inspections and leak tests.**
  Stop operation if the equipment does not function properly or there is a leakage of fluid.
  When leakage occurs from parts other than the piping, the product might be faulty.
  Disconnect the power supply and stop the fluid supply.
  Do not apply fluid under leaking conditions.
  Safety cannot be assured in the case of unexpected malfunction.
- **Use within the specified operating pressure.**
  Otherwise it can cause damage to the Pressure Sensor or inability to measure correctly.
  If fluid is supplied at a pressure exceeding the proof pressure, the ceramic diaphragm will be damaged which may short circuit the power supply.
  Please use a power supply which includes short circuit protection.

Refer to the operation manual on the SMC website (URL http://www.smcworld.com) for more information about safety instructions.

2 Specifications

Model No.		PSE570	PSE573	PSE574
Pressure spec.	Rated pressure range	0 to 1 MPa	-100 to 100 kPa	0 to 500 kPa
	Withstand pressure	3.0 MPa	600 kPa	1.5 MPa
Temperature characteristics		±2%F.S. (0 to 50 °C) ±3%F.S. (-10 to 60 °C)	±3%F.S. (0 to 50 °C) ±4%F.S. (−10 to 60 °C)	

Model No.		PSE57□-□	PSE57□-□-28
Fluid	Applicable	Gas or liquid that will not attack or corrode the materials of parts in contact with fluid	
Electrical spec.	Power supply voltage	12 to 24 VDC±10% with 10% voltage ripple or less	
	Current consumption	10 mA or less	
	Protection	Protected against inverse connection	
Analogue output	Output type	Analogue output: 1 to 5 V Output impedance: Approx. 1 kΩ	Analogue output: 4 to 20 mA Maximum load impedance: 500 Ω or less (at 24 VDC) 100 Ω or less (at 12 VDC)
Analogue output Accuracy (Ambient temperature at 25 °C)		±1.0%F.S.	
Linearity		±0.5%F.S.	
Repeatability		±0.2%F.S.(at 25 °C)	
Environ mental	Enclosure	IP65	
	Withstand voltage	500 VAC, 1 minute, Between lead block and case	
	Insulation resistance	100 MΩ or more at 500 VDC Between lead block and case	
	Operating temperature range	Operation: −10 to 60 °C, Storage: −20 to 70 °C (No condensation or freezing)	
	Operating humidity range	Operation, Storage: 35 to 85%RH (No condensation)	
Standard		CE, RoHS	

2 Specifications (Continued)

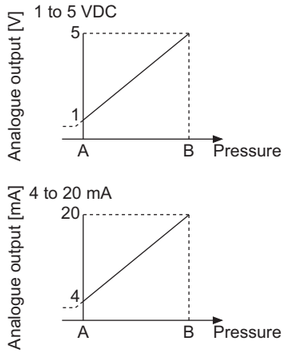
- **Piping specifications**

Model No.		01	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_2O_3 (aluminum oxide) O ring: FKM + Grease	
Weight	Without lead wire and M12 connector	88 g	95 g
	With lead wire and M12 connector	175 g	182 g

- **Cable Specifications**

Conductor	Nominal cross section area	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
Finished outside diameter		ø4
Length		3 m

- **Analogue output**



Range	Rated pressure range	A	B
For compound pressure	-100 to 100 kPa	-100 kPa	100 kPa
For positive pressure	0 to 1 MPa	0	1 MPa
	0 to 500 kPa	0	500 kPa

3 Installation

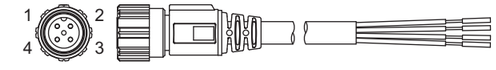
3-1 Wiring

- **Connector Pin numbers**

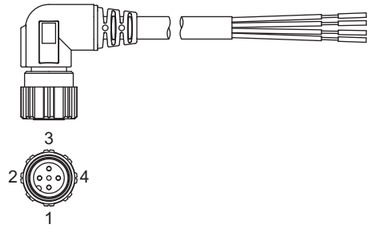
When the lead wire and connector (ZS-37-A) designated for the PSE570 is used, the wire colours will apply as shown in the diagram.

Connector Pin numbers (on the lead wire)

•ZS-37-A



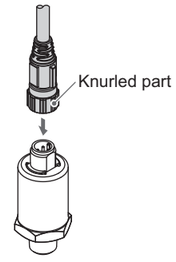
•ZS-37-B

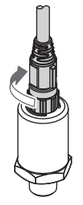


Pin number	Description	Colour
1	DC(+)	Brown
2	N.C. *	White
3	DC(−)	Blue
4	Analogue output	Black

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

- **How to connect the body and the lead wire and 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.





3 Installation (Continued)

•Use of Sensors with Controllers

•Refer to the following table for pressure sensor compatibility with pressure sensor controllers.

•Refer to the Operation Manual of each pressure sensor controller for handling.

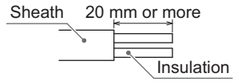
Pressure sensor controller No.	PSE20∗ series	PSE30∗ series	PSE31∗ series
Pressure sensor No.	PSE570-□ PSE573-□	PSE570-□ PSE573-□ PSE574-□	PSE570-□-28 PSE573-□-28 PSE574-□-28

•Attaching the connector to the lead wire

•Sensor wire is stripped as shown in the right 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.

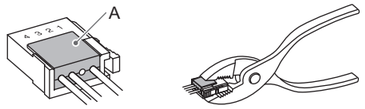


Pin No.	Wire colour	
	PSE57□	PSE57□-28
1	Brown (DC+)	Brown (DC+)
2	N.C. ∗	N.C. ∗
3	Blue (DC–)	Blue (DC–)
4	Black (IN: 1 to 5 V)	Black (IN: 4 to 20 mA)

∗: The unconnected terminals are used in SMC, so please do not connect them.

•Check that the above mentioned preparation has been performed correctly, then press part A shown 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 connector to PSE200/PSE300 series, please use the connector for sensor lead wire (ZS-28-CA-4) or e-CON as below.

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

•Refer to the manufacturers e-CON catalogue.

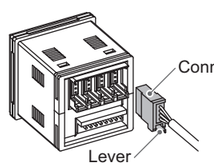
•Connector

Connecting/Disconnecting

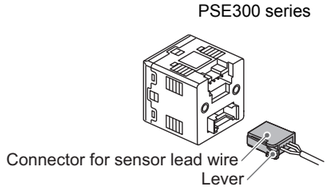
•When attaching the connector insert it straight onto the pins whilst holding the lever, and press into the housing until it clicks.

•To remove the connector press down the lever to disengage the lever claw and pull the connector straight out.

PSE200 series



PSE300 series



3 Installation (Continued)

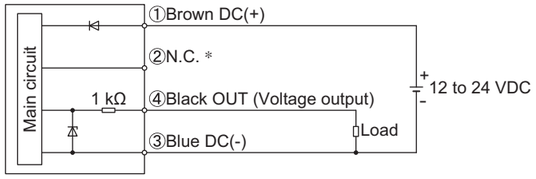
•Internal circuit and wiring example

•Output specification

PSE57□-□

Voltage output: 1 to 5 V

Output impedance: Approx. 1 kΩ

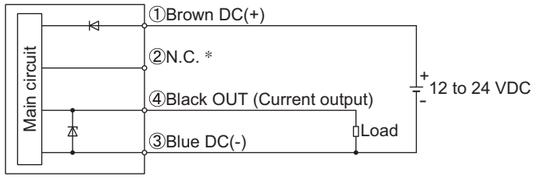


PSE57□-□-28

Current output: 4 to 20 mA

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

100 Ω or less (at 12 VDC)



∗: The unconnected terminals are used in SMC, so please do not connect them.

4 How to Order

PSE57 [0] - [01] - [ ] [ ]

Sensor range

Symbol	Content
0	Positive pressure (0 to 1 MPa)
3	Compound pressure (-100 to 100 kPa)
4	Positive pressure (0 to 500 kPa)

Port size

Symbol	Content
01	R1/8 (with M5 female thread)
02	R1/4 (with M5 female thread)

Lead wire/Option

Symbol	Content
Nil	With lead wire (3 m) and M12 straight connector
L	With lead wire (3 m) and M12 right angle connector
N	None

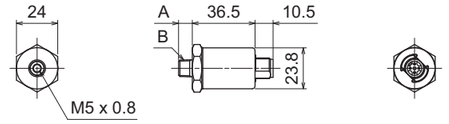
Output spacification

Symbol	Content
Nil	Voltage output type (1 to 5 V)
28	Current output type (4 to 20 mA)

•Option

Description	Part No.	Remarks
Lead wire (3 m) and M12 strsight connector	ZS-37-A	1 pc.
Lead wire (3 m) and M12 right angle connector	ZS-37-B	1 pc.
Connector for pressure sensor controller	ZS-28-CA-4	1 pc.
Adapter with throttle Rc1/4	ZS-31-X175	1 pc.
Adapter with throttle Rc1/8	ZS-31-X188	1 pc.

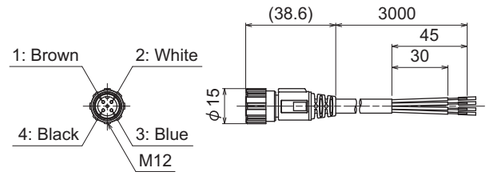
5 Outline Dimensions (mm)



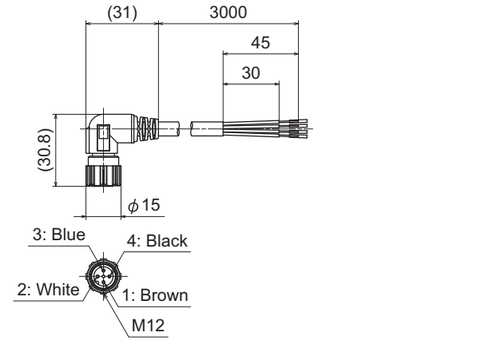
Model No.	A	B
PSE57□-01	8	R1/8
PSE57□-02	12	R1/4

•Lead wire and M12 connector

ZS-37-A

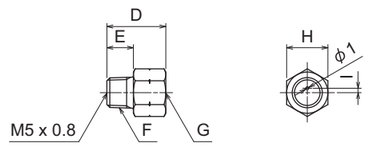


ZS-37-B



•Adapter with throttle

ZS-31-X□□□



Model No.	D	E	F	G	H	I
ZS-31-X188	20	9	R1/8	Rc1/8	14	1.5
ZS-31-X175	29	13	R1/4	Rc1/4	17	1.6

6 Contacts

AUSTRIA	(43) 2262 62280-0	LATVIA	(371) 781 77 00
BELGIUM	(32) 3 355 1464	LITHUANIA	(370) 5 264 8126
BULGARIA	(359) 2 974 4492	NETHERLANDS	(31) 20 531 8888
CZECH REP.	(420) 541 424 611	NORWAY	(47) 67 12 90 20
DENMARK	(45) 7025 2900	POLAND	(48) 22 211 9600
ESTONIA	(372) 651 0370	PORTUGAL	(351) 21 471 1880
FINLAND	(358) 207 513513	ROMANIA	(40) 21 320 5111
FRANCE	(33) 1 6476 1000	SLOVAKIA	(421) 2 444 56725
GERMANY	(49) 6103 4020	SLOVENIA	(386) 73 885 412
GREECE	(30) 210 271 7265	SPAIN	(34) 945 184 100
HUNGARY	(36) 23 511 390	SWEDEN	(46) 8 603 1200
IRELAND	(353) 1 403 9000	SWITZERLAND	(41) 52 396 3131
ITALY	(39) 02 92711	UNITED KINGDOM	(44) 1908 563888

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