PSE##-TFI54GB-A

Installation & Maintenance Manual
Low Differential Pressure Sensor
Series PSE550

Safety Instructions

The Pressure Sensor and this manual contain essential information for the protection of users and others from possible injury and property damage and to ensure correct handling.
Please check that you fully understand the definition of the following messages (signs) before going on to read the text, and always follow the instructions.

IMPORTANT MESSAGES	
Read this manual and follow its instructions. Signal words such as WARNING and NOTE will be followed by important safety information that must be carefully reviewed.	
⚠WARNING	Indicates a potentially hazardous situation that could result in death or serious injury if you do not follow instructions.
NOTE	Gives you helpful information.

⚠WARNING

Do not disassemble, modify (including change of printed circuit board) or repair.
An injury or failure can result.

Do not operate outside of the specification range.
Fire, malfunction or sensor damage can result.
Please use after confirming the specification.

Do not operate in atmosphere of an inflammable, explosive or corrosive gas.
Fire, an explosion and corrosion can result.
This pressure sensor is not an explosion proof type.

Do not use this product in a place where static electricity is a problem.

NOTE

Follow the instructions given below when handling the pressure sensor. Otherwise, the sensor may be damaged or may fail, thereby resulting in malfunction.
- Do not drop, bring into collision with other objects or apply excessive shock to the unit (300m/s^2 or more).
- Do not pull the lead wire with force or lift the main unit by holding the lead wire. (Pulling strength less than 50N)
- Do not insert wire or other articles into the pressure port.
- Do not use in a place where oil or chemical splashes may occur.
- Connect wires and cable correctly.
- Do not perform wiring while power is on.
- Do not wire with power cable or high-voltage cable in the same wire route.
- Connect Terminal FG to ground when using a switching regulator obtained on the commercial market.
- Do not apply unnecessary forces such as twisting, pulling, moment loads, etc. on fittings or tubing.
- When the tube of another manufacturer is used, ensure the tube inside diameter is within ±0.3mm.
- Insert tubing correctly to avoid air leakage. (Tensile strength is approx. 25N for 8mm tube insertion length).
- This pressure sensor is for air only.
  Please contact with SMC if you need to use the sensor with another fluid.

EMC Directives 89/336/EEC
EN61000-6-2:2001 Electromagnetic Compatibility (EMC). Generic standards - Immunity for industrial environments.
EN55011+A1:1998 Limits and methods of measurement of radio disturbance characteristics of industrial, scientific and medical radio-frequency equipment and light industrial environments.

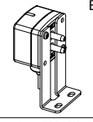
Model Indication Method

PSE550 – □ – □ – □ – □

Output specifications

Nil	Voltage output type 1 to 5V
28	Current output type 4 to 20mA

Option1(Bracket)

Nil	Without Bracket
A	

Note1) The bracket (ZS-30-A) is not assembled in the factory, but is packed together for shipment.

Option2(Connector)

Nil	Without
C2	Connector for PSE300 Sensor controller (ZS-28-C) 1pc.

Note1) Current output type (PSE550-28) cannot be connected to the PSE300 controller.
Note2) The connector is not assembled in the factory but is packed together for shipment.

Option3(Rated Pressure)

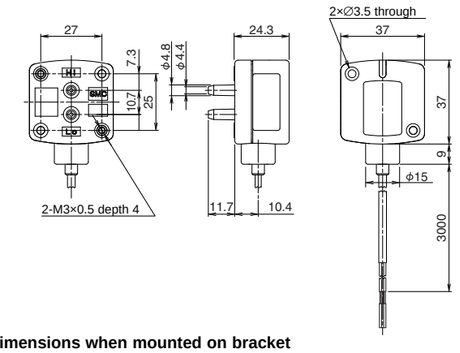
Nil	0-2kPa (standard)
X500	0-250Pa
X501	0-500Pa
X502	0-1kPa
X505	0-5kPa

(Contact SMC for details)

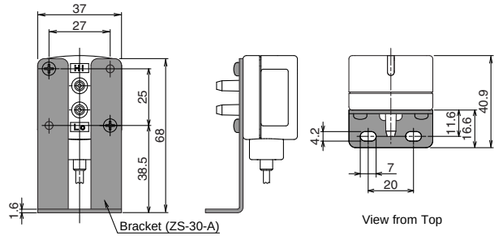
Description	Part No.	Note
Bracket	ZS-30-A	With M3 x 5L (2 pcs.)
Connector for PSE300	ZS-28-C	1 pc.

Outline with Dimensions (in mm)

Dimensions of Pressure sensor



Dimensions when mounted on bracket



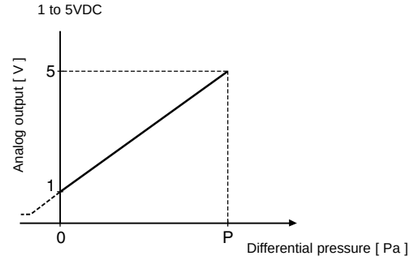
Specification

		PSE550	PSE550-28
Rated Pressure Range		0 to 2kPa (standard)	
Operating Pressure Range		-50 to 50kPa Note)	
Proof Pressure		65kPa	
Fluids		Air, Non-corrosive gases, Non-flammable gases	
Power Supply Voltage		12 to 24VDC, ripple (p-p)10% or less (Protection against inverse connection)	
Current Consumption		15mA or less	–
Output Spec.		Analog output: 1 to 5V Output inpedance: Approx. 1kΩ	Analog output: 4 to 20mA Allowable load inpedance: 500Ω or less (Power supply 24V) 100Ω or less (Power supply 12V)
Accuracy		±1%F.S. or less (25℃)	
Linearity		± 0.5%F.S. or less	
Temp.Characteristic		±3%F.S. or less (25℃)	
Repeatability		±0.3%F.S. or less	
Environment	Enclosure	IP40 (IEC 60529)	
	Insulation Resistance	50MΩ or more (500VDC M) (Between wires and case)	
	Withstand Voltage	1000VAC or more, 50/60Hz, 1 minute (Between wires and case)	
	Operation Temp. Range	Operation: 0 to 50℃, Storage: -20 to 70℃ (No condensation or no freezing)	
	Operation Humidity Range	Operation, Storage: 35 to 85%RH (No condensation)	
	Vibration Proof	10 to 150Hz 1.5mm or 100m/s^2 acceleration, 2 hours each directions of X,Y and Z	
	Impact Proof	300m/s^2, 3 times each in directions of X,Y and Z respectively	
Port Size		ϕ4.8 (ϕ4.4 at the end) Moulded pipe (Corresponding to air tube I.D. ϕ4)	
Material		Case: PBT, Pressure Sensor: silicon	

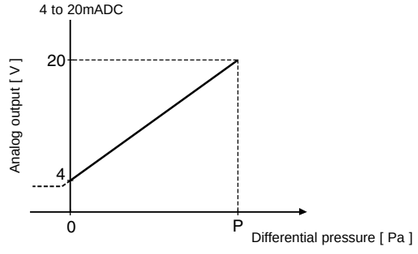
Note) Can detect differential presssure from 0 to 2kPa within the range of -50 to 50kPa.

Analog output

1 to 5VDC



4 to 20mADC

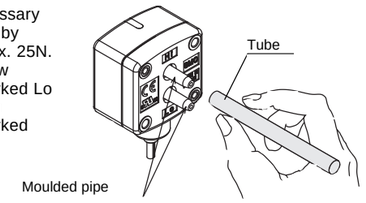


Model	P (Pa)
Standard	2000
-X500	250
-X501	500
-X502	1000
-X505	5000

Installation

Piping connections

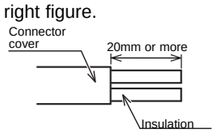
Cut the tube perpendicularly.
Hold the tube and insert it on to the moulded piping firmly by 8mm or more from the end.
The pulling force necessary for the piping inserted by 8mm or more is approx. 25N.
Insert the piping for low pressure to piping marked Lo and the piping for high pressure to piping marked Hi.



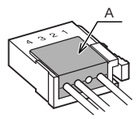
Installation (continue)

Attaching the connector to the lead wire

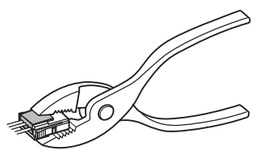
- Strip the sensor wire as shown in the right figure.
- The core of the corresponding color shown in the following table is put into the pin of the number printed on the e-con connector and pushed to the back.



Pin No.	Color of Insulation
1	Brown (DC+)
2	N.C.
3	Blue (DC -)
4	Black (IN:1 to 5VDC)



- Check that the above-mentioned preparation work has been performed correctly, then part A shown in the figure is pushed in by hand to make temporary connection.
- Part A center is pressed straight in using a tool, such as pliers.
- Re-use cannot be performed once the e-con connector has been completely crimped.
- In case of connection failure such as incorrect order of wires or incomplete insertion, please use a new e-con connector.
- When connecting to PSE300 controller, please use the connector for sensor (ZS-28-C) or e-CON as detailed below.



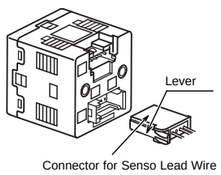
Manufacturer	Model No.
(c)Sumitomo 3M	37104-3101-000FL
Tyco Electronics AMP	1-1473562-4
OMRON	XN2A-1430

- Please contact the connector manufacturer about e-CON catalogue.

Connector Connecting/Disconnecting

- When connecting the connector, insert it straight onto the pins holding the lever and connector body, and lock the connector by pushing the lever claw into the square groove in the housing until connector clicks.
- When disconnecting the connector, press the connector lever to disengage the lever claw from the square groove. Then pull the connector straight out.

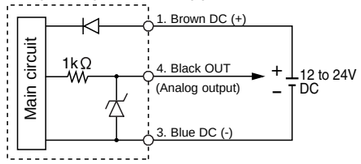
PSE300 Series



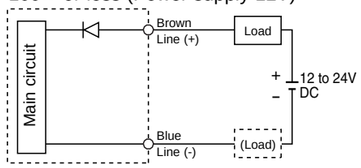
Internal Circuit and Wiring

Output Specification

PSE550-☐
Voltage output: 1 to 5V (±1%F.S.)
Output impedance: Approx. 1kΩ



PSE550-28-☐
Current output: 4 to 20mA (±1%F.S.)
Allowable load impedance:
500Ω or less (Power supply 24V)
100Ω or less (Power supply 12V)



*Connect load to either Power supply voltage LINE(+) or LINE(-).

☐
SMC Corporation
URL http://www.smcworld.com

Phone

AUSTRIA / (43) 2262-62 280
BELGIUM / (32) 3-355 1464
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DENMARK / (45) 70 25 29 00
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