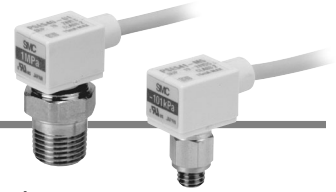
Compact Pressure Sensor for Pneumatics

Series PSE540



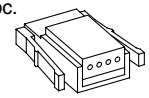
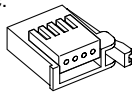
How to Order

Pressure sensing range

1	Vacuum (0 to –101 kPa)
3	Compound pressure (–100 to 100 kPa)

PSE54 [1] – [M3] – [ ]

Options (Connector)

Nil	C1	C2
Without	Connector for PSE200 multiple channel pressure controller 1 pc. 	Connector for PSE300 multiple channel pressure controller 1 pc. 

Note) At the factory, the connector is not connected to the cable, but packed together with it for shipment.

Port size

M3	M3 x 0.5	
M5	M5 x 0.8	
01	R1/8 (with M5 female thread)	
N01	NPT1/8 (with M5 female thread)	
R04	ø4 plug-in reducer	
R06	ø6 plug-in reducer	

IM5	M5 female thread, through type	
IM5H	M5 female thread, through type (with mounting hole)	

Options/Part No.

Description	Part no.	Note
Connector for PSE200	ZS-26-E-4	1 pc.
Connector for PSE300	ZS-28-C	1 pc.

Specifications

Conforms to CE marking and UL (CSA) standards.

Model		PSE541	PSE543
Rated pressure range		0 to –101 kPa	–100 to 100 kPa
Proof pressure		500 kPa	
Fluid		Air, No-corrosive gas, Non-flammable gas	
Power supply voltage		12 to 24 VDC ±10%, Ripple (p-p) 10% or less (with power supply polarity protection)	
Current consumption		15 mA or less	
Output specification		Analog output 1 to 5 V (within rated pressure range), Output impedance: Approx. 1 kΩ	
Accuracy (ambient temperature of 25°C)		±2%F.S. or less	
Linearity		±0.4%F.S. or less	
Repeatability		±0.2%F.S. or less	
Power supply voltage effect		±0.8%F.S. or less	
Resistance	Enclosure	IP40	
	Operating temperature range	Operating: 0 to 50°C, Stored: –20 to 70°C (with no condensation and no freezing)	
	Operating humidity range	Operating/Stored: 35 to 85%RH (with no condensation)	
	Withstand voltage	1000 VAC, 50/60 Hz for 1 minute between live parts and case	
	Insulation resistance	50 MΩ between live parts and case (at 500 VDC)	
	Vibration resistance	10 to 500 Hz at whichever is smaller of 1.5 mm amplitude or 98 m/s^2 acceleration, in X, Y, Z directions, for 2 hours each (de-energized)	
	Impact resistance	980 m/s^2 in X, Y, Z directions, 3 times each (de-energized)	
Temperature characteristics		±2%F.S. or less (based on 25°C)	

Piping specification

Model		M3	M5	01	N01	R04	R06	IM5	IM5H
Port size		M3 x 0.5	M5 x 0.8	R1/8 M5 x 0.8	NPT1/8 M5 x 0.8	ø4 plug-in reducer	ø6 plug-in reducer	M5 female thread, through type	M5 female thread, through type (with mounting hole)
Material	Case	Resin case: PBT Fitting: SUS303		Resin case: PBT Fitting: C3604BD		PBT		Resin case: PBT Fitting: A6063S-T5	
	Pressure sensing section	Pressure sensor: Silicon, O-ring: NBR							
Sensor cable		3 wire oval cable (0.15 mm^2)							
Weight	With sensor cable	42.4 g	42.7 g	49.3 g		41.4 g	41.6 g	43.3 g	44.1 g
	Without sensor cable	2.9 g	3.2 g	9.8 g		1.9 g	2.1 g	3.8 g	4.6 g

Pressure Sensor Controller

Series PSE300

How to Order

Input/Output specifications

0	NPN2 output + 1-5 V output
1	NPN2 output + 4-20 mA output
2	NPN2 output + Auto shift input
3	PNP2 output + 1-5 V output
4	PNP2 output + 4-20 mA output
5	PNP2 output + Auto shift input

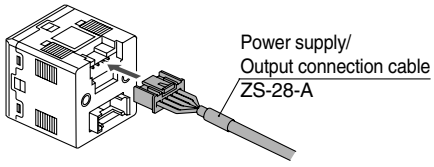
Unit specifications

Nil	With unit display switching function
M	Fixed SI unit Note)

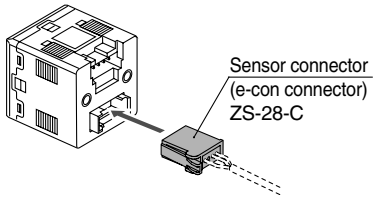
Note) Fixed units
For vacuum & low pressure & low differential pressure & compound pressure: kPa
Positive pressure: MPa (for 1 MPa)
kPa (for 500 kPa)

PSE30 0 — M □ □ □

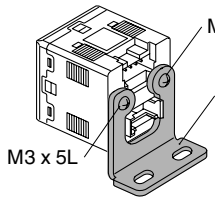
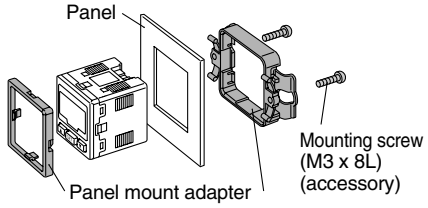
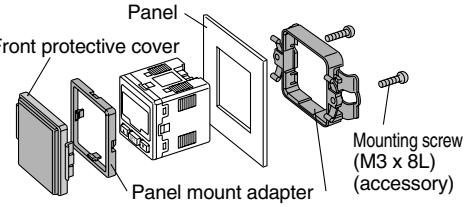
Option 1

Nil	Without cable
L	Power supply/Output connection cable 

Option 3

Nil	Without connector
C	Sensor connector 

Option 2

Nil	Without bracket/panel mount adapter/front protective cover
A	Bracket 
B	Panel mount adapter 
D	Panel mount adapter + Front protective cover 

Options/Part No.

Description	Part no.	Note
Power supply/Output connection cable	ZS-28-A	
Bracket	ZS-28-B	With M3 x 5L (2 pcs.)
Sensor connector	ZS-28-C	1 pc.
Panel mount adapter	ZS-27-C	With M3 x 8L (2 pcs.)
Panel mount adapter + Front protective cover	ZS-27-D	With M3 x 8L (2 pcs.)

Specifications

Conforms to CE marking and UL (CSA) standards.

Model		PSE30□					
Rated pressure range		–101 to 101 kPa	10 to –101 kPa	–10 to 100 kPa	–0.1 to 1 MPa	–50 to 500 kPa	–0.2 to 2.00 kPa
Power supply voltage		12 to 24 VDC ±10%, Ripple (p-p) 10% or less (with power supply polarity protection)					
Current consumption		50 mA or less (Current consumption for sensor is not included.)					
Sensor input		1 to 5 VDC (Input impedance: 1 MΩ)					
	No. of inputs	1 input					
	Input protection	With excess voltage protection (up to 26.4 V)					
Hysteresis		Hysterisis mode: Variable, Window comparator mode: Variable					
Switch output		NPN or PNP open collector output: Two outputs					
	Maximum load current	80 mA					
	Maximum load voltage	30 VDC (at NPN output)					
	Residual voltage	1 V or less (with load current of 80 mA)					
	Output protection	With short circuit protection					
Response time		1 ms or less					
	Anti-chattering function	Response time settings for anti-chattering function: 20 ms, 160 ms, 640 ms, 1280 ms					
Repeatability		±0.1%F.S. or less					
Analog output	Voltage output Note 1)	Output voltage: 1 to 5 V (within rated pressure range), Output impedance: Approx. 1 kΩ Linearity: ±0.2%F.S. (not including sensor accuracy), Response speed: 150 ms or less					
	Accuracy (to display value) (25°C)	±0.6%F.S. or less			±1.0%F.S. or less		±1.5%F.S. or less
	Current output Note 1)	Output current: 4 to 20 mA (within rated pressure range) Maximum load impedance: 300 Ω (at 12 VDC), 600 Ω (at 24 VDC), Minimum load impedance: 50 Ω Linearity: ±0.2%F.S. (not including sensor accuracy), Response time: 150 ms or less					
	Accuracy (to display value) (25°C)	±1.0%F.S. or less			±1.5%F.S. or less		±2.0%F.S. or less
Display accuracy (ambient temperature of 25°C)		±0.5%F.S. ±2 digits or less	±0.5%F.S. ±1 digit or less				
Display		3 + 1/2-digit, 7-segment indicator, 2-color display (Red/Green), Sampling frequency: 5 times/sec					
Indication light		OUT1: Lights up when ON (Green), OUT2: Lights up when ON (Red)					
Auto shift input Note 1)		Non-voltage input (reed or solid state), Low level input: 5 ms or more, Low level: 0.4 V or less					
Resistance	Enclosure	IP40					
	Operating temperature range	Operating: 0 to 50°C, Stored: –10 to 60°C (with no condensation and no freezing)					
	Operating humidity range	Operating/Stored: 35 to 85%RH (with no condensation)					
	Withstand voltage	1000 VAC for 1 minute between live parts and case					
	Insulation resistance	50 MΩ between live parts and case (at 500 VDC)					
	Vibration resistance	10 to 150 Hz at whichever is smaller of 1.5 mm amplitude or 98 m/s² acceleration, in X, Y, Z directions, for 2 hours each (de-energized)					
	Impact resistance	100 m/s² in X, Y, Z directions, 3 times each (de-energized)					
Temperature characteristics		±0.5%F.S. or less (based on 25°C)					
Connection		Power supply/Output connection: 5 P connector, Sensor connection: 4 P connector					
Material		Front case: PBT, Rear case: PBT					
Weight	With power supply/output connection cable	85 g					
	Without power supply/output connection cable	30 g					

Note 1) Auto shift function is not available when analog output option is selected.
Also, analog output option is not available when auto shift function is selected.

Note 2) The following units can be selected with unit conversion function:
For vacuum & compound pressure: kPa·kgf/cm²·bar·psi·mmHg·inHg
For positive pressure & low pressure: MPa·kPa·kgf/cm²·bar·psi
For low differential pressure: kPa·mmH₂O

Applicable pressure sensor	For compound pressure	For vacuum	For low pressure	For positive pressure		For differential pressure
	PSE533 Note 4) **PSE543** **PSE563**	**PSE531** Note 4) **PSE541** **PSE561**	**PSE532** Note 4)	**PSE564**	**PSE530** Note 4) **PSE560**	–
Regulating pressure range	–101 to 101 kPa	10 to –101 kPa	–10 to 100 kPa	–50 to 500 kPa	–0.1 to 1 MPa	–0.2 to 2.00 kPa
Regulating pressure resolution	0.2 kPa	0.1 kPa	0.1 kPa	1 kPa	0.001 MPa	0.01 kPa

Note 4) Series PSE530 pressure sensors are also applicable.
Contact SMC for more information.