

Remote Type Pressure Sensors/ Pressure Sensor Controllers

New



Series PSE

 **SMC**
CAT.ES100-56C

Series PSE Variations

		Pressure Sensors					Controllers			
Model		PSE530 P.3	PSE540 P.6	PSE550 P.9	PSE560 P.12	PSE570 P.15	PSE200 P.18	PSE300 P.24		
Basic Specifications	Fluid	Air		General fluids						
	Rated pressure range (Minimum display)									
	Repeatability	±1 % (F.S.)	±0.2 % (F.S.)	±0.3 % (F.S.)	±0.2 % (F.S.)		±0.1 % (F.S.)			
	Voltage	12 to 24 VDC								
	No. of outputs for switch						5 outputs	2 outputs		
	Analog output	1 to 5 V		1 to 5 V 4 to 20 mA			1 to 5 V 4 to 20 mA			
	Operating temp.	0 to 50°C			−10 to 60°C		0 to 50°C			
Functions	Digital display							1-color 2-color		
	Enclosure	IP40			IP65		Front face IP65 Others IP40	IP40		
	Wiring	Connector	Grommet			Connector	Connector			
	Major setting function							Keylock, Peak/Bottom values holding, Auto-preset, Auto-shift, Display calibration, Anti-chattering		
Others	Connection threads	M reducer	M R, NPT reducer	Resin piping	R, NPT, Rc URJ, TSJ*	R				
	Int'l standards	CE	CE, UL, CSA			CE	CE	CE, UL, CSA		
	Wiring	e-con								
		Flexible cable								
	Mounting	Direct								
		With bracket								
		Panel mount								
		DIN rail								

* URJ (VCR® fitting compliant), TSJ (Swagelok® fitting compliant)

Pressure Sensors/Series PSE5□□

	PSE53□	PSE54□	PSE55□	PSE56□	PSE57□ New
Rated pressure range					
	-100 kPa	0	100 kPa	500 kPa	1 MPa
Vacuum	-101 kPa	0			
Compound pressure	-100 kPa	100 kPa			
Positive pressure	0	100 kPa		PSE532	—
	0	500 kPa		—	—
Low differential pressure	0	2 kPa		PSE530	PSE540
	0	2 kPa		—	—
	0	2 kPa		PSE560	PSE570
	0	2 kPa		—	—

Pressure Sensor Controllers/Series PSE200/300

					PSE200	PSE300	Input/Output specifications
					Input/Output specifications	Set/Display resolution	
PSE531	PSE541	—	PSE561	—	0.1 kPa	0.1 kPa	
PSE533	PSE543	—	PSE563	PSE573	0.1 kPa	0.2 kPa	
PSE532	—	—	—	—	0.1 kPa	0.1 kPa	
—	—	—	PSE564	PSE574	—	1 kPa	
PSE530	PSE540	—	PSE560	PSE570	0.001 MPa	0.001 MPa	
—	—	PSE550	—	—	—	0.01 kPa	

Main Functions (For details, refer to pages 31 to 33.)

Keylock	Locks the keys from functioning.
Peak/Bottom values holding	Displays the maximum and minimum values being set and can keep those values on the display.
Auto-preset	Able to set the pressure automatically. In the case of suction verification, it memorizes the pressure when adsorbed and released. By repeating several times, the optimum values are calculated automatically.
Auto-shift	Stable switch output is available even though the supply pressure may fluctuate. Automatically corrects the set value in accordance with the fluctuations in the supply pressure.
Display calibration	Able to adjust the displayed value ($\pm 5\%$) and justify distribution of the values displayed on respective pressure switch.
Anti-chattering	Prevents malfunction due to sharp pressure fluctuations. The detection of momentary pressure fluctuation as abnormal pressure can be prevented by changing the setting of the response time.



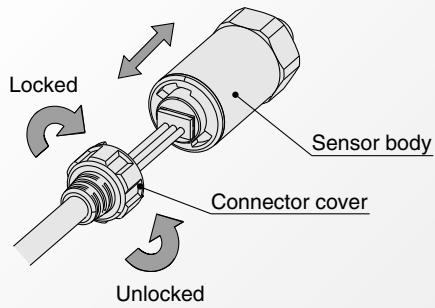
Compact Pneumatic Pressure Sensor

Series *PSE530*



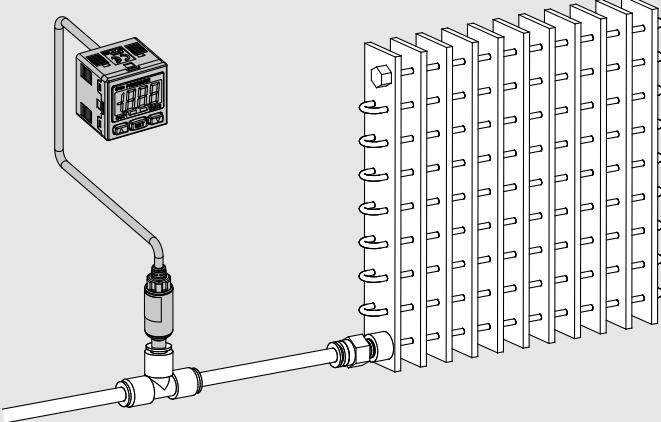
Series	Rated pressure range				
	-100 kPa	0	100 kPa	500 kPa	1 MPa
PSE530		0		500 kPa	1 MPa
PSE531	-101 kPa	0			
PSE532		0	101 kPa		
PSE533	-101 kPa		101 kPa		

Connector type



Application example

Leak test of radiator
Series PSE532 + PSE300



Low pressure sensor (PSE532-□) is used to detect minute differentiations.
Auto-shift function reduces influence of fluctuations in the supply pressure.

Applications

Pressure Sensor Series PSE530

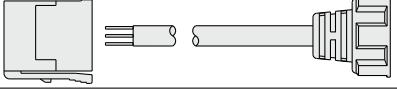


How to Order

PSE53 **0** - **M5** -

Sensor range	
0	Positive pressure [0 to 1 MPa]
1	Vacuum [0 to -101 kPa]
2	Low pressure [0 to 101 kPa]
3	Compound pressure [-101 to 101 kPa]

Port size	
M5	M5 x 0.8
R06	ø6 reducer
R07	1/4 inch reducer

Nil	None
	Sensor cable (3 m)
L	
C2L	Connector for pressure sensor controller (1 pc.) + Sensor cable (3 m) 

Note) The connector is not attached to the cable, but is included with the shipment.

Option/Part No.

When only optional parts are required, order using the part numbers listed below.

Description	Part no.	Note
Connector for pressure sensor controller	ZS-28-C	1 pc. per set
Sensor cable	ZS-26-F	Cable length: 3 m
Connector for pressure sensor controller + Sensor cable	ZS-26-J	Cable length: 3 m The connector is not attached to the cable at the time of shipment.

For Pressure Switch Precautions and Specific Product Precautions, refer to "Handling Precautions for SMC Products" and the Operation Manual on SMC website.

Specifications

Model	PSE530 (Positive pressure)	PSE531 (Vacuum)	PSE532 (Low pressure)	PSE533 (Compound pressure)			
Rated pressure range	0 to 1 MPa	0 to -101 kPa	0 to 101 kPa	-101 to 101 kPa			
Extension analog output range	-0.1 to 0 MPa	10.1 to 0 kPa	-10.1 to 0 kPa	—			
Proof pressure	1.5 MPa		500 kPa				
Applicable fluid	Air/Non-corrosive gas/Non-flammable gas						
Power supply voltage	12 to 24 VDC ±10%, Ripple (p-p) 10% or less (with reverse connection protection)						
Current consumption	15 mA or less (with no load)						
Output specifications	Analog output 1 to 5 V (within rated pressure range), 0.6 to 1 V (within extension analog output range), Output impedance: Approx. 1 kΩ						
Accuracy (Ambient temperature at 25°C)	±2% F.S. (within rated pressure range), ±5% F.S. (within extension analog output range)						
Linearity	±1% F.S.						
Repeatability	±1% F.S.						
Power supply voltage effect	±1% F.S. based on the analog output at 18 V ranging from 12 to 24 VDC						
Environment	Enclosure	IP40					
	Temperature range	Operating: 0 to 50°C; Stored: -10 to 70°C (No freezing or condensation)					
	Withstand voltage	1000 VAC (in 50/60 Hz) for 1 minute between terminals and housing					
	Insulation resistance	5 MΩ or more (500 VDC measured via megohmmeter) between terminals and housing					
Temperature characteristics							
±2% F.S. (25°C reference)							
Sensor cable/Option							
Halogen-free heavy-duty cable, 3 cores, ø2.7, 3 m, Conductor area: 0.15 mm², Insulator O.D.: 0.8 mm							
Standards							
CE, RoHS							

Piping Specifications

Model	M5	R06	R07
Port size	M5 x 0.8 male thread	ø6 reducer type	1/4 inch reducer type
Materials of parts in contact with fluid	Pressure sensor: Silicon, O-ring: NBR		
	Body: Stainless steel 304	Body: PBT	
Weight	With sensor cable (3 m)	41 g	38 g
	Without sensor cable	7 g	3.8 g

Controller
PSE300 PSE200

PSE530

PSE550

PSE560 PSE570

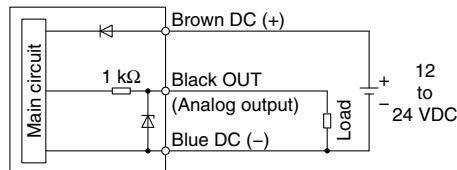
PSE550

Series PSE530

Internal Circuit and Wiring Example

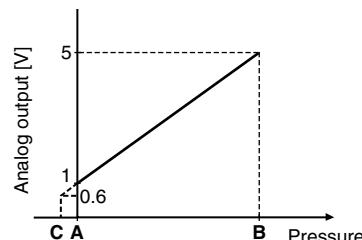
PSE53□

Voltage output type
1 to 5 V
Output impedance
Approx. 1 kΩ



Analog Output

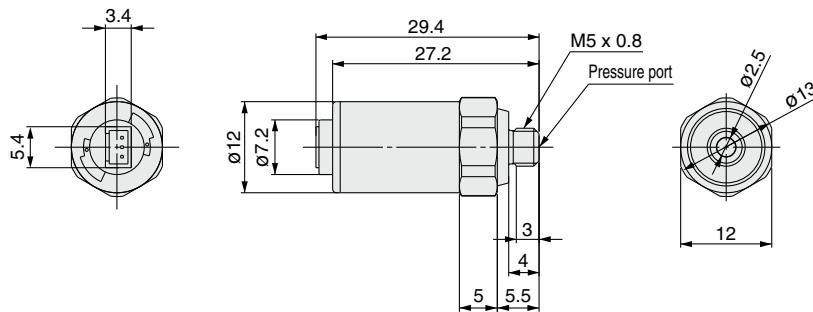
1 to 5 VDC



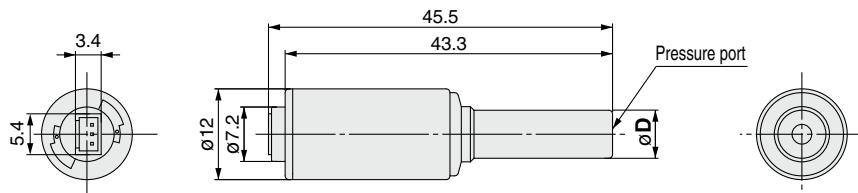
Range	Rated pressure range	A	B	C
For vacuum	0 to -101 kPa	0	-101 kPa	10.1 kPa
For compound pressure	-101 kPa to 101 kPa	-101 kPa	101 kPa	—
For low pressure	0 to 101 kPa	0	101 kPa	-10.1 kPa
For positive pressure	0 to 1 MPa	0	1 MPa	-0.1 MPa

Dimensions

PSE53□-M5

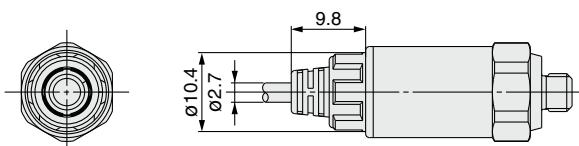


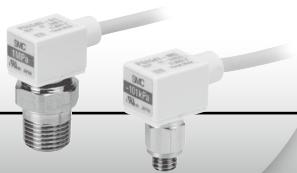
PSE53□-R06 R07



[mm]	
Model	Applicable fitting size (D)
PSE53□-R06	6
PSE53□-R07	1/4"

With sensor cable





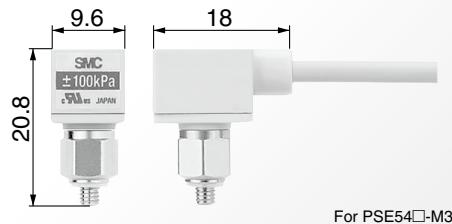
Compact Pneumatic Pressure Sensor

Series PSE540

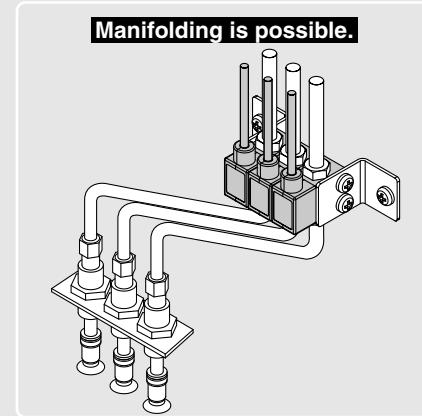
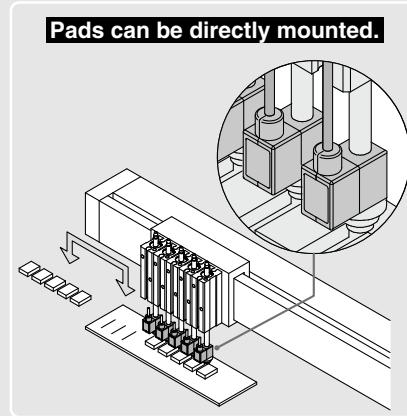
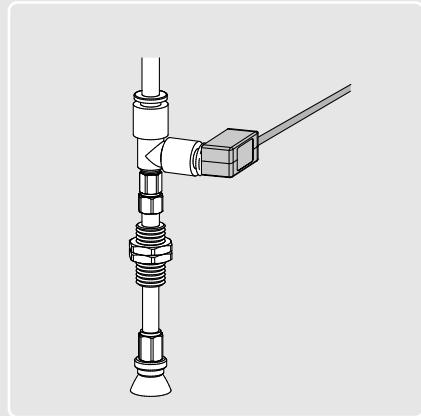


Series	Rated pressure range				
	-100 kPa	0	100 kPa	500 kPa	1 MPa
PSE540		0		500 kPa	1 MPa
PSE541	-101 kPa	0			
PSE543	-100 kPa		100 kPa		

- Weight: 2.9 g
- Head size: 9.6 x 20.8 x 18 mm



Application examples



Applications

PSE530

PSE540

PSE550

PSE560

PSE570

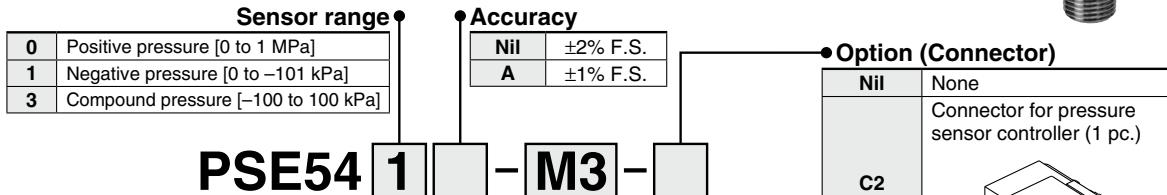
Controller
PSE300 | PSE200

Compact Pneumatic Pressure Sensor

Series PSE540



How to Order



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	$\phi 4$ reducer	
R06	$\phi 6$ reducer	

Note) The connector is not attached to the cable, but is included with the shipment.

Option/Part No.

Description	Part no.	Note
Connector for pressure sensor controller	ZS-28-C	1 pc.

Specifications

For Pressure Switch Precautions and Specific Product Precautions, refer to "Handling Precautions for SMC Products" and the Operation Manual on SMC website.

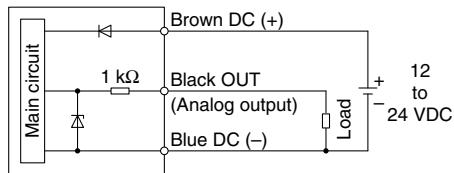
Model	PSE540	PSE541	PSE543		
Rated pressure range	0 to 1 MPa	0 to -101 kPa	-100 to 100 kPa		
Extension analog output range	-0.1 to 0 MPa	10.1 to 0 kPa	—		
Proof pressure	1.5 MPa	500 kPa			
Applicable fluid	Air/Non-corrosive gas/Non-flammable gas				
Power supply voltage	12 to 24 VDC $\pm 10\%$, Ripple (p-p) 10% or less (with reverse connection protection)				
Current consumption	15 mA or less				
Output specifications	Analog output 1 to 5 V (within rated pressure range), 0.6 to 1 V (within extension analog output range), Output impedance: Approx. 1 k Ω				
Accuracy (Ambient temperature at 25°C)	PSE540: $\pm 2\%$ F.S. (within rated pressure range), $\pm 5\%$ F.S. (within extension analog output range) PSE541: $\pm 1\%$ F.S. (within rated pressure range), $\pm 3\%$ F.S. (within extension analog output range)				
Linearity	$\pm 0.7\%$ F.S. or less	$\pm 0.4\%$ F.S.			
Repeatability		$\pm 0.2\%$ F.S.			
Power supply voltage effect		$\pm 0.8\%$ F.S.			
Environment	Enclosure	IP40			
	Operating temperature range	Operating: 0 to 50°C, Stored: -20 to 70°C (No freezing or condensation)			
	Operating humidity range	Operating/Stored: 35 to 85% RH (No condensation)			
	Withstand voltage	1000 VAC (in 50/60 Hz) for 1 minute between terminals and housing			
	Insulation resistance	50 M Ω or more (500 VDC measured via megohmmeter) between terminals and housing			
Temperature characteristics					
$\pm 2\%$ F.S. (25°C reference)					
Sensor cable	Oilproof heavy-duty vinyl cable (ellipse), 3 cores, 2.7 x 3.2, 3 m, Conductor area: 0.15 mm ² , Insulator O.D.: 0.9 mm				
Standards	CE, UL/CSA (E216656), RoHS				

Piping Specifications

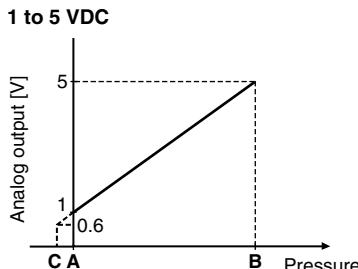
Model	M3	M5	01	N01	R04	R06	IM5	IM5H
Port size	M3 x 0.5	M5 x 0.8		R1/8 M5 x 0.8	NPT1/8 M5 x 0.8	$\phi 4$ reducer	$\phi 6$ reducer	M5 female thread, through type (with mounting hole)
Material	Case	Resin case: PBT Fitting: Stainless steel 303		Resin case: PBT Fitting: C3604BD		PBT		Resin case: PBT Fitting: A6063S-T5
	Pressure sensing section	Pressure sensor: Silicon, O-ring: NBR						
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

Internal Circuit and Wiring Example

PSE54□
Voltage output type
1 to 5 V
Output impedance
Approx. 1 kΩ



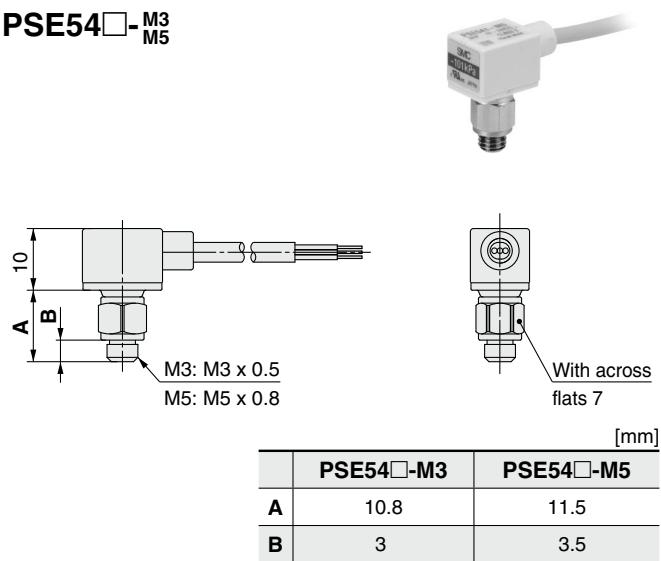
Analog Output



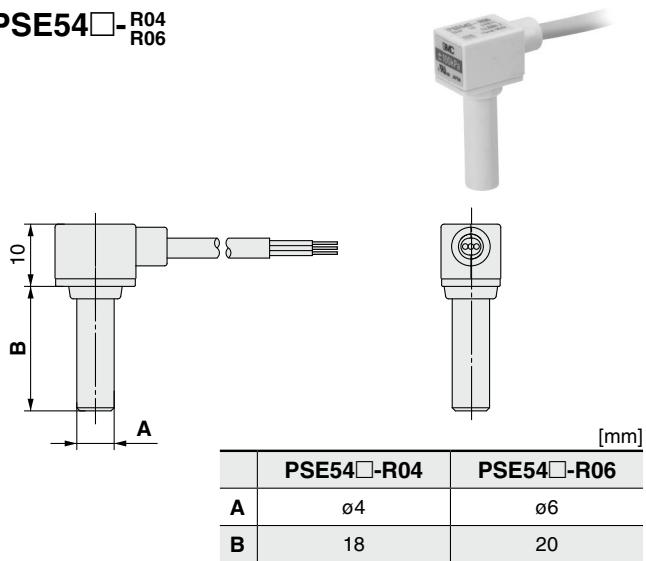
Range	Rated pressure range	A	B	C
For vacuum	0 to -101 kPa	0	-101 kPa	10.1 kPa
For compound pressure	-100 kPa to 100 kPa	-100 kPa	100 kPa	—
For positive pressure	0 to 1 MPa	0	1 MPa	-0.1 MPa

Dimensions

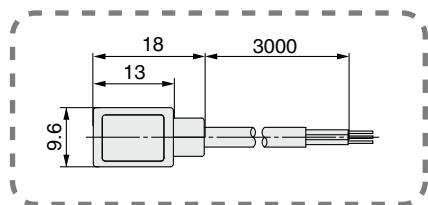
PSE54□-M3 **M5**



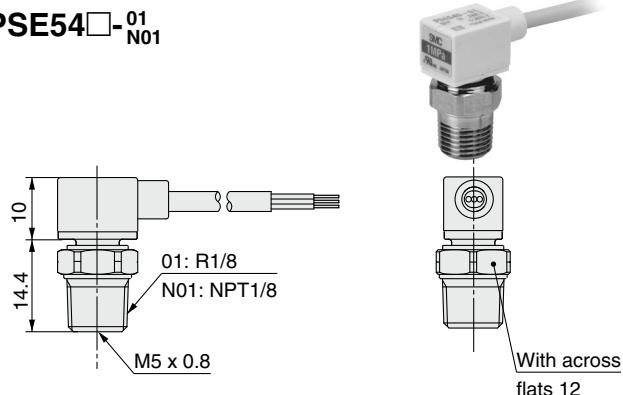
PSE54□-R04 **R06**



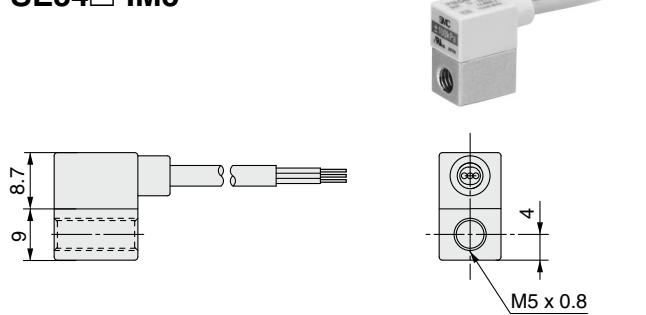
Common Dimensions



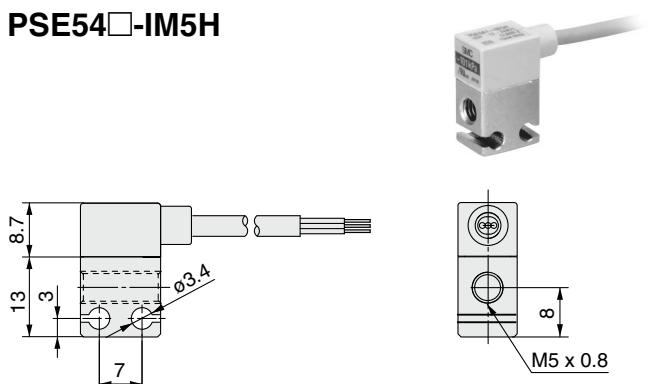
PSE54□-01 **N01**



PSE54□-IM5



PSE54□-IM5H



PSE530

PSE540

PSE550

PSE560

PSE570 **PSE200**

Controller

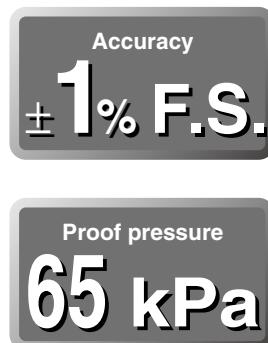
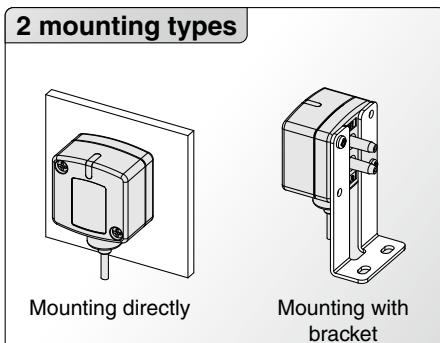


Low Differential Pressure Sensor

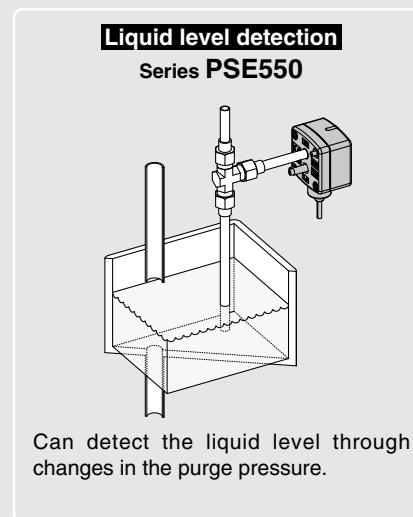
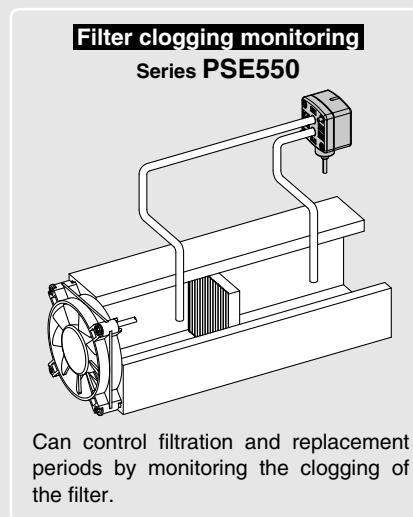
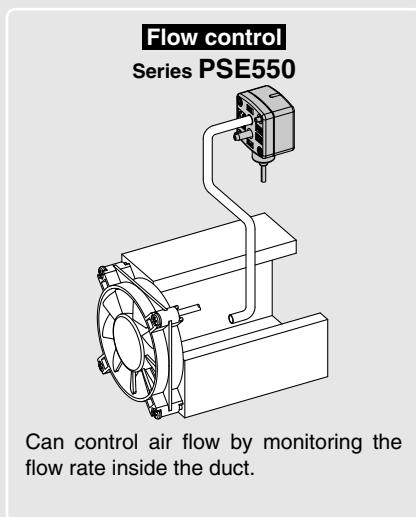
Series PSE550



Series	Rated pressure range
	0 1 kPa 2 kPa
PSE550	0 2 kPa



Application examples



Applications

Low Differential Pressure Sensor Series PSE550



How to Order

PSE550- - -



Output specifications

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

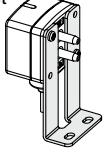
Option 2 (Connector)

Nil	None
C2	Connector for pressure sensor controller (1 pc.) 

Note 1) Current output type cannot be connected to the PSE 200 series.

Note 2) The connector is not attached to the cable, but is included with the shipment.

Option 1 (Bracket)

Nil	None
A	Bracket 

Note) The bracket is not attached to the product, but is included with the shipment.

Option/Part No.

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

Specifications

For Pressure Switch Precautions and Specific Product Precautions, refer to "Handling Precautions for SMC Products" and the Operation Manual on SMC website.

Model	PSE550	PSE550-28
Rated differential pressure range	0 to 2 kPa	
Operating pressure range	-50 to 50 kPa (Note)	
Extension analog output range	-0.2 to 0 kPa	—
Proof pressure	65 kPa	
Applicable fluid	Air/Non-corrosive gas/Non-flammable gas	
Power supply voltage	12 to 24 VDC ±10%, Ripple (p-p) 10% or less (with reverse connection protection)	
Current consumption	15 mA or less	—
Output specifications	Analog output: 1 to 5 VDC (within rated differential pressure range) 0.6 to 1 VDC (within extension analog output range) Output impedance: Approx. 1 kΩ	Analog output: 4 to 20 mA DC (within rated differential pressure range) Maximum load impedance: 500 Ω or less (at 24 VDC) 100 Ω or less (at 12 VDC)
Accuracy (Operating temperature at 25°C)	±1% F.S. (within rated differential pressure range), ±3% F.S. (within extension analog output range)	
Linearity	±0.5% F.S.	
Repeatability	±0.3% F.S.	
Indicator light	Orange light is turned on. (When energized)	
Environment	Enclosure	IP40
	Operating temperature range	Operating: 0 to 50°C, Stored: -20 to 70°C (No freezing or condensation)
	Operating humidity range	Operating/Stored: 35 to 85% RH (No condensation)
	Withstand voltage	1000 VAC (in 50/60 Hz) for 1 minute between terminals and housing
	Insulation resistance	50 MΩ or more (500 VDC measured via megohmmeter) between terminals and housing
Temperature characteristics	±3% F.S. (25°C reference)	
Port size	ø4.8 (ø4.4 in the end) resin piping (Applicable to I.D. ø4 air tubing)	
Materials of parts in contact with fluid	Resin pipe: Nylon, Piston area of sensor: Silicon	
Sensor cable	Oilproof heavy-duty vinyl cable (ellipse), 3 cores, 2.7 x 3.2, 3 m Conductor area: 0.15 mm², Insulator O.D.: 0.9 mm	Oilproof heavy-duty vinyl cable (ellipse), 2 cores, 2.7 x 3.2, 3 m Conductor area: 0.15 mm², Insulator O.D.: 0.9 mm
Weight	With sensor cable Without sensor cable	75 g 35 g
Standards	CE, UL/CSA (E216656), RoHS	

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

PSE530

PSE540

PSE550

PSE560

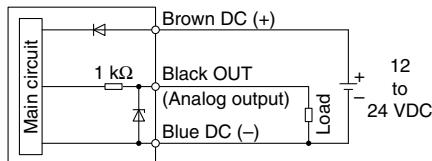
PSE300
Controller
PSE200

Series PSE550

Internal Circuit and Wiring Example

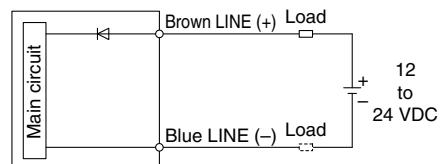
PSE550

Voltage output type
1 to 5 V
Output impedance
Approx. 1 kΩ



PSE550-28

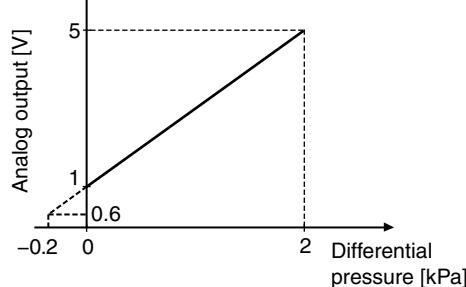
Current output type
4 to 20 mA
Allowable load impedance
500 Ω or less (at 24 VDC)
100 Ω or less (at 12 VDC)



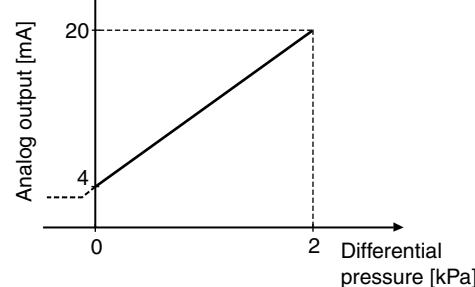
* Install the load either on the LINE (+) or LINE (-) side.

Analog Output

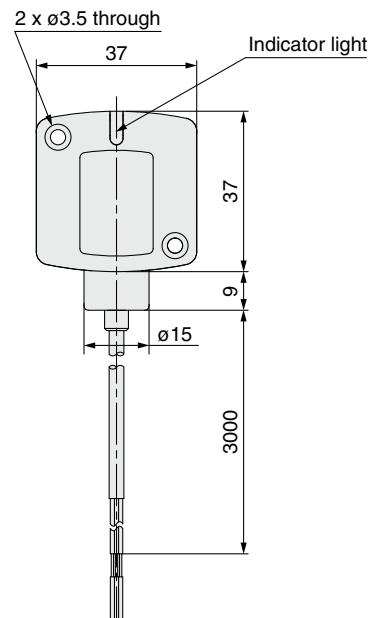
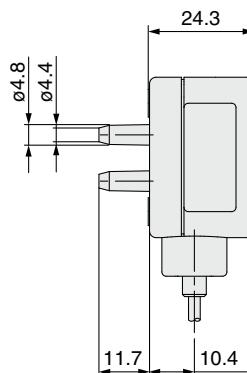
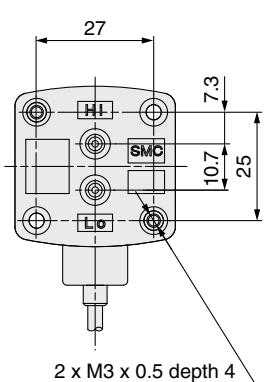
1 to 5 VDC



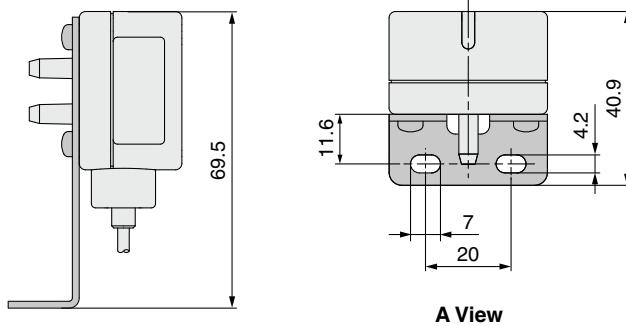
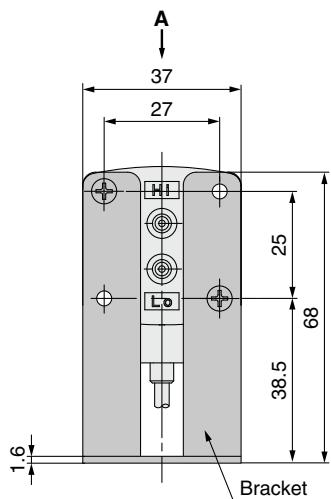
4 to 20 mA DC



Dimensions



With bracket





Pressure Sensor For General Fluids

Series PSE560



Series	Rated pressure range				
	-100 kPa	0	100 kPa	500 kPa	1 MPa
PSE560		0			1 MPa
PSE561	-101 kPa	0			
PSE563	-100 kPa		100 kPa		
PSE564		0		500 kPa	

Applicable fluids example

- Argon
- Hydraulic oil
- Lubricant
- Air-containing drainage
- Silicone oil
- Fluorocarbon
- Refrigerant
- Water
- Air
- Nitrogen
- Carbon dioxide

Material of parts
in contact with fluid
Stainless steel 316L

IP65

**Copper-free
Fluorine-free**

Oil-free
(Single diaphragm construction)

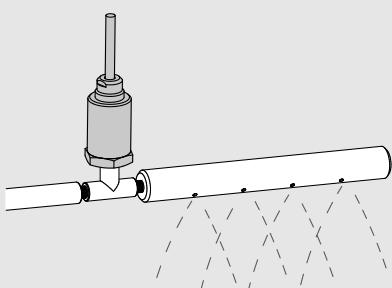
Variations

Port type	Thread type	Special fitting type for semiconductors
Port size	R1/8, R1/4, Rc1/8, NPT1/8, NPT1/4	URJ1/4, TSJ1/4*
Leakage	$1 \times 10^{-5} \text{ Pa} \cdot \text{m}^3/\text{s}$	$1 \times 10^{-10} \text{ Pa} \cdot \text{m}^3/\text{s}$
Analog output	1 to 5 V voltage output 4 to 20 mA current output	

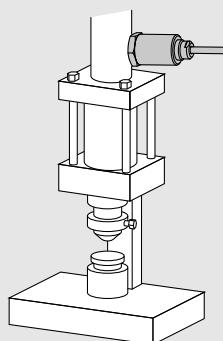
* For URJ1/4, TSJ1/4, refer to "Glossary of Terms/Technical Information" on SMC website or in the Best Pneumatics No. 6.

Application examples

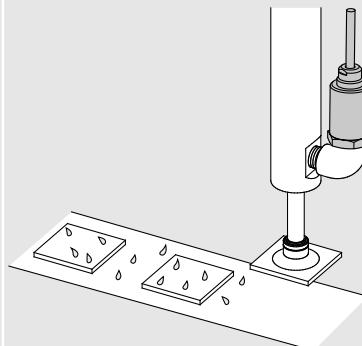
Cleaning lines



Check for working pressure for hydraulic cylinders



Suction verification of workpieces containing moisture



Note: When vacuum is released, take precautions to avoid water collision with inertia force. (An adapter with restrictor (ZS-31-X175) is available to prevent water collision with rush inertia.) (Refer to "NOTE" on the Operation Manual at SMC website for details.)

Applications

PSE530

PSE540

PSE550

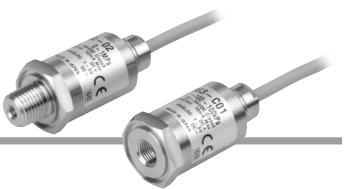
PSE560

PSE570

Controller
PSE200

Pressure Sensor For General Fluids

Series PSE560



How to Order

Sensor range	
0	Positive pressure [0 to 1 MPa]
1	Vacuum [0 to -101 kPa]
3	Compound pressure [-100 to 100 kPa]
4	Positive pressure [0 to 500 kPa]

PSE56 **0** - **01** - **-** **-**

Port size	
01	R1/8 (with M5 female thread)
02	R1/4 (with M5 female thread)
C01	Rc1/8
N01	NPT1/8 (with M5 female thread)
N02	NPT1/4 (with M5 female thread)
A2	URJ1/4
B2	TSJ1/4

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

Option (Connector)	
Nil	None
C2	Connector for pressure sensor controller (1 pc.)

Note 1) Current output type cannot be connected to the PSE200 series.
Note 2) The connector is not attached to the cable, but is included with the shipment.

Option/Part No.

Description	Part no.	Note
Connector for pressure sensor controller	ZS-28-C	1 pc.
Adapter with restrictor R1/4	ZS-31-X175	1 pc.
Adapter with restrictor NPT1/4	ZS-31-X186	1 pc.
Adapter with restrictor Rc1/8	ZS-31-X188	1 pc.
Adapter with restrictor NPT1/8	ZS-31-X189	1 pc.

Specifications

For Pressure Switch Precautions and Specific Product Precautions, refer to "Handling Precautions for SMC Products" and the Operation Manual on SMC website.

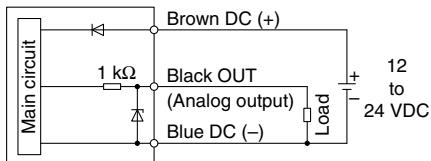
Model	PSE560 (Positive pressure)	PSE561 (Vacuum)	PSE563 (Compound pressure)	PSE564 (Positive pressure)			
Rated pressure range	0 to 1 MPa	0 to -101 kPa	-100 to 100 kPa	0 to 500 kPa			
Extension analog output range	-0.1 to 0 MPa	10.1 to 0 kPa	—	-50 to 0 kPa			
Proof pressure	1.5 MPa	500 kPa	500 kPa	750 kPa			
Model	PSE56□-□			PSE56□-□-28			
Applicable fluid	Liquid or gas that will not corrode or attack stainless steel 316L						
Power supply voltage	12 to 24 VDC ±10%, Ripple (p-p) 10% or less (with reverse connection protection)						
Current consumption	10 mA or less			—			
Output specifications	Analog output: 1 to 5 V (within rated pressure range) 0.6 to 1 V (within extension analog output range) Output impedance: Approx. 1 kΩ			Analog output: 4 to 20 mA DC (within rated pressure range) Maximum load impedance: 500 Ω or less (at 24 VDC) 100 Ω or less (at 12 VDC)			
Accuracy (Ambient temperature at 25°C)	±1% F.S. (within rated pressure range), ±3% F.S. (within extension analog output range)						
Linearity	±0.5% F.S.						
Repeatability	±0.2% F.S.						
Power supply voltage effect	±0.3% F.S.						
Environment	Enclosure	IP65					
	Operating temperature range	Operating: -10 to 60°C, Stored: -20 to 70°C (No freezing or condensation)					
	Operating humidity range	Operating/Stored: 35 to 85% RH (No condensation)					
	Withstand voltage	250 VAC for 1 minute between terminals and housing					
	Insulation resistance	50 MΩ or more (50 VDC measured via megohmmeter) between terminals and housing					
Temperature characteristics							
±2% F.S. (0 to 50°C: 25°C reference), ±3% F.S. (-10 to 60°C: 25°C reference)							
Sensor cable							
PSE56□-□: Oilproof heavy-duty vinyl cable with air tubing, 3 cores, ø5.1, 3 m, Conductor area: 0.2 mm², Insulator O.D.: 1.12 mm							
PSE56□-□-28: Oilproof heavy-duty vinyl cable with air tubing, 2 cores, ø5.1, 3 m, Conductor area: 0.2 mm², Insulator O.D.: 1.12 mm							
Standards							
CE, UL/CSA (E216656), RoHS							

Piping Specifications

Model	01	02	N01	N02	C01	A2	B2
Port size	R1/8 M5 x 0.8	R1/4 M5 x 0.8	NPT1/8 M5 x 0.8	NPT1/4 M5 x 0.8	Rc1/8	URJ1/4	TSJ1/4
Material	Case: C3604 + Nickel plating, Piping port/Pressure sensor: Stainless steel 316L						
Weight	With sensor cable	193 g	200 g	194 g	201 g	187 g	203 g
	Without sensor cable	101 g	108 g	102 g	109 g	95 g	111 g

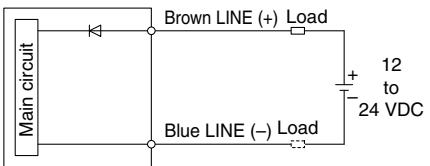
Internal Circuit and Wiring Example

PSE56□-□
Voltage output type
1 to 5 V
Output impedance
Approx. 1 kΩ



PSE56□-□-28

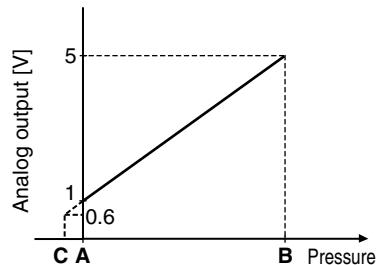
Current output type
4 to 20 mA
Allowable load impedance
500 Ω or less (at 24 VDC)
100 Ω or less (at 12 VDC)



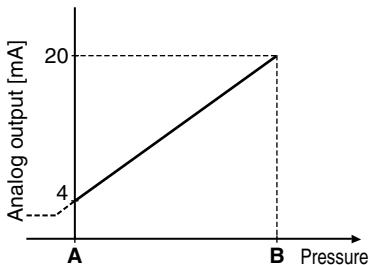
* Install the load either on the LINE (+) or LINE (-) side.

Analog Output

1 to 5 VDC



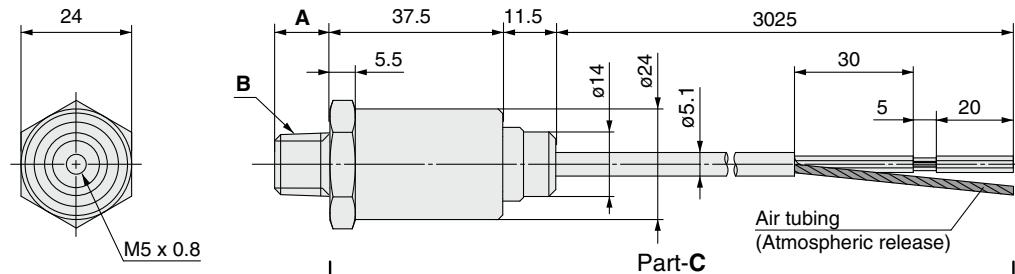
4 to 20 mA DC



Range	Rated pressure range	A	B	C
For vacuum	0 to -101 kPa	0	-101 kPa	10.1 kPa
For compound pressure	-100 kPa to 100 kPa	-100 kPa	100 kPa	—
For positive pressure	0 to 1 MPa	0	1 MPa	-0.1 MPa
	0 to 500 kPa	0	500 kPa	-50 kPa

Dimensions

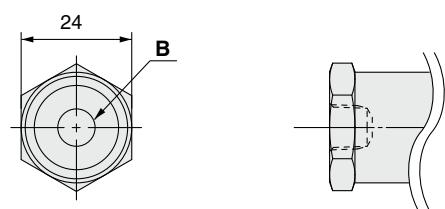
PSE56□-01 , PSE56□-N01
PSE56□-02 , PSE56□-N02



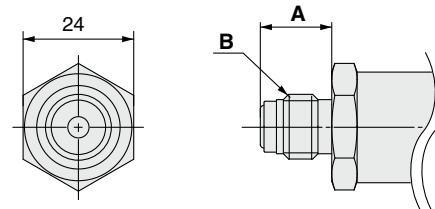
* The dimensions of part C are common to all PSE56□ models.

Be sure to release the air in the air tubing of the cable to the atmosphere. If the air tubing is restricted, or left in environments where it is exposed to water or oil, it cannot be detected normally.

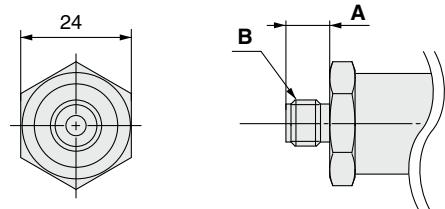
PSE56□-C01



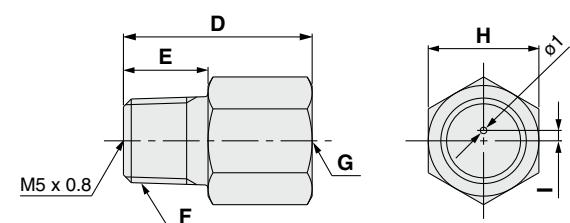
PSE56□-A2



PSE56□-B2



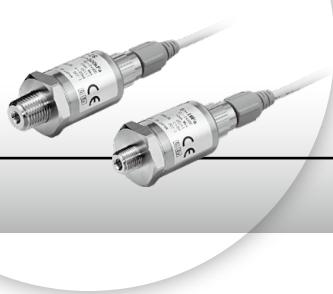
Adapter with restrictor
ZS-31-X□□□



Model	A	B
PSE56□-01	8.2	R1/8
PSE56□-02	12	R1/4
PSE56□-N01	9.2	NPT1/8
PSE56□-N02	12.2	NPT1/4
PSE56□-C01	—	Rc1/8
PSE56□-A2	15.5	URJ1/4
PSE56□-B2	9.5	TSJ1/4

Part no.	D	E	F	G	H	I
ZS-31-X188	20	9	R1/8	Rc1/8	14	1.5
ZS-31-X189	20	9	NPT1/8	NPT1/8	14	1.5
ZS-31-X175	29	13	R1/4	Rc1/4	17	1.6
ZS-31-X186	29	13	NPT1/4	NPT1/4	17	1.6

Note) If it is predicted that the pressure, such as the water hammer or surge pressure fluctuates rapidly, refer to the Precautions stated in the Operation Manual at SMC website (<http://www.smeworld.com>).



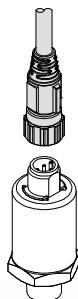
Pressure Sensor For General Fluids

Series PSE570



Series	Rated pressure range				
	-100 kPa	0	100 kPa	500 kPa	1 MPa
PSE570		0			1 MPa
PSE573	-100 kPa		100 kPa		
PSE574		0		500 kPa	

Adopted M12 connector.



■ Materials of parts in contact with fluid

Piping port*	C3604 + Nickel plating
Pressure sensor*	Al ₂ O ₃ (Alumina 96%)
O-ring	FKM + Grease

* Stainless steel 316L is used for the PSE560.
For details, refer to page 12.

Proof pressure

3.0 MPa*

<Twice as compared with the PSE560>

* For PSE570

Withstand voltage

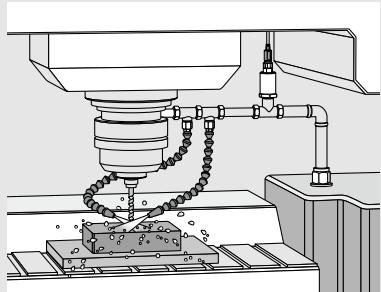
500 VAC

<Twice as compared with the PSE560>

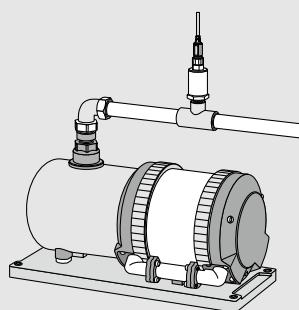
IP65

Application examples

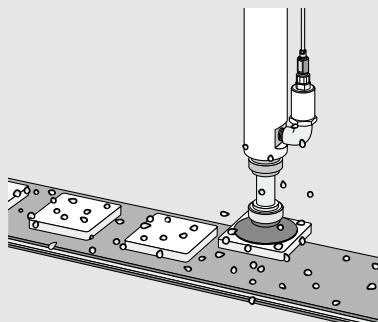
Liquid coolant pressure control



Discharge pressure control for compressor



Suction verification of workpieces containing moisture



Note: When vacuum is released, take precautions to avoid water collision with inertia force. (An adapter with restrictor (ZS-31-X175) is available to prevent water collision with rush inertia.) (Refer to "NOTE" on the Operation Manual at SMC website for details.)

Applications

Pressure Sensor For General Fluids

Series PSE570



RoHS



How to Order

PSE57 **0** - **01** -

Sensor range

0	Positive pressure [0 to 1 MPa]
3	Compound pressure [-100 to 100 kPa]
4	Positive pressure [0 to 500 kPa]

Lead wire

Nil	Lead wire and M12 connector (3 m), Straight
N	None

Output specifications

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

Port size

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

Option/Part No.

Description	Part no.	Note
Lead wire and M12 connector (3 m), Straight	ZS-37-A	1 pc.
Connector for pressure sensor controller	ZS-28-CA-4	1 pc.
Adapter with restrictor Rc1/4	ZS-31-X175	1 pc.
Adapter with restrictor Rc1/8	ZS-31-X188	1 pc.

Specifications

For Pressure Switch Precautions and Specific Product Precautions, refer to "Handling Precautions for SMC Products" and the Operation Manual on SMC website.

Model	PSE570	PSE573	PSE574
Pressure specifications	Rated pressure range 0 to 1 MPa Proof pressure 3.0 MPa	-100 to 100 kPa 600 kPa	0 to 500 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	PSE57□-□	PSE57□-□-28
Fluid	Applicable fluid	Gas or liquid that will not attack or corrode materials of parts in contact with fluid
Electrical specifications	Power supply voltage	12 to 24 VDC ±10% with 10% voltage ripple or less
	Current consumption	10 mA or less
	Protection	Reverse connection protection
Analog output	Output	Analog output: 1 to 5 V Output impedance: Approx. 1 kΩ Analog output: 4 to 20 mA Maximum load impedance: 500 Ω or less (at 24 VDC) 100 Ω or less (at 12 VDC)
Analog output accuracy (Ambient temperature at 25°C)		±1.0% F.S.
Linearity		±0.5% F.S.
Repeatability		±0.2% F.S. (Ambient temperature at 25°C)
Environment	Enclosure	IP65
	Withstand voltage	500 VAC for 1 minute between terminals and housing
	Insulation resistance	100 MΩ or more (500 VDC measured via megohmmeter) between terminals and housing
	Operating temperature range	Operating: -10 to 60°C, Stored: -20 to 70°C (No freezing or condensation)
	Operating humidity range	Operating/Stored: 35 to 85% RH (No condensation)
Standards		CE, RoHS

Piping Specifications

Model	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 + Nickel plating Pressure sensor: Al ₂ O ₃ (Alumina 96%) O-ring: FKM + Grease	
Weight	Without cable 88 g	With cable 175 g
	95 g	182 g

Cable Specifications

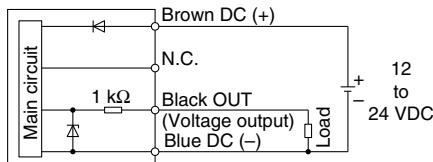
Conductor	Nominal cross section	AWG23
Outside diameter	0.72 mm	
Insulator	Material	Cross-linked vinyl
	Outside diameter	1.14 mm
	Color	Brown, Blue, Black, White
Sheath	Material	Oil resistant vinyl
Finished outside diameter		ø4
Length		3 m

Series PSE570

Internal Circuit and Wiring Example

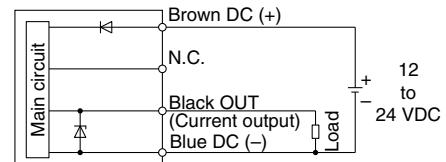
PSE57□-□

Voltage output type
1 to 5 V
Output impedance
Approx. 1 kΩ



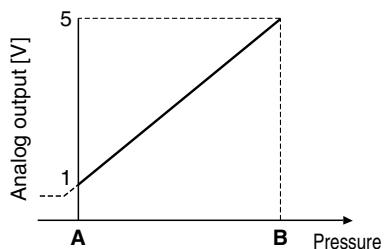
PSE57□-□-28

Current output type
4 to 20 mA
Allowable load impedance
500 Ω or less (at 24 VDC)
100 Ω or less (at 12 VDC)

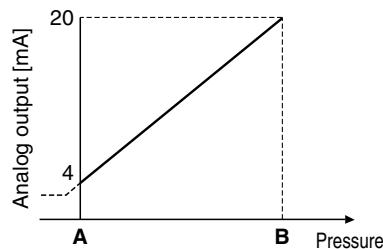


Analog Output

1 to 5 VDC

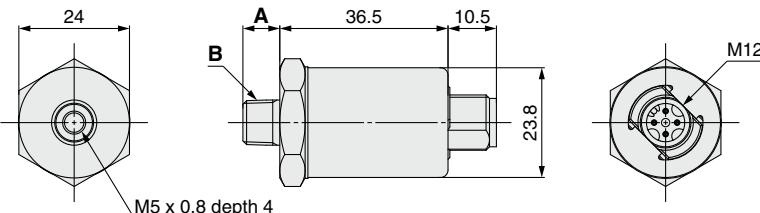


4 to 20 mA DC



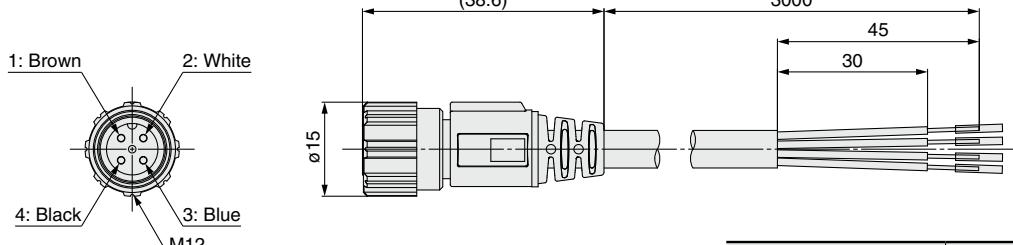
Range	Rated pressure range	A	B
For compound pressure	-100 kPa to 100 kPa	-100 kPa	100 kPa
For positive pressure	0 to 1 MPa	0	1 MPa
	0 to 500 kPa	0	500 kPa

Dimensions



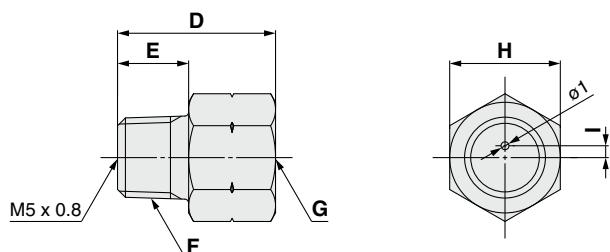
Model	A	B	[mm]
PSE57□-01	8	R1/8	
PSE57□-02	12	R1/4	

Lead wire and M12 connector ZS-37-A



Part no.	Description
ZS-37-A	Straight type 3 m

Adapter with restrictor ZS-31-X□□□



Part no.	D	E	F	G	H	I	[mm]
ZS-31-X188	20	9	R1/8	Rc1/8	14	1.5	
ZS-31-X175	29	13	R1/4	Rc1/4	17	1.6	

Pressure Sensor for General Fluids

Rated pressure range 0 to 2 MPa/0 to 5 MPa/0 to 10 MPa added

Withstand voltage 500 VAC

<Twice that of the PSE560>

M12 connector

Enclosure: IP65

■ Materials of Parts in Contact with Fluid

Piping port*1	C3604 + Nickel plating
Pressure sensor*1	Al ₂ O ₃ (Alumina 96%)
Square ring	FKM

*1: Stainless steel 316L is used for the PSE560.
For details, refer to the **WEB catalog**.



Port size (with M5 female thread): R1/4

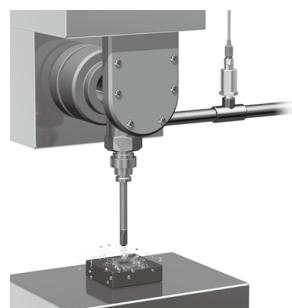
■ Application Examples



Liquid coolant pressure control



PET bottle molding machines



Liquid pressure control of gun drills

■ Series Variations



Series	Rated pressure range								Proof pressure
	-100 kPa	0	100 kPa	500 kPa	1 MPa	2 MPa	5 MPa	10 MPa	
PSE570					1 MPa				3.0 MPa
PSE573			±100 kPa						600 kPa
PSE574				500 kPa					1.5 MPa
New PSE575					2 MPa				5.0 MPa
New PSE576						5 MPa			12.5 MPa
New PSE577							10 MPa		30 MPa

For details, refer to the **WEB catalog**.

PSE57□ Series



How to Order

PSE57 **7** - 02 - -

Sensor range
5 Positive pressure (0 to 2 MPa)
6 Positive pressure (0 to 5 MPa)
7 Positive pressure (0 to 10 MPa)

Port size
02 R1/4 (with M5 female thread)

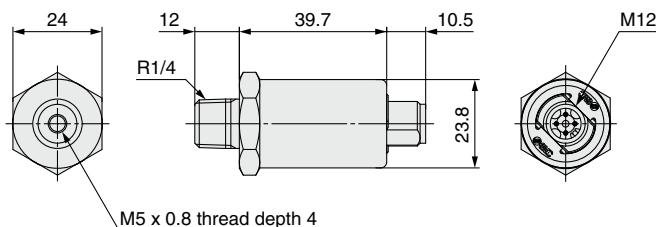
Output specifications

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

Lead wire/Options

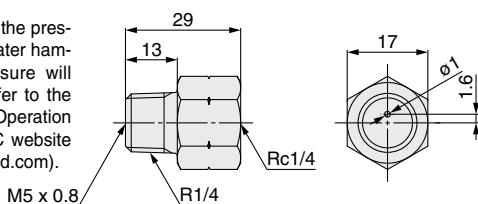
Nil	Lead wire and M12 connector (3 m), Straight
L	Lead wire and M12 connector (3 m), Right angle
N	None

Dimensions [mm]



Adapter with restrictor ZS-31-X175

*: If it is expected that the pressure, such as the water hammer or surge pressure will fluctuate rapidly, refer to the Precautions in the Operation Manual on the SMC website (<http://www.smeworld.com>).



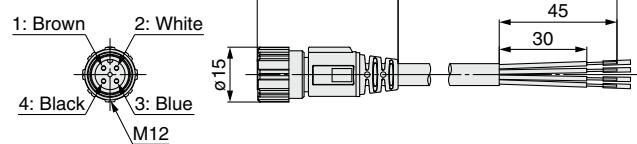
Specifications

Model	PSE575	PSE576	PSE577
Pressure specifications	0 to 2 MPa	0 to 5 MPa	0 to 10 MPa
Proof pressure	5 MPa	12.5 MPa	30 MPa
Temperature characteristics	$\pm 5\%$ F.S. (25°C reference)		

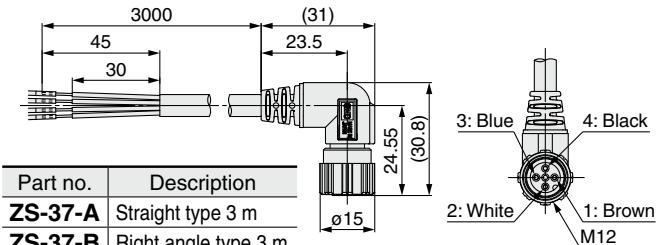
Model	PSE57□-02	PSE57□-02-28
Fluid	Applicable fluid	Gas or liquid that will not corrode materials of parts in contact with fluid
Electrical specifications	Power supply voltage	12 to 24 VDC $\pm 10\%$ with 10% voltage ripple or less
	Current consumption	10 mA or less
	Protection	Reverse connection protection
Analog output	Output	Analog output: 1 to 5 V Output impedance: Approx. 1 kΩ Analog 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)		$\pm 2.5\%$ F.S.
Linearity		$\pm 0.5\%$ F.S.
Repeatability		$\pm 0.5\%$ F.S. (Ambient temperature at 25°C)
Environment	Enclosure	IP65
	Withstand voltage	500 VAC for 1 minute between terminals and housing
	Insulation resistance	100 MΩ or more (500 VDC measured via megohmmeter) between terminals and housing
	Operating temperature range	Operating: -10 to 60°C, Stored: -20 to 70°C (No freezing or condensation)
Standards	Operating/humidity range	Operating/Stored: 35 to 85% RH (No condensation)
		CE, RoHS

Lead wire and M12 connector

ZS-37-A



ZS-37-B



Piping Specifications

Model	02
Port size	R1/4 M5 x 0.8
Materials of parts in contact with fluid	Piping port: C3604 + Nickel plating Pressure sensor: Al ₂ O ₃ (Alumina 96%) Square ring: FKM
Without lead wire and M12 connector	103 g
With lead wire and M12 connector	Straight type Right angle type 191 g

Cable Specifications

Conductor	Nominal cross section	AWG23
	Outside diameter	0.72 mm
Insulator	Material	Cross-linked vinyl chloride
	Outside diameter	1.14 mm
Sheath	Color	Brown, Blue, Black, White
	Material	Oil resistant vinyl chloride
Finished O.D.	ø	4
Length		3 m

⚠ Safety Instructions Be sure to read the "Handling Precautions for SMC Products" (M-E03-3) and "Operation Manual" before use.



Multi-Channel Digital Pressure Sensor Controller

Series PSE200



PSE530

PSE540

PSE550

PSE560

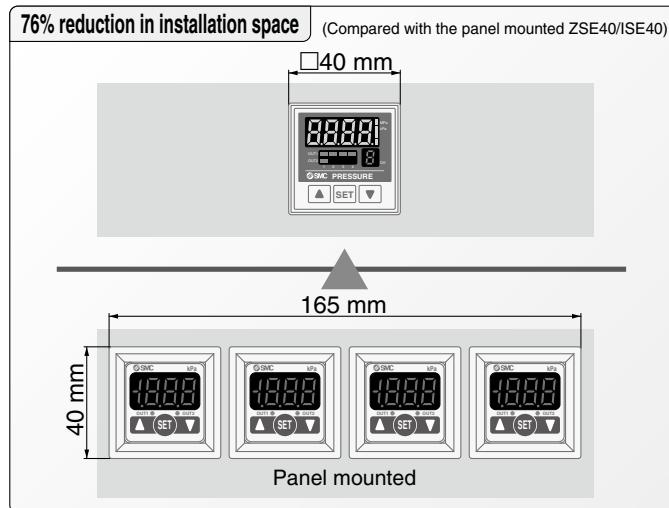
PSE200

Controller

Applicable sensors					Rated pressure range				Set/Display resolution
PSE53□	PSE54□	PSE55□	PSE56□	PSE57□	-100 kPa	0	100 kPa	1 MPa	
PSE531	PSE541	—	PSE561	—	-101 kPa	0			0.1 kPa
PSE533	PSE543	—	PSE563	PSE573	-101 kPa	0	101 kPa		0.1 kPa
PSE530	PSE540	—	PSE560	PSE570		0		1 MPa	0.001 MPa
PSE532		—		—		0	101 kPa		0.1 kPa

● A single controller monitors up to 4 pressure sensors.

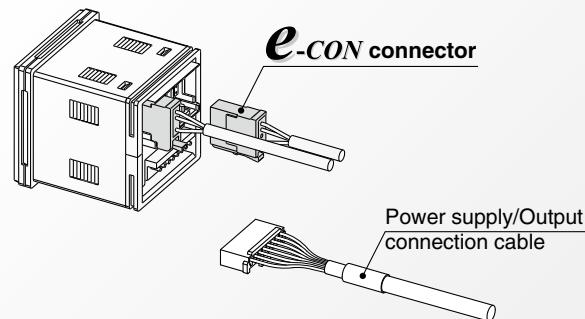
- Sensor input: 4 inputs
- Switch output: 5 outputs (2 outputs for 1ch, 1 output for 2 to 4ch)



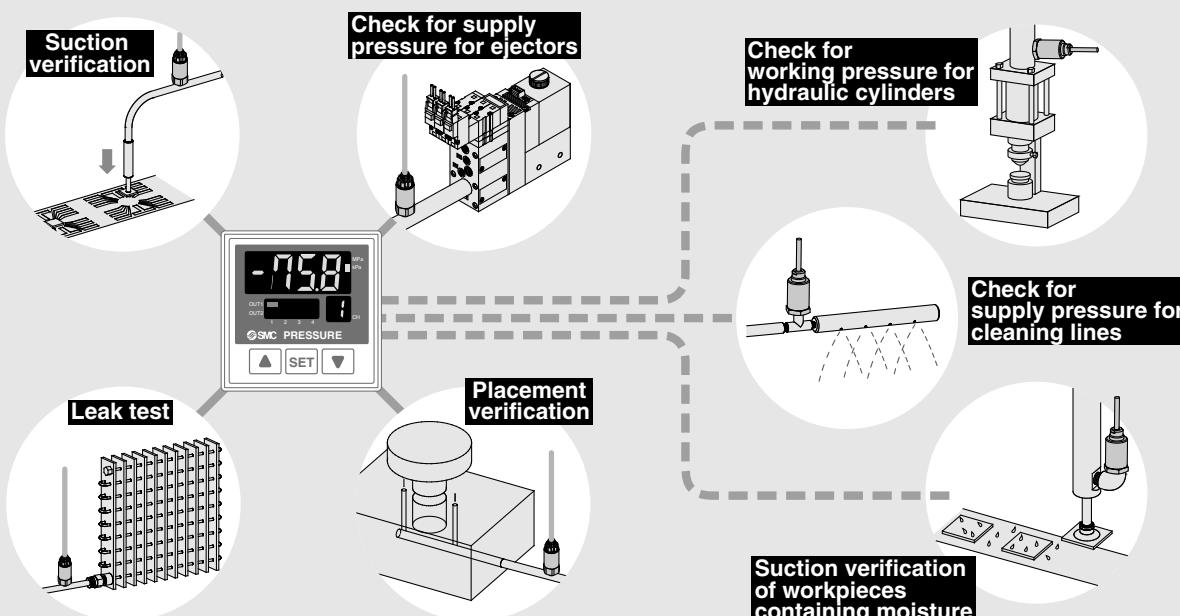
● Functions

- Auto-shift function
- Auto-preset function
- Auto-identification function
- Copy function
- Channel scan function
- Zero-clear function
- Keylock function
- Peak/Bottom values holding/display function
- Display unit switching function
- Display calibration function
- Anti-chattering function

Connector type



A single controller monitors various applications.



Multi-Channel Controller Series PSE200



How to Order

PSE20 **0** - **M**

Input/Output specifications •

0	NPN 5 outputs + Auto-shift input
1	PNP 5 outputs + Auto-shift input

Unit specifications •

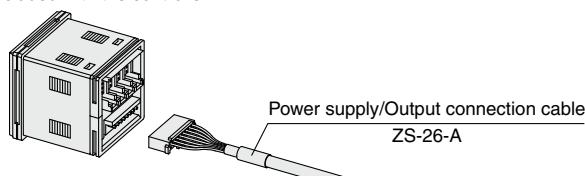
Nil	With display unit switching function Note 1)
M	Fixed SI unit Note 2)

Note 1) Under the New Measurement Law, sales of switches with the unit switching function are not allowed for use in Japan.

Note 2) Fixed unit
For vacuum, low pressure and compound pressure: kPa
For positive pressure: MPa

Accessory: Power supply/Output connection cable (2 m)

Included with the controller.



• Option 2

Nil	None
4C	Sensor connector (4 pcs.)

• Option 1

Nil	None
A	Panel mount adapter Waterproof seal (Accessory) Mounting screw (M3 x 8L) (Accessory) Panel mount adapter Panel
B	Front protective cover + Panel mount adapter Front protective cover Waterproof seal (Accessory) Mounting screw (M3 x 8L) (Accessory) Panel mount adapter Panel

Option/Part No.

When only optional parts are required, order with the part numbers listed below.

Description	Part no.	Note
Panel mount adapter	ZS-26-B	Waterproof seal, mounting screws M3 x 8L (2 pcs.) included
Front protective cover + Panel mount adapter	ZS-26-C	Waterproof seal, mounting screws M3 x 8L (2 pcs.) included
<input type="checkbox"/> 48 conversion adapter * This adapter is used to mount the PSE200 series on the panel fitting of the PSE100 series.	ZS-26-D <input type="checkbox"/> 48 conversion adapter	Order panel mount adapter separately.
Front protective cover	ZS-26-01	
Sensor connector	ZS-28-C (1 pc. per set)	

Specifications

For Pressure Switch Precautions and Specific Product Precautions, refer to "Handling Precautions for SMC Products" and the Operation Manual on SMC website.

Model	PSE200	PSE201
Power supply voltage	12 to 24 VDC ±10%, Ripple (p-p) 10% or less (with reverse connection protection)	
Current consumption	55 mA or less (Current consumption for sensor is not included.)	
Power supply voltage for sensor	[Power supply voltage] -1.5 V	
Power supply current for sensor Note 1)	Maximum 40 mA (100 mA maximum for the total power supply current when 4 sensors are input.)	
Sensor input	1 to 5 VDC (Input impedance: Approx. 800 kΩ)	
Number of inputs	4 inputs	
Input protection	With excess voltage protection (Up to 26.4 V)	
Switch output	NPN open collector output: 5 outputs (Sensor input CH1: 2 outputs, CH2 to 4: 1 output)	PNP open collector output: 5 outputs (Sensor input CH1: 2 outputs, CH2 to 4: 1 output)
Maximum load current	80 mA	—
Maximum load voltage	30 V	—
Residual voltage	1 V or less (with load current of 80 mA)	
Response time	5 ms or less (Response time selections with anti-chattering function: 20 ms, 160 ms, 640 ms)	
Short circuit protection	With short circuit protection	
Repeatability	±0.1% F.S. ±1 digit	
Hysteresis	Hysteresis mode Adjustable (can be set from 0)	
	Window comparator mode Fixed (3 digits)	
Display	For measured value display: 4-digit, 7-segment indicator, Display color: Orange (Sampling frequency: 4 times/sec) For channel display: 1-digit, 7-segment indicator, Display color: Red	
Display accuracy (Operating temperature at 25°C)	±0.5% F.S. ±1 digit	
Indicator light	Red (Lights up when output is turned ON.)	
Auto-shift input	Non-voltage input (Reed or Solid state), Input 10 ms or more, Independently controllable auto-shift function ON/OFF	
Auto-identification function	With auto-identification function Note 2)	
Environment	Enclosure Front face: IP65 (when panel-mounted), Others: IP40 Note 3)	
	Ambient temperature range Operating: 0 to 50°C, Stored: -10 to 60°C (No freezing or condensation)	
	Ambient humidity range Operating/Stored: 35 to 85% RH (No condensation)	
Temperature characteristics	±0.5% F.S. (25°C reference)	
Connection	Power supply/Output connection: 8P connector, Sensor connection: e-con connector	
Material	Housing: PBT; Display: Transparent nylon; Back rubber cover: CR	
Weight	Approx. 60 g (Excluding power supply/output cable)	
Power supply/Output connection cable	Heat resistant heavy-duty cable, 8 cores, Ø4.8, 2 m, Conductor area: 0.15 mm ² , Insulator O.D.: 0.9 mm	
Standards	CE, RoHS	

Note 1) If the Vcc and 0 V side of the sensor input connector are short circuited, the inside of the controller will be damaged.

Note 2) Auto-identification function comes with "the PSE53□ series" pressure sensor only. Other SMC series (PSE540, 560, 570) are not equipped with this function.

Note 3) IP40 when using the □48 conversion adapter.

Applicable Pressure Sensor

Applicable sensor					Rated pressure range			
PSE53□	PSE54□	PSE55□	PSE56□	PSE57□	-100 kPa	0	100 kPa	1 MPa
PSE531	PSE541	-	PSE561	-	-101 kPa	0		
PSE533	PSE543	-	PSE563	PSE573	-101 kPa		101 kPa	
PSE530	PSE540	-	PSE560	PSE570		0		1 MPa
PSE532		-		-		0	101 kPa	

PSE530

PSE540

PSE550

PSE560

PSE570

PSE300

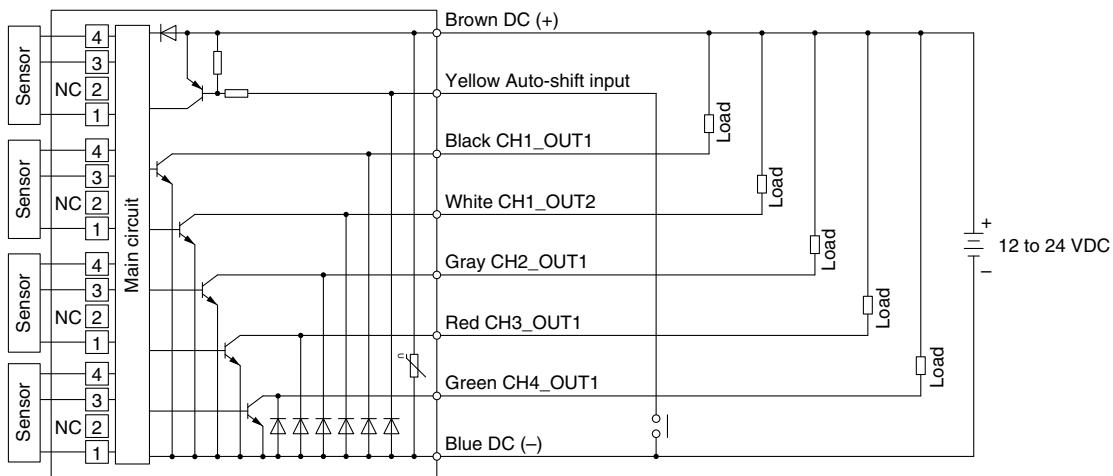
Controller

Series PSE200

Internal Circuit and Wiring Example

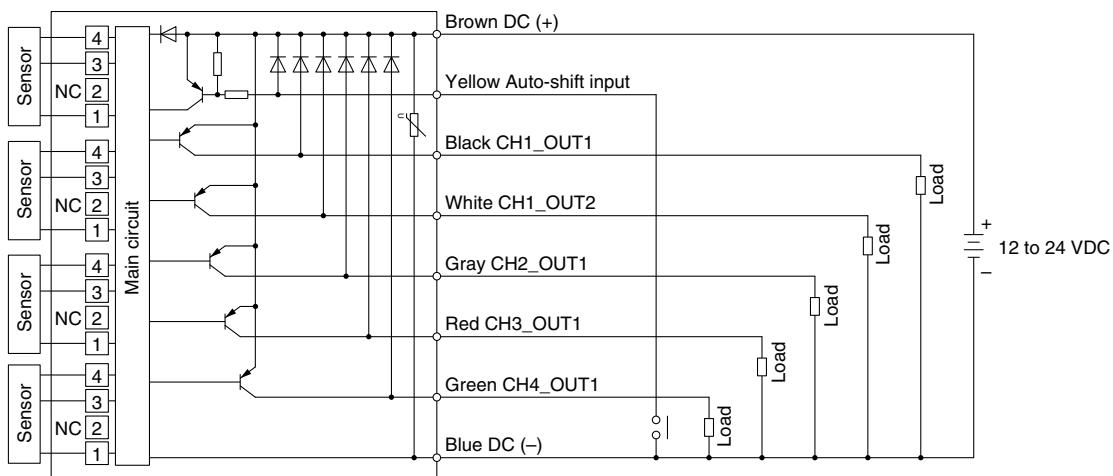
PSE200-(M)□

· NPN open collector 5 outputs + Auto-shift 1 input



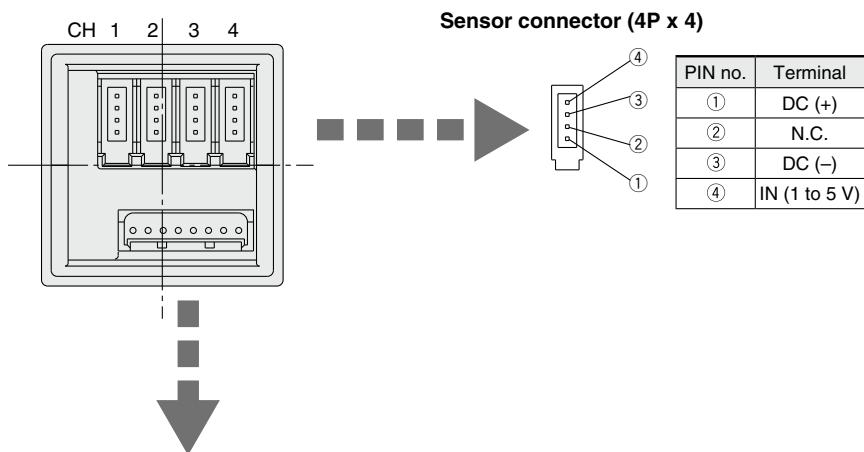
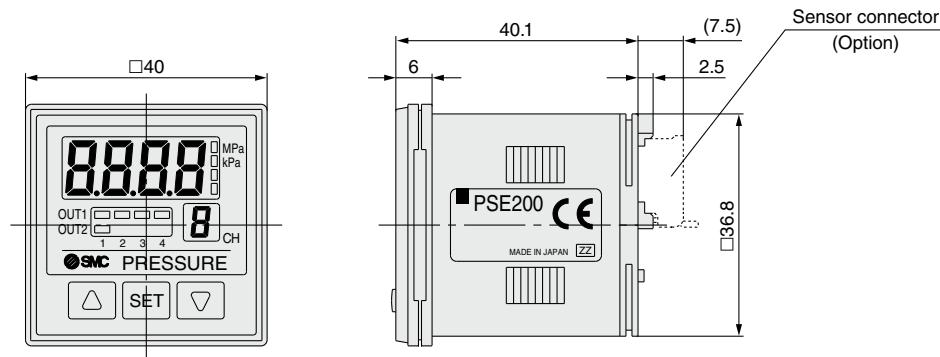
PSE201-(M)□

· PNP open collector 5 outputs + Auto-shift 1 input

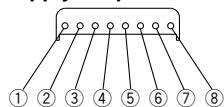


Dimensions

PSE200/201

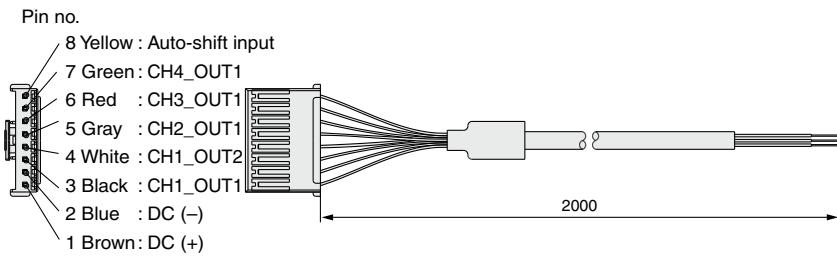


Power supply/Output connector (8P)



PIN no.	Terminal
①	DC (+)
②	DC (-)
③	CH1_OUT1
④	CH1_OUT2
⑤	CH2_OUT1
⑥	CH3_OUT1
⑦	CH4_OUT1
⑧	Auto-shift input

Power supply/Output connection cable (Accessory)



PSE530

PSE540

PSE550

PSE560

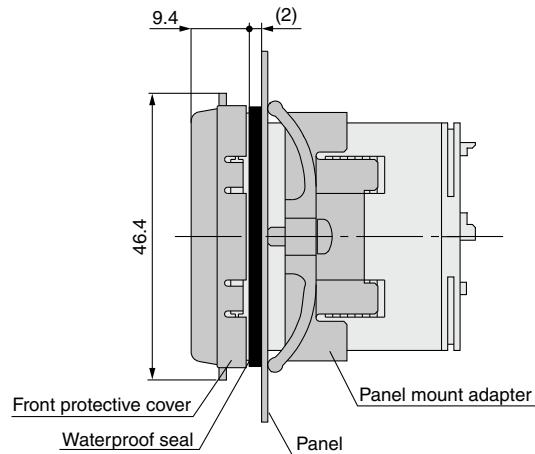
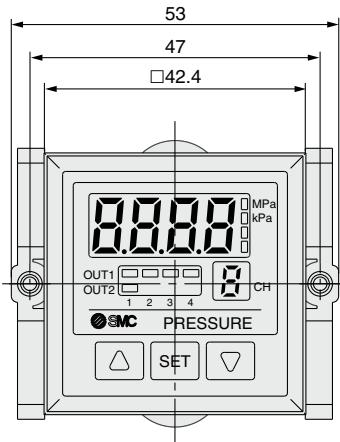
PSE570

Controller
PSE300 PSE200

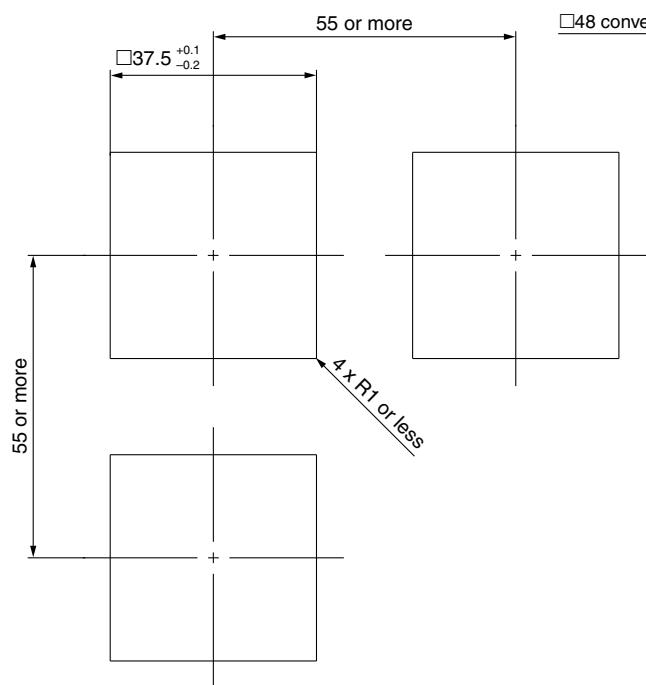
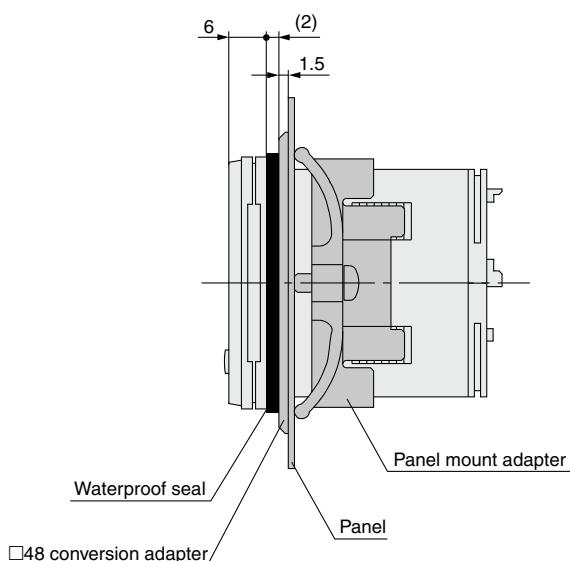
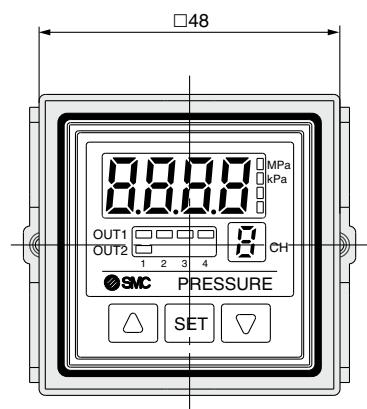
Series PSE200

Dimensions

Front protective cover + Panel mount adapter



□48 conversion adapter + Panel mount adapter



Panel fitting dimensions
Applicable panel thickness: 0.5 to 8 mm



2-Color Display Digital Pressure Sensor Controller

Series PSE300



Applicable sensors					Rated pressure range					Set/Display resolution
PSE53□	PSE54□	PSE55□	PSE56□	PSE57□	-100 kPa 0 100 kPa 500 kPa 1 MPa					
PSE531	PSE541	—	PSE561	—	-101 kPa	0				0.1 kPa
PSE533	PSE543	—	PSE563	PSE573	-100 kPa		100 kPa			0.2 kPa
PSE530	PSE540	—	PSE560	PSE570		0			1 MPa	0.001 MPa
PSE532	—	—	—	—		0	100 kPa			0.1 kPa
—	—	—	PSE564	PSE574		0		500 kPa		1 kPa
—	—	PSE550	—	—		0	2 kPa			0.01 kPa

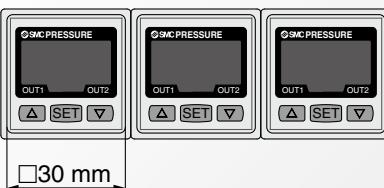
2-color display (Red/Green)

Possible to set 4 patterns of display color.

Pattern	ON	OFF
①	Red	Green
②	Green	Red
③	Red	Red
④	Green	Green

Can be mounted in close proximity with each other either horizontally or vertically.

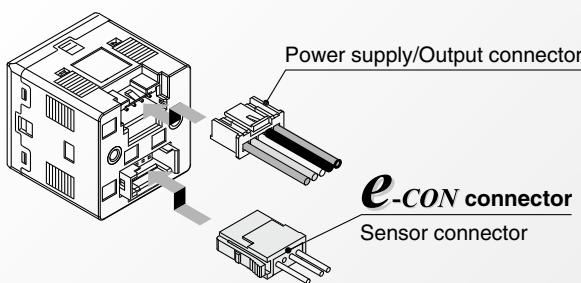
Possible to reduce panel fitting labor.



Response time

1 ms

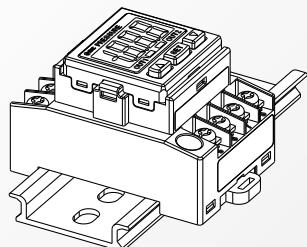
Connector type



Functions

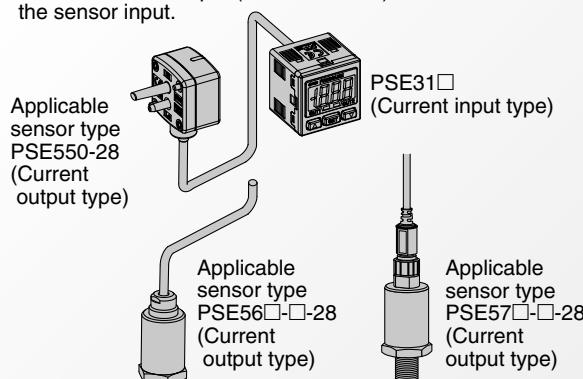
- Auto-shift function
- Auto-preset function
- Display calibration function
- Peak/Bottom values holding/display function
- Keylock function
- Zero-clear function
- Error indication function
- Display unit switching function
- Anti-chattering function

DIN rail/Terminal block type



Current input type

Electrical current input (4 to 20 mA DC) is added to the sensor input.



PSE530

PSE540

PSE550

PSE300
Controller
PSE200

Pressure Sensor Controller Series PSE300



How to Order



DIN rail/Terminal block type

PSE3 **00** T - **M**



Connector type

PSE3 **00** - **M**

Input specifications	
0	Voltage input
1	Current input
Input/Output specifications	
0	NPN 2 outputs + 1-5 V output
1	NPN 2 outputs + 4-20 mA output
2	NPN 2 outputs + Auto-shift input
3	PNP 2 outputs + 1-5 V output
4	PNP 2 outputs + 4-20 mA output
5	PNP 2 outputs + Auto-shift input

Unit specifications

Nil	With display unit switching function Note 1)
M	Fixed SI unit Note 2)

Note 1) Under the New Measurement Law, sales of switches with the unit switching function are not allowed for use in Japan.

Note 2) Fixed unit

For vacuum, low pressure, low differential pressure and compound pressure: kPa

For positive pressure: MPa (For 1 MPa)
kPa (For 500 kPa)

Option 1

Nil	None
L	Power supply/Output connection cable Power supply/ Output connection cable ZS-28-A

Note) The cable is not attached to the product, but is included with the shipment.

Order DIN rail separately. Refer to page 30.

Option/Part No.

Description	Part no.	Note
Power supply/Output connection cable (2 m)	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.)
Front protective cover	ZS-27-01	1 pc.

• Option

Nil	None
E	Front protective cover Front protective cover

• Option 3

Nil	None
C	Sensor connector Sensor connector (e-con connector)

Note) The connector is not attached to the cable, but is included with the shipment.

• Option 2

Nil	None
A	Bracket Bracket M3 x 5L M3 x 5L
B	Panel mount adapter Panel Mounting screw (M3 x 8L) Panel mount adapter
D	Panel mount adapter + Front protective cover Panel Front protective cover Mounting screw (M3 x 8L) Panel mount adapter

Note) These options are not attached to products, but are included with the shipment.

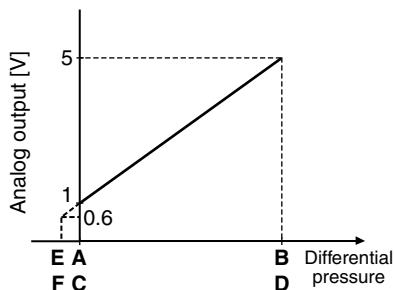
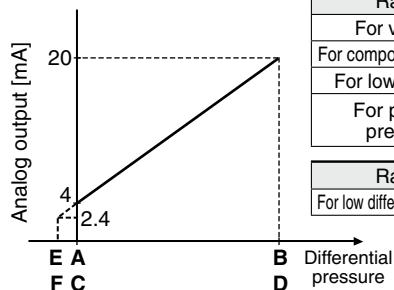
Specifications

For Pressure Switch Precautions and Specific Product Precautions, refer to "Handling Precautions for SMC Products" and the Operation Manual on SMC website.

Model	PSE3□□						
Applicable pressure sensor	PSE533 PSE543 PSE563 PSE573	PSE531 PSE541 PSE561	PSE532	PSE530 PSE540 PSE560 PSE570	PSE564 PSE574	PSE550	
Display/Set pressure (differential 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 kPa	
Display/Set resolution	0.2 kPa	0.1 kPa	0.1 kPa	0.001 MPa	1 kPa	0.01 kPa	
Pressure range Note 1)	For compound pressure	For vacuum	For low pressure	For positive pressure	For low differential pressure		
Rated pressure (differential pressure) range	-100 to 100 kPa	0 to -101 kPa	0 to 100 kPa	0 to 1 MPa	0 to 500 kPa	0 to 2 kPa	
Extension analog output range Note 2)	—	10.1 to 0 kPa	-10 to 0 kPa	-0.1 to 0 MPa	-50 to 0 kPa	-0.2 to 0 kPa	
Power supply voltage	12 to 24 VDC ±10%, Ripple (p-p) 10% or less (with reverse connection protection)						
Current consumption	50 mA or less (Current consumption for sensor is not included.)						
Sensor input	PSE30□: Voltage input 1 to 5 VDC (Input impedance: 1 MΩ) PSE31□: Current input 4 to 20 mA DC (Input impedance: 100 Ω)						
Number of inputs	1 input						
Input protection	With excess voltage protection (Up to 26.4 V)						
Hysteresis	Hysteresis mode: Variable, Window comparator mode: Variable						
Switch output	NPN or PNP open collector output: 2 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.						
Analog output	Voltage output Note 2)	Output voltage: 1 to 5 V (within rated pressure (differential pressure) range), 0.6 to 1 V (within extension analog output 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.			±1.0% F.S.	±1.5% F.S.	
Current output Note 2)	Output current: 4 to 20 mA (within rated pressure (differential pressure) range), 2.4 to 4 mA (within extension analog output 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.			±1.5% F.S.	±2.0% F.S.	
Display accuracy (Ambient temperature at 25°C)	±0.5% F.S. ±2 digits	±0.5% F.S. ±1 digit					
Display	3 + 1/2 digit, 7 segment indicator, 2-color display (Red/Green), Sampling frequency: 5 times/sec						
Indicator light	OUT1: Lights up when turned ON (Green), OUT2: Lights up when turned ON (Red)						
Auto-shift input Note 2)	Non-voltage input (Reed or Solid state), Low level input: 5 ms or more, Low level: 0.4 V or less						
Environment	Enclosure	IP40					
	Operating temperature range	Operating: 0 to 50°C, Stored: -10 to 60°C (No freezing or condensation)					
	Operating humidity range	Operating/Stored: 35 to 85% RH (No condensation)					
	Withstand voltage	1000 VAC for 1 minute between terminals and housing					
	Insulation resistance	50 MΩ or more (500 VDC measured via megohmmeter) between terminals and housing					
Temperature characteristics							±0.5% F.S. (25°C reference)
Connection							PSE3□□: Power supply/Output connection: 5P connector, Sensor connection: 4P connector PSE3□□T: Terminal block
Material							Front case: PBT, Rear case: PBT (PSE3□□), Modified PPE (PSE3□□T)
Weight	With power supply/Output connection cable	PSE3□□: 85 g					
	Without power supply/Output connection cable	PSE3□□: 30 g, PSE3□□T: 50 g					
Power supply/Output connection cable							Oilproof heavy-duty vinyl cable, 5 cores, ø4.1, 2 m, Conductor area: 0.2 mm² Insulator O.D.: 1.12 mm
Standards							CE, UL/CSA (E216656), RoHS

Note 1) Pressure range can be selected during initial setting.
Note 2) 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.
Extension analog output is not available for the PSE570 series.

Note 3) The following units can be selected with display unit switching 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

Analog Output**1 to 5 VDC****4 to 20 mA DC**

Range	Rated pressure range	A	B	E
For vacuum	0 to -101 kPa	0	-101 kPa	10.1 kPa
For compound pressure	-100 kPa to 100 kPa	-100 kPa	100 kPa	—
For low pressure	0 to 100 kPa	0	100 kPa	-10 kPa
For positive pressure	0 to 1 MPa	0	1 MPa	-0.1 MPa
	0 to 500 kPa	0	500 kPa	-50 kPa

Range	Rated pressure range	C	D	F
For low differential pressure	0 to 2 kPa	0	2 kPa	-0.2 kPa

PSE530
PSE540PSE550
PSE560PSE570
PSE200Controller
PSE300

Series PSE300

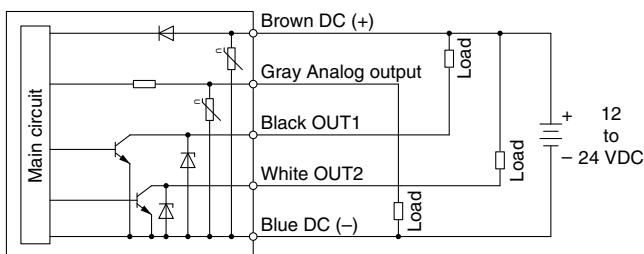
Internal Circuit and Wiring Example

PSE3□□(T) - □□□□

- Input/Output specification
- Input specification

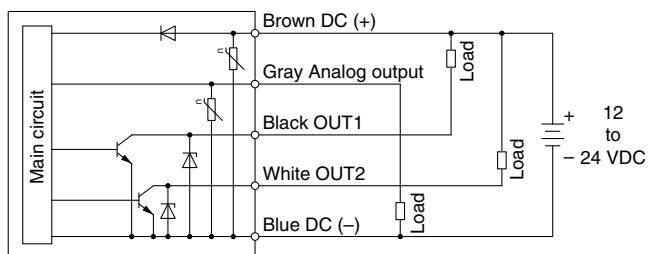
PSE3□0(T)

NPN (2 outputs) + Analog voltage output



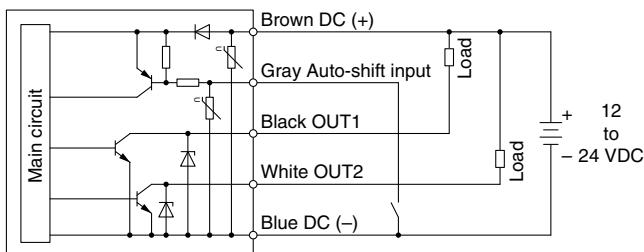
PSE3□1(T)

NPN (2 outputs) + Analog current output



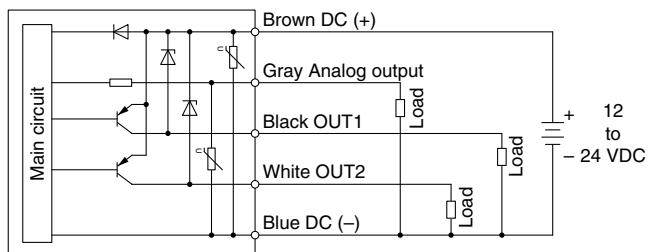
PSE3□2(T)

NPN (2 outputs) + Auto-shift 1 input



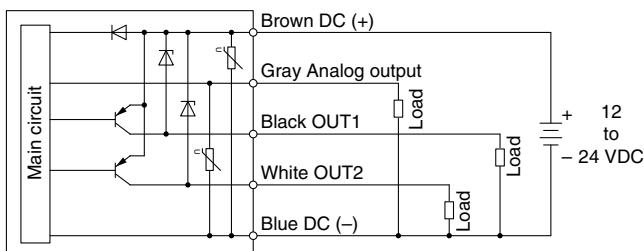
PSE3□3(T)

PNP (2 outputs) + Analog voltage output



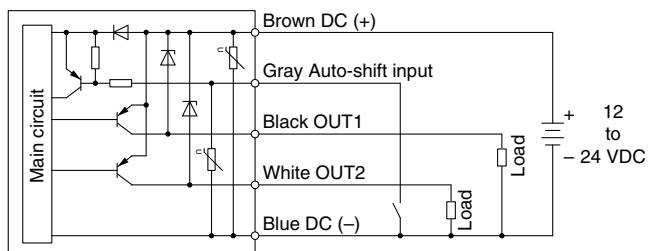
PSE3□4(T)

PNP (2 outputs) + Analog current output



PSE3□5(T)

PNP (2 outputs) + Auto-shift 1 input



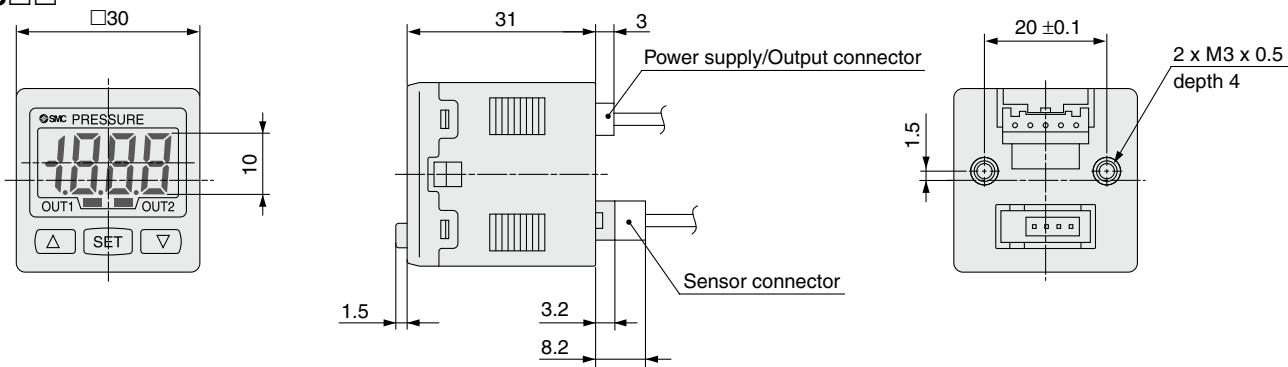
Connector for Sensor Connection

PIN no.	Terminal		
	PSE30□ (Voltage input)	PSE31□ (Current input)	
		Pressure sensor 2-wire type	Pressure sensor 3-wire type
1	DC (+) (Brown)	DC (+) (Brown)	DC (+) (Brown)
2	N.C.	N.C.	N.C.
3	DC (-) (Blue)	N.C.	DC (-) (Blue)
4	IN (1 to 5 V) (Black)	IN (4 to 20 mA) (Blue)	IN (4 to 20 mA) (Black)

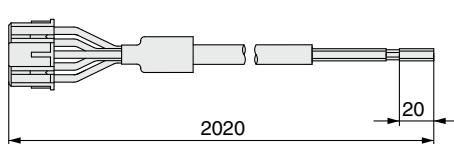
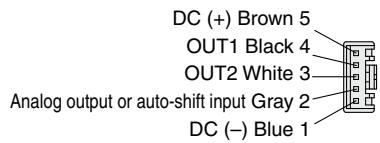
Note: The colors in () indicate the wire color of the PSE5□□ series.

Dimensions

PSE3□□

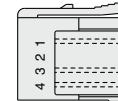


Power supply/Output connection cable (ZS-28-A)



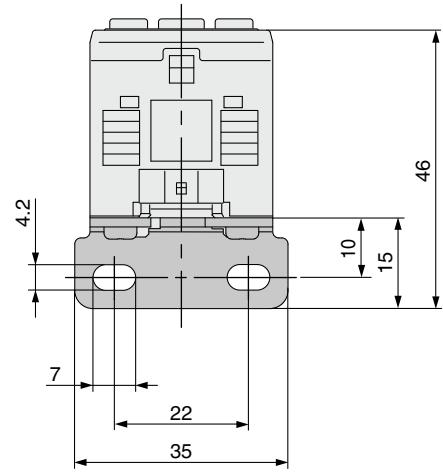
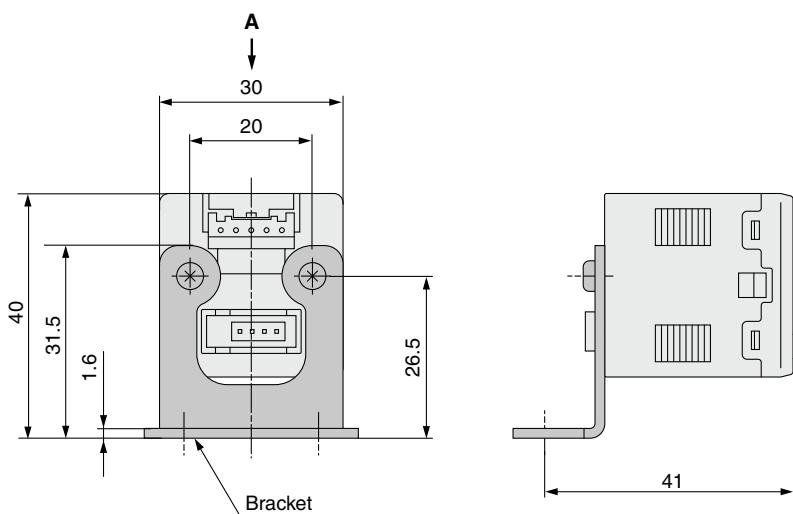
Sensor connector

PIN no.	Terminal	
	PSE30□	PSE31□
1	DC(+) (Brown)	DC(+) (Brown)
2	N.C.	N.C.
3	DC(-) (Blue)	N.C.
4	IN (1 to 5 V) (Black)	IN (4 to 20 mA) (Blue)

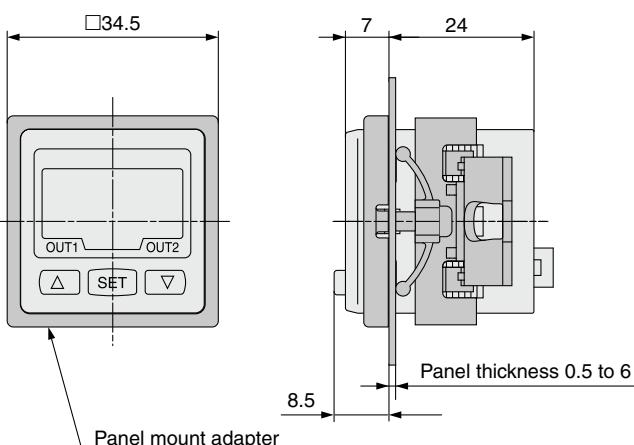


Note: The colors in () indicate the wire color of the PSE5□□ series.

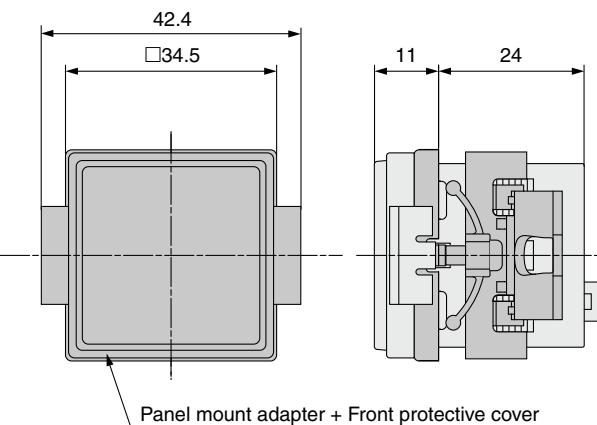
With bracket



With panel mount adapter



With panel mount adapter + Front protective cover



PSE530

PSE540

PSE550

PSE560

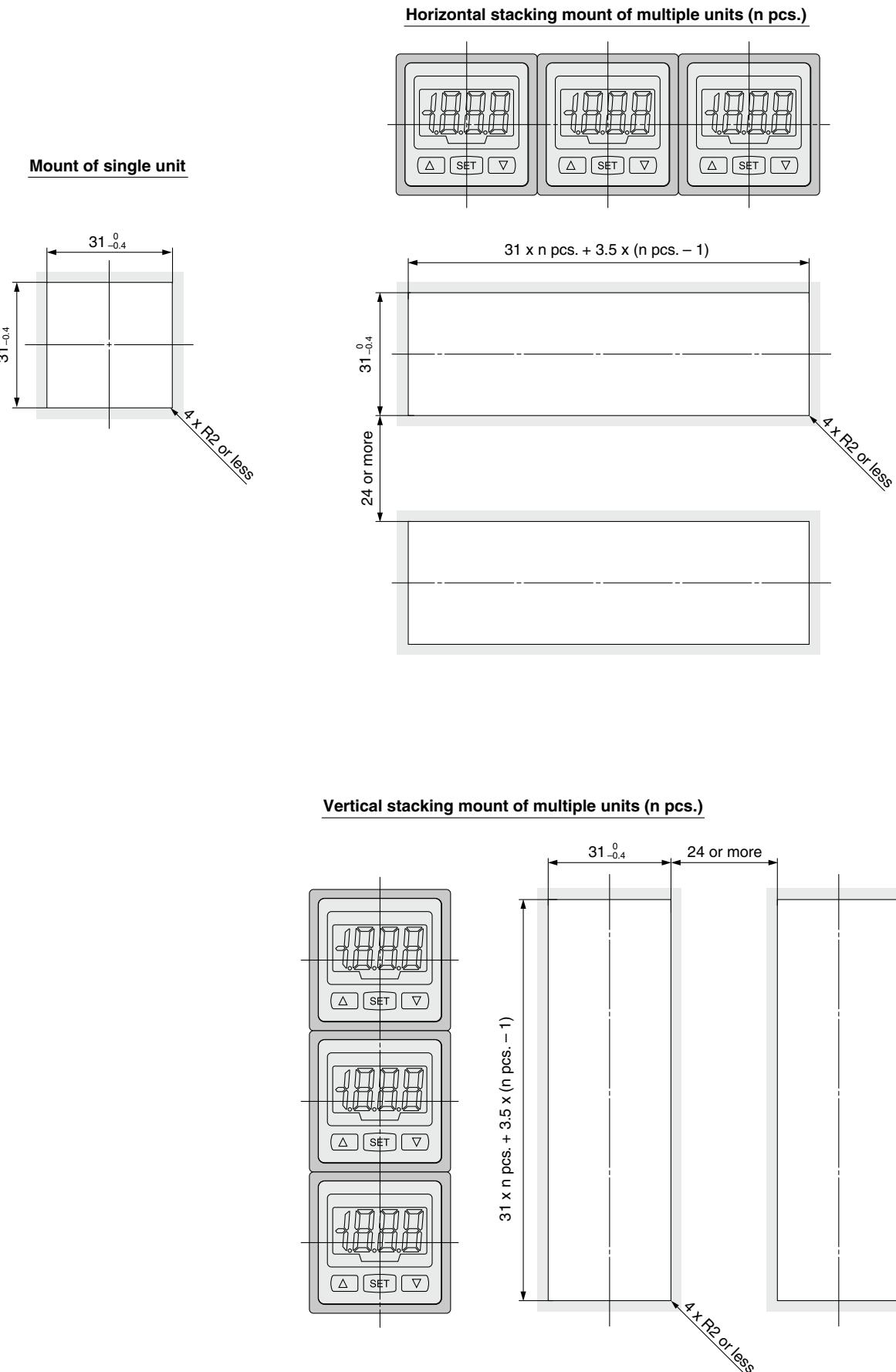
PSE570
Controller

PSE200

Series PSE300

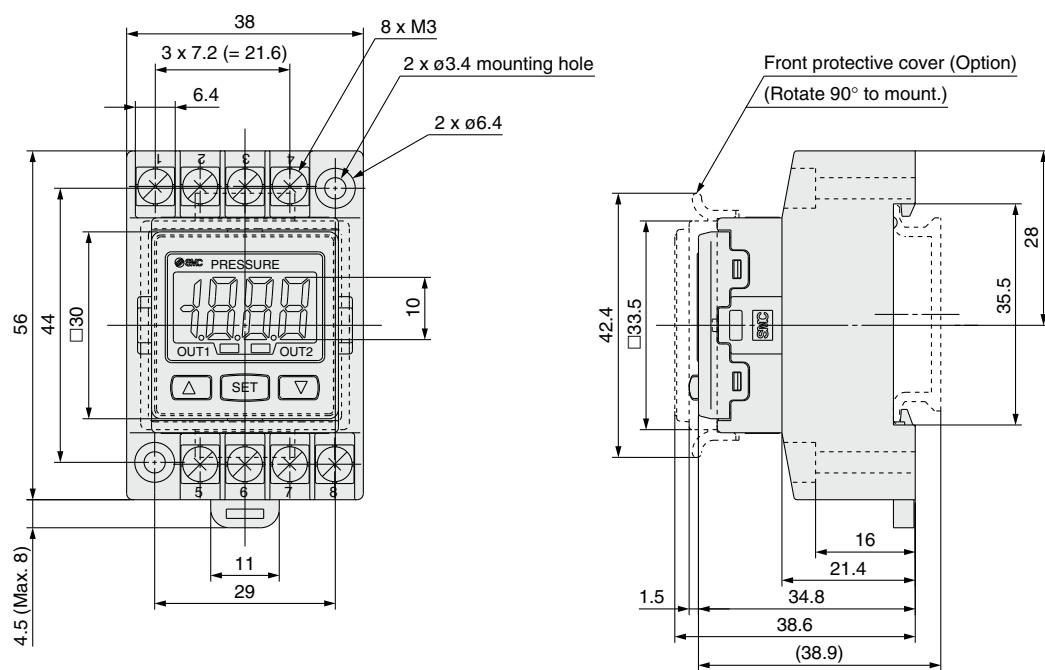
Dimensions

Panel fitting dimensions



Dimensions

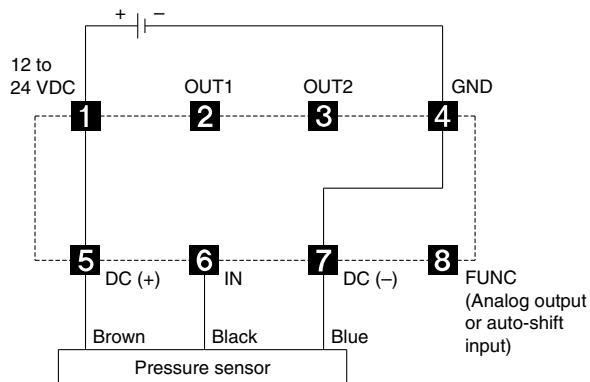
PSE3□□T



Connections

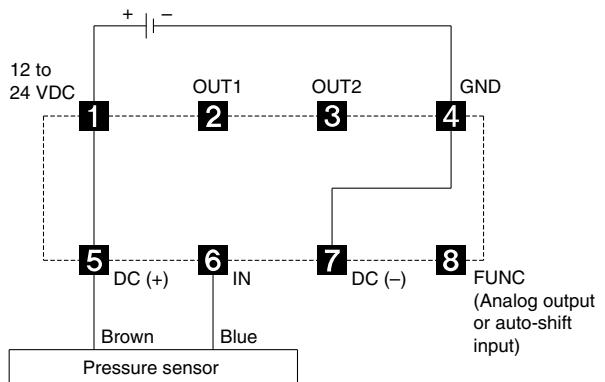
PSE3□□T

(Voltage input, Current input: Pressure sensor 3-wire type)



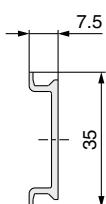
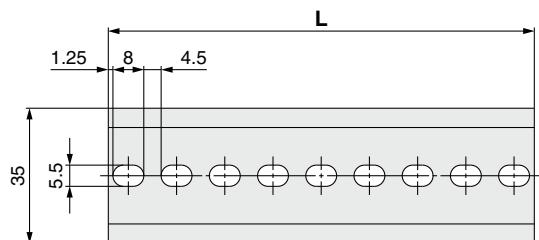
PSE31□T

(Current input: Pressure sensor 2-wire type)



DIN Rail

ISA-5-□



Part no.	L
ISA-5-1	73.0
ISA-5-2	135.5
ISA-5-3	173.0
ISA-5-4	210.5
ISA-5-5	248.0
ISA-5-6	285.5
ISA-5-7	323.0

PSE530

PSE540
PSE550

PSE560

PSE570

Controller
PSE300
PSE200

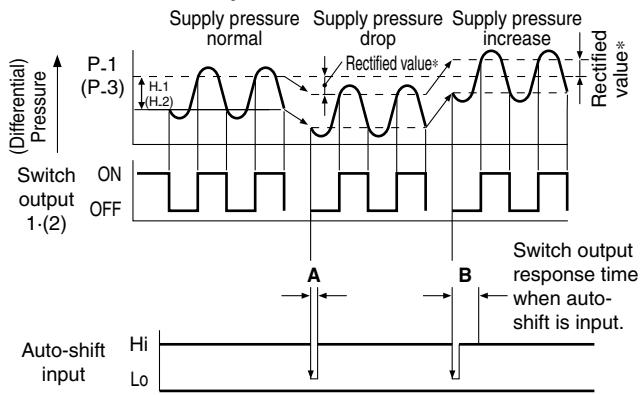
Series PSE200/300

Function Details

A Auto-shift function

When there are large fluctuations in the supply pressure, the switch may fail to operate correctly. The auto-shift function compensates such supply pressure fluctuations. It measures the (differential) pressure at the time of auto-shift signal input and uses it as the reference (differential) pressure to correct the set value on the switch.

Set value correction by auto-shift function



	A Auto-shift input time	B Switch output response time at time of auto-shift input
PSE200	10 ms or more	15 ms or less
PSE300	5 ms or more	10 ms or less

* Rectified value

When the auto-shift is selected, "ooo" will be displayed for approximately 1 second, and the pressure value at that point will be saved as a rectified value "C_5" (for CH1 of PSE200 and PSE300) or "C_3" (for CH2 to 4 for PSE200). Based on the saved rectified values (Note), the set value "P_1" to "P_4" (for PSE200) or "P_1", "H_1", "P_3", "H_2" (for PSE300) will likewise be rectified.

(Note) When an output is reversed, "n_1" to "n_4" (for PSE200) or "n_1", "H_1", "n_3", "H_2" (for PSE300) will be rectified.

Settable Range for Auto-Shift Input

PSE200	Set pressure (differential pressure) range	Settable range
Compound pressure	-101.0 to 101.0 kPa	-101.0 to 101.0 kPa
Vacuum	10.0 to -101.0 kPa	101.0 to -101.0 kPa
Low pressure	-10.0 to 101.0 kPa	-100.0 to 101.0 kPa
Positive pressure	-0.1 to 1.000 MPa	-1.000 to 1.000 MPa
Low differential pressure	—	—

PSE300	Set pressure (differential pressure) range	Settable range
Compound pressure	-101.0 to 101.0 kPa	-101.0 to 101.0 kPa
Vacuum	10.0 to -101.0 kPa	101.0 to -101.0 kPa
Low pressure	-10 to 100.0 kPa	-100.0 to 100.0 kPa
Positive pressure	-0.1 to 1.000 MPa	-1.000 to 1.000 MPa
Low differential pressure	-0.2 to 2.00 kPa	-2.00 to 2.00 kPa

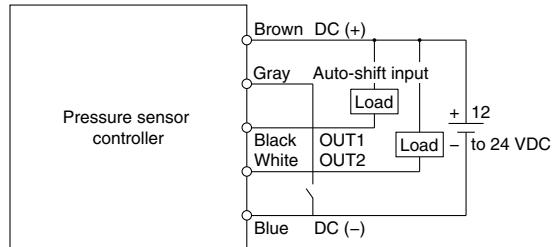
Auto-shift zero (PSE300 series only)

The basic function of auto-shift zero is the same as the function for auto-shift. Also, it corrects values on the display, based on a pressure value of 0, when the auto-shift is selected.

Auto-shift circuit

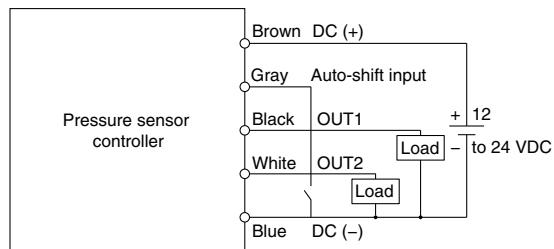
PSE3□2

NPN open collector output: 2 outputs



PSE3□5

PNP open collector output: 2 outputs

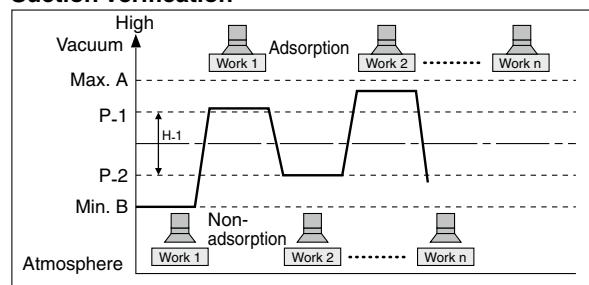


Note) The colors in the circuit diagram indicate the color of the lead wire when it is connected to the power supply/output connection cable (ZS-28-A).

B Auto-preset function

Auto-preset function, when selected in the initial setting, calculates and stores the set-value from the measured (differential) pressure. The optimum set-value is determined automatically by repeating vacuum and break with the target workpiece several times.

Suction Verification



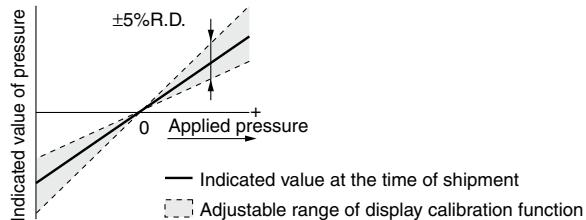
Formula for Obtaining the Set Value

	P_1 or P_3	P_2(H_1) or P_4(H_2)
PSE200	P_1(P_3)=A-(A-B)/4	P_2(H_1)=(A-B)/4
PSE300	P_2(P_4)=B+(A-B)/4	H_1(H_2)=(A-B)/2

Function Details

C Display calibration function

Fine adjustment of the indicated value of the pressure sensor can be made within the range of $\pm 5\%$ of the read value.
(The scattering of the indicated value can be eliminated.)



Note) When the display calibration function is used, the set pressure value may change ± 1 digit.

D Peak/Bottom values holding/display function

This function constantly detects and updates the maximum and minimum values and allows to hold the display value.
For PSE300, when the $\triangle \nabla$ are simultaneously pressed for 1 second or longer, while "holding", the hold value will be reset.

E Keylock function

Prevents operation errors such as accidentally changing setting values.

F Zero-clear function

This function clears and resets the zero value on the display of measured (differential) pressure within $\pm 7\%$ F.S. of the factory adjusted value.

G Error indication function

Error name	Error code		Description
	PSE200	PSE300	
Overcurrent error	Er 1	Er 1	Load current of 80 mA or more is applied to the switch output (OUT1).
	Er 2	Er 2	Load current of 80 mA or more is applied to the switch output (OUT2).
Residual pressure error	Er 3	Er 3	Pressure applied during the zero reset operation exceeds $\pm 7\%$ F.S. * After displaying the error code for 3 seconds, the switch automatically returns to the measuring mode. Due to individual product differences, the setting range varies ± 4 digits.
	---	HHH	Supply pressure exceeds the maximum set (differential) pressure or upper limit of the display pressure.
Applied pressure error	---	LLL	A sensor may be disconnected or mis-wired. Or, supply pressure is below the minimum set (differential) pressure or lower limit of the display pressure.
	/	or	The value measured at the time of auto-shift input is outside the set (differential) pressure range. * After displaying the error code for one second, the switch returns to the measuring mode.
System error	Er 5	Er 4	Internal data error
	Er 6	Er 6	Internal data error
	Er 7	Er 7	Internal data error
	Er 8	Er 8	Internal data error

H Copy function (PSE200 series only)

Information that can be copied includes the following: ① Pressure set values, ② Range settings, ③ Display units, ④ Output modes, ⑤ Response times.

- When CH1 is copied to CH2, CH3, and CH4, information of OUT1 in CH1 will be copied.
- When CH2, CH3, or CH4 is copied to CH1, information of OUT1 in CH2, CH3, or CH4 will be copied only to OUT1 in CH1.

Note) When the copy function is used, the regulating pressure value of the copied channel may change ± 1 digit.

I Auto-identification function (PSE200 series only)

This function automatically identifies the pressure range of the pressure sensor that is connected to the multi-channel pressure sensor controller, thus eliminating the need of having to reset the range again after replacing the sensor. This function will be activated either when "Aon" is set in the auto-identification mode or when the power is turned back on in that condition. However, this function only works in conjunction with specific pressure sensors (SMC PSE53□ series). When other pressure sensors are used, this function will not work. When using other types of pressure sensors, first set the auto-identification mode to "AoF", and then proceed to setting the range. Turning the power back on while in the "Aon" setting can cause a malfunction.

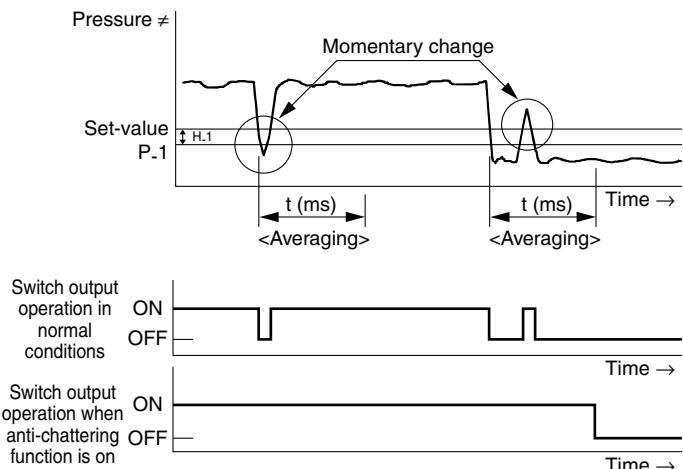
J Anti-chattering function

A large bore cylinder or ejector consumes a large volume of air in operation and may experience a temporary drop in the supply pressure. This function prevents detection of such temporary drops in the supply pressure as an error.

	Available response time settings
PSE200	20 ms, 160 ms, 640 ms
PSE300	20 ms, 160 ms, 640 ms, 1280 ms

<Principle>

This function averages pressure values measured during the response time set by the user and then compares the average pressure value with the pressure set point value to output the result on the switch.



K Channel selection function (PSE200 series only)

Pressure value for the selected channel is displayed.

L Channel scan function (PSE200 series only)

Pressure values for each channel are displayed by turns at 2-second intervals.

PSE530

PSE540

PSE550

PSE560

Controller PSE200

Series PSE200/300

Function Details

M Display unit switching function

Display units can be switched with this function.

Units that can be displayed vary depending on the range of the pressure sensors connected to the controller.

PSE200

Pressure range	For compound pressure	For vacuum	For low pressure	For positive pressure
Applicable pressure sensor	PSE533 PSE543 PSE563 PSE573	PSE531 PSE541 PSE561	PSE532	PSE530 PSE540 PSE560 PSE570
Set pressure (differential pressure) range	-101 to 101 kPa	10 to -101 kPa	-10 to 101 kPa	-0.1 to 1 MPa
Pa	kPa	0.1	0.1	0.1
	MPa	—	—	0.001
Gf	kgf/cm ²	0.001	0.001	0.001
bar	bar	0.001	0.001	0.001
PSI	psi	0.02	0.01	0.01
inh	inHg	0.1	0.1	—
mmHg	mmHg	1	1	—

PSE300

Pressure range	For compound pressure	For vacuum	For low pressure	For positive pressure		For low differential pressure
Applicable pressure sensor	PSE533 PSE543 PSE563 PSE573	PSE531 PSE541 PSE561	PSE532	PSE530 PSE540 PSE560 PSE570	PSE564 PSE574	PSE550
Set pressure (differential 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
Pa	kPa	0.2	0.1	0.1	—	1
	MPa	—	—	0.001	—	—
Gf	kgf/cm ²	0.002	0.001	0.001	0.01	0.01
bar	bar	0.002	0.001	0.001	0.01	0.01
PSI	psi	0.05	0.02	0.02	0.2	0.1
inh	inHg	0.1	0.1	—	—	—
mmHg	mmHg	2	1	—	—	1 mmH ₂ O

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.

⚠ 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.

- *1) ISO 4414: Pneumatic fluid power – General rules relating to systems.
- ISO 4413: Hydraulic fluid power – General rules relating to systems.
- IEC 60204-1: Safety of machinery – Electrical equipment of machines.
(Part 1: General requirements)
- ISO 10218-1: Manipulating industrial robots – Safety.
etc.

Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.

1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalog.
3. An application which could have negative effects on people, property, or animals requiring special safety analysis.
4. Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

Caution

1. The product is provided for use in manufacturing industries.

The product herein described is basically provided for peaceful use in manufacturing industries.
If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.
If anything is unclear, contact your nearest sales branch.

Limited warranty and Disclaimer/Compliance Requirements

The product used is subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”.

Read and accept them before using the product.

Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.*²
Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided.
This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.

*²) Vacuum pads are excluded from this 1 year warranty.

A vacuum pad is a consumable part, so it is warranted for a year after it is delivered.
Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

Caution

SMC products are not intended for use as instruments for legal metrology.

Measurement instruments that SMC manufactures or sells have not been qualified by type approval tests relevant to the metrology (measurement) laws of each country. Therefore, SMC products cannot be used for business or certification ordained by the metrology (measurement) laws of each country.

Revision history

Edition B * Added DIN rail/Terminal block type and Current input type to the PSE300 series. LT

Edition C * Added the pressure sensor for general fluids PSE570 series.
* Number of pages from 40 to 36 TT