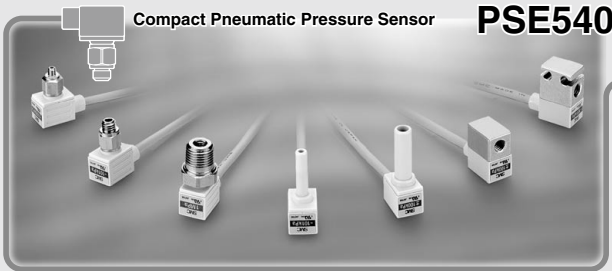


# Remote Type Pressure Sensors/Pressure Sensor Controllers

## Series PSE









Connection type



DIN rail/Terminal block type  
Current input specification is added.

ZSE30
ISE30
ZSE40
ISE40
ZSE10
ISE10
ISE70
ZSE80
ISE80
ZSE□
ISE□
ZSP
PS
ISA2
PSE
IS
ISG
ZSM1

# Remote Type Pressure Sensors/

		Pressure Sensors				Controllers		
Model		PSE530	PSE540	PSE550	PSE560	PSE200	PSE300	
								
		P. 888	P. 891	P. 894	P. 897	P. 900	P. 905	
Basic Specifications	Fluid	Air			General fluids			
	Rated pressure range (Minimum display)							
	Repeatability % (F.S.)	±1	±0.2	±0.3	±0.2	±0.1		
	Voltage	12 to 24 VDC						
	No. of outputs for a switch					5	2	
	Analog output	1 to 5 V		1 to 5 V 4 to 20 mA			1 to 5 V 4 to 20 mA	
	Operating temperature °C	0 to 50			-10 to 60		0 to 50	
Functions	Digital display					1-color	2-color	
	Enclosure	IP40			IP65		Front face IP65 Others IP40	IP40
	Wiring specification	Connector	Grommet				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*			
	Int'l standards	CE	CE, UL, CSA			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 Sensor Controllers

## Pressure Sensors/Series PSE5□□

		Rated pressure range				PSE53□	PSE54□	PSE55□	PSE56□
		-100 kPa	0	100 kPa	500 kPa	1 MPa			
Vacuum	-101 kPa	0				PSE531	PSE541	—	PSE561
Compound pressure	-100 kPa	100 kPa				PSE533	PSE543	—	PSE563
Positive pressure	0	100 kPa				PSE532	—	—	—
	0		500 kPa			—	—	—	PSE564
Low differential pressure	0			1 MPa		PSE530	PSE540	—	PSE560
	0	2 kPa				—	—	PSE550	—

## Pressure Sensor Controllers/Series PSE200/300

### PSE200



#### Input/Output specifications

- NPN 5 outputs + auto-shift input
- PNP 5 outputs + auto-shift input

### PSE300



#### Input/Output specifications

- NPN 2 outputs + 1-5 V outputs
- NPN 2 outputs + 4-20 mA outputs
- NPN 2 outputs + auto-shift input
- PNP 2 outputs + 1-5 V outputs
- PNP 2 outputs + 4-20 mA outputs
- PNP 2 outputs + auto-shift input

Applicable pressure sensor model				Setting/Display resolution	
PSE531	PSE541	—	PSE561	0.1 kPa	0.1 kPa
PSE533	PSE543	—	PSE563	0.1 kPa	0.2 kPa
PSE532	—	—	—	0.1 kPa	0.1 kPa
—	—	—	PSE564	—	1 kPa
PSE530	PSE540	—	PSE560	0.001 MPa	0.001 MPa
—	—	PSE550	—	—	0.01 kPa

## Main Functions (For details, refer to pages 911 to 913.)

<b>Keylock</b>	Locks the keys from functioning.
<b>Peak/Bottom value indication</b>	Displays the maximum and minimum values being set and can keep those values on the display.
<b>Auto-preset</b>	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.
<b>Auto-shift</b>	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.
<b>Display calibration</b>	Able to adjust the displayed value (±5%) and justify distribution of the values displayed on respective pressure switch.
<b>Anti-chattering</b>	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.

ZSE30  
ISE30

ZSE40  
ISE40

ZSE10  
ISE10

ISE70

ZSE80  
ISE80

ZSE□  
ISE□

ZSP

PS

ISA2

PSE

IS

ISG

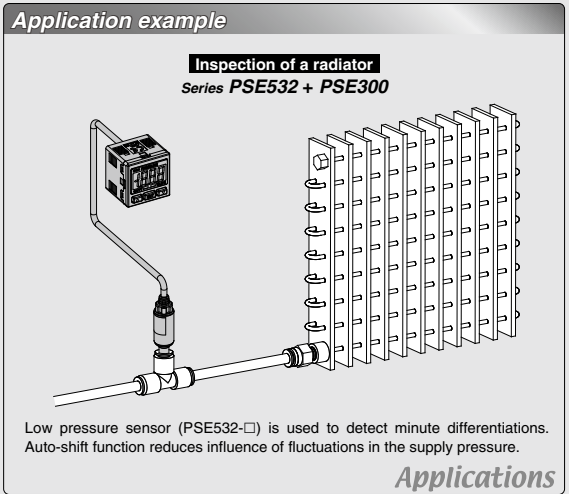
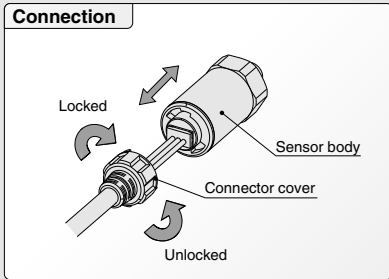
ZSM1

# Compact Pneumatic Pressure Sensor

## Series PSE530



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



# 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

### Option

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

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

## Option

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	The connector is not attached to the cable at the time of shipment.

For details about the Pressure Switch Precautions, refer to pages 763 and 764. For details about the Specific Product Precautions, refer to the Operation Manual at 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 power supply polarity protection)			
Current consumption	15 mA or less (with no load)			
Output specification	Analog output 1 to 5 V (with rated pressure range), 0.6 to 1 V (with extension analog output range), Output impedance: Approx. 1 kΩ			
Accuracy (Ambient temperature at 25°C)	±2% F.S. (with rated pressure range), ±5% F.S. (with 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 <sup>Note)</sup>	Halogen-free heavy-duty cable, 3 cores, ø2.7, 3 m, Conductor area: 0.15 mm <sup>2</sup> , Insulator O.D.: 0.8 mm			
Standards	CE, RoHS			

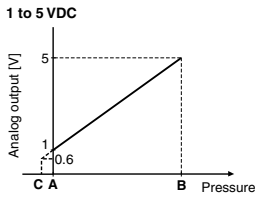
## Piping Specifications

Model		M5	R06	R07
Port size		M5 x 0.8 male thread	ø6 reducer type	1/4 inch reducer type
Wetted parts material		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	

Note) For details about wiring, refer to the Operation Manual that can be downloaded from SMC website (<http://www.smcworld.com>).

# Series PSE530

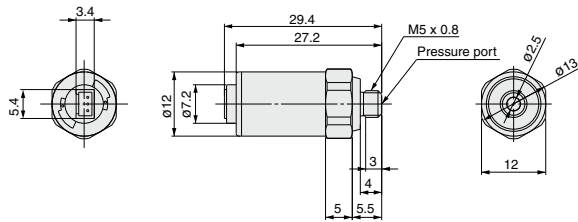
## Analog Output



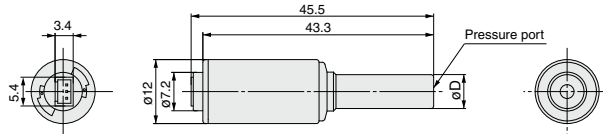
Range	Rated pressure range	A	B	C
For vacuum	0 to -101 kPa	0	-101 kPa	10.1 kPa
For compound pressure	-101 kPa to 101 kPa	-101 kPa	101 kPa	—
For low pressure	0 to 101 kPa	0	101 kPa	-10.1 kPa
For positive pressure	0 to 1 MPa	0	1 MPa	-0.1 MPa

## Dimensions

### PSE53□-M5

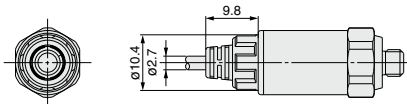


### PSE53□-R06 R07



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

### With sensor cable



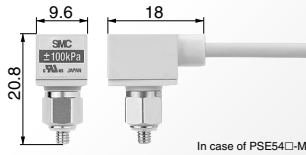
# Compact Pneumatic Pressure Sensor

## Series PSE540

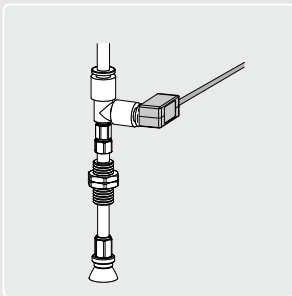


Series	Rated pressure range				
	-100 kPa	0	100 kPa	500 kPa	1 MPa
PSE540		0	1 MPa		
PSE541	-101 kPa	0			
PSE543	-100 kPa		100 kPa		

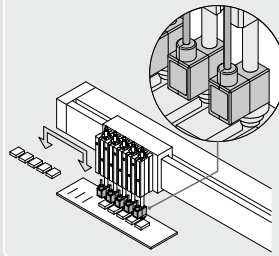
- Weight: 2.9 g
- Head size: 9.6 x 20.8 x 18 mm



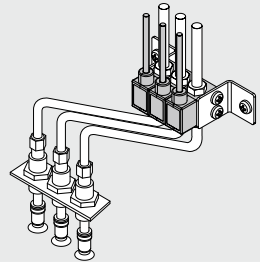
### Application examples



**Pads can be directly mounted.**



**Manifolding is possible.**



*Applications*

ZSE30  
ISE30

ZSE40  
ISE40

ZSE10  
ISE10

ISE70

ZSE80  
ISE80

ZSE□  
ISE□

ZSP

PS

ISA2

PSE

IS

ISG

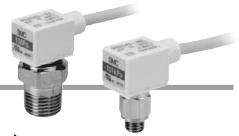
ZSM1

# Compact Pneumatic Pressure Sensor

## Series PSE540



### How to Order



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

Accuracy	
Nil	±2% F.S.
A	±1% F.S.

#### Option (Connector)

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

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

PSE54 1 - M3 -

#### Port size

M3	M3 x 0.5		IM5	M5 female thread, through type	
M5	M5 x 0.8		IM5H	M5 female thread, through type (with mounting hole)	
01	R 1/8 (with M5 female thread)				
N01	NPT 1/8 (with M5 female thread)				
R04	ø4 reducer				
R06	ø6 reducer				

### Option

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

### Specifications

For details about the Pressure Switch Precautions, refer to pages 763 and 764. For details about the Specific Product Precautions, refer to the Operation Manual at 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±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 (with rated pressure range), 0.6 to 1 V (with extension analog output range), Output impedance: Approx. 1 kΩ		
Accuracy (Ambient temperature at 25°C)		PSE54□: ±2% F.S. (with rated pressure range), ±5% F.S. (with extension analog output range) PSE54□A: 1% F.S. (with rated pressure range), ±3% F.S. (with extension analog output range)		
Linearity		±0.7% F.S. or less	±0.4% F.S.	
Repeatability		±0.2% F.S.		
Power supply voltage effect		±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 MΩ or more (500 VDC measured via megohmmeter) between terminals and housing		
Temperature characteristics		±2% F.S. (Based on 25°C)		
Sensor cable <sup>Note)</sup>		Oilproof heavy-duty vinyl cable (ellipse), 3 cores, 2.7 x 3.2, 3 m, Conductor area: 0.15 mm <sup>2</sup> , Insulator O.D.: 0.9 mm		
Standards		CE, UL/CSA (E216656), RoHS		

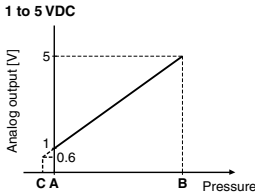
Note) For details about wiring, refer to the Operation Manual that can be downloaded from SMC website (<http://www.smcworld.com>).

### Piping Specifications

Model		M3	M5	01	N01	R04	R06	IM5	IM5H
Port size		M3 x 0.5	M5 x 0.8	R 1/8 M5 x 0.8	NPT 1/8 M5 x 0.8	ø4 reducer	ø6 reducer	M5 female thread, through type	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	



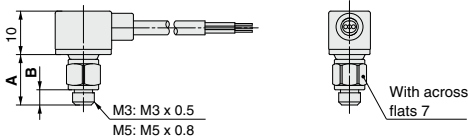
## Analog Output



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

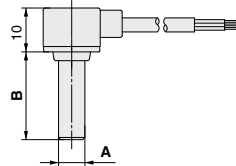
PSE54□-M3  
M5



(mm)

	PSE54□-M3	PSE54□-M5
A	10.8	11.5
B	3	3.5

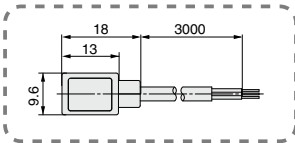
PSE54□-R04  
R06



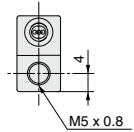
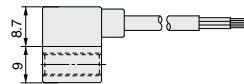
(mm)

	PSE54□-R04	PSE54□-R06
A	∅4	∅6
B	18	20

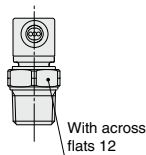
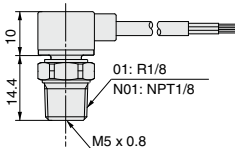
## Common Dimensions



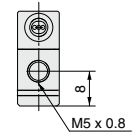
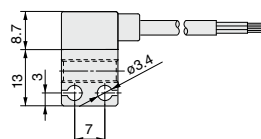
PSE54□-IM5



PSE54□-01  
N01



PSE54□-IM5H



# Low Differential Pressure Sensor

## Series PSE550



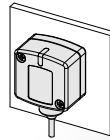
RoHS

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

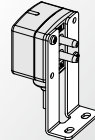
With LED display for confirming energization



2 mounting types



Mounting directly



Mounting with bracket

Accuracy

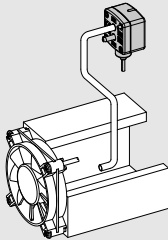
$\pm 1\%$  F.S.

Proof pressure

65 kPa

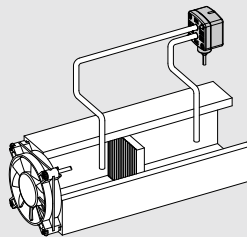
### Application examples

**Flow control**  
Series PSE550



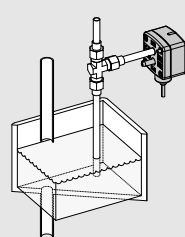
Can control air flow by monitoring the flow rate inside the duct.

**Filter clogging monitoring**  
Series PSE550



Can control filtration and replacement periods by monitoring the clogging of the filter.

**Liquid level detection**  
Series PSE550



Can detect the liquid level through changes in the purge pressure.

*Applications*

# Low Differential Pressure Sensor

## Series PSE550



### How to Order


PSE550-□-□-□

#### Output specifications

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

#### Option 2 (Connector)

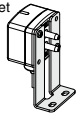
NII	None
C2	Connector for pressure sensor controller (1 pc.)



Note 1) Current-output type cannot be connected to the PSE 200 series.  
 Note 2) At the factory, the connector is not attached to the cable, but packed together with it for shipment.

#### Option 1 (Bracket)

NII	None
A	Bracket



Note) The bracket is not attached in the factory, but packed together for 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.

For details about the Pressure Switch Precautions, refer to pages 763 and 764. For details about the Specific Product Precautions, refer to the Operation Manual at SMC website.

### Specifications

Model	PSE550	PSE550-28
Rated differential pressure range	0 to 2 kPa	
Operating pressure range	-50 to 50 kPa (Note 1)	
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 power supply polarity protection)	
Current consumption	15 mA or less	—
Output specification	Analog output: 1 to 5 VDC (within rated differential pressure range) 0.6 to 1 VDC (with extension analog output range) Output impedance: Approx. 1 kΩ	Analog output: 4 to 20 mA DC (within rated differential pressure range) Allowable 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. (with rated pressure range), ±3% F.S. (with extension analog output range)	
Linearity	±0.5% F.S.	
Repeatability	±0.3% F.S.	
Indicator light	Orange light is turned on. (When energized)	
Enclosure	IP40	
environment	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)	
Wetted parts material	Resin pipe: Nylon, Piston area of sensor: Silicon	
Sensor cable (Note 2)	Oilproof heavy-duty vinyl cable (ellipse), 3 cores, 2.7 x 3.2, 3 m Conductor area: 0.15 mm <sup>2</sup> , 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 mm <sup>2</sup> , Insulator O.D.: 0.9 mm
Weight	With sensor cable	75 g
	Without sensor cable	35 g
Standards	CE, UL/CSA (E216656), RoHS	

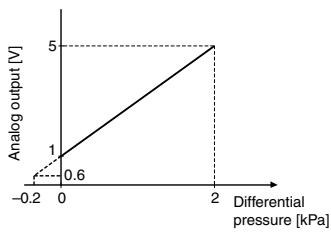
Note 1) Can detect differential pressure from 0 to 2 kPa within the range of -50 to 50 kPa.

Note 2) For details about wiring, refer to the Operation Manual that can be downloaded from SMC website (<http://www.smcworld.com>).

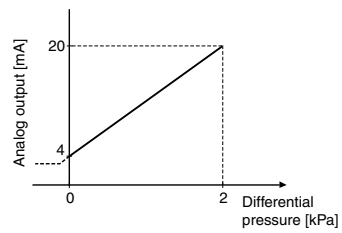
# Series PSE550

## Analog Output

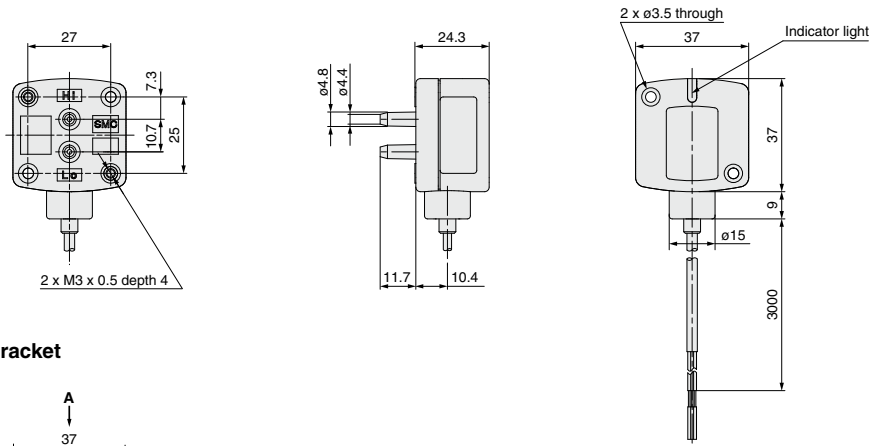
1 to 5 VDC



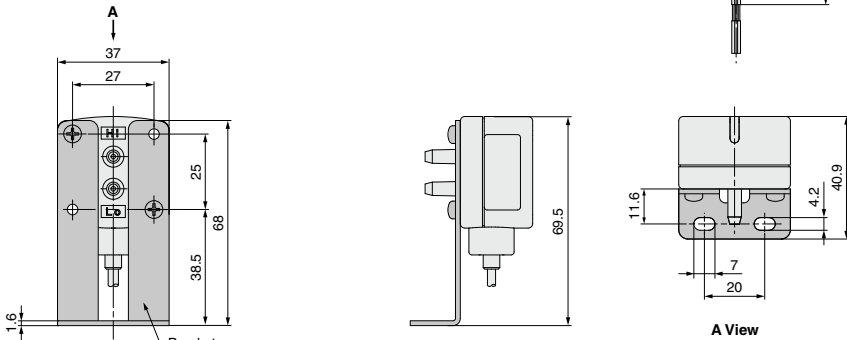
4 to 20 mA DC



## Dimensions



## With bracket



# Pressure Sensor For General Fluids

## Series PSE560



RoHS

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	

- ZSE30
- ISE30
- ZSE40
- ISE40
- ZSE10
- ISE10
- ISE70
- ZSE80
- ISE80
- ZSE
- ISE
- ZSP
- PS
- ISA2
- PSE
- IS
- ISG
- ZSM1

### Applicable fluids example

- Argon
- Air-containing drainage
- Freon
- Nitrogen
- Hydraulic oil
- Silicon oil
- Water
- Carbon dioxide
- Lubricant
- Fluorocarbon
- Air

Wetted parts material  
Stainless steel 316L

IP65

Copper-free  
Fluorine-free

Oil-free  
(Single diaphragm construction)

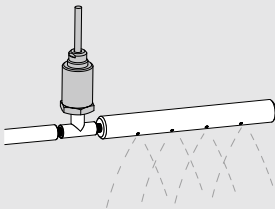
### Variations

Port type	Thread type	Special fitting type for semiconductors
Port size	R 1/8, R 1/4, Rc 1/8, NPT 1/8, NPT 1/4	URJ 1/4, TSJ 1/4*
Leakage	1 x 10 <sup>-5</sup> Pa·m <sup>3</sup> /s	1 x 10 <sup>-10</sup> Pa·m <sup>3</sup> /s
Analog output	1 to 5 V voltage output	
	4 to 20 mA current output	

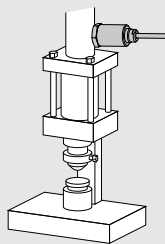
\* For URJ1/4, TSJ1/4, refer to "Glossary of Terms/Technical Information" on pages 936 to 937.

### Application examples

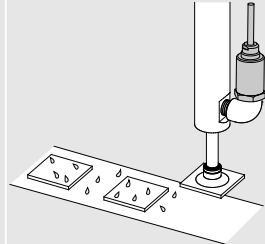
#### Cleaning lines



#### Confirmation of working pressure of hydraulic cylinders



#### Suction verification of work pieces containing moisture



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

Applications

# 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]

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

PSE56 0-01-□-□

### Port size

01	R 1/8 (with M5 female thread)
02	R 1/4 (with M5 female thread)
C01	Rc 1/8
N01	NPT 1/8 (with M5 female thread)
N02	NPT 1/4 (with M5 female thread)
A2	URJ 1/4
B2	TSJ 1/4

### Output specifications

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

### Option/Part No.

Description	Part no.	Note
Connector for pressure sensor controller	ZS-28-C	1 pc.
Adapter with throttle Rc 1/4	ZS-31-X175	1 pc.
Adapter with throttle NPT 1/4	ZS-31-X186	1 pc.
Adapter with throttle Rc 1/8	ZS-31-X188	1 pc.
Adapter with throttle NPT 1/8	ZS-31-X189	1 pc.

For details about the Pressure Switch Precautions, refer to pages 763 and 764. For details about the Specific Product Precautions, refer to the Operation Manual at SMC website.

## Specifications

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 stainless steel 316L	
Power supply voltage	12 to 24 VDC ±10%, Ripple (p-p) 10% or less (with power supply polarity protection)	
Current consumption	10 mA or less	—
Output specification	Analog output: 1 to 5 V (within rated differential pressure range) 0.6 to 1 V (with extension analog output range) Output impedance: Approx. 1 kΩ	Analog output: 4 to 20 mA DC (within rated differential pressure range) Allowable 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. (with rated pressure range), ±3% F.S. (with 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; Based on 25°C), ±3% F.S. (-10 to 60°C; Based on 25°C)	
Sensor cable <sup>Note)</sup>	PSE56□-□: Oilproof heavy-duty vinyl cable with air tubing, 3 cores, ø5.1, 3 m, Conductor area: 0.2 mm <sup>2</sup> , 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 mm <sup>2</sup> , Insulator O.D.: 1.12 mm	
Standards	CE, UL/CSA (E216656), RoHS	

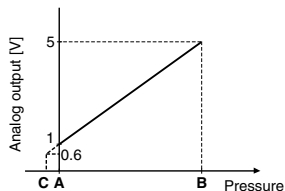
Note) For details about wiring, refer to the Operation Manual that can be downloaded from SMC website (<http://www.smcworld.com>).

## Piping Specifications

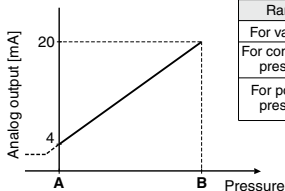
Model	01	02	N01	N02	C01	A2	B2
Port size	R 1/8 M5 x 0.8	R 1/4 M5 x 0.8	NPT 1/8 M5 x 0.8	NPT 1/4 M5 x 0.8	Rc 1/8	URJ 1/4	TSJ 1/4
Material	Case: C3604 + nickel plated, Piping port/pressure sensor: Stainless steel 316L						
Weight	With sensor cable	193 g	200 g	194 g	201 g	187 g	203 g
	Without sensor cable	101 g	108 g	102 g	109 g	95 g	101 g

## Analog Output

### 1 to 5 VDC



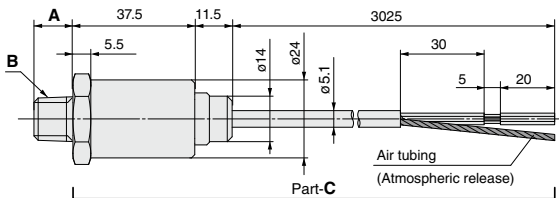
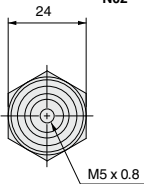
### 4 to 20 mA DC



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

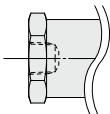
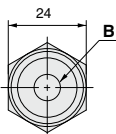
### PSE56□-01, PSE56□-N01



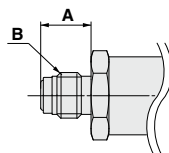
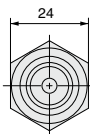
\* The dimensions of part C are common to all PSE56□ models.

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.

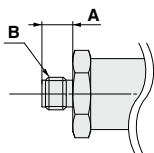
### PSE56□-C01



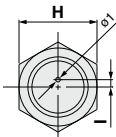
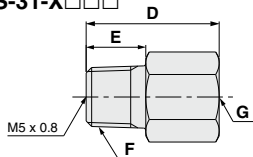
### PSE56□-A2



### PSE56□-B2



### Adapter with throttle ZS-31-X□□□



Model	A	B
PSE56□-01	8.2	R 1/8
PSE56□-02	12	R 1/4
PSE56□-N01	9.2	NPT 1/8
PSE56□-N02	12.2	NPT 1/4
PSE56□-C01	—	Rc 1/8
PSE56□-A2	15.5	URJ 1/4
PSE56□-B2	9.5	TSJ 1/4

(mm)

Model	D	E	F	G	H	I
ZS-31-X188	20	9	R 1/8	Rc 1/8	14	1.5
ZS-31-X189	20	9	NPT 1/8	NPT 1/8	14	1.5
ZS-31-X175	29	13	R 1/4	Rc 1/4	17	1.6
ZS-31-X186	29	13	NPT 1/4	NPT 1/4	17	1.6

(mm)

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

# Multi-Channel Digital Pressure Sensor Controller

## Series PSE200



RoHS

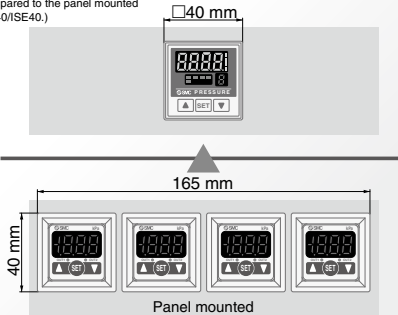
Applicable sensors				Rated pressure range				Setting/Display resolution
PSE53	PSE54	PSE55	PSE56	-100 kPa	0	100 kPa	1 MPa	
PSE531	PSE541	—	PSE561	-101 kPa	0			0.1 kPa
PSE533	PSE543	—	PSE563	-100 kPa		100 kPa		0.1 kPa
PSE530	PSE540	—	PSE560		0		1 MPa	0.001 MPa
PSE532		—			0	100 kPa		0.1 kPa

● 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)

76% reduction in installation space

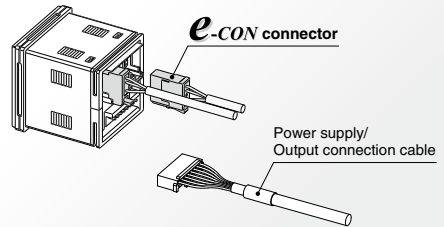
(Compared to the panel mounted ZSE40/ISE40.)



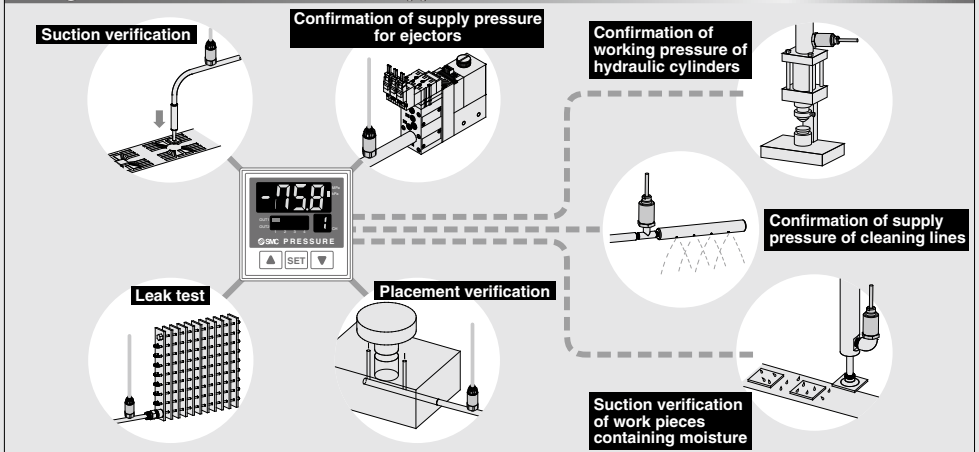
● Functions

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

Connection



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

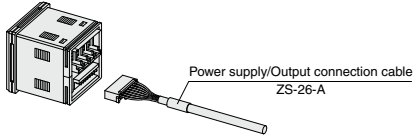
Nil	With unit display switching function <sup>Note 1)</sup>
M	Fixed SI unit <sup>Note 2)</sup>

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) Panel mount adapter Panel Mounting screw (M3 x 8L) (Accessory)
B	Front protective cover + Panel mount adapter  Front protective cover Waterproof seal (Accessory) Panel mount adapter Panel Mounting screw (M3 x 8L) (Accessory)

## Option

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  48 conversion adapter Order panel mount adapter separately.	
Front protective cover	ZS-26-01	
Sensor connector	ZS-28-C (1 pc. per set)	

ZSE30  
ISE30  
ZSE40  
ISE40  
ZSE10  
ISE10  
ISE70  
ZSE80  
ISE80  
ZSE  
ISE  
ZSP  
PS  
ISA2  
PSE  
IS  
ISG  
ZSM1

# Series PSE200

For details about the Pressure Switch Precautions, refer to pages 763 and 764. For details about the Specific Product Precautions, refer to the Operation Manual at SMC website.

## Specifications

Model		PSE200	PSE201
<b>Power supply voltage</b>		12 to 24 VDC±10%, Ripple (p-p) 10% or less (with power supply polarity protection)	
<b>Current consumption</b>		55 mA or less (Current consumption for sensor is not included.)	
<b>Power supply voltage for sensor</b>		[Power supply voltage] -1.5 V	
<b>Power supply current for sensor</b> <sup>Note 1)</sup>		Maximum 40 mA (100 mA maximum for the total power supply current when 4 sensors are input.)	
<b>Sensor input</b>		1 to 5 VDC (Input impedance: Approx. 800 kΩ)	
	<b>Number of inputs</b>	4 inputs	
	<b>Input protection</b>	With excess voltage protection (Up to 26.4 V)	
<b>Switch output</b>		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)
	<b>Maximum load current</b>	80 mA	
	<b>Maximum load voltage</b>	30 V	—
	<b>Residual voltage</b>	1 V or less (with load current of 80 mA)	
	<b>Response time</b>	5 ms or less (Response time selections with anti-chattering function: 20 ms, 160 ms, 640 ms)	
	<b>Short circuit protection</b>	With short circuit protection function	
<b>Repeatability</b>		±0.1% F.S. ±1 digit	
<b>Hysteresis</b>	<b>Hysteresis mode</b>	Adjustable (can be set from 0)	
	<b>Window comparator mode</b>	Fixed (3 digits)	
<b>Display</b>		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	
<b>Display accuracy (Operating temperature at 25°C)</b>		±0.5% F.S. ±1 digit	
<b>Indicator light</b>		Red (Lights up when output is turned ON.)	
<b>Auto-shift input</b>		Non-voltage input (Reed or Solid state), Input 10 ms or more, Independently controllable auto-shift function ON/OFF	
<b>Auto-identification function</b>		With auto-identification function <sup>Note 2)</sup>	
<b>Environment</b>	<b>Enclosure</b>	Front face: IP65 (when panel-mounted), Others: IP40 <sup>Note 4)</sup>	
	<b>Ambient temperature range</b>	Operating: 0 to 50°C, Stored: -10 to 60°C (No freezing or condensation)	
	<b>Ambient humidity range</b>	Operating/Stored: 35 to 85% RH (No condensation)	
<b>Temperature characteristics</b>		±0.5% F.S. (25°C reference)	
<b>Connection</b>		Power supply/Output connection: 8P connector, Sensor connection: e-con connector	
<b>Material</b>		Housing: PBT; Display: Transparent nylon; Back rubber cover: CR	
<b>Weight</b>		Approx. 60 g (Excluding power supply/output cable)	
<b>Power supply/Output connection cable</b> <sup>Note 3)</sup>		Oilproof heavy-duty vinyl cable, 8 cores, ø4.8, 2 m, Conductor area: 0.15 mm <sup>2</sup> , Insulator O.D.: 0.9 mm	
<b>Standards</b>		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 and 560) are not equipped with this function.

Note 3) For details about wiring, refer to the Operation Manual that can be downloaded from SMC website (<http://www.smworld.com>).

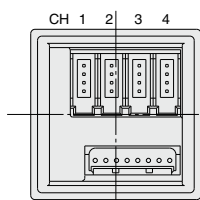
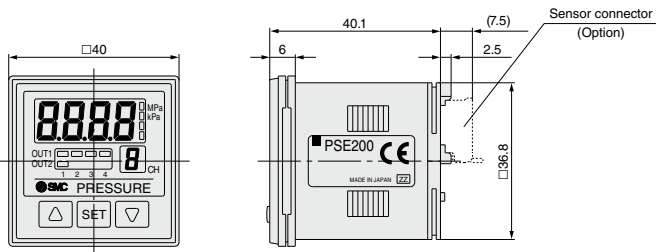
Note 4) IP40 when using the □48 conversion adapter.

## Applicable Pressure Sensor

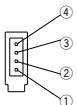
Applicable sensor				Rated pressure range				Setting/Display resolution
PSE53□	PSE54□	PSE55□	PSE56□	-100 kPa	0	100 kPa	1 MPa	
PSE531	PSE541	—	PSE561	-101 kPa	0			0.1 kPa
PSE533	PSE543	—	PSE563	-101 kPa		101 kPa		0.1 kPa
PSE530	PSE540	—	PSE560		0		1 MPa	0.001 MPa
PSE532		—			0	101 kPa		0.1 kPa

## Dimensions

### PSE200/201

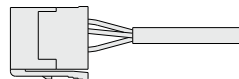


Sensor connector (4P x 4)

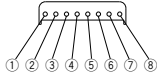


PIN no.	Terminal
①	DC (+)
②	N.C.
③	DC (-)
④	IN (1 to 5 V)

Connector (Option)

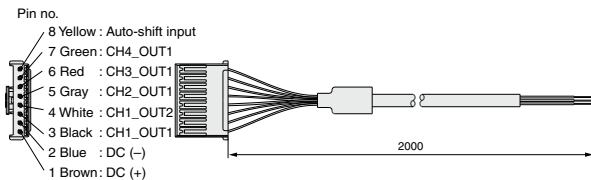


Power supply/Output connector (8P)



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)

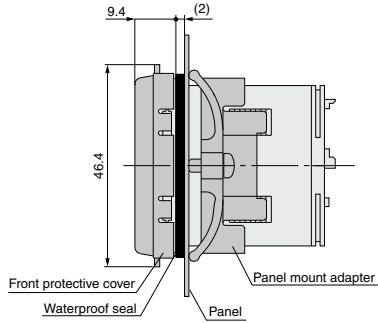
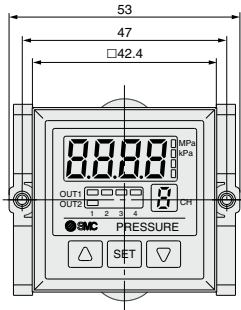


ZSE30	ISE30
ZSE40	ISE40
ZSE10	ISE10
ISE70	
ZSE80	ISE80
ZSE	ISE
ZSP	
PS	
ISA2	
PSE	
IS	
ISG	
ZSM1	

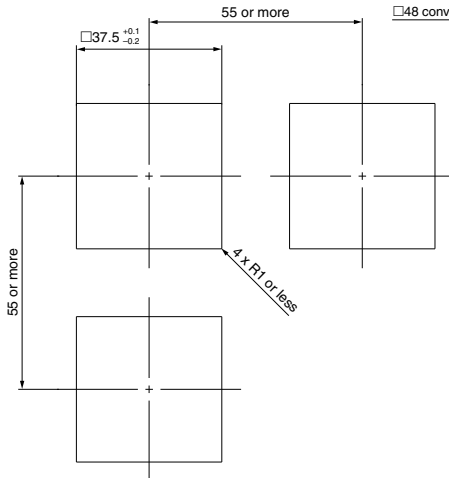
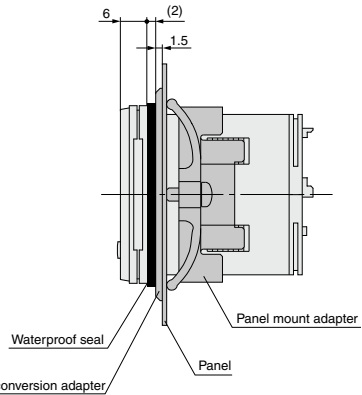
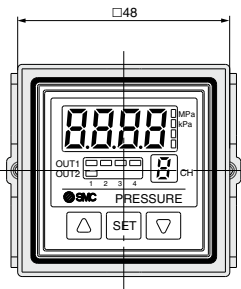
# Series PSE200

## 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					Setting/Display resolution
PSE53□	PSE54□	PSE55□	PSE56□	-100 kPa	0	100 kPa	500 kPa	1 MPa	
PSE531	PSE541	—	PSE561	-101 kPa	0				0.1 kPa
PSE533	PSE543	—	PSE563	-100 kPa		100 kPa			0.2 kPa
PSE530	PSE540	—	PSE560		0			1 MPa	0.001 MPa
PSE532	—	—	—		0	100 kPa			0.1 kPa
—	—	—	PSE564		0		500 kPa		1 kPa
—	—	PSE550	—		0	2 kPa			0.01 kPa

### 2-color display (Red/Green)

Possible to set the 4 patterns of the 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.

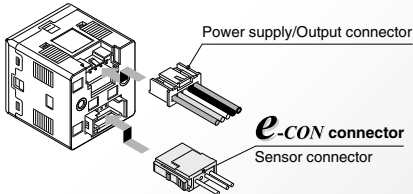
Possible to reduce panel fitting labor



Response time

**1 ms**

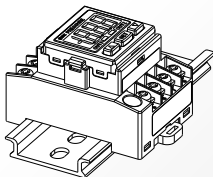
### Connection



### ● Functions

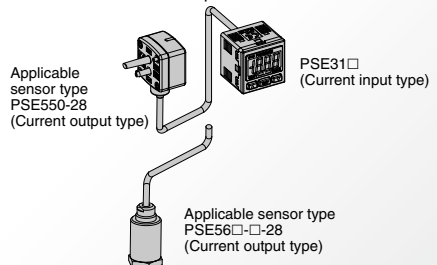
- Auto-shift function
- Auto-preset function
- Display calibration function
- Peak/Bottom value indication
- Keylock function
- Zero-clear function
- Error indication function
- Display unit switching function
- Anti-chattering function

### DIN rail/Terminal block type



### Current input

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



ZSE30  
ISE30  
ZSE40  
ISE40  
ZSE10  
ISE10  
ISE70  
ZSE80  
ISE80  
ZSE□  
ISE□  
ZSP  
PS  
ISA2  
PSE  
IS  
ISG  
ZSM1

# Pressure Sensor Controller

## Series PSE300



### How to Order



DIN rail/Terminal block type

PSE3 0 0 T - M

Connector type

PSE3 0 0 - M



**Input specifications**

0	Voltage input
1	Current input

**Input/Output specifications**

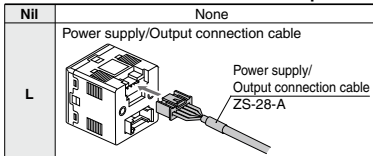
0	NPN 2 outputs + 1-5 V output
1	NPN 2 outputs + 4-20 mA output
2	NPN 2 outputs + Auto-shift input
3	PNP 2 outputs + 1-5 V output
4	PNP 2 outputs + 4-20 mA output
5	PNP 2 outputs + Auto-shift input

**Unit specifications**

NII	With unit display switching function
M	Fixed SI unit (Note)

Note) 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**



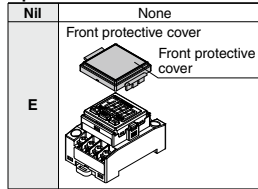
Note) The cable is unassembled in the factory, but is included with the shipment.

Order DIN rail separately. Refer to page 910.

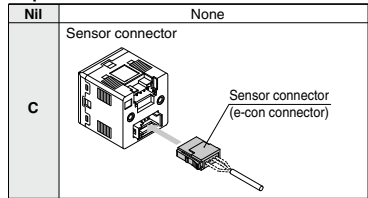
### Option

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**

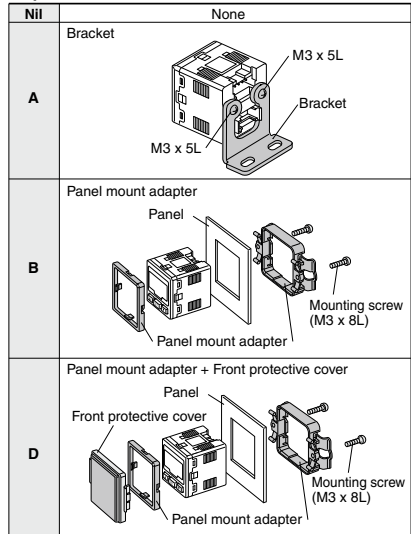


**Option 3**



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

**Option 2**



Note) These options are not attached in the factory, but packed together with it for shipment.

For details about the Pressure Switch Precautions, refer to pages 763 and 764. For details about the Specific Product Precautions, refer to the Operation Manual at SMC website.

## Specifications

Model	PSE3□□					
Applicable pressure sensor	PSE533 PSE543 PSE563	PSE531 PSE541 PSE561	PSE532	PSE530 PSE540 PSE560	PSE564	PSE550
Pressure display range/Set (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 resolution/Setting resolution	0.2 kPa	0.1 kPa	0.1 kPa	0.001 MPa	1 kPa	0.01 kPa
Pressure range <sup>Note 1)</sup>	For compound pressure	For vacuum	For low pressure	For positive pressure		For low differential pressure
Rated (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	—	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 power supply polarity protection)					
Current consumption	50 mA or less (Current consumption for sensor is not included.)					
Sensor input	PSE3□□: 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 <sup>Note 2)</sup>	Output voltage: 1 to 5 V (within rated pressure range (Differential pressure)), 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 <sup>Note 2)</sup>	Output current: 4 to 20 mA (within rated pressure range (Differential pressure)), 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 <sup>Note 2)</sup>	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□□), Denaturated 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 <sup>Note 3)</sup>	Oilproof heavy-duty vinyl cable, 5 cores, ø4.1, 2 m, Conductor area: 0.2 mm <sup>2</sup> 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.

Note 3) For details about wiring, refer to the Operation Manual that can be downloaded from SMC website (<http://www.smcworld.com>).

Note 4) The following units can be selected with unit conversion function:

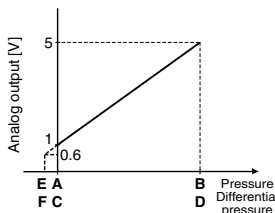
For vacuum & compound pressure: kPa·kgf/cm<sup>2</sup>·bar·psi·mmHg·inHg

For positive pressure & low pressure: MPa·kPa·kgf/cm<sup>2</sup>·bar·psi

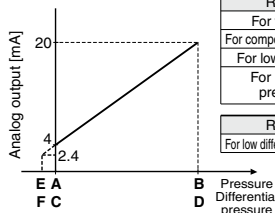
For low differential pressure: kPa·mmH<sub>2</sub>O

## 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

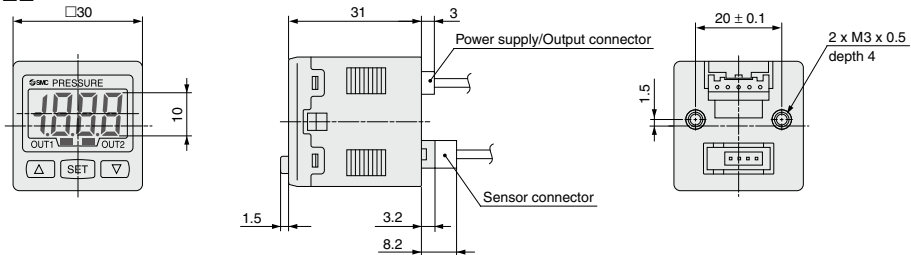
  

Range	Rated pressure range	C	D	F
For low differential pressure	0 to 2 kPa	0	2 kPa	-0.2 kPa

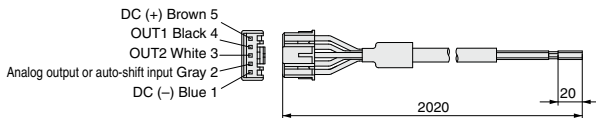
# Series PSE300

## Dimensions

PSE3□□

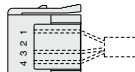


### Power supply/Output connection cable (ZS-28-A)



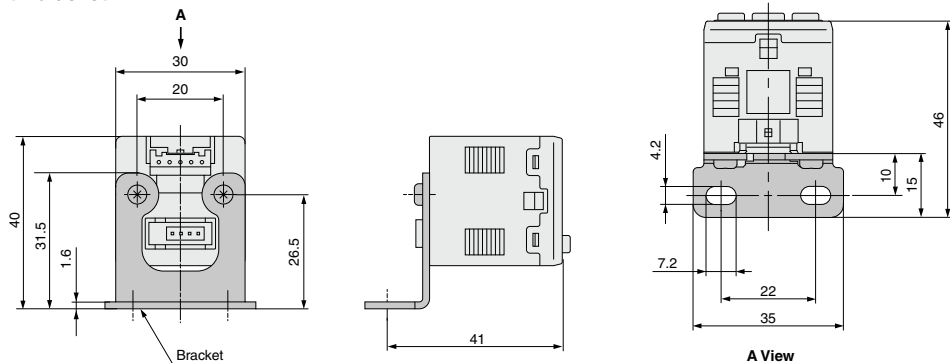
### Sensor connector

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)

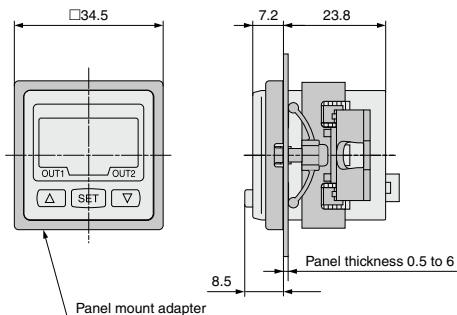


Note: The colors in ( ) indicate the wire color of the PSE5□□ series.

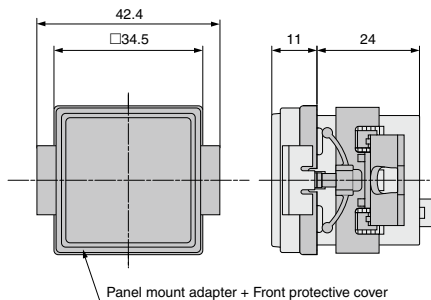
### With bracket



### With panel mount adapter



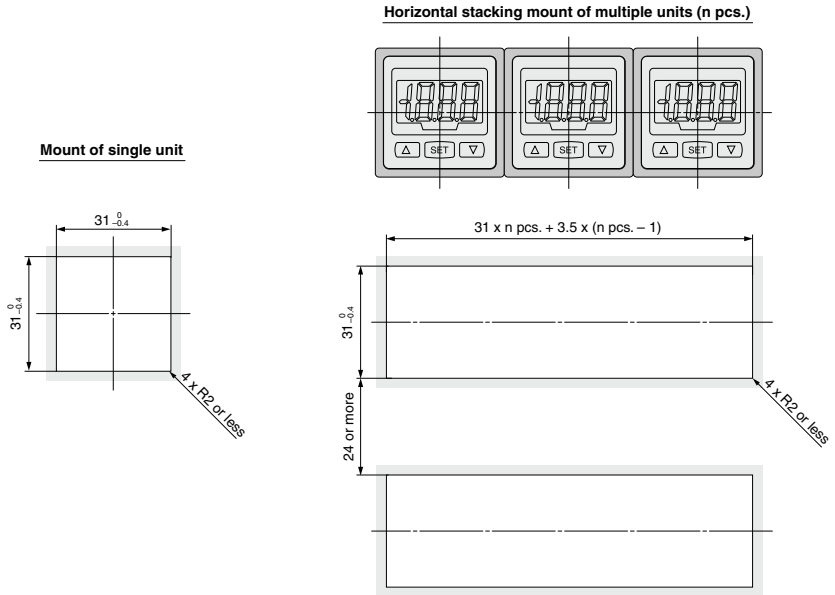
### With panel mount adapter + Front protective cover





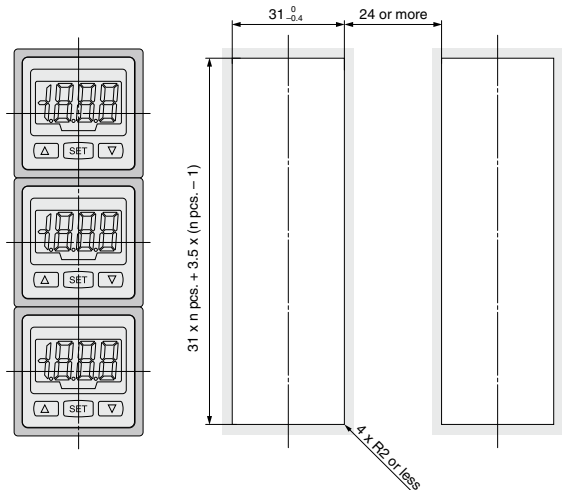
## Dimensions

### Panel fitting dimensions



ZSE30
ISE30
ZSE40
ISE40
ZSE10
ISE10
ISE70
ZSE80
ISE80
ZSE□
ISE□
ZSP
PS
ISA2
PSE
IS
ISG
ZSM1

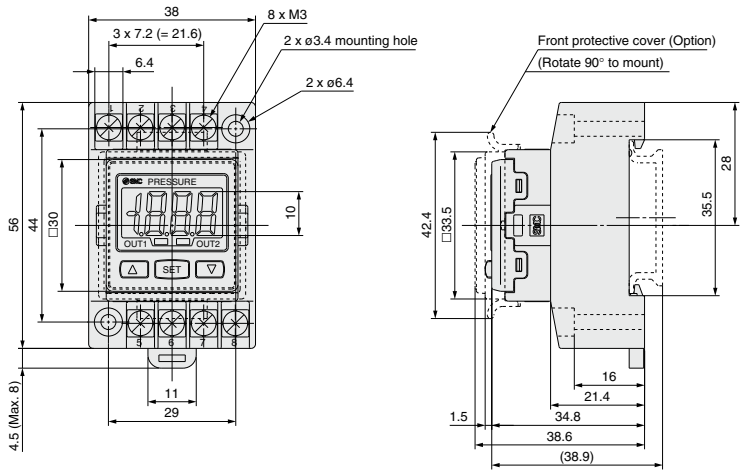
### Vertical stacking mount of multiple units (n pcs.)



# Series PSE300

## Dimensions

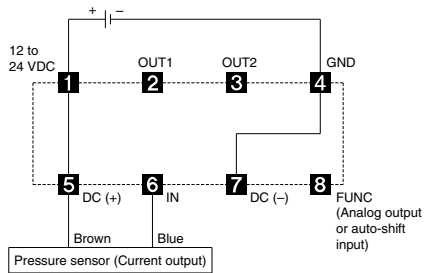
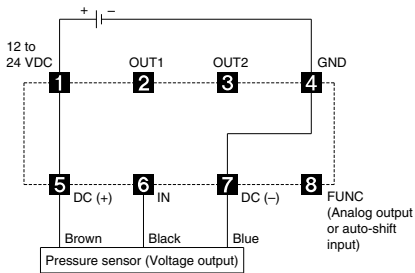
### PSE3□□T



## Connections

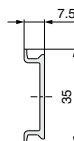
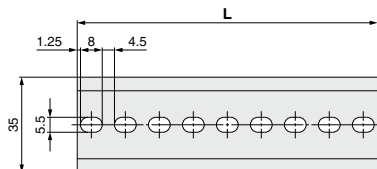
### PSE30□T (Voltage input type)

### PSE31□T (Current input type)



## DIN Rail

### ISA-5-□



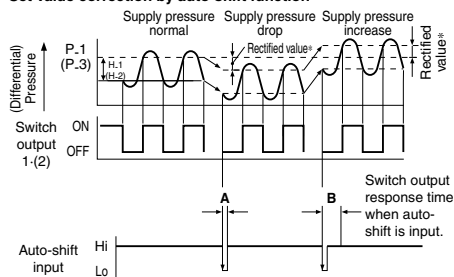
Part no.	L
ISA-5-1	73.0
ISA-5-2	135.5
ISA-5-3	173.0
ISA-5-4	210.5
ISA-5-5	248.0
ISA-5-6	285.5
ISA-5-7	323.0

## 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
<b>PSE200</b>	10 ms or more	15 ms or less
<b>PSE300</b>	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
	-50 to 500 kPa	-500 to 500 kPa
Low differential pressure	-0.2 to 2.00 kPa	-2.00 to 2.00 kPa

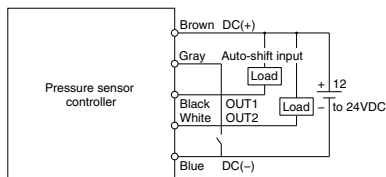
#### Auto-shift zero (Series PSE300 only)

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

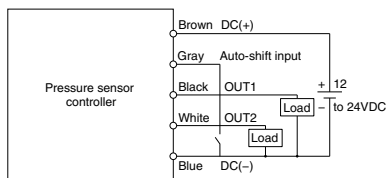
PNP open collector output: 2 outputs



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

#### PSE3□5

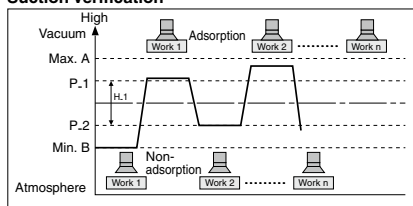
PNP open collector output: 2 outputs



### 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

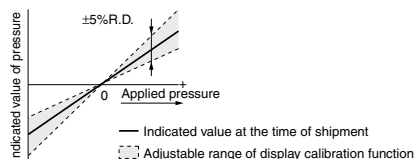
	P_1 or P_3	P_2(H_1) or P_4(H_2)
<b>PSE200</b>	$P_1(P_3)=A-(A-B)/4$	$P_2(P_4)=B+(A-B)/4$
<b>PSE300</b>		$H_1(H_2)=(A-B)/2$

ZSE30  
ISE30  
ZSE40  
ISE40  
ZSE10  
ISE10  
ISE70  
ZSE80  
ISE80  
ZSE□  
ISE□  
ZSP  
PS  
ISA2  
PSE  
IS  
ISG  
ZSM1

## 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  $\pm 1$  digit.

### D Peak and bottom 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 $\pm 4$ digits.
Applied pressure error	---	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.
Auto-shift error	/	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 (Series PSE200 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  $\pm 1$  digit.

### I Auto-identification function (Series PSE200 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 Series PSE53□). 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.

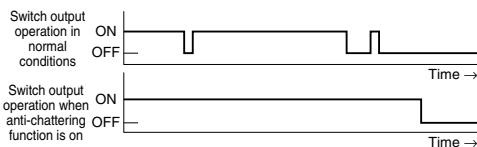
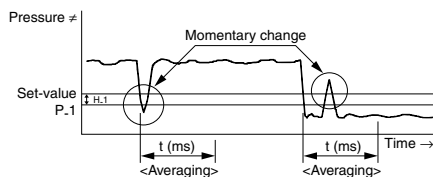
### J Anti-chattering function

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 (Series PSE200 only)

Pressure value for the selected channel is displayed.

### L Channel scan function (Series PSE200 only)

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

## 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	PSE531		PSE530	
	PSE543	PSE541	PSE532	PSE540	
	PSE563	PSE561		PSE560	
Set pressure (differential pressure) range	-101 to 101 kPa	10 to -101 kPa	-10 to 101 kPa	-0.1 to 1 MPa	
P <sub>R</sub>	kPa	0.1	0.1	0.1	—
	MPa	—	—	—	0.001
G <sub>F</sub>	kgf/cm <sup>2</sup>	0.001	0.001	0.001	0.01
b <sub>R</sub> r	bar	0.001	0.001	0.001	0.01
P <sub>S</sub> i	psi	0.02	0.01	0.01	0.1
in <sub>H</sub>	inHg	0.1	0.1	—	—
mm <sub>H</sub>	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	PSE531		PSE530			
	PSE543	PSE541	PSE532	PSE540	PSE564		
	PSE563	PSE561		PSE560	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	
P <sub>R</sub>	kPa	0.2	0.1	0.1	—	1	0.01
	MPa	—	—	—	0.001	—	—
G <sub>F</sub>	kgf/cm <sup>2</sup>	0.002	0.001	0.001	0.01	0.01	—
b <sub>R</sub> r	bar	0.002	0.001	0.001	0.01	0.01	—
P <sub>S</sub> i	psi	0.05	0.02	0.02	0.2	0.1	—
in <sub>H</sub>	inHg	0.1	0.1	—	—	—	—
mm <sub>H</sub>	mmHg	2	1	—	—	—	1 mmH <sub>2</sub> O

ZSE30  
ISE30

ZSE40  
ISE40

ZSE10  
ISE10

ISE70

ZSE80  
ISE80

ZSE  
ISE

ZSP

PS

ISA2

PSE

IS

ISG

ZSM1