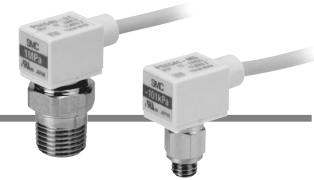


Compact Pressure Sensor for Pneumatics

Series PSE540



How to Order



Pressure sensing range

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

PSE54 **1** - **M3** - []

Options (Connector)

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

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

Port size

| | | | | | |
|-----|--------------------------------|--|------|---|--|
| M3 | M3 x 0.5 | | IM5 | M5 female thread, through type | |
| M5 | M5 x 0.8 | | IM5H | M5 female thread, through type (with mounting hole) | |
| O1 | R1/8 (with M5 female thread) | | | | |
| N01 | NPT1/8 (with M5 female thread) | | | | |
| R04 | ø4 plug-in reducer | | | | |
| R06 | ø6 plug-in reducer | | | | |

Options/Part No.

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

Specifications

Conforms to CE marking and UL (CSA) standards.

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

Piping specification

| Model | | M3 | M5 | O1 | N01 | R04 | R06 | IM5 | IM5H |
|--------------|--------------------------|---|----------|-------------------------------------|--------------------|-----------------------|-----------------------|---------------------------------------|---|
| Port size | | M3 x 0.5 | M5 x 0.8 | R1/8 M5 x 0.8 | NPT1/8 M5 x 0.8 | ø4 plug-in reducer | ø6 plug-in reducer | M5 female thread, through type | M5 female thread, through type (with mounting hole) |
| Material | Case | Resin case: PBT Fitting: SUS303 | | Resin case: PBT Fitting: C3604BD | | PBT | | Resin case: PBT Fitting: A6063S-T5 | |
| | Pressure sensing section | Pressure sensor: Silicon, O-ring: NBR | | | | | | | |
| Sensor cable | | 3 wire oval cable (0.15 mm ²) | | | | | | | |
| Weight | With sensor cable | 42.4 g | 42.7 g | 49.3 g | 41.4 g | 41.6 g | 43.3 g | 44.1 g | |
| | Without sensor cable | 2.9 g | 3.2 g | 9.8 g | 1.9 g | 2.1 g | 3.8 g | 4.6 g | |

Pressure Sensor Controller

Series PSE300



How to Order

Input/Output specifications

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

Unit specifications

| | |
|-----|--------------------------------------|
| Nil | With unit display switching function |
| M | Fixed SI unit <small>Note)</small> |

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

PSE30 0 M

Option 1

| | |
|-----|---|
| Nil | Without cable Power supply/Output connection cable |
| L | Power supply/ Output connection cable ZS-28-A |

Option 3

| | |
|-----|--|
| Nil | Without connector Sensor connector |
| C | Sensor connector (e-con connector) ZS-28-C |

Option 2

| | |
|-----|--|
| Nil | Without bracket/panel mount adapter/front protective cover Bracket |
| A | M3 x 5L Bracket |
| B | Panel Panel mount adapter Mounting screw (M3 x 8L) (accessory) |
| D | Panel Front protective cover Panel mount adapter Mounting screw (M3 x 8L) (accessory) |

Options/Part No.

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

Specifications

Conforms to CE marking and UL (CSA) standards.

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

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

Also, analog output option is not available when auto shift function is selected.

Note 2) The following units can be selected with unit conversion function:

For vacuum & compound pressure: kPa·kgf/cm²·bar·psi·mmHg·inHg

For positive pressure & low pressure: MPa·kPa·kgf/cm²·bar·psi

For low differential pressure: kPa·mmH₂O

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

Note 4) Series PSE530 pressure sensors are also applicable.

Contact SMC for more information.