

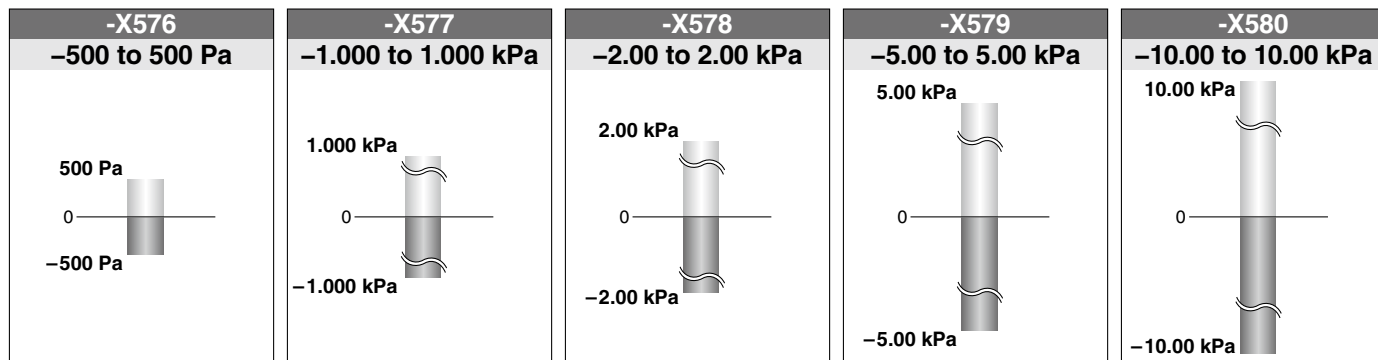
2-Color Display High-Precision Digital Pressure Switch (for Low Pressure)



Able to detect and display pressures of 10 kPa or less



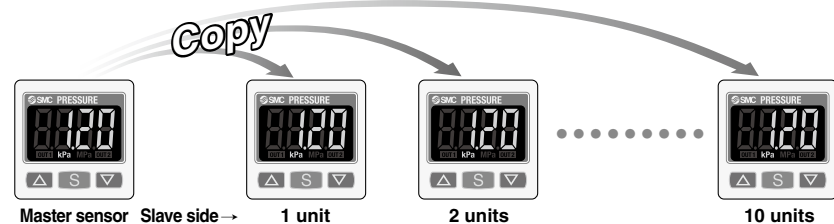
● Rated pressure range



● Can copy to up to 10 switches simultaneously

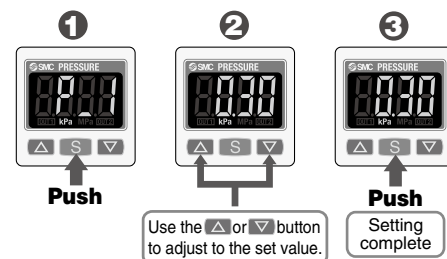
The settings of the master sensor can be copied to the slave sensors.

- Reduced setting time
- Minimized risk of setting mistakes



The sensors can be connected by a dedicated lead wire (ZS-38-5L (for master and one slave) or ZS-38-U (for master and up to 10 slaves)).

● 3-step setting



● With display low-cut function (zero-cut function)

"0" is displayed within the effective range.

Low-cut function "ON": 0 → 0 → 4 → → 500 Pa

Low-cut function "OFF": 0 → 1 → 2 → 3 → 4 → → 500 Pa

| Model | Effective range |
|-------|-------------------------|
| -X576 | -3 Pa to 3 Pa |
| -X577 | -0.005 kPa to 0.005 kPa |
| -X578 | -0.01 kPa to 0.01 kPa |
| -X579 | -0.03 kPa to 0.03 kPa |
| -X580 | -0.05 kPa to 0.05 kPa |

Application Examples

Flow control

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

Liquid level detection

Can detect the liquid level through changes in the purge pressure

Liquid Level Detection Range (for water)

| Pressure range | Liquid level detection range | Minimum set value |
|----------------|------------------------------|-------------------|
| ±500 Pa | 50 mm | 0.1 mm |
| ±1 kPa | 100 mm | 0.1 mm |
| ±2 kPa | 200 mm | 1 mm |
| ±5 kPa | 500 mm | 1 mm |
| ±10 kPa | 1000 mm | 1 mm |

ZSE30AF-X576 to X580

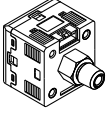


ZSE30AF-X576 to X580

How to Order

ZSE30AF - 01 - A - M - [] - [] - [] - []

Piping specification

| | | |
|-----|--------------------------------|---|
| 01 | R1/8 (M5 female threaded) |  |
| N01 | NPT1/8 (M5 female threaded) | |

Output specification

| | |
|---|--|
| A | NPN open collector 2 outputs |
| B | PNP open collector 2 outputs |
| C | NPN open collector 1 output + Analog voltage |
| D | NPN open collector 1 output + Analog current |

Unit specification

| | |
|-----|--------------------------------|
| Nil | With unit selection function*1 |
| M | Fixed SI unit |

*1 Under the New Measurement Act, switches with the unit selection function are not permitted for use in Japan.

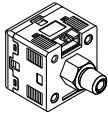
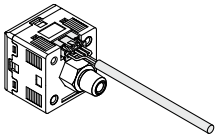
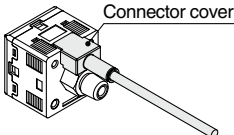
Available Display Units *1

| Model | Rated | kPa | Pa | mbar | psi | inHg | mmHg | inH ₂ O | mmH ₂ O |
|-------|---------|-----|-----|------|-----|------|------|--------------------|--------------------|
| -X576 | ±500 Pa | ○ | ○*2 | ○ | ○ | ○ | ○ | ○ | ○ |
| -X577 | ±1 kPa | ○*2 | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| -X578 | ±2 kPa | ○*2 | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| -X579 | ±5 kPa | ○*2 | × | ○ | ○ | ○ | ○ | ○ | ○ |
| -X580 | ±10 kPa | ○*2 | × | ○ | ○ | ○ | ○ | ○ | ○ |

*1 This setting is only available for models with the unit selection function.

*2 Setting has been completed by the time of shipment from the factory.

Option 1

| | | |
|-----|---|---|
| Nil | Without lead wire |  |
| L | Lead wire with connector (Lead wire length 2 m) *1 |  |
| G | Lead wire with connector (Lead wire length 2 m) *1 With connector cover |  |

*1 4-core lead wires

Made to order

| Symbol | Rated pressure range |
|--------|----------------------|
| X576 | -500 to 500 Pa |
| X577 | -1.000 to 1.000 kPa |
| X578 | -2.00 to 2.00 kPa |
| X579 | -5.00 to 5.00 kPa |
| X580 | -10.00 to 10.00 kPa |

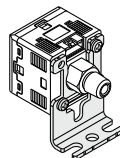
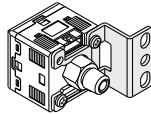
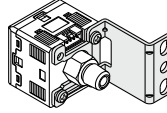
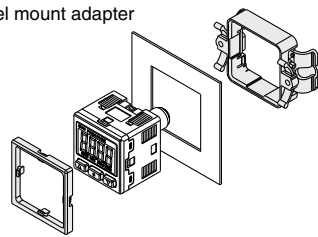
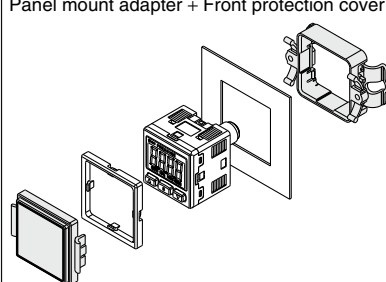
Option 3

| Symbol | Operation manual*1*2 | Calibration certificate*2 |
|--------|----------------------|---------------------------|
| Nil | ○ | — |
| Y | — | — |
| K | ○ | ○ |
| T | — | ○ |

*1 Provided with the operation manual of the standard product

*2 All texts in both English and Japanese

Option 2

| | | |
|-----|--|---|
| Nil | None | |
| A1 | Bracket A |  |
| A2 | Bracket B |  |
| A3 | Bracket C |  |
| B | Panel mount adapter |  |
| D | Panel mount adapter + Front protection cover |  |

2-Color Display High-Precision Digital Pressure Switch (for Low Pressure) **ZSE30AF-X576 to X580**

Specifications

| Model | -X576 | -X577 | -X578 | -X579 | -X580 | |
|--|---|---|--|-------------------|---------------------|--|
| Rated pressure range | -500 to 500 Pa | -1.000 to 1.000 kPa | -2.00 to 2.00 kPa | -5.00 to 5.00 kPa | -10.00 to 10.00 kPa | |
| Set pressure range | -525 to 525 Pa | -1.050 to 1.050 kPa | -2.10 to 2.10 kPa | -5.25 to 5.25 kPa | -10.50 to 10.50 kPa | |
| Withstand pressure | 2.5 kPa | 5 kPa | 10 kPa | 25 kPa | 50 kPa | |
| Smallest settable increment | 1 Pa | 0.001 kPa | 0.01 kPa | 0.01 kPa | 0.01 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 | | | | | |
| Current consumption | 40 mA or less | | | | | |
| Switch output | NPN or PNP open collector 1 output, NPN or PNP open collector 2 outputs | | | | | |
| Maximum load current | 80 mA | | | | | |
| Maximum applied voltage | 28 V (at NPN output) | | | | | |
| Residual voltage | 1 V or less (with a load current of 80 mA) | | | | | |
| Delay time | 4 ms or less*1 (with anti-chattering function: 20 ms, 100 ms, 500 ms, 1000 ms, 2000 ms, 10 s, 30 s, 60 s) | | | | | |
| Short circuit protection | Yes | | | | | |
| Repeatability | $\pm 1\%$ F.S. ± 1 digit | | | | | |
| Hysteresis | Variable (0 or above) | | | | | |
| Hysteresis mode | | | | | | |
| Window comparator mode | | | | | | |
| Analog output | Voltage output *2 | Output voltage (Rated pressure range) | 1 to 5 V ± 2.5 F.S. | | | |
| | | Linearity | $\pm 1.5\%$ F.S. | $\pm 1\%$ F.S. | | |
| | | Output impedance | Approx. 1 k Ω | | | |
| | Current output *3 | Output current (Rated pressure range) | 4 to 20 mA $\pm 2.5\%$ F.S. | | | |
| | | Linearity | $\pm 1.5\%$ F.S. | $\pm 1\%$ F.S. | | |
| | | Load impedance | Maximum load impedance: Power supply voltage 12 V: 300 Ω , Power supply voltage 24 V: 600 Ω Minimum load impedance: 50 Ω | | | |
| Display | 4-digit, 7-segment, 2-color LCD (Red/Green) | | | | | |
| Display accuracy | $\pm 2\%$ F.S. ± 1 digit (Ambient temperature of 25 $\pm 3^\circ\text{C}$) | | | | | |
| Indicator light | Lights up when switch output is turned ON. (OUT1: Green, OUT2: Red) | | | | | |
| Digital filter *4 *5 | Rough adjustment mode: 0, 0.2, 0.5, 1 (Initial value), 2, 5, 10, 20 s Fine adjustment mode: 200 to 1000 ms (in 5 ms increments) | | | | | |
| Effective range of display low-cut function *6 | ± 3 Pa | ± 0.005 kPa | ± 0.01 kPa | ± 0.03 kPa | ± 0.05 kPa | |
| Environment | Enclosure | IP 40 | | | | |
| | Operating temperature range | Operating: 0 to 50°C (No freezing or condensation) 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 M Ω or more (500 VDC measured via megohmmeter) between terminals and housing | | | | |
| Temperature characteristics (25°C reference) | $\pm 3\%$ F.S. | | | | | |
| Lead wire | Oilproof heavy-duty vinyl cable, 4-core $\phi 3.5$, 2 m Conductor area: 0.15 mm ² (AWG 26) Insulator O.D.: 1.0 mm | | | | | |
| Standards | CE, UL/CSA(E216656), RoHS | | | | | |
| Main materials of parts in contact with fluid | Sensor pressure receiving area: Silicon Piping port: C3602 (Electroless nickel plating), O-ring: HNBR | | | | | |
| Weight | Including lead wire with connector (4-core, 2 m) | 85 g | | | | |
| | Excluding lead wire with connector | 43 g | | | | |

*1 Value without digital filter (at 0 ms)

*2 Analog voltage output and, analog current output cannot be selected at the same time.

*3 Analog current output and, analog voltage output cannot be selected at the same time.

*4 The digital filter set value affects the pressure display, switch output (OUT1, OUT 2), and analog output response time.

*5 For the digital filter, the response time indicates when the set value is 90% in relation to the step input.

*6 When the display low-cut function is used, "0" is displayed in the effective range.

Other specifications are the same as the standard product. For details, refer to the **Web Catalog**. Click [here](#) for details.

Options/Part Nos.

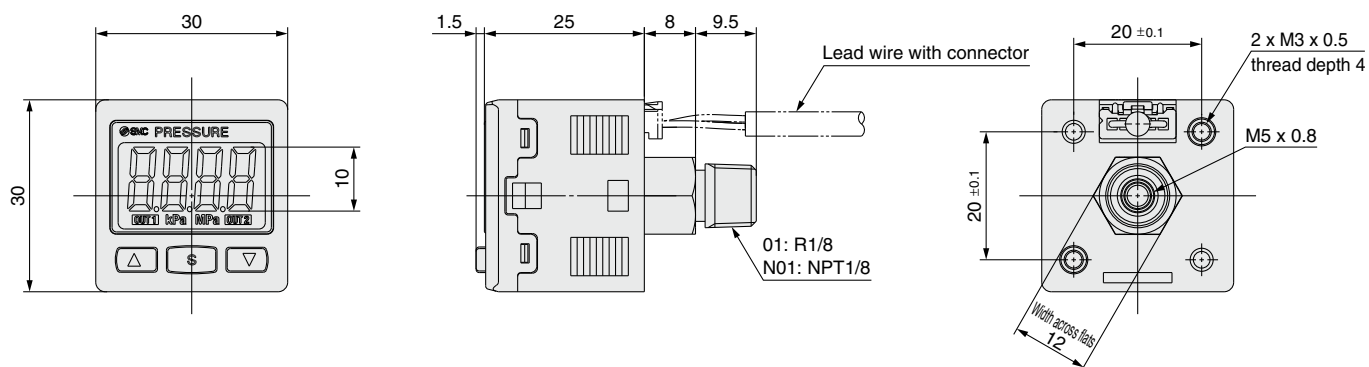
When optional parts are required separately, use the following part numbers to place an order.

| Part no. | Option | Note |
|----------|---|---|
| ZS-38-A1 | Bracket A | Mounting screw (with 2 pcs. of M3 x 5L) |
| ZS-38-A2 | Bracket B | Mounting screw (with 2 pcs. of M3 x 5L) |
| ZS-38-A3 | Bracket C | Mounting screw (with 2 pcs. of M3 x 5L) |
| ZS-27-C | Panel mount adapter | Mounting screw (with 2 pcs. of M3 x 8L) |
| ZS-27-D | Panel mount adapter + Front protection cover | Mounting screw (with 2 pcs. of M3 x 8L) |
| ZS-27-01 | Front protection cover | |
| ZS-38-4L | Lead wire with connector | 4-core, for 2 outputs, 2 m |
| ZS-38-4G | Lead wire with connector (with connector cover) | 4-core, for 2 outputs, 2 m |
| ZS-38-5L | Lead wire with a connector for copying | 3-core, copy function, 1 m |
| ZS-38-U | Lead wire unit with a connector for copying | Copy function (up to 10 slaves) |

ZSE30AF-X576 to X580

Dimensions

ZSE30AF - ⁰¹N01 - □ - □ □ □ □ - X576 to X580

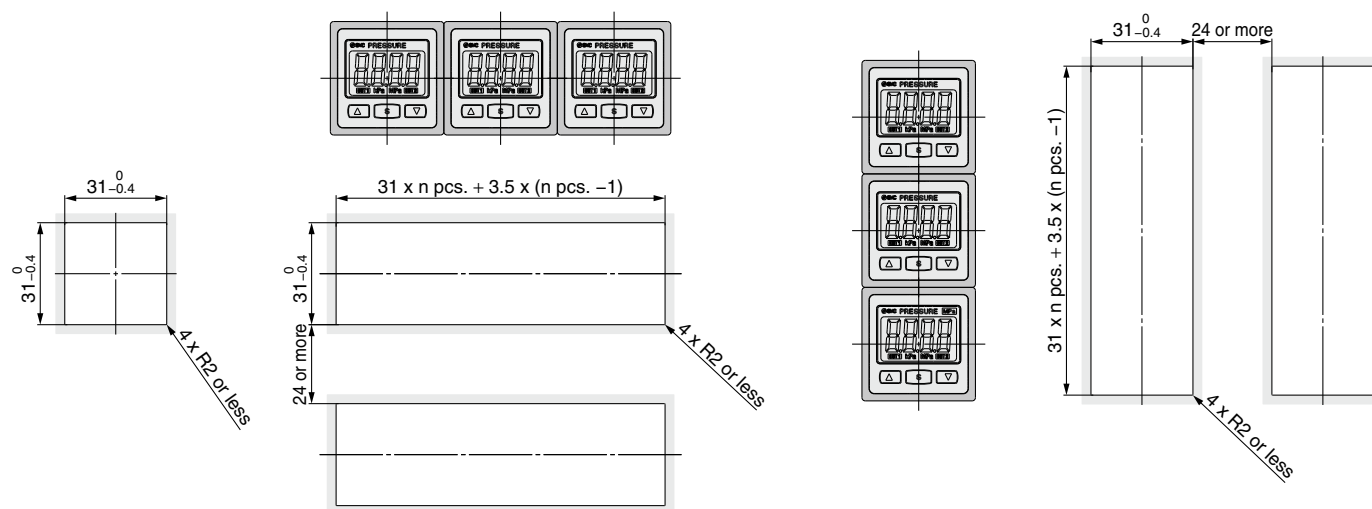


Panel fitting dimensions

1 pc. mounting

Multiple (2 pcs. or more) horizontal mounting

Multiple (2 pcs. or more) vertical mounting



⚠ Precautions

Be sure to read this before handling the products. For safety instructions and pressure switch/flow switch precautions, refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website: <http://www.smcworld.com>

Mounting

⚠ Caution

1. Pressure measurements may fluctuate if the housing is exposed to air.
2. Pressure measurements may fluctuate if stress is applied to the housing or piping.

Piping

⚠ Caution

1. The pressure sensor may be damaged if excessive pressure is applied to the piping.

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