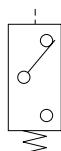


# SMALL PRESSURE SWITCHES

## PS320

- Non-contact type with superior reliability and response. Achieves definitive pressure control with a high accuracy of  $\pm 3\%$  FS.
- Can adapt to a wide range of pressures from 0~1.0MPa. Hysteresis can be freely tuned within a 10% range of the set pressure. Can be used in various ways in response to different uses and conditions.
- LED display allows confirmation at a glance of ON/OFF operations. Also allows smooth setting of pressure and hysteresis.

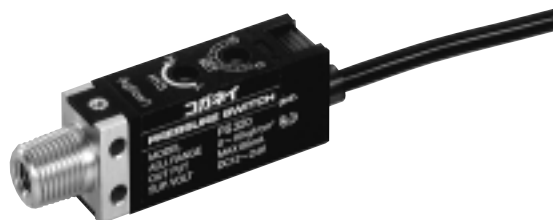
### Symbol



### Order Code

#### PS320

Small pressure switch



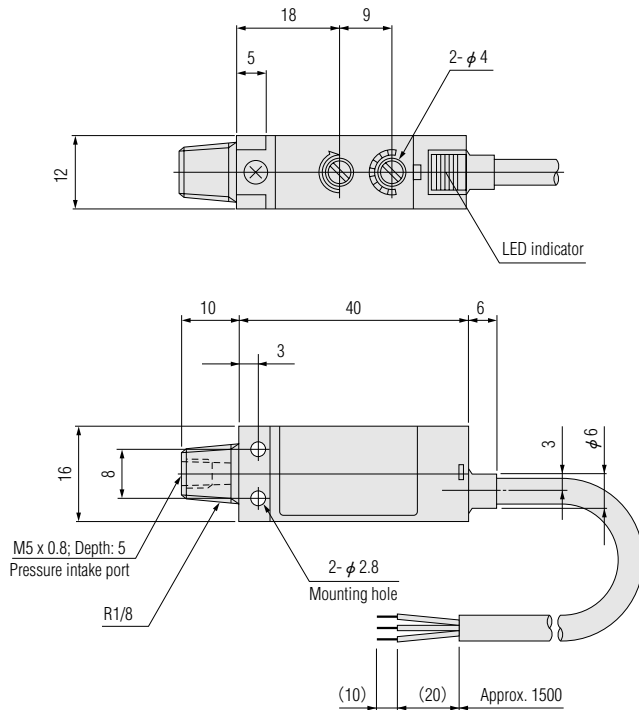
Caution: **PS320** is displayed in kgf/cm<sup>2</sup>

### Specifications

Item		Model	PS320
Media			Air or noncorrosive gas
Temperature range		°C	0~50 (Do not let it freeze.)
Humidity range		%RH	35~95
Pressure regulation range		MPa (kgf/cm <sup>2</sup> )	0~1.0 (0~10.2)
Proof pressure		MPa (kgf/cm <sup>2</sup> )	1.47 {15.0}
Hysteresis (Note)		%	1~10 (trimmer adjustable)
Repeatable accuracy			$\pm 3\%$ FS max. (0~50°C)
Electrical specifications	Operating method		NPN open collector (Output ON when rises above set pressure)
	Voltage range	DCV	12~24 $\pm 10\%$ (ripple Vp-p10% max.)
	Switching capacity		DC28V, 80mA max. (residual voltage: 1V max. at 80mA)
	Consumption current	mA max.	15 (DC24V, when output is ON)
	Insulation resistance	MΩ	100 min. (DC500V megger, between charging part and case)
	Withstand voltage	AC V	500 (1 minute)
Surge countermeasures			Zener diode, C-R filter combination (standard equipment)
Mechanical characteristics	Shock resistance	m/s <sup>2</sup> (G)	196.1 {20.0}
	Vibration resistance		10~500Hz (double amplitude 1.5mm) or 10G (2 hours at each XYZ axis)
	Protective structure		IEC standard IP60 equivalent
Operations indicator			When ON, LED indicator lights up
Lead wire			Vinyl cap tire: AWG26 × 3 leads (brown, black, blue) × 1500mm (total length)
Mounting direction			Free
Materials	Body cover		Polycarbonate
	Adapter		Aluminum (anodized)
Port aperture			R1/8 (M5×0.8 female thread)
Mass		g	35

Note: Value for set pressure

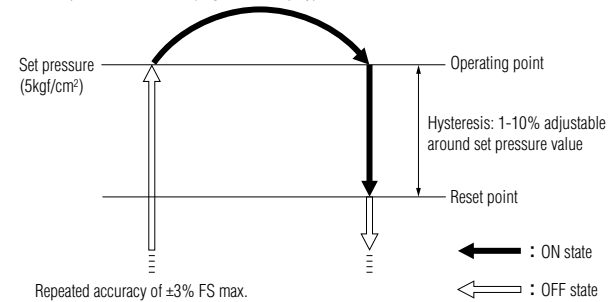
## Dimensional Drawings (Scale: 3/4, Unit: mm)



## Set Pressure and Hysteresis

- When the small pressure switch detects pressure rising above the set pressure (operating point), as shown below, it switches to the ON state. Once the ON state is reached, it does not immediately switch back to the OFF state even should the supplied pressure falls back to the set pressure. When the supplied pressure falls still further, beyond the set pressure (reset point), it moves to the OFF state. This difference between the operating point and the reset point is called hysteresis.
- The amplitude of this hysteresis can be adjusted in miniature pressure switches with an HYS trimmer, to reach an arbitrary variable setting that is within 1-10% of the set pressure value. This means that the hysteresis can be set smaller when accuracy is required, and can be set larger when there are large fluctuations in the supplied pressure, allowing appropriate settings suited to the conditions of utilization.

For a set pressure of 0.5MPa (5kgf/cm<sup>2</sup> at display)



## Proper Handling and Precautions



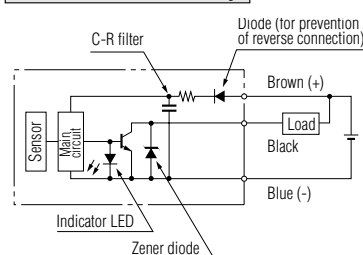
### Proper Handling

#### Setting the pressure and hysteresis

1. Connect the small pressure switch to a power supply.
2. Set the pressure to open.
3. Turn the SET trimmer towards 0 all the way to the END position.
4. Confirm that the LED indicator is lighted and the output is ON, and that the charged pressure is at the desired setting.
5. Turn the SET trimmer in the setting pressure direction (clockwise) until the LED indicator turns off.
6. Turn the SET trimmer in the opposite direction until the LED indicator turns on again.
7. Repeat steps 5 and 6 to obtain the operating point (setting point).
8. Set the HYS trimmer at the targeted set value, and set the hysteresis.
9. Vary the supplied pressure to confirm ON and OFF operation.
10. Make fine adjustments to the SET trimmer and HYS trimmer.  
(Do this alternately with step 9)

- Caution: 1. The maximum turning angle for each trimmer is 200°.
2. For setting the pressure and hysteresis, use the special driver, provided or a jeweler's driver of appropriate size. Make quiet turning adjustments that do not apply too much force.
  3. For accurate setting of pressure, proceed by using a pressure gauge to confirm switch operations.

#### Connections summary



- Caution: 1. Ensure that the lead wires are not subjected to strong tensile force, or to severe bending.
2. Connect the lead wires, paying careful attention to the color. Although the lead wires connecting to the power supply (brown and blue) are protected by diodes to protect from reverse connections, the output circuits have no protective function against electrical surges, and it may cause damage to the output transistor if improperly connected.
  3. Do not connect loads exceeding the switching capacity of the pressure switch.



### General Precautions

1. Since severe shocks to the small pressure switch could result in damage or erratic operation, be careful in its handling.
2. During mounting, do not apply a spanner to the body cover. For tightening, always apply a spanner to the metallic portion of the adaptor.
3. Use a cover, etc., to protect the unit when using it in locations where it is subject to water or oil dripping, or in locations that are very dusty.
4. Do not use when the ambient atmosphere or the media contains corrosive substances.

