

# COPAL ELECTRONICS

Pressure Switch

## PS8 series

Instruction Manual Ver. 1

Thank you for purchasing NIDEC COPAL ELECTRONICS CORP. product.

In order to use the product correctly and most appropriately, please completely read this manual before use and keep it for future reference.

### [Overview]

The PS8 series pressure switches are solid-state pressure switches consisting of a semiconductor type pressure transducer and electronic circuits which turn on and off according to a preset pressure value. Since the pressure sensing section adopts the stainless double diaphragm structure with high corrosion resistance, the PS8 dispenses mechanical sections, ensuring high-speed responses and long life. In addition, the PS8 has two switch outputs, which allow the operating pressure to be set separately.

### [Outline Dimensions]

Unless otherwise specified, tolerance :  $\pm 0.5$  (Unit: mm)

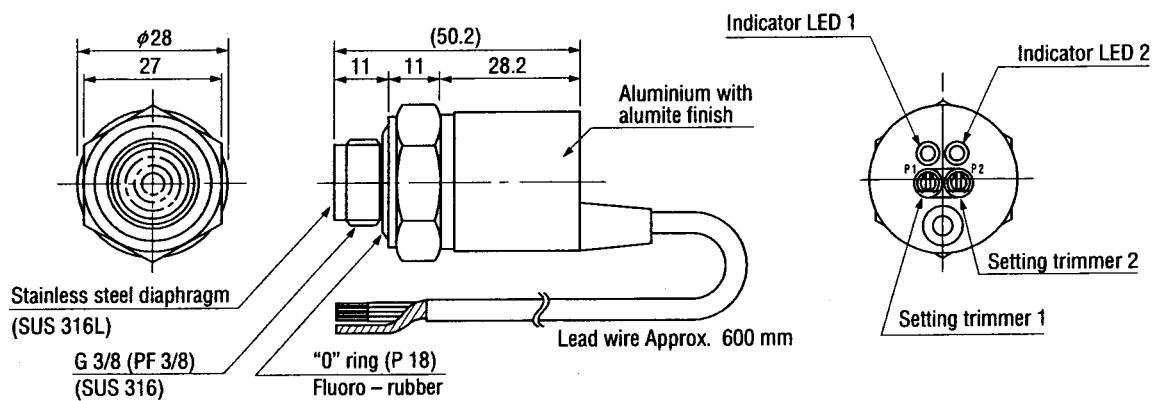


Table 1. Connection of the cables

Wire color	Connection
Red	Power (+)
Green	Switch output 1
White	Switch output 2
Black	Common
Shield	Housing

## 【Specifications】

1. Pressure reference : Gauge
2. Media : Corrosive gases/Liquids compatible with SUS316, SUS316L and fluorine-rubber.
3. Operating temperature : -20°C to +70°C
4. Storage temperature : -20°C to +70°C
5. Supply voltage : 12 to 24V DC $\pm$ 10%
6. Current consumption : 20mA(Standard value)
7. Rated pressure range and Maximum pressure

Unit : kPa(kgf/cm<sup>2</sup>)

Part Number	Rated pressure range	Maximum pressure
PS8-102V	0 to -98.1 (0 to -1)	196 (2)
PS8-102G	0 to 98.1 (0 to 1)	196 (2)
PS8-352G	0 to 343 (0 to 3.5)	686 (7)
PS8-103G	0 to 981 (0 to 10)	1961 (20)

8. Switch output  
Number of output : 2  
Adjustable range : 10 to 100% of rated pressure  
Setting method : Adjustable by trimmer potentiometers  
Output interface : NPN open-collector output  
Switching capacity : 30V DC, 80mA or less  
Accuracy :  $\pm$ 3% F.S. ( 0 to 50°C reference temp. 25°C)  
Hysteresis : 2% F.S. max.  
Response : Approx. 2ms.

## 【Operations】

### 1. Installations

Screw the PS8 into an internally threaded pipe with a depth, which does not cause contact of the diaphragm. When screwing it, be sure to apply a screw wrench to the hexagonal portion and be careful not to apply excessive force to the case and the wire.

### 2. Wiring

Make wiring according to Table1."Wiring table". Be sure to cut unnecessary output wires. If the pressure port is grounded through a pipe (when using a metal pipe, etc.), the shield wire is connected to the pressure port and therefore grounding of the shield wire is not necessary. If the pressure port is insulated (when using a resin pipe, etc.), connect the shield wire to ground or the COMMON terminal (Black). Then, check wiring before turning the power ON.

### 3. Operating setting

- 3-1. Apply the pressure for switch operation to the pressure port of the PS8.
- 3-2. If the output is turned ON (with the LED turned ON), gently turn the trimmer pot. to clockwise (CW) and then stop turning it when the output is turned OFF (with the LED turned OFF).
- 3-3. If the output is turned OFF (with the LED turned OFF), gently turn the trimmer to counterclockwise (CCW) and then stop turning it when the output is turned ON (with the LED turned ON). Around at the desired pressure, vary the applied pressure up and down to make sure that the switch operates the desired pressure. Fine-tune the trimmer pot. as required. As for the pressure switch, two separate circuits can be set.

### **[Notes on Handling]**

1. This pressure switch cannot be used with gases or liquids that corrosive with SUS316, SUS316L and fluorine rubber.
2. Do not contact with the diaphragm as it may deform the diaphragm and damage the sensor. Also care must be taken not to put foreign matter on the surface of the diaphragm.
3. Since this pressure switch is not of the drip-proof type, do not use it on locations where drops of water are present. To avoid hardening or frost of the medium guided to the pressure port and avoid condensation or freezing of the pressure switch because of abrupt temperature change, make sure environmental conditions before using the pressure switch.
4. Do not short the switch output terminals to the power supply or connect it with a low-resistance lead, which allows current flow exceeding 80mA. When connecting a relay, solenoid, or other inductive leads, install a surge absorber. When using a switching power supply, connect with the FG terminal to ground.
5. Small trimmer pots. is used. When setting the trimmer pots, gently rotate is using suitable screwdriver.

### **[Warranty]**

This product is covered by a warranty for a period of one year from the date of delivery. This warranty covers free-of-charge repair and replacement for defects occurring through design or manufacturing inadequacy of NIDEC COPAL ELECTRONICS CORP. Even during the warranty period, the following failures will be handled on a fee basis.

- 1) Failures or damages occurring through misuse or disoperation performed not following the instruction manual.
- 2) Failures or damages occurring through improper modification, adjustment, or repair.
- 3) Failures or damages occurring through natural calamities, fires or other inevitable accidents.
- 4) Replacement of accessories (e.g. O-ring rubber, etc.)

For more detailed information, please ask for the nearest distributor or the following sales center.

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