

# Nidec

## ELECTRONIC PRESSURE SWITCH

# PS6

CE [Compliance with EMC Standards] UK  
CA

INSTRUCTION MANUAL Ver.3.0

Thank you very much for purchasing our product.  
For safe and proper use of the product, please thoroughly read this manual and understand the contents before using. Also, please keep this manual in a safe place for future reference.

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

### NIDEC COMPONENTS CORPORATION

Nishi-Shinjuku Prime Square bldg., 7-5-25  
Nishi-Shinjuku, Shinjuku-ku, Tokyo 160-0023, Japan  
Phone: +81-3-3364-7055 Fax: +81-3-3364-7098  
URL: <https://www.nidec-components.com>

## WARNING

### [CAUTION]

These products (pressure sensors, pressure switches, pressure gauges, pressure indicators, leakage sensors, etc.) are designed and manufactured as general industrial parts. Therefore, a person with sufficient knowledge and experience shall confirm the conditions and environments described in the catalog, specifications, and instruction manual of each product, check the suitability of the product for the machine, device, or system which you use, and ensure safety before use.

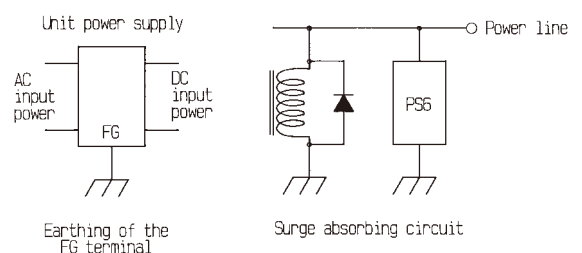
These products are not intended to be used for applications particularly requiring high reliability (These include, but are not limited to, nuclear power control, aerospace and military purposes).

The details of warranty shall be as per the descriptions in this document and we shall not be liable for any damage on you resulting from the use of any equipment or device (including control systems) which is not in accordance with this document (hereinafter referred to as "use in violation"). In the case where you resell our products, we shall not be liable for any damage on a third party resulting from use in violation by the third party, and even if we make payment to the third party in connection with such use in violation regardless of the name by which such payment may be called, we may demand the whole amount thereof from you.

**⚠ CAUTION** : This caution mark describes when there is a possibility that user may suffer from damage or physical damage may occur if the product is used improperly.

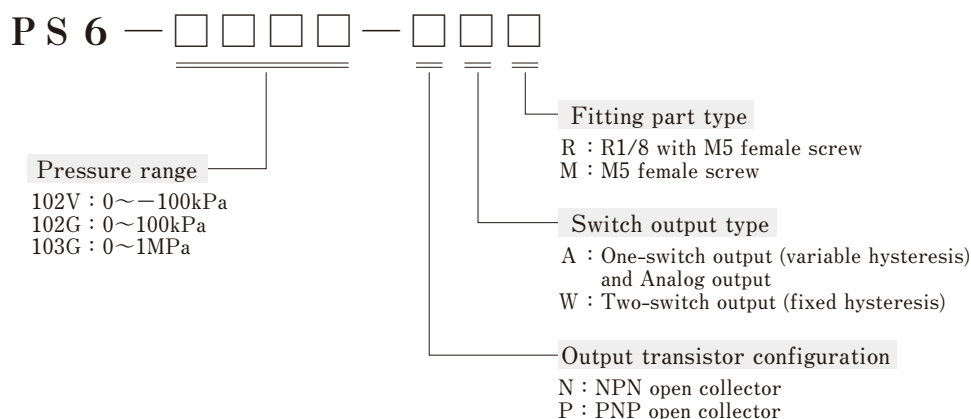
#### ⚠ CAUTION

- The product is neither drip proof nor dust proof structure. Never use it under the condition where water or oil drips, dust rises, or corrosion occurs.
- Do not use corrosive gases or liquids as pressure media.
- Do not apply a pressure that exceeds the maximum pressure.
- Do not short-circuit the output terminals of the switch to other terminal. Also, do not connect a load in which a current over 80mA may flow to/from the switch. Otherwise, the internal circuitry may be damaged.
- When handling the product, be sure to pick up the body and not to give an excessive force to the cable.
- When performing piping work on the product, be sure to hold the product on the port section and tighten pipes with torque less than the specified torque.
- For stability, use a regulated DC power supply. Surge absorbing circuits (diodes, varistors, etc.) are necessary if inductive loads such as relays and solenoids are connected to the same power line as the PS6. If using a DC power supply unit such as a switching power supply, the FG terminal should be earthed.  
(See the figure on the right.)
- Use pH neutral detergents to clean the body. Do not use lacquer thinner and other solvents for cleaning.



## MODEL NUMBER DESIGNATION

Please identify the model number of the product you purchased.



## PIPING

①When using R1/8 fitting:

Use a wrench on the port section of the body to tighten with a torque of 4.9 N · m or less. Apply sealing tape if necessary.

②When using commercially available fitting for M5 female screw:

Hold the switch on the port section. Tighten the fitting with a wrench with a torque of 0.49 N · m or less.

⚠ Do not directly hold the switch body when tightening. Do not use a wrench to any other part than the port section when tightening. Such handling may cause a breakage of the switch.

## WIRING

The wires should be connected as shown in the table below. Be sure to connect the wires properly.

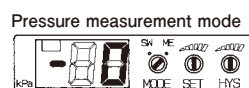
Color	<input type="checkbox"/> A <input type="checkbox"/> type	<input type="checkbox"/> W <input type="checkbox"/> type
Brown	Power supply	Power supply
Blue	Common	Common
Black	Switch output	Switch output 1
White	Analog output	Switch output 2

※Be earthing the shield wire if necessary.

## SETTING

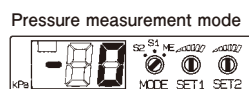
①☐A☐ type (one switch output)

- Place the display selector switch (MODE) in the "SW" position.
- Turn the pressure setting trimmer (SET) to set the switch operating pressure.
- Turn the hysteresis adjustment trimmer (HYS) to get your desired hysteresis.
- Place the display selector switch (MODE) back in the "ME" position.



②☐W☐ type (two switch outputs)

- Place the display selector switch (MODE) in the "S1" position.
- Turn the pressure setting trimmer 1 (SET1) to set the switch 1 operating pressure.
- Place the display selector switch (MODE) in the "S2" position.
- Turn the pressure setting trimmer 2 (SET2) to set the switch 2 operating pressure.
- Place the display selector switch (MODE) back in the "ME" position.



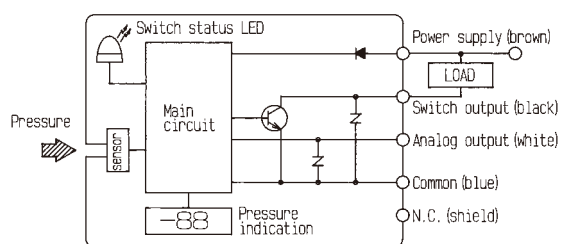
※For further precise setting, apply the pressure and get the optimum pressure level by adjusting trimmers several times.

※The setting range of the switch, adjustable range of the setting trimmer in other words, does not agree with the rated indication range of the display. Even though the indication of the display is "0 through 99", the switch can be set at the pressure under 0 or over 99 with the extra margin of a few% FS.

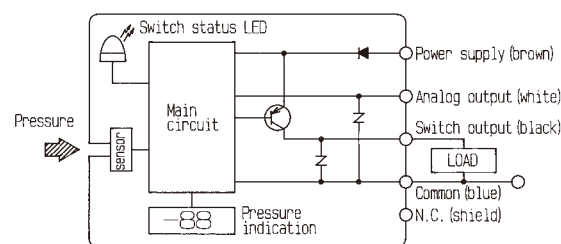
⚠When setting the display selector switch and the pressure-setting trimmer, be careful not to apply too much force to them. The allowable torque for the display selector switch and the pressure setting trimmer should be no more than 0.025 N · m.

## INTERNAL CIRCUITS

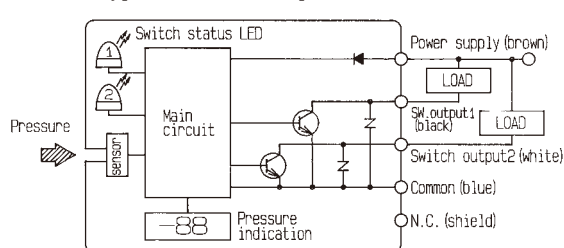
①NA□ type (one NPN output)



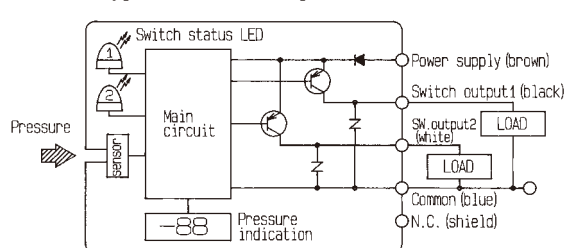
②PA□ type (one PNP output)



③NW□ type (two NPN outputs)

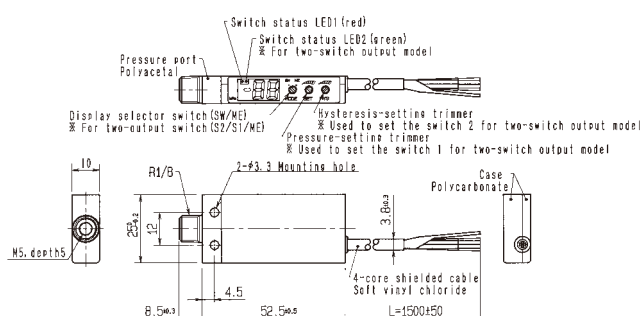


④PW□ type (two PNP outputs)

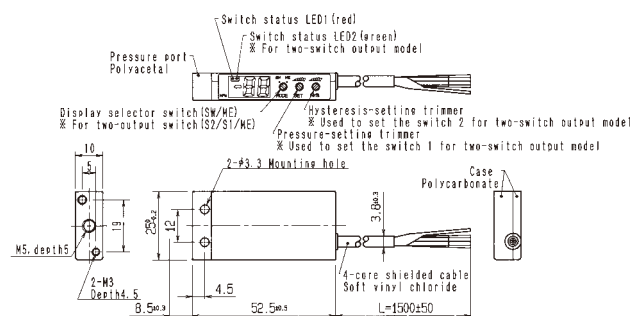


## OUTLINE DIMENSIONS (unit:mm)

①□□R type (Fitting part : R1/8 with M5 female screw)



②□□M type (Fitting part : M5 female screw)



## MAJOR SPECIFICATIONS

①General specifications

Type (indicator)	Gauge pressure		
Pressure media	Non-corrosive gases		
Operating temperature	-10~60°C		
Storage temperature	-20~70°C		
Compensated temperature	0~50°C		
Pressure range	102V	102G	103G
Rated pressure	-100kPa	100kPa	1.0MPa
Maximum pressure	200kPa	200kPa	1.5MPa
Breakdown pressure	500kPa	500kPa	2.0MPa

②Power supply

Driving power voltage	12~24V (±10%)
Current consumption	35mA maximum (No load switch "ON" )

### ③Switch outputs

Setting range	0~Rated pressure
Setting method	Adjustable with single turn trimmer
Number of settable output	<input type="checkbox"/> A <input type="checkbox"/> type : 1 <input type="checkbox"/> W <input type="checkbox"/> type : 2
Hysteresis	<input type="checkbox"/> A <input type="checkbox"/> type : about 0 ~15% FS (adjustable) <input type="checkbox"/> W <input type="checkbox"/> type : about 2% FS maximum (fixed)
Working chart	<p>The working chart illustrates the switch output behavior. The pressure axis ranges from 0kPa to Rated pressure. The output is OFF at 0kPa. As pressure increases, it reaches a 'Setting' point where the output switches to ON. Due to hysteresis, the output remains ON until the pressure decreases to a lower level. The hysteresis is the difference between the 'Setting' pressure and the pressure at which the output returns to OFF.</p>
Switch rating	30V, 80mA maximum (per output)
Residual voltage	N <input type="checkbox"/> <input type="checkbox"/> type : 0.8V max. (at flow-in current load of 80mA) P <input type="checkbox"/> <input type="checkbox"/> type : 1.2V max. (at flow-out current load of 80mA)
Accuracy	±3% FS max. (0~50°C, reference temperature 25°C)

### ④Pressure indication

Number of digits of display	2 digits		
Display element	LED (red)		
Pressure range	102V	102G	103G
Rated indication	-0~-99kPa	0~99kPa	. 0~.99MPa
Sampling cycle	Approx. 4 times per second		
Accuracy	±3% FS±2 count (0~50°C, reference temp. 25°C)		

### ⑤Analog output (☐A ☐ type only)

ZERO voltage	1±0.1V
SPAN voltage	4±0.1V
Output current	1mA max. (output load should be 5kΩ minimum)
Thermal error	ZERO : ±0.1% FS/°C SPAN : ±0.1% FS/°C
Linearity/Hysteresis	±0.5% FS

## WARRANTY AND DISCLAIMER

- 1) The warranty period of these products is one year after delivery to a designated place. The warranty mentioned here is limited to the warranty of a delivered product itself, and it does not cover consumables such as batteries. Each product has its own specifications such as durability (pressure cycles). Therefore, check with each service office.
- 2) If a failure or damage of the product occurs during the warranty period, for which we are responsible, we will promptly replace or repair the product free of charge. The warranty mentioned here means the warranty of the product itself and does not cover any damage induced by a failure of the product.
- 3) The warranty does not cover when any of the following items is applicable:
  - The failure is caused by conditions, environments, or handling not described in the catalogue and agreed specifications and other documents.
  - The product has been modified, adjusted, or repaired by a person/company other than our company after delivery.
  - The failure cannot be foreseen by the scientific and technological knowledge at the time of delivery.
  - The failure is caused by force majeure such as disasters.