

# COPAL ELECTRONICS

Pressure Transducers with Amp.

## PA-500 series

Instruction Manual Ver. 1.0

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.

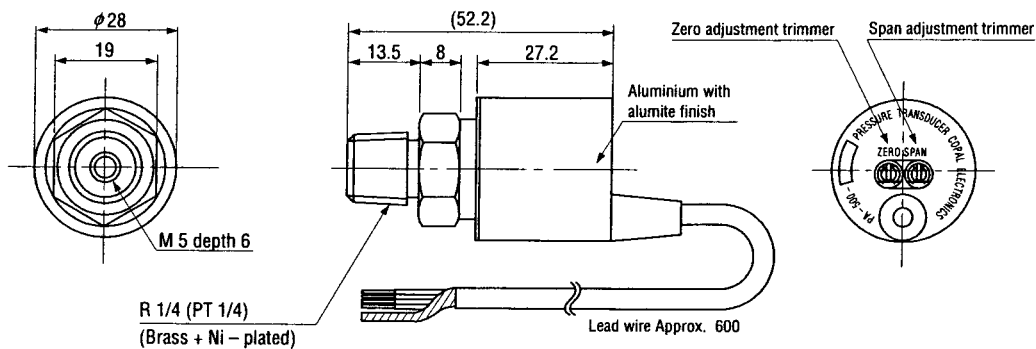
### [Overview]

The PA-500 series pressure transducers are semiconductor (diffusion type) pressure sensors combined with electronic circuits and provide electrical analog output signals.

### [Outline Dimensions]

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

#### ● PA-500-XXXG



#### ● PA-500-XXXV/PA-500-XXXA

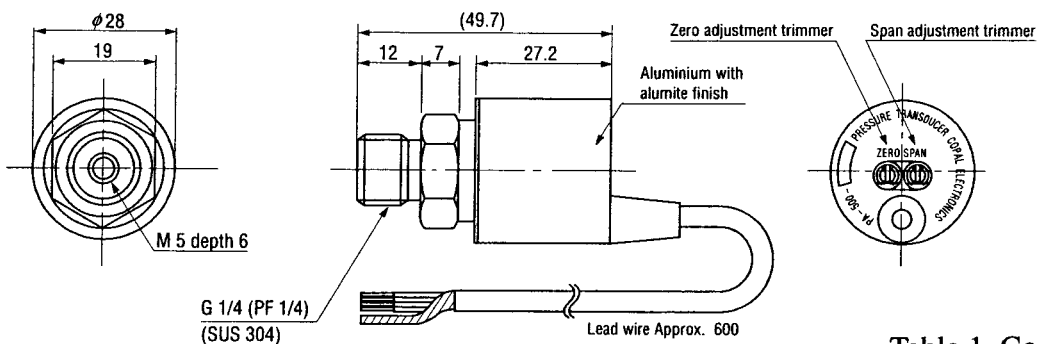


Table 1. Connection of the cables

Wire color	Connection
Red	Power (+)
White	Analog output
Green	N.C.
Black	Common
Shield	Housing

## 【Specifications】

1. Pressure reference : Gauge
2. Media : Non-corrosive gases/Liquids
3. Operating temperature : -20°C to +80°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
PA-500-101G	0 to 9.81 (0 to 0.1)	19.6 (0.2)
PA-500-501G	0 to 49.0 (0 to 0.5)	98.1 (1)
PA-500-102G	0 to 98.1 (0 to 1.0)	196 (2)
PA-500-352G	0 to 343 (0 to 3.5)	686 (7)
PA-500-502G	0 to 490 (0 to 5.0)	981 (10)
PA-500-103G	0 to 981 (0 to 10)	1961 (20)
PA-500-102V	-98.1 to 0 (-1.0 to 0)	196 (2)

8. Analog output  
Output voltage : 1 to 5V  
Zero voltage :  $1 \pm 0.04$  (at 25°C)  
Span voltage :  $4 \pm 0.04$  (at 25°C)  
Output current : 1mA (Load resistance: 5kohm min.)  
Linearity/ Hysteresis :  $\pm 0.5\%$ F.S.(101G),  $\pm 0.3\%$ F.S.(501G, 102G)  
 $\pm 0.5\%$ F.S.(352G, 502G, 103G, 102V)  
Thermal error :  $\pm 0.1\%$ F.S./ °C (-10 type),  $\pm 0.06\%$ F.S./ °C (-06 type)

## 【Operations】

1. Installations  
When installing the PA-500, apply the screw wrench to the hexagonal portion. Be careful not to apply excessive force to the case and the wire.
2. Wiring
  - 2-1. Make wiring according to Table1."Wiring table". Be sure to cut unnecessary output wires.
  - 2-2. 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.
  - 2-3. Make wiring of the PA-500 keeping it away from the power line as possible because noise from the power line may cause unstable output or damage to the internal circuit.
  - 2-4. When using the switching power supply, connect the FG terminal to ground.

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

1. Since the PA-500 is not of the drip-proof type, be careful not to get drops of water.
2. Condensation caused by abrupt temperature change or frost inside the pressure port (at the time of water pressure measurement) may cause failures.
3. A pressure sensor chip is placed inside the pressure port. If foreign matter such as wire enters through the pressure port, damage could occur. So, this must be absolutely avoided.

### **[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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