

# COPAL ELECTRONICS

PRESSURE TRANSDUCER WITH AMP.

# PA-20

PRESSURE SWITCH

# PS20

CE

(Compliance with EMC Standards)

INSTRUCTION MANUAL Ver.1.0

Thank you very much for purchasing our Product.  
In order to use the product correctly and most appropriately, please completely read this manual before use and keep this manual for future reference.

For inquires :

## COPAL ELECTRONICS

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## WARNING

**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

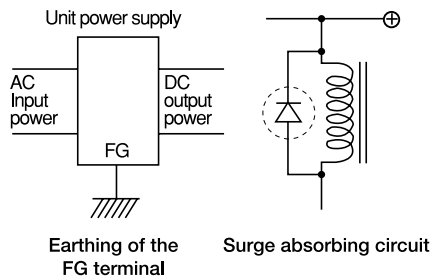
- ◇The product is neither drip proof nor dust proof structure. Do not use it under the condition where water or oil drips, dust rises, or corrosion occurs.
- ◇Do not use corrosive gases or liquids as pressure media.
- ◇Do not apply pressure exceeding the maximum pressure as shown in the specs.
- ◇Do not short-circuit the output terminal (switch terminal) to the other terminals. Also, do not connect the load that would allow the current over the rated current. 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 piping, do not use a wrench to any other part than the port section, and tighten the fitting with torque less than the specified torque.
- ◇When setting the pressure-setting trimmer (PS20), do not to apply too much force to them. The allowable torque for the pressure-setting trimmer should be no more than 0.02N·m.

· 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 products. IF using a DC power supply unit such as a switching power supply, the FG terminal should be earthed. (See the figure below.)

· Use PH neutral detergents to clean the body.

Do not use lacquer thinner and other solvents for cleaning.



## PIPING

### ①When using UNIVERSAL JOINT TYPE

Use a wrench on the hexagon part of the port section to tighten, and tighten with a torque of 1.0N·m or less.

### ②When using ALUMINUM BLOCK with through hole of M5 Hold the port section of the body, and tighten the fitting of the use.



Do not hold the main body when tightening. Also, do not use the wrench to the main body when piping. Such handling may cause a breakage of the product.

**WIRING**

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

Color	PA-20	PS20
Brown	Power supply	Power Supply
Blue	Common	Common
Black	Analog output	Switch output

**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 the 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.

**MODEL NUMBERS**

**PA-20 — 102V — U — 3M**

Pressure range	Fitting part type	Cable length
102V: 0~—100kPa	U: Universal joint (M5 Male)	blank: 1.5m
302R: —100~300kPa	M: Aluminum Block (Through hole M5 female)	—3M: 3m

**PS20 — 102V — N U**

Pressure range	Switch output interface	Fitting part type
102V: 0~—100kPa	N: NPN open collector	U: Universal joint (M5 Male)
302R: —100~300kPa	P: PNP open collector	M: Aluminum Block (Through hole M5 female)

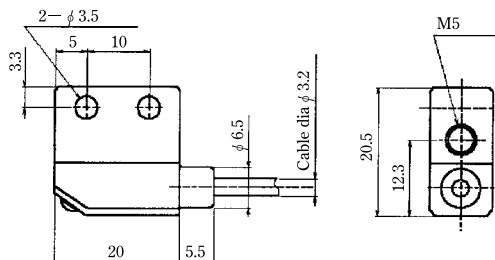
**SPECIFICATIONS**

Model	PA-20	
	102V	302R
Rated pressure range	0~−100kPa	−100~300kPa
Maximum pressure	200kPa	600kPa
media	Non-corrosive gases	
Operating temp./Compensated temp range	−10~60°C / 0~50°C	
Storage temp.	−20~70°C (Atmospheric pressure, Humidity 65%RH max.)	
Operating humidity	35~85%RH (No condensation)	
Supply voltage	10.8~30Vdc (Including ripple percentage)	
Current consumption	20mAmax.	
Output voltage(Load resistance 5kΩ min)	1~5Vdc ( Accuracy : ± 1 %F.S.)	
Linearity	±0.5%F.S.max.	
Thermal error	±2%F.S.max. (0~50°C : Reference temp. 25°C)	

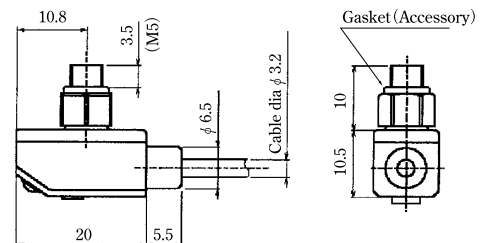
Model	PS20	
	102V	302R
Rated pressure range	0~−100kPa	−100~300kPa
Maximum pressure	200kPa	600kPa
media	Non-corrosive gases	
Operating temp./Compensated temp range	−10~60°C / 0~50°C	
Storage temp.	−20~70°C (Atmospheric pressure, Humidity 65%RH max.)	
Operating humidity	35~85%RH (No condensation)	
Supply voltage	10.8~30Vdc (Including ripple percentage)	
Current consumption	20mAmax. (When switch is OFF)	
Display	Red LED (When switch is ON)	
Setting accuracy	±3%F.S.max. (0~50°C : Reference temp. 25°C)	
Hysteresis	±2%F.S.max.	
Switching capacity	80mA Max (30Vdc)	
Response	Approx.1ms	

**OUTLINE DIMENSIONS (unit : mm)**

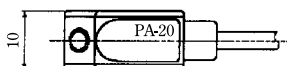
[ Side view of the Aluminum Block/Through hole M5 female ]



[ Side view of the Universal Joint ]



[ Top view of the PA-20 ]



[ Top view of the PS20 ]

