

# THIN-FILM HIGH PRESSURE TRANSDUCER.

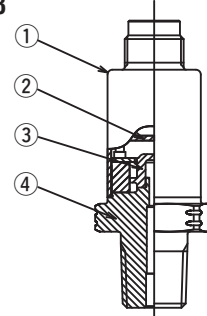
# PA-960/PA-968



## FEATURES

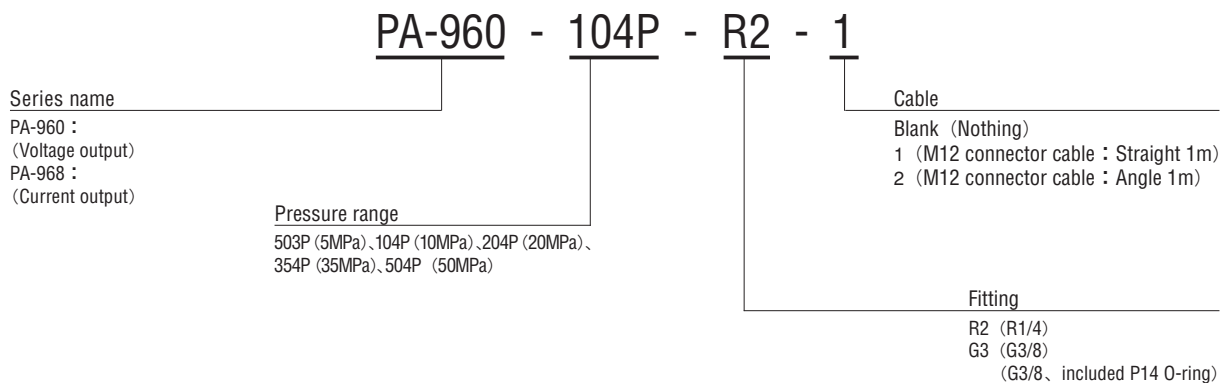
- Compact and lightweight
- To support maximum of 50 MPa(s).
- Digital coverage for a high accuracy
- Mounting by connector for an easy wiring
- High water proof structure comply with IP67(when mounting connector)
- CE Marking available

## INTERNAL STRUCTURE PA-960/PA-968



Part name		Material
①	Case	SUS 304
②	Board	—
③	Sensor module	17-4PH (Correspond to SUS630)
④	Fitting	17-4PH (Correspond to SUS630)

## MODEL NUMBER DESIGNATION



※ Please refer to the LIST OF MODEL NUMBERS when placing orders.

# PA-960/PA-968

## PRESSURE TRANSDUCERS WITH AMP.

### LIST OF MODEL NUMBERS

Series name (Reference)	Fitting	Cable	Pressure range				
			0 ~ 5MPa	0 ~ 10MPa	0 ~ 20MPa	0 ~ 35MPa	0 ~ 50MPa
PA-960 (Voltage output)	R1/4	Nothing	PA-960-503P-R2	PA-960-104P-R2	PA-960-204P-R2	PA-960-354P-R2	PA-960-504P-R2
		Straight	PA-960-503P-R2-1	PA-960-104P-R2-1	PA-960-204P-R2-1	PA-960-354P-R2-1	PA-960-504P-R2-1
		Angle	PA-960-503P-R2-2	PA-960-104P-R2-2	PA-960-204P-R2-2	PA-960-354P-R2-2	PA-960-504P-R2-2
	G3/8, included P14 O-ring	Nothing	PA-960-503P-G3	PA-960-104P-G3	PA-960-204P-G3	PA-960-354P-G3	PA-960-504P-G3
		Straight	PA-960-503P-G3-1	PA-960-104P-G3-1	PA-960-204P-G3-1	PA-960-354P-G3-1	PA-960-504P-G3-1
		Angle	PA-960-503P-G3-2	PA-960-104P-G3-2	PA-960-204P-G3-2	PA-960-354P-G3-2	PA-960-504P-G3-2
PA-968 (Current output)	R1/4	Nothing	PA-968-503P-R2	PA-968-104P-R2	PA-968-204P-R2	PA-968-354P-R2	PA-968-504P-R2
		Straight	PA-968-503P-R2-1	PA-968-104P-R2-1	PA-968-204P-R2-1	PA-968-354P-R2-1	PA-968-504P-R2-1
		Angle	PA-968-503P-R2-2	PA-968-104P-R2-2	PA-968-204P-R2-2	PA-968-354P-R2-2	PA-968-504P-R2-2
	G3/8, included P14 O-ring	Nothing	PA-968-503P-G3	PA-968-104P-G3	PA-968-204P-G3	PA-968-354P-G3	PA-968-504P-G3
		Straight	PA-968-503P-G3-1	PA-968-104P-G3-1	PA-968-204P-G3-1	PA-968-354P-G3-1	PA-968-504P-G3-1
		Angle	PA-968-503P-G3-2	PA-968-104P-G3-2	PA-968-204P-G3-2	PA-968-354P-G3-2	PA-968-504P-G3-2

※ Verify the above model numbers when placing orders.

### STANDARD SPECIFICATIONS

● Unless otherwise specified, the specs are defined at an ambient temperature of  $25 \pm 5$  °C and excitation voltage of 12 V DC.

Item	Model number	PA-960/968					
		503P	104P	204P	354P	504P	
General specifications	Pressure reference	Gauge					
	Rated pressure range	MPa	5	10	20	35	50
	Maximum pressure	MPa	10	20	40	50	65
	Operating temp. range	°C	PA - 960 : - 20 ~ 85    PA - 968 : - 20 ~ 70				
	Compensated temp. range	°C	-20 ~ 70				
	Operating humidity	%RH	35 ~ 85 (No condensation)				
	Storage temp.	°C	- 20 ~ 70 (At atmospheric pressure, humidity below 65%RH)				
	Pressure medium		Gases/Liquids compatible with 17-4PH				
	Protection grade		IP67*				
	Net weight	g	Applox.60/Applox.130*				
Power	Supply voltage	10.8 ~ 30VDC (include ripple)					
	Consumption current	10mA Max. (No load) /PA-960					

\*Including the attached cable

# PA-960/PA-968

## PRESSURE TRANSDUCERS WITH AMP.

### STANDARD SPECIFICATIONS

● Unless otherwise specified, the specs are defined at an ambient temperature of  $25 \pm 5^\circ\text{C}$ , excitation voltage of 12 V DC, and Rated pressure of Pin=0 ~ Pr.

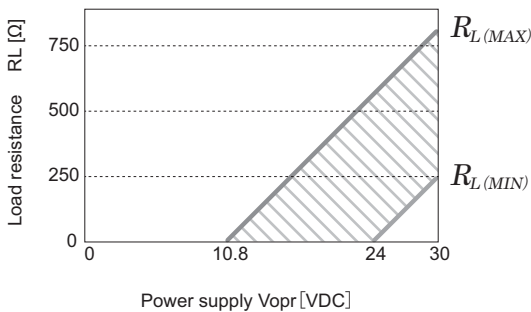
Item		Model number	PA-960	PA-968
Analog output	Output voltage/Current		1 ~ 5V	4 ~ 20mA
	Zero voltage/ Current		$1 \pm 0.05\text{V}$	$4 \pm 0.2\text{mA}$
	Span voltage/Current		$4 \pm 0.05\text{V}$	$16 \pm 0.2\text{mA}$
	Linearity	%F.S.	$\pm 0.5$	
	Hysteresis	%F.S.	$\pm 0.1$	$\pm 0.2$
	Thermal Error (- 20 ~ 70°C)	ZERO %F.S./°C	$\pm 0.05$	
		SPAN %F.S./°C	$\pm 0.05$	
	Load resistance		10kΩ 以上	500Ω max. (power supply : 24V) **
Response		2ms Max.		

\*\* Please refer to the following table or expression to choose load resistance.

### LOAD RESISTANCE

Please refer to the following table or expression to choose load resistance of current output type (PA-968).

#### Performance mapping



#### Expression of the load resistance

$$R_{L(MAX)} = \frac{V_{opr} - 10.8}{0.026}$$

$$R_{L(MIN)} = \frac{V_{opr} - 10.8}{0.026} - 507.7$$

### ENVIRONMENTAL CHARACTERISTICS

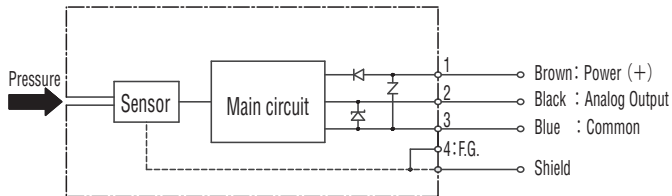
Test item	Test conditions ( $T_a = 25 \pm 5^\circ\text{C}$ , Pin=0Mpa)	Permissible change
Vibration	10 ~ 500 Hz, 1.5 mm P-P, 3 directions for 2 hours each	Analog output (Zero voltage/current, Span voltage/ current): $\pm 2\%$ F.S., maximum each after test
Shock	490 m/s <sup>2</sup> 3 directions for 3 times each	
Pressure cycling	10 <sup>6</sup> cycles 0 ~ Rated pressure	
Moisture resistance	40 °C, 90 ~ 95 %RH, 240 hrs.	
EMC	EMI : EN55011: 2007, A2 : 2007 Group 1, class B EMS : EN61326-1 : 2006/EN61326-2-3 : 2006 Table 2	Analog output (Zero voltage/current, Span voltage/ current): $\pm 5\%$ F.S., maximum each after test

# PA-960/PA-968

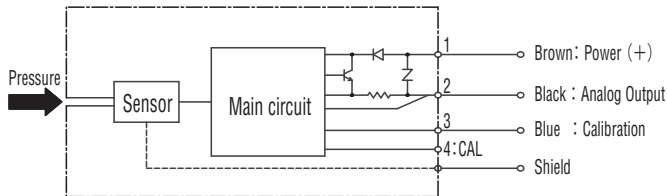
## PRESSURE TRANSDUCERS WITH AMP.

### INTERNAL CIRCUIT

#### PA-960

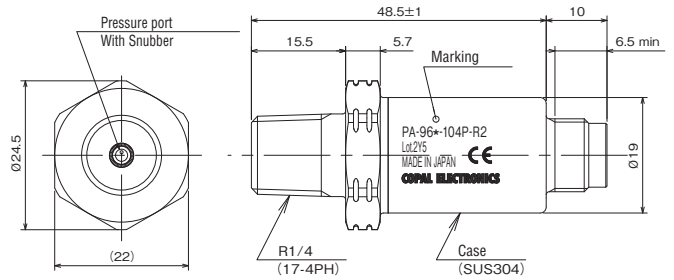


#### PA-968

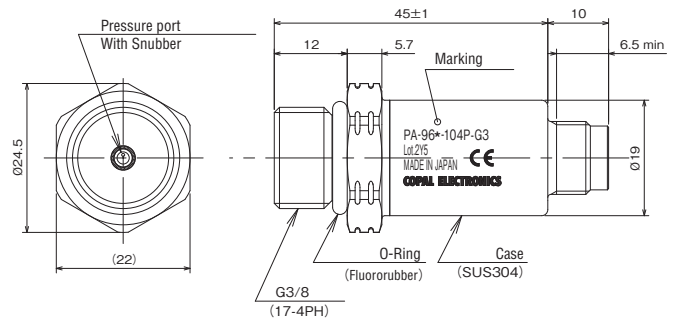


### OUTLINE DIMENSIONS

#### Fitting R2 (R 1/4)



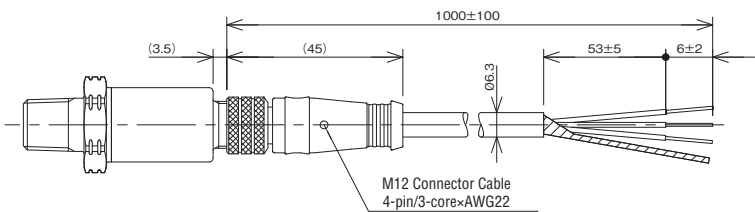
#### Fitting G3 (G 3/8)



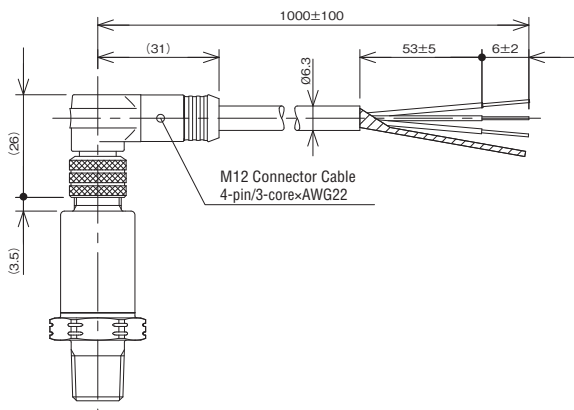
### M12 ASSEMBLED CABLE

(Unit:mm)

#### Straight

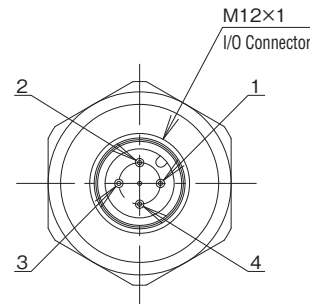


#### Angle



### WIRING

Please wire according to the following table for M12 connector cable.



Pin No.	Connection	
	PA-960	PA-968
1	Power⊕	Power⊕
2	Analog output	Analog output
3	Common	CAL**
4	F.G.	CAL**

F.G:Frame ground

※Do not wire the CAL connection.  
It may cause malfunction when voltage is applied.

\*\* ...Calibration