

Thin- film high pressure transducer

New

PA-960 / PA-968 series



A **Nidec** Group Company

COPAL ELECTRONICS

All for dreams



Thin-film type high pressure transducer

PA-960 / PA-968 series



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

Model number designation

PA-960-104P-R2-1

Model number

PA-960 (Voltage output)
PA-968 (Current output)

Pressure range

503P (5MPa), 104P (10MPa), 204P (20MPa),
354P (35MPa), 504P (50MPa)

Fitting

R2 (R1/4)
G3 (G3/8, included P14 O-ring)

Cable

Blank (Nothing)
-1 (M12 connector cable : Straight 1m)
-2 (M12 connector cable : Angle 1m)

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

Specifications

General Specifications (PA-960/968)

Item	Specification				
	Pressure range	503P	104P	204P	354P
Type	Gauge				
Rated pressure	5MPa	10MPa	20MPa	35MPa	50MPa
Max. pressure	10MPa	20MPa	40MPa	50MPa	65MPa
Operating temp.	PA-960: -20~85°C PA-968: -20~70°C				
Compensated temp.	-20~70°C				
Operating humidity	20 ~ 85%RH (No condensing)				
Storage temp.	-20~70°C (At atmospheric pressure, humidity below 65%RH)				
Available media	Gases/Liquids compatible with 17-4PH				
IP protection	IP67 *				
Weight	Applx.60g/Aplx.130g *				

* Including the attached cable

Power supply (PA-960/968)

Item	Specification
Power supply	10.8 ~ 30VDC (include ripple)
Consumption current	10mA Max. (No load) /PA-960

Analog output (PA-960)

Item	Specification	
Output Current	1~5V	
Zero Current	1±0.05V	
Span Current	4±0.05V	
Linearity	±0.5%FS	
Hysteresis	±0.1%FS	
Thermal Error (-20~70°C)	Zero	±0.05%FS/°C
	Span	±0.05%FS/°C

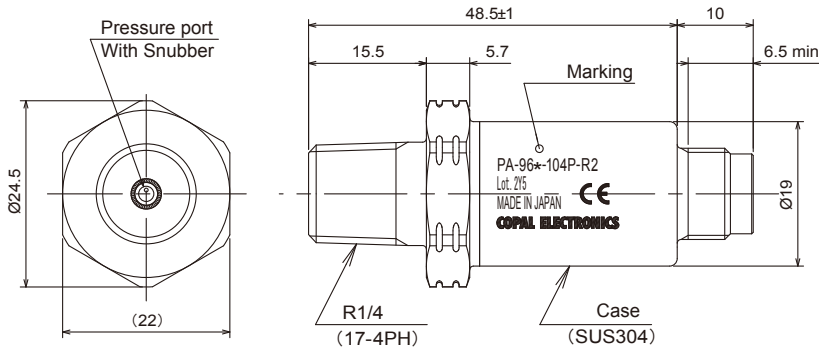
Analog output (PA-968)

Item	Specification	
Output Current	4~20mA	
Zero Current	4±0.2mA	
Span Current	16±0.2mA	
Linearity	±0.5%FS	
Hysteresis	±0.2%FS	
Thermal Error (-20~70°C)	Zero	±0.05%FS/°C
	Span	±0.05%FS/°C
Load resistance	500Ω max. (power supply : 24V) * *	

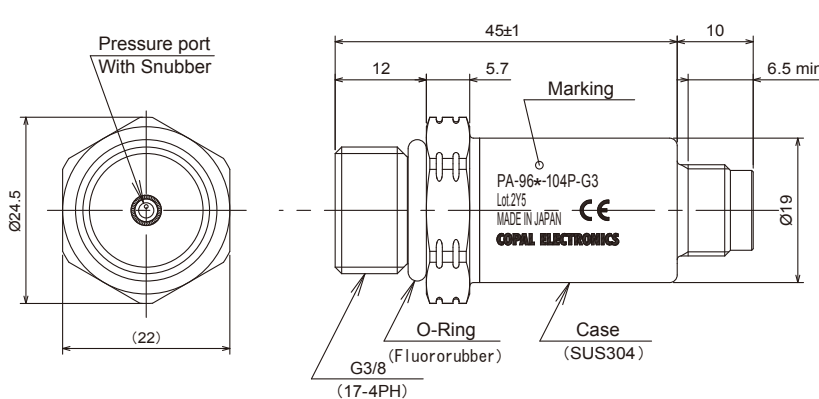
* * Please refer to the following table or expression to choose load resistance.

External dimensions (mm)

Fitting : R2 (R1/4)



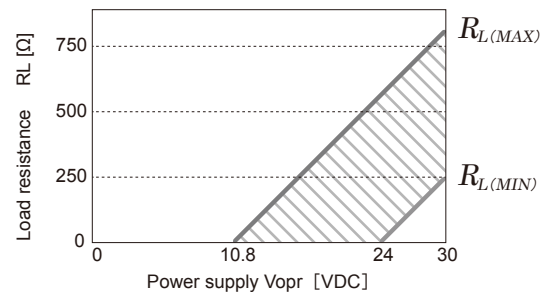
Fitting : G3 (G3/8A)



Load resistance

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

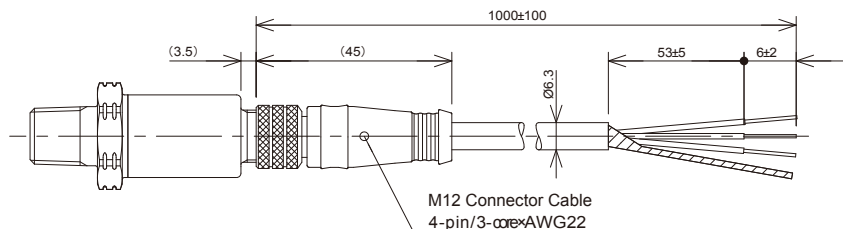
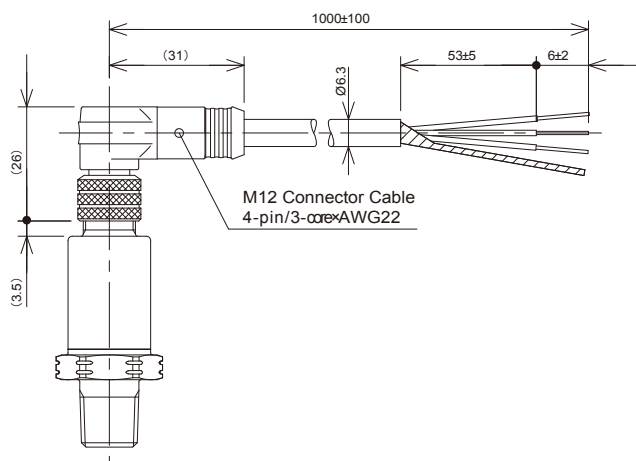
Performance mapping



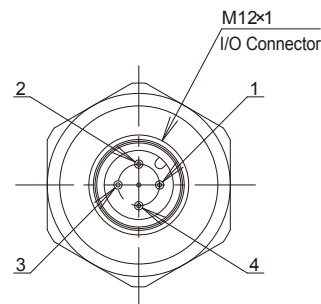
Expression of the load resistance

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

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

Assembled cable (mm)**■ Straight****■ Angle****Wiring**

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

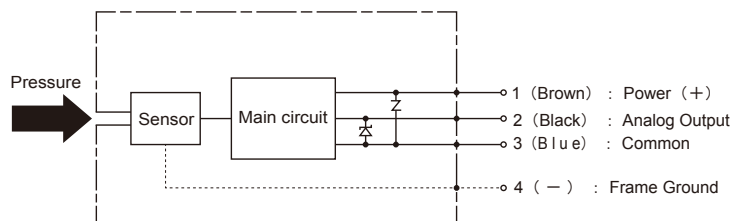
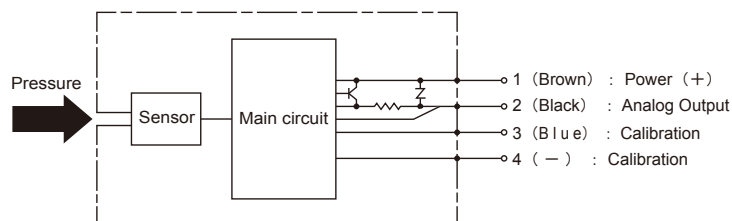


Pin No.	Wire color	Connection	
		PA-960	PA-968
1	Brown	Power +	Power +
2	Black	Analog output	Analog output
3	Blue	Common	CAL **
4	—	F.G.*	CAL **

※Do not wire the CAL connection.

It may cause malfunction when voltage is applied.

*...FrameGround **...Calibration

Internal circuit**■ PA-960****■ PA-968**

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COPAL ELECTRONICS —All for dreams
www.nidec-copal-electronics.com

NIDEC COPAL ELECTRONICS, INC.

367 Van Ness Way, Suite 601
Torrance, CA 90501 U.S.A
Phone: +1-310-618-0225 Fax: +1-310-618-9984

NIDEC COPAL ELECTRONICS (SHANGHAI) CO., LTD.

Unit A, 4/F, No.4 Bldg., No.253, Ai Du Rd., Wai Gao Qiao
Free Trade Zone, Shanghai, CHINA P.C.200131
Phone: +86-21-5046-3009 Fax: +86-21-5046-3115

NIDEC COPAL ELECTRONICS (TAIWAN) CO., LTD.

18F-1, No.57, Sec.2, Tun Hwa S.Rd., Taipei, TAIWAN
Phone +886-2-27030577 Fax: +886-2-27010577

■ Specifications are subject to change without notice.

NIDEC COPAL ELECTRONICS CORP.

7-5-25 Nishi-Shinjuku, Shinjuku-ku, Tokyo 160-0023 JAPAN
Phone: +81-3-3364-7055 Fax: +81-3-3364-7098

NIDEC COPAL ELECTRONICS GMBH

Mergenthalerallee 79-81
65760 Eschborn GERMANY
Phone: +49-6196-92775-0 Fax: +49-6196-92775-75

NIDEC COPAL ELECTRONICS KOREA CORP.

2F Jin-il Bldg., 52-7 Banpo-Dong, Seocho-Gu,
Seoul 137-040 KOREA
Phone: +82-2-3482-5861 Fax: +82-2-3482-5860

NIDEC COPAL ELECTRONICS SINGAPORE PTE. LTD.

180B Bencoolen Street #07-05 The Bencoolen Singapore 189648
Phone +65-6535-0056 Fax: +65-6535-0087