

PA-97S SERIES

High accuracy of $\pm 0.5\%$ F.S. (at 0 ~ 105 °C)
Wide variety for middle-high pressure range



*These products are purchased items.

FEATURES

- High precision and high reliability (Diaphragm equivalent to SUS630, oil-less)
- Extended temperature range of -40 to +125 °C
- Waterproof "IP67" with welded and integrated connector structure
- Wide variety of pressure range selections

MODEL NUMBER DESIGNATION

PA - 970S - 103 P - A G2 - J

① Series name / Output	
PA-970S	1 ~ 5 V
PA-971S	0.5 ~ 4.5 V (Ratiometric)
PA-972S	0 ~ 5 V
PA-973S	0 ~ 10 V
PA-978S	4 ~ 20 mA

② Rated pressure range			
103	1.0 MPa (10 bar)	204	20 MPa (200 bar)
203	2.0 MPa (20 bar)	354	35 MPa (350 bar)
353	3.5 MPa (35 bar)	404	40 MPa (400 bar)
503	5.0 MPa (50 bar)	504	50 MPa (500 bar)
104	10 MPa (100 bar)	804	80 MPa (800 bar)

③ Pressure reference	
P	Gauge (Positive)

④ Connector	
A	AMP SUPERSEAL 1.5

⑤ Fitting	
G2	G 1/4
G3	G 3/8
R2	R 1/4

⑥ Seal type	
J	JIS O ring (G2, G3)
blank	No O ring (R2)

*1. R1/4 fitting is not available for 80MPa (804P).

*2. Please refer to our website for a List of Model Numbers.

STANDARD SPECIFICATIONS

Pressure reference	Gauge (MPa)									
	103P	203P	353P	503P	104P	204P	354P	404P	504P	804P
Model (Rated pressure)	103P	203P	353P	503P	104P	204P	354P	404P	504P	804P
Rated pressure range	1.0	2.0	3.5	5.0	10.0	20.0	35.0	40.0	50.0	80.0
Maximum pressure	4.0	4.0	10.0	10.0	20.0	50.0	80.0	80.0	100.0	100.0
Break-down pressure	7.0	7.0	50.0	50.0	100.0	250.0	400.0	400.0	400.0	400.0
Operating temp. range	-40 ~ 125 °C, O-ring: -20 ~ 100 °C*1									
Storage temp. range	-40 ~ 125 °C (Atmospheric pressure, humidity 65 % RH maximum), O-ring: -20 ~ 100 °C*1									
Operating humidity	95 % RH maximum (No condensation)									
Fitting material	SUS630									
Media	Corrosive gases/liquids compatible with SUS630									
Insulation resistance	100 MΩ minimum (Between the bundled electrical wirings and the pressure port at 500VDC)									
Pressure port (Fitting)	G 1/4, G 3/8, R 1/4 (JIS B 2351-1, JIS B 0203)									
Net weight	Approx. 50 g (without cable)									
Drip-proof structure	IP67									
Power										
Model (Output)	970S		971S*2		972S		973S		978S	
Supply voltage (DC)	9 ~ 36 V		5 V \pm 10 %		9 ~ 36 V		14 ~ 36 V		9 ~ 36 V	
Consumption current	20 mA maximum (No load)									
Analog output										
Model (Output)	970S		971S*2		972S		973S		978S	
Voltage/Current	1 ~ 5 V		0.5 ~ 4.5 V		0 ~ 5 V		0 ~ 10 V		4 ~ 20 mA	
Zero voltage/current	1 \pm 0.06 V		0.5 \pm 0.06 V		0 + 0.075 V		0 + 0.15 V		4 \pm 0.24 mA	
Full voltage/current	5 \pm 0.06 V		4.5 \pm 0.06 V		5 \pm 0.075 V		10 \pm 0.15 V		20 \pm 0.24 mA	
Linearity/Hysteresis/Repeatability	\pm 0.25 % F.S.									
Overall accuracy*3	\pm 0.5 % F.S. (at 0 ~ 105 °C)									
	\pm 1.5 % F.S. (at -40 ~ 0 °C / 105 ~ 125 °C)									
Response	1 ms maximum									
Load resistance	10 kΩ minimum									*4
Cable (Sold separately)	Voltage output cable / Current output cable									

*1) Standard O-ring material is NBR. Please be aware of the medium and the temperature.

*2) Ratiometric output

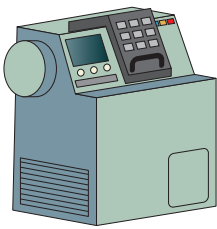
*3) Includes Linearity, Hysteresis, and Repeatability

*4) $V_{opr} \leq 24$ V ... ($V_{opr} - 9$) / (0.02 A) Ω max.

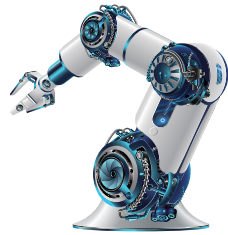
$V_{opr} > 24$ V ... ($V_{opr} - 24$) / (0.048 A) Ω min. ~ ($V_{opr} - 9$) / (0.02 A) Ω max.

APPLICATIONS

Ideal for use in general industrial equipment such as hydraulic equipment, machine tools, etc.. Typical applications are:



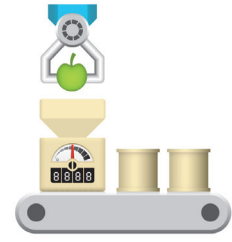
● Machining Center



● Industrial Robot



● Specially Equipped Vehicle

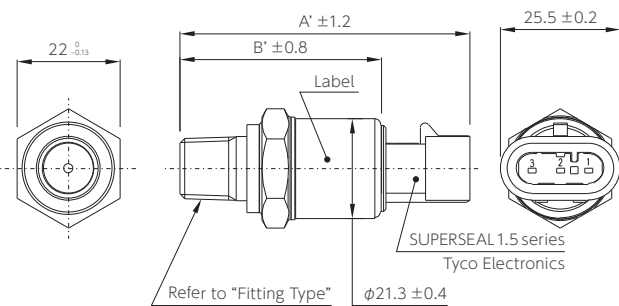


● Food Processing Equipment / Chiller

OUTLINE DIMENSIONS

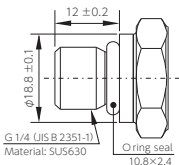
(Unit: mm)

● PA-970S / PA-972S / PA-973S / PA-978S

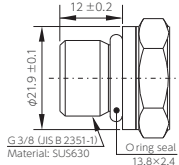


Fitting Type

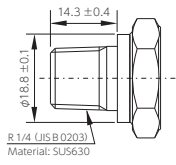
● G 1/4



● G 3/8



● R 1/4



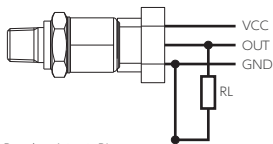
*Products for pressure ranges over 3.5MPa are equipped with a snubber.

Pin Assignment

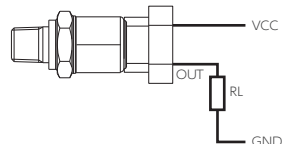
Model	Pin 1	Pin 2	Pin 3
PA-970S	GND (Common)	SIG (Output)	Vcc (Power)
PA-971S	GND (Common)	SIG (Output)	Vcc (Power)
PA-972S	GND (Common)	SIG (Output)	Vcc (Power)
PA-973S	GND (Common)	SIG (Output)	Vcc (Power)
PA-978S	SIG (Output)	DNC (N.C.)	Vcc (Power)

Wiring

① 3-wire-technique (PA-970S / 971S / 972S / 973S)



② 2-wire-technique (PA-978S)

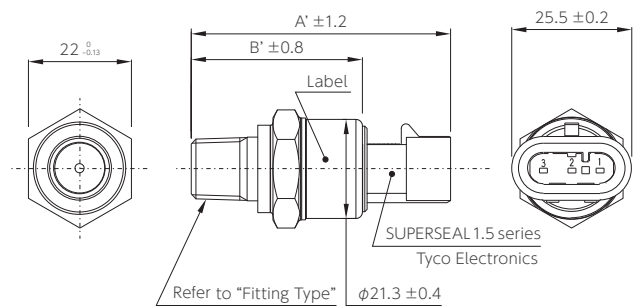


Road resistant: RL

① Voltage output (3-wire-technique): RL > 10 kΩ

② Current output (2-wire-technique): Vcc ≤ 24V → RL ≤ (Vcc-9)/0.02 A;
Vcc > 24V → (Vcc-24)/0.048 A ≤ RL ≤ (Vcc-9)/0.02 A

● PA-971S (Ratiometric)



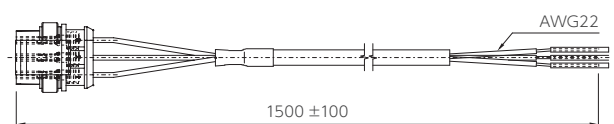
Detail Dimensions

Type	970S / 972S / 973S / 978S		971S		Fitting
	A'	B'	A'	B'	
PA-97*S-***P-AG2-J	59.65	40.75	53.2	34.3	G 1/4
PA-97*S-***P-AG3-J	59.65	40.75	53.2	34.3	G 3/8
PA-97*S-***P-AR2	61.95	43.05	55.5	36.6	R 1/4

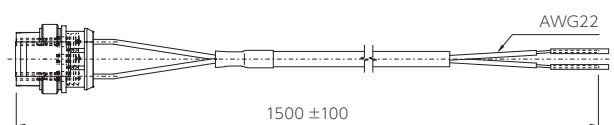
*R1/4 fitting is not available for 80MPa (804P).

Option Cable (Sold Separately)

● PA-97S-V152C: For PA-970S/PA-971S/PA-972S/PA-973S



● PA-97S-A152C: For PA-978S



● Wire Color and Functions

Wire color	PA-970S / 971S / 972S / 973S	Wire color	PA-978S
White	SIG (Output)	White	SIG (Output)
Blue	GND (Common)	—	—
Brown	Vcc (Power)	Brown	Vcc (Power)

NIDEC COMPONENTS CORPORATION (HQ)

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

NIDEC COMPONENTS (U.S.A.), INC.

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

NIDEC COMPONENTS (SHANGHAI) CO., LTD.

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

NIDEC COMPONENTS (TAIWAN) CO., LTD.

18F-1, No.57, Sec.2, Tun Hwa S.Rd., Taipei 106, TAIWAN
Phone: +886-2-27030577 Fax: +886-2-27010577

■ Specifications are subject to change without prior notice.

<https://www.nidec-components.com>

NIDEC COMPONENTS EUROPE GmbH

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

NIDEC COMPONENTS KOREA CORPORATION

C- 406, Woolim Lion's Valley 168, Gasan digital,
Geumcheon-gu, Seoul, 08507, KOREA
Phone: +82-2-3482-5861 Fax: +82-2-3482-5860

NIDEC COMPONENTS SINGAPORE PTE. LTD.

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

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