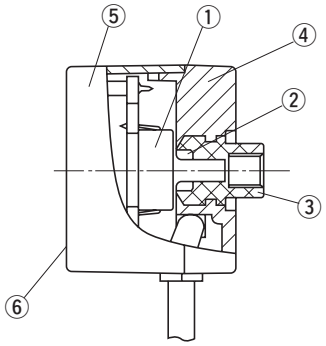
PRESSURE SWITCHES WITH GAUGES PS30

FEATURES

- Optimum for pneumatic equipment and semiconductor manufacturing equipment
- Larger size display and high luminance LED for best visibility
- Eight switch output modes
- Low consumption by nondisplay mode

INTERNAL STRUCTURE



	Part name	Material
①	Pressure transducer	P-2000
②	“O” ring	Fluoro-rubber
③	Pressure port	Brass (Ni-plated)
④	Base	ABS (Acrylonitrile-butadiene-styrene)
⑤	Housing	
⑥	Panel sheet	Polyester

MODEL NUMBER DESIGNATION

P S 3 0 - 1 0 2 R - N

Series name

Rated pressure range
102R：−100 ~ 100 kPa
103R：−0.1 MPa ~ 1.00 MPa

Switch output interface
N：NPN open collector
P：PNP open collector

LIST OF MODEL NUMBERS

Switch output interface \ Pressure reference / Rated pressure range	Gauge	
	−100 ~ 100 kPa	−100 ~ 1000 kPa
NPN	PS30-102R-N	PS30-103R-N
PNP	PS30-102R-P	PS30-103R-P

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

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■ STANDARD SPECIFICATIONS

● Unless otherwise specified, the specs are defined at an ambient temperature of 25 ± 5 °C and excitation voltage of 24 VDC.

Item		Model number		PS30	
				102R	103R
General specifications	Pressure reference			Gauge	
	Rated pressure range		kPa	− 100 ~ 100	− 100 ~ 1000
	Maximum pressure		kPa	200	1500
	Break-down pressure		kPa	500	2000
	Operating temp. range		°C	− 10 ~ 50	
	Compensated temp. range		°C	0 ~ 50	
	Thermal error			± 3 %F.S. (0 ~ 50 °C)	
	Operating humidity		%RH	35 ~ 85 (No condensation)	
	Storage temp.		°C	− 20 ~ 70 (Atmospheric pressure, humidity 65 %RH maximum)	
	Pressure medium			Non-corrosive gases	
	Insulation resistance		MΩ minimum	100 (DC 500 V)	
	Dielectric strength			500 VAC, 60 s (Leakage current 1 mA maximum)	
	Pressure port			M5 female screw, "O" ring groove (P8)	
	Net weight		g	Approx. 60 (Including 1.5 m cable)	
Power	Supply voltage		VDC	12 ~ 24 V ± 10 % (ncluding ripple voltage)	
	Consumption current		mA maximum	40	
Display	Display element			LED (2 and 1/2 digit)	
	Rated display range		kPa	− 100 ~ 100	———
			MPa	———	− 0.10 ~ 1.00
	Display accuracy			± 1 %F.S.	
	Resolution			1 count	
Switch output	No. of outputs			2	
	Output interface			Open collector output (NPN or PNP)	
	Display			Output 1 (SW1), Output 2 (SW2) Light on when output is ON.	
	Repeatability		%F.S.	± 0.3 maximum	
	Switch hysteresis			0 ~ 30 counts (Adjustable)	
	Switching capacity			30 VDC 100 mA maximum Short-circuit protection	
	Residual voltage		V maximum	1.2 V (NPN), 2.2 V (PNP)	
	Response		ms	Approx 5, 25, 250 (Adjustable)	

■ ENVIRONMENTAL CHARACTERISTICS

Test item	Test conditions	Permissible change
Vibration	10 ~ 500 Hz, 98.1 m/s² or 1.5 mm P-P, 3 directions for 2 hours each	± 2 %F.S. maximum after test ※ 1
Shock	490 m/s², 3 directions for 3 times each	
Pressure cycling	0 ~ Rated pressure、10^6 cycles	
Moisture resistance	40 °C, 90 ~ 95 %RH, 240 hrs.	
EMC	EMI : EN55011: 2007, A2 : 2007 Group 1, class B EMS : EN61326-1 : 2006 Table 2	Switch operating pressure : ± 5 %F.S., maximum during tset ※ 1

※ 1 Change in the pressure indication, switch operating points.

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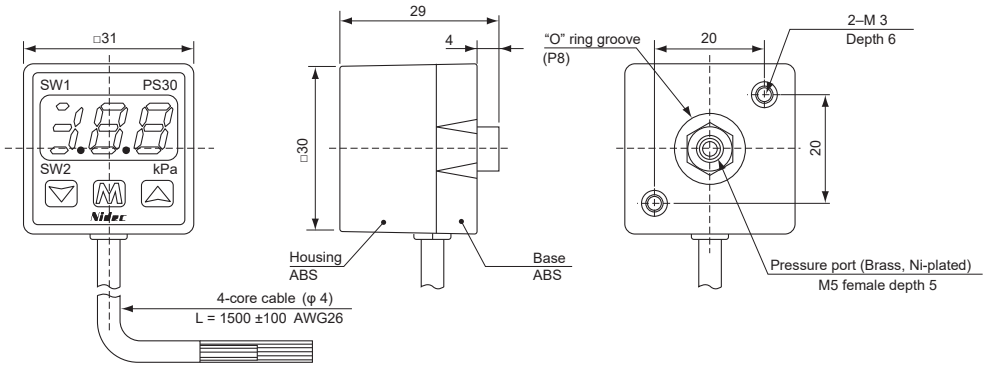
OUTLINE DIMENSIONS

Unless otherwise specified, tolerance : ± 0.5 (Unit : mm)



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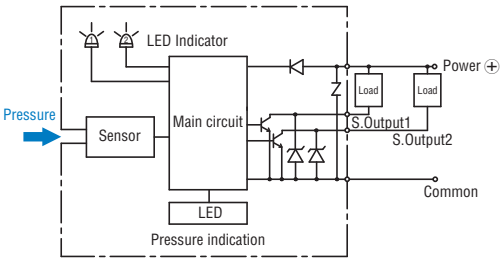
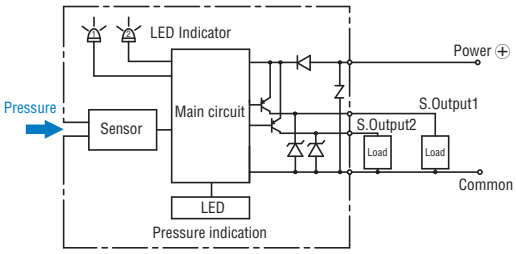
Wire color	Connection
Brown	Power ⊕
Black	Switch output 1
White	Switch output 2
Blue	Common

INTERNAL ELECTRICAL SCHEMATICS

● NPN open collector



● PNP open collector



SELECTION OF DISPLAY MULTIPLIER

Please refer to the right list.
(Note) Diagonal column : No unit can be selected due to resolution and number of digits.

Selection number	102R		103R	
	Display multiplier	Display range	Display multiplier	Display range
0	× 1	−100 ~ 100		
1			× 1	−0.10 ~ 1.00
2	× 0.75	75 ~ 75		
3	× 0.01	−1.00 ~ 1.00	× 10	−1.0 ~ 10.0
4	× 0.145	−14.5 ~ 14.5	× 145	−14 ~ 145

SWITCH OUTPUT MODE

Output		SW 1				SW 2			
Mode		Separate		Window comparator		Separate		Window comparator	
Operation		HI	LO	A	B	HI	LO	A	B
Selection number	0	○				○			
	1	○					○		
	2		○			○			
	3		○				○		
	4			○				○	
	5			○					○
	6				○			○	
	7				○				○
		Setting 1 Note 1		Lower limit : Setting 1 Upper limit : Setting 1 Note 2		Setting 1 Note 1		Lower limit : Setting 1 Upper limit : Setting 1 Note 2	

Separate mode	Window comparator mode
(HI operation)	(A operation)
(LO operation)	(B operation)
P1≦P2 or P1≧P2	P1≦P2+2H

P1 : Setting 1、P2 : Setting 2、H : Switch hysteresis

(Note 1) In the Separte Mode, setting 1 corresponds to SW1, and Setting 2 corresponds to SW2.
(Note 2) In the Window Comparator Mode, the minimum value for SW1 and SW2 corresponds to Setting 1 and the maximum value corresponds to Settng 2.

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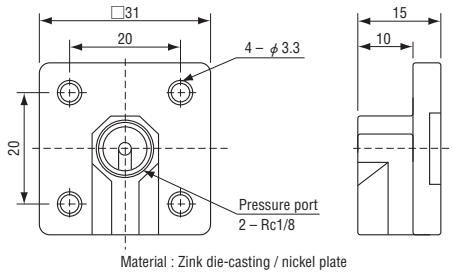
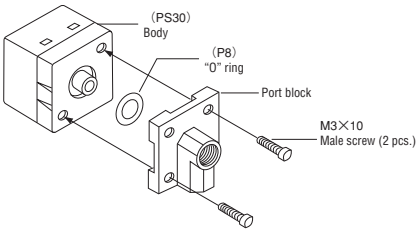
■ HOW TO MOUNT OPTIONAL ACCESSORIES (Sold separately)

● Port block

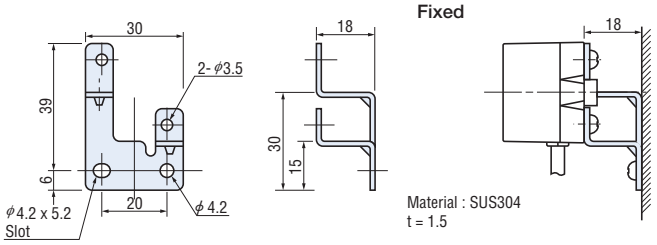


Material : Zink die-casting / nickel plate

● How to mount port block

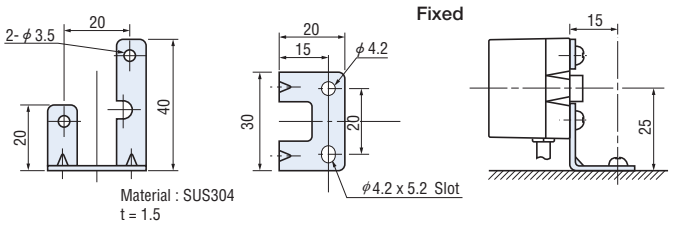


● Rear panel mounting bracket(ACPG-001)



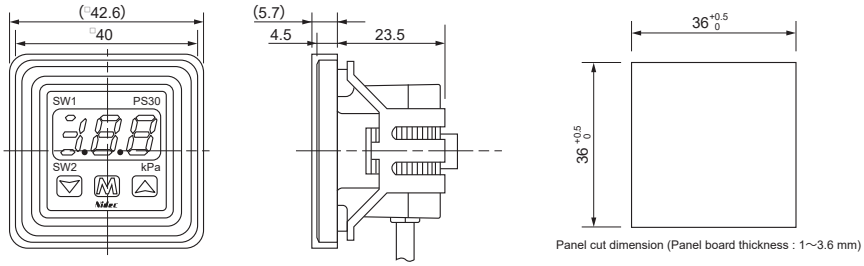
Material : SUS304
t = 1.5

● Panel mounting bracket (ACPG-002)



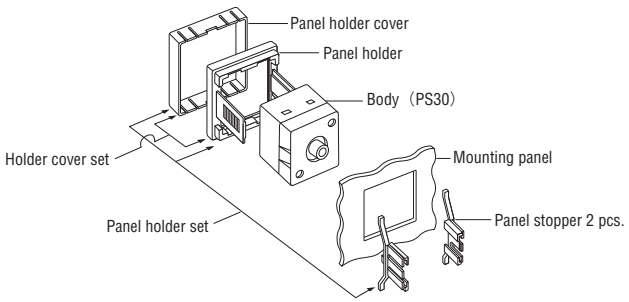
Material : SUS304
t = 1.5

● Panel mounting bracket (Option)



Panel cut dimension (Panel board thickness : 1~3.6 mm)

● How to mount panel holder cover set



Name	Description	Contents	Applicable model
ACPG-001	Rear panel bracket set	Rear panel bracket and M3 x 4 male screw (2 pcs.)	PG-30·PS30
ACPG-002	Panel bracket set	Panel bracket and M3 x 4 male screw (2 pcs.)	PG-30·PS30
ACPG-003	Holder cover set (For protecting operating panel)	Panel holder cover Panel holder Panel stopper (2 pcs.)	PG-30·PG-35 PG-75·PG-35H PG-35L·PS30
ACPG-004	Holder cover set (For protecting operating panel)	Panel holder cover Panel holder	PG-30·PG-35 PG-75·PG-35H PG-35L·PS30
ACPG-005	Port block	Port block "O" ring (P8) M3 x 10 Male screw 2 pcs. Seal screw 1 pc.	PS30
ACPG-007	Holder stopper set	Panel holder Panel stopper (2pcs.)	PG-30·PG-35 PG-75·PG-35H PG-35L·PS30