

PRESSURE GAUGES

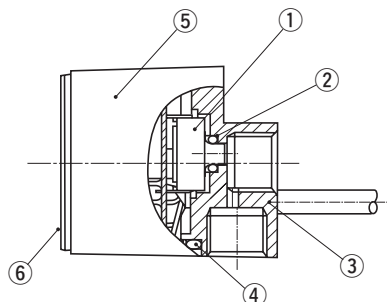
PG-30



FEATURES

- **Compact and lightweight general-purpose pressure gauges**
Innovative general-purpose gauges of compact design (30mm sq.) and drip-proof structure (IP65).
- **Clear indication by LED**
Easy-to-see LED assures clear readings on the panel and even in a dark place.
- **Various modes and units can be selected according to applications**
Eight different pressure units
Three analog output modes
Eight switch output modes
- **Meet EMC standards**
EN 55011 (EMI)
EN 61326-1 (EMS)
- **Low consumption by nondisplay mode**
- **Set data protection by panel lock function**

INTERNAL STRUCTURE



Part name		Material
①	Pressure sensor	P-2000
②	Sensor "O" ring	NBR
③	Adaptor	Aluminum Die-casting
④	Case "O" ring	NBR
⑤	Case	PBT (Polybutyleneterephthalate)
⑥	Panel sheet	Polyester

MODEL NUMBER DESIGNATION

Non-corrosive gases type

PG-30-101R-N

Series name

Pressure range

101 : - 10 ~ 10 kPa
102 : - 100 ~ 100 kPa
103 : - 100 ~ 1000 kPa

Witch output interface

N : NPN open collector
P : PNP open collector

Pressure reference

R : Compound pressure
(Negative pressure ~ Positive pressure)

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PRESSURE GAUGES

LIST OF MODEL NUMBERS

Pressure medium	Fitting	Pressure reference	Gauge		
		Switch output interface / Rated pressure range	-10 ~ 10 kPa	-100 ~ 100 kPa	-100 ~ 1000 kPa
Non-corrosive gases	Rc 1/8	NPN	PG-30-101R-N	PG-30-102R-N	PG-30-103R-N
		PNP	PG-30-101R-P	PG-30-102R-P	PG-30-103R-P

※ Verify the above model numbers when placing orders.

ACCESSORIES (Sold separately)

Name	Series name	Contents	Applicable model
Rear panel bracket set	ACPG-001	Rear panel bracket and M 3 × 4 male screw (2pcs.)	PG-30 · PS30
Panel bracket set	ACPG-002	Panel bracket and M 3 × 4 male screw (2pcs.)	PG-30 · PS30
Panel holder set	ACPG-003	Panel holder cover Panel holder Panel stopper (2pcs.)	PG-30 · PG-35 · PG-75 PG-35H · PG-35L · PS30
Holder cover set (For protecting gauge operating panel)	ACPG-004	Panel holder cover Panel holder	PG-30 · PG-35 · PG-75 PG-35H · PG-35L · PS30
Holder stopper set	ACPG-007	Panel holder Panel stopper (2pcs.)	PG-30 · PG-35 · PG-75 PG-35H · PG-35L · PS30

STANDARD SPECIFICATIONS

● Unless otherwise specified, the specs are defined at an ambient temperature of 25 ± 5 °C and excitation voltage of 12 VDC.

Item / Model number		PG-30		
		101R	102R	103R
General specifications	Pressure reference	Gauge		
	Pressure medium	Non-corrosive gases		
	Rated pressure range kPa	-10 ~ 10	-100 ~ 100	-100 ~ 1000
	Maximum pressure kPa	20	200	1500
	Break-down pressure kPa	50	500	2000
	Operating temp. range °C	-10 ~ 50		
	Compensated temp. range °C	0 ~ 50		
	Operating humidity %RH	35 ~ 85		
	Protection grade	In accordance with IEC IP65		
	Pressure port	2-Rc 1/8		
	Material of pressure port attachment	Aluminum die-casting, silicone		
	Net weight g	Approx. 80 (Including 2 m cable)		
	Thermal error	±3 %F.S. (0 ~ 50 °C)		
	Insulation resistance	100 MΩ minimum (500 VDC)		
	Dielectric strength	500 VAC 1 minute (Leakage current 1 mA maximum)		
	Input voltage	10.8 ~ 30 VDC (Including ripple percentage)		
	Consumption current	50 mA maximum		

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PRESSURE GAUGES

STANDARD SPECIFICATIONS

● Unless otherwise specified, the specs are defined at an ambient temperature of $25 \pm 5^\circ\text{C}$ and excitation voltage of 12 VDC.

Item		Model number	PG-30		
			101R	102R	103R
Display	Display element		Full 3-digit LED		
	Rated display range	kPa	- 9.99 ~ 9.99	- 99.9 ~ 99.9	- 100 ~ 999
	Multiplier settings		Max. 11 settings		
	Negative pressure display		Red LED is ON.		
	Display accuracy		$\pm 1\%$ F.S.		
Switch output	Output status		NPN/PNP		
			2-point output (Transistor, Open collector output)		
	Output mode		Separate mode / window comparator mode		
	Switching capacity		30 VDC 100 mA Short-circuit protection		
	Residual voltage		1.2 V maximum (NPN), 2.2 V maximum (PNP) (At load current of 100 mA)		
	State indication		Output 1 (Green LED), Output 2 (Red LED) Lighted when output is ON.		
	Switch hysteresis		0 ~ 300 counts (Adjustable)		
	Repeatability		$\pm 0.2\%$ F.S. ± 1 count ($\pm 0.3\%$ F.S. maximum)		
Analog output	Response		Approx. 5, 25, 250, 2500 ms Adjustable		
	Output mode		3 modes		
	Output voltage		1 ~ 5 V (G/V mode ZERO : 1 ± 0.2 V, SPAN : 4 ± 0.2 V) 103 R (R mode) ZERO : 1.36 ± 0.2 V		
	V zero : Pin=0, V span : Pin=0 ~ Pin (H)		R mode ZERO : 3 ± 0.2 V, SPAN : 2 ± 0.2 V) SPAN : 3.64 ± 0.2 V		
	Impedance		10 k Ω		
	Resolution		1/204		
Accessories	Response		Approx. 5, 25, 250, 2500 ms Adjustable		
			Seal screw, M 5 connecting joint screw		

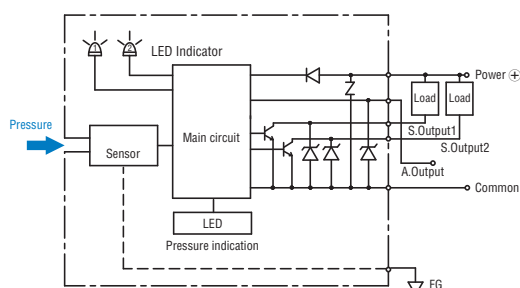
ENVIRONMENTAL CHARACTERISTICS

Test item	Test conditions	Permissible change
Vibration	10 ~ 500 Hz, 98.1 m/s ² or 1.5 mm P-P, 3 directions for 2 hours each	[Amount of analog output fluctuation is permitted by adding conversion error of 20 mV. ※ 1]
Shock	490 m/s ² , 3 directions for 3 times each	
Pressure cycling	0 ~ Rated pressure, 10 ⁶ cycles	
Moisture resistance	40 °C, 90 ~ 95 %RH, 240 hrs.	

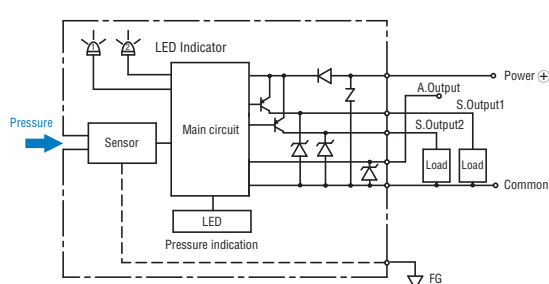
※ 1 Change in the pressure indication, switch operating points and analog output.

INTERNAL ELECTRICAL SCHEMATICS

● NPN



● PNP



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SELECTION OF DISPLAY MULTIPLIER

The last digit/letter represents the selection code : Blinking red LED indicates negative pressure.

Display multiplier		Pressure range(-Pr~+Pr)		
		101R	102R	103R
Selection code	1 × 1	- 9.99 ~ 9.99	- 99.9 ~ 99.9	- 100 ~ 999
	2 × 0.0102			- 1.02 ~ 9.99
	3 × 10.2	- 99.9 ~ 99.9	- 999 ~ 999	
	4 × 7.501	- 75.0 ~ 75.0	- 750 ~ 750	
	5 × 102	- 999 ~ 999		
	6 × 0.01			- 1.00 ~ 9.99
	7 × 10	- 99.9 ~ 99.9	- 999 ~ 999	
	8 × 0.145	- 1.45 ~ 1.45	- 14.5 ~ 14.5	- 14 ~ 145
	9 × 0.000145			
	A × 0.001			- 0.10 ~ 1.00
	b × 0.2953	- 2.95 ~ 2.95	- 29.5 ~ 29.5	- 29 ~ 295

Diagonal column: Display multiplier cannot be selected due to resolution and number of digits. (Selection code is not indicated either.)
Selection code is set at "1" prior to shipment.

ANALOG OUTPUT MODE

Display		Pressure range		-Pr	0	Pr
1	R mode			1 V		5 V
2	G mode				1 V	5 V
3	V mode			5 V	1 V	

When shipped from our factory-101R : R mode is set at "1", 102R : V mode is set at "3" and 103R : G mode is set at "2". The above 3 types can be set at "1", "2" or "3". However, the accuracy at V mode of 103R can't be guaranteed.

SWITCH OUTPUT MODE

Output	SW1				SW2			
	Separate		Window comparator		Separate		Window comparator	
Mode	HI	LO	A	B	HI	LO	A	B
Operation	HI	LO	A	B	HI	LO	A	B
S-1	○				○			
S-2	○				○	○		
S-3		○				○		
S-4		○				○		
C-5			○				○	
C-6			○				○	○
C-7				○				○
C-8				○				○
Pressure setting (Operating point)	Setting 1		(Lower limit) : Setting 1 (Upper limit) : Setting 2		Setting 2		(Lower limit) : Setting 1 (Upper limit) : Setting 2	

Separate mode	Window comparator mode
(HI operation)	(A operation)
(LO operation)	(B operation)
$P1 \leq P2$ or $P1 \geq P2$	$P1 \leq P2 - 2H$
H : Switch hysteresis, P1=Setting 1、P2=Setting 2	

Note 1. In the Separate 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 Setting 2.

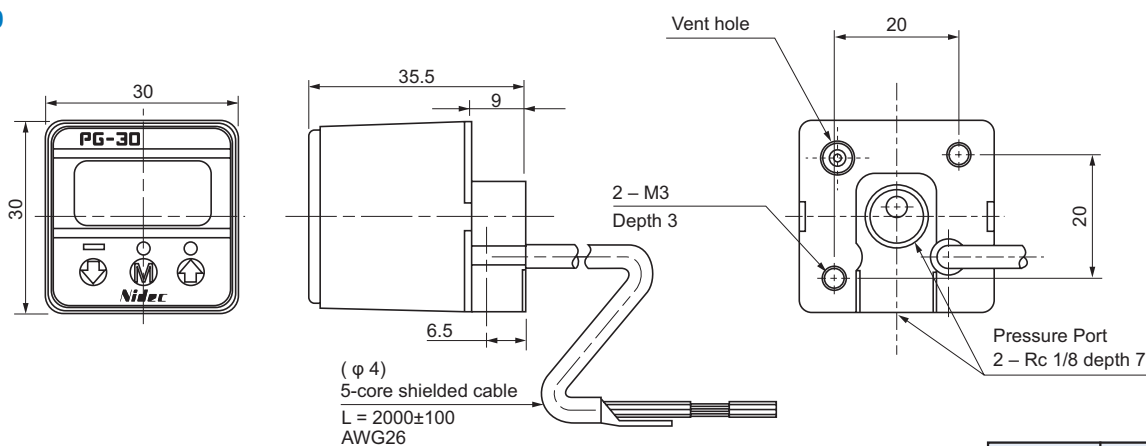
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OUTLINE DIMENSIONS

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



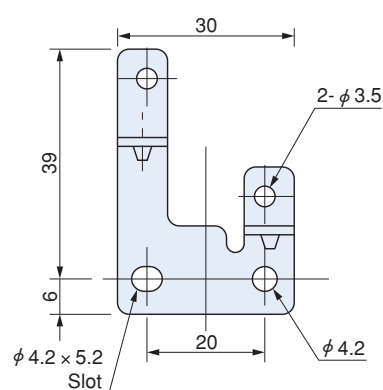
Wire color	Connection
Brown	Power ⊕
Gray	Analog output
Black	Switch output 1
White	Switch output 2
Blue	Common
Shield	Fitting

HOW TO MOUNT OPTIONAL ACCESSORIES (Sold separately)

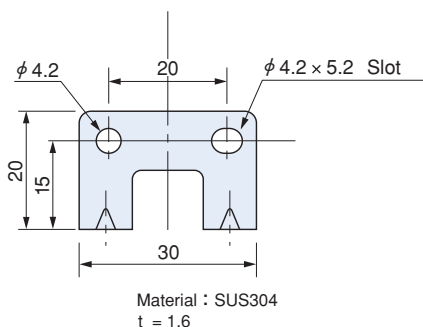
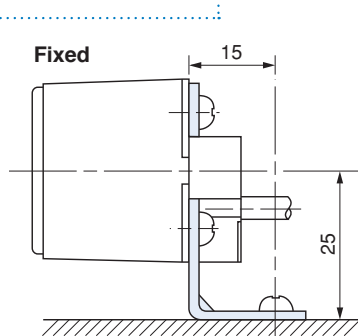
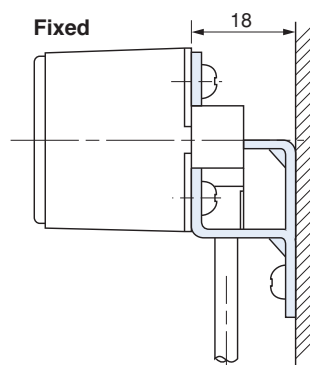
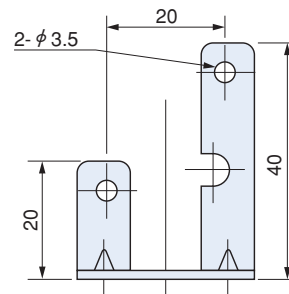
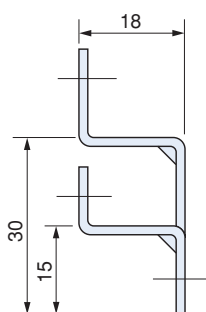
(Unit: mm)

PG-30 Rear panel mounting bracket (ACPG-001)

PG-30 Panel mounting bracket (ACPG-002)



Material : SUS304
t = 1.5



Material : SUS304
t = 1.6

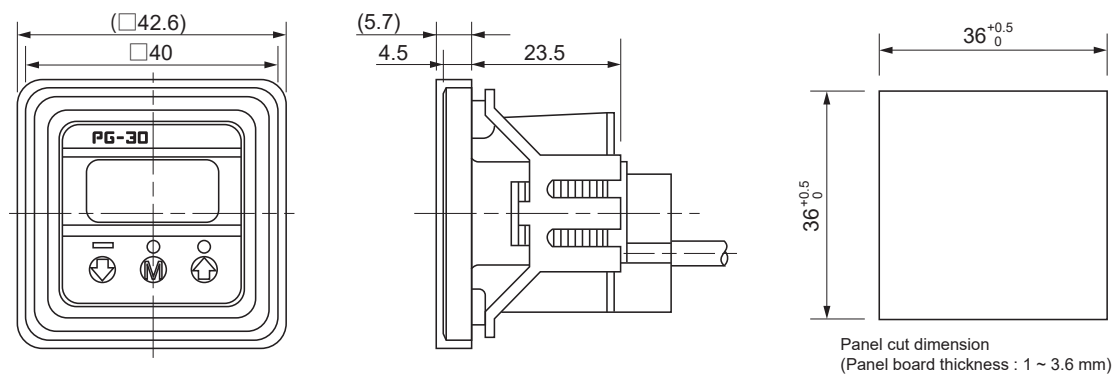
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PRESSURE GAUGES

■ HOW TO MOUNT OPTIONAL ACCESSORIES (Sold separately)

(Unit: mm)

● PG-30 • PG-35 • PG-35H • PG-35L • PG-75 • PS30 Panel cut holder set & holder cover set



● Panel holder cover set

