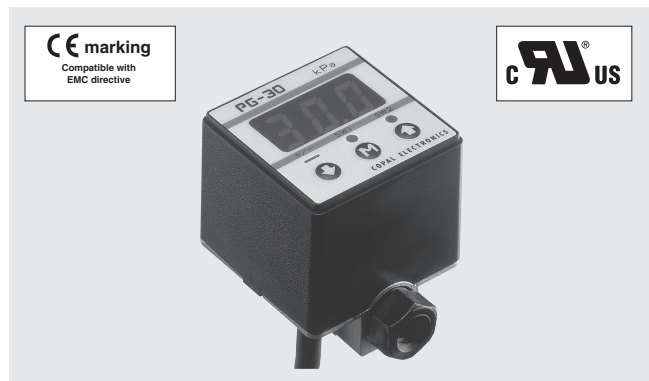


# PRESSURE GAUGES

# 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

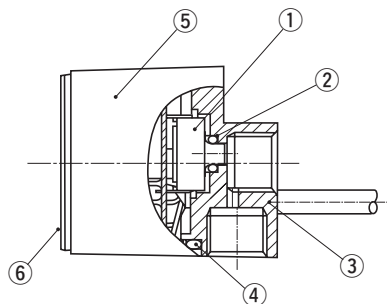
### ● Meet EMC standards

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

Switch output interface

N : NPN open collector  
P : PNP open collector

Pressure reference

R : Compound pressure (Negative pressure ~ Positive pressure)

### LIST OF MODEL NUMBERS

Pressure medium	Fitting	Pressure reference Switch output interface Rated pressure range	Gauge		
			–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
Panel bracket set	ACPG-002	Panel bracket and M 3 × 4 male screw (2pcs.)	PG-30
Panel holder set	ACPG-003	Panel holder cover Panel holder Panel stopper (2pcs.)	PG-30 · PG-35 · PG-75 · PG-35H · PG-35L
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

### STANDARD SPECIFICATIONS

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

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 (DC500 V)		
	Dielectric strength	AC500 V 1 minute (Leakage current 1 mA maximum)		
	Input voltage	10.8 ~ 30 V DC (Including ripple percentage)		
	Consumption current	50 mA maximum		

# PG-30

## 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 V DC.

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		$\pm 1\%$		
Switch output	Output status		NPN/PNP		
			2-point output (Transistor, Open collector output)		
	Output mode		Separate mode / window comparator mode		
	Switching capacity		30 V DC 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. $\pm 1$ count ( $\pm 0.3\%$ F.S. maximum)		
	Response		Approx. 5, 25, 250, 2500 ms Adjustable		
Analog output	Output mode		3 modes		
	Output voltage V zero : Pin=0, V span : Pin=0 ~ Pin (H)		1 ~ 5 V (G/V mode ZERO : $1 \pm 0.2$ V, SPAN : $4 \pm 0.2$ V) R mode ZERO : $3 \pm 0.2$ V, SPAN : $2 \pm 0.2$ V)	103 R (R mode)	ZERO : $1.36 \pm 0.2$ V SPAN : $3.64 \pm 0.2$ V
	Impedance		10 k $\Omega$		
	Resolution		1/204 (Approx. 20mV / Approx. 0.5%F.S.)		
	Response		Approx. 5, 25, 250, 2500 ms Adjustable		
Accessories			Seal screw, M 5 connecting joint screw		

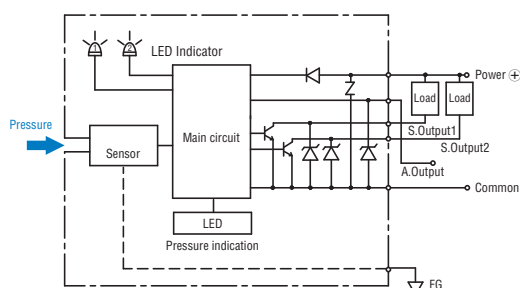
### ENVIRONMENTAL CHARACTERISTICS

Test item	Test conditions	Permissible change
Vibration	10 ~ 500 Hz, 98.1 m/s <sup>2</sup> or 1.5 mm P-P, 3 directions for 2 hours each	$\pm 2\%$ F.S. maximum after test ※ 1 Amount of analog output fluctuation is permitted by adding conversion error of 20 mV.
Shock	490 m/s <sup>2</sup> , 3 directions for 3 times each	
Pressure cycling	0 ~ Rated pressure、10 <sup>5</sup> 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	※ 1 Pressure indication, switch operating pressure and analog output : $\pm 5\%$ F.S. maximum during test

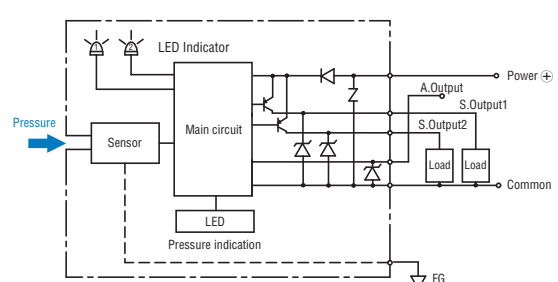
※ 1 Change in the pressure indication, switch operating points and analog output.

### INTERNAL ELECTRICAL SCHEMATICS

#### ● NPN



#### ● PNP



### 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

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	

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.

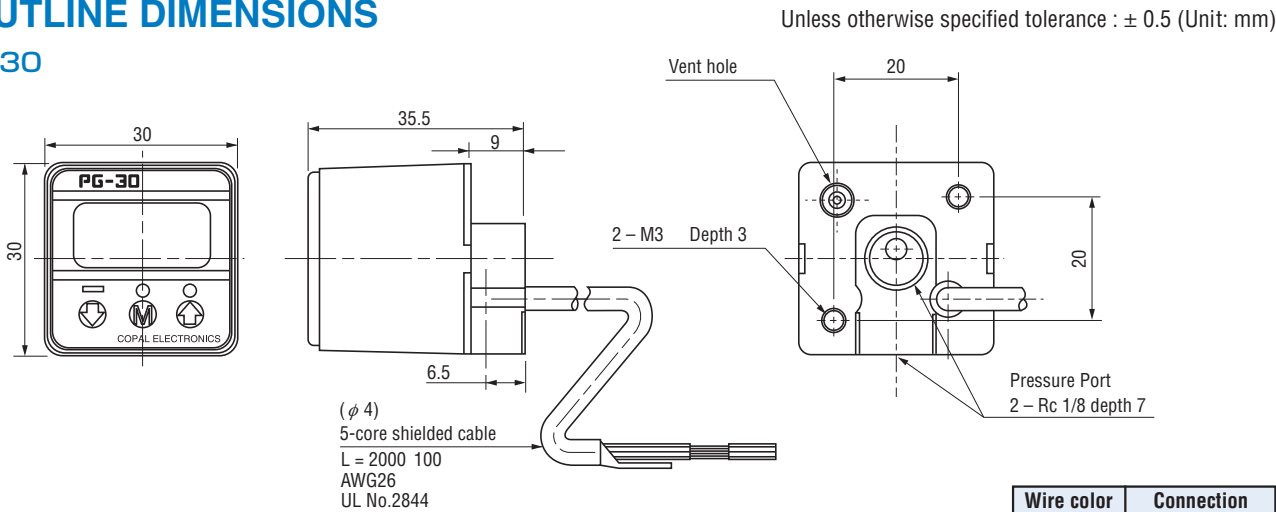
Separate mode	Window comparator mode
<p>(HI operation)</p>	<p>(A operation)</p>
<p>(LO operation)</p>	<p>(B operation)</p>
<p><math>P1 \leq P2</math> or <math>P1 \geq P2</math></p>	
<p>H : Switch hysteresis, P1=Setting 1、P2=Setting 2</p>	

# PG-30

## PRESSURE GAUGES

### OUTLINE DIMENSIONS

#### PG-30



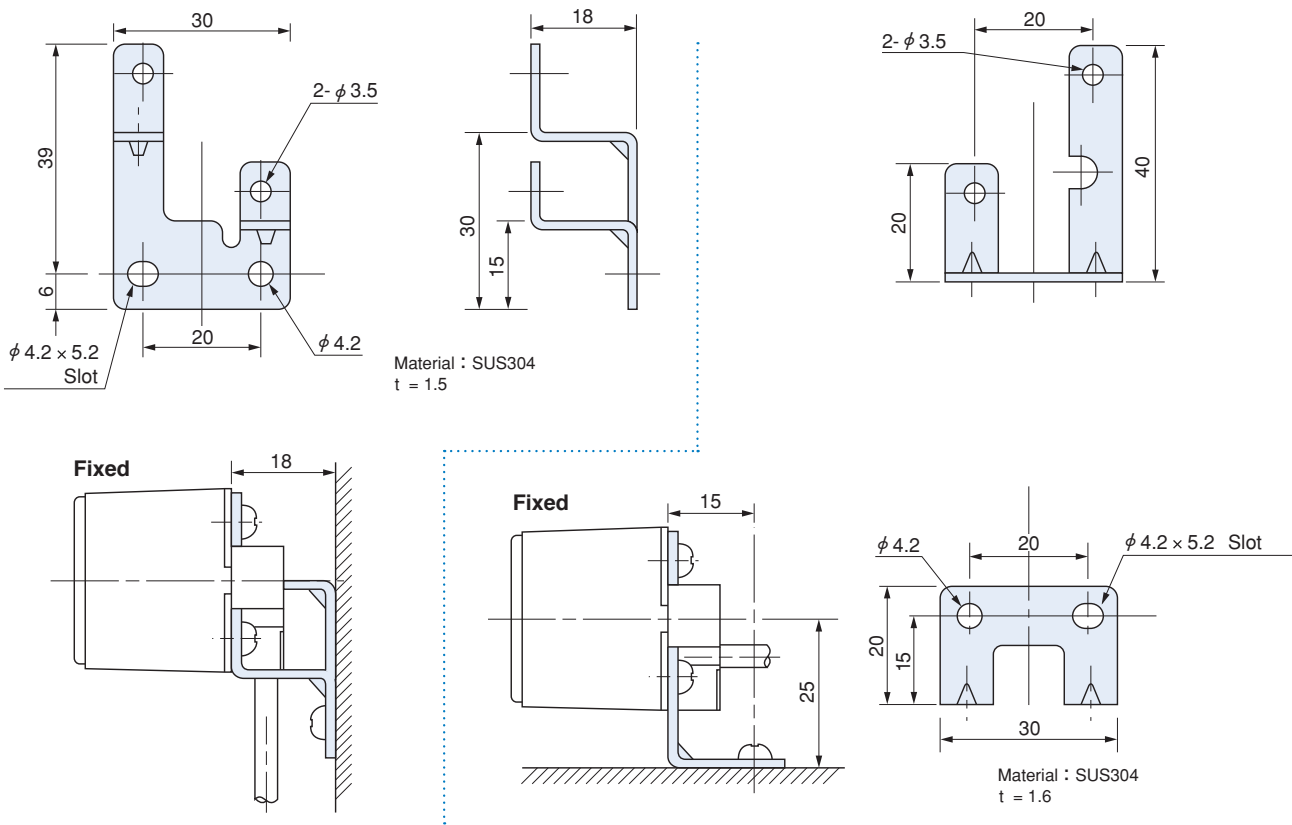
Wire color	Connection
Brown	Power $\oplus$
Gray	Analog output
Black	Switch output 1
White	Switch output 2
Blue	Common
Shield	Fitting

### HOW TO MOUNT OPTIONAL ACCESSORIES (Sold separately)

(Unit: mm)

#### PG-30 Rear panel mounting bracket

#### PG-30 Panel mounting bracket

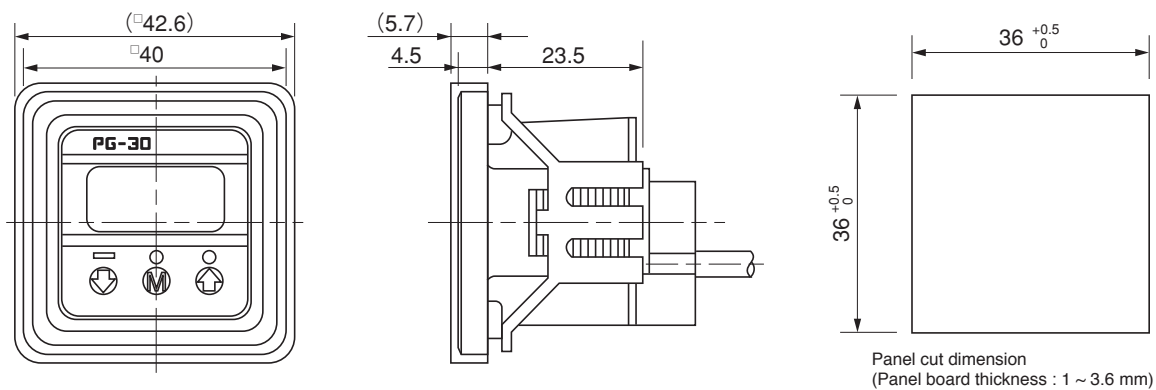


# PG-30 PRESSURE GAUGES

## ■ HOW TO MOUNT OPTIONAL ACCESSORIES (Sold separately)

(Unit: mm)

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



### ● Panel holder cover set

