

# PRESSURE GAUGES

# PG-35L



## FEATURES

- For high vacuum pressure
- For corrosive gases and liquids compatible with SUS316L stainless steel diaphragm
- Compact • Light weight • Drip-proof structure (30 mm sq • 200 g • IP65)
- Low consumption by nondisplay mode
- Set data protection by panel lock function

**INTERNAL STRUCTURE (9/16-18UNF)**

Part name		Material
①	Fitting	SUS316L
②	Sensor module (oil less)	
③	Sensor holder	
④	Housing (Aluminum coating)	PBT (UL-94-HB)
⑤	Adapter	ADC 10, 12
⑥	Panel sheet	Polyester (UL746)
⑦	Shielded cable	Vinyl chlorid resin (UL2844)

## MODEL NUMBER DESIGNATION

**PG-35L-102R-NVC**

Series name

Pressure range

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

Pressure reference

R : Compound pressure (Negative pressure ~ Positive pressure)

Fitting

R2 : R 1/4  
G2 : G 1/4  
VC : 9/16 - 18 UNF (Gasket joint)

Switch output interface

N : NPN open collector  
P : PNP open collector

## LIST OF MODEL NUMBERS

Fitting	Pressure reference		Gauge	
	Switch output interface	Rated pressure range	-100 ~ 100 kPa	-100 ~ 1000 kPa
R2 (R 1/4)	NPN		PG-35L-102R-NR2	PG-35L-103R-NR2
	PNP		↻ PG-35L-102R-PR2	↻ PG-35L-103R-PR2
G2 (G 1/4)	NPN		PG-35L-102R-NG2	PG-35L-103R-NG2
	PNP		↻ PG-35L-102R-PG2	↻ PG-35L-103R-PG2
VC (9/16-18 UNF)	NPN		PG-35L-102R-NVC	PG-35L-103R-NVC
	PNP		↻ PG-35L-102R-PVC	↻ PG-35L-103R-PVC

※ Verify the above model numbers when placing orders.

Marked ↻ is manufactured upon receipt of order basis.

### 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-35L	
			102R	103R
General specifications	Pressure reference		Gauge	
	Pressure medium		Corrosive gases/liquids compatible with SUS 316L	
	Rated pressure range	kPa	- 100 ~ 100	- 100 ~ 1000
	Maximum pressure	kPa	200	1500
	Break-down pressure	kPa	300	2000
	Operating temp. range	°C	- 10 ~ 50	
	Compensated temp. range	°C	0 ~ 50	
	Operating humidity	%RH	35 ~ 85 (No condensation)	
	Protection grade		IP65	
	Type of mounting		R 1/4, G 1/4, VC (9/16 - 18 UNF)	
	Material of pressure port attachment		SUS 316L	
	Net weight	g	Approx. 150 (Including 2 m cable)	
	Thermal error		± 3 %F.S. (0 ~ 50 °C)	
	Insulation resistance		50 MΩ minimum	
	Dielectric strength		125 V DC 1 minute	
	Vacuum working pressure		1.4 × 10 <sup>-4</sup> Pa abs minimum	
Input voltage		10.8 ~ 30 V DC (Including ripple percentage)		
Consumption current		50 mA maximum		
Display	Display element		Full 3-digit LED	
	Rated display range	kPa	- 99.9 ~ 99.9	- 100 ~ 999
	Multiplier settings		Max. 11 settings	
	Display cycle		Approx. 4 times/s	
	Negative pressure display		“-” LED is ON	
	Display accuracy		± 1 %	
Switch output	Output status		NPN/PNP	
	Output mode		2-point output (Transistor, Open collector output)	
	Switching capacity		Separate mode / window comparator mode	
	Residual voltage		30 V DC 100 mA maximum	
	State indication		1.2 V maximum (NPN), 2.2 V maximum (PNP)	
	Switch hysteresis		Output 1 (Green LED), Output 2 (Red LED) Lighted when output is ON.	
	Repeatability		0 ~ 300 counts Adjustable	
	Response		± 0.2 %F.S. ± 1 count	
Analog output	Output mode		Approx. 5, 25, 250, 2500 ms adjustable	
	Output mode		3 modes	
	Output voltage V zero : Pin=0, V span : Pin=0 ~ Pin (H)		1 ~ 5 V ( G/V mode ZERO : 1 ± 0.2 V, SPAN : 4 ± 0.2 V ) R mode ZERO : 3 ± 0.2 V, SPAN : 2 ± 0.2 V ) 103 R (R mode) ZERO : 1.36 ± 0.2 V SPAN : 3.64 ± 0.2 V	
	Impedance		10 kΩ	
Resolution		1/204 (Approx. 4.9mV/ Approx.0.123% F.S.)		

### ENVIRONMENTAL CHARACTERISTICS

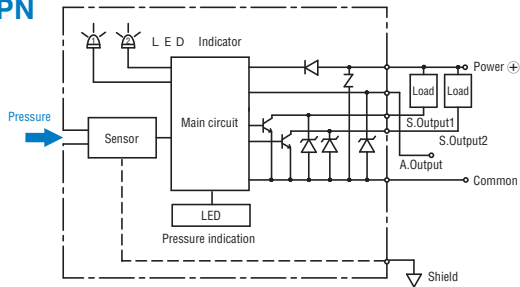
Test item	Test conditions	Permissible change
Vibration	10 ~ 500 Hz, 98.1 m/s <sup>2</sup> or 1.5 mm P-P, 3 directions for 2 hours each	<div style="border: 1px solid black; padding: 5px; display: inline-block;">                     ± 2 %F.S. maximum after test ※1                      Amount of analog output fluctuation is permitted by adding conversion error of 20 mV.                 </div>
Shock	490 m/s <sup>2</sup> , 3 directions for 3 times each	
Pressure cycling	0 ~ Rated pressure、10 <sup>3</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	Pressure indication, switch operating pressure and analog output : ± 5 %F.S. maximum during test ※1

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

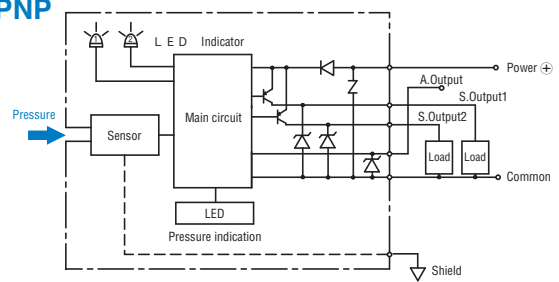
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## INTERNAL ELECTRICAL SCHEMATICS

### NPN



### PNP



## SELECTION OF DISPLAY MULTIPLIER

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

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

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 "A" prior to shipment.

## ANALOG OUTPUT MODE

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

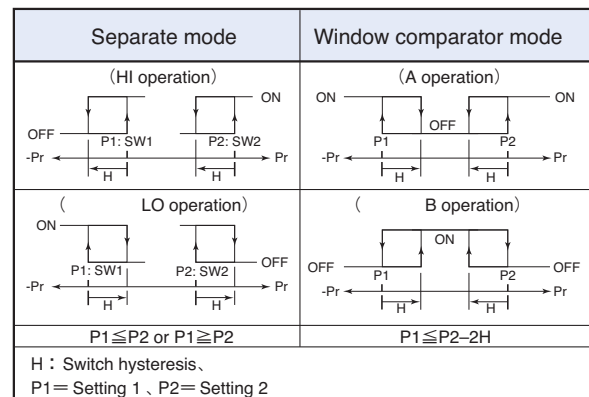
Selection code is set at "G" prior to shipment.

## 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.



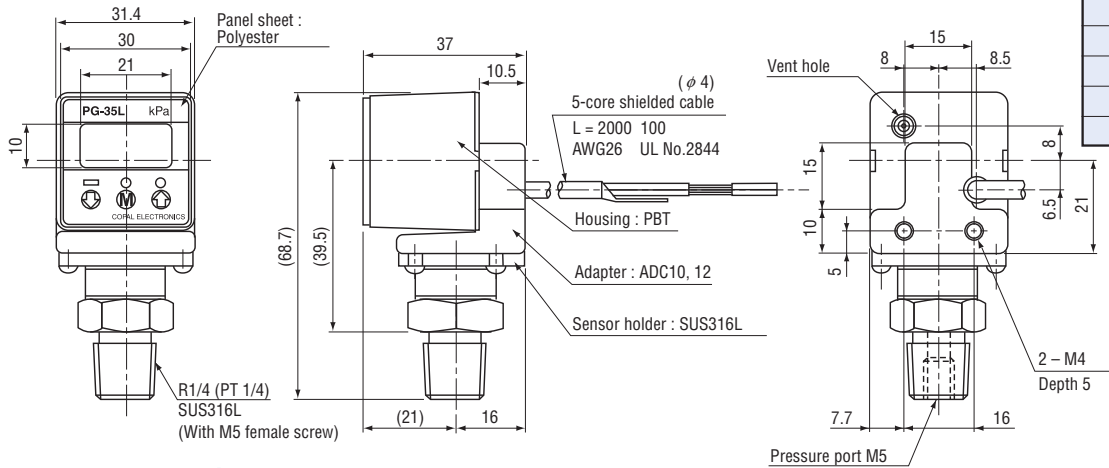
# PG-35L PRESSURE GAUGES

## OUTLINE DIMENSIONS

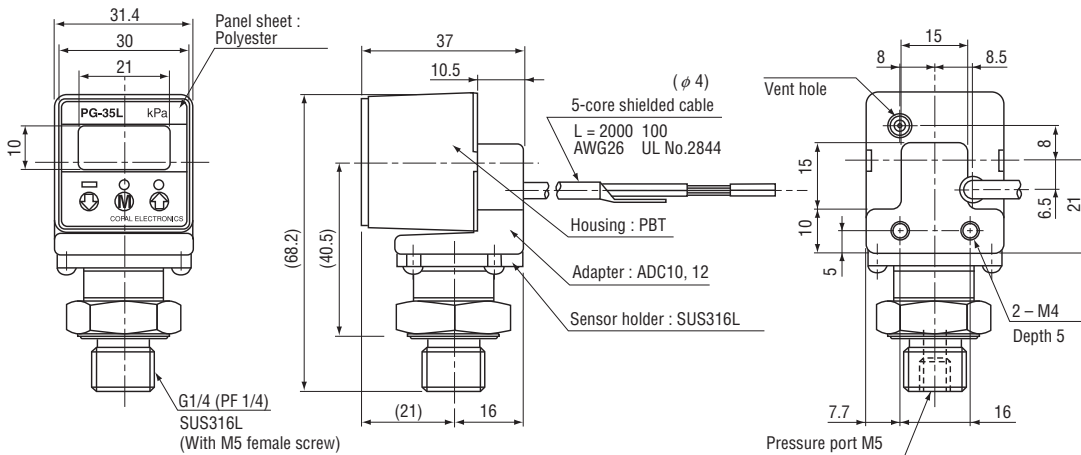
Unless otherwise specified tolerance :  $\pm 0.5$  (Unit: mm)

### ● Fitting R2 (R 1/4)

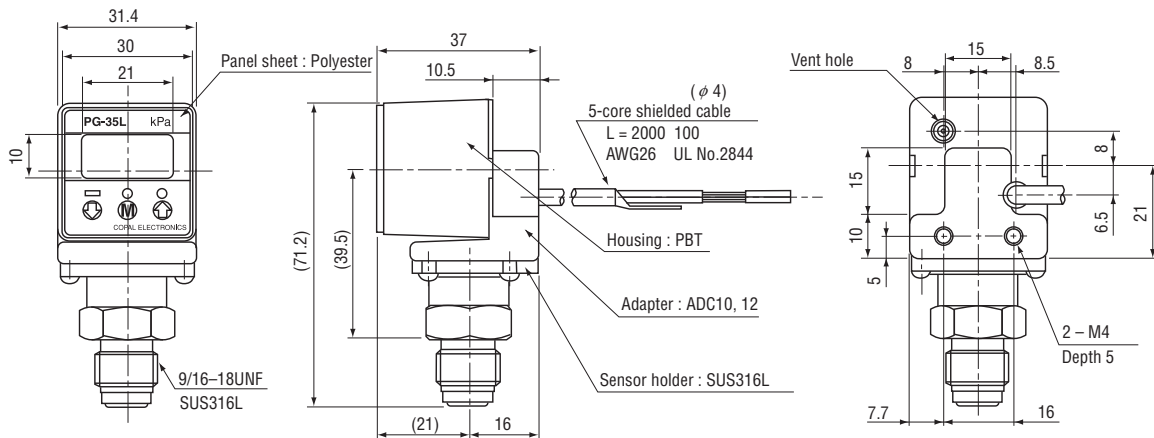
Wire color	Connection
Brown	Power $\oplus$
Gray	Analog output
Black	Switch output 1
White	Switch output 2
Blue	Common
Shield	Fitting



### ● Fitting G2 (G 1/4)



### ● Fitting VC (9/16 - 18 UNF)



※ Accessories (sold separately) are available for common use with PG-30, PG-35, PG-75 series. (P.173)