

GC35 Waterproof Digital Pressure Gauge

Outline

It is a waterproof and high pressure proof digital pressure gauge with a built-in highly reliable semiconductor evaporated type pressure sensor. It is possible to use it for the monitoring and controls of the oil pressure and the hydraulic pressure line, etc. in various industrial machinery and equipment. Digital display, pressure switch and transmitter are compactly integrated. Anomaly detection by the LED Ring lighting is also available.

Features

- IP67 (1MPa or less : IP65)
- Proof pressure max. 400% (Depends on the range)
- Switch function (User selectable NPN or PNP Open Collector Outputs)
- Analog output (Option)
- Loop check, Peak & Bottom holding, Key lock, Display & Analog output scaling (Maximum display 9999) and Zero adjustment function
- Six-staged filter setting (Nil, 25 · 250ms, 2.5 · 5 · 10s)
- Pressure switch: Delay function added (0.00~2.00s)
- Aluminum die casting case, M12 Connector connection



RoHS



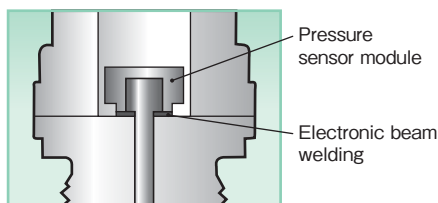
Features of sensor

Semiconductor evaporated type (SS) Sensor

The semiconductor evaporated type (SS) sensor, which has a record of achievements in the various industrial fields, has the integral structure at the semiconductor evaporated type strain gauge, sensing and the connection parts. Since no adhesives and corrosive materials are used, it has superior durability and stability. The pressure measurement of the various media such as a liquid and gas is possible.



SS Sensor



Fully welded type

- ① Safe structure that main body and fitting part are welded
- ② Proof pressure max. 400% (Depends on the range)

LED Ring function (switch operation light)



Pressure switch and two independent outputs (Lighting for operation status)

Various settings and peak holding, bottom holding



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Waterproof Digital Pressure Gauge

Specifications

Item	Description
Fluid	Air, water, oil (Non-corrosive fluid)
Wetted parts materials	Diaphragm: SUS630 (17-4PH), Fitting: SUS316
Case materials	ADC12 (Nickel plating), PC, NBR
Pressure range	Gauge pressure (MPa)
	Compound (MPa)
	0~0.5 0~1 0~2 0~3.5 0~5 0~10 0~20 0~35 0~50 -0.1~0.5 -0.1~1 -0.1~2
Max. allowable pressure	2 4 8 14 20 40 50 87.5 125
Display digit	0.500 1.000 2.000 3.50 5.00 10.00 20.00 35.0 50.0 0.500 1.000 2.000
Protection (JIS C 0920)	IP65 IP67 IP65 IP67
Connection	R1/4 (Max. allowable pressure 50MPa), G1/4B, G3/8B
Accuracy	Display accuracy *1
	Temperature coefficient

Power source	Comparator 2 outputs (Independent)		Comparator 1 output + Analog 1 output	
		12 to 24V DC $\pm 10\%$, ripple (P-P) not exceeding 10%		18 to 24V DC $\pm 10\%$, ripple (P-P) not exceeding 10%
Comparator output	Consumption current	30mA DC or less (Excluding output signal)		
	Open collector	NPN (default) / PNP		
	Maximum load current	80mA DC		
		Applied voltage: 30V DC (NPN output) / Residual voltage 1V DC or less		
	Response speed	10ms or less (without filter)		
	Operation mode	Hysteresis mode, window comparator mode		
	Dead band	Hysteresis mode: Changeability (Min. set value 1 digit) Window comparator mode: 1%F.S. fixed		
	Delay	0 to 2.00s (ON, OFF)		
Analog output	Setting range	-1999~9999		
	Set resolution	1 digit		
	Current output	—		4~20mA DC
	Output accuracy	—		$\pm 1.0\%$ F.S.
	Load resistance	—		400 Ω or less
Cable connection	Response speed	—		30ms or less (without filter)
	Resolution	—		0.05%F.S. or less
M12 Connector (4 poles)				

Display	4 digit, 8mm LED	
	Display update	200ms
	Display range	-1999 to 9999
		Pressure indication
Scaling	-1999 to 9999	
LED Ring	Emission color	NPN: Red (ON), Blue (OFF) / PNP: Red (ON), Green (OFF)
Operating condition	Normal conditions (No flammable liquids or explosive gaseous atmospheres)	
Installation location	Install without direct sunlight	
Operating temperature	-20 to 70°C (No freezing or condensation)	
Operating humidity	85%RH or less (1 MPa or less)	
Fluid temperature	-20 to 70°C (No freezing or condensation)	
Storage temperature	-20 to 70°C (No freezing or condensation)	
Storage humidity	85%RH or less (1 MPa or less)	
Vibration proof JIS C 60068-2-6	Vibration frequency	10 to 500Hz
	Multi-amplitude	1.5mm
	Acceleration	100m/s ²
	Vibrating direction	x, y, z (2 hours for each)
Shock proof JIS C 60068-2-27	Impact acceleration	500m/s ²
	Impact direction	x, y, z (3 times into forward and backward directions for each)
Insulation resistance	50V DC, 100M Ω or over	
Withstand voltage	350V AC, 1 minute	

Function	Loop check, Display scaling, Analog output scaling, Filter, Key lock, Peak & bottom holding, Energy-saving mode, Zero adjustment
Filter setting	Nil, 25ms, 250ms, 2.5s, 5s, 10s (Time constant) * 25ms setting when shipping
CE Compliance *2	EMC Directive: 2004/108/EC Applicable Standards: EN61326-1: 2006, EN61326-2-3: 2006
RoHS Compliance	EU RoHS Directive applicable
Weight	Approx. 150 g (Except cable)

Accessory	Manual	1
	Option	Cable
M12 Connector cable 2m or 5m (Straight) M12 Connector cable 2m or 5m (L type) Please select it from PUR cable (Oilproof) or PVC (Stainless nut) cable.		

* 1: Linearity, hysteresis, and repeatability are contained at 23 \pm 2°C. [Linearity: $\pm(0.5\%$ F.S. + 1digit)]

* 2: Please connect supply of electric power net that doesn't receive the influence of the excess voltage by the thunder.
It is not possible to use as safety accessories.

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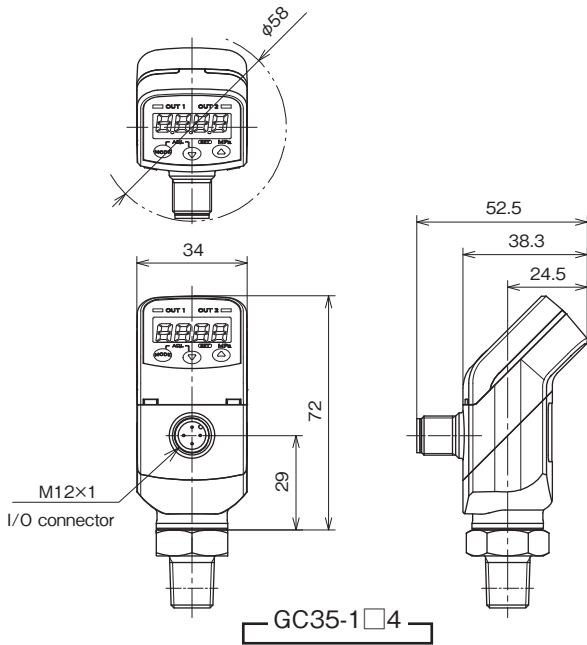
Waterproof Digital Pressure Gauge

Unit : mm

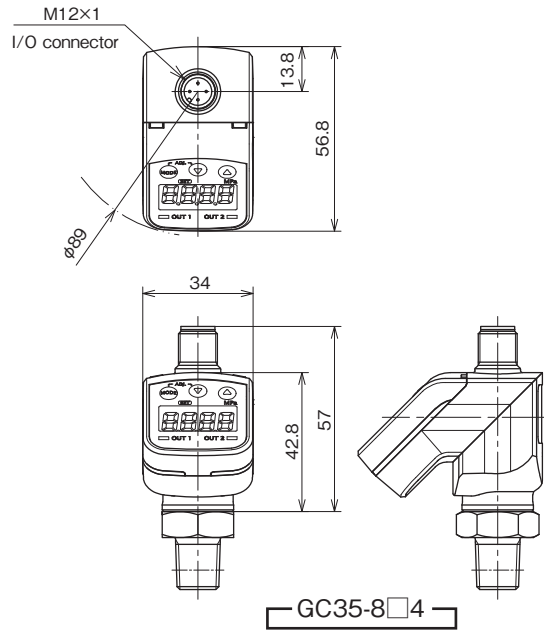
Dimensions

Lower inlet connection

Stem type (Standard)

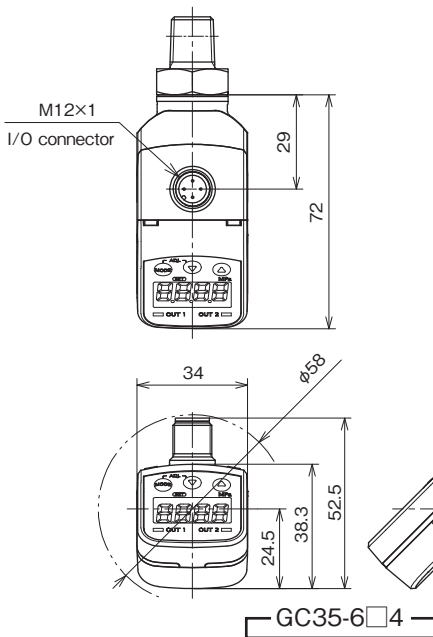


Back type (Reversed display)

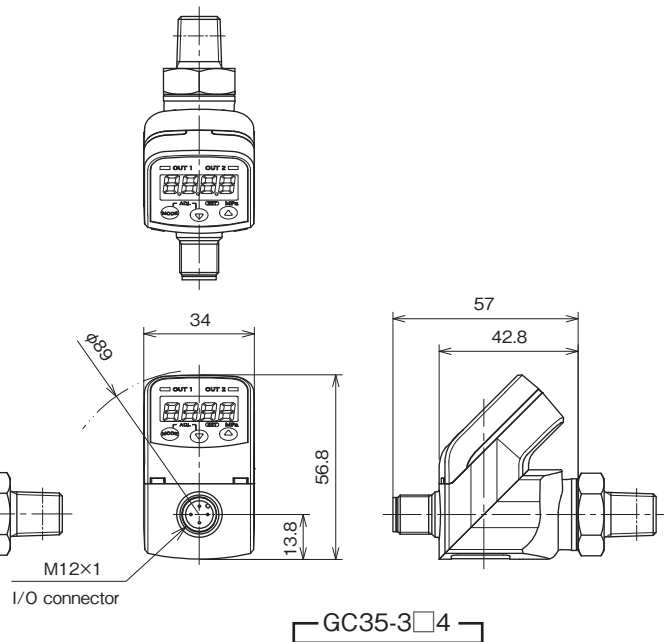


Side inlet connection

Stem type (Reversed display)



Back type (Standard)



The direction of the digital display and configuration according to order only can be assembled in the factory. The modification after delivering is not available.

Connection

R1/4	G1/4B	G3/8B
22 x 25.4 HEX.	22 x 25.4 HEX.	22 x 25.4 HEX.
GC35-□74	GC35-□24	GC35-□34

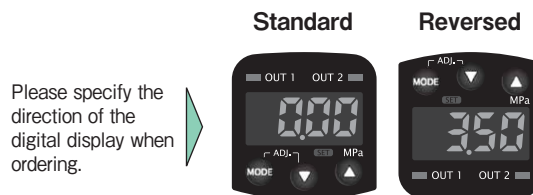
Mounting posture

Configuration for Various installation site

The specification of inlet connection and connector etc. can be selected according to a space constraint. It makes contributions to the space-saving. (The direction of L type connector is fixed.)



Lower inlet connection

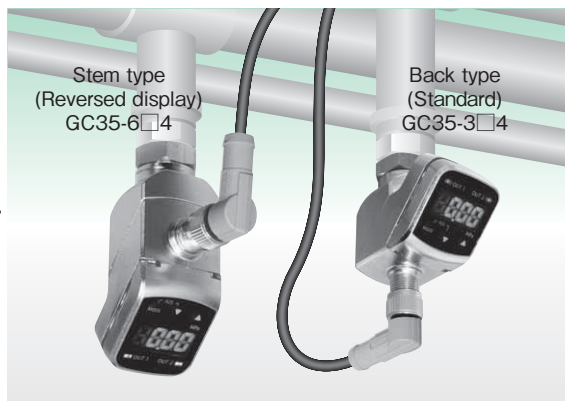


Please specify the direction of the digital display when ordering.



Side inlet connection

[Applications]



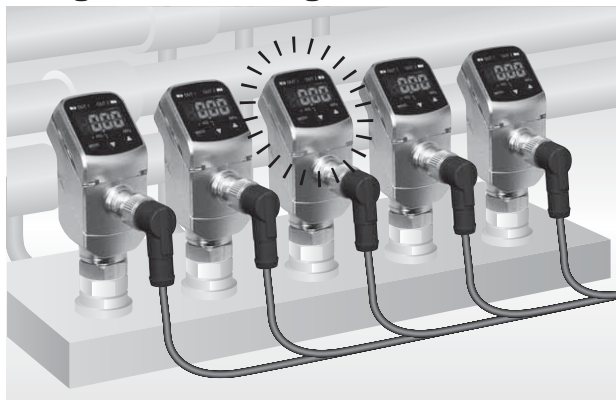
Upper inlet connection

The direction of the digital display and configuration according to order only can be assembled in the factory. The modification after delivering is not available.

Function

Solution on demand

Improvement of visibility, equipped with energy saving mode — LED Ring function



- High visibility leads anomaly detection from a distance.
- Digital display turning off function by "energy saving mode"
- Blinking function when occurred an error

Easy operability



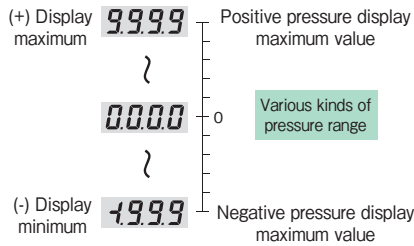
- A special tool is not needed by the scaling adjustment function of the display. The conversion value from pressure value into load value etc. can be displayed.
 - The analog output (option) can be added. The output adjustment is available within pressure range.
- [Attention] The comparator becomes one output when selected with the analog output.

Seven points related to function

1 Flexible range application by the high accuracy of display and output scaling.

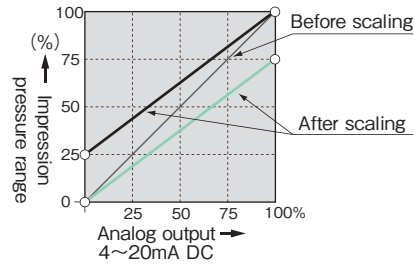
• Display scaling function

Digital display can be set at given values within the limit of a 4 figure display.

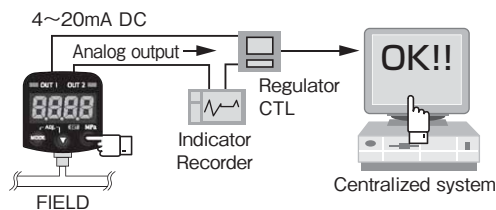


• Analog output scaling function*1

Scaling of the analog output can be arbitrarily carried out to a full-scale display within the limit of a maximum display and rated pressure range.



2 By the loop checking, display, analog output*1 and comparator output can be manual tested with up and down keys operation regardless of impression pressure. It is suitable for the simulation operation of a wiring check etc.

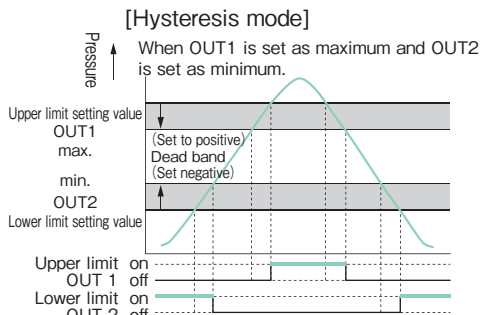


Comparator output can also be tested of operation.

*1 With analog output (option) only

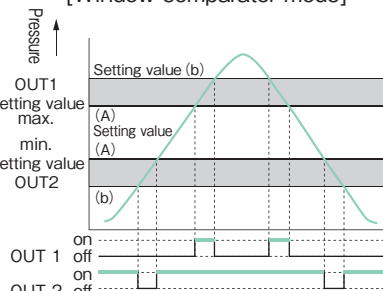
【Attention】 The comparator becomes one output when selected with the analog output.

3 When the comparator is two output specification, two kinds of operation modes can be freely selected according to the use.



The upper limit of OUT1 and OUT2 (positive the dead band) and lower limit (negative the dead band) can be set at any value.

[Window comparator mode]



($A \leq B$) of OUT1 and OUT2 and the ($A > B$) settings can be selected.

Either one of the two



The delay of turning on and turning off can be set to the above-mentioned, set value.

4 The digital filter is built in. It is useful, when pressure change is hard and a display is hard to see. Either Nil, 25ms, 250ms, 2.5s, 5s or 10s is selected.

5 It can adjust the zero easily by setting inlet port to atmospheric pressure and pushing MODE key and down key simultaneously.

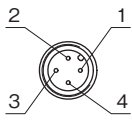
6 The peak and bottom value of measured are memorized. It displays, while pushing up and down keys.

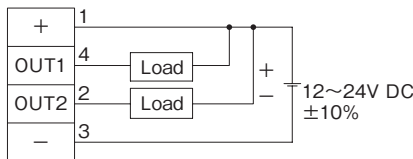
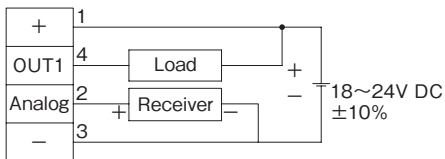
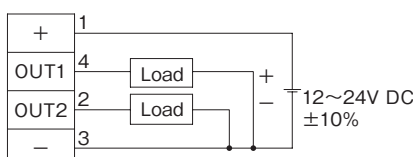
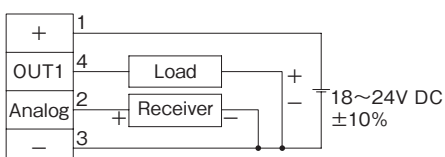
7 An error message is displayed when outside of the zero adjustment and excessive pressure is applied. Key lock function for avoiding incorrect operation is prepared.

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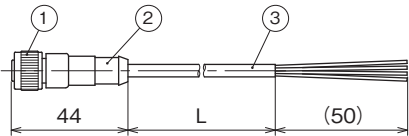
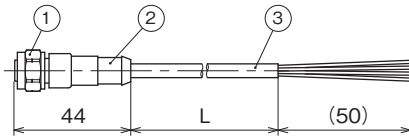
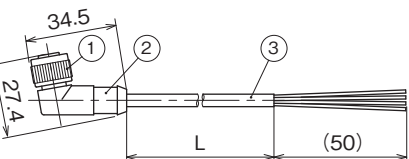
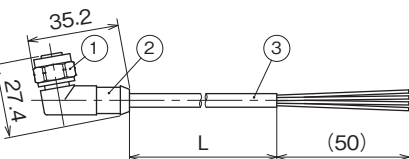
Wiring

Connector terminal array for I/O	Terminal number		Cable color*1	
	Comparator 2 outputs	Comparator 1 output + Analog 1 output		
	1	Power source (+)	Power source (+)	Brown
	2	Open collector output (OUT 2)	Analog output (+)	White
	3	Power source (-)	Power source (-)	Blue
	4	Open collector output (OUT 1)	Open collector output (OUT 1)	Black

Comparator 2 outputs		Comparator 1 output + Analog 1 output	
NPN		NPN	
PNP		PNP	

*1 Cable wiring color: when the cable with M12 connector of an option is used

Cable with M12 connector (Option)

	PUR cable (Oilproof)	PVC cable (Stainless nut)
Straight		
L type		
Material	<ul style="list-style-type: none"> ① Zinc die casting (nickel plating) ② TPU (Green) ③ PUR 	<ul style="list-style-type: none"> ① Stainless steel ② TPU (Black) ③ PVC
Cable length (L)	2m (standard) or 5m	2m (standard) or 5m
Conductor cross section	0.34mm ² (22AWG)	0.34mm ² (22AWG)
Core diameter including insulation	1.27mm	1.52mm
External cable diameter	4.7mm	5.2mm

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Model number configuration

Please specify the model number, each specs and the range for ordering.

Model

G C 3 5 — (1) (2) **4** — (4) **7** (6) (7) (8) × (9) × (10) × (11) × (12) × (13) × (14) × (15)

Waterproof type
Digital Pressure Gauge

Model number: _____

Selective spec.: _____

Additional spec. (Option): _____

① Shape	1	Stem type	
	3	Back type	
	6	Stem type (Reversed display)	
	8	Back type (Reversed display)	
② Connection	2	G1/4B	
	3	G3/8B	
	7	R1/4	
③ Wetted parts material	4	Diaphragm: SUS630 (17-4PH) Connection: SUS316	
④ Pressure range (MPa) <small>Please specify the pressure range and units separately besides selection of range code.</small>	B	-0.1~0.5	
	C	-0.1~1	
	D	-0.1~2	
	G	0~0.5	
	H	0~1	
	J	0~2	
	K	0~3.5	
	L	0~5	
	M	0~10	
	N	0~20	
P	0~35		
Q	0~50		
⑤ Indication accuracy	7	±(1.0%F.S.+1digit) at 23°C	
⑥ Power source	N	12~24V DC ±10%	
	U	18~24V DC ±10% *With 4 to 20mA DC output	
⑦ Signal output	0	Nil [2 comparator outputs NPN (default) or PNP]	
	1	4 to 20mA DC [1 comparator output NPN (default) or PNP]	
⑨ M12 Connector cable	0	Nil	
	1	PUR cable (Oilproof) [Material] Cable: PUR, Grip: TPU (Green), Metal: Zinc die casting (nickel plating)	Straight (2m in length of cable)
	2	PVC cable (Stainless nut) [Material] Cable: PVC, Grip: TPU (Black), Metal: Stainless steel	L type (2m in length of cable)
	3	PUR cable (Oilproof) [Material] Cable: PUR, Grip: TPU (Green), Metal: Zinc die casting (nickel plating)	Straight (2m in length of cable)
	4	PVC cable (Stainless nut) [Material] Cable: PVC, Grip: TPU (Black), Metal: Stainless steel	L type (2m in length of cable)
	5	PUR cable (Oilproof) [Material] Cable: PUR, Grip: TPU (Green), Metal: Zinc die casting (nickel plating)	Straight (5m in length of cable)
	6	PVC cable (Stainless nut) [Material] Cable: PVC, Grip: TPU (Black), Metal: Stainless steel	L type (5m in length of cable)
	7	PUR cable (Oilproof) [Material] Cable: PUR, Grip: TPU (Green), Metal: Zinc die casting (nickel plating)	Straight (5m in length of cable)
8	PVC cable (Stainless nut) [Material] Cable: PVC, Grip: TPU (Black), Metal: Stainless steel	L type (5m in length of cable)	
⑩ Treatment	0	Nil	
	1	Use no oil	
	2	Use no water	
	3	Use no oil & water	
⑮ Documents	0	Nil	
	1	Required <small>(Please specify the desired documents separately.)</small> Submission drawings, instruction manual, inspection procedure, mill sheet, test report (1 pc 1 copy), inspection / traceability certificate, strength calculation, attended inspection	

* Please contact us when ordering.

• Please contact NAGANO KEIKI separately, concerning directly connected diaphragm-seal type.

* Specify "X" if there is no specification item.