

GC35 Waterproof Digital Pressure Gauge

Proof pressure 4 times span (Maximum) ※1

Fluids and gases measurement
(Featuring stainless diaphragm)

Overview

Waterproof digital pressure gauge with high durability, incorporating high reliable proven Chemical Vapor-Deposited Semiconductor Strain Gauge (SS sensor), can be used for hydraulic and water pressure monitor and control. Feature of digital pressure indication, switch actuation and analog output are integrated in one compact design with LED light ring for warning indication.

Features

- IP67 (1MPa or less: IP65)
- Proof pressure maximum 400% (Varies depending on the range)
- Switch function (User selectable NPN or PNP Open Collector Outputs)
- Analog output (Option)
- Loop check, Peak and bottom hold display, Key lock, Pressure value indication, Analog output, Scaling (Maximum value 9999) and Zero point adjustment
- 6 internal time constant filters (OFF, 25·250ms, 2.5·5·10s)
- Pressure switch: Delay time can be added (0.00 to 2.00s)
- Aluminum die casting case, M12 Connector connection



RoHS



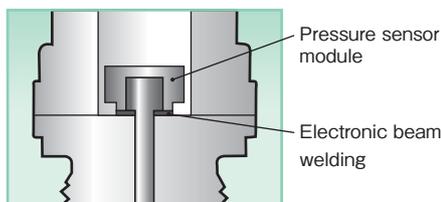
Features of sensor

Chemical Vapor-Deposited Semiconductor Strain Gauge (SS sensor)

Proven Chemical Vapor-Deposited Semiconductor Strain Gauge (SS sensor) achieves integral construction that semiconductor strain gauge, sensing part and fitting are all integrated without using any adhesive or corrosive materials to contributes to high durability and stability. This can be offered for various fluids and gases measurement.



SS Sensor



Fully welded type

- Integral safety construction body and fittings are fully welded

※1 Varies depending on the range

Functions

LED light ring (Switch output status)



Pressure switch and independent two comparator outputs (Operating status, LED indication) Each setting and Peak/bottom hold (Max. and Min. display value)



LED Ring

Specifications

Item	Description												
Media	Air, water, hydraulic fluids (Fluids compatible with wetted parts)												
Wetted parts	Diaphragm: SUS630 (17-4PH), Fitting: SUS316												
Case material	ADC12 (Nickel plating), PC, NBR												
Pressure range	Gauge pressure (MPa)										Compound (MPa)		
	0 to 0.5	0 to 1	0 to 2	0 to 3.5	0 to 5	0 to 10	0 to 20	0 to 35	0 to 50	-0.1 to 0.5	-0.1 to 1	-0.1 to 2	
	Maximum allowable pressure	2	4	8	14	20	40	50	87.5	125	2	4	8
	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
Ingress protection (JIS C 0920)	IP65					IP67					IP65		IP67
Connection	R1/4 (Maximum allowable pressure), G1/4B, G3/8B												
Accuracy	Indication accuracy ^{*1}	± (1.0%F.S.+1 digit)											
	Temperature coefficient	±0.1%F.S./°C (zero, span)											
Power source	Comparator 2 outputs (Independent)						Comparator 1 output + Analog 1 output						
	Consumption current	12 to 24V DC ±10%, Ripple (P-P) not exceeding 10%						18 to 24V DC ±10%, Ripple (P-P) not exceeding 10%					
Comparator output	Open collector	NPN / PNP (NPN default setting)											
	Maximum load current	80mA DC											
	Response time	Applied voltage: 30V DC (NPN output) / Residual voltage 1V DC or less											
	Operation mode	10ms or less (without filter)											
	Deadband	Hysteresis mode: Variable (Min. set value 1 digit)											
	Delay	Window comparator mode: 1%F.S. fixed											
	Setting range	0 to 2.00s (ON, OFF)											
	Resolution	-1999 to 9999											
Analog output	Current output	—					4 to 20mA DC						
	Analog output accuracy	—					±1.0%F.S.						
	Load resistance	—					400Ω or less						
	Response time	—					30ms or less (without filter)						
	Resolution	—					0.05%F.S. or less						
Electrical connection	M12 Connector (4 poles)												
Display	4 digit, 8mm LED												
	Display update rate	200ms											
	Display range	-1999 to 9999											
		Pressure display	-10 to 110%F.S. of pressure range										
	Scaling	-1999 to 9999											
LED Ring	Color emissions	NPN: Red (ON), Blue (OFF) / PNP: Red (ON), Green (OFF)											
Operating condition	Install in location where no gases or liquids may exist that have the potential to become flammable or ignitable under normal operating condition												
Installation environment	Places with direct sunlight should be avoided												
Operating temperature	-20 to 70°C (No freezing or condensation)												
Operating humidity	85%RH or less (1 MPa or less)												
Process 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 resistance JIS C 60068-2-6	Vibration frequency	10 to 500Hz											
	Multi-amplitude	1.5mm											
	Acceleration	100m/s ²											
Shock resistance JIS C 60068-2-27	Vibrating direction	x, y, z (2 hours for each axis)											
	Impact acceleration	500m/s ²											
	Impact direction	x, y, z (3 times forward and backwards each axis)											
Insulation resistance	50V DC, 100MΩ or over												
Withstand voltage	350V AC, 1 minute												
Function	Loop check, Indication scaling, Analog output scaling, Filter, Key lock, Peak & bottom hold display, Energy-saving mode, Zero adjustment												
Filter setting	OFF, 25ms, 250ms, 2.5s, 5s, 10s (Time constant) *Default factory setting 25ms												
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	Instruction manual	1											
	Option	Cable	M12 Connector cable 2m or 5m (Straight) M12 Connector cable 2m or 5m (L type) Select from PUR (Oilproof) or PVC (Stainless nut) cable.										

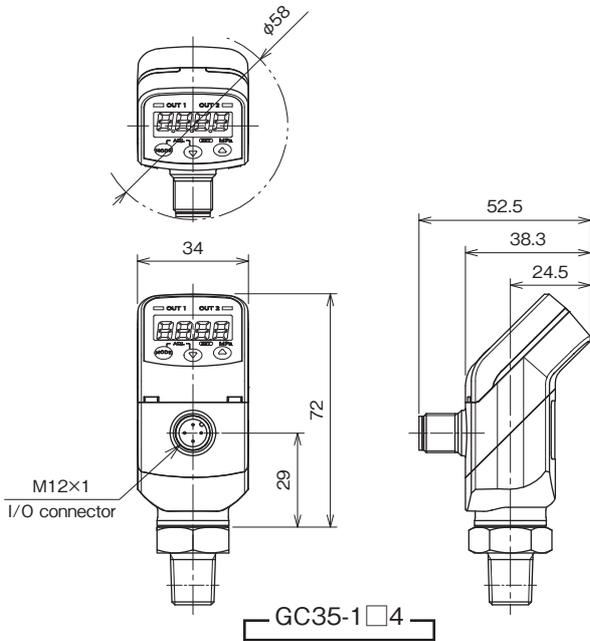
*1: Accuracy includes the effects of Linearity, hysteresis, and repeatability at 23±2°C. [Linearity: ±(0.5%F.S. + 1 digit)]

*2: Ensure wirings and connections to eliminate risk of oversupply of electric power due to lightning etc.

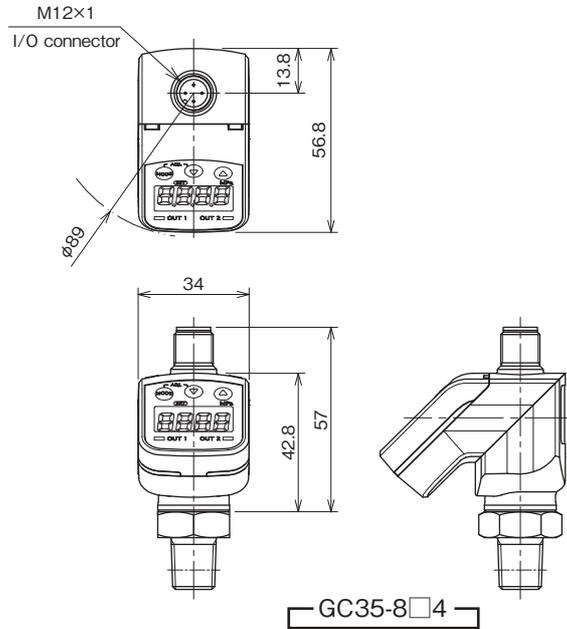
Not allowed for the use as "Safety accessories".

Dimensions

Lower pressure connection Vertical type (Standard)

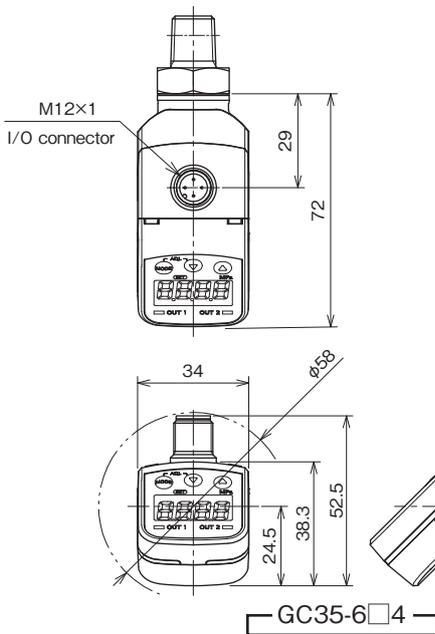


Vertical type (Reversed display)

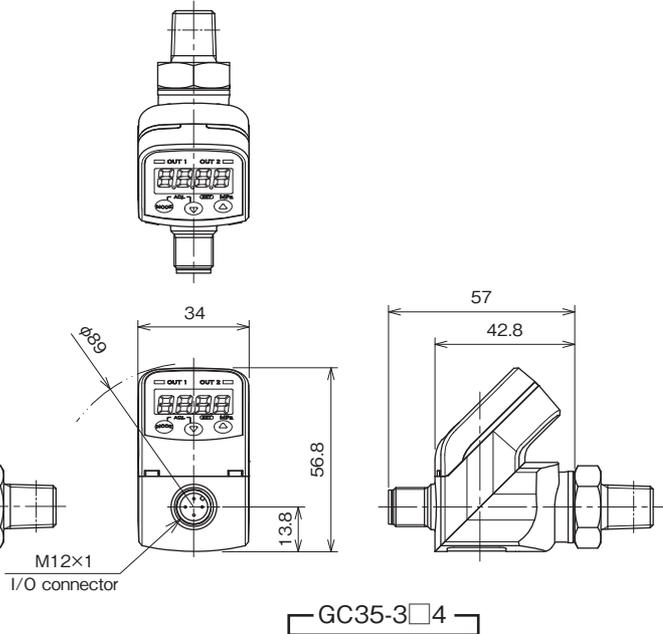


Back pressure connection

Horizontal type (Reversed display)



Horizontal type (Standard)



※ Mounting design including direction of pressure connection and display can not be modified after the default specified when ordering.

Connection

R1/4	G1/4B	G3/8B
22x25.4HEX.	22x25.4HEX.	22x25.4HEX.
GC35-□74	GC35-□24	GC35-□34

Mounting posture

Available in various types of mounting design

Various types of mounting design and direction of mating connector are available based upon required installing place where the space is consideration. (The direction of L type connector is fixed.)



Lower connection



Back connection

Please specify the direction of display when ordering.



Standard

Reversed

Installation examples



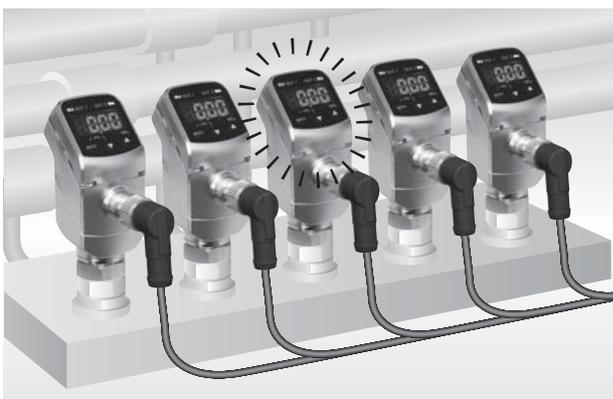
Upper connection

※Mounting design including direction of pressure connection and display can not be modified after the default specified when ordering.

Function

Various types of solution to offer depending on unique applications.

Improved visibility and power-saving function
— LED light ring



- High visibility offers warning detection from long distance
- Digital indication auto off by "Energy saving mode".
- LED flashes for error indication

Easy operability



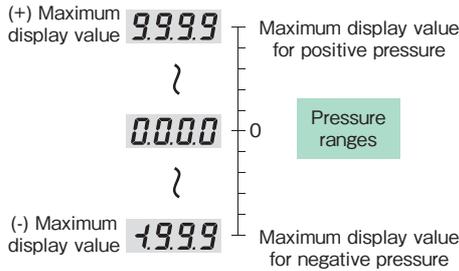
- Indication scaling function can convert pressure value into load value without special component or program.
- Analog output is available (Optional). Analog output can be scaled within rated pressure range.
【Attention】When optional analog output is selected, only one comparator output can be equipped.

Seven Primarily Functions

1 Flexible rangeability with accurate pressure value indication and analog output scaling.

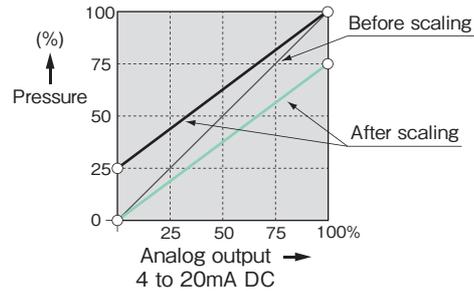
● Indication scaling function

Pressure value can be displayed arbitrarily within the maximum 4 digits (9999) display ability.

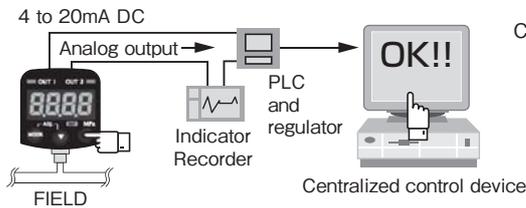


● Analog output scaling function^{※1}

Analog output scaling value can be arbitrarily displayed based on minimum and maximum pressures within the rated differential pressure range and maximum display ability.



2 Loop check function allows user to check display indication, analog and comparator output manually by using up or down key without actually applying pressure to the unit suitable for checking proper wiring and other simulations.

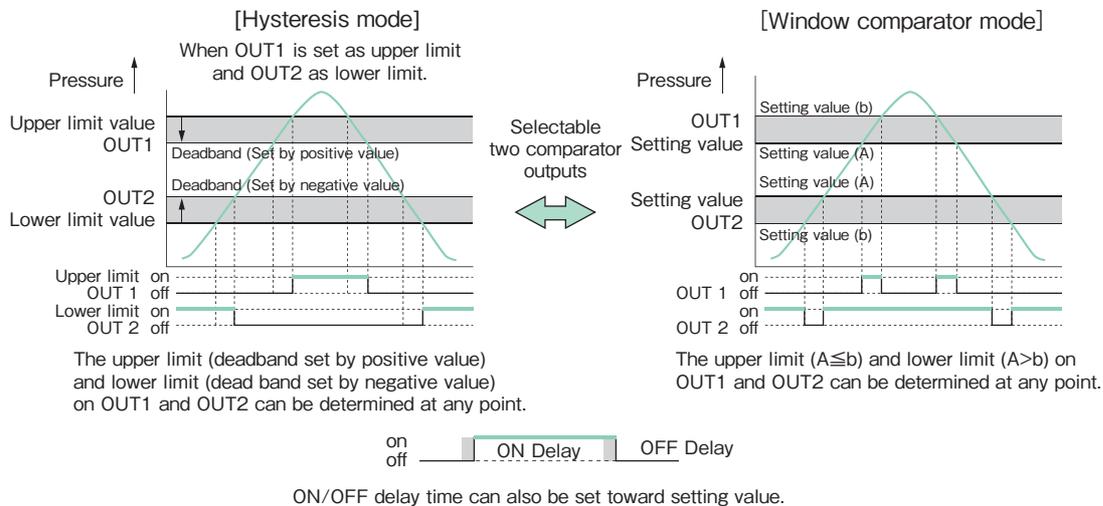


Comparator operation can also be tested.

※1 With analog output option only

[Attention] When optional analog output is selected, only one comparator output can be equipped.

3 2 types of comparator operation modes are selectable depending on applications.



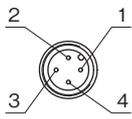
4 Digital filter function is used when pressure fluctuations can result in erratic pressure indication (Select from: OFF, 25ms, 250ms, 2.5s, 5s, 10s)

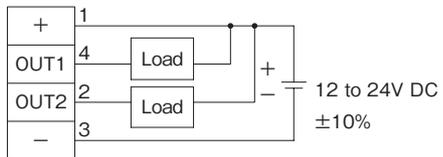
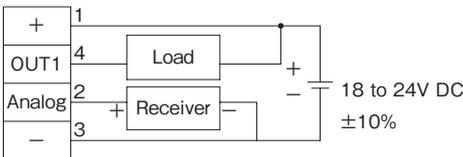
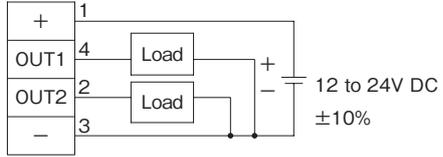
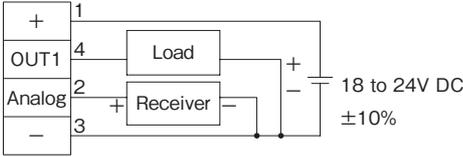
5 Zero adjustment is easily available just pressing [MODE] + down key greater than 3 seconds with both sides of pressure port open to atmosphere.

6 It keeps the maximum and minimum pressure in the internal memory. They are displayed while holding the up or down keys respectively.

7 Other features include key lock function to prevent inadvertent operation, error message indication when pressure is applied beyond rated pressure range or applied pressure is outside of allowable range during zero point adjustment.

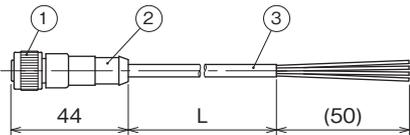
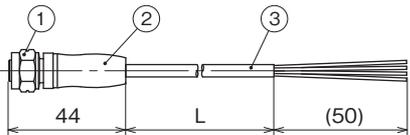
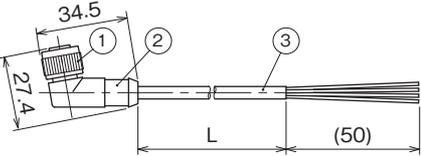
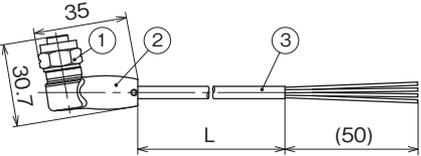
Wiring

Connector terminal array for I/O	Terminal number		Wiring color*1	
	2 comparator outputs	1 Comparator output + 1 Analog output		
	1	Power source (+)	Power source (+)	Brown
	2	Open collector output (OUT2)	Analog output (+)	White
	3	Power source (-)	Power source (-)	Blue
	4	Open collector output (OUT1)	Open collector output (OUT1)	Black

2 comparator outputs	1 Comparator output + 1 Analog output
<p>NPN</p>  <p>12 to 24V DC ±10%</p>	<p>NPN</p>  <p>18 to 24V DC ±10%</p>
<p>PNP</p>  <p>12 to 24V DC ±10%</p>	<p>PNP</p>  <p>18 to 24V DC ±10%</p>

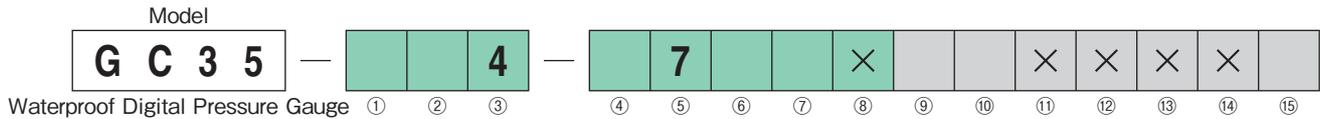
*1 Wiring color: When optional M12 connector cable is in use

M12 mating connect (Optional)

	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 PP ③ PVC (Gray)
Cable length (L)	2m (standard) or 5m	2m (standard) or 5m
Conductor cross sectional area	0.34mm ² (22AWG)	0.34mm ² (22AWG)
Core diameter including insulation	1.27mm	1.26mm
External cable diameter	4.7mm	4.7mm

Model number configuration

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



Model number		Product specifications		Additional specifications (Optional)	
① Mounting design	1	Vertical mount			
	3	Horizontal mount			
	6	Horizontal (Reversed display)			
	8	Vertical mount (Reversed display)			
② Connection	2	G1/4B			
	3	G3/8B			
	7	R1/4			
③ Wetted parts	4	Diaphragm: SUS630 (17-4PH) Fitting: SUS316			
④ Pressure range (MPa)	B	-0.1 to 0.5			
	C	-0.1 to 1			
	D	-0.1 to 2			
	G	0 to 0.5			
	H	0 to 1			
	J	0 to 2			
	K	0 to 3.5			
	L	0 to 5			
	M	0 to 10			
	N	0 to 20			
P	0 to 35				
Q	0 to 50				
⑤ Indication accuracy	7	± (1.0%F.S.+1digit) at 23°C			
⑥ Power source	N	12 to 24V DC ±10%			
	U	18 to 24V DC ±10% * With 4 to 20mA DC output			
⑦ Analog output	0	Not required [2 comparator outputs NPN (default) or PNP]			
	1	4 to 20mA DC [1 comparator output NPN (default) or PNP]			
⑨ M12 Connector cable	0	Not required			
	1	PUR cable (Oilproof) [Material] Cable: PUR, Grip: TPU (Green), Metal: Zinc die casting (nickel plating)	Straight (2m cable)		
	2	PVC Cable (Stainless nut) [Material] Cable: PVC, Grip: PP, Metal: Stainless steel	L type (2m cable)		
	3	PUR cable (Oilproof) [Material] Cable: PUR, Grip: TPU (Green), Metal: Zinc die casting (nickel plating)	Straight (5m cable)		
	4	PVC Cable (Stainless nut) [Material] Cable: PVC, Grip: PP, Metal: Stainless steel	L type (5m cable)		
	5	PUR cable (Oilproof) [Material] Cable: PUR, Grip: TPU (Green), Metal: Zinc die casting (nickel plating)	Straight (5m cable)		
	6	PVC Cable (Stainless nut) [Material] Cable: PVC, Grip: PP, Metal: Stainless steel	L type (5m cable)		
	7	PUR cable (Oilproof) [Material] Cable: PUR, Grip: TPU (Green), Metal: Zinc die casting (nickel plating)	Straight (5m cable)		
⑩ Treatment	0	Not required			
	1	Use no oil			
	2	Use no water			
	3	Use no oil & water			
⑮ Documents	0	Not required			
	1	Required (Documents available upon request) Datasheet (Drawing / Specifications) Instruction manual Inspection procedure Mill test report Calibration test report (One-part one sheet) Inspection / Traceability certificate Strength calculation Attending inspection			

Please specify pressure range and unit of measure along with corresponding ordering code.

•Contact for diaphragm seal type if required.

Treatment against wetted parts

- **Use no oil**
Oil used in manufacturing the gauges had been flushed out & no oil residue remained inside its wetted parts.
- **Use no water**
Water used in manufacturing the gauges had been flushed out & no water residue remained inside its wetted parts.
- **Use no oil & water**
Oil/Water used in manufacturing the gauges had been flushed out & no oil/water residue remained inside its wetted parts.

* Specify code "X" to refer N/A