GC51
Pressure Transmitter
(Low & Absolute pressure measurement)

Outline

The GC51 (Low & absolute pressure measurement) is a 2-wire pressure transmitter with display, which can measure the gas and liquid and uses SUS316L material for the diaphragm of the receiving part. Because of SUS316L wetted parts, it is compatible with a wide variety of measurement mediums. In addition, it is compact and lightweight and capable of outdoor installation, contributing to easy installation. It can be used in a large diversity of industries that require low pressure / absolute pressure measurement, such as plant facilities, environmental process, and water treatment process.

Direct connection type

Terminal box type

CE

Features

- Adjustment of display and output ranges is possible with scaling function.
- The display unit improves the visibility in a dark place with easy-to-read LCD display using LED backlight.
- Compact and lightweight, the pressure inlet can be installed in the three directions of down, left, and right.
- Product lineup for low pressure (35 to 300kPa) and absolute pressure (120kPa abs.)

Features of sensor

Stainless steel seal diaphragm sensor

Low Pressure (35 to 300kPa), Absolute pressure (120kPa abs.)

All the wetted parts
are SUS316L material.

This sensor is a sealed pressure sensor that uses SUS316L material for all the wetted parts.
MEMS sensor element is built in the sensing portion that can measure low pressure / absolute pressure and the pressure receiving portion has been sealed with silicon oil by the diaphragm of SUS316L material.
This pressure transmitter is a highly stable and high accuracy pressure sensor, supporting the gas and liquid measurement required high corrosion resistance.

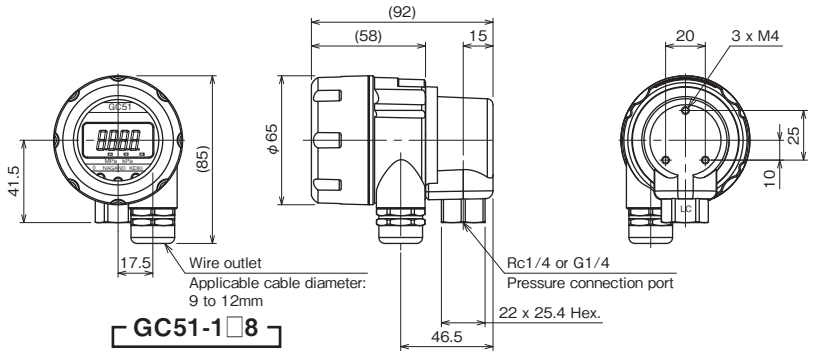
Specifications

Item	Description
Fluid	Gas or liquid (Not corrosive to the wetted parts materials)
Mounting type	Direct connection type Pressure inlet: Down, left, or right direction Panel mounting type Pressure inlet: Down direction (With bracket and mounting screw) Terminal box type Panel mounting (Pressure inlet: Down direction, terminal box type: Right, with bracket and mounting screw)
Pressure connection	Rc1/4 G1/4 Female
Wetted parts matereals	Diaphragm: SUS316L Fitting : SUS316L
Sealed liquid	Silicone oil
Pressure range	0 to 35kPa / -20 to 20kPa, 0 to 50kPa / -50 to 50kPa, -100 to 0kPa, 0 to 100kPa / -100 to 100kPa, -100 to 200kPa, 0 to 200kPa / -100 to 300kPa, 0 to 300kPa / 0 to 120kPa abs.
Output accuracy *1, *2	±0.35%F.S. at 23℃ / ±0.25%F.S. at 23℃
Display accuracy *1, *2	± (0.35%F.S.+1digit) at 23℃ / ± (0.25%F.S.+1digit) at 23℃
Maximum allowable pressure	100kPa / 200kPa / 400kPa / 1000kPa / 200kPa abs.
Allowable vacuum pressure	130Pa abs. or more
Position difference *1	30Pa or under / 90 degrees
Case protective construction	Case material: Aluminum die-casting Protection: IP65
Installation location	Outdoor-installable (Avoid direct sunlight)
CE marking	Applicable standards: EN61326-1：2006, EN61326-2･3：2006
Weight	Direct connection type: Approx. 450g, panel mounting type: Approx. 550g, terminal box type: Approx. 630g
Power source	24V DC±10%
Output	4-20mA DC (2-wire, output range: 3.2 to 20.8mA DC) Response: 30ms (Filter setting: When the moving average number of times is 0 (None)) Resolution: 0.1%F.S. Load resistance: 500Ω maximum
Guaranteed accuracy range *1	Operating temperature range (-20 to 70℃) ±2.0%F.S. (Output), ±(2.0%+1digit) (Display)
Insulation resistance	50V DC 100MΩ or more
Wire outlet	Direct connection type: SKINTOP® MS-SC13.5 (Standard) Terminal box type: Cable gland FBA21-13 G1/2 (Standard)
Operating temperature and humidity range	-20 to 70℃, 10 to 85%RH (No freezing or condensation)
Storage temperature and humidity range	-25 to 75℃, 10 to 85%RH (No freezing or condensation)
Vibration proof	10 to 150Hz, multi-amplitude 0.7mm (Less than 60Hz) Acceleration: 50m/s^2 (60Hz or more) Vibrating direction: x, y, z (2.5 hours for each)
Shock proof	Impact acceleration: 100m/s^2 Impact direction: x, y, z (3 times into forward and backward directions for each)
Output adjustment	Zero: -10 to 110%F.S. of full span (With respect to the pressure range) Span: -10 to 110%F.S. of full span (With respect to the pressure range)
Numerical display	6-digit LCD (Character height: 10mm, with LED backlight) Pressure and linear display: Up to 4-digit LCD, display update cycle 500 ms
Unit display	LCD bar display (With LED backlight) Pressure unit: kPa, kPa abs., Linear unit: Optional
Setting	Internal key switche (MODE, ▲, ▼) Scaling function: Linear display / Output Peak hold function: The maximum and minimum values of the measured value are displayed. Filter function: Select the moving average number of times (0 (None), 2, 4, 8, 16 times). Loop check function: Arbitrary setting output (4-20mA DC) Zero adjustment function: Adjust the zero point of pressure sensor.
Protection of setting values	Semi-permanently saved in the EEP-ROM (Non-volatile memory)

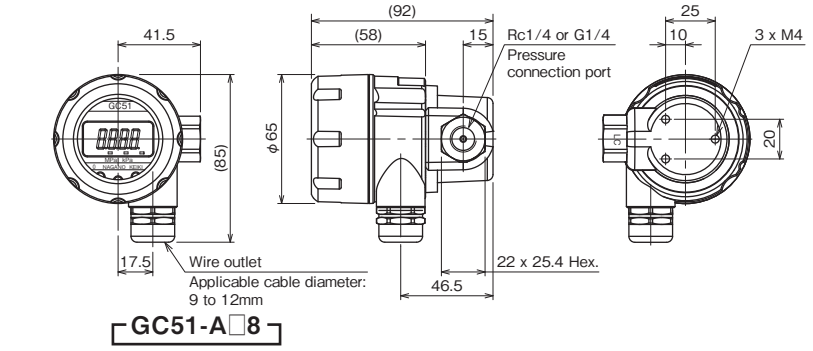
＊1 For installation position when shipping, the power outlet is turned downward.
＊2 Linearity, hysteresis, and repeatability are included at ambient temperature 23℃.

Dimensions

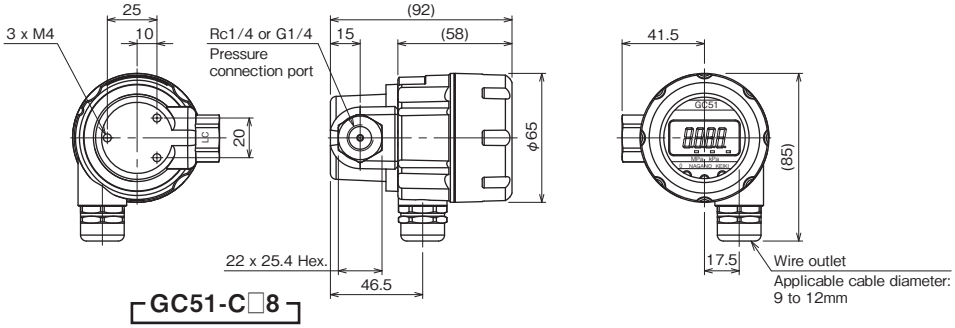
Unit: mm



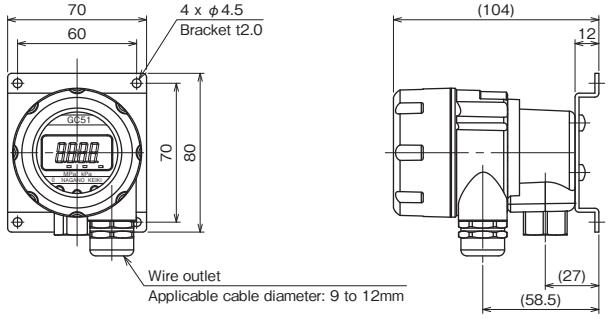
GC51-1□8



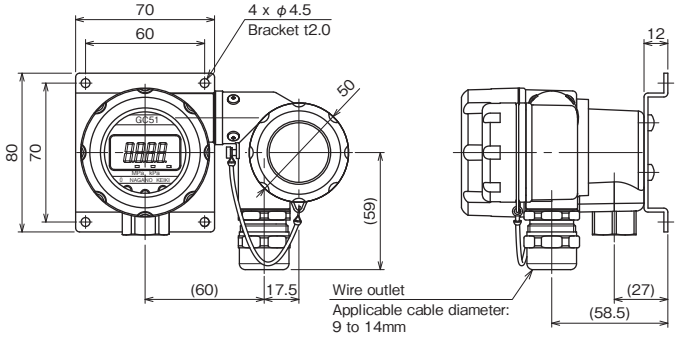
GC51-A□8



GC51-C□8



GC51-2□8

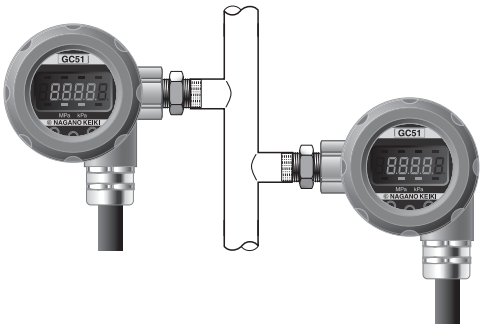


GC51-T□8

Installation position

Compact and lightweight pressure inlet can be installed in the three directions of down, left, and right.

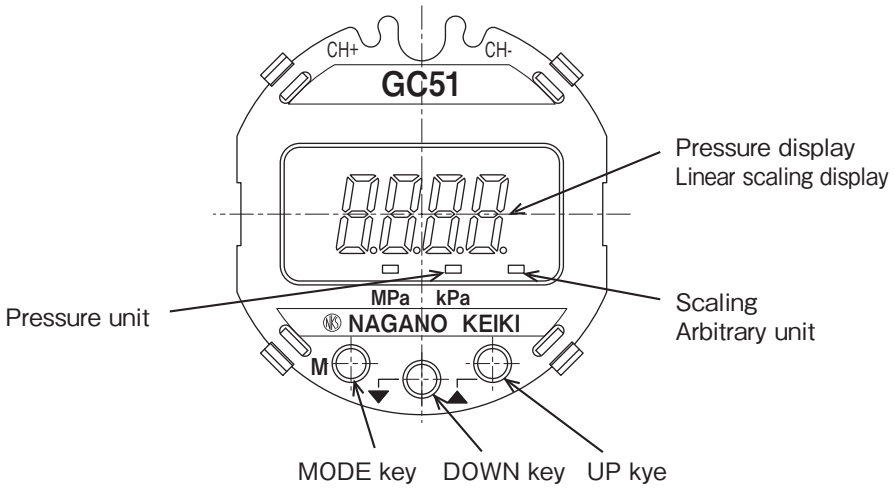
GC51-1□8
Pressure inlet: Down (Standard)



GC51-A□8
Pressure inlet: Right

GC51-C□8
Pressure inlet: Left

Function (Panel display)



①LCD display
Outstanding visibility in the dark or at night, because bright and easy-to-read LED backlight is built in.

②Scaling
Display / output after linear-converting the pressure into any physical quantity.

③Zero adjustment
Easy zero adjustment of 4-20mA DC output by the key operation.

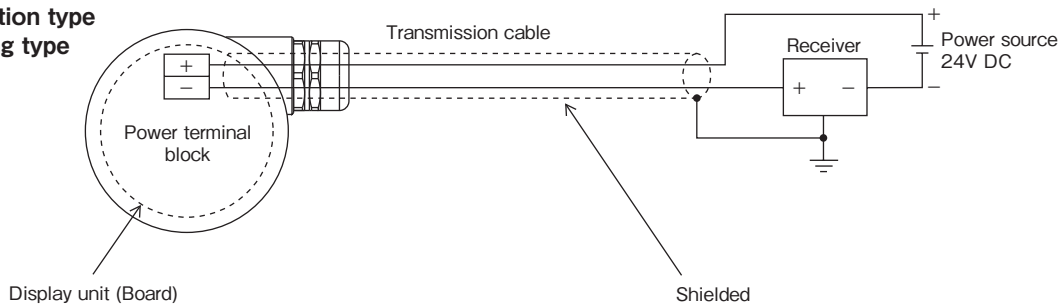
④Loop check
Possible to output arbitrarily 4-20mA DC without applying pressure, the maintenance is easy.

⑤Filter
The pressure change such as pulsation can be smoothed by the moving average.

⑥Hold display
The maximum and minimum values of the measured value are displayed.

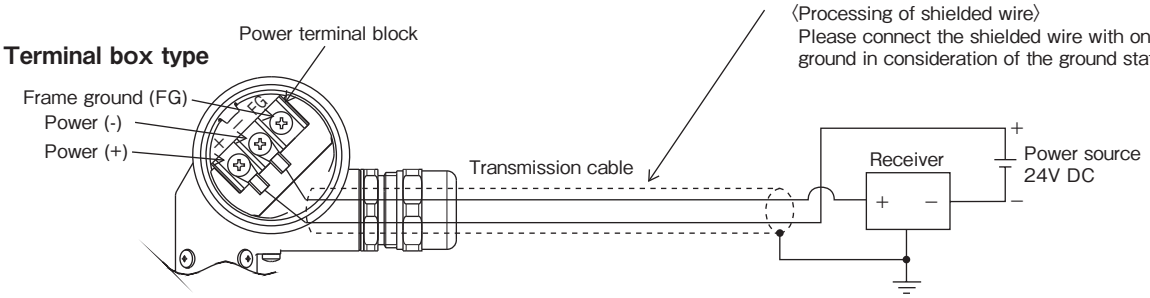
Wiring

Direct connection type
Panel mounting type



〈Processing of shielded wire〉
Please connect the shielded wire with one-point ground in consideration of the ground state.

Terminal box type



⚠ Cautions

- Please use the transmission cable after routing it independently away from the high current electrical line and confirm that there is no malfunction due to noise.
- If the cable outer diameter does not conform, water and dust will penetrat because no sealing effect is obtained. Please be sure to use a cable with suitable outer diameter.
- Transmission cable to be inserted into the cable gland must be slacked at the position lower than the cable gland connection in order to prevent the infiltration of water into the unit inside.

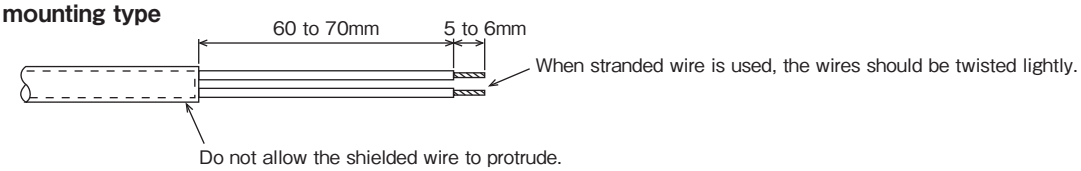
Transmission cable

For transmission cable, please use a cable that conforms to the power terminal block and cable gland on the unit.

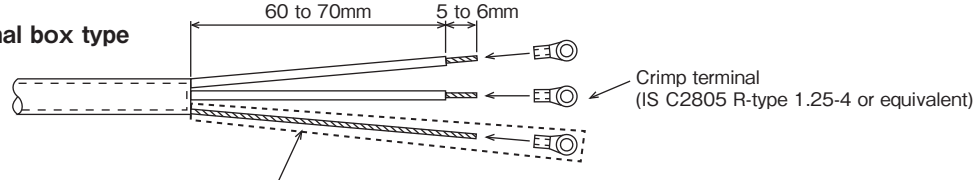
	Terminal block Model number / Manufacturer	Suitable transmission cable
Direct connection type Panel mounting type	SMKDSP1.5/2-5.08 PHOENIX CONTACT GmbH & Co. KG	・2-core shielded cable ＊1 ・Cable outer diameter: 9 to 12mm ・Cable's center conductor sectional area: 0.3 to 2mm² (Stranded or solid)
Terminal box type	OTB-760-B-3P-M4 OSADA Co., Ltd.	・2-core shielded cable ＊1 ・Cable outer diameter: 9 to 14mm ・Cable's center conductor sectional area: 0.25 to 1.65mm² (Stranded or solid) ＊2

＊1 Noise resistance is improved by using twisted and sealed cable.
＊2 Transmission cable depends on the crimp terminal used.

Direct connection type
Panel mounting type



Terminal box type



Cautions) Depending on the ground state, when the connection to the frame ground (FG) in the transmitter side is not required, please be sure to process it as shielded wire does not protrude. Only when the connection to the frame ground (FG) in the transmitter side is required, please crimp the crimp terminal after twisting the shielded wire together.

Model number configuration

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

Model

G	C	5	1	—	①	②	③	—	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮
							8				1	1		0		×	×	×	×	

Pressure transmitter
(Low & absolute pressure measurement)

Model number | Selective spec. | Additional spec. (Option)

① Mounting type

1	Direct connection type	Pressure inlet: Down	(Internal terminal connection)
2	Panel mounting type	Pressure inlet: Down (With bracket and mounting screw)	(Internal terminal connection)
A	Direct connection type	Pressure inlet: Right	(Internal terminal connection)
C	Direct connection type	Pressure inlet: Left	(Internal terminal connection)
T	Terminal box type (Panel mounting) (Pressure inlet: Down, terminal box: Right, with bracket and mounting screw)		

② Pressure connection *1

7	Rc1/4
P	G1/4 Female

③ Wetted part materials

8	Diaphragm: SUS316L Fitting: SUS316L

Please specify the pressure range and units separately besides selection of range code.

④ Pressure range

	Range	Display digit	Propriety of production by precision	
			±0.25%F.S.	±0.35%F.S.
7	-20 to 20kPa	-20.00	—	○
8	-50 to 50kPa	-50.00	○	—
P	-100 to 0kPa	-100.00	○	—
1	-100 to 100kPa	100.0	○	—
2	-100 to 200kPa	200.0	○	—
3	-100 to 300kPa	300.0	○	—
X	0 to 35kPa	35.00	—	○
W	0 to 50kPa	50.00	—	○
A	0 to 100kPa	100.00	○	—
B	0 to 200kPa	200.0	○	—
C	0 to 300kPa	300.0	○	—
Z	0 to 120kPa abs.	120.00	○	—

⑤ Accuracy (Fixed by the pressure range)

4	±0.25%F.S. at 23℃
T	±0.35%F.S. at 23℃

⑥ Power source

1	24V DC ±10%

⑦ Output

1	4-20mA DC (2-wire)

⑧ Wire outlet

Direct connection type, panel mounting type	
1	Standard: SKINTOP® MS-SC13.5
Terminal box type (Panel mounting)	
A	Standard: Cable gland FBA21-13 G1/2

⑨ Additional spec.

0	Nil

⑩ Treatment

0	Nil
1	Use no oil
2	Use no water
3	Use no oil & water

⑮ Documents

0	Nil
1	Required (Please specify the desired documents separately.) Submission drawings, instruction manual, test report (1 pc 1 copy) inspection / traceability certificate

*1 Please contact us of the screw size and material, when you need the conversion fittings.

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