GC52 Differential Pressure Transmitter

Fluids and gases measurement
(Featuring stainless diaphragm)

Overview

This 2-wire differential pressure transmitter with pressure indicator can measure fluids and gases. Compact and lightweight.

Terminal box type

Features

- **Indication and output scaling are available.**
- **Instantaneous flow rate (Square root extraction)**
- **Breakthrough readability with LED-backlit LCD**

Direct connection type

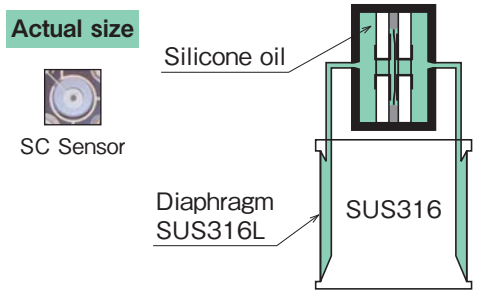
＊25.4mm joint supplied as option.

CE

Features of sensor

Silicon Capacitive (SC) Sensor

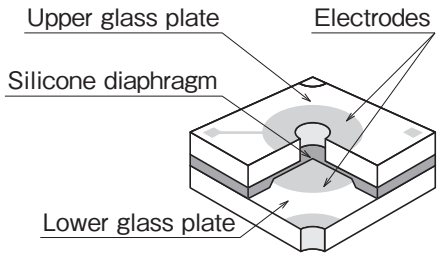
Sensing element encloses filling liquid into Silicone Capacitive (SC) Sensor, the sensing element with micro-machining technology, to accommodate a variety of process media where micro differential pressure with high reliability and sensitivity should be measured.



[Front view]

[Back view]

＊25.4mm joint supplied as option.



Specifications

Item	Description
Media	Gases or Fluids (not corrosive to the wetted material) Temperature range of process media: -10 to 70℃
Mounting	Direct mounting Panel mounting (Option) 2B pipe mounting (Option) Terminal box type (with mounting bracket, mounting screw) Terminal box type (2B pipe mounting)
Pressure connection	Connection: Upper side Connection: Lower side
Conversion joint (Option)	25.4mm conversion joint (Rc1/4, with equalizing valve, SCS14) Tube conversion joint with valve (tube diameter 6mm, SUS316) 54mm conversion joint (SCS14)
Wetted parts	Diaphragm: SUS316L, Body: SUS316, O-ring: Fluorine rubber (JIS type 4 D), Drain seal: Alumina ceramic
Filled liquid	Silicone oil
Differential pressure range	0 to 1, 2, 5, 10, 20, 50, 100kPa ±1, ±2, ±5, ±10, ±20, ±50kPa
Output accuracy	±0.5%F.S. at 23℃ (5kPa or more, ±2kPa or more) ±1%F.S. at 23℃ (2kPa or less, ±1kPa)
Display accuracy	±(0.5% F.S. +1digit) or ±(1.0% F.S. +1digit) at 23℃ (Same as output accuracy)
Allowable maximum pressure	Proof pressure for single port 700kPa, Proof pressure for double ports 2MPa (Negative pressure side -90kPa) (5kPa or more, ±2kPa or more) Proof pressure for single port 200kPa, Proof pressure for double ports 2MPa (Negative pressure side -90kPa) (2kPa or less, ±1kPa)
Enclosure rating	Case material: Aluminum die cast Protection: IP65
Mounting location	Outdoor installation (Avoid direct sunlight)
CE marking	Applicable Standard EN61326-1:2006, EN61326-2·3:2006
Weight	Approx. 600g (Terminal box type: Approx. 760g)
Power source	24V DC±10%
Output	4 to 20mA DC (2 wire system, Output range: 3.2 to 20.8mA DC) Response time: 100ms (with no filter setting) Resolution: 0.1%F.S. Load resistance: 500Ω max.
Range of guaranteed accuracy	Operating temperature range (-10 to +70℃) Within ±1% F.S. (5kPa or more, ±2kPa or more), Within ±2%F.S. (2kPa or less, ±1kPa)
Insulation resistance	50V DC 100MΩ or more
Outlet for electric wire	Direct connection type, Panel mounting, 2B pipe mounting: SKINTOP® MS-SC13.5 Terminal box type: Cable gland FBA21-13 G1/2
Operating temperature and humidity	-10 to 70℃, 10 to 85%RH (No freezing or condensation)
Storage temperature and humidity	-15 to 75℃, 10 to 85%RH (No freezing or condensation)
Effect of basic pressure	±2.0%F.S. /MPa (1kPa) ±1.0%F.S. /MPa (2kPa, ±1kPa) ±0.5%F.S. /MPa (5kPa, ±2kPa or more)
Inclination effect	At zero point 90°Back and forth against vertical indication: ± (0.1%F.S.+1digit) at 23℃ At zero point 90°Left and right against vertical indication: ±150Pa max. at 23℃
Mounting posture	Vertical against indicator
Vibration resistance	10 to 150Hz, multi-amplitude 0.7mm (60Hz or less) Acceleration: 50m / s^2 (60Hz or less) Vibrating direction: x, y, z (2.5 hours for each)
Shock resistance	Impact acceleration: 100m / s^2 Impact direction: x, y, z (3 times into forward and backward directions for each)
Output adjustment range	Zero point: -10 to +110% of the full span (To differential pressure range) Span point: -10 to +110% of the full span (To differential pressure range)
Numeric display	Six-digit LCD (Character height: 10mm, with LED backlight) Differential pressure display, Scaling display*: Four LCD digits max., Display update rate 500ms Integrated volume indication: Six LCD digits max.
Unit display	LCD bar display (with LED backlight) Differential pressure unit: kPa, Linear unit: Arbitrary set Momentary flow rate display: m^3/h, L/min, Arbitrary set Integrated volume: m^3, ×$10m^3$, Arbitrary set
Setting	With internal key switches (Mode, ▲, ▼) Scaling function: Linear and momentary flow rate display / output Filter function: Moving average time interval, Select from None, 2, 4, 8, and 16 (s) Loop check function: Arbitrary setting output (4 to 20mA DC) Zero adjustment function: Differential pressure sensor zero adjustment
Others	Set value and integrated volume can be saved in EEPROM semi-permanently.

*Linear or instantaneous flow (square root) scale marking is available.

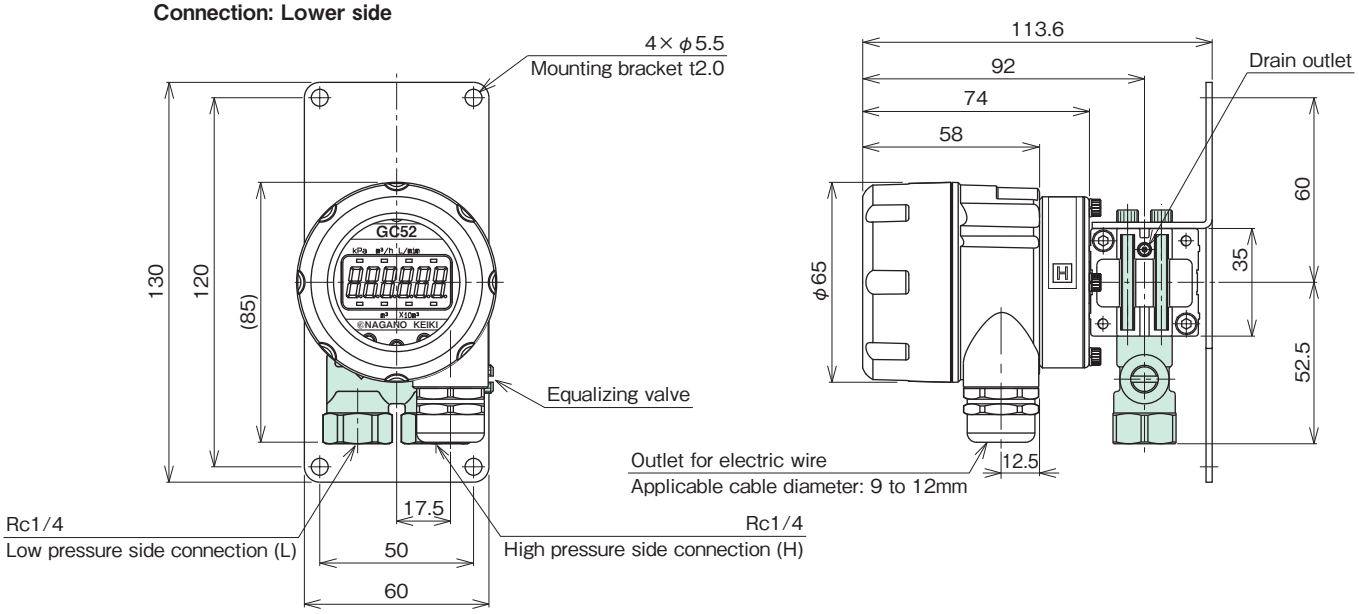
Dimensions 1

Unit: mm

Panel mounting (with 25.4mm conversion joint)

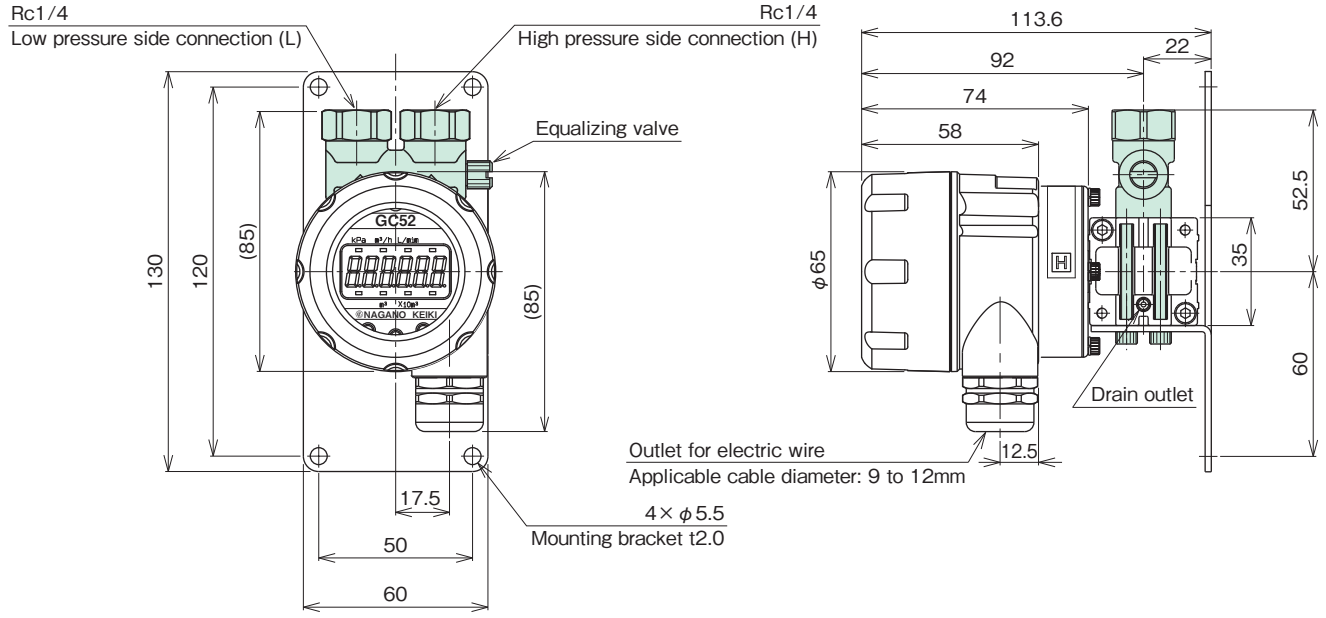
OPTION

Connection: Lower side



GC52-212

Connection: Upper side



GC52-211

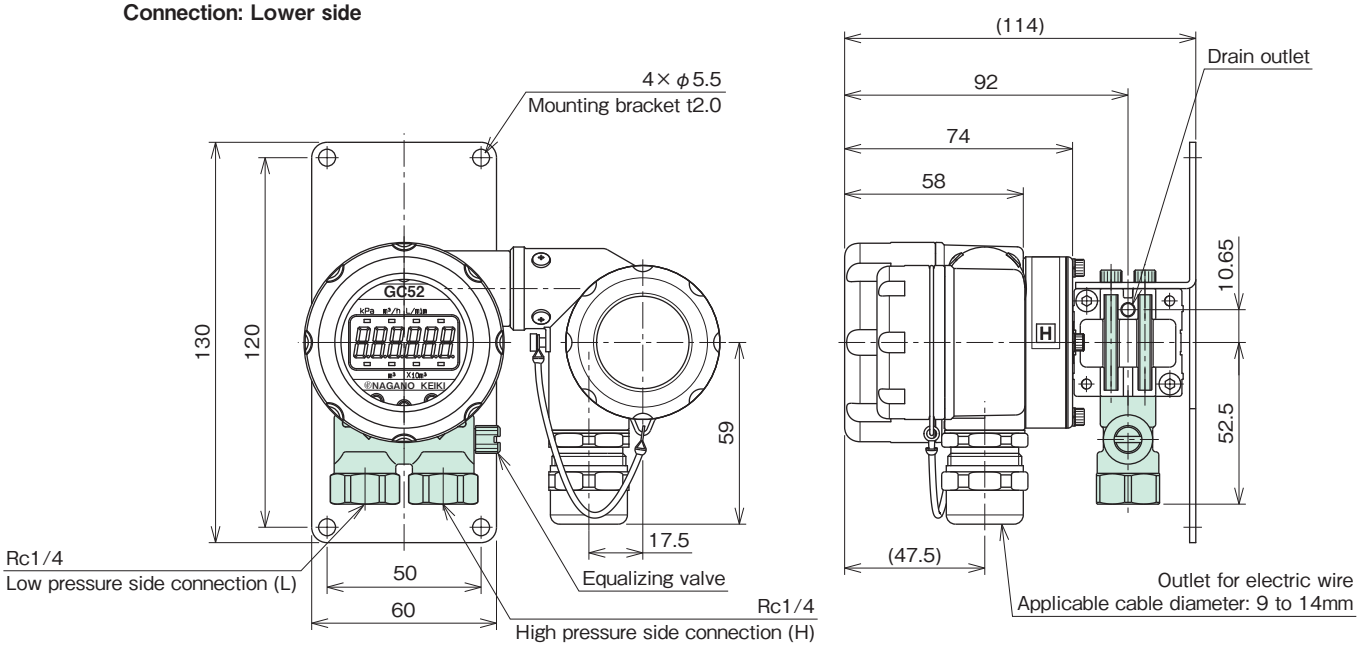
Dimensions2

Unit: mm

OPTION

Terminal box type (with 25.4mm conversion joint)*

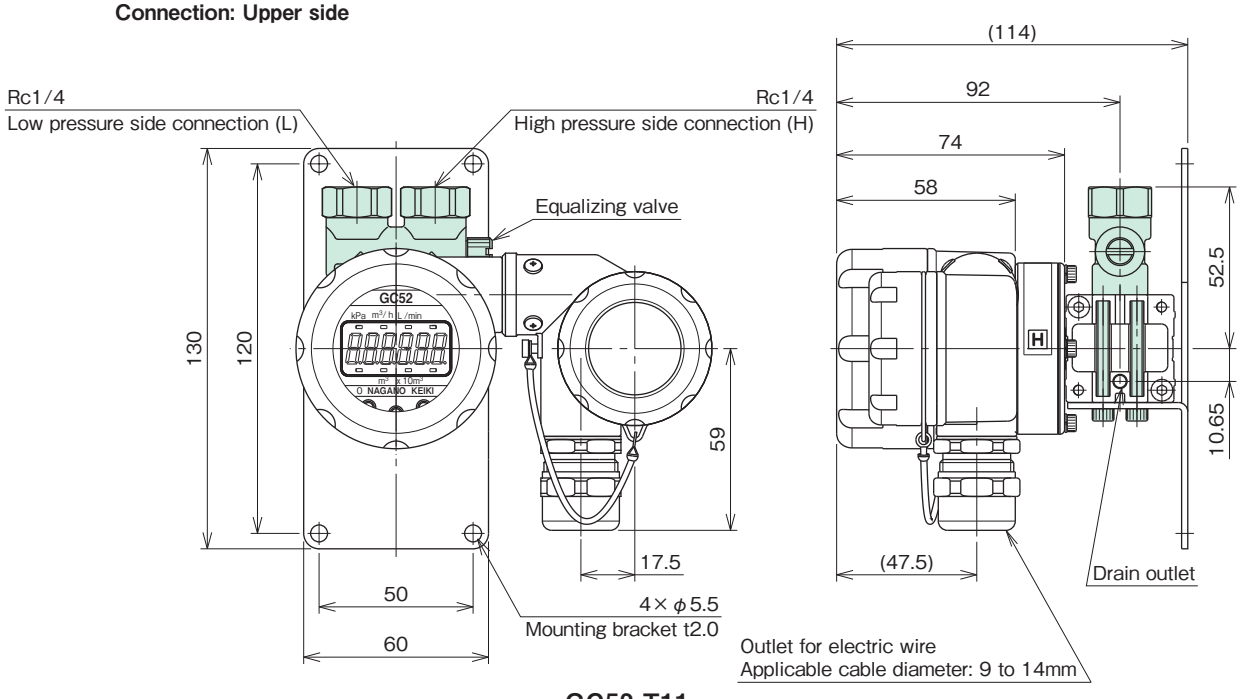
Connection: Lower side



GC52-T12

*Terminal box type needed to be panel mounted.

Connection: Upper side



GC52-T11

*Terminal box type needed to be panel mounted.

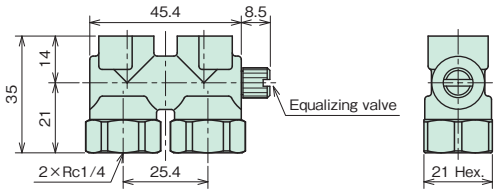
Dimensions3

Unit: mm

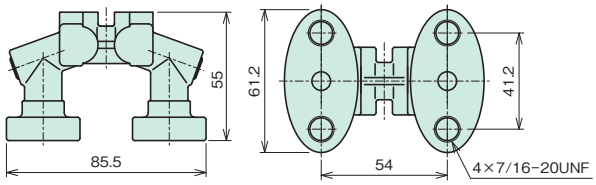
OPTION

◎Conversion joint (Option)

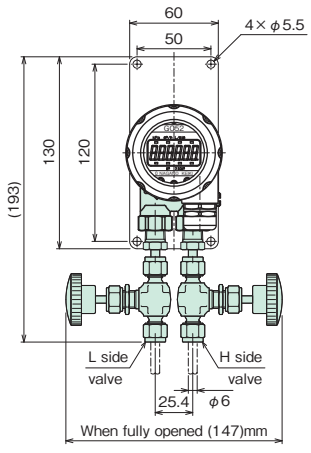
●25.4mm conversion joint



●54mm conversion joint

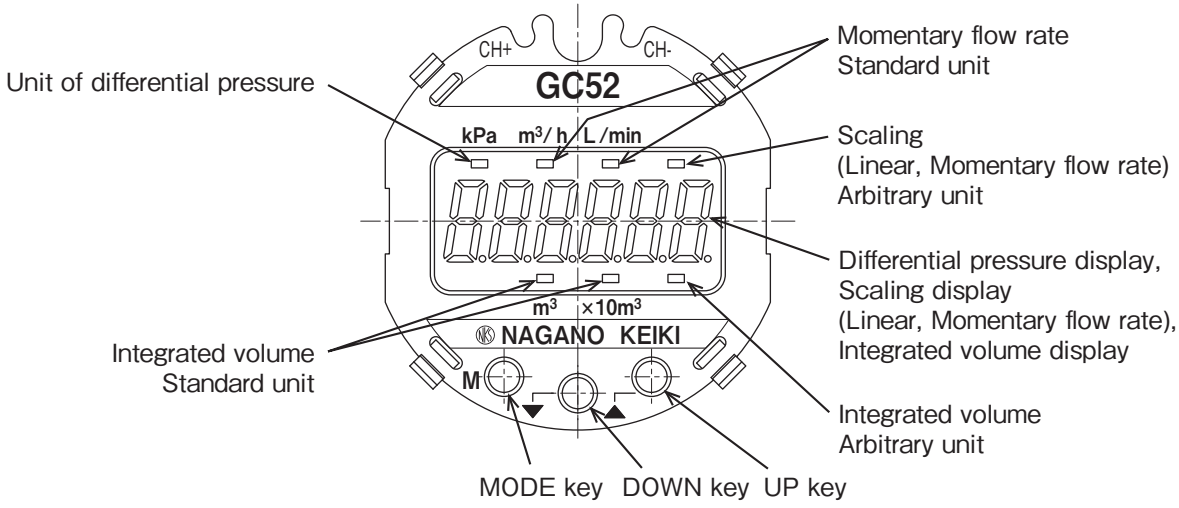


●Tube conversion joint with valve (with 25.4mm conversion joint)



GC52-222

Function (Panel display)



①LCD display
The bright and clear LED backlight ensures excellent visibility in a dark place or at night.

②Scaling
Differential pressure linearly converted to an arbitrary physical quantity and displayed/output.
The square root of the differential pressure is extracted and the instantaneous flow is displayed and output.

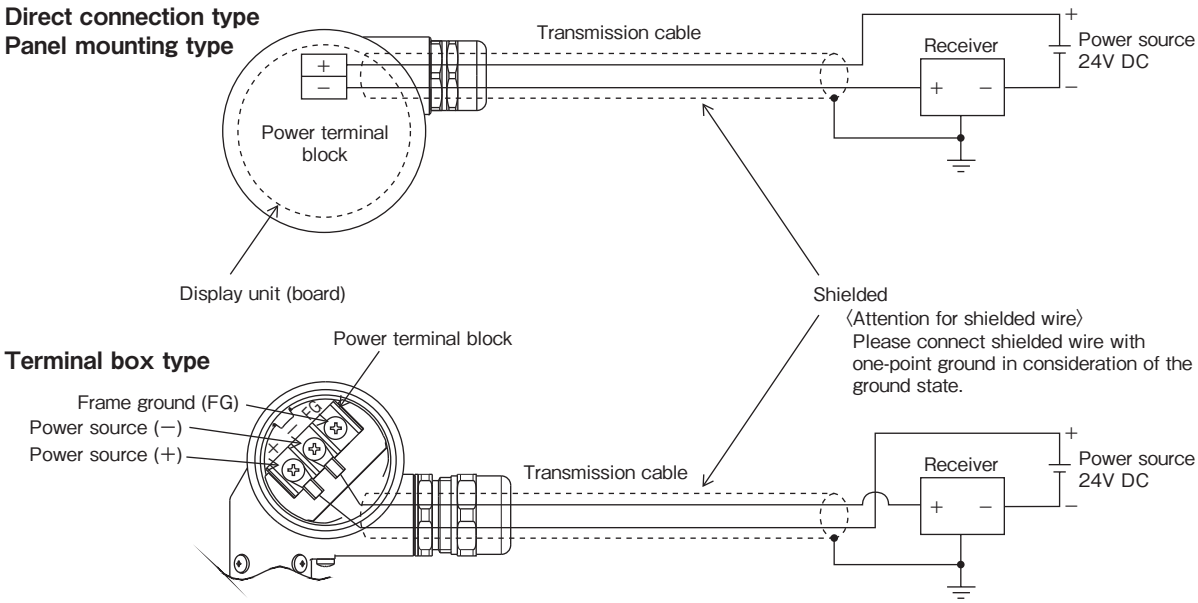
③Zero adjustment
Zero point adjustment of 4 to 20mA DC output is available by easy key operation.

④Loop check
Without applying pressure, 4 to 20 mA DC can be output arbitrarily. This makes maintenance easy.

⑤Filter
Pulsation and other differential pressure change can be eased by moving average function where the pressure value can be fluctuated.

⑥Integrated volume display
Integrated volume value can be displayed independently or alternately with scaling.

Wiring



⚠CAUTION

- 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 to specification, water and dust will penetrate because no sealing effect is obtained. Please be sure to use a cable with suitable outer diameter.
- Transmission cable installed 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.

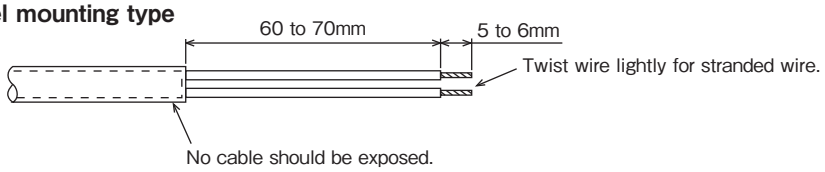
Transmission cable

Ensure to use an adapted cable for the power supply terminal level and a cable gland.

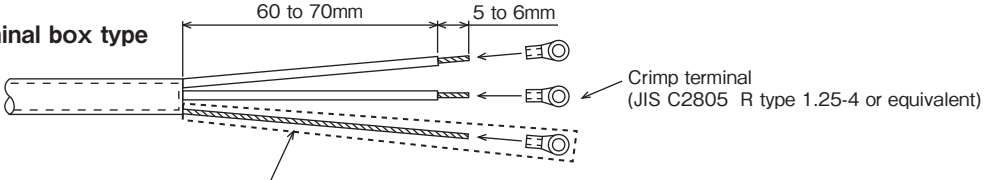
	Terminal box Model number / Manufacture	Adaptable transmission cable
Direct connection type Panel mounting type	SMKDSP1.5/2-5.08 Phoenix contact	・2 core shield cables＊1 ・Cable outer diameter: 9 to 12mm ・Core Line cross-section area: 0.3 to 2mm² (Standard or a Single line)
Terminal box type	OTB-760-B-3P-M4 OSADA Co., Ltd.	・2 core shield cables＊1 ・Cable outer diameter: 9 to 14mm ・Core Line cross-section area: 0.25 to 1.65mm² (Standard or a Single line)

＊1 With a twist and a shield, noise-resistant level is improved.
＊2 Depending types of used crimp terminal

Direct connection type
Panel mounting type



Terminal box type



Attention) Make sure not to expose shielded wire if the ground connection using "Flame ground (FG)" is unnecessary. Crimp a terminal connector twisting shielded wires only when pressure transmitter itself needs ground-connected.

Model number configuration

Please specify the model, each requiring specification and differential pressure range to order.

Model

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

Model number | Product specifications | Additional specifications (Optional)

① Mounting type*

1	Direct connection type	(Internal terminal connection)
2	Panel mounting type	(Internal terminal connection)
3	2B pipe mounting	(Internal terminal connection)
T	Terminal box type	(with mounting bracket, mounting screw)
U	Terminal box type	(2B pipe mounting)

② Conversion joint

0	Not required
1	25.4mm conversion joint (Rc1/4) (with equalizing valve, Option)
2	Tube conversion joint with valve (Option)
3	54mm conversion joint (Option) Only direct mounting can be selected

③ Connection

1	Connection: Upper side
2	Connection: Lower side

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

④ Differential pressure range

	Range	Max. display value	Accuracy (Standard)
R	0 to 1kPa	1.000	±1.0%F.S. at 23℃
S	0 to 2kPa	2.00	
T	0 to 5kPa	5.00	±0.5%F.S. at 23℃
U	0 to 10kPa	10.00	
V	0 to 20kPa	20.0	
W	0 to 50kPa	50.0	
X	0 to 100kPa	100.0	
F	± 1kPa	±1.00	±1.0%F.S. at 23℃
G	± 2kPa	±2.00	±0.5%F.S. at 23℃
H	± 5kPa	±5.00	
J	±10kPa	±10.0	
K	±20kPa	±20.0	
L	±50kPa	±50.0	

⑤ Accuracy

5	±0.5%F.S. at 23℃ (5kPa or more, ±2kPa or more)
7	±1.0%F.S. at 23℃ (2kPa or less, ±1kPa)

⑥ Power source

1	24V DC ±10%

⑦ Output

1	4 to 20mA DC (2 wire system)

⑧ Outlet for electric wire

	Direct connection type, Panel mounting type, 2B pipe mounting
1	SKINTOP® MS-SC13.5
	Terminal box type
A	Cable gland FBA21-13 G1/2

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 Calibration test report (One-part one sheet) Inspection / Traceability certificate

*Specify a pressure Connection by ③.

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