

# GC61 Digital Pressure Gauge

## Outline

It is a 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, and the loop check and the scaling function, etc. are installed.

## Features

- IP65
- Switch function (NPN or PNP when ordering)
- Analog output (Option)
- Six-staged filter setting (Nil, 25 · 250ms, 2.5 · 5 · 10s)
- Loop check, Display & Analog output scaling (Maximum display 6000), Filter, Key lock, Peak & Bottom holding and One-touch zero adjustment function



RoHS



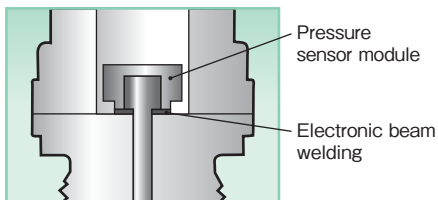
## Features of sensor

### 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 strain gauge, sensing and the pressure connection parts. Since no adhesives and corrosive materials are used, it has superior durability and stability.



SS Sensor



Fully welded type

Safe structure that main body and fitting part are welded

## Function

\* The comparator for the open collector type with 2 outputs provides the high-accurate ON/OFF control. Specify NPN or PNP when ordering.

### Comparator (OUT1,OUT2) operation LED (Red)

Lights up : When comparator output is ON

### Setting mode operation LED (Orange)

Lights up: When setting mode (SET) is operated  
Blinking: When Loop check or Peak & Bottom value is indicated  
OFF: Other than those above

MODE key

MODE key to select an operation mode and switch between submodes.



ADJ. key

The zero point adjustment.

Pressure and setting value display LED

DOWN key

DOWN key to set values and select items. It displays bottom hold value in the measurement mode.

UP key

UP key to set values and select items. It displays peak hold value in the measurement mode.

## Specifications

Item		Description
Fluid		Air, water, oil (Non-corrosive gas and liquid)
Operating condition		Normal conditions (No flammable liquids or explosive gaseous atmospheres)
Mounting		Vertical mounting or horizontal mounting
Connection		R1/4
Wetted parts materials		Diaphragm: SUS630 (17-4PH), Connection: SUS316
Pressure range		0 ~ 0.5 MPa → 0 ~ 50 MPa, -0.1 ~ 0.5 MPa → -0.1 ~ 2 MPa
Max. allowable pressure		200% of pressure range (35 MPa range or over: 150%)
Accuracy	Indication accuracy	± (1.0% F.S.+ 1digit) at 23°C
	Temperature coefficient	±0.1%F.S./°C (zero, span)
Display system		4 digit, 8mm LED
Display update		200ms
Units of display		MPa
Power source		12 to 24 V DC ±10% (4 to 20mA: 15 to 24 V DC ±10%), ripple (P-P) not exceeding 10%
Consumption current		NPN: 30mA or less (4 to 20mA: 50mA or less) PNP: 40mA or less (4 to 20mA: 60mA or less)
Signal output	Comparator output	Two-output type NPN open collector Output capacity 30 VDC 80 mADC max. or Two-output type PNP open collector Output capacity 80 mADC max. Response speed: 5 ms or less Dead band: Variable in the hysteresis mode 1%F.S. fixed in the window comparator mode On/Off pilot lamp Red LED remains lit when comparator is on.
	Analog output (Option)	4 to 20mA DC (Load resistance 400Ω or less) or 1 to 5V DC (Load resistance 10kΩ or over) * When 4 to 20mA DC is selected, power source should be 15V DC or over. Output accuracy: ±1.0%F.S. Response time: 50ms or less
Function	Scaling	Indicated values and analog output
	Loop check	Comparator and analog outputs
	Filter	Nil, 25ms, 250ms, 2.5s, 5s, 10s (Time constant) The set value is reflected in both comparator and analog outputs.
	Error indication	Over pressure, Comparator overloaded, Out of pressure range for zero adjustment
	Hold	Display of peak and bottom values
	Others	One-touch zero adjustment, key locking
Protection circuits		Reverse power connection, Comparator overcurrent protection.
Operating temperature		-10 to 50°C (No freezing or condensation)
Operating humidity		35 to 85%RH (No dew condensation)
Storage temperature		-20 to 60°C (No freezing or condensation)
Case construction		IP65 (With air inlet port)
Case materials		Front case: PC/ABS (UL-94, V0) Rear case: ADC12
Cable		Length: 2m, Cross-section area of conductor: 0.18mm <sup>2</sup>
Weight		Vertical mounting: Approx. 175 g, (including 2m cable) Horizontal mounting: Approx. 155 g, (including 2m cable)
CE Compliance*		Applicable Directive : 2004/108/EC Applicable Standards : EN61326-1:2006;EN61326-2-3:2006 (EMI Class A / EMS Table 2)
RoHS Compliance		EU RoHS Directive applicable

\* 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.

## Pressure range and maximum display value

Pressure range (MPa)	Max. display value	Pressure range (MPa)	Max. display value
	MPa		MPa
0~ 0.5, -0.1~0.5	0.500	0~10	10.00
0~ 1.0, -0.1~1.0	1.000	0~20	20.00
0~ 2.0, -0.1~2.0	2.000	0~35	35.0
0~ 3.5	3.50	0~50	50.0
0~ 5.0	5.00		

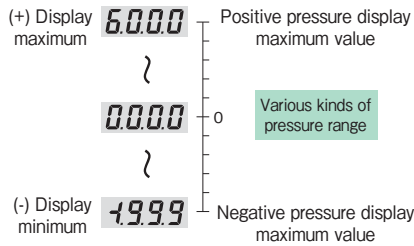
\* negative pressure of the compound gauge is displayed for minus symbol.

### Seven points related to function

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

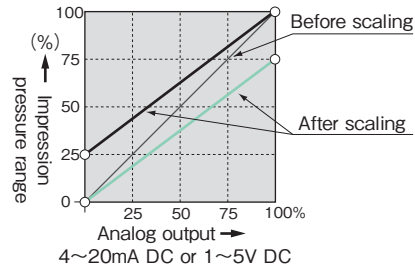
##### • Display scaling function

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

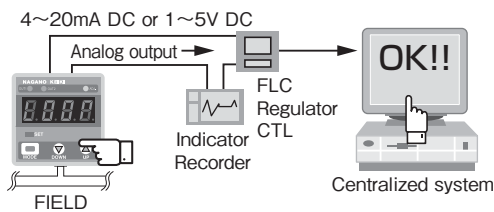


##### • Analog output scaling function \*1

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.



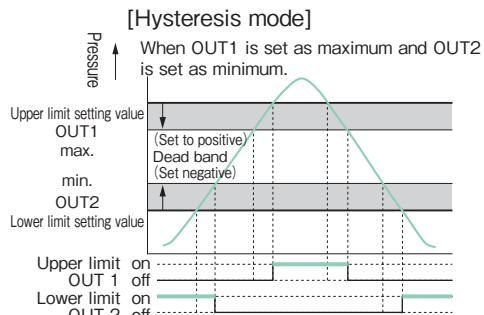
#### 2 By the loop checking, display, analog output\*1 and comparator output can be manual tested with up and down keys operation regardless of impression pressure. It is suitable for the simulation operation of a wiring check etc.



Comparator output can also be tested of operation.

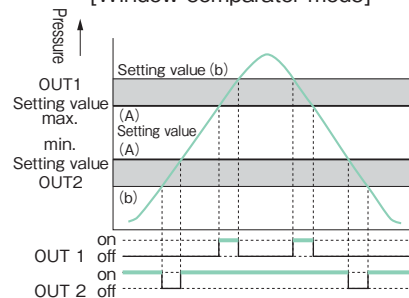
\*1 With analog output (option) only

#### 3 The operation mode of comparator output can be selected.



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 Easy zero adjust by setting inlet port to atmospheric pressure and pushing ADJ key for over 3 sec.

#### 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.

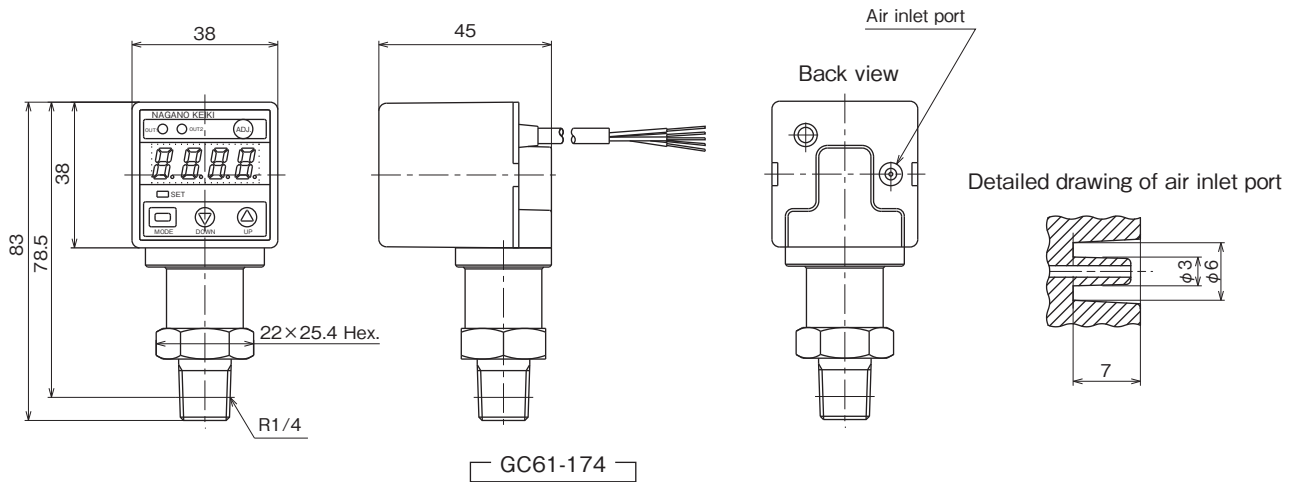
# GC61

## Digital Pressure Gauge

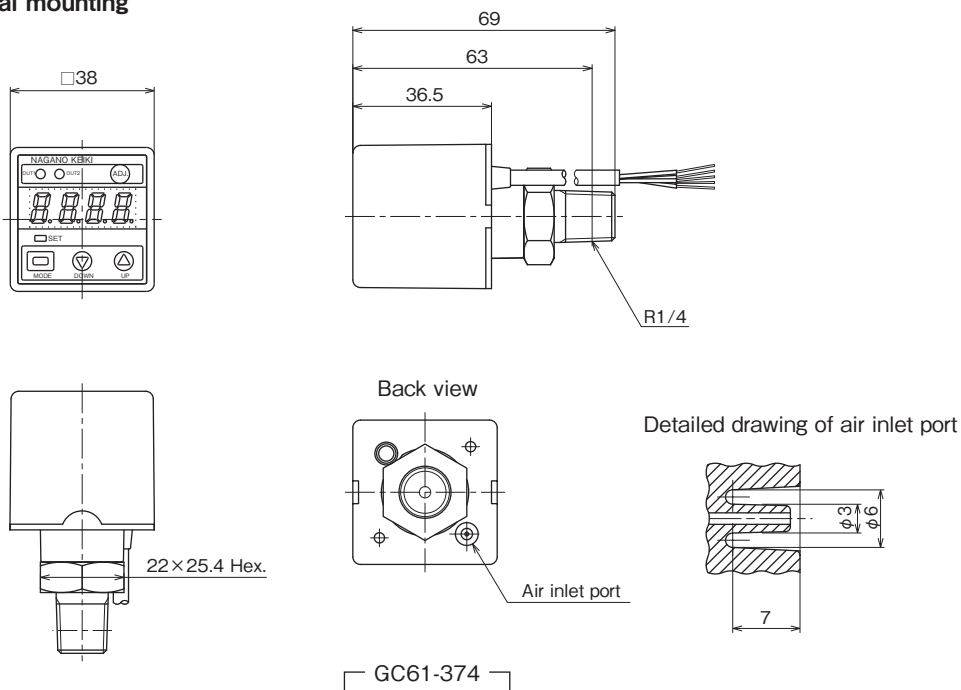
### Dimensions

Unit : mm

#### Vertical mounting

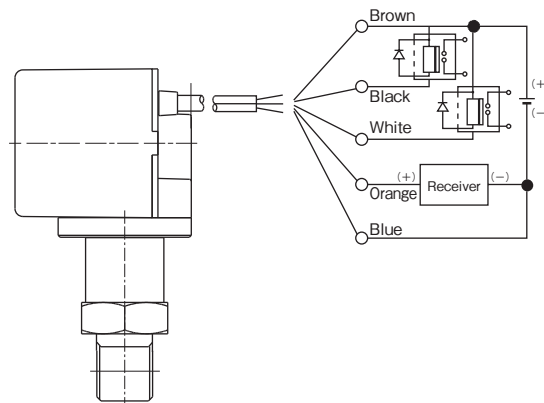


#### Horizontal mounting



### Wiring

Put the transistor protective diodes in relay in case of relay input.



Load resistance  
 400Ω or less (4~20mA DC)  
 10kΩ or more (1~5V DC)

#### Cable wiring color

Brown ····· Power source (+) 24V DC  
 Black ····· Open collector (OUT1)  
 White ····· Open collector (OUT2)  
 Orange ····· Analog output (+) (Option is specified)  
 (4~20mA DC or 1~5V DC)  
 Blue ····· Power source (-)

# GC61

## Digital Pressure Gauge

### Model number configuration

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

Model		<table border="1"> <tr> <td style="width: 100px;">G C 6 1</td> <td style="width: 20px;">—</td> <td style="width: 20px;">7</td> <td style="width: 20px;">4</td> <td style="width: 20px;">—</td> <td style="width: 20px;">7</td> <td style="width: 20px;"></td> <td style="width: 20px;"></td> <td style="width: 20px;"></td> <td style="width: 20px;"></td> <td style="width: 20px;">×</td> <td style="width: 20px;">×</td> <td style="width: 20px;">×</td> <td style="width: 20px;">×</td> <td style="width: 20px;">×</td> <td style="width: 20px;"></td> </tr> <tr> <td colspan="2">Digital pressure gauge</td> <td>①</td> <td>②</td> <td>③</td> <td>④</td> <td>⑤</td> <td>⑥</td> <td>⑦</td> <td>⑧</td> <td>⑨</td> <td>⑩</td> <td>⑪</td> <td>⑫</td> <td>⑬</td> <td>⑭</td> <td>⑮</td> </tr> </table>															G C 6 1	—	7	4	—	7					×	×	×	×	×		Digital pressure gauge		①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮
G C 6 1	—	7	4	—	7					×	×	×	×	×																																			
Digital pressure gauge		①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮																																	
Model number		Selective spec.				Additional spec. (Option)																																											
① Mounting	1	Vertical mounting																																															
	3	Horizontal mounting																																															
② Connection	7	R1/4																																															
	4	Diaphragm: SUS630 (17-4PH) Connection: SUS316																																															
③ Wetted parts materials	4	Diaphragm: SUS630 (17-4PH) Connection: SUS316																																															
	4	Diaphragm: SUS630 (17-4PH) Connection: SUS316																																															
④ Pressure range (MPa)	1	-0.1~0.5, 1, 2																																															
	2	0~0.5, 1, 2, 3.5																																															
	3	0~5, 10																																															
	4	0~20, 35																																															
	5	0~50																																															
⑤ Indication accuracy	7	± (1.0%F.S.+1digit) at 23°C																																															
	7	± (1.0%F.S.+1digit) at 23°C																																															
⑥ Power source	N	12~24V DC±10%																																															
	P	15~24V DC±10% (4~20mA DC only)																																															
⑦ Comparator output	1	PNP open collector × 2 outputs (80mA max.)																																															
	3	NPN open collector × 2 outputs (30V DC, 80mA max.)																																															
⑧ Analog output	0	Nil																																															
	1	4~20mA DC																																															
	8	1~5V DC																																															
⑨ 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, inspection procedure, test report (1 pc 1 copy), inspection / traceability certificate, standard inspection report, strength calculation, attended inspection																																															

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

• Please use ZT60 when the necessary joint is VCR type, or regulations of the cleaning level and roughing the inside are necessary.

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

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