# GC62
# Digital Differential Pressure Gauge

**For gas measurement**
**(Featuring silicone diaphragm)**


## Overview

**Miniaturized digital differential pressure gauge with high proof pressure can replace three instruments, a pressure gauge, a transducer and a switch with incorporated Silicon Capacitive Sensor. Applications include air conditioning systems over a variety of featured functions.**

## Features

- **Low pressure measurements starting from 50Pa**
- **Switch function (2 Relay contacts)**
- **Analog output (Option)**
- **Loop check, display & analog output scaling (Maximum display 6000), filter, key lock, (Peak hold display) and zero point adjustment**
- **Easy-to-read large 4 digit LED**

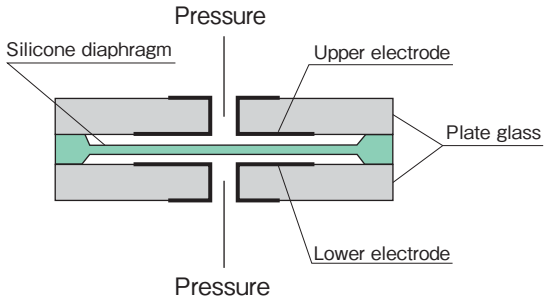
## Features of sensor

### Silicon Capacitive (SC) Sensor

Miniaturized sensing part designed with silicon diaphragm having less moving parts contributes for excellent vibration proof and shock resistance.

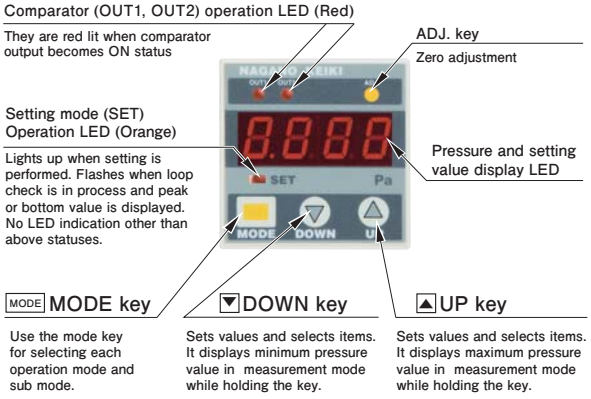
**Actual size**

SC Sensor
Sensor chip




## Function

- Two comparator (Relay contacts) provide highly accurate ON/OFF operations.
- Standard specifications include a wide variety of features over display scaling, filter, peak hold display and loop check with analog output. Square root extraction function is also available.
- Applications include differential and flow measurements and controls.



## Specifications

| Item | | Description |
|---|---|---|
| Media | | Gas (Dry air and nitrogen gas) No water or dusts should be contained. |
| Installation environment | | Install in location where no gases or liquids may exist that have the potential to become flammable or ignitable under normal operating condition. |
| Mounting | | Panel mounting, Surface mounting (DIN Rail) |
| Process connection | | G1/8 |
| Wetted parts | | Silicon, aluminum, silicone, glass and ABS |
| Differential pressure range | | 0 to 50Pa → 0 to 20kPa, ±50Pa → ±10kPa Refer to pressure range table |
| Maximum allowable pressure | | 50kPa (100 kPa for product with 10kPa rated pressure) |
| Accuracy | | Differential pressure display accuracy: ±(1.0%F.S.+1digit) at 23℃ (0.5kPa and over),<br>±(1.5%F.S.+1digit) at 23℃ (200Pa and under)<br>Analog output accuracy and square root accuracy: Please refer to the range table |
| Temperature coefficient | | ±0.1%F.S./℃ (Zero, Span) |
| Display | | 4 digit, 10mm LED |
| Display update rate | | 200ms |
| Units of display | | Differential pressure (GC62-□□1) in Pa, kPa<br>Square root extraction (GC62-□□2) in Pa, kPa, root |
| Power source | | 12 to 24V DC ±10% (4 to 20mA: 15 to 24 V DC ±10%) Ripple (p-p) not exceeding 10% |
| Consumption current | | 55mA and under (4 to 20mA: 75mA and under) |
| Output signal | Comparator output | Relay contact × 2 output (110V AC, 0.2A Load resistance)<br>Response time: 5 ms and under (GC62-□□2 10 ms and under)<br>Dead band: Variable in the hysteresis mode<br>1%F.S. fixed in the window comparator mode<br>Delay: 0 to 2.00s (Both ON and OFF)<br>On/Off pilot lamp Red LED remains lit when comparator is on. |
| | Analog output (Option) | 4 to 20mA DC (Load resistance 400Ω and under) or 1 to 5V DC (Load resistance 10kΩ and over)<br>＊When 4 to 20mA DC is in use, power source should be 15V DC and over.<br>Response time: 50ms and under |
| Functions | Square root extraction (Option) | Wind velocity and air volume display (± bidirectional range can not be made) |
| | Scaling | Display, analog output |
| | Loop check | Comparator outputs, analog outputs |
| | Filter | No filter, 25ms, 250ms, 2.5s, 5s, 10s (Time constant)<br>The set value is reflected in both comparator and analog outputs. |
| | Error indication | Over pressure, Comparator overloaded, Outside of effective range for the zero adjustment |
| | Hold | Display of peak and bottom values |
| | Others | One-touch zero adjustment, key lock |
| Circuit protection | | Reverse power connection |
| Operating temperature | | -10 to 50℃ (Non-Freezing and Condensing) |
| Operating humidity | | 35 to 85%RH (Non-Condensing) |
| Storage temperature | | -20 to 60℃ (No freezing or condensation) |
| Allowable leak rate | | $1.7\times10^{-4}$Pa・$m^3$/s ＊1 |
| Case construction | | Indoor use (IP40 IEC Standard) |
| Case materials | | PC/ABS (UL-94, V-0) |
| Weight | | Approx. 95g (Panel mounting)<br>Approx. 140g (Surface mounting) |
| Accessories | | Installation attachments (Panel mounting)<br>Hexagon socket head plug (Panel mounting)<br>Unit label (Square root extraction function) |

＊1 This product is NOT suitable for use with leakage test requiring strict measurement of leakage amounts.

## Differential pressure / display ability

| Differential pressure range | | Display maximum value by unit *1 | | Differential pressure display (GC62-□□1) | Square root extraction *2 (GC62-□□2) |
|---|---|---|---|---|---|
| | | Pa | kPa | | |
| 0 to 50Pa | ±50Pa | 50.0 | – | Scaling value can be arbitrarily displayed within the -1999 to 6000 range | Value can be arbitrarily set within the 0 to 6000 range |
| 0 to 100Pa | ±100Pa | 100.0 | – | | |
| 0 to 200Pa | ±200Pa | 200.0 (200) | – | | |
| 0 to 0.5kPa | ±0.5kPa | – | 0.500 | | |
| 0 to 1kPa | ±1kPa | – | 1.000 | | |
| 0 to 2kPa | ±2kPa | – | 2.000 (2.00) | | |
| 0 to 5kPa | ±5kPa | – | 5.00 | | |
| 0 to 10kPa | ±10kPa | – | 10.00 | | |
| 0 to 20kPa | – | – | 20.00 (20.0) | | |

※ Negative mark (-) is displayed when the pressure measured at high pressure port (H) is lower than the pressure measured at low pressure port (L).
*1 ( ): when differential pressure range is ± bidirectional.
*2 Not available for ± bidirectional ranges.

## Accuracy / Temperature coefficient

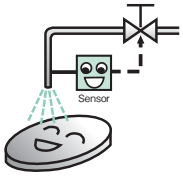
| Differential pressure range | | Accuracy | | | Temperature coefficient |
|---|---|---|---|---|---|
| | | Differential pressure display | Analog output | Square root extraction *3 | |
| 0 to 50Pa | ±50Pa | ±(1.5%F.S.+1digit) at 23℃ | ±1.5%F.S. | ±0.5%F.S. Within the differential pressure range of 5 to 100%F.S. | ±0.1%F.S./℃ Zero and Span |
| 0 to 100Pa | ±100Pa | | | | |
| 0 to 200Pa | ±200Pa | | | | |
| 0 to 0.5kPa | ±0.5kPa | ±(1.0%F.S.+1digit) at 23℃ | ±1.0%F.S. | | |
| 0 to 1kPa | ±1kPa | | | | |
| 0 to 2kPa | ±2kPa | | | | |
| 0 to 5kPa | ±5kPa | | | | |
| 0 to 10kPa | ±10kPa | | | | |
| 0 to 20kPa | – | | | | |

*3 Not available for ± bidirectional ranges

## Applications

### Differential pressure

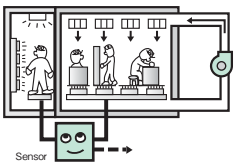
N2 pressure monitoring and control




Purge and exhaust pressure monitoring to control yield rate of wafer production

### Differential pressure

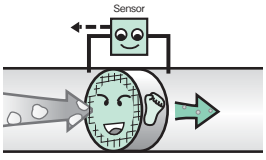
Clean room pressure monitoring




Monitoring inside and outside pressure of clean room to control supply pressure to maintain pressure inside of clean room stable.

### Differential pressure

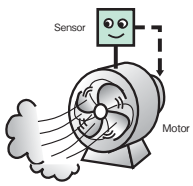
Filter clogging detection




Filter clogging monitoring to validate appropriate timing for replacing filter inside air conditioning system.

### Flow

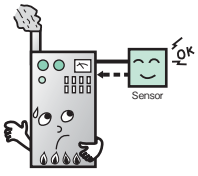
Exhaust fan speed control




Exhaust fan speed control to determine and maintain appropriate flow rate in the exhaust duct.

### Flow

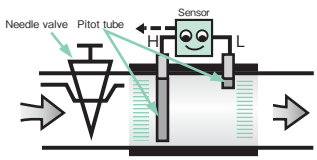
Firing pressure measurement




Measurement of combustion pressure can help for maintaining ideal level of air supply rate to improve combustion efficiency.

### Flow

Gas flow rate measurement in conjunction with pitot tube.




Use as purge meter, control over intake/exhaust detections etc.

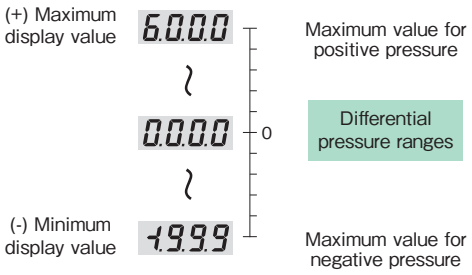
■Warning
Pressure media must be clean, dry air and nitrogen gas.
Gas pressure media including dry air, N2 must not contain water and dusts.

## Seven Primarily Functions

### 1 Flexible rangeability with accurate indication and output scaling.

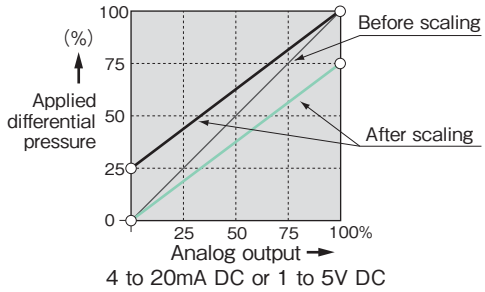
●Display scaling function

LED display value can be set arbitrarily within the maximum 4 digits display ability (6000 digits)

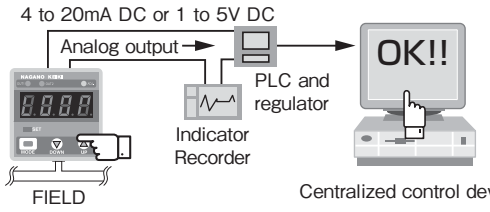



●Analog output scaling function*1

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*1 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.

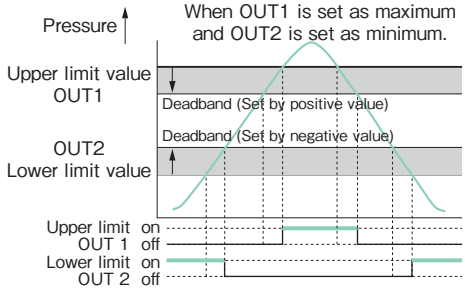



Comparator operation can also be tested.

*1 Only for analog output (option)

### 3 Selectable operation mode of comparator output

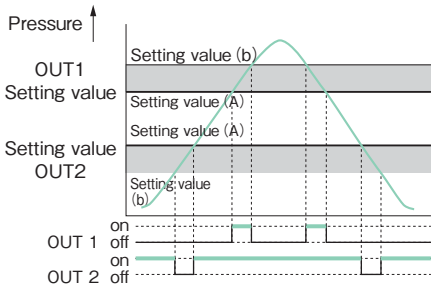
[Hysteresis mode]




The upper limit (dead band set by positive value) and lower limit (dead band set by negative value) based on OUT1 and OUT2 can be determined at any point.

Either one of the two

[Window comparator mode]




The upper limit (A≦b) and lower limit (A>b) based on OUT1 and OUT2 can be determined at any point.


ON/OFF delay time can also be set toward setting value.

### 4 Digital filter function is used when pressure fluctuations can result in erratic pressure indication. (Select from: OFF, 500ms, 1s, 2s, 5s, 10s).

### 5 Zero adjustment is easily available just pressing「ADJ」key greater than 3 seconds with both sides of pressure port open to atmosphere.

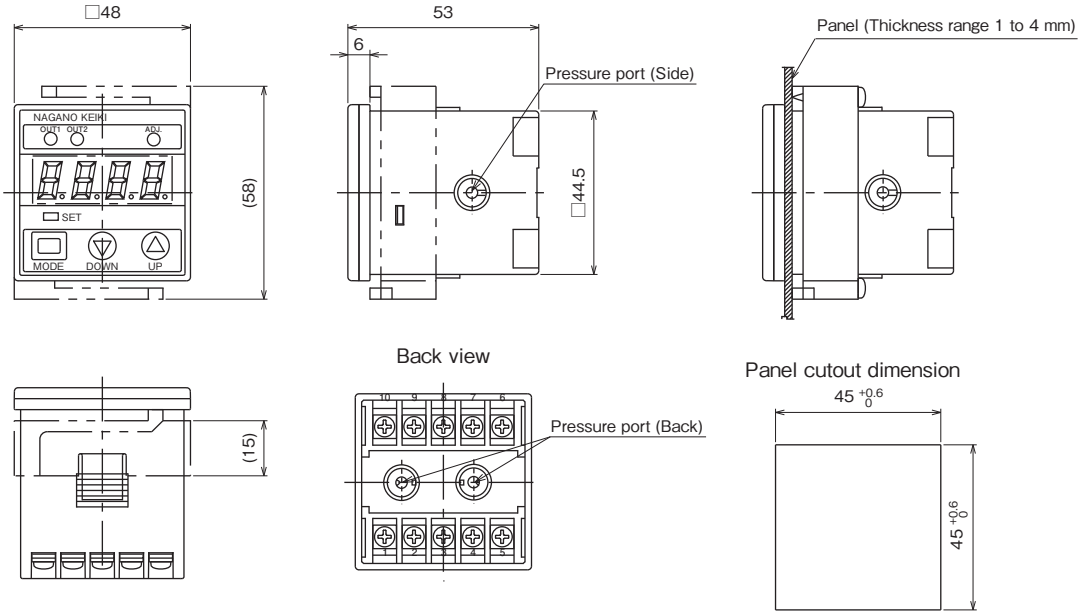
### 6 The unit keeps the maximum and minimum pressure in the internal memory. They are displayed while holding the up or down keys respectively.

### 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.

## Dimensions

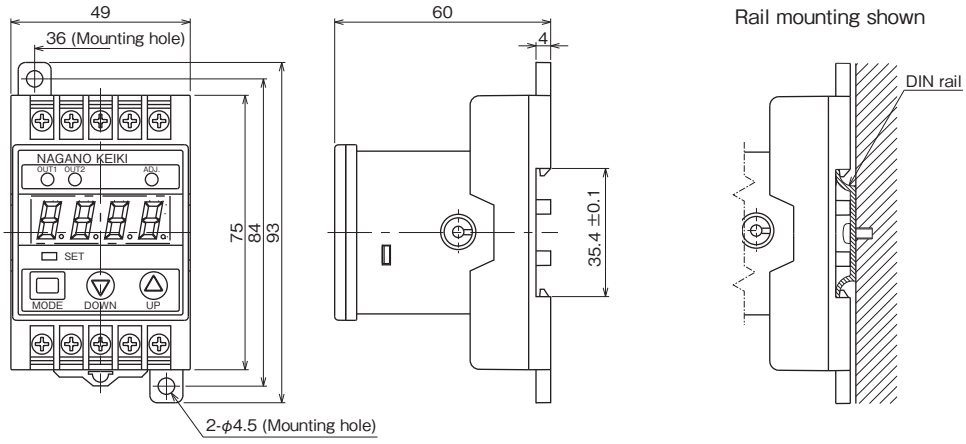
Unit: mm

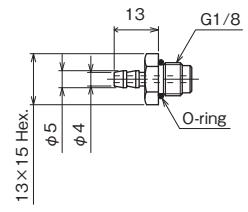
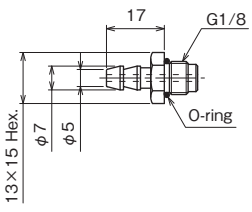
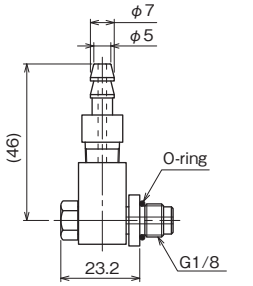
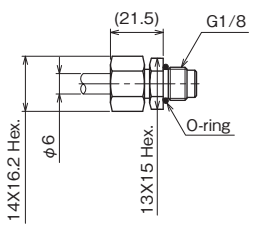
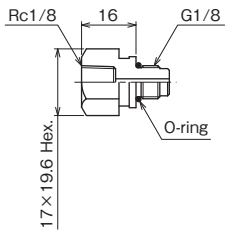
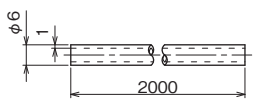
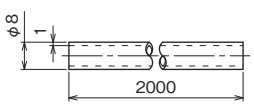
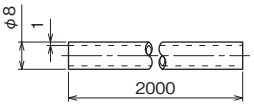
### ●Panel mounting




*There are process connections on back and side of the unit (H and L). After connecting to process connections, unused pressure port must be covered by included hexagon socket plug. Ensure that tightening torque for G1/8 thread should be 1N/m or less.

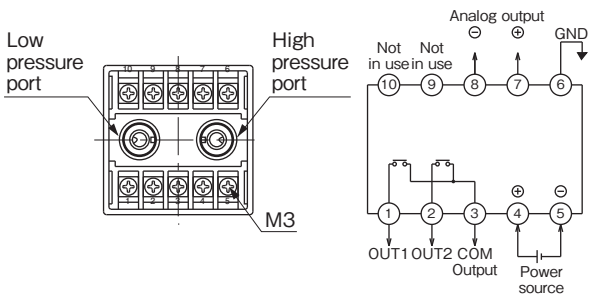
### ●Surface mounting




| Process Connection | | | | |
|---|---|---|---|---|
| GC62-□2□ | GC62-□3□ | GC62-□4□ | GC62-□5□ | GC62-□6□ |
| ϕ5 Barb (Straight) | ϕ7 Barb (Straight) | ϕ7 Barb (Rotary) | Fitting for ϕ6 metal pipe | Rc1/8 Conversion joint |
|  |  |  |  |  |
| ϕ6 With 2m tube | ϕ8 With 2m tube | ϕ8 With 2m tube | | |
|  |  |  | | |

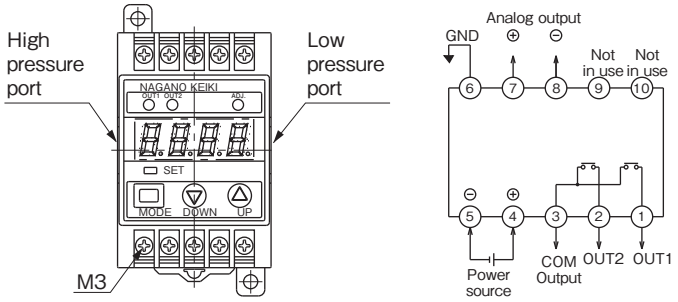
## Wiring

### ●Panel mounting




Back

### ●Surface mounting




Front

## Model number configuration

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

Model

| G | C | 6 | 2 | — | ① | ② | ③ | — | ④ | ⑤ | ⑥ | ⑦ | ⑧ | ⑨ | ⑩ | ⑪ | ⑫ | ⑬ | ⑭ | ⑮ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Digital Differential Pressure Gauge | | | | | | | | | | 0 | | 2 | | × | × | × | × | × | × | |

Model number | Product specifications | Additional specifications (Optional)

**① Mounting**

| | |
|---|---|
| 2 | Surface mounting |
| 3 | Panel mounting |

**② Process Connection ＊1**

| | | |
|---|---|---|
| 1 | G1/8 (Standard) | |
| 2 | φ5 barb (Straight) | With 2m vinyl tube |
| 3 | φ7 barb (Straight) | With 2m vinyl tube |
| 4 | φ7 barb (Rotary) | With 2m vinyl tube |
| 5 | Joint for φ6 metal pipe | |
| 6 | Rc 1/8 conversion joint | |

**③ Display**

| | |
|---|---|
| 1 | Differential pressure display |
| 2 | Square root extraction (± bidirectional range is not available.) |

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

**④ Differential pressure range ＊2**

| | | |
|---|---|---|
| 1 | 0 to 50, 100, 200Pa | |
| 2 | 0 to 0.5, 1, 2, 5, 10, 20kPa | |
| 3 | ±50, ±100, ±200Pa | Model GC62-□□2 can not be made |
| 4 | ±0.5, ±1, ±2, ±5, ±10kPa | |

**⑤ Accuracy**

| | |
|---|---|
| 0 | ±(1.0% F.S. + 1digit) at 23℃ (0.5kPa range and above)<br>±(1.5% F.S. + 1digit) at 23℃ (200Pa range and below) |

**⑥ Power source**

| | |
|---|---|
| N | 12 to 24V DC±10% |
| P | 15 to 24V DC±10% (4 to 20mA DC only) |

**⑦ Comparator output**

| | |
|---|---|
| 2 | Relay contact × 2 output |

**⑧ Analog output**

| | |
|---|---|
| 0 | Not required |
| 1 | 4 to 20mA DC |
| 8 | 1 to 5V DC |

**⑮ Documents**

| | |
|---|---|
| 0 | Not required |
| 1 | Required<br>(Documents available upon request)<br>Datasheet (Drawing / Specifications)<br>Instruction manual Inspection procedure<br>Calibration test report (One-part one sheet)<br>Inspection / Traceability certificate<br>Calibration test report for pressure standard<br>Attending inspection |

＊1: 2m vinyl tube is included for 2 to 4.

＊2: Negative sign (-) is displayed when the pressure measured at high pressure port (H) is lower than the pressure measured at low pressure port (L).

＊Specify code "X" to refer N/A

■Warning
The product can't be used for corrosive, flammable gas and fluids measurements.