

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

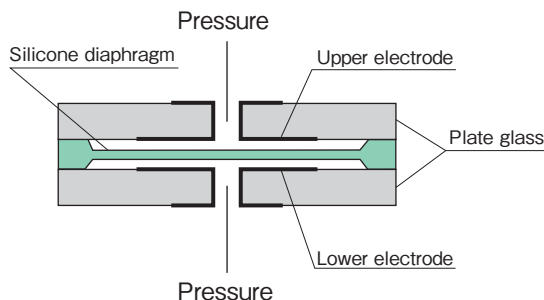
Silicon Capacitive (SC) Sensor

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.

Comparator (OUT1, OUT2) operation LED (Red)

They are red lit when comparator output becomes ON status

ADJ. key
Zero adjustment

Setting mode (SET) Operation LED (Orange)

Lights up when setting is performed. Flashes when loop check is in process and peak or bottom value is displayed. No LED indication other than above statuses.

Pressure and setting value display LED

MODE key

Use the mode key for selecting each operation mode and sub mode.

DOWN key

Sets values and selects items. It displays minimum pressure value in measurement mode while holding the key.

UP key

Sets values and selects items. It displays maximum pressure value in measurement mode while holding the key.

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°C (0.5kPa and over), ±(1.5%F.S.+1digit) at 23°C (200Pa and under) Analog output accuracy and square root accuracy: Please refer to the range table
Temperature coefficient		±0.1%F.S./°C (Zero, Span)
Display		4 digit, 10mm LED
Display update rate		200ms
Units of display		Differential pressure (GC62-□□1) in Pa, kPa 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) Response time: 5 ms and under (GC62-□□2 10 ms and under) Dead band: Variable in the hysteresis mode 1%F.S. fixed in the window comparator mode Delay: 0 to 2.00s (Both ON and OFF) 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) * When 4 to 20mA DC is in use, power source should be 15V DC and over. 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) 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°C (Non-Freezing and Condensing)
Operating humidity		35 to 85%RH (Non-Condensing)
Storage temperature		-20 to 60°C (No freezing or condensation)
Allowable leak rate		$1.7 \times 10^{-4} \text{Pa} \cdot \text{m}^3/\text{s} * 1$
Case construction		Indoor use (IP40 IEC Standard)
Case materials		PC/ABS (UL-94, V-0)
Weight		Approx. 95g (Panel mounting) Approx. 140g (Surface mounting)
Accessories		Installation attachments (Panel mounting) Hexagon socket head plug (Panel mounting) 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)		

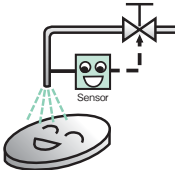
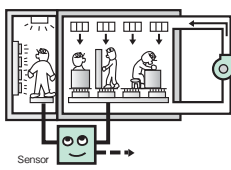
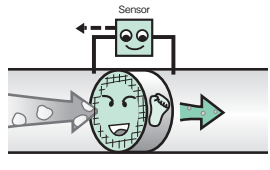
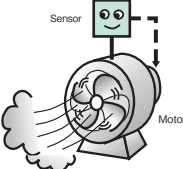
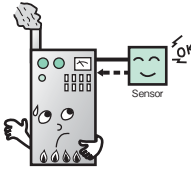
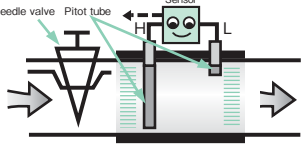
※ Negative mark (-) is displayed when the pressure measured at high pressure port (H) is lower than the pressure measured at low pressure port (L).
 *1 (): when differential pressure range is ± bidirectional.
 *2 Not available for ± bidirectional ranges.

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.+1 digit) at 23°C	±1.5%F.S.	±0.5%F.S. Within the differential pressure range of 5 to 100%F.S.	±0.1%F.S./°C Zero and Span
0 to 100Pa	±100Pa				
0 to 200Pa	±200Pa				
0 to 0.5kPa	±0.5kPa	±(1.0%F.S.+1 digit) at 23°C	±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

<p>Differential pressure</p> <p>N2 pressure monitoring and control</p>  <p>Purge and exhaust pressure monitoring to control yield rate of wafer production</p>	<p>Differential pressure</p> <p>Clean room pressure monitoring</p>  <p>Monitoring inside and outside pressure of clean room to control supply pressure to maintain pressure inside of clean room stable.</p>	<p>Differential pressure</p> <p>Filter clogging detection</p>  <p>Filter clogging monitoring to validate appropriate timing for replacing filter inside air conditioning system.</p>
<p>Flow</p> <p>Exhaust fan speed control</p>  <p>Exhaust fan speed control to determine and maintain appropriate flow rate in the exhaust duct.</p>	<p>Flow</p> <p>Firing pressure measurement</p>  <p>Measurement of combustion pressure can help for maintaining ideal level of air supply rate to improve combustion efficiency.</p>	<p>Flow</p> <p>Gas flow rate measurement in conjunction with pitot tube.</p>  <p>Use as purge meter, control over intake/exhaust detections etc.</p>

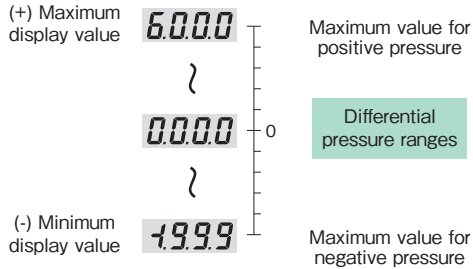
■ Warning
 Pressure media must be clean, dry air and nitrogen gas.
 Gas pressure media including dry air, N2 must not contain water and dusts.

Seven Primarily Functions

1 Flexible rangeability with accurate indication and output scaling.

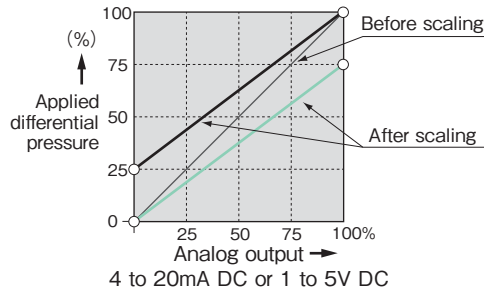
●Display scaling function

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

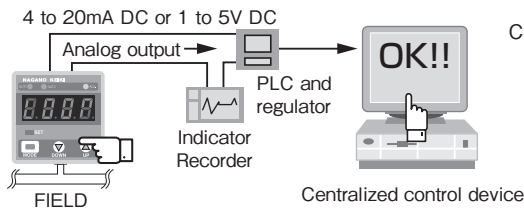


●Analog output scaling function*1

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



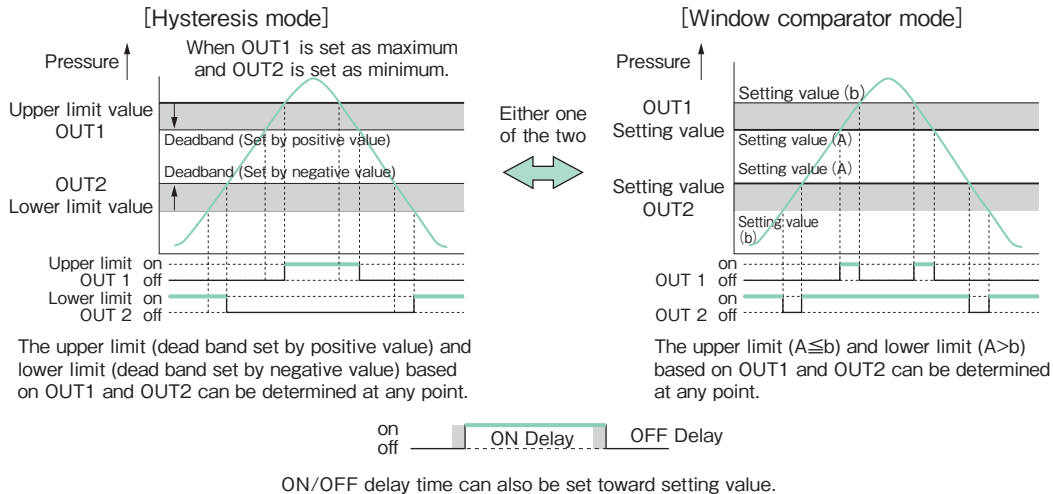
2 Loop check function allows user to check display indication, analog*1 and comparator output manually by using up or down key without actually applying pressure to the unit suitable for checking proper wiring and other simulations.



Comparator operation can also be tested.

*1 Only for analog output (option)

3 Selectable operation mode of comparator output



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

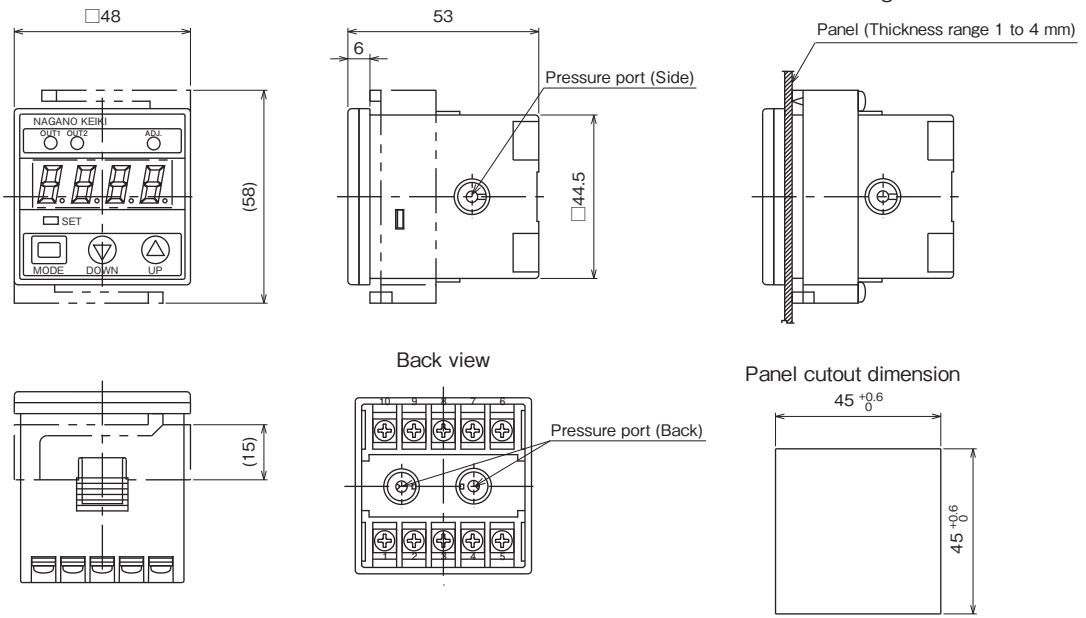
5 Zero adjustment is easily available just pressing [ADJ] key greater than 3 seconds with both sides of pressure port open to atmosphere.

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.

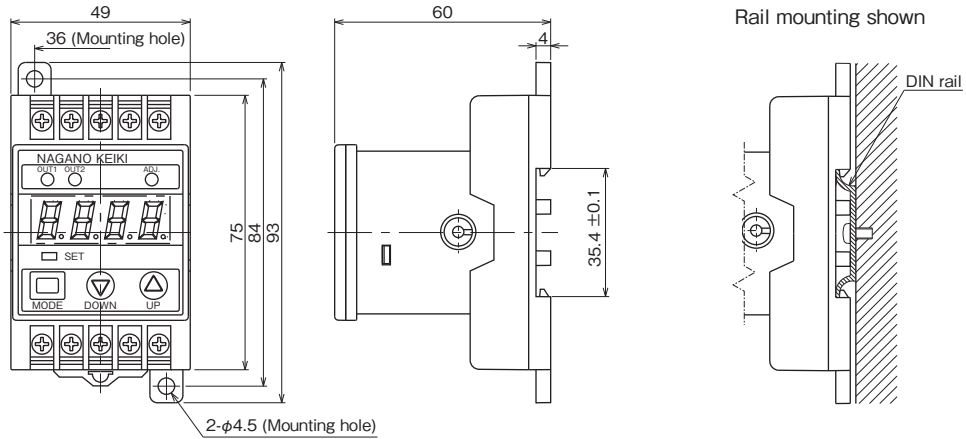
Dimensions

● 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



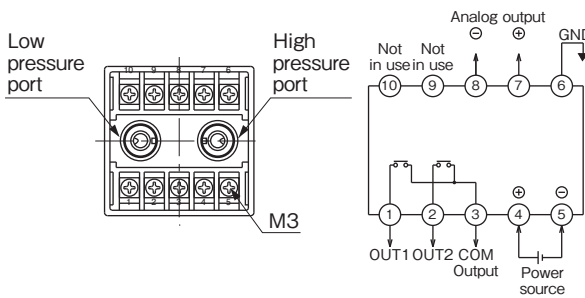
Process Connection				
GC62-□2□	GC62-□3□	GC62-□4□	GC62-□5□	GC62-□6□
φ5 Barb (Straight)	φ7 Barb (Straight)	φ7 Barb (Rotary)	Fitting for φ6 metal pipe	Rc1/8 Conversion joint
φ6 With 2m tube	φ8 With 2m tube	φ8 With 2m tube		

GC62

Digital Differential Pressure Gauge

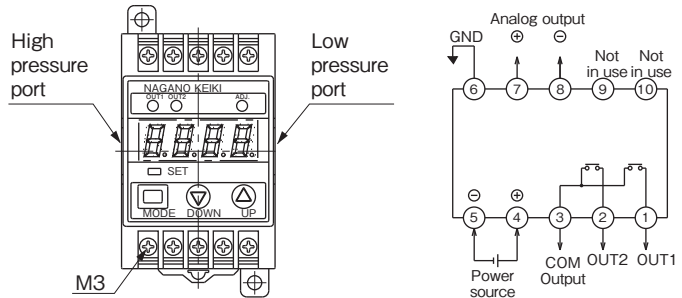
Wiring

●Panel mounting



Back

●Surface mounting



Front

Model number configuration

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

Model		Digital Differential Pressure Gauge														
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.)													
		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. + 1 digit) at 23°C (0.5kPa and above)											
					±(1.5% F.S. + 1 digit) at 23°C (200Pa and above)											
		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 (Documents available upon request) Datasheet (Drawing / Specifications) Instruction manual Inspection procedure Calibration test report (One-part one sheet) Inspection / Traceability certificate Calibration test report for pressure standard 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.