

# ZT61

## Digital Pressure Gauge for Semiconductor Industry

1.125 surface  
mounting  
interface

RoHS



### Outline

These are digital pressure gauges corresponding to 1.125 surface mounting interface for semiconductor gas delivery. An excellent visibility LED digital display is built-in.

Sensing element is made of Co-Ni alloy or SUS316L, so that it is extremely reliability, corrosion resistant.

### Features

- Integrated easy-to-read LED digital display.
- Comparator output+ Analog output (current or voltage)
- Excellent durability due to strain gauge formed on metal diaphragm with PCVD process.
- Highly corrosion-resistant pressure sensors made of Co-Ni alloy or SUS316L are welded directly to the SUS316L joints, giving them excellent corrosion resistance, air-tightness, long-term stability, and reliability.



3-wire system  
with comparator

0 to 10V DC Output  
available

\* 2 wire system : March 29, 2024 Discontinued Product

### List of grade

**Cleanliness** These pressure transmitters have been assembled, adjusted, inspected and packaged in a clean room, paying special attention for maintaining cleanliness.

Grade		UC (Ultra Clean)	EP (Electro Polishing)	GP (General Purpose)
Surface roughness of gas contact		0.18 $\mu$ m Ra Avg., 0.7 $\mu$ m Rz Max.	0.18 $\mu$ m Ra Avg.	0.5 $\mu$ m Ra Avg.
Wetted parts	Pressure sensor	Co-Ni alloy	SUS316L	
	Fitting	SUS316L DOUBLE MELT material	SUS316L	
Maximum allowable pressure *1		200% of rated pressure	150% of rated pressure	
Leakage (Helium leak rate)		5 x 10 <sup>-12</sup> Pa·m <sup>3</sup> /s and under	5 x 10 <sup>-12</sup> Pa·m <sup>3</sup> /s and under	
Particle		Zero count for size 0.1 $\mu$ m or greater (In our inspection standard)	Zero count for size 0.1 $\mu$ m or greater (In our inspection standard)	—————
Cleaning		Ultra clearance (Cleaning)	Ultra clearance (Cleaning)	Degreasing
Recommended gas *2		High-purity gas, semiconductor material gas, etc.	High-purity gas, semiconductor material gas, etc.	Purge gas, exhaust gas, etc.

\*1 The maximum allowable pressure is the upper limit of pressure value which may safely be applied to the product and remain in specification once pressure is returned to the rated range with a couple of times overpressurization for about 10 minutes. Effects of continuous overpressure are not guaranteed

\*2 Please confirm that the gas contact part material is suitable for the gas to be measured.

\*UC/EP Grade rises with triple packing (Filled with N<sub>2</sub>).

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Digital Pressure Gauge (1.125 surface mounting interface)

## Features of sensor

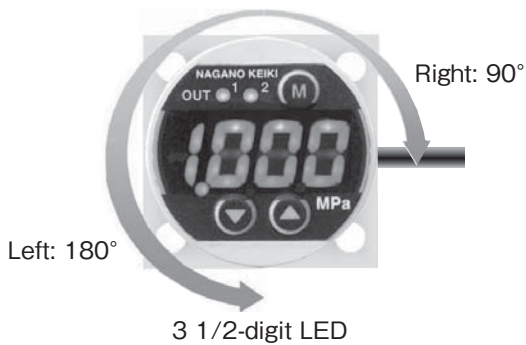
Sensor element and fitting are unification structure by welding. This pressure sensor is excellent in Corrosion resistance and Durability. It is because the quality of the material of this pressure sensor is being made by high corrosion resistance, the high tension alloy.



## Features of the display unit

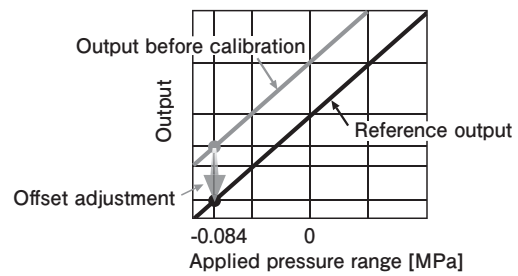
This gauge has excellent visibility because 3 1/2-digit LED display is mounted. In addition, it is possible to rotate the display unit depending on the direction of pipe.

Rotation of the display unit



## Offset (Zero) adjustment function

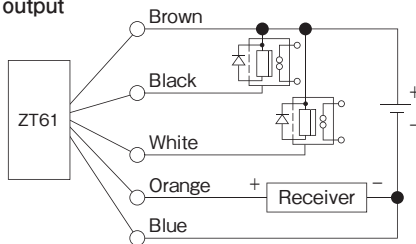
The conventional digital pressure gauge was possible to perform the zero adjustment of the output only when air pressure is atmospheric pressure. Since the semiconductor manufacturing equipment cannot open the gas contact section to the atmospheric, the use of this gauge enables to adjust the output by applying any accurate reference pressure.



\*The factory default reference pressure of offset is set to atmospheric pressure. Separately, you can use the analog scaling function.

## Wiring

3-wire system  
NPN output



Load resistance

4 to 20 mA DC: 400Ω max.  
1 to 5V DC, 0 to 10V DC: 10k Ω min.

Cable color:

Brown .... Power source (+)  
Black ..... Open collector (OUT 1)  
White ..... Open collector (OUT 2)  
Orange ... Analog output (+)  
(4 to 20 mA or 1 to 5V DC, 0 to 10V DC)  
Blue ..... Power source (-) COMMON

## Caution

Avoid installing in location where apparatus or atmosphere (excluding process media) could be cause of initiation of ignition or explosion under normal operating condition.

### Specification

Item	Description		
Fluid	Process gasses for semiconductor industry		
Pressure range	0 to 0.3, 0 to 0.5, 0 to 1MPa -0.1 to 0.3, -0.1 to 0.5, -0.1 to 1MPa		
Display unit			
Display	3 1/2 digit LED display, 270° rotation		
Character height	8mm		
Transmission system	3-wire system		
Analog output	4 to 20mA DC	1 to 5V DC	0 to 10V DC
Supply Voltage	15 to 24V DC±10%		24V DC±10%
Standard			
Display accuracy*1	±(1.0%F.S.+1digit) at 23°C		
Output accuracy*1	±1.0%F.S. at 23°C		
Temperature coefficient	±0.1%F.S./°C (Zero, Span)		
Option (0.5MPa range or greater can be specified)			
Display accuracy*1	±(0.5%F.S.+1digit) at 23°C	±(0.75%F.S.+1digit) at 23°C	
Output accuracy*1	±0.5%F.S. at 23°C		±0.75%F.S. at 23°C
Temperature coefficient	±0.05 %F.S./°C (Zero, Span)		
Load resistance	400Ω max.	10kΩ min.	
Comparator output	NPN open collector x 2 independent outputs [Hysteresis mode, Window comparator mode] Maximum rating: 30V DC, 80 mA DC Protection circuit: Short-circuit (Over-current) protection Comparator operation display LED: Red LED (OUT1, 2), Lit when switched to ON. ON/OFF Delay: Max. 2 seconds for ON/OFF of the comparator output		
Consumption current	35mA DC and under	15mA DC and under	
Operating temperature range	-10 to 50°C (No freezing or condensation)		
Storage temperature range	-20 to 60°C (No freezing or condensation)		
Insulation resistance	100MΩ or greater (For 50V DC)		
Mount size	1.125 Integrated size		
Electrical junction	Cable type		
Case material	ADC12, PC, PC / ABS UL94V-0		
Enclosure	Indoor use		
CE compliance	Applicable Standards: EN61326-1: 2013; EN61326-2-3: 2013 *Please use it to connect to the indoor power distribution network which is not affected by the lightning surge voltage and power supply system switching transients.		
Function			
Display scaling	-1999 to 1999 digits with respect to the ratings range		
Analog output scaling	-100 to 150% with respect to the ratings range		
Filter	Selectable among No filter, 25ms, 250ms, 2.5s, 5s or 10s		
Fine adjustment of the analog output	Possible to fine adjust the minimum/maximum value of the analog output		
Loop check	Manual display without applying pressure, comparator output and analog output simulated.		
Offset (Zero) adjustment	Offset (Zero) adjustment of the displayed and analog output values		
Holding function	Both the maximum value and the minimum value can be indicated, reset		
Key lock	Operation PB lock		
Error display	Comparator over-current over-pressure, out of pressure range for zero adjustment		
Weight	Approx. 180 g		

\* 1 Display and analog output accuracies include the effects of Linearity, Hysteresis and Repeatability.

\* 2 wire system : March 29, 2024 Discontinued Product

### Cable

	Environmental temperature	Conductor		Cable outer diameter (mm)	Minimum bending radius (mm)
		Cross-sectional area (mm <sup>2</sup> )	Twisted conductors (pcs./mm)		
PVC cable	-10 to 105°C	0.18	7/0.18	φ3.5	15

\*Cable length: 2 m only

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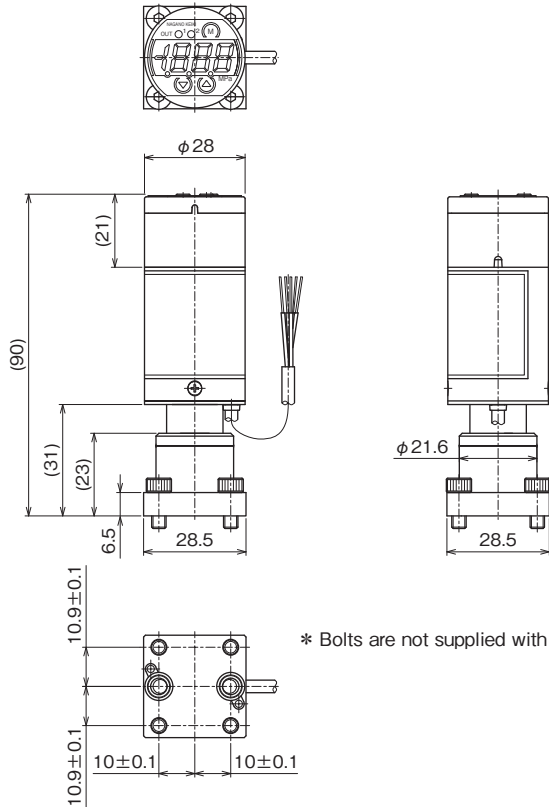
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## Dimensions

UC/EP/GP Grade

Unit: mm

### <1.125 W-Seal>



\* Bolts are not supplied with the EP and GP grades.

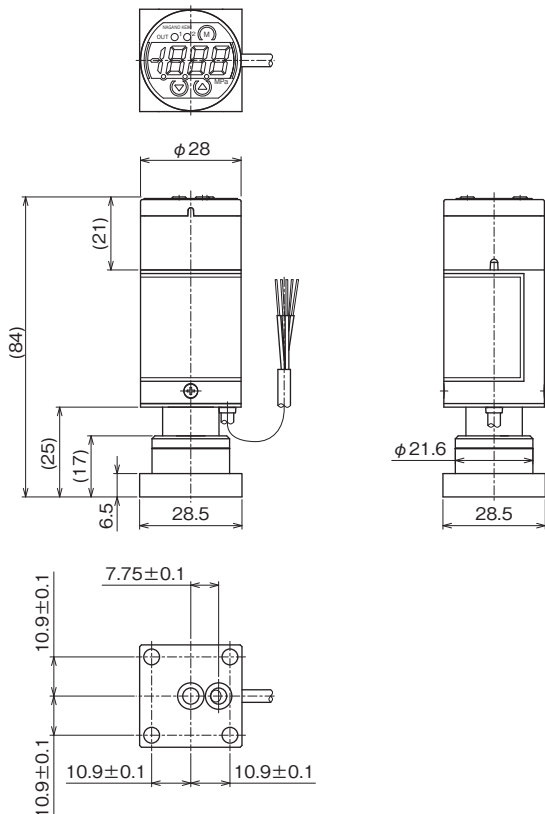
Grade	Connection	Model number
UC	1.125 W-Seal (With bolt)	ZT61-ZW2

Grade	Connection	Model number
EP	1.125 W-Seal (Without bolt)	ZT61-ZFE

Grade	Connection	Model number
GP	1.125 W-Seal (Without bolt)	ZT61-ZFG

UC Grade

### <1.125 C-Seal>



Grade	Connection	Model number
UC	1.125 C-Seal (Without bolt)	ZT61-ZC2





