ZT61 Digital Pressure Gauge for Semiconductor Industry

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.
- * 2 wire system : March 29, 2024 Discontinued Product



3-wire system with comparator

0 to 10V DC Output available

List of grade

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

Gra	ade	UC (Ultra Clean)	EP (Electro Polishing)	GP (General Purpose)					
	oughness contact	0.18µm Ra Avg., 0.7µm Rz Max.	0.18μm Ra Avg. 0.5μm Ra Avg						
Wetted	Pressure sensor	Co-Ni alloy	SUS316L						
parts	Fitting	SUS316L DOUBLE MELT material	SUS316L						
Maxii allowable p		200% of rated pressure	150% of rated pressure						
Leał (Helium I	kage leak rate)	5 x 10 ⁻¹² Pa·m ³ /s and under	5 x 10 ⁻¹² Pa·m ³ /s and under						
Part	ticle	Zero count for size $0.1 \mu m$ or greater (In our inspection standard)	Zero count for size 0.1 µm or greater (In our inspection standard)						
Clea	aning	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 N₂).

NAGANO KEIKI

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

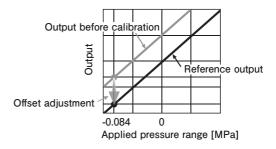
This gauge has excellent visibility because 3 1/2-digit LED display is mounted. In addition, it is possible to rotate the display unit depending on the direction of pipe.

Rotation of the display unit



Offset (Zero) adjustment function

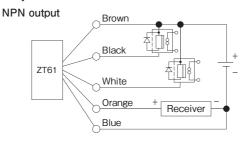
The conventional digital pressure gauge was possible to perform the zero adjustment of the output only when air pressure is atmospheric pressure. Since the semiconductor manufacturing equipment cannot open the gas contact section to the atmospheric, the use of this gauge enables to adjust the output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



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.

ZT61

Digital Pressure Gauge (1.125 surface mounting interface)

Specification

	Item		Description								
	Fluid	Process gasses for semiconductor	r 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 1M	ЛРа								
Display ι	unit										
	Display	3 1/2 digit LED display, 270° rota	ation								
	Character height	8mm									
Т	ransmission 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	0.5MPa range or greater can b	e specified)									
	Display accuracy*1	±(0.5%F.S.+	±(0.75%F.S.+1digit) at 23°C								
	Output accuracy*1	±0.5%F.	S. at 23℃	±0.75%F.S. at 23°C							
	Temperature coefficient	±0.05 %F.S./°C (Zero, Span)									
	Load resistance	400 Ω max. 10k Ω min.									
C	Comparator output	[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									
с	onsumption current	35mA DC and under 15mA DC and under									
Opera	ating temperature range	-10 to 50°C (No freezing or conde	ensation)								
Stora	age temperature range	-20 to 60°C (No freezing or conde	ensation)								
In	sulation resistance	$100 M\Omega$ or greater (For 50V DC)									
	Mount size	1.125 Integrated size									
l	Electrical junction	Cable type									
	Case material	ADC12, PC, PC/ABS UL94V-0)								
	Enclosure	Indoor use									
	CE compliance		1: 2013; EN61326-2-3: 2013 ndoor power distribution network wi nd power supply system switching to								
Function	Display and inc	1000 to 1000 digits with reserve	pot to the ratings range								
	Display scaling	-1999 to 1999 digits with respect to the									
	Analog output scaling	-100 to 150% with respect to the	0 0								
	Filter	Selectable among No filter, 25n	ns, ∠oums, 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 dis									
	Holding function	Both the maximum value and the	minimum value can be indicated, re	eset							
	Key lock	Operation PB lock									
	Error display	Comparator over-current over-pres	sure, 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	Conc Cross-sectional area (mm ²)	uctor Twisted conductors (pcs./mm)	Cable outer diameter (mm)	Minimum bending radius (mm)
PVC cable	-10 to 105℃	0.18	7/0.18	φ3.5	15

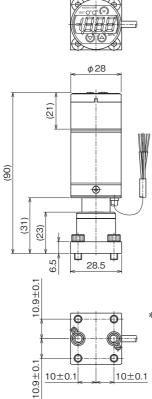
*Cable length: 2 m only

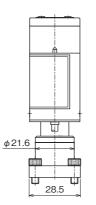
Dimensions

UC/EP/GP Grade

Unit: mm

<1.125 W-Seal>





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

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

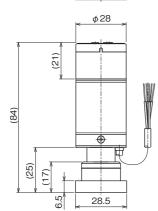
UC Grade

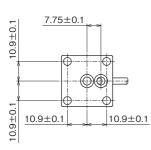
<1.125 C-Seal>

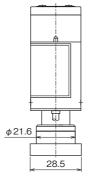
10±0.1

10±0.1









Gra	ade	Connection	Model number
U	С	1.125 C-Seal (Without bolt)	ZT61-ZC2

ZT61 Digital Pressure Gauge (1.125 surface mounting interface)

UC Grade

	Model T6	1		Ζ		2						3	×	×	×	×	×	×	
Digital P 25 surface vire syster	mounti	ng inte	erface	,	2	3	I	4	5	6	1	8	9	10	1	12	13	14	(ł
Model	number							Sele	ctive s	spec.			Addi	tional	spec.	(Optio	n)		
	① Moun	ting		z	Surfa	ace mou	unting i	nterface	Э										
		2			С	1.125 C-Seal (Without bolt)													
	ection	I	W	1.125 W-Seal (Bolt embodiment type)															
				er type, ted parts rade		2	Wi ∙Pres	th composure se	parator ensor: C	og outp output oo-Ni al DOUBL	/ UC G loy (All	irade weldin	g)	5V DC	C / 0 to	0 10V E)C),		
	I	(4) Droot			C D	-0.1 to 0.3MPa (Number of digit indication: 0.300) -0.1 to 0.5MPa (Number of digit indication: 0.500)													
Please		Pres	sure rar	ige	E				-	er of di	-								
besides	range and units separately besides selection of						1 0						er of dia						
range c	ode.							2	0 to 0.5MPa (Number of digit indication: 0.500)										
								3	0 to 1MPa (Number of digit indication: 1.000)										
						5 Displ	ay acc	uracy	5	\pm (0.5%F.S.+1digit) (0.5MPa range or greater and Analog output is 4 to 20mA DC or 1 to 5V DC, can be specified)									
									6	(0.5N	75%F. /Pa ran be spec	ge or g	I digit) or greater and Analog output is 0 to 10V DC,						
									7	± (1.	0%F.S.	s.+1digit)							_
							6			6	7	6Po	wer sou	irce		⑦Ana	alog ou	tput	
							Powe ⑦	er sourc	e	P	1	15 to	24V D)C±10	%		20mA [DC	
							\sim	og outp	ut	P 1	8	0.011		20/			5V DC		
						⑧ Com		7 24V DC±10% or output 3 NPN Open colle					0 to 10V DC						
								(15)			0	Nil							
											iment		1 Required (Please specify the desired documents s Submission drawings, instruction manual, inspection procedure, mill test of						
														test r inspe	eport (* ection /	1 pc 1 (traceal	copy), bility ce		

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

ZT61 Digital Pressure Gauge (1.125 surface mounting interface)

EP Grade

	Mode																					
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Digital F 25 surfac wire syste	e mou	nting	g inte	erface	,	2	3	I	4	5	6	7	8	9	10	11	12	13	14	1		
	Inumb			-					Sele	ctive s	spec.			Addi	tional	spec.	(Optior	า)				
	(1) Mounting					Surfa	ice mou	bunting interface														
		1 3	2) Conne	ection		F	1.12	5 W-Se	V-Seal (Without bolt)													
			er type, ed parts ade	6	E 3-wire system analog output (4 to 20 mA / 1 to 5V DC / 0 to 10 With comparator output / EP Grade •Pressure sensor: SUS316L (All welding) •Fitting: SUS316L									0 10V D	PC),							
	Please specify the pressure range and units separately besides selection of					(4) Droo		~~	C D	-	o 0.3M	-			git indic git indic							
						Pres	sure ran	ge	E		o 0.5M o 1MPa		-		git indic							
beside									1).3MPa				git indic							
range	code.								2	0 to 0.5MPa (Number of digit indication: 0.500)												
									3 0 to 1MPa (Number of digit indication: 1								1.000)					
							5 Displa	ay acci	uracy	 ± (0.5%F.S.+1digit) (0.5MPa range or greater and Analog output is 4 to 20mA DC or 1 to 5V DC, can be specified) 												
										6	(0.5N		S.+1digit) ge or greater and Analog output is 0 to 10V DC, cified)									
										7	± (1.	0%F.S.	+1digit	.)								
								6			6	0	6Pov	wer sou	irce			alog ou				
								Powe	er sourc	e	Р	1	15 to	24V D)C±10	%		20mA E	DC			
								\sim	og outp	ut	P 1	8 7	241/1		20/			5V DC				
									⑧ Com	parator		3	V DC±10% 0 to 10V DC NPN Open collector x 2 outputs					,				
											(15)			0	Nil							
											Docu	ment		1	Subri instru inspe	e specify nission action n ection p	rocedur	gs, re, mill				
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* Specify "X" if there is no specification item.

ZT61 Digital Pressure Gauge (1.125 surface mounting interface)

GP Grade

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Digital Pr 1.125 surface h 3-wire system	mounti	ing int	erface	,	2	3	I	4	5	6	7	8	9	10	11	12	13	14	(15	
Model r	number							Sele	ctive s	spec.			Addi	tional	spec.	(Optio	n)			
	① Moun	iting		Z	Surfa	ace mou	inting i	nterface	9											
		② Conr	nection	1	F	F 1.125 W-Seal (Without bolt)														
	;	G	Wi ∙Pres	e syste th comp ssure se ng: SUS	parator ensor: S	output	/ GP G	rade		5V DC	C / 0 to	0 10V E)C),							
	Please specify the pressure					(4) Pressure range				o 0.3M	Pa	(Numbe	er of dia	git indic	cation: (0.500)				
range and units separately besides selection of					E 1				o 1MPa).3MPa			er of dia er of dia								
range co	de.					2				0 to 0.5MPa (Number of digit indication: 0.500)										
								3	0 to 1MPa (Number of digit indication: 1.000)											
						5 Display accuracy			 ± (0.5%F.S.+1digit) (0.5MPa range or greater and Analog output is 4 to 20mA DC or 1 to 5V DC, can be specified) 											
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							r		7		0%F.S	+1digi	t)			T				
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							Anal	og outp	ut	Р 1	8 7	241/	4V DC±10%							
										parator		3			ollector	0 to 10V DC				
										(15)			0	Nil						
													1 Required (Please specify the desired documents so Submission drawings, instruction manual,							
														test r	eport (rocedu 1 pc 1 tracea	copy),			

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