

ZT11 **NEW** Pressure Transmitters for Semiconductor Industry

Outline

These are pressure transmitters developed for semiconductor industry, in which pressures are converted into electric signals and transmitted by the sensing portion equipped with evaporation coating type semiconductor strain gauge and a built-in electronic circuit. It is more small and lightweight than a conventional pressure transmitter (our comparison). EP/GP grade is standard. Also conforming to the UC grade as an option.

Features

- Highly corrosion-resistant pressure sensors made of SUS316L are welded directly to the fitting, giving them excellent corrosion resistance, air-tightness, long-term stability, and reliability. Co-Ni alloy is optional (Only available in UC grade).
- * Please confirm that the gas contact part material is suitable for the gas to be measured.
- Dust-protected and excellent waterproof structure (IP67)



RoHS

CE

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		EP (Electro Polishing)	GP (General Purpose)	UC (Option) (Ultra Clean)
Surface roughness of gas contact		0.18 μm Ra Avg.	0.5 μm Ra Avg.	0.18 μm Ra Avg.
Gas contact material	Pressure sensor	SUS316L		Co-Ni alloy
	Fitting *1	SUS316L		SUS316L
Maximum allowable pressure *2		150% of rated pressure		200% of rated pressure
Leakage (Helium leak rate)		5 × 10 ⁻¹² Pa · m ³ /s and under		5 × 10 ⁻¹² Pa · m ³ /s and under
Particle		Zero count for size 0.1 μm or greater (In our inspection standard)	—	Zero count for size 0.1 μm or greater (In our inspection standard)
Cleaning		Ultra clearance (Cleaning)	Degreasing	Ultra clearance (Cleaning)
Recommended gas *3		High-purity gas, semiconductor material gas, etc.	Purge gas, exhaust gas, etc.	High-purity gas, semiconductor material gas, etc.

*1 For UC Grade (option), the pressure transmitter can be manufactured in DOUBLE MELT material by request. Please contact us.

*2 Allowable maximum pressure is the upper limit to which pressure may be temporarily increased while still allowing normal pressure to be resumed, when pressure levels return to the normal (Rated) range. It is not guaranteed to have no impact on functionality in the case of repeated pressure or static pressure increases lasting 10 minutes or more.



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

• EP (UC) Grade rises with double packing (Filled with N₂).


ZT11

Pressure Transmitter

Specification

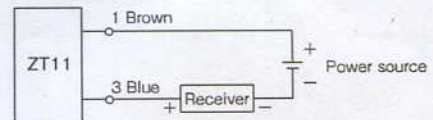
Item	Description	
Fluid	Various kinds of process gases for semiconductor	
Pressure range	0 to 0.3, 0.5, 1, 2, 3.5, 5, 10, 20 MPa -0.1 to 0.3, 0.5, 1, 2 MPa	
Fitting shape	Type T  Type S 	
Connection	Compatible with 1/4 VCR, Compatible with 1/2 (3/8) VCR, 1/4 UJR	
Pressure sensor seal method	Welding type	
Operating temperature	-20 to 70°C (No freezing or condensation)	
Storage temperature	-30 to 80°C (No freezing or condensation)	
Total error band	±0.5%F.S. at 23°C (Includes linearity, hysteresis and reproducibility.)	
Temperature coefficient	±0.05%F.S./°C (Zero, Span)	
Electrical characteristics	Transmission system	2-wire system
	Supply voltage	15 to 24V DC ±10% * As for relationship between supply voltage and load resistance, please refer to the numerical formula of below.
	Load resistance	$R_{max.(\Omega)}=50E-500$ [E: Supply voltage]
	Output	4 to 20mA DC
Electrical connections	M12 Connector connection (4 pin)	
CE marking	Applicable Directive: 2014/30/EU (EMC directive) 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.	
Construction	IP67 (When connector mating/JIS C 0920)	
Weight	ZT11-D3□: Approx. 70g (Excluding cable, varies depending on the fitting shape)	

Electrical connection

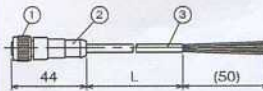
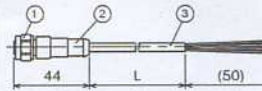
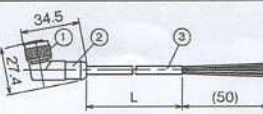
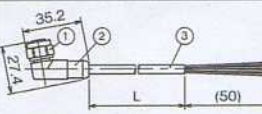
Connector terminal array	Terminal number	2-wire system	Cable color
	1	Power source (+)	Brown
	2	—	White
	3	Power source (-)	Blue
	4	—	Black

Wiring

2-wire system



M12 cable with connector (Optional)

	PUR cable (Oilproof)	PVC cable (Stainless nut)
Straight		
Type L		
Material	① Zinc die casting (Nickel plating) ② TPU (Green) ③ PUR	① Stainless ② TPU (Black) ③ PVC
Cable length (L)	2m or 5m	2m or 5m
Cross-section area of conductor	0.34mm ² (22AWG)	0.34mm ² (22AWG)
Core diameter including insulation	1.27mm	1.52mm
External cable diameter	4.7mm	5.2mm

2-wire system Terminal distribution

- 1 - Brown: Power source (+)
- 3 - Blue: Power source (-)

Caution

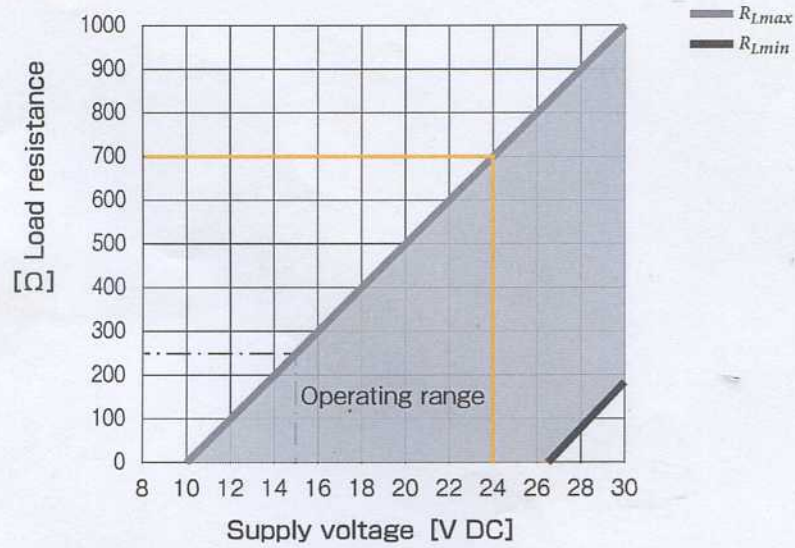
Under the normal condition, where there is no inflammable gas or liquid which cause the ignition or explosion.

* Protection code of the M12 cable for connector mating is IP67 and over.

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Pressure Transmitter

Supply voltage and load resistance

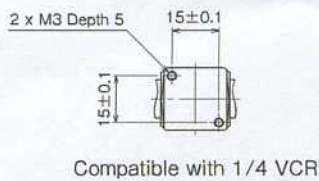
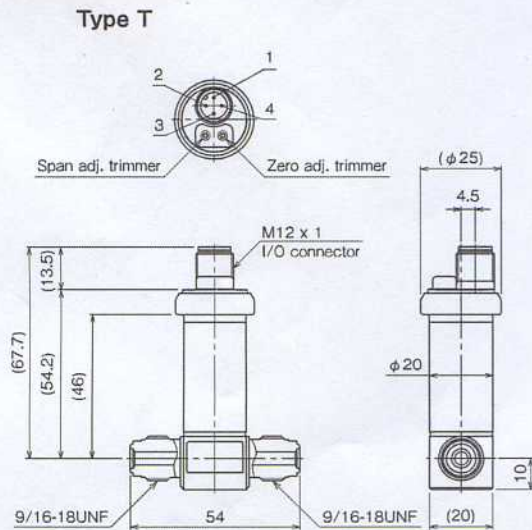


$$\text{Maximum load resistance } R_{Lmax} = \frac{E(V) - 10(V)}{0.02(A)} \quad (\Omega)$$

$$\text{Minimum load resistance } R_{Lmin} = \frac{E(V) - 26.4(V)}{0.02(A)}, \quad R_{Lmin} \geq 0 \quad (\Omega)$$

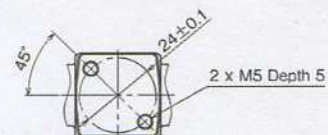
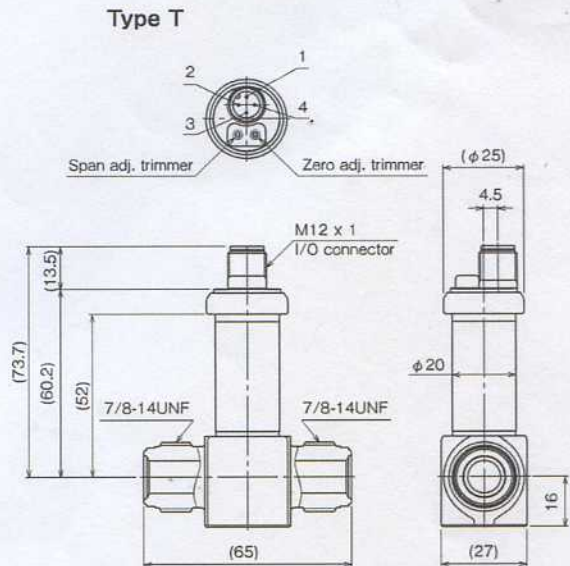
Dimensions 1

Unit: mm



Compatible with 1/4 VCR

ZT11-C3



Compatible with 1/2 (3/8) VCR

ZT11-C4

The dimension in the catalog are subject to change without notice.

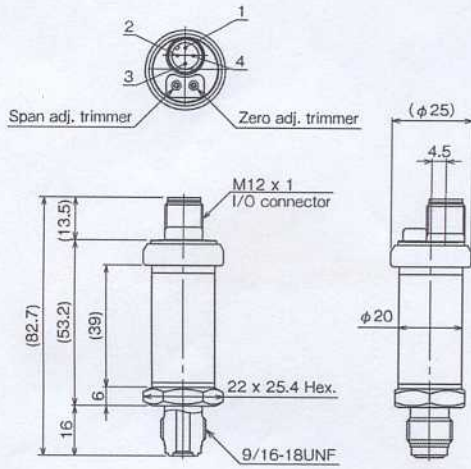
ZT11

Pressure Transmitter

Dimensions2

Unit mm

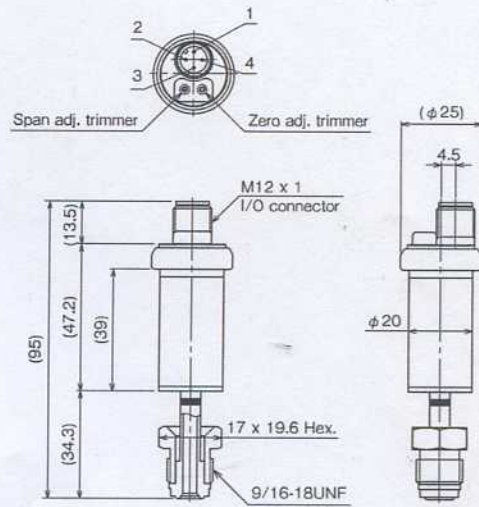
Type S



Compatible with 1/4 VCR



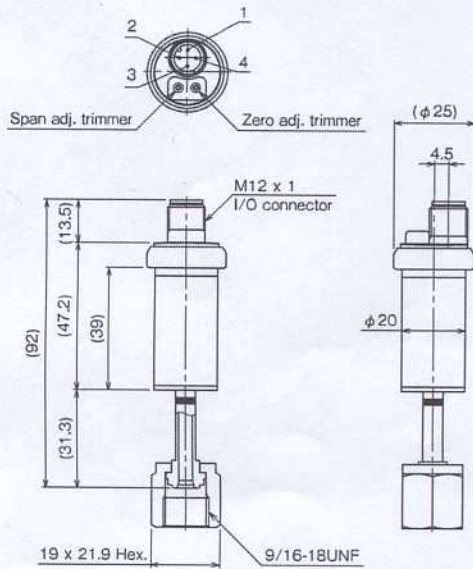
Type S



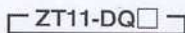
1/4 UJR



Type S



1/4 UJR



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ZT11

Pressure Transmitter

Pressure Transmitters, EP • GP Grade

Model number configuration

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

Model

Z T 1 1 — — **5 P 1** × × × × × × × ×

Pressure Transmitter
EP • GP Grade

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮

Model number		Selective spec.	Additional spec. (Option)	
① Mounting	C	Type T, External adjustment connector type, CE marking compliant products		
	D	Type S, External adjustment connector type, CE marking compliant products		
② Connection of fitting	3	1/4	Compatible with VCR Male integrated	Type S <input type="radio"/> Type T <input type="radio"/>
	4	1/2 (3/8)	Compatible with VCR Male integrated	× <input type="radio"/>
	N	1/4	UJR Male nut	<input type="radio"/> ×
	Q	1/4	UJR Female nut (Without pure ring)	<input type="radio"/> ×
③ Grade, Gas contact parts materials	E	EP Grade • Pressure sensor: SUS316L (All welding) • Fitting: SUS316L		
	G	GP Grade • Pressure sensor: SUS316L (All welding) • Fitting: SUS316L		
④ Pressure range	C	-0.1 to 0.3MPa		
	D	-0.1 to 0.5MPa		
	E	-0.1 to 1MPa		
	F	-0.1 to 2MPa		
	1	0 to 0.3MPa		
	2	0 to 0.5MPa		
	3	0 to 1MPa		
	4	0 to 2MPa		
⑤ Accuracy	5	±0.5%F.S.		
	⑥ Power source			
	P	15 to 24V DC±10%		
	⑦ Output			
1	4 to 20mA DC (2-wire system)			
⑨ M12 connector Cable	0	Nil		
	1	PUR cable	Straight	Cable length 2m
	2	(Oilproof)	L type	
	3	PVC cable	Straight	
	4	(Stainless nut)	L type	
	5	PUR cable	Straight	Cable length 5m
	6	(Oilproof)	L type	
	7	PVC cable	Straight	
8	(Stainless nut)	L type		
⑮ Documents	0	Nil		
	1	Required (Please specify the desired documents separately.) Submission drawings, instruction manual, inspection procedure, mill sheet, test report (1 pc 1 copy), inspection / traceability certificate, strength calculation, attended inspection		

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

UC grade is optional.
Please contact us after confirming the use application and the grade basic specification.

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