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## Compact Pressure Transmitter

Model : P316 (Ceramic cell with DIN Connector)

P317 (Ceramic cell with Flying Leads)

P326 (Stainless steel Silicon cell with DIN Connector)

P327 (Stainless steel Silicon cell with Flying Leads)

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**WISE**®

### Advantages

- Compact pressure transmitter for industrial applications
- Extremely corrosion resistant
- Rugged piezoresistive ceramic or silicon measuring cell
- Shock and vibration resistant
- Compact design
- Zero and span adjustments

### Applications

The transmitters can be used for a wide range of applications in process control, automatic machinery and hydraulic or pneumatic system design.

- Standard hydraulic and pneumatic equipments
- Process control
- Machine tools and automatic machinery
- Monitoring systems
- Servo valves and drives
- Chemical and petrochemical industry
- Air and gas compressors
- Loading and brake systems



P317 / P327



P316 / P326

### Descriptions

P300 series compact designed pressure transmitter meets the requirements for a general purpose, reliable and economical pressure measurements for industrial and process control installations. This pressure transmitter measures of gases and liquids in industrial applications and is available wide range of pressure in 0.1 to 500kgf/cm<sup>2</sup> relative or absolute pressure. It is extremely versatile and suitable for measuring dynamic and static pressure.

The built-in piezoresistive silicon or ceramic measuring cell is highly corrosion resistant, stable and an excellent price / performance ratio. The transmitters are available with either 2-wire current or 3-wire voltage output. The measuring principle of ceramic sensor is that the pressure to be measured acts without transmitting liquid on a stable, corrosion resistant ceramic measuring cell. Piezoresistive resistors are attached to the cell and connected into a Wheatstone bridge configuration. In case of isolated silicon sensor, the pressure to be measured acts through thin corrosion resistant stainless steel 316L diaphragm on a silicon measuring element. The pressure transmitting medium is silicon oil. The measuring element contains diffused piezoresistive resistors which are connected into a Wheatstone bridge. The output signal of this bridge is converted into a standardized current or voltage output signal.

# Specification

Input		
Model	P316/P317	P326/P327
Technology	Piezoresistive ceramic pressure sensor	Piezoresistive silicon pressure sensor
Pressure ranges	0~0.5 to 0~500kgf/cm <sup>2</sup> relative	0~0.1 to 0~350kgf/cm <sup>2</sup> relative
	0~1 to 500kgf/cm <sup>2</sup> absolute	0~1 to 350kgf/cm <sup>2</sup> absolute
Pressure reference	vacuum Gauge, absolute compound	
Overload	1.5x full scale without damage	3x full scale without damage
Output		
Un-amplified	2.0~6.5m V/V	-2~152mm V/V
Amplified	4~20mA current(2-wire)	
	1~5V voltage(3 or 4-wire)	
	Other output signal available on request	
Electrical Specification		
Excitation voltage	12~36V DC	
Load resistance max@24V	500 $\Omega$ at 24V	
Influence of excitation	0.01% FSO/V	
Power ripple	$\leq$ 500mV P-P	
Reverse polarity	Protected	
Shock resistance	$\leq$ 20g	$\leq$ 10g
Response time	1.5ms	$\leq$ 2 milliseconds
Adjustment	$\pm$ 10% FSO/zero and span	$\pm$ 10% FSO/zero and span
Performance Specification		
Accuracy	$\leq \pm$ 0.5% FSO	$\leq \pm$ 0.25% FSO
Linearity,Hysteresis & Repeatability	$\pm$ 0.2~0.4% FSO typical	$\pm$ 0.05% FSO typical
Stability	$\pm$ 0.3% FSO/a@25°C	$\pm$ 0.15% FSO/a@25°C
Cutoff frequency(-3 d B)	$\leq$ 2KHz	
Reference temperature	25°C	35°C
Operating temperature range	-40~125°C	-40~125°C
Compensated temperature range	0~70°C	0~82°C
Thermal sensitivity shift	$\leq \pm$ 0.015%/ °C typical	$\leq \pm$ 0.05% FSO typical
Thermal zero shift	$\leq \pm$ 0.02% FSO/ °C typical	$\leq \pm$ 0.1% FSO typical
Physical Specification		
Process connection	PT1/4", PT3/8", PT1/2" male thread	
	PF1/4", PF3/8", PF1/2" male thread	
	Female thread & other connections available on request	
Process media	Gases and liquids compatible with	
Materials of Diaphragm	Ceramic Al <sub>2</sub> O <sub>3</sub> , 96%	Stainless steel 316L
Housing	Stainless steel 316	Stainless steel 316
Gasket O-ring	Viton, HNBR	
Enclosure rating	IP65	
Influence of mounting position	Not critical	Under 0.5kgf/cm <sup>2</sup> , mounting vertically
Weight	Approx.(157g)	
Options	Cooling Fin	
	Siphon tube	

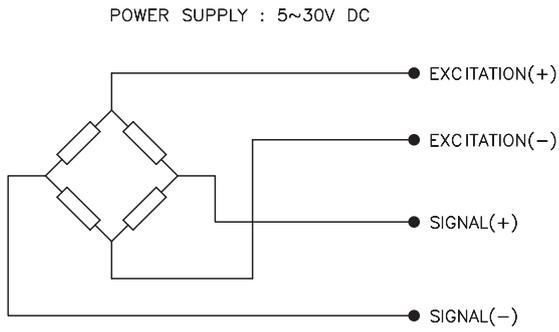
Note : ① For high pressure measurement, thin film pressure transducer with this model also available.

② Cable version : 1.5m standard length, 4-wire, shielded with integral vent tube

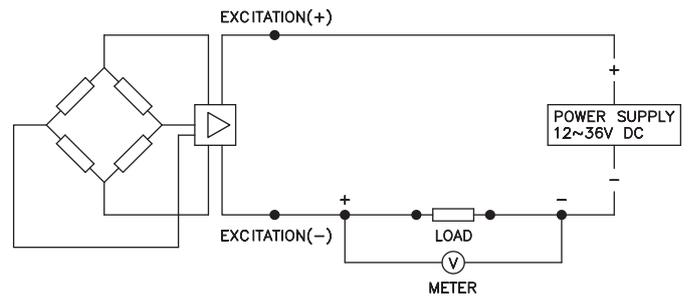
③ Vented gauge units must breathe dry, non - corrosive gases.

④ Connector version is vented through the removed pin, cable versions are vented through a vent tube inside the cable sleeve

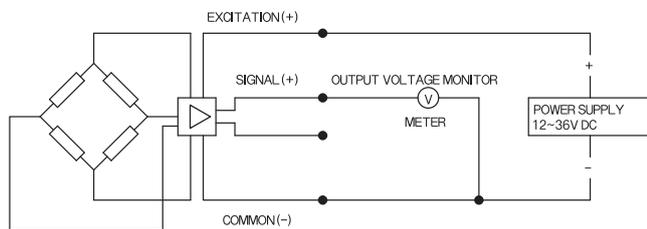
## System connection for unamplified



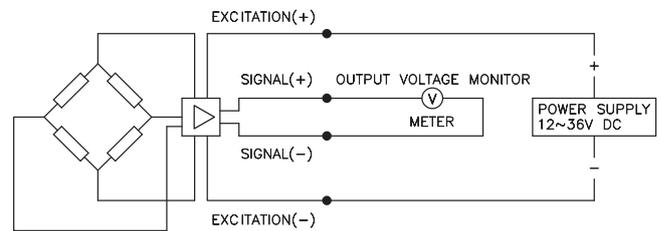
## System connection for 2-wire transmitter



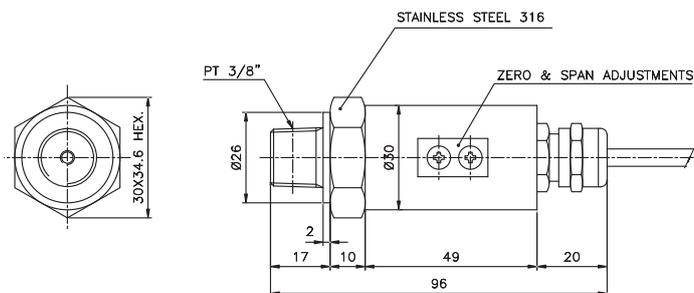
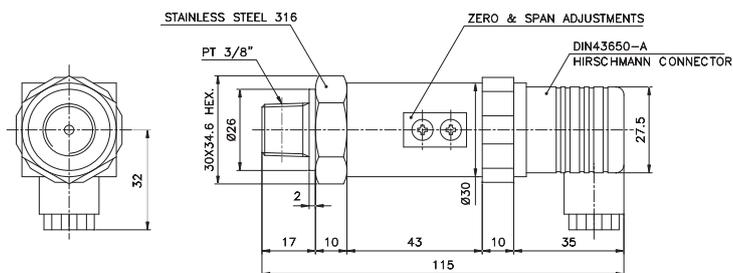
## System connection for 3-wire transmitter



## System connection for 4-wire transmitter



## Dimension(mm)



## Electrical connection

E : Excitation  
S : Signal  
C : Common

### DIN connector

System Color	2-Wire	3-Wire	4-Wire
1	E +	E +	E +
2	E -	C -	E -
3		S +	S +
⌋	Shielded	Shielded	S -

### Flying lead

System Color	2-Wire	3-Wire	4-Wire
Red	E +	E +	E +
Black	E -	C -	E -
Green		S +	S +
White			S -
⌋	Shielded	Shielded	Shielded

## Ordering Information

### Compact Pressure Transmitter

P31										Piezoresistive ceramic sensor
P32										Piezoresistive silicon sensor
	6									DIN connector
	7									Flying Lead(1.5m cable)
		R								Relative pressure
		A								Absolute pressure
			M							Male thread
			F							Female thread
				T						PT thread as standard
				N						NPT thread
				F						PF thread
				X						Other process connections available on request
					1					1/4"
					2					3/8"
					3					1/2"
					X					Other units available on request
						H				Accuracy $\pm 0.25\%$ FSO
						S				Accuracy $\pm 0.5\%$ FSO
							01			Measuring range 0~0.1 kgf/cm <sup>2</sup>
							02			0~0.2
							03			0~0.5
							04			0~1
							05			0~2
							06			0~5
							07			0~10
							08			0~20
							09			0~35
							10			0~50
							11			0~100
							12			0~200
							13			0~350
							14			0~500(Only available P316/P317 Series)
							xx			Other calibration ranges available on request
								K		Calibration in kgf/cm <sup>2</sup>
								M		Calibration in mmH <sub>2</sub> O
								A		Calibration in MPa
								B		Calibration in bar
								P		Calibration in psi
								X		Other units available on request
								A1		4~20mA, DC, 2-wire output
								A2		4~20mA, DC, 4-wire output
								B1		1~5V, DC, 3-wire output
								B2		0~5V, DC, 3-wire output
								B3		0~10V, DC, 3-wire output
									N	None options
									C	Cooling Fin
									S	Siphon tube
									X	Other accessories available on request

P31	6	R	M	T	1	S	05	K	A1	N	Sample ordering code
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Specifications subject to change without notice