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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)



### 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



### Descriptions

P310/P320 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 500bar relative or absolute pressure. It is extremely versatile and suitable for measuring dynamic and static pressure.

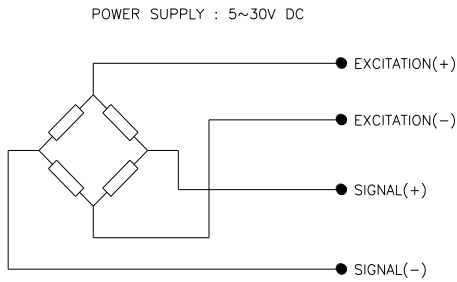
The built-in piezoresistive silicon or ceramic measuring cell is highly corrosion resistant, stable and an excellent price / performance ratio. The transmitters are available with either 2-wire current or 3-wire voltage output. The measuring principle of ceramic sensor is that the pressure to be measured 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

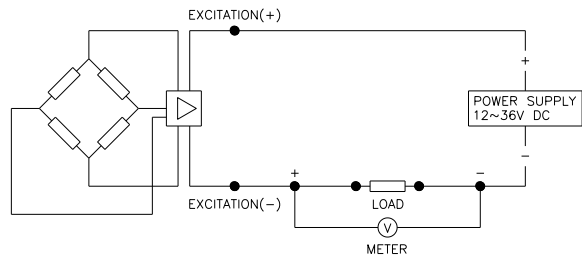
Input		
Model	P316/P317	P326/P327
Technology	Piezoresistive ceramic pressure sensor	Piezoresistive silicon pressure sensor
Pressure ranges	0~0.5 to 0~500bar relative	0~0.1 to 0~350bar relative pressure
	0~1 to 500bar absolute	0~1 to 350bar absolute pressure
Pressure reference	vacuum Gauge, absolute compound	
Overload	1.5x full scale without damage	3x full scale without damage
Output		
Unamplified	2.0~6.5m V/V	-2~152mm V/V
Amplified	4~20mA current(2-wire)	
	1~5V voltage(3 or 4-wire)	
	Other signals available on request	
Electrical Specification		
Excitation voltage	24V DC(12~36V DC)	
Load resistance max @ 24V	500Ω at 24V	
Influence of excitation	0.01% FSO/V	
Power ripple	≤500mV P-P	
Reverse polarity	Protected	
Shock resistance	≤20g	≤10g
Response time (10~90%)	1.5 ms	≤2 milliseconds
Adjustment	±10% FSO/zero and span	
Performance Specification		
Accuracy	≤ ±0.5% FSO	≤ ±0.25% FSO
Linearity,Hysteresis & Repeatability	±0.2~0.4% FSO typical	±0.05% FSO typical
Stability	±0.3% FSO/a@25°C	±0.15% FSO/a@25°C
Cutoff frequency(-3 d B)	≤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	≤ ±0.015%/ °C typical	≤ ±0.05% FSO typical
Thermal zero shift	≤ ±0.02% FSO/ °C typical	≤ ±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 Al2 O3, 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/cm2, 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.

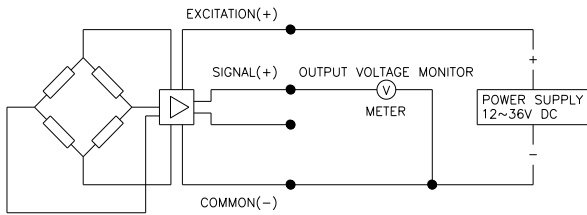
## System connection for unamplified



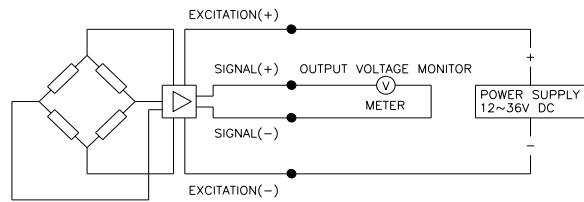
## System connection for 2-wire transmitter



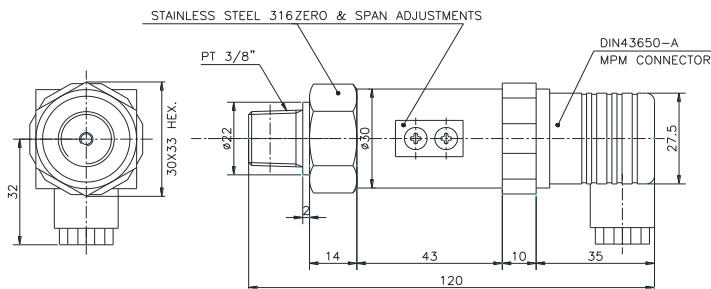
## System connection for 3-wire transmitter



## System connection for 4-wire transmitter



## Dimension (mm)



## Electrical connection

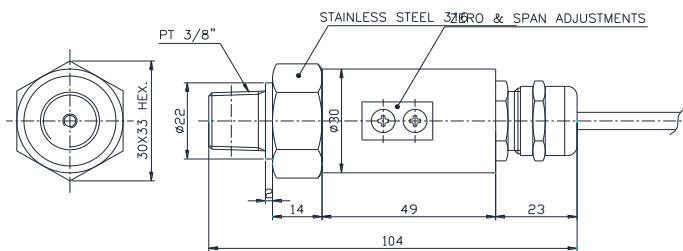
E : Excitation

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 +
GND	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 -
GND	Shielded	Shielded	Shielded

## Ordering Information

### Compact Pressure Transmitter

#### 1. Base model

P31											Piezoresistive ceramic sensor
P32											Piezoresistive silicon sensor

#### 2. Electrical connection type

6											DIN Connector
7											Flying lead(1.5m cable)

#### 3. Pressure reference

R											Relative pressure
A											Absolute pressure

#### 4. Process connection type "1"

M											Male thread
F											Female thread

#### 5. Process connection type "2"

T											PT thread as standard
N											NPT thread
F											PF thread
X											Other process connections available on request

#### 6. Process connection size

1											1/4"
2											3/8"
3											1/2"
X											Other units available on request

#### 7. Accuracy

H											±0.25% F.S.O (with silicon cell)
S											±0.5% F.S.O (with ceramic cell)

#### 8. Measuring range

01											0 ~ 0.1 bar (Only available P326 and P327)
02											0 ~ 0.2 (Only available P326 and P327)
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 and P317)
xx											Other calibration ranges available on request

#### 9. Unit

M											Calibration in mmH <sub>2</sub> O
K											Calibration in kgf/cm <sup>2</sup>
A											Calibration in Mpa
B											Calibration in bar
P											Calibration in psi
X											Other units available on request

#### 10. Output signal / Electrical connection type

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 (Only available P316/P326)
B3											0~10V, DC, 3-wire output (Only available P316/P326)

#### 11. Option

N											None options
C											Cooling Fin
S											Siphon tube
X											Other accessories available on request

P31	6	R	M	T	1	S	01	K	A1	N	Sample ordering code
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Specifications subject to change without notice