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## Miniature Pressure Transmitter

**Model :** P394 (Silicon cell with Mini DIN Connector )  
P396 (Silicon cell with DIN Connector )

**WISE  
SENSOR**

### Advantages

- Miniature pressure transmitter for industrial applications
- Extremely corrosion resistant
- Rugged piezoresistive ceramic or silicon measuring cell
- Shock and vibration resistant
- Miniature design
- Measuring ranges 0.1 ~ 350 kgf/cm<sup>2</sup>

### 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



P394

P396

### Descriptions

P390 series miniature 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 350 bar relative or absolute pressure. It is extremely versatile and suitable for measuring dynamic and static pressure.

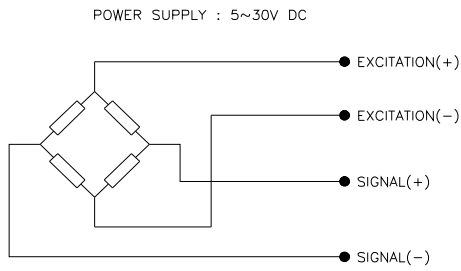
The built-in piezoresistive silicon or ceramic measuring cell is highly corrosion resistant, stable and an excellent price / performance ratio. The transmitters are available with either 2-wire current or 3-wire voltage output. The measuring principle of ceramic sensor is that the pressure to be measured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

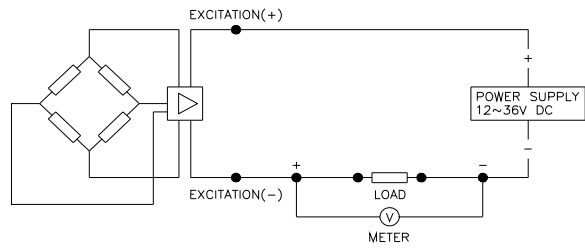
Input	
Model	P394 / P396
Technology	Piezoresistive silicon pressure sensor
Pressure ranges	0~0.1 to 0~350 kgf/cm <sup>2</sup> relative pressure
	0~2 to 350 kgf/cm <sup>2</sup> absolute pressure
Pressure reference	vacuum Gauge, absolute compound
Overload	2x full scale without damage
Output	
Unamplified	-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	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	≤10g
Response time (10~90%)	≤5 milliseconds
Adjustment	None
Performance Specification	
Accuracy	≤ ±0.25% FSO
Linearity, Hysteresis & Repeatability	±0.25% FSO typical
Stability	±0.2% FSO/a@25°C
Cutoff frequency(-3 d B)	≤2KHz
Reference temperature	25 °C
Operating temperature range	-10~60°C
Storage temperature range	-20~70°C
Thermal sensitivity shift	≤ ±0.03% FSO typical
Thermal zero shift	≤ ±0.2% 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	Diaphragm : Stainless steel 316L
	Housing and process connection : stainless steel 316
	Gasket O-ring : Viton (HNBR, CSM, etc.)
Enclosure rating	IP65
Influence of mounting position	~ 20kPa : ≤ ±0.5% FSO
	20kPa ~ : ≤ ±0.2% FSO
	Under 0.5kgf/cm <sup>2</sup> , mounting vertically
Weight	Approx. (147g)
Options	Cooling Fin
	Siphon tube

- Note :
- ① For high pressure measurement, thin film pressure transducer with this model also available.
  - ② Cable version : 1m standard length
  - ③ Vented gauge units must breathe dry, non - corrosive gases.

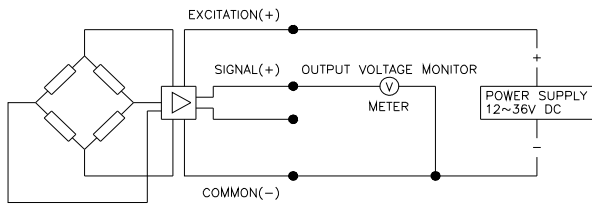
## System connection for unamplified



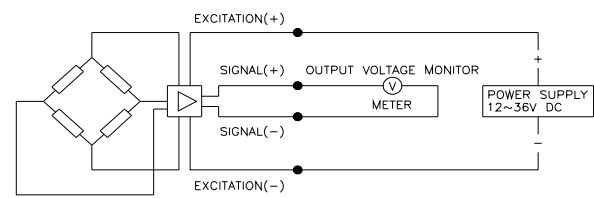
## System connection for 2-wire transmitter



## System connection for 3-wire transmitter

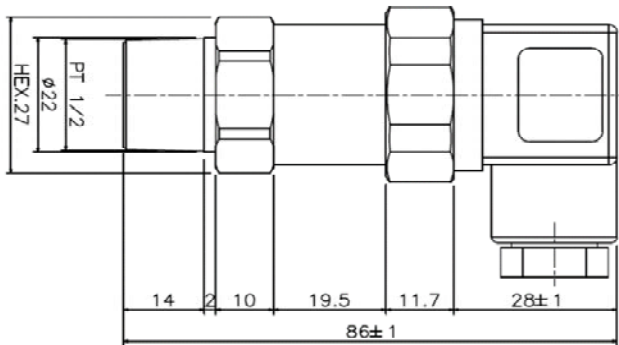


## System connection for 4-wire transmitter

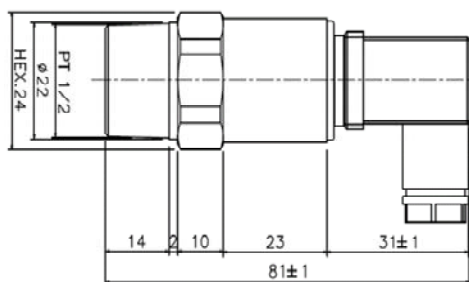


## Dimension (mm)

**P396**



**P394**



## 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 -

### Mini 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 -

## Ordering Information

### Miniature Pressure Transmitter

#### 1. Base model

P39																				Piezoresistive silicon sensor
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#### 2. Electrical connection type

4																				Mini DIN connector
6																				DIN connector

#### 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
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#### 8. Measuring range

01																				0 ~ 0.1 bar
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
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
B3																				0~10V, DC, 3-wire output

#### 11. Option

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

P39	6	R	M	T	1	H	07	K	A1	N										Sample ordering code
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Specifications subject to change without notice