# General Purpose Pressure Transmitter with Ceramic cell

**Model : P115 (Circular Connector)**
**P116 (DIN Connector)**
**P117 (Flying Leads)**
**P118 (General Head)**

WISE SENSOR

## Advantages

General purpose transmitter for industrial applications
- Extremely corrosion resistant
- Measuring ranges from 0.5 to 500 kgf / $cm^2$
- Rugged piezoresistive ceramic measuring cell
- Shock and vibration resistant
- Zero and span adjustments
- Compact design
- Optimal accuracy

P115

P117

## 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

P116

P118

## Descriptions

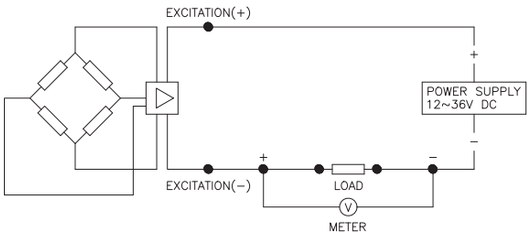
P110 series pressure transmitter has been designed as an advanced device for measuring pressure of gases and liquids in industrial applications. It is extremely versatile and suitable for measuring static pressure. The built-in ceramic measuring cell is highly corrosion resistant, stable and has an excellent price / performance ratio. Thanks to their high natural frequency and the rugged construction, the P110 transmitter withstands high shock and vibration. The transmitters are available as absolute and relative pressure types with either 2-wire current or 3-wire voltage output. The pressure to be measured acts without transmitting liquid fill on a stable, corrosion resistant ceramic measuring cell. Piezoresistive resistors are attached to the cell and connected in a Wheatstone bridge configuration. The output signal of this bridge is converted into a standardized current or voltage output signal.

## Specification

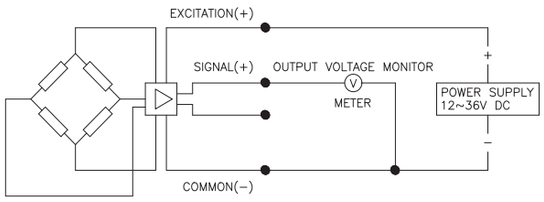
| | | | | |
|---|---|---|---|---|
| **Input** | | | | |
| Technology | Piezoresistive ceramic pressure sensor | | | |
| Pressure ranges | 0~0.5 to 0~500 kgf / $cm^2$ absolute or gauge pressure | | | |
| Pressure reference | Gauge, absolute, vacuum and compound | | | |
| Overload | 1.5x full scale without damage | | | |
| **Output** | | | | |
| | Unamplified | | Unamplified | |
| Electrical connection type | 2-wire technique | | 3 or 4-wire technique | |
| Full scale output signal | 20mA | ± 0.5% | 5V | ± 0.5% |
| Zero measured output | 4mA | ± 0.05% | 1V | ± 0.05% |
| | 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 | | | |
| Response time(10~90%) | 1.5ms | | | |
| Adjustment | ± 10% FSO / zero and span | | | |
| **Performance Specification** | | | | |
| Accuracy | ≤± 0.5% FSO | | | |
| Linearity, Hysteresis & Repeatability | ± 0.2% FSO typical | | | |
| Stability | ± 0.3% FSO / a @25°C | | | |
| Cutoff frequency(-3 d B) | ≤ 2KHz | | | |
| Reference temperature | 25°C | | | |
| Operating temperature range | -40~125°C | | | |
| Compensated temperature range | 0~70°C | | | |
| Thermal sensitivity shift | ≤± 0.015% / °C typical | | | |
| Thermal zero shift | ≤± 0.02% FSO / °C 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 ceramic Al2 O3, 96% | | | |
| Materials wetted by process | Diaphragm : Ceramic Al2 O3, 96% | | | |
| | Housing : Stainless steel 316 | | | |
| | Gasket O-ring : Viton (HNBR, CSM, etc.) | | | |
| Enclosure rating | IP65 | | | |
| Influence of mounting position | Not critical | | | |
| Weight | Approx. (270g) | | | |
| Options | Cooling Fin | | | |
| | Siphon tube | | | |

Note : ① Cable version : 1.5m standard length, 4-wire, shielded with integral vent tube
② Vented gauge units must breathe dry, non - corrosive gases.
③ Connector version is vented through the removed pin, cable versions are vented through a vent tube inside the cable sleeve

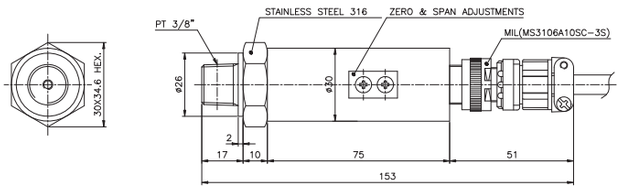
## System connection for 2-wire transmitter

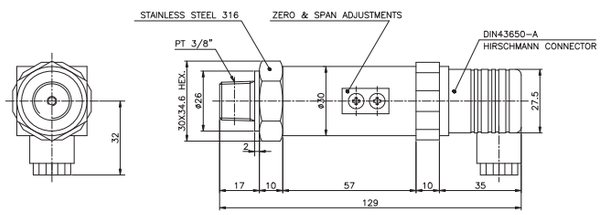


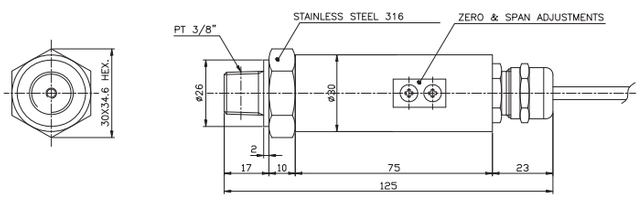

## System connection for 3-wire transmitter

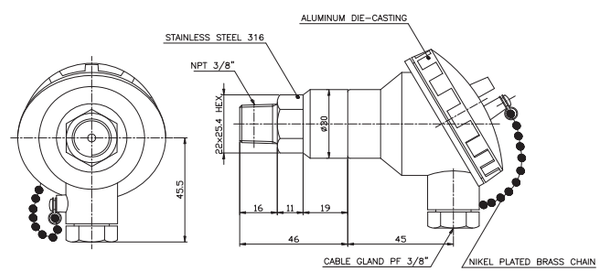



## Dimension (mm)




## Electrical connection

E : Excitation
S : Signal
C : Common

### Circular connector

| 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 |

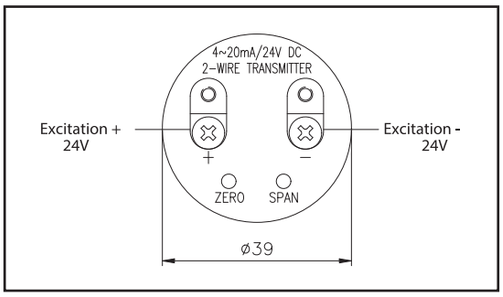
### DIN connector

| 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 |

### General head



## Ordering Information

### General Purpose Pressure Transmitter

1. Base model

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| P115 | | | | | | | | | Circular Connector |
| P116 | | | | | | | | | DIN Connector |
| P117 | | | | | | | | | Flying lead (1.5m cable) |
| P118 | | | | | | | | | General Head |

2. Pressure reference

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| R | | | | | | | | | Relative pressure |
| A | | | | | | | | | Absolute pressure |

3. Process connection type "1"

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| M | | | | | | | | Male thread |
| F | | | | | | | | Female thread |

4. Process connection type "2"

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

5. Process connection size

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | | | | | | 1/4″ |
| 2 | | | | | | 3/8″ |
| 3 | | | | | | 1/2″ |
| X | | | | | | Other units available on request |

6. Accuracy

| | | | | | |
|---|---|---|---|---|---|
| S | | | | | ± 0.5% F.S.O |

7. Measuring range

| | | | | | |
|---|---|---|---|---|---|
| 01 | | | | 0~0.5 kgf / $cm^2$, bar | 0~0.05 Mpa |
| 02 | | | | 0~1 kgf / $cm^2$, bar | 0~0.1 Mpa |
| 03 | | | | 0~2 kgf / $cm^2$, bar | 0~0.2 Mpa |
| 04 | | | | 0~5 kgf / $cm^2$, bar | 0~0.5 Mpa |
| 05 | | | | 0~10 kgf / $cm^2$, bar | 0~1 Mpa |
| 06 | | | | 0~20 kgf / $cm^2$, bar | 0~2 Mpa |
| 07 | | | | 0~35 kgf / $cm^2$, bar | 0~3.5 Mpa |
| 08 | | | | 0~50 kgf / $cm^2$, bar | 0~5 Mpa |
| 09 | | | | 0~100 kgf / $cm^2$, bar | 0~10 Mpa |
| 10 | | | | 0~200 kgf / $cm^2$, bar | 0~20 Mpa |
| 11 | | | | 0~350 kgf / $cm^2$, bar | 0~35 Mpa |
| 12 | | | | 0~500 kgf / $cm^2$, bar | 0~50 Mpa |
| xx | | | | Other calibration ranges available on request | |

8. Unit

| | | | |
|---|---|---|---|
| K | | | Calibration in kgf / $cm^2$ |
| A | | | Calibration in Mpa |
| B | | | Calibration in bar |
| X | | | Other units available on request |

9. 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 P116 and P117) |
| B3 | | 0~10V, DC, 3-wire output (Only available P116 and P117) |

10. Option

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

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| P115 | R | M | T | 2 | S | 01 | K | A1 | N | Sample ordering code |

Specifications subject to change without notice

**High Precision Pressure Transmitter**
**Model : P125 (Circular Connector)**
**P126 (DIN Connector)**
**P127 (Flying Leads)**
**P128 (General Head)**

WISE SENSOR

## Advantages

- High precision pressure transmitter for industrial applications
- All stainless steel 316 construction
- Measuring ranges from 0.1 to 350 kgf / $cm^2$
- Advanced piezoresistive silicon measuring cell
- Excellent accuracy and long term stability
- 300% proof pressure
- Various choice of electrical connection

P125

P127

## 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
- Machine tools and automatic machinery
- Flow control
- Oil and off-shore industry
- Equipments for chemical and petrochemical industry
- Engine monitoring and control
- Fire fighting equipments and braking systems for railway

P126

P128

## Descriptions

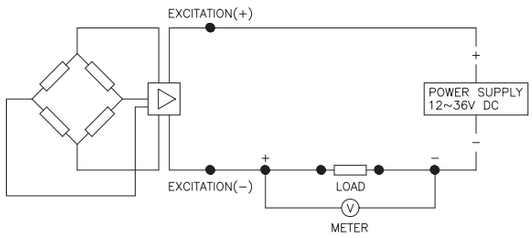
P120 series pressure transmitter is a signal conditioned media-isolated high precision pressure transmitter that can be used for a wide variety of applications. The transmitter has a water resistant, stainless steel housing for complete protection from harsh environments. Its 4~20mA current output is ideal for remote monitoring of both primary and secondary process variables. It has been designed as an advanced device for measuring pressure of gases and liquids in industrial applications. It is extremely versatile and suitable for measuring dynamic or static pressure. The transmitters are available as absolute and relative pressure types with either 2-wire current or 3-wire voltage output. 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 temperature compensated and converted into a standardized current or voltage output signal.

## Specification

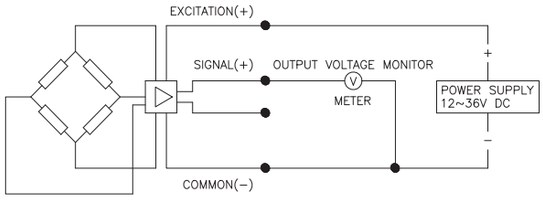
| | | | | |
|---|---|---|---|---|
| **Input** | | | | |
| Technology | Piezoresistive silicon pressure sensor | | | |
| Pressure ranges | 0~0.1 to 0~350 kgf / $cm^2$ relative pressure | | | |
| | 0~1 to 350 kgf / $cm^2$ absolute pressure | | | |
| Pressure reference | Gauge, absolute, vacuum and compound | | | |
| Overload | 3x full scale without damage | | | |
| **Output** | | | | |
| | Unamplified | | Unamplified | |
| Electrical connection type | 2-wire technique | | 3 or 4-wire technique | |
| Full scale output signal | 20mA | ± 0.05% | 5V | ± 0.05% |
| Zero measured output | 4mA | ± 0.03% | 1V | ± 0.03% |
| | 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 | No change in performance after 10Gs for 11ms | | | |
| Vibration | 0.1G (1m / s / s) maximum | | | |
| Response time(10 ~ 90%) | ≤ 2 milliseconds | | | |
| Adjustment | ± 10% FSO / zero and span | | | |
| **Performance Specification** | | | | |
| Accuracy | ≤± 0.25% FSO | | | |
| Non-linearity | ± 0.100% FSO typical | | | |
| Repeatability | ± 0.015% FSO typical | | | |
| Pressure hysteresis | ± 0.010% FSO typical | | | |
| Long term stability | ± 0.3% FSO over 6 month | | | |
| Cutoff frequency(-3 d B) | ≤ 2KHz | | | |
| Reference temperature | 35°C | | | |
| Operating temperature range | -40~125 °C | | | |
| Compensated temperature range | 0~82 °C | | | |
| Thermal sensitivity shift | ≤± 0.2% FSO in reference to 35°C typical | | | |
| Thermal zero shift | ≤± 0.2% FSO in reference to 35°C typical | | | |
| Thermal hysteresis | ≤± 0.1% FSO in reference to 35°C 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 wetted by process | Diaphragm : Stainless steel 316L | | | |
| | Housing : Stainless steel 316 | | | |
| | Gasket O-ring : Viton (HNBR, CSM, etc.) | | | |
| Enclosure rating | IP65 | | | |
| Influence of mounting position | Not critical but 0.1 to 0.5bar should be mounted vertically | | | |
| Weight | Approx. (270g) | | | |
| Options | Cooling Fin | | | |
| | Siphon tube | | | |

Note : ① Cable version : 1.5m standard length, 4-wire, shielded with integral vent tube
② Vented gauge units must breathe dry, non - corrosive gases.
③ Connector version is vented through the removed pin, cable versions are vented through a vent tube inside the cable sleeve

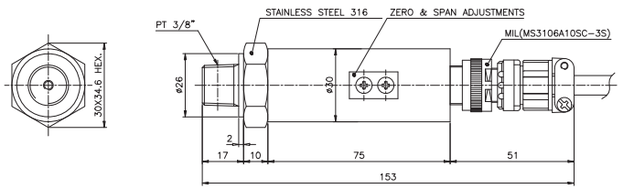
## System connection for 2-wire transmitter

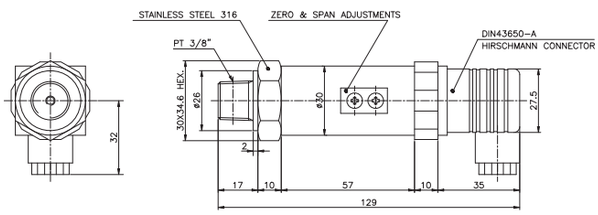


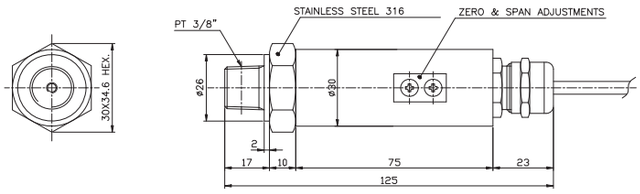

## System connection for 3-wire transmitter

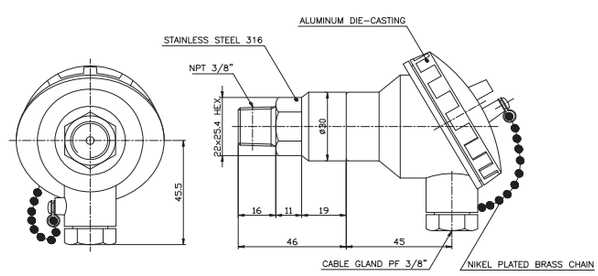



## Dimension (mm)




## Electrical connection

E : Excitation
S : Signal
C : Common

### Circular connector

| 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 |

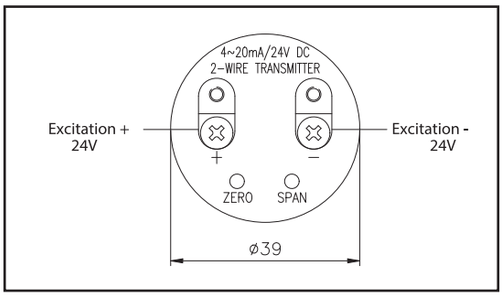
### DIN connector

| 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 |

### General head



## Ordering Information

### High Precision Pressure Transmitter

1. Base model

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| P125 | | | | | | | | | Circular Connector |
| P126 | | | | | | | | | DIN Connector |
| P127 | | | | | | | | | Flying lead (1.5m cable) |
| P128 | | | | | | | | | General Head |

2. Pressure reference

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| R | | | | | | | | | Relative pressure |
| A | | | | | | | | | Absolute pressure |

3. Process connection type "1"

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| M | | | | | | | | Male thread |
| F | | | | | | | | Female thread |

4. Process connection type "2"

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

5. Process connection size

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | | | | | | 1/4″ |
| 2 | | | | | | 3/8″ |
| 3 | | | | | | 1/2″ |
| X | | | | | | Other units available on request |

6. Accuracy

| | | | | | |
|---|---|---|---|---|---|
| S | | | | | ± 0.25% F.S.O |

7. Measuring range

| | | | | | |
|---|---|---|---|---|---|
| 01 | | | | 0~0.1 kgf / $cm^2$, bar | 0~0.01 Mpa |
| 02 | | | | 0~0.2 kgf / $cm^2$, bar | 0~0.02 Mpa |
| 03 | | | | 0~0.5 kgf / $cm^2$, bar | 0~0.05 Mpa |
| 04 | | | | 0~1 kgf / $cm^2$, bar | 0~0.1 Mpa |
| 05 | | | | 0~2 kgf / $cm^2$, bar | 0~0.2 Mpa |
| 06 | | | | 0~5 kgf / $cm^2$, bar | 0~0.5 Mpa |
| 07 | | | | 0~10 kgf / $cm^2$, bar | 0~1 Mpa |
| 08 | | | | 0~20 kgf / $cm^2$, bar | 0~2 Mpa |
| 09 | | | | 0~35 kgf / $cm^2$, bar | 0~3.5 Mpa |
| 10 | | | | 0~50 kgf / $cm^2$, bar | 0~5 Mpa |
| 11 | | | | 0~100 kgf / $cm^2$, bar | 0~10 Mpa |
| 12 | | | | 0~200 kgf / $cm^2$, bar | 0~20 Mpa |
| 13 | | | | 0~350 kgf / $cm^2$, bar | 0~35 Mpa |
| xx | | | | Other calibration ranges available on request | |

8. Unit

| | | | |
|---|---|---|---|
| K | | | Calibration in kgf / $cm^2$ |
| A | | | Calibration in Mpa |
| B | | | Calibration in bar |
| X | | | Other units available on request |

9. 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 P126 and P127) |
| B3 | | 0~10V, DC, 3-wire output (Only available P126 and P127) |

10. Option

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

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| P125 | R | M | T | 2 | H | 01 | K | A1 | N | Sample ordering code |

Specifications subject to change without notice

**Explosion Proof Pressure Transmitter**
**Model : P119P129 (Explosion Proof Head)**

WISE SENSOR

## Advantages

Explosion Proof transmitter for industrial applications
- Extremely corrosion resistant
- Rugged piezoresistive measuring cell
- Shock and vibration resistant
- Zero and span adjustments
- Optimal accuracy
- Measuring ranges
  - Ceramic sensor : 0.5~500 kgf / $cm^2$
  - Silicon sensor : 0.1~350 kgf / $cm^2$

P119P129

## 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

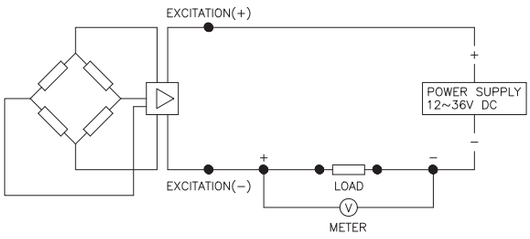
P119P129 series pressure transmitter has been designed as an advanced device for measuring pressure of gases and liquids in industrial applications. It is extremely versatile and suitable for measuring static pressure. The built-in measuring ceramic or silicon cell is highly corrosion resistant, stable and has an excellent price / performance ratio. Thanks to their high natural frequency and the rugged construction, the P119p129 transmitter withstands high shock and vibration.
The transmitters are available as absolute and relative pressure types with either 2-wire current or 3-wire voltage output.
The pressure to be measured acts without transmitting liquid fill on a stable, corrosion resistant ceramic or silicon measuring cell. Piezoresistive resistors are attached to the cell and connected in a Wheatstone bridge configuration. The output signal of this bridge is converted into a standardized current or voltage output signal.

## Specification

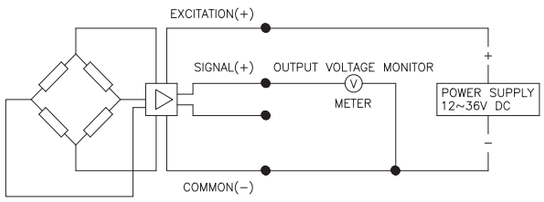
| Input | | | | |
|---|---|---|---|---|
| Technology | Piezoresistive ceramic or silicon pressure sensor | | | |
| Pressure ranges | Ceramic sensor : 0~0.5 to 0~500 kgf / $cm^2$ absolute or gauge pressure | | | |
| | Silicon sensor : 0~0.1 to 0~350 kgf / $cm^2$ absolute or gauge pressure | | | |
| Pressure reference | Gauge, absolute, vacuum and compound | | | |
| Overload | Ceramic sensor : 1.5x full scale without damage | | | |
| | Silicon sensor : 3x full scale without damage | | | |
| **Output** | | | | |
| | ceramic cell | | silicon cell | |
| Electrical connection type | 2-wire technique | | 3 or 4-wire technique | |
| Full scale output signal | 20mA | ± 0.5% | 5V | ± 0.05% |
| Zero measured output | 4mA | ± 0.05% | 1V | ± 0.03% |
| | Other signals available on request | | | |
| **Electrical Specification** | | | | |
| | ceramic cell | | silicon cell | |
| Excitation voltage | 12~36V DC | | 12~36V DC | |
| Load resistance max @ 24V | 500Ω at 24V | | 500Ω at 24V | |
| Influence of excitation | 0.01% FSO / V | | 0.01% FSO / V | |
| Power ripple | ≤ 500mV P-P | | ≤ 500mV P-P | |
| Reverse polarity | Protected | | Protected | |
| Shock resistance | ≤ 20g | | No change in performance after 10Gs for 11ms | |
| Vibration | | | 0.1G (1m / s / s) maximum | |
| Response time(10~90%) | 1.5ms | | ≤ 2 milliseconds | |
| Adjustment | ± 10% FSO / zero and span | | ± 10% FSO / zero and span | |
| **Performance Specification** | | | | |
| Accuracy | ≤± 0.5% FSO | | ≤± 0.25% FSO | |
| Linearity, Hysteresis & Repeatability | ± 0.2% FSO typical | ± 0.125% FSO typical | | |
| Stability | ± 0.3% FSO / a @25°C | | ± 0.3% FSO over 6 month | |
| Cutoff frequency(-3 d B) | ≤ 2kHz | | ≤ 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 | | ≤± 0.2% FSO in reference to 35°C typical | |
| Thermal zero shift | ≤± 0.02% FSO / °C typical | | ≤± 0.2% FSO in reference to 35°C typical | |
| Thermal hysteresis | | | ≤± 0.2% FSO in reference to 35°C typical | |
| **Physical Specification** | | | | |
| | ceramic cell | | silicon cell | |
| 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 ceramic Al2 O3, 96% | | Gases and liquids compatible with Stainless steel 316L | |
| Materials wetted by process | Diaphragm : Ceramic Al2 O3, 96% | | Diaphragm : Stainless steel 316L | |
| | Housing : Stainless steel 316 | | | |
| | Gasket O-ring : Viton (HNBR, CSM, etc.) | | | |
| Enclosure rating | IP65 | | | |
| Explosion protection | ExdIICT6 | | | |
| Influence of mounting position | Not critical | | | |
| Weight | Approx. (560g) | | | |
| Options | Cooling Fin | | | |
| | Siphon tube | | | |

Note : ① Cable version : 1.5m standard length, 4-wire, shielded with integral vent tube
② Vented gauge units must breathe dry, non - corrosive gases.
③ Connector version is vented through the removed pin, cable versions are vented through a vent tube inside the cable sleeve

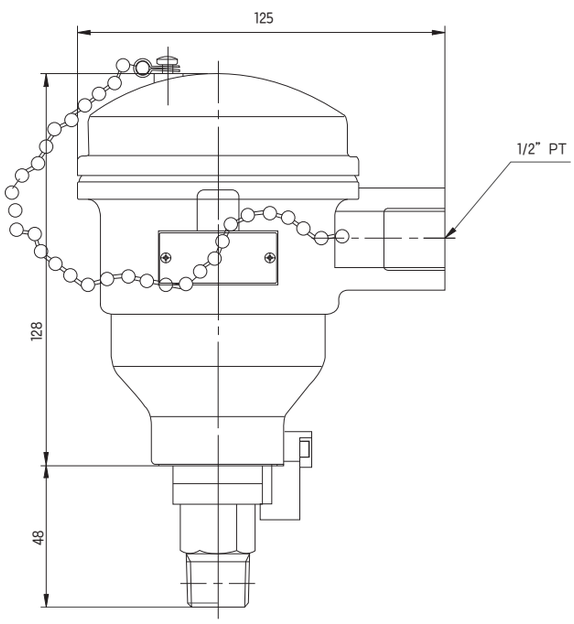
## System connection for 2-wire transmitter



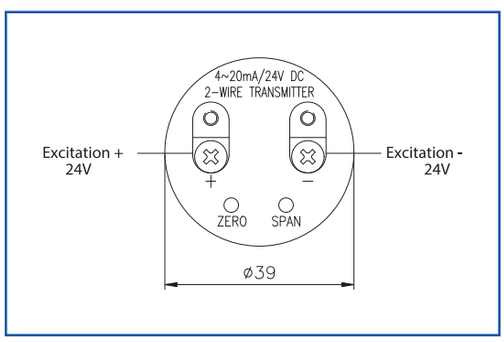

## System connection for 3-wire transmitter




## Dimension (mm)




## Electrical connection



## Ordering Information

### Explosion Proof Pressure Transmitter

1. Base model

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| P119P129 | | | | | | | | | | Explosion Proof Head |

2. Pressure reference

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| R | | | | | | | | | Relative pressure |
| A | | | | | | | | | Absolute pressure |

3. Process connection type "1"

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| M | | | | | | | | Male thread |
| F | | | | | | | | Female thread |

4. Process connection type "2"

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

5. Process connection size

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | | | | | | 1/4″ |
| 2 | | | | | | 3/8″ |
| 3 | | | | | | 1/2″ |
| X | | | | | | Other units available on request |

6. Accuracy (Sensor type)

| | | | | | |
|---|---|---|---|---|---|
| S | | | | | ± 0.25% F.S.O (with Silicon cell) |
| C | | | | | ± 0.5% F.S.O (with Ceramic cell) |

7. Measuring range

| | | | | | |
|---|---|---|---|---|---|
| 01 | | | | 0~0.5 kgf / $cm^2$, bar | 0~0.05 Mpa |
| 02 | | | | 0~1 kgf / $cm^2$, bar | 0~0.1 Mpa |
| 03 | | | | 0~2 kgf / $cm^2$, bar | 0~0.2 Mpa |
| 04 | | | | 0~5 kgf / $cm^2$, bar | 0~0.5 Mpa |
| 05 | | | | 0~10 kgf / $cm^2$, bar | 0~1 Mpa |
| 06 | | | | 0~20 kgf / $cm^2$, bar | 0~2 Mpa |
| 07 | | | | 0~35 kgf / $cm^2$, bar | 0~3.5 Mpa |
| 08 | | | | 0~50 kgf / $cm^2$, bar | 0~5 Mpa |
| 09 | | | | 0~100 kgf / $cm^2$, bar | 0~10 Mpa |
| 10 | | | | 0~200 kgf / $cm^2$, bar | 0~20 Mpa |
| 11 | | | | 0~350 kgf / $cm^2$, bar | 0~35 Mpa |
| 12 | | | | 0~500 kgf / $cm^2$, bar<br>(Only available silicon cell) | 0~50 Mpa<br>(Only available silicon cell) |
| xx | | | | Other calibration ranges available on request | |

8. Unit

| | | | |
|---|---|---|---|
| K | | | Calibration in kgf / $cm^2$ |
| A | | | Calibration in Mpa |
| B | | | Calibration in bar |
| X | | | Other units available on request |

9. 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 | | 1~5V, DC, 4-wire output |

10. Option

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

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| P119P129 | R | M | T | 3 | S | 02 | K | A1 | N | Sample ordering code |

Specifications subject to change without notice

**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)**

WISE SENSOR

## 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

P316 / P326 P317 / P327

## Descriptions

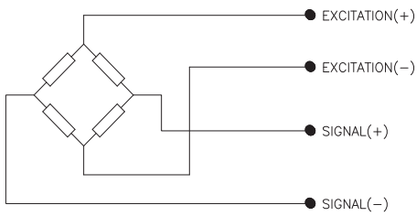
P300 series compact designed pressure transmitter meets the requirements for a general purpose, reliable and economical pressure measurements for industrial and process control installations. This pressure transmitter measures of gases and liquids in industrial applications and is available wide range of pressure in 0.1 to 500 kgf / $cm^2$ 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

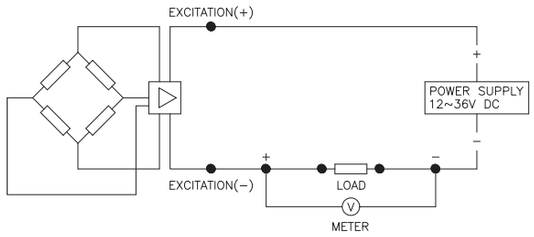
| Input | | |
|---|---|---|
| Model | P316 / P317 | P326 / P327 |
| Technology | Piezoresistive ceramic pressure sensor | Piezoresistive silicon pressure sensor |
| Pressure ranges | 0~0.5 to 0~500 kgf / $cm^2$ relative | 0~0.1 to 0~350 kgf / $cm^2$ relative pressure |
| | 0~1 to 500 kgf / $cm^2$ absolute | 0~1 to 350 kgf / $cm^2$ 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 0.5 kgf / $cm^2$, 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.

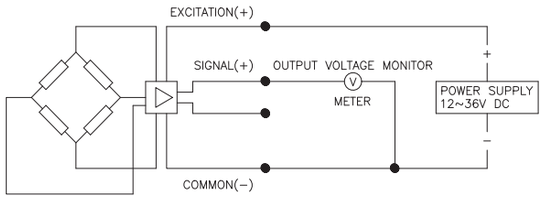
## System connection for unamplified



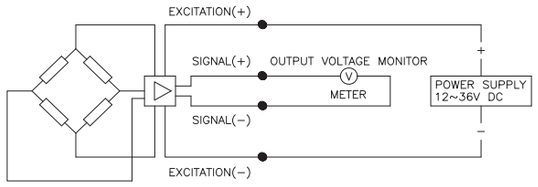

## System connection for 2-wire transmitter



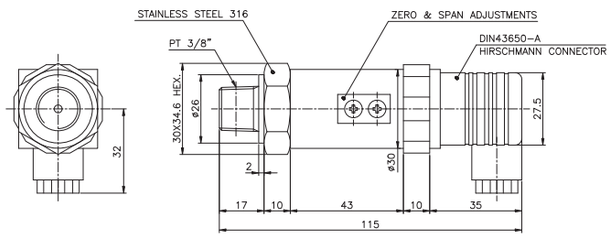

## System connection for 3-wire transmitter

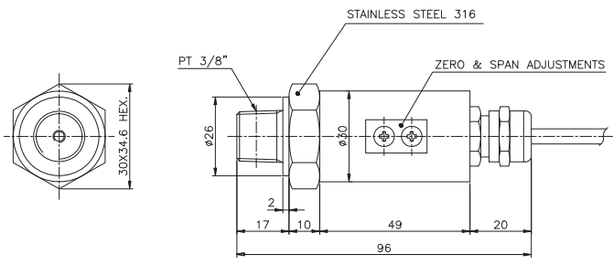



## System connection for 4-wire transmitter




## 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 kgf / cm², bar(Only available P326 and P327) | 0~0.01 Mpa(Only available P326 and P327) |
| 02 | 0~0.2 kgf / cm², bar(Only available P326 and P327) | 0~0.02 Mpa(Only available P326 and P327) |
| 03 | 0~0.5 kgf / cm², bar | 0~0.05 Mpa |
| 04 | 0~1 kgf / cm², bar | 0~0.1 Mpa |
| 05 | 0~2 kgf / cm², bar | 0~0.2 Mpa |
| 06 | 0~5 kgf / cm², bar | 0~0.5 Mpa |
| 07 | 0~10 kgf / cm², bar | 0~1 Mpa |
| 08 | 0~20 kgf / cm², bar | 0~2 Mpa |
| 09 | 0~35 kgf / cm², bar | 0~3.5 Mpa |
| 10 | 0~50 kgf / cm², bar | 0~5 Mpa |
| 11 | 0~100 kgf / cm², bar | 0~10 Mpa |
| 12 | 0~200 kgf / cm², bar | 0~20 Mpa |
| 13 | 0~350 kgf / cm², bar | 0~35 Mpa |
| 14 | 0~500 kgf / cm², bar(Only available P326 and P327) | 0~50 Mpa(Only available P326 and P327) |
| xx | Other calibration ranges available on request | |

9. Unit

| | |
|---|---|
| K | Calibration in kgf / cm² |
| A | Calibration in Mpa |
| B | Calibration in bar |
| 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 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| P31 | 6 | R | M | T | 1 | S | 01 | K | A1 | N | Sample ordering code |

Specifications subject to change without notice

**Miniature Pressure Transmitter**

**Model : P354 (Ceramic cell with Mini DIN Connector )**
**P356 (Ceramic cell with DIN Connector )**
**P364 (Silicon cell with Mini DIN Connector )**
**P366 (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
  - Ceramic sensor : 0~2 to 0~50 kgf / $cm^2$
  - Silicon sensor : 0~0.1 to 0~350 kgf / $cm^2$

## 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

P354 / P364

P356 / P366

## Descriptions

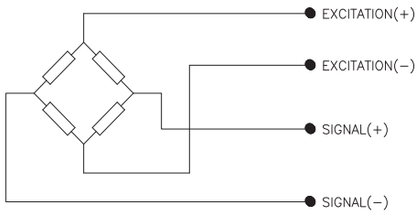
P3XX series miniature designed pressure transmitter meets the requirements for a general purpose, reliable and economical pressure measurements for industrial and process control installations. This pressure transmitter measures of gases and liquids in industrial applications and is available wide range 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

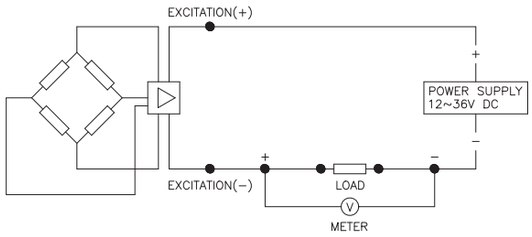
| | | |
|---|---|---|
| **Input** | | |
| Model | P354 / P356 | P364 / P366 |
| Technology | Piezoresistive ceramic pressure sensor | Piezoresistive silicon pressure sensor |
| Pressure ranges | 0~2 to 0~50 kgf / $cm^2$ relative | 0~0.1 to 0~350 kgf / $cm^2$ relative pressure |
| | 0~1 to 50 kgf / $cm^2$ absolute | 0~1 to 350 kgf / $cm^2$ absolute pressure |
| Pressure reference | vacuum Gauge, absolute compound | |
| Overload | 1.5x full scale without damage | 2x full scale without damage |
| **Output** | | |
| Unamplified | 2.0~6.5m V / V | -2~152mm V / V |
| | 4~20mA current (2-wire) | |
| Amplified | 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 | ≤ 20g | ≤ 10g |
| Response time (10~90%) | ≤ 5 milliseconds | ≤ 5 milliseconds |
| Adjustment | None | |
| **Performance Specification** | | |
| Accuracy | ≤± 0.5% FSO | ≤± 0.25% FSO |
| Linearity,Hysteresis & Repeatability | ± 0.2~0.5% FSO typical | ± 0.25% FSO typical |
| Stability | ± 0.3% FSO / a@25°C | ± 0.2% FSO / a@25°C |
| Cutoff frequency(-3 d B) | ≤ 2KHz | |
| Reference temperature | 25°C | 25°C |
| Operating temperature range | -40~125°C | -40~125°C |
| Compensated temperature range | 0~70° | 0~82°C |
| Thermal sensitivity shift | ≤± 0.04%/ °C typical | ≤± 0.03% FSO typical |
| Thermal zero shift | ≤± 0.02% FSO / °C typical | ≤± 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 of Diaphragm | Ceramic Al2 O3, 96% | Stainless steel 316L |
| Housing | Stainless steel 316 | Stainless steel 316 |
| Gasket O-ring | Viton, HNBR, Kalez, etc. | |
| Enclosure rating | IP65 | |
| Influence of mounting position | Not critical | ~20kPa : ≤± 0.5% FSO<br>20kPa~ : ≤± 0.2% FSO<br>Under 0.5 kgf / $cm^2$, 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 : 1.5m standard length, 4-wire, shielded with integral vent tube.
③ Vented gauge units must breathe dry, non - corrosive gases.

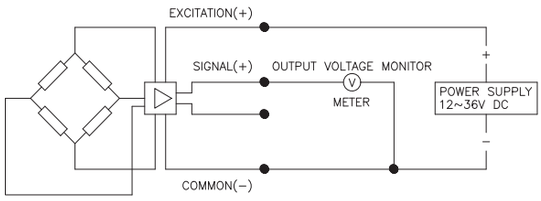
## System connection for unamplified



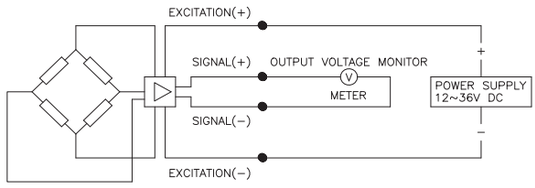

## System connection for 2-wire transmitter




## System connection for 3-wire transmitter

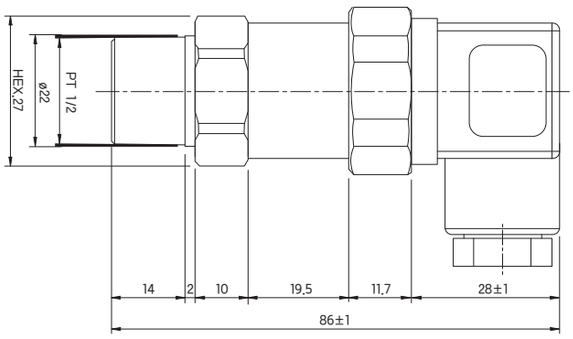



## System connection for 4-wire transmitter

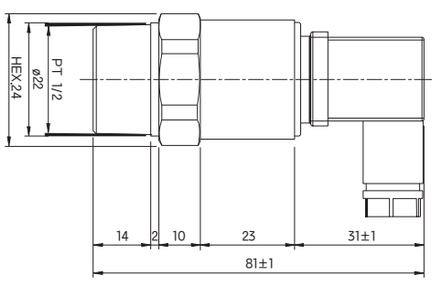



## Dimension (mm)

P356 / P366




P354 / P364




## 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

| | |
|---|---|
| P35 | Piezoresistive ceramic sensor |
| P36 | Piezoresistive silicon sensor |

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

8. Measuring range

| | | |
|---|---|---|
| 01 | 0~0.1 kgf / $cm^2$, bar(Only available P364 and P366) | 0~0.01 Mpa(Only available P364 and P366) |
| 02 | 0~0.2 kgf / $cm^2$, bar(Only available P364 and P366) | 0~0.02 Mpa(Only available P364 and P366) |
| 03 | 0~0.5 kgf / $cm^2$, bar(Only available P364 and P366) | 0~0.05 Mpa(Only available P364 and P366) |
| 04 | 0~1 kgf / $cm^2$, bar(Only available P364 and P366) | 0~0.1 Mpa(Only available P364 and P366) |
| 05 | 0~2 kgf / $cm^2$, bar | 0~0.2 Mpa |
| 06 | 0~5 kgf / $cm^2$, bar | 0~0.5 Mpa |
| 07 | 0~10 kgf / $cm^2$, bar | 0~1 Mpa |
| 08 | 0~20 kgf / $cm^2$, bar | 0~2 Mpa |
| 09 | 0~35 kgf / $cm^2$, bar | 0~3.5 Mpa |
| 10 | 0~50 kgf / $cm^2$, bar | 0~5 Mpa |
| 11 | 0~100 kgf / $cm^2$, bar(Only available P364 and P366) | 0~10 Mpa(Only available P364 and P366) |
| 12 | 0~200 kgf / $cm^2$, bar(Only available P364 and P366) | 0~20 Mpa(Only available P364 and P366) |
| 13 | 0~350 kgf / $cm^2$, bar(Only available P364 and P366) | 0~35 Mpa(Only available P364 and P366) |
| xx | Other calibration ranges available on request | |

9. Unit

| | |
|---|---|
| K | Calibration in kgf / $cm^2$ |
| A | Calibration in Mpa |
| B | Calibration in bar |
| 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 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| P36 | 6 | R | M | T | H | 07 | 01 | K | A1 | N | Sample ordering code |

Specifications subject to change without notice

**Sanitary Pressure Transmitter**
**Model : P425 (Circular Connector)**
**P426 (DIN Connector)**
**P427 (Flying Leads)**
**P428 (General Head)**

WISE SENSOR

## Advantages

- Pressure transmitter for corrosive environments
- High corrosion resistant stainless steel diaphragm (316LSS)
- Measuring ranges from 3000mm$H_2O$ to 50 kgf / $cm^2$
- Shock and vibration resistant
- 3A certificated suitable SIP and CIP

P425

P426

## Applications

- Process control and monitoring in corrosive environments
- Bio-chemical and pharmaceutical industry
- Dairy and food industry

P427

P428

## Descriptions

P420 series pressure transmitter has been designed as an advanced device for measuring pressure of corrosive and viscous liguids in industrial applications. They incorporate a fully temperature compensated piezoresistive silicon sensor with great accuracy, excellent long term stability, very low temperature drift, and a strong, duable flush mounted diaphragm The diaphragm specifically designed to meet 3A standard.

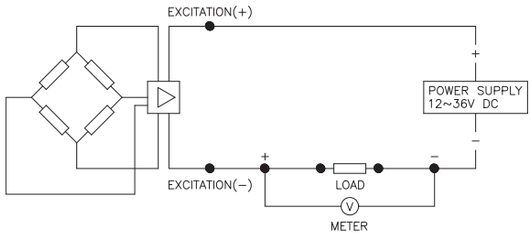
The transmitter are available as absolute and relative types with either 2-wire current or 3-wire voltage output. The pressure to be measured acts through thin corrosion resistant stainless steel 316L diaphragm. The pressure transmitter medium is sillicon oil. The measuring element contains diffused piezoresistive resistors which are connected into a Wheatstone bridge. The output signal of this bridge is temperature compensated and converted into a standardized current or voltage output signal.

## Specification

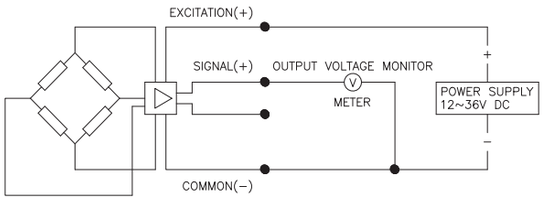
| | | | | |
|---|---|---|---|---|
| **Input** | | | | |
| Technology | Piezoresistive silicon pressure sensor | | | |
| Pressure ranges | 0~0.3 to 50 kgf / $cm^2$ relative pressure | | | |
| | 0~1 to 50 kgf / $cm^2$ absolute pressure | | | |
| Pressure reference | Gauge, absolute, vacuum and compound | | | |
| Overload | 3x full scale without damage | | | |
| **Output** | | | | |
| | Current output | | Voltage output | |
| Electrical connection type | 2-wire technique | | 3 or 4-wire technique | |
| Full scale output signal | 20mA | ± 0.25% | 5V | ± 0.25% |
| Zero measured output | 4mA | ± 0.03% | 1V | ± 0.03% |
| | 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 | No change in performance after 10Gs for 11ms | | | |
| Vibration | 0.1G (1m / s / s) maximum | | | |
| Response time(10~90%) | ≤ 2 milliseconds | | | |
| Adjustment | ± 10% FSO / zero and span | | | |
| **Performance Specification** | | | | |
| Accuracy | ≤± 0.3% FSO | | | |
| Non-linearity | ± 0.100% FSO typical | | | |
| Repeatability | ± 0.015% FSO typical | | | |
| Pressure hysteresis | ± 0.010% FSO typical | | | |
| Long term stability | ± 0.3% FSO over 6 month | | | |
| Cutoff frequency(-3 d B) | ≤ 2KHz | | | |
| Reference temperature | 35°C | | | |
| Operating temperature range | -40~125 °C | | | |
| Compensated temperature range | 0~82 °C | | | |
| Thermal sensitivity shift | ≤± 0.5% FSO in reference to 35°C typical | | | |
| Thermal zero shift | ≤± 0.2% FSO in reference to 35°C typical | | | |
| Thermal hysteresis | ≤± 0.1% FSO in reference to 35°C typical | | | |
| **Physical Specification** | | | | |
| Process connection | 1, 1.5, 2 Tri-clamp connection | | | |
| | Other connections available on request | | | |
| Process media | Gases and liquids compatible with stainless steel 316 | | | |
| Materials wetted by process | Diaphragm : Stainless steel 316L | | | |
| | Housing : Stainless steel 316 | | | |
| | Gasket O-ring : Viton (HNBR, CSM, etc.) or No O-ring | | | |
| Enclosure rating | IP65 | | | |
| Weight | Approx. (350g) | | | |

Note : ① Cable version : 1.5m standard length, 4-wire, shielded with integral vent tube
② Vented gauge units must breathe dry, non - corrosive gases.
③ Connector version is vented through the removed pin, cable versions are vented through a vent tube inside the cable sleeve

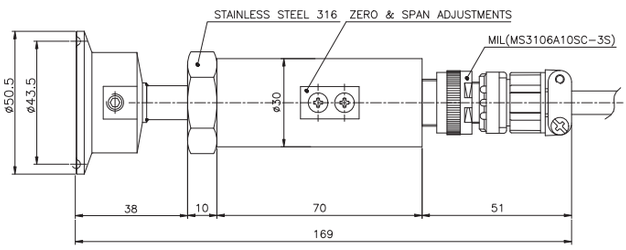
## System connection for 2-wire transmitter

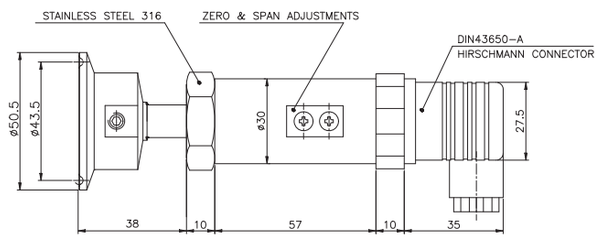


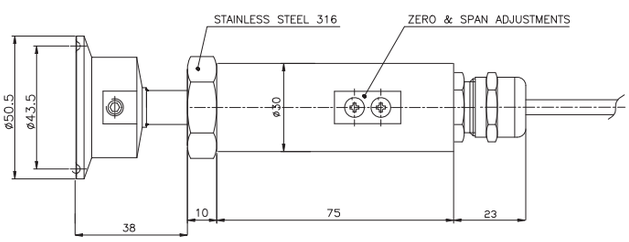

## System connection for 3-wire transmitter

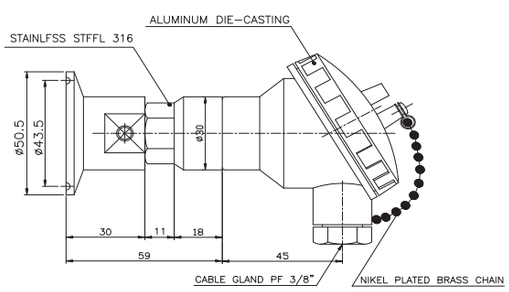



## Dimension (mm)




## Electrical connection

E : Excitation
S : Signal
C : Common

### Circular connector

| 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 |

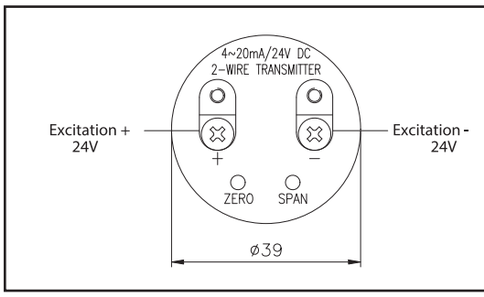
### DIN connector

| 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 |

### General head



## Ordering Information

### Sanitary Pressure Transmitter

1. Base model

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| P425 | | | | | | | | | Circular Connector |
| P426 | | | | | | | | | DIN Connector |
| P427 | | | | | | | | | Flying lead (1.5m cable) |
| P428 | | | | | | | | | General Head |

2. Pressure reference

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| R | | | | | | | | Relative pressure |
| A | | | | | | | | Absolute pressure |

3. Process connection type "1"

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| M | | | | | | | Male thread |
| F | | | | | | | Female thread |
| N | | | | | | | Not required |

4. Process connection type "2"

| | | | | | | |
|---|---|---|---|---|---|---|
| T | | | | | | PT thread as standard |
| N | | | | | | NPT thread |
| S | | | | | | PF thread |
| C | | | | | | Clamp mounted |
| F | | | | | | Flange mounted |
| X | | | | | | Other process connections available on request |

5. Process connection size

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | | | | | | 1″ |
| 2 | | | | | | 1.5″ |
| 3 | | | | | | 2″ |
| X | | | | | | Other units available on request |

6. Accuracy

| | | | | | |
|---|---|---|---|---|---|
| H | | | | | ± 0.3% F.S.O |

7. Measuring range

| | | | | | |
|---|---|---|---|---|---|
| 01 | | | | 0~0.3 kgf / $cm^2$, bar | 0~0.03 Mpa |
| 02 | | | | 0~0.5 kgf / $cm^2$, bar | 0~0.05 Mpa |
| 03 | | | | 0~1 kgf / $cm^2$, bar | 0~0.1 Mpa |
| 04 | | | | 0~2 kgf / $cm^2$, bar | 0~0.2 Mpa |
| 05 | | | | 0~5 kgf / $cm^2$, bar | 0~0.5 Mpa |
| 06 | | | | 0~10 kgf / $cm^2$, bar | 0~1 Mpa |
| 07 | | | | 0~20 kgf / $cm^2$, bar | 0~2 Mpa |
| 08 | | | | 0~35 kgf / $cm^2$, bar | 0~3.5 Mpa |
| 09 | | | | 0~50 kgf / $cm^2$, bar | 0~5 Mpa |
| xx | | | | Other calibration ranges available on request | |

8. Unit

| | | | |
|---|---|---|---|
| K | | | Calibration in kgf / $cm^2$ |
| A | | | Calibration in Mpa |
| B | | | Calibration in bar |
| X | | | Other units available on request |

9. 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 P426 and P427) |
| B3 | | 0~10V, DC, 3-wire output (Only available P426 and P427) |

10. Option

| | |
|---|---|
| N | None options |
| X | Other accessories available on request |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| P428 | R | M | F | 1 | H | 01 | K | A1 | N | Sample ordering code |

Specifications subject to change without notice

**Diaphragm seal type pressure Transmitter**
**Model : P475, P485, P495 (Circular Connector)**
**P476, P486, P496 (DIN Connector)**
**P477, P487, P497 (Flying Leads)**
**P478, P488, P498 (General Head)**

WISE SENSOR

## Advantages

- Pressure transmitter for corrosive environments
- Measuring ranges from -0.1~0 to -0.1~35 Mpa, 0~0.03 to 0~35 Mpa
- It is useful in areas with large amount of pulp or sludge.
- Various diaphragm can be selected accordingly to corrosive fluid.

P475 P476 P477 P478

P485 P486 P487 P488

P495 P496 P497 P498

## Applications

- Process control and monitoring in corrosive environments
- High corrosion resistant stainless steel diaphragm (316LSS, Monel, Hastelloy-C, Titanium, Tantalum, Nickel)
- With selection of proper filling oil, it can be used in extremely hot environment or below freezing conditions.

## Descriptions

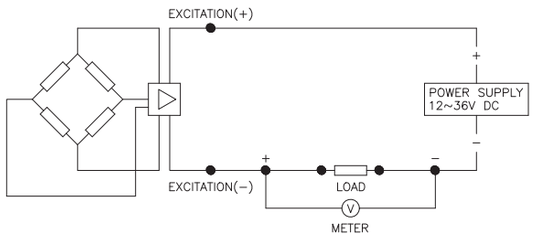
P4XX series pressure transmitter has been designed as an advanced device for measuring pressure of corrosive in industrial applications. They incorporate a fully temperature compensated piezoresistive silicon sensor with great accuracy, excellent long term stability, very low temperature drift, and a strong, duable flush mounted diaphragm. The transmitter are available as absolute and relative types with either 2-wire current or 3-wire voltage output. The pressure to be measured acts through thin corrosion resistant stainless steel 316L diaphragm. The pressure transmitter medium is sillicon oil. The measuring element contains diffused piezoresistive resistors which are connected into a Wheatstone bridge. The output signal of this bridge is temperature compensated and converted into a standardized current or voltage output signal.

## Specification

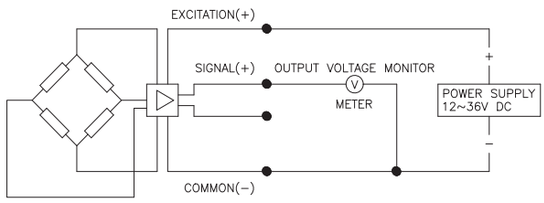
| | | | | |
|---|---|---|---|---|
| **Input** | | | | |
| Model (Ordering code "Accuracy") | P470(E), P480(E), P490(E) series | | P470(H), P480(H), P490(H) series | |
| Technology | Piezoresistive silicon pressure sensor | | Piezoresistive ceramic pressure sensor | |
| Pressure ranges | 0~0.03 to 35 MPa relative pressure | | 0~0.05 to 35 MPa relative pressure | |
| | 0~0.1 to 35 MPa absolute pressure | | 0~0.1 to 35 MPa absolute pressure | |
| Pressure reference | Gauge, absolute, vacuum and compound | | | |
| Over range protection | 130% of Full Scale | | | |
| **Output** | | | | |
| | Unamplifide | | Unamplifide | |
| Electrical connection type | 2-wire technique | | 3 or 4-wire technique | |
| Full scale output signal | 20mA | ± 0.25% | 5V | ± 0.5% |
| Zero measured output | 4mA | ± 0.03% | 1V | ± 0.05% |
| | 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 | No change in performance after 10Gs for 11ms | | | |
| Response time(10~90%) | ≤ 2 milliseconds | | 1.5 milliseconds | |
| Adjustment | ± 10% FSO / zero and span | | ± 10% FSO / zero and span | |
| **Performance Specification** | | | | |
| Accuracy | ≤± 0.3% FSO | | ≤± 0.5% FSO | |
| Non-linearity | ± 0.100 FSO typical | | ± 0.20 FSO typical | |
| Repeatability | ± 0.015 FSO typical | | ± 0.20 FSO typical | |
| Pressure hysteresis | ± 0.010 FSO typical | | ± 0.20 FSO typical | |
| Long term stability | ± 0.3% FSO over 6 month | | | |
| Cutoff frequency(-3 d B) | ≤ 2kHz | | | |
| Reference temperature | 35°C | | 25°C | |
| Operating temperature range | -40~125°C | | -40~125°C | |
| Compensated temperature range | 0~82°C | | 0~70°C | |
| Thermal sensitivity shift | ≤± 0.2% FSO in reference to 35°C typical | | ≤± 0.015% FSO / °C typical | |
| Thermal zero shift | ≤± 0.2% FSO in reference to 35°C typical | | ≤± 0.02% FSO / °C typical | |
| Thermal hysteresis | ≤± 0.1% FSO in reference to 35°C typical | | | |
| **Physical Specification** | | | | |
| Process connection | P470 : PT, NPT and others feasible | | | |
| | P480, P490 : Flanges to ANSI, JIS or other standard | | | |
| | Other connections available on request | | | |
| Process media | Compatible with stainless steel 316 | | | |
| Materials wetted by process | Diaphragm : 316L SS, Monel, Hastelloy-C, Titanium, Tantalum, Nickel, Alloy20 | | | |
| | Housing : stainless steel 316 | | | |
| | Upper flange : Stainless steel (304SS, 316SS, Titanium) | | | |
| | Under flange : Stainless steel (304SS, 304L SS, 316SS, 316L SS) | | | |
| | Monel, Hastelloy-C, Titanium, Nickel | | | |
| Enclosure rating | IP65 | | | |
| Options | Diaphragm and under flange are available in PTFE coating or PTFE lining | | | |
| | Under flange (Process side) are available in purging plug or heating / cooling jacket | | | |

Note : If it is installed in explosive atmosphere, the covers should be kept tight when circuit alive.

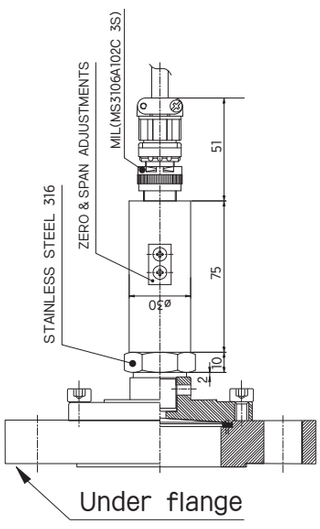
## System connection for 2-wire transmitter



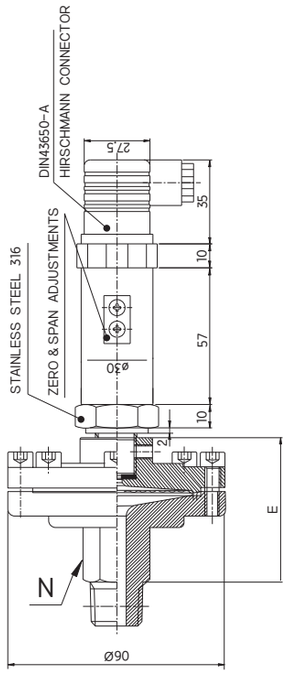

## System connection for 3-wire transmitter



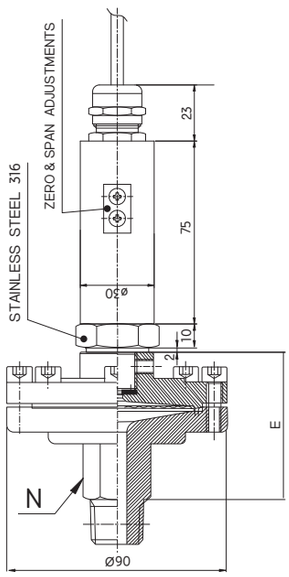

## Dimension (mm)



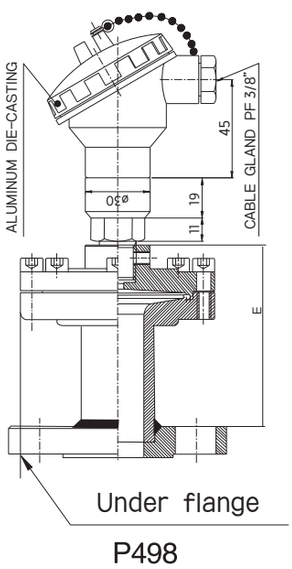

P475




P486




P487




P498

## Electrical connection

E : Excitation
S : Signal
C : Common

### Circular connector

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

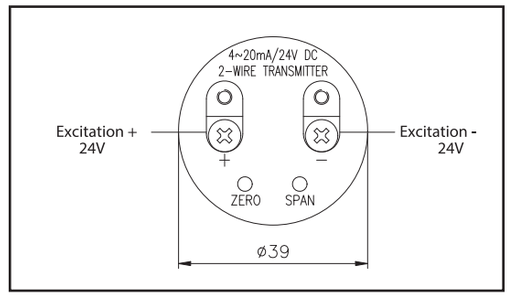
### DIN connector

| 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 |

### General head



## Ordering Information

### Diaphragm seal type pressure Transmitter

1. Base model

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| P47 | | | | | | | | | | Flat type flange process connection diaphragm seal |
| P48 | | | | | | | | | | Screwed process connection diaphragm seal |
| P49 | | | | | | | | | | "I" type process connection diaphragm seal |

2. Transmitter type

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 5 | | | | | | | | | | Circular Connector |
| 6 | | | | | | | | | | DIN Connector |
| 7 | | | | | | | | | | Flying lead (1.5m cable) |
| 8 | | | | | | | | | | General Head |

3. Pressure reference

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| R | | | | | | | | | Relative pressure |
| A | | | | | | | | | Absolute pressure |

4. Accuracy

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| E | | | | | | | | ± 0.30% F.S.O (with silicon cell) |
| H | | | | | | | | ± 0.50% F.S.O (with ceramic cell) |

5. Pressure measuring ranges

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 01 | | | | | | | 0~3000 $mmH_2O$ (Only available silicon cell) | |
| 02 | | | | | | | 0~0.5 kgf / $cm^2$, bar | 0~0.05 Mpa |
| 03 | | | | | | | 0~1 kgf / $cm^2$, bar | 0~0.1 Mpa |
| 04 | | | | | | | 0~5 kgf / $cm^2$, bar | 0~0.5 Mpa |
| 05 | | | | | | | 0~10 kgf / $cm^2$, bar | 0~1 Mpa |
| 06 | | | | | | | 0~50 kgf / $cm^2$, bar | 0~5 Mpa |
| 07 | | | | | | | 0~100 kgf / $cm^2$, bar | 0~10 Mpa |
| 08 | | | | | | | 0~350 kgf / $cm^2$, bar | 0~35 Mpa |
| XX | | | | | | | Other calibration ranges available on request | |

6. Pressure unit

| | | | | | | |
|---|---|---|---|---|---|---|
| M | | | | | | calibration in $mmH_2O$ |
| K | | | | | | calibration in kgf / $cm^2$ |
| A | | | | | | calibration in Mpa |
| B | | | | | | calibration in bar |
| X | | | | | | Other units available on request |

7. Output signal

| | | | | | |
|---|---|---|---|---|---|
| A1 | | | | | 4~20mA, DC, 2-wire output |
| A2 | | | | | 4~20mA, DC, 3-wire output |
| A3 | | | | | 4~20mA, DC, 4-wire output |
| B1 | | | | | 1~5V, DC, 3-wire output |
| B2 | | | | | 1~5V, DC, 4-wire output |
| C1 | | | | | 0~5V, DC, 3-wire output (Only available P4X6 and P4X7) |
| C2 | | | | | 0~10V, DC, 3-wire output (Only available P4X6 and P4X7) |
| XX | | | | | Other signals available on request |

8. Upper flange / Diaphragm material

| | | | | |
|---|---|---|---|---|
| XX | | | | Refer to flange type table |

9. Under flange material

| | | | |
|---|---|---|---|
| XX | | | Refer to flange type table |

10. Process connection type

| | | |
|---|---|---|
| XXX | | Refer to process connection type table |

11. Option

| | |
|---|---|
| 0 | None options |
| 1 | Accessories |
| 2 | Flushing ring |
| X | Other accessories available on request |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| P475 | R | E | 03 | B | A1 | E | EX | EAB | 0 | Sample ordering code |

Specifications subject to change without notice

## Flange type table

### Code - Upper flange / Diaphragm material

| | |
|---|---|
| B | 304SS / 316L SS |
| E | 316L SS / 316L SS |
| H | 04SS / 316L SS with PTFE sheet |
| I | Alloy 825 / Alloy 825 |
| J | 316SS / 316L SS |
| K | 316SS / Monel |
| L | 316SS / Hastelloy-C |
| M | 316L SS / Monel |
| N | 316SS / Tantalum |
| Q | 316SS / 316L SS with PTFE sheet |
| R | Titanium / Titanium |
| S | 316L SS / Tantalum |
| T | 316SS / Nickel |
| U | 316SS / Alloy 20 |
| V | PVC / PTFE |
| X | 316L SS / Hastelloy-C |
| Y | PVDF / PTFE |

### Code - Under flange material

| | |
|---|---|
| 7X | Alloy 20 |
| BX | 304 SS |
| DX | 304L SS |
| CX | 316 SS |
| EX | 316L SS |
| LX | Monel |
| KX | Hastelloy-C |
| MX | Titanium |
| 51 | 316L SS with PTFE coating (see note1) |
| JX | Inconel 600 |
| RX | 316L SS with PTFE coating (see note1) |
| PX | 304SS with PTFE lining (see note1) |
| SX | 316SS with PTFE coating (see note1) |
| QX | 316SS with PTFE lining (see note1) |
| 50 | 316L SS with PTFE lining (see note1) |
| 53 | Teflon |
| 22 | Nickel |
| 18 | 317SS |
| 54 | PVC |
| 55 | CPVC |
| 39 | Alloy 825 |
| 56 | PVDF |
| ZZ | Other |

Note1 : PTFE lining and coating is available for the pressure range less than 7 Mpa.
Note2 : Using Plastic as its material, the pressure range is available up to 2 Mpa.

## Process connection type table

### Code - Connection size

| | |
|---|---|
| C* | 1/4″ |
| D* | 3/8″ (10A) |
| E | 1/2″ (15A) |
| F | 3/4″ (20A) |
| G | 1″ (25A) |
| H | 11⁄4″ (32A) |
| J | 1 1/2″ (40A) |
| K | 2″ (50A) |
| L | 21/2″ (65A) |
| M | 3″ (80A) |
| N | 4″ (100A) |
| P | 7/16″ |
| Z | Other |

### Code - Connection type

| | |
|---|---|
| PF | PF |
| AB | PT |
| AA | NPT |
| FF | BSPT |
| GG | BSPF |
| HH | NPS |
| JJ | M |

### Code - Flange rating

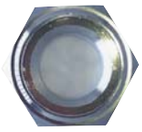
| | |
|---|---|
| KA | JIS 5K RF |
| AC | B16.5 Class 150 RF |
| AE | B16.5 Class 150 FF |
| AD | B16.5 Class 150 RFSF |
| AF | B16.5 Class 300 RF |
| AH | B16.5 Class 300 FF |
| AG | B16.5 Class 300 RFSF |
| AJ | B16.5 Class 600 RF |
| KT | JIS 5K FF |
| AL | B16.5 Class 600 FF |
| AK | B16.5 Class 600 RFSF |
| KL | JIS 10K RF |
| KN | JIS 10K FF |
| KM | JIS 10K RFSF |
| KP | JIS 20K RF |
| KR | JIS 20K FF |
| KQ | JIS 20K RFSF |
| KC | JIS 30K RF |
| KU | JIS 30K FF |
| KJ | JIS 30K RFSF |
| AS | B16.5 Class 900 RF |
| KD | JIS 40K RF |
| KV | JIS 40K FF |
| A8 | B16.5 Class 150 RTJ |
| A9 | B16.5 Class 300 RTJ |
| AV | B16.5 Class 600 RTJ |
| AT | B16.5 Class 1500 RF |
| AN | B16.5 Class 1500 FF |
| AB | B16.5 Class 1500 RFSF |
| AX | B16.5 Class 1500 RTJ |
| AY | B16.5 Class 2000 RTJ |
| ZZ | Other |

**Flush Diaphragm Pressure Transmitter**
**Model : P510 Series(Ceramic Diaphragm)**
**P520 Series(Stainless steel)**

WISE SENSOR

## Advantages

- Flush diaphargm with ceramic or stainless steel
- Shock and vibration resistant
- Zero and span adjustments
- Measuring ranges
  - P510 Series : 0.5~50 kgf / $cm^2$
  - P520 Series : 0.1~35 kgf / $cm^2$



P510 Series

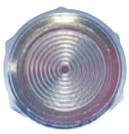
P515 / P525

P516 / P526

## Applications

The transmitters are specially designed for pressure measurement in sticky, high viscous liquids.

- Process control for food and beverage industry
- Tank level measurement
- Chemical and petrochemical industry
- Equipment and machinery for paint, ink, resin and dough process
- Cosmetic and pulp industry
- Pharmaceuticals



P520 Series

P517 / P527

P518 / P528

## Descriptions

Flush mounted pressure transmitters are perfectly suitable for measuring static pressure in sticky and high viscous liquids in industrial applications. They incorporate a fully temperature compensated piezoresistive ceramic or silicon sensor which is corrosion resistant, and a strong, durable flush mounted diaphragm. The transmitters are available as absolute and relative pressure types with either 2-wire current or 3-wire voltage output. The versatile process connections including thread, flange and clamp mounting are available by customer requirement.

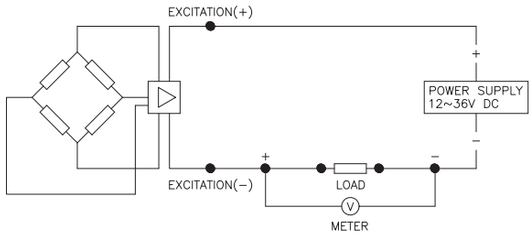
The pressure to be measured acts without transmitting liquid on a stable, corrosion resistant ceramic or silicon measuring cell. Piezoresistive resistors are attached to the cell and connected into a Wheatstone bridge configuration. The output signal of this bridge is converted into a standardized current or voltage output signal.

## Specification

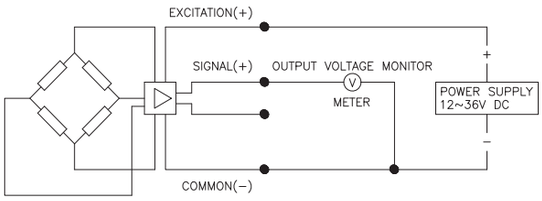
| Input | | |
|---|---|---|
| Model | P510 Series | P520 Series |
| Technology | Piezoresistive ceramic pressure sensor | Piezoresistive silicon pressure sensor |
| Pressure ranges | 0~0.5 to 50 kgf / $cm^2$ relative | 0~0.1 to 0~35 kgf / $cm^2$ relative |
| | 0~1 to 50 kgf / $cm^2$ absolute | 0~1 to 35 kgf / $cm^2$ absolute |
| Pressure reference | vacuum Gauge, absolute compound | |
| Overload | 1.5x full scale without damage | 3x full scale without damage |
| **Output** | | |
| Unamplified | 2.0~3.3m V / V | 5.0m 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 | PF3/4, male thread as a standard | |
| | Other connections available on request | |
| Process media | Gases and liquids compatible with | |
| Materials of Diaphragm | Stainless steel 316L | |
| Housing | Stainless steel 316 | |
| Gasket O-ring | Viton, HNBR, Teflon | |
| Enclosure rating | IP65 | |
| Influence of mounting position | Not critical | Under 0.5 kgf / $cm^2$, mounting vertically |
| Weight | Approx. (157g) | |

Note : ① Cable version : 1.5m standard length, 4-wire, shielded with integral vent tube
② Vented gauge units must breathe dry, non - corrosive gases.
③ Connector version is vented through the removed pin, cable versions are vented through a vent tube inside the cable sleeve

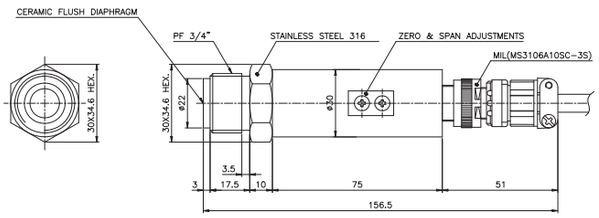
## System connection for 2-wire transmitter

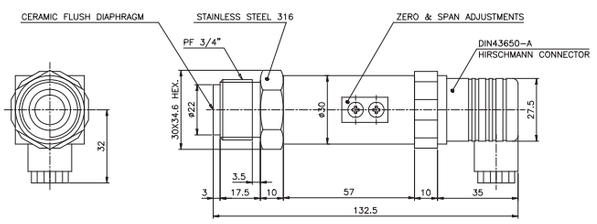


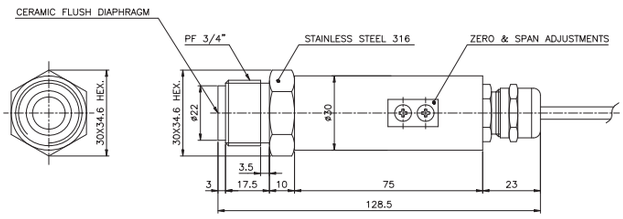

## System connection for 3-wire transmitter

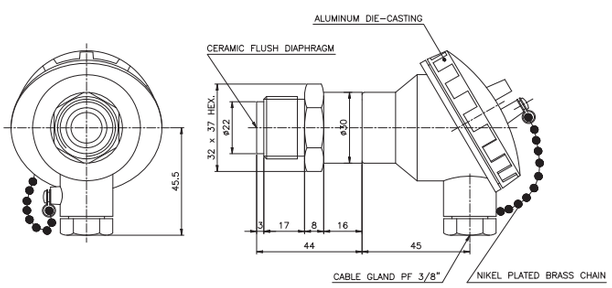



## Dimension (mm)




## Electrical connection

E : Excitation
S : Signal
C : Common

### Circular connector

| 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 |

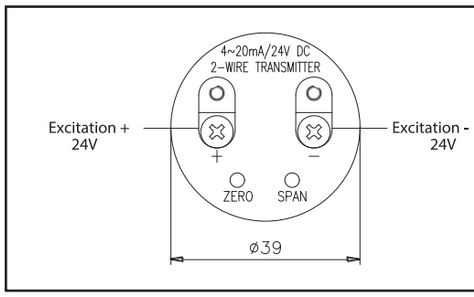
### DIN connector

| 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 |

### General head



## Ordering Information

### Flush Diaphragm Pressure Transmitter

1. Base model

| | | |
|---|---|---|
| P515 | Ceramic Diaphragm | Circular Connector |
| P525 | Stainless Steel Diaphragm | |
| P516 | Ceramic Diaphragm | DIN Connector |
| P526 | Stainless Steel Diaphragm | |
| P517 | Ceramic Diaphragm | Flying Lead |
| P527 | Stainless Steel Diaphragm | |
| P518 | Ceramic Diaphragm | General Head |
| P528 | Stainless Steel Diaphragm | |

2. Pressure reference

| | |
|---|---|
| R | Relative pressure |
| A | Absolute pressure |

3. Process connection type "1"

| | |
|---|---|
| M | Male thread |
| F | Female thread |

4. Process connection type "2"

| | |
|---|---|
| T | PT thread as standard |
| F | PF thread |
| X | Other process connections available on request |

5. Process connection size

| | |
|---|---|
| 1 | 3/4 (standard) |
| 2 | 1″ |
| X | Other units available on request |

6. Accuracy

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

7. Measuring range

| | | |
|---|---|---|
| 01 | 0~2000 $mmH_2O$ (Only available P520 series) | |
| 02 | 0~3000 $mmH_2O$ (Only available P520 series) | |
| 03 | 0~5000 $mmH_2O$ | |
| 04 | 0~1 kgf / $cm^2$, bar | 0~0.1 Mpa |
| 05 | 0~2 kgf / $cm^2$, bar | 0~0.2 Mpa |
| 06 | 0~5 kgf / $cm^2$, bar | 0~0.5 Mpa |
| 07 | 0~20 kgf / $cm^2$, bar | 0~2 Mpa |
| 08 | 0~35 kgf / $cm^2$, bar | 0~3.5 Mpa |
| 09 | 0~50 kgf / $cm^2$, bar, bar (Only available P510 series) | 0~5 MPa (Only available P510 series) |
| xx | Other calibration ranges available on request | |

8. Unit

| | |
|---|---|
| K | Calibration in kgf / $cm^2$ |
| A | Calibration in Mpa |
| B | Calibration in bar |
| X | Other units available on request |

9. 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 P516, P526, P517 and P527) |
| B3 | 0~10V, DC, 3-wire output (Only available P516, P526, P517 and P527) |

10. Option

| | |
|---|---|
| N | None options |
| X | Other accessories available on request |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| P526 | R | M | F | 1 | S | 01 | K | A1 | N | Sample ordering code |

Specifications subject to change without notice

**Corrosive Environment Pressure Transmitter**
**Model : P617 (Flying Leads)**

WISE SENSOR

## Advantages

- Pressure transmitter for highly corrosive environments
- Extremely corrosion resistant ceramic diaphragm (Al2 O3 96%)
- Measuring ranges from 5000mm$H_2O$ to 20 kgf / $cm^2$ relative or absolute pressure
- Rugged piezoresistive or capacitive ceramic measuring cell
- Shock and vibration resistant
- Wetted part and housing of teflon
- Compact design

P617

## Applications

This transmitter is specially designed for a highly corrosive environmental condition where stainless steel could not be applied such as...

- Process control and monitoring in corrosive environment
- Chemical and petrochemical industry
- Corrosive liquid level measurement
- Plating and dyeing process controls

## Descriptions

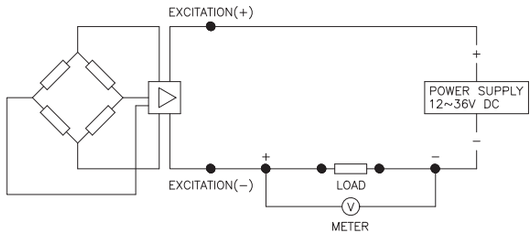
P600 series pressure transmitter has been designed as an advanced device for measuring pressure of corrosive gases and liquids in industrial applications. It is extremely versatile and suitable for measuring static pressure. The built-in ceramic measuring cell is highly corrosion resistant, stable and has an excellent price / performance ratio. Thanks to their high natural frequency and the rugged construction, the P600 transmitter withstands high shock and vibration. The transmitters are available as absolute and relative pressure types with either 2-wire current or 3-wire voltage output. 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. The output signal of this bridge is converted into a standardized current or voltage output signal.

## Specification

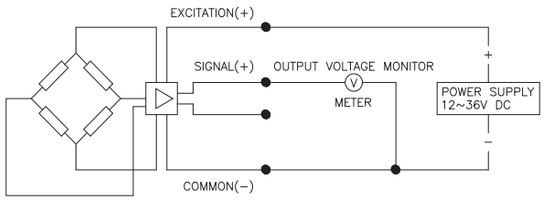
| | | | | |
|---|---|---|---|---|
| **Input** | | | | |
| Technology | Piezoresistive ceramic pressure sensor | | | |
| Pressure ranges | 0~0.5 to 0~20 kgf / $cm^2$ relative | | | |
| | 0~1 to 0~20 kgf / $cm^2$ absolute | | | |
| Pressure reference | Gauge, absolute, vacuum and compound | | | |
| Overload | 1.5x full scale without damage | | | |
| **Output** | | | | |
| | Current output | | Voltage output | |
| Electrical connection type | 2-wire technique | | 3 or 4-wire technique | |
| Full scale output signal | 20mA | ± 0.5% | 5V | ± 0.5% |
| Zero measured output | 4mA | ± 0.05% | 1V | ± 0.05% |
| | 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 | | | |
| Response time(10~90%) | 1.5ms | | | |
| **Performance Specification** | | | | |
| Accuracy | ≤± 0.5% FSO | | | |
| Linearity, Hysteresis & Repeatability | ± 0.2% FSO typical | | | |
| Stability | ± 0.3% FSO / a @25°C | | | |
| Cutoff frequency (-3 d B) | ≤ 2KHz | | | |
| Reference temperature | 25°C | | | |
| Operating temperature range | -40~125°C | | | |
| Compensated temperature range | 0~70°C | | | |
| Thermal sensitivity shift | ≤± 0.015% / °C typical | | | |
| Thermal zero shift | ≤± 0.02% FSO / °C typical | | | |
| Long term stability | ≤± 0.03% FSO over 6 months | | | |
| **Physical Specification** | | | | |
| Process connection | PT1/2 male thread (standard) | | | |
| | Female thread & other connections available on request | | | |
| Process media | Gases and liquids compatible with ceramic Al2 O3, 96% | | | |
| Materials wetted by process | Diaphragm : Ceramic Al2 O3, 96% | | | |
| | Housing : Teflon or PTFE | | | |
| | Gasket O-ring : Teflon (Kalez, HNBR, CSM, etc.) | | | |
| Enclosure rating | IP65 | | | |
| Influence of mounting position | Not critical | | | |
| Weight | Approx. (250g) | | | |
| Option | Siphon tube | | | |

Note : ① Cable version : 1.5m standard length, 4-wire, shielded with integral vent tube
② Vented gauge units must breathe dry, non - corrosive gases.
③ Connector version is vented through the removed pin, cable versions are vented through a vent tube inside the cable sleeve

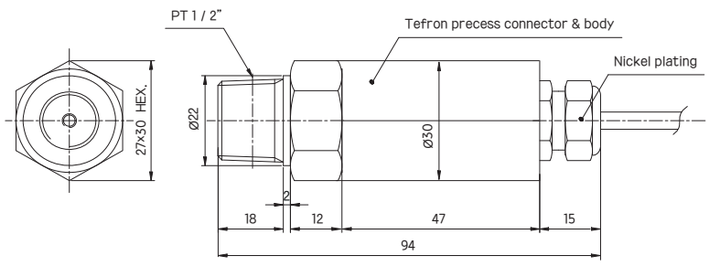
## System connection for 2-wire transmitter




## System connection for 3-wire transmitter




## Dimension (mm)




## Electrical connection

E : Excitation
S : Signal
C : Common

### Circular connector

| 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

### Corrosive Environment Pressure Transmitter

1. Base model

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| P617 | | | | | | | | | Flying lead (1.5m cable) |

2. Pressure reference

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| R | | | | | | | | | Relative pressure |
| A | | | | | | | | | Absolute pressure |

3. Process connection type "1"

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| M | | | | | | | | Male thread |
| F | | | | | | | | Female thread |

4. Process connection type "2"

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

5. Process connection size

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | | | | | | 1/2″ |
| X | | | | | | Other units available on request |

6. Accuracy

| | | | | | |
|---|---|---|---|---|---|
| S | | | | | ± 0.5% F.S.O |

7. Measuring range

| | | | | | |
|---|---|---|---|---|---|
| 01 | | | | 0~0.5 kgf / $cm^2$, bar | 0~0.05 Mpa |
| 02 | | | | 0~1 kgf / $cm^2$, bar | 0~0.1 Mpa |
| 03 | | | | 0~2 kgf / $cm^2$, bar | 0~0.2 Mpa |
| 04 | | | | 0~5 kgf / $cm^2$, bar | 0~0.5 Mpa |
| 05 | | | | 0~10 kgf / $cm^2$, bar | 0~1 Mpa |
| 06 | | | | 0~20 kgf / $cm^2$, bar | 0~2 Mpa |
| xx | | | | Other calibration ranges available on request | |

8. Unit

| | | | |
|---|---|---|---|
| K | | | Calibration in kgf / $cm^2$ |
| A | | | Calibration in Mpa |
| B | | | Calibration in bar |
| X | | | Other units available on request |

9. 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 |
| XX | | Other output signal available on request |

10. Option

| | |
|---|---|
| N | None options |
| S | Siphon tube |
| X | Other accessories available on request |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| P617 | R | M | T | 1 | S | 02 | B | A1 | N | Sample ordering code |

Specifications subject to change without notice

# Explosion Proof Type Pressure Transmitter with Local Display

**Model : P700 (Stainless steel silicon cell, Standard head)**
**P710 (Stainless steel silicon cell, Miniature head)**
**P700C (Capacitive ceramic cell)**

WISE SENSOR

## Advantages

- High precision pressure transmitter with local display for industrial applications
- Measuring ranges from 500mm$H_2O$ to 350 kgf / $cm^2$
- Advanced piezoresistive silicon or capacitive ceramic measuring cell
- Excellent accuracy and long term stability
- Extremely high proof pressure
- LED 4 digit display with 4~20mA 2-wire current output signal
- Explosion proof "Ex d IIC T6"


P700 / P700C

## Applications

The P700 series pressure transmitter is ideal for measurements which require a local display and a need to communicate with remote data acquisition equipment in industrial applications.
The 2-wire 4 to 20mA signal can be transmitted over great distance with negligible loss of accuracy.

- Standard hydraulic and pneumatic
- Regulation system of transmission line of LPG and LNG
- Machine tools and water treatment
- Flow control and water treatment
- Oil and off-shore industry
- Equipments for chemical and petrochemical industry
- Automation system and plant engineering
- Liquid level measurement


P710

## Descriptions

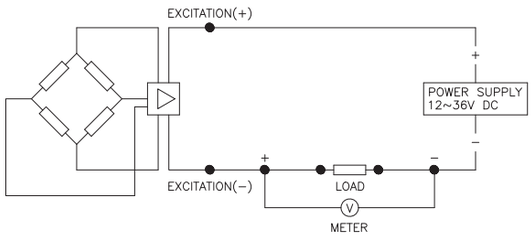
P700 series pressure transmitter with local display is a signal conditioned, media-isolated pressure transmitter that can be used for a wide variety of applications. The transmitter offers the convenience and easy installation of an LED display with the full capabilities of a highly accurate 4~20mA 2-wire system design. The 2-wire 4 to 20mA output signal can be transmitted over great distances with negligible loss of accuracy. The stainless steel surfaces make it compatible with a wide variety of gases and liquids and can be protected from harsh environment. They are extremely versatile and suitable for measuring dynamic or static pressure. The transmitters are available as absolute and relative pressure types with either 2-wire current or 3-wire voltage output. 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 resistances which are connected into a Wheatstone bridge. The output signal of this bridge is temperature compensated and converted into a standardized current or voltage output signal.

## Specification

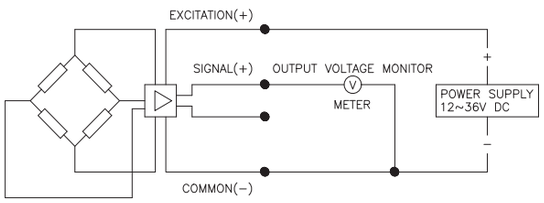
| Input | | |
|---|---|---|
| Model | P700 / P710 | P700C |
| Technology | Piezoresistive silicon pressure sensor | Capacitive ceramic pressure sensor |
| Pressure ranges | 0~0.05 to 350 kgf / $cm^2$ relative pressure | 0~500mm$H_2O$ to 70 kgf / $cm^2$ relative |
| | 0~1 to 350 kgf / $cm^2$ absolute pressure | 0~1 to 70 kgf / $cm^2$ absolute |
| Pressure reference | Gauge, absolute, vacuum and compound | |
| Overload | 3x full scale without damage | 6x full scale without damage |
| **Output** | | |
| Current output signal | 4~20mA DC 2-wire technique | |
| Voltage output signal | 1~5V DC 3-wire technique | |
| | Other signals available on request | |
| Local display | LED 4 digit | |
| **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 | No change in performance after 10Gs for 11ms | |
| Response time (10~90%) | ≤ 2 milliseconds | 1 milliseconds |
| Adjustment | ± 10% FSO / zero and span | ± 20% FSO / zero and span |
| **Performance Specification** | | |
| Accuracy | ≤± 0.25% FSO | ≤± 0.2% FSO |
| Non-linearity | ± 0.100 FSO typical | ± 0.15% FSO |
| Repeatability | ± 0.015 FSO typical | ± 0.10% FSO |
| Pressure hysteresis | ± 0.010 FSO typical | ± 0.10% FSO |
| Long term stability | ± 0.3% FSO over 6 month | Max. annual error ± 0.10% FSO |
| Cutoff frequency (-3 d B) | ≤ 2KHz | |
| Reference temperature | 35°C | 25°C |
| Operating temperature range | -40~125°C | -40~125°C |
| Compensated temperature range | 0~82°C | -20~82°C |
| Thermal sensitivity shift | ≤± 0.2% FSO in reference to 35°C typical | ≤± 0.05% FSO |
| Thermal zero shift | ≤± 0.2% FSO in reference to 35°C typical | ≤± 0.1% FSO |
| Thermal hysteresis | ≤± 0.1% FSO in reference to 35°C typical | ≤± 0.1% FSO |
| **Physical Specification** | | |
| Process connection | PT1/4″, PT3/8″, PT1/2″ male thread | |
| | PF1/4″, PF3/8″, PF1/2″ male thread | |
| | Other connections available on request | |
| Process media | Compatible with stainless steel 316 | Ceramic Al2O3, 96% |
| Materials wetted by process | Diaphragm : stainless steel 316L | Ceramic Al2O3, 96% |
| | Housing : Aluminum Die-casting | |
| | Gasket O-ring : Viton (HNBR, CSM, etc.) | |
| Enclosure rating | IP65 | |
| Explosion protection | Ex d IIC T6 (P700 / P710) | |
| Influence of mounting position | Under 0.5 kgf / $cm^2$, mounting vertically | Not critical |
| Weight | Approx. 802g (P700 / P700C), 600g (P710) | |
| Options | Sealed diaphragm with thread connection | |
| | Sealed diaphragm with flange mounting | |
| | Siphon tube | |
| | Sealed diaphragm with capillaty | |

Note : If it is installed in explosive atmosphere, the covers should be kept tight when circuit alive.

## System connection for 2-wire transmitter

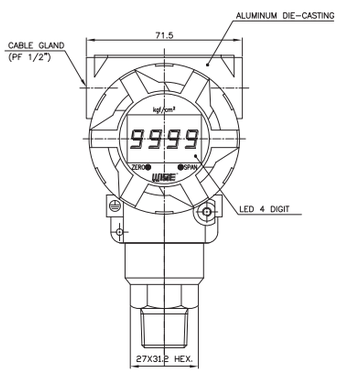



## System connection for 3-wire transmitter

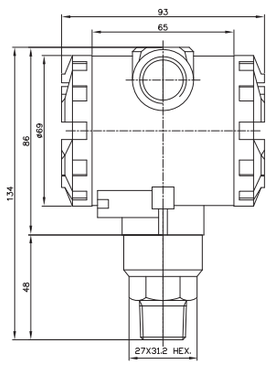



## Dimension (mm)

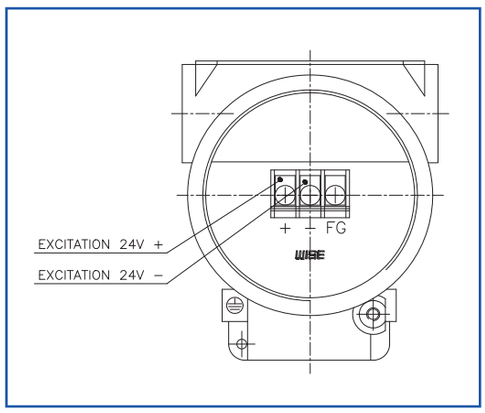
### P700 Front View



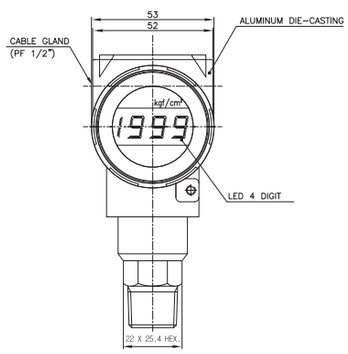

### P700 Side View



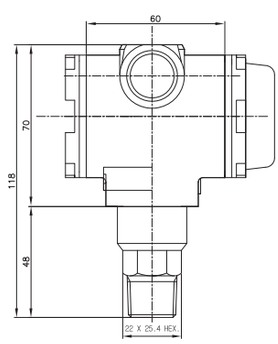

### P700 Terminal Block



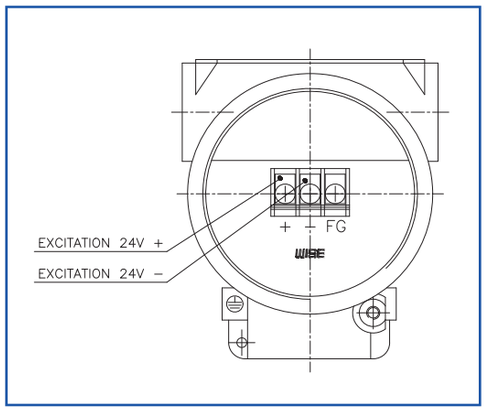

### P710 Front View




### P710 Side View




### P710 Terminal Block



## Ordering Information

### Explosion Proof Type Pressure Transmitter with Local Display

1. Base model

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| P700 | | | | | | | | | Piezoresistive silicon sensor (Standard head) |
| P710 | | | | | | | | | Piezoresistive silicon sensor (Miniature head) |
| P700C | | | | | | | | | Capacitive ceramic sensor (Standard head) |

2. Pressure reference

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| R | | | | | | | | | Relative pressure |
| A | | | | | | | | | Absolute pressure |

3. Process connection type "1"

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| M | | | | | | | | Male thread |
| F | | | | | | | | Female thread |

4. Process connection type "2"

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| T | | | | | | | PT thread as standard |
| F | | | | | | | PF thread |
| X | | | | | | | Other process connections available on request |

5. Process connection size

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | | | | | | 1/4″ |
| 2 | | | | | | 3/8″ |
| 3 | | | | | | 1/2″ |
| X | | | | | | Other units available on request |

6. Accuracy

| | | | | | |
|---|---|---|---|---|---|
| H | | | | | ± 0.25% F.S.O (with silicon cell) |
| K | | | | | ± 0.2% F.S.O (with ceramic cell) |

7. Measuring range

| | | | | | |
|---|---|---|---|---|---|
| 01 | | | | 0~500 $mmH_2O$ | |
| 02 | | | | 0~700 $mmH_2O$ | |
| 03 | | | | 0~1000 $mmH_2O$ | |
| 04 | | | | 0~2000 $mmH_2O$ | |
| 05 | | | | 0~5000 $mmH_2O$ | |
| 06 | | | | 0~1 kgf / $cm^2$, bar | 0~0.1 Mpa |
| 07 | | | | 0~2 kgf / $cm^2$, bar | 0~0.2 Mpa |
| 08 | | | | 0~5 kgf / $cm^2$, bar | 0~0.5 Mpa |
| 09 | | | | 0~10 kgf / $cm^2$, bar | 0~1 Mpa |
| 10 | | | | 0~20 kgf / $cm^2$, bar | 0~2 Mpa |
| 11 | | | | 0~35 kgf / $cm^2$, bar | 0~3.5 Mpa |
| 12 | | | | 0~50 kgf / $cm^2$, bar | 0~5 Mpa |
| 13 | | | | 0~100 kgf / $cm^2$, bar | 0~10 Mpa |
| 14 | | | | 0~200 kgf / $cm^2$, bar | 0~20 Mpa |
| 15 | | | | 0~350 kgf / $cm^2$, bar | 0~35 Mpa |
| xx | | | | Other calibration ranges available on request | |

8. Unit

| | | | |
|---|---|---|---|
| M | | | Calibration in $mmH_2O$ |
| K | | | Calibration in kgf / $cm^2$ |
| A | | | Calibration in Mpa |
| B | | | Calibration in bar |
| X | | | Other units available on request |

9. Output signal / Electrical connection type

| | | |
|---|---|---|
| C | | 4~20mA, DC, 2-wire output |
| V | | 1~5V DC, 3-wire output |
| X | | Other signal available on request |

10. Option

| | |
|---|---|
| N | None options |
| T | Sealed diaphragm with thread |
| F | Sealed diaphragm with flange mounted |
| C | Sealed diaphragm with capillaty |
| S | Siphon tube |
| X | Other accessories available on request |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| P700 | R | M | T | 2 | H | 01 | K | C | N | Sample ordering code |

Specifications subject to change without notice

**Pressure Transmitter with Digital Switch**
**Model : P800S (General Head)**
**P800 (Explosion Proof Head)**

WISE SENSOR

## Advantages

- High precision micro-processor based digital pressure switch / transmitter for industrial applications
- Adjustable switch points allow the user to obtain various pressure settings for each of the 2 switches and span
- Measuring ranges from 0.2 to 350 kgf / $cm^2$
- Advanced piezoresistive silicon measuring cells
- Excellent accuracy and long term stability
- 4 digit LED local display
- 2switching points with analog output signal
- Measuring range turn down maximum 10:1


P800S

## Applications

The High precision micro-processor based digital pressure switch with analog output signal can be used for a wide range of applications in process control, automatic machinery and hydraulic or pneumatic system design.

- Chemical, petrochemical, food and drug process control
- Hydraulic and pneumatic equipments
- Machine tools and automatic machinery
- LPG and LNG transmission control and storage tank monitoring
- Engine monitoring and control
- Vacuum pump and injection molding machine Functions


P800

## Descriptions

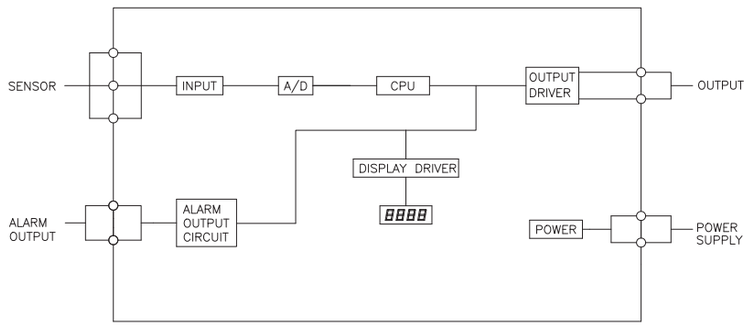
P800 Series micro-processor based digital pressure switch is ideal for applications that requir highly accurate process control and monitoring. The P800S / P800 with its built-in piezoresistive pressure measuring cell. a 4-digit digital display. 2 switching points, 4~20mA analog output signal and a front function keys, offer the user all the advantages of a modern electronic pressure measurement. External adjustments allow the user to set the pressure ranges, switch points, deadband and zero or span calibration, etc. It has a water resistant, stainless steel housing for complete protection from harsh environment and its 4~20mA current output is ideal for remote monitoring of both primary and secondary process variables. It has been designed as an advanced device for measuring pressure of gases and liquids in industrial applications. It is extremely versatile and suitable for measuring dynamic or static pressure. 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 temperature compensated and converted into a standardized current or voltage output signal.

## Specification

| | |
|---|---|
| **Input** | |
| Technology | Piezoresistive silicon pressure sensor |
| Pressure ranges | 0~0.2 to 0~350 kgf / $cm^2$ relative pressure |
| | 0~1 to 350 kgf / $cm^2$ absolute pressure |
| Pressure reference | Gauge, absolute, vacuum and compound |
| Overload | 3x full scale without damage |
| **Output** | |
| output signal | 2 switching points |
| | 4~20mA current output |
| | 2 switching points with analog output (4-20mA) |
| | Other signal available on request |
| Local display | LED 4 digit |
| Electrical connection type | Other signals available on request |
| **Electrical Specification** | |
| Excitation voltage | 24V DC (12~36V DC), 85~260V AC (optional) |
| Load resistance max @ 24V | 500Ω at 24V |
| Influence of excitation | 0.01% FSO/V |
| Power ripple | ≤ 500mV P-P |
| Reverse polarity | Protected |
| Shock resistance | No change in performance after 10Gs for 11ms |
| Vibration | 0.1G (1m / s / s) maximum |
| Response time (10~90%) | ≤ 2 milliseconds |
| Switching current | Maximum 1.2A |
| Range turn down | Max. 10 : 1 |
| **Performance Specification** | |
| Accuracy | ≤± 0.25% FSO |
| Non-linearity | ± 0.100% FSO typical |
| Repeatability | ± 0.015% FSO typical |
| Pressure hysteresis | ± 0.010% FSO typical |
| Long term stability | ± 0.3% FSO over 6 month |
| Cutoff frequency (-3 d B) | ≤ 2KHz |
| Reference temperature | 35°C |
| Operating temperature range | -40~125 °C |
| Compensated temperature range | 0~82 °C |
| Thermal sensitivity shift | ≤± 0.2% FSO in reference to 35°C typical |
| Thermal zero shift | ≤± 0.2% FSO in reference to 35°C typical |
| Thermal hysteresis | ≤± 0.1% FSO in reference to 35°C 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 |
| Electrical connection | PT1/2″ female |
| Process media | Gases and liquids compatible with stainless steel 316 |
| Materials wetted by process | Diaphragm : Stainless steel 316L |
| | Housing : Stainless steel 316, Aluminum Die-casting terminal head |
| | Gasket O-ring : Viton (HNBR, CSM, etc.) |
| Enclosure rating | IP65 |
| Explosion protection | Ex d IIC T6 (Only P800) |
| Influence of mounting position | Under 0.5 kgf / $cm^2$, mounted vertically |
| Weight | Approx. (950g) |
| Options | Sealed diaphragm with thread connection |
| | Sealed diaphragm with flange mounting |
| | Siphon tube |
| | Sealed diaphragm with capillaty |

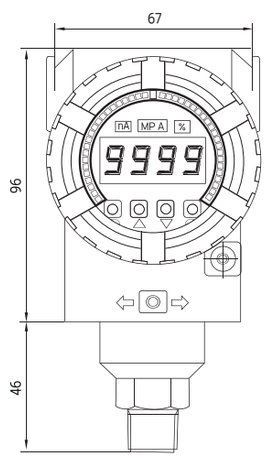
Note : ① For high pressure measurement, this model is available up to 2000 kgf / $cm^2$ with thin film pressure sensor.
② If it is installed in explosive atmosphere, the covers should be kept tight when circuit alive.

## System connection for digital switch

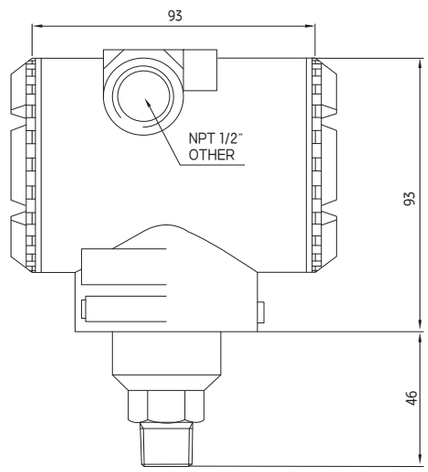



## Dimension (mm)

### P800S

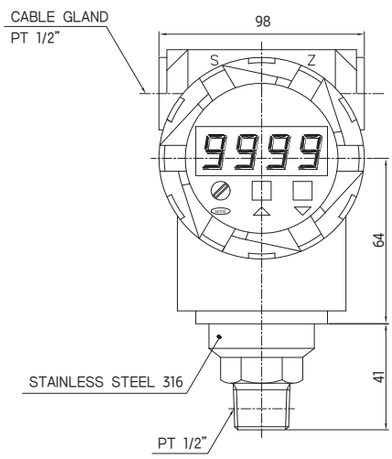



Front view

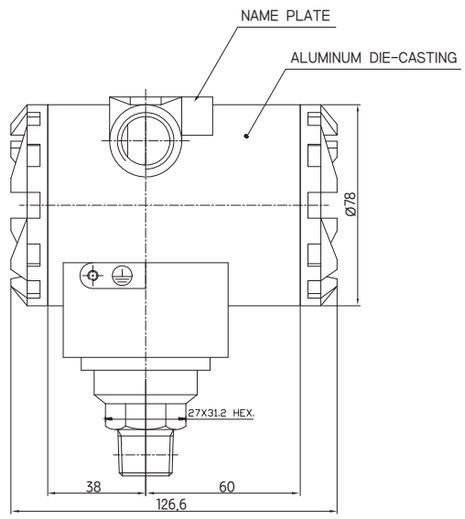



Side view

### P800




Front view




Side view

## Electrical connection

## Ordering Information

### Pressure Transmitter with Digital Switch

1. Base model

| | |
|---|---|
| P800S | Piezoresistive silicon sensor (General head) |
| P800 | Piezoresistive silicon sensor (Explosion proof head) |

2. Pressure reference

| | |
|---|---|
| R | Relative pressure |
| A | Absolute pressure |

3. Process connection type "1"

| | |
|---|---|
| M | Male thread |
| F | Female thread |

4. Process connection type "2"

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

5. Process connection size

| | |
|---|---|
| 1 | 1/4″ |
| 2 | 3/8″ |
| 3 | 1/2″ |
| X | Other units available on request |

6. Accuracy

| | |
|---|---|
| H | ± 0.25% F.S.O |

7. Measuring range

| | | |
|---|---|---|
| 01 | 0~2000 $mmH_2O$ | |
| 02 | 0~5000 $mmH_2O$ | |
| 03 | 0~1 kgf / $cm^2$, bar | 0~0.1 Mpa |
| 04 | 0~2 kgf / $cm^2$, bar | 0~0.2 Mpa |
| 05 | 0~5 kgf / $cm^2$, bar | 0~0.5 Mpa |
| 06 | 0~10 kgf / $cm^2$, bar | 0~1 Mpa |
| 07 | 0~20 kgf / $cm^2$, bar | 0~2 Mpa |
| 08 | 0~35 kgf / $cm^2$, bar | 0~3.5 Mpa |
| 09 | 0~50 kgf / $cm^2$, bar | 0~5 Mpa |
| 10 | 0~100 kgf / $cm^2$, bar | 0~10 Mpa |
| 11 | 0~200 kgf / $cm^2$, bar | 0~20 Mpa |
| 12 | 0~350 kgf / $cm^2$, bar | 0~35 Mpa |
| xx | Other calibration ranges available on request | |

8. Unit

| | |
|---|---|
| M | Calibration in $mmH_2O$ |
| K | Calibration in kgf / $cm^2$ |
| A | Calibration in Mpa |
| B | Calibration in bar |
| X | Other units available on request |

9. Output signal

| | |
|---|---|
| N | None output signal |
| R | 2 switching points |
| C | 4~20mA Current output signal |
| D | 2 switching point with 4~20mA analog output |
| X | Other signals available on request |

10. Power supply

| | |
|---|---|
| D | 24V DC power supply |
| A | 24V AC power supply |
| U | 85~260V, AC |
| X | Other power units available on request |

11. Option

| | |
|---|---|
| N | None options |
| T | Sealed diaphragm with thread (option) |
| F | Sealed diaphragm with flange mounting |
| C | Cooling Fin |
| S | Siphon tube |
| X | Other accessories available on request |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| P800S | R | M | T | 2 | H | 01 | K | C | D | N | Sample ordering code |

Specifications subject to change without notice