

WTP01 Pressure Sensor

Features

- With constant current and constant voltage excitation options
- Imported highly reliable pressure die
- Wide temperature compensation
- Compensation board filled with glue for protection against moisture
- A variety of pressure port options available
- High performance, all solid, high reliability
- 18 months warranty period

Applications

- Process control systems
- Pressure calibration instruments
- Refrigeration equipment and HVAC control
- Hydraulic systems and valves
- Level measurement
- Biomedical instruments
- Ships and navigation
- Aircraft and avionics systems
- Weaponry

Notes:

- 1 Do not touch the diaphragm with hard objects, which may cause damage to the diaphragm.
- 2 Please read the Instruction Manual of the product carefully before installation and check the relevant information of the product.
- 3 Strictly follow the wiring method for wiring; otherwise it may cause product damage or other potential faults.
- 4 Misuse of the product may cause danger or personal injury.

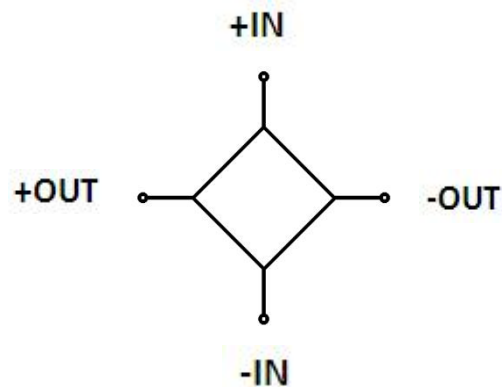


Product overview

WTP01 pressure sensor packages a PC10 pressure sensor in a workpiece with a standard pressure port. It is widely used in the process control and measurement of petroleum, chemical, metallurgy, aviation, aerospace, marine, medical equipment, vehicles, refrigerators, compressors and other industries.

Equivalent circuit

4 wire



Notes:

- 1 Do not misuse documentation.
- 2 The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- 3 Complete installation, operation, and maintenance information is provided in the instructions of the product.
- 4 Misuse of the product may cause danger or personal injury.

Electrical performance parameters

| | |
|-----------------------|--|
| Pressure range | 0~10kPa...100MPa |
| Pressure reference | Gauge pressure, Absolute pressure, Sealed gauge pressure |
| Excitation | 1.5mA recommended for constant current 10V recommended for constant voltage |
| Input impedance | Constant current: 2kΩ~5kΩ Constant voltage: 3kΩ~18kΩ |
| Electrical connection | silicon soft wire |
| Compensation temp. | 0℃~60℃ (Range<70kPa) ; -10℃~70℃ (other ranges) |
| Operating temp. | -40℃~120℃ |
| Storage temp. | -40℃~120℃ |
| Insulation resistance | ≥200MΩ/250VDC |
| Response time | ≤1ms (up to 90%FS) |
| Measured medium | All the liquids and gases compatible with 304. |
| Mechanical vibration | 20g (20~5000HZ) |
| Shock | 100g (10ms) |
| Service life | 1.0×10 ⁶ (cycles) |

Structural performance parameters

| | |
|--------------------|-------------|
| Diaphragm material | 316L |
| Housing material | 304 |
| Oil filling | Silicon oil |

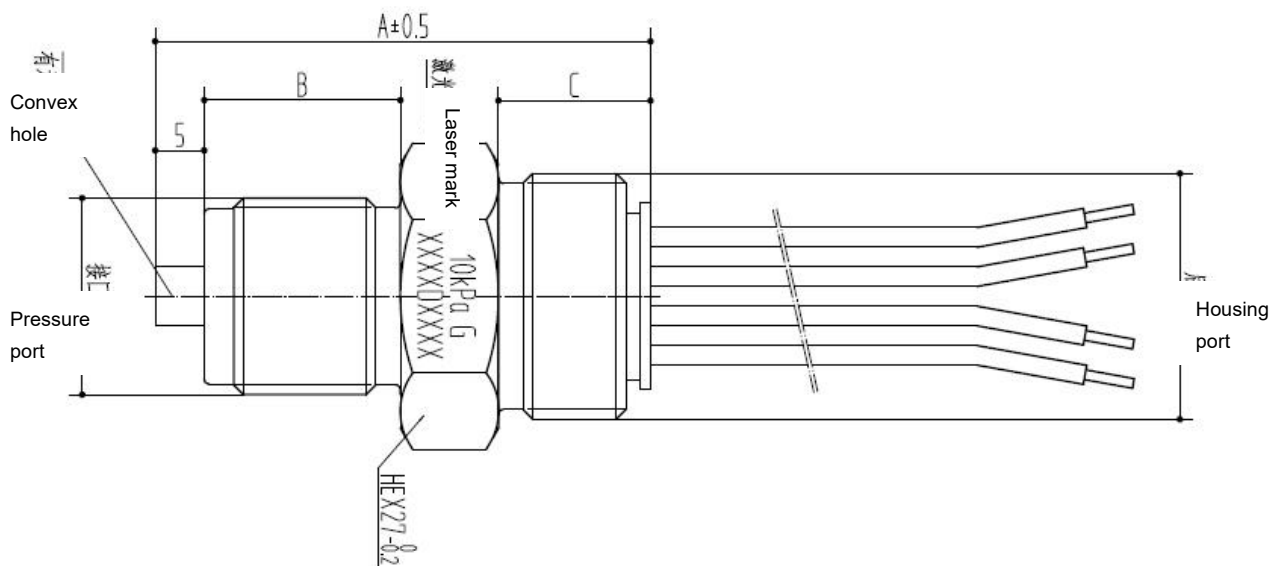
Basic parameters

| Item | Condition | Min | Typical | Max | Unit | Note |
|-------------------------------|---------------------|--------|---------|-------|-----------|---------|
| Nonlinearity | Other ranges | -0.3 | ±0.2 | 0.3 | %FS | Note(1) |
| | 100MPa | -0.55 | | 0.55 | %FS | Note(1) |
| Hysteresis | | -0.05 | ±0.03 | 0.05 | %FS | |
| Repeatability | | -0.05 | ±0.03 | 0.05 | %FS | |
| Zero output | | -2 | ±1 | 2 | mV | |
| Full scale span output | 1.5mA, 10kPa | 30 | | | mV | |
| | 1.5mA, other ranges | 60 | 90 | 150 | | |
| | 5V, 10kPa | 60 | | | | |
| | 5V, other ranges | 98 | 100 | 102 | | |
| Zero temp. coefficient | 10kPa | -2.5 | ±1.5 | 2.5 | %FS | Note(2) |
| | other ranges | -1.5 | ±0.75 | 1.5 | | |
| Sensitivity temp. coefficient | | -1.5 | ±0.75 | 1.5 | %FS | Note(2) |
| Thermal hysteresis | | -0.075 | ±0.05 | 0.075 | %FS | Note(3) |
| Long term stability | | -0.3 | ±0.2 | 0.3 | %FS/ Year | |

Note: (1) Calculate according to BFSL least square method.

(2) In the compensation temperature range, refer to 30 ℃ for 0 ℃ ~ 60 and -10 ℃ ~ 70 ℃

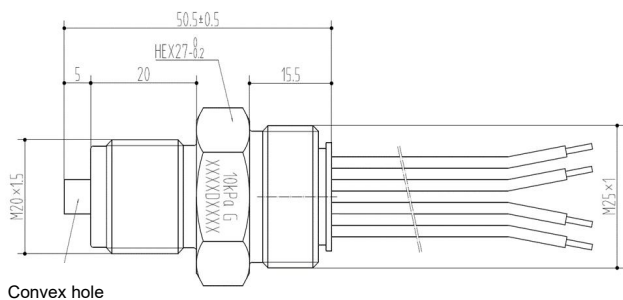
(3) After passing high and low temperature, return to the reference temperature.



| Pressure port | Housing port | A | B | C | D |
|---------------|--------------|------|------|------|---------|
| M20×1.5 | M24×1.5 | 43.5 | 20 | 13.5 | Without |
| M20×1.5 | M25×1 | 43.5 | 20 | 13.5 | Without |
| G1/2 | M24×1.5 | 43.5 | 20 | 13.5 | Without |
| G1/2 | M25×1 | 43.5 | 20 | 13.5 | Without |
| G1/2 | M24×1 | 33 | 15 | 8 | Without |
| 1/4NPT | M25×1 | 32.4 | 14.4 | 8 | Without |
| G1/4 | M22×1 | 35.5 | 12.5 | 13 | Without |
| M20×1.5 | M24×1.5 | 48.5 | 20 | 13.5 | With |
| M20×1.5 | M25×1 | 48.5 | 20 | 13.5 | With |
| M20×1.5 | M24×1 | 48.5 | 20 | 13.5 | With |
| G1/4 | M22×1 | 38 | 12.5 | 15.5 | Without |
| M20×1.5 | M24×1.5 | 50.5 | 20 | 15.5 | With |
| M20×1.5 | M25×1 | 50.5 | 20 | 15.5 | With |
| M20×1.5 | M24×1 | 50.5 | 20 | 15.5 | With |

Electrical connection (in mm)

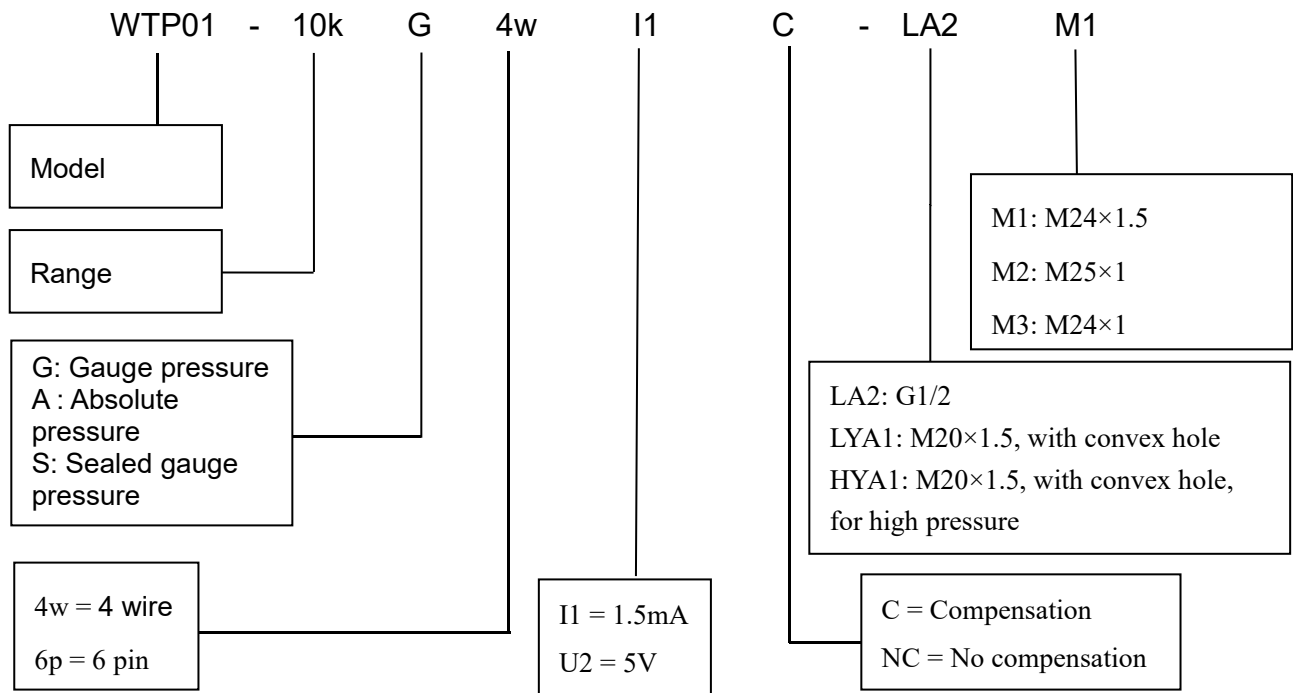
4 wire



| Wire color | Definition |
|------------|------------------|
| Red | Excitation+(IN+) |
| Blue | Excitation-(IN-) |
| Yellow | Output+(OUT+) |
| White | Output-(OUT-) |

| Code | Pressure reference | Pressure range | Overpressure | Burst pressure |
|------|--------------------|----------------|--------------|----------------|
| 10k | G | 0~10kPa | 300%FS | 600%FS |
| 20k | G | 0~20kPa | 300%FS | 600%FS |
| 35k | G、A | 0~35kPa | 300%FS | 600%FS |
| 70k | G、A | 0~70kPa | 300%FS | 600%FS |
| 100k | G、A | 0~100kPa | 200%FS | 500%FS |
| 160k | G、A | 0~160kPa | 200%FS | 500%FS |
| 250k | G、A | 0~250kPa | 200%FS | 500%FS |
| 400k | G、A | 0~400kPa | 200%FS | 500%FS |
| 600k | G、A | 0~600kPa | 200%FS | 500%FS |
| 1M | G、A、S | 0~1MPa | 200%FS | 500%FS |
| 1.6M | G、A、S | 0~1.6MPa | 200%FS | 500%FS |
| 2.5M | G、A、S | 0~2.5MPa | 200%FS | 500%FS |
| 4M | G、S | 0~4MPa | 200%FS | 400%FS |
| 6M | S | 0~6MPa | 200%FS | 400%FS |
| 10M | S | 0~10MPa | 200%FS | 400%FS |
| 16M | S | 0~16MPa | 200%FS | 400%FS |
| 25M | S | 0~25MPa | 150%FS | 400%FS |
| 40M | S | 0~40MPa | 150%FS | 300%FS |
| 60M | S | 0~60MPa | 150%FS | 300%FS |
| 100M | S | 0~100MPa | 150%FS | 300%FS |

Note: G: Gauge pressure, A: Absolute pressure, S: Sealed gauge pressure



Example: WTP01-10kG4wI1C1-LA2M1

WTP01 pressure sensor, pressure range: 10kPa, gauge pressure, 4 wire, 1.5mA excitation, with temperature compensation, pressure port G1/2, housing port M24×1.5.

Ordering tips:

- 1 Pressure range can be selected higher or lower than actual conditions but should be within $\pm 30\%$ FS.
- 2 Pressure reference consists of gauge pressure, absolute pressure and sealed gauge pressure.
 - (1) Gauge pressure is based on the current atmospheric pressure. Generally, it refers to the measurement of pressure which is greater than the current atmospheric pressure. Negative pressure is a special case of gauge pressure. It refers that there is such working condition that the pressure of work site is lower than the current atmospheric pressure.
 - (2) Absolute pressure is based on vacuum.
 - (3) As for sealed gauge pressure, PC11 uses absolute pressure die for gauge pressure product based on the atmospheric pressure of production site. For pressure range above 6MPa, gauge pressure cannot be selected, but only sealed gauge pressure.
- 3 Confirm the maximum overload of the applied system, which should be less than the overload protection limit of the sensor, otherwise it will affect the product life or even damage the product.
- 4 The commonly used compensation of the product is 1.5mA constant current compensation. Suggest selecting this option with priority.
- 5 The material and process for manufacturing negative pressure sensors are different from those of positive pressure sensors. So gauge pressure sensors cannot be used as substitute of negative pressure sensors.
- 6 For special requirements on performance parameters and functions of the product, please contact us.



Wotian reserves the right to make any change in this publication without notice. The information provided is believed to be accurate and reliable as of this product sheet.

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