

Precision pressure sensor Premium version Model CPT9000



WIKA data sheet CT 25.12

Applications

- Calibration technology
- High-accuracy pressure monitoring
- Pressure sensing in critical applications
- Aerospace

Special features

- Accuracy: 0.008 % IS-33
- Measuring range: 10 inH₂O ... 1,515 psi (25 mbar ... 101 bar)
- Temperature compensation: -20 ... +75 °C (-4 ... +167 °F)
- Temperature output



Precision pressure sensor, model CPT9000

Description

The model CPT9000 precision pressure sensor is designed to excel in performance and value. With an accuracy of 0.008 % IS-33, a temperature compensation range of -20 ... +75 °C (-4 ... +167 °F), calibration interval of one year and selectable ranges from 10 inH₂O ... 1,515 psi (25 mbar ... 101 bar), the CPT9000 stands alone in performance and value. The CPT9000 is at the top of Mensor's digital pressure sensor line.

Application

The model CPT9000 precision pressure sensor is ideal for OEM instruments that require high accuracy in pressure measurement. Examples are:

- Flow calibrators, humidity calibrators, pressure controllers
- For aerospace wind tunnel calibration, automotive sensor testing

- In the aviation and space industries in general, hydrology and oceanography

Wherever high-accuracy pressure measurement and long-term calibration stability are valued.

Functions

The model CPT9000 has an RS-232 or RS-485 interface. The RS-485 interface offers multi-drop capability with simple cabling and three different baud rates to choose from.

The sensors can be configured for gauge and absolute pressure for any measuring range within the specified limits. With a recalibration time of 365 days and a high resolution of 8 significant figures, the CPT9000 is flexible enough to be used in a wide variety of applications.

Design

The 316L stainless steel construction and wetted parts are an asset when utilizing in corrosive or wet environments. Its compact design offers an advantage in miniaturization of product design in many OEM applications.

The pressure connection and case can be customized to fit your application. Standard fittings are easily changed using the AN-4 female connection.

Specifications Model CPT9000

| Precision pressure sensor technology | | |
|---|--|--|
| Accuracy ¹⁾ | 0.008 % IS-33 ²⁾ | 0.008 % FS |
| Measuring ranges | | |
| Gauge pressure | 0 ... >1 bar to 0 ... 100 bar (0 ... >15 psi to 0 ... 1,500 psi) | 0 ... 25 mbar to 0 ... 1 bar (0 ... 0.36 psi to 0 ... 15 psi) |
| Bi-directional | -1 ... >10 bar to -1 ... 100 bar (-15 ... >145 psi to -15 ... 1,500 psi) | -12.5 ... 12.5 mbar to -1 ... 10 bar (-0.18 ... 0.18 psi to -15 ... 145 psi) |
| Absolute pressure | 0 ... >1 bar abs. to 0 ... 101 bar abs. (0 ... >15 psi abs. to 0 ... 1,515 psi abs.) | 0 ... 350 mbar abs. to 0 ... 1 bar abs. (0 ... 5 psi abs. to 0 ... 15 psi abs.) |
| Resolution | 100 ppb or better | |
| Calibration interval | 365 days | |
| Orientation effect | Can be adjusted through zero point adjustment (linear shift of the characteristic curve) | |
| Pressure units | 39 and 1 user-defined | |
| Optional barometric sensor configuration | | |
| Measuring range | 552 ... 1,172 mbar abs. (8 ... 17 psi abs.) | |
| Accuracy ¹⁾ | 0.008 % of reading | |

1) It is defined by the total measurement uncertainty, with the coverage factor (k = 2) and includes the intrinsic performance of the instrument, the measurement uncertainty of the reference instrument, long-term stability, influence of ambient conditions, drift and temperature effects over the compensated range with recommended zero point adjustment every 30 days.

2) 0.008 % IS-33 accuracy: Between 0 ... 33 % of the full scale, the accuracy is 0.008 % of the lower third of the full scale and between 33 ... 100 % of the full scale, the accuracy is 0.008 % of reading.

| Precision pressure sensor | |
|------------------------------|---|
| Case | |
| Case material | 316L stainless steel |
| Dimensions | see technical drawings |
| Weight | approx. 280 g (0,6 lbs) |
| Operating environment | IP67 |
| Power consumption | < 26 mA at DC 12 V \pm 5 % |
| Warm-up time | 15 Min. |
| Connections | |
| Pressure connections | FSAE J514/JIC 4 |
| Wetted parts | 316L stainless steel on pressure ranges > 350 mbar und mbar abs. (> 5 psi und psi abs.) Silicone, silicone RTV, glass-filled resins (only on ranges \leq 350 mbar (\leq 5 psi)) |
| Overpressure safety | 2x proof, 3x burst, static pressure < 3,45 bar (< 50 psi) |
| Internal volume | |
| Measure port | < 1 ml |
| Reference port | < 40 ml |

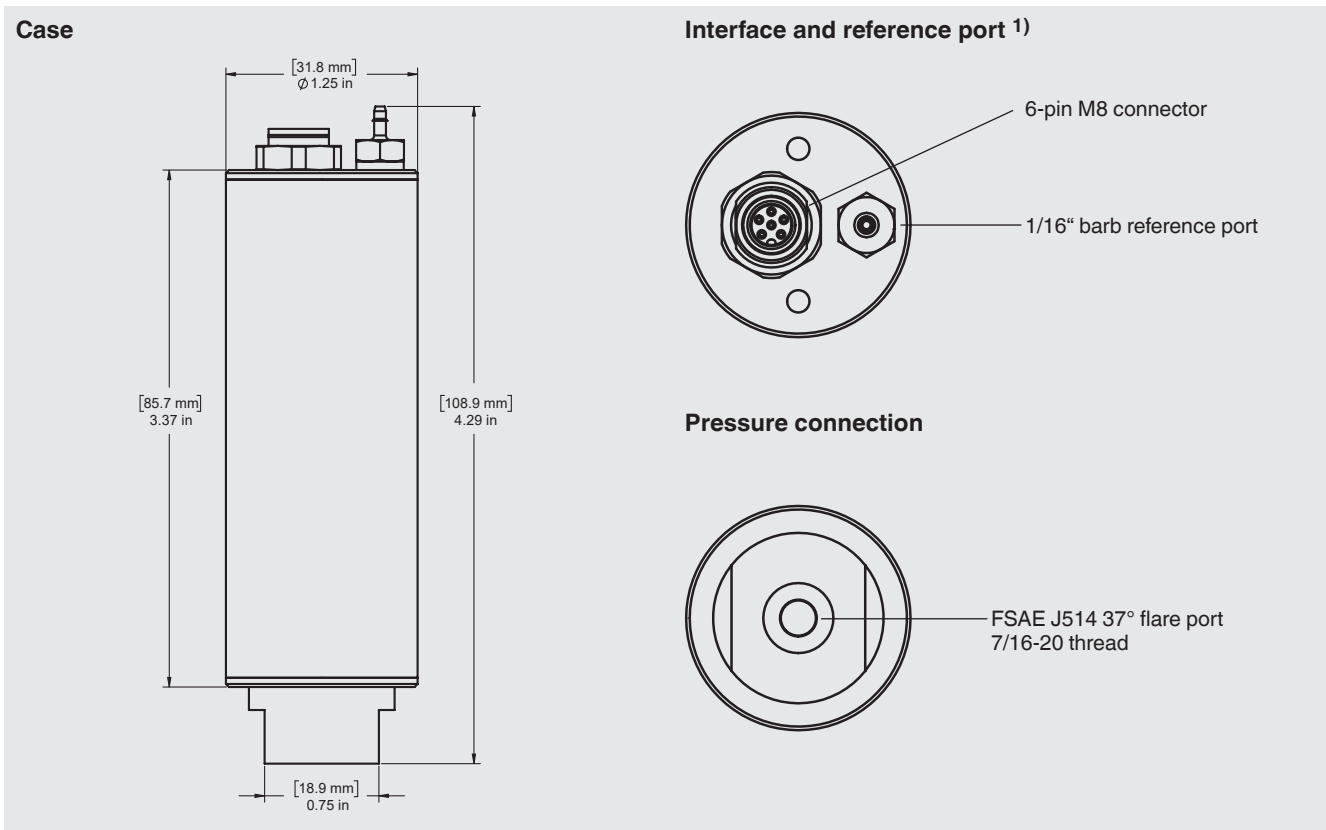
| Precision pressure sensor | |
|---------------------------------------|--|
| Permissible ambient conditions | |
| Compensated temperature | -20 ... +75 °C (-4 ... +167 °F) |
| Operating temperature | -40 ... +85 °C (-40 ... +185 °F) |
| Storage temperature | -40 ... +85 °C (-40 ... +185 °F) |
| Communications | |
| Interface | RS-232 or RS-485 (multi-drop capability) |
| Baud rate | 57,600 baud; default - user-selectable |
| Measuring rate | 50 values/s; default - (factory adjustable) |
| Functions | |
| Alarm | for pressure and temperature |
| Calculates measurement uncertainty | Can be required at the current measuring range |

Certificates

| Certificate | |
|---|---|
| Calibration | Standard: A2LA calibration certificate (standard on factory) Option: DKD/DAkkS calibration certificate |
| Recommended recalibration interval | 1 year (dependent on conditions of use) |

Approvals and certificates, see website

Dimensions in inch [mm]



1) Reference port only for gauge pressure range; the port is plugged at absolute pressure range

Scope of delivery

- Precision pressure sensor model CPT9000
- Operating instructions
- Pressure adapter (as specified)
- 1.5 m (5 ft) connection cable with flying leads
- A2LA calibration certificate (standard on factory)

Options

- DKD/DAkkS calibration certificate

Accessories

- Interface cable incl. voltage supply
- Pressure adapters

Ordering information

CPT9000 / Instrument version / Pressure unit / Type of pressure / Start of measuring range / End of measuring range / Accuracy / Type of certificate / Mounting position / Interface / Baud rate / Output mode / Pressure adapter / Additional order information

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