

CPT6180 High Precision Pressure Transducer

Data Sheet CPT6180 • 08/2013

mentor

Applications

- High accuracy transfer standard
- Internal pressure transducer in OEM devices
- Pressure standard in test & calibration stands
- Wind tunnels
- Hydrology
- Oceanography
- Aerospace
- Meteorology

Features

- **0.01% IS-50 uncertainty***
- **365 day calibration stability**
- RS-232 or RS-485 communication
- Optional high speed output
- Compact size



CPT6180 High Precision Pressure Transducer

Description

The CPT6180 High Precision Pressure Transducer is a small, rugged serial output transducer with pressure ranges configurable from 0 - 15 psi to 0 - 6000 psi. **An uncertainty of 0.01%IS-50* for 365 days** and an optional output rate of 250 Hz (one reading every 4 milliseconds with an uncertainty of 0.025% FS for 365 days) makes it one of the most accurate and fast transducers in the precision pressure market. The standard output mode provides the pressure via a query and response; the optional streaming output mode provides a continuous pressure reading every 4 milliseconds. Ports for both pressure and reference are 7/16-20 SAE with 1/8 npt adapters. A 9-pin D-sub connector is used for power input and serial communications.

*See total uncertainty in specifications section

Applications

The CPT6180 is used in OEM devices like pressure calibrators, flow calibrators, humidity calibrators or any device that requires a high accuracy pressure measurement. It is used as a pressure standard in conjunction with automated production

of pressure devices, or as a standard for pressure calibration test stands. High accuracy, high speed and 365 day stability make it suitable for measurements required in wind tunnels and hypobaric / hyperbaric chambers. These features also make it a valuable tool in metrology, hydrology, oceanography, aerospace, and meteorology.

Functional Flexibility

The CPT6180 has RS-232 or RS-485 communications. The RS-485 interface provides true multi-drop connection and cabling simplicity. There are four baud rates available. The CPT6180 can be configured to any range within the specified limits for gauge or absolute modes. It has a wide power input range (6 to 20 vdc), and low power consumption (<1/2 watt). With an accuracy of 0.01%IS-50, a calibration stability of 365 days, an optional high speed mode and a resolution of 7 significant digits the CPT6180 is flexible enough to be used in a wide variety of applications in production, calibration, and testing or as a component in a high accuracy OEM product.

Specifications

Pressure ranges	psi	Gauge: 0...15 to 0...6000 psig Absolute: 0...15 to 0...6000 psia Bidirectional: -15...145 psi to -15...6000 psi
Pressure types		Absolute or gauge, bidirectional
Total uncertainty		Total uncertainty (k=2) includes hysteresis, linearity, repeatability, reference std, drift and temp effects over the calibrated range for the calibration interval specified, with periodic rezeroing. 0.01%IS-50 = 0.01% of reading from 50% to 100% of max range value, 0.005% of full scale at 50% of max range value and below. In the Optional High Speed Mode, the uncertainty is 0.025% of full span for 365 days.
Calibration interval	days	365
Comp. temp range	°C	15...45
Resolution		7 significant digits
Operating temp	°C	0...50
Storage temp	°C	-20...70
Pressure units		psi, in.Hg (at 0°C), in.Hg (at 60°F), in.H ₂ O (at 4°C), in.H ₂ O (at 20°C), n.H ₂ O (at 60°F), ft.H ₂ O (at 4°C), ft.H ₂ O (at 20°C), ft.H ₂ O (at 60°F), mtorr (at 0°C), in. seawater (at 0°C), ft. seawater (at 0°C), atm, bar, mbar, mm H ₂ O (at 4°C), cm H ₂ O (at 4°C), m H ₂ O (at 4°C), mm Hg (at 0°C), cm Hg (at 0°C), torr, kPa, Pa, Dynes/cm ² , g/cm ² , kg/cm ² , m seawater, oz/in. ² , psf, tsf, % full scale, microns Hg (at 0°C), tsi, hPa, MPa
Measurement filters		User adjustable exponential filter 0 to 99%. Filter active only in a fixed 0.010% of span window
Pressure ports		Pneumatic interfaces - 7/16-20 SAE for pressure and reference. Reference sealed on absolute units.
Parts exposed to pressure media		Aluminum, brass, 316 SS, Buna-N, Viton, Silicone grease, Silicone rubber, nylon, ceramics, glass, silicon
Calibration media		Clean, dry Nitrogen or air
Overpressure limit	%FS	120
Air humidity	RH	0-95%RH, non-condensing
Warm-up time	min	approx. 15 minutes to rated accuracy
User interfaces		RS-232 or RS-485
Baud rates	baud	9600, 19200, 38400, or 57600
Output Mode		Standard: query and response High Speed: continuous streaming
Reading rate	Hz	10, 50, or optional 250 Hz
Operating position		Negligible – can be completely removed with re-zeroing
Power supply		Power 6-20 vdc, 45 mA at 12 V.
Weight	oz/g	approx. 17.8 ounces (505 grams).
Dimensions	in. (cm)	2.18" w x 2.18" d x 3.9" h (5.54cm x 5.54cm x 9.91cm)

Warranty		One year
CE		Compliant to EN 50081-1, EN 50082-1, EN 50081-2 and EN 50082-2
Calibration		NIST traceable calibration certificate included
Options		High speed "streaming" output mode Mounting threads: • English: 6 - 32 • Metric: 3 x 0.5
Accessories		External power supply External relief valve

Order Number
Choose the number/letter associated with the desired option.
Model No.: CPT6180 _ _ _ _ _ , Range: _____

2 - RS-232
4 - RS-485
A - 9600 Baud
B - 19200 Baud
C - 38400 Baud
D - 57600 baud
N - NIST Calibration
A - A2LA Certificate
S - 1/8 in. FNPT adaptor
M - 6 mm tube adaptor
N - No adaptor required
S - 6-32 unc mounting threads
M - M3 X 0.5 mounting threads

6 - Standard Output Mode, 50 Hz
 7 - Standard Output Mode, 10 Hz
 8 - High Speed Output Mode, 250 Hz*

*Only available at 57600 baud

Example: 6180 2-A-6-S-S-N, Range: 0-40 in.Hg Absolute

Since product innovation is a continuous process at Mensor, we reserve the right to change specifications without notice.

The calibration program at Mensor is accredited by A2LA as complying with both the ISO/IEC 17025:2005 and the ANSI/NCSL Z540-1-1994 standards. All Mensor primary standards are traceable to NIST. Mensor is registered to ISO9001:2008.



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