

## CPT 6180 High Precision Pressure Transducer

Mensor / WIKA Calibration Line Datasheet CPT 6180 200908

### 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% of reading uncertainty\***
- **365 day calibration stability**
- RS-232 or RS-485 communication
- Optional high speed output
- Compact size

### Description

The CPT 6180 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 CPT 6180 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 CPT 6180 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 CPT 6180 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 CPT 6180 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

<b>Pressure ranges</b>	psi	Gauge: 0...15 to 0...6000 psig Absolute: 0...15 to 0...6000 psia
<b>Pressure types</b>		Absolute or gauge
<b>Total uncertainty</b>		<b>0.01%IS-50</b> = 0.01% of reading from 50% to 100% of range, 0.005% of full scale at 50% of range and below.  In the Optional High Speed Mode, the uncertainty is 0.025% of full span for 365 days.  Accuracy statement includes all temperature, linearity, hysteresis and repeatability.
<b>Calibration interval</b>	days	365
<b>Compensated temp range</b>	°C	15...45
<b>Resolution</b>		7 significant digits
<b>Operating temp</b>	°C	0...50
<b>Storage temp</b>	°C	-20...70
<b>Pressure units</b>		psi, in.Hg (at 0°C), in.Hg (at 60°F), in.H <sub>2</sub> O (at 4°C), in.H <sub>2</sub> O (at 20°C), In.H <sub>2</sub> O (at 60°F), ft.H <sub>2</sub> O (at 4°C), ft.H <sub>2</sub> O (at 20°C), ft.H <sub>2</sub> O (at 60°F), mtorr (at 0°C), in. seawater (at 0°C), ft. seawater (at 0°C), atm, bar, mbar, mm H <sub>2</sub> O (at 4°C), cm H <sub>2</sub> O (at 4°C), m H <sub>2</sub> O (at 4°C), mm Hg (at 0°C), cm Hg (at 0°C), torr, kPa, Pa, Dynes/cm <sup>2</sup> , g/cm <sup>2</sup> ,kg/cm <sup>2</sup> , m seawater, oz/in. <sup>2</sup> , psf, tsf, % full scale, microns Hg (at 0°C), tsi, hPa, MPa
<b>Measurement filters</b>		User adjustable exponential filter 0 to 99%. Filter active only in a fixed 0.010% of span window
<b>Pressure ports</b>		Pneumatic interfaces - 7/16-20 SAE for pressure and reference. Reference sealed on absolute units.
<b>Parts exposed to pressure media</b>		Aluminum, brass, 316 SS, Buna-N, Viton, Silicone grease, Silicone rubber, nylon, ceramics, glass, silicon
<b>Calibration media</b>		Clean, dry Nitrogen or air
<b>Overpressure Limit</b>	%FS	120
<b>Air humidity</b>	RH	0-95%RH, non-condensing
<b>Warm-up time</b>	min	approx. 15 minutes to rated accuracy
<b>User interfaces</b>		RS-232 or RS-485
<b>Baud rates</b>	baud	9600, 19200, 38400, or 57600

Represented by:

<b>Output Mode</b>		Standard: query and response High Speed: continuous streaming
<b>Reading rate</b>	sec	50 Hz, 10 Hz, or optional 250 Hz
<b>Response time</b>	msec	20 milliseconds for FS pressure step, 100 milliseconds for FS pressure step, or optional 4 milliseconds for FS pressure step.
<b>Operating position</b>		Negligible – can be completely removed with re-zeroing
<b>Power supply</b>		Power 6-20 vdc, 45 mA at 12 V.
<b>Weight</b>	oz.	<12 ozs.
<b>Dimensions</b>	in. (cm)	2.18" w x 2.18" d x 3.9" h (5.54cm x 5.54cm x 9.91cm)
<b>Warranty</b>		One year
<b>CE</b>		Compliant to EN 50081-1, EN 50082-1, EN 50081-2 and EN 50082-2
<b>Calibration</b>		NIST traceable calibration certificate included; A2LA certification optional
<b>Options</b>		High speed "streaming" output mode Mounting threads: • English: 6 - 32 • Metric: 3 x 0.5
<b>Accessories</b>		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**

**Total Uncertainty** is the combined uncertainties of all components of a measurement at the approximate 95% confidence level (K=2). Total uncertainty includes the uncertainties of the following: calibration standard, repeatability, pressure hysteresis, creep, linearity, and temperature effects over the compensated temperature range.

The Mensor Calibration Laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. Accreditation is by the American Association for Laboratory Accreditation (A2LA).

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

**Mensor Corporation \* 201 Barnes Drive \* San Marcos, Texas 78666**  
**512.396.4200 \* 800.984.4200 \* sales@mensor.com \* www.mensor.com**