

CPT 6100 Digital Pressure Transducer

Mensor / WIKA Calibration Line Datasheet CPT 6100 2010/07

Applications

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

Features

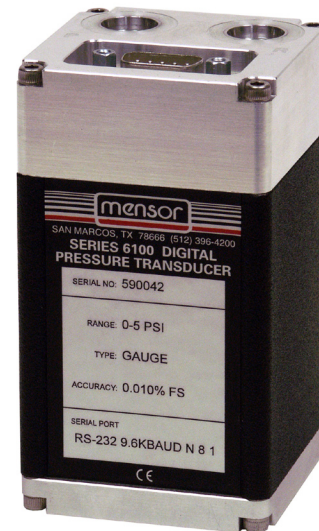
- 0.010% FS accuracy (Ranges \geq 5 psig)
- Full scale ranges from 0-0.36 psi up to 0-6000 psi
- Absolute or Gauge
- Pneumatic or Hydraulic
- RS-232 or RS-485 communication
- Remote operation to 4000 ft.
- Multi-drop capability
- Fast response (20ms)
- CE compliant

Description

The CPT 6100 Digital Pressure Transducer is a high accuracy pressure transducer that combines high performance and cost effectiveness for OEM and test system applications. RS-232 or RS-485 allows the 6100 to communicate with any MS-DOS compatible computer over the serial port. A 9-pin D-sub connector is provided to simplify the connections to the serial port of the system or host computer.

Proprietary characterization techniques help the CPT 6100 achieve an accuracy of 0.010% FS over the compensated temperature range of 15 to 45 deg C for ranges above 5 psig and 5 psia. This insures a high level of performance at varying temperatures. Ranges below 5 psig have an accuracy of 0.03% FS. The recommended calibration interval is 180 days. The accuracy statement includes linearity, hysteresis, repeatability and temperature errors over the compensated range.

The lowest FS psig pressure range is 0.36 psig, while the lowest FS absolute range is 5 psia. Zero and span can be adjusted via the serial interface. There are no other adjustments required by the end user.



Applications

The CPT 6100 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 makes 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 6100 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 6100 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). The CPT 6100 is used in a wide variety of applications in production, calibration, and testing or as a component in a high accuracy OEM product.

Specifications

Total Uncertainty	FS	Ranges \geq 5 psig 0.010% FS Ranges $<$ 5 psig 0.03% FS
Calibration Stability (after warm up)		Better than 0.010% FS (0.03% for FS ranges $<$ 5 psig) for 180 days with periodic re-zeroing.
Calibration Interval		180 days
Calibration Adjustment		Zero and Span may be reset via the serial interface without affecting linearity
Pressure Ranges:		psia: 0-5 to 0-6,000 max psig: 0-0.36 to 0-6,000 max
Pressure Range: Bi-directional, Vacuum		psig: -0.36 to +0.36 min, -atm to 6,000 max
Pressure Units		psi, in.Hg @ 0°C and 60°F, in.H ₂ O @ 4°C, 20°C and 60°F, ft.H ₂ O @ 4°C, 20°C and 60°F, mTorr, inSW @ 0°C, ftSW @ 0°C, atm, bars, mbars, mmH ₂ O @ 4°C, cmH ₂ O @ 4°C, MH ₂ O @ 4°C, mmHg @ 0°C, cmHg @ 0°C, Torr, hPa, mPa, kPa, Pa, D/cmsq, g/cmsq, kg/cmsq, mSW @ 0°C, PSI, PSF, TSF, TSI, mHg @ 0°C, %FS. All seawater units are 3.5% salinity.
Resolution		Up to 1 ppm, depending on measurement units and range.
Overpressure Limit		150% FS or greater, depending on range
Compensated Temperature Range	°C	15...45
Operating temp.	°C	0...50
Storage temp.	°C	0...70
Warm up	min	10 minutes to rated accuracy

Reading Rate	sec	50 per second
Response Time	ms	$<$ 250ms for FS pressure step
Orientation Effects		$<$ 30 psi, orientation must be specified
Communications		RS-232 or RS-485. From 9600 to 56k baud.
Case Size	in./cm	2.18" w x 2.18" d x 3.90" h (5.53cm x 5.54cm x 9.90cm)
Weight	oz/g	Approximately 12 ounces (28.3 grams)
Media Compatibility		Clean, dry, non-corrosive gases for ranges $<$ 15 psi. All other ranges compatible with aluminum, 316 stainless steel, brass, Buna N, Viton, sealant, and silicone grease. Not designed for oxygen use.
Fittings		Female 7/16-20 SAE/MS straight thread port. 1/8 inch female NPT adapter fitting is included.
Power		6-20 VDC, 55mA @ 12 VDC
Option		Relief valves
Mechanical Shock		3g max
Multi-drop Capacity		The maximum number of RS-485 CPT 6100 transducers which can be connected to a single host computer is 31.
Compliance		Compliant to EN 50081-1, EN 50082-1, EN 50081-2 and EN 50082-2.
Optional Output		Analog: 0-1, 0-5 and 0-10 VDC @ 0.010% FS accuracy.

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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 (precision), pressure hysteresis, creep, linearity, and temperature effects over the compensated temperature range.

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/NC SL Z540-1-1994 standards. All Mensor primary standards are traceable to NIST. Mensor Corporation is registered to ISO9001:2008.

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