

# Precision Pressure Transducer Models CPT6100, CPT6180



WIKA data sheet CT 25.10

## Applications

- Testing technology
- Calibration technology
- Laboratories and maintenance shops
- Avionics

## Special Features

- Accuracy down to 0.01 % IS (IntelliScale)
- Precision down to 0.004% FS
- Measuring range from -15 ... 6,000 psi (-1 ... 400 bar)
- RS-232 or RS-485 interface
- Compact design



Precision Pressure Transducer, Model CPT6180

## Description

The models CPT6180 and CPT6100 precision pressure transducers are compact, robust sensors with a serial output and a measuring range which is freely selectable between -15 ... 6,000 psi (-1 ... 400 bar). The high accuracy of up to 0.01 % IS-50 for 365 days makes the transducer one of the most accurate transducers in precision measurement technology. The standard output mode provides the pressure values via a query-response process.

### Application

These precision pressure transducers are built into OEM instruments, e.g. in pressure, flow or humidity calibrators, or in any instrument where high-accuracy measurement is needed.

They are used as reference pressure transducers within the automated manufacturing of pressure measuring instruments or calibration stands. Through a high accuracy, speed of reading and long-term stability, these are particularly suited for applications in wind tunnels or in pressure chambers. These characteristics make it a valuable tool in metrology, hydrology, oceanography, and in the aviation and space industries.

### Functions

The models CPT6180 and CPT6100 have an RS-232 or RS-485 interface. The RS-485 interface offers the possibility of a genuine multidrop connection and simple cabling. There are four different baud rates to choose from.

The transducers can be configured for gauge and absolute pressure for any measuring range within the specified limits. With a recalibration time of 180 or 365 days and a high resolution of 6 or 7 significant figures, CPT6180 and CPT6100 are flexible enough to be used in a wide variety of applications.

### Compact Design

The pressure transducers are, due to their robust, compact design, easily integrated in a 19" rack without taking up much space. With the combination of male and female threads, a fast and secure fitting is always possible, negating the need for further sealing.

# Specifications

## Models CPT6100 - CPT6180

Precision Pressure Transducer Technology		
Model	CPT6100	CPT6180
Accuracy <sup>1)</sup>	0.01 % FS <sup>2)</sup>	0.01 % IS-50 <sup>3)</sup>
<b>Measuring ranges</b>		
Gauge pressure	0 ... 25 mbar to 0 ... 400 bar (0 ... 0.36 to 0 ... 6,000 psi)	0 ... 1 to 0 ... 400 bar (0 ... 15 to 0 ... 6,000 psi)
Bi-directional	-12.5 ... 12.5 mbar to -1 ... 400 bar (-0.18 ... 0.18 to -14.5 ... 6,000 psi)	-1 ... 10 to 0 ... 400 bar (-15 ... 145 psi to 0 ... 6,000 psi)
Absolute pressure <sup>4)</sup>	0 ... 500 mbar abs. to 0 ... 401 bar abs. (0 ... 7.5 psi abs. to 0 ... 6,015 psi abs.)	0 ... 1 to 0 ... 401 bar abs. (0 ... 15 to 0 ... 6,015 psi abs.)
Precision <sup>5)</sup>	0.004 % FS	0.004 % FS
Calibration interval	180 days	365 days
<b>CPT6100 as barometric reference</b>		
Measuring range	552 ... 1,172 mbar abs. (8 ... 17 psi abs.)	
Accuracy <sup>1)</sup>	0.01 % of reading	
Precision <sup>5)</sup>	0.004 % FS	
Calibration interval	365 days	
Pressure units	psi, bar, mbar, Pa, kPa, hPa, MPa, tsi, atm, torr, Dynes/cm <sup>2</sup> , g/cm <sup>2</sup> , kg/cm <sup>2</sup> , mSW, oz/in <sup>2</sup> , psf, tsf, mmH <sub>2</sub> O (4 °C), cmH <sub>2</sub> O (4 °C), mH <sub>2</sub> O (4 °C), inH <sub>2</sub> O (4 °C), inH <sub>2</sub> O (20 °C), inH <sub>2</sub> O (60 °F), ftH <sub>2</sub> O (4 °C), ftH <sub>2</sub> O (20 °C), ftH <sub>2</sub> O (60 °F), µmHg (0 °C), mmHg (0 °C), cmHg (0 °C), inHg (0 °C), inHg (60 °F), inSW (0 °C), ftSW (0 °C), mtorr (0 °C)	

- 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) FS = full span
- 3) 0.01 % IS-50 accuracy: Between 0 ... 50 % of the full scale, the accuracy is 0.01 % of half of the full scale value and between 50 ... 100 % of the full scale, the accuracy is 0.01 % of reading.
- 4) The minimum calibrated range of absolute transducer(s) is 600mTorr
- 5) It is defined as the combined effects of linearity, repeatability and hysteresis throughout the stated compensated temperature range

Precision Pressure Transducer	
<b>Case</b>	
Mounting position	< 1 bar (< 15 psi) negligible Can be adjusted through zero point adjustment (linear shift of the characteristic curve)
Dimensions	See technical drawings
Weight	505 g (1.11 lbs.)
<b>Display</b>	
Resolution	CPT6100: 6 significant figures CPT6180: 7 significant figures
Filter	Adjustable exponential filter from 0 ... 99 % The filter is only active within a defined range of 0.010 % FS.
Warm-up time	approx. 15 min up to the specified accuracy
<b>Connections</b>	
Pressure connections	Connection 7/16-20 SAE for pressure and reference port The reference port is sealed for absolute pressure transducers
Overpressure safety	10% above the nominal pressure of the transducer
Material, wetted parts	Aluminium, brass, 316SS, Buna-N, Viton®, silicone grease, silicone rubber, nylon, ceramic, glass, silicon
<b>Voltage supply</b>	
Power supply	+12 VDC ± 10%, 55 mA max
<b>Permissible ambient conditions</b>	
Storage temperature	-20 ... +70 °C (-4 ... 158 °F)
Humidity	0 ... 95 % r. h. (non-condensing)
Compensated temperature range	15 ... 45 °C (59 ... 113 °F)

Viton® fluorelastomer is a registered trademark of DuPont Performance Elastomers.

## Precision Pressure Transducer

### Communication

Interface	RS-232 or RS-485
Baud rate	9,600, 19,200, 38,400 or 57,600 baud
Signal output	Query and response
Measuring rate	Standard: 50 Hz/ 20 ms Optional: 10 Hz/ 100 ms

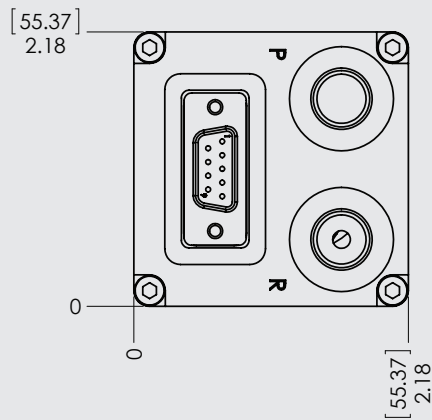
### Certificates

Calibration	Standard: A2LA calibration certificate Option: DKD/DAkKS calibration certificate
-------------	---

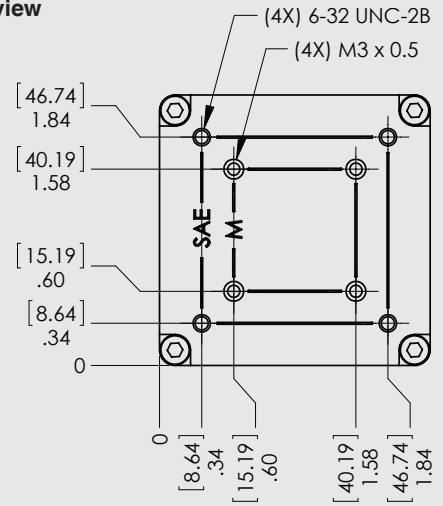
Approvals and certificates, see website

## Dimensions in [mm] in.

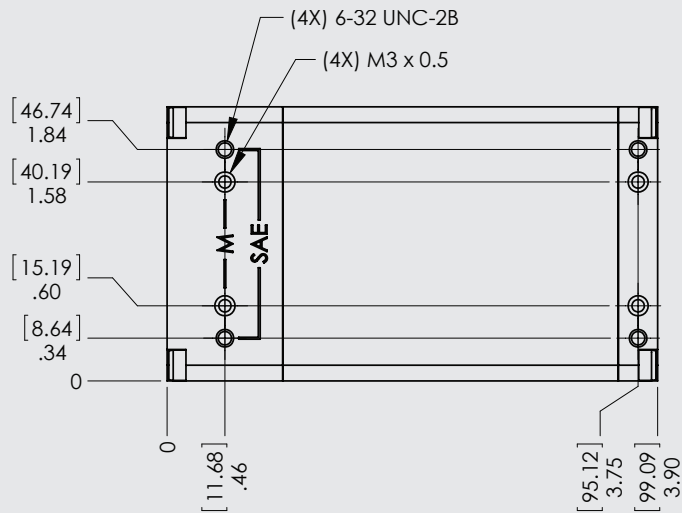
Top view



Bottom view



Side view



## Scope of Delivery

- Precision pressure transducer model CPT6180 or CPT6100
- Operating instructions
- ISO 17025, A2LA Certification

## Accessories

- Voltage supply over RS-232 or RS-485 interface cable
- External overpressure protection
- Pressure adapters

## Options

- DKD/DAkkS calibration certificate

## Ordering Information

CPT6100 / 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 / Analogue output / Mounting thread / Pressure adapter / Additional order information

CPT6180 / 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 / Mounting thread / Pressure adapter / Additional order information

© 2011 WIKA Alexander Wiegand SE & Co. KG, all rights reserved.  
The specifications given in this document represent the state of engineering at the time of publishing.  
We reserve the right to make modifications to the specifications and materials.



**Mensor**  
201 Barnes Drive  
San Marcos, Texas 78666  
Tel. (512) 396-4200  
Fax (512) 396-1820  
sales@mensor.com  
www.mensor.com