

# Precision pressure sensor Models CPT6100, CPT6180



WIKA data sheet CT 25.10

## Applications

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

## Special features

- Accuracy up to 0.01 % IS-50 <sup>1)</sup>
- Measuring range -1 ... +400 bar
- RS-232 or RS-485 interface
- Compact version



Precision pressure sensor CPT6180

## Description

The models CPT6180 and CPT6100 are compact, robust sensors with a serial output and a measuring range which is freely selectable between -1 ... +400 bar. The impressive measurement uncertainty up to 0.01 % IS-50 <sup>2)</sup> for 365 days, makes the sensor of the most accurate transducers in precision pressure measurement technology. The standard output mode provides the pressure value via a query-response process.

### Application

These precision pressure sensors are built into OEM instruments, e.g. in pressure, flow or humidity calibrators, or in any instruments where high-accuracy measurement is needed. They are used as reference pressure sensors 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 4 different baud rates to choose from.

The sensors can be configured for gauge and absolute pressure for any measuring range within the specified limits. They have a wide power supply range (DC 6 ... 20 V) and low power consumption (< 0.5 W). With a recalibration time of 365 days and a high resolution of 7 significant figures, CPT6180 and CPT6100 are flexible enough to be used in a wide variety of applications.

### Compact version

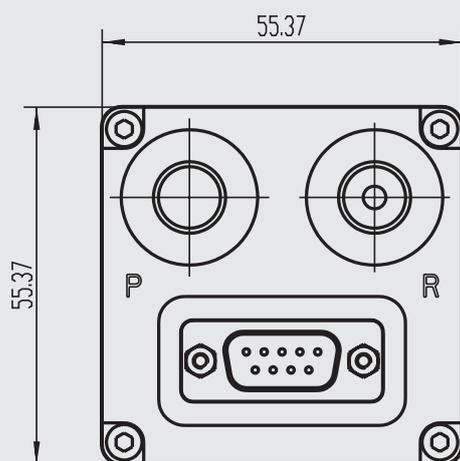
The pressure sensors are, due to their robust, compact design, easily integratable in a 19" rack without taking up much space. With the combination of male and female threads, a fast and secure fitting is always possible, negating the need for further sealing.

1) 0.01 % IS-50 accuracy: 0.01 % of measured value in the upper half of the measuring range

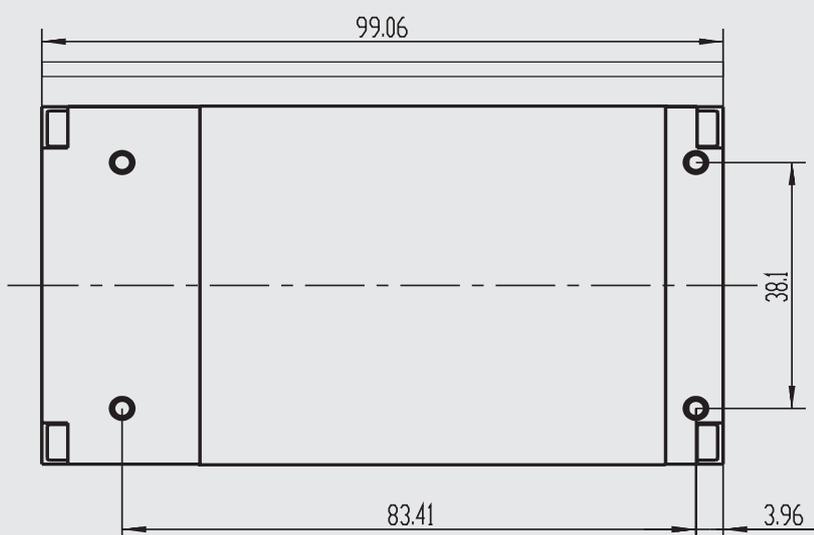
2) See overall accuracy in the specifications

## Dimensions in mm

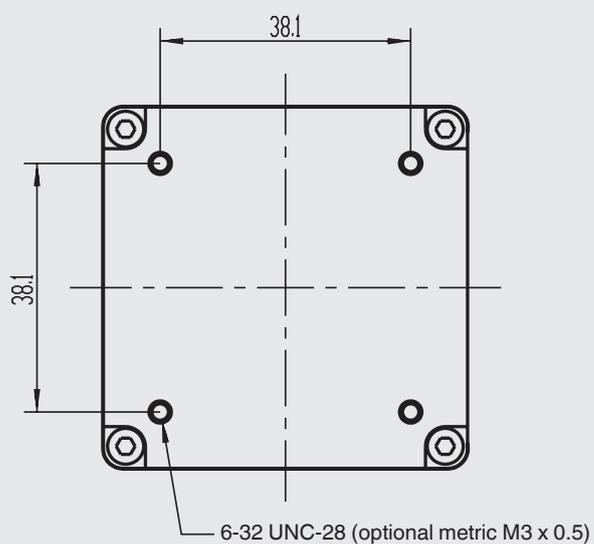
Top view



Side view



Bottom view



Specifications		Model CPT6100	Model CPT6180
Accuracy		0.01 % FS	0.01 % IS-50 1)
Measuring range			
■ Overpressure	bar	0 ... 0.025 up to 0 ... 400	0 ... 1 up to 0 ... 400
■ Bi-directional	bar	-1 ... -0.025 up to 0.025 ... 400	-
■ Absolute pressure	bar abs.	0 ... 0.35 up to 0 ... 401	0 ... 1 up to 0 ... 401
Precision		0.005 % FS	0.005 % IS-50
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)	
Pressure connections		Connection 7/16-20 SAE for pressure and reference port The reference port is sealed for absolute pressure sensors	
Resolution		7 significant figures	
Filter		Adjustable exponential filter from 0 ... 99 % The filter is only active within a defined range of 0.010 % FS.	
Overpressure safety	% FS	120	
Warm-up time		approx. 15 min up to the specified accuracy	
Interface		RS-232 or RS-485	
Baud rates		9600, 19200, 38400, or 57600 baud	
Signal output		Query and response	
Measuring rate		Standard: 10 values/sec. Option: 50 values/sec.	
Response time		Standard: 100 msec for a FS pressure pulse Option: 20 msec for a FS pressure pulse	
Mounting position		< 1 bar negligible Can be adjusted through zero point adjustment (linear shift of the characteristic curve)	
Material wetted parts		Aluminium, brass, 316SS, Buna-N, Viton®, silicone grease, silicone rubber, Nylon, ceramic, glass, silicon	
Permissible ambient conditions			
■ Operating temperature	°C	0 ... 50	
■ Storage temperature	°C	-20 ... +70	
■ Humidity	% r. H.	0 ... 95, non-condensing	
Compensated temperature range	°C	15 ... 45	
Calibration 2)		Incl. 3.1 acceptance test certificate per DIN EN 10204	
Recalibration interval	days	365	
Power supply	DC	6 ... 20 V; 45 mA at 12 V	
Dimensions	mm	554 x 554 x 991	
Weight	g	340	

1) 0.01 % IS-50 accuracy: 0 ... 50 % of the measuring range 0.01 % of half the measuring range and 0.01 % between 50 ... 100 % of measurement.

2) Calibrated in a horizontal position.

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## Scope of delivery

- Precision pressure sensor model CPT6180 or model CPT6100
- Operating instructions
- 3.1 Acceptance test certificate per DIN EN 10204

## Options

- DKD/DAkkS calibration certificate

## Accessories

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

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