

# High-Speed Pressure Transducer Model CPT6140

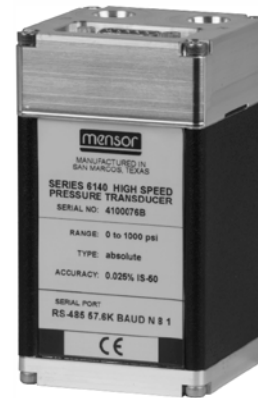
WIKA data sheet CT 25.11

## Applications

- Testing technology
- Calibration technology
- Laboratories and maintenance shops
- Leak and burst applications

## Special Features

- Accuracy down to 0.025 % IS (IntelliScale)
- Precision down to 0.009% FS
- Measuring range from -15 ... +6,000 psi (-1 ... +400 bar)
- Output mode 250 Hz (4 ms) response time
- Streaming output mode in IEEE-754 format



High-Speed Pressure Transducer, Model CPT6140

## Description

The model CPT6140 high-speed pressure transducer is a compact, robust sensor with an output mode of 250 Hz (4 ms) response time and a measuring range which is freely selectable between -15 ... +6,000 psi (-1 ... +400 bar). The accuracy of up to 0.025 % IS-50 for 365 days makes the transducer suitable for a wide range of applications in precision measurement technology.

### Application

This precision pressure transducer is built into OEM instruments, e.g. in pressure, flow or humidity calibrators, or in any instrument where high-speed measurement is needed.

This pressure transducer is set up with streaming output mode in IEEE-754 format, and does not allow the user to send commands or queries in its native mode. It is used as a reference pressure transducer within the automated manufacturing of pressure measuring instruments or calibration stands. Through a high accuracy, speed of reading and long-term stability, the CPT6140 is particularly suited for applications in wind tunnels, in pressure chambers or for leak and burst tests. These characteristics make it a valuable tool in metrology, hydrology, oceanography, and in the aviation and space industries.

### Functions

The model CPT6140 is available with RS-232 or RS-485 interface. In both cases, only one device can be connected to a host because the transducer continuously outputs data.

The transducer 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 (depending on accuracy selected) and a high resolution of 6 digits, the CPT6140 is flexible enough to be used in a wide variety of applications.

### Compact design

With its robust and compact design, the pressure transducer can be easily integrated in a 19" rack. With the combination of male and female threads, a fast and secure fitting is always possible, negating the need for further sealing.

# Specifications

## Model CPT6140

High-Speed Pressure Transducer Technology		
Accuracy <sup>1)</sup>	0.025 % FS <sup>2)</sup>	0.025 % IS-50 <sup>3)</sup>
<b>Measuring ranges</b>		
Gauge pressure	0 ... $\geq$ 70 mbar up to 0 ... 400 bar (0 ... $\geq$ 1 up to 0 ... 6,000 psi) <sup>4)</sup>	0 ... 1 up to 0 ... 400 bar (0 ... 15 up to 0 ... 6,000 psi) <sup>4)</sup>
Bi-directional	-35 ... +35 mbar up to -1 ... +400 bar (-0.5 ... +0.5 up to -14.5 ... +6,000 psi) <sup>4)</sup>	-1 ... +10 up to 0 ... 400 bar (-15 ... +145 psi up to 0 ... 6,000 psi) <sup>4)</sup>
Absolute pressure <sup>5)</sup>	0 ... 500 mbar up to 0 ... 401 bar abs. (0 ... 7.5 psi up to 0 ... 6,015 psi abs.)	0 ... 1 up to 0 ... 401 bar abs. (0 ... 15 up to 0 ... 6,015 psi abs.)
Precision <sup>6)</sup>	0.009 % FS	0.009 % FS
Calibration interval	180 days	365 days
<b>CPT6140 as barometric reference</b>		
Measuring range	552 ... 1,172 mbar abs. (8 ... 17 psi abs.)	
Accuracy	0.025 % of reading	
Precision	0.009 % 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), $\mu$ mHg (0 °C), mmHg (0 °C), cmHg (0 °C), inHg (0 °C), inHg (60 °F), inSW (0 °C), ftSW (0 °C), mtorr (0 °C)	
<p>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.</p> <p>2) FS = full span</p> <p>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.</p> <p>4) Ranges from 1500 to 2000 psig will be sealed gauge transducers.</p> <p>5) The minimum calibrated range of absolute transducer(s) is 600mTorr</p> <p>6) It is defined as the combined effects of linearity, repeatability and hysteresis throughout the stated compensated temperature range</p>		
High-Speed 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	> 6 significant digits	
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. Available fittings include, 1/8 npt, 1/4 npt adapter, 1/4 tube adapter, 6 mm tube, 1/8 BSPG	
Overpressure safety	150% FS	
Material, wetted parts	Aluminium, brass, 316SS, Buna-N, Viton <sup>®</sup> , silicone grease, silicone rubber, nylon, ceramic, glass, silicon	
<b>Voltage supply</b>		
Power supply	+12 VDC $\pm$ 10%, 55 mA max	
<b>Permissible ambient conditions</b>		
Storage temperature	0 ... 70 °C (32 ... 158 °F)	
Humidity	0 ... 95 % r. h. (non-condensing)	
Compensated temperature range	15 ... 45 °C (59 ... 113 °F)	

Viton<sup>®</sup> fluorelastomer is a registered trademark of DuPont Performance Elastomers.

## High-Speed Pressure Transducer

### Communication

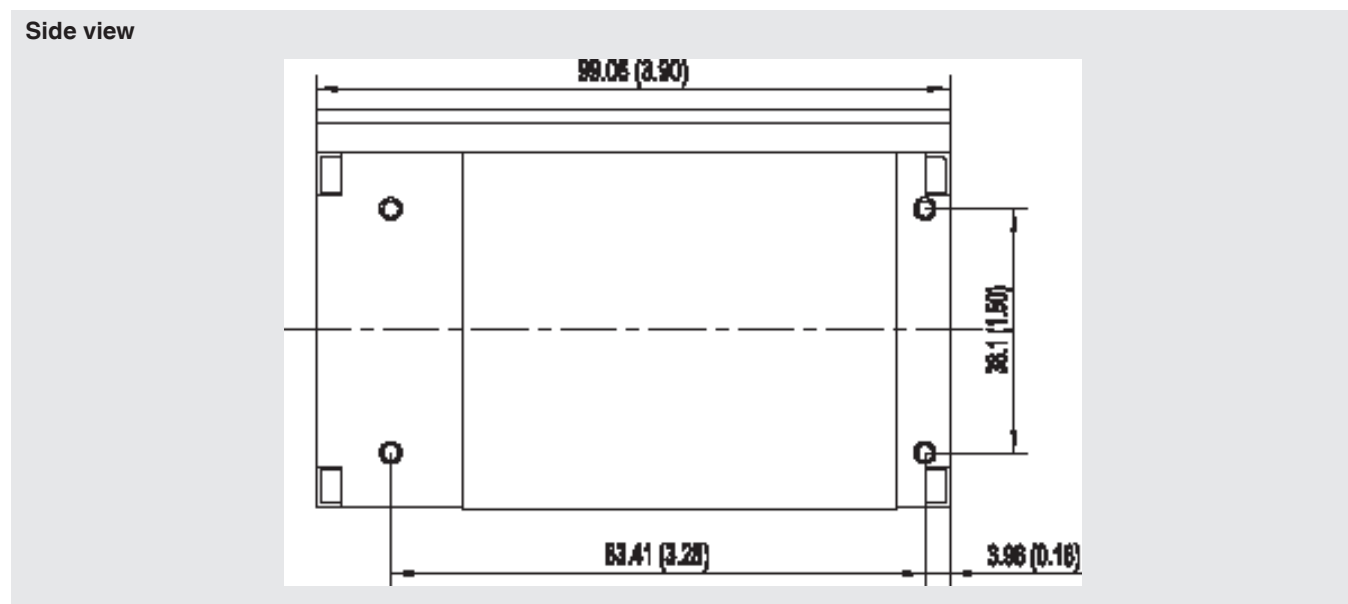
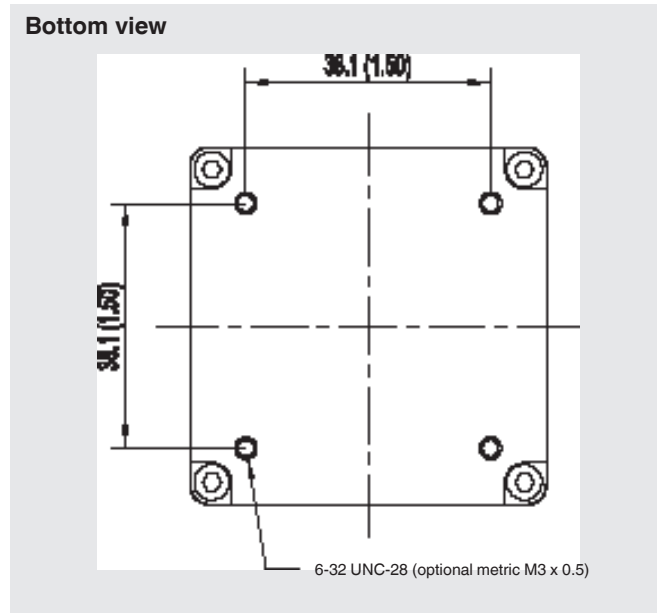
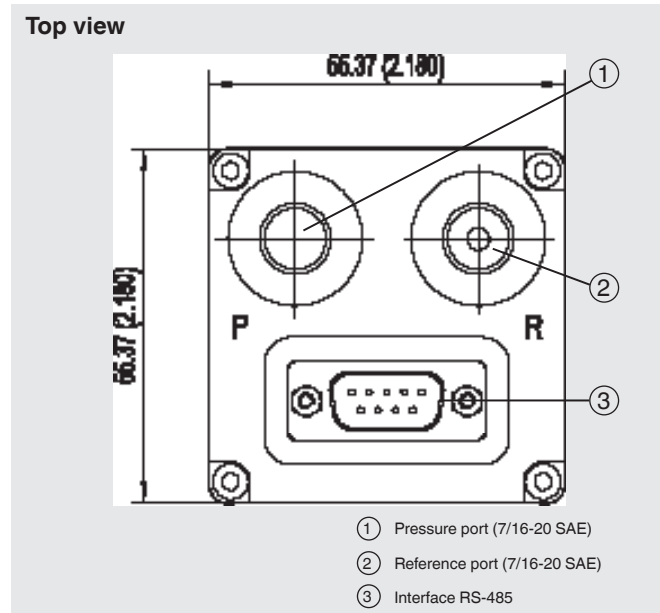
Interface	RS-232 or RS-485 (single device only)
Baud rate	57,600 baud
Measuring rate	250 values/s
Response time	4 ms for a FS pressure pulse

### Certificate

Calibration	Standard: A2LA calibration certificate Option: DKD/DAkkS calibration certificate
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Approvals and certificates, see website

## Dimensions in mm (in)



## Accessories

Accessories for CPT6140	Order code
Description	CPX-A-T3
<b>Power supply with communications cable</b> RS-232 communication cable and software	-1-
<b>Power supply with communication cable</b> RS-485 communications cable and software	-2-
<b>Cable</b> USB to RS232 adapter	-5-
<b>Cable</b> USB to RS486 adapter	-6-
<b>Adapter Set</b> 1/8" NPT female thread includes relief valve for pressure ranges ≤ 70 bar / ≤ 1000 psi	-3-
<b>Adapter Set</b> 1/8" NPT female thread includes relief valve for pressure ranges > 70 bar / > 1000 psi	-4-
<b>Adapter Set</b> 6mm tube fittings (2 adapters, Pmax 137 bar / 2000 psi)	-M-
<b>Adapter Set</b> 6mm tube fittings (2 adapters, Pmax 400 bar / 6000 psi)	-C-
<b>Adapter Set</b> 1/4" tube fitting (2 adapters, Pmax 137 bar / 2000 psi)	-I-
<b>Adapter Set</b> 1/4" tube fitting (2 adapters, Pmax 400 bar / 6000 psi)	-E-
<b>Adapter Set</b> 1/8" BSPG female fittings (2 adapters, Pmax 137 bar / 2000 psi)	-B-
<b>Adapter Set</b> 1/4" BSPG female fittings (2 adapters, Pmax 137 bar / 2000 psi)	-N-
<b>Adapter Set</b> 1/4" NPT female fittings (2 adapters, Pmax 400 bar / 6000 psi)	-A-
<b>Adapter Set</b> 1/8" NPT female fittings (2 adapters, Pmax 137 bar / 2000 psi)	-S-
<b>Adapter Set</b> 1/8" NPT female fittings (2 adapters, Pmax 400 bar / 6000 psi)	-F-
<b>Carrying Case</b>	-T-
<b>Ordering information for your inquiry:</b>	
1. Order code: CPX-A-T3	↓
2. Option:	[ ]

## Scope of delivery

- High-speed pressure transducer model CPT6140
- Operating instructions
- A2LA calibration certificate

## Option

- DKD/DAkkS calibration certificate

## Accessories

- Voltage supply over RS-232 or RS-485 interface cable
- External overpressure protection
- Pressure adapters
- Power adaptor with communication
- Carrying case

## Ordering information

CPT6140 / Instrument version / Pressure unit / Type of pressure / Start of measuring range / End of measuring range / Accuracy / Type of certificate / Mounting position / Mounting thread / Pressure adapter / Additional order information

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