

Precision Pressure transducer

Basic version

Model CPT6020



WIKA data sheet CT 25.13

Applications

- Pressure calibration
- High accuracy pressure monitoring
- Pressure sensing in critical applications
- Aerospace

Special Features

- Accuracy: 0.020% FS
- Range: 0-10 in. H₂O (25 mbar) up to 15,015 psi (1001 bar)
- Temperature compensation: 0 to 50 °C
- USB, RS-232, or RS-485 communication
- Compact rugged design



Precision Pressure Transducer, Model CPT6020

Description

The CPT6020 precision pressure transducer is a self-contained pressure sensing device that provides high accuracy pressure measurements. This transducer incorporates a low hysteresis silicon sensor with electronically compensated pressure linearity over the compensated temperature range. The CPT6020 transducer is characterized over the full pressure and temperature range to achieve 0.020% FS accuracy. This specification includes linearity, hysteresis, repeatability and temperature errors. Also featured is an output which is updated at a rate of 50 readings per second (20 ms).

Application

The CPT6020 is used in OEM applications where a high accuracy pressure sensing is required. Examples are: flow calibrators, humidity calibrators, pressure controllers, aerospace wind tunnel calibration, automotive sensor testing, hydrology, oceanography, in the aviation and space industries in general, or wherever high accuracy pressure measurement and long-term calibration stability are valued. It can also be used as a transfer standard or in pressure calibration and testing areas of production facilities.

Functions

The model CPT6020 Precision Pressure Transducer has a USB, RS-232 or RS-485 interface. The RS-485 interface offers multi-drop capability with cabling that includes power and communications. Five different baud rates can be selected and the transducer can be located up to 4,000 feet from the host. System designers appreciate these high accuracy remotely accessible transducers that are not tied to a front panel. Each transducer can be configured for gauge or absolute pressure types. With a recalibration time of 180 days and a high resolution of 8 significant digits, the CPT6020 is flexible enough to be used in a wide variety of applications.

Design

The 316L SS construction and IP67 rating are an asset when utilizing in corrosive or wet environments. Its compact design offers an advantage in miniaturization of product design in many OEM applications. The pressure connection and housing can be customized to fit your application. Standard fittings are easily changed using the AN-4 or the Autoclave® F250C connection.

Specifications

Model CPT6020

Measurement Specification	
Accuracy ¹⁾	0.020% Full Span
Measuring ranges	
Gauge pressure ²⁾	0 ... 0.36 to 0 ... <15,000 psig (0 ... 25 mbar to 0 ... 1000 bar)
Bi-directional pressure ²⁾³⁾	+/- 0.18 to -15 ... 15,000 psig (+/-12.5 mbar to -1 to 1000 bar)
Absolute pressure	0 ... 5 psia to 0 ... 15,015 psia (0 ... 350 mbar to 0 ... 1001 bar abs.)
Calibration interval	180 days
Pressure units	39 and 1 user defined
CPT6020 as barometric reference	
Measuring range	8 ... 17 psi abs. (552 ... 1,172 mbar abs.)
Accuracy ¹⁾	0.020% of reading

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) > 1500 psi is sealed gauge

3) The negative portion of a bidirectional range has the same accuracy as the equivalent positive range.

General Specifications	
Case	
Orientation effects	Removable with re-zeroing
Dimensions	See technical drawings
Weight	~250 g (depending on range)
Ingress protection	IP67
Display	
Resolution	100 ppb or better
Boot-up time	750 ms
Warm-up time	15 min.
Connections	
Pressure Port	FSAE J514/JIC 4 or Autoclave® F250C (For pressure ranges > 400 bar (> 6,000 psi))
Reference Port	Absolute & >1500 psi Gauge: Sealed Relief Valve ⁶⁾ <1500 psi Gauge: 1/16" Barb fitting
Overpressure limit	2X proof, 3X burst; static pressure < 50 psig (3.44 bar)
Pressure port adapters	Standard: without Option (only up to 6,000 psi): 1/8" female BSP fitting, 1/4" BSP fitting, 1/8" female NPT fitting, 1/4" male NPT fitting, 6 mm tube fitting, 1/4" tube fitting and female 7/16-20 SAE fitting
Materials, wetted parts	Ranges ≤ 5 psi Silicon, 316 SS, glass filled resins, epoxy Ranges > 5 to 1500 psi 316 SS Ranges >1500 psi 316 SS, Fluorocarbon Rubber
Pressure media	Ranges ≤ 5 psi – clean, dry, non-corrosive gases Ranges > 5 psi – media compatible with the listed wetted parts.
Voltage supply	
Power supply	RS-232/RS-485: DC 9-18 V (DC 12 V nominal) USB: DC 3.0 -5.25 V (DC 5 V nominal) Bus Powered
Power consumption	RS-232/RS-485: < 26 mA at DC 12 V +/-5% (0.40 Wmax) USB: <84 mA at DC 5 V +/-5% (0.45Wmax)
Permissible ambient conditions	
Compensated temperature range	0 to 50 °C (32 to 122 °F)
Operating temperature range	-40 to 85 °C (-40 to 185 °F)

Storage temperature range	-40 to 85 °C (-40 to 185 °F)
Humidity	0 ... 95% r.h. (non -condensing)
Operating altitude	<3000 meters (10,000 feet)
Measure port internal volume	<1 cc
Reference port internal volume	~ 40 cc
Power supply operating temperature	
Operating temperature	0°C to +40°C (32°F to 104°F)
Non-operating temperature	-40° to +85°C (-40°F to 185°F)
Operating humidity	50% to 90%
Communication	
Interface	USB 2.0, RS-232, or RS-485
Baud rate	Default 57600 baud - 9600, 19200, 38400, and 115200 user selectable
Measuring rate	50 values/second, default - (factory adjustable)

6) Sealed Relief Valve has fluoro-carbon rubber O-ring with a release pressure setting of 10-20 psig (0.68-1.37 bar)

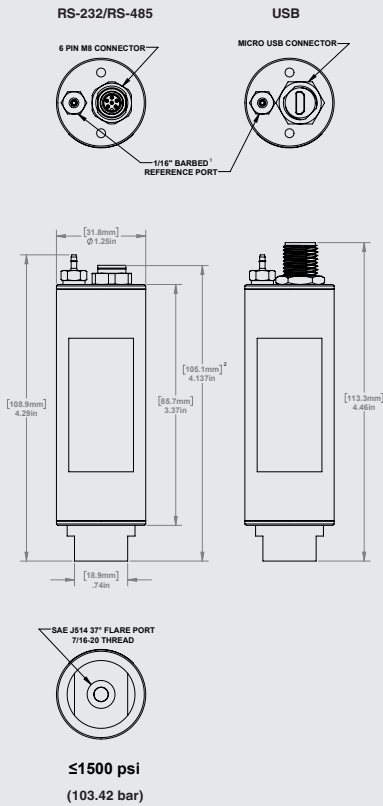
Approvals and Certificates		
Logo	Description	Country
	EU Declaration of Conformity EU Importer: WIKA, 63911 Klingenberg, Germany	European Union
	UKCA Declaration of Conformity Importer: WIKA Instruments Ltd, Unit 6 & 7 Goya Business Park, The Moor Road, Sevenoaks Kent, TN15 5GY	Great Britain

Certificates	
Calibration	Standard: A2LA accreditation Optional DKD/DAkkS Calibration certificate

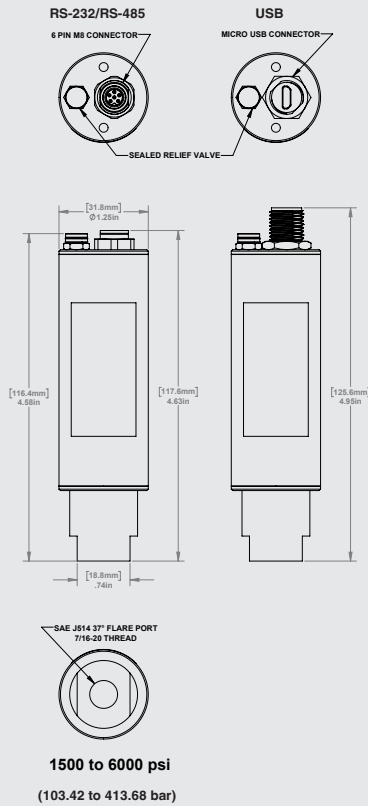
Dimensions in [mm] in.

- 1 Shown is a gauge variant with 1/16" barbed reference port
- 2 Maximum dimension for absolute variant

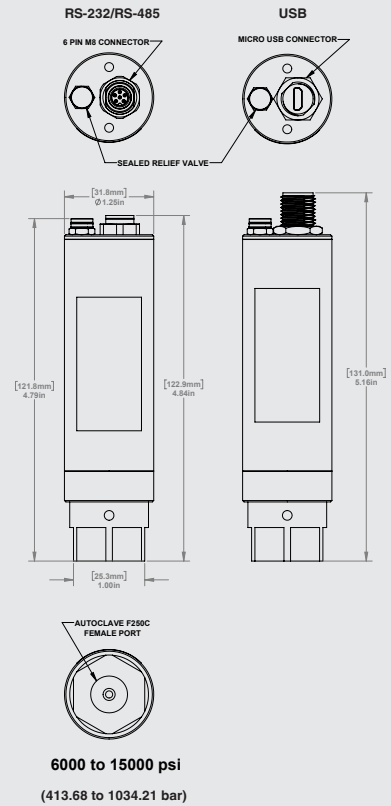
Low Pressure Version (Pressure < 1500 psi)



Medium Pressure Version (1500 to 6000 psi)



High Pressure Version (6000 to 15,000 psi)



Accessories

Accessories for CPT6020	Order code
Description	CPX-A-T4
Power supply with communications cable RS-232 communication cable	-1-
Power supply with communication cable RS-485 communications cable	-2-
Adapter cable USB to RS-232	-5-
Adapter cable USB to RS-485	-6-
Pressure adapter SAE J514/JIC 4 male to 1/4 BSP male; max. 400 bar [6,000 psi]	-A-
Pressure adapter SAE J514/JIC 4 male to 1/8 BSP female; max. 400 bar [6,000 psi]	-B-
Pressure adapter SAE J514/JIC 4 male to 6 mm tube fitting; max. 400 bar [6,000 psi]	-C-
Pressure adapter SAE J514/JIC 4 male to 7/16-20 SAE male; max. 400 bar [6,000 psi]	-D-
Pressure adapter SAE J514/JIC 4 male to 1/4" tube fitting; max. 400 bar [6,000 psi]	-E-
Pressure adapter SAE J514/JIC 4 male to 1/4" NPT male fitting; max. 400 bar [6,000 psi]	-F-
Pressure adapter SAE J514/JIC 4 male to 1/8" NPT female; max. 400 bar [6,000 psi]	-S-
Communication cable Shielded with flying leads	-G-
Transport case Carrying Case	-T-
Ordering information for your enquiry:	
1. Order code: CPX-A-T4 2. Option:	↓ []

Scope of delivery

- Precision pressure sensor, model CPT6020
- Operating instructions
- Pressure adapter (as specified)
- RS-232/RS-485: 1.5 m [5 ft] connection cable with flying leads or USB: Cable for IP67
- A2LA calibration certificate (standard on factory)

Options

- DKD/DAkkS calibration certificate
- Power supply & communication cable

Ordering Information

CPT6020 / Instrument version / Pressure application / Pressure unit / Type of pressure / Start of measuring range / End of measuring range / Type of certificate / Mounting position / Interface / Baud rate / Pressure adapter / Carrying case / Additional order information

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