

Analogue pressure sensor Model CPT6030



WIKA data sheet CT 25.14

Applications

- Calibration technology
- High-accuracy pressure monitoring
- Pressure sensing in critical applications
- Process instrumentation

Special features

- Metrological accuracy: 0.025 % FS on the 4 ... 20 mA output
- Measuring range: 25 mbar ... 1,001 bar
[10 inH₂O ... 15,015 psi]
- Voltage supply from DC 15 ... 28 V
- Temperature compensation: -20 ... +75 °C [-4 ... +167 °F]
- NAMUR NE43-compliant



Analogue pressure sensor, model CPT6030

Description

The CPT6030 analogue pressure sensor is a self-contained pressure sensing instrument that provides high-accuracy pressure measurements with a 2-wire, 4 ... 20 mA output. This sensor uses a low-hysteresis silicon sensor with electronically compensated pressure linearity over the compensated temperature range.

The CPT6030 is characterised over the full pressure and compensated temperature range to achieve 0.025 % FS accuracy. This specification includes linearity, hysteresis, repeatability drift and reference uncertainty over the temperature range. Also featured is an output which is updated at a rate of 21 readings per second (47 ms).

Application

The analogue pressure sensor can be used to verify and adjust industrial and process pressure transmitters as a compact calibration solution. The CPT6030 can also be used for OEM applications.

Examples are:

- Flow calibrators, humidity calibrators, pressure controllers
- For aerospace wind tunnel calibration and also for the automotive sensor testing
- In the aviation and space industries in general, hydrology and oceanography

Or also for applications where high-accuracy pressure measurements and long-term calibration stability are required. It can also be used as a transfer standard or in pressure calibration and testing areas of production facilities.

Functions

The CPT6030 is a smart pressure sensor with calibration and compensation data stored on-board the sensor at all times. It can be configured with a digital RS-232 interface to set and adjust zero and span.

The sensor can be configured for gauge, absolute or bidirectional pressure types with pressure ranges as low as 25 mbar ... 1,001 bar [10 inH₂O ... 15,015 psi] and a recalibration period of 365 days. This analogue pressure sensor accepts a voltage supply from DC 15 ... 28 V making it flexible enough to be used in a wide variety of applications.

Design

The 316L stainless steel construction and wetted parts are an asset when utilising in corrosive or wet environments.

Its compact design offers an advantage in miniaturisation of product design in many OEM applications.

The pressure connection and case can be customised to fit your application. Standard fittings are easily changed using the SAE J514/JIC connection or the Autoclave® F250C connection.

Specifications Model CPT6030

Analogue pressure sensor technology	
Metrological accuracy ¹⁾	0.025 % FS ²⁾
Precision ³⁾	0.015 % FS
Measuring ranges	
Gauge pressure ⁴⁾	0 ... 25 mbar to 0 ... 1,000 bar 0 ... 0.36 to 0 ... 15,000 psi
Bidirectional ⁵⁾	-12.5 ... +12.5 mbar to -1 ... 100 bar -0.18 ... +0.18 to -15 ... 1,500 psi
Absolute pressure	0 ... 350 mbar abs. to 0 ... 1,001 bar abs. 0 ... 5 to 0 ... 15,015 psi abs.
Calibration interval	365 days
Optional as barometric reference	
Measuring range	552 ... 1,172 mbar abs. [8 ... 17 psi abs.]
Accuracy ¹⁾	0.025 % of reading
Pressure units	39

1) It is defined by the total measurement uncertainty, which is expressed with the coverage factor (k = 2) and includes the following factors: 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 during a periodic zero point correction every 30 days.

2) FS = Full Span

3) It is defined as the combined effects of linearity, repeatability and hysteresis throughout the stated compensated temperature range.

4) For pressure ranges from $\geq 100 \dots \leq 1,000$ bar [$\geq 1,500 \dots \leq 15,000$ psi] gauge will be sealed gauge sensor.

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

Analogue pressure sensor	
Case	
Orientation effects	Negligible – completely removable with a zero point correction
Dimensions	see technical drawings
Weight	approx. 250 g [0.55 lbs] (depending on range)
Ingress protection	IP67
Warm-up time	approx. 15 min
Connections	
Pressure connections	SAE J514/JIC or Autoclave® F250C; for pressure ranges > 400 bar [> 6,000 psi] 10-32 UNF female (for barometric measuring range only)
Overpressure safety	2 x proof, 3 x burst, static pressure < 3.45 bar [< 50 psi]

Analogue pressure sensor	
Wetted parts	316 stainless steel, silicon, glass-filled resins, epoxy; for pressure ranges ≤ 350 mbar [≤ 5 psi]
	316 stainless steel; for pressure ranges > 350 mbar ... 100 bar [> 5 psi ... 1,500 psi]
	316 stainless steel, fluorocarbon rubber; for pressure ranges > 100 bar [1,500 psi]
Permissible media	Clean, dry, non-corrosive gases; for pressure ranges ≤ 350 mbar [≤ 5 psi]
	Media compatible with the listed wetted parts; for pressure ranges > 350 mbar [> 5 psi]
Voltage supply	
Supply voltage	DC 15 ... 28 V (DC 24 V nominal)
Current/power consumption	4 ... 20 mA depending on pressure input (23 mA, 0.65 W max.)
Output signal	
Current (2-wire)	4 ... 20 mA
Permissible ambient conditions	
Compensated temperature range	-20 ... +75 °C [-4 ... +167 °F]
Operating temperature range	-40 ... +85 °C [-40 ... +185 °F]
Storage temperature range	-40 ... +85 °C [-40 ... +185 °F]
Humidity	0 ... 95 % r. h. (non-condensing)
Operating altitude	$< 3,000$ m or 10,000 ft
Internal volume	
Measure port	< 1 ml [1 cc]
Reference port	approx. 45 ml [45 cc]
Communication	
Measuring rate	21 values/s

Certificates

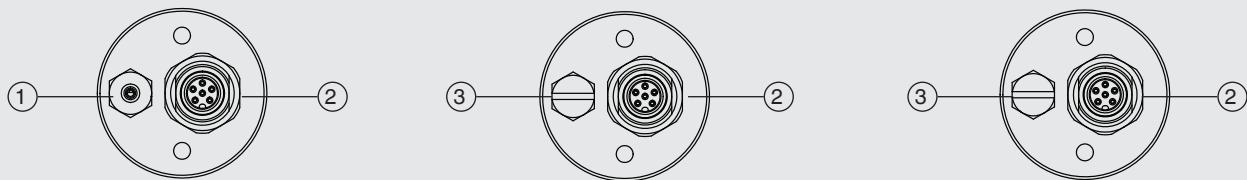
Certificate	
Calibration ⁶⁾	Standard: NIST calibration certificate (standard on factory) Option: DKD/DAkkS calibration certificate

6) Calibration in a vertical position.

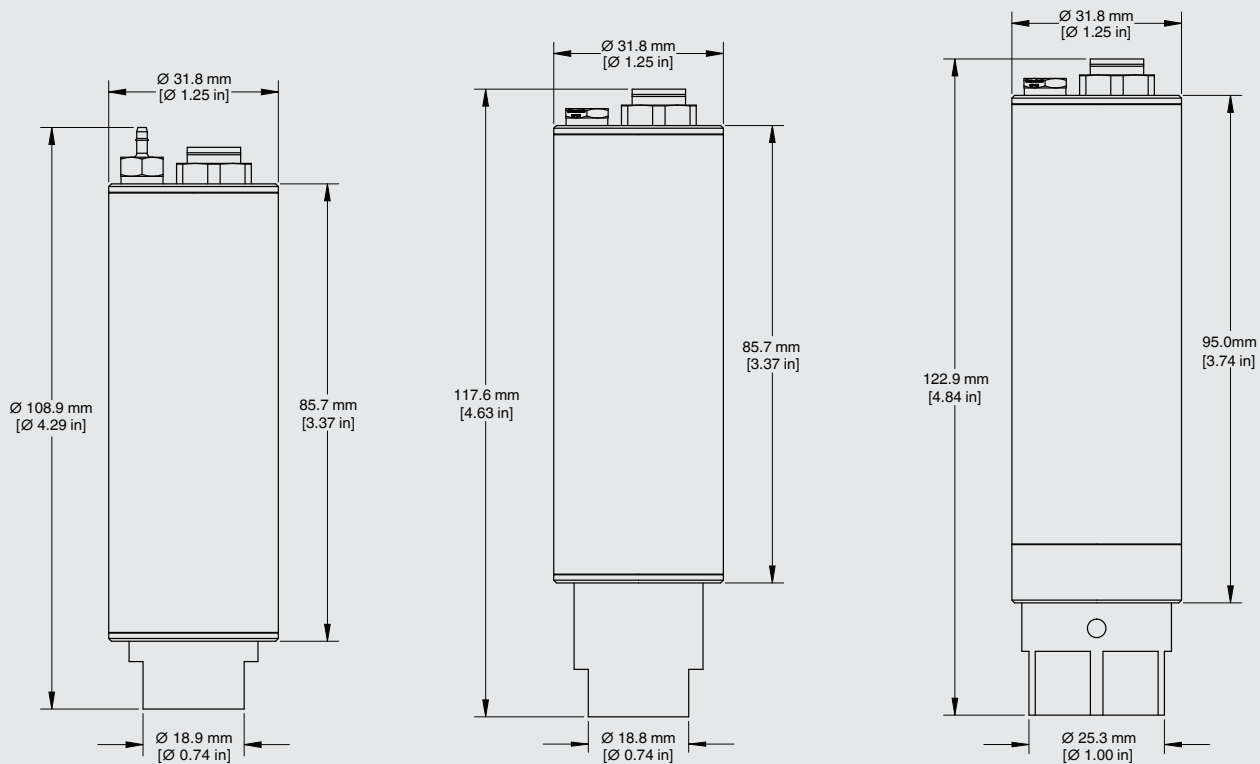
Approvals and certificates, see website

Dimensions in mm [in]

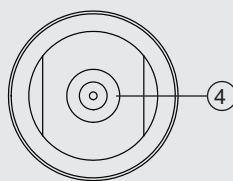
Interface and reference port 1)



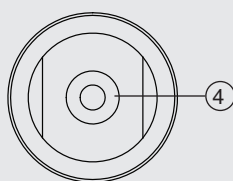
Case



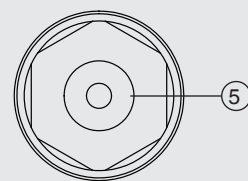
Pressure connection



≤ 100 bar
[≤ 1,500 psi]



100 ... 400 bar
[1,500 ... 6,000 psi]



400 ... 1,000 bar
[6,000 ... 15,000 psi]

- ① Reference port for hose connection 1/16" barb
- ② 6-pin M8 connector
- ③ Seal screw

- ④ SAE J514 37° flare port 7/16-20 thread
- ⑤ Autoclave® F250 C female port

1) Reference port only for gauge pressure range; the port is plugged at absolute pressure range and sealed gauge ranges.

Scope of delivery

- Analogue pressure sensor, model CPT6030
- Operating instructions
- Pressure adapter (as specified)
- 1.5 m [5 ft] connection cable with flying leads
- NIST calibration certificate (standard on factory)

Options

- DKD/DAkkS calibration certificate

Ordering information

CPT6030 / Instrument version / Operating pressure range / Pressure unit / Type of pressure / Start of measuring range / End of measuring range / Type of certificate / Mounting position / Pressure adapter / Further approvals / Additional order information

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