USB pressure sensor
With USB adapter and software
Model CPT2500

WIKA data sheet CT 05.01

for further approvals see page 4

Applications

- Calibration service companies and service industry
- Quality assurance
- Recording and monitoring of pressure profiles
- Pressure spike measurement

Special features

- Recording interval adjustable from 1 ms ... 10 s
- Measuring ranges from 0...0.4 psi to 0...14,500 psi (0 … 25 mbar to 0 … 1,000 bar)
- Accuracy: 0.2 %, optionally 0.1 % (incl. calibration certificate)
- No external voltage supply required
- Software to record measured value, run calibrations and evaluate readings.

USB pressure sensor model CPT2500 with USB adapter model CPA2500

Description

Extensive application possibilities
The model CPT2500 USB pressure sensor can be connected to any PC with a USB interface, via the model CPA2500 USB adapter.
For the USB adapter, there are stainless steel pressure sensors with measuring ranges up to 14,500 psi (1,000 bar) available. The USB adapter automatically recognizes the measuring range of the connected pressure sensor and guarantees a high-accuracy pressure measurement.

Functionality
The interval for pressure measurement can be set in the range from 1 ms ... 10 s. With a recording interval of more than 5 ms the following data is recorded in addition to the current measured value:
- the mean value over the recording interval
- the maximum and minimum values during the recording interval

This data allows for pressure spikes within the overall recording interval to be easily identified. It is also possible to set start and stop conditions for the recording. In this way it is possible to detect pressure spikes with a resolution of up to 1 ms.
The CPT2500 is suited to all applications where, over a limited time span, pressure profiles must be recorded and analyzed with high resolution.

Software
The USBsoft2500 and USB-ScanSoft software are delivered as standard with the USB adapter. With it, all settings for recording the pressure profiles can be made. The recorded measured values can be graphically displayed, evaluated and exported.
Apart from the USBsoft2500 and USB-ScanSoft software, the WIKA-Cal calibration software is available for calibration tasks. Using this software, the data is automatically transferred into a printable calibration certificate. Besides PC-supported calibration, WIKA-Cal also offers the management of the calibration. A USB interface is available for the data transfer.

Complete service case
For easy transport and safe storage, the USB adapter is delivered in a compact transport case, which can also hold one or more pressure sensors.

Certified accuracy
For each reference pressure sensor, the accuracy for the complete measuring chain is certified by a factory calibration certificate which accompanies the instrument. On request an A2LA, DKD/DAkkS calibration certificate will be provided for this instrument.

Data sheets showing similar products and accessories:
Hand-held pressure indicators; model CPH6200; see data sheet CT 11.01
Hand-held pressure indicators; model CPH6300; see data sheet CT 12.01
Test pumps, hydraulic; CPP series; see data sheet CT 91.05
Hand test pump, pneumatic; model CPP30; see data sheet CT 91.06
Calibration software; WIKA-Cal; see data sheet CT 95.10

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Specifications

USB pressure sensor model CPT2500 (complete measuring chain)

Measuring range

Gauge pressure	mbar	-600 ... 0	-600 ... +600	-400 ... 0	-400 ... +400	-250 ... 0
		-250 ... +250	-100 ... +100	-20 ... +60 [1]	-20 ... +40 [1]	-20 ... +25 [1]
		0 ... 25 [1]	0 ... 40 [1]	0 ... 60 [1]	0 ... 100	0 ... 160
		0 ... 250	0 ... 400	0 ... 600		
	bar	-1 ... 0	-1 ... 1.5	-1 ... 3	-1 ... 5	-1 ... 9
		-1 ... 15	-1 ... 24	-1 ... 39	0 ... 1	0 ... 1.6
		0 ... 2.5	0 ... 4	0 ... 6	0 ... 10	0 ... 16
		0 ... 25	0 ... 40	0 ... 60	0 ... 70	0 ... 100
		0 ... 160	0 ... 250	0 ... 400	0 ... 600	0 ... 1,000
	psi	0...5	0...10	0...15	0...20	0...30
		0...50	0...100	0...150	0...200	0...300
		0...500	0...1,000	0...1,500	0...2,000	0...3,000
		0...6,000	0...8,000	0...14,500		
		-14.5 ... 350	-14.5 ... 560	0 ... 14.5	0 ... 25	0 ... 40
		0 ... 60	0 ... 90	0 ... 145	0 ... 250	0 ... 360
		0 ... 580	0 ... 870	0 ... 1,000	0 ... 1,450	0 ... 2,320
		0 ... 3,630	0 ... 5,800	0 ... 8,700	0 ... 14,500	
Absolute pressure	mbar abs.	0 ... 250	0 ... 400	0 ... 600		
	bar abs.	0 ... 1	0 ... 1.6	0 ... 2.5	0 ... 4	0 ... 6
		0 ... 10	0 ... 16	0 ... 25	0.8 ... 1.2	
	psi abs.	0...5	0...10	0...15	0...20	0...30
		0...50	0...100	0...150	0...200	
		0 ... 360				

Overpressure limit	3 times; ≤ 25 bar 2 times; > 25 bar ... ≤ 600 bar 1.5 times; > 600 bar	3 times; ≤ 360 psi 2 times; > 360 psi ... ≤ 8,000 psi 1.5 times; > 8,700 psi
Resolution	dependent on pressure range (max. 4 1/2-digit)	
Accuracy of the measuring chain [2]	0.2 % FS (resolution 4-digit); {optional: 0.1 % FS (resolution: 4 1/2-digit)} [3]	
Pressure types	Gauge pressure, {absolute pressure from 0 ... 25 bar abs. (0 ... 360 psi abs.) and vacuum from -1 ... +39 bar (-14.5 ... 560 psi)},	

{} Items in curved brackets are optional extras for an additional price.
1) For ranges < 100 mbar (1.45 psi) there is an accuracy of 0.2 % FS.
2) 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 adjustment.
3) Reference conditions: 15 ... 25 °C (59 ... 77 °F)

Reference pressure sensor model CPT2500

Pressure connections [4]	1/4 NPT male, 1/2 NPT male, optional G ½ B; {flush (G 1 for 0.1 ... 1.6 bar (1.5 ... 23 psi)), others available upon request.
Pressure units	mbar, bar, Pa, kPa, MPa, mmHg, psi, inHg (0 °C), inHg (60 °F), mWs; (depending on the measuring range, freely selectable)

Material

Wetted parts	Stainless steel or Elgiloy®, (> 25 bar (360 psi) additionally with NBR seal) [5] Flush diaphragm version: Stainless steel {Hastelloy C4}; O-ring: NBR {FKM/FPM or EPDM}
Internal transmission medium	Synthetic oil (only for measuring ranges to 16 bar (250 psi) or flush diaphragm) {Halocarbon oil for oxygen applications}; {Listed by FDA for food industry}

Reference pressure sensor model CPT2500

Sensor data

Accuracy [2]	≤ 0.2 % of span (at reference conditions) [3]
Compensated range	0 ... 80 °C (32 ... 176 °F)
Mean temperature coefficient	≤ 0.2 % of span/10 K (outside the reference conditions)
Measuring rate	1,000 measurements/s

Permissible ambient conditions

Medium temperature [4]	-25 ... +100 °C (-13 ... +212 °F) [6]
Operating temperature	-20 ... +80 °C (-4 ... +176 °F)
Storage temperature	-40 ... +100 °C (-40 ... +212 °F) [6]
Relative humidity	0 ... 95 % r. h. (non-condensing)

Case

Material	Stainless steel
Ingress protection	IP67
Dimensions	See technical drawing
Weight	approx. 220 g (0.49 lbs)

USB adapter model CPA2500

Communication

PC connection	Standard USB connector (type A)
Electrical sensor connection	Circular connector, 7-pin, M16 x 0.75
Recording interval	1 ms ... 10 s, adjustable via software
Recording options	selectable start/stop conditions, pre-trigger, stop delay

Voltage supply

Power supply	Supply via USB interface

Permissible ambient conditions

Operating temperature	-25 ... +50 °C (-13 ... +122 °F)
Storage temperature	-25 ... +70 °C (-13 ... +158 °F)
Relative humidity	0 ... 95 % r. h. (non-condensing)

Case

Dimensions	See technical drawing
Weight	approx. 120 g (0.265 lbs)

{} Items in curved brackets are optional extras for an additional price.
[2] 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 adjustment.
[3] Reference conditions: 15 ... 25 °C (59 ... 77 °F)
[4] As an oxygen version, a flush diaphragm model is not available. In an oxygen version, the model CPT2500 is only available in an overpressure range ≥ 0.25 bar (≥ 0.4 psi), with medium temperatures between -10 … +50 °C (14 … 122 °F) and with stainless steel or Elgiloy® wetted parts.
[5] For pressure measuring ranges 0 ... 0.4 psi, 0 ... 0.6 psi and 0 ... 0.9 psi all wetted parts are made of stainless steel, silicium, aluminium, gold, silicone.
[6] For pressure measuring ranges of 0 ... 0.4 psi, 0 ... 0.6 psi and 0 ... 0.9 psi, the medium temperature and storage temperature are limited to 80 °C (176 °F).
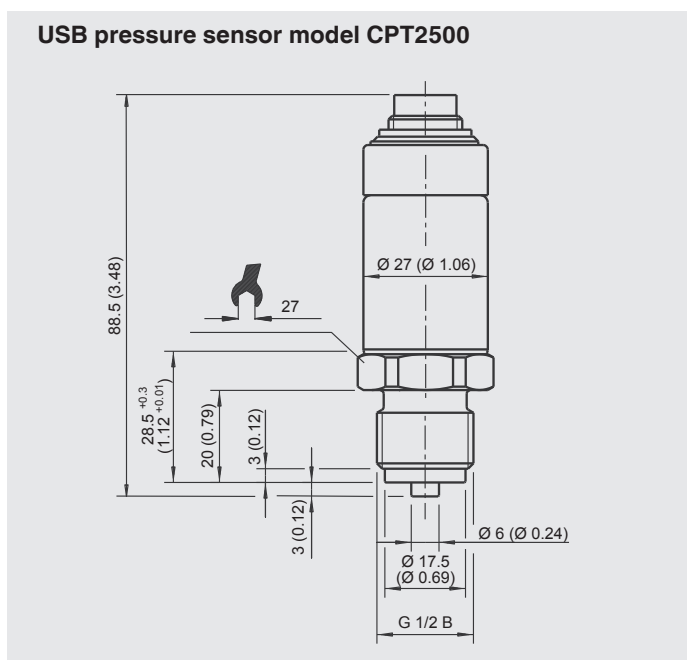
Approvals

Logo	Description	Country
CE	**EU declaration of conformity for model CPA2500** ■ EMC directive EN 61326 emission (group 1, class B) and immunity (controlled electromagnetic environment) ■ RoHS directive	European Union
CE	**EU declaration of conformity for model CPT2500** ■ EMC directive EN 61326 emission (group 1, class B) and immunity (commercial applications, laboratories, service centres and workshops) ■ Pressure equipment directive PS > 200 bar; module A, pressure accessory ■ RoHS directive	European Union
EHC	**EAC** EMC directive	Eurasian Economic Community
ⓡ	**KazInMetr** Metrology, measurement technology	Kazakhstan
-	**MTSCHS** Permission for commissioning	Kazakhstan
◉	**UkrSEPRO** Metrology, measurement technology	Ukraine
⬭	**Uzstandard** Metrology, measurement technology	Uzbekistan

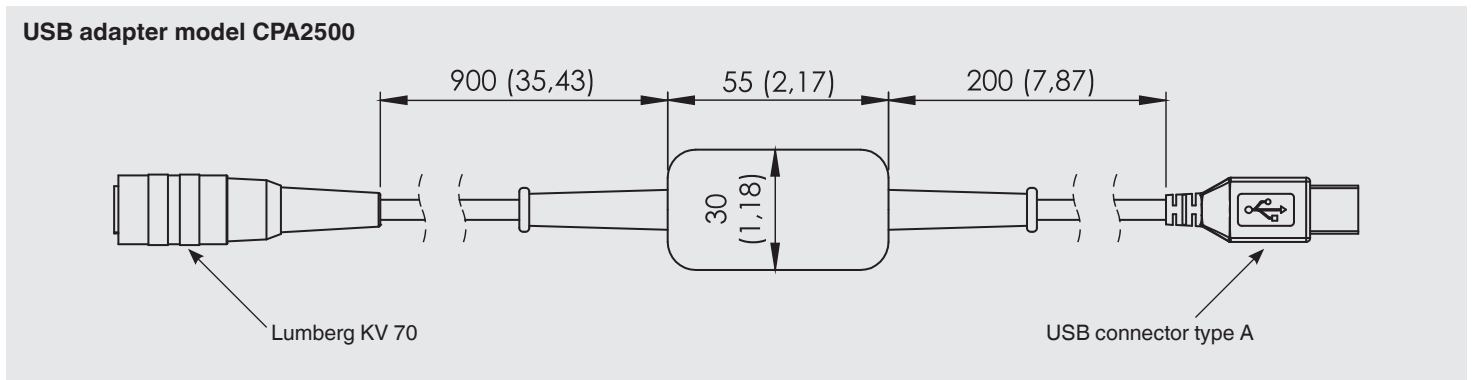## Certificates

Certificate	
Calibration	Standard: 3.1 calibration certificate per DIN EN 10204 Option: DKD/DAkkS calibration certificate
Recommended recalibration interval	1 year (dependent on conditions of use)

Approvals and certificates, see website

Dimensions in mm (in)

USB pressure sensor model CPT2500

Dimensions in mm (in)

USB adapter model CPA2500

900 (35,43) 55 (2,17) 200 (7,87) 30 (1,18)

Lumberg KV 70

USB connector type A

USBsoft2500 and USB-ScanSoft configuration and evaluation software

The USBsoft2500 software is required for the operation of the model CPT2500 USB pressure sensor in conjunction with the model CPA2500 USB adapter. This enables the configuration of the pressure sensor and also the selection of the various recording settings.

The software also allows different start/stop conditions to be defined, in order to easily identify, for example, a single pressure spike.

Graphical evaluation of the measured data (including mean, min. and max. values) is provided and the measured data can be exported to other software.
Several measurement series can be displayed in a single chart.
Using the USB-ScanSoft software, several CPT2500s can be operated in parallel with the model CPA2500 USB adapter. One CPA2500 is required per CPT2500.
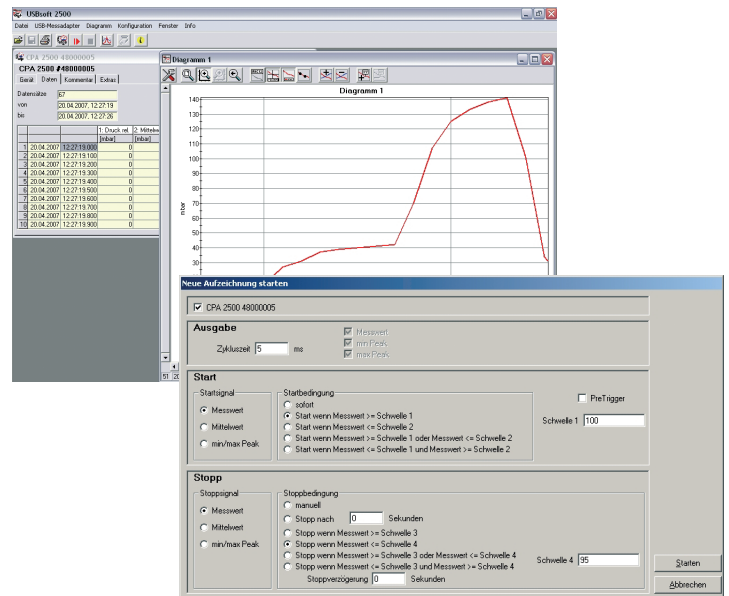
Performance data
■ Recording interval of 1 ms ... 10 s
■ Data export to other programs e.g. Excel®
■ Languages: English, German, Spanish and Czech

System requirements for USBsoft2500
■ CPU with at least 1 GHz
■ At least 20 MB free hard disc space
■ CD-ROM drive
■ At least 256 MB RAM
■ Windows® operating system 95, 98, NT 4.0 (with Service Pack 3.0 or higher), 2000, XP, Vista or 7
■ USB interface

System requirements for USB-ScanSoft
■ CPU with at least 1.2 GHz
■ At least 100 MB free hard disc space
■ CD-ROM drive
■ At least 1 GB RAM
■ Windows® operating system XP (SP 3), Vista (SP2) or 7 (SP1)
■ USB interface

Windows® is a registered trademark of Microsoft Corporation in the United States and other countries.

WIKA-Cal calibration software

Easy and fast creation of a high-quality calibration certificate

The WIKA-Cal calibration software is used for generating calibration certificates or logger protocols for pressure measuring instruments and is available as a demo version for a cost-free download.

A template helps the user and guides him through the creation process of a document.

In order to switch from the demo version to a full version of the respective template, a USB stick with the template has to be purchased.

The pre-installed demo version automatically changes to the selected full version when the USB stick is inserted and remains available as long as the USB stick is connected to the computer.

- Creation of calibration certificates for mechanical and electronic pressure measuring instruments
- A calibration assistant guides you through the calibration
- Automatic generation of the calibration steps
- Generation of 3.1 certificates per DIN EN 10204
- Creation of logger protocols
- User-friendly interface
- Languages: German, English, Italian and more due with software updates

For further information see data sheet CT 95.10

Calibration certificates can be created with the Cal-Template and logger protocols can be created with the Log-Template.

Cal Demo
Generation of calibration certificates limited to 2 measuring points, with automatic initiation of pressures via a pressure controller.

Cal Light
Generation of calibration certificates with no limitations on measuring points, without automatic initiation of pressures via a pressure controller.
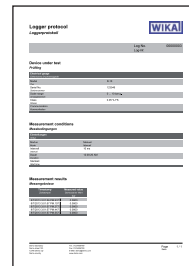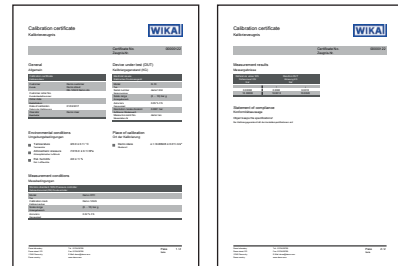
Log Demo
Creation of data logger test reports, limited to 5 measured values.

Log
Creation of data logger test reports without limiting the measured values.

Accessories

Accessories for CPA2501	Order code
Description	**CPH-A-25**
USB Adapter USB Adapter CPA2500, Carrying case, configuration/evaluation software USBsoft2500	-2
Ordering information for your inquiry:	
1. Order code: CPX-A-A9 2. Option:	⇓ [ ]

Scope of delivery

- USB pressure sensor model CPT2500
- Transport case
- Operating instructions
- 3.1 calibration certificate per DIN EN 10204
- USB adapter model CPA2500
- USBsoft2500 and USB-ScanSoft software

Options

- A2LA, DKD/DAkkS certified accuracy
- Sensors for oxygen applications

Transport case with USB pressure sensor and USB adapter

Ordering information

CPT2500 / Unit / Measuring range / Accuracy / Process connection / Special design features / Type of certificate / Accessories / Further approvals / Additional ordering information