

Precision digital pressure gauge Model CPG1500

WIKA data sheet CT 10.51



for further approvals see
page 4 - 5

Applications

- Oil and gas industry
- Maintenance and service facilities
- Calibration service companies and service industry
- Simple calibrations directly on site
- Pressure test

Special features

- Measuring ranges up to 0 ... 150,000 psi (0 ... 10,000 bar), Vacuum and absolute pressure ranges also available
- Accuracy: up to 0.025 % (including calibration certificate)
- Intrinsically safe version
- Data logging with up to 50 measured values per second
- Communication with WIKA-Cal software over WIKA-Wireless



Precision digital pressure gauge, model CPG1500

Description

General information

The CPG1500 precision digital pressure gauge takes the concept of an analog gauge and raises it to a level only matched by digital calibrators. The accuracy of digital measurement technology and the simplicity of an analog gauge are combined together to create the CPG1500. In terms of performance, ease-of-use and instrument features, the CPG1500 is unmatched in the pressure measurement market.

Accuracy

The CPG1500 offers an accuracy of 0.1% FS (optional 0.05% FS or 0.025% FS) and is temperature compensated in the range of 14 ... 122 °F (-10 ... +50 °C). Readings can be displayed in one of 26 pressure and 5 level units or also in customer-specific units, so that complicated conversions are avoided.

Sampling rate

The measuring rate can be user defined to match the type of measurement required. Standard applications usually use three measured values per second. If required, this rate can also be set to 50 measured values per second.

As an energy-saving function, the CPG1500 switches automatically into "sleep" mode; in this mode the battery life can be increased up to 2,500 hours.

Features

Simple operation is ensured through the new and innovative menu navigation. The clear display, with integral bar graph display and large text area, assists with the effective analysis of the widest variety of measuring points.

With the MIN/MAX function, the highest and lowest pressures can be accessed immediately and saved automatically.

Software

WIKA-Cal calibration software is available for the CPG1500. WIKA-Cal offers not only PC supported calibration, but also management of the calibration and instrument data in an SQL database. WIKA-Wireless is available for data transfer.

Certified accuracy

For each digital pressure gauge, the accuracy is certified by a factory calibration certificate which accompanies the instrument. On request, we can provide DKD/DAkkS, A2LA or NIST calibration certificates for this instrument.

Specifications Model CPG1500

Sensor technology									
Measuring range									
Gauge pressure	bar	0 ... 0.1 ¹⁾	0 ... 0.25 ²⁾	0 ... 0.4 ²⁾	0 ... 0.6 ²⁾	0 ... 1	0 ... 1.6		
		0 ... 2.5	0 ... 4	0 ... 6	0 ... 10	0 ... 16	0 ... 25		
		0 ... 40	0 ... 60	0 ... 100	0 ... 160	0 ... 200	0 ... 250		
		0 ... 400	0 ... 600	0 ... 700 ³⁾	0 ... 1,000 ³⁾	0 ... 1,600 ⁴⁾	0 ... 2,500 ⁴⁾		
		0 ... 4,000 ⁵⁾	0 ... 6,000 ⁵⁾	0 ... 7,000 ⁵⁾	0 ... 8,000 ⁵⁾	0 ... 10,000 ⁵⁾			
	psi	0 ... 1.5 ¹⁾	0 ... 5 ²⁾	0 ... 10 ²⁾	0 ... 15	0 ... 20	0 ... 30		
		0 ... 50	0 ... 60	0 ... 100	0 ... 150	0 ... 160	0 ... 200		
		0 ... 300	0 ... 500	0 ... 700	0 ... 1,000	0 ... 1,500	0 ... 2,000		
		0 ... 3,000	0 ... 5,000	0 ... 6,000	0 ... 8,000	0 ... 10,000 ³⁾	0 ... 15,000 ³⁾		
		0 ... 20,000 ⁴⁾	0 ... 30,000 ⁵⁾	0 ... 50,000 ⁵⁾	0 ... 100,000 ⁵⁾	0 ... 150,000 ⁵⁾			
		Absolute pressure	bar abs.	0 ... 0.25 ²⁾	0 ... 0.4 ²⁾	0 ... 0.6 ²⁾	0 ... 1	0 ... 1.6	0 ... 2.5
				0 ... 4	0 ... 6	0 ... 7	0 ... 10	0 ... 16	0 ... 20
	0 ... 25	0 ... 40							
	psi abs.	0 ... 3.5 ²⁾	0 ... 5 ²⁾	0 ... 10 ²⁾	0 ... 15	0 ... 20	0 ... 30		
		0 ... 50	0 ... 60	0 ... 100	0 ... 150	0 ... 200	0 ... 300		
		0 ... 500							
Vacuum and +/- measuring ranges	bar	-0.25 ... +0.25 ²⁾	-0.4 ... +0.4 ²⁾	-0.6 ... +0.6	-1 ... 0	-1 ... +0.6	-1 ... 1.5		
		-1 ... 2.5	-1 ... 3	-1 ... 5	-1 ... 7	-1 ... 9	-1 ... 10		
		-1 ... 15	-1 ... 24	-1 ... 25	-1 ... 39	-1 ... 40			
	psi	-14.5 ... 0	-14.5 ... +15	-14.5 ... 40	-14.5 ... 70	-14.5 ... 100	-14.5 ... 130		
		-14.5 ... 300	-3 ... +3 ²⁾	-5 ... +5 ²⁾	-8 ... +8	-3 ... 0 ²⁾	-5 ... 0 ²⁾		
		-8 ... 0 ²⁾							
Overpressure safety									
Sensor	3 times; < 25 bar 2 times; > 25 bar ... ≤ 600 bar 1.5 times; > 600 bar ... ≤ 1,600 bar 1.3 times; > 1,600 bar 1.1 times; > 6,000 bar			3 times; < 360 psi 2 times; > 360 psi ... ≤ 8,700 psi 1.5 times; > 8,700 psi ... ≤ 25,000 psi 1.3 times; > 25,000 psi 1.1 times; > 85,000 psi					
Display	> 110 % FS or -10 % FS								
Accuracy ^{6) 7)}	Standard: 0.1 % FS Optional: 0.05 % FS ⁸⁾ or 0.025 % FS ^{8) 9)}								

1) Expanded accuracy of 0.2 % FS

2) Expanded accuracy of 0.15 % FS

3) Not possible as flush version

4) Expanded accuracy of 0.15 % FS, at reference conditions 23 °C ±3 °C

5) Expanded accuracy of 0.25 % FS, at reference conditions 23 °C ±3 °C

6) 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.

7) FS = Full span = end of measuring range - start of measuring range

8) At a measuring rate of ≤ 3 measured values per second

9) Only for ≥ 0 ... 1 bar up to ≤ 0 ... 1.000 bar (≥ 0 ... 15 psi up to ≤ 0 ... 14.500 psi), at reference conditions 23 °C ±3 °C

Sensor technology	
Compensated temperature range	-10 ... +50 °C (14 ... 122 °F)
Type of pressure	Gauge pressure, absolute pressure (up to 20 bar abs. (290 psi abs.)) and vacuum measuring ranges
Process connection	
Standard ≤ 1,000 bar (≤ 15,000 psi)	G ½ B, G ¼ B, ½ NPT, ¼ NPT, G 1 B flush, G ½ B flush
High-pressure version > 1,000 bar (> 15,000 psi)	<ul style="list-style-type: none"> ■ M16 x 1.5 female with sealing cone ■ M20 x 1.5 female with sealing cone ■ 9/16 - 18 UNF female F 250-C
Pressure medium	All liquids and gases which are compatible with 316 stainless steel
Adjustment	Offset and span factor adjustable

Base instrument	
Display	
Display	5 ½ digit 7-segment display including a large matrix area for auxiliary information Bar graph, 0 ... 100 % Selectable backlighting
Rotatable case	The case is rotatable by 330°.
Resolution	4 ... 5 ½ digit; adjustable; dependent on the selected pressure unit
Pressure units	Standard: psi, bar Selectable to: mbar, kg/cm ² , Pa, hPa, kPa, Mpa, mmH ₂ O, mH ₂ O, inH ₂ O, inH ₂ O (4 °C), inH ₂ O (20 °C), inH ₂ O (60 °F), ftH ₂ O, mmHg, cmHg, inHg, inHg (0 °C), inHg (60 °F), kp/cm ² , lbf/ft ² , kN/m ² , atm, Torr, micron as well as user-defined units ¹⁰⁾
Functions	
Measuring rate	max. 50/s
Menu languages	Standard: English Selectable: German, Italian, French, Spanish, Russian and Polish
Memory	Standard: Min./Max. Optional: integrated data logging
Menu functions	Min./Max. alarm (visual), power-off function, measuring rate, mean value filter, pressure rate, mean value (via adjustable interval), level indicator, Tare offset, display damping
Mean value interval	1 ... 300 seconds, adjustable
Data logging ¹¹⁾	Cyclic data logging: Automatic recording of up to 1,000,000 values; Cycle time: selectable from 1 ... 3,600 s. in steps of 1 second or by measuring rate in the following steps: 1/s, 3/s, 10/s and 50/s
Material	
Wetted parts	≤ 1,000 bar: Stainless steel 316 > 1,000 bar: Stainless steel 1.4534 -1 ... < 40 bar: Stainless steel 316 > 40 ... 1,000 bar: Stainless steel 316 + Elgiloy cells 2.4711
Case	Aluminium die-casting, nickel-plated
Voltage supply	
Power supply	3 x 1.5 V AA alkaline batteries ¹²⁾
Maximum voltage	DC 4.95 V (spark ignition)
Battery life	typical 2,000 ... 2,500 h (without backlighting and WIKA-Wireless not active)
Battery status indication	Symbol display, with 4 bars displaying the battery status in segments of 25 %

10) The user-defined units can only be set via the WIKA-Cal software. The CPG1500 must feature WIKA-Wireless.

11) To evaluate the logged data, WIKA-Cal software is needed.

The logger data can be downloaded with the WIKA-Cal demo version as a CSV file. The live data logging, an accurate data analysis or a direct certificate creation can be used with the data logging template WIKA-Cal.

12) For hazardous areas, only the following types are allowed:





- Duracell, Simply by Duracell MN1500
- Duracell, Duralock Plus Power MN1500
- Varta, RAYOVAC Maximum Plus 4006







Base instrument	
Permissible ambient conditions	
Operating temperature	14 ... 122 °F (-10 ... +50 °C)
Medium temperature	14 ... 122 °F (-10 ... +50 °C) (lower temperature limit above the freezing point of the medium)
Storage temperature	-4 ... +158 °F (-20 ... +70 °C)
Relative humidity	< 95 % r. h. (non-condensing)
Communication (optional)	
Interface	WIKA-Wireless ¹³⁾
Case	
Dimensions	approx. 3.9 x 5.9 x 2.3 in (100 x 150 x 59 mm)
Ingress protection	IP65
Weight	<ul style="list-style-type: none"> ■ includes. batteries approx. 1.5 lbs (680 gv) ■ with protective rubber cap: approx. 1.81 lbs (820 g)

WIKA-Wireless ¹³⁾	
Frequency range	2,400 ... 2,500 MHz
HF output power	max. 2 dBm (+ 2 dBi)
Number of channels	
Classic	79
Low Energy	40
Channel spacing	
Classic	1 MHz
Low Energy	2 MHz
Bandwidth	1 or 2 MHz
Output power	4 dBm / 10 mW Maximum output power under fault conditions for Ex ia: 490 mW

¹³⁾ Requires a PC with Bluetooth® 2.1 interface
WIKA-Wireless Low Energy (= LE) is required to communicate with an IOS-enabled mobile phone via the myWIKa-device smartphone app.

Approvals

Logo	Description	Country															
  	EU declaration of conformity <ul style="list-style-type: none"> ■ EMC directive ■ Pressure equipment directive ■ RoHS directive ■ R&TTE directive EN 300 328 harmonised frequency range 2,400 ... 2,500 MHz is used; Bluetooth® Classic, max. transmission power 10 mW. The instrument may be used without limitations in the EU and also CH, NO and LI. <ul style="list-style-type: none"> ■ ATEX directive <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">Ex i Zone 0 gas</td> <td style="width: 33%;">II 1G Ex ia IIC T4 Ga</td> <td style="width: 33%;"></td> </tr> <tr> <td>Zone 1 connection to zone 0 gas</td> <td>II 1/2G Ex ia IIC T4 Ga/Gb</td> <td></td> </tr> <tr> <td>Zone 1 gas</td> <td>II 2G Ex ia IIC T4 Gb</td> <td></td> </tr> <tr> <td></td> <td>T4 at -10 ... +50 °C</td> <td></td> </tr> </table>	Ex i Zone 0 gas	II 1G Ex ia IIC T4 Ga		Zone 1 connection to zone 0 gas	II 1/2G Ex ia IIC T4 Ga/Gb		Zone 1 gas	II 2G Ex ia IIC T4 Gb			T4 at -10 ... +50 °C		European Union			
Ex i Zone 0 gas	II 1G Ex ia IIC T4 Ga																
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	IECEx Hazardous areas <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">Ex i Zone 0 gas</td> <td style="width: 33%;">Ex ia IIC T4 Ga</td> <td style="width: 33%;"></td> </tr> <tr> <td>Zone 1 connection to zone 0 gas</td> <td>Ex ia IIC T4 Ga/Gb</td> <td></td> </tr> <tr> <td>Zone 1 gas</td> <td>Ex ia IIC T4 Gb</td> <td></td> </tr> <tr> <td>Zone 2 gas</td> <td>Ex ia IIC T4 Gc</td> <td></td> </tr> <tr> <td></td> <td>T4 at -10 ... +50 °C</td> <td></td> </tr> </table>	Ex i Zone 0 gas	Ex ia IIC T4 Ga		Zone 1 connection to zone 0 gas	Ex ia IIC T4 Ga/Gb		Zone 1 gas	Ex ia IIC T4 Gb		Zone 2 gas	Ex ia IIC T4 Gc			T4 at -10 ... +50 °C		International
Ex i Zone 0 gas	Ex ia IIC T4 Ga																
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	T4 at -10 ... +50 °C																

Logo	Description	Country
	<p>CSA (only up to 6,000 bar (85,000 psi))</p> <ul style="list-style-type: none"> ■ Safety (e.g. electr. safety, overpressure, ...) Class - 3631 06 - Electrical measurement and test equipment Class - 3631 86 - Electrical equipment for measurement use - Certified to U.S. Standards ■ Hazardous areas (only up to 6.000 bar (85.000 psi)) Class - 2258 04 - PROCESS CONTROL EQUIPMENT - Intrinsically safe, Entity - For hazardous locations Ex i Class I, Zone 0 Ex ia IIC T4 Ga Class I, Division 1, Groups A, B, C and D T4 T4 at -10 ... +50 °C Class - 2258 84 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe, Entity - For Hazardous Locations - Certified to U.S. Standards AEx i Class I, Zone 0 AEx ia IIC T4 Ga Class I, Division 1, Groups A, B, C and D T4 T4 at -10 ... +50 °C 	USA and Canada
	<p>EAC</p> <ul style="list-style-type: none"> ■ EMC directive ■ Hazardous areas Ex i Zone 0 gas Ex ia IIC T4 Ga Zone 1 connection to zone 0 gas Ex ia IIC T4 Ga/Gb Zone 1 gas Ex ia IIC T4 Gb T4 at -10 ... +50 °C 	Eurasian Economic Community
	<p>GOST</p> <p>Metrology, measurement technology</p>	Russia
	<p>DNOP (MakNII)</p> <ul style="list-style-type: none"> ■ Mining ■ Hazardous areas 	Ukraine
	<p>KazInMetr</p> <p>Metrology, measurement technology</p>	Kazakhstan
	<p>Uzstandard</p> <p>Metrology, measurement technology</p>	Uzbekistan
-	<p>PESO</p> <p>Hazardous areas</p> <p>Ex i Zone 1 connection to zone 0 gas Ex ia IIC T4 Ga/Gb</p>	India

Certificates

Certificate	
Calibration ¹⁾	Standard: 3.1 calibration certificate per EN 10204 Optional: DKD/DAkKS, A2LA or NIST calibration certificate
Recommended recalibration interval	1 year (dependent on conditions of use)

1) Calibrated in vertical mounting position with process connection facing downwards

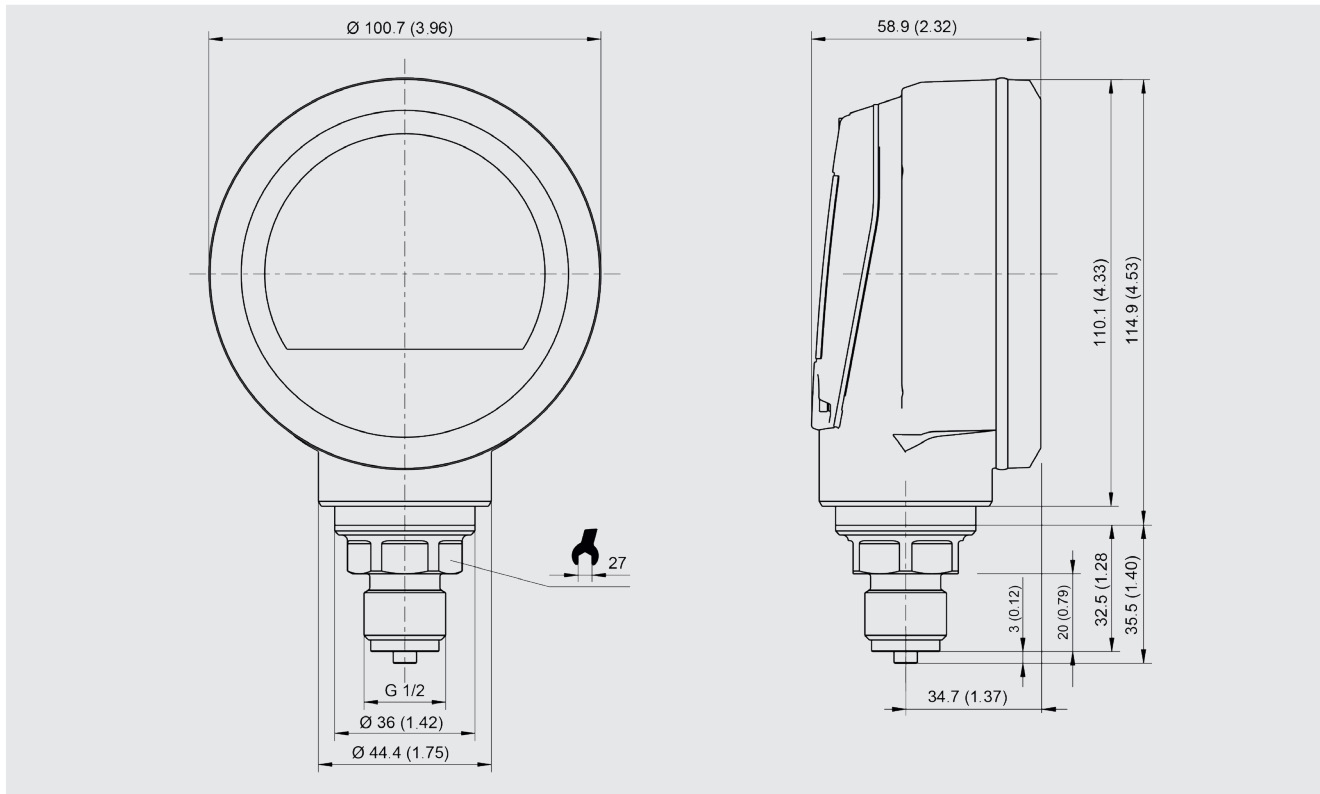
Approvals and certificates, see website

Patents, property rights

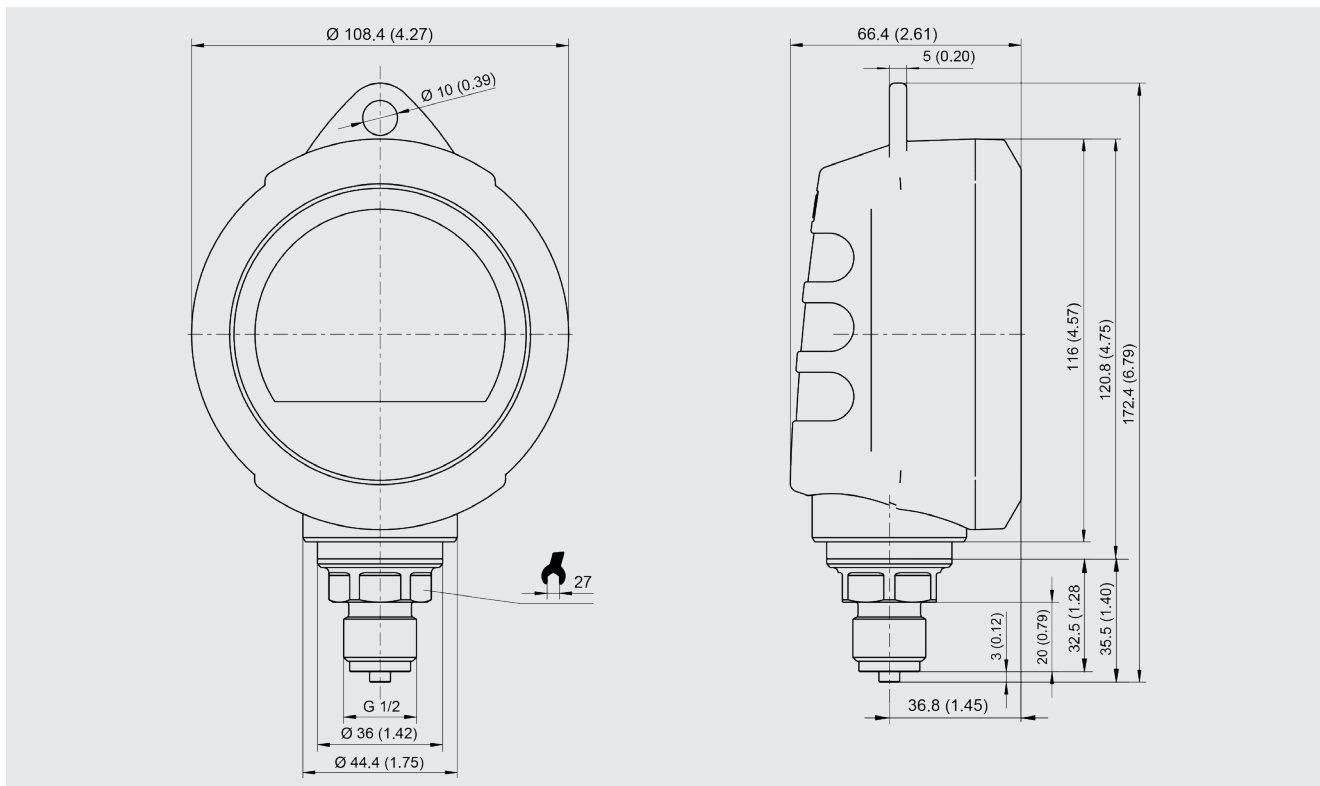
Patent registered under no. US D 803,082 S

Dimensions in mm (in)

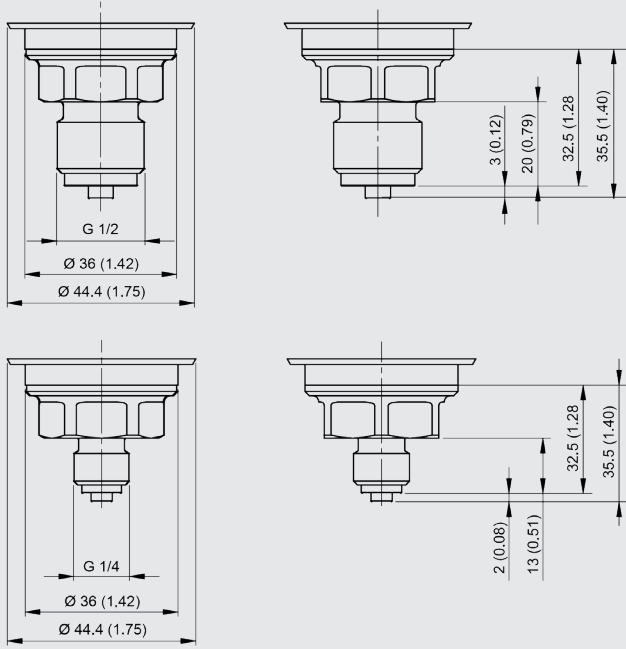
CPG1500 without protective rubber cap



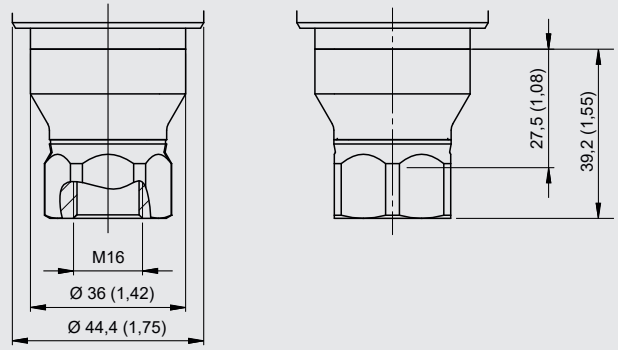
CPG1500 with protective rubber cap



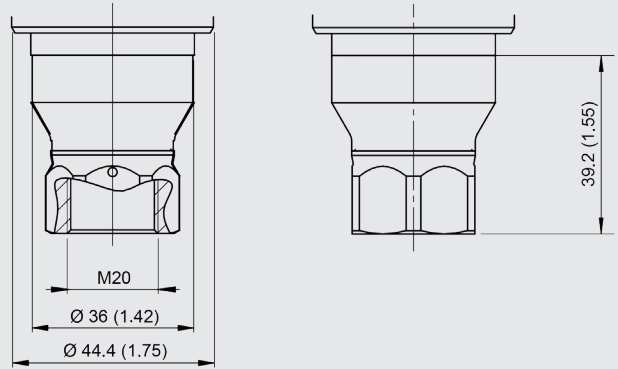
Threaded connections G 1/2 and G 1/4



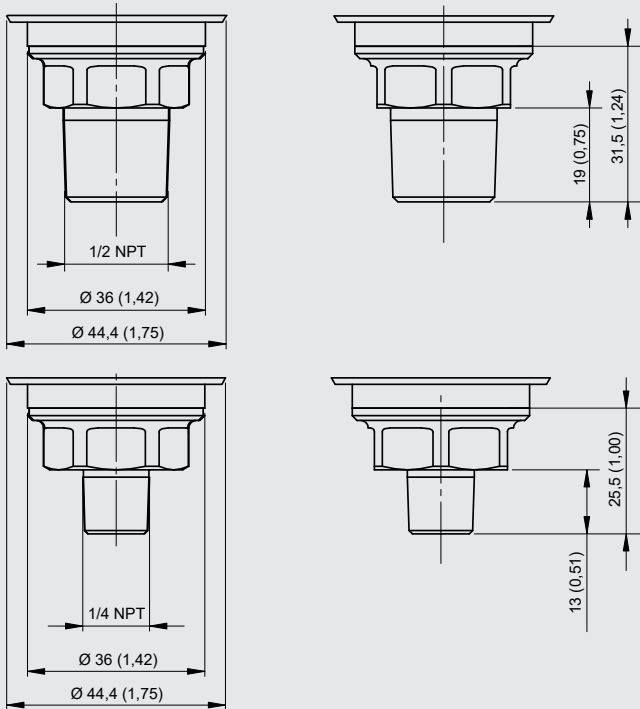
Threaded connection M16



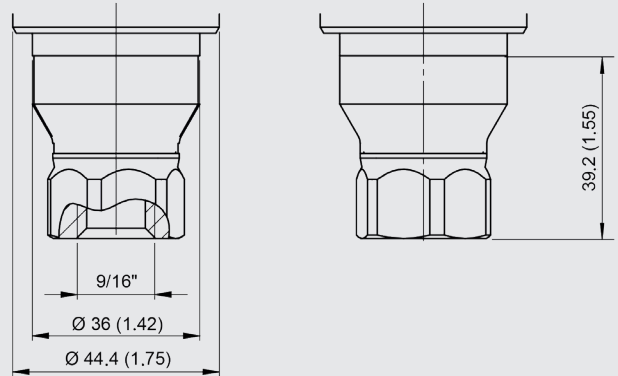
Threaded connection M20



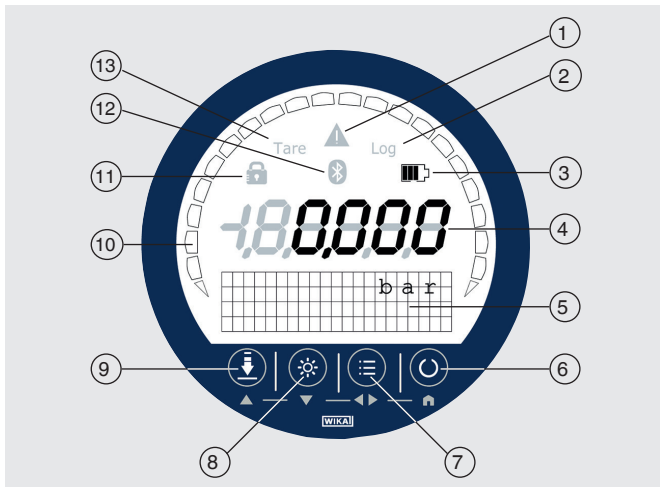
Threaded connections 1/2 NPT and 1/4 NPT



Threaded connection 9/16 - 18 UNF



Front foil

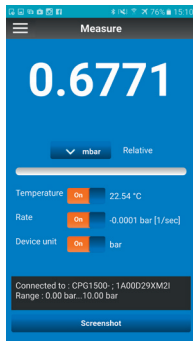


① Warning notice when:

- Exceeding or dropping below the pressure range
- Exceeding or dropping below the temperature range
- Logger memory is more than 90 % full
- Instrument error or battery status < 10 %

- ② **Log:** Logger function active/inactive
- ③ **Battery status**
- ④ **Pressure indication**
- ⑤ **Matrix field** serves as menu and secondary display
- ⑥ **On/Off button**
- ⑦ **MENU button**
Access the menu
- ⑧ **LIGHT button**
Turning the backlighting on and off
- ⑨ **ZERO button**
The current pressure value will be set to "0" (rel.) or reference pressure (abs.)
- ⑩ **Bar graph** indicates the current pressure graphically
- ⑪ **Lock symbol:** Menu button or ZERO button locked/unlocked
- ⑫ **WIKA-Wireless:** WIKA-Wireless active/inactive
- ⑬ **Tara:** TARE active/inactive

App "myWIKA device"



Through the app "myWIKA device" and the WIKA-Wireless connection, the CPG1500 can be configured for calibration and log routines in a comfortable way through a mobile phone. During the pressure measurement, the value is displayed in the required unit directly on the phone.

Further parameters like temperature and pressure change rate can be checked as well. It is also possible to retrieve more detailed device information directly from

the WIKA website. In addition, the app allows configuration, control and saving of log procedures.

Logs that were saved on the mobile phone can be transferred to a PC and read by WIKA-Cal.

With that they can be further processed and the app fills the gap to provide a thorough solution of dealing with data on the CPG1500.

Under the basic settings of the CPG1500, a distinction can be made between the communication type WIKA-Wireless Classic or WIKA-Wireless Classic and WIKA-Wireless Low Energy (= LE).

WIKA-Wireless Low Energy (= LE) is required to communicate with an IOS-enabled mobile phone via the myWIKA-device smartphone app.

It is recommended to select WIKA-Wireless Classic for a connection with PC and/or an Android-enabled instrument.



For iOS-based mobile phones, the app is available in the Apple Store under below link.

For mobile phones with an Android operating system, the app is available in the Play Store under below link.

Download here

Download here



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 data logging 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 is 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 data logging 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 data logging 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.



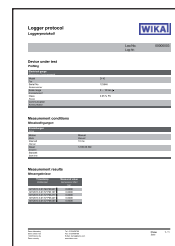
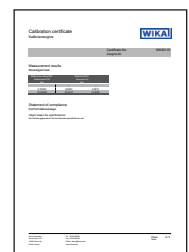
Log Demo

Creation of data data logging test reports, limited to 5 measured values.



Log

Creation of data data logging test reports without limiting the measured values.



Complete test and service cases

Calibration case with model CPG1500 precision digital pressure gauge and model CPP30 hand test pump, for pressures -0.95 ... +35 bar (-28 inHg ... +500 psi), consisting of:

- Plastic service case with foam insert
- Precision digital pressure gauge model CPG1500
- Pneumatic hand test pump model CPP30; -0.95 ... +35 bar (-28 inHg ... +500 psi)

Available measuring ranges see specifications

For further specifications see data sheet CT 91.06



Basic version incl. pneumatic pressure generation

Calibration case with model CPG1500 precision digital pressure gauge and model CPP700-H hand test pump, for pressures 0 ... 10,000 psi (0 ... 700 bar), consisting of:

- Plastic service case with foam insert
- Precision digital pressure gauge model CPG1500
- Model CPP700-H hydraulic hand test pump; 0 ... 10.000 psi (0 ... 700 bar)

Available measuring ranges see specifications

Further specifications see data sheet CT 91.07



Basic version incl. hydraulic pressure generation

Recommended pressure generation

Model CPP30 pneumatic hand test pump

Pressure range: -0.95 ... +35 bar (-28 inHg ... +500 psi)

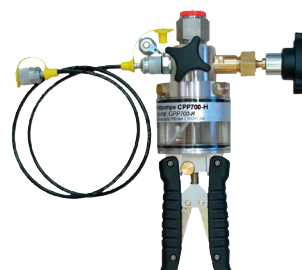
Further specifications see data sheet CT 91.06





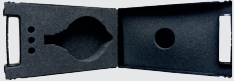
Hydraulic hand test pump model CPP700-H

Pressure range: 0 ... 10,000 psi (0 ... 700 bar)

Further specifications see data sheet CT 91.07



Accessories

Special features		Order code
	Alkaline batteries 3 x 1.5 V AA	-C-
	Protective rubber cap for case	-G-
	Sealing set Consisting of 4 x G ½ USIT seals, 2 x G ¼ USIT seals and plastic box	-D-
	Adapter set for NPT adapter set	-F-
	for BSP adapter set	-B-
	Surface mounting lug 90°	-1-
	Plastic case for 1 x digital pressure gauge, 1 x hydraulic hand test pump CPP700-H	-N-
	for 1 x digital pressure gauge, 1 x pneumatic hand test pump CPP7-H or CPP30	-L-
	for 1 x CPG1500 for storage and transport	-5-
	for 3 x CPG1500 for storage and transport	-6-
	WIKA-Wireless USB stick	-2-
Ordering information for your request		
1. Order code: CPP-A-15 2. Option:		↓ []

		Order code
	Calibration software WIKA-Cal	WIKA-CAL-L
	Service kit Pneumatic	CPG-KITP
	Hydraulic	CPG-KITH

Scope of delivery

- Precision digital pressure gauge model CPG1500
- Operating instructions
- 3.1 calibration certificate per DIN EN 10204
- 3 x 1.5 V AA alkaline batteries

Options

- DKD/DAkkS, A2LA or NIST calibration certificate



Precision digital pressure gauge with protective rubber cap, model CPG1500

Ordering information

Model / Version / Explosion protection / Instrument variant / Unit / Type of pressure / Measuring range / Process connection / Wetted parts / Specialities due to medium / Accuracy / Type of certificate / Communication / Data logging / Case protection cover / Software / Carrying case / Additional approvals / Additional ordering information

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