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 ... 10,000 bar (0 ... 150,000 psi), vacuum and absolute pressure ranges also available
- Accuracy: up to 0.05 % (incl. calibration certificate)
- Intrinsically safe version
- Logger function 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 model CPG1500 precision digital pressure gauge takes the concept of an analogue gauge, and raises it to a level only matched by digital calibrators. The accuracy of digital measurement technology and the simplicity of an analogue gauge are combined together to create the CPG1500, which in terms of performance, ease-of-use, and instrument features, is unmatched in the pressure measurement market.

Accuracy
The CPG1500 offers an accuracy of 0.1 % of span (optional 0.05 % of span) and is temperature-compensated in the range of -10 … +50 °C (14 ... 122 °F). Readings can be displayed in one of 26 pressure and 5 level units or also in customer-specific units, so that intricate 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.
Via 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
Through the new and innovative menu navigation, simple operation is ensured. 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.

WIKA
Part of your business

Software

WIKA-Cal calibration software is available for the CPG1500. WIKA-Cal also offers, over and above PC-supported calibration, the management of the calibration and instrument data in an SQL database. WIKA-Wireless is available for the 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 a DKD/DAkkS calibration certificate 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 [4]
		0 ... 6,000 [4]	0 ... 7,000 [4]	0 ... 8,000 [4]	0 ... 10,000 [4]	
	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 [4]	0 ... 50,000 [4]	0 ... 100,000 [4]	0 ... 150,000 [4]	
Absolute pressure	bar	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	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 limit					
Sensor	3 times; ≤ 25 bar (≤ 300 psi) 2 times; > 25 ... ≤ 600 bar (> 300 ... ≤ 5,000 psi) 1.7 times; > 600 bar (> 5,000 psi)				
Display	> 110 % FS or -10 % FS				
Accuracy [5]	0.1 % FS 0.05 % FS (optional) [6]				

1) Expanded accuracy of 0.2 % FS
2) Expanded accuracy of 0.15 % FS
3) Not possible as flush version
4) Expanded accuracy of 0.5 % FS, at reference conditions 23 °C ±3 °C
4) 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.
5) At a measuring rate of ≤ 3 measured values per second

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)	■ 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

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 [7]
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 logger
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 logger [8]	Cyclic logger: 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
Case	Aluminium die-casting, nickel-plated
Voltage supply	
Power supply	3 x 1.5 V AA alkaline batteries [9]
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 %
Permissible ambient conditions	
Operating temperature	-10 ... +50 °C (14 ... 122 °F)
Medium temperature	-10 ... +50 °C (14 ... 122 °F) (lower temperature limit above the freezing point of the medium)
Storage temperature	-20 ... +70 °C (-4 ... +158 °F)
Relative humidity	< 95 % r. h. (non-condensing)

[7] The user-defined units can only be set via the WIKA-Cal software. The CPG1500 must feature WIKA-Wireless.
[8] To use the logger function, WIKA-Cal software is needed.
  The logger data can be downloaded with the WIKA-Cal demo version as a CSV file. The live logger, an accurate data analysis or a direct certificate creation can be used with the logger template WIKA-Cal.
[9] 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

Communication (optional)	
Interface	WIKA-Wireless [10]
Case	
Dimensions	approx. 100 x 150 x 59 mm (3.9 x 5.9 x 2.3 in)
Ingress protection	IP65
Weight	Standard: incl. batteries approx. 680 g (1.5 lbs) with protective rubber cap: approx. 820 g (1.81 lbs)

WIKA-Wireless [10]

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

10) Requires a PC with Bluetooth® 2.1 interface

Approvals

Logo	Description	Country

CE FC ⟨Ex⟩	**EU declaration of conformity**
	 ▪ EMC directive
	 ▪ Pressure equipment 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.
	 ▪ RoHS directive
	 ▪ ATEX directive
	   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

IEC IECEx	**IECEx**
	 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
	          Zone 2 gas Ex ia IIC T4 Gc
	                              T4 at -10 … +50 °C
		International

CSA	**CSA** Safety (e.g. electr. safety, overpressure, ...) ▪ Class - 3631 06 - Electrical measurement and test equipment ▪ Class - 3631 86 - Electrical equipment for measurement use - Certified to US Standards	USA and Canada

EAC Ex	**EAC**
	 ▪ 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

GOST	**GOST** Metrology, measurement technology	Russia

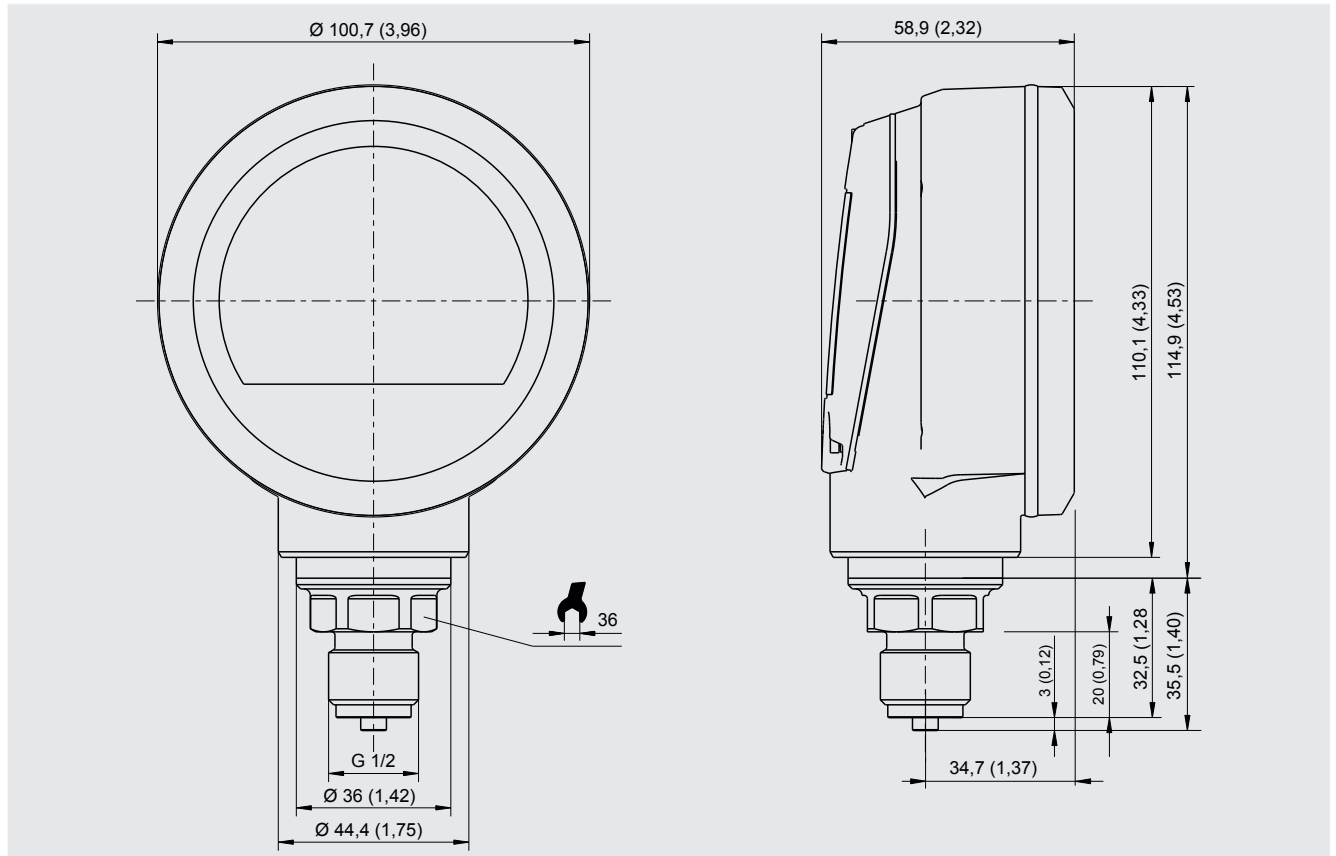| Logo	Description	Country
	DNOP (MakNII) ■ Mining ■ Hazardous areas	Ukraine
	KazInMetr Metrology, measurement technology	Kazakhstan
-	**PESO** Hazardous areas Ex i Zone 1 connection to zone 0 gas Ex ia IIC T4 Ga/Gb	India

Certificates

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

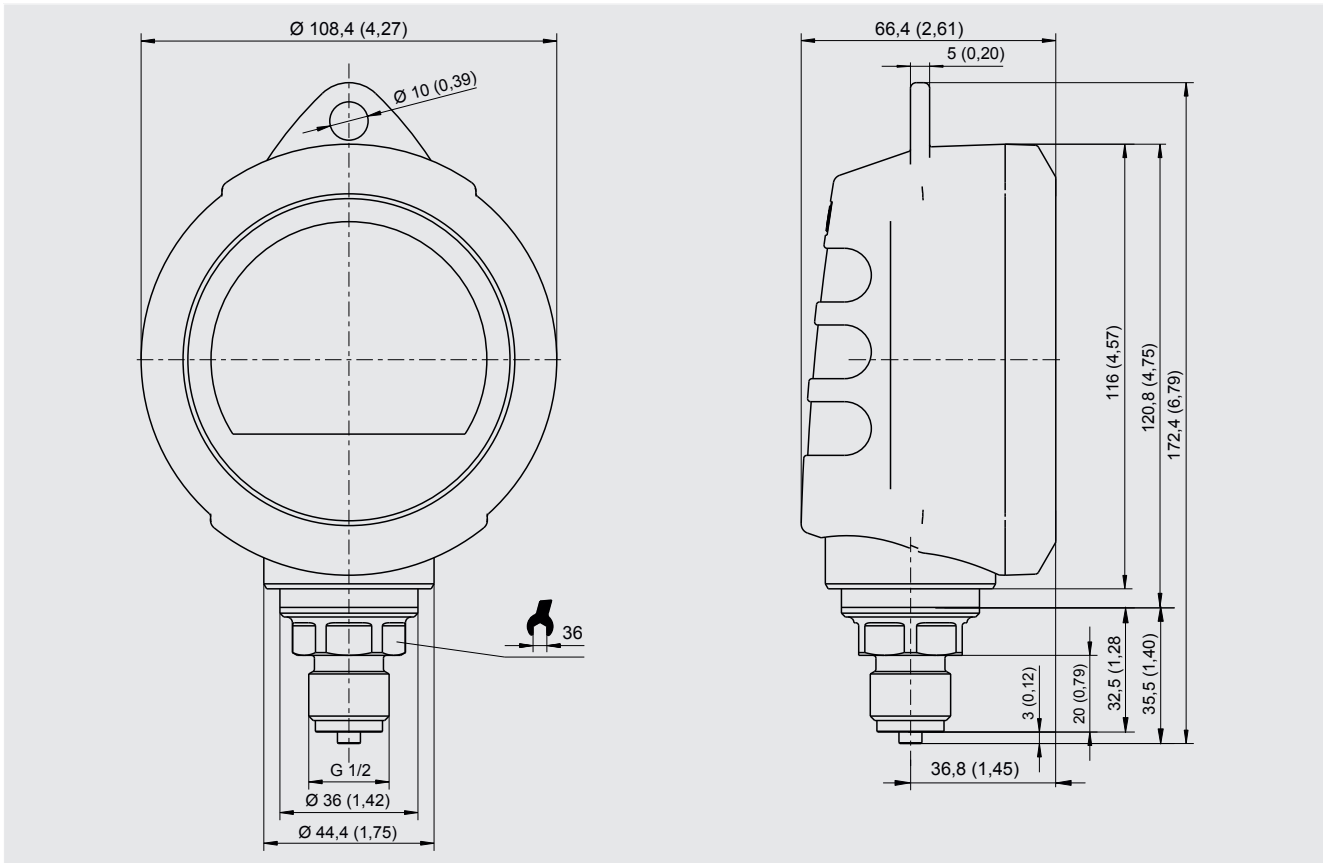1) Calibrated in vertical mounting position with process connection facing downwards

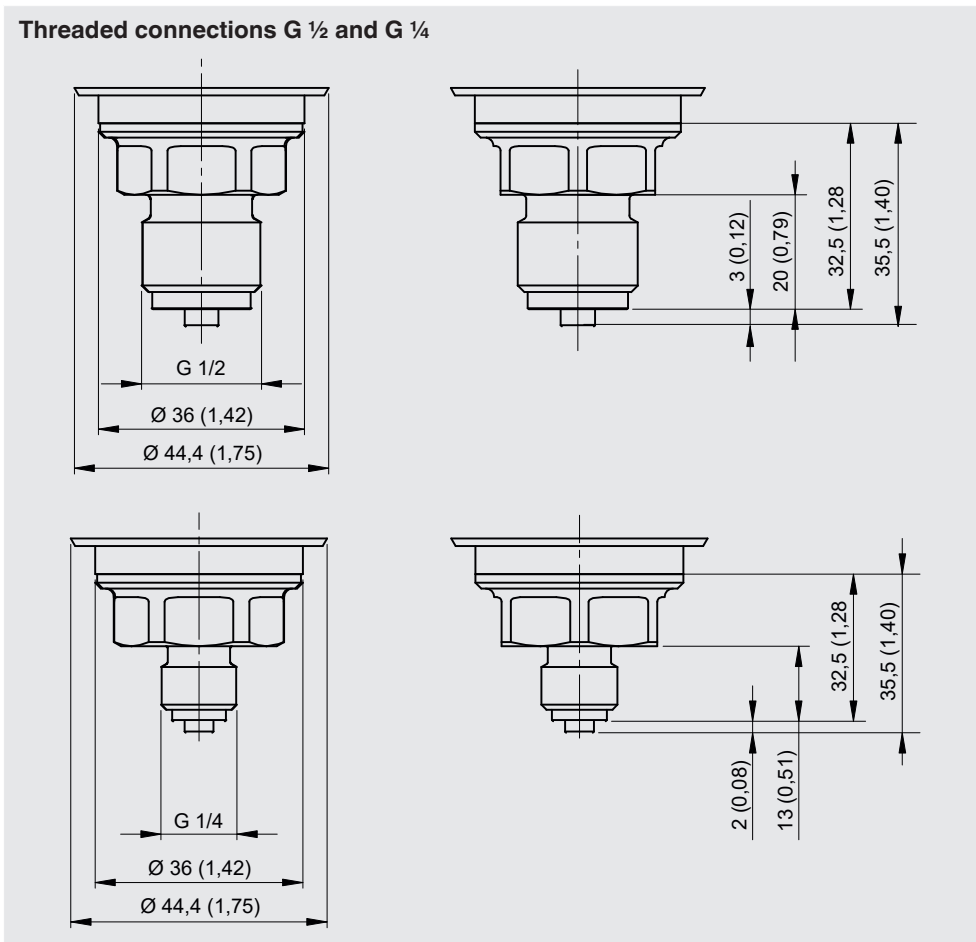Approvals and certificates, see website

Dimensions in mm (in)

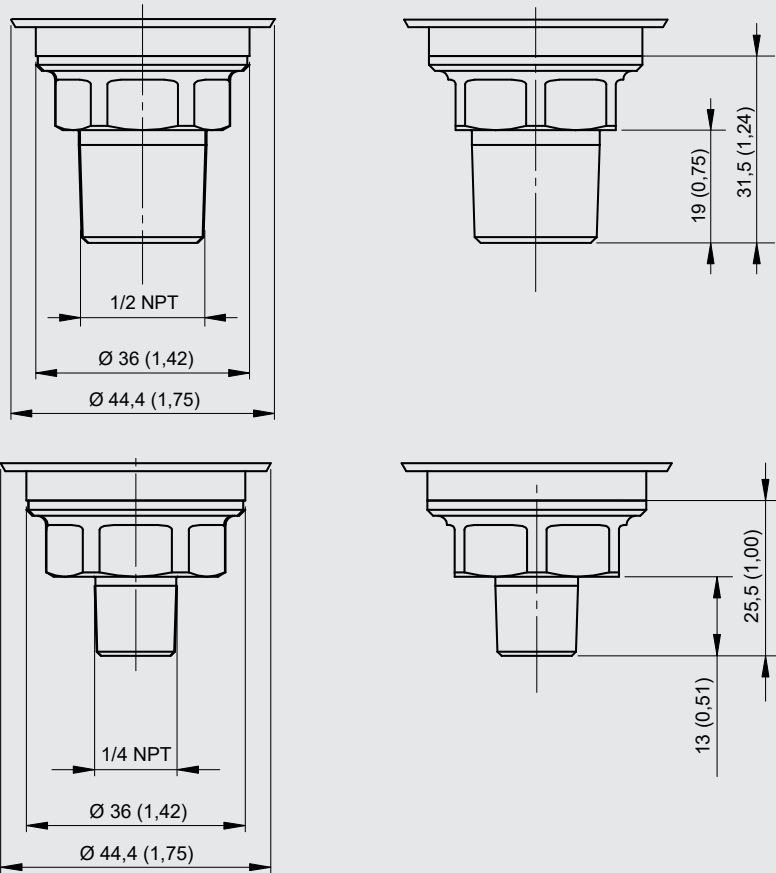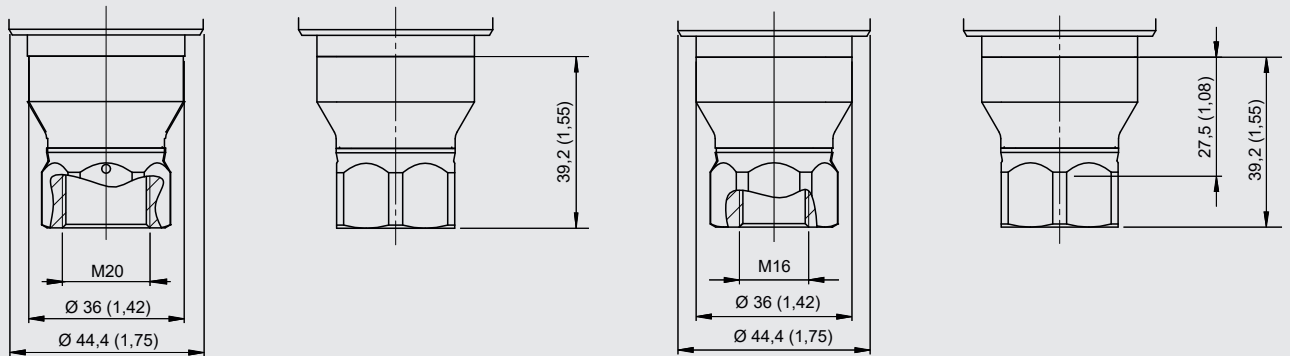**CPG1500 without protective rubber cap**

CPG1500 with protective rubber cap

Ø 108,4 (4,27)

Ø 10 (0,39)

66,4 (2,61)

5 (0,20)

116 (4,57)

120,8 (4,75)

172,4 (6,79)

36

G 1/2

Ø 36 (1,42)

Ø 44,4 (1,75)

3 (0,12)

20 (0,79)

32,5 (1,28)

35,5 (1,40)

36,8 (1,45)

Threaded connections G ½ and G ¼

G 1/2

Ø 36 (1,42)

Ø 44,4 (1,75)

3 (0,12)

20 (0,79)

32,5 (1,28)

35,5 (1,40)

G 1/4

Ø 36 (1,42)

Ø 44,4 (1,75)

2 (0,08)

13 (0,51)

32,5 (1,28)

35,5 (1,40)

Threaded connections ½ NPT and ¼ NPT

1/2 NPT

Ø 36 (1,42)

Ø 44,4 (1,75)

19 (0,75)

31,5 (1,24)

1/4 NPT

Ø 36 (1,42)

Ø 44,4 (1,75)

25,5 (1,00)

13 (0,51)

Threaded connections M16 and M20

M20

Ø 36 (1,42)

Ø 44,4 (1,75)

39,2 (1,55)

M16

Ø 36 (1,42)

Ø 44,4 (1,75)

27,5 (1,08)

39,2 (1,55)

Threaded connection 9/16 - 18 UNF

9/16"

Ø 36 (1,42)

Ø 44,4 (1,75)

39,2 (1,55)

Front foil

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

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 %

App "myWIKA device"

Via 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. Moreover, further parameters like temperature and pressure change rate can be checked. 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 be 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.

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

Download here

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

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 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 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 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.
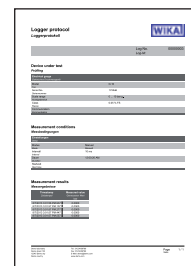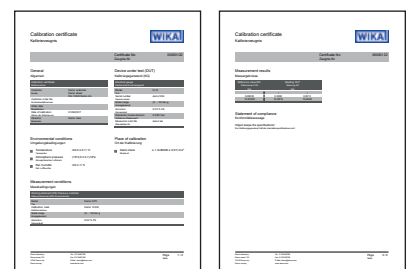
Log Demo
Creation of data logger test reports, limited to 5 measured values.

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

Complete test and service cases

Basic version incl. pneumatic pressure generation

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. hydraulic pressure generation

Calibration case with model CPG1500 precision digital pressure gauge and model CPP700-H hand test pump, for pressures 0 ... 700 bar (0 ... 10.000 psi), consisting of:

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

Available measuring ranges see specifications

Further specifications see data sheet CT 91.07

Recommended pressure generation

Model CPP30 pneumatic hand test pump

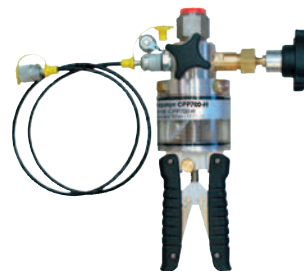**Pressure range:**   -0.95 ... +35 bar (-28 inHg ... +500 psi)

Further specifications see data sheet CT 91.06

Hydraulic hand test pump model CPP700-H

Pressure range: 0 ... 700 bar (0 ... 10.000 psi)

Further specifications see data sheet CT 91.07

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 calibration certificate
■ Protective rubber cap for case

Accessories

Connection adapters
■ Various process connection adapters

Pressure generation
■ Pneumatic test pumps
■ Hydraulic test pumps

Test case
■ Various calibration cases incl. pressure generation

Software
■ WIKA-Cal calibration software

Installation
■ Mounting flange

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 logger / Case protection cover / Carrying case / Certificates / Additional ordering information

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