

# CalibratorUnit

## Models CPU6000-W, CPU6000-S, CPU6000-M

WIKA data sheet CT 35.02



for further approvals  
see page 4

### Applications

- Determination of the required masses or the reference pressure for calibration with pressure balances (dead-weight testers)
- Recording of certificate-relevant data
- Calibration of gauge pressure measuring instruments with absolute pressure references and vice versa
- Easy calibration of pressure transmitters through the voltage supply and multimeter function

### Special features

- Patent pending, among other things DE patent no. 102013215351
- New calibration concept simplifies certificate generation
- Easy operation and set-up
- Acquisition and automatic correction of all critical influencing factors, to increase the accuracy of the measurement
- Can also be used with other calibration instruments and WIKA-Cal software

### Description

#### General information

The CPU6000 series is made up of three instruments: the model CPU6000-W weather station, the model CPU6000-S pressure balance sensor box and the model CPU6000-M digital multimeter. All of these products serve for the acquisition of measured value data, relevant for calibration certificates. The new calibration concept simplifies the generation of certificates and increases the productivity and quality of the certificate generation process.

#### Features

In combination with any pressure balance (dead-weight tester), the WIKA-Cal (PC software) can determine the necessary masses or the reference pressure. Through simple operation and setting, the calculation of the masses or the pressure is made easier. The CalibratorUnit takes into account all critical influencing factors and thus increases the accuracy of the measurement.



CalibratorUnit, CPU6000 series

Calibration of gauge pressure measuring instruments with absolute pressure references and vice versa is also possible. Via the integrated voltage supply and multimeter function, easy calibrations of pressure transmitters can be carried out. The weather station and the digital multimeter can also be used, independently of the pressure balance calibration, with other calibration instruments and the WIKA-Cal software. Existing automatic calibration systems can thus be enhanced.

#### Software and generation of certificates

The generation of the certificate is made in conjunction with the WIKA-Cal software. A USB interface is available for PC connection.

## Series CPU6000

### Weather station, model CPU6000-W

The CPU6000-W provides measured values such as atmospheric pressure, relative humidity and the ambient temperature of the laboratory environment.

The WIKA-Cal software automatically documents, in the respective test report, the measured values and saves these to a database. Furthermore, with this software, the measured values are used in conjunction with pressure balances (dead-weight testers) for the calculation of the masses.

### Pressure balance sensor box, model CPU6000-S

The CPU6000-S measures the piston temperature and displays the floating position of the masses. The sensor is fitted directly to the pressure balance (dead-weight tester) and serves to achieve the highest accuracy with a single pressure balance (dead-weight tester).

### Digital multimeter, model CPU6000-M




The CPU6000-M fulfils the function of a digital multimeter and power supply unit when electronic pressure transmitters must be calibrated. The CPU6000-M supplies test items with DC 24 V and measures voltage and current signals. In addition, digital pressure sensors such as the model CPT61X0 and model D-10 can be connected directly over the RS-232 interface.

### WIKA-Cal software



The WIKA-Cal software calculates the masses for pressure balances (dead-weight testers) or the reference pressure while taking the measured parameters from the CPU6000 into account. The conversion can be carried out in all common pressure units. As an additional parameter, the local gravity can be given for location-independent measurements.

## Specifications Series CPU6000



Weather station, model CPU6000-W			
Symbol	Description	Measuring range	Accuracy
	Ambient temperature	-40 ... +123.8 °C [-40 ... +254.84 °F]	±0.5 °C [0.9 °F] <sup>1)</sup>
	Relative humidity	0 ... 100 % r. h.	±5.0 % r. h. <sup>2)</sup>
	Atmospheric pressure	<ul style="list-style-type: none"> <li>■ 550 ... 1,150 mbar abs. [7.85 ... 16.68 psi abs.]</li> <li>■ 551 ... 1,172 mbar abs. [8 ... 17 psi abs.]</li> </ul>	<ul style="list-style-type: none"> <li>■ 0.05 % FS</li> <li>■ 0.01 % of reading</li> </ul>

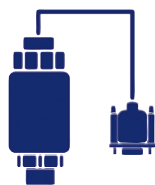


Pressure balance sensor box, model CPU6000-S			
Symbol	Description	Measuring range	Accuracy
	Piston temperature	-50 ... +250 °C [-58 ... +482 °F]	±0.1 °C at 20 °C [±0.18 °F at 68 °F] <sup>1)</sup>
	Floating position of the masses	4 ... 20 mA 20 ... 200 mm [0.79 ... 7.87 in]	±0.5 mm [±0.02 in]

1) The calibration is performed for the points 18 °C [64.4 °F], 23 °C [73.4 °F] and 25 °C [77 °F] following a warm-up time of 120 minutes.  
2) The calibration is performed for the points 30 % r. h., 50 % r. h. and 80 % r. h. following a warm-up time of 120 minutes.

**Note:**

It is recommended to install the sensor box for pressure balances of the CPB5000, CPB5000HP, CPB5600DP and CPB5800 series.




Digital multimeter, model CPU6000-M		
Symbol	Description	
+ mA -	Current input	Measuring range 0 ... 20 mA Accuracy $\pm 5 \mu\text{A}$
+ V -	Voltage input	Measuring range 0 ... 10 V Accuracy $\pm 1 \text{ mV}$
+ Out -	Voltage supply	DC 24 V (load: max. 50 mA; min. 20 mA)
10101	Interface	Model D-10 Models CPT6100 and CPT6180 RS-232 interface, 9600 Baud, 8N1




Base instrument	Model CPU6000-W	Model CPU6000-S	Model CPU6000-M
<b>Voltage supply</b>			
Supply voltage	DC 24 V, 625 mA		
<b>Permissible ambient conditions</b>			
Operating temperature	15 ... 45 °C [59 ... 113 °F]		
Storage temperature	0 ... 70 °C [32 ... 158 °F]		
<b>Communication</b>			
Interface	USB with PC		
<b>Bluetooth</b>			
Frequency range	2.402 ... 2.480 GHz		
HF output power	max. 2 dBm (+ 2 dBi)		
<b>Case</b>			
Dimensions (W x H x D)	190.4 x 58 x 110 mm [7.50 x 2.28 x 4.33 in]	190.4 x 58 x 80 mm [7.50 x 2.28 x 3.15 in]	190.4 x 58 x 110 mm [7.50 x 2.28 x 4.33 in]
Weight	1.44 kg [3.18 lbs]	1.18 kg [2.60 lbs]	1.29 kg [2.84 lbs]

## Approvals

### Approvals included in the scope of delivery

Logo	Description	Country
	<b>EU declaration of conformity</b> <ul style="list-style-type: none"> <li>■ EMC directive EN 61326-1 Emission (group 1, class B) and immunity ("basic environment": Commercial, laboratories, service centres or workshops)</li> <li>■ RED directive EN 300 328, harmonised frequency range 2,400 ... 2,500 MHz is used The instrument may be used without limitations in the EU and also CH, NO and LI.</li> <li>■ RoHS directive</li> </ul>	European Union

### Optional approvals

Logo	Description	Country
	<b>EAC</b> <ul style="list-style-type: none"> <li>■ EMC directive</li> <li>■ Low voltage directive</li> </ul>	Eurasian Economic Community
	<b>KazInMetr</b> Metrology, measurement technology	Kazakhstan
-	<b>MTSCHS</b> Permission for commissioning	Kazakhstan
	<b>Uzstandard</b> Metrology, measurement technology	Uzbekistan

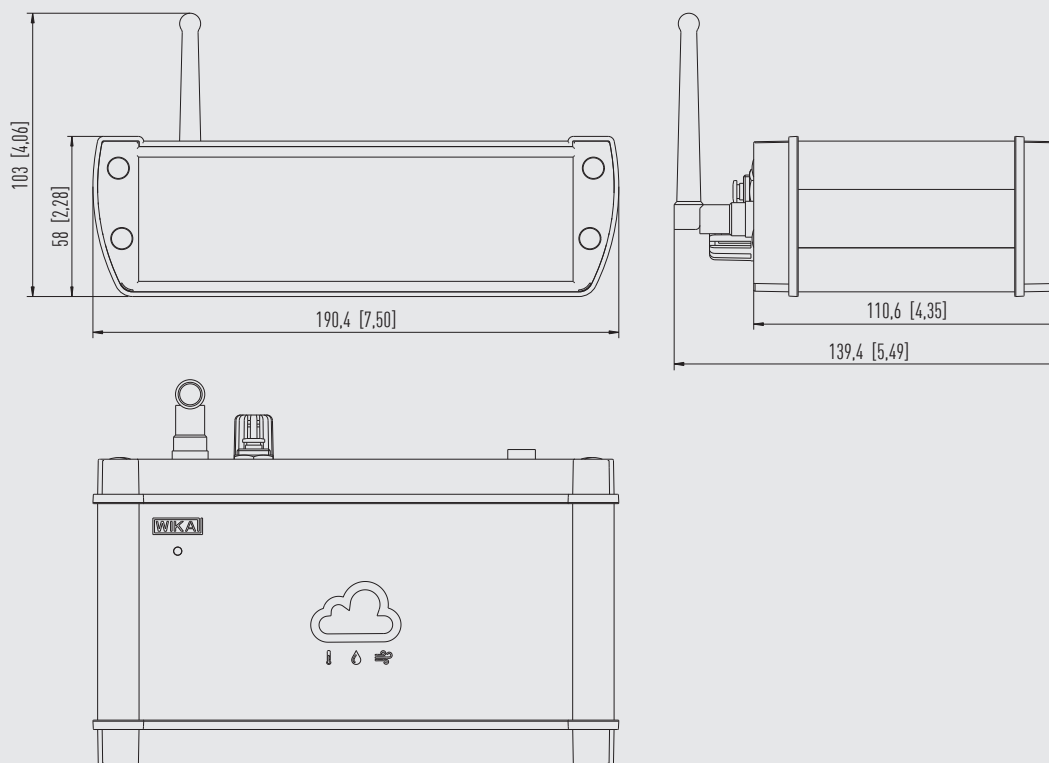
## Certificates

Certificate	
<b>Calibration</b>	<ul style="list-style-type: none"> <li>■ 3.1 calibration certificate per DIN EN 10204</li> <li>■ DKD/DAkkS calibration certificate</li> </ul>
<b>Recommended recalibration interval</b>	1 year (dependent on conditions of use)

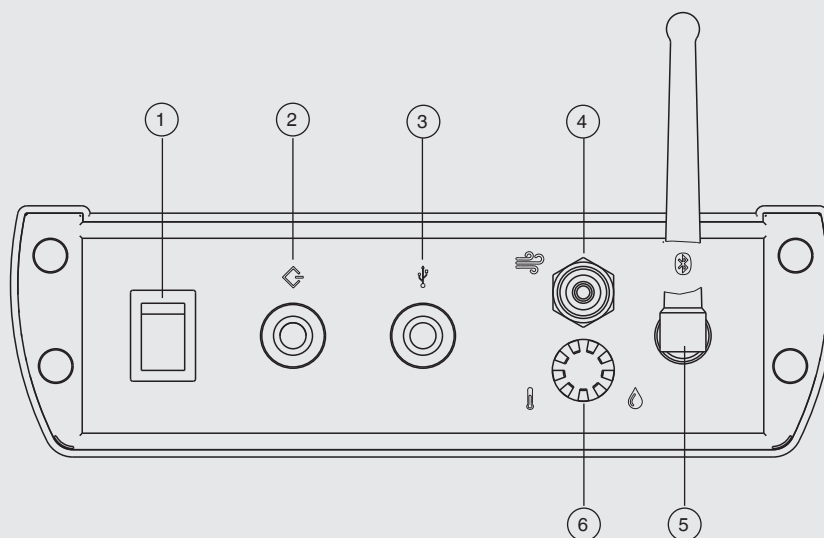
Approvals and certificates, see website

## Dimensions in mm [in]

### Weather station, model CPU6000-W

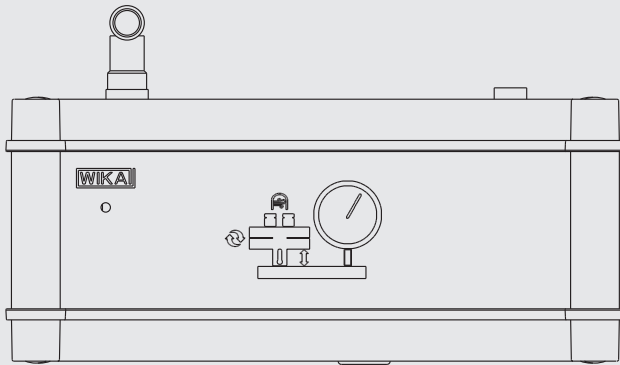
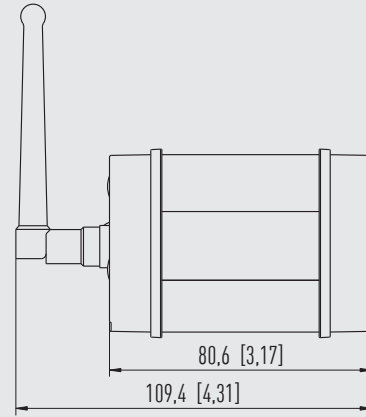
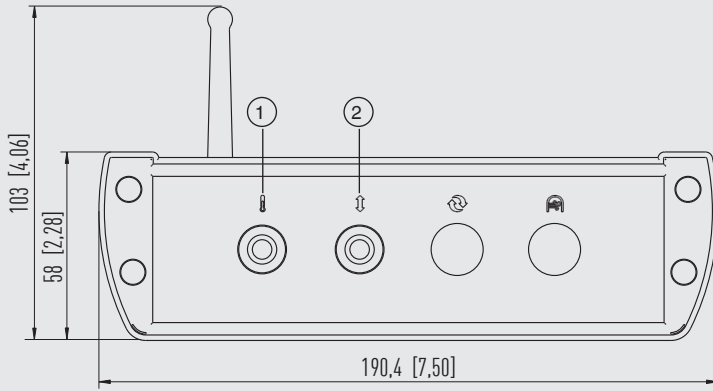


### Pin assignment of the CPU6000-W



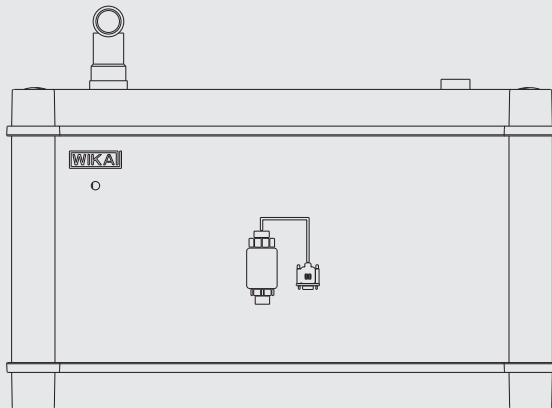
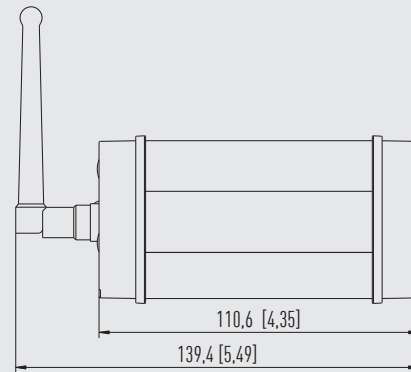
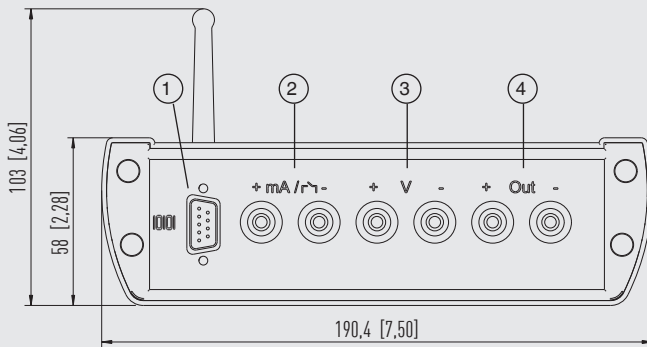
- ① On/Off switch
- ② Power connection DC 24 V
- ③ USB interface connector
- ④ 4 mm hose connection for internal barometric reference
- ⑤ Antenna
- ⑥ Exchangeable humidity-temperature sensor

**Pressure balance sensor box, model CPU6000-S**



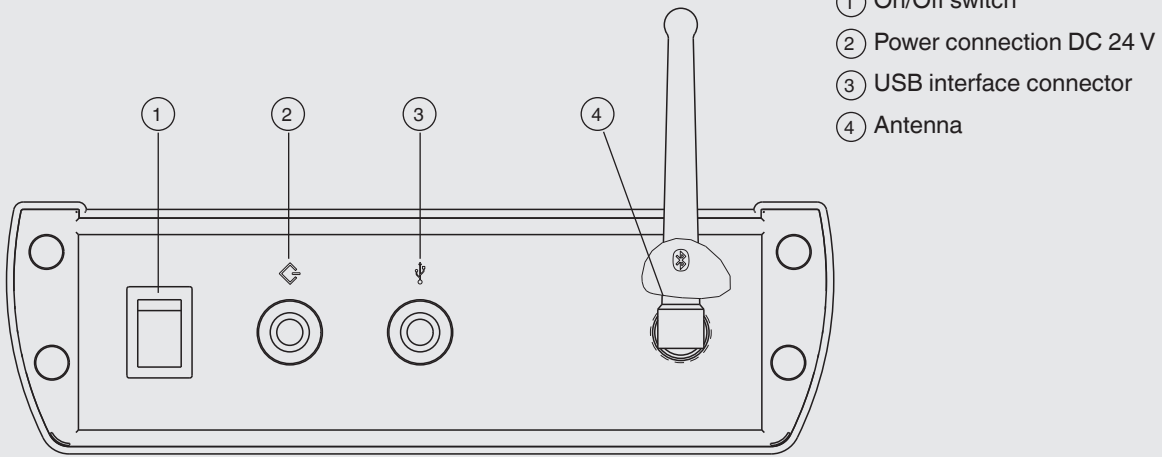
- ① Piston temperature sensor connector
- ② Floating position sensor connector

**Digital multimeter, model CPU6000-M**

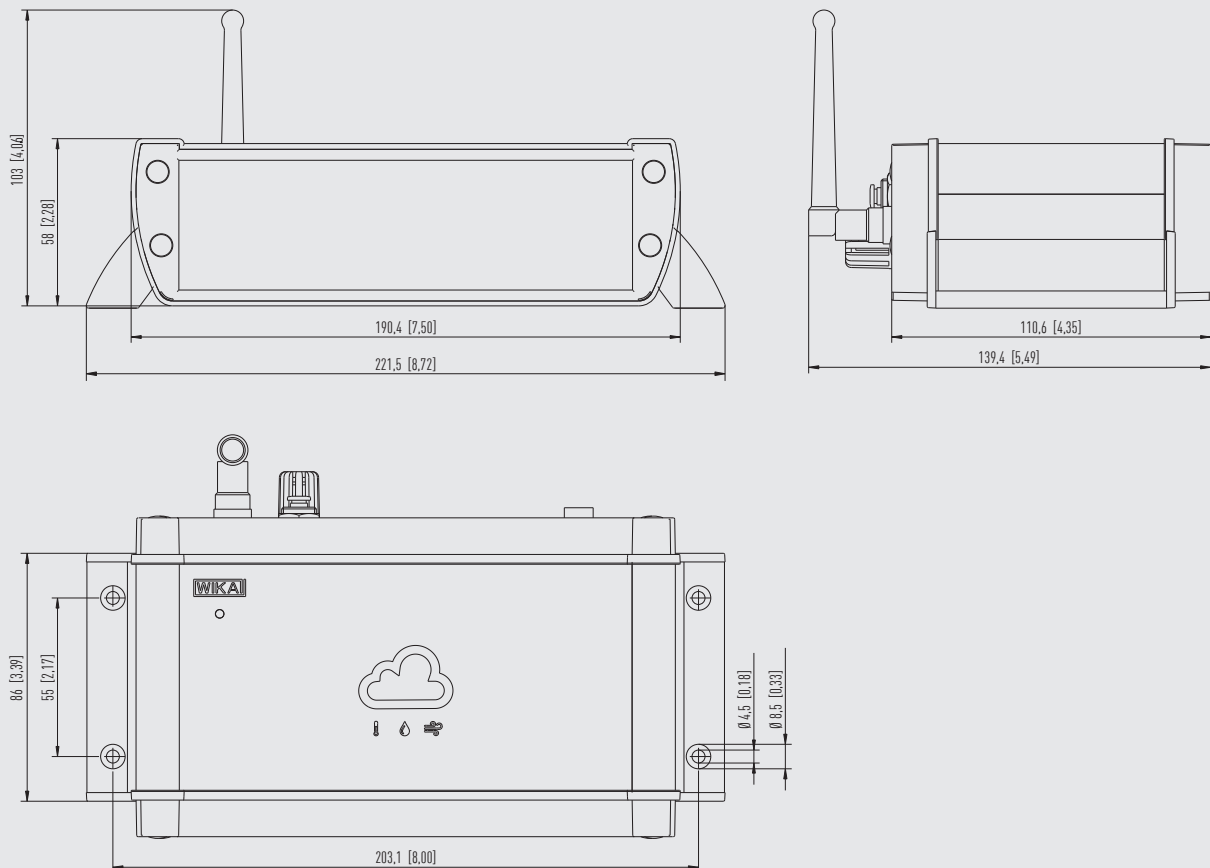


- ① RS-232 interface connector
- ② Current input
- ③ Voltage input
- ④ Voltage supply for test item

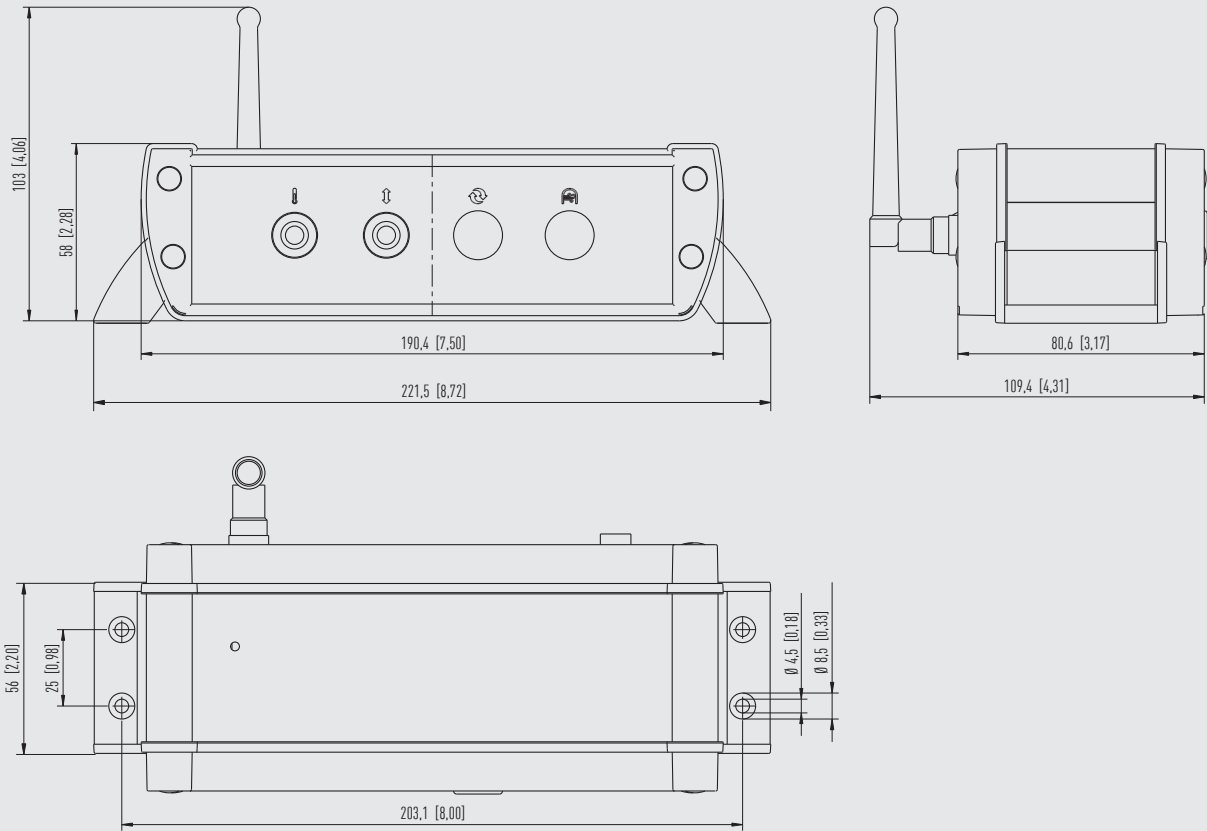
### Pin assignment of the CPU6000-S and CPU6000-M



### Weather station, model CPU6000-W or digital multimeter model CPU6000-M with wall bracket

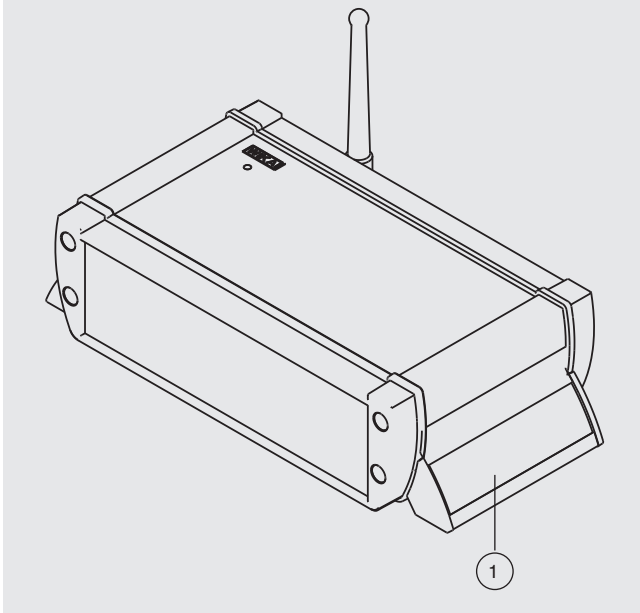


**Pressure balance sensor box, model CPU6000-S with wall bracket**

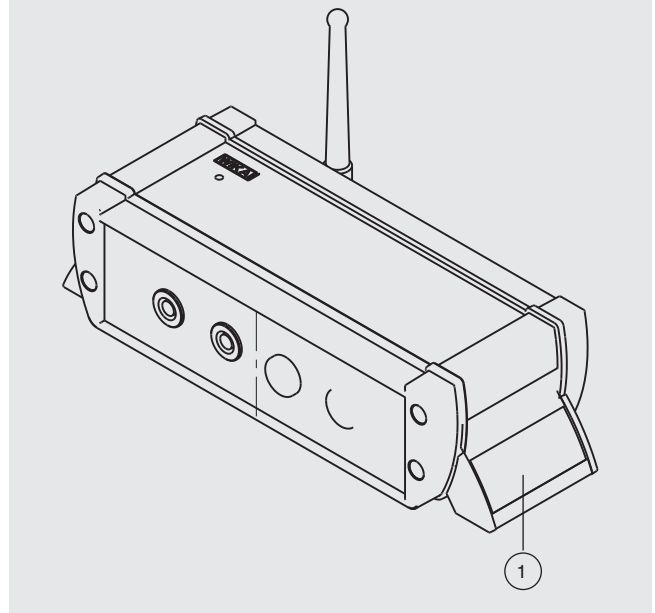


**Isometric view**

**Model CPU6000-W or CPU6000-M with wall bracket**



**Model CPU6000-S with wall bracket**



① Screw holes closed with decorative strips



## Typical application

The CPU6000 series provides the required data, such as ambient parameters and piston temperature, so that the highest accuracy can be achieved.

The CPU6000-S can be combined with pressure balances (dead-weight testers) from all manufacturers. The sensor technology of the instrument has been optimised for installation into CPB series pressure balances (dead-weight testers).

### CPB series pressure balance (dead-weight tester) and WIKA-Cal PC software

With the demo version of the WIKA-Cal software and a CPB series pressure balance (dead-weight tester), the masses to be applied and the corresponding reference pressure can be determined. The pressure balance data can be entered into the database manually or imported automatically via an online XML file.

With the CPU6000-W, the ambient conditions can be measured, and with the CPU6000-S, the piston temperature can be measured and these can be taken into account in the calculations. As an additional parameter, the local gravity can be given for location-independent measurements.

### Further fields of application

If a pressure transmitter is being calibrated, this can automatically be read with the CPU6000-M.

Through the WIKA-Cal software and this automatic reading, the calibration can even be made completely automatically in conjunction with a pressure controller.



Model CPU6000-W, CPU6000-S, CPB5800

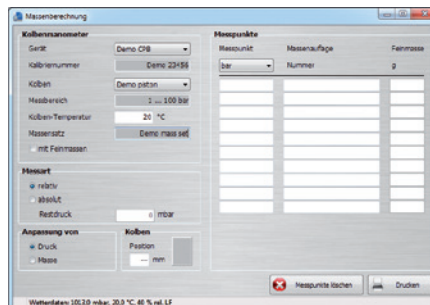


Model CPU6000-W, CPU6000-S, CPB5800 and PC with WIKA-Cal software

## Accessories

### Floating position sensor for model CPU6000-S

With the floating position sensor, in conjunction with the CPU6000-S, the displacement of the masses can be displayed in WIKA-Cal. Through the automatic detection of the floating position, the software can automatically move to the next calibration point.



**Floating position sensor for model CPU6000-S in the WIKA-Cal**



**Model CPU6000-W**  
**Fig. left: with wall bracket**  
**Fig. right: without wall bracket**

### Wall bracket for models CPU6000-W, CPU6000-M and CPU6000-S




With this integrated mount for the CPU6000 series, the instrument can be mounted, not just on a wall, but also under a table or on the ceiling.

### Service case for complete CPU6000 series

The complete CPU6000 series can be stored in this service case. In addition, the case offers storage space for accessories such as three AC adapters, operating instructions, calibration certificates, USB interface cables, temperature sensors, distance sensors and power supply adapters.



**Service case for complete CPU6000 series**

Accessories for CPU6000		Order code
Description		CPU6000-A
	<b>Floating position sensor for CPU6000-S</b> With cable length 1 m [3.3 ft] Accuracy $\pm 0.5$ mm [ $\pm 0.02$ in]	-1-
	With cable length 2.5 m [8.2 ft] Accuracy $\pm 0.5$ mm [ $\pm 0.02$ in]	-2-
	<b>Floating position sensor for CPU6000-S for installation</b> With cable length 1 m [3.3 ft] Accuracy $\pm 0.5$ mm [ $\pm 0.02$ in]	-3-
	With cable length 2.5 m [8.2 ft] Accuracy $\pm 0.5$ mm [ $\pm 0.02$ in]	-4-
	<b>Piston temperature sensor for CPU6000-S</b> With cable length 1 m [3.3 ft]	-5-
	With cable length 2.5 m [8.2 ft]	-6-
	<b>Piston temperature sensor for CPU6000-S for installation</b> With cable length 1 m [3.3 ft]	-7-
	With cable length 2.5 m [8.2 ft]	-8-
	<b>USB interface cable</b>	-B-
	<b>AC adapter DC 24 V, 625 mA</b>	-C-
	<b>Test cable set</b> Consisting of 4 test cables, each with crocodile clips and banana jack connector adapter in black and red	-E-
	<b>Service case</b> With recesses for 3 CPU6000 (-W, -M and -S), test cable, power supply unit and other accessories	-G-
<b>Ordering information for your enquiry:</b>		
<b>1. Order code: CPU6000-A</b> <b>2. Option:</b>		↓ [   ]

## Scope of delivery

- Model CPU6000-W, model CPU6000-S or model CPU6000-M
- AC adapter DC 24 V, 625 mA
- Factory calibration certificate
- Operating instructions in German and English language

## Option

- DKD/DAkkS calibration certificate

## Ordering information

CPU6000 / Package / Barometric reference / Piston temperature sensor / Floating position sensor / Wall bracket / Interface cable / Test cable set / Calibration / Accessories / Further approvals / Additional ordering information

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