# TEST EQUIPMENT FOR MAINTENANCE AND SERVICE


# PCE Instruments

Discover our new test instruments and their functions.

# TESTING

## TEST INSTRUMENTS FROM GERMANY

### For industry, trade and research

The company PCE Instruments based in Meschede-Freienohl in the German Sauerland region was founded in 1999 by three engineers. With more than 120 employees and several branches around the world, the company focuses on the development, production and distribution of high-performance and innovative products from the fields of measuring instruments, control systems, weighing equipment and laboratory technology.

PCE Instruments‘ wide range of products and services offers high precision and flexibility in any application as well as outstanding quality and functionality. The different fields can be seen in the overview.


## MEASURING INSTRUMENTS

The field of measuring instruments covers a multitude of innovative portable products as well as products for fixed installation that measure electrical, mechanical, biological and chemical parameters.

## CONTROL SYSTEMS

The range of control systems covers the complete demand for sensors, displays, controllers and paperless recorders.

## WEIGHING EQUIPMENT

The field of weighing equipment comprises a wide standard range of high-quality scales and balances that can be calibrated and/or verified for trade.

## LABORATORY TECHNOLOGY

High-end analytical and laboratory devices have been developed for professional applications and in particular for use in laboratories.

## DEVELOPMENT

In order to develop modified test equipment in line with customers‘ specifications, proficient engineers and technicians cooperate closely with the customer.

## PRODUCTION

PCE Instruments manufactures industrial test instruments that help improving process analysis and optimisation.

## CALIBRATION

Our DIN EN ISO 9001:2015 certified calibration laboratory verifies the measuring accuracy of our products. They calibrate pressure, hardness, force, material thickness, sound pressure, conductivity, redox, vibration acceleration and more.

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# DATA LOGGING

## DATA LOGGER PCE-VDL 16I

### For the parameters temperature, relative humidity, air pressure, light and vibration

The mechanical engineering data logger PCE-VDL 16I from PCE Instruments measures and records the relevant parameters temperature, relative humidity, air pressure, light as well as 3-axis acceleration by means of a vibration sensor. This makes the data logger the ideal tool for monitoring machine vibration and at the same time measuring and recording important environmental conditions of the equipment. Depending on the sampling rate, the data logger can record for several days. The recorded readings are saved to the internal 32 GB SD card and can be transferred to other media for evaluation where required.

ISO cal option

- 3-axis acceleration up to 800 Hz
- measures temperature, humidity, air pressure and light
- 32 GB SD memory card
- compact design: 86.8 x 44.1 x 22.2 mm
- country of origin Germany


## APPLICATION

## TECHNICAL SPECIFICATIONS

| | |
|---|---|
| **Parameter** | |
| Temperature measuring range | -20 ... +65 °C |
| Accuracy | ±0.2 °C |
| Sampling rate | 1 s ... 1800 s |
| | |
| Relative humidity measuring range | 0 ... 100 % RH |
| Accuracy | ±1.8 % RH |
| Sampling rate | 1 s ... 1800 s |
| | |
| Air pressure measuring range | 10 ... 2000 mbar |
| Accuracy | ±2 mbar<br>(within range 750 ... 1100 mbar) otherwise ±4 m bar |
| Sampling rate | 1 s ... 1800 s |
| | |
| Light measuring range | 0.045 … 188,000 lux |
| Sampling rate | 1 s 1800 s |
| | |
| 3-axis acceleration measuring range | ±16 g |
| Accuracy | ±0.24 g |
| Sampling rate | 800 Hz 1 Hz |

**General technical data of the mini data logger PCE-VDL 16I**

| | |
|---|---|
| Memory capacity | 2.5 readings per measurement, 3.2 billion readings with included 32 GB memory card |
| Keys | start / stop of a measurement; data logger on / off |
| LED | Log: operating status<br>Alarm: alarm indicator<br>Charge: charging status<br>USB: status of PC connection |
| Power supply | integrated rechargeable Li-Ion battery 3.7 V / 500 mAh<br>The meter is charged via the USB interface. |
| Integrated sensors | 3-axis acceleration |
| Interface | USB |
| PC software | free setup and evaluation software (Windows XP / Vista / 7 / 8 / 10 32 bit / 64 bit) to record and evaluate data |
| Operating conditions | temperature -20 ... +65 °C |
| Storage conditions | temperature +5 ... +45 °C (ideal storage conditions for battery)<br>10 ... 95 % RH, non-condensing |
| Standards | complies with EU regulation RoHS/WEEE |
| Weight | approx. 60 g |
| Dimensions (L x W x H) | 87 x 44 x 23 mm |

**Optional accessories:**

Mounting plate — Order code PCE-VDL MNT

Subject to change without notice

# DATA LOGGING

## VIBRATION METER PCE-VDL 24I

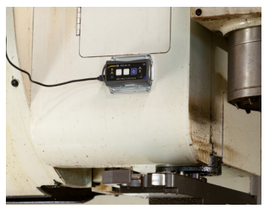
### 3-axis acceleration up to 1600 Hz

The acceleration sensor of this 3-axis data logger has a sampling rate of 1600 Hz. The sensor mesures the current acceleration (3 axes), for instance in case of a shock or vibration. The measurements are made in pre-set (selectable) time intervals. The data measured with the internal 3-axis acceleration sensor are saved to a 32 GB memory card. This makes the data logger perfectly suitable to determine the acceleration for the purposes of fault diagnostics / stress test of components, machine monitoring, shock measurements and preventive maintenance in general.

ISO cal option

- 3-axis acceleration up to 1600 Hz
- 32 GB SD memory card
- compact design: 86.8 x 44.1 x 22.2 mm
- country of origin Germany


## APPLICATION



## TECHNICAL SPECIFICATIONS

| | |
|---|---|
| **Parameter 3-axis acceleration** | |
| Measurement range | ±16 g |
| Accuracy | ±0.24 g |
| Sampling rate | 1600 Hz ... 1 Hz |
| **General technical data of the 3-axis acceleration sensor** | |
| Memory capacity | 2.5 readings per measurement, 3.2 billion readings with included 32 GB microSD memory card |
| Keys | start / stop of a measurement; data logger on / off |
| LED | Log: operating status<br>Alarm: alarm indicator<br>Charge: charging status<br>USB: status of PC connection |
| Power supply | integrated rechargeable Li-Ion battery 3.7 V / 500 mAh<br>The meter is charged via the USB interface. |
| Integrated sensors | 3-axis acceleration |
| Interface | USB |
| PC software | free setup an evaluation software (Windows XP / Vista / 7 / 8 / 10 32 bit / 64 bit) to record and evaluate data |
| Operating conditions | temperature -20 ... +65 °C |
| Storage conditions | temperature +5 ... +45 °C<br>(ideal storage conditions for battery)<br>10 ... 95 % RH, non-condensing |
| Standards | complies with EU regulation RoHS/WEEE |
| Weight | approx. 60 g |
| Dimensions (L x W x H) | 87 x 44 x 23 mm |

**Optional accessories:**

Mounting plate — Order code PCE-VDL MNT

Subject to change without notice

# VIBRATION MEASUREMENT

## VIBRATION METER PCE-VT 3700 / PCE-VT 3700S

### Handy entry-level device for vibration monitoring of machines and systems

The vibration meter is ideal for maintenance workers to quickly check vibrating parts, machines and systems. This vibration meter shows the vibration acceleration, vibration velocity and vibration displacement directly on the display. You can use the device to quickly and reliably detect machine imbalances which can lead to, for example, bearing damage. The vibration meter is equipped with a mode that allows a measurement according to ISO 10816-3 to be carried out. The vibration meter analyzes the measured values and automatically shows a good / bad evaluation on the display. The vibration meter is supplied with a sensor on a spiral cable, magnet adapter, service bag and batteries. The ISO factory certificate completes the scope of delivery.

**ISO cal option**

- automatic ISO 10816-3 evaluation
- easy to handle
- for mobile vibration measurement
- colored graphic display
- peak-hold function


PCE-VT 3700



PCE-VT 3700S

## APPLICATION

## TECHNICAL SPECIFICATIONS

| | |
|---|---|
| Measuring range | Acceleration<br>0.0 ... 399.9 m/s² |
| Resolution | 0.1 m/s² |
| Accuracy @ 160 Hz | ±2 % |
| Frequency range | 10 Hz ... 1 kHz<br>10 Hz ... 10 kHz |
| Measuring range | Velocity<br>0.00 ... 399.9 mm/s |
| Resolution | 0.1 mm/s |
| Accuracy @ 160 Hz | ±2 % |
| Frequency range | 10 Hz ... 1 kHz |
| Measuring range | Displacement<br>0.000 ... 3.9 mm |
| Resolution | 1 µm |
| Accuracy @ 160 Hz | ±2 % |
| Frequency range | 10 Hz ... 200 Hz |
| Measurement parameters | RMS, Peak, Peak-Peak<br>Crest factor |
| Units | switchable metric / imperial |
| Display | 3.5" LC display |
| Menu languages | English, German, French<br>Spanish, Italian, Dutch<br>Portuguese, Turkish, Polish<br>Russian, Chinese, Japanese |
| Power supply | 3 x 1.5 V AA batteries |
| Operating and storage conditions | -20 ... +65 °C / -4 ... 149 °F; 10 ... 95 % r.H. |
| Dimensions | 150 x 80 x 38 mm / 5.9 x 3.1 x 1.5" |
| Weight | 170 g / 6 oz |
| Sensor PCE-VT 3700 | Sensor with spiral cable<br>PCE-VT 3xxx SENSOR<br>Magnet adapter PCE-VT VMH |
| Sensor PCE-VT 3700S | Sensor with spiral cable<br>PCE-VT 3xxx SENSOR<br>Magnet adapter PCE-VT VMH<br>Needle sensor PCE-VT NP<br>Handgrip PCE-VT 3xxx HANDLE |

**Technical data vibration sensor**

| | |
|---|---|
| Resonance frequency | 30 kHz |
| Transverse sensitivity | ≤5 % |
| Destruction limit | 5000 g (peak) |
| Operating and storage temperature | -20 ... +80 °C / -4 ... 176 °F; max. 95 % r.H. |
| Housing material | Stainless steel |
| Mounting thread | M5 |
| Dimensions | 16 x 36 mm / 0.6 x 1.4" |
| Weight (without cable) | 35 g / 1.2 oz |

**Optional accessories:**

| | |
|---|---|
| PCE-VT NP | Needle sensor for vibration meter |
| PCE-VT VMH | Magnet adapter |
| PCE-VT 3xxx HANDLE | Handgrip für vibration meter |
| PCE-VT 3700 CASE | Case with rigid foam insert |
| CAL-PCE-VT 3700 | ISO-calibration for vibration meter |
| PCE-VT 3xxx SENSOR | Replacement sensor |

Subject to change without notice

# VIBRATION MEASUREMENT

## VIBRATION ANALYZER PCE-VT 3800 / PCE-VT 3800S

### Vibration analyzer with external sensor / data logger function

The vibration analyzer is the ideal companion for checking vibrating parts, machines and plant. With the external vibration sensor of the vibration meter, the vibration displacement up to 3.9 mm, the vibration velocity up to 399.9 mm/s and the vibration acceleration up to 399.9 m/s² can be determined. RMS, peak, peak-to-peak and crest factor are available as measurement parameters on the vibration meter. Another function of the vibration measuring device is the automatic evaluation according to ISO 10816-3. Accordingly, the vibration meter can determine the current vibration state of a machine via a good/bad evaluation. This means that the vibration meter is used, for example, for repair and maintenance work on machines.

ISO cal option

- data logger function
- automatic ISO 10816-3 evaluation
- measuring range up to 399.9 m/s² / 15744 in/s²
- hand-held device for mobile vibration measurement
- rechargeable battery
- 2.48" LC display


PCE-VT 3800



PCE-VT 3800S

## APPLICATION

## TECHNICAL SPECIFICATIONS

| | | | |
|---|---|---|---|
| Measuring range | **Acceleration**<br>0.0 ... 399.9 m/s² / 0.0 - 15744 in/s² | Sensor PCE-VT 3800 | Sensor with spiral cable<br>PCE-VT 3xxx SENSOR<br>Magnet adapter PCE-VT VMH |
| Resolution | 0.1 m/s² / 3.94 in/s² | | |
| Accuracy @ 160 Hz | ±2 % | Sensor PCE-VT 3800S | Sensor with spiral cable<br>PCE-VT 3xxx SENSOR<br>Magnet adapter PCE-VT VMH<br>Needle sensor PCE-VT NP<br>Handle PCE-VT 3xxx HANDLE |
| Frequency range | 10 Hz ... 10 kHz<br>1 kHz ... 10 kHz | | |
| Measuring range | **Velocity**<br>0.00 ... 399.9 mm/s / 0.00 - 15.74 in/s | **Optional accessories:** | |
| Resolution | 0.1 mm/s / 0.0039 in/s | | |
| Accuracy @ 160 Hz | ±2 % | PCE-VT NP | Needle sensor for vibration measuring device |
| Frequency range | 10 Hz ... 1 kHz | PCE-VT VMH | Magnet adapter |
| Measuring range | **Displacement**<br>0.000 ... 3.9 mm / 0.000 - 0.154 in | CAL-PCE-VT 3xxx | ISO Calibration Certificate for vibration meter |
| Resolution | 1 µm / 39.4 µin | PCE-VT 3xxx SENSOR | Replacement vibration sensor |
| Accuracy @ 160 Hz | ±2 % | | |
| Frequency range | 10 Hz ... 200 Hz | | |

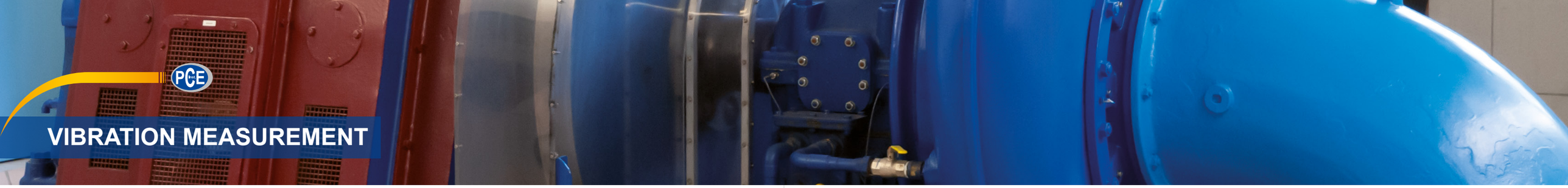
| | |
|---|---|
| Measurement parameters | RMS, Peak, Peak-Peak<br>Crest factor |
| Manual memory | 99 folders with 50 measured values each |
| Data logger | Various start/stop triggers<br>Measurement interval between 1 s … 12 h<br>50 memory locations with 43200 measured values each |
| Units | can be switched to metric / imperial |
| Display | 2.48" LC display |
| Menu languages | English, German, French<br>Spanish, Italian, Dutch<br>Portuguese, Turkish, Polish<br>Russian, Chinese, Japanese |
| Power supply | internal: LiPo battery (3.7 V, 2500 mAh)<br>external: USB 5 VDC, 500 mA |
| Operating time | ca. 15 … 20 h (depending on display brightness) |
| Operating and storage conditions | temperature: -20 ... +65 °C / -4 ... 149 °F<br>humidity: 10% RH ... 95% RH,<br>non-condensing |
| Dimensions | 165 x 85 x 32 mm / 6.5 x 3.3 x 1.3" |
| Weight | 239 g / 8.4 oz |

**Technical Data Vibration Sensor**

| | |
|---|---|
| Resonance frequency | 24 kHz |
| Transverse sensitivity | ≤ 5% |
| Destruction limit | 5000 g (peak) |
| Operating and storage temperature | -55 °C … +150 °C / -67 °F ... 302 °F |
| Housing material | stainless steel |
| Mounting thread | ¼ - 28“ |
| Dimensions | Ø 17 x 46 mm / 0.67 x 1.8" |
| Weight (without cable) | 52 g / 1.8 oz |

PCE-VT 3800 | PCE-VT 3800S

Subject to change without notice



# VIBRATION MEASUREMENT

## VIBRATION ANALYZER PCE-VT 3900 / PCE-VT 3900S

### Vibration analyzer with internal memory / route measurement

The vibration analyzer is an ideal measuring device for fast and precise checking of vibrating parts, machines and systems. This vibration meter uses the external vibration sensor to determine the vibration displacement (measuring range 0.000 ... 3.9 mm), the vibration velocity (measuring range 0.00 ... 399.9 mm/s) and the vibration acceleration (measuring range 0.0 ... 399.9 m/s²).

Various measurement parameters are available for the vibration meter, such as RMS, peak, peak-peak and crest factor. The vibration meter is equipped with a mode that allows a measurement to be automatically evaluated according to the limit values of ISO 10816-3.

ISO cal option

- for mobile vibration measurement
- measuring range up to 399.9 m/s² / 15744 in/s²
- FFT analysis
- route measurement
- manual measured value memory
- automatic ISO 10816-3 evaluation
- internal memory
- 2.48" LC display


PCE-VT 3900



PCE-VT 3900S

## APPLICATION

## TECHNICAL SPECIFICATIONS

| | |
|---|---|
| Measuring range | **Acceleration**<br>0.0 ... 399.9 m/s² / 0.0 - 15744 in/s² |
| Resolution | 0.1 m/s² / 3.94 in/s² |
| Accuracy @ 160 Hz | ±2 % |
| Frequency range | 10 Hz ... 10 kHz<br>1 kHz ... 10 kHz |
| Measuring range | **Velocity**<br>0.00 ... 399.9 mm/s / 0.00 - 15.74 in/s |
| Resolution | 0.1 mm/s / 0.0039 in/s |
| Accuracy @ 160 Hz | ±2 % |
| Frequency range | 10 Hz ... 1 kHz |
| Measuring range | **Rotational Speed**<br>600 ... 50000 RPM |
| **FFT acceleration** | 10 Hz ... 8 kHz |
| **FFT velocity** | 10 Hz… 1 kHz |
| Accuracy @ 160 Hz | ± 2% |
| Number of FFT lines | 2048 |
| Route measurement | 100 routes each with 100 machines each with 100 measuring points with 1000 measured values each |
| Measuring range | **Displacement**<br>0.000 ... 3.9 mm / 0.000 - 0.154 in |
| Resolution | 1 µm / 39.4 µin |
| Accuracy @ 160 Hz | ±2 % |
| Frequency range | 10 Hz ... 200 Hz |
| Measurement parameters | RMS, Peak, Peak-Peak<br>Crest factor |
| Manual memory | 99 folders with 50 measured values each |
| Data logger | Various start/stop triggers<br>Measurement interval between 1 s … 12 h<br>50 memory locations with 43200 measured values each |
| Units | can be switched to metric / imperial |
| Display | 2.48" LC display |
| Menu languages | English, German, French<br>Spanish, Italian, Dutch<br>Portuguese, Turkish, Polish<br>Russian, Chinese, Japanese |
| Power supply | internal: LiPo battery (3.7 V, 2500 mAh)<br>external: USB 5 VDC, 500 mA |
| Operating time | ca. 15 … 20 h (depending on display brightness) |
| Operating / storage conditions | temperature: -20 ... +65 °C / -4 ... 149 °F<br>humidity: 10% RH ... 95% RH, non-condensing |
| Dimensions | 165 x 85 x 32 mm / 6.5 x 3.3 x 1.3" |
| Weight | 239 g / 8.4 oz |

| | |
|---|---|
| Sensor PCE-VT 3900 | Sensor with spiral cable<br>PCE-VT 3xxx SENSOR<br>Magnet adapter PCE-VT VMH |
| Sensor PCE-VT 3900S | Sensor with spiral cable<br>PCE-VT 3xxx SENSOR<br>Magnet adapter PCE-VT VMH<br>Needle sensor PCE-VT NP<br>Handle PCE-VT 3xxx HANDLE |

**Technical Data Vibration Sensor**

| | |
|---|---|
| Resonance frequency | 24 kHz |
| Transverse sensitivity | ≤ 5% |
| Destruction limit | 5000 g (peak) |
| Operating and storage temperature | -55 °C … +150 °C / -67 °F ... 302 °F |
| Housing material | stainless steel |
| Mounting thread | ¼ - 28“ |
| Dimensions | Ø 17 x 46 mm / 0.67 x 1.8" |
| Weight (without cable) | 52 g / 1.8 oz |

**Optional accessories:**

| | |
|---|---|
| PCE-VT NP | Needle sensor for vibration measuring device |
| PCE-VT VMH | Magnet adapter |
| CAL-PCE-VT 3xxx | ISO Calibration Certificate for vibration meter |
| PCE-VT 3xxx SENSOR | Replacement vibration sensor |

PCE-VT 3900 PCE-VT 3900S

Subject to change without notice

# BELT TENSION TESTING

## BELT-TENSION METER PCE-BTM 2000

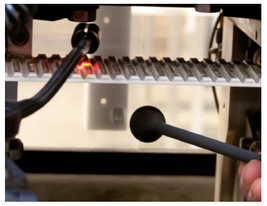
### To measure the tension of V-belts or drive belts

The PCE-BTM 2000 is a measuring instrument to determine the tension of V-belts or drive belts. Belt tension can only be measured when the belt is not in operation. A small impulse with the help of a beater is enough to make the belt vibrate. With a measuring probe and a sensor beam, the generated vibration frequency is determined. The belt tension is calculated on the basis of the measuring data of the natural frequency as well as the belt mass and the length of the free belt span. It is not necessary to enter the belt mass and the belt length. The maximum service life of V-belts or drive belts can only be achieved with ideal tension.

ISO cal option

- measures vibration frequency of the belt
- intuitive operation
- calculation of belt tension (trum force)
- displays belt tension in N
- 6 menu languages
- memory for 750 readings
- sensor with gooseneck
- belt length and belt mass can be entered


## APPLICATION



## TECHNICAL SPECIFICATIONS

| | |
|---|---|
| Measurement range | 10 ... 900 Hz |
| Accuracy | ±(1 % of rdg. + 4 digits) |
| Repeatability | ±1 Hz |
| Resolution | < 100 Hz: 0.1 Hz<br>> 100 Hz: 1 Hz |
| Belt length | max. 9.999 m |
| Belt mass | max. 9.999 kg/m |
| Memory | 750 readings<br>15 folders, 50 measuring points/folder |
| Menu languages | English, German, Spanish, French, Italian, Dutch |
| Power supply | 3 x 1.5 V AAA battery |
| Operating conditions | 0 ... 50 °C; max. 95 % RH |
| Storage conditions | -20 ... 65 °C; max. 95 % RH |
| Dimensions | 150 x 80 x 38 mm |
| Weight | approx. 200 g incl. batteries |

Subject to change without notice

# CONDUCTIVITY MEASUREMENT

## CONDUCTIVITY TESTER FOR NFE METALS PCE-COM 20

### With wide measuring range of up to 112 % IACS or 65 MS/m

The conductivity tester for measuring the electrical conductivity of non-ferrous metals such as aluminium or copper belongs to the group of NDT devices. The conductivity tester is used in non-destructive material testing. By means of the eddy current measuring principle which has proven for this application, the electrical conductivity of metallic materials can be determined quickly and precisely. With its operating frequency of 60 kHz, the conductivity tester has a wide measuring range of 0.51 … 112 % IACS and reaches an accuracy of +/-0.5 % at 20 °C, with a resolution of up to 0.01 % IACS.

ISO cal option

- user-friendly hand-held meter
- memory for up to 500 groups of measurements
- durable internal rechargeable battery
- lift-off and temperature compensation
- adjustable backlight
- for mobile use
- automatic calibration
- operating frequency of 60 kHz
- incl. 3 calibration plates (titanium 1.03 % IACS, bronze 8.11 % IACS and copper 100 % IACS)


## APPLICATION

## TECHNICAL SPECIFICATIONS

| | |
|---|---|
| Operating frequency | 60 kHz, sine wave |
| Conductivity measuring range | 0.51 % IACS ... 112 % IACS<br>0.3 MS/m ... 65 MS/m<br>resistance 0.015388 ... 3.33333 Ω•mm²/m |
| Conductivity resolution | 0.01 % IACS (at < 51 % IACS)<br>0.1 % IACS (at 51 % IACS ... 112 % IACS) |
| Conductivity accuracy | ±0.5 % at +20 °C / 68 °F<br>±1 % at 0 ... +40 °C / 32 ... 104 °F |
| Lift-off effect | probe compensation 0.5 mm |
| Temperature measuring range | 0 ... +50 °C / 32 ... 122 °F |
| Temperature accuracy | ±0.5 °C |
| Automatic compensation | Automatic adjustment of conductivity result to the value at 20 °C / 68 °F |
| Operating conditions | 0 ... 50 °C / 32 ... 122 °F, 0 ... 95 % RH |
| Display | LCD with backlight |
| Menu languages | English, German, Chinese (simplified) |
| Power supply | internal rechargeable battery |
| Probe | Ø 14 mm / ≈ 0.55 in |
| Memory | up to 500 groups of measurement values |
| Data interface | USB |
| Dimensions | 220 x 95 x 35 mm / 8.66 x 3.74 x 1.38 in |
| Weight | 415 g / 1 lb (with probe) |

**Optional accessories:**

| | | |
|---|---|---|
| Calibration standard titanium | 1.02 % IACS | Order code PCE-COM 20-CP1 |
| Calibration standard brass | 21.02 % IACS | Order code PCE-COM 20-CP9 |
| Calibration standard magnesium | 11.88 % IACS | Order code PCE-COM 20-CP11 |
| Calibration standard magnesium | 31.88 % IACS | Order code PCE-COM 20-CP3 |
| Calibration standard copper | 87.24 % IACS | Order code PCE-COM 20-CP10 |
| Calibration standard copper | 60.69 % IACS | Order code PCE-COM 20-CP8 |
| Calibration standard copper | 101.03 % IACS | Order code PCE-COM 20-CP13 |
| Calibration standard bronze | 8.47 % IACS | Order code PCE-COM 20-CP12 |
| Calibration standard bronze | 10.55 % IACS | Order code PCE-COM 20-CP5 |
| Calibration standard bronze | 15.24 % IACS | Order code PCE-COM 20-CP2 |
| Calibration standard aluminium | 15.29 % IACS | Order code PCE-COM 20-CP7 |
| Calibration standard aluminium | 32.07 % IACS | Order code PCE-COM 20-CP6 |
| Calibration standard aluminium | 57.41 % IACS | Order code PCE-COM 20-CP4 |
| Calibration standard aluminium | 41.21 % IACS | Order code PCE-COM 20-CP14 |

Subject to change without notice

# GAUSS METER

## ELECTROMAGNETIC FIELD GAUGE PCE-MFM 2400 SERIES

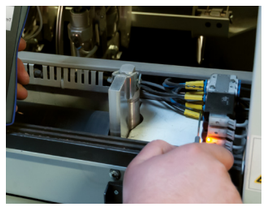
### Tesla and Gauss measurement for static magnetic fields

With a measuring range up to 2,400 mT, the electromagnetic field meter covers a wide range of measuring tasks. The electromagnetic field meter has an accuracy of 1 % which makes it a very precise meter. The electromagnetic field meter can be used, for instance, to test relays and permanent magnets for existing magnetic fields. It is therefore often used in production processes or in quality control. With the backlight of the electromagnetic field meter, the measured values are always easy to read even under poor lighting conditions.

ISO cal option

- very precise measurement technology
- measuring range up to 24,000 G and 2,400 mT
- transversal and axial sensor
- measures static magnetic fields
- automatic shutdown


## APPLICATION



## TECHNICAL SPECIFICATIONS

| | |
|---|---|
| Measuring range | 0… 200 mT<br>200… 2,400 mT<br>0 ... 2,000 G<br>2,000 ... 24,000 G |
| Accuracy | ±1 % of rdg. |
| Resolution | 0.01 mT<br>0.1 g |
| Measuring direction | Transversal |
| Magnetic field | Static (DC) |
| Unit | mT, G |
| Power supply | 1 x 9 V block battery |
| Automatic shutdown | Automatic shutdown after 5 minutes in idle status |
| Modes | Hold mode, measurement mode |
| Display | Backlight, digital 4-digit display |
| Operating temperature | 32 ... 122 °F, / 0 … 50 °C |
| Storage temperature | -4 ... 122 °F / 20 … 50 °C |
| Dimensions | 185 x 97 x 40 mm / 7.28 x 3.82 x 1.57 in |
| Weight | 0.68 lb, 310 g |

Model

**PCE-MFM 2400**
Sensor — Hall sensor transversal, cable length approx. 3.28 ft., 1 m

**PCE-MFM 2400+**
Sensor — Axial Hall sensor, cable length approx. 6.56 ft., 2 m

PCE-MFM 2400

PCE-MFM 2400+

Subject to change without notice

# FLOW MEASUREMENT

## FLOW METER PCE-TDS 100H

### Ultrasonic method for homogeneous liquids

The PCE-TDS 100H is designed for quick and mobile measurements of flow rates within pipes. To make such a measurement, it is not necessary to enter the piping system directly. The ultrasonic flow meter works in line with the transit time difference method. This means that transducers send a directed ultrasonic signal through the pipe diagonally which is then reflected and received by the transducer again. On the basis of the signal's transit time delay that occurs when a pre-defined medium passes through a pipe, the meter can determine the flow if the pipe diameter and material are known.The desired parameters must be set before making a measurement.

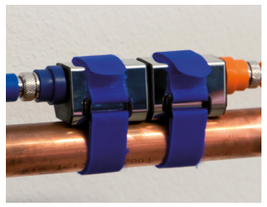
ISO cal option

- ideal for retrofitting
- installation without process interruption
- easy assembly
- accurate and reliable
- no pressure loss
- maintenance-free, no moving parts
- wear-free
- portable device for control measurements
- 2 x sensor TDS-M1 included


TDS-S1

TDS-M1

## APPLICATION



## TECHNICAL SPECIFICATIONS

| | |
|---|---|
| Measurement range handheld unit | -32 ... +32 m/s |
| Resolution | 0.0001 m/s |
| Accuracy for DN ≥50 mm | ±3.5 % of reading |
| for DN <50 mm | ±1.0 % of reading |
| Reproducibility | ±1.0 % of reading |
| Media | All liquids with an impurity < 5 % and a flow > 0.03 m³/h |
| **Flow units** | cubic metre [m³]<br>litre [l]<br>gallon (USA) [gal]<br>imperial gallon (UK) [igl]<br>million USA gallon [mgl]<br>cubic foot [cf]<br>barrel (USA) [bal]<br>imperial barrel (UK) [ib]<br>oil barrel [ob] |
| **Time settings** | per day [/d]<br>per hour [/h] pro minute [/m]<br>and per second [/s] |
| Data logger | 1800 measurements |
| Interface | USB (for online measurement and readout of the internal memory) |
| Protection class | IP 52 |
| Power supply | 3 x AA rechargeable NiMH batteries / 2100 mAh (at full charge, 12 h running time)<br>100 … 240 V AC 50/60 Hz |
| Dimensions | 214 x 104 x 40 mm |
| Weight | 450 g |
| Sensor (only PCE-TDS 100 H) | nominal width DN 50 … 700, 57 … 720 mm |
| Temperature of liquid | -30 … 160 °C |
| Dimensions | 50 x 45 x 45 mm |
| Weight | 260 g |

**Optional accessories:**

| | |
|---|---|
| Standard transducers | Order code TDS-M1 High- |
| temperature transducers | Order code TDS-S1 |
| On-rail flow transducer | Order code TDS-HS |
| On-rail flow transducer | Order code TDS-HM Flow |
| transducers | Order code TDS-L1 |
| Ultrasonic coupling gel | Order code TT-GEL |

TDS-HS

TDS-HM

TDS-L1

**Further models of the PCE-TDS 100 series:**

| | | |
|---|---|---|
| **PCE-TDS 100HSH** | **2 x sensor TDS-S1** | nominal width DN 15 … 100, 20 … 108 mm |
| | **2 x sensor TDS-M1** | nominal width DN 50 … 700, 57 … 720 mm |
| **PCE-TDS 100HS** | **2 x sensor TDS-S1** | nominal width DN 15 … 100, 20 … 108 mm |

Subject to change without notice

# HEAT MEASUREMENT

## FLOW METER PCE-TDS 100H+ INCL. TEMPERATURE DATA LOGGER

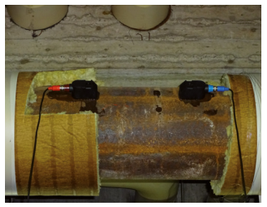
### Determination of heat quantity and heat output

This is a portable handheld clamp-on ultrasonic flow meter used for non-invasive, unobstructed and highly accurate measurements of the flow velocity of liquids in metal, plastic and rubber pipes and tubes with a diameter of 57 … 720 mm / approx. 2 ... 28 in. The heat flowmeter kit is ideal for use in the oil and gas, water and wastewater, chemical, food and beverage, pharmaceutical, metals and mining, pulp and paper, power and heating, ventilation, air conditioning and refrigeration (HVACR) industries. This ultrasonic flow meter features user-friendly velcro-strap clamps that allow for quick and easy repositioning of the electroacoustic transducers.

ISO cal option

- ideal for retrofitting
- installation without process interruption
- easy assembly
- accurate and reliable
- no pressure loss
- maintenance-free, no moving parts
- wear-free
- portable devices for control measurements


## APPLICATION



## TECHNICAL SPECIFICATIONS

| | |
|---|---|
| Handheld measuring range | -32 ... +32 m/s |
| Resolution | 0.0001 m/s, 0.00033 ft/s |
| Accuracy for DN ≥ 50 mm: | ±3.5 % of rdg. |
| for DN < 50 mm: | ±1.0 % of rdg. |
| Reproducibility | ±1.0 % of rdg. |
| Media | All liquids with an impurity < 5 % and a flow > 0.03 m³/h |
| **Flow units** | Cubic meter [m³] |
| | Liter [l] |
| | Gallon (USA) [gal] |
| | Imperial gallon (UK) [igl] |
| | Million USA gallon [mgl] |
| | Cubic foot [cf] |
| | Barrel (USA) [bal] |
| | Imperial barrel (UK) [ib] |
| | Oil barrel [ob] |
| **Time settings** | per day [/d] |
| | per hour [/h] |
| | per minute [/m] |
| | and per second [/s] |
| Data logger | 1800 measurements |
| Interface | USB (for online measurement and read out of the internal memory) |
| Protection | IP 52 |
| Power supply | 3 x AA NiMH rechargeable battery / 2100 mAh (at full charge 12h running time) |
| | 100 … 240 V AC 50/60 Hz |
| Dimensions | 214 x 104 x 40 mm / 8.4 x 4.1 x 1.5 " |
| Weight | 450 g / 15 oz |
| Sensor (only PCE-TDS 100 H) | nominal width DN 50 … 700, 57 … 720 mm / approx. 2 ... 28 " |
| Temperature of liquid | -30 … 160 °C / -22 ... 320 °F |
| Dimensions | 50 x 45 x 45 mm / 1.9 x 1.7 x 1.7 " |
| Weight | 260 g / 9 oz |

**Technical data evaluation software**
- Units of power W, kW, MW, J/h, kJ/h, MJ/h, Btu/h, kBtu/h, MBtu/h
- Units of energy J, kJ, MJ, Wh, kWh, MWh, Btu, kBtu, MBtu
- Graphical representation of flow, flow temperature, return temperature, heat output and heat quantity
- Tabular representation of flow, flow temperature, return temperature, heat output and heat quantity
- Mobile and stationary measurement mode
- Real-time data logger with unlimited runtime (only limited by PC memory capacity)
- Data export function
- User-guided software operation with step-by-step instructions for device and software configuration

**Technical data temperature data logger PCE-T 330**

| | |
|---|---|
| Measuring range Type K thermocouple | |
| | -200 ... +1370 °C |
| Resolution | 0.01 °C |
| Accuracy* | ±(0.3 % of rdg. +0.40) °C* |
| Measuring range | |
| T-type thermocouple | -200 ... +400 °C |
| Resolution | 0.01 °C |
| Accuracy* | ±(0.3 % of rdg. +0.40) °C* |
| Measuring range J-type | |
| thermocouple | -200 ... +1200 °C |
| Resolution | 0.01 °C |
| Accuracy* | ±(0.3 % of rdg. +0.40) °C* |
| Measuring rate | 2/s |
| Operating temperature | -10 ... +50 °C |
| Storage temperature | -20 ... +60 °C (without batteries) |
| Power supply | 3 x AAA batteries / 1.2 V rechargeable battery |
| Battery life | approx 190 h (without backlight. battery capacity 1200 mAh, ambient temperature 25 °C) |
| Protection class | IP52 (with protective cover and connected sensor) |
| stanked/certification | CE/EMC ROHS/td |

**Optional accessories:**

| | |
|---|---|
| Standard transducers | Order code TDS-M1 |
| High-temperature transducers | Order code TDS-S1 |
| On-rail flow transducer | Order code TDS-HS |
| On-rail flow transducer | Order code TDS-HM |
| Flow transducers | Order code TDS-L1 |
| Ultrasonic coupling gel | Order code TT-GEL |

**Further models of the PCE-TDS 100 series:**

| | |
|---|---|
| **PCE-TDS 100HSH+** | **2 x sensor TDS-S1** nominal width DN 15 … 100, 20 … 108 mm **2 x sensor TDS-M1** nominal width DN 50 … 700, 57 … 720 mm |
| **PCE-TDS 100HS+** | **2 x sensor TDS-S1** nominal width DN 15 … 100, 20 … 108 mm |

Subject to change without notice

# THICKNESS MEASUREMENT

## COATING THICKNESS GAUGE PCE-CT 80

### Paint layer thickness gauge for Fe and NFe

The paint layer thickness gauge PCE-CT 80 is a measuring device for the non-destructive measurement of coatings (lacquers, paints, plastics ...) on steel / iron and non-ferrous metals. Thanks to the externally connected sensor on the PCE-CT 80 paint coating thickness gauge, even difficult-to-reach measuring locations can be easily reached.

The menu navigation of the paint thickness gauge allows easy adjustment and setting to new parameters and makes this handy paint coating thickness gauge an indispensable tool for control measurements in production, workshop and quality assurance.

ISO cal option

- for many materials such as iron, steel, aluminium, copper, brass and stainless steel
- measurements cannot be influenced by vibrations
- practical V-groove on the measuring heads
- internal data memory
- warning for measurements exceeding the measuring range
- wear-resistant, spring-mounted measuring head for precise measurement results
- incl. ISO laboratory calibration with certificate
- probe PCE-CT 80-FN1.5 included
- Measurement range Fe: 0 … 1500, NFe: 0 … 1500


## APPLICATION

## TECHNICAL SPECIFICATIONS

| | |
|---|---|
| Measurement range | Fe: 0 ... 5000 µm / 0 ... 196.9 mils (depending on probe)<br>NFe: 0 ... 3000 µm / 0 ... 118.1 mils (depending on probe) |
| Accuracy | ±(2 % of rdg. + 1 µm / 0.039 mils) |
| Resolution | 0.1 µm (< 100 µm)<br>1 µm (> 100 µm) |
| Measurable materials | Non-magnetic layers on steel, iron, ...<br>Non-electrically conductive layers on aluminium, copper, ... |
| Min. radius of curvature convex | 5 mm |
| Min. radius of curvature concave | 25 mm |
| Min. measuring surface | Ø 17 mm |
| Min. layer thickness | 0.2 mm (on magnetic materials)<br>0.05 mm (on non-magnetic materials) |
| Probe mode | Autom. mode with material detection (Fe + NFe)<br>Magnetic mode (Fe)<br>Eddy current mode (NFe) |
| Measurement modes | Single measurement<br>Continuous measurement |
| Calibration | Multipoint calibration (1 ... 4 points for each group) zero point calibration |
| Units | µm, mm, mils |
| Data transfer | USB 2.0 |
| Memory | One volatile measuring group (DIR mode)<br>Four measuring groups with autom. storage and max. 2000 readings (GEN mode) |
| Statistical functions | Number of measured values, mean, minimum, maximum, standard deviation |
| Alarm | Display when the adjustable upper and lower alarm limits are exceeded |
| Operating time | Auto Power Off mode (3 min) |
| Power supply | 3 x 1.5 V AAA batteries |
| Display | 128 x 128 px LCD |
| Displayed information | Battery status / flaw detection |
| Operating conditions | 0 ... 50 °C / 32 ... 122 °F<br>20 ... 90 % RH not condensing |
| Storage conditions | -10 ... 60 °C / 14 ... 140 °F<br>20 ... 90 % RH not condensing |
| Dimensions | 143 x 71 x 37 mm / 5.6 x 2.8 x 1.5 in (L x W x H) |
| Weight | with sensor and batteries: approx. 271 g / <1 lb |

**Optional accessories:**

| | | |
|---|---|---|
| Probe | PCE-CT 80-FN0.5 | Measurement range: Fe: 0 … 500, NFe: 0 … 500 |
| Probe | PCE-CT 80-FN2 | Measurement range: Fe: 0 … 2000, NFe: 0 … 2000 |
| Probe | PCE-CT 80-FN2.5 | Measurement range: Fe: 0 … 2500, NFe: 0 … 2500 |
| Probe | PCE-CT 80-FN3 | Measurement range: Fe: 0 … 3000, NFe: 0 … 3000 |
| Probe | PCE-CT 80-F5N.3 | Measurement range: Fe: 0 … 5000, NFe: 0 … 3000 |

Subject to change without notice

## MATERIAL THICKNESS METER PCE-TG 50

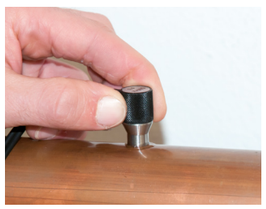
### Ultrasonic material thickness meter with a measurement range of 1.0 ... 200 mm

The thickness meter PCE-TG 50 is a compact meter used to measure the thickness of metal, glass, plastic and homogeneous plastics. This material thickness gauge uses an external ultrasonic probe which sends ultrasonic waves into the material to be tested. Since different materials conduct ultrasound at different velocities, various ultrasound velocities can be selected in the material thickness meter. With the thickness gauge, you can determine the thickness of metal, glass, plastics and other homogeneous materials within seconds. With the integrated calibration block, this meter can be calibrated on site with little effort.

ISO cal option

- adjustable ultrasound velocity (for different materials)
- software and interface cable (optional)
- measures wall thicknesses between 1.2 and 200.00 mm
- integrated steel block for calibration
- includes carrying case


## APPLICATION



## TECHNICAL SPECIFICATIONS

| | |
|---|---|
| Measurement range | 1.2 ... 200.00 mm (steel) |
| Accuracy | ±0.5 % of rdg. ±0.1 mm |
| Resolution | 0.1 mm (0.001 inch) |
| Ultrasound velocity | 800 ... 9950 m/s |
| Units | mm / inch (adjustable) |
| Power supply | 3 x 1.5 V AAA batteries |
| Calibration block | 5.0 mm (integrated) |
| Data interface | RS-232 interface |
| Included sensor | frequency 5 MHz<br>measurement area: Ø 8 mm; contact area: Ø 10.2 mm<br>head: Ø 1.4 mm |
| Display | 4-digit LCD |
| Operating conditions | temperature: -10 ... +50 °C<br>humidity: <80 % RH |
| Material temperature | 0 ... +50 °C (permanent)<br>+50 ... +85 °C (for 5 minutes;<br>then 30 minutes cooldown below +50 °C) |
| Dimensions | handset: 142 x 77 x 40 mm |
| Weight | 265 g (with batteries and sensor) |

**Optional accessories:**

| | | |
|---|---|---|
| Standard probe | Order code ST-TG 50 | Ø 8 mm |
| Miniature probe | Order code MP-TG 50 | Ø 6 mm |
| High-temperature probe | Order code HTP-TG 50 | -10 ... +300 °C |

Subject to change without notice

# THICKNESS MEASUREMENT

## THICKNESS METER PCE-TG 75

### Material thickness measurement up to 225 mm

The thickness meter can measure material thicknesses up to 225 mm / 8.85". So that the material thickness of a wide variety of homogeneous materials can be measured, it is possible to store the corresponding speed of sound in the thickness meter. For materials such as steel, aluminum, zinc, silver and gold, the appropriate sound speeds are already stored in the device library. This means that the thickness meter can be used universally. With the limit value function in the thickness meter, individual maximum and minimum values can be stored. If the measured value of the test piece is outside the limits, the thickness meter signals this visually.

ISO cal option

- measured value memory
- calibration reference on the housing
- automatic shutdown
- material thickness measurement up to 225 mm / 8.85"
- battery status indicator
- optionally with ISO calibration certificate


## APPLICATION

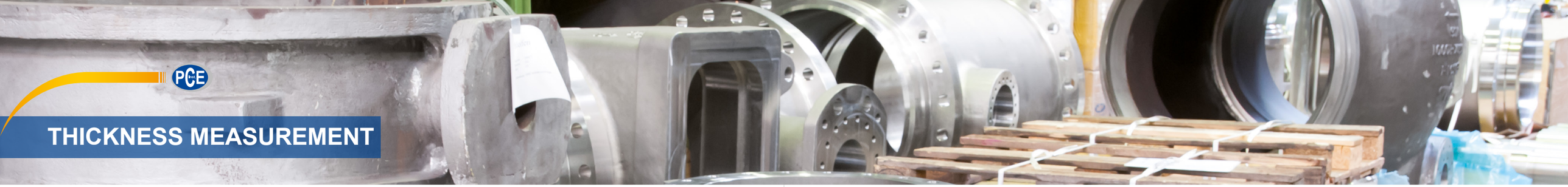
## TECHNICAL SPECIFICATIONS

| | |
|---|---|
| Measuring range | 1.00 ... 225.0 mm / 0.04 ... 8.85" |
| Resolution | 0.01 mm at ≤99.99 mm<br>0.1 mm at ≥100.0 mm |
| Accuracy | ±0.5 % of measured value + 0.05 mm |
| Storage space | 500 measured values |
| Probe frequency | 5 MHz |
| Standard sensor | sensor PCE-TG 5M10d |
| Further specifications | |
| Adjustable speed of sound | 1000 ... 9999 m/s |
| Smallest pipe diameter | Ø20 x 3 mm (steel) |
| Material library | 15 memory locations |
| Calibration reference | 4 mm |
| Display | 2.4 inch TFT LCD color display with brightness adjustment |
| Power supply | 3 x 1.5 V AA batteries |
| Automatic switch-off | switched off, 2, 5, 10, 30 minutes |
| Ambient conditions | 0 ... 40 °C / 32 ... 104 °F, <90 % RH, non-condensing |
| Dimensions | 163 x 82 x 38 mm / 6.4 x 3.2 x 1.5" |
| Weight | 320 g / 11.2 oz |

**Optional accessories:**

| | |
|---|---|
| Standard probe for the PCE-TG 75/150 | Order no.: PCE-TG 5M10d |

Subject to change without notice



# THICKNESS MEASUREMENT

## MATERIAL THICKNESS METER PCE-TG 150

### Material thickness measurement up to 300 mm

The thickness meter can measure material thicknesses up to 300 mm / 11.81". So that the material thickness of a wide variety of homogeneous materials can be measured, it is possible to store the corresponding speed of sound in the thickness meter. For materials such as steel, aluminum, zinc, silver and gold, the appropriate sound speeds are already stored in the device library. This means that the thickness meter can be used universally. With the limit value function in the thickness meter, individual maximum and minimum values can be stored. If the measured value of the test piece is outside the limits, the thickness meter signals this visually.

ISO cal option

- measured value memory
- calibration reference on the housing
- automatic shutdown
- material thickness measurement up to 300 mm / 11.81"
- battery status indicator
- optionally with ISO calibration certificate


## APPLICATION

## TECHNICAL SPECIFICATIONS

| | |
|---|---|
| Measuring range | 1.00 ... 300.0 mm / 0.04 ... 11.81" |
| Resolution | 0.01 mm at ≤99.99 mm<br>0.1 mm at ≥100.0 mm |
| Accuracy | ±0.5 % of measured value + 0.05 mm |
| Storage space | 1500 measured values |
| Probe frequency | 5 MHz / 2.5 MHz |
| Standard sensor | sensor PCE-TG 5M10d |
| Further specifications | |
| Adjustable speed of sound | 1000 ... 9999 m/s |
| Smallest pipe diameter | Ø20 x 3 mm (steel) |
| Material library | 15 memory locations |
| Calibration reference | 4 mm |
| Display | 2.4 inch TFT LCD color display with brightness adjustment |
| Power supply | 3 x 1.5 V AA batteries |
| Automatic switch-off | switched off, 2, 5, 10, 30 minutes |
| Ambient conditions | 0 ... 40 °C / 32 ... 104 °F, <90 % RH, non-condensing |
| Dimensions | 163 x 82 x 38 mm / 6.4 x 3.2 x 1.5" |
| Weight | 320 g / 11.2 oz |

**Further Model:**

| | |
|---|---|
| PCE-TG 150 HT | Probe frequency 5 MHz |
| PCE-TG 150 F2.5 | Probe frequency 2.5 MHz |

**Optional accessories:**

| | |
|---|---|
| 2.5 Mhz sensor | Order no.: PCE-TG 2.5M |
| High temperature sensor | Order no.: PCE-TG HT |
| Miniature sensor | Order no.: PCE-TG 5M6d |
| Standard probe for the PCE-TG 75/150 | Order no.: PCE-TG 5M10d |

Subject to change without notice



# WALL THICKNESS GAUGE PCE-TG 300 WITH BLUETOOTH

## With a wide measuring range of up to 600 mm

The PCE-TG 300 is a wall thickness gauge with special probes for various applications. In general, the wall thicknesses of all homogeneous materials can be measured with the PCE-TG 300. For damping or scattering materials such as plastic or cast iron, a special probe is available. An angled 90 ° probe also enables measurements at hard-to-reach measuring positions. The speed of sound can be set freely and thus adapted to a wide variety of materials. The measured values are displayed directly on the easy-to-read TFT colour display.

ISO cal option

- wide measuring range
- various probes available
- battery operation
- fault and cavity detection
- internal measurement data memory
- printing via Bluetooth




## APPLICATION

# TECHNICAL SPECIFICATIONS

| | |
|---|---|
| Measuring range | PE: pulse-echo mode 0.65 ... 600 mm (steel)<br>EE: echo-echo mode 2.50 ... 60 mm |
| Accuracy | ±0.04 mm H [mm] (< 10 mm); ±0.4 % H [mm] (> 10 mm)<br>H refers to the material thickness of the workpiece |
| Resolution | 0.1 mm / 0.01 mm / 0.001 mm (adjustable) |
| Measurable materials | Metals<br>Plastics<br>Ceramics<br>Epoxy resin<br>Glass<br>and all homogeneous materials |
| Working modes | Pulse echo mode (fault and cavity detection)<br>Echo-Echo mode (hiding layer thicknesses, e.g. lacquers) |
| Calibration | Sound velocity calibration<br>Zero point calibration<br>Two-point calibration |
| View mode | Normal mode, scan mode, difference mode |
| Units | mm / inch |
| Data transfer | Printing via Bluetooth / USB 2.0 |
| Memory | Non-volatile memory with 100 data groups with 100 data sets each |
| Operating time | Continuous operation 100 h<br>Automatic stand-by mode (adjustable)<br>Automatic power off mode (adjustable) |
| Power supply | 4 x AA battery 1.5 V |
| Display | 320 x 240 pixel TFT LCD colour display with brightness adjustment |
| Operating conditions | 0 ... 50 °C / 32 ... 122 °F, ≤ 80 % RH non condensing |
| Storage conditions | -20 ... 70 °C / -4 ... 158 °F, ≤ 80 % RH non-condensing |
| Dimensions | 185 x 97 x 40 mm / 7.3 x 3.8 x 1.6 in |
| Weight | 375 g / < 1 lb |

**Specifications of the included probe P5EE**

| | |
|---|---|
| Frequency | 5 MHz |
| Diameter | 10 mm |
| Measurement range | P-E: 2 ... 600 mm, E-E: 2,5 ... 100 mm |
| Minimum pipe diameter | 20 x 3 mm |
| Description | normal measurement and E-E test |

**Specifications of the optional probes**

**NO2 (not suitable for curved materials)**

| | |
|---|---|
| Frequency / Ø | 2.5 MHz / 14 mm |
| Measurement range | 3 ... 40 mm (steel)<br>3 ... 300 mm (steel) |
| Description | For damping / scattering materials (plastics, cast iron) |

**NO5**

| | |
|---|---|
| Frequency / Ø | 5 MHz / 10 mm |
| Measurement range | 1 ... 600 mm (steel) |
| Minimum pipe diameter | 20 x 3 mm |
| Description | normal measurement |

**NO5 / 90 °**

| | |
|---|---|
| Frequency / Ø | 5 MHz / 10 mm |
| Measurement range | 1 ... 600 mm (steel) |
| Minimum pipe diameter | 20 x 3 mm |
| Description | normal measurement |

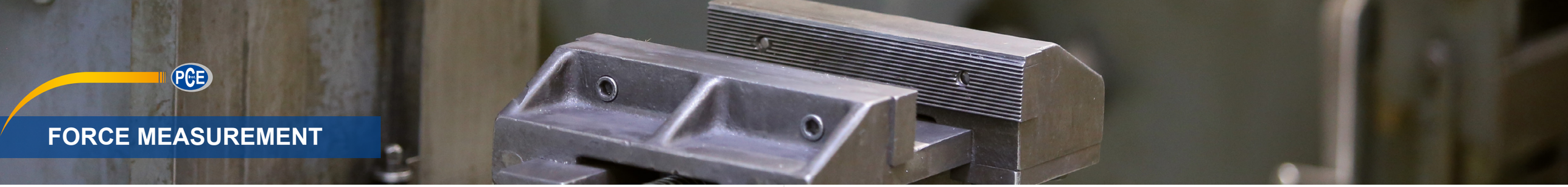
**NO7**

| | |
|---|---|
| Frequency / Ø | 7 MHz / 6 mm |
| Measurement range | 0.65 ... 200 mm (steel) |
| Minimum pipe diameter | 15 x 2 mm |
| Description | for thin-walled or strongly curved pipes |

**HT5**

| | |
|---|---|
| Frequency / Ø | 5 MHz / 12 mm |
| Measurement range | 1 ... 600 mm (steel) |
| Minimum pipe diameter | 30 mm |
| Description | for high temperatures (max. 300 °C) |

Subject to change without notice



## FORCE GAUGE PCE-DFG N 500

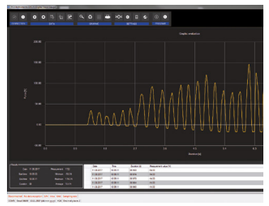
### Digital force gauge for tensile and compressive force measurement up to 500 N

The PCE-DFG N 500 is a digital force gauge for tensile and compressive force measurement up to 500 N. It has a resolution of 0.1 N. The measured values are shown on a large display with backlight which is rotatable by 180 °. Therefore, reading the measured values correctly is possible in any position and at any time. The outstanding accuracy of ±0.1 % f. s. is confirmed by the factory calibration certificate that comes with the meter. In addition to the internal memory with sufficient capacity for 100 readings, a USB interface is available for data transfer.

ISO cal option

- tensile and compressive force measurement
- 1600 Hz sampling rate
- error limit 0.1 % of the measuring range
- PEAK function (MIN / MAX)
- limit value function
- various units of measurement
- automatic or manual storage
- graphical evaluation
- display with automatic orientation
- time / date
- control and evaluation software
- auto power off adjustable
- battery level indicator
- mains operation possible
- memory capacity for 100 measurements


## APPLICATION



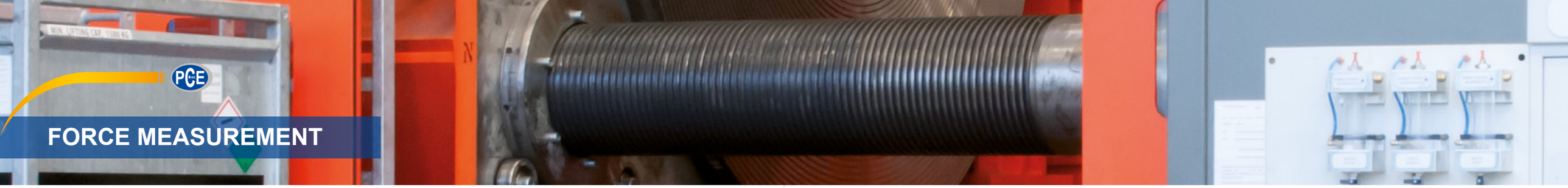
## TECHNICAL SPECIFICATIONS

| | |
|---|---|
| Measurement range | 0 ... 500 N |
| Accuracy | ±0.1 % of the measuring range |
| Resolution | 0.1 N |
| Units | N, kg, lb, KPa |
| Display | 2.8 “ TFT graphical display |
| Alarm modes | inside, outside, crack, shutdown |
| Sampling rate | 6 ... 1600 Hz |
| Memory | 100 measurements, 8000 values each |
| Power supply | rechargeable NiMh battery 6 V / 1600 mAh |
| Battery life | approx. 10 h |
| Charging adaptor | 12 V / 1 A |
| Outputs | Interface: USB<br>Switching output: 12 V / 50 mA |
| Protection class | IP 54 |
| Operating and storage conditions | -10 ... 50 °C / 14 ... 122 °F<br>5 ... 95 % RH non-condensing |
| Force absorption element | M6 x 7 mm |
| Dimensions | 200 x 97 x 42 mm / 7.9 x 3.8 x 1.7 in |
| Weight | 540 g / 1.2 lbs |

**Optional accessories:**

| | | |
|---|---|---|
| Clamp for peel-off tests | Order code | PCE-SJJ035 |
| Holder for button and rivet testing | Order code | PCE-SJJ032 |
| Clamping device for bristle testing | Order code | PCE-SJJ029 |
| Clamping device for bristle testing | Order code | PCE-SJJ020 |
| Universal clamping device | Order code | PCE-SJJ017 |
| Clamping device for tensile tests | Order code | PCE-SJJ012 |
| Fork holder for tensile & compr. tests | Order code | PCE-SJJ09 |
| Clamping tool for tensile tests | Order code | PCE-SJJ08 |
| Clamping device for tensile tests | Order code | PCE-SJJ07 |
| Adaptor clamp for tensile tests | Order code | PCE-SJJ010 |
| Adaptor clamp for tensile tests | Order code | PCE-SJJ06 |
| Round adaptor stamp for compr. tests | Order code | PCE-SJJ04 |
| Adaptor for compr. tests | Order code | PCE-SJJ01 |
| Motorised force test stand | Order code | PCE-MTS50 |
| Force test stand | Order code | PCE-FTS50 |
| Clamping device for test stand | Order code | PCE-SJJ03 |
| Adaptor ring for tensile tests | Order code | PCE-SJJ02 |
| Clamping device for test stand | Order code | PCE-SJJ024 |
| Clamping device for test stand | Order code | PCE-SJJ015 |
| Clamping jaw for test stand | Order code | PCE-SJJ13 |
| Clamping jaw for PCE-FTS50, PCE-FM 50/200 | Order code | PCE-SJJ05 |
| Clamping jaw for test stand PCE-FTS50 | Order code | PCE-SJJ011 |

Subject to change without notice



# FORCE MEASUREMENT

## FORCE GAUGE PCE-DFG N 10K

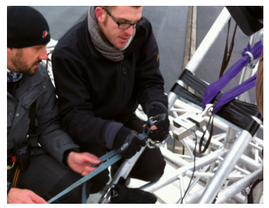
### With external measuring cell and USB interface for connection to a PC

The force gauge measures both tensile and compressive forces with a very high resolution. Tensile and compressive forces are often measured in test laboratories, for example to determine the yield strength, the pull-off force and the force required to actuate a push-button or switch. The force gauge is supplied with an external measuring cell. The PCE-DFG N 10K force gauge can measure up to 10,000 N / 2,248 lbs. Models for 1,000 N / 225 lbs, 2,500 N / 562 lbs and 5,000 N / 1,124 lbs are also available. Various eyelets or hooks with M10 or M12 threads can be screwed into the measuring cells but other devices with the same thread can also be attached to the measuring cell.

ISO cal option

- USB interface
- memory capacity for 100 measurements
- incl. ISO calibration certificate
- graphical display
- fast response time
- PC software


## APPLICATION



## TECHNICAL SPECIFICATIONS

| | |
|---|---|
| Measurement range | 0 ... 10,000 N / 0 ... 2,248 lbs |
| Resolution | 5 N |
| Accuracy | ±0.1 % of the measuring range |
| Units | N, kg, lb, KPa |
| Display | 2.8 " TFT graphical display |
| Alarm modes | inside, outside, crack, shutdown |
| Sampling rate | 6 ... 1600 Hz |
| | |
| Memory | 100 measurements, 8000 values each |
| Power supply | rechargeable NiMH battery, 6 V / 1600 mAh |
| Battery life | approx. 10 h |
| Mains / charging adaptor | 12 V / 1 A |
| Outputs | Interface: USB<br>Switching output: 12 V / 50 mA |
| Protection class | IP 54 |
| Operating and storage conditions | -10 ... 50 °C / 14 ... 122 °F<br>5 ... 95 % RH non-condensing |
| Mounting thread measuring cell<br>up to 1000 N / 225 lbs<br>2500 ... 10000 N / 562 ... 2,248 lbs | <br>M10<br>M12 |
| | |
| Dimensions | 200 x 97 x 42 mm / 7.9 x 3.8 x 1.7 |
| Weight | 540 g / 1.2 lbs |

**Optional accessories**:

| | | |
|---|---|---|
| Universal clamping device | Order code | PCE-SJJ017 |
| Clamping device for tensile tests | Order code | PCE-SJJ012 |
| Fork holder for tensile & compr. tests | Order code | PCE-SJJ09 |
| Adaptor clamp for tensile tests | Order code | PCE-SJJ06 |
| Round adaptor stamp for compr. tests | Order code | PCE-SJJ04 |
| Adaptor for compr. tests | Order code | PCE-SJJ01 |
| Clamping device for test stand | Order code | PCE-SJJ015 |

**Further models of the PCE-DFG N series:**

| | | | |
|---|---|---|---|
| PCE-DFG N5 | internal measuring | cell meas. range | 0 ... 5 N |
| PCE-DFG N10 | internal measuring | cell meas. range | 0 ... 10 N |
| PCE-DFG N20 | internal measuring | cell meas. range | 0 ... 20 N |
| PCE-DFG N200 | internal measuring | cell meas. range | 0 ... 200 N |
| PCE-DFG N500 | internal measuring | cell meas. range | 0 ... 500 N |
| PCE-DFG N 1K | internal measuring | cell meas. range | 0 ... 1000 N / 100 kg |
| PCE-DFG N 2,5K | internal measuring | cell meas. range | 0 ... 2500 N / 250 kg |
| PCE-DFG N 5K | internal measuring | cell meas. range | 0 ... 5000 N / 500 kg |
| PCE-DFG N 20K | internal measuring | cell meas. range | 0 ... 20000 N / 2 t |
| PCE-DFG N 50K | internal measuring | cell meas. range | 0 ... 50000 N / 5 t |
| PCE-DFG N 100K | internal measuring | cell meas. range | 0 ... 100000 N / 10 t |

Subject to change without notice


# FORCE MEASUREMENT

## FORCE GAUGE PCE-DFG NF 1K

### Measurement of compressive forces with external load cell

The force gauge with an external load cell is designed for the measurement of compressive forces in hard-to-reach measuring locations. The pressure cell is connected to the force gauge by a sensor cable of approx. 3 m length and thanks to the small cell dimensions, it ensures versatile applications. The force gauge/ load cell has several threaded holes at the bottom to enable fixed installation. The force gauge can operate at a sampling rate of up to 1600 Hz. The sampled readings are displayed as an instantaneous value as well as in a graph showing the measurement curve directly in the force gauge.

ISO cal option

- USB interface
- graphical display
- fast response time
- PC software
- incl. calibration
- memory for 100 measurements


## APPLICATION

## TECHNICAL SPECIFICATIONS

| | |
|---|---|
| Measurement range | 0 ... 1000 N |
| Resolution | 0.1 N |
| Accuracy | ±0.5 % of meas. range |
| Measurement units | N, kg, lb, kPa |
| Display | 2.8 " TFT graphical display |
| Alarm modes | inside, outside, crack, shutdown |
| Sampling rate | 6 ... 1600 Hz |
| Memory | 100 measurements |
| Power supply | rechargeable NiMh battery, 6 V / 1600 mAh |
| Battery life | approx. 10 hours |
| Power adaptor / charging adaptor | 12 V / 1 A |
| Outputs | interface: USB<br>switching output: 12 V / 50 mA |
| Protection class | IP 54 |
| Operating and storage conditions | -10 ... 50 °C<br>5 ... 95 % RH, non-condensing |
| Dimensions load cell | Ø 20 mm / H 12 mm / M3 thread<br>(see technical drawing) |
| Cable length pressure cell | approx. 3 m |
| Dimensions | 200 x 97 x 42 mm |
| Weight | 540 g |

**Further models :**

| | |
|---|---|
| PCE-DFG NF 0,5K | Measurement range 0 ... 500 N |
| PCE-DFG NF 2K | Measurement range 0 ... 2000 N |
| PCE-DFG NF 5K | Measurement range 0 ... 5000 N |
| PCE-DFG NF 10K | Measurement range 0 ... 10000 N / 0 ... 10 kN |
| PCE-DFG NF 20K | Measurement range 0 ... 20000 N / 0 ... 20 kN |
| PCE-DFG NF 50K | Measurement range 0 ... 50000 N / 0 ... 50 kN |

Subject to change without notice

# TORQUE MEASUREMENT

## TORQUE METER PCE-DFG N 100TW

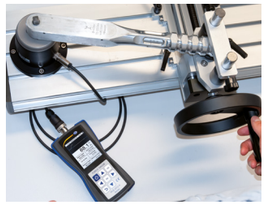
### Torque meter up to 100 Nm / external torque transducer 1/2 " internal square

The torque wrench tester consists of a handheld measuring device and an external torque transducer. The torsion transducer is connected to the hand-held device via a 1.5 m / 4.9 ft long cable and thus enables installation in a test stand or direct assembly on a test bench.
The torque measuring device is delivered adjusted so that the control measurements can be started immediately. A calibration certificate is optionally available for the torque measuring device. This certificate is a target / actual comparison on a traceable reference standard and thus serves as proof of the measurement accuracy. The measurement uncertainty of the torque measuring device is only 0.5 % of the measuring range.

ISO cal option

- left / right torsion measurement
- error limit 0.5 % of the measuring range
- graphic display
- PC software
- PEAK / Hold function
- 1600 Hz sampling rate
- power adapter and battery operation possible
- the direction of rotation must be selected


## APPLICATION



## TECHNICAL SPECIFICATIONS

| | |
|---|---|
| Measuring range | 0 ... 100 Nm |
| Resolution | 0.1 Nm |
| Accuracy | ±0.5 % of the measuring range |
| Units of measurement | Nm, lbfft, kgfm |
| Torque sensor mount | 1/2 " (12.5 x 12.5 mm) internal square |
| Torsion measurement | Left / Right |
| Display | 2.8 " TFT graphic display |
| Alarm modes | Inside Outside |
| Sampling rate | 6 ... 1600 Hz |
| Storage measurement points each | For 100 measurement series with 8,000 |
| Power supply | NiMh battery, 6 V / 1600-mAh |
| Battery life | About 10 hours |
| Power supply / charging adapter | 12 V / 1 A |
| Outputs | Interface: USB<br>Switching output: 12 V / 50-mA |
| Protection class | IP 54 |
| Operating and storage conditions | -10 ... 50 °C / 14 ... 122 °F<br>5 ... 95 % RH non-condensing |
| Torque transducer dimensions | H 85 mm / Ø 72 mm / Ø 104 mm (H 3.3 in / Ø 2.8 in / Ø 4.1 in)<br>(see technical drawing) |
| Sensor cable length / td> | Approx. 1.5 m / 4.9 ft |
| Dimensions handset | 200 x 97 x 42 mm / 7.9 x 3.8 x 1.7 in |
| Weight handset | 540 g / 1.2 lbs |
| Weight of the torsion transducer | 985 g / 2.2 lbs |

**Further models of the PCE-DFG N TW series:**

| | | |
|---|---|---|
| PCE-DFG N 50TW | Measuring range | 0 ... 50 Nm |
| PCE-DFG N 10TW | Measuring range | 0 ... 10 Nm |
| PCE-DFG N 5TW | Measuring range | 0 ... 5 Nm |

Subject to change without notice

# FORCE MEASUREMENT

## HYDRAULIC FORCE GAUGE PCE-HFG 10K

### For the measurement of compression forces in mechanical systems

The hydraulic force transducer PCE HFG series is used for the absorption of static pressure forces and is made of stainless steel. The force transducer can measure forces over a long period of time due to its independence from power sources. With the integrated drag indicator the respective PEAK value is stored for later read out. The force transducer uses the measuring principle of hydraulic transmission of forces. The forces applied to the plunger are transmitted to the dial gauge via the medium and are displayed on the Newton scale [N]. Due to the 27 mm ring opening, it is also possible to use the force transducer axially and to determine axial shaft forces, for example.

ISO cal option

- measurement of static pressure forces
- for stationary maintenance measurements and adjustment work
- independent of power sources
- analogue meter scale
- compact for small installation spaces
- pressure force display in kilonewtons [kN]
- stainless steel
- integrated drag indicators


## APPLICATION

## TECHNICAL SPECIFICATIONS

| | |
|---|---|
| Measuring range | 0 … 10,000 N |
| Resolution | 200 N |
| Measuring accuracy | ±1.85% of the measuring range |
| Dimensions of the display | Ø55 mm |
| Mounting holes | 2 x M6 |
| Ambient conditions | 0 … 50 °C |

**Models of the PCE-HFG series:**

**Measured value: Force [N]**

**Measuring range**

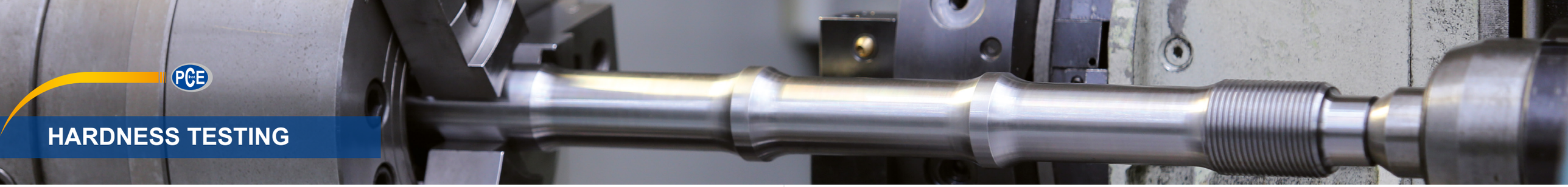
| | |
|---|---|
| PCE-HFG 1K | 0... 1000 N |
| PCE-HFG 2.5K | 0... 2500 N |
| PCE-HFG 10K | 0... 10000 N |
| PCE-HFG 25K | 0... 25000 N |

**Resolution:**

| | |
|---|---|
| PCE-HFG 1K | 20 N |
| PCE-HFG 2.5K | 100 N |
| PCE-HFG 10K | 200 N |
| PCE-HFG 25K | 1000 N |

| | |
|---|---|
| Accuracy: | ±(1.6 % pressure gauge + 0.25 % reading error) from measuring range |
| Temperature range: | 0... 50 °C |
| weight: | 1.6 kg |
| Mounting holes: | 2 x M6 |
| Inner diameter of the ring: | Ø 27 mm |
| Display dimensions: | Ø 55 mm |

Subject to change without notice



# HARDNESS TESTING

## HARDNESS TESTER PCE-2000N

### Leeb hardness tester for metals

The PCE-2000N hardness tester from PCE-Instruments uses the Leeb rebound method. This is a dynamic hardness test method in which a standardized test specimen, usually a hard metal ball, hits a test surface at a defined impact energy. The impact of the hard metal ball on the test surface results in a plastic deformation of the surface at the point of impact. This deformation results in an energy loss which is proportional to the hardness of the workpiece and which can be determined by means of the ratio of rebound to impact velocity of the specimen.

ISO cal option

- various other impactors as accessories
- measurement in different angles possible
- readings are saved to USB pen drive
- external impact device with 1.5 m cable
- wide measurement range
- 6 different hardness scales




## APPLICATION

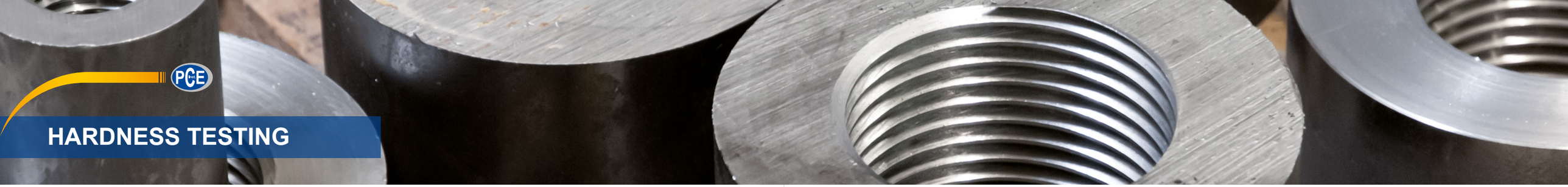
## TECHNICAL SPECIFICATIONS

| | | | |
|---|---|---|---|
| Measurement ranges | 170 ... 960 HLD<br>17.9 ... 69.5 HRC<br>19 ... 683 HB<br>80 ... 1042 HV<br>30.6 ... 102.6 HS<br>59.1 ... 88 HRA<br>13.5 ... 101.7 HRB | Display resolution | 128 x 64 pixel OLED |
| | | Data memory | 600 averages in 6 data groups |
| | | Data output | USB pen drive |
| | | Power supply | 3 x AAA batteries |
| | | Auto Power Off | after 12 min of inactivity |
| | | Operating conditions | +10 ... +50 °C, 20 ... 90 % RH |
| | | Storage conditions | -30 ... +60 °C |
| | | Dimensions | 160 x 80 x 40 mm (H x W x D) |
| | | Weight | Meter with batteries: approx. 300 g / <1 lb<br>Impact device: approx. 75 g / <1 lb |
| Impact device included (optional impact devices) | D<br>(DC, D+15, C, G, DL) | | |
| Cable length impact device | approx. 1.5 m | | |
| Accuracy | ±0.5 % (@800 HLD) | | |
| Repeatability | 0.8 % (@800 HLD) | | |
| | | Material | |
| | | Steel / cold-rolled steel | HRA 59.1 ... 85.8<br>HRC 20 ... 68.5<br>HRB 38.4 ... 99.6<br>HB 127 ... 651<br>HSD 32.2 ... 99.5<br>HV 83 ... 976 |
| Hardness scales | HL (Leeb)<br>HV (Vickers)<br>HB (Brinell)<br>HS (Shore)<br>HRA (Rockwell A)<br>HRB (Rockwell B)<br>HRC (Rockwell C) | Alloyed tool steel | HRC 20.4 ... 67.1<br>HV 80 ... 898 |
| Measurable materials | Steel<br>Cast steel<br>Alloy steel<br>Stainless steel<br>Grey cast iron<br>Spheroidal graphite iron<br>Cast aluminium alloy<br>Cu-zinc (brass)<br>Copper-tin alloy<br>Copper | Stainless steel | HRB 46.5 ... 101.7<br>HB 85 ... 655<br>HV 85 ... 802 |
| | | Grey cast iron | HB 93 ... 334 |
| | | Spheroidal graphite iron | HB 131 ... 387 |
| | | Cast aluminium | HRB 23.8 ... 84.6<br>HB 19 ... 164 |
| | | Brass | HRB 13.5 ... 95.3<br>HB 40 ... 173 |
| | | Bronze | HB 60 ... 290 |
| | | Copper | HB 45 ... 315 |

**Optional accessories:**

| | | |
|---|---|---|
| Impact device D | Order code | PCE-2000N Probe D |
| Impact device DC | Order code | PCE-2000N Probe DC |
| Impact device D+15 | Order code | PCE-2000N Probe D+15 |
| Impact device C | Order code | PCE-2000N Probe C |
| Impact device G | Order code | PCE-2000N Probe G |
| Impact device DL | Order code | PCE-2000N Probe DL |

Subject to change without notice



# HARDNESS TESTING

## HARDNESS TESTER PCE-900

### Leeb hardness tester for metals / measurement of tensile strength

The Leeb hardness tester PCE-900 measures the hardness of nine different metals using the Leeb rebound method. This means that an impact body bounces on a metallic surface and the intensity of the rebound is used as an indicator of the material hardness.
The hardness test instrument PCE-900 can show the metal hardness in 6 different hardness scales, including: Rockwell, Vickers, Leeb, Brinell and Shore. A distinction is made between Rockwell B and C when measuring in the Rockwell scale. Via the data interface, the measured values can be transmitted live to the PC. The delivery scope is completed by an ISO calibration certificate.

ISO cal option

- hardness test by the rebound method
- nine saved material characteristic curves
- easy to use
- data interface
- six different hardness scales
- incl. D-type impact device and test block
- optional software available





## APPLICATION

## TECHNICAL SPECIFICATIONS

| | |
|---|---|
| Measurement range | 200 ... 900 HLD |
| Measuring accuracy | ±10 HLD |
| Materials | 9 different materials<br>Leeb: HL<br>Rockwell C: HRC<br>Rockwell B: HRB |
| Hardness scales | Brinell: HB<br>Vickers: HV<br>Shore: HSD |
| Display | 12.5 mm LCD with backlight |
| Included impact device | D-type |
| Memory | 50 data records |
| Interface | RS-232 |
| Power supply | 4 x 1.5 V AAA batteries |
| Operating temperature: | -10 ... 50 °C |
| Environmental conditions | Storage temperature: -30 ... 60 °C<br>relative humidity: <90 % |
| Dimensions | 142 x 77 x 40 mm |
| Weight | Meter: ca. 130 g<br>Impact device: 75 g |
| Cable length | approx. 1.2 m |

**Optional accessories:**

| | | | |
|---|---|---|---|
| Surface adaptor for concave spherical surfaces | Order code | HK16.5-30 | 16.5 ... 30 mm |
| Surface adaptor for concave spherical surfaces | Order code | HK12.5-17 | 12.5 ... 17 mm |
| Surface adaptor for concave spherical surfaces | Order code | HK11-13 | 11 ... 13 mm |
| Surface adaptor convex | Order code | Z25-50 | 25 ... 50 mm (outside) |
| Surface adaptor convex | Order code | Z10-15 | 10 ... 15 mm (outside) |
| Surface adaptor concave | Order code | HZ16.5-30 | 16.5 ... 30 mm (inside) |
| Surface adaptor concave | Order code | HZ12.5-17 | 12.5 ... 17 mm (inside) |
| Surface adaptor concave | Order code | HZ11-13 | 11 ... 13 mm (inside) |

Subject to change without notice

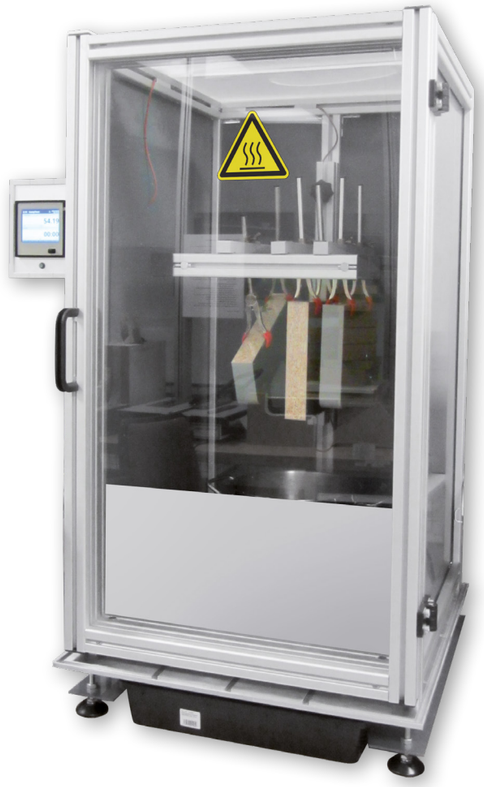
## EVAPORATION CABINET PCE-DLT 10

### Automatic test sequence/ for up to 5 samples

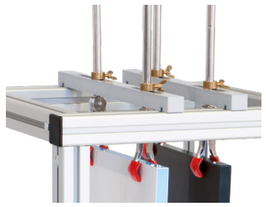
With the evaporation cabinet PCE DLT 10, the water vapour resistance of samples (ideal size: 300 x 200 mm) is tested according to AMK-MB-005 Humidity and Climatic Resistance Test Module 1 (water vapour loading). A test with an evaporation cabinet simulates placement of a piece of furniture above cooking hobs, kitchen sinks or dishwashers – wherever water vapour can occur. The extra large water container is a special feature of this evaporation cabinet. It enables ideal use of the test chamber. It makes sure that the same test conditions apply in the complete test cabinet.

ISO cal option

- evaporation cabinet for steam test according to AMK-MB-05
- max. 5 samples
- automatic test sequence with constant temperature
- data logger
- good-bad indication of temperature
- determination of moisture expansion
- checking of joint formation and edge release



## APPLICATION




## TECHNICAL SPECIFICATIONS

**An extractor fan should be installed where the evaporation cabinet is used to be able to extract the amount of water vapour that will leak out.**

| | |
|---|---|
| Test method | nased on AMK-MB-005 (04/2015) |
| Temperature control range | automatic 50 ... 52 °C |
| Heating capacity | 3000 W |
| Measurement display | colour touch LCD |
| Measurement memory | 1.5 GB (>1 million measured values) |
| Storage rate | max. 10 Hz (adjustable) |
| Interface | USB (for USB pen drive)<br>Ethernet (optionally selectable) |
| Temperature sensor | PT100 class A 4 conductors |
| Power supply | 230 V AC / 50 Hz CEE 16 A plug Abmessungen 1130 x 720 x 690 mm |
| Gewicht | approx. 36 kg |

**Optional accessories:**

Sampling of workpieces Order code PCE-Service 7/2

We would be pleased to perform a sampling of your workpieces at our company.

Subject to change without notice

# AIR FLOW MEASUREMENT

## ANEMOMETER / ALARM CONTROLLER PCE-WSAC 50

### Anemometer with pre-alarm and full alarm / wind speed display

This wind speed alarm controller is suitable for lots of different applications. The anemometer can measure the slightest wind movements.
The wind alarm controller can be used to monitor the curremt wind speed but also to get an average value of the wind velocities measured in the last two or five minutes. If wind speeds are higher than the preset values, a pre-alarm is first applied before the full alarm is emitted. Both alarms are visual and audible.

ISO calibrated

- wind speed alarm controller with adjustable alarms
- 2 alarm types
- power supply: 230 V AC
- input signal: 4...20 mA
- communication: RS485
- 2 alarm relays
- beep sound for alarm
- sensor supply via display unit


## APPLICATION

## TECHNICAL SPECIFICATIONS

| | |
|---|---|
| Power supply | 230 V AC |
| Supply voltage for sensors (output) | 12 V DC<br>24 V DC |
| Measurement range | 0 ... 50 m/s |
| Measuring accuracy | ±3 % of measurement range |
| Signal input | 4 ... 20 mA |
| Alarm relay | 2 x changeover contact 220 V AC / 10 A |
| Interface | RS485 (optional) |
| Operating temperature | -20 ... +60 °C |
| Protection class | IP66 |
| Dimensions | 197.5 x 90 x 45 mm |

**Optional accessories:**

| | | |
|---|---|---|
| Sensor cable 25 m | Order code | PCE-WSAC 50-SC25 |
| Mounting bracket | Order code | PCE-FST 200-201 MNT |
| Wind sensor | Order code | PCE-FST-200-201-U voltage output |
| Wind sensor | Order code | PCE-FST-200-201-I current output |

**Power supply and sensor input signal individually selectable:**

| | |
|---|---|
| Power supply | 230 V AC 115 V AC<br>24 V DC |
| Sensor input signal | 4 ... 20 mA<br>0 ... 10 V |

**Wind sensor and interface optional (at extra cost)**

Subject to change without notice

## Material Flow Index TesterPCE-MFI 400

### Melt mass flow rate of plastics

The plastometer is used for rapid testing of the melt mass flow rate of plastics. The plastics testing device is designed for both incoming goods inspection and continuous production monitoring. The clear display of all relevant parameters on the 7" touch screen makes it possible to make measurements very quickly. The automatic cutting function additionally contributes to the high reproducibility of the plastics tester. Some saved standard plastics make some cumbersome configuration processes unnecessary. These include PS, PP, PE, ABS, PC, PMMA and many more.

- large 7" TFT touch display
- clear presentation
- heating temperature up to +400 °C
- pre-set materials
- robust metal housing
- different weights included


## APPLICATION

## TECHNICAL SPECIFICATIONS

| | |
|---|---|
| Measurement rate | |
| Melting rate | 0.1 ... 400.0 g / 10 min |
| Temperature | +120 ... +400 °C |
| Measuring accuracy temperature | ±0.2 °C |
| Resolution | 0.1 °C |
| | |
| Test load | 0.325 ... 21.6 kg |
| Test piston Ø | 9.48 mm |
| Capillary Ø | 2.095 mm |
| Standards | ISO1133-1997, ASTM 1238-04C, GB/ |
| T3682-2000 | |
| | |
| Display | |
| Type | 7" LCD touch display |
| Resolution | 800 x 480 pixels |
| Colour depth | 16000 colours |
| | |
| Dimensions (without test load) | 500 x 320 x 500 mm / 19.7 x 12.6 x 19.7 in |
| Weight (without test load) | approx. 15 kg / 33 lbs |
| Power supply | 90 ... 264 V AC |
| Power consumption (at full load) | approx. 0.6 kVA |

Subject to change without notice

# INDUSTRIAL WEIGHING

## HYDRAULIC LIFTING TABLE SCALES PCE-HLTS 500

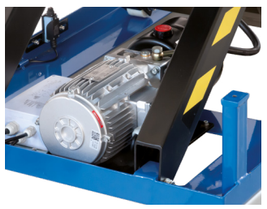
### Infinite height adjustment for back-friendly use

Thanks to the infinitely variable height adjustment, the hydraulic lifting table scales help you work faster, more comfortably and with less strain on your back. This industrial scale model consists of a robust scissors lift table with an individual working height of 350 …. 1130 mm / 13.8 ... 44.5 in. The hydraulic lifting table scales can lift a load of up to 500 kg / 1102.3 lbs and weigh it with a resolution of 0.2 kg / 0.4 lbs. The industrial hydraulic lifting table scales offer a working surface of 1300 x 850 mm / 51.2 x 33.5 in surrounded by a safety edge which in the event of a jam interrupts the lowering process immediately in order to avoid personal injury.

ISO cal option

- infinite height adjustment from 350… 1130 mm / 13.8 ... 44.5 in
- weighing range up to 500 kg
- resolution 0.2 kg
- lifting and lowering the platform by pushing a button
- RS232 interface
- all-round safety terminal strip
- summing function
- target / actual check of the total weight
- piece counting function
- external control unit with lifting button, lowering button and emergency stop
- lowering process not possible in the event of a power failure thanks to safety valve

## APPLICATION



## TECHNICAL SPECIFICATIONS

| | |
|---|---|
| **Lifting table** | |
| Load | 500 kg / 1102.3 lbs |
| Lift range | 350 … 1130 mm / 13.8 ... 44.5 in |
| Lift | 780 mm / 30.7 in |
| Lift drive | hydraulic |
| Platform size | 1300 x 850 mm / 51.2 x 33.5 in |
| Platform type | closed |
| Lifting speed without load | approx. 60 mm / s |
| Lifting cycles | max. 10 per hour / max. approx. 30,000 |
| Control panel | lifting button, lowering button and emergency stop<br>cable length approx. 3 m / 9.9 ft |
| Power hydraulic pump | 2.2 kW |
| Power supply lift table | 380V / CEE 16A |
| Cable length | approx. 3.5 m / 11.5 ft |
| Weight | approx. 225 kg / 496 lbs |
| **Scales** | |
| Weighing range | 500 kg |
| Resolution | 0.2 kg |
| Measurement uncertainty | ±1 kg |
| Taring | Multiple taring across the entire weighing range |
| Display | LCD with a digit height of 25 mm / 1 in |
| Display assembly | tripod / operating height 115 mm / 4.5 in |
| Length of cable to display | approx. 5 m |
| Interface | RS-232 / Sub D9 / male |
| Power supply | rechargeable 6 V battery / 9 … 12 V mains adaptor |
| Weight | approx. 55 kg |

**Further model of the PCE-HLTS series:**

| | |
|---|---|
| PCE-HLTS 2T | Weighing range up to 2 t |

Subject to change without notice

# AIR MONITORING

## ENVIRONMENTAL METER PCE-AQD 50

### Temperature, humidity, atmospheric pressure, $CO_2$ / measurement range up to 40,000 ppm

The environmental meter is specially designed for long-term monitoring of climatic conditions in, for example, offices, classrooms or lecture halls. Among other things, the air quality meter has a carbon dioxide sensor up to 40,000 ppm, a temperature sensor with a measuring range between 0 ... 50 °C, an ambient humidity sensor with a measuring range between 0 ... 100% RH and a barometer with a measuring range between 300 ... 2000 hPa. The air quality meter can therefore be used in many applications due to its large number of sensors. The measured values are shown directly on the e-paper display of the air quality measuring device. A good / medium / bad rating of the carbon dioxide content in the ambient air is also displayed.

- battery life of up to 10 months
- measuring range up to 40,000 ppm $CO_2$
- 32 GB data storage
- temperature and humidity sensor
- csv file format
- E-paper display with histogram display
- display of atmospheric pressure
- good / medium / bad rating


## APPLICATION

## TECHNICAL SPECIFICATIONS

| | |
|---|---|
| **Temperature** | |
| Measuring range | 0 ... +50 °C / 32 ... 122 °F |
| Resolution | 0.1 °C |
| Accuracy | ±0.15 °C @ 0 ... 20 °C / 32 ... 60 °F<br>±0.1 °C @ 20 ... 50 °C / 68 ... 122 °F |
| **Ambient Humidity** | |
| Measuring range | 0 ... 100 % RH |
| Resolution | 0.1 % RH |
| Accuracy | ±1.5 % RH @ 0 … 80 % RH<br>±2 % RH @ 80 … 100 % RH |
| **Atmospheric Pressure** | |
| Measuring range | 300 ... 2000 hPa |
| Resolution | 0.1 hPa |
| Accuracy | ±2 hPa @ 25 °C / 77 °F and 750 ... 1100 hPa<br>±4 hPa @ 0 ... +50 °C / 32 ... 122 °F<br>and 300 ... 1200 hPa |
| **$CO_2$** | |
| Measuring range | 0 ... 40000 ppm |
| Resolution | 1 ppm |
| Accuracy | ±(30 ppm + 3% of measured value)<br>@ 400 ... 10000 ppm @25 °C / 77 °F<br>±(6 ... 10 % of measured value)<br>@ 0 ... 400 ppm or 10000 ... 40000 ppm |
| **Temperature Stability** | 2.5 ppm/°C @ T = 0 ... 50 °C / 32 ... 122 °F, 400 ... 10000 ppm |
| Further Specifications | |
| Display | 2.7" E-Paper |
| Battery life* | ca. 10 months for the measurement intervals:<br>Temperature: 60 minutes<br>Ambient humidity: 60 minutes<br>Atmospheric pressure: 60 minutes<br>$CO_2$: 60 minutes |
| *further information on battery life can be found in the instructions | |
| Storage capacity | MicroSD card with 32 GB of storage for<br>a total of 1 trillion measuring points |
| Sampling intervals | 30s, 1 min, 2 min, 10 min, 15 min, 30 min,<br>1 h, 2 h, 6 h, 12 h, 24 h |
| Power supply | battery 7.4 V DC / 3400 mAh, Li-Ion battery |
| Power supply | mains power adapter 12 V DC / 1.5 A |
| Protection class | IP30 |
| Operating conditions | 0 ... +50 °C / 32 ... 122 °F<br>0 ... 100 % RH, non-condensing |
| Storage conditions | -20 ... +60 °C / -4 ... 140 °F<br>0 ... 100 % RH, non-condensing |
| Dimensions | 128.5 x 88.5 x 41 mm / 1.1 x 3.4 x 1.6" |
| Weight | 300 g / 10.5 oz |

Subject to change without notice

# WATER ANALYSIS

## WATER ANALYSIS METER PCE-CP Series

### Multi-parameter photometer with Bluetooth interface

The multi-parameter photometer is a mobile measuring device for liquid analysis. This means that the most varied of measurements can be carried out with the multi-parameter photometer. With this multi-parameter photometer, for example, it is possible to determine alkalinity, chlorine, cyanuric acid or the pH value. In order to carry out a measurement with the multi-parameter photometer, a water sample of 10 ml must be placed in a cuvette. The LED built into the multi-parameter photometer generates a test light in the wavelength ranges of 503 nm, 570 nm and 620 nm. A photodiode now recognizes the value to be measured based on the light transmission of the sample.

- different selectable parameters
- Bluetooth connection
- with free app and software
- exchangeable and lockable cuvette
- LED with different wavelength ranges
- automatic shutdown when inactive


## APPLICATION

## TECHNICAL SPECIFICATIONS

| | |
|---|---|
| Units | mg/l, ppm |
| Hardness units | mg/l CaCO3, mmol l KS 4.3, °dH (degree of German hardness), °e (degree of English hardness /degree Clark), °f (degree of French hardness) |
| Calibration | Zero point calibration |
| Light source | 503 nm / 570 nm / 620 nm LED |
| Light detector | Photodiode |
| Dimensions of the cuvette | 36 x ø 21 mm / 3.6 x ø 2.1 cm (10 ml) |
| Menu languages | English, German, French, Spanish and Italian |
| Memory | Automatic storage of 256 measured values |
| Operating and storage conditions | 5 … 45 °C / 41 ... 113 °F<br>20 ... 90 % RH non-condensing |
| Interface | Bluetooth connection with app and PC software |
| Automatic shutdown | After 300 seconds of inactivity |
| Power supply | 4 x 1.5 V AA batteries |
| Dimensions | 165 x 95 x 50 mm / 6.5 x 3.7 x 2 inch |
| Weight | 230 g |

**Further models:**

| | |
|---|---|
| PCE-CP 04 | pH value, alkalinity, total hardness, calcium hardness |
| PCE-CP 10 | pH value, free chlorine, total chlorine, cyanuric acid, alkalinity |
| PCE-CP 11 | pH value, free chlorine, total chlorine, cyanuric acid, total hardness, iron |
| PCE-CP 20 | pH value, free chlorine, total chlorine, cyanuric acid, alkalinity, total hardness, calcium hardness |
| PCE-CP 21 | pH value, free chlorine, total chlorine, cyanuric acid, bromine, iron, iodine |
| PCE-CP 22 | pH value, urea, iron, nitrite, nitrate, phosphate, ammonia, copper, potassium |
| PCE-CP 30 | pH value, free chlorine, total chlorine, cyanuric acid, alkalinity, total hardness, calcium hardness, active oxygen, chlorine dioxide, bromine, urea, hydrogen peroxide - small measuring range (LR), hydrogen peroxide - large measuring range (HR), PHMB (polyhexanide), ozone |

**Optional accessories:**

| | |
|---|---|
| PCE-CP X0 Tab Kit Hydrogen Peroxide HR | Reagent kit for Hydrogen Peroxide High Range |
| PCE-CP X0 Tab Kit Calcium Hardness | Reagent kit Calcium Hardness |
| PCE-CP X0 Tab Kit Total Hardness | Reagent kit Total Hardness |
| PCE-CP X0 Tab Kit ClO2 Br2 Cl | Reagent kit bromine or chlorine dioxide in water containing chlorine |
| PCE-CP X0 Tab Hydrogen Peroxide LR | Reagent tablets for Hydrogen Peroxide Low Range |
| PCE-CP X0 Tab Cyanuric Acid | 50 cyanuric acid tablets |
| PCE-CP X0 Tab Phenol Red | Reagent tablets for pH Value Measurement |
| PCE-CP X0 Tab PHMB | 50 polyhexanide tablets |
| PCE-CP X0 Tab Alkalinity | 50 alkalinity tablets |
| PCE-CP X0 Tab Kit Urea | Tablets and liquid reagent for the determination of: Urea |
| PCE-CP X0 Tab Kit Cl2 O3 | Reagent kit Chlorine or Ozone in Chlorine-free Water |
| PCE-CP X0 Tab Kit Ammonia | 50 Ammonia No1 Tablets. |
| PCE-CP X0 Tab Glycine | Bromine Auxiliary Tablets PCE-CP X0 Tab Glycine |
| PCE-CP X0 Tab DPD 3 | DPD N° 3 Reagent Tablets for Free Chlorine, Total Chlorine |
| PCE-CP X0 Tab DPD 1 | DPD N° 1 Reagent Tablets for Free Chlorine |
| PCE-CP X0 Tab PL Urea No1 | 30 ml liquid reagent for 375 measurements of: Urea |
| PCE-CP X0 Tab PL Urea No2 | 10 ml liquid reagent for 250 measurements of: Urea |

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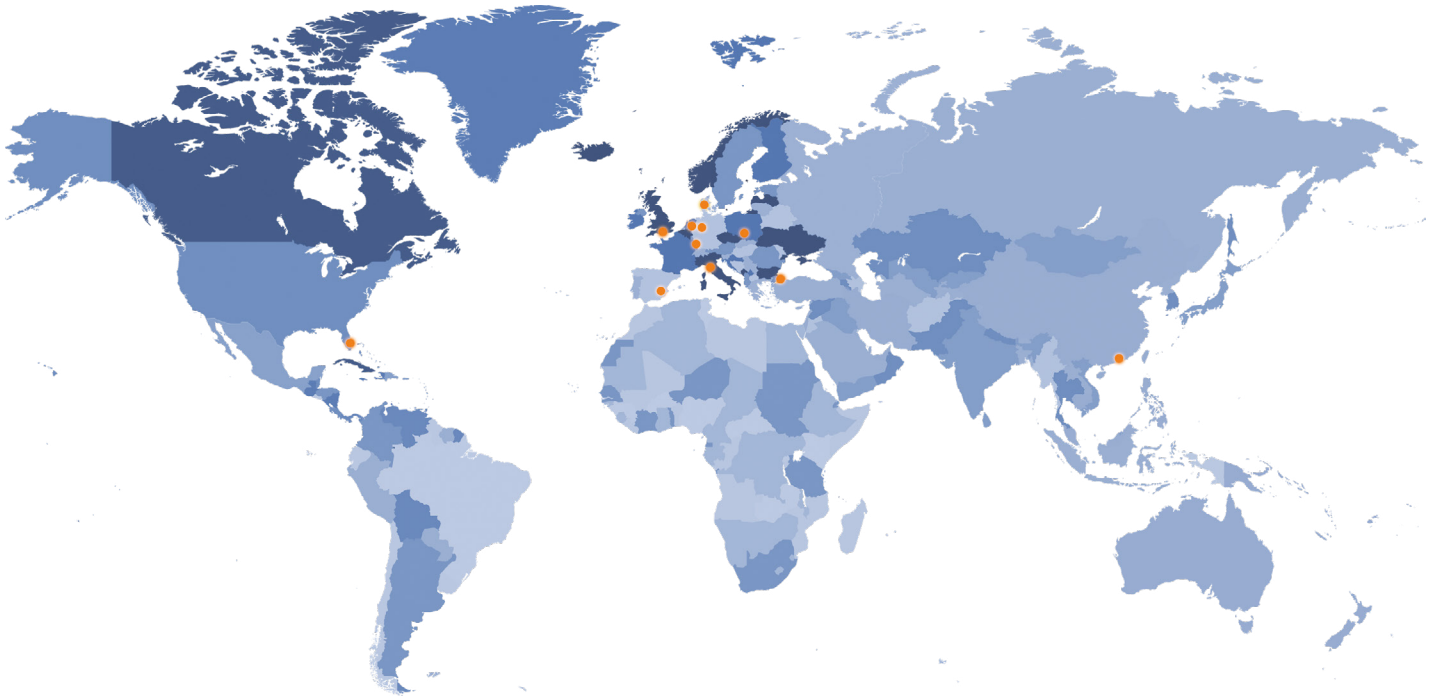
# COMPANY LOCATIONS



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| | |
|---|---|
| Germany | PCE Deutschland GmbH |
| Spain | PCE Iberica S.L. |
| USA | PCE Americas Inc. |
| UK | PCE Instruments UK Ltd. |
| France | PCE Instruments France EURL |
| Italy | PCE Italia s.r.l. |
| Hong Kong | PCE Instruments Hong Kong Ltd. |
| Turkey | PCE Teknik Cihazlar Ltd. Şti. |
| The Netherlands | PCE Brookhuis B.V. |
| Poland | PCE Instruments Polska Sp. z. o. o. |
| Denmark | PCE Instruments Denmark ApS |