PCE Instruments

Condition Monitoring

Measurement Technology from Sauerland

Dear readers,

PCE Instruments is a leading supplier of first-class products and solutions in the field of measuring, control, weighing and laboratory technology. Founded 19 years ago, the company is directly represented in 11 countries; in nine other countries, PCE also cooperates with engineering firms or commercial agents as sales and service partners. The product portfolio covers a broad, diversified range, which includes a big number of the own PCE series products, developed and produced at its headquarter in Germany, which are sold under the trademark „PCE Instruments“.

Products, complete solutions and services – comprehensive know-how for the solution of your technical tasks. It may be for company or institutional teaching, research and development, for the industrial production with the purpose to increase efficiency and productivity, or for the general acquisition of measurement and weighing data for the economic evaluation of projects / products – PCE Instruments has the customized solution ready for you.
Our technicians and engineers are happy to answer your questions and provide consultation free of charge.

Sincerely yours,

Andreas Barth,
Managing director of the PCE Holding Ltd.

PCE Instruments Headquarter Germany

Building I

PCE Produktions- und Entwicklungsgesellschaft mbH

Building II

PCE Instruments UK Ltd
Units 11 Southpoint Business Park
Ensign Way, Southampton
Hampshire
United Kingdom, SO31 4RF

Sales
+44 (0) 2380 98703 0

Technical Support
+44 (0) 2380 98703 4

www.pce-instruments.com

Email
info@industrial-needs.com

PCE Produktions- und Entwicklungsgesellschaft mbH
Building II
Im Langel 26
59872 Meschede
Germany

www.pce-instruments.com

Email
info@pce-instruments.com

Products and Services
for a wide range of applications

The comprehensive product and service program of PCE Instruments offers you high precision and flexibility in all applications as well as outstanding quality and functionality. Below you may find an overview of the areas we work in.

Measurement Technology

The field of measurement technology covers a large number of innovative, mobile and stationary products for the determination of electrical, mechanical, biological, chemical and environmental parameters.

Measurement technology allows determination of quantitative and qualitative parameters in the scientific and technical field. The product range of PCE Instruments covers all measurement tasks from „A“ to „Z“.

PCE Instruments metrology is used successfully worldwide in research and development, in universities, in industry and crafts.

Weighing Technology

PCE Instruments‘ weighing technology includes a variety of possibilitiess in order to offer the customers the best solution to their weighing challenging tasks.

We have a wide standard range of high-quality, calibrated and verified scales. Our weighing technology can be found in the laboratory sector (analytical balances / precision balances) as well as in industry (roller scales / silo scales).

Another strong point is the development of individual weighing systems for special weighing tasks such as e.g. experimental tests or integration into existing systems.

Control Systems

The range of control systems covers the entire demand for sensors, display devices, controllers and paperless recorders. The measuring and control systems covers the complete demand for continuously applicable measurement technology. Here you will find solutions for measuring and controlling of the process variables: temperature, humidity, material moisture, pressure (absolute and relative), vibration, force and electrical energy. Standardized measuring and bus signals make it possible to provide the process variables cross-platform and plant-wide.
In addition to the individual products from the range of control technology, we also offer ready-to-connect and ready-to-use special solutions for your application.

Development

We offer both device series of our own trademark PCE Instruments, as well as modified test equipment according to customer requirements, which we design and manufacture especially for the customer.

Our skilled engineers and technicians work closely with the customer to clearly define the right specifications, to ensure that the provided measurement technology, as minimum, meets and in the majority of cases exceeds the expectations.

If you want to implement a project, then just contact us; our firmware, software and mechanical engineers are there to help you with words and deeds.

Production

Each individual measuring device of PCE Produktions- und Entwicklungsgesellschaft mbH is not only assembled in Germany but also calibrated and delivered with a corresponding certificate. Of course, the reference devices have a valid DAkkS calibration or comparable certificate. This ensures traceability to national or international standards. By this procedure it is provided that each meter complies with the specified specifications.

All production processes are controlled by the ISO 9001 certified quality management.

Service

Since 1999, the engineers at PCE have been providing quality services to the customers from all over the world. We can offer our customers solutions that are customized to their needs in terms of features, costs and time schedule. Thus, we ensure that our customers are not only provided with the necessary measuring equipment, but that they can also take advantage of professional services, as well as our technical advice before and after the sale.

If required, we also use our expertise to install, set up and test the measurement and test equipment.

Precision and Safety - guaranteed

All from One Source

The calibration of test equipment increases the precision and safety in your manufacturing process and thus helps to avoid extra work or even spoilage and rejects.

The calibration includes: function test of your measuring instruments, calibration according to standard specifications, minor repairs, detailed certificate according to ISO specifications, calibration label with calibration number and date of re-calibration.

PCE guarantees the complete return of your measuring instruments to national and international standards. Your in-house quality system sets the calibration interval. The test equipment management of PCE reminds you of the next calibration date.
All from one source.
If you order an article from this catalog or from our online shop with a calibration certificate, we will immediately send this meter to our calibration department.

- Pressure
- Flow
- Gas
- Gloss
- Force
- Mass
- Material thickness
- Material hardness
- Material conductivity
- Process signal
- Relative humidity
- Sound
- Layer thickness
- Vibration
- Temperature


CERTIFICATE
QUALITY MANAGEMENT
The company
PCE Instruments
Innovation and R&D
PCE Produktions- und Entwicklungsgesellschaft mbH
Im Langel 26
59872 Meschede
has introduced and implemented a
Quality Management System
for the scope:
Development, distribution, production, calibration, schooling and repair within the field of the measurement instrumentation
Proof has been furnished that the requirements according to
DIN EN ISO 9001 : 2008
are fulfilled.
Compliance with the above standard was ascertained by a quality audit.
This certificate is valid from May, 21st 2015 until May, 20th 2018.
ESC Cert GmbH
Kassel, May, 21st 2015
Certificate No.: 59872/03-15_e
Dr. Ralf Rosner
Head of the Certifying Authority
ESC Cert GmbH, Teutonenstr. 14 D-34130 Kassel
IAF
DAkkS
CERTIFICAT
ZERTIFIKAT

There the calibration certificate for this device is issued. Afterwards, the device including the calibration certificate will be sent to you at once.

For some meters we offer an optional calibration, for many testers an ISO calibration is already included.

You can immediately see by the following symbols:

ISO calibrated ISO Calibration Certificate included

ISO cal option ISO Calibration Certificate optional

Calibration Test Stand for Flow in Liquids

Tachometer PCE-T236

For contact and non-contact rpm measurement

The PCE-T236 tachometer can be used for non-contact or mechanical contact measurement.

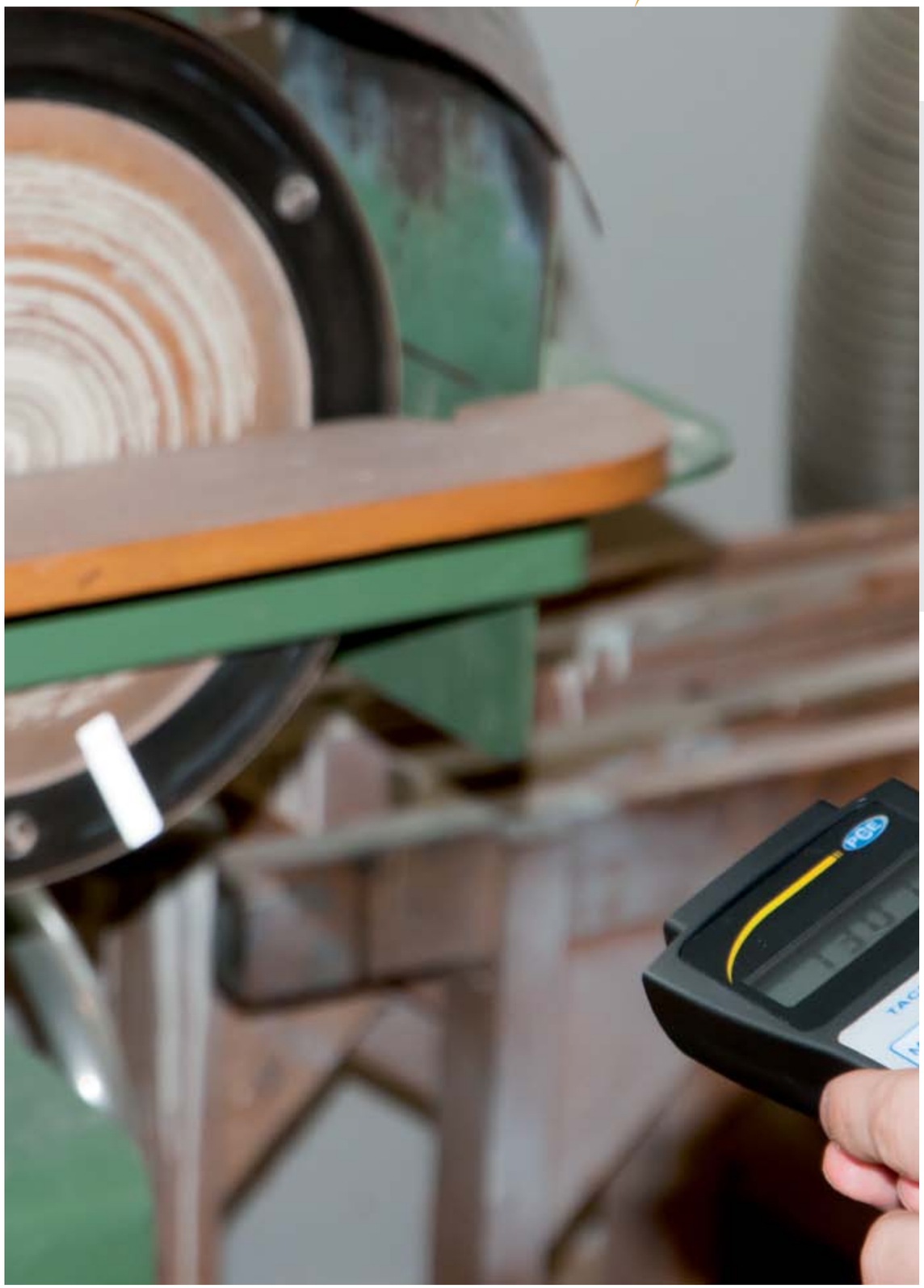
The handheld tachometer is particularly suitable for registering revolutions and speeds on rotating machines and systems (on conveyor belts, motors, belt drives ...). The measurement is either contactless with the help of a reflex mark, which is glued to the rotating part or by means of one of the included, attachable mechanical adapters, with a measuring tip or measuring wheel (see image).

The tachometer has a button for four selectable measuring ranges and for min./max. memory. In addition to its use in all branches of industry, this handheld tachometer is also used in operational and institutional research and development.

- the handset measures optically, non-contact via the provided reflection tape (600 mm)
- contact measurement of rpm via cone adapter (for stub shaft or center hole)
- contact measurement of m / min via surface gear
- the LCD automatically rotates 180 °
- measuring adapter is replaceable and available separately as a spare part

Specifications	
Ranges	5 ... 99999 rpm (optical measurement) 0,5 ... 19999 rpm
(contact measurement)	0,05 ... 1999 rpm
(contact measurement)	0,2 ... 6560 ft/min (contact measurement)
Resolution	0,5 ... 999,9 = 0,1 rpm; up to 99999 = 1,0 rpm (opt. measurement) 0,5 ... 999,9 = 0,1 rmp; up to 19,999 = 1,0 rpm (contact measurement) 0,05 ... 99,99 = 0,01 m/min; bis 1999 = 0,1m/min (contact measurement) 0,2 ... 999,9 = 0,1 ft/min; up to 6560 = 1 ft/min (contact measurement)
Accuracy	± 0,05 % fs; ±1 digit
Max. distance for optical measurement	300 mm / 11.8 in
Memory	last value, Maximum, Minimum value
Power supply	4 x 1,5 V AAA batteries (Mignon)
Operating temp.range	0 ... + 50 °C
Housing	ABS-plastic
Rotations display	LCD-Display, 5-digit, rotates automatically, depending on the type of speed measurement automatically
Dimensions	65 x 215 x 38 mm
Weight	300 g / < 1 lb

ISO cal option



Tachometer PCE-T 260 (6 in 1)

With Optical and Contact rpm and Temperature Measurement

The combined tachometer stroboscope is a measuring device for use in maintenance, servicing and production.
In addition to the stroboscopic function, the tachometer stroboscope also has an option to measure (via contact) rotational speeds and temperatures. Thus, the tachometer is ideal for testing the rotational speeds and temperatures of centrifuges, motors, fans and many other machines and systems used in industry and research.
The special feature is the combination of these measurement parameters in one housing.
The tachometer stroboscope has a measuring range of 0.5 ... 99.990 rpm, the IC circuit in conjunction with a bright red LED lamp ensures the device has low power consumption and is virtually maintenance-free.

The tachometer strobe is set via pushbuttons (for coarse and fine adjustment).

- powerful LEDs
- non-contact temperature measurement
- temp. measurement with sensor type K o. PT 1000
- 5-digit 10 mm LCD display
- red stroboscope light

Software

RPM Measurement

Specifications

Technical Data of Tachometer Stroboscope PCE-T 260 Optical	
Measuring range	5 ... 99999 rpm
Resolution	0,5 rpm (< 1000 rpm) 1 rpm (>1000 rpm)
Accuracy	±0,05 % + 1 digit
Distance to the object	50 ... 150 mm / 2 x 5.9 in, max. 300 mm / 12 in (depending on ambient light)
Techn. Data of Tachometer Stroboscope PCE-T 260 Contact	
Measuring range	0.5 ... 19999 Rpm
Resolution	0.5 Rpm (< 1000 Rpm) 1 Rpm (>1000 Rpm) 0.05 m/min (<100 m/min) 0.1 m/min (>100 m/min)
Accuracy	±0.05% + 1 Digit
Techn. Data of PCE-T 260 Stroboscope	
Measuring range	100 ... 99990 FPM
Resolution	0.1 FPM (< 1000 FPM) 1 FPM (1000 ... 30000 FPM) 5 FPM (30000 ... 50000 FPM) 1 FPM (50000 ... 99990 FPM)
Accuracy	±0.1% + 2 digis
Flash lamp	3 x LED (red)
Techn. Data of PCE-T 260 Temperature Type K	
Measuring range	-100 ... 1300°C / 148 ... 2372°F
Resolution	0.1°C
Accuracy (device only)	±0.4% + 1°C / 33°F (-100 ...-50°C / -148 ... -58°F) ±0.4% + 0.5°C / 32°F (-50 ... 1300°C / -148 ... 372°F)
Techn. Data of PCE-T 260 Temperature PT 1000	
Measuring range	-10 ... 70°C / 14 ... 158°F
Resolution	0.1°C / 32°F
Accuracy (device only)	±1.2°C / 34°F
Techn. Data of PCE-T 260 Temperature IR	
Measuring range	-30 ... 305°C / -22 ... 581°F
Resolution	0.5°C / 33°F
Accuracy	±3% or ±3°C/ ±37°F
Emissivity	0.95 fixed
Spectral range	6 ... 14 µm
Optical resolution	3:1
General Specifications of Tachometer Stroboscope PCE-T260	
Display	5-digit LCD
Interface	RS 232
Power supply	4 x 1.5V AA (UM-3) / DC 9V
Power consumption	approx. 52-mA
Ambient conditions	0 ... 50°C / 122°F < 80 % RH.
Memory	last value, Min, Max
Dimensions	207 x 67 x 39 mm / 8.1x2.6x1.5 in
Weight	255 g / < 1 lb without batteries

ISO cal option

Stroboscope PCE-LES 100

LED-Tachometer with the Range of 60 ... 99.990 Flashes

The PCE-LES 100 LED Tachometer combines LED technology with compact and accurate electronics, which controls the sequence and timing of flash over the entire measuring range.
Due to the LED technology, lamps replacement is not needed anymore. The tachometer is ideal for non-contact rpm measurements and for observation of the working processes of the machinery and equipment, as well as their parts during condition monitoring, while the viewer gets a subjective impression that the object is stationary.
Due to a very wide frequency range and user-adjustable flash length, the LED handheld stroboscope PCE-LES 100 can be used for a variety of purposes, where it is important to make very fast movements visible (e.g. vibration). The compact design and size of the device, and, thus, the possibility to carry it in a pocket enable you to have it at your disposal anytime you need.

- LED technology (no lamp replacement required)
- 60 to 99.990 flashes
- pulse doubling and division possible
- 11-hour battery operation possible
- 2 super-bright LEDs (370 LUX @ 50 cm)

Specifications	
Range	60 ... 99,990 rpm 1 ... 1,666 Hz
Display	5-digit LCD
Impulses/Flash	Possibility of doubling and division/ fine adjstment
Offset	Yes, 360º
Accuracy	
	60 ... 17,300 ±1 LSD 17,300 ... 99,990 ±0.009 %
Light source	LED
Illuminance	370 lux (50 cm distance, 6000 FPS)
Battery	2 x AA batteries
Operating time	11 h
Ambient conditions	-10 ... 50 ºC / 14 ... 122 ºF
Dimensions	124 x 71 x 33 mm / 4.9 x 2.8 x 1.3 in
Weight	173 g / < 1 lb

ISO cal option

Stethoscope PCE-S 42

For monitoring of bearings and motors

The vibration meter PCE-S 42 is used to monitor individual machine parts. With the vibration meter it is possible to carry out maintenance and repair tasks.

Also, its application facilitates the monitoring of sound phenomena in bearings and motors. In this way, it is possible to amplify the noises indicating that there is slight damage to the machine, which, if ignored, could result in severe impairments and damage to the machine.

The vibration meter is supplied with a headset that is perfect for use in a noisy environment due to its shape adapted to the human head. The large, padded ear cups are noise-suppressing and at the same time offer high wearing comfort. The vibration meter is mostly used to clearly determine the knocking and grinding sounds.

- frequency range: 30 Hz ... 150 KHz
- for preventive maintenance
- noise-suppressing headphones incl.
- simple operation – 32 volume levels
- two different measuring tips

Specifications	
Frequency range	30 Hz ... 150 KHz
Operating temperature	-10 ... +40 °C
Output volume	digitally adjustable (32 levels)
Headphones	32 Ω
Power supply	4 x 1,5 V AAA batteries
Battery life	30 h
Dimensions	220 x 35 x 35 mm
Length of tips	70 / 280 mm

ISO cal option

Shock Logger PCE-VDL series

Shock logger with up to 2400 Hz

The data loggers PCE-VDL series are available in two versions.
The data logger **PCE-VDL 16I** contains sensors for the following physical units: temperature, humidity, air pressure, light and 3-axis acceleration. The max. sampling rate of the acceleration sensor is 1600 Hz, the other sensors are sampled with max. 1 Hz.

With the data logger **PCE-VDL 24I** the acceleration sensor is even delivered with a sampling rate of 2400 Hz.
Therefore, the shock- and vibration logger is ideally suited for application in fault diagnosis, stress testing, machine inspection, shock measurements and preventive maintenance.
The software provides data representation in graphic formats and tables. This data can be transferred, for example, to MS Excel.

- 3-axis acceleration up to 2400 Hz (Model **PCE-VDL 24I**)
- 3-axis acceleration up to 1600 Hz, temperature, humidity, air pressure and light (Model **PCE-VDL 16I**)
- 2GB SD memory card
- small design: 86.8 x 44.1 x 22.2

Memory and Software

Specifications

Model: PCE-VDL 16I (5 sensors)	
Temperature	
Measuring range	-20 ... 65 ° C / -4° F … 149° F
Accuracy	± 0.2 ° C / 35.6° F
Resolution	0.01 ° C / 33.8 ° F
Max. sampling rate	1 Hz
Humidity	
Measuring range	0 ... 100% RH
Accuracy	± 1.8% RH
Resolution	0.04% RH
Max. sampling rate	1 Hz
Air pressure	
Measuring range	10 ... 2000 mbar
Accuracy	± 2 mbar (750 ... 1100 mbar); otherwise ± 4 mbar
Resolution	0.02 mbar
Max. sampling rate	1 Hz
Light	
Measuring range	0.045 ... 188.000 lux
Resolution	0.045 lux
Max. sampling rate	1 Hz
3-axes acceleration	
Measuring range	± 16 g
Accuracy	0.24 g
Resolution	0.0039 g
Max. Sampling Rate	1600 Hz
Model: PCE-VDL 24I (1 sensor)	
3-axes acceleration	
Measuring range	± 16 g
Accuracy	0.24 g
Resolution	0.0039 g
Max. sampling rate	2400 Hz

Data logger with optional mounting plate PCE-VDL MNT

PCE-VDL 16I

The max. sampling rate of the acceleration sensor is 1600 Hz, the other sensors are sampled with max. 1 Hz.

- integrated sensors: temperature, humidity, air pressure and light
- 3-axis acceleration
- max. sampling rate 1600 Hz

ISO cal option

PCE-VDL 24I

With the data logger PCE-VDL 24I the acceleration sensor is even delivered with a sampling rate of 2400 Hz.

- integrated sensor: 3-axis acceleration
- max. sampling rate 2400 Hz

ISO cal option

PCE-VT 2700 / PCE-VT 2700S

Vibration Meter for Monitoring of Machines and Equipment

The vibrometer is ideal for maintenance staff to quickly inspect vibrating parts, machinery and equipment.
This vibration meter indicates the vibration acceleration, the vibration velocity and the vibration displacement directly on the display.
This allows you to quickly and reliably detect and track imbalances and developing bearing damage with the device. An integrated RS-232 interface allows the data to be transported directly from the vibration meter to the PC.
Also, check the vibration behavior of your machines with this vibration meter and prevent damage (pinpoint the source of the unwanted vibrations).
The vibration meter is usually used for individual assessment of vibration on machinery and equipment by means of vibration path, vibration velocity or vibration acceleration.

- to determine vibration acceleration, vibration velocity and vibration displacement
- peak Hold
- ABS plastic housing
- low battery indicator
- incl. ISO calibration certificate

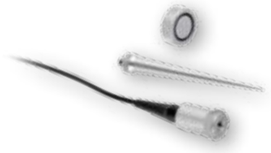
Specifications

Meas. range acceleration	399.9 m/s² (Peak) / 1311 ft/s² (Peak)
Meas. range velocity	399.9 mm/s (RMS) / 15.75 in/s (RMS)
Meas. range displ-ment	3.9999 mm (Pk-Pk) or 158.0 mil (Pk-Pk) / 0.15 in (Pk-Pk) or 5.34 oz (Pk-Pk)
Meas. range revolutions	50 ... 99.900 rpm (reading must be multiplied by 10)
Resolution	0.1 m/s² / 0.1 yd/s² 0.1 mm/s / 0.003 in/s 1 µm / 3.3814e-14 oz ; 1 rpm
Accuracy	± 5% of reading + 2 digits
Freq. range acceleration	9 Hz ... 1 kHz (in 1 kHz mode) / 9 Hz ... 10 kHz (in 10 kHz mode)
Freq. range velocity	10 Hz ... 1 kHz
Freq. range displ-ment	10 Hz ... 1 kHz
Display	4-digit LCD, last measured value is shown
Units	metric / imperial
Interface	RS-232 port
Power supply	3 x 1.5 V batteries AAA / LR03
Battery life	up to 5 hours of continuous operation
Auto power off	after 5 minutes of inactivity (no key pressed)
Low-battery indication	< 2.1 V
Operating temperature	-5 °C ... +55 °C / +23 °F ... 131°F
Operating RH	95 % RH, non-condensing
Enclosure	ABS plastic
Dimensions	142 x 77 x 40 mm / 5.6 x 3.0 x 1.6“
Weight	0.23 kg / 0.5 lb

PCE-VT 2700

The vibration meter is delivered ready to start with sensor tips (2 x 50 mm), touch sensor, magnetic plate, handle and a carrying case.

- Touch sensor on 1.5 m cable
- Nail probe 75 mm
- Magnetic adapter

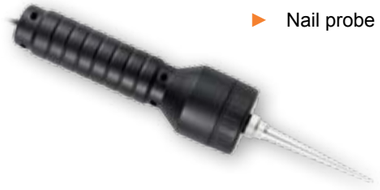


ISO calibrated

PCE-VT 2700S

The vibration meter is delivered ready to start with a sensor tip (1 x 50 mm), handle and a carrying case.

- Handle with 1.5 m cable
- Nail probe 75 mm



ISO calibrated

PCE-VMS 504 / PCE-VMS 501

Wireless Vibration Monitoring System with External Vibration Sensors

The wireless vibration monitoring system PCE-VMS 504 measures vibration in an acceleration range up to 30 g and in a frequency range between 5 Hz and 10 KHz.
The wireless vibration monitoring system uses external vibration sensors, which measure vibration on machines and transmit it wireless to a receiving unit. Due to their magnetic feet, these sensors can easily be docked to machines where they can measure not only the vibration but also the temperature between -20 and +120 ° C.
During the operation, the server socket / web communication sends measured parameters directly to the receiving unit of the wireless vibration monitoring system PCE-VMS 504, which uploads them directly to the server after data acquisition.

- wireless communication via ZigBee
- frequency range between 5 Hz and 10 kHz
- wireless piezo sensors
- temperature measurement up to 120 ° C
- memory (receiving station) 128 MB

Specifications

Vibration system	PCE-VMS 504
Communication type	ZigBee (with PCE-VMS 501) Ethernet, glass fiber cable, wireless (with server)
Frequency band	2.4 GHz
Interfaces	Ethernet 2.0 IEEE802.3, TCP / IP, 10 / 100baseT
Memory capacity	128 MB
Power supply	220 VAC or POE
Operating temperature	-20 ... +50 ° C / -4 ° ... 122 °F
Dimensions	250 x 210 x 100 mm / 9.8 in x 8.3 in x 3.9 in
Weight	2400 g / 5.3 lbs
Transmitter PCE-VMS 501	to vibration monitoring system
Transmission range	max. 100 m / 328 ft in the industrial environment (130 m / 426.5 ft in free field)
Acceleration range	up to 300 m / s²
Frequency range	5 Hz ... 10 kHz
Resonant frequency	16 kHz
Linearity	1%
Cross sensitivity	≤5%
Electrical insulation	<108 Ω
Load limit	1000 g / 2.2 lbs
Measurement parameters	acceleration, speed, displacement, temperature
Transmission interval	min. 1 min. per sensor 1 sensor on 1 box = 1 minute, 3 sensors on 1 box = 3 minutes
A / D conversion	24 bits
Waveform measuring distance	max. 512 kB
Frequency lines	800, 1600, 3200, 6400
Temperature measuring range	-20 ... +120 ° C / -4 °F ... 248 °F
Screw thread	6 mm
Housing material	bottom 316 L st-less steel, top aluminum alloy
Power supply (ER 34335)	1 x 3.6 V lithium battery
Battery life	1 year, depending on the transmission interval
Dimensions	height: 80 mm / 3.1 in, diameter: 40 mm / 1.6 in
Weight	217 g / 0.5 lbs
Protection class	IP 65
Working temperature	-30 ... +70 ° C / 86 °-158 °F (Surface t. up to 125 ° C / 257 °F)

PCE-VMS 504

Wireless vibration monitoring system with external vibration sensors /
for measuring acceleration, velocity, displacement and temperature /
possible extension: up to 60 transmitters per base at max. 6 base stations (360 transmitters).

- great range
- expandable at any time
- transmitter IP 65 protected

ISO cal option

PCE-VMS 501

Vibration sensor for measuring acceleration, velocity, displacement and temperature.

- transmission range approx. 100 m
- acceleration up to 300 m/s²
- waveform measuring distance approx. 512 kB

ISO cal option

Defectoscope PCE-USC 30

Coating Thickness Measurement by means of Eddy Current

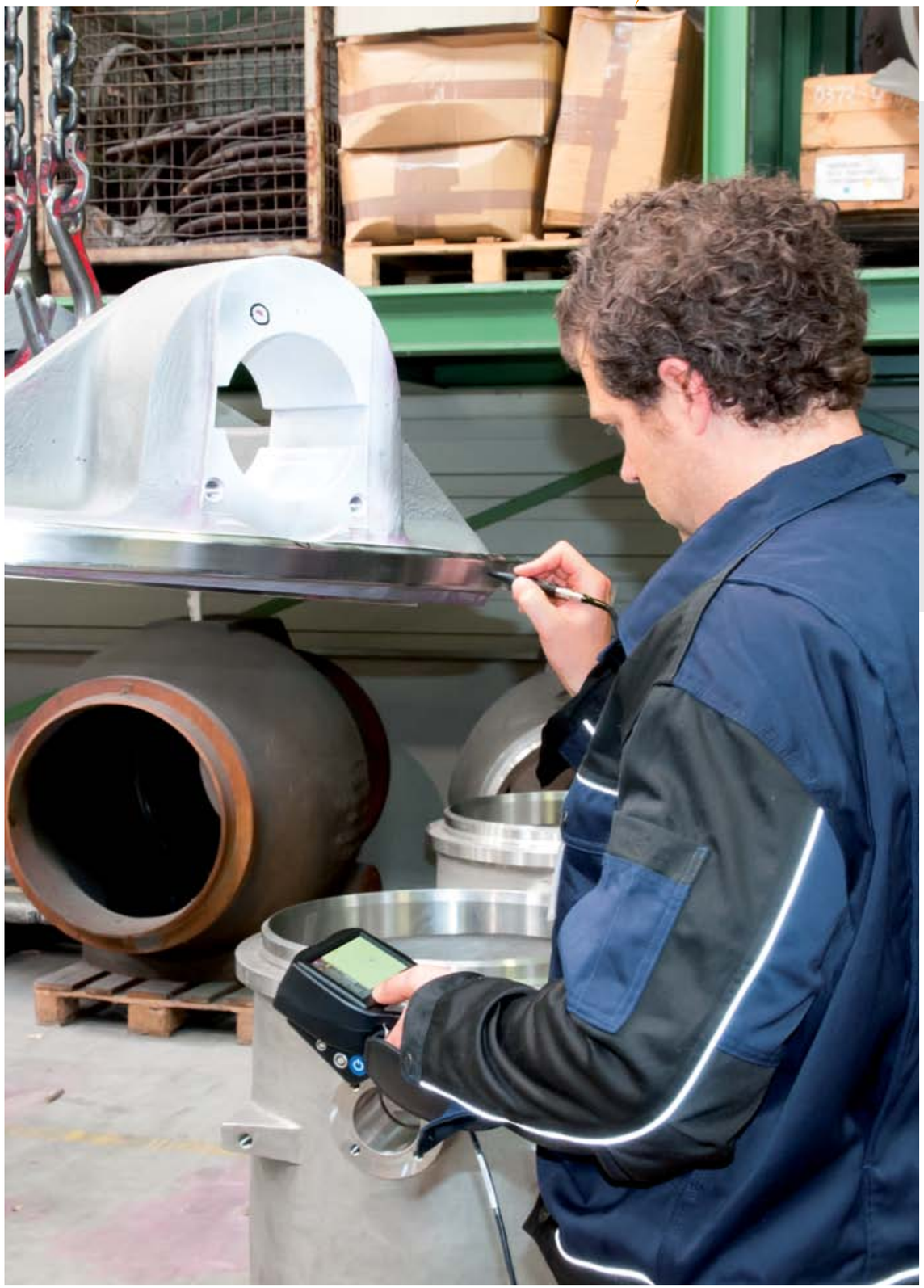
The defectoscope PCE-USC 30 is used for nondestructive material testing.
With the device, the surface defects and near-surface defects can be made visible. The eddy current test is an electrical method for the testing of electrically conductive materials. During the eddy current test, a probe subjected to alternating voltage is placed on an electrically conductive test piece. The magnetic field lines generated perpendicular to the surface of the workpiece induce circular, near-surface eddy currents, resulting in secondary magnetic fields in the test piece.
The secondary fields counteract the primary fields and change them in terms of amplitude and phase measurably. Inhomogeneities and workpiece defects change the eddy current characteristics as well as permeability of the material and thus also the secondary fields.
The eddy current tester PCE-USC 30 is designed for corresponding NDT material tests and can also be used for conductivity measurement and coating thickness determination.

- conductivity measurement of metals according to IACS
- 4.3 “ large color display (TFT)
- NDT testing of surfaces
- material sorting
- frequency range up to 3.5 MHz

Specifications	
Frequency range	0.01 ... 16000 kHz
Probe voltage supply	0, 5, 1, 2, 4, 6V
Signal phase shift	0 ... 360 °
Sampling frequency	0 ... 10 kHz
Duration of signal display	0 / 0.5 / 1/2/3/4 seconds
Alarm	circular
	horizontal line
	circular sector
	Cut-off
Display	color display (TFT)
Display size	4.3 “ (diagonal)
Resolution display	800 x 480 pixels
Amplification adjustment	0 ... 100 dB
Filter	Lowpass filter (1 ... 4000 Hz)
	Highpass filter (1 ... 4000 Hz)
	band filter
	differential filter
	average filter
Average interval between measurement errors	4000 hours
Power supply	12 V battery
Battery capacity	4500 mAh
Battery working time	> 8 hours (per charge)
Operating temperature	-20 ... +45 ° C
Weight	<0.9 kg
Dimensions	230 x 135 x 98 mm

Memory and Software

ISO cal option



Material Thickness Meter PCE-TG 50

Ultrasonic Thickness Meter with the Range 1.2 ... 200 mm

The thickness gauge PCE-TG 50 is a compact measuring device for metals, glass and homogeneous plastics. This material thickness gauge works with an external ultrasonic probe, which conducts ultrasonic waves into the material to be tested.
Different materials conduct ultrasound at different speed, that is why you can select different ultrasonic speeds in the material thickness gauge. With the thickness gauge, you can determine the material thicknesses of metal, glass, plastics and other homogeneous materials within a few seconds.

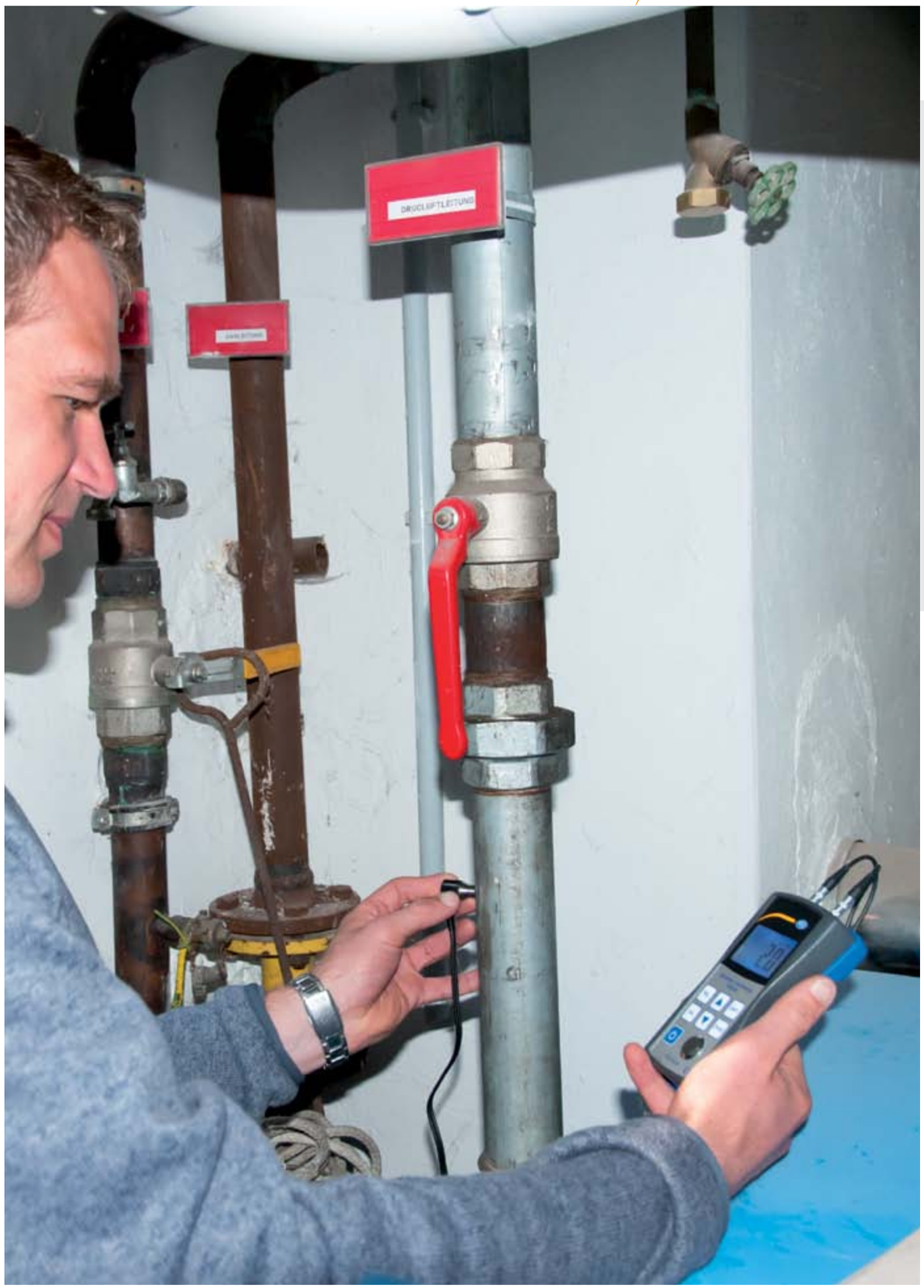
An operation on the thickness gauge is easily done via seven buttons. The built-in calibration block allows this meter to be easily calibrated on-site. All measured values can be transferred to a PC with the optional software and analyzed. Furthermore, the software offers the possibility to export the data in Microsoft Excel.

- ultrasonic probe inculded
- adjustable sound velocity (for different materials)
- measures wall thicknesses from 1.2 to 200.00 mm
- steel block integrated for calibration
- software and interface cable (optional)

Specifications

Measuring range	1.2 ... 200 mm / 0.05 ... 7.87 inches (steel)
Accuracy	± 0.5% of v. Mw. ± 0.1 mm / ± 0.00393701 in
Resolution	0.1 mm / 0.001 in
Sound velocity	800 ... 9950 m / s / 2624.67 ... 32644.36 ft/s
Units	mm / inch (switchable)
Power supply	3 x 1.5 V AAA batteries
Calibration block	5.0 mm / 0.2 in (integrated)
Data output	RS-232 interface
Sensor	frequency 5 MHz measuring surface: Ø8 mm / 0.32 in support surface: Ø10.2 mm / 0.4 in
Head	Ø15.4 mm / 0.61 in
Display	4-digit LCD
Operating conditions	temperature: -10 ... +50 ° C / +14 ... +122° F humidity: <80% RH
Material temperature	0 ... +50 ° C / +32 ... +122° F (perm.) +50 ... +85 ° C / +122 ... 185° F (for 5 minutes; then 30 minutes cooling below +50 ° C / +122° F)
Dimensions of the handheld device	142 x 77 x 40 mm / 5.6 x 3.1 x 1.6 in
Weight	265 g / 0.6 lb (with batteries and sensor)

ISO calibrated



Material Thickness Meter PCE-CT 100

For ferrous and non-ferrous metals

The PCE-CT 100 is a coating thickness measuring device and operates according to the magnetic inductive (ISO 2178) and the eddy current method (ISO 2360).
These methods are used for non-destructive testing of materials. The device measures the thickness of magnetically neutral layers on magnetic or non-magnetic base material. The material thickness gauge is ideal for reliable on-site applications. With the external probe, the layer thickness can be quickly measured even in hard to reach places.

Designed for non-destructive, fast and accurate coating thickness measurement, the PCE-CT 100 is easy to use. Measured data can be easily transferred via USB cable to a PC.
The material thickness gauge is used in particular in the finishing industry, electroplating, shipbuilding and bridge construction, aircraft construction, machine and chemical industry.

- high resolution
- for ferrous and non-ferrous metals
- data transmission via USB
- non-destructive measurements
- including ISO calibration certificate

Memory and Software

Specifications	
Resolution	0.1 µm or <0.2% of the measured value (for probes with a measuring range of up to 1500 µm / 1.5mm / 59 mil) 1 µm or <0.2% of the measured value (for probes with a measuring range of over 1500 µm / 1.5mm / 59 mil)
Display	high-resolution color display, backlit
User guidance	menu on the display: German, English, French, Italian, Spanish, Turkish, Czech, Chinese
Memory	direct mode: max. 1000 readings in Fe (type F) and nFe (type N) mode file memory: max. 100.000 measured values
Calibration	factory calibration zero (one-point calibration) one-foil calibration (two-point calibration) two-foil calibration cal-through-coat calibration
Zero offset	addition of a constant value to the measured value
Statistic parameters	N, x̄, σ, Max, Min, Cp, Cpk, Kvar
Online-statistics-display	x̄, σ, Max, Min
Limits	adjustable with visual and audible signal
Interface	USB 2.0, Bluetooth 4.0
Ambient temperature	0 ... +50 ° C / +32 ... +122 °F
Power supply	3 x mignon (AA) 1.5 V
Dimensions	163mm x 82mm x 40mm / 6.42 x 3.23 x 1.58“ (H x W x D)
Weight	approx. 290 g / 0.64 lb (including batteries)
Degree of protection	IP 52 (protection against dust and dripping water)

ISO calibrated

Hardness Test Instrument PCE-900

Measurement of Material Hardness / 9 Materials Pre-calibrated

The Leeb hardness tester PCE-900 measures the hardness of nine different metals based on the Leeb rebound method. This means for the Leeb hardness tester that an impact device hits a metallic surface and the intensity of the rebound is used as an indicator of material hardness. The hardness tester PCE-900 measures the metal hardness by 5 different hardness scales, including: Rockwell, Vickers, Leeb, Brinell and Shore. In addition, for the measurements by the Rockwell scale, there is a distinction between Rockwell B and C.
As standard, the Leeb hardness tester PCE-900 comes with a type D impact device, which can be used for many measurements. Via the data interface, the measured values can be transmitted live to the PC. The delivery scope is completed by an ISO calibration certificate which traceably certifies the accuracy of the measuring device. This makes the PCE-900 Leeb hardness tester an important instrument in the field of material inspection during the goods control.

- hardness test by the rebound method
- nine deposited material characteristics
- ISO calibration certificate included
- six different hardness scales

Hardness Measurement

Specifications	
Measuring range	200 ... 900 HL
Measuring accuracy	± 0.8% at HLD = 900
Materials	9 different materials
Hardness scales	Leeb: HL Rockwell C: HRC Rockwell B: HRB Brinell: HB Vickers: HV Shore: HSD
Display	12.5 mm / 0.5 in LCD with backlight
Impact device	type D
Memory	50 sets of data
Interface	RS-232
Power supply	4 x 1.5 V AAA batteries
Ambient range	operating temperature: -10 ... 50 ° C / 14 ... 122 °F storage temperature: -30 ... 60 ° C / -22 ... 140 °F relative humidity: <90%
Dimensions	142 x 77 x 40 mm / 5.79 x 3.03 x 1.58 in
Weight	measuring device: approx. 130 g / < 1 lb Impact device: 75 g / < 1 lb
Cable length	approx. 1.2 m / 47 in

ISO calibrated

Metal Hardness Tester PCE-950

Leeb-hardness Tester with Data Storage and Software

The hardness tester PCE-950 can determine the hardness of 9 metals according to the Leeb method.
In this dynamic hardness test method, a small carbide ball hits the test surface.
The quotient of rebound and impact velocity is directly related to the material hardness and can be converted into standard hardness scales such as Vickers, Rockwell or Brinell by means of conversion factors.
The PCE-950 can measure materials such as steel, cast iron, aluminum, copper or bronze in the hardness scales HRC, HRB, HRA, HB, HV or HS.
Thanks to the integrated impact device, and the compact, ergonomic design, the hardness tester can be used to quickly determine the hardness values and store the measured data.
A capacitive data memory as well as the included software facilitate the documentation of the test results considerably. The hardness tester is therefore ideal for the goods receipt and exit control.

- Leeb hardness tester for metallic materials
- measures all common hardness parameters
- integrated impact device
- measuring range 170 ... 960 HLD
- measurement possible in every position


Memory and Software

Specifications

Steel and cast iron	HRC: 19.8 ... 68.5
	HRB: 59.6 ... 99.6
	HRA: 59.1 ... 85.8
	HB: 80 ... 651
	HV: 83 ... 976
	HS: 32.2 ... 115
Hammered steel	HB: 143 ... 650
Cold rolled steel	HRC: 20.4 ... 67.1
	HV: 80 ... 898
Stainless steel	HRB: 45.5 ... 101.7
	HB: 85 ... 655
	HV: 85 ... 802
Gray cast iron	HB: 93 ... 334
Ductile cast iron	HB: 131 ... 387
Aluminum alloy	HRB: 23.8 ... 84.6
	HB: 19 ... 164
Brass	HRB: 13.5 ... 95.3
	HB: 40 ... 173
Bronze	HB: 60 ... 29
Forged Copper alloy	HB: 45 ... 315
Accuracy	± 6 HLD at 730 ... 790 HLD
	± 10 HLD at 490 ... 570 HLD
Repeatability	6 HLD at 730 ... 790 HLD
	10 HLD at 490 ... 570 HLD
Measuring range (total)	170 ... 960 HLD
Hardness scales	HL – Leeb
	HB - Brinell
	HRC - Rockwell C
	HRB - Rockwell B
	HRA - Rockwell A
	HV - Vickers
	HS - Shore

Impact device	type D
Measuring direction	360 °
Display	128 x 32 OLED
Memory	600 memory slots
Power supply	Li-ion battery
Operating time	approx. 50 h
Interface	Mini USB
Dimensions	153 x 54 x 24 mm / 6.02 x 2.13 x 0.95 in
Weight	approx. 250 g / < 1 lb

ISO cal option

Metal Hardness Tester PCE-3500

Non-destructive Hardness Measurement

The UCI hardness tester PCE-3500 is used for the non-destructive hardness measurement of metallic components. The meter's operation is based on the ultrasonic contact impedance method.
The UCI procedure works as follows: a Vickers diamond on the test probe is stimulated by its self-resonance. By pressing the test probe, the oscillation frequency is damped depending on the hardness of the surface and depending on the modulus of elasticity of the workpiece and the contact surface. The hardness of the surface can be determined, on the basis of the resulting frequency shift, taking into account the material characteristics.
The UCI hardness meter works non-destructively. Though a microscopic indentation on the surface takes place, it is usually not visible. Due to the low penetration depth of the Vickers diamond, the device is particularly suitable for surface hardened components, which appear during nitriding or induction hardening. Typical applications include punching tools, presses, gears, turbine blades, camshafts or welds.

- measurement according to the UCI method
- testing of HRC, HRB, HV, HB, MPa
- measuring direction 360 °
- with memory function by SD card
- adaptable to different test probes

Memory and Software

Hardness Measurement

Specifications	
Measuring range	230 ... 940 HV 20 ... 70 HRC 90 ... 650 HB 370 ... 1740 MPa
Measurement accuracy	+/- 3% HV +/- 1.5 HRC +/- 3% HB
Probes	50 N UCI probe (10 N, 98 N UCI probe optional)
Hardness scales	HRC, HB, HV, HRB, HL, MPA
Materials	UCI: steel (ferromagnetic) Leeb: steel, cast iron, stainless steel, aluminum, bronze
Test specimen	136 ° Vickers diamond
Measurement direction	360 °
Minimum material thickness	1 mm (UCI probe only)
Display	backlit, graphic, color LCD
Measuring functions	single measurement, min/max/av. value, number of measurements, averaging, bar chart, standard deviation, coefficient of variation, Smart Mode (filters outliers)
Memory	SD Card
Interface	USB
Ambient conditions	-20 ... + 40 ° C / -4 ... 104°F; 30 ... 80% RH
Power supply	6 V (3 x AA batteries)
Operating time	approx. 10 hours
Dimensions	160 x 75 x 30 mm / 6.3 x 3 x 1.2 in
Protection class	IP 54
Weight	300 g / < 1 lb (without probe)

ISO cal option

PCE-VE 200 / PCE-VE 200-S

Video-Borescope for NDT Machine Diagnostics / Ø 4.5 mm/0.177 in or 3.7mm/0.14 in

The video borescope PCE-VE 200 is a nondestructive inspection camera. Thus, the video borescope is an ideal tool for diagnosing hard-to-reach areas. For example, the areas of mechanical engineering, plumbing and heating, and the entire construction / building industry are among the main application fields of the video borescope. Also, the video borescope is suitable for the use in the automotive industry. The fact that it has a one-meter long camera tube makes it possible to use the video borescope so that in many cases no disassembly of machines or motors is necessary. There are bright LEDs on the camera head that can be controlled and adjusted by the user on the device. The LEDs have different levels of brightness, allowing for optimal illumination at the point of interest. It cannot lead to overexposures, which would cause that the image on the display becomes no longer recognizable, because the camera is dazzled.

- 4.5 mm / 0.177 in or 3.7 mm / 0.14 in cable diameter
- 3.5 “ display
- brightness adjustable on the camera head
- 2600 mAh battery
- SD card slot for micro SD card

Specifications	
Display	3.5 “ LCD
Resolution	video function AVI (640 x 480)
Resolution	image function JPEG (1600 x 1200)
Image rotation	180 ° rotation and mirror function
Freeze-function	yes
Zoom	up to 4x
Storage medium	Micro SD card
Menu languages	German English Spanish French Russian Japanese simplified Chinese traditional Chinese
Interfaces	Micro USB 2.0, TV output, Micro SD card slot
TV output	PAL
Power supply	Li-ion battery
Battery capacity	2600 mAh
Operating conditions	-10 ... +40 ° C, RH <75%
Cable specifications	
Cable diameter	4.5 mm / 0.177 in (PCE-VE 200) 3.7 mm / 0.14 in (PCE-VE 200-S)
Image sensor	1/8 “ CMOS chip
Resolution camera	640 x 480 pixels
Illumination of the cam.	6 white LEDs (intensity can be adjusted)
Field of view or angle	90 °
Field of view depth	15 mm / 0.59 in... 100 mm / 3.93 in
Camera tube length	1 m
Push-cable	semi-flexible (semi-rigid spiral)

Operating temperature:		
main unit / probe	in the air: -10 ... +50 ° C / +14 ... +122 ° F	
	in water: +5 ... +50 ° C / +41... +122 ° F	
Relative humidity	probe and device 15 ... 90%	
Fluid resistance	probe / device	machine / light oil, saline solution 5%
Intrusion protection	probe	water, oil, dust, protection IP67
	Main unit	rain in windy weather (battery compartment must be closed) not under water

PCE-VE 200

The video borescope PCE-VE 200 has a cable diameter of 4.5 mm. Various cables can be connected to the endoscope / large 7 “ LC display for precise viewing / recording to SD card / images can be rotated 360 ° (90 ° steps) / bright LEDs on the camera head / digital zoom

- 4.5 mm / 0.177 in cable diameter
- 1 m cable length
- images are 360° rotatable
- 7 “ LC display

PCE-VE 200-S

The video borescope PCE-VE 200-S is equipped with a camera tube, which is 3.7 mm / 0.14 in in diameter.

- 3.7 mm / 0.14 in cable diameter
- 1 m cable length
- images are 360° rotatable
- 7“ LC display.

PCE-VE 1000 / PCE-VE-2W3-HR

A Versatile 2-way Inspection Instrument

The endoscope PCE-VE 1000 is a versatile inspection instrument. Various endoscope cables with different properties can be connected to the endoscope. A particular advantage of the endoscope is the large display, which due to its dimensions and resolution offers the user the best possible overview of the surface to be inspected. The endoscope allows the recording of pictures and videos, whereby the videos are additionally stored with an audio recording.
The clear resolution is also good when via button pressing the images are stored on the SD card, inserted in the endoscope. When the SD card is read out on the computer, the recorded pictures and videos are clearly displayed. Due to the fact that the recordings are stored on an external mass storage device, it is even possible to choose which SD card is inserted into the endoscope.

- various endoscope cables are selectable and are optionally available
- storage of images and videos
- 8 GB memory card incl.
- LED lighting
- large 7 “ LC display

Specifications

Display	7 “ LCD (800 x 480)
Image resolution	640 x 480 JPEG
Video recording	640 x 480 MPEG (with sound recording)
Drop test	1 m
Power supply	Li-Ion battery
Interface	USB
Image and video memory	SD card (up to a maximum of 32 GB)
AV output	NTSC / PAL
Audio input	built-in microphone
Brightness setting	adjustable in 10 steps on the main unit
Running time per charge	5 hours
Charging time battery	3 hours
Charging temp.	+10 ... +40 ° C / 50 ... 104 °F
Operating temp.	0 ... +60 ° C / 32 ... 140 °F
Storage temp.	0 ... +60 ° C / 32 ... 140 °F
Protection class	IP57
Dimensions	240 x 154 x 47 mm / 9.4 x 6 x 1.8 in
Weight	1.3 kg

PCE-VE 1000

Various cables connectable to the endoscope / large 7 “ LC display for accurate viewing / recording to SD card / images can be rotated 360 ° (in steps of 90 °) / bright LEDs on the camera head / digital zoom.

- image and video recordings
- pictures are 360° rotatable

PCE-VE-2W3-HR

The endoscope cable PCE-VE-2W3-HR is a 3 m long endoscope cable. This push-cable has a camera head, moving in 2 directions. In addition to this function, the endoscope cable is equipped with the HighRes-function. This makes it possible to rotate the pictures at a 90 ° angle. The images can be viewed glare-free. The camera has a resolution of 640 x 480 pixels. The diameter is 6 mm. Furthermore, the cable is flexible.

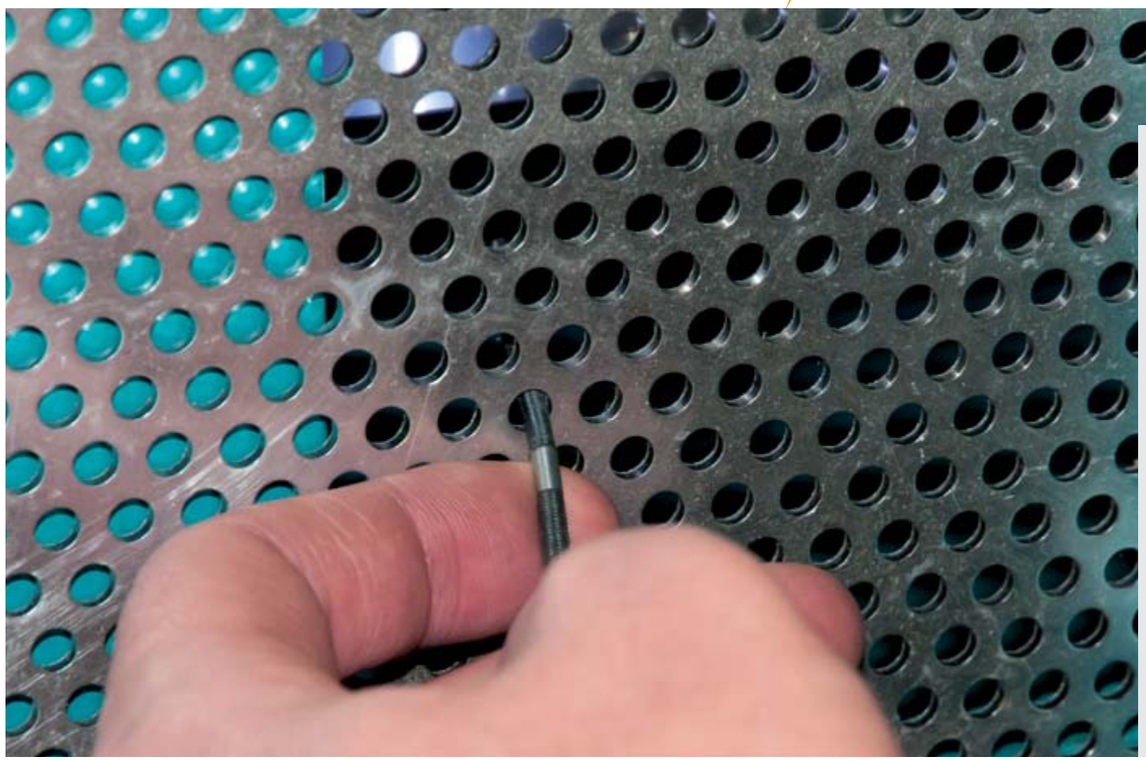
- 2-way camera head with front camera
- 6 mm cable diameter
- 3 m cable length, 640 x 480 pixel resolution

Videoscope PCE-VE 800

With 4-way Camera Head Ø 2.8 mm / 0.11 in for Inspection of Machine Parts

The endoscope camera PCE-VE 800 has a 1.5 m long endoscope cable. Due to a diameter of only 2.8 mm, cavities with the smallest access can be viewed with the help of this endoscope.
The camera head of the PCE-VE 800 endoscope camera is freely movable in 4 directions. Especially in the maintenance of engines, turbines, etc., the high-resolution display of the endoscope camera provides good insight into cavities and hard-to-reach areas. The movable camera has a resolution of 200.000 pixels. The field of view is 80 °, so that at a relatively short distance to the object to be examined still very large images can be produced with the endoscope camera. All the images can be saved as image or video. This helps to accurately document the damage of the components. The focus distance of a very small camera is between 5 and 50 mm.
The endoscope camera is supplied with a Li-Ion battery and can optionally be operated with a power adapter. Protection Class of the PCE-VE 800 camera cable is IP67.

- 2.8 mm / 0.11 “ camera head
- 1.5 m / 59 “ endoscope cable
- 4-way camera
- 4.3 “ monitor
- image and video memory



Specifications

Cable / head diameter	2.8 mm / 0.11 “
Camera head movement direction	4-way
Length of camera head	9.8 mm / 0.4 “
Material camera head	steel alloy
Material camera lens	glass
Angle	80 °
Direction of view	0 °
Focus range	5 ... 50 mm / 0.2 ... 2.0 “
Image sensor	1/18 “ color
Resolution camera	200.000 pixels
Resolution images	1600 x 1200-pixel JPEG
Resolution videos	640 x 480-pixel AVI
Image refresh rate	30 Hz
Length of endoscope cable	1.5 m / 4.92 “
Material endoscope cable	tungsten
Protection endoscope cable	IP67
Operating conditions	-20 ... 70 ° C / -4 ... 158 °F 15 ... 90 % RH
Display	LC 4.3 “ 16: 9 display
Interface	Micro USB
Video output	TV output PAL / NTSC
Memory	SDHC memory card up to 32 GB
Power supply	Li-Ion battery 3000 mAh
Power adapter	5V

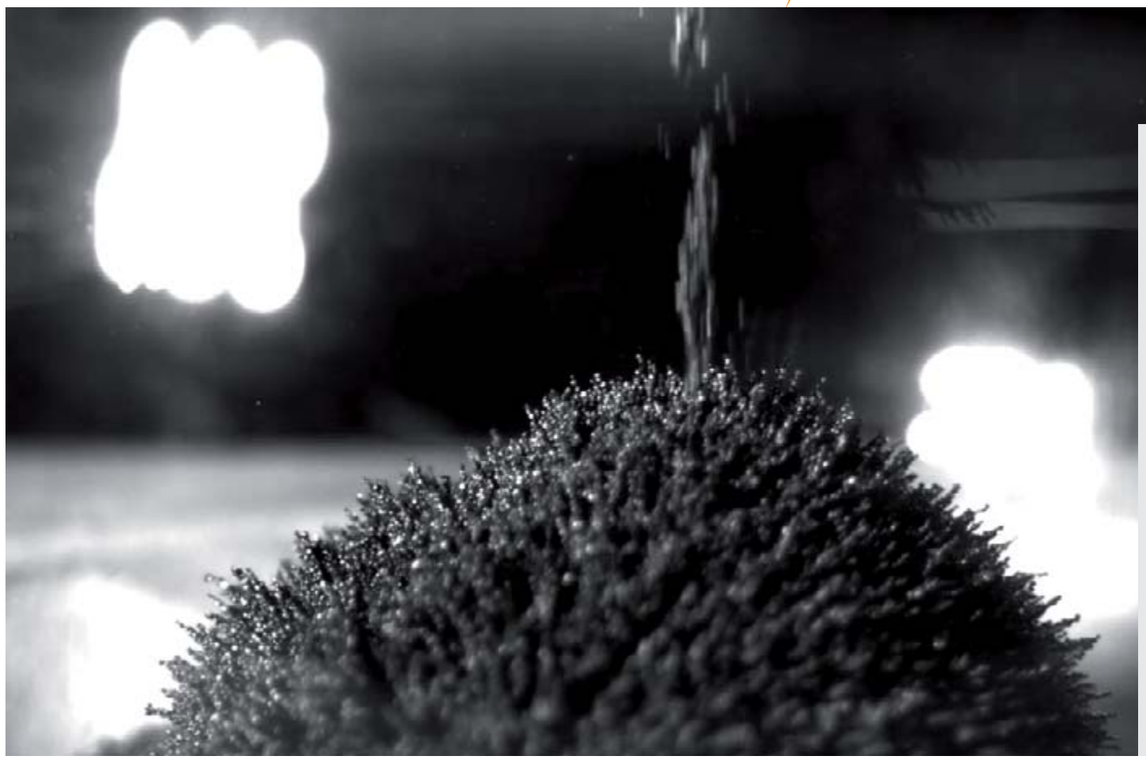
High-Speed Camera PCE-HSC 1660

Slow motion camera up to 2420 shots per second

The slow-motion camera PCE-HSC 1660 is suitable for simple slow-motion recordings in industry and research.
The slow-motion camera performs the filming at a refresh rate of 2420 shots per second.
This slow-motion camera is characterized by its compact design and simple operation. The slow-motion camera is connected to the PC or laptop via USB 3.0.
The supplied software recognizes the SloMo camera immediately and the recordings may be created straight after the driver installation.
The PCE-HSC 1660 high-speed camera uses a CMOS image sensor with a memory depth of 10 bits. This allows the camera to record high-speed 1280 x 1024 images in black and white. The PCE-HSC 1660 can be mounted using a tripod thread.

- USB 3.0 connection
- 1.3 megapixels
- maximum 2420 FPS
- 10 bit CMOS
- Plug and Play

Software



Specifications			
Slow-motion camera PCE-HSC 1660		LED lighting	
CMOS	1.3 megapixel	Power	6 x 3 W LED
Max. resolution	1280 x 1024	Filter	5800 K frost filter
Max. recording rate	2420 FPS		3200 K Amber filter
Resolution / recording rate	1280 x 1024/210 FPS	Dimmer function	Yes
	1024 x 1024/260 FPS	Power supply	power plug 100 ... 240 V AC
	1024 x 2768/346 FPS		Output 12 V / 2 A
	640 x 480/825 FPS	Battery	7.4 V @ 6000 mAh
	512x512 / 950 FPS	Battery run-time	approx. 150 minutes
	256x256 / 2420 FPS		
Pixel depth	10 bit CMOS		
Pixel size	4.8 µm per pixel		
Memory	via connected PC		
Power supply	via USB 3.0 port		
Interface	USB 3.0		
Trigger	external		
Lens mount	C-thread		
Housing material	aluminum		
Dimensions	80 x 74 x 40 mm / 3.1 x 2.9 x 1.6 in		
Weight	180 g / < 1 lb (without lens)		
Operating conditions	0 ... 40 °C / 32 ... 104 °F		
	max 80% RH		
Storage conditions	-20 ... 60 °C / -4 ... 140 °F		
	max. 95% RH		

PCE-PDA A100L / PCE-PDA 100L

Absolute / Differential Pressure Measurement

The pressure meter **PCE-PDA A100L** is suitable for the measurement of the atmospheric pressure. This pressure meter records the pressure from absolute zero to 200 kPa. The pressure meter can be used for many mobile applications in industry and crafts. This professional pressure gauge can either be operated with batteries or rechargeable batteries. In battery mode, the USB interface allows charging of the inserted batteries. The PCE-PDA A100L pressure meter is equipped with a large LC display. A display illumination makes it easier to read the measured values even under poor conditions. The pressure is measured by an internally installed sensor.

The pressure meter **PCE-PDA 100L** is a reliable differential pressure gauge for pressure measurement of gases in the range of -100 to +200 kPa. The pressure meter PCE-PDA 100L has many different pressure measuring functions.

In addition, the maximum and minimum differential pressure can be displayed in the two-part graphic display.

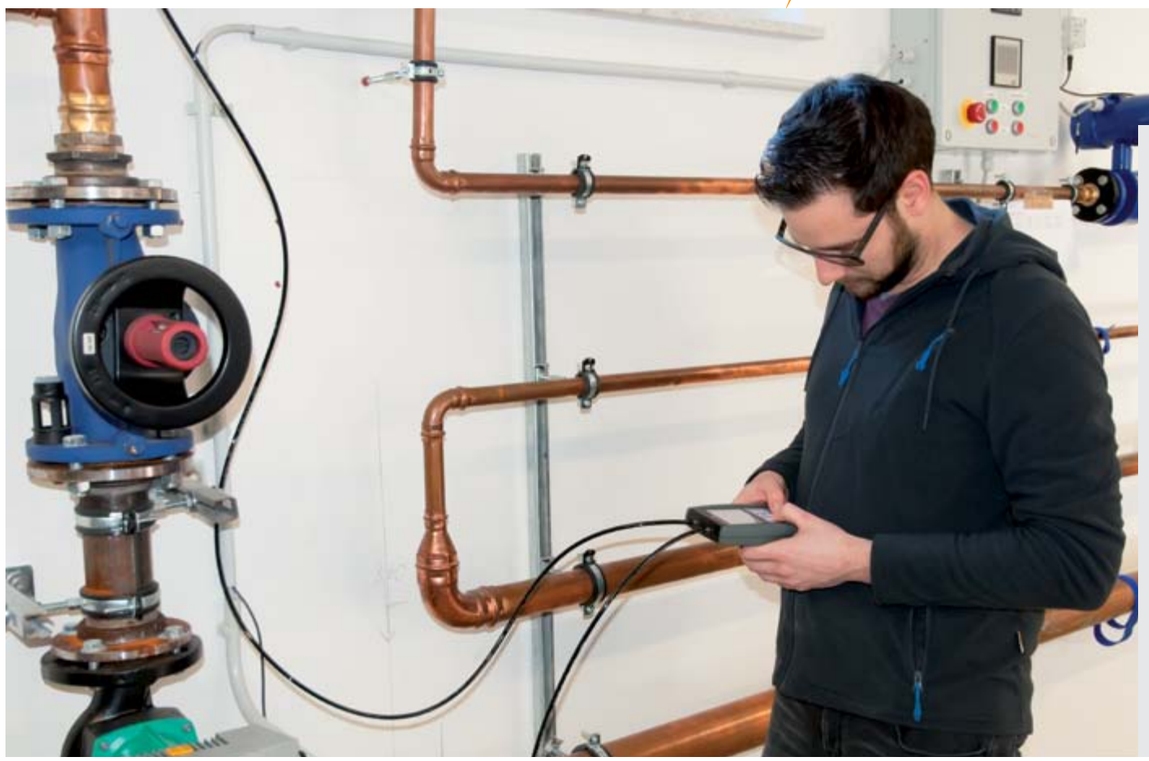
- data logger
- absolute pressure measurement
- differential pressure measurement
- integrated temperature measurement
- graphic LCD

Memory and Software

Specifications Absolute Pressure Meter PCE-PDA A100L

Measuring ranges	0 ... 200 kPa absolute
Resolution	0.01 kPa / 0.1 kPa
Accuracy	<± 0.5% of the meas. range
Nominal pressure	200 kPa
Overpressure	200 kPa
Burst pressure	300 kPa
Media	liquids / air / non-aggressive gases
Measuring rate	10 Hz
Measuring units	Pa, hPa, kPa, MPa, mbar, bar, ATM, kg / cm², mmH_2O, cmH_2O, inH_2O, mmHg, inHg, Torr, PSI, PSF
Pressure type	absolute pressure
Pressure connections	5 mm nipples for quick connectors
Max, Min and Hold function	Yes
Datalogger	1024 memory slots 1 s ... 255 h recording time per storage space 1 s ... 24h storage interval
Medium	for air and non-explosive gases
Zero correction	Yes, by means of a zero key
Averaging	Yes, between 0.1 ... 9.9 s
Display	graphic LCD with backlight
Protection	IP41
Power supply	2 x 1.5 V AA battery / 1.2 V NiMh battery 5V / 500mA USB power adapter
Current consumption	50 mA (with backlight) 10 mA (without backlight)
Operating temperature	0 ... 50 ° C / 32 ... 122°F
Storage temperature	10 ... 55 ° C / 50 ... 131°F
Dimensions	145 x 85 x 35 mm / 5.7 x 3.3 x 1.4 in
Weight approx.	285 g / < 1 lb

ISO cal option



Pressure Measurement

Specifications Differential Pressure Meter PCE-PDA 100L

Measuring rate	10 Hz
Measuring units	Pa, hPa, kPa, MPa, mbar, bar, ATM, kg / cm², mmH_2O, cmH_2O, inH_2O, mmHg, inHg, Torr, PSI, PSF
Pressure type	differential relative (if neg. pressure connection open)
Pressure connections	5 mm nipples for quick connectors
Max, Min and Hold function	Yes
Datalogger	1024 memory slots 1 s ... 255 h recording time per storage space 1 s ... 24 h recording interval
Medium	for air and non-explosive gases
Zero correction	Yes, by means of a zero key
Averaging	Yes, between 0.1 ... 9.9 s
Display	graphic LCD with backlight
Protection	IP41
Power supply	2 x 1.5 V AA battery / 1.2 V NiMh battery 5V / 500mA USB power adapter
Current consumption	50 mA (with backlight) 10 mA (without backlight)
Operating temperature	0 ... 50 ° C / 32 ... 122°F
Storage temperature	10 ... 55 ° C / 50 ... 131°F
Dimensions	145 x 85 x 35 mm / 5.7 x 3.3 x 1.4 in
Weight	approx. 285 g / < 1 lb

Measuring range	
Pressure	- 100 ... 200 kPa
Temperature	0 ... 50 °C / 32 ... 122 °F
Resolution	
Pressure	1 / 10 Pa
Temperature	0.1 ° C
Accuracy	
Pressure	±0.5 % of final value
Temperature	±1 °C
Nominal pressure	200 kPa
Overpressure	300 kPa
Burst pressure	400 kPa
Media	liquids air

ISO cal option

HVAC Meter with Pitot Tube PCE-PDA 10L

Data Logger for Air Speed and Volumetric Flow with Pitot Tube

The differential pressure meter of the PCE-PDA 10L is reliable differential pressure meter for pressure measurement of gases in the range of ±20 kPa. The manometer has many different pressure measuring functions. This gives the user more than 16 units.

Furthermore, the differential pressure meter measures in addition to the differential pressure, the temperature, flow velocity and volume flow. In addition, the maximum and minimum differential pressure can be displayed in the two-part graphic display.

The resolution of the differential pressure can optionally be switched. The differential pressure gauge incorporates a high-precision mode that increases the resolution tenfold.

- graphic display with lighting
- measuring range pressure: ± 20 kPa
- datalogger and leak test
- high precision measuring mode
- units switchable (m/s, m^3/s, Pa, kPa, ...)

pitot tube as an option

ISO cal option

Specifications

Temperature	0 ... 50 °C / 32 ... 122 °F
Resolution	0.1°C / 0.2 °F
Accuracy	±1°C / 2 °F
Range pressure	±20 kPa
Resolution	1/ 10 Pa
Accuracy	±0.5 % of final value
Nominal pressure	20 kPa
Overpressure	40 kPa
Burst pressure	100 kPa
Media	liquids, air
Measuring rate	10 Hz
Measurement units	Pa, hPa, kPa, MPa, mbar, bar, ATM, kg / cm², mmH_2O, cmH_2O, inH_2O, mmHg, inHg, Torr, PSI, PSF
Pressure	differential relative (if neg. pressure connection open)
Pressure connections	5 mm nipple for quick connectors
Max, Min, Hold function	Yes
Data logger	1024 memory slots
Display	Graphic LCD with backlight
Protection	IP41
Power supply	AA battery / NiMh battery /USB power
Storage temperature	10 ... 55 °C / 50 ... 131 °F
Dimensions	145 x 85 x 35 mm / 5.7 x 3.3 x 1.4 in
Weight	about 285 g / < 1 lb

Specifications

Pitot Tube SR-305

- Pipe length: 300 mm / 11.81 “
  Pipe diameter: 4 mm / 0.16 “
- Head length: 65 mm / 2.56 “
  Head diameter: 4 mm / 0.16 “

Pitot Tube SR-483

- Pipe length: 483 mm / 19.02 “
  Pipe diameter: 8 mm / 0.32 “
- Head length: 130 mm / 5.12 “
  Head diameter: 8 mm / 0.32 “

Pitot Tube SR-795

- Pipe length: 795 mm / 31.30 “
  Pipe diameter: 8 mm / 0.32 “
- Head length: 130 mm / 5.12 “
  Head diameter: 8 mm / 0.32 “

Flow Meter PCE-TDS 100H / PCE-TDS 100HS

For Determination of Flow Velocity [m/s] and Flow [m³/h]

The ultrasonic flow meter is required and finds its application during a control measurement or when the flow in a pipeline should be determined quickly and is therefore a portable / easy to install measuring system. The ultrasonic flowmeter works according to the transit-time difference method.
The measuring principle of the flowmeter is quite simple. It takes less time to carry out the oblique measurements in a pipe with the flow than the measurements against the flow.
The stronger the flow becomes, the longer time you need against it and the faster you get with it. The difference between the flow times with the flow or against it thus depends directly on the flow velocity. The flowmeter uses this effect to determine flow velocity and flow. In the process, electro-acoustic transducers („Piezo effect") send and receive short ultrasonic pulses through the medium flowing in the pipe.

- ideal for retrofitting
- installation without process interruption
- easy mounting
- accurate and reliable
- no pressure loss

Specifications	
Measuring range (hh device)	-32 ... +32 m / s
Resolution	0.0001 m / s
Accuracy for DN ≥ 50 mm / 1.9 in:	± 3.5% of the measured value
for DN <50 mm / 1.9 in:	± 1.0% of the measured value
Reproducibility	± 1.0% of reading
Media	All liquids with an impurity <5% and a flow> 0.03 m³ / h
Flow units	cubic meters [m³] Liter [l] Gallon (USA) [gal] Imperial Gallon (UK) [igl] Million US gallons [mgl] Cubic feet [cf] Barrel (USA) [bal] Imperial Barrel (UK) [ib] Oil barrel [ob] Setting time per day [/ d] per hour [/ h] per minute [/ m] and per second [/ s]
Datalogger	1800 measuring points
Interface	USB (for online measurement and reading out the internal memory)
Protection class	IP 52
Power supply	3 x AA NiMH batteries / 2100 mAh (at full charge 12 h run time) 100 ... 240 V AC 50/60 Hz

Memory and Software

Dimensions	214 x 104 x 40 mm / 8.4 x 4.1 x 1.6 in
Weight	450 g / 1 lb
Sensor	
Temperature liquid	-30 ... 160 ° C / -22 ... 320 °F

PCE-TDS 100H

The transducers are located offset in the longitudinal direction on both sides of the measuring pipe. The nondestructive sensors are placed on the pipe and are attached, for example, by means of a cable tie. Within a short time, the display shows the flow velocity. The ultrasonic flowmeter can be used for measurement on metal pipes, plastic pipes or rubber pipes.

- for pipes from 50 mm ... 700 mm / 1.9 … 27.5 in
- sensor dimensions: 60 x 45 x 45 mm / 2.4 x 1.8 x 1.8 in

ISO calibrated

PCE-TDS 100HS

The nondestructive sensors are placed on the pipe and attached, for example, by means of a cable tie. Within a short time, the display shows the flow velocity. The ultrasonic flowmeter can be used for measurement on metal-, plastic- or rubber pipes.

- for pipe sizes 20 mm ... 100 mm / 0.8 … 3.9 in
- sensor dimensions: 45 x 30 x 30 mm / 1.8 x 1.2 x 1.2 in

ISO calibrated

Wind Speed Alarm Controller PCE-WSAC 50

Displays current wind speed and average wind speed of the last 2 and 5 minutes

PCE-WSAC 50 is an airflow meter alarm controller that displays the current wind speed as well as the average wind speed of the last 2 and 5 minutes. A pre-alarm and full alarm can be activated based on preset values. If wind speeds are higher than the preset values, a pre-alarm is first applied before the full alarm is issued. Both alarms are delivered visually and audibly. If the pre-alarm is triggered, a yellow LED will flash on the front of the unit and a beep will periodically be emitted as a warning tone. If the full alarm is triggered, a red LED will flash on the front of the unit and a beep will continuously be emitted.

PCE-WSAC 50 allows measurement of the slightest movements of wind. This airflow meter alarm controller is used for a variety of wind monitoring applications in industries such as construction, mining, renewable energy and manufacturing. If necessary, a relay can also be connected to the controller.

- pre-alarm and full alarm with visual and audible warnings
- measuring range: 0 ... 50 m/s / 0 ... 112 mph
- allows measurement of the slightest wind movements
- optional RS-485 modbus interface for data communication
- different sensors available

Specifications	
Power supply	115 V AC 230 V AC 24 V DC
Supply voltage for sensors (output)	12 V DC 24 V DC
Measuring range	0 ... 50 m/s
Measuring accuracy	±3 % of measuring range
Signal input (selectable)	4 ... 20 mA 0 ... 5 / 10 V
Alarm relay	2 NO/NC relays with max. load of 220 V AC / 10 A
Optional interface	RS-485 modbus
Operating temperature	-20 ... +60 °C / -4 ... +140 °F
Dimensions	197.5 x 90 x 45 mm / 7.7 x 3.5 x 1.7 “
Weight	Approx. 400 g / 0.89 lb

Various models are available
Starting from

ISO calibrated

Digital Force Gauge PCE-DFG N 500

Force gauge for push and pull force measurement up to 500 N

The PCE-DFG N 500 is a digital force meter for precise measurements with a resolution of 0.1 N. The measured values are displayed on a large, illuminated, 180° rotatable display, a correct reading of the measured values is thus guaranteed at all times. The outstanding accuracy of ± 0.1% FS is confirmed with the factory calibration certificate provided. In addition to the internal storage option of 100 measured values, a USB interface is available for data transmission. With the software, the measured values can be saved on a computer for later evaluation.

Due to its robust housing, a sensible menu navigation and a simple operation via 8 keys, the digital force meter PCE-DFG N 500 is characterized by a high degree of user-friendliness. The power supply of the dynamometer is provided via batteries, which can be charged via an included charger and allow a continuous operation of the device during 10 hours.

- push and pull force measurement
- high accuracy ±0.1 % FS
- 1600 Hz sampling rate
- storage 100 readings
- graphic analysis

Memory and Software

Specifications	
Measuring range	0 ... 500 N or 0 ... 112 lbs
Accuracy	± 0.1% of the measuring range
Resolution	0.1 N
Measurement units	N, kg, lb, KPa
Display	2.8“ TFT graphic display
Alarm Modes	Inside, Outside, Crack, Shutdown
Sampling rate	6 ... 1600 Hz
Storage	100 measurements
Power supply	NiMh battery 6V / 1600-mAh
Battery operation	about 10 hours
Charging adapter	12V / 1A
Outputs	Interface: USB Switching output: 12 V / 50-mA
Protection class	IP 54
Operating and storage conditions	-10 ... 50°C / 14 ... 122°F 5 ... 95% rh non-condensing
Force-receiving piece	6 x 7 mm / .2 x .3 in
Dimensions	200 x 97 x 42 mm / 7.9 x 3.8 x 1.7 in
Weight	540 g / 1.2 lbs

ISO calibrated

Sound Level Meter PCE-428

Class II Sound level meter with octave filter / A, B, C, Z weightings

The sound level meter PCE-428 is an optimal sound level meter for measurements at work, construction sites, on the road, airports, etc. The sound level meter is a Class 2 device and is equipped with an octave band frequency filter. Optionally, the sound level meter PCE-428 can be upgraded with a 1/3 octave band filter. In addition to the numerical display of the measured value, a graph can show the course of the sound level. The sound level meter features different frequency weightings such as A, B, C and Z.

Furthermore, the sound meter can measure with the time weightings Fast, Slow, Pulse and Peak. The measuring range of the sound level meter ranges from 25 ... 136 dbA at a frequency of 20 Hz ... 12.5 kHz. The sound level meter can store 3 different measuring profiles. Here the user can decide which parameters the sound level meter should record. For example, you can choose between Laeq, LcPeak, LaFmax, LaFMin etc.

- 1/1 octave band included
- 1/3 octave band optional
- accuracy class 2
- A, B, C & Z frequency weightings
- Fast, Slow, Pulse and Peak time weightings

Memory and Software

Specifications			
Measuring range	25 ... 136 dbA	Measurem. display	numerical bar graph
Accuracy	Class 2		graphic
Frequency range	20 Hz ... 12.5 kHz	Display	160 x 160 pixels LCD with lighting
Standards	GB / T3785.1-2010	Memory	4 GB Micro SD card
	GB / T3785.2-2010	Interface	USB (memory readable via software or directly as mass storage)
	IEC60651: 1979		RS232
	IEC60804: 2000	Voltage output	AC 5V RMS
	IEC61672-1: 2013		DC 10 mV / db
	ANSI S1.4-1983	Alarms	adjustable
	ANSI S1.43-1997	Power supply	4 x 1.5V AA battery
Frequency analysis	1 / 1 octave filter: 20Hz ... 8kHz		12 V / 1 A power plug
	1/3 octave filter: 20Hz ... 12.5kHz		5 V / 1 A USB
Microphone	1/2 “	Battery operation	min. 10 h
	measuring microphone Class 2	Dimensions	70 x 300 x 36 mm / 2.76 x 11.81 x 1.42“ (W x H x D)
	sensitivity 40 mV / PA	Weight	approx. 620 g / 1.4 lbs incl. batteries
	frequency range: 20 Hz ... 12.5 kHz		
	connection: TNC		
	power supply: ICCP standard		
Integral time meas.	1 s ... 24 h (adjustable)		
Meas-nt functions	LXY (SPL), LXeq, LXYSD, LXSEL, LXE, LXYmax, LXYmin, LXPeak, LXN. X = frequency weighting: A, B, C, Z; Y = time weighting: F, S, I; N = statistics in%: 1 ... 99%		
24-hour meas.	Auto measurement with data saving		
Frequency weighting	A, B, C, Z		
Time weighting	Fast (F), Slow (S), Pulse (I), Peak		
Inherent noise	microphone 20dB(A), 26db(C), 31db(Z) electronics 14dB(A), 19db(C), 24db(Z)		
AD converter	24 bit		
Sample rate	standard: 48 kHz; LN mode: 20 ms		

ISO calibrated

Order

How to order a PCE product:

+44 (0) 2380 98703 0

+44 (0) 2380 98703 9

PCE Instruments UK Ltd
Units 11 Southpoint Business Park
Ensign Way, Southampton, Hampshire
United Kingdom, SO31 4RF

info@pce-instruments.com

www.pce-instruments.com/english

Company Reg. No.: 7717288

VAT No.: GB122579319

Registered at: Companies House England

Registered Office:
1 London Road, Southampton, SO15 2AE.
D-U-N-S Number: 217379209
EORI-Number: GB122579319000

Purchasing conditions:
We sell exclusively under the following conditions whose most important points are summarized below. Other conditions requested by the client require our written approval. Our conditions of sale include all future transactions made by the client. To place an order (via letter, fax, the online store or telephone) or you send us your mail address.

Offers:
Our offers are without compromise. We can modify products or technical specifications due to technical developments that occur with our products. Instructions of use must be adhered to by the person using the device. The information in our catalogue and online store serve to inform potential customers about our products. We don't guarantee the accuracy of these descriptions. The information is written with good product knowledge but with the right to make errors and alterations.

Delivery terms:
Standard 1-5 working days (depending on location of our customer) excluding Saturdays, Sundays and official holidays. These indications are provisional because some of our products are manufactured at the time of purchase and may require more time to complete the order. Orders are normally processed immediately so we may have already packaged your order and made arrangements for it to be sent to you. In this case, we cannot always stop the order from being sent if a cancelation is requested by the customer. Delivery time begins once the product has left the warehouse until it has been received by the client.

Payment options:
Invoices are paid in a term of 10 days starting from the date of the invoice, they include postage, packaging or insurance. In some cases a T/T prepayment is inevitably. We can add additional charges according to regular bank rates up to 8.00 Euros in the case of the customer not fulfilling the payment terms. During the year, product prices may change and therefor may vary in relation to the catalogue, the online store or when the order is being placed. Sucharges don't exist for minimum orders. Due to negative experiences with some private customers in the past, we have put in place a cash-on-delivery system.

Shipping costs:
The shipping cost are depending on the location of our customer, the weight and the size of the parcel. Please ask for your complete shipping costs. If the customer want, it is possible to pick up the parcel himself by his own carrier.

Transport and insurance:
When we send the goods that you have ordered (mail, train or freight forwarded) we have fulfilled our contract obligations, so the goods shall be shipped at the risk of the purchaser. If there is damage due to transport, please contact us immediately.

Packaging:
Packaging is undertaken by the manufacturer or PCE Instruments. Packaging expenses are at the cost of the purchaser.

Property right:
The property of the product shall not pass to the purchaser until we have received full payment for the product. According to the law, you are authorized to modify the device, but are not permitted to resell it at a later date.

Product claims:
The purchaser shall, within seven days after delivery, inform us of any missing or defective goods. The purchaser can inform us of other, less noticeable, defects in writing within the week of identifying the defect, up to a maximum of four weeks after receiving shipment of the product.

Warranty terms:
Our electronic and manual devices have a minimum of 12 months warranty against manufacturers defects. Any products that have not failed due to manufacturing defect can be repaired at the cost of the customer. Any goods which are subject to a warranty claim should be returned to us for repair. Upon inspection of the product PCE Instruments will repair, replace the defective unit or the order will be cancelled. Replacement components are not included, e.g. bulbs of pocket lamps.

Returns policy:
Any item may be returned for any reason within 14 days of the date of dispatch so long as it remains in a saleable condition. We will refund the price of the item and if the item is faulty the cost to return the goods. Any goods returned to us in unsuitable packaging will not receive a refund. It is the customer's responsibility to ensure goods being returned arrive back to us in a saleable condition. We will charge for any damaged sustained in transit or whilst in your prossession. It is NOT possibe to give a refund for any certificates, because they contain the customers name and remian their property. You must contact PCE Instruments by phone or through the contact form that appears on our website, indicating that you want to return the product and add the order number and serial number. When we receive the return notification, we will process the refund informing you which address to ship the product. Carriage costs for the return of goods to PCE Instruments will be the responsibility of the customer. When PCE Instruments receives the product, which must include the original bill, and inspects its condition, if the product qualifies for a refund, we will refund the entire amount due through the same process as the customer made their payment.

Legislation:
For all legislation and business regarding the website and catalogue of PCE Instruments, will be applicable to European law, used for the resoluton of all manner of conflicts or the use of our webpage, the European courts and tribunals system.

Data:
To meet current legal requirements, all customer data will be stored according to data privacy laws.

Privacy:
The client can excercise their right under the access of information act, to request modification or removal of theor personal data as defined by the Laws protecting personal data.

By placing an order with PCE Instruments, the client agrees with our general business conditions as stated.

PCE Instruments

Germany
PCE Deutschland GmbH
Im Langel 4
D-59872 Meschede
Deutschland
Tel.: +49 (0) 2903 976 99 0
Fax: +49 (0) 2903 976 99 29
info@pce-instruments.com
www.pce-instruments.com/deutsch

Germany
Produktions- und
Entwicklungsgesellschaft mbH
Im Langel 26
D-59872 Meschede
Deutschland
Tel.: +49 (0) 2903 976 99 471
Fax: +49 (0) 2903 976 99 9971
info@pce-instruments.com
www.pce-instruments.com/deutsch

The Netherlands
PCE Brookhuis B.V.
Institutenweg 15
7521 PH Enschede
Nederland
Telefoon: +31 (0)53 737 01 92
Fax: +31 53 430 36 46
info@pcebenelux.nl
www.pce-instruments.com/dutch

United States of America
PCE Americas Inc.
711 Commerce Way suite 8
Jupiter / Palm Beach
33458 FL
USA
Tel: +1 (561) 320-9162
Fax: +1 (561) 320-9176
info@pce-americas.com
www.pce-instruments.com/us

France
PCE Instruments France EURL
23, Rue de Strasbourg
67250 SOULTZ-SOUS-FORETS
France
Téléphone: +33 (0) 972 3537 17
Numéro de fax: +33 (0) 972 3537 18
info@pce-france.fr
www.pce-instruments.com/french

United Kingdom
PCE Instruments UK Ltd
Units 11 Southpoint Business Park
Ensign Way, Southampton
Hampshire
United Kingdom, SO31 4RF
Tel: +44 (0) 2380 98703 0
Fax: +44 (0) 2380 98703 9
info@industrial-needs.com
www.pce-instruments.com/english

Chile
PCE Instruments Chile SP
RUT 76.423.459-6
Calle Santos Dumont N° 738, Local 4
Comuna de Recoleta, Santiago
Tel. : +56 2 24053238
Fax: +56 2 2873 3777
info@pce-instruments.cl
www.pce-instruments.com/chile

Turkey
PCE Teknik Cihazları Ltd.Şti.
Halkalı Merkez Mah.
Pehlivan Sok. No.6/C
34303 Küçükçekmece - İstanbul
Türkiye
Tel: 0212 471 11 47
Faks: 0212 705 53 93
info@pce-cihazlari.com.tr
www.pce-instruments.com/turkish

Spain
PCE Ibérica S.L.
Calle Mayor, 53
02500 Tobarra (Albacete)
España
Tel. : +34 967 543 548
Fax: +34 967 543 542
info@pce-iberica.es
www.pce-instruments.com/espanol

Italy
PCE Italia s.r.l.
Via Pesciatina 878 / B-Interno 6
55010 LOC. GRAGNANO
CAPANNORI (LUCCA)
Italia
Telefono: +39 0583 975 114
Fax: +39 0583 974 824
info@pce-italia.it
www.pce-instruments.com/italiano

Hong Kong
PCE Instruments HK Ltd.
Unit J, 21/F., COS Centre
56 Tsun Yip Street
Kwun Tong
Kowloon, Hong Kong
Tel: +852-301-84912
jyi@pce-instruments.com
www.pce-instruments.cn

China
PCE (Beijing) Technology Limited
1519 Room, 4 Building
Men Tou Gou Xin Cheng
Men Tou Gou District
102300 Beijing
China
Tel: +86 (10) 8893 9660
info@pce-instruments.cn
www.pce-instruments.cn