



User Manual

PCE-DC 25 Clamp Meter



User manuals in various languages (français, italiano, español, português, nederlands, türk, polski, русский, 中文) can be found by using our product search on: www.pce-instruments.com

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1 Safety notes

Please read this manual carefully and completely before you use the device for the first time. The device may only be used by qualified personnel and repaired by PCE Instruments personnel. Damage or injuries caused by non-observance of the manual are excluded from our liability and not covered by our warranty.

- The device must only be used as described in this instruction manual. If used otherwise, this can cause dangerous situations for the user and damage to the meter.
- The instrument may only be used if the environmental conditions (temperature, relative humidity, ...) are within the ranges stated in the technical specifications. Do not expose the device to extreme temperatures, direct sunlight, extreme humidity or moisture.
- Do not expose the device to shocks or strong vibrations.
- The case should only be opened by qualified PCE Instruments personnel.
- Never use the instrument when your hands are wet.
- You must not make any technical changes to the device.
- The appliance should only be cleaned with a damp cloth. Use only pH-neutral cleaner, no abrasives or solvents.
- The device must only be used with accessories from PCE Instruments or equivalent.
- Before each use, inspect the case for visible damage. If any damage is visible, do not use the device.
- Do not use the instrument in explosive atmospheres.
- The measurement range as stated in the specifications must not be exceeded under any circumstances.
- Non-observance of the safety notes can cause damage to the device and injuries to the user.
- No voltage must be applied to the meter when the resistor function is selected.
- Switch off the meter when not in use.
- Select the measuring task before connecting the test leads to the meter.
- The rotary selector switch must not be moved during a measurement.
- When measuring current, the voltage applied must not exceed 600 V AC/DC.
- Before replacing the batteries, the test leads must be removed and the meter must be switched off.

We do not assume liability for printing errors or any other mistakes in this manual.

We expressly point to our general guarantee terms which can be found in our general terms of business.

2 Specifications

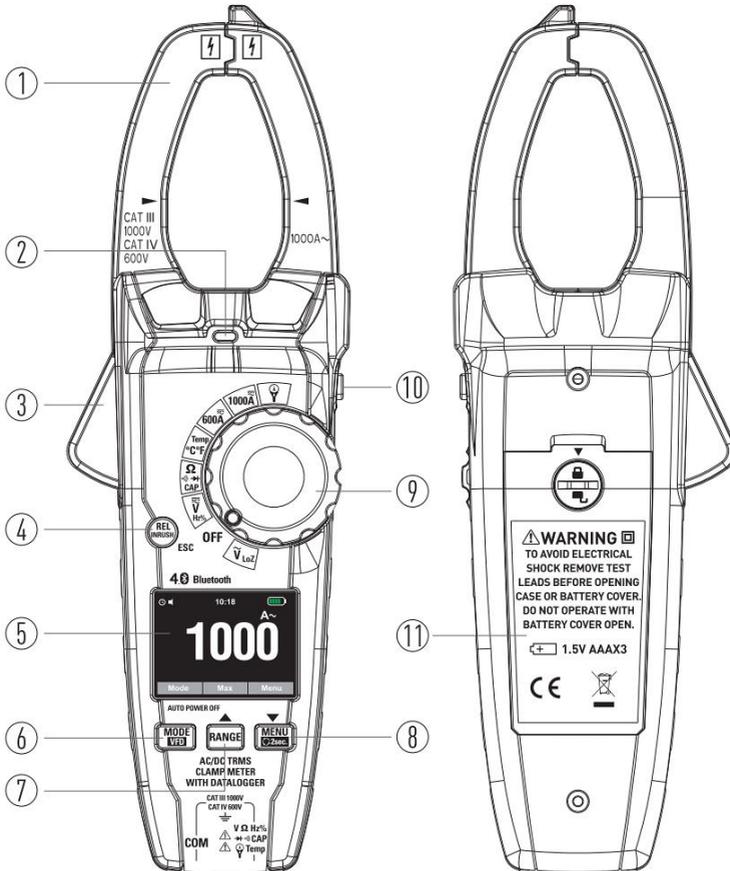
DC voltage		
Measurement range	Resolution	Accuracy
600.0 mV DC	0.1 mV DC	±(0.5 % + 8 digits)
6.000 V DC	0.001 V DC	±(1.5 % + 5 digits)
60.00 V DC	0.01 V DC	±(1.5 % + 5 digits)
600.0 V DC	0.1 V DC	±(1.5 % + 5 digits)
1000 V DC	1 V DC	±(1.5 % + 5 digits)
Input impedance: >10 MΩ Overvoltage protection: 1000 V AC/DC		
Alternating voltage		
6,000 V AC	0.001 V AC	±(1.5 % + 5 digits)
60.00 V AC	0.01 V AC	±(1.5 % + 5 digits)
600.0 V AC	0.1 V AC	±(1.5 % + 5 digits)
1000 V AC	1 V AC	±(1.5 % + 5 digits)
Peak value (PEAK) accuracy: ±10 %, peak value (PEAK) response time: 1 ms, Input impedance: >10 MΩ, overvoltage protection: 1000 V AC/DC The accuracy refers to a measurement range of 10 ... 100 % for a sine wave.		
Low-pass filter (LowZ) (50 ... 400 Hz)		
6.000 V AC	0.001 V AC	±(3.0 % + 40 digits)
60.00 V AC	0.01 V AC	±(3.0 % + 40 digits)
300.0 V AC	0,1 V	±(3.0 % + 40 digits)
Input impedance<300 kΩ, overvoltage protection: 1000 V AC/DC The accuracy refers to a measurement range of 10 ... 100 % for a sine wave.		
AC with DC voltage (50 ... 400 Hz)		
6.000 V AC	0.001 V AC	±(2.5 % + 20 digits)
60.00 V AC	0.01 V AC	±(2.5 % + 20 digits)
600.0 V AC	0.1 V AC	±(2.5 % + 20 digits)
1000 V AC	1 V AC	±(2.5 % + 20 digits)
Input impedance>10 MΩ		
Direct current		
600.0 A DC	0.1 A DC	±(2.5 % + 5 digits)
1000 A DC	1 A DC	±(2.8 % + 5 digits)
Overvoltage protection: 1000 A DC		
Alternating current (50 ... 60 Hz)		
600.0 A AC	0.1 A AC	±(2.5 % + 5 digits)
1000 A AC	1 A AC	±(2.8 % + 5 digits)
Overload protection: 1000 A AC/DC		
Flexible current clamp (50 ... 400 Hz)		
30.00 A AC	0.01 A AC	±(3.0 % + 5 digits)
300.0 A AC	0.1 A AC	±(3.0 % + 5 digits)
3000 A AC	1 A AC	±(3.0 % + 5 digits)
Overload protection: 3000 A AC/DC The accuracy refers to a measurement range of 10 ... 100 % for a sine wave.		
Resistance		
600.0 Ω	0.1 Ω	±(1.0 % + 10 digits)
6.000 kΩ	0.001 kΩ	±(1.5 % + 5 digits)
60.00 kΩ	0.01 kΩ	±(1.5 % + 5 digits)
600.0 kΩ	0.1 kΩ	±(1.5 % + 5 digits)
6.000 MΩ	0.001 MΩ	±(2.5 % + 5 digits)
60.00 MΩ	0.01 MΩ	±(3.5 % + 10 digits)

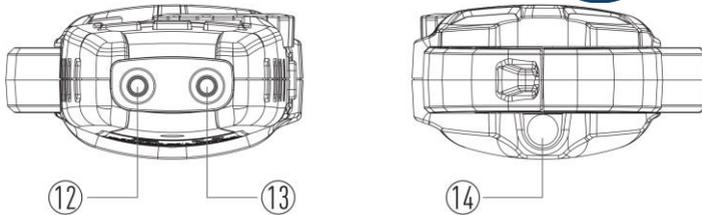
Overvoltage protection 1000 V AC/DC		
Continuity test		
Signal tone: <50 Ω		
Overvoltage protection: 1000 V AC/DC		
Diode test		
Test current: <1.5 mA		
Maximum voltage with open circuit: 3.3 V DC		
Frequency measurement		
9.999 Hz ... 99.99 kHz	0.01 ... 10 Hz	±(1.2 % + 5 digits)
Overvoltage protection: 1000 V AC/DC		
Sensitivity >5 Vrms with a duty cycle of 20 ... 80 %		
Duty cycle		
10,0 ... 90,0 %	0.1 %	±(1.2 % + 8 digits)
Pulse range: 40 Hz ... 10 kHz		
Pulse amplitude: ±5 V (0.1 ... 100 ms)		
Capacity		
60.00 nF	0.01 nF	±(4.0 % + 20 digits)
600.0 nF	0.1 nF	±(3.0 % + 8 digits)
6.000 µF	0.001 µF	±(3.0 % + 8 digits)
60.00 µF	0.01 µF	±(3.0 % + 8 digits)
600.0 µF	0.1 µF	±(3.0 % + 8 digits)
6000 µF	1 µF	±(5.0 % + 8 digits)
60.00 mF	0.01 mF	±(5.0 % + 20 digits)
100.0 mF	0.1 mF	±(5.0 % + 20 digits)
Overvoltage protection 1000 AC/DC		
Temperature measurement (K-type thermocouple)		
-40 ... 600,0 °C	0.1 °C	±(1.5 % + 5 digits)
600 ... 1000 °C	1 °C	±(1.5 % + 5 digits)
-40 ... 600,0 °F	0.1 °F	±(1.5 % + 9 digits)
600 ... 1800 °F	1 °F	±(1.5 % + 9 digits)
Overvoltage protection: 1000 V AC/DC		
The accuracy refers to the meter without temperature probe.		
Specifications based on a stable ambient condition of ±1 °C.		
The measured value rises by 2 °C during prolonged measurement.		
Further specifications		
Current clamp aperture	34 mm / 1.3 "	
NCV	>150 V AC	
Display	LC colour display	
Display when meas. range is exceeded	"OL" (Overload)	
Measuring rate	3 measured values per second	
Interface	Bluetooth	
Operating conditions	5 ... 40 °C / 41 ... 104 °F <80 % RH, non-condensing at 31 °C / 87 °F linearly decreasing to 50 % RH, non-condensing at 40 °C / 104 °F	
Storage conditions	-20 ... 40 °C / -4 ... 140 °F <80 % RH non-condensing	
Maximum working height	2000 m / 7000 ft	
Power supply	3 x 1.5 V AAA battery	
Automatic power off	off, 15, 30, 45, 60 minutes	
Dimensions	250 x 80 x 40 mm / 9.8 x 3.1 x 1.5"	
Weight	365 g / 12.8 oz	

3 Delivery scope

- 1 x clamp meter PCE-DC 25
- 1 x pair of test leads
- 1 x K-type thermocouple
- 1 x thermocouple adaptor
- 3 x 1.5 V AAA battery
- 1 x transport bag
- 1 x user manual

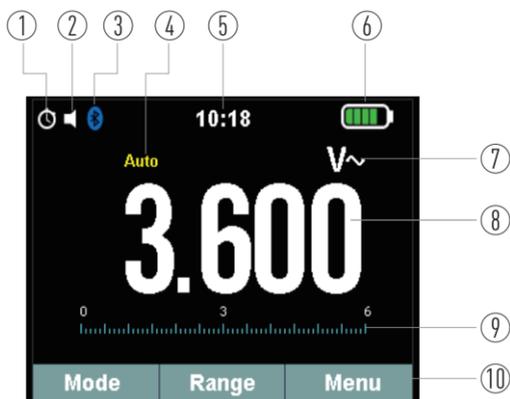
4 Device description





No.	Description
1	Current clamp
2	Indicator for non-contact voltage measurement (NCV)
3	Switch for opening the current clamp
4	Key to exit the menu, for inrush current measurement and to set the measured value in relation
5	Display
6	Key for switching the sub-functions (Mode) and for switching to measurement on a frequency inverter (VFD)
7	Key for setting the measurement range
8	Menu key
9	Rotary selector switch
10	Key for switching on the torch and freezing the displayed measured value
11	Battery compartment cover
12	Earth connection for test leads (-)
13	Measuring input for test leads (+)
14	Torch

4.1 Display description



No.	Description
1	Indicator for active automatic power off
2	Indicator for active key sound
3	Indicator for active Bluetooth function
4	Displayed measurement range is selected automatically or manually
5	Display of the current time
6	Battery status display
7	Unit
8	Measured value
9	Measured value as bar chart
10	Virtual keys

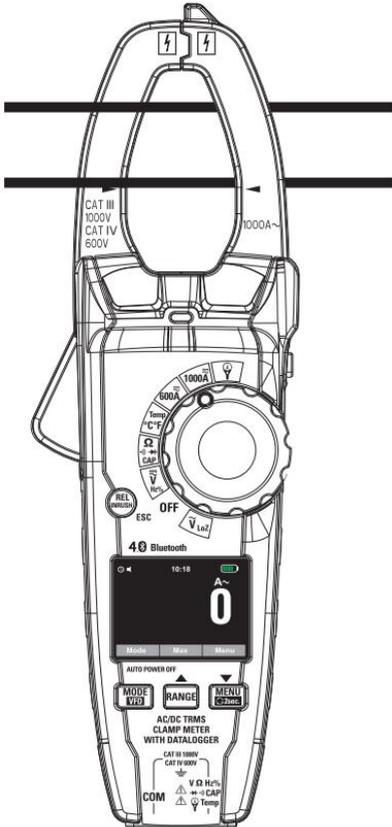
5 Making a measurement

To carry out a measurement, always set the device to your measurement task before connecting it to your test specimen.

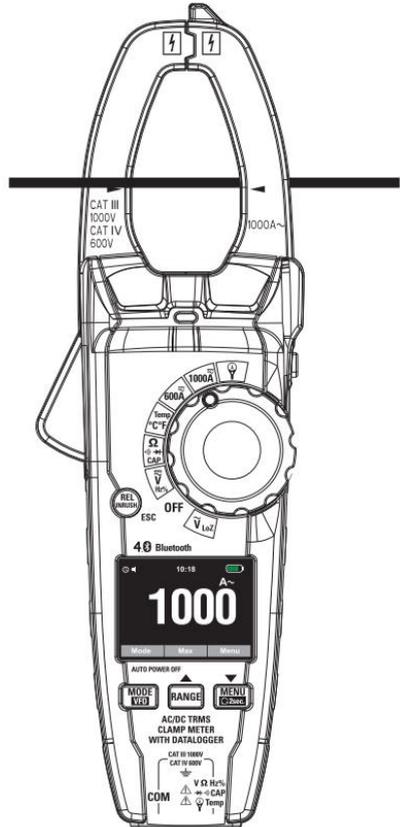
5.1 Carry out direct current / alternating current measurements

To carry out a direct current / alternating current measurement with the permanently installed current clamp, set the rotary selector switch to 600 A or 1000 A to carry out a current measurement up to a maximum of 600 or 1000 A. Use the **MODE** key to switch between alternating current (AC) and direct current (DC). Now open the current clamp and enclose the cable to be measured. Make sure that there is only one live wire inside the current clamp at any one time. Otherwise, a measurement will not be possible.

The measured value is put in relation with the **REL** key.



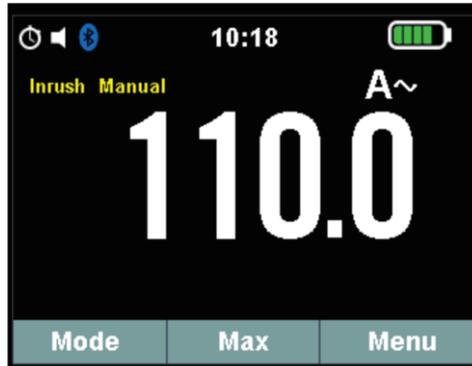
Incorrect



Correct

5.2 Inrush current measurement

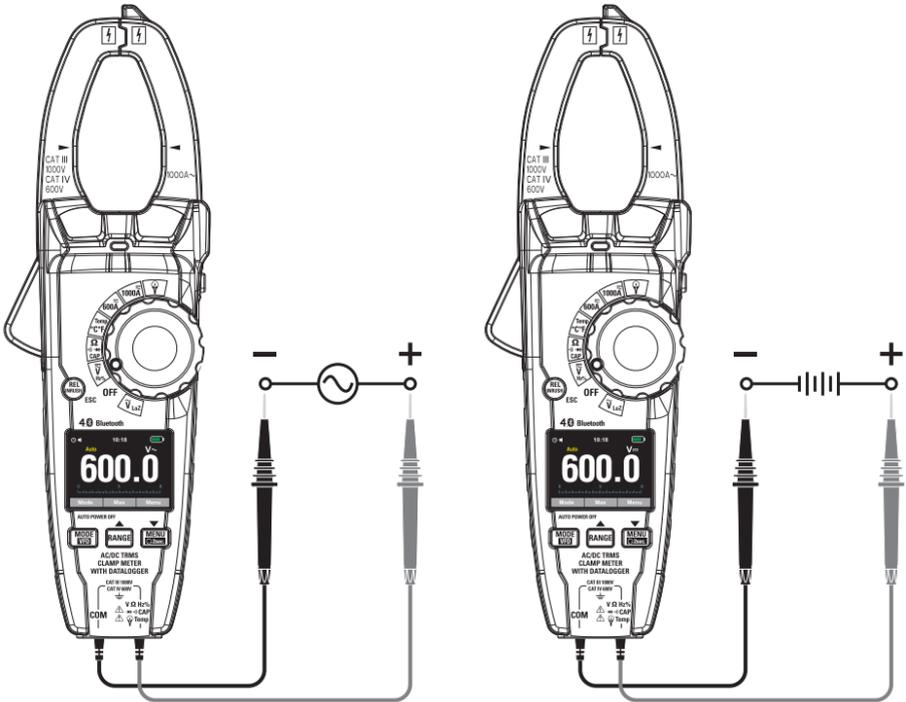
To carry out an inrush current measurement with the permanently installed current clamp, set the rotary selector switch to 600 A or 1000 A to carry out an inrush current measurement up to a maximum of 600 or 1000 A. Then press the **INRUSH** key for 2 seconds. **Inrush** appears on the display. Now open the current clamp and enclose the cable to be measured. Make sure that there is only one live wire inside the current clamp at any one time. Otherwise, a measurement will not be possible. Now switch on your test object. The inrush current is shown on the display.



5.3 Carry out DC voltage / AC voltage measurements

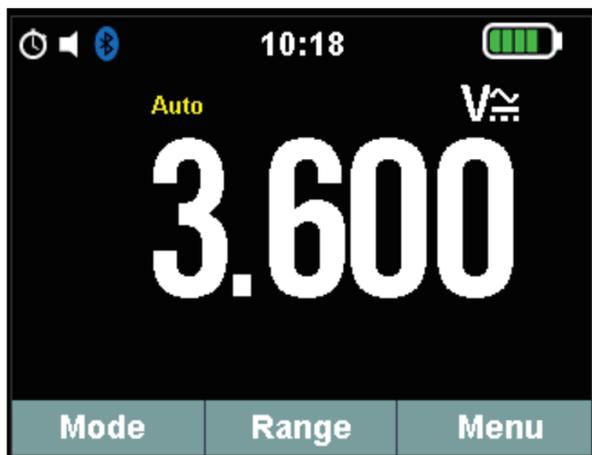


To perform a DC / AC voltage measurement, set the rotary selector switch to **Hz%**. Use the **MODE** key to switch between DC and AC voltage. Then connect the test leads to the device. You can then connect the test leads to the test object.



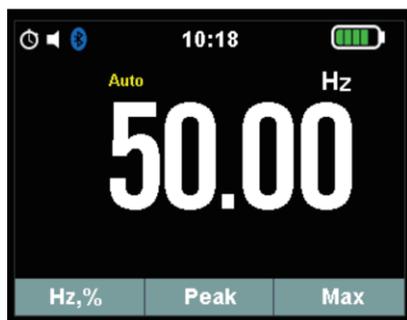
5.3.1 Measure AC voltage with DC voltage component

To perform an AC voltage measurement with a DC voltage component, press the **MODE** key repeatedly until the symbol for **V AC + DC** is displayed.



5.3.2 Frequency measurement / duty cycle

To carry out a frequency measurement / determine the duty cycle of an AC voltage, first press the **MENU** key for two seconds to switch the virtual keys. You can then use the **MODE** key to switch between the frequency measurement and the duty cycle.



5.3.3 Voltage measurement on a frequency inverter (VFD)

To carry out a voltage measurement on a frequency inverter (VFD), set the rotary selector switch

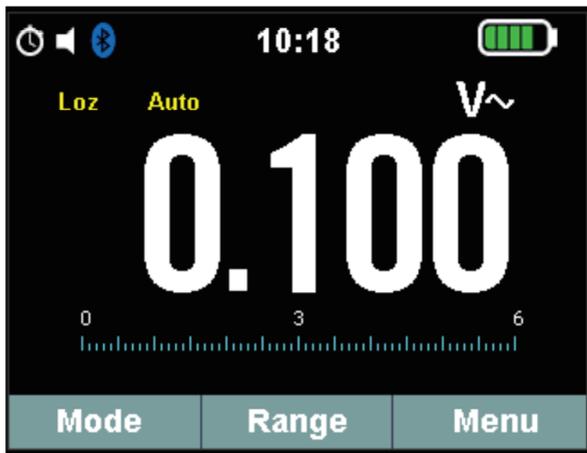


to **Hz%**. Set the measurement to AC voltage by repeatedly pressing the **MODE** key. Now press and hold the **MODE** key for at least two seconds to switch to frequency converter mode (VFD). You can then carry out your measurement.



5.4 Voltage measurement with low internal resistance of the device

To carry out a voltage measurement with a low internal resistance of the device, first set the rotary selector switch to **V AC LoZ**. Then connect the test leads to the meter. You can then connect the test leads to the device you want to test.



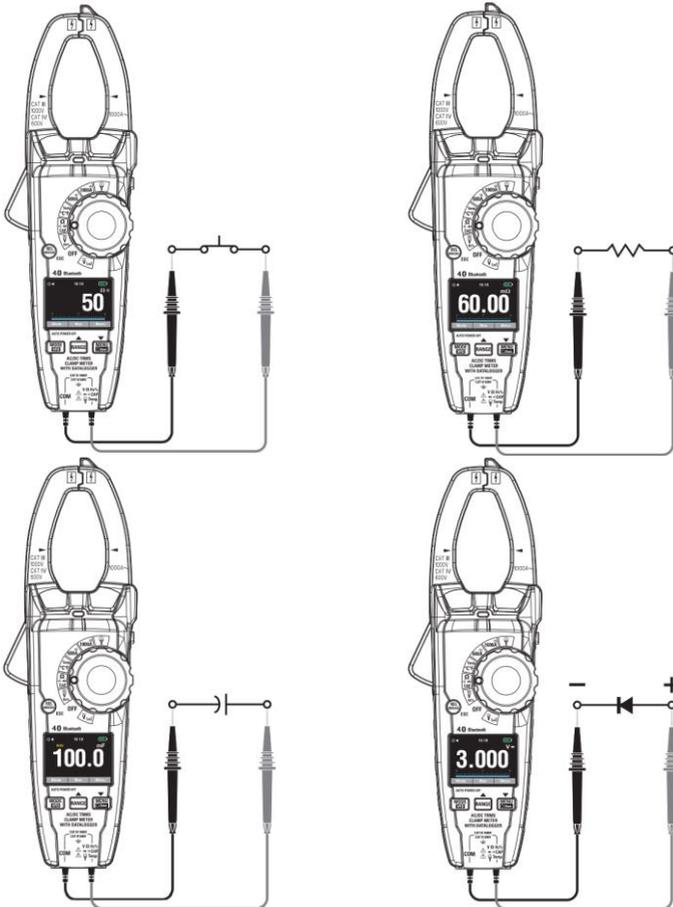
5.5 Capacitance, resistor, continuity, diode measurement

To determine the capacitance, measure the resistor, check the continuity or test a diode, set the



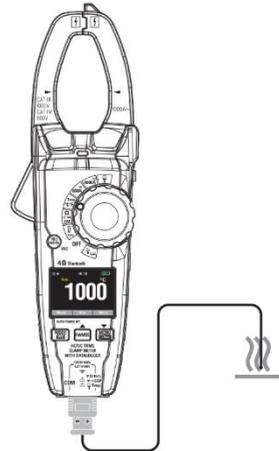
rotary selector switch to **CAP**. The **MODE** key can now be used to select between the individual functions. Then connect the test leads to the meter. The measurement can now be carried out.

Note: Before the capacitance measurement is carried out, it must be ensured that the capacitor is discharged. After the measurement, the capacitor is charged. If the resistance is $<50 \Omega$ during the continuity test, this is signalled by a sound.



5.6 Temperature measurement

To carry out a temperature measurement, set the rotary selector switch to **TEMP °C °F**. Then connect the thermocouple adaptor to the meter. A K-type thermocouple can then be connected. The temperature value can be read directly. The **MODE** key can be used to switch between the temperature units °C and °F.



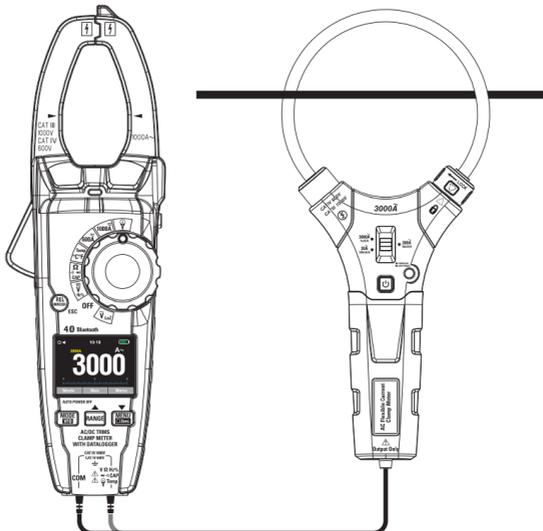
5.7 Current measurement with additional current clamp

To carry out a current measurement with an additional current clamp, set the rotary selector switch



to **A**. Connect the optional current clamp to the device. Now set the measurement range using the **RANGE** key. This must always be the same as the measurement range on the optional current clamp. You can then carry out the measurement.

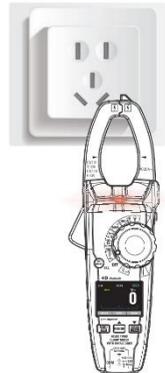
Note: Only AC voltage measurement is possible with this function.



5.8 Non-contact voltage measurement (NCV)

To carry out a non-contact voltage measurement (NCV), the meter only needs to be switched on. Then bring the tip of the current clamp into contact with the test object, for example a socket or a connecting cable. If an AC voltage is present, this is signalled by the signal lamp.

Note: The measurement result can be influenced by distances from the live cable and partitions, such as a housing. This function therefore does not guarantee the absence of voltage.

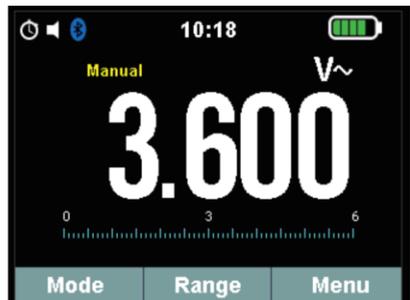


6 Set measurement range

To set the measurement range, press the **RANGE** key. To activate automatic mode, press and hold the **RANGE** key for two seconds. In automatic mode, the measurement range is set automatically. This function is not available when measuring diodes, continuity, duty cycle, temperature and current.



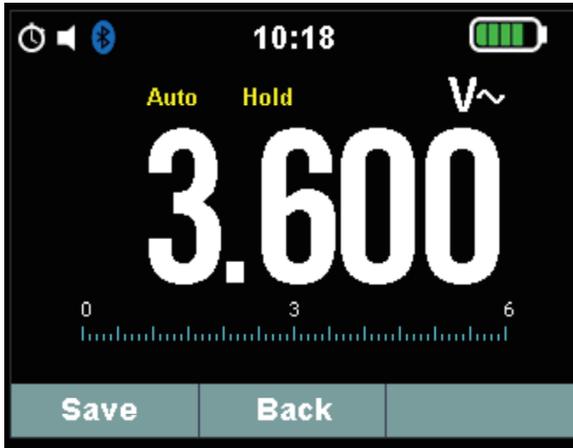
Automatic mode



Manual mode

7 Hold measured value

To freeze the displayed measured value, press the **HOLD** key. This is located on the side. **HOLD** appears on the display. Press it again to resume the measurement. The virtual **SAVE** key can be used to save the displayed measured value and call it up again in the menu under **Measurement**.



8 Highest and lowest measured value

You can use this function to display the highest and lowest measured value of a measurement. To activate this function, press and hold the **MENU** key for two seconds to switch the virtual keys. Now press the virtual **MAX** key to activate this function. To cancel this function, press the key again.

Note: When the function is disabled, the values are reset.



9 Set measured value in relation

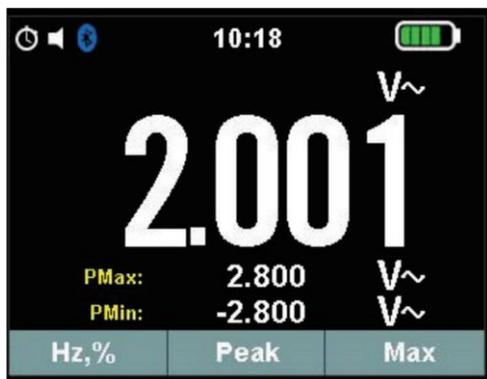
To set the measured value in relation, press the **REL** button. The displayed measured value is put in relation to the currently measured value. To disable this function, press the key again.



10 Determine peak values (PEAK)

To determine the peak value of a measurement, first press and hold the **MENU** key for two seconds to change the virtual keys. Now press the virtual **PEAK** key. The peak value and the lowest value are recorded directly. To exit this function, press the key again.

Note: This function is only available for AC voltage to determine the **peak-to-peak** value. When the function is disabled, the values are reset.



11 Menu

To make system settings, first open the menu with the virtual **MENU** key. You can use the **arrow** keys **to** change parameters and select between the individual menu items. Use the **REL INRUSH** key to go back one level. Press the virtual **Enter** key to accept the parameter and open the menu item.



Menu item	Description
Setup	General settings
Time/Date	Setting the date and time
Measurement	Calling up individual saved measured values in the data memory and deleting them
Recording	Settings for recording measured values
Metre Info	The measuring device information can be read out here: hardware version, firmware, free memory space
Factory Set	Use this function to reset the meter to its factory settings
Exit	Exit menu

11.1 General settings (Setup)

In the general settings, the key sound can be switched on and off, the Bluetooth interface can be activated or deactivated, automatic power off and the time display (12 hours (A.M. / P.M.) / 24 hours) can be set.

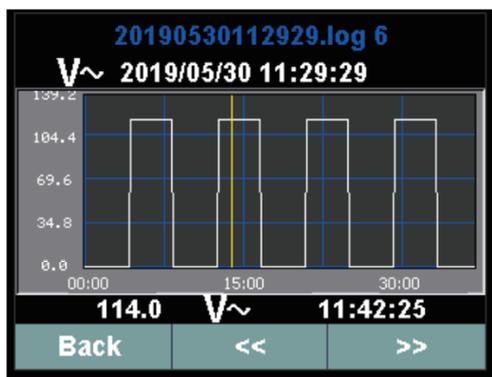
11.2 Saved individual measured values (Measurement)

In this menu item, the individual saved measured values that were saved via the **HOLD** function can be recalled and deleted. **Recall Measurements** can be used to open and delete individual recordings. **Delete Measurements** can be used to delete all recordings simultaneously.

11.3 Data logger (Recording)

To use the data logger function, go to the menu under **Recording**.

Menu item	Description
Start Recording	Starting the data logger function: after recording, the recording must also be saved using the virtual SAVE key. Before you start recording, the device must be set to the measurement task.
Recall Recordings	The individual measurement files are displayed here. Press the virtual Trend key to open the displayed measurement file. Each individual measuring point can now be selected and read out using the arrow keys. Press the virtual BACK key to return.
Setup New Recordings	Settings for data recording. Storage rate and recording time
Delete Recordings	Delete all recordings



12 Inserting/replacing batteries

To insert or replace the batteries, the device must be switched off and all test leads must be disconnected from the meter. You can then open the battery compartment on the back and insert 3 x 1.5 AAA batteries or replace them if they are discharged. After replacing the batteries, you must close the battery compartment. You can now start making measurements with the measuring device again.

13 Torch

To use the torch, press and **hold** the **HOLD** key when it is switched on. The torch switches on. To switch the torch off again, press and hold the **HOLD** key again.

14 Bluetooth connection

To establish a Bluetooth connection, first download the free "MeterBox Pro" app from the App Store or Play Store. Then activate the Bluetooth connection of the clamp meter and your mobile device. Then open the app and establish a connection to the meter via the app.

Note: The connection must not be established via the Bluetooth setting of your mobile end device.



Android



iOS

15 Contact

If you have any questions, suggestions or technical problems, please do not hesitate to contact us. You will find the relevant contact information at the end of this user manual.

16 Disposal

For the disposal of batteries in the EU, the 2006/66/EC directive of the European Parliament applies. Due to the contained pollutants, batteries must not be disposed of as household waste. They must be given to collection points designed for that purpose.

In order to comply with the EU directive 2012/19/EU we take our devices back. We either re-use them or give them to a recycling company which disposes of the devices in line with law.

For countries outside the EU, batteries and devices should be disposed of in accordance with your local waste regulations.

If you have any questions, please contact PCE Instruments.



PCE Instruments contact information

Germany

PCE Deutschland GmbH
Im Langel 26
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

United Kingdom

PCE Instruments UK Ltd
Trafford House
Chester Rd, Old Trafford
Manchester M32 0RS
United Kingdom
Tel: +44 (0) 161 464902 0
Fax: +44 (0) 161 464902 9
info@pce-instruments.co.uk
www.pce-instruments.com/english

The Netherlands

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

France

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

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

United States of America

PCE Americas Inc.
1201 Jupiter Park Drive, 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

Spain

PCE Ibérica S.L.
Calle Mula, 8
02500 Tobarra (Albacete)
España
Tel. : +34 967 543 548
Fax: +34 967 543 542
info@pce-iberica.es
www.pce-instruments.com/espanol

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

Denmark

PCE Instruments Denmark ApS
Birk Centerpark 40
7400 Herning
Denmark
Tel.: +45 70 30 53 08
kontakt@pce-instruments.com
www.pce-instruments.com/dansk