English

User Manual

PCE-LCT 3 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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Contents

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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.
- Never touch live components when making a measurement. There is risk of death!
- Never touch the bare tips of the measuring tips as this can cause electric shock.
- Before making a measurement, make sure you have selected the correct measuring function and that the test leads are connected correctly.
- Resistance, capacitance and temperature measurements as well as diode tests (if diodes are present) may only be carried out when no voltage is present.
- Before replacing the batteries or fuses, all test leads must be disconnected from the meter.

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.

If you have any questions please contact PCE Instruments. The contact details can be found at the end of this manual.

2 Lieferumfang

1 x clamp meter PCE-LCT 3
1 x transport bag
1 x K-type thermocouple
1 x pair of test leads
2 x 1.5 V AAA batteries
1 x user manual

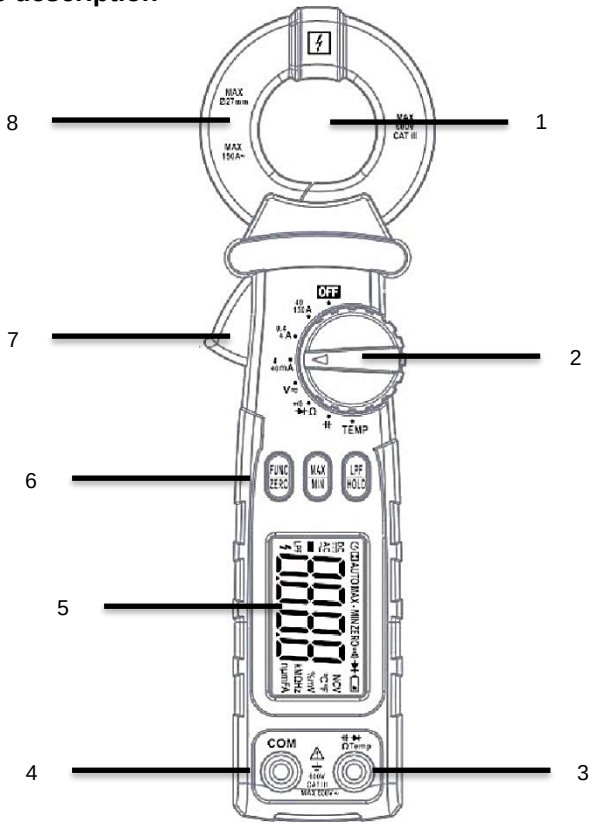
3 Specifications

AC current measurement			
measuring range	**Resolution**	**Accuracy**	**Accuracy**
4-mA	0.001mA	± (2% + 10 digits)	± (3% + 5 digits)
40-mA	0.01mA	± (2% + 10 digits)	± (3% + 5 digits)
400-mA	0.1mA	± (2% + 5 digits)	± (3% + 3 digits)
4 A	0.001 A	± (2% + 5 digits)	± (3% + 3 digits)
40 A	0.01A	± (2% + 10 digits)	± (3% + 5 digits)
150 A	0.1 A	± (2% + 10 digits)	± (3% + 5 digits)
Frequency range: 40 Hz ... 1 kHz (sine wave)			
Maximum input current: 150 A AC			
DC voltage			
measuring range	**Resolution**	**Accuracy**	
4V	0.001V	± (0.5% + 4 digits)	
40V	0.01V		
400V	0.1V		
600V	1V		
Input impedance: 10 MΩ			
Maximum input voltage: 600V AC / DC RMS			
AC voltage			
measuring range	**Resolution**	**Accuracy**	
4V	0.001V	± (1% + 3 digits)	
40V	0.01V		
400V	0.1V		
600V	1V		
Input impedance: 10 MΩ			
maximum input voltage: 600V AC / DC RMS			
Frequency range: 40 Hz ... 1 kHz (sine wave)			

Resistance		
measuring range	**Resolution**	**Accuracy**
400 Ω	0.1 Ω	± (0.8% + 3 digits)
4 kΩ	0.001 kΩ	
40 kΩ	0.01 kΩ	
400 kΩ	0.1 kΩ	
4 MΩ	0.001 MΩ	
40 MΩ	0.01 MΩ	± (1% + 3 digits)
Measuring voltage in open circuit: approx. 0.4V		
Overvoltage protection: 600V AC / DC RMS		
Continuity test		
measuring range	**Resolution**	**Accuracy**
Beep at < 40 Ω	0,1Ω	-
Overvoltage protection: 600V AC / DC RMS		
Temperature		
measuring range	**Resolution**	**Accuracy**
-20 ... 0°C	1°C	± (3% + 5 digits)
-4 ... 32°F	1°F	
-0 ... 400°C	1°C	± (1.5% + 5 digits)
32 ... 757°F	1°F	
400 ... 1000°C	1°C	± (3% + 5 digits)
752 ... 1832°F	1°F	
Overvoltage protection: 600V AC / DC RMS		
The temperature accuracies do not include the accuracies of the temperature sensors		
Capacitance		
measuring range	**Resolution**	**Accuracy**
40.00 n	0.01 nF	± (3% + 8 digits)
400.0 nF	0.1 nF	
4,000 µF	0.001 µF	
40.00 µF	0.01 µF	
400.0 µF	0.1 µF	
4,000mF	0.001 µF	
40.00 mF	0.01 µF	
Overvoltage protection: 600V AC / DC RMS		

Diode test		
measuring range	**Resolution**	**Accuracy**
3.2V	0.001V	-
Overvoltage protection: 600V AC / DC RMS		
Test voltage: 3.2V		
Forward current: 1-mA		
The accuracies refer to the following ambient conditions: 23 ± 5°C / 9°F and < 75% RH		
General specifications		
Maximum current clamp opening	30 mm	
Automatic shutdown	After 30 minutes, can be deactivated	
Power supply	2 x 1.5V AAA battery	
Measuring rate	3 measurements per second	
Display when overvoltage occurs	"OL"	
Maximum display	4000	
Display	LCD display	
Maximum working height	2,000 m / 13,123 ft	
Temperature coefficient	0.1 x accuracy x °C, °F*	
Operating conditions	18 ... 28°C / 64 ... 82°F	
Store control admixtures	-10 ... 50°C / 14 ... 122°F	
Dimensions	213 x 62 x 38 mm / 8.4 x 2.4 x 1.5 in	
Weight	About 238 g / < 1 lb with batteries	
*The temperature is the difference between the temperature of the operating conditions and the current ambient temperature.		
Example:		
When current ambient temperature is higher than the temperature of the operating conditions (50°C / 122°F (current ambient temperature)) - (40°C 104°F (operating temperature)) = 10°C / 50°F When current ambient temperature is lower than the temperature of the operating conditions (0°C / 32°F (operating temperature)) - (-5°C / 23°F (current ambient temperature)) = 5°C / 41°F		

4 Device description

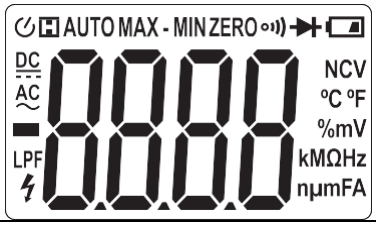


No.	Description
1	Measuring aperture for indirect measurement
2	Rotary switch
3	Connection for direct measurement (+)
4	Connection for direct measurement (-)
5	Display
6	Keypad
7	Lever to open the clamp
8	Clamp

4.1 Keys and connections

Name	Description
HOLD	Reading can be held
LPF	Low pass filter 50 Hz/60 Hz
FUNC	To switch measuring functions
Zero	Resets zero point when making current measurement
COM (black)	Ground connection (-)
Ω, Temp, diode	Connection for direct measurements (+)
Rotary switch	To turn meter on/off, to select measuring function

4.2 Display description



Displayed	Description
AC DC	Direct / alternating current, direct / alternating voltage
	Diode test
	Continuity test
AUTO	Measurement range set automatically
MAX	Highest reading is displayed
MIN	Lowest reading is displayed
	Auto Power Off function activated
	Batteries are discharged and must be replaced
H	Displayed reading is held
V	Voltage measurement (Volt)
A	Current measurement (Ampere)
nF, µF, mF	Nano-/ Micro-/ Millifarat (capacitors)
Ω, kΩ, MΩ	Kilo-/ Megaohm (resistors)
ZERO	Zero point was set
°C °F	Degrees Celsius / degrees Fahrenheit
LPF	Low pass filter is active

5 Key functions

The functions of the meter's keys are described in the following sub-chapters.

5.1 Hold reading

To freeze the currently displayed reading, short-press the "**LPF/HOLD**" key. The reading will be held. To resume the measurement, press the "**LPF/HOLD**" key again. An "**H**" will be displayed as soon as this function is active.

5.2 Low pass filter 50 Hz / 60 Hz current selection

To activate the low pass filter for the current measurement, press and hold the "**LPF/HOLD**" key for at least 2 seconds. To deactivate this function, press and hold the "**LPF/HOLD**" key again for 2 seconds. If "**LPF**" is displayed, the function is activated.

5.3 Determine lowest and highest reading

To determine the lowest and the highest reading, press the "**MAX/MIN**" key. To view these readings, press the "**MAX/MIN**" key repeatedly to switch between the lowest and the highest value. When "MIN" is displayed, you are viewing the lowest reading and when "MAX" is displayed, you are viewing the highest reading.
To return to normal measuring mode, press and hold the "**MAX/MIN**" key for at least 2 seconds.
Note: When this function is active, the auto range function is deactivated.

6 Set zero point (current measurement)

To set a new zero point during a current measurement, press the "**FUNC/ZERO**" key. "Zero" will be displayed and the reading has been reset to zero. To reverse this zero setting, press the "**FUNC/ZERO**" key again.

6.1 Changing measuring functions and units

Not all measuring functions can be selected via the rotary switch. Therefore, several measuring functions are assigned to one function. To select different measuring functions, press the "**FUNC/ZERO**" key repeatedly until you have reached your desired measuring function.
You can use the die "**FUNC/ZERO**" key to switch between AC and DC and change the temperature unit.

6.2 Auto Power Off function

If the meter is not used for 30 minutes, it will turn off automatically. One minute before it switches off, the meter will emit a pulsating sound. To turn on the meter again, press any key or choose a different measuring function.
To deactivate this function, press and hold the "**FUNC/ZERO**" key when turning on the meter.
The icon in the display shows that the function is active.

7 Measurement

The individual measuring functions are explained in the following.

7.1 Current measurement (current clamp)

To make a current measurement with the current clamp, first select the right function with the rotary switch. Now open the current clamp by pressing the lever at the side of the meter. Now clamp the cable to be tested with the current clamp. After a short time, you can view the measured value.
Note: Only one cable can be measured at a time. Measuring several cables would cause incorrect readings. To obtain the most accurate measurement result possible, the cable must be positioned as centrally as possible.
Important: During the current measurement, the test leads must not be connected to the meter.

7.2 Voltage measurement

To make a voltage measurement, first connect the test leads to the meter. Then select “V“ with the rotary switch. You can select alternating current or direct current with the “**FUNC/ZERO**“ key. Now touch the object to be tested with the test tips. The display will now show the reading.
Note: Due to the meter’s sensitivity, measured values may occur even when the test leads are not connected. When the reading exceeds 600 V DC, AC (RMS), a sound can be heard.

7.3 Resistance measurement, continuity and diode test

To make a resistance measurement, a continuity test or diode test, first connect the test leads to the meter. Then select “Ω“ with the rotary switch. With the “**FUNC/ZERO**“ key, you can now select one of the functions. Now touch the object to be tested with the test tips. The measured value will be shown in the display.

7.3.1 Resistance measurement

When “OL“ is displayed, this means that the circuit is open or the measurement has been exceeded. When measuring high resistances, e. g. >1 MΩ, it can take a few seconds until a stable reading is displayed.

7.3.2 Diode test

The voltage drop in the forward direction of the diode is measured approximately. If the test leads are connected with reversed polarity, "OL" is displayed.

7.3.3 Continuity test

As soon as the reading is <50 Ω, a sound can be heard. When the reading is >400 Ω, ”OL“ will be displayed.

7.3.4 Capacitance measurement

When making a capacitance measurement, the measured capacitors are charged. To ensure an accurate result, the capacitors must be discharged completely before making a measurement. The meter as well as the test leads can increase the readings.

8 Replacing the batteries

When the battery icon appears in the display, the batteries must be replaced to make sure the meter works properly. This will be the case when the battery voltage is <2.4 V.
To replace the batteries, first disconnect the test leads from the meter. Now turn off the meter. You can now open the battery compartment at the rear side of the meter to replace the batteries. Insert two new 1.5 V AAA batteries. Observe correct polarity. Close the battery compartment. The meter should now work fine again.

9 Warranty

You can read our warranty terms in our General Business Terms which you can find here: https://www.pce-instruments.com/english/terms.

10 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.

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