PCE Instruments PCE-IT 120 Insulation Tester User Manual

Contents

PCE Instruments PCE-IT 120 Insulation Tester

Product Information

- **Product Name:** PCE-IT 120 Insulation Tester
- **Last Change:** 15 August 2019 v1.0
- **Safety Notes:** 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.
- **Delivery Contents:** 1 x insulation tester PCE-IT 120, 1 x test leads with crocodile clips, 1 x test leads with measuring tips, 8 x 1.5 V AA batteries, 1 x bag, 1 x carrying strap, 1 x user manual
- **Specifications:**
  - **Measurement Range:** 250 / 500 / 1000 V
  - **Resolution:** 1 mA
  - **Accuracy:** Not specified
  - **DC Test Voltage:** Test current for insulation measurement
  - **Display:** 2-line 16-digit OLED
  - **Power Supply:** 8 x 1.5 V AA battery
  - **Dimensions:** 175 x 85 x 75 mm
  - **Weight:** Approx. 655 g

- **Environmental Conditions:** Not specified
- **Storage Conditions:** Not specified
- **Protection/Standards:** 600 V CAT III EN 61010-1 EN 61010-2-030 EN 61326-1

Product Usage Instructions

1. Before using the device for the first time, read the user manual carefully and completely.
2. The device should only be used by qualified personnel and repaired by PCE Instruments personnel.
3. Ensure that the device is powered off before making any connections or measurements.
4. Insert the provided 8 x 1.5 V AA batteries into the insulation tester.
5. Connect the test leads with crocodile clips or measuring tips to the appropriate terminals on the insulation tester.
6. To power on the meter, press the [ON/TEST] key. The meter will carry out an automatic battery test under load and display the result.
7. The applied voltage will be automatically measured and displayed. All functions of the meter will be disabled until no applied voltage is measured.
8. To check the battery level at any time, observe the battery icon on the display. If the battery level is too low, the battery icon will flash.
9. The meter's standard mode is the voltmeter function, which measures the applied voltage (AC/DC) before each test and before connecting the test leads.
10. The Auto Hold function is always enabled and holds the last valid measured value, even after disconnecting the test leads. This allows you to view the value on the display after completing the measurement.
11. Pressing the [ON/TEST] key starts and stops a measurement. The EnerSave function automatically terminates a measurement after 10 seconds. To disable the EnerSave function and measure for a longer time, press and hold the [ON/TEST] key until you hear a short sound.
12. To perform a continuity test, press the [LOW] key. The meter will use a short circuit current of 200 mA and can display resistances as small as 0.01 ohms.

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 (crack in the case, damaged OLED, etc.) is visible or an insulation damage at the test leads (bare wires) is apparent, do not use the device and the test leads.
- 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.
- Measurements with the insulation tester may only be made by qualified staff and in line with the requirements described in the manual.
- Damage caused by improper use of the meter, non-observance of general safety regulations or of the instructions in the manual are not covered by the warranty.
- Only replace defective fuses by an equal equivalent.
- The insulation tester fulfils the general safety regulations. However, these do not protect the user from improper use of the meter and the resulting hazards.
- When measuring voltages above 24 V, there is a risk of electric shock.
- Therefore, high-voltage measurements should be made very carefully and not without observing the applicable safety regulations. Non-observance of the safety notes can be life-threatening!
- The parts of the manual that contain information and warnings about possible hazards related with certain measuring operations must be observed.
- When connecting the meter to a live circuit or line, a pulsating alarm tone will sound. Immediately disconnect the insulation tester from the circuit or line when you hear the alarm sound. Additionally, a warning indicator will be displayed on the OLED.
- Operating conditions Indoor use only (not suitable for outdoor use)
- Pollution degree 2
  - **Max. elevation:** 2000 m
  - **Max. air humidity:** 80 % RH
  - **Operating temperature range:** 0 … 40 °C
- Meaning of the imprinted icons
  -  **Attention!** Electric shock hazard
  -  **Caution!** Read the user manual before first use
  -  Double insulated
- 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.

Delivery contents

- 1 x insulation tester PCE-IT 120,
- 1 x test leads with crocodile clips,

- 1 x test leads with measuring tips,
- 8 x 1.5 V AA batteries,
- 1 x bag,
- 1 x carrying strap,
- 1 x user manual

Specifications

Measurement range	2 GΩ / 250 V 4 GΩ / 500 V 8 GΩ / 1000 V ACV: 0 … 700 V DCV: 0 … 950 V Resistance/continuity: 0.01 … 1999 Ω
Resolution	Insulation: 1 / 10 / 100 MΩ ACV: 1 V DCV: 1 V Resistance/continuity: 0.01 / 0.1 / 1 Ω
Accuracy	Insulation: 0.1 MΩ … 4 GΩ: ±3 % 4 GΩ … 8 GΩ: ±5 % ACV: ±1.5 % DCV: ±1.5 % Resistance/continuity: ±2.0 %
DC test voltage	250 / 500 / 1000 V
Test current for insulation measurement	1 mA
Display	2-line 16-digit OLED
Power supply	8 x 1.5 V AA battery
Dimensions	175 x 85 x 75 mm
Weight	approx. 655 g
Environmental conditions	0 … 40 °C
Storage conditions	10… 50 °C
Protection/standards	600 V CAT III EN 61010-1 EN 61010-2-030 EN 61326-1

Short product description

- This insulation tester has all the functions needed to check and verify electrical insulation. The battery voltage is checked whenever the meter is powered on.
- The meter complies with all usual standards.
- The [ON/TEST] key is used to turn on the meter and to start and stop a measurement.

- It is also used to disable the EnerSave function. To do so, press and hold the key for at least 3 seconds when starting a measurement until you hear a short sound.
- Measurements will no longer be interrupted after 10 seconds. You can now make measurements of up to 10 minutes. If you wish to measure in the modes PI and DAR, the EnerSave function must be disabled.
- A measurement can be stopped at any time by pressing the [ON/TEST] key.
- The [LOW] key is a multifunctional key. You can make a continuity test by pressing this key but also initiate the automatic zero setting of the test leads and the fuse. The meter's standard mode after startup is insulation test mode.
- Before making a measurement (Make sure that the included test leads are connected properly and that the fuse is in sound condition!), the meter will go through a voltage test to make sure no voltage is present in the meter or circuit.
- If a voltage is present which could cause a problem for the meter, the meter will switch directly to voltage measurement and show the reading in the display.
- If there is a voltage on the line, the measurement will be terminated automatically and the keypad is locked to avoid unintended operation.
- This makes this insulation tester one of the safest currently available on the market.
- You can start the measurement when no voltage is present anymore.
- If you wish to measure insulation resistances, you can choose a test voltage of 250, 500, or 1000 V. If you wish to make a continuity test, use the [LOW] function to measure low resistances of up to 0.01.
- The acoustic signal will be on automatically. You can zero the fuses and the test leads by using the „Auto Zero" function.
- The Auto Hold function enables you to concentrate on the test leads during the measurement as you can conveniently view the reading on the display after the measurement.
- This function is always enabled so that you can first measure the voltage and then read out the last valid measured value on the display.
- When dangerous voltages are present on the line to be measured, an acoustic signal will sound.

Functions

- **[ON/TEST] key (on/off function)**
  - When the [ON/TEST] key is pressed, the meter will power on, carry out an automatic battery test under load, and display the result.
  - The applied voltage will then automatically be measured and displayed. All functions of the meter will be automatically disabled until no applied voltage is measured.
- **Battery test**
  - The battery test is carried out automatically when the meter is turned on.
  - For this test, a load will be applied to the inserted batteries for a short time and the result will be shown in the display. The battery level will be displayed at any time. The battery icon will flash if the battery level is too low.
- **Voltmeter**
  - There is no key for this measuring function as this is the meter's standard mode. Before each test and before the test leads are connected, the meter will measure the applied voltage (AC/DC).
- **Auto Hold**

    - The Auto Hold function is always enabled (visible on the display).
    - This function holds the last valid measured value so that it is displayed even after disconnecting the test leads. This allows you to concentrate on the test leads during the measurement and view the value on the display when the measurement is finished.
- **250 V, 500 V, 1 kV insulation resistance measurement**
    - If you want to make an insulation resistance measurement, the test leads must be connected to the circuit to be measured.
    - If a voltage is present in the circuit, this voltage will be shown in the display and the resistance measurement will be cancelled. An insulation resistance measurement is only possible if no voltage is present.
    - If no voltage is present, press the key for the insulation resistance measurement and then start the measurement by pressing the [ON/TEST] key.
    - The measurement can be interrupted at any time or is interrupted automatically, depending on the selected measuring mode (see EnerSave).
- **[ON/TEST] key (measuring function)**
    - The [ON/TEST] key can be used to start and stop a measurement (see EnerSave).
- **EnerSave function**
    - If you press the [ON/TEST] key to start a measurement, it will be terminated automatically after 10 seconds.
    - If you wish to measure for a longer time, press and hold the [ON/TEST] key until you hear a short sound, which means that the EnerSave function is disabled.
    - The EnerSave function must be disabled every time you wish to make a longer measurement.
- **[LOW Ω] key for continuity tests**
    - Press the [LOW Ω] key to make a continuity test. A short circuit current of 200 mA will be used. The meter can display very small resistances of up to 0.01 ohms.
- **[LOW Ω] key for Auto Zero**
    - Press the [LOW Ω] key to zero the resistance, the test leads, and the fuse. This function is useful if you use longer test leads.
    - Do not forget to short-circuit the test leads when making a zero setting.
- **[1000V] key for power off (Auto Power Off)**
    - Press and hold the [1000V] key for 5 seconds to switch off the meter.
    - After 5 minutes without pressing any key, the meter will turn off automatically.
- **Automatic discharge after an insulation measurement**
    - After each insulation measurement, the meter will be discharged automatically.
    - The status of the discharge will be displayed in the meantime. The discharge is finished when no voltage is present any longer. Before that, the test leads must not be removed.

Safety checks before the measurement

Check the cables for damage and cracks and replace them, if required. Also inspect the fuse before each measurement by holding the test leads against each other in [LOW Ω] mode. At the same time, the measurement resistance will be set to zero. Always connect the test leads to the circuit to be measured safely and correctly. Never interrupt the connection during a measurement and do not touch the test tips or the sample as the safety mechanisms are not fully effective during the measurement. Always follow the instructions on the display. Do not start a measurement before the test leads have been properly connected to the sample.

Changing the fuse

In order to change the fuse, follow these steps: First remove all test leads. Now open the battery compartment and remove all batteries. Now open the case by loosening both screws in the battery compartment. Now you can change the fuse. Close the meter and re-insert the batteries. The meter can be used again when the battery compartment has been closed.

Further information

PI = Polarisation Index	The ratio between the insulation resistance value measured after the application of th e test voltage continuously for 10 minutes to the insulation resistance value measured after 1 minute of application
DAR = Dielectric Absor ption Ratio	The ratio of the insulation resistance value typically measured at 30 sec and 1 min
AUTO-ZERO	Zero the test leads and the fuse so that only the resistance of the measurement rang e is shown when making a measurement.
	The audible signal is always enabled. If the resistance is low, you will hear a sound.

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.

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 that disposes of the devices in line with the 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

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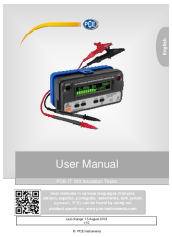
- **www.pce-instruments.com/us** .

Last change: 15 August 2019

Documents / Resources

	PCE Instruments PCE-IT 120 Insulation Tester [pdf] User Manual PCE-IT 120 Insulation Tester, PCE-IT 120, Insulation Tester, Tester

References

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- iberica.es
- instruments.cn - The domain is available for purchase
- Computer Instruments | Home
- Discover Italy: Official Tourism Website - Italia.it
- N.E.E.D.S., (Nutritional Ecological Environmental Delivery System) specializes in providing products, information, and education
- PCEï¼ˆåŒ—äº¬ï¼‰ç§‘æŠ€æœ‰é™å…¬å¸
- Industrial Measurement Products and Solutions | PCE Instruments
- PCE Deutschland GmbH Prüfgeräte vom Hersteller | PCE Instruments
- PCE Brookhuis B.V. | PCE Instruments
- PCE Americas Inc. : Test Instruments | PCE Instruments
- PCE Iberica S.L. Instrumentación | PCE Instruments
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