PeakTech 1090 AC/DC voltage tester with RCD Instruction Manual

Contents

PeakTech 1090 AC/DC voltage tester with RCD

Safety Precautions]

This product complies with the requirements of the following directives of the European Union for CE conformity: 2014/30/EU (electromagnetic compatibility), 2014/35/EU (low voltage), 2011/65/EU (RoHS).
Overvoltage category CAT III 690V /
CAT IV 600V; pollution degree 2.

- **CAT I:** For signal level, telecommunication, electronic with small transient over voltage
- **CAT II:** For local level, appliances, main wall outlets, portable equipment
- **CAT III:** Supplied from a cable under earth; fixed installed switches, automatic cut-off or main plugs.
- **CAT IV:** Units and installations, which are supplied over aerial line, which are stand in a risk of persuade of a lightning, i.e. main-switches on current input, over-voltage-diverter, current use counter.

To ensure safe operation of the equipment and eliminate the danger of serious injury due to short-circuits (arcing), the following safety precautions must be observed.

- Do not use this instrument for high-energy industrial installation measurement. This instrument is intended for use in installation over-voltage category III.
- The meter is designed to withstand the stated max voltages. If it is not possible to exclude without doubts that impulses, transients, disturbance or for other reasons, these voltages are exceeded a suitable prescale (10:1) must be used.
- Do not exceed the maximum permissible input ratings (danger of serious injury and/or destruction of the equipment).
- Check test leads and probes for faulty insulation or bare wires before connection to the equipment.
- To avoid electric shock, do not operate this product in wet or damp conditions. Conduct measuring works only in dry clothing and rubber shoes, i. e. on isolating mats.
- Never touch the tips of the test leads or probe.
- Comply with the warning labels and other info on the equipment.
- Always start with the highest measuring range when measuring unknown values.
- Do not subject the equipment to direct sunlight or extreme temperatures, humidity or dampness.
- Do not subject the equipment to shocks or strong vibrations.
- Do not operate the equipment near strong magnetic fields (motors, transformers etc.).
- Keep hot soldering irons or guns away from the equipment.
- Allow the equipment to stabilize at room temperature before taking up measurement (important for exact measurements).
- Do not input values over the maximum range of each measurement to avoid damages of the meter.
- Use caution when working with voltages above 35V DC or 25V AC. These Voltages pose shock hazard.
- With a low battery, the meter might produce false reading that can lead to electric shock and personal injury.
- Fetch out the battery when the meter will not be used for long period.
- Periodically wipe the cabinet with a damp cloth and mid detergent. Do not use abrasives or solvents.
- Do not operate the meter before the cabinet has been closed and screwed safely as terminal can carry voltage.
- Do not store the meter in a place of explosive, inflammable substances.
- Measuring instruments don’t belong to children hands.

Cleaning the cabinet

Clean only with a damp, soft cloth and a commercially available mild household cleanser. Ensure that no water gets inside the equipment to prevent possible shorts and damage to the equipment.

Explanations of Symbols

	CAUTION! Refer to the user's manual
	Double insolated housing
CAT III 690V	Overvoltage category
	CE-Certification 2004/22/EC
	Right rotation field
	Left rotation field
	Continuity Tester
	Single pole phase tester(100 – 400 VAC 50/60 Hz)
	Measurements in voltage carrying circuits
	DC- negative polarity
	DC- positive polarity
	**Alternating current** (AC)
	Direct and alternating current voltage (DC/AC)
	TÜV Rheinland certificated „safety tested“

Introduction

The two pole voltage tester PeakTech® 1090 and 1095 with many other measurement functions.
Emphasize here the single-pole phase test (AC), the polarity of the DC test-voltage range, the rotational direction signals for 3-phase systems, the continuity test with visual and audible signal and the measuring point illumination. The PeakTech® 1090 also has a test function for residual current circuit breaker (RCD).
These meters are suitable for AC and DC voltage tests in the voltage range of 12 V to 690 V, certified TÜV/GS, and were tested according to EN 61243-3.
Through the dust and splash protection these instruments are suitable for a variety of applications both indoors and outdoors.

Features

- Voltage measurements from 12 V – 690 V AC / DC
- Direction of rotation display for 3-phase systems
- Measuring point illumination for safe work
- Continuity test with audio-visual signal
- Polarity check for DC voltage measurements
- Single-pole phase test for AC Voltage
- IP64 dust and splash proof
- TÜV / GS safety tested
- Low impedance test function for residual current circuit breaker (RCD).

Specifications

PeakTech® 1090

LCD-Display	3 ½-digits (max 1999) with backlight and bargraph
Voltage measuring range	6, 12, 24, 50, 120, 230, 400 AC/DC 690 V DC
resolution	1 V AC/DC
accuracy	DCV: +/- 1,0% + 3 dgt. ACV: +/- 1,5% + 3 dgt.
ACV frequency range	50 / 60 Hz
voltage detection	automatic
polarity detection	full range
range detection	automatic
response time	2 ~ 3 per second
internal impedance	<1 MΩ
Single-Pole Phase Test	
voltage range	100 … 400 V AC
ACV frequency range	50/60 Hz
continuity test	
resistance range	<200 kΩ
test current	<1 µA
overvoltage protection	400 V AC / 690 V DC
rotary field indication	
Voltage range (LED's)	100 … 400 V
ACV frequency range	50/60 Hz
Low impedance test	
voltage range	12 … 230 V AC/DC
low impedance	<6 kΩ
general	
power supply	2 x 1,5 V AAA (UM-4) batteries
operation temperature	0 … 50°C <80% RH
overvoltage category	CAT III 690V / CAT IV 600V

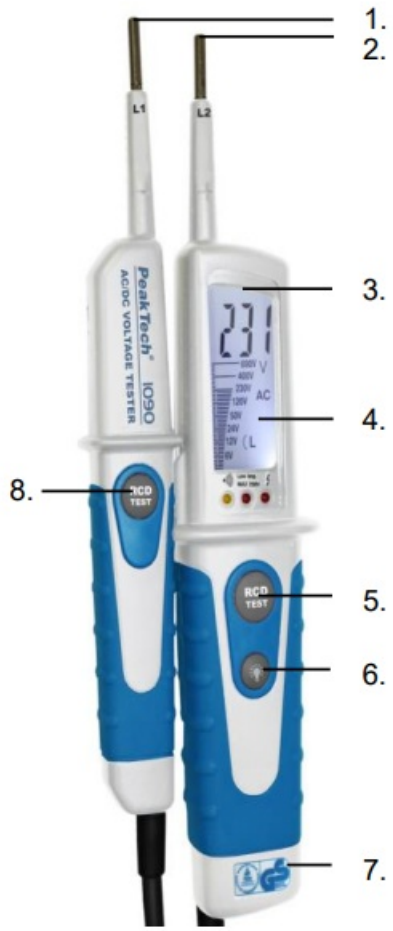
PeakTech® 1095

LED voltage range	+/-12, 24, 36, 50, 120, 230, 400, 690 VDC
	12, 24, 36, 50, 120, 230, 400, 690 VAC
Tolerances	-30% to 0% of reading
Voltage detection	automatic
Polarity detection	full range
Range detection	automatic
Response time	< 0.1s LED
ACV Frequency range	50/60Hz
Automatic load (RCD)	yes
Internal basic load	approx. 2.1 W at 600V
Peak current	1s <0.2A / Is (5s) < 3.5mA
Operation time	ED =30s
Recovery time	10 min
LED on	about 8V AC/DC
Single-pole Phase Test	
Voltage range	100…690 V AC
ACV Frequency range	50/60 Hz
Continuity Test	
Resistance range	<300 kΩ
Test current	5 µA
Overvoltage protection	690 V AC/DC
Rotary Field Indication	
Voltage range (LEDs)	100…400 V
Frequency range	50/60 Hz
Measurement principle	double-pole and contact electrode
Self-check Test	autotest
Power supply	2×1.5 V “AAA” batteries
Power consumption	max.30 mA / approx. 250 mW
Temperature range	-10°C up to +55°C
Humidity	< 85% relative humidity

Overvoltage class	CAT III 690V / CAT IV 600V

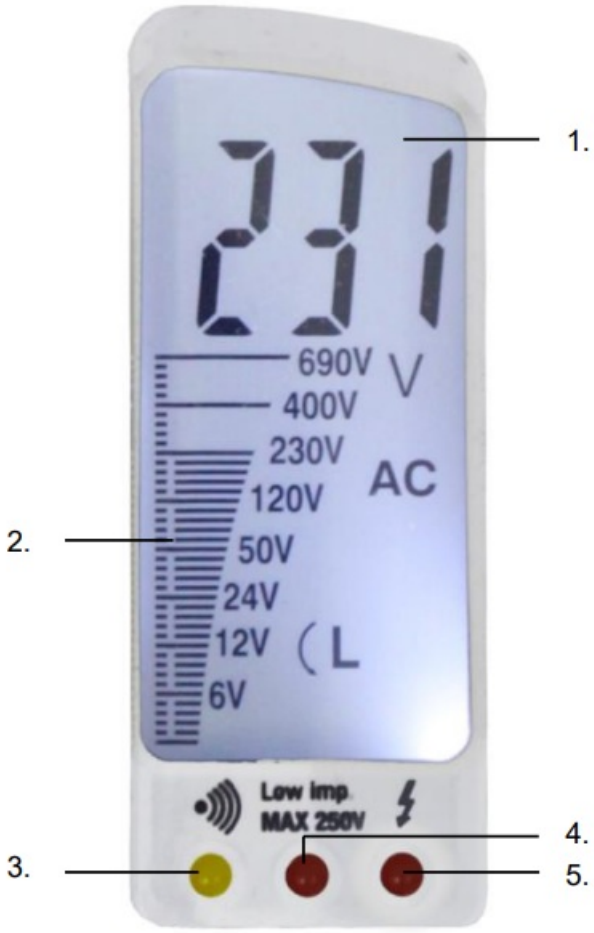
Description of the Tester

PeakTech® 1090



1. Test probe – (L1)
2. Test probe + (L2)
3. Measurement point illumination
4. LCD-display
5. Button for low impedance test (L2)
6. Button for measurement point illumination
7. Battery case
8. Button for low impedance-test (L1)

Indicator PeakTech® 1090

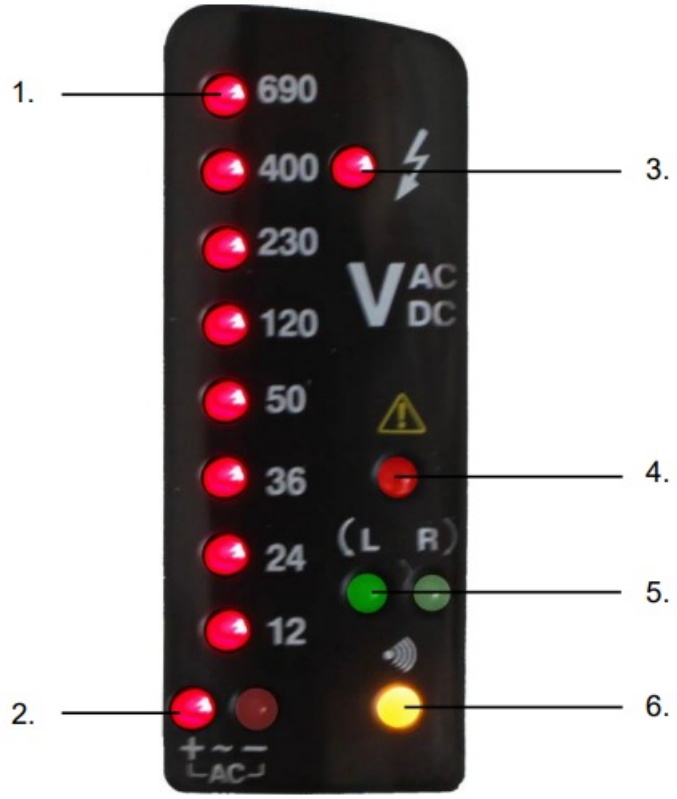


1. 3 ½-digit LCD-display
2. Bargraph
3. LED for continuity test
4. LED for low impedance test
5. LED for single-pole phase test

PeakTech® 1095

1. Probes L1 and L2
2. LED display
3. Auto-test button
4. Key for Measuring point illumination
5. Battery compartment with screw on the underside

Indicator PeakTech® 1095



1. Voltage display 12 – 690 V
2. Polarity indication (DC) / Alternating current Display (AC)
3. Voltage display / single-pole phase indicator (AC)
4. Warning light for voltages above 50 V
5. 3 phase rotation indicator system Left / Right
6. Indicator for continuity testing

Preparation for measuring operating

Function test / self test

- Test the voltage tester on a known source.
- The “  ” LED will light on when there is a voltage over 50 V, even if the battery is low or if the battery has been removed.

  Warning: To avoid electric shock, disconnect the test leads from any source of voltage before turn on the self-check test function.

PeakTech® 1090
Hold together the two probes L1 + L2 and short them. The display will illuminate, the audible signal sounds and the LED for the continuity test lights on. The LEDs for the low impedance test and the single-pole phase test are off.

PeakTech® 1095
Caution: To avoid electric shock, disconnect the probes from the power source before you run the auto-test

function.
When press “Auto-Test”- button, all voltage LEDs must be on, also the continuity test’s LED and the buzzer sound. This shows the self-test was done.

Operation

Voltage Test

- Connect both test probes with power source.
- As from a voltage of >6 V (P 1090) resp. >12 V (P 1095) the voltage tester switches on automatically.
- The voltage is displayed via LCD-display (P 1090) resp. LEDs (P 1095).
- For AC voltages the “AC“-symbol is displayed in the LCD-display (P 1090) resp. the AC-LED is illuminated (P 1095).
- For DC voltages the “DC”-symbol is displayed in the LCD-display (P 1090) resp. the “-DC or +DC“ LED is illuminated (P 1095).
- The voltage measurement value is displayed numerically on the LCD display (P 1090) or over seven LEDs (12 ~ 690 V)(P 1095) and shows the applied voltage.
- The polarity of the voltage displayed refers to the instrument test probe (L2).

Single-pole phase Test

- The single-pole phase test is only possible when batteries are installed and in good condition.
- The single-pole phase test starts at an AC voltage of approx. 100 V (pole >100 V AC).
- When using single-pole phase tests to determine external conductors the display function may be impaired under certain conditions (e. g. for insulating body protective equipment on insulation locations).
- The single-pole phase testing is not appropriate to determine whether a line is live or not. For this purpose, the double-pole voltage test is always required.
- The LED is illuminated in the display.
- Probe “L2” with voltage source connected to the single-pole phase test LED lights. Using the P 1090 simultaneously the LCD display lights, but it does not display any voltage value. So, please perform the two-pole voltage test afterwards.

Continuity Test

- The continuity test is only possible if there are batteries with sufficient power.
- Continuity test works only on non- active conductors.
- Use both probes to measure the conductor.
- Continuity test will only work with circuit resistances <200 kΩ (P 1090) / <300 kΩ (P 1095).
- A continuous beep sounds and the corresponding LED lights.

Rotary Field Indication

- The voltage testers are equipped with a double-pole rotary field indicator. Detection of the rotating field works only with earthed systems. Both handles have to be held tightly in order to ensure a capacitive coupling to the ground.

- The rotary phase indication is always active. The symbols “R” or “L” are always displayed. However, the rotary direction can only be determined within a 3 – phase system. The instrument indicates the voltage between two external conductors.
- Connect the instrument test probe “L2” with the supposed phase “L2” and the handle test probe “L1” with the supposed phase “L1”.
- The voltage and the rotary field direction are displayed on LCD (P 1090) resp. LED (P 1095).
- “R” signifies that the supposed phase L1 is the actual phase L1 and the supposed phase L2 is the actual phase L2.
- “L” signifies that the supposed phase L1 is the actual phase L2 and the supposed phase L2 is the actual phase L1.
- When re-testing with exchanged test probes the opposite symbol has to be illuminated.

Measurement Point Illumination

- Voltage testers are equipped with a measurement point illumination feature.
- Thus, working under bad lighting conditions (e.g. division switch cabinets) is made easier.
- Press button for measurement point illumination  on instrument.
- A bright LED lights now the area before the probe “L2”.

Voltage measurement with low internal impedance (P 1090)
This function is particularly useful for testing installations. Due to the lowered internal impedance.
Capacitive voltage is suppressed. The reading shows the actual voltage applied. Similarly, measuring phase “L1” on earth wire “PE” may trigger fault-current circuit breakers (FI or RCI). This measuring procedure can be used for measurements above 12V. Always hold the voltage tester by the handles designed for this purpose. Never touch the device beyond the handle ends.
Hold the two test tips onto the measuring points to be tested. Press the two push-buttons and simultaneously. The applied voltage is shown on the LCD display. The Low-Imp LED signals low impedance measurement.

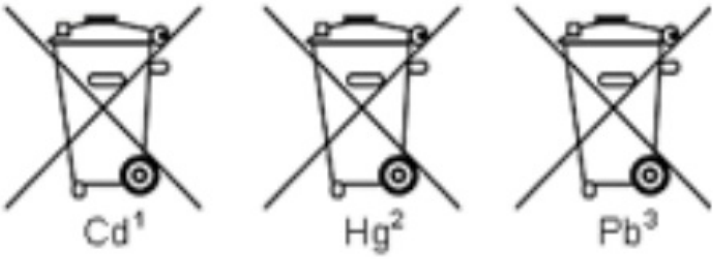
Caution! The maximum permitted duty cycle in low impedance operating mode is 5 seconds for voltage up to 250 V and 3 seconds for voltages up to 690V. When this time has lapsed, wait for 10 minutes.

Replacing the batteries

- Short the Test-probes to test and if no signal is heard or the AUTO-test no longer works, the batteries should be replaced
- Disconnect the voltage detector completely from any power source
- Open the battery compartment with the cross-bolt on the bottom of the unit
- Remove the battery cover off down
- Replace the batteries with new ones of the same type 1,5V “AAA” (UM4 R03)
- Ensure the correct battery polarity
- Close the battery compartment and re-screw the cover completely

Notification about the Battery Regulation

The delivery of many devices includes batteries, which for example serve to operate the remote control. There also could be batteries or accumulators built into the device itself. In connection with the sale of these batteries or accumulators, we are obliged under the Battery Regulations to notify our customers of the following:
Please dispose of old batteries at a council collection point or return them to a local shop at no cost. The disposal in domestic refuse is strictly forbidden according to the Battery Regulations. You can return used batteries obtained from us at no charge at the address on the last side in this manual or by posting with sufficient stamps.
Contaminated batteries shall be marked with a symbol consisting of a crossed-out refuse bin and the chemical symbol (Cd, Hg or Pb) of the heavy metal which is responsible for the classification as pollutant:



1. “Cd” means cadmium.
2. “Hg” means mercury.
3. “Pb” stands for lead.

This manual is according the latest technical knowing. Technical alterations reserved.
We herewith confirm that the units are calibrated by the factory according to the specifications as per the technical specifications.
We recommend to calibrate the unit again, after 1 year.

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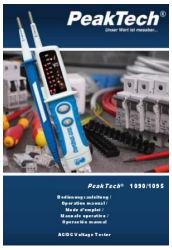
Documents / Resources

	PeakTech 1090 AC/DC voltage tester with RCD [pdf] Instruction Manual 1090 AC DC voltage tester with RCD, 1090, AC DC voltage tester with RCD, voltage tester with RCD, tester with RCD, RCD

References

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