32233L

SW STAHL
PROFESSIONAL TOOLS

INSTRUCTION MANUAL

HIGH-VOLTAGE TESTER

GENERAL DESCRIPTION

This voltage tester is capable of performing the following test:

- AC/DC voltage test
- Continuity and diode test
- Single-pole voltage detection
- Phase rotation test

The tester is dust-proof and protected against splashing water on all sides in accordance with protection class IP64 and has an LED light on the front. Two AAA batteries are included in the scope of delivery.

Our tools were designed and produced with the greatest of care and must be used solely for their intended purpose. The tools must only be used by trained specialist personnel. SW-Stahl shall bear no liability for improper use and the resulting damage or injury to persons, objects, or devices. Improper use or modifications to the products shall render the warranty null and void. SW-Stahl reserves the right to modify the design and designations of the tools and the materials used for them without prior notice. This condition exists particularly to allow products to be adapted to the latest state of the art.

SAFETY INSTRUCTION

1. This manual contains information that must be followed for operating the tester safely and maintaining the tester in a safe operating condition. If you don't follow the instructions in this manual, the protection provided by the tester may be impaired.
2. Before use, inspect the case and cable for damaged insulation or exposed metal. Do not use the tester if it is damaged.
3. Use caution when working with voltage above 30 volt AC rms, 42 volt peak or 60 volt DC. Such voltages pose a shock hazard.
4. When using the tester, only its handles may be touched and held. Do not touch probe and any metal part.
5. Use the tester only under specified condition (see the "Specification" section). Do not apply a voltage higher than 690 volts to the tester or to a probe of the tester.
6. Before use, verify the tester's operation by measuring a known voltage.

7. Dot not use the tester if it operates abnormally.
8. Dot not use the tester if the tester or your hand is wet.
9. Do not operate the tester in a place where flammable or explosive gas (or dust) is present.
10. The safety can no longer be insured if the tester:
    a. Shows obvious damage
    b. Does not carry out the desired measurements
    c. Has been stored too long under unfavourable conditions
    d. Has been subjected to mechanical stress (i.e. during transport)
11. For each test, the max. test duration is 30 sec. When this time has elapsed, you must wait at least 4 minutes before retesting.
12. For single-pole voltage test, due to the tester's detection limit, a line (or conductor) under test may be live even if the tester's built-in buzzer does not sound and the "ϟ" LED does not light.
13. To avoid electric shock, do not touch any naked conductor with hand or skin and do not ground yourself.
14. To avoid electric shock, do not hold the tester anywhere above tactile barrier (see figure 1).
15. Disconnect circuit power and discharge all capacitors before testing resistance, diode and continuity.
16. Adhere to local and national safety codes. Use individual protective equipment to prevent shock and arc blast injury when working in an area where hazardous live conductors are exposed.
17. Depending on the internal impedance of the voltage detector there will be a different capability of indicating the presence or absence of operating voltage in case of the presence of interference voltage.
18. A voltage detector of relatively low internal impedance, compared to the reference value of 100 kOhm, will not indicate all interference voltages having an original voltage value above the ELV level. When in contact with the parts to be tested, the voltage detector may discharge temporarily the interface voltage to a level below the ELV, but it will be back to the original value when the voltage detector is removed.

19. When the indication "voltage present" does not appear, it is highly recommended installing earthing equipment before work.

20. A voltage detector of relatively high internal impedance, compared to the reference value of 100 kOhm, may not permit to clearly indicate the absence of operating voltage in case of presence of interferences voltage.

21. When the indication "voltage present" appears on a part that is expected to be disconnected of the installation, it is highly recommended confirming by another means (e.g. use of an adequate voltage detector, visual check of the disconnecting point of the electric circuit, etc.) that there is no operating voltage on the part to be tested and to conclude that the voltage indicated by the voltage detector is an interference voltage.

22. A voltage detector declaring two values of internal impedance has passed a performance test of managing interference voltages and is (within technical limits) able to distinguish operating voltage from interference voltage and has a means to directly or indirectly indicate which type of voltage present.

SYMBOLS

~ Alternating Current

⎓ Direct Current

≂ Both, direct and alternating current

 Caution, risk of danger, refer to the operating manual before use

 Caution, risk of electric shock

 Earth (ground) Terminal

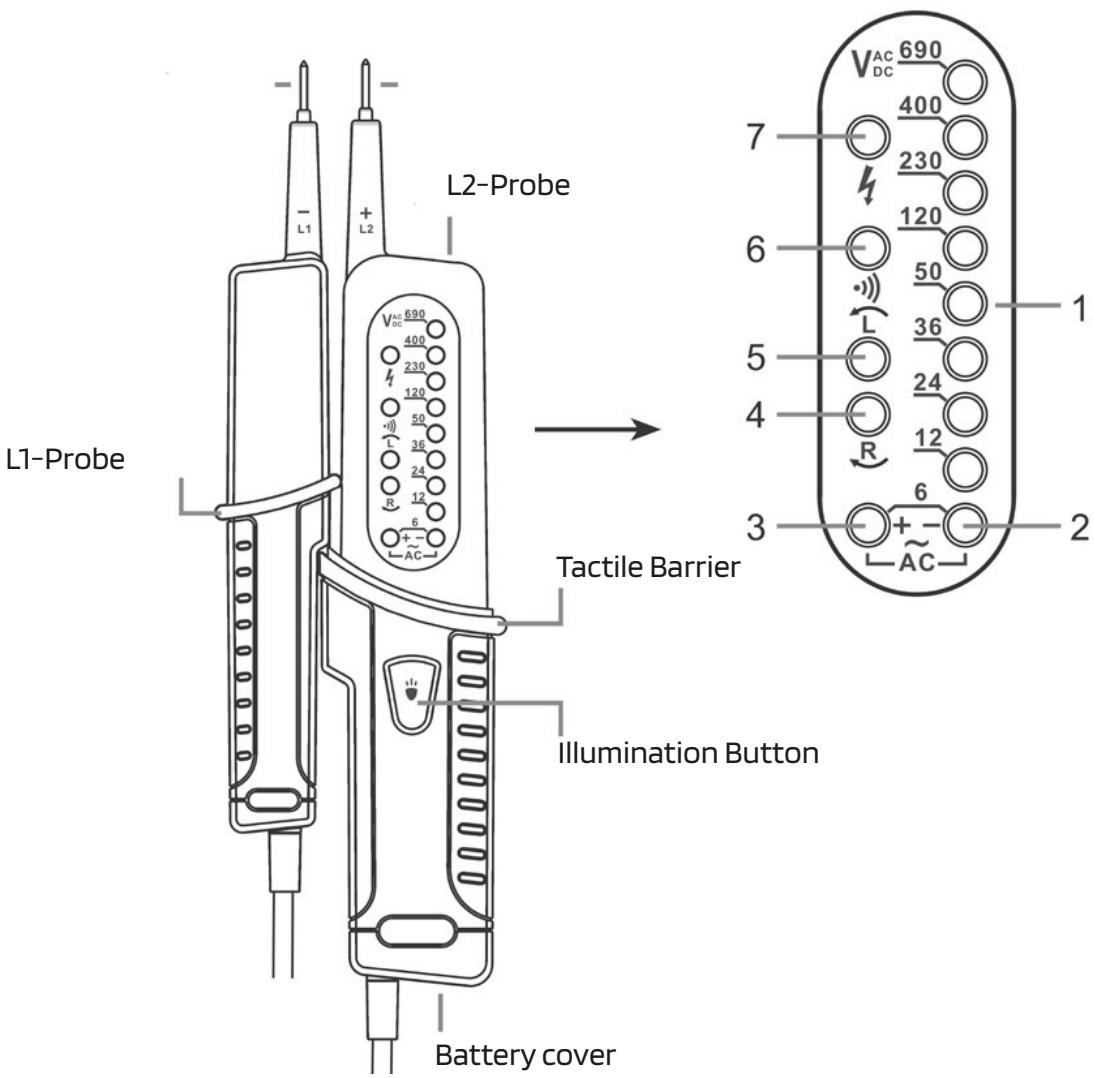
CE Conforms to European Union directives

 The equipment is protected throughout by double insulation or reinforced insulation

STRUCTURE

1. Voltage indicators
2. "–" LED
3. "+" LED
4. Phase sequence indicator right
5. Phase sequence indicator left
6. Continuity indicator
7. AC indicator

Figure 1

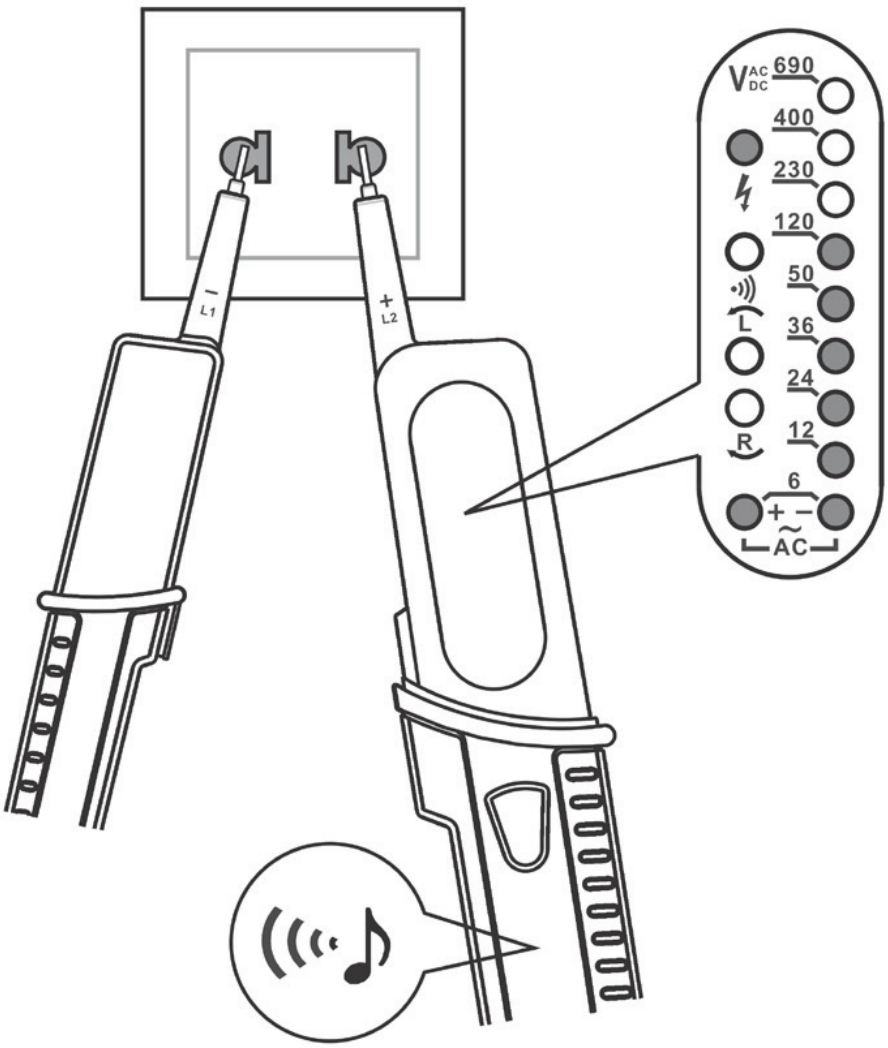


OPERATION INSTRUCTION

Note: In all the following tests and measurements, this manual describes only the fundamental indications of the tester. During actual test or measurement, the tester may also give other additional or meaningless indication(s), which should be ignored. This is normal and does not affect measurements.

MEASURING AC VOLTAGE

Figure 2



1. Connect the L1 probe and L2 probe across the voltage source or circuit to be measured.

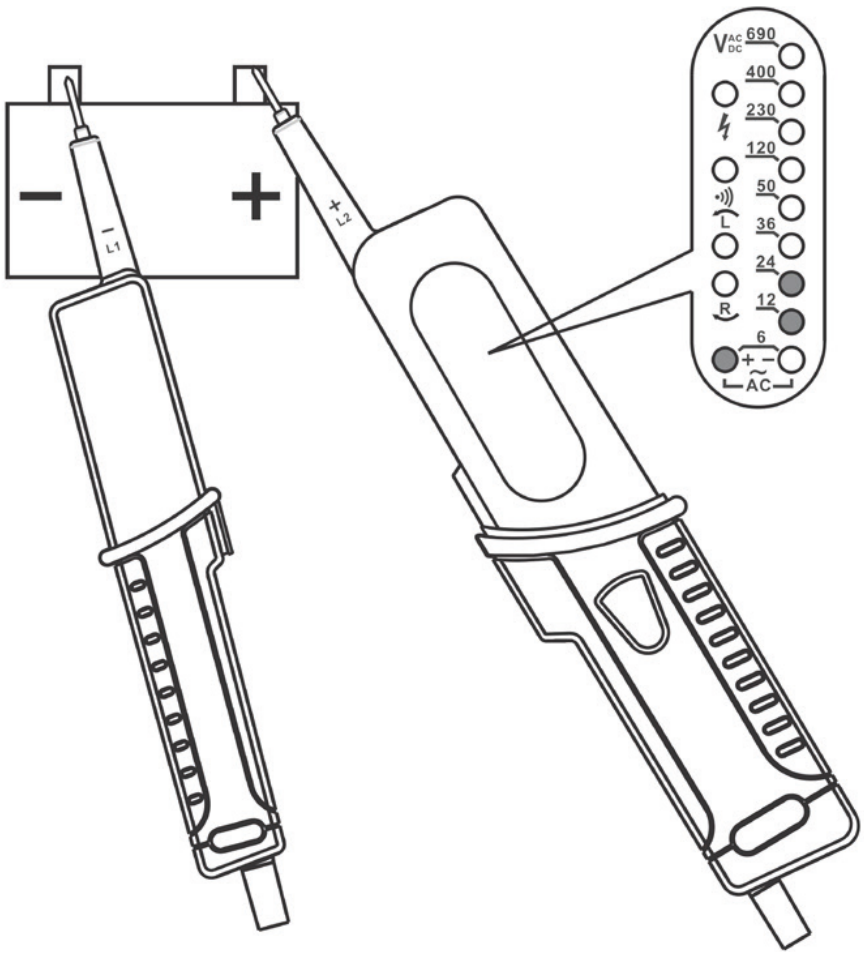
2. The voltage indicators indicate the voltage value (in Volt), the "+" LED and "–" LED light up together, the built-in buzzer sounds, and the "⚡" LED lights up.

NOTE:

1. The buzzer and "⚡" LED are enabled only when batteries are installed and in good condition.
2. The max. measurement duration is 30 sec., the required interval is at least 4 minutes.

MEASURING DC VOLTAGE

Figure 3



1. Connect the L1 probe and L2 probe across the voltage source or circuit to be mea-

sured.

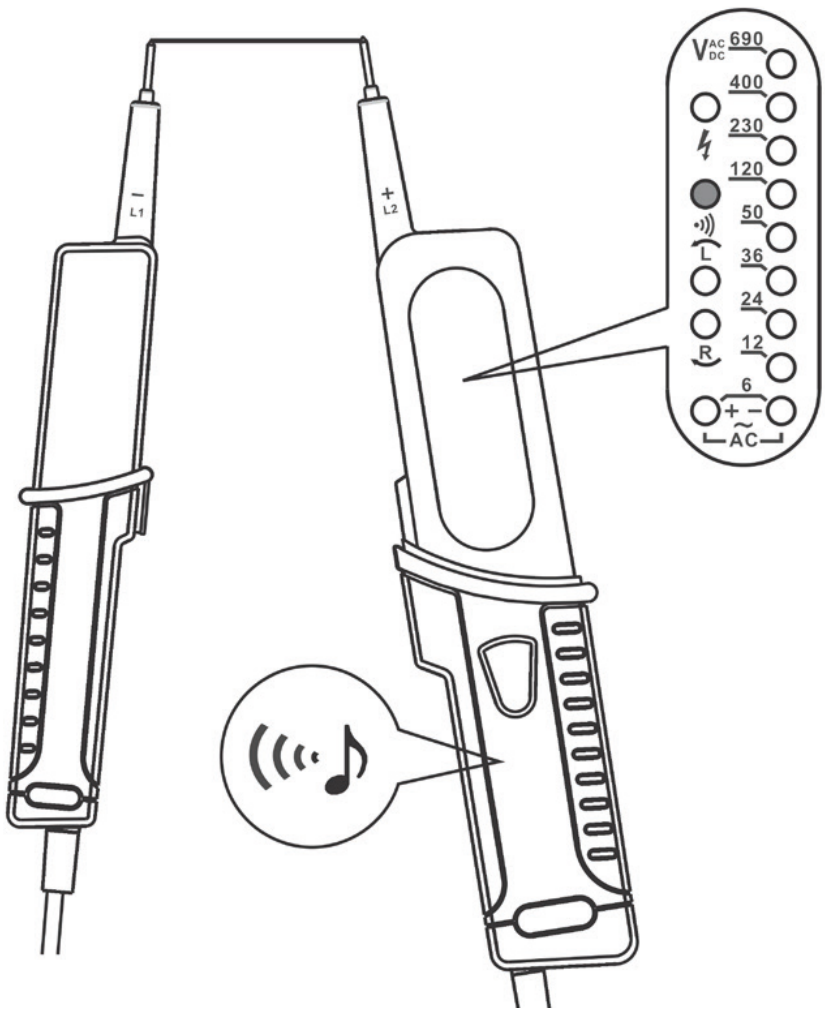
2. The voltage indicator indicates the voltage value (in Volt). In addition, if the L2 probe is connected to the positive terminal of the voltage source or circuit, the "+" LED will light. If the L2 probe is connected to the negative terminal of the voltage source or circuit, the "–" LED will light, and the buzzer will sound.

NOTE:

1. The buzzer is enabled only when batteries are installed and in good condition.
2. The max. measurement duration is 30 sec., the required interval is at least 4 minutes.

CONTINUITY TEST

Figure 4



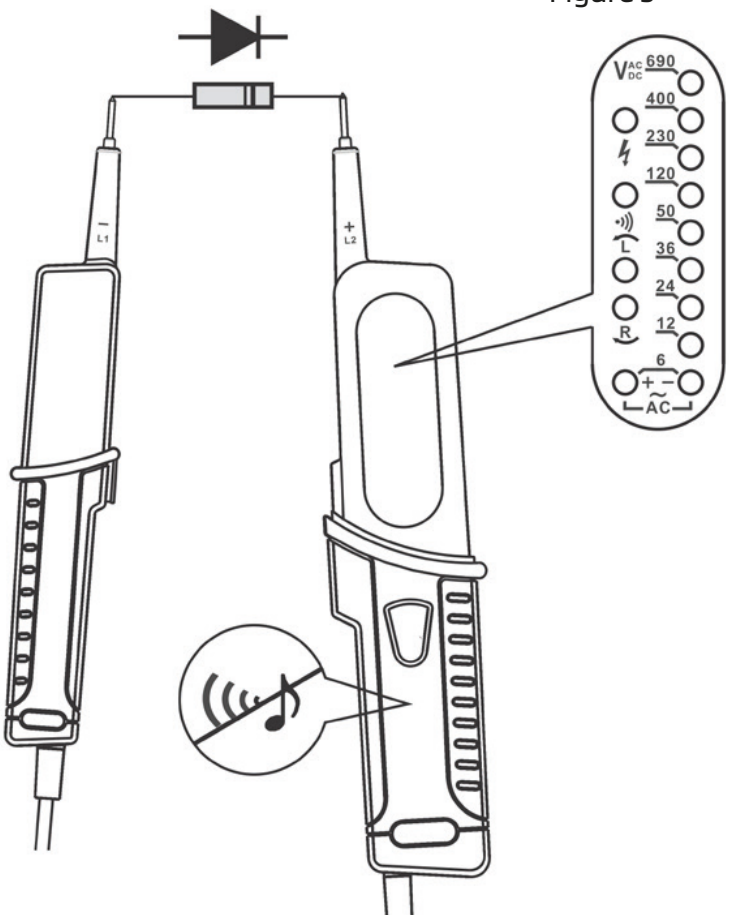
1. Connect the L1 probe and L2 probe across the circuit to be tested.
2. If the circuit's resistance is less than 200 kOhm, the buzzer will sound and the "•))) " LED will light up. If the resistance is more than 500 kOhm, the buzzer will not sound and the "•))) " LED will not light up. If the resistance is between 200 kOhm and 500 kOhm, the buzzer may or may not sound and the "•))) " LED may or may not light up.

NOTE:

1. The continuity test is available only when batteries are installed and in good condition.
2. Before test, disconnect all power to the circuit and discharge all capacitors thoroughly.

DIODE TEST

Figure 5



1. Connect the L1 Probe to the cathode of the diode to be tested and the L2 probe to the anode of the diode. The buzzer should sound and the "•))) " LED should light up. Reverse the two probes' connections, the buzzer should not sound and the "•))) " LED should not light up.
2. If the test result is different from the instruction described above, the diode is bad.

NOTE:

1. The diode test is available only when batteries are installed and in good condition.
2. Before test, disconnect all power to the circuit and discharge all capacitors thoroughly.

SINGLE POLE VOLTAGE DETECTION

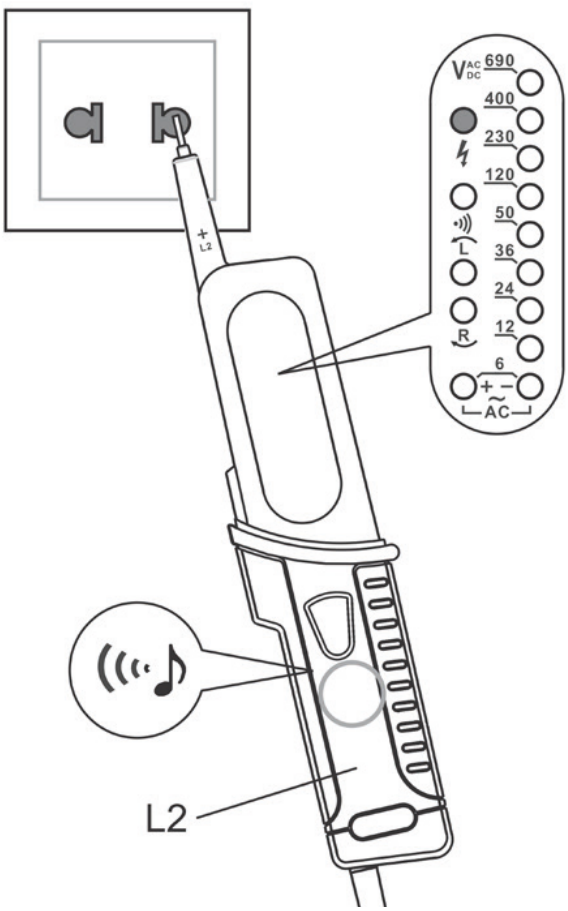


Figure 6

1. Connect the L2 probe or L1 probe to naked conductor of the wire to be tested.
2. If an AC voltage of more than 100 V is present, the buzzer will sound, and the "⚡" LED will light.

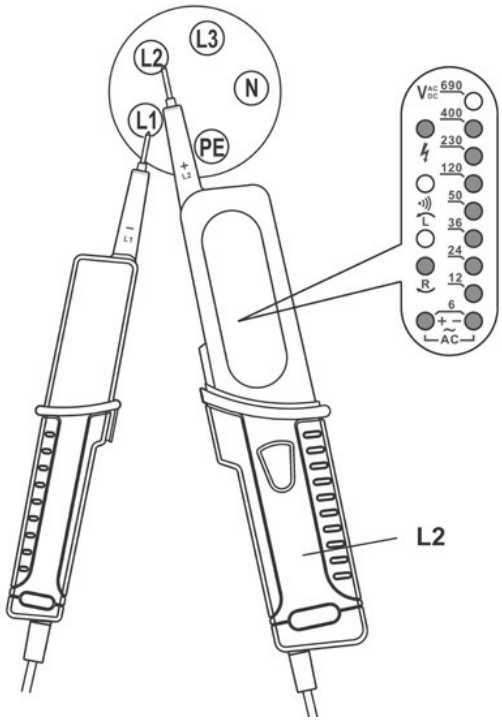
NOTE:

1. Single pole voltage detection is available only when batteries are installed and in good condition.
2. Single pole voltage detection is intended only as a quick check. The circuit must be checked again for the presence of voltage using the two-pole method.
3. The single pole voltage detection can be negatively affected by unfavorable conditions such as electrostatic field, good insulation, etc.
4. Before test, verify the tester's operation by testing a known live wire.

PHASE ROTATION TEST

Rotary phase of a three-phase mains

Figure 7



RIGHT ROTARY FIELD

LEFT ROTARY FIELD

1. 1Testing of phase-sequence direction is possible from 100V AC voltage (phase to phase) provided the neutral is earthed.
2. Hold the L2 handle firmly with one hand. See figure 7, connect probe L1 to the supposed phase L1 and probe L2 to the supposed phase L2. If the "**R**" LED lights up, the two phases under test are connected in clockwise rotation.

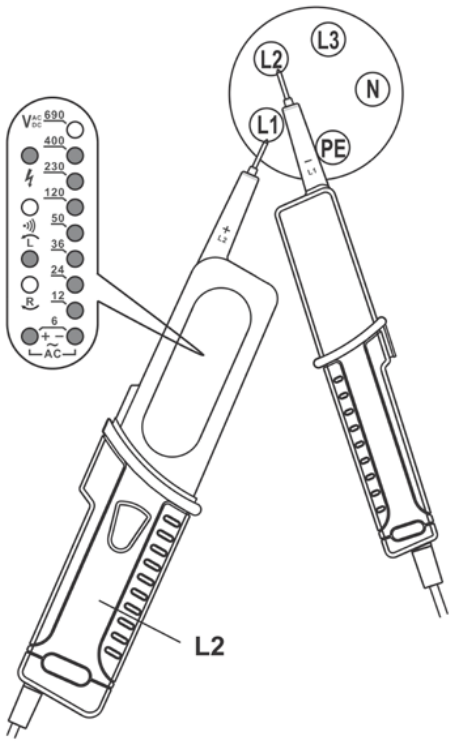


Figure 8

If the "**L**" LED lights up, the two phases under test are connected in anticlockwise rotation and you should reverse the two probes and test again.

NOTE:

1. Testing the phase rotation always requires a negative phase rotation test!
2. Before test, verify the tester's operation by testing a known three-phase power supply.
3. Please ensure that the probes make a good contact with the two phases of the three-phase mains while testing the phase rotation.

ILLUMINATION

Press and hold down the illumination button (" " button) to turn on the illumination LED. Release the button to turn it off.

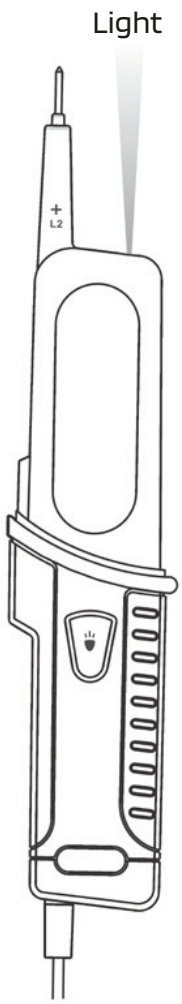


Figure 9

BATTERY REPLACEMENT

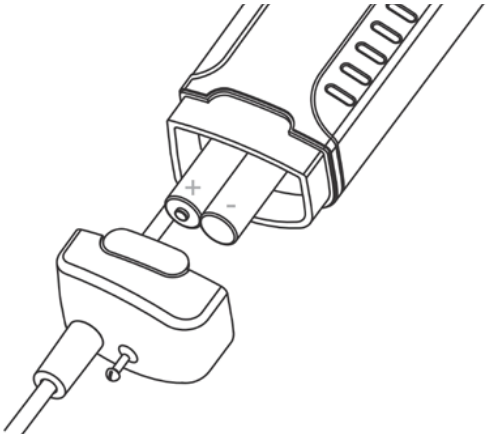
In one of the following conditions, the batteries are low and should be replaced immediately:

1. The buzzer does not sound or the "•))) " LED does not light when you short the two probes together.
2. The illumination LED does not light when you press the illumination button.

Use the following procedure to replace batteries:

1. Disconnect the tester from any circuit under test.
2. Remove the screw on the battery cover with a suitable screwdriver and remove the battery cover.
3. Remove the exhausted batteries
4. Install two new 1,5V batteries (AAA or equivalent) into the battery compartment, make sure that the polarity connections are correct (refer to figure 10).
5. Reinstall the battery cover and the screw.

Figure 10



CLEANING

Prior to cleaning, remove the tester from all circuits under test. Use a moist cloth and a mild household detergent to clean it. Never use abrasive or solvent.
After cleaning do not use the voltage tester until it is completely dry.

TRANSPORT AND STORAGE

1. Remove the batteries from the tester when you do not use the tester within a long period.
2. The tester must be stored in a dry area when not in use.
3. After the tester is transported in extreme temperatures, a recovery time of at least 2 hours is required prior to using the tester.

MAINTENANCE

1. When using tester in compliance with the manual, no particular maintenance is required.
2. Except replacing battery, never attempt to repair or service the tester unless you are a qualified technician.

DISPOSAL OF THIS ARTICLE

If you at some point intend to dispose of this article, then please keep in mind that many of its components consist of valuable materials, which can be recycled.
Please do not discharge it in the garbage bin, but check with your local council for recycling facilities in your area.

SPECIFICATION

Voltage Range	6 – 690 V AC/DC
Resolution	+/- 6, 12, 24, 36, 50, 120, 230, 400, 690 V
Voltage Detection	Automatic
Buzzer Sound AC voltage:	Yes; "–" DC voltage: Yes
Polarity Detection	Full range
Range detection	Automatic
Response time	< 0,1 sec.

Frequency range	DC, 45 – 65 Hz
Peak current	< 3,5 mA
Internal Impedance	8,7 kOhm
Operation time	max. 30 sec.
Recovery time	240 sec.
Auto Power on	> 6 V AC/DC
Single pole voltage	100 – 690 V, 45 – 65 Hz

Continuity test

Test current	< 20µA
Overvoltage Protection	690 V AC/DC

Rotary Field indication

Voltage range	100 - 690 V
Frequency	50 Hz / 60 Hz

Battery	2x 1,5V AAA
Temperature	-10 - +55 °C
Relative humidity	< 85%
Altitude	< 2000 m
Overvoltage class	CAT III 690 V, CAT IV 600 V
Pollution degree	2
IP degree	IP64
Weight	303 g (including battery)
Size	30 x 9 x 4 cm (in storage state)

EU-KONFORMITÄRSERKLÄRUNG
EC DECLARATION OF CONFORMITY
DÉCLARATION DE CONFORMITÉ UE

CE

Wir erklären in alleiniger Verantwortung, dass das Produkt
We declare of our own responsibility, that the product
Nous déclarons sous notre seule responsabilité que le type de construction du

Bestell-Nr. **Order-No.** **N° de commande**	**Bezeichnung** **Description** **Désignation**
32233L	Hochvolt-Spannungsprüfer
32233L	High-voltage tester
32233L	Testeur de haute tension

konform ist mit folgenden Richtlinien, Normen und / oder Verordnungen.
Is in conformity with the following directives, norms and / or regulations.
est conforme aux directives, normes et / ou règlements suivants

EMV Richtlinie 2014/30/EU; EMC Directive 2014/30/EU / Directive CEM
LVD Richtlinie 2014/35/EU; LVD Directive 2014/35/EU / Directive LVD
RoHs Richtlinie 2011/65/EU; RoHs directive 2011/65/EU / Directive RoHs

Harmonisierte Normen:
Harmonized standards:
Normes harmonisées:
EN 61326-1:2013
EN 61326-2:2013

Hersteller Unterschrift:
Heiner Tilly (Geschäftsführer)

Remscheid, den 01.02.2022

INFORMATION FOR PRIVATE ENDUSER

The Electrical and Electronic Equipment Act (ElektroG) contains a large number of requirements for the handling of electrical and electronic equipment. The most important ones are summarised here.

1. SEPARATE COLLECTION OF OLD DEVICES:
Electrical and electronic equipment that has become waste is referred to as old devices. Owners of old devices must dispose of them separately from unsorted municipal waste. In particular, old devices do not belong in household waste, but in special collection and return systems.

2. BATTERIES AND ACCUMULATORS AND LAMPS:
As a rule, owners of old devices must separate batteries and accumulators that are not enclosed in the old device, as well as lamps that can be removed from the old device without causing damage, from the old device before handing them in a collection point. This does not apply if old device is prepared for reuse with the involvement of a public waste management authority.

3. OPTIONS FOR RETURNING OLD DEVICES:
Owners of old devices from private households can return them free of charge to the collection points of the public waste management authorities or to the take-back points set up by manufacturers or distributors as defined by the ElektroG.

4. MEANING OF THE SYMBOL „CROSSED-OUT DUSTBIN“:
The symbol of a crossed-out dustbin shown on electrical and electronic equipment indicates that the respective device is to be collected separately from unsorted municipal waste at the end of its service life.

THE FOLLOWING BATTERIES OR ACCUMULATORS ARE CONTAINED IN THIS ELECTRICAL DEVICE:
Battery type: AAA battery
Chemical system: Alkali-manganese

INFORMATION ON HOW TO REMOVE THE BATTERIES OR ACCUMULATORS SAFELY:
- Warning: Make sure that the battery is completely empty.
- Carefully remove the battery or accumulator.
- The battery or accumulator and the device can now be disposed of separately

NOTIZEN

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