Testboy 20 Plus Classical Continuity Tester Instruction Manual

Contents

Testboy
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Testboy 20 Plus Classical Continuity Tester

Safety notes

- **WARNING** An additional source of danger is posed my mechanical parts which can cause severe personal injury. Objects can also be damaged (e.g., the instrument itself can be damaged).
- **WARNING** An electric shock can result in death or severe injury. It can also lead to property damage and damage to this instrument.
- **WARNING** Never point the laser beam directly or indirectly (on reflective surfaces) towards the eyes. Laser radiation can cause irreparable damage to the eyes. You must first deactivate the laser beam when measuring close to people.

General safety notes

WARNING Unauthorized changes or modifications of the instrument are forbidden – such changes put the approval (CE) and safety of the instrument at risk. In order to operate the instrument safely, you must always observe the safety instructions, warnings and information in the “Proper and Intended Use” chapter.

WARNING Please observe the following information before using the instrument:

- Do not operate the instrument in the proximity of electrical welders, induction heaters and other electromagnetic fields.
- After an abrupt temperature fluctuation, the instrument should be allowed to adjust to the new temperature for about 30 minutes before using it. This helps to stabilize the IR sensor.
- Do not expose the instrument to high temperatures for a long period of time.

- Avoid dusty and humid surroundings.
- Measurement instruments and their accessories are not toys. Children should never be allowed access to them!
- In industrial institutions, you must follow the accident prevention regulations for electrical facilities and equipment, as established by your employer's liability insurance organization.
- Each time before use, inspect the instrument to ensure that it is working faultlessly (for example, on known source of voltage, known resistor, etc.).

Please observe the following five safety rules:

1. Disconnect.
2. Ensure that the instrument cannot be turned back on again.
3. Ensure isolation from the main supply voltage (check that there is no voltage on both poles).
4. Earth and short-circuit.
5. Cover neighboring parts that are under live elec-trical load.

Proper and intended use
This instrument is intended for use in applications described in the operation manual only. Any other usage is considered im-proper and non-approved us-age and can result in accidents or the destruction of the instrument. Any misuse will result in the expiry of all guarantee and warranty claims on the part of the operator against the manufacturer.

Remove the batteries during longer periods of inactivity in order to avoid damaging the instrument.
We assume no liability for damages to property or per-sonal injury caused by improper handling or failure to observe safety instructions. Any warranty claim expires in such cases. An exclamation mark in a triangle indicates safety notices in the operating instructions. Read the instructions completely before beginning the initial commissioning. This instrument is CE approved and thus fulfils the required guidelines.

FOR USE BY COMPETENT PERSONS

Anyone using this instrument should be knowledgeable and trained about the risks involved with measuring voltage, espe-cially in an industrial setting, and the importance of taking safety precautions and of testing the instrument before and after using it to ensure that it is in good working condition.
Cleaning
Use a damp cloth and mild household cleaning agent to clean the instrument should it become soiled through daily use. Never use aggressive cleaning agents or solvents to clean the instrument.

Disclaimer and exclusion of liability
The warranty claim expires in cases of damages caused by failure to observe the instruction! We assume no liability for any resulting damage!
Testboy is not responsible for damage resulting from:

- failure to observe the instructions,
- changes in the product that have not been approved by Testboy,
- the use of replacement parts that have not been approved or manufactured by Testboy,
- the use of alcohol, drugs or medication.

Correctness of the operating instructions

These operating instructions have been created with due care and attention. No claim is made nor guarantee given that the data, illustrations and drawings are complete or correct. All rights are reserved in regards to changes, print failures and errors.

Disposal

For Testboy customers: Purchasing our product gives you the opportunity to return the instrument to collection points for waste electrical equipment at the end of its lifespan. The WEEE directive regulates the return and recycling of electrical appliances. Manufacturers of electrical appliances are obliged to take back and recycle all electrical appliances free of charge. Electrical devices may then no longer be disposed of through conventional waste disposal channels. Electrical appliances must be recycled and disposed of separately. All equipment subject to this directive is marked with this logo.

Disposing of used batteries
As an end user, you are legally obliged (by the relevant laws concerning battery disposal) to return all used batteries. Disposal with normal household waste is prohibited! Contaminant-laden batteries are labelled with the adjacent symbol which indicates the prohibition of disposal with normal household waste. The abbreviations used for heavy metals are:
Cd = Cadmium, Hg = mercury, Pb = lead.
You can return your used batteries for no charge to collection points in your community or everywhere where batteries are sold!

Certificate of quality
All aspects of the activities carried out by Testboy GmbH relating to quality during the manufacturing process are monitored permanently within the framework of a Quality Management System. Furthermore, Testboy GmbH confirms that the testing equipment and instruments used during the calibration process are subject to a permanent inspection process.

Declaration of Conformity
The product conforms to the present directives. For more detailed information, go to **www.testboy.de**

Operation

Thank you for choosing the Testboy® 20 Plus. The Testboy® 20 Plus represents the latest advancement in the popular Testboy® 2 series. It features six professional functions for working with electrical cables and wires:

- Low-ohm, optical continuity testing
- High-ohm, acoustic continuity testing
- High-power LED flashlight
- Cable break detection
- Single-pole phase searching
- Protection from external voltages of up to 300 V

Optical continuity testing

Figure 1a

Insert the test leads (as shown in Figure 1a). The large LED display will illuminate between 0 to 20. The intensity of the light decreases proportionally after 10. If an unexpected voltage is applied to the object being measured, the light will illuminate. If a phase is active on one of the wires being tested, the red V~ LED will illuminate!

Acoustic continuity testing
Insert the test leads (as shown in Figure 1b). An acoustic signal can be heard between 0 – 250. The green LED illuminates at the same time.

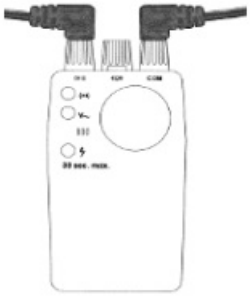

Figure 1b

If an unexpected voltage is applied to the object being measured, the light will illuminate and the buzzer will issue a warning tone! If a phase is active on one of the wires being tested, the red V~ LED will illuminate! The Testboy® 20 Plus is protected against external voltages of up to 300 V~ (for max. 30 seconds)! You can carry out a continuity test while the flashlight is on!

Cable break detection
The cable break detection is intended for non-contact localization of cable breaks on non-exposed live lines.

Figure 2

When the metal clip located in the back of the Testboy® 20 Plus is held over a live cable (> 110 V AC) starting from the feeding point, the V~ LED will illuminate before breaking point. No test leads need to be attached (as show in Figure 2)! A flowing current is not required! The metal clip acts here as an extended sensor. Do not apply the metal clip on uninsulated hazardous live conductors, which may render electric shock, electric burn, or arc flash.
The sensitivity of the electronics increases if the metal clip is touched during the measurement. This means that AC voltage fields can be detected even at distances of several millime-tres!

When carrying out the cable break detection, if the V~ LED does not illuminate, a dangerous high voltage (> 33 V AC or 70 V DC) may nevertheless be present. The non-contact sensor can only detect voltage generated by sufficiently strong electric fields from power sources (grids, > 110 V AC). If the field strength is low, the instrument may not detect applied voltage and thus cannot locate the cable break correctly. If the instrument does not detect any existing voltage, this can be due to the following factors, amongst other things:

- Shielded wires/cables
- Thickness and type of insulation
- Distance from the voltage source
- Condition of the Tester and Batteries

WARNING Exercise caution at voltages above 30 V, as there is a risk of electric shock.
WARNING The non-contact cable break detection function is not suitable for the detection of hazardous line voltage.
CAUTION Before touching conductive parts the absence of hazardous voltage must be checked with the two-pole direct contact measurement of other equipment.

Single-pole phase searching
Plug a test lead in the COM port (as shown in Figure 3).

Figure 3

Before the test, make absolutely sure to disconnect all other test leads. Then touch the probe tip to the wire. Be sure not to touch the clip attached to the back side (move to up position). If a phase is active, the V~ LED will illuminate!

This test is not suitable for determining the presence of hazardous line voltage. During the test, even if V~ LED does not illuminate, a dangerous high voltage (> 33 V AC or 70 V DC) may nevertheless be present.
The tester can only detect voltage generated by sufficiently strong electric fields from power sources (grids, > 110 V AC). If the field strength is low, the tester may not provide indication of live voltages. Lack of an indication occurs if the tester is unable to sense the presence of voltage which may be influenced by several factors including, but not limited to:

- Shielded wire/cables
- Thickness and type of insulation
- Distance from the voltage source
- Receptacles in recessed sockets/ differences in socket design
- Condition of the Tester and Batteries

WARNING Exercise caution at voltages above 30 V, as there is a risk of electric shock.
WARNING The phase searching function is not suitable for the detection of hazardous line voltage.
CAUTION Before touching conductive parts the absence of hazardous voltage must be checked with the two-pole di-rect contact measurement of other equipment.

Changing the batteries

Use a screwdriver to leverage the upper housing section upwards and to-wards the front, between the protruding knobs and the middle socket (refer to Figure 4). To remove the lid, un-hook downwards. Make sure you insert the new batteries with the polarity properly aligned!

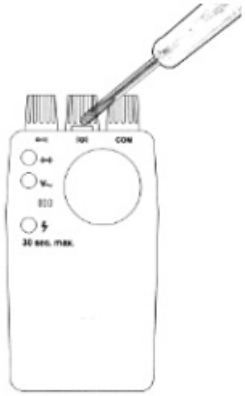

Figure 4

Do not dispose of batteries in normal household rubbish! Use an authorised local collection point!

WARNING! DANGER OF DEATH!
All test leads should be removed before opening up the continuity tester!

Definition of measurement categories

Measurement category II: Measurements on circuits directly connected to low voltage networks electrically via plug. Typical short-circuit current < 10kA.
Measurement category III: Measurements within the building installation (stationary consumer devices with non-plug-in con-nection, distributor connection, permanently installed equipment in the distributor). Typical short-circuit current < 50 kA.
Measurement category IV: Measurements at the source of the low voltage installation (meters, mains connection, primary overcurrent protection). Typical short-circuit current >> 50 kA.

To establish the measurement category in a combination of test lead and measuring instrument, the lowest category, either of the test lead or the measuring instrument, always applies.

Flashlight
Slide the switch on the side of the tester downwards. The high-performance LED can illuminate for up to 80 hours! The lifespan of the LED is over 100,000 hours.

Technical Specifications

Continuity testing optical acoustic	0 – 20 Ohm/0 – 250 Ohm
Protection against external voltage	300 V ~
Power supply	Three 1.5 V size AA bat- teries
Degree of protection	IP 20
Overvoltage category	CAT II 300 V
Testing standard	IEC/EN 61010-1 (DIN VDE 0411)

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Documents / Resources

	Testboy 20 Plus Classical Continuity Tester [pdf] Instruction Manual 20 Plus, Classical Continuity Tester, Continuity Tester, Classical Tester, Tester, 20 Plus Continuity Tester

References

- Testboy Messgeräte & Prüfgeräte | Testboy GmbH