

EN

INSTRUCTIONS
VOLTAGE DETECTOR

Table of contents

Information on the use of these instructions	2
Safety	2
Information about the device	4
Transport and storage	5
Operation	5
Maintenance and repair	6
Disposal	6

Information on the use of these instructions

Symbols



Warning

This signal word indicates a hazard with an average risk level which, if not avoided, can result in serious injury or death.



Caution

This signal word indicates a hazard with a low risk level which, if not avoided, can result in minor or moderate injury.

Notice

This signal word indicates important information (e.g. material damage), but does not indicate hazards.



Info

Information marked with this symbol helps you to carry out your tasks quickly and safely.



Follow the manual

Information marked with this symbol indicates that the instructions must be observed.

You can download the current version of these instructions via the following link:



BE17



<https://hub.trotec.com/?id=43620>

Safety

Read this manual carefully before starting or using the device. Always store the manual in the immediate vicinity of the device or its site of use!



Warning

Read all safety warnings and all instructions.

Failure to follow the warnings and instructions may result in electric shock, fire and / or serious injury.

Save all warnings and instructions for future reference.

- Do not use the device in potentially explosive rooms or areas and do not install it there.
- Do not use the device in an aggressive atmosphere.
- Protect the device from permanent direct sunlight.
- Do not open the device.
- Do not remove any safety signs, stickers or labels from the device. Keep all safety signs, stickers and labels in legible condition.
- The device is only designed to display the voltage range and is not suitable for measuring purposes.
- Immediately before and after each use, test the voltage detector for proper functioning at a known voltage source such as a 9 V battery. The voltage detector must not be used if one or several indications on the voltage detector fail or if the functionality of the device cannot be clearly recognized.
- The voltage detector may only be used within the specified rated voltage range and in electrical installations of up to 400 V.
- The voltage detector may only be used in circuits of overvoltage category CAT III with max. 400 V conductor to earth.
- When using the voltage detector, do not touch the test probes, and only hold the device by the insulated handles.
- For technical reasons, the device cannot display voltages of less than 6 V AC / DC.

- Observe the maximum permissible duty cycle of 30 seconds for voltage detection. The device must never be applied to voltages for more than 30 seconds.
- For technical reasons, the device must not be operated for 10 minutes after each voltage detection. The device may only be used again for the next voltage detection after the rest period of 10 minutes has elapsed.
- After each use, screw the supplied test probe protectors onto the two test probes to prevent injuries.
- Depending on the internal impedance of the voltage detector, the device may either indicate "operating voltage present" or "operating voltage not present" if an interference voltage is present.
- A voltage detector with a relatively low internal impedance will not indicate all interference voltages with an initial value above ELV, compared to the reference value of 100 k Ω . Upon contact with the system parts to be checked, the voltage detector may temporarily reduce the interference voltages by discharging to a level below ELV; however, after the voltage detector has been removed, the interference voltage will assume its original value again.
- If the "voltage present" indication does not appear, it is highly recommended that you insert the earthing device before starting work.
- A voltage detector with a relatively high internal impedance will not clearly indicate "operating voltage not present" if an interference voltage is present, compared to the reference value of 100 k Ω .
- If the "voltage present" indication appears for a part that is considered to be disconnected from the system, it is highly recommended that you take additional measures (e.g. using an additional suitable voltage detector, visual inspection of the disconnection point in the electric network, etc.) to check the "operating voltage not present" state of the system part to be checked, and to make sure that the voltage indicated by the voltage detector is an interference voltage.
- A voltage detector indicating two internal impedance values has passed the design test for handling interference voltages and – within the technical limits – is able to differentiate between operating voltage and interference voltage, and to directly or indirectly indicate the existing type of voltage.
- Observe the storage and operating conditions (see Technical data).

Intended use

Only use the device to indicate voltage ranges between 12 and 400 V DC or 12 and 400 V AC whilst adhering to the technical data. The device may be used in facilities of overvoltage category 3 (CAT III = domestic installations).

Any use other than the intended use is regarded as misuse.

Reasonably foreseeable misuse

Do not use the device in potentially explosive atmospheres, when wet or very humid.

Unauthorized modifications of the device are forbidden.

Personnel qualification

People who use this device must:

- master the 5 safety rules of electrical engineering
 - 1. De-energise
 - 2. Secure against restart
 - 3. Verify de-energised state (bipolar)
 - 4. Earth and short-circuit
 - 5. Cover neighbouring live parts
- use the voltage detector following safe working procedures.
- take measures to protect themselves from direct contact with live parts.
- have read and understood the instructions, especially the Safety chapter.

Electrically skilled person

Electrically skilled personnel must be able to read and understand electric circuit diagrams, to put electrical systems into service and to maintain them, to wire control cabinets, to ensure the functionality of electrical components and to identify possible hazards from electrical and electronic systems.

Residual risks



Warning of electrical voltage

Risk of death due to electric shock!

An electric shock can result in severe personal injury or death! The device may only be used by qualified electricians in accordance with all safety instructions listed here.



Warning of electrical voltage

Electric shock due to insufficient insulation! Check the device for damages and proper functioning before each use.

If you detect damages, do not use the device any longer.

Do not use the device when either the device or your hands are damp or wet!

Do not use the device when the battery compartment or the housing is open.



Warning of electrical voltage

Electric shock due to contact with live parts! Do not touch any live parts. Secure neighbouring live parts by covering them or by switching them off.



Warning

There is a danger of suffocation for children due to packaging material! Keep packaging films and parts away from children. There is a risk of death due to suffocation.



Warning

The device is not a toy and does not belong in the hands of children.



Warning

Dangers can occur at the device when it is used by untrained people in an unprofessional or improper way! Observe the personnel qualifications!



Caution

Keep a sufficient distance from heat sources.

Notice

To prevent damages to the device, do not expose it to extreme temperatures, extreme humidity or moisture.

Notice

Do not use abrasive cleaners or solvents to clean the device.

Notice

Before commissioning, check the function of the device at a known voltage source, e.g. on a known and safe 230 V voltage source or on a known and safe 9 V battery. Select the correct measuring range!

Information about the device

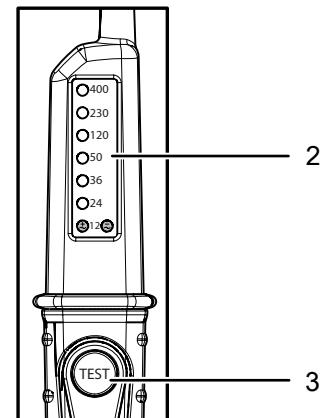
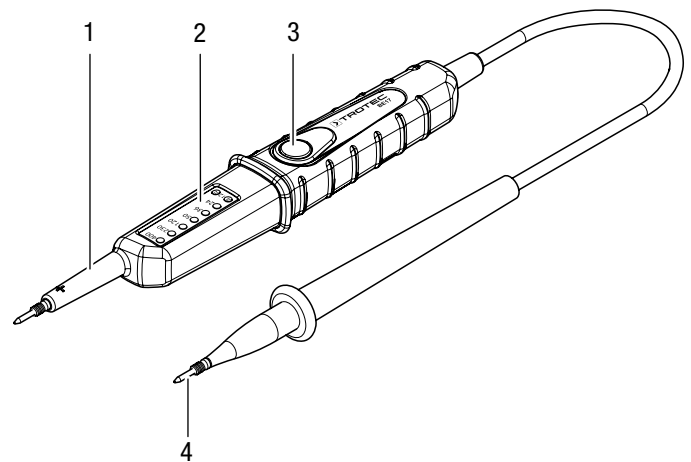
Device description

The bipolar voltage detector serves to indicate voltage ranges between 12 and 400 V DC or 12 and 400 V AC. The voltage amounts are displayed in 7 sections on an LED display with their polarity being indicated.

The device may be used in facilities of overvoltage category 3 (CAT III = domestic installations).

The device further has a function for residual current device (RCD) testing and tripping.

Device depiction



No.	Designation
1	Test probe L1 (+)
2	LED display
3	TEST button
4	Test probe L2 (-)

Technical data

Parameter	Value
Model	BE17
Voltage indication	12/24/36/50/120/230/400 V AC/DC
Display tolerance	-30 % to 0 % of the displayed value
Voltage detection	automatic
Polarity indicator	+ / - / ~
Display delay	< 0.1 s (LED)
Frequency range	50 / 60 Hz
Power consumption	approx. 10.0 W for 400 V
Current peaks	$I_s = 1 \text{ s} < 0.2 \text{ A} / 5 \text{ s} < 3.5 \text{ mA}$
Measuring time	5 s < 230 V AC/DC, 3 s < 400 V AC/DC
Maximum permissible measuring time for voltages	duty cycle = 30 s
Recovery time	10 min
LED display from	approx. 6 V AC/DC
Operating temperature	-10 °C to +55 °C
Relative humidity	85 % max.
Overvoltage category	CAT III – 400 V
Dimensions	240 x 26 x 45 mm
Weight	130 g

Scope of delivery

- 1 x Device BE17
- 1 x Test probes set for measuring sockets
- 1 x Quick guide

Transport and storage

Notice

If you store or transport the device improperly, the device may be damaged.
Note the information regarding transport and storage of the device.

Transport

When transporting the device, ensure dry conditions and protect the device from external influences e.g. by using a suitable bag.

Storage

When the device is not being used, observe the following storage conditions:

- dry and protected from frost and heat
- protected from dust and direct sunlight
- at the temperature specified in the technical data

Operation

Function test

Check the device for reliable functioning at a known voltage source before each voltage detection.

Voltage detection



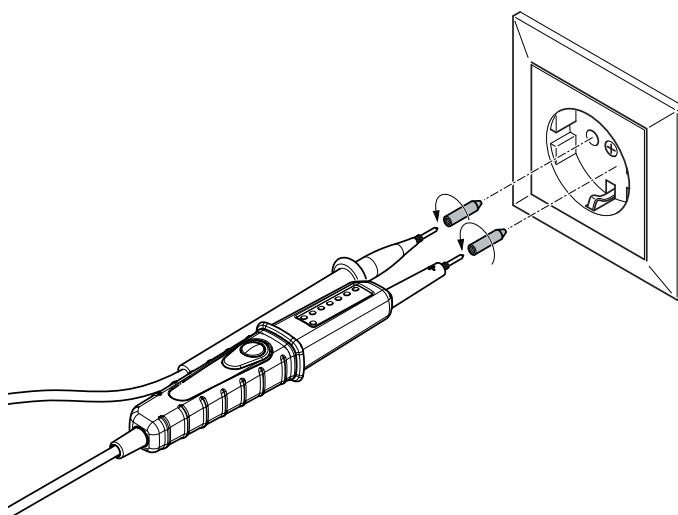
Info

Note that the actual voltage can be up to 30 % lower than the voltage indicated on the display. For example: If a voltage value of 36 V is displayed, the actual voltage can have its range between 25.2 and 36 V (see display tolerance).



Info

Before carrying out the voltage detection on the socket, screw the supplied tips onto both test probes. This ensures an easier voltage detection on the socket.

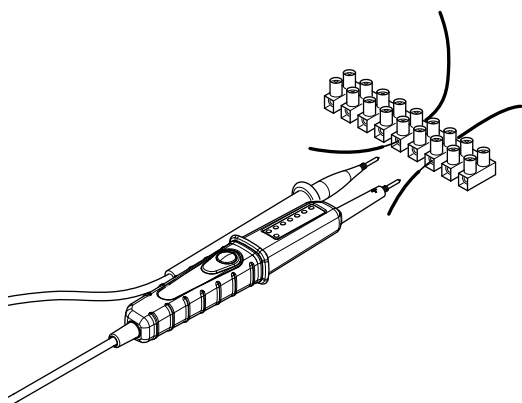


Notice

For technical reasons, the instrument cannot display DC voltages within the range of 0 V to approx. $\pm 6 \text{ V}$.

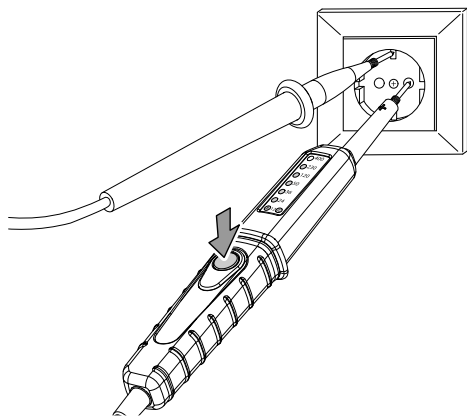
1. Always hold the voltage detector by the insulated handles and never reach behind the gripping areas.

2. Hold both test probes L1 (1) and L2 (4) to the measuring points to be tested.



- ⇒ The LED display (2) is illuminated according to the existing voltage.
- ⇒ The LED display (2) indicates the type of voltage and the respective polarity. If both indicators + and – are illuminated simultaneously, there is an AC voltage.

Testing the residual current protection



Using the *TEST* button (3), the function of the residual current device can be tested (RCD test).

If contact is being made with the phase and the protective conductor while the *Test* button (3) is simultaneously actuated, residual current is simulated and the according residual current device (RCD) trips. If the residual current device does not trip, have the electric installation checked by a professional electrician.

Maintenance and repair

Cleaning

Clean the device with a soft, damp and lint-free cloth. Make sure that no moisture enters the housing. Do not use any sprays, solvents, alcohol-based cleaning agents or abrasive cleaners, but only clean water to moisten the cloth.

Repair

Do not modify the device or install any spare parts. For repairs or device testing, contact the manufacturer.

Disposal

Always dispose of packing materials in an environmentally friendly manner and in accordance with the applicable local disposal regulations.



The icon with the crossed-out wheeled bin indicates that this device and any associated components must not be disposed of with household waste at the end of their life, in accordance with the Waste Electrical and Electronic Equipment Directive (2012/19/EU) and national laws.

You will find collection points for free return of waste electrical and electronic equipment in your vicinity. The addresses can be obtained from your municipality or local administration. You can also find out about other return options that apply for many EU countries on the website <https://hub.trotec.com/?id=45090>. Otherwise, please contact an official recycling centre for electronic and electrical equipment authorised for your country.

The separate collection of waste electrical and electronic equipment aims to enable the re-use, recycling and other forms of recovery of waste equipment as well as to prevent negative effects for the environment and human health caused by the disposal of hazardous substances potentially contained in the equipment.

Only for United Kingdom

According to Waste Electrical and Electronic Equipment Regulations 2013 (SI 2013/3113) (as amended) devices that are no longer usable must be collected separately and disposed of in an environmentally friendly manner.

Trotec GmbH

Grebbener Str. 7
52525 Heinsberg
Germany

☎ +49 2452 962-0

☎ +49 2452 962-200

online@trotec.com

www.trotec.com