

EN

INSTRUCTIONS
CLAMP METER



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Information on the use of these instructions


Symbols


 **Warning of electrical voltage**
This symbol indicates dangers to the life and health of persons due to electrical voltage.

 **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 the instructions and the EU declaration of conformity via the following link:




BE44



<https://hub.trotec.com/?id=42352>

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.

- The device is supplied with a warning sign. Prior to initial start-up, make sure to paste the corresponding warning sign in your local language, if available, over the one present at the rear of the device as described in chapter Operation. Otherwise, choose a label in a language you know.



- 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.
- Use batteries of type AAA.
- Never charge batteries that cannot be recharged.
- Different types of batteries and new and used batteries must not be used together.
- Insert the batteries into the battery compartment according to the correct polarity.

- Remove discharged batteries. Batteries contain materials hazardous to the environment. Dispose of the batteries according to the national regulations.
- Remove the batteries from the device if you will not be using the device for a longer period of time.
- Never short-circuit the supply terminal in the battery compartment!
- Do not swallow batteries! If a battery is swallowed, it can cause severe internal burns within 2 hours! These burns can lead to death!
- If you think batteries might have been swallowed or otherwise entered the body, seek medical attention immediately!
- Keep new and used batteries and an open battery compartment away from children.
- Observe the storage and operating conditions (see Technical data).
- Disconnect the measuring cables from the device before replacing the batteries.

Intended use

Only use the device for measurements within the measuring ranges and overvoltage categories specified in the technical data. Use the specified measuring equipment (clamp meter, measuring cable or non-contact voltage detector, depending on the device).

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.
- be aware of the dangers that occur when working with electric devices in damp areas.
- take measures to protect themselves from direct contact with live parts.
- have read and understood the instructions, especially the Safety chapter.

Residual risks



Warning of electrical voltage

Electric shock due to insufficient insulation! Check the device and the measuring cables for damages and proper function 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 of electrical voltage

When performing non-contact measurements of the current, disconnect the measuring cables from the device beforehand.



Warning of electrical voltage

There is a risk of a short-circuit due to liquids penetrating the housing!

Do not immerse the device and the accessories in water. Make sure that no water or other liquids can enter the housing.



Warning of electrical voltage

Work on the electrical components must only be carried out by an authorised specialist company!



Warning

Risk of suffocation!

Do not leave the packaging lying around. Children may use it as a dangerous toy.



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 avoid damages to the device, make sure that the correct measuring range is selected before carrying out a measurement.

If you are unsure, select the largest measuring range. Remove the measuring cables from the measuring point before changing the measuring range.

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

Using the true RMS clamp meter BE44 you can easily check the amperage of alternating and direct currents, AC and DC voltages, resistances, the power frequency or the continuity of circuits, fuses and contacts.

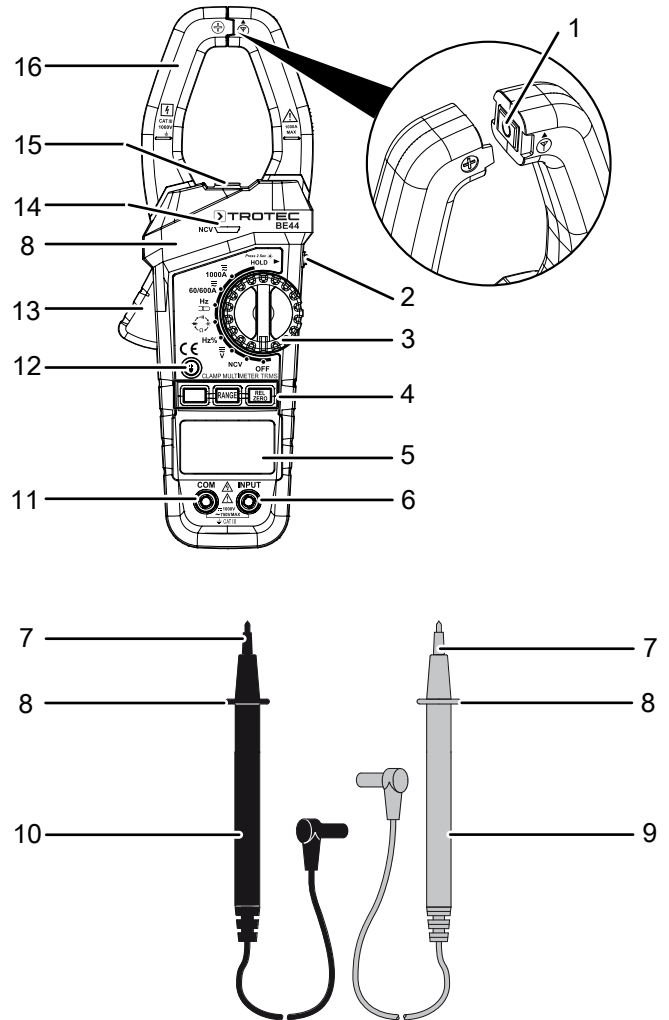
The true RMS measuring function allows for the precise measurement of sinusoidal and non-sinusoidal signals generated due to faults, e.g. by frequency inverters or switching power supplies of computers.

Moreover, it can be used for the non-contact detection of AC voltages in electrical fields, for testing the forward voltage of diodes and to determine the duty cycle for frequency measurements.

The current measurement is effected without contact via the electromagnetic field, which is why the electric circuit does not have to be interrupted for this method. Therefore, running systems, which cannot be switched off separately, can also be checked.

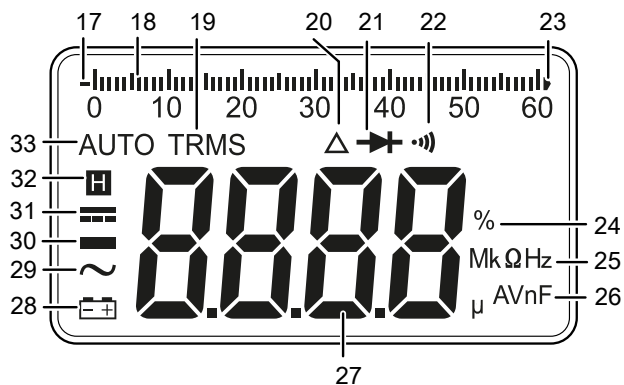
Owing to the galvanic isolation, the measuring signal is also potential-free towards the variable to be measured.

Device depiction



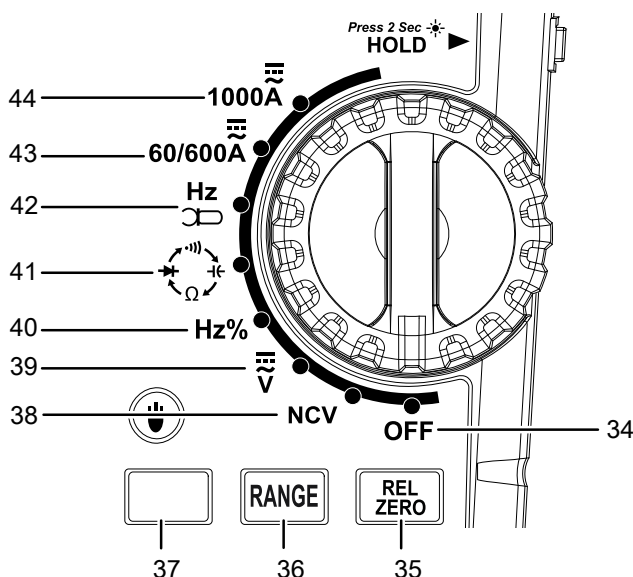
No.	Designation
1	Wear indicator for clamping jaws
2	<i>HOLD</i> button
3	Rotary switch
4	Setting buttons
5	Display
6	Input connection for measuring cable (red)
7	Test probes
8	Protection against contact
9	Red measuring cable
10	Black measuring cable
11	COM connection for measuring cable (black)
12	<i>Light</i> button
13	Lever for opening the clamp
14	NCV sensor
15	Torch
16	Clamp

Display



No.	Designation
17	Negative polarity indicator
18	Measuring scale
19	TRMS indication
20	Compare mode indication
21	Diode testing indication
22	Continuity test indication
23	Overvoltage indicator
24	Percentage indication
25	Resistance/frequency indication
26	Capacitance indication
27	Measurement value display
28	Battery indication
29	Alternating current indication
30	Negative polarity indication
31	Direct current indication
32	HOLD indication
33	Automatic measuring range detection indication

Rotary switch



No.	Designation	Meaning
34	Switch position OFF	For switching the device off
35	REL ZERO button	For enabling / disabling compare mode. When measuring direct current, the measurement value display can be set back to zero.
36	RANGE button	For choosing between manual and automatic setting of the measuring range. Also for choosing the individual measuring ranges in the manual setting.
37	Function button	For selecting the desired measuring mode: Amperage for alternating current or direct current Voltage for alternating current or direct current For measuring resistance or capacitance / diode testing / continuity check For measuring frequency or duty cycle
38	NCV measurement	activates the NCV measurement: measure AC voltages without contact.
39	AC / DC voltage	Activates the measurement of AC or DC voltages.
40	Frequency / duty cycle	For measuring frequency or duty cycle
41	Resistance / diode test / continuity / capacitance	For measuring resistance or capacitance / diode testing / continuity check
42	Frequency measurement with clamp	Frequency measurement with the clamp
43	Amperage 60/600 A	For non-contact measurements of the amperage of direct current or alternating current in the range 60–600 A
44	Amperage 1000 A	For non-contact measurements of the amperage of direct current or alternating current in the range of up to 1000 A

Technical data

Parameter	Value
Model	BE44
Weight	372 g (incl. batteries)
Dimensions (height x width x depth)	243 x 87 x 44 mm
Max. diameter of conductor	approx. 38 mm
Measuring rate	3 per second
Input resistance (V AC and V DC)	10 M Ω
Frequency range alternating current	50/60 Hz (AAC)
Frequency range AC voltage	40–400 Hz (VAC)
Ambient conditions	0 °C to 40 °C with up to 75 % RH
Storage conditions	-30 °C to 60 °C with up to 85 % RH
Type of protection	IP20
Batteries	3 x 1.5 V AAA
Overvoltage protection	Category III 1000 V

Measuring ranges

Measuring range	Resolution	Accuracy	Measuring range exceeded
AC voltage (V/AC)(**)			
6 V	1 mV	\pm (0.8 % + 5 digits)	OL will be indicated on the display.
60 V	10 mV		
600 V	0.1 V	\pm (1.2 % + 5 digits)	- (*)
750 V	1 V		
DC voltage (V/DC)(**)			
6 V	1 mV	\pm (0.8 % + 5 digits)	OL will be indicated on the display.
60 V	10 mV		
600 V	0.1 V	\pm (1.0 % + 5 digits)	
1000 V	1 V		
Alternating current (A/AC)			
60 A	0.01 A	\pm (2.5 % + 6 digits)	OL will be indicated on the display.
600 A	0.1 A		OL will be indicated on the display.
1000 A	1 A		- (*)
Direct current (A/DC)			
60 A	0.01 A	\pm (3.0 % + 10 digits)	OL will be indicated on the display.
600 A	0.1 A		
1000 A	1 A	\pm (3.0 % + 6 digits)	

Measuring range	Resolution	Accuracy	Measuring range exceeded
Resistance (Ω)(***)			
600 Ω	0.1 Ω	\pm (1.0 % + 5 digits)	OL will be indicated on the display.
6 k Ω	1 Ω		
60 k Ω	10 Ω		
600 k Ω	100 Ω		
6 M Ω	1 k Ω	\pm (1.5 % + 5 digits)	
60 M Ω	10 k Ω	\pm (3.0 % + 10 digits)	

Frequency using measuring cables (Hz)(****)			
9.999 Hz	0.001 Hz	\pm (1.0 % + 5 digits)	The measuring range is set automatically.
99.99 Hz	0.01 Hz		
999.9 Hz	0.1 Hz		
9.999 kHz	1 Hz		
99.99 kHz	10 Hz		
999.9 kHz	100 Hz		
9.999 MHz	1 kHz	Not specified	

Frequency using clamp (Hz)(****)			
40 Hz – 99.99 Hz	0.01 Hz	\pm (1.0 % + 5 digits)	Not specified
100 Hz – 999.9 Hz	0.1 Hz		

Duty cycle (*****)			
5 % ~ 95 %	0.1 %	\pm (2.0 % + 7 digits)	The measuring range is set automatically.

Capacitance (C)			
40 nF	10 pF	\pm (5.0 % + 5 digits)	The measuring range is set automatically. If a capacitance of more than 4000 μ F is measured, OL will be indicated on the display.
400 nF	100 pF		
4 μ F	1 nF		
40 μ F	10 nF		
400 μ F	100 nF		
4000 μ F	1 μ F	Not specified	

Function	Range
Diode measurement	Test voltage: approx. 2.5 V Test current: approx. 0.6 mA
Continuity test	Acoustic signal at \leq 20 Ω Acoustic signal possible at 20 Ω – 150 Ω No acoustic signal at $>$ 150 Ω

- ^(*): When exceeding the measuring range, the measured value might be displayed nonetheless. Please observe the measuring range and the overvoltage protection! Measurements above the given measuring range are not permitted!
- OL = outside limits
- ^(**): internal resistance: 10 MΩ
- ^(***): open-circuit voltage < 0.7 V
- ^(****): input sensitivity 1 Vrms to 20 Vrms
- ^(*****): input current ≥ 8 A
- ^(*****): input voltage: 4 ~ 10 Vp-p, frequency range: 4 Hz ~ 1 kHz

Scope of delivery

- 1 x Device BE44 (without batteries)
- 1 x Red measuring cable
- 1 x Black measuring cable
- 1 x Label with safety information
- 1 x Manual

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

For transporting the device use a suitable bag to protect it from external influences.

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
- Batteries are removed from the device

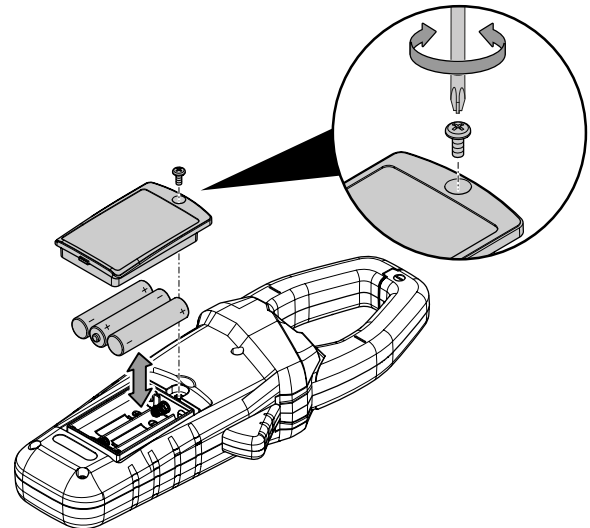
Operation

Inserting the batteries

Insert the batteries (3 x 1.5 V AAA) before first use.

Notice

Make sure that the surface of the device is dry and the device is switched off.



Please proceed as follows to insert the batteries into the device:

1. Loosen the screw and open the cover of the battery compartment.
2. Insert the batteries into the battery compartment with correct polarity.
3. Close the battery compartment and fasten the cover in place.

Changing the location



Info

Please note that moving from a cold area to a warm area can lead to condensation forming on the device's circuit board. This physical and unavoidable effect can falsify the measurement. In this case, the display shows either no measured values or they are incorrect. Wait a few minutes until the device has become adjusted to the changed conditions before carrying out a measurement.

Attaching the warning sign

Prior to initial start-up, check whether the warning sign at the rear of the device is in your local language, if not, paste the proper one over it. A warning sign in your native language is supplied along with the device. Please proceed as follows to attach the warning sign to the rear of the device:

1. Remove the label in your local language from the supplied film.
2. Affix the label in the intended position at the rear of the device.

Non-contact voltage detection



Info

Observe the specifications in the technical data. Even if the device does not show any response, there might still be a voltage outside the device's measuring range.

Without contact the device detects whether alternating voltage is present.

To do so, please proceed as follows:

1. Turn the rotary switch (3) to the NCV measurement position (38).
 - ⇒ The NCV sensor (14) flashes briefly and the device emits an acoustic signal.
2. Move the device clamp (16) towards the object to be tested.
 - ⇒ If the device detects an electrical field combined with an alternating voltage, an acoustic signal will be emitted repeatedly and the NCV sensor flashes.
 - ⇒ The stronger the measured electrical field, the more frequently will the acoustic signal be emitted.
 - ⇒ Depending on the strength of the measured electrical field, one to four segments will appear in the measurement value display (27).

Performing measurements with the measuring cables



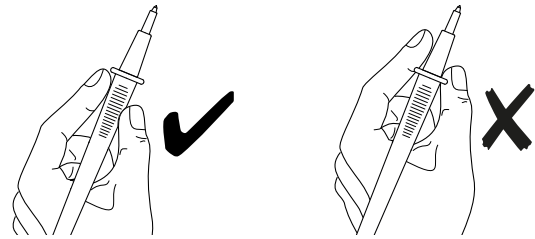
Warning of electrical voltage

Risk of electric shock and risk of injury!

Make sure that the power of the electric circuit is switched off and all capacitors are completely discharged.

- Make sure to observe the device's nominal voltage specified in the technical data during the measurement.
- Check the measuring cables (9, 10) for damaged insulation before each measurement.

- When holding onto the measuring cables, make sure not to reach behind the protection against contact (8):

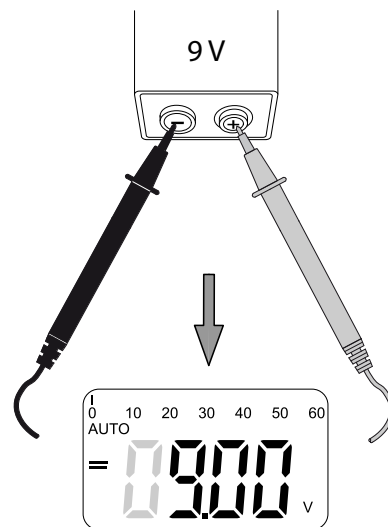


Performing a voltage measurement

Please proceed as follows to measure the DC voltage:

1. Connect the black measuring cable (10) to the COM connection (11) and the red measuring cable (9) to the Input connection (6).
2. Turn the rotary switch (3) to position (39).
 - ⇒ The *Direct current* indication (31) appears on the display.
3. Repeatedly press the *RANGE* button (36) to select the desired measuring range.
 - ⇒ The resolution in the measurement value display (27) will change accordingly.
4. Tap the desired measuring points of the electric circuit with the test probes at the measuring cables with correct polarity (7).
 - ⇒ The measured value will be displayed in the measurement value display.
5. Press the *REL ZERO* button (35) to reset the measured value to zero.
 - ⇒ This function is only available when measuring direct current.

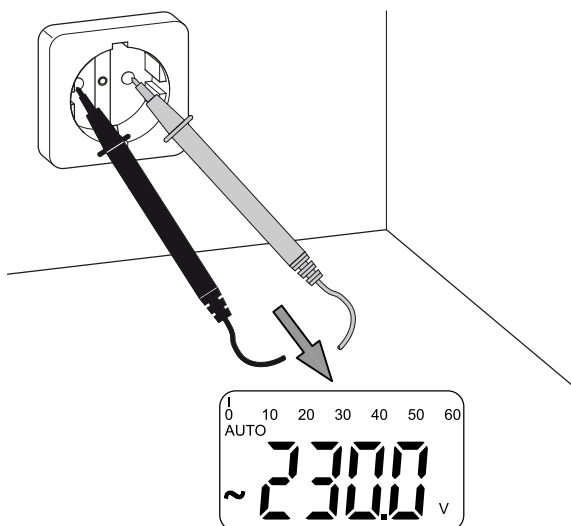
Example:



Please proceed as follows to measure the AC voltage:

1. Connect the black measuring cable (10) to the COM connection (11) and the red measuring cable (9) to the Input connection (6).
2. Turn the rotary switch (3) to position (39).
3. Press the function button (37).
 - ⇒ The *Alternating current* indication (29) appears on the display.
4. Repeatedly press the *RANGE* button (36) to select the desired measuring range.
 - ⇒ The resolution in the measurement value display (27) will change accordingly.
5. Tap the desired measuring points of the electric circuit with the test probes at the measuring cables (7).
 - ⇒ The measured value will be displayed in the measurement value display.

Example:



Resistance measurement

Please proceed as follows to measure the resistance:

1. Connect the black measuring cable (10) to the COM connection (11) and the red measuring cable (9) to the Input connection (6).
2. Turn the rotary switch (3) to the resistance position (41).
3. Repeatedly press the function button (37) until the unit Ω for the resistance is displayed in the *Resistance/frequency* indication (25).
4. Tap the desired measuring points of the electric circuit with the test probes at the measuring cables (7).
 - ⇒ The measured value will be displayed in the measurement value display (27).

Continuity testing

Please proceed as follows to check the continuity of the circuit to be tested:

1. Connect the black measuring cable (10) to the COM connection (11) and the red measuring cable (9) to the Input connection (6).
2. Turn the rotary switch (3) to the continuity position (41).
3. Repeatedly press the function button (37) until the unit Ω is displayed in the *Continuity test* indication (22).
4. Tap the desired measuring points of the electric circuit with the test probes at the measuring cables (7).
 - ⇒ The device will emit an acoustic signal if the measured resistance amounts to less than 20 Ω .
 - ⇒ The device will **not** emit an acoustic signal if the measured resistance amounts to more than 150 Ω .
 - ⇒ The device may emit an acoustic signal if the measured resistance ranges between 20 Ω and 150 Ω .

Performing frequency measurements with the measuring cables



Info

You can measure the frequency using the clamp (1) or the measuring cables.



Info

If measuring cables are used, the measuring range is set automatically.

Please proceed as follows to measure the frequency with the measuring cables:

1. Connect the black measuring cable (10) to the COM connection (11) and the red measuring cable (9) to the Input connection (6).
2. Turn the rotary switch (3) to the frequency position (40).
3. Repeatedly press the function button (37) until the unit Hz for the frequency is displayed in the *Resistance/frequency* indication (25).
4. Connect the test probes (7) of the measuring cables to the object to be measured.
 - ⇒ The measured value will be displayed in the measurement value display (27).

Duty cycle measurement



Info

The input voltage should range between 4 Vp-p* and 10 Vp-p.

*p-p = peak-to-peak value (peak amplitude value MIN to MAX)

Proceed as follows to determine the duty cycle of a frequency measurement:

1. Connect the black measuring cable (10) to the COM connection (11) and the red measuring cable (9) to the Input connection (6).
2. Turn the rotary switch (3) to the duty cycle position (40).
3. Repeatedly press the function button (37) until the *Percentage* indication (24) is displayed.
4. Connect the test probes (7) of the measuring cables to the object to be measured.
 - ⇒ The measured value will be displayed in the measurement value display (27).
5. Press the function button twice to reset the measurement value display.

Capacitance measurement



Info

When measuring capacitances of more than 10 µF, it might take up to about 30 seconds until the device displays a stable measurement result.



Info

Due to the stray capacitance of the test probes and the consequent input circuit of the measuring device the displayed value might not be equal to zero before the test contacts have been connected to the capacitor to be tested. This is perfectly normal and the displayed measured value has to be subtracted from the following measured values.

Please proceed as follows to measure the capacitance:

1. Connect the black measuring cable (10) to the COM connection (11) and the red measuring cable (9) to the Input connection (6).
2. Turn the rotary switch (3) to the capacitance position (41).
3. Repeatedly press the function button (37) until the unit F is displayed in the *Capacitance* indication (26).
4. Connect the test probes (7) of the measuring cables to the object to be measured.
 - ⇒ The measured value will be displayed in the measurement value display (27).
 - ⇒ If necessary, wait until the measurement result has stabilized.

Diode testing

Please proceed as follows to test the forward voltage of a diode:

1. Connect the black measuring cable (10) to the COM connection (11) and the red measuring cable (9) to the Input connection (6).
2. Turn the rotary switch (3) to the diode testing position (41).
3. Repeatedly press the function button (37) until the *Diode testing* indication (21) is displayed.
4. Connect the test probe of the red measuring cable (9) to the diode's anode.
5. Connect the test probe of the black measuring cable (10) to the diode's cathode.
 - ⇒ The diode's approximate forward voltage will be displayed in the measurement value display (27).
 - ⇒ If *OL* is indicated on the display, the test probes are not positioned correctly.

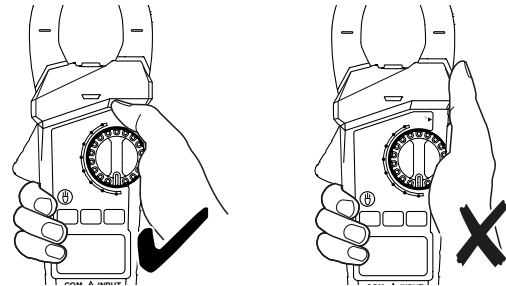
Performing measurements with the clamp



Warning of electrical voltage

Risk of electric shock and risk of injury!

- Disconnect the measuring cables (9, 10) from the device.
- When holding onto the clamp meter, make sure not to reach behind the protection against contact (8):

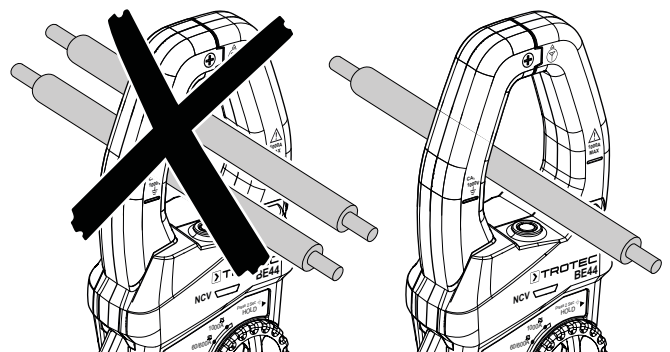


- When performing measurements, align the conductor to be tested in the centre of the clamp (16).



Info

Only measure one conductor at a time to ensure an unambiguous measurement result.



Current measurement

Please proceed as follows to measure the amperage of alternating and direct currents:

1. Depending on the desired measuring range turn the rotary switch (3) to the amperage 60/600 A position (43) or to the amperage 1000 A position 44.
2. Repeatedly press the function button (37) to set the device to the desired measurement of alternating or direct current.
3. Squeeze the lever (13) to open the clamp (16) and insert the conductor to be measured centrally in the clamp.
4. Use the clamping jaws' alignment marks (1) on the clamp as guidance to properly centre the conductor.
 - ⇒ The measured value will be displayed in the measurement value display (27).
5. When measuring direct current (DC), press the *REL ZERO* button (35) to reset the measured value to zero.
 - ⇒ This function is only available when measuring direct current.

Frequency measurement with the clamp



Info

You can measure the frequency using the clamp (16) or the measuring cables (9, 10).

Please proceed as follows to measure the frequency with the clamp (16):

1. Turn the rotary switch (3) to the frequency position (40).
2. Squeeze the lever (13) to open the clamp (16) and insert the conductor to be measured centrally in the clamp.
3. Use the clamping jaws' alignment marks on the clamp as guidance to properly centre the conductor.
 - ⇒ The measured value will be displayed in the measurement value display (27).

Further functions

Using the compare mode



Info

In compare mode, the device automatically switches to manual setting of the measuring range (except for capacitance measurement).



Info

Make sure that the measured value does not exceed the measuring range in compare mode. If necessary, select a larger measuring range.



Info

Do not use the compare mode and the hold function simultaneously in order to avoid distorting the measured values.

The compare mode can be used for some measuring functions. When compare mode is activated, the device saves the currently measured result as reference value for subsequent measurements.

Proceed as follows to activate compare mode:

1. Carry out a measurement.
2. Press the *REL ZERO* button (35).
 - ⇒ The *Compare mode* indication (20) appears on the display.
 - ⇒ The current measurement result will be saved as reference value.
3. Carry out another measurement.
 - ⇒ The difference between the current measurement and the reference value is now indicated on the measurement value display (27).
4. Press the *REL ZERO* button (35) again to exit compare mode.

Freezing the displayed measured value

The HOLD function allows you to freeze the currently measured result in the measurement value display (35). To do so, please proceed as follows:

1. Carry out a measurement.
2. Press the *HOLD* button (2).
 - ⇒ An acoustic signal is emitted.
 - ⇒ The current measured value is frozen in the measurement value display.
 - ⇒ The *HOLD* indication (32) appears on the display.
3. Press the *HOLD* button again to deactivate the HOLD function.

Reading the measuring scale



Info

The measuring scale is not available in compare mode or when measuring frequency, resistance or capacitance.

The measuring scale (18) corresponds to the needle display of an analogue measuring device. The scale consists of several segments that light up depending on the ratio of the current measured value to the set amperage.

- **Measured value within scale**
If an amperage of 60–600 A is set and a value of 580 A is measured, all segments will light up. If the measured value is 100 A, only one segment lights up, if it is 200 A, two segments light up etc.
- **Measured value below scale**
The scale can also indicate negative polarity and overvoltage. In the event of negative polarity, e.g. a measured value of -40 A with a selected amperage of 60–600 A, one segment lights up and the negative polarity indicator (17) appears in addition as the value is 100 A lower than the scale range.
- **Measured value above scale**
Accordingly, if the measured value is 900 A, three segments light up and the overvoltage indicator (23) appears since the value is 300 A higher than the scale range.

Using the torch

The device is equipped with a torch (15) for illuminating the object to be measured.

1. Press the *Light* button (12) to switch on the torch.
2. Press the *Light* button again to switch off the torch.

Switch-off

The device switches off automatically after 15 minutes of non-use.

1. Turn the rotary switch (3) to the Off switch position (34).
⇒ The device switches off.

Maintenance and repair

Battery change

A battery change is required when the battery indication (28) lights up on the display (5) or the device can no longer be switched on. See chapter Operation.



Info

If the battery voltage is low, the displayed values may be inaccurate or incorrect! If so, stop using the measuring device and exchange the batteries immediately.

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.

Errors and faults

The device has been checked for proper functioning several times during production. If malfunctions occur nonetheless, check the device according to the following list.

Display segments are only faintly visible or flicker:

- The battery voltage is too low. Exchange the batteries immediately.

The device displays implausible measured values:

- The battery voltage is too low. Exchange the batteries immediately.
- The opening of the current clamp is dirty. Clean the device as described in the Cleaning chapter.
- The wear indicator for clamping tongs (1) is worn too heavily. Please 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 (e.g. remote controls, batteries and accumulators) must not be disposed of with household waste at the end of their life. If the device contains batteries or accumulators that contain mercury, cadmium or lead, the respective chemical symbol (Hg, Cd or Pb) is shown below the icon of the crossed-out wheeled bin. You are legally obliged to dispose of old batteries and accumulators properly. 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.

In the European Union, batteries and accumulators must not be treated as domestic waste, but must be returned to a designated collection point in accordance with REGULATION (EU) 2023/1542 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 12 July 2023 concerning batteries and waste batteries. Remove batteries/accumulators and dispose of them separately according to the relevant legal requirements.

To prevent environmental pollution, do not carelessly leave batteries or electrical and electronic equipment containing batteries in public areas.

Only for United Kingdom

According to Waste Electrical and Electronic Equipment Regulations 2013 (SI 2013/3113) (as amended) and the Waste Batteries and Accumulators Regulations 2009 (SI 2009/890) (as amended), devices that are no longer usable must be collected separately and disposed of in an environmentally friendly manner.

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