BR 16

EN

INSTRUCTIONS
MICROWAVE RADIATION
MEASURING DEVICE

TROTEC

TRT-BA-BR16-TC221118TTRT01-004-EN

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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 these instructions via the following link:



BR16

https://hub.trotec.com/?id=44636

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.
- Use batteries of type 6LR61 (9 V battery).
- Never charge a battery that cannot be recharged.
- Insert the battery into the battery compartment according to the correct polarity.
- Remove the discharged battery. Batteries contain materials hazardous to the environment. Dispose of the battery according to the national regulations.
- Remove the battery from the device if you will not be using the device for a longer period of time.
- Never short-circuit the terminal of the battery!
- 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.
- Check accessories and connection parts for possible damage prior to every use of the device. Do not use any defective devices or device parts.

Intended use

Only use the device for indoor microwave radiation measurements within the measuring range specified in the technical data.

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

Reasonably foreseeable misuse

Do not use the device in unsheltered outdoors areas, in potentially explosive atmospheres or for measurements in liquids.

Any unauthorised changes, modifications or alterations to the device are forbidden.

Personnel qualification

People who use this device must:

- have read and understood the instructions, especially the Safety chapter.

Residual risks

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
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.

Information about the device

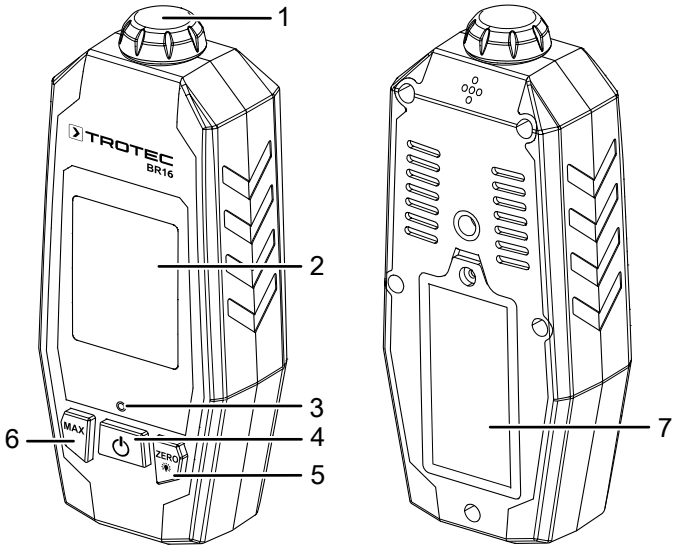
Device description

Using the BR16 radiation measuring device, microwave emissions from all high-frequency devices functioning on 2.45 GHz ISM band can be localized.

If the determined value exceeds the maximum limit value of 5 mW/cm² recommended by the EMA / FDA, the BR16 radiation measuring device automatically alerts the user by means of an acoustic warning signal and an additional warning indication on the display.

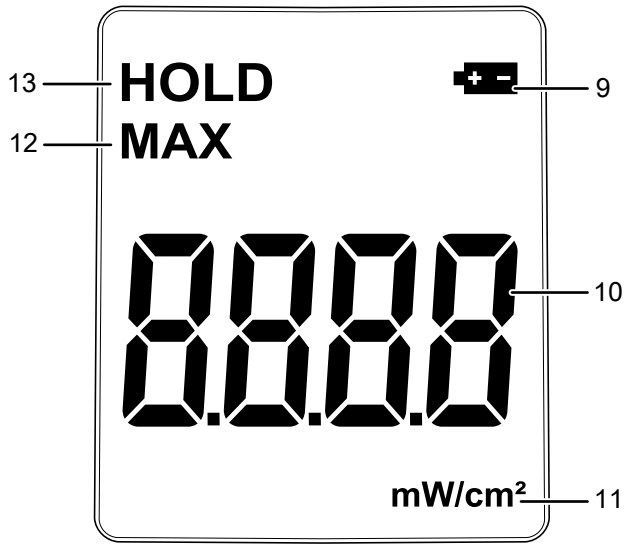
The device is equipped with a maximum value and hold function as well as a backlit display.

Device depiction



No.	Operating element
1	Sensor
2	Display
3	LED (warning indication)
4	*Power* button
5	*ZERO* button
6	*MAX* button
7	Battery compartment

Display



No.	Operating element
9	*Battery status* indication
10	Measurement value display
11	*Unit* indication
12	*MAX* indication
13	*HOLD* indication

Technical data

Parameter	Value
Model	BR16
Measuring range	0 to 9.99 mW/cm²
Accuracy	± 1 dB
Resolution [mW/cm²]	0.01
Alarm limit value	5.0 mW/cm²
Frequency range	Calibrated to 2.45 GHz
Display	LCD monochrome
Operating temperature	0 °C to 50 °C (32 °F to 122 °F) with 10 % to 80 % RH
Power supply	9 V battery
Switch-off	After approx. 15 minutes of non-use.
Weight	155 g
Dimensions (length x width x height)	141 mm x 58 mm x 33 mm

Scope of delivery

- 1 x Device BR16 (without battery)
- 1 x Device bag
- 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 the bag included in the scope of delivery in order to protect the device from external influences.

Storage

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

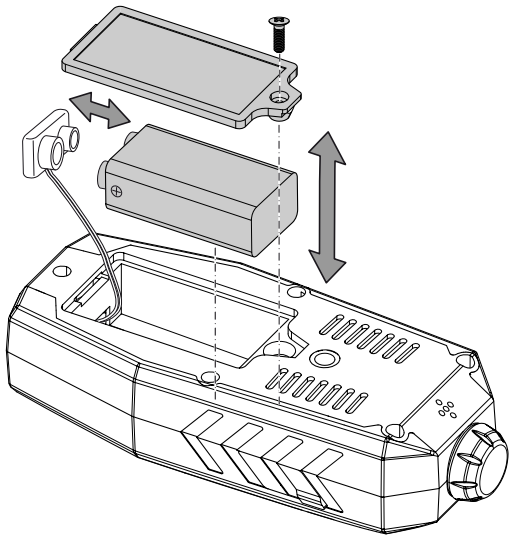
- dry and protected from frost and heat
- protected from dust and direct sunlight
- protected from dust ingress in the supplied bag
- at the temperature specified in the technical data
- battery is removed from the device

Operation

Inserting the battery

Notice

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



1. Loosen the screw at the battery compartment (7).
2. Open the cover of the battery compartment.
3. Use the battery clip to connect the new battery with correct polarity.
4. Re-insert the cover of the battery compartment and secure it using the screw.

Switching the device on

Notice

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.

1. Briefly press the *Power* button (4).
   ⇨ The display will be switched on and the device ready for operation.

Device calibration

Carry out the calibration in an environment that is free from microwave radiation as far as possible. In this way it is ensured that the measuring results will not be biassed by incorrect calibration.

1. Press and hold the *ZERO* button (5) for approx. 3 seconds to calibrate the device.
   ⇨ "0" is indicated on the measurement value display.
   ⇨ You can start the measurement process.

Preparing the measurement process

If you want to check a microwave oven, prepare the measurement as follows:

1. Place a glass of cold water into the microwave oven.
2. Set the control of the microwave oven to the highest power level.
3. Keep the measuring device ready and switch on the microwave oven for approx. 1 minute.

Carrying out a measurement

1. Point the device at the area to be measured. Observe a minimum distance of approx. 5 cm.
2. If you are checking a microwave oven, slowly move the sensor along the door seal and window of the microwave oven at a distance of approx. 5 cm.
   ⇨ The measurement value display (10) indicates the currently measured value in mW/cm^2.

Info

If the limit value of 5 mW/cm^2 is exceeded, the LED (3) flashes and an alarm signal is emitted. In this case, clean the door seals of the microwave oven using lukewarm water and repeat the measurement process. Have the microwave oven inspected by a technician if the measured value exceeds the limit value again.

Warning of hot surface

Risk of scalding! Leave the glass inside the microwave oven for some time to cool. If necessary, use suitable protective gloves to remove the glass.

Displaying the maximum value

1. Briefly press the *MAX* button (6).
   ⇨ The indications *MAX* (12) and *HOLD* (13) appear on the display.
   ⇨ The measurement value display (10) now shows the highest value measured value. The indication will only change if new, higher values, are measured.
2. Press the *MAX* button (6) again to stop the maximum value indication.

Switching the background illumination on and off

1. Press the *ZERO* button (5) to switch on the background illumination of the display.
   ⇨ The background illumination switches on.
2. Press the *ZERO* button (5) again to switch off the background illumination of the display.
   ⇨ The display illumination switches off.

Switching the device off

1. Press the *Power* button (4).
   ⇨ The device will be switched off.
   ⇨ The maximum value stored is reset.

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.

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:

- Check the charging status of the battery. Change the battery, if required (see chapter Inserting the battery).
- Make sure that the battery is properly positioned. Check the polarity is correct.

The device displays implausible measured values:

- Check the charging status of the battery. Change the battery, if required (see chapter Inserting the battery).
- Make sure that the battery is properly positioned. Check the polarity is correct.
- The sensor is defective or soiled. Clean the device as described in the Cleaning chapter.

The device still does not operate correctly after these checks:

- Contact the Trotec customer service.

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) 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.



This icon with the crossed-out wheeled bin indicates that batteries or 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. To prevent environmental pollution, do not carelessly leave batteries or electrical and electronic equipment containing batteries in public areas. In the European Union, batteries and accumulators 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.

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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