

EN

OPERATING MANUAL
LOCATING DEVICE



Table of contents

Notes regarding the operating manual..... 2

Safety 2

Information about the device..... 3

Transport and storage..... 4

Operation 5

Maintenance and repair 7


Errors and faults 8


Disposal 8

Notes regarding the operating manual


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.

Note
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 operating manual must be observed.

You can download the current version of the operating manual and the EU declaration of conformity via the following link:




BI20



<https://hub.trotec.com/?id=41250>

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 aggressive atmosphere.
 - Protect the device from permanent direct sunlight.
 - Do not remove any safety signs, stickers or labels from the device. Keep all safety signs, stickers and labels in legible condition.
 - Do not open the device.
 - 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 from the device. 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).

Intended use

Only use the device for locating power lines, studs and joists in walls whilst adhering to the technical data.

To use the device for its intended use, only use accessories and spare parts which have been approved by Trotec.

Foreseeable misuse

Do not use the device in potentially explosive atmospheres, for measurements in liquids or at live parts. Trotec accepts no liability for damages resulting from improper use. In such a case, any warranty claims will be voided. Any unauthorised modifications, alterations or structural changes to the device are forbidden.

Personnel qualifications

People who use this device must:

- have read and understood the operating manual, 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

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.

Note

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

Note

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

Information about the device

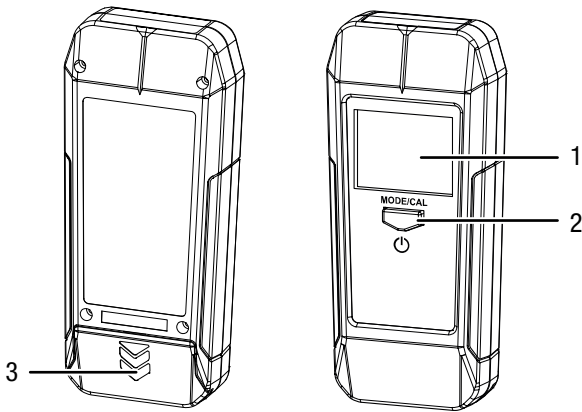
Device description

The device BI20 does not only reliably locate ferrous and non-ferrous metals and live cables, but also wooden substructures located under plaster or concrete. These hidden elements, which are potential interference factors for all work on walls and floors, are detected by the device to a depth of 50 mm.

Furthermore, the device has an audio-visual warning function, which is used to signal the detection of live AC cables.

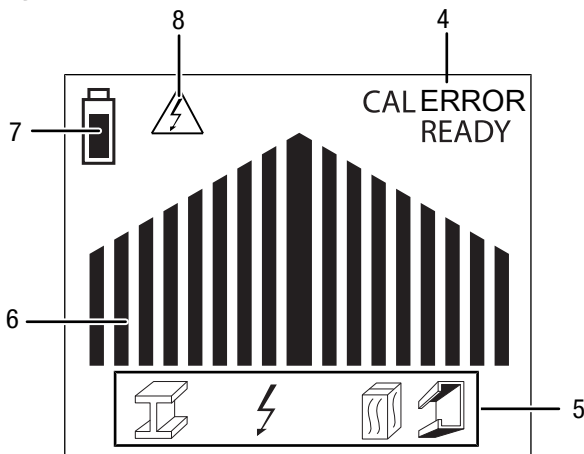
The device comes with an automatic switch-off function.

Device depiction



No.	Designation
1	Display
2	Power / MODE / CAL button
3	Battery compartment

Display



No.	Designation
4	Status indication: <i>READY</i> = Device is ready for operation <i>CAL</i> = Calibrating <i>ERROR</i> = Device error
5	Mode indication: Stud frame (timber/metal): Power line: Metal:
6	Bar graph
7	Battery status indication
8	Voltage warning indication

Technical data

Parameter	Value
Model	BI20
Max. detection depth for metal and live cables	max. 50 mm
Max. detection depth for wood	max. 25.4 mm
Ambient temperature	-7 to +40 °C
Storage conditions	-20 to +50 °C at < 85 % RH
Power supply	1 x 9 V battery
Automatic switch-off	After approx. 10 min
Dimensions (length x width x height)	168 x 35 x 75 mm
Weight	210 g

Scope of delivery

- 1 x Device BI20
- 1 x 9 V battery
- 1 x Manual

Transport and storage

Note

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
- with a cover to protect it from invasive dust if necessary
- the storage temperature complies with the values specified in the Technical data
- Remove the battery from the device.

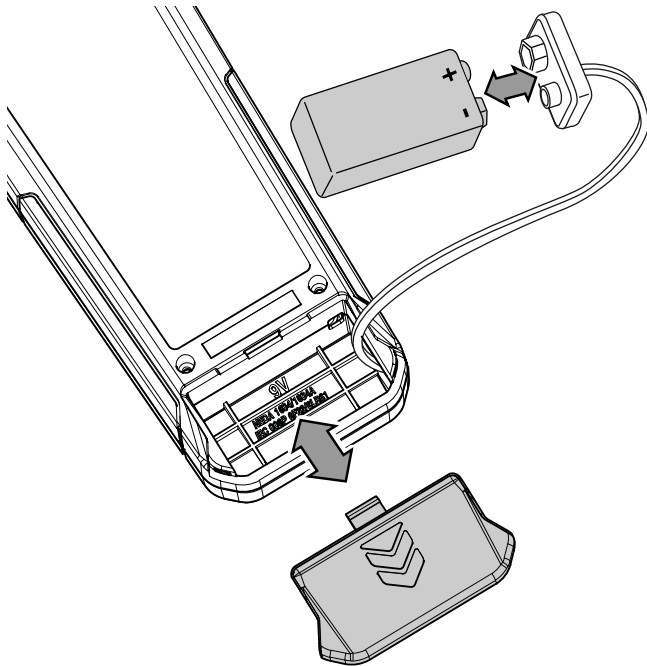
Operation

Inserting the battery

Insert the supplied battery into the device before first use.

Note

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



1. Open the battery compartment at the rear of the device by sliding down the cover.
2. Use the battery clip to connect the 9 V battery with correct polarity.
3. Place the battery with the battery clip into the battery compartment.
4. Slide the cover back onto the battery compartment until it locks in place.

Switching the device on



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.

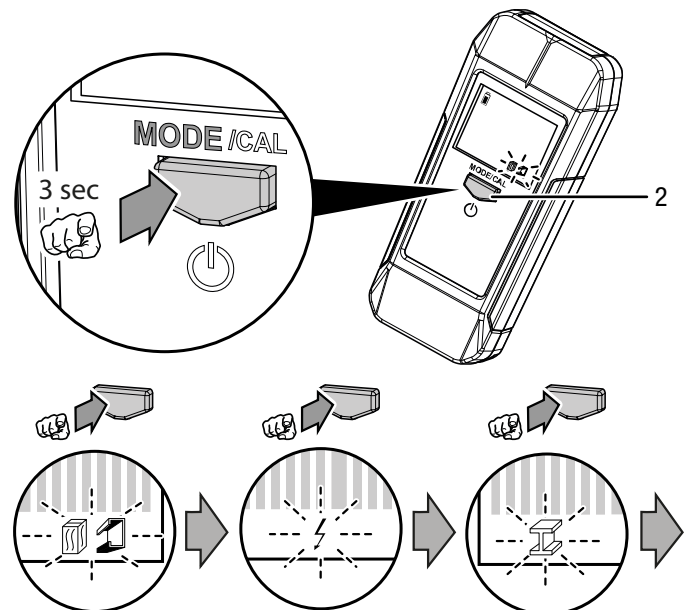
1. Press the *MODE/CAL* button (2).
 - ⇒ The device switches on.
 - ⇒ The bar graph (6) flashes.

Selecting the measuring mode

You can choose between the measuring modes Stud frame, Power line and Metal.

Measuring mode	Icon
Stud frame (timber/metal)	
Power line	
Metal	

1. Press and hold the *MODE/CAL* button (2) for approx. 3 s until the icon flashes in the mode indication (5)
 - ⇒ The device will emit a brief acoustic confirmation signal.
 - ⇒ The currently selected measuring mode flashes.



2. Repeatedly press the *MODE/CAL* button (2) until the icon for the desired measuring mode is displayed in the mode indication (5).
 - ⇒ The device will emit a brief acoustic confirmation signal.
3. Wait a moment until the icon in the mode indication (5) stops flashing.
 - ⇒ The desired measuring mode is selected.
 - ⇒ The bar graph (6) flashes.
4. Hold the device against the surface at which the detection process shall be performed. Now press the *MODE/CAL* button (2) again to start a calibration for this surface and its material composition.
 - ⇒ The bar graph (6) starts filling up from the outer edges towards the centre.
 - ⇒ The device will emit a brief acoustic confirmation signal once the calibration has been completed.

Performing a calibration



Info

During the calibration as well as the later measuring process you should ideally only hold the device with your fingertips at the lateral black gripping surfaces near the bottom of the device.

After calibration and during subsequent measurements, try not to change the position of your hand or fingers.

Avoid placing your fingers on or moving them across the display since the sensitivity to power lines is significantly increased, especially in localization mode, and the capacitive field influenced by your hand or fingers could lead to measuring errors.

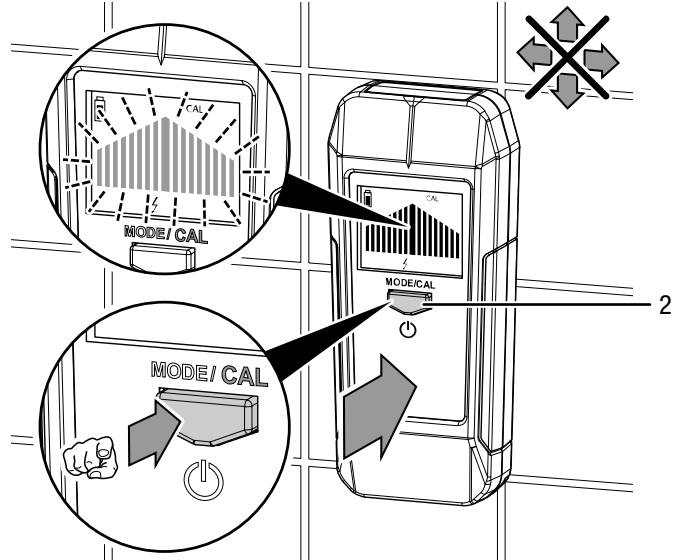
Fundamentally, the more your hand cups and grasps the device, the greater will the measurement be influenced.

Please also note that static electricity, mobile phones (UMTS) as well as WLAN, radar, microwaves or nearby transmitter masts can be additional interference factors.

Moreover, both wet ground and metallic building materials (foil-laminated insulation material, conductive wallpapers etc.) may influence the measurement. Particularly if there is static electricity present during a measurement in Power line mode, this may lead to existing power lines being displayed imprecisely (e.g. over a large area) or not at all due to the high sensitivity of the measuring device. This is not a device malfunction but a physical effect. In order to reduce such electrostatic interference, hold your free hand flat against the wall next to the device.

After every switch-on of the device or whenever having changed the measuring mode, perform a calibration at a surface or wall with the same properties as the surface or wall within or behind which the material to be detected is located. Please note that for this calibration the material to be detected **must not** be located at or in the immediate vicinity of this position. Performing a calibration in the immediate vicinity of the material to be detected influences the sensitivity of the device with regard to this material and thus falsifies the localization results.

1. If at all possible, hold the locating device to the wall at a position where **none** of the material to be detected is located.
2. Press the *MODE/CAL* button (2).
⇒ The bar graph (6) flashes.



3. Make sure **not** to move the device during the calibration process.
4. Now press the *MODE/CAL* button (2) again to perform the actual calibration.
⇒ The bar graph (6) starts filling up from the outer edges towards the centre.
⇒ The device will emit a brief acoustic confirmation signal once the calibration has been completed.



Info

If required, the calibration can also be performed during a localization process so as to achieve better results.

The first calibration however should always be performed on a neutral surface that is comparable to the one of the later localization.

Performing a localization

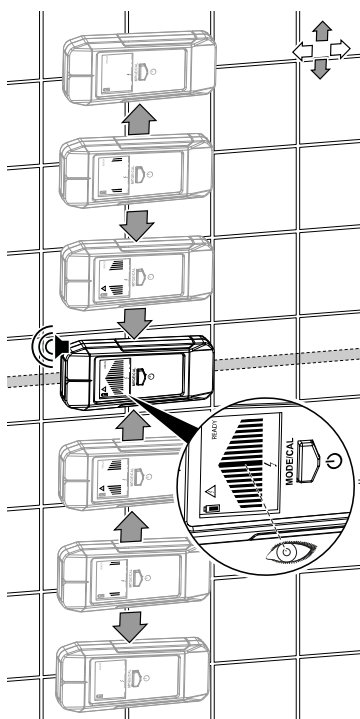
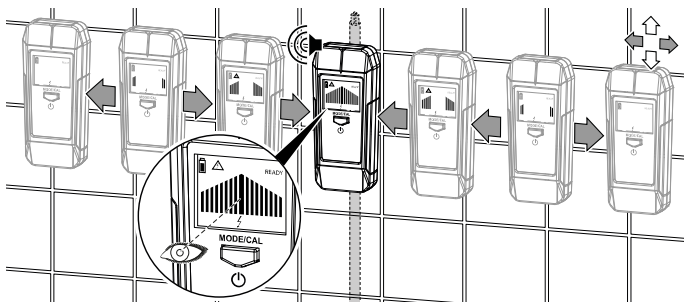
When the calibration is completed, you can start with the detection process.

1. Hold the device flat against the surface or wall and move it evenly in the desired direction while applying slight pressure. Due to the device's functional principle, objects running transverse to the testing direction can be detected more clearly and thus more reliably.
2. Watch the bar graph (6).
 - ⇒ From the number of bars or the frequency of the acoustic signal you can judge whether the material to be detected is in close proximity.
 - ⇒ When locating wood or metal the display is illuminated in blue.
 - ⇒ When locating live cables the display is illuminated in red and the warning signal changes.
3. Move the device sideways or up and down to get closer.



Info

When an object is first approached or crossed, this is indicated by a rising bar graph and a change in the audio frequency. When pulling the device back in the opposite direction, its sensitivity is adjusted automatically so that the object will be displayed more clearly.



Info

If the device detects a live cable during a measurement, the display will be illuminated in red and the voltage warning indication (8) will flash – regardless of the localization mode the device is currently in.



Info

Please note that – being subject to wall structure and several superimposed material layers/object depth – the bar graph will not always be indicated fully closed, even in case of a precise localization!

The display will indicate the maximum possible under these conditions.

If the position of the material/object to be detected has already been narrowed down by a prior measurement, the result can further be improved by measuring in a closer range around the previously determined position. To do so, keep calibrating the device in radii getting progressively smaller around the expected location centre. This increases the sensitivity with regard to the material to be detected. Repeatedly perform measurements to verify the expected material position.

Switching the device off

The device switches off automatically after approx. 10 min of non-use.

1. Press the power button (2) for approx. 5 s.
 - ⇒ The device switches off.

Maintenance and repair

Battery change

A battery change is required when the battery icon flashes. This indicates you have reached the minimally required residual voltage for the proper functioning of the device.

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.

Fault	Cause	Remedy
The device can no longer be switched on.	The battery is dead.	Insert a new battery (see chapter Operation).
Display segments are only faintly visible or flicker.	The battery voltage is too low.	

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 waste bin on waste electrical or electronic equipment stipulates that this equipment must not be disposed of with the household waste at the end of its life. 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 disposed of professionally in accordance with Directive 2006/66/EC of the European Parliament and of the Council of 6 September 2006 on batteries and accumulators. Please dispose of batteries and accumulators according to the relevant legal requirements.

Only for United Kingdom

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

Trotec GmbH

Grebener Str. 7
D-52525 Heinsberg

☎ +49 2452 962-400

☎ +49 2452 962-200

✉ info@trotec.com

www.trotec.com