

EN

OPERATING MANUAL
THERMOHYGROMETER

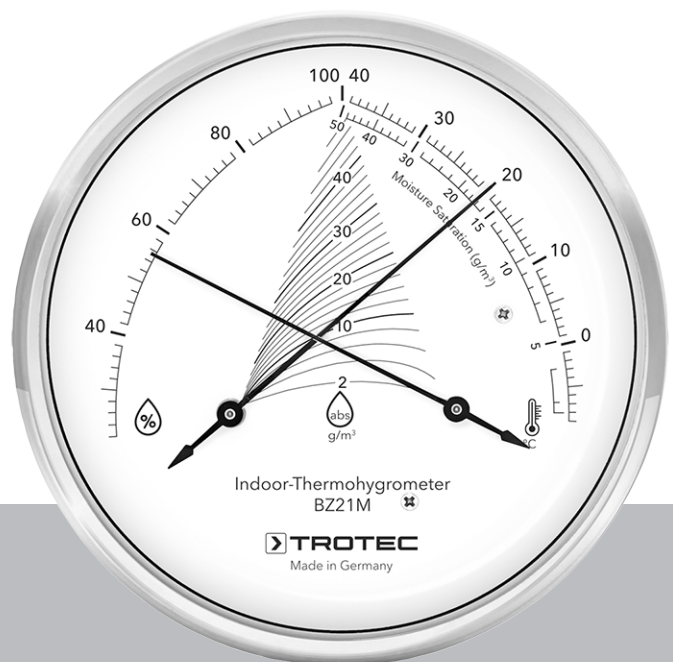


Table of contents

Notes regarding the instructions 2

Safety 2

Information about the device 3

Transport and storage 4

Operation 4

Maintenance and repair 6

Disposal 6

Notes regarding the 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.

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 instructions must be observed.

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



BZ21M



<https://hub.trotec.com/?id=44898>

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.
- Do not immerse the device in water. Do not allow liquids to penetrate into the device.
- The device may only be used in dry surroundings and must not be used in the rain or at a relative humidity exceeding the operating conditions.
- Protect the device from permanent direct sunlight.
- Do not expose the device to strong vibrations.
- 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.
- Observe the storage and operating conditions (see Technical data).

Intended use

Only use the device for indoor temperature and humidity measurements within the measuring range specified in the technical data. Observe and comply with 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 instructions, especially the Safety chapter.

Residual risks



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.

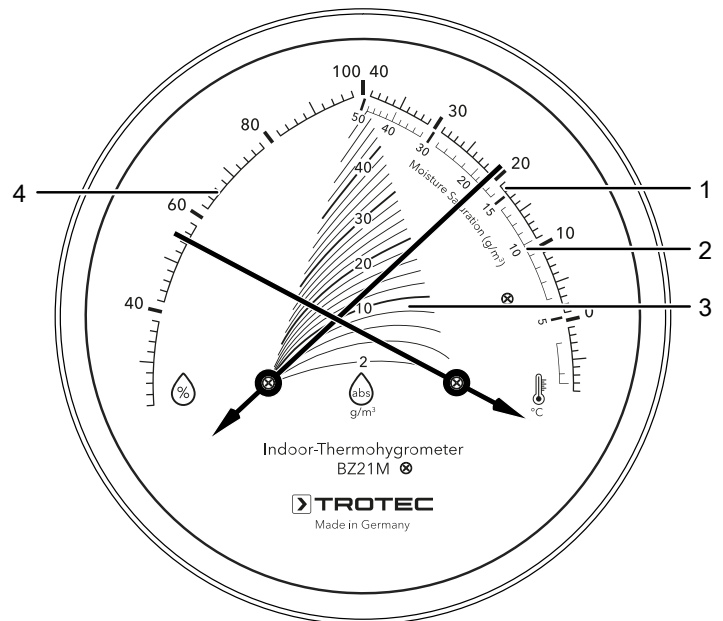
Information about the device

Device description

The device BZ21M is a thermohygrometer for measuring the relative indoor humidity level and temperature.

Additional scales allow you to read the saturation humidity and the absolute humidity.

Device depiction



No.	Designation
1	Temperature scale
2	Saturation humidity scale
3	Absolute humidity scale
4	Relative humidity scale

Technical data

Parameter	Value
Model	BZ21M
Relative humidity measuring range	20 to 100 % RH
Temperature measuring range	-10 to +40 °C
Saturation humidity measuring range	3 to 50 g/m ³
Absolute humidity measuring range	2 to 50 g/m ³
Accuracy	Humidity: ± 3 % RH (20...100 %), +1 scale graduation Temperature: ±2 °C
Operating and storage conditions	-20 to +50 °C at 0 to 100 % RH
Dimensions	Ø 130 mm / height 28 mm
Weight	185 g
Housing material	Stainless steel

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

The manufacturer packed the device to the best of his abilities to protect it against transport damage.

Storage

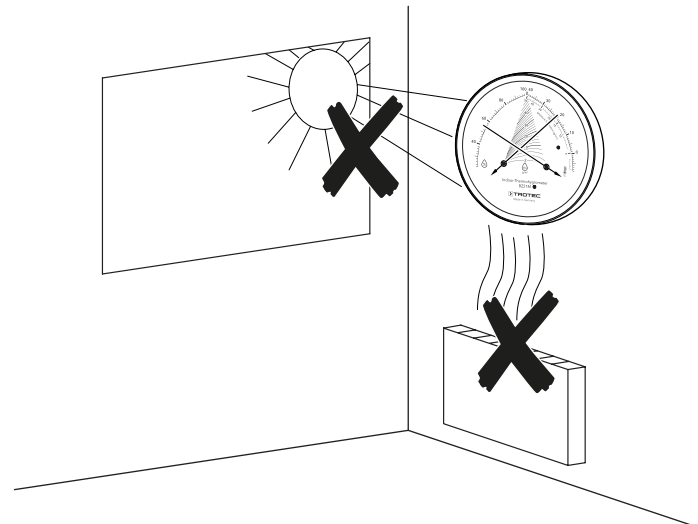
When the device is not being used, observe the following storage conditions:

- dry and protected from frost and heat
- protected from dust and direct sunlight
- the storage temperature complies with the values specified in the Technical data

Operation

Before positioning the device, observe the following:

- Do not expose it to direct sunlight.
- Do not position it directly above a heater.
- If possible, position it at an interior wall; avoid cooler exterior walls.



Tips and notes on the humidity level in living spaces

General information:

Medical studies of recent years have demonstrated that an increased indoor humidity level of well above 50 to 60 % RH promotes asthma and allergies. A low relative humidity of 30 to 40 %, on the other hand, is harmless. Occasionally, the relative humidity level in flats with a good air exchange can even drop below 30 % during harsh winters without being detrimental to human health.

For the most part, it is the residents themselves who determine the humidity level in their living spaces during the heating period from October to April. A household of 3 to 4 persons emits about ten litres of water vapour into the room air every day, inter alia by taking showers, washing, cooking and breathing. As modern window seals are very tight to save energy costs and provide noise protection, this large amount of humidity must be released to the outside by airing several times a day.

The type of heating and ventilation determines the average relative humidity level in a flat during the winter. Since cold air always has a lower absolute moisture content than normal room air, the humid air can easily be exchanged by fresh, dry air in the winter by repeated brief and intensive airing throughout the day. Every living space that is not equipped with a ventilation system requires air changes several times a day, depending on the occupancy and moisture emission.

A limitation of the relative humidity to prevent too high humidity levels is only required during the heating period starting in autumn. It is recommended to maintain a temperature of approx. 20 °C in the entire flat.

In winter:

In case of average outside temperatures below approx. +5 °C, sufficient air changes and a room temperature of approx. 20 °C, a relative humidity level between 40 and 50 % can easily be obtained. If it exceeds 50 %, the room should be ventilated.

During frost periods, an indoor humidity level of less than 40 % RH is perfectly normal. The upper limit of 40 to 50 % RH (at approx. 20 °C) needs to be observed particularly in old buildings with little thermal insulation, as exceeding this value for a prolonged time increases the risk of mould formation.

In autumn or spring:

At milder outside temperatures between 5 and 15 °C on average, the humidity level may reach 50 to 60 % RH.

Please note:

Relatively speaking, warmer rooms are drier and colder rooms get more humid. This is why it is recommended to maintain a room temperature of at least 16 °C.

Correct airing:

If your window panes mist up frequently or mould starts to grow on walls, it is high time to review and, if necessary, break your old habits. The answers to the following questions can be useful:

- For how long should I air out?
During the winter, at temperatures below approx. +5 °C, a maximum of 5 minutes should be sufficient. If the outdoor air is warmer (5 to 15 °C), about 10 to 15 minutes of airing are required.
- How should I air out?
An effective air exchange can only be obtained by leaving a window or window door in the room wide open. It is not necessary to create a draught. Airing a room by tilting a window or door over an extended period of time is generally insufficient and a waste of energy, especially considering that the affected room will cool down much more over time if the temperatures are low.
- What should I do if I am not at home during the day?
Airing your rooms sufficiently while you are at home will do. Ideally, this means airing out once every morning before you leave, once when you come home, and once before you go to bed. It is equally important not to switch off the heating completely during the day (16 to 18 °C).
- Should I also ventilate in case of fog or rain?
This is certainly recommendable. Even very moist, cold air always has a lower moisture content than normal indoor air. Besides, you also need a sufficient supply of fresh air when the weather is damp.

- What do I have to note in the summer?
Except for the basement, you can air out all rooms as needed. There is no limitation on the hygrometer scale; the humidity level always corresponds to the outdoor climate. This is not harmful since the walls (except basement walls) are usually warm enough to prevent the temperature from falling below the dew point in normal living areas, and thus to avoid the formation of condensation e.g. on wall surfaces, which would promote mould growth.
- How should I air out basement rooms?
Basement rooms are at risk in the summer because during this season the warm outdoor air contains much moisture, which precipitates on cold surfaces.
- Can I dry laundry in the flat?
The ideal solution is a drying room that can be aired out permanently (even in the summer or in case of frost). Apart from that, laundry may only be dried in the flat if the room is closed and very well heated. The room should be aired out intensively several times during drying.

Information regarding the hygrometer

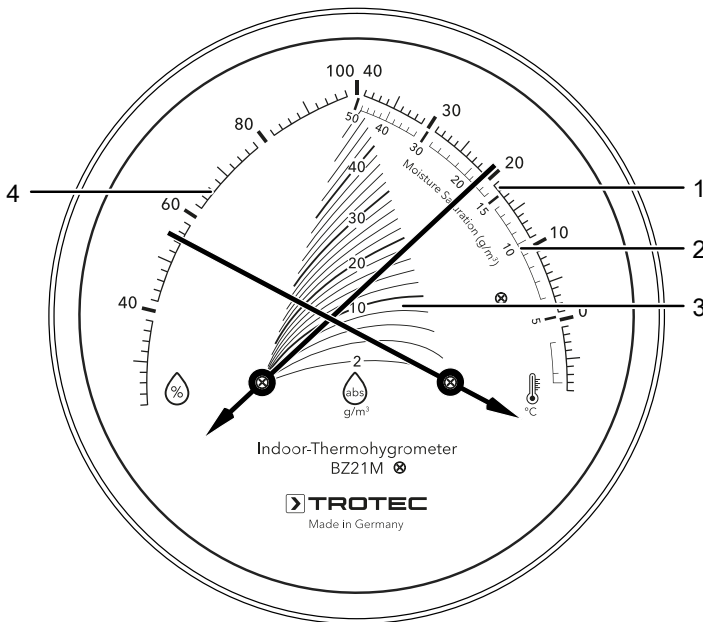
The measurement accuracy is +/- 3 % RH in the range from 20 to 100 % RH. The hygrometer's measuring element is a specially pre-treated synthetic fibre which, unlike real hair, guarantees a high measurement accuracy without requiring maintenance.

Please note that the hygrometer must not be exposed to hot water or water vapour, otherwise the measurement accuracy can no longer be guaranteed. If deviations occur in comparative measurements carried out with a reference device, the hygrometer indication can be corrected, see chapter Maintenance and repair.

Reading the relative humidity, temperature, saturation humidity and absolute humidity

After the device has been situated in the room for some hours, you can read the relative humidity, temperature, saturation humidity and absolute humidity on the dial.

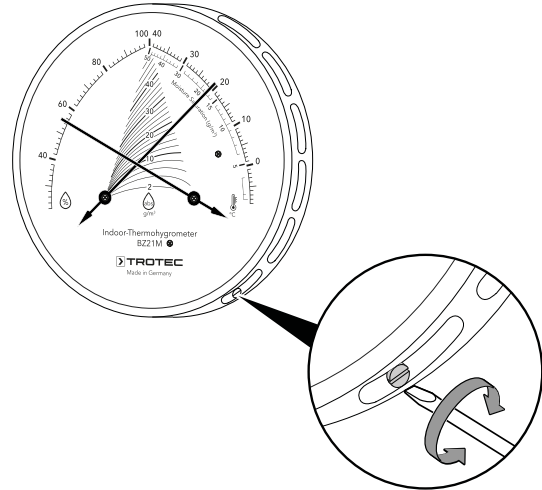
1. Read the room temperature on the right side of the dial (1).
2. Read the relative humidity level on the left side of the dial (4).
3. Read the saturation humidity on the right side of the dial (2, inner scale). The saturation humidity value describes the amount of water vapour the air can absorb at a certain temperature (highest possible value of absolute humidity). As the temperature rises, the absorption capacity of the air increases.
4. Read the absolute humidity value at the intersection of the two pointers (3). The absolute humidity value describes the amount of water vapour that is actually present in the air.



Maintenance and repair

Adjusting the hygrometer

If the hygrometer displays a deviating humidity value e.g. during a reference measurement, the set screw at the side of the device can be used to adjust the indication.



In addition, the device should be moistened once a year. This is recommended in particular after longer periods with a low humidity level. To do so, wrap the entire device into a damp, warm cloth for approx. 30 minutes. It must then display 95 to 98 %. If the pointer is not within this range, the indication must be adjusted.

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

The device does not contain any electrical or electronic elements. At the end of its life, please dispose of this device according to the valid legal requirements.

Trotec GmbH

Grebener Str. 7
D-52525 Heinsberg

☎ +49 2452 962-400

☎ +49 2452 962-200

✉ info@trotec.com

www.trotec.com