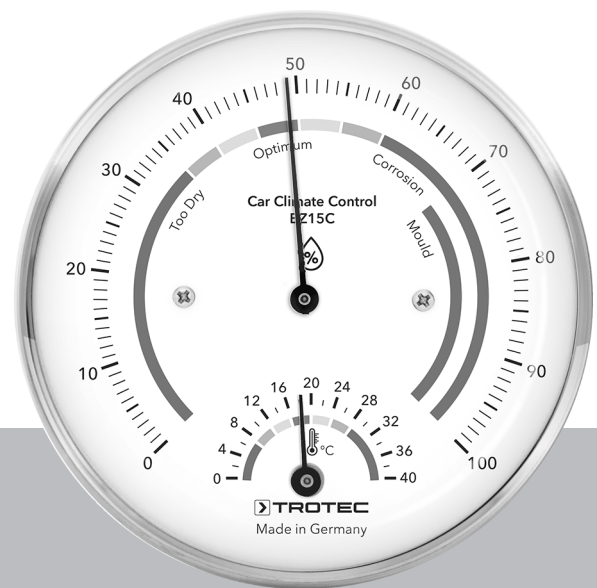


# EN

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 .....	7
Disposal .....	7

## 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:



BZ15C



<https://hub.trotec.com/?id=41521>

## 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.

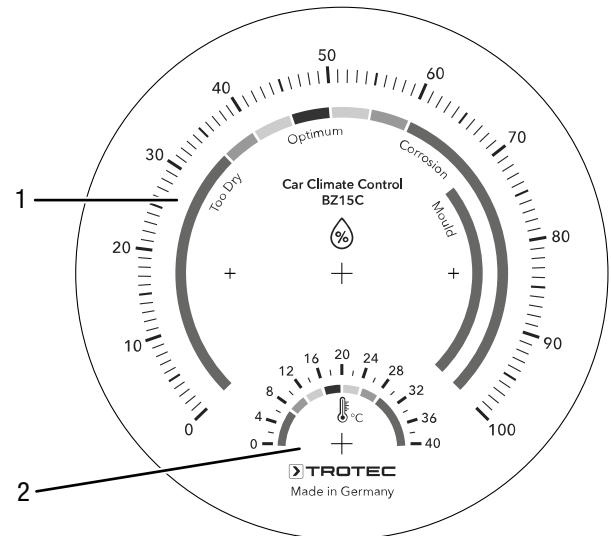
## Information about the device

### Device description

The device BZ15C is a thermohygrometer for measuring the indoor humidity level and temperature.

The device is particularly well suited for monitoring the humidity level in garages. The scales on the dial are specially adapted to this area of application.

### Device depiction



No.	Designation
1	Humidity scale
2	Temperature scale

### Technical data

Parameter	Value
Model	BZ15C
Relative humidity measuring range	0 % to 100 % RH
Temperature measuring range	0 to +40 °C
Accuracy	Humidity: $\pm 3$ % RH (20...100 %), +1 scale graduation Temperature: $\pm 2$ °C
Operating and storage conditions	-10 to +50 °C with 0 to 100 % RH
Dimensions	$\varnothing$ 103 mm / height 24 mm
Weight	155 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**

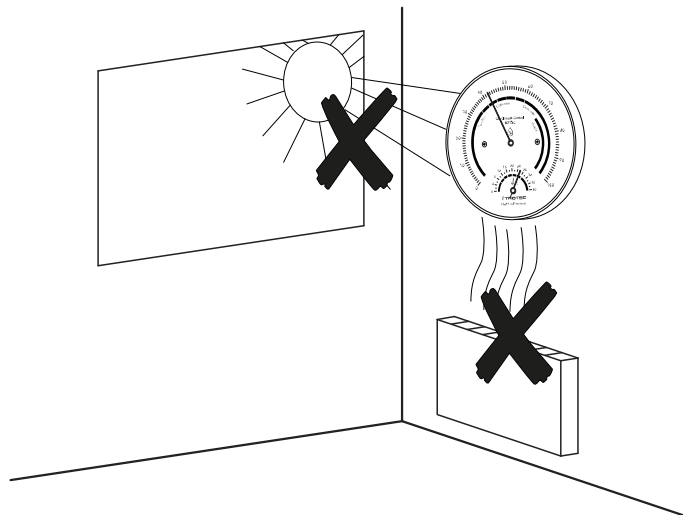
When the device is not being used, observe the following storage conditions:

- 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 garages**

Regardless of whether there is visible mould formation and a musty smell due to an excessive humidity level or you suffer from dry mucous membranes and stinging eyes because of an insufficient humidity level – in living spaces, the effects of an unsuitable indoor climate usually do not go unnoticed for long. However, the situation is different in garages. Moisture is the worst enemy of classic cars and motorcycles, most notably. A supposedly safe garage provides protection against harmful weather effects indeed, but not against the consequences of too humid or too dry garage air.

Leather, for instance, requires a certain humidity level to be able to breathe, or else it will become brittle. If the air is too dry, seals lose their elasticity and cable connections may break.

A relative humidity between 45 and 50 % is considered the ideal range for an adequate storage of motor vehicles worthy of preservation.

A 10 °C temperature drop in the garage at night, however, quickly makes the relative humidity of the garage air increase by more than 30 %.

Similarly, after driving in the rain in the summertime, the relative humidity level in the closed garage can easily reach – or exceed – the 90 % threshold due to the residual water left on the vehicle as well as the additional heat emitted by the motor that is still hot.

The results include destructive corrosion and mould growth. Therefore, the objective should be to keep both the relative humidity and the temperature at an ideal level all year round.

**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:

- How often should I air out?  
Whenever the hygrometer scale exceeds the colour range that corresponds to the room temperature, it is a good idea to air out the room.
- 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.
- Other rooms  
In rooms that are not used as living spaces, or that neither have a window, nor a forced ventilation or heating system (garages, pantries, storage rooms etc.), it may be necessary to actively stabilise or control the climate using dehumidifiers, air conditioners or heating devices.

*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 humidity level and temperature**

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

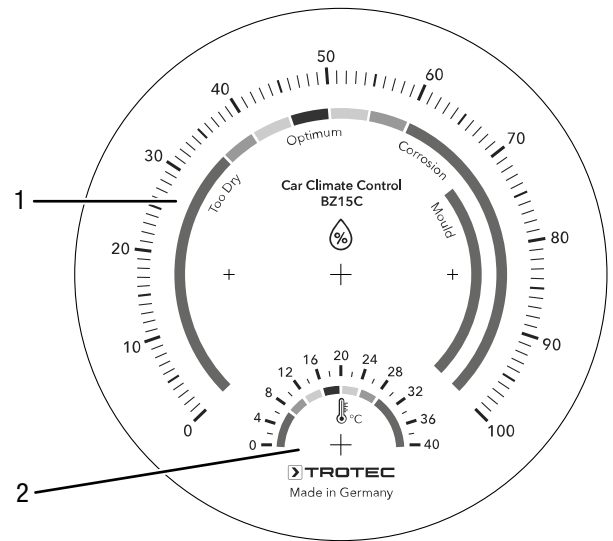
The colour scale on the device is specially adapted to the garage climate.

If the humidity level is 35 % RH or below, the garage air is usually too dry for leather and plastics. This can result in brittle leather, porous seals and cable breaks. Therefore, the pointer is located in the red range in this case.

To avoid rust, corrosion and mould formation, the humidity level should not be higher than 45 to 50 % RH – i.e. the green range.

At a relative humidity of only about 55 % RH metal begins to corrode, and moisture accumulations can no longer dry out properly. At 70 % RH and above, mould finds an ideal breeding ground after only a few hours – this is why these critical ranges are also highlighted in red on the colour scale of the BZ15C.

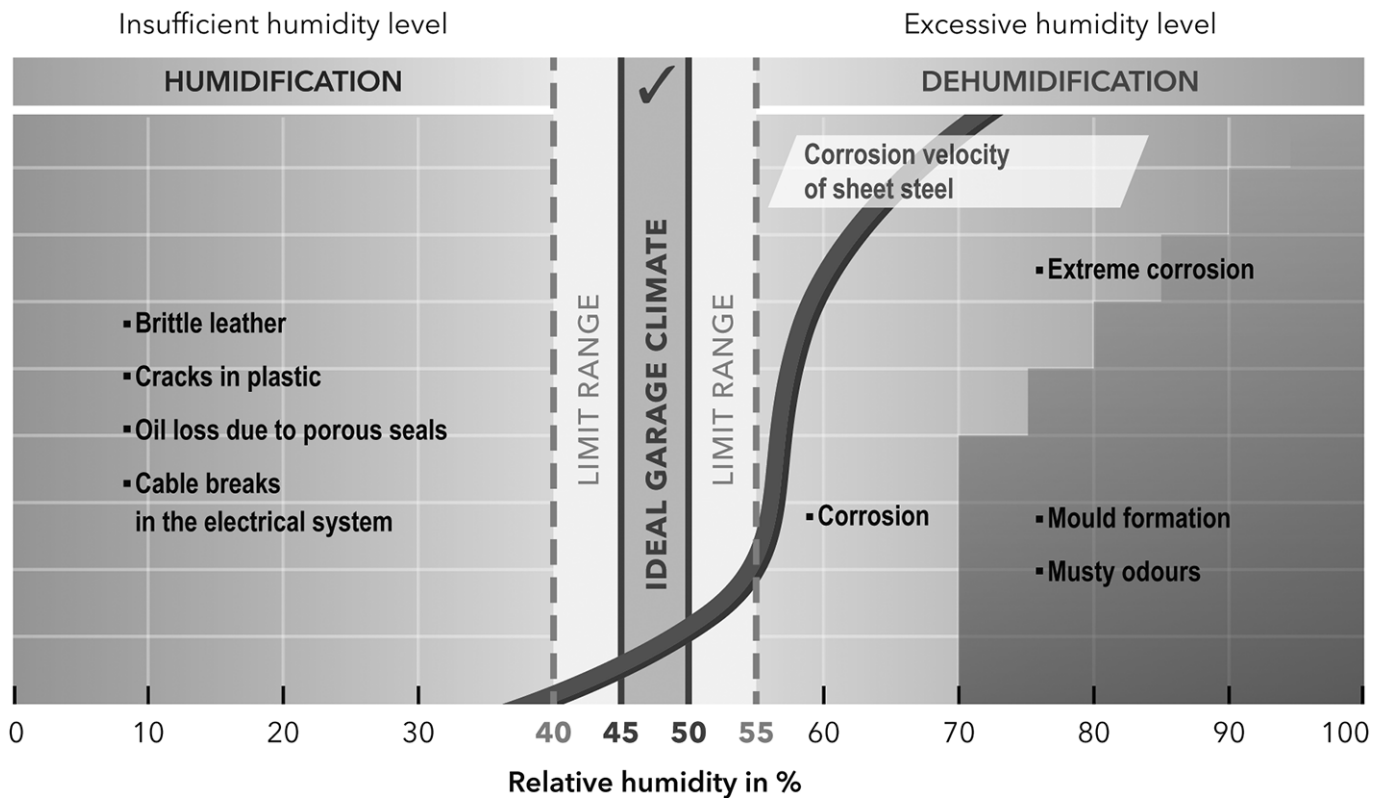
1. Read the room temperature on the lower dial (2) and match this temperature with the corresponding colour range.
2. Now read the relative humidity level on the upper dial (1).



Colour range	Humidity	Temperature
Red range	0 – 35 % and 60 – 100 %	0 – 8 °C and 28 – 40 °C
Orange range	35 – 40 % and 55 – 60 %	8 – 12 °C and 24 – 28 °C
Yellow range	40 – 45 % and 50 – 55 %	12 – 14 °C and 20 – 24 °C
Green range	45 – 50 %	16 – 20 °C



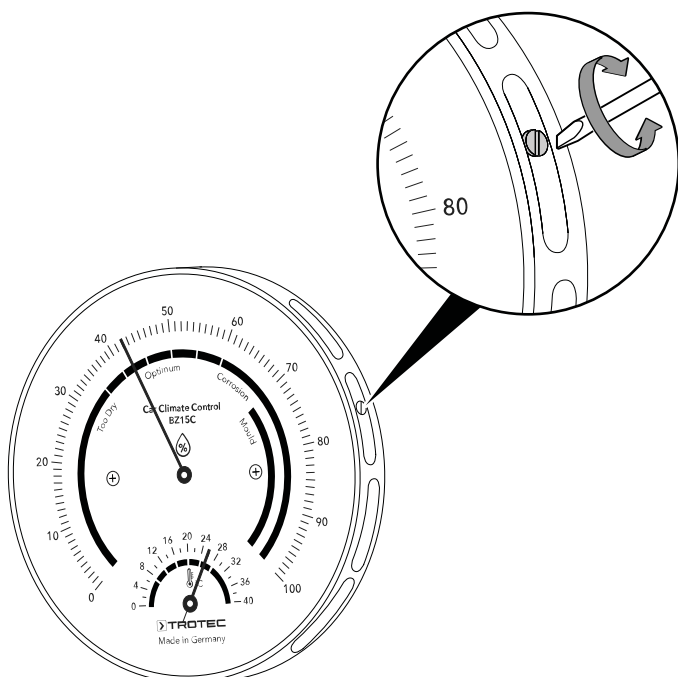
An overview of the possible effects is provided in the diagram below:



## 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](mailto:info@trotec.com)

[www.trotec.com](http://www.trotec.com)