

# Room sensor

Art.-No.: BTER/BW



## Operating instructions



PROFILE OF INNOVATION

# 1. About these operating instructions

## 1.1 About these operating instructions

These operating instructions describe the room sensor (also referred to as "product" in these operating instructions). These operating instructions are part of the product.

- You may only use the product if you have fully read and understood these operating instructions.
- Verify that these operating instructions are always accessible for any type of work performed on or with the product.
- Pass these operating instructions as well as all other product-related documents on to all owners of the product.
- If you feel that these operating instructions contain errors, inconsistencies, ambiguities or other issues, contact the manufacturer prior to using the product.

These operating instructions are protected by copyright and may only be used as provided for by the corresponding copyright legislation. We reserve the right to modifications.

The manufacturer shall not be liable in any form whatsoever for direct or consequential damage resulting from failure to observe these operating instructions or from failure to comply with directives, regulations and standards and any other statutory requirements applicable at the installation site of the product.

# 2. Information on safety

## 2.1 Safety messages and hazard categories

These operating instructions contain safety messages to alert you to potential hazards and risks. In addition to the instructions provided in these operating instructions, you must comply with all directives, standards and safety regulations applicable at the installation site of the product. Verify that you are familiar with all directives, standards and safety regulations and ensure compliance with them prior to using the product. Safety messages in these operating instructions are highlighted with warning symbols and warning words. Depending on the severity of a hazard, the safety messages are classified according to different hazard categories.



# DANGER

DANGER indicates a hazardous situation, which, if not avoided, will result in death or serious injury.

# NOTICE

NOTICE indicates a hazardous situation, which, if not avoided, can result in equipment damage.

In addition, the following symbols are used in these operating instructions:



This is the general safety alert symbol. It alerts to injury hazards or equipment damage. Comply with all safety instructions in conjunction with this symbol to help avoid possible death, injury or equipment damage.



This symbol alerts to hazardous electrical voltage. If this symbol is used in a safety message, there is a hazard of electric shock.

## 2.2 Intended use

This product may only be used to control the temperature in single rooms with an underfloor heating system (heating/cooling). Any use other than the application explicitly permitted in these operating instructions is not permitted and causes hazards. Verify that the product is suitable for the application planned by you prior to using the product. In doing so, take into account at least the following:

- All directives, standards and safety regulations applicable at the installation site of the product
- All conditions and data specified for the product
- The conditions of the planned application

In addition, perform a risk assessment in view of the planned application, according to an approved risk assessment method, and implement the appropriate safety measures, based on the results of the risk assessment. Take into account the consequences of installing or integrating the product into a system or a plant. When using the product, perform all work and all other activities in conjunction with the product in compliance with the conditions specified in the operating instructions and on the nameplate, as well as with all directives, standards and safety regulations applicable at the installation site of the product.

## 2.3 Predictable incorrect application

The product must never be used in the following cases and for the following purposes:

- In conjunction with products which are used for health-saving or life-saving purposes or whose operation may incur hazards to humans, animals or property.

## 2.4 Qualification of personnel

Only appropriately trained persons who are familiar with and understand the contents of these operating instructions and all other pertinent product documentation are authorized to work on and with this product. These persons must have sufficient technical training, knowledge and experience and be able to foresee and detect potential hazards that may be caused by using the product. All persons working on and with the product must be fully familiar with all directives, standards and safety regulations that must be observed for performing such work.

## 2.5 Personal protective equipment

Always wear the required personal protective equipment. When performing work on and with the product, take into account that hazards may be present at the installation site which do not directly result from the product itself.

## 2.6 Modifications to the product

Only perform work on and with the product which is explicitly described in these operating instructions. Do not make any modifications to the product which are not described in these operating instructions.

# 3. Transport and storage

The product may be damaged as a result of improper transport or storage.

## NOTICE

### IMPROPER HANDLING

- Verify compliance with the specified ambient conditions during transport or storage of the product.
- Use the original packaging when transporting the product.
- Store the product in a clean and dry environment.
- Verify that the product is protected against shocks and impact during transport and storage.

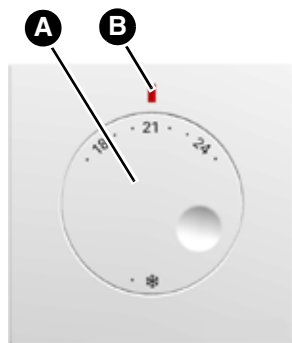
**Failure to follow these instructions can result in equipment damage.**

## 4. Product description

### 4.1 Overview of the individual components

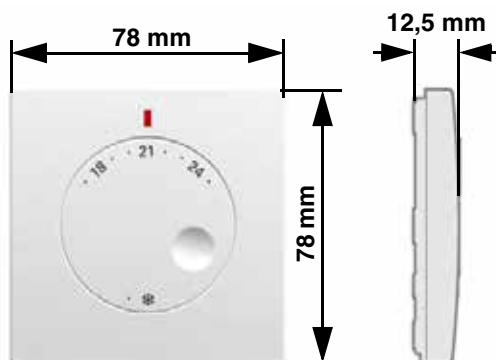
Component	Versions	Explanation
Base module Control	EBC	Power supply, including relay pump switching, heating/cooling relay
Timer unit	EET	Time-controlled temperature reduction
Room sensor	ER	Room sensor wired
	ERWL	Room sensor wireless
Connection module (wired)	EAR2	With 2 control circuits/wired
	EAR6	With 6 control circuits/wired
Connection module WL (wireless)	EAR2WL	With 2 control circuits/wireless
	EAR6WL	With 6 control circuits/wireless

### 4.2 Overview



- A. Rotary dial for adjusting the reference temperature.
- B. LED red: Heating  
LED blue: Cooling

### 4.3 Dimensions



#### 4.4 Function

The single room temperature controller is used to control the temperature in rooms with underfloor heating system (heat/cool). The product measures the actual temperature in the corresponding rooms. The reference temperature is adjusted via the rotary dial of the product. The product features an LED to indicate heating or cooling processes. The product is connected to the connection module by means of a cable.

#### 4.5 Approvals, conformities, certifications

The product complies with:

- EMC Directive (2014/30/EU)
- RoHS Directive (2011/65/EU)

#### 4.6 Technical specifications

Parameter	Value
<b>General specifications</b>	
Dimensions (W x H x D)	78 x 78 x 12.5 mm
Weight	30 g
Housing material	PC
Colour	White, similar to RAL 9003
Temperature adjustment range/ temperature measuring range	8 ... 30 °C
Temperature reduction	4K (only if higher than 12 °C)
<b>Operating temperature range</b>	
Ambient	-20 ... 60 °C
Storage	-20 ... 65 °C
Max. humidity	Non-condensing
Frost protection	8 °C
<b>Supply voltage</b>	
Nominal voltage	5 V DC (SELV)
Nominal power per room sensor	0.015 W
Permissible cable type	J-Y (St) Y 2 x 2 x 0.6 mm Wire colours: red, black, white, yellow
Maximum cable length	100 m
<b>Electrical data</b>	
Protection class (EN 60730-1; SELV)	III
Protection type (EN 60529)	IP 30
Emitted interference/immunity	EN 61326-1: 2006-10

## 5. Mounting

### 5.1 Electrical connection



# DANGER

#### ELECTRIC SHOCK

- Verify that the degree of protection against electric shock (protection class, double insulation) is not reduced by the type of electrical installation.
- Verify that the product is not connected to 230 V nominal voltage.

**Failure to follow these instructions will result in death or serious injury.**



# DANGER

#### ELECTRIC SHOCK CAUSED BY LIVE PARTS

- Disconnect the mains voltage supply before performing the work and ensure that it cannot be switched on.
- Verify that no hazards can be caused by electrically conductive objects or media.

**Failure to follow these instructions will result in death or serious injury.**

# NOTICE

#### DAMAGE TO THE PRODUCT DUE TO ELECTROSTATIC DISCHARGE

- Always earth yourself before touching electronic components.

**Failure to follow these instructions can result in equipment damage.**

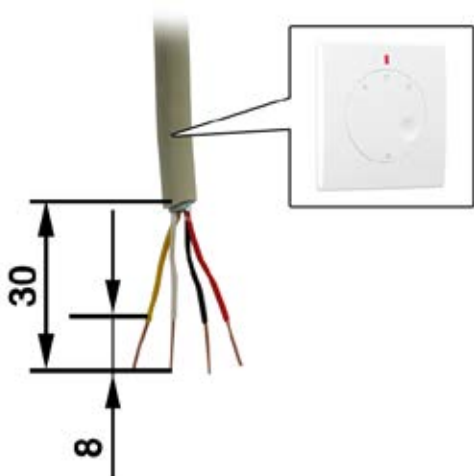
⇒ Verify that all cables are disconnected from power.

1. Strip the cables as shown.

Permissible cable type:

J-Y (St)Y 2 x 2 x 0.6 mm:

Wire colours: red, black, white, yellow

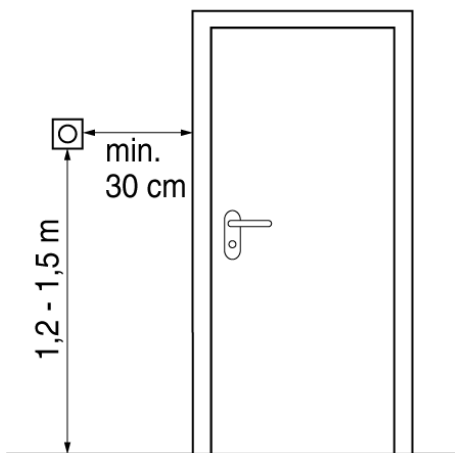


If cables > 0.6 mm<sup>2</sup> are already installed in the wall, you can use a screw terminal for connection with the product. The screw terminal must be located in the in-wall junction box. Only cables with a maximum of 0.8 mm<sup>2</sup> may be connected to the product.

## 5.2 Wall mounting

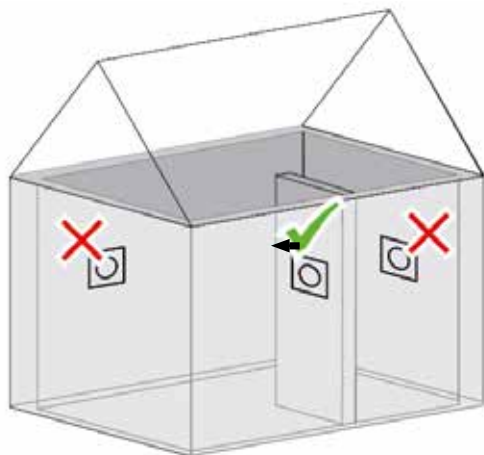
If you want to install several products, create a plan with the individual installation sites. Then label the individual products according to the installation plan with a number or the designation of the installation site in order to reduce the possibility of confusion.

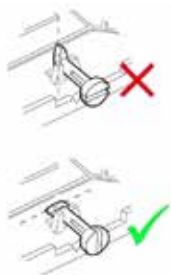
## 5.3 Mounting the product



Cold walls and draughts affect temperature measurement.

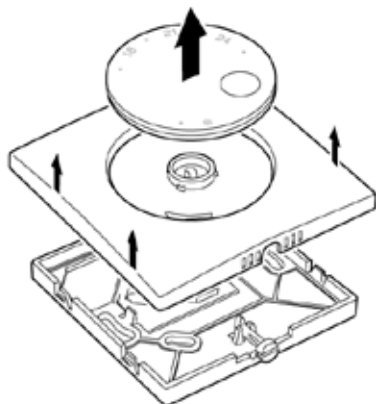
Mount the product to inner walls and at an adequate distance from doors and windows.





### Removing the rotary dial and the upper part of the housing

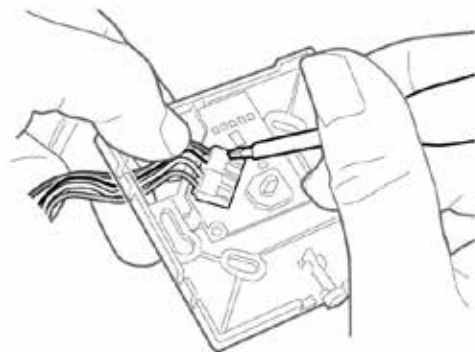
1. Turn the cam screw at the bottom of the thermostat by approximately 90° using a screwdriver.



2. Lift up and remove the twist-lock plate.
3. Remove the upper part of the housing.

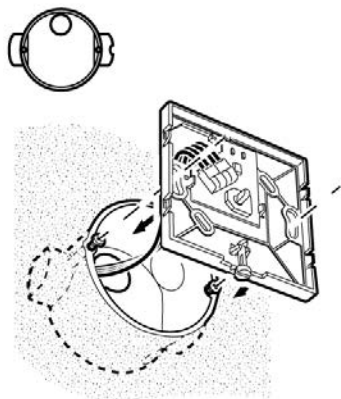
### Connecting the cable

4. Connect the wires of the cable to the terminals of the thermostat (observe colour coding).

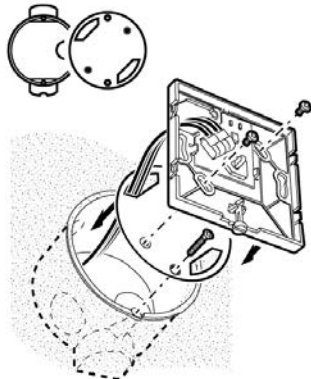




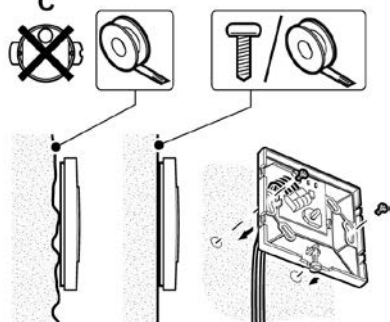
A



B



C



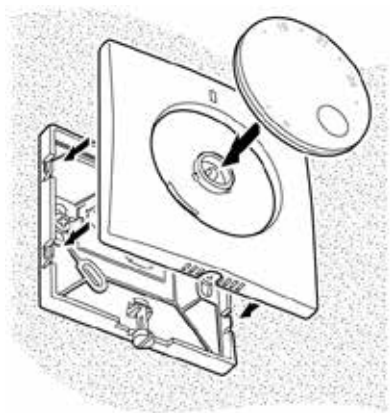
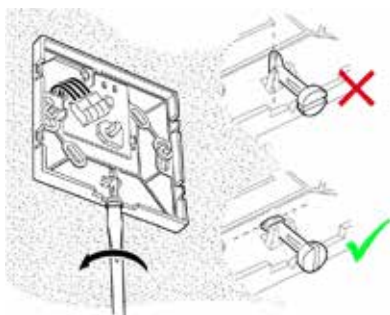
### Mounting by screwing/glueing

5. Mount the product.

A: Mounting to a horizontally aligned cable box.

B: Mounting to a vertically aligned cable box using the adapter plate supplied.

C: Mounting directly to the wall.  
 - Screw or glue the bottom part of the housing to the wall.  
 - Verify that the product is mounted in such a way as to avoid any damage, in particular in the case of uneven walls.



### Refitting the rotary dial and the upper part of the housing

- Turn the cam screw at the bottom of the thermostat back to the initial position using a screwdriver.

- Fit the upper part of the housing and the rotary dial to the bottom part of the housing. Verify correct position with reference to the axis of rotation when inserting the rotary dial.

- Connect the wires of the cable of the product to the terminals of the corresponding heating circuit at the connection module (observe colour coding).



Further mounting instructions can be found in the operating instructions of the connection modules.

## 6. Commissioning

### 6.1 Function test

⇒ Verify that the room temperature is between 15 °C and 25 °C.

1. Set the product to be tested to frost protection.
    - The LED at the product turns red.
  2. Set the product to be tested to 30°C.
    - After no more than one minute, the yellow LED lights up at the connection module to which the product is connected.
- ⇒ Verify that the product to be tested is connected to the correct control circuit.
3. Repeat this procedure for all other products.

## 7. Operation

### 7.1 Overview of the LED signals



- A. LED
- Solid red: During heating
  - Solid blue: During cooling
  - Not lit: Reference temperature reached

### 7.2 Adjusting the room temperature

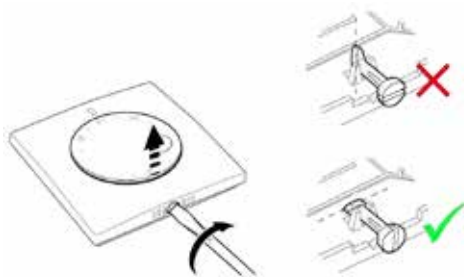


1. Adjust the desired temperature at the product.
  - Without temperature reduction:  
The room temperature is set to the adjusted value
  - With temperature reduction:  
The room temperature is set to a value 4 K below the adjusted value

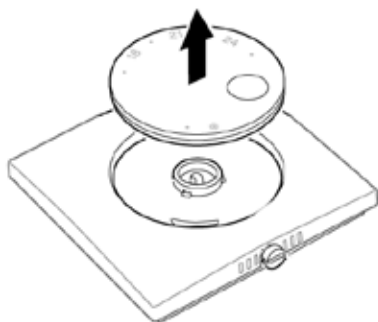
Fig. 1: Adjusted room temperature (for example, 21 °C)

### 7.3 Limiting temperature adjustments

The adjustment range of the rotary dial is factory-set to a minimum of 8 °C and a maximum of 30 °C by means of restrictors. The restrictors can be adjusted to set the minimum and the maximum adjustable temperature.

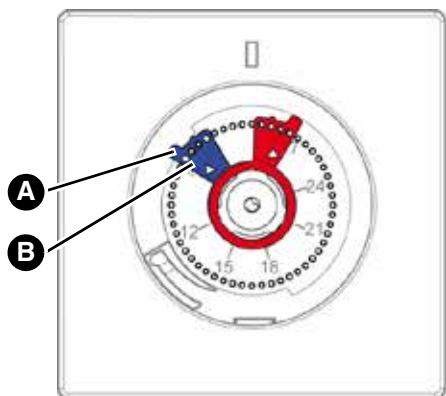


1. Turn the cam screw at the product approximately 90° using a screwdriver.



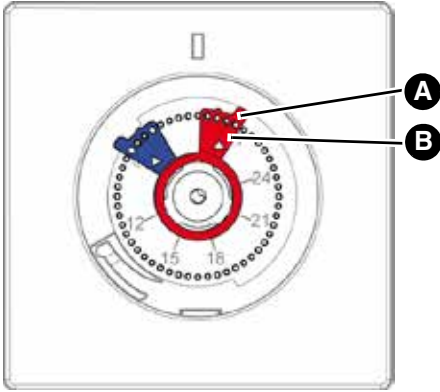
2. Lift up and remove the twist-lock plate.

#### 7.3.1 Setting the minimum temperature



1. Lift the blue restrictor at the flag (A).
2. Turn the blue restrictor with the restrictor adjustment edge (B) to the desired value for the minimum temperature and refit it.

### 7.3.2 Setting the maximum temperature



1. Lift the red restrictor at the flag (A).
2. Turn the red restrictor with the restrictor adjustment edge (B) to the desired value for the maximum temperature and refit it.
3. Turn the cam screw at the product back to the initial position so that you can refit the rotary knob.
4. Place the twist-lock plate on the top housing.

### 7.3.3 Frost protection function



- The room temperature is adjusted to 8 °C.
- If the product is set to "Frost protection", the cooling function is disabled

Fig. 2: Frost protection (8 °C)

## 8. Maintenance

The product is maintenance-free.

## 9. Troubleshooting

System impairments may only be addressed by the manufacturer.

## 10. Decommissioning, disposal

Dispose of the product in compliance with all applicable directives, standards and safety regulations. Electronic components must not be disposed of together with the normal household waste.




1. Disconnect the product from mains.
2. Dismount the product (see chapter "Mounting", reverse sequence of steps).
3. Dispose of the product.

## 11. Warranty

See our terms and conditions or your purchase contract for information on warranty.

## 12. Spare parts and accessories

### Product

Product designation	Art.-No.	Figure
Room sensor	BTER/BW	



PROFILE OF INNOVATION

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