Connection module WL (wireless)

Art.-No. BTEAR2WL
BTEAR6WL

Operating instructions

Schlüter Systems®

PROFILE OF INNOVATION

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1. About these operating instructions

1.1 About these operating instructions

These operating instructions describe the connection module “EAR2WL / EAR6WL“ (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 indicates a hazardous situation, which, if not avoided, will result in death or serious injury.

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 is exclusively designed for controlling the temperature in individual rooms with floor heating systems (heating/cooling).
The product may only be used to control the thermal actuators via the signals of the room sensors and the base module Control.
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:

- Hazardous area (EX)
  - If the product is operated in hazardous areas, sparks may cause deflagrations, fires or explosions
- 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.

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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.

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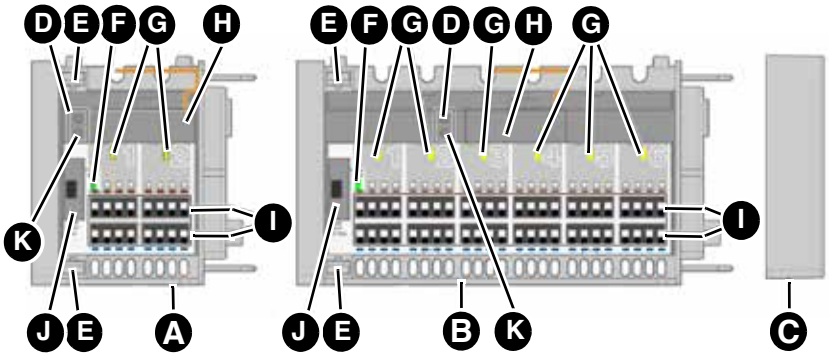
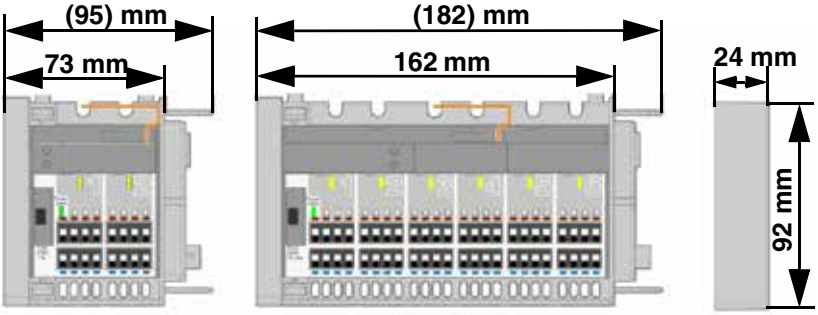
4. Product description

4.1 Overview



A. Connection module “EAR2WL“
B. Connection module “EAR6WL“
C. End cover
D. Programming (LRN key)
E. Catch
F. Operation mains voltage (LED green)
G. Thermal actuator active (LED yellow)
H. Wireless module
I. Terminal block for thermal actuators
J. Fuse compartment
K. Reset key (CLR key)

4.2 Dimensions



4.3 Application example

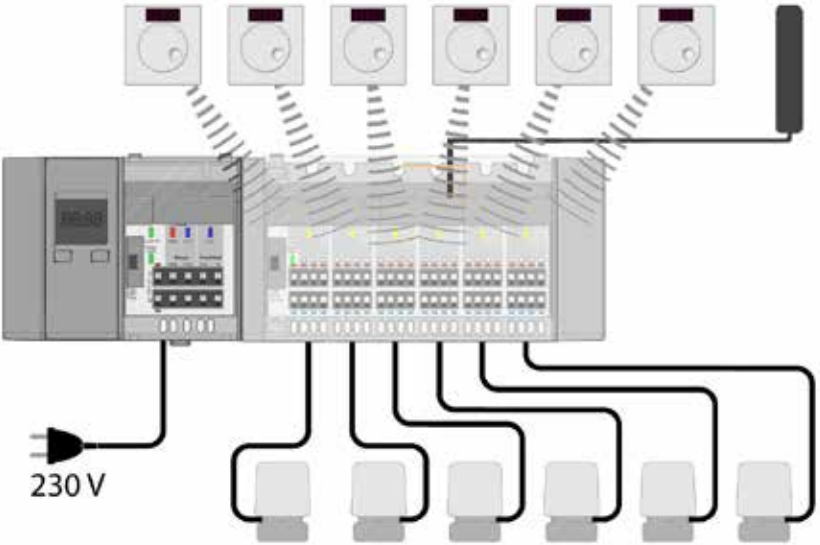


Fig. 1: Base module Control with connection module WL, timer unit, room sensors, external antenna and actuators

4.4 Function

The single room temperature controller is used to control the temperature in rooms with underfloor heating system (heat/cool).
The product with 2 or 6 independent control circuits controls the thermal actuators via the signals of the room sensors and the base module Control.
Multiple products with 2 or 6 control circuits can be installed adjacent to each other.
The room sensors transmit the actual temperature and the reference temperature directly to the product via wireless EnOcean® technology.

4.5 Approvals, conformities, certifications

The product complies with:

- EMC Directive (2014/30/EU)
- Low Voltage Directive (2014/35/EU)
- Radio Equipment Directive, RED (2014/53/EU)
- RoHS Directive (2011/65/EU)

The declaration of conformity can be accessed (downloaded) at www.bekotec-therm.co.uk

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4.6 Technical specifications

Parameter	EAR2WL	EAR6WL
General specifications		
Dimensions (W x H x D)	73 x 92 x 45 mm	162 x 92 x 45 mm
Weight	130 g	260 g
Housing material	PC/ABS	PC/ABS
Ambient conditions		
Ambient temperature for operation	-20 ... 60 °C	-20 ... 60 °C
Ambient temperature for storage	-20 ... 60 °C	-20 ... 60 °C
Max. humidity	Non-condensing	Non-condensing
Supply voltage		
Nominal voltage	Via base module Control AC 230 V, 5 V DC (SELV)	Via base module Control AC 230 V, 5 V DC (SELV)
Nominal power (connection module WL only)	0,3 W	0,5 W
Fuse for thermal actuators	T 1 A	T 3,15 A
Permissible cable type to thermal actuators	H05 VV-H2-F 2 x 0.75 mm²	H05 VV-H2-F 2 x 0.75 mm²
The following components may be connected to one product		
Room sensors	max. 2	max. 6
Thermal actuators	max. 8	max. 24
Electrical data		
Protection class (EN 60730-1)	II	II
Protection type (EN 60529)	IP 20	IP 20

5. Mounting

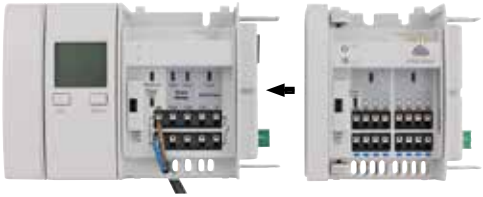
The product must be mounted in the vicinity of the heating circuit manifold.

5.1 Mounting the product

⇨ Verify that the product is disconnected from mains.

1. Open the cover using a screwdriver.

2. Pull off the end cover.



3. Connect the connection module WL/connection module(s) to the base module Control.

4. Push down the two catches.

5. Fit the end cover onto the last connection module WL/connection module.

6. Refit the cover and close it.

5.2 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.

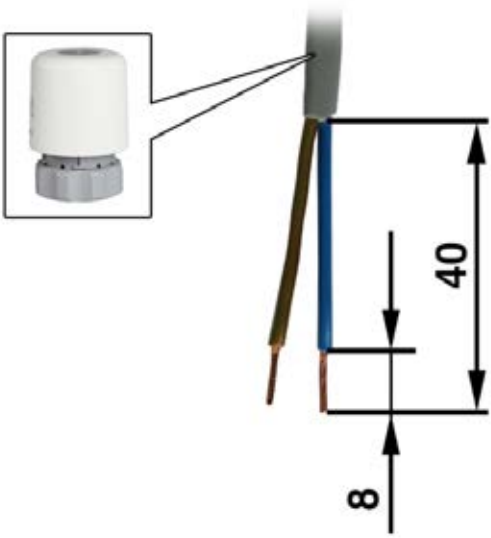
Failure to follow these instructions will result in death or serious injury.

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.

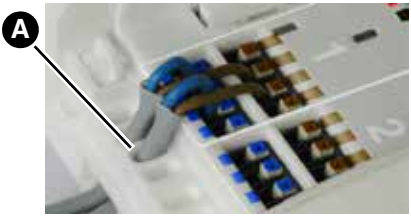


⇨ Verify that a connection concept has been created.
⇨ Verify that all cables are disconnected from power.

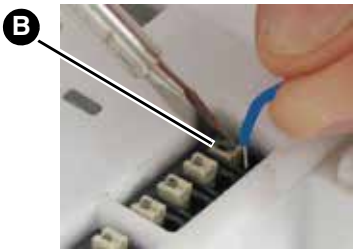
1. Strip the cables as shown.

Permissible cable type to thermal actuators:
H03 VV-H2-F 2 x 0.75 mm²

5.2.1 Connecting the thermal actuators

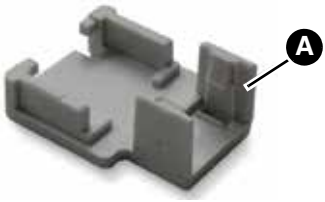


1. Route the cables of the thermal actuators through the strain reliefs (A) and connect the wires to the corresponding terminals (observe colour coding).

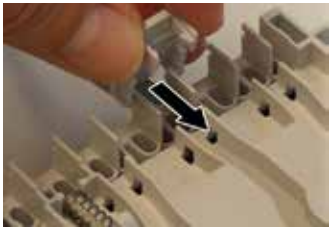


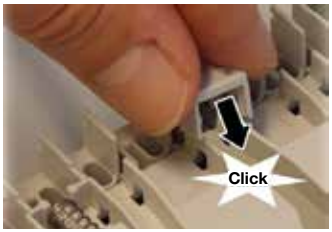
2. Push the stripped wires all the way into the terminals.
3. If the stripped wires do not easily push into the terminals then press the catch (B) to 'open' the terminal. Catch (B) should also be pressed to disconnect wires.

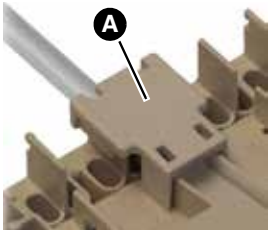
5.2.2 Fitting the cable clamp

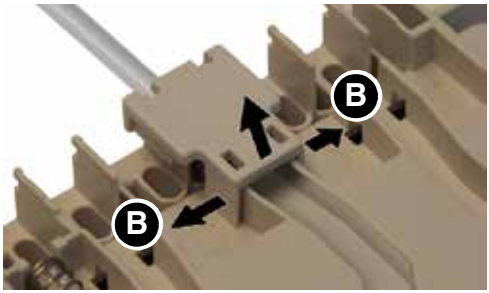


1. Fix the cable at the rear of the connection module WL/connection module using the cable clamp (A).









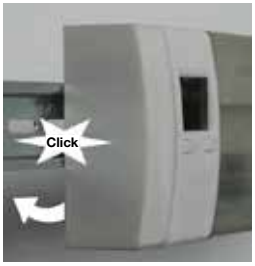
2. Repeat this procedure for all other cables.

3. It is possible to open the cable clamps. To do so, pull the two tabs (B) outwards and remove the cable clamp.

5.3 Mounting modules on a DIN rail

⇨ Verify that all modules (base module Control and connection modules WL) are plugged together and firmly locked.
⇨ Verify that all cables are connected.

1. Fit the modules into the DIN rail with the upper hooks.



2. Push the lower end of the modules towards the DIN rail until they snap in with a click.

5.4 Removing modules from a DIN rail

1. Slightly lift the modules.

2. Tilt the top away from the DIN rail.

3. Remove the connected modules towards the bottom.

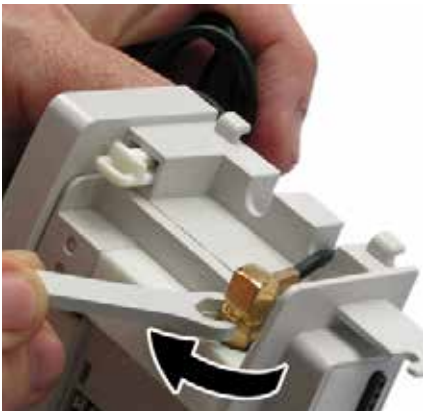
5.5 Mounting an external antenna

NOTICE

ELECTROSTATIC DISCHARGE
- Always earth yourself before touching electronic components.
- Do not touch the product to plug it in; use the anti-electrostatic film to plug the product into the slot.

Failure to follow these instructions can result in equipment damage.

⇨ Verify that the base module Control is disconnected from mains.



1. Open the cover of the product.
2. Push the external antenna onto the connection module WL and screw it on.
3. Close the cover of the product.

5.5.1 Antenna

1. Open/remove the cover of the cabinet.
2. Temporarily attach the antenna with an easily removable adhesive strip, such as clear tape, to determine the optimum antenna position.
3. Close the cover of the cabinet.
4. Place all room sensors temporarily in the rooms where they are to be installed later.
5. Set all room sensors to the maximum temperature.
6. Wait at least one minute after having set the last room sensor to maximum temperature.
7. Open/remove the cover.
   If reception is sufficient with the antenna adhered in the distributor cabinet:
   - All control circuits must be in heating mode.
   - The yellow LEDs light.
8. Close the cover.
9. Set all room sensors to minimum temperature and wait for at least five minutes.
10. Open/remove the cover of the cabinet.
    - All control circuits must be off.
    - The yellow LEDs must be off.
11. Remove the protective foil from the adhesive antenna and press it into the previously selected position.
12. Close the cover of the cabinet.

If the on-site conditions allow for sufficient reception, you can install the adhesive antenna in the distributor cabinet. If the distributor cabinet does not offer sufficient reception, the adhesive antenna must be installed outside of the distributor cabinet.

1. Open/remove the cover of the cabinet.

2. Drill a hole into the inside of the cabinet using a power drill.

3. Route the cable through the drilled hole and screw the connection of the adhesive antenna to the connection module WL.
4. Remove the protective film from the adhesive antenna and push the adhesive antenna onto the outer edge of the cabinet.
5. Close the cover of the cabinet.

6. Commissioning

6.1 Commissioning the product

⇨ Verify that the modules are properly connected.
⇨ Ensure that the antenna is installed.
⇨ Verify that the product is properly mounted to the DIN rail.
1. Apply mains voltage.
   - The green LEDs (operation) of the base module Control and of the product light up.

6.2 Connecting room sensors WL to the product

6.2.1 Preparation

⇨ Verify that the single room temperature controller is in operation and that the cover of the product has been removed.
⇨ Verify that the room sensors WL to be used have been exposed to sunlight for at least one day or that they have a battery.
⇨ Verify that the room sensors WL to be used are close to the product.
⇨ Verify that the rear sides of the room sensors WL to be used are numbered consecutively and marked with the place of use. This helps to avoids subsequent confusion.
⇨ Verify that a paper clip bent open and a ballpoint pen are available.
⇨ Reset the control module to factory settings (“Reprogram all thermostats/Reset”).

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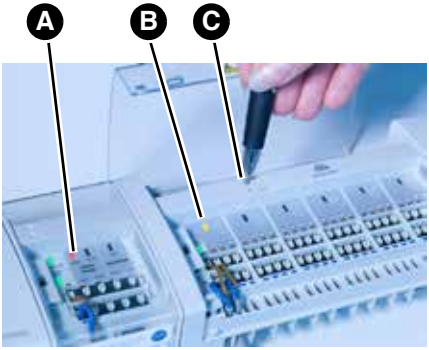
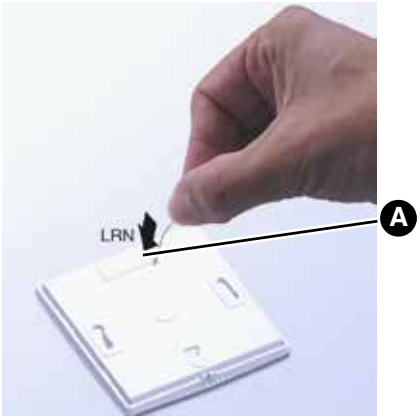
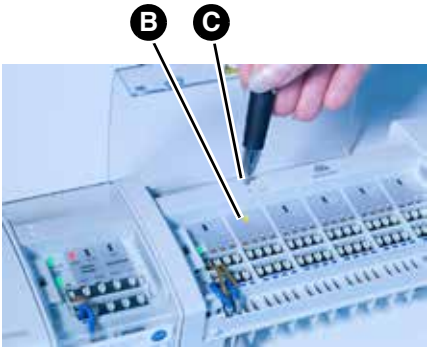
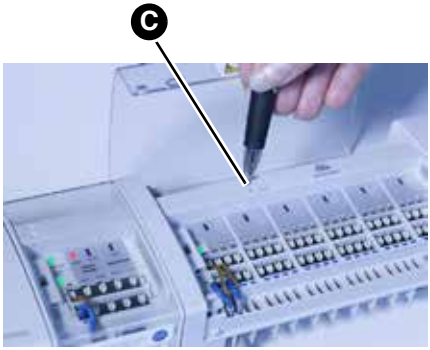
6.2.2 Programming





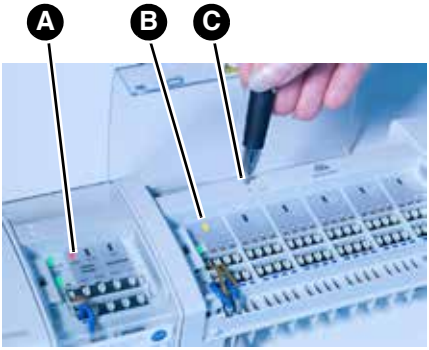




1. Press the LRN key (C) on the control module with the tip of a ball-point pen until the yellow LED (B) of control circuit 1 flashes.
   - The yellow LED (B) of control circuit 1 flashes.
   - The red LED (A) “Heat” on the base module flashes.
   - Control circuit 1 is in learning mode.
2. Within the next 30 seconds, press the LRN key (A) of the assigned “FT/FTF” thermostat with a bent paper clip or similar.
   - If the programming was successful, the yellow LED of control circuit 1 lights up for several seconds.
   - After successful programming, the yellow LED on control circuit 1 flashes again every second.
3. Press the LRN key (C) on the control module until the LED (B) of the next control circuit flashes.
   - The next control circuit is in learning mode.
4. Proceed as described from step 2.
5. When you have programmed the last control circuit of the control module, press again on the LRN key (C) of the control module.
   - The control module switches to regular operating mode.
   - No LED flashes.

If no LRN key of a „FT/FTF“ thermostat is pressed within 30 seconds while in learning mode (yellow control circuit LED flashes every second), the product automatically switches to regular operating mode.

6.2.3 Clear/reset



1. Press the LRN key (C) on the control module with the tip of a ball-point pen until the yellow LED (B) of control circuit 1 flashes.
   - The yellow LED (B) of control circuit 1 flashes.
   - The red LED (A) “Heat” on the base module flashes.
   - Control circuit 1 is in learning mode. **A B A C**

6.2.4 Terminating

1. Refit the cover of the product and close it.
2. Install the room sensors in the appropriate rooms. Observe the assignment room sensor/control circuit/room when doing so.

6.3 Function test Room sensor WL

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

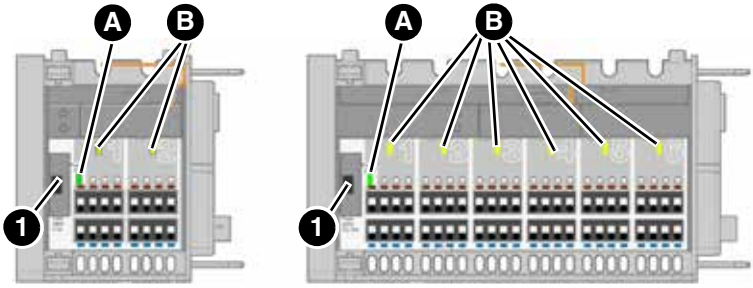
1. Set the room sensor WL to be tested to 30 °C.
   - Within one minute, the yellow LED lights up at the connection module WL to which the room sensor WL is connected.

⇨ Verify that the room sensor WL being tested is connected to the correct control circuit.

2. Repeat this procedure for all other room sensors.

7. Operation

7.1 Overview of the LED signals



	Indication	State	Explanation
A.	Operation AC 230 V (LED green)	Light on	When mains voltage for the thermal actuators is applied.
		Light off	In the case of power failure. If the fuse in the base module Control trips. If the fuse (1) trips.
B.	LED yellow	Light on	When the room sensor WL connected to this control circuit is requesting heating or cooling.
		Flashes	When the control circuit is in learning mode.

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8. Maintenance

The product is maintenance-free.

9. Troubleshooting

System impairments that cannot be eliminated with the measures described in this section may only be addressed by the manufacturer.

Problem	Possible reason	Repair
LED operation mains voltage not lit (green LED)	No mains voltage	Check the supply voltage
	Fuse defective	Check the fuse
LED 5 V operation not lit (green LED)	No mains voltage	Check the supply voltage
	Fuse defective	Check the fuse
Other malfunctions	Power supply unit defective	Contact your specialised company

9.1 Replacing the mains fuse

⇨ Verify that the mains voltage is disconnected and cannot be switched on.

Example: Replacing the fuse in the base module Control.

1. Open the cover using a screwdriver.

2. Remove the fuse holder.

3. Replace the defective fuse with a G fuse insert 5 x 20 mm, see Table 1.

4. Insert the fuse holder into the fuse compartment.
5. Close the cover.

Art.-No.	Product	Fuse type
BTEBC	Base module Control	T 10 A
BTEAR2, BTEAR2WL	Connection module for 2 room sensors	T 1 A
BTEAR6, BTEAR6WL	Connection module for 6 room sensors	T 3.15 A

Table 1: Overview fuse types

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.

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12. Spare parts and accessories

NOTICE

UNSUITABLE PARTS

- Only use genuine spare parts and accessories provided by the manufacturer.

Failure to follow these instructions can result in equipment damage.

Product

Product designation	Art.-No.	Figure
Connection module “EAR2WL“	BTEAR2WL	
Connection module “EAR6WL“	BTEAR6WL	

Spare parts and accessories

Product designation	Art.-No.	Figure
Schlüter®-BEKOTEC-Z spare antenna	250002	

Schlüter® Systems

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