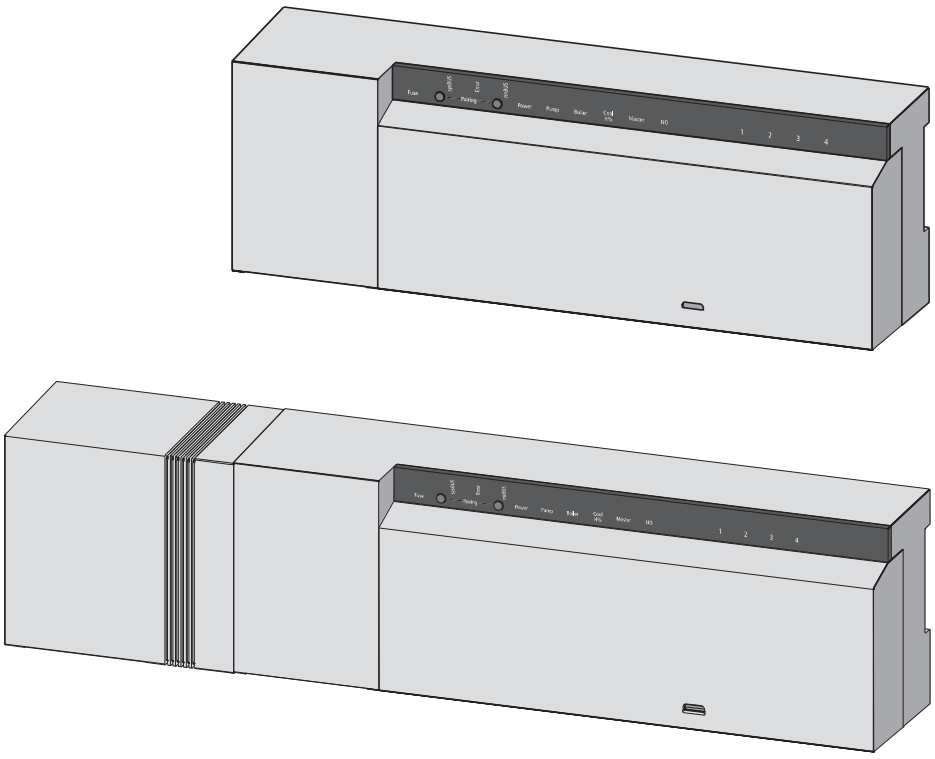
BSB 20x12-xx - 230 V
BSB 40x12-xx - 24 V



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Contents

1 Safety

1.1 Used signal words and notes

The following symbols show you, that
- ➢ an action must be performed.
- ✓ a precondition must be met.

Warning

Electrical voltage! Danger to life!
The shown symbol warns against electrical voltage. Warning notes are highlighted with horizontal lines.

1.2 Intended use

The base stations BUS 24 V and 230 V of the type BSB x0x02-vvN serve for
- ✓ for the arrangement of a single room regulation system (readjustment) with a maximum of 12 zones (depending on the type used) for heating and cooling systems,
- ✓ the connection of a maximum of 18 actuators and 12 room control units (depending on the type used), a pump, a CO signalling unit, a humidity sensor with potential-free contact as well as an external timer,
- ✓ a fixed installation.

Every other use is considered as **not intended**; the manufacturer cannot be held liable for this.

Modifications and conversions are expressively forbidden and lead to dangers the manufacturer cannot be held liable for.

1.3 General safety notes

Warning

Electrical voltage! Danger to life!
The base station is live.
- ➢ Always disconnect from the mains network and secure against unintended activation before opening it.
- ➢ Disconnect external voltages existing at the pump and the boiler contact and secure against unintended activation.

Emergency
- ➢ In case of emergency, disconnect the complete single room control system.

Retain this manual and provide it to future owners.

1.4 Personnel-related preconditions

Authorised specialists
The electrical installations must be performed according to the current VDE regulations as well as according to the regulations of your local electric power utility company. These instructions require special knowledge corresponding to an officially acknowledged **degree** in one of the following professions:

✓ **Electrical Equipment Installer or Electronics Engineer**

according to the profession designations officially announced in the Federal Republic of Germany, as well as according to comparable professions within the European Community Law.

1.5 Limitations for the operation

This unit is not intended to be used by people (including children) with restricted physical, sensory or mental skills or who lack experience or knowledge, except if they are supervised by a person responsible for their safety or have received instructions on how to use this unit.

Children must be monitored in order to ensure that they do not play with the device.

1.6 Conformity

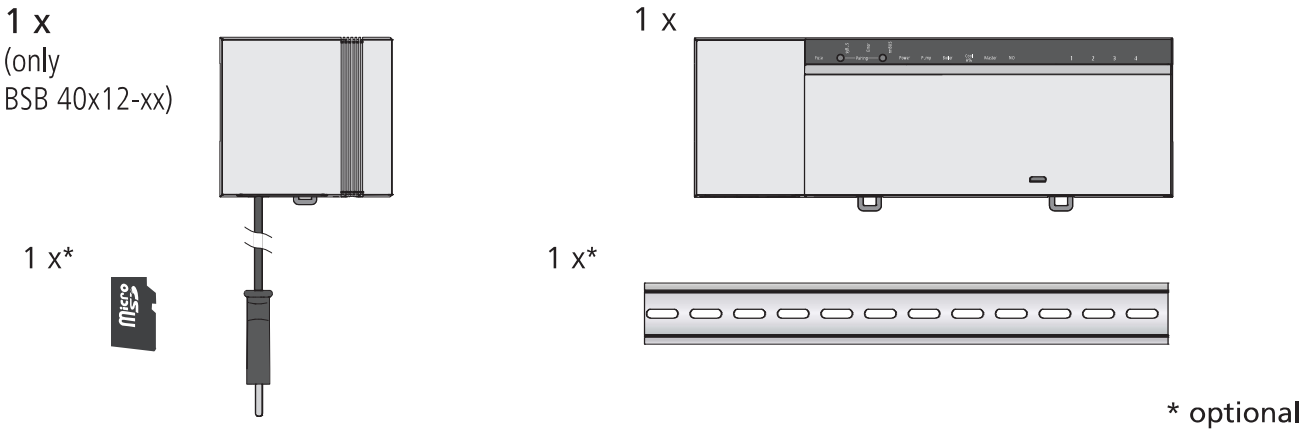
This product is labelled with the CE Marking and thus is in compliance with the requirements from the guidelines:

- ✓ 2014/30/EU with amendments "Council Directive on the approximation of the laws of the Member States relating to Electromagnetic Compatibility"
- ✓ 2014/35/EU with amendments "Council for Coordination of the Regulations of EU Member Countries regarding the electrical equipment for use within certain voltage limits"

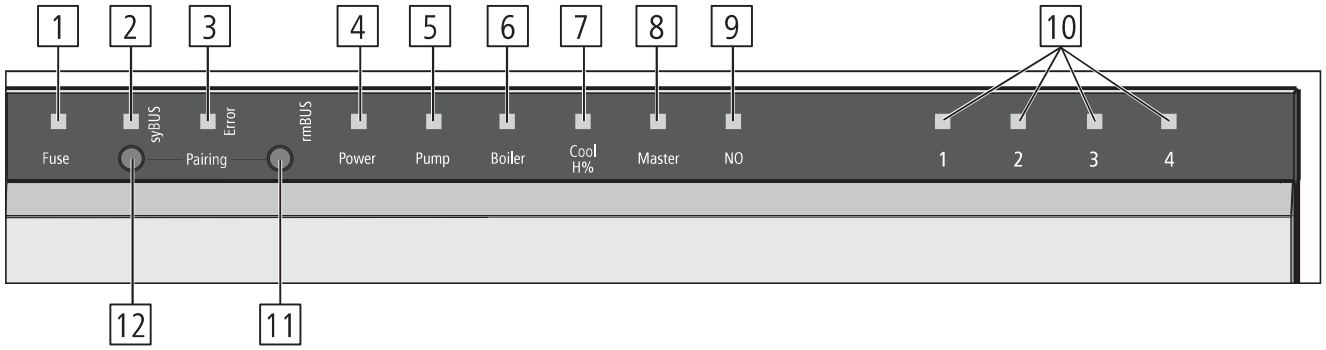
Increased protection requirements may exist for the overall installation, the compliance of which is the responsibility of the installer.

2 Versions

2.1 Scope of supply



2.2 Indications and operating elements



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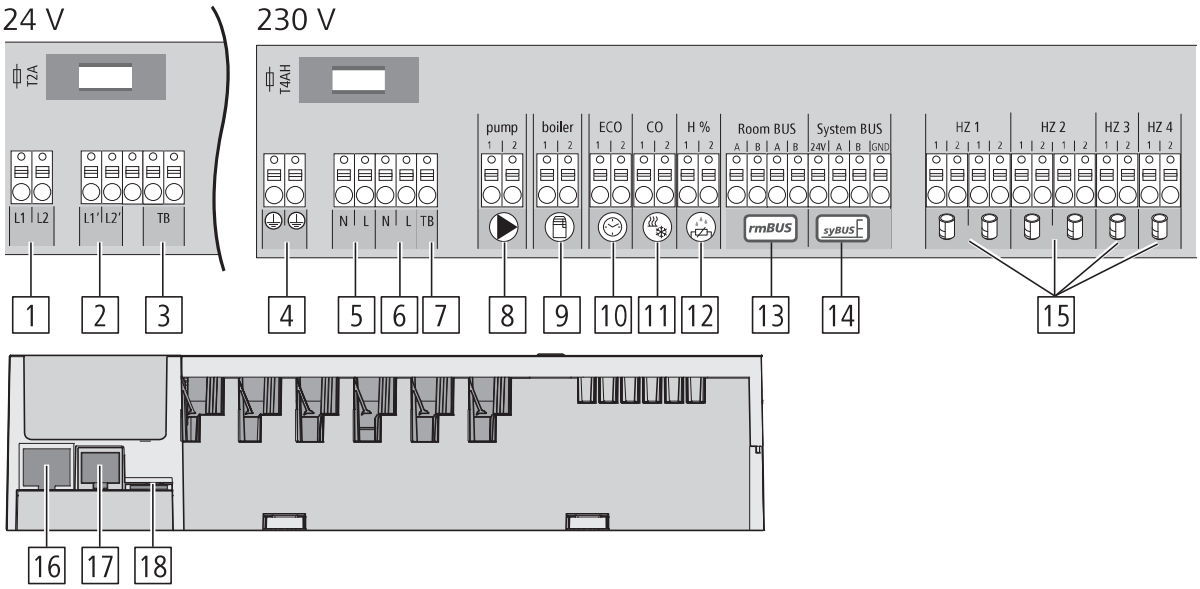
No.	Designation	LED	Function
1	Fuse	red	Lighting up: Fuse has blown
2	syBUS	yellow	Shows activity of the syBUS, flashes during writing access to the microSD Card
3	Error	red	Lighting up: Error
4	Power	green	Lighting up: Base station ready for operation.
5	Pump	green	Lighting up: Pump control active
6	Boiler	green	Lights up when boiler control is active if the boiler relay is used for boiler control.
7	Cool H%	blue	Lighting up: Cooling operation active Flashing: Condensation detected
8	Master	yellow	Lighting up: Base station is defined as master Flashing: Base station is defined as slave
9	NO	yellow	Lighting up: Installation is parameterised for NO actuators (normally open).
10	Heating zones 1 - x	green	Shows the respective activity of the heating/cooling zones.
11	rmBUS pushbutton	-	Pushbutton for the rmBUS functionality
12	syBUS pushbutton	-	Push-button for the syBUS functionality

2.3 Connections



No.	Connections	Function
1	Mains transformer	*Only 24 V version:* Connection for system transformer
2	Output 24 V	*Only 24 V version:* Output for the supply of e. g. a temperature limiter (to be provided by the customer)
3/7	Temperature limiter	Connections for temperature limiter for the protection of sensitive surfaces, to be provided by the customer *(optional)*
4	Protective conductor 1 and 2	*Only 230 V version:* Protective conductor connections
5	Mains connection N/L	*Only 230 V version:* Connection for mains supply
6	Output 230 V	*Only 230 V version:* Optional assignment for a direct energy supply of the pump
8	Pump	Pump activation connection
9	Boiler	Boiler control connection, or output for CO pilot function
10	ECO	Potential-free input for the connection of an external timer
11	Change over	Potential-free input (according to SELV) for an external change-over signal
12	Dew point sensor	Potential-free input (according to SELV) for dew point sensor
13	rmBUS	Connects the room control units to the base station
14	syBUS	Connects several base stations in order to exchange global system parameters
15	Actuators	6 to 18 connections for thermal actuators
16	RJ45 connection *(optional)*	Ethernet interface for the Integration of the base station into the home network
17	RJ12 connection	Connection for active antenna
18	microSD card slot	Allows the introduction of firmware updates and individual system settings.

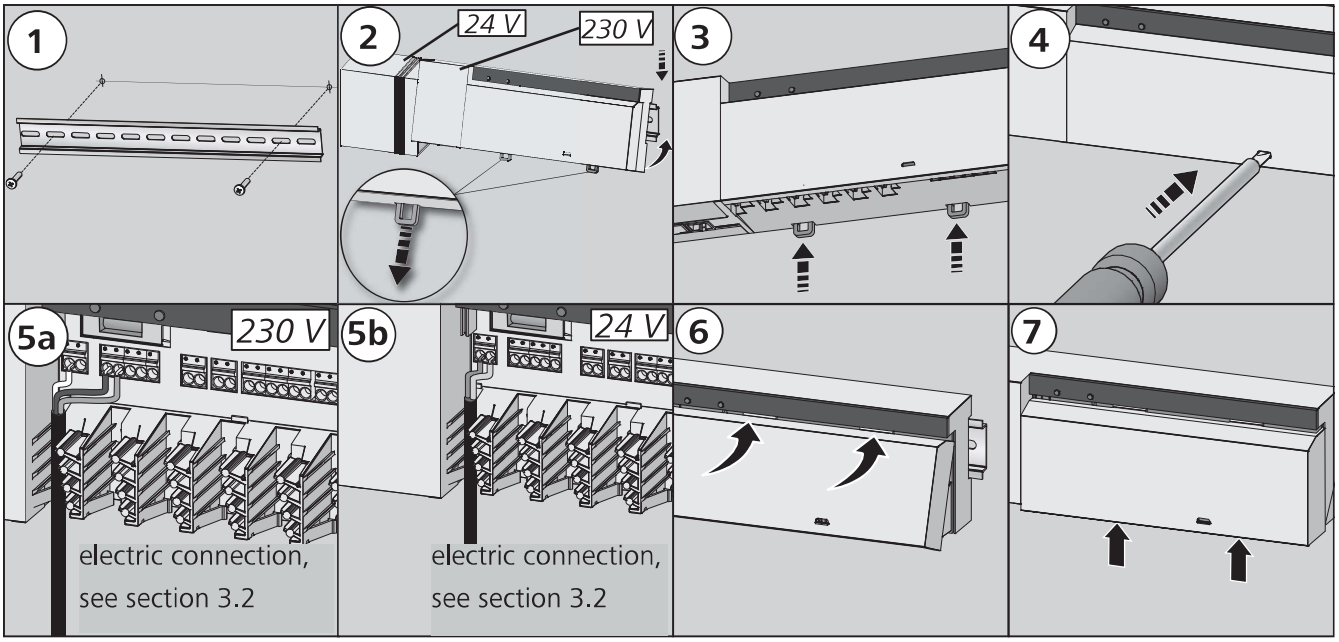
	BSB 20102-04*	BSB 20202-04*	BSB 20102-08*	BSB 20202-08*	BSB 20102-12*	BSB 20202-12*	BSB 40112-04*	BSB 40212-04*	BSB 40112-08	BSB 40212-08	BSB 40112-12*	BSB 40212-12*
Ethernet	-	x	-	x	-	x	-	x	-	x	-	x
Number of heating zones	4		8		12		4		8		12	
Number of actuators	2x2 + 2x1		4x2 + 4x1		6x2 + 6x1		2x2 + 2x1		4x2 + 4x1		6x2 + 6x1	
Max. nominal load of all actuators	24 W											
Switching power per heating zone	max. 1 A											
Operating voltage	230 V / ±15% / 50 Hz						24 V / ±20% / 50 Hz					
Mains connection	NYM connection terminals 3 x 1.5 mm²						System transformer with mains plug					
Power consumption (without pump)	50 W						50 W (limited by the system transformer)					
Power consumption in idle operation/ with transformer	1.5 W /-	2.4 W /-	1.5 W /-	2.4 W /-	1.5 W /-	2.4 W /-	0.3 W / 0.6 W	1.1 W / 1.4 W	0.3 W / 0.6 W	1.1 W / 1.4 W	0.3 W / 0.6 W	1.1 W / 1.4 W
Protection class	II											
Protection degree/ overvoltage category	IP20 / III											
Fuse	5 x 20 mm, T4AH						5 x 20 mm, T2A					
Environment temperature	0°C - 60°C											
Storage temperature	-25°C bis +70°C											
Humidity	5 to 80%, not condensing											
Dimensions	225 x 52 x 75 mm		290 x 52 x 75 mm		355x 52 x 75 mm		305 x 52 x 75 mm		370 x 52 x 75 mm		435 x 52 x 75 mm	
Material	PC+ABS											
Controlling precision of the target value:	±1 K											
Hunting	±0,2 K											
Max. number in rmBUS / syBUS	4 / 7		8 / 7		12 / 7		4 / 7		8 / 7		12 / 7	
Max. line length	500 m											
rmBUS connection	polarity reversal protected											

* on request

3 Installation

3. 1 Assembly

Warning
Electrical voltage! Danger to life!
All installation work must be performed under the absence of voltage.



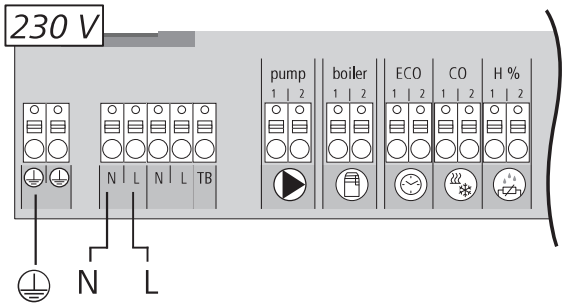
3.2 Electric connection

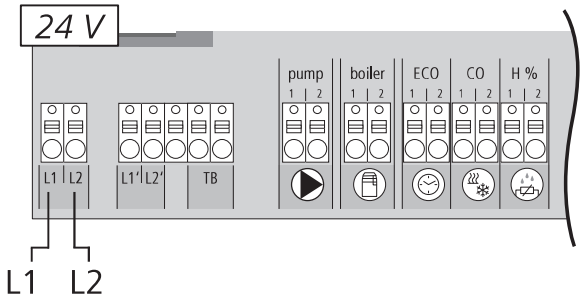
Warning
Electrical voltage! Danger to life!
All installation work must be performed under the absence of voltage.

The wiring of a single room control system depends on several factors and must be planned and carried through carefully by the installer.
The following cross-sections are applicable for the plug-in/clamping connections:

- ✓ solid wire: 0.5 – 1.5 mm²
- ✓ flexible wire: 1.0 – 1.5 mm²
- ✓ 9 - 10 mm insulation stripped off the wire
- ✓ The wires of the actuators can be used with factory-mounted end sleeves.

Note: For the 230 V variant, voltage can be supplied via one of the two N and L terminal pairs.





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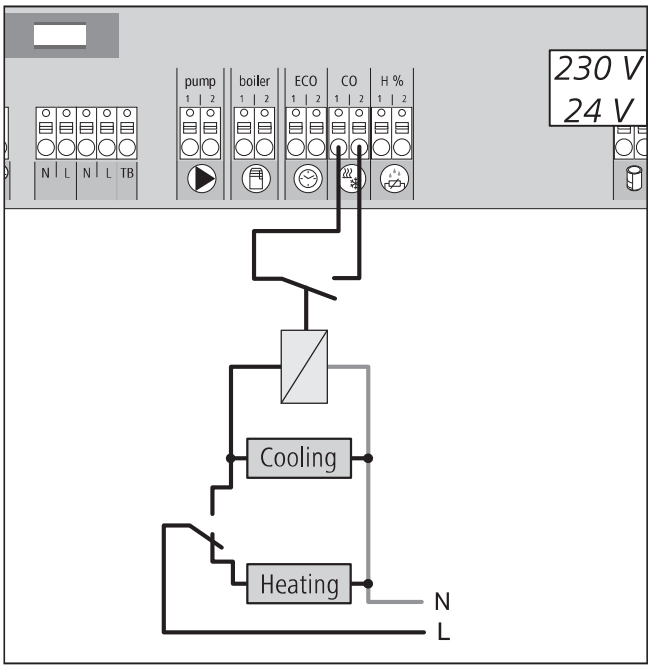
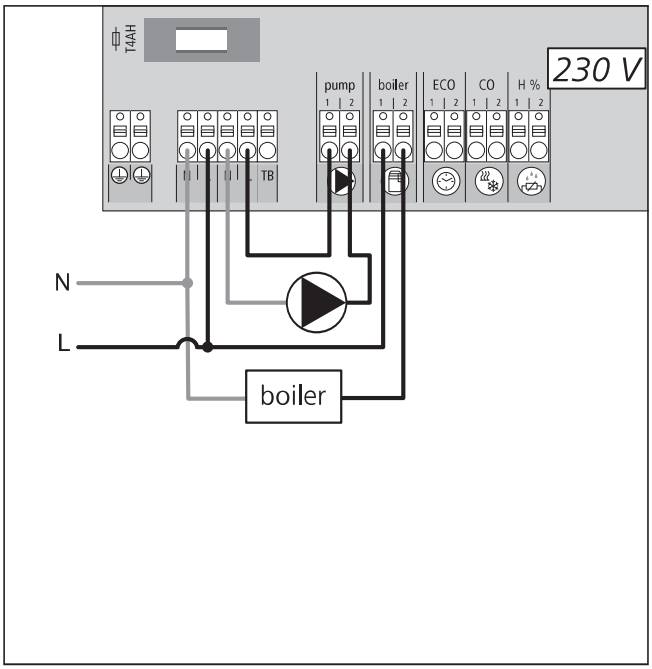
3.2.1 External change-over signal

If an external change-over signal is used, the overall installation switches accordingly between heating and cooling.

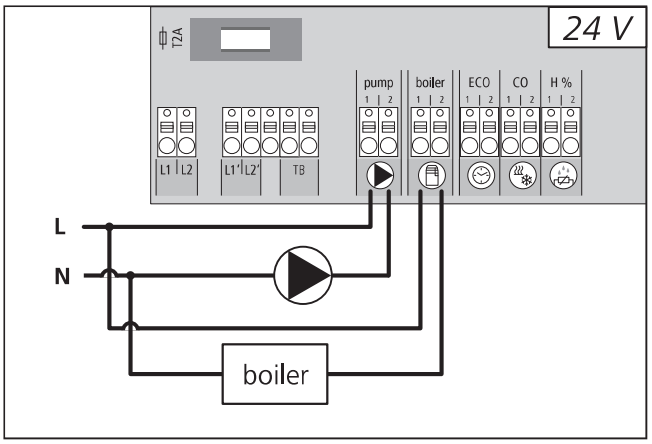


3.2.2 Pump/boiler 230 V

The boiler connection allows the control of a heat generator. Additionally, a pump can be controlled directly.



3.2.3 Pump/boiler 24 V



The boiler connection allows the control of a heat generator. Additionally, a pump can be supplied and controlled directly.

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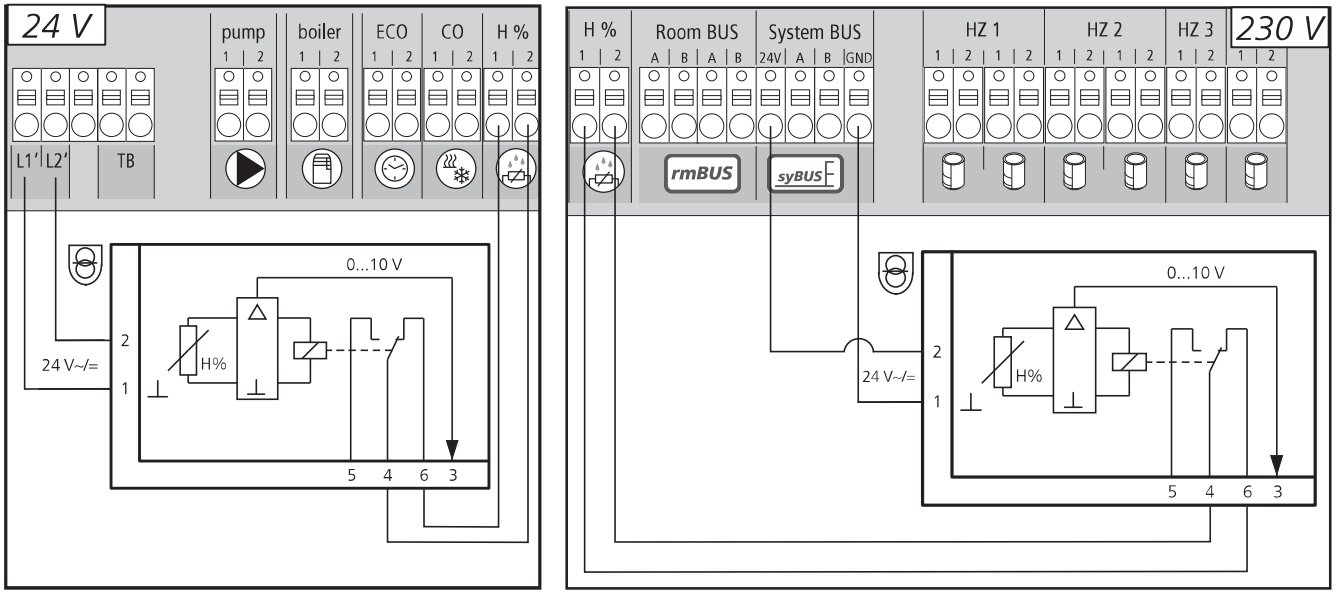
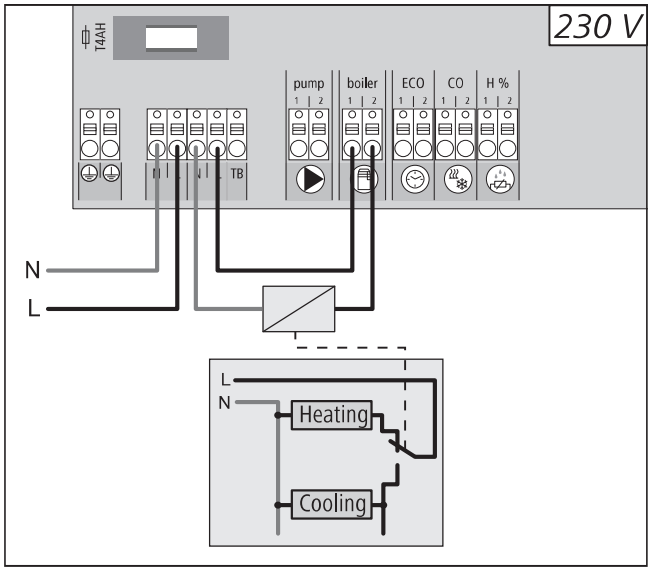
3.2.4 Optional humidity sensor

Humidity sensors (to be provided by the customer) serve for dewing protection in the cooling mode.

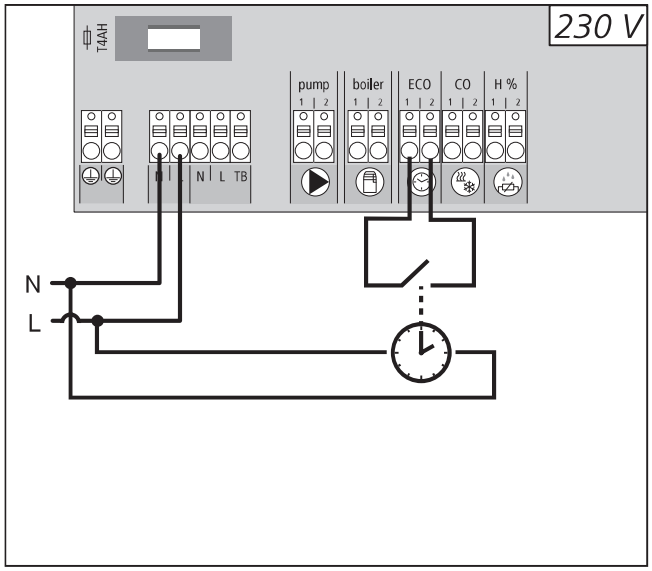


3.2.5 Pilot function for change-over heating/cooling



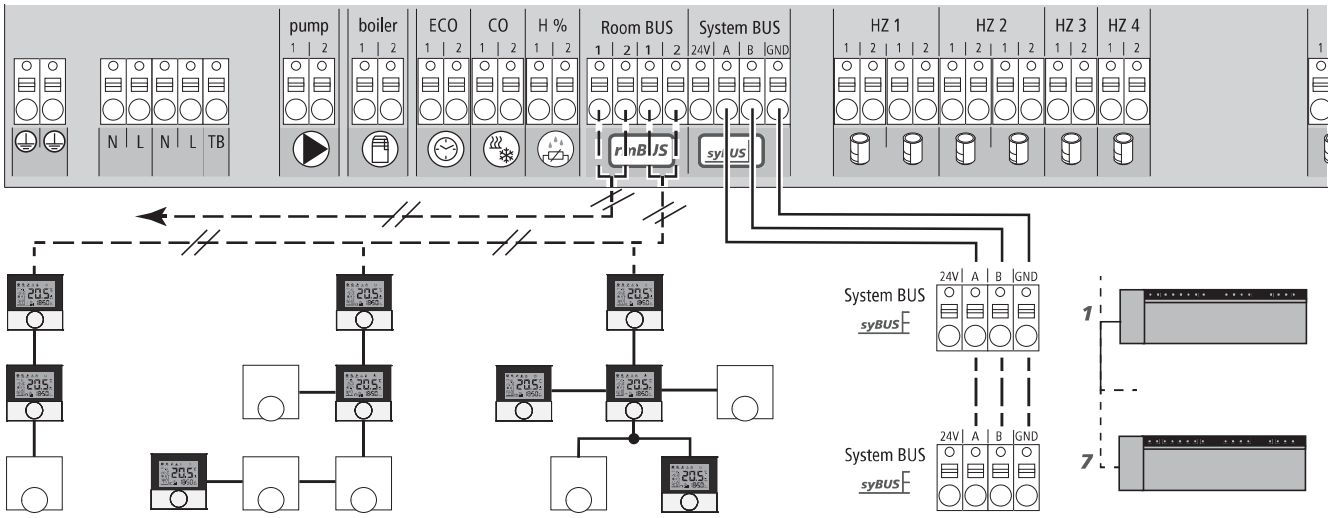
If no external change-over signal is available, the internal pilot function of the base station can be used for switching the overall installation between the operating modes Heating and Cooling. A relay used by the base station for switching over is used for this.

3.2.6 External timer



The base station is equipped with an ECO input for connecting an external timer, if the internal clock of the room control unit Radio Display shall not be used. When the input is activated by the timer, the heating zones are switched to night operation.

3.2.7 Room Bus and System Bus



Depending on the type of base station, a maximum of four, eight or twelve room control units can be connected to the Room Bus (rmBUS). The connection of the room control units is protected against polarity reversal and can be executed in the topologies “line”, “tree”, or “star”. A maximum of seven base stations can be coupled with the System Bus. A solid wire 2x2x08 must be used for wiring. A maximum of seven base stations can be coupled with the System Bus (syBUS). After completing the wiring, the room control units resp. base stations must be paired (see section 4). For a line diameter <6 mm, a strain relief must be provided by the customer.

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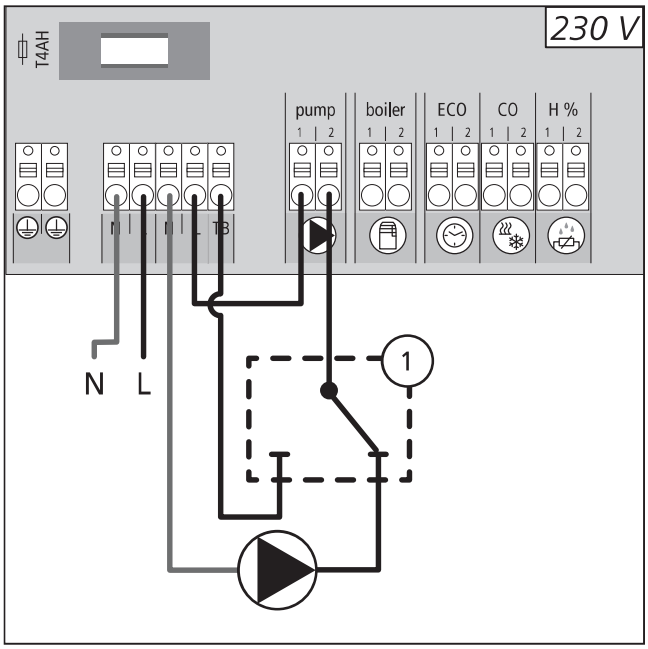
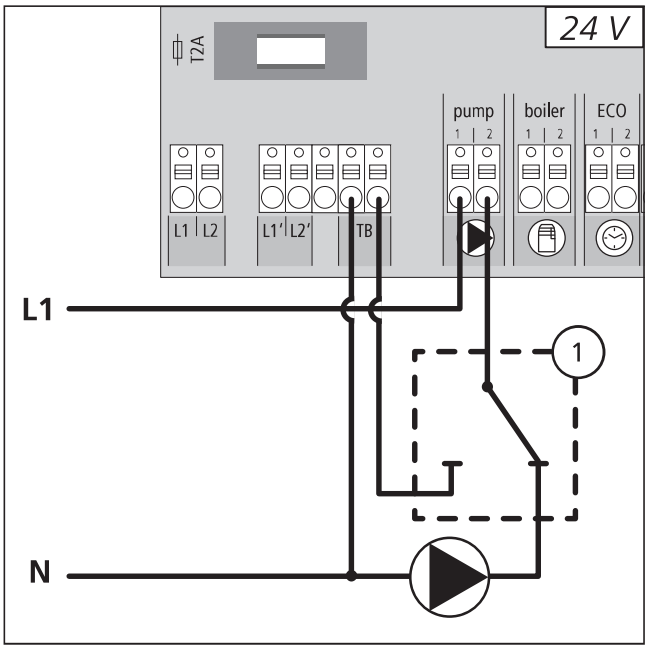
3.2.8 Use of a temperature limiter





Connection of a customer-supplied temperature limiter (1). This device switches off the pump and sets the input to TL if too high flow temperatures for the floor heating are detected. If the TL input is switched, the base station shuts down all actuators automatically.

3.2.9 Connection of Ethernet variants

The BSB x0x02-xxN are equipped with a RJ45 interface and an integrated web server for the control and the configuration of the system via PC/laptop and over the Internet.

- Integration of the base station into the network via network cable, or direct connection to PV/laptop

Set-up in the home network

- Open the router menu (see manual of the respective device) via the address bar in the web browser (Internet Explorer, Firefox, …).
- Open an overview of all devices in the network.
- Compare to the MAC address (see type sign) in order to find out the IP address allocated to the base station.
- Note the IP address of the base station and enter it into the address bar of the web browser in order to open the web interface.

Direct connection to PC/laptop:

- Open the network settings in the PC/laptop and assign the IP address 192.168.100.1 as well as the subnet mask 255.255.0.0 manually to the PC.
- Access to the web interface can be gained by entering the IP address 192.168.100.100 in the address bar of your web browser.

You can find further information on the set-up as well on worldwide access via the Internet under www.ezr-home.de.

4 Commissioning

4.1 First commissioning

The base station is in installation mode during the first 30 minutes after switching on the mains voltage. Only the target and actual temperatures are compared in this mode, all other functions are deactivated. If the actual temperature is below the target temperature, the output allocated to the respective room control unit is activated at the base station. This allows signalling at the base station without delay, enabling the control of the allocation between the room control unit and the output of the base station.

- ➢ Switch on the mains voltage.
- ✓ The base station initialises the installation mode for 30 minutes.
- ✓ If the base station is parameterised for NC actuators, all heating zones are activated for 10 minutes in order to unlock the first-open function of the NC actuators.
- ✓ The power LED (operation display) lights up continuously.

4.2 Control operation

After the end of commissioning and the installation mode, the control operation of the Alpha 2 System starts. The control operation provides two control functions

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Main function

The main function is predominant and controls the heating zones to the room temperature according to the target value previously set.

After the end of commissioning and the installation mode, the control operation of the Alpha 2 System starts. The control operation provides two control functions

Main function

The main function is predominant and controls the heating zones to the room temperature according to the target value previously set.

Auxiliary function (load compensation)

The auxiliary function distributes the load of the heating circuit distributor evenly and in an optimized way to all heating circuits used (load compensation). Thus, the load compensation allows a more continuous flow of the heating medium. The distribution is performed in regular timely intervals (pulse width modulation cycles (PWM cycles)) per heating zone, or heating zones per thermostat.
In case of a change of the control parameters, the system performs a recalculation of the load compensation in each case. The actuators connected to the respective heating zones regulate per PWM cycle in different timely intervals in the scope of this cycle.
The load compensation cycle is firmly integrated into the Alpha 2 system and cannot be deactivated, neither by a parameter nor by any kind of operation.

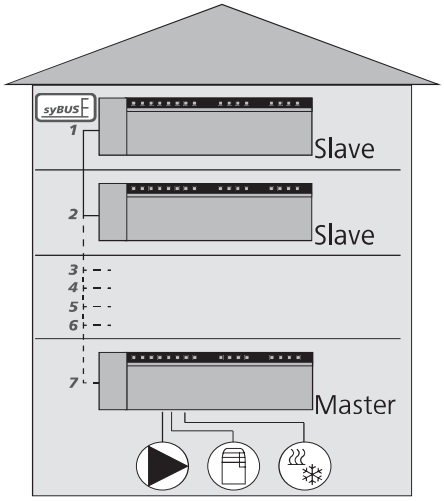
Note:

Due to the optimization of a PWM cycle during the load compensation, the actuators installed in the system open and close at different times. This is also true if several heating zones are logged on to a room control unit.

4.3 Connecting (pairing) / separating base stations

If several base stations are used in one heating system, a maximum of seven units can be connected (paired) for the exchange of global system parameters via BUS. Communication is done according to the Master/Slave principle. Requirements and status messages are exchanged between the units. The Master unit centrally controls the directly connected functions/components.

- CO input/output
  (if the pilot function is activated)
- Boiler output
- Pump output
- Time



Note: The base station the components are connected to must be configured as master. Further base stations can only be paired with the master base station.

The pairing of base stations is done as follows:

- ➢ Press the syBUS button of the base station to be configured as master for three seconds in order to start the pairing mode.
- ✓ The LED "Master" flashes.
- ✓ For three minutes, the pairing mode is ready to receive the pairing signal of another room control unit.
- ➢ Press the syBUS button of the base station to be configured as slave for one second in order pair it with the master.
- ✓ The paring mode ends automatically after the process has finished.
- ✓ The LED "Master" **lights up** permanently at the Master base station.
- ✓ The LED "Master" **flashes** if the base station has been configured as slave.
- ➢ Repeat the process for pairing another base station.

The separation of paired base stations can be performed as follows:

- ➢ Press the syBUS button of the base station to be separated for three seconds in order to start the pairing mode.
- ✓ The LED "Master" flashes.
- ➢ Press the syBUS pushbutton again for a duration of 10 seconds.
- ✓ The base station restarts and the LED "Master" goes out.

4.4 Allocation of a room control unit to a heating zone (pairing)

- ➢ Press the rmBUS button of the base station for three seconds in order to start the pairing mode.
- ✓ The LED "Heating zone1" flashes.
- ➢ Select the desired heating zone by pressing shortly again.
- ✓ For three minutes, the selected heating zone is ready to receive the pairing signal of a room control unit.
- ➢ Activate the pairing function at the room control unit (see Room Control Unit Manual).

✓ The pairing mode is left after establishing a successful allocation.
✓ The LED of the heating zone previously selected will light up continuously for 1 minute.
➢ Repeat the process for allocating more room control units.

Tip One Room Control Unit can be allocated to various heating zones. The allocation of several room control units to one zone is impossible.

4.5 Perform a connection test

The connection test allows to verify the communication between the base station and the room control unit. The connection test must always be carried through at the planned installation location of the room control unit.

✓ The base station must not be in pairing mode for this.
➢ Start the connection test at the room control unit (see Room Control Unit Manual).
✓ The heating zone allocated to the room control unit is activated for one minute, thus it is switched off or on depending on the status of operation.
➢ If there is no activation, the signal is interrupted. Check whether
✓ the room control unit is paired to the base station.
✓ all connections make good contact.
✓ the bus connection is interrupted.

4.6 System configuration

The configuration of the base station is done optionally via the microSD, the software interface of the Ethernet variant or the *Service level* of the room control unit Bus Display.

4.6.1 System configuration with microSD card

Individual settings can be made via the EZR Manager SD Card under www.ezr-home.de and transferred to the base station via the microSD card. As of software version 01.70, the base station accepts microSD cards >2 GB in the formats FAT16 or FAT32.

➢ Open www.ezr-home.de in the web browser of your PC, select EZR Manager SD Card and follow the instructions on-line.
➢ Insert the microSD card with the updated data into the base station.
✓ The transfer process will start automatically and copy the updated data into the base station.
✓ The LED “syBUS” flashes during the transfer process.
✓ After a successful data transmission, the LED syBUS goes out.

4.6.2 Configuration with room control unit BUS Display

The *Service level* of the base station BUS Display is protected with a PIN code and may only be used by authorized specialists.
Attention! Faulty configuration leads to errors and damage to installations.
➢ Press the rotary control.

- Select the menu "Service Level" and activate by pressing.
- Enter the 4-digit PIN (standard: 1234) by rotating and pressing.
- Select parameters (PAr) by pressing again and enter the number code of the desired parameter (see following table).
- Change parameters as required and confirm by pressing.

No.	Parameters	Description	Unit
010	Used heating system	Adjustable per heating zone: Floor heating (FBH) standard / FBH low energy / radiator / convector passive / convector active	FBH St.=0 FBH NE=1 RAD=2 KON pas.=3 KON act.=4 **Standard: 0**
020	Heating/cooling block	Blocking the switching outputs depending on the activated operating mode (heating/cooling)	normal=0 Heating block=1 Cooling block=2 **Standard: 0**
030	Operation lock (child safety lock)	Unlocking the operating lock with password protection	Deactivated=0 Activated=1 **Standard: 0**
031	Operating lock password	Determine PIN if parameter 30 is set to active	0000..9999
040	External sensor connected to the RBG	Logging on an additional sensor for the registration of the floor temperature (Floor sensor), the room temperature or the dew point	no sensor=0 Dew point sen.=1 Floor sensor=2 Room sensor=3 **Standard: 0**
050	Background illumination	Adjustable per room control unit: Duration of further illumination after use	0...30 s **Standard: 15 s**
051	Brightness	Adjustable per room control unit: Adjusts the background illumination brightness of the display	10...100 % **Standard: 50 %**
052	Contrast	Adjustable per room control unit: Adjusts the contrast of the display	0...7 **Standard: 3**
060	Correction of actual value registration	Registration of the actual temperature with a correction factor	-2.0...+2.0 K in 0.1 increments
110	Control direction switching outputs	Switchover of NC and NO actuators (only globally)	NC=0 / NO=1 **Standard: 0**
115	Use as setback input	Change-over between use of the ECO input for setback or holiday function of the room control unit. The holiday function cannot be activated any longer via the room control unit if this parameter has been set to 1.	ECO=0 Holiday=1 **Standard: 0**
120	Unit of temperature display	Toggle function of the display between degree Celsius and degree Fahrenheit	°C=0 °F=1 **Standard: 0**
Pump configuration			
130	Pump output	Use the control of a local recirculation pump (in the heating circuit distributor) or a global recirculation pump (heating installation).	local=0 global=1 **Standard: 0**

No.	Parameters	Description	Unit
131	Pump type	Selection of the used pump: Conventional Pump (KP) / High efficiency Pump (HP)	KP=0 HP=1 **Standard: 0**
132	Pump turn-on delay	Time elapsing from the moment of the command from a switching output until the pump is actually switched on.	[min] **Standard: 2**
133	Pump follow-up time	Time elapsing from the moment of switching off the switching outputs until the pump is actually switched off.	[min] **Standard: 2**
134	Control direction switching output	The control direction can be inverted if the pump relay is used as control output	normal=0 inverted=1 **Standard: 0**
135	Minimum running time	The minimum running time indicates how long the HP must run until it may be switched off again	[min] **Standard: 30**
136	Minimum standstill time	High efficiency pump: The pump may only be switched off if a minimum standstill time can be ensured.	[min] **Standard: 20**
Configuration of change-over functionality / boiler relay			
140	Function of relay boiler / CO output	Selection whether the switching output shall serve for controlling a pump relay, or as CO pilot	Boiler=0 CO pilot=1 **Standard: 0**
141	Line-up time	Time elapsing from the moment of the command from a switching output until the boiler relay is actually switched on.	[min] **Standard: 0**
142	Follow-up time	Time elapsing from the moment of switching off the switching outputs until the boiler relay is actually switched off.	[min] **Standard: 0**
143	Control direction switching outputs	The relay function can be inverted if used as a control output.	normal=0 inverted=1 **Standard: 0**
144	Boiler control	Normal: No disconnection of the boiler relay in the PWM pauses Direct: Disconnection of the boiler relay in the PWM pauses The same function mode of the boiler relay must be selected in all bases of the master-slave system. The line-up/follow-up times remain.	normal=0 direct=1 **Standard: 0**
160	Antifreeze protection	Activation of control outputs for T_{actual} <x °C (x = parameter 161)	Deactivated=0 Activated=1 **Standard: 1**
161	Antifreeze temperature	Antifreeze function limit value	[°C] **Standard: 8**
170	Smart Start	Learning-in of the temperature behaviour of the individual heating zones	Deactivated=0 Activated=1 **Standard: 0**
Operating lock (hotel function)			
171	Hotel function	Switch-over of the room control unit operating lock between "Standard" and "Restricted operation" (hotel function).	Standard=0 Restricted operation=1 **Standard: 0**
Emergency operation			

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No.	Parameters	Description	Unit
180	Duration until activation	Duration until the activation of the emergency operation routine	[min] **Standard: 180**
181	PWM cycle duration in emergency operation	Duration of a PWM cycle in emergency operation	[min] **Standard: 15**
182	Cycle duration PWM heating	Control duration in heating operation	[%] **Standard: 25**
183	Cycle duration PWM cooling	Control duration in cooling operation	[%] **Standard: 0**
Valve protection function			
190	Duration until activation	Starting time after last activation	[d] **Standard: 14**
191	Valve activation duration	Valve activation duration (0= function deactivated)	[min] **Standard: 5**
Pump protection function			
200	Duration until activation	Starting time after last activation	[d] **Standard: 3**
201	Activation duration	Activation duration (0 = function deactivated)	[min] **Standard: 5**
210	First open function (FO)	Activation of all switching outputs at power-up	[min] Off=0 **Standard: 10**
220	Automatic switching between summer and winter time	If the conversion is activated, time adaptation is performed automatically according to CET guidelines	Deactivated=0 Activated=1 **Standard: 1**
230	Setback difference temperature	In case of activation of the setback via the external input	[K] **Standard: 2-0**
MVHR control			
240	MVHR installation connected to the system.	Control of a mechanical ventilation with heat recovery (MVHR) via the Ethernet interface Operation via the room control units Display.	Deactivated=0 Activated=1 **Standard: 0**
Dew point sensor			
250	Control direction of dew point sensor input	The control direction of the dew point sensor input at the base is inverted via room control unit or parameter file.	normal=0 inverted=1 **Standard: 0**

4.7 Resetting the factory settings

Attention! All user settings will be lost.

- ➢ If present, remove the microSD Card from the base station and delete the parameter file "params_usr.bin" at the PC.
- ➢ Press the rmBUS button of the base station Radio for three seconds in order to start the pairing mode.
- ✓ The LED "Heating zone1" flashes.
- ➢ Press the rmBUS pushbutton again for a duration of 15 seconds.
- ✓ Now the base station is reset to factory settings and behaves as it did during the first commissioning (see section 4.1).

Note: Previously paired room control units must be paired newly, see section 4.3.

4.8 KWL Smart Home Ready

The MVHR Smart Home Ready allows the control of the ventilation levels of the mechanical ventilation with heat recovery (MVHR) LZG 200/400 via the room control units or via the web interface of room control unit bases (EZR bases) in stand-alone or master/slave operation.
The following preconditions must be met:

- ✓ The base paired to the MVHR must be operated in stand-alone operation or as master.
- ✓ The base paired to the MVHR must be an Ethernet variant.
- ✓ The EZR and the MVHR must be in the same network.

The steps for performing an implementation of the MVHR in the Alpha 2 EZR system can be taken from the LZG 200/400 installation and operating instructions.

4.9 Operating lock (hotel function)

Switch-over of the room control unit operating lock between "Standard" and "Restricted operation" (hotel function). Restricted function is only possible with code-protected operation lock (parameter 030 = 1) with password (parameter 031). The restricted operation only allows a setting of the target value at the room control unit. The actual value is displayed.
The setting applies globally for all room control units taught-in at the corresponding base with operating lock activated.
The comfort programs remain active.

The operating lock (hotel function) can be set via the MicroSD card, via the web surface of the Ethernet variant or via the service level of the RBG display (parameter 171).

- ➢ Activate the operating lock (hotel function) "Restricted operation" using a Room control unit Display taught-in to the base (parameter 171 = 1).
- ➢ Activate the code-protected operating lock (child safety lock) individually at every desired Room control unit Display of the base (parameter 030 = 1).

Note: The standard password "0000" of the previously activated operating lock (child safety lock) can be changed with parameter 031.

- ➢ Activate "Child safety lock" via the padlock symbol in the lifestyle functions individually for each room control unit.

Cancellation via pressing and holding the rotary control and the previously defined password.

5 Protection functions and emergency operation

5.1 Protection functions

The base station is equipped with many protection functions for avoiding damage to the overall system.

5.1.1 Pump protection function

In order to avoid damage by longer standstill times, the pump is activated within pre-defined periods. The LED "pump" lights up during these periods.

5.1.2 Valve protection function

During periods without valve activation (e. g. outside the heating period) all heating zones with logged-in room control unit are activated in a cyclic way in order to avoid clogging of the valves.

5.1.3 Antifreeze protection function

Independent from the operating mode, every switching output is equipped with an anti-freeze function. As soon as a previously set antifreeze temperature (5...10°C) is fallen short of, the valves of the allocated heating zone are activated until this temperature is reached. The antifreeze temperature can be set via the MicroSD card, via the web surface of the Ethernet variant or via the service level of the RBG display (parameter 161).

Note:
The antifreeze function for a heating zone is only active after setting the corresponding room control unit to the stand-by mode.

5.1.4 Dew point monitoring

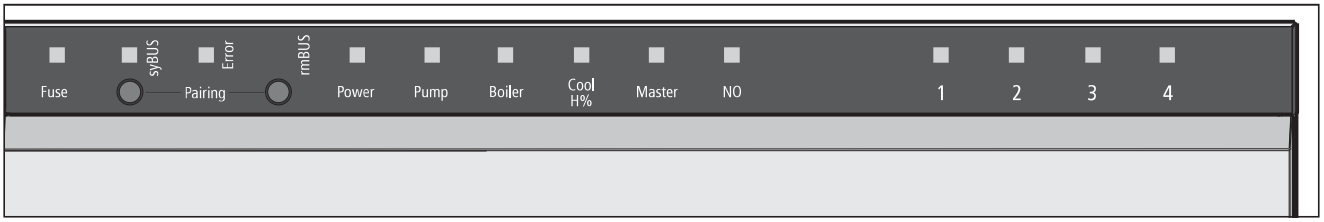
If the installation is equipped with a dew point sensor (provided by the customer), the valves of all heating zones are closed if dewing is detected in order to avoid damages due to humidity.
The dew point sensor input is only used during cooling operation.

5.2 Emergency operation

If the base station is unable to establish a radio connection to the room control unit allocated to the heating zone after a set time has elapsed, emergency operation is activated automatically. In emergency operation, the switching outputs at the base station are activated with a modified PWM cycle duration (parameter 181) independent from the heating system in order to avoid complete cooling of the rooms (in heating operation) or dewing (in cooling operation).

6 Troubleshooting and cleaning

6.1 Error indication and elimination of errors



Signalling of the LEDs	Meaning	Elimination
Fuse Duration in seconds 0 1 2 3 4 Fuse	Fuse defective	➢ Change the fuse (see section 6.2)
Error Duration in seconds 0 1 2 3 4 Error	Fault	➢ Contact your electric installer.
Error / Pump Duration in seconds 0 1 2 3 4 Pump Error	Temperature limiter active, valves are closed	✓ The normal control operation is activated automatically after falling short of the critical temperature
„Cool H%“ (nur Kühlbetrieb) Duration in seconds 0 1 2 3 4 Cool	Dewing detected, valves are closed	✓ The normal control operation is activated automatically if no condensation is sensed any more.
Heating zone Duration in seconds 0 1 2 3 4 HZ	Notbetrieb aktiv	➢ Check bus lines for interruptions ➢ Perform a connection test ➢ Defektes Raumbediengerät austauschen.

LED on
LED off

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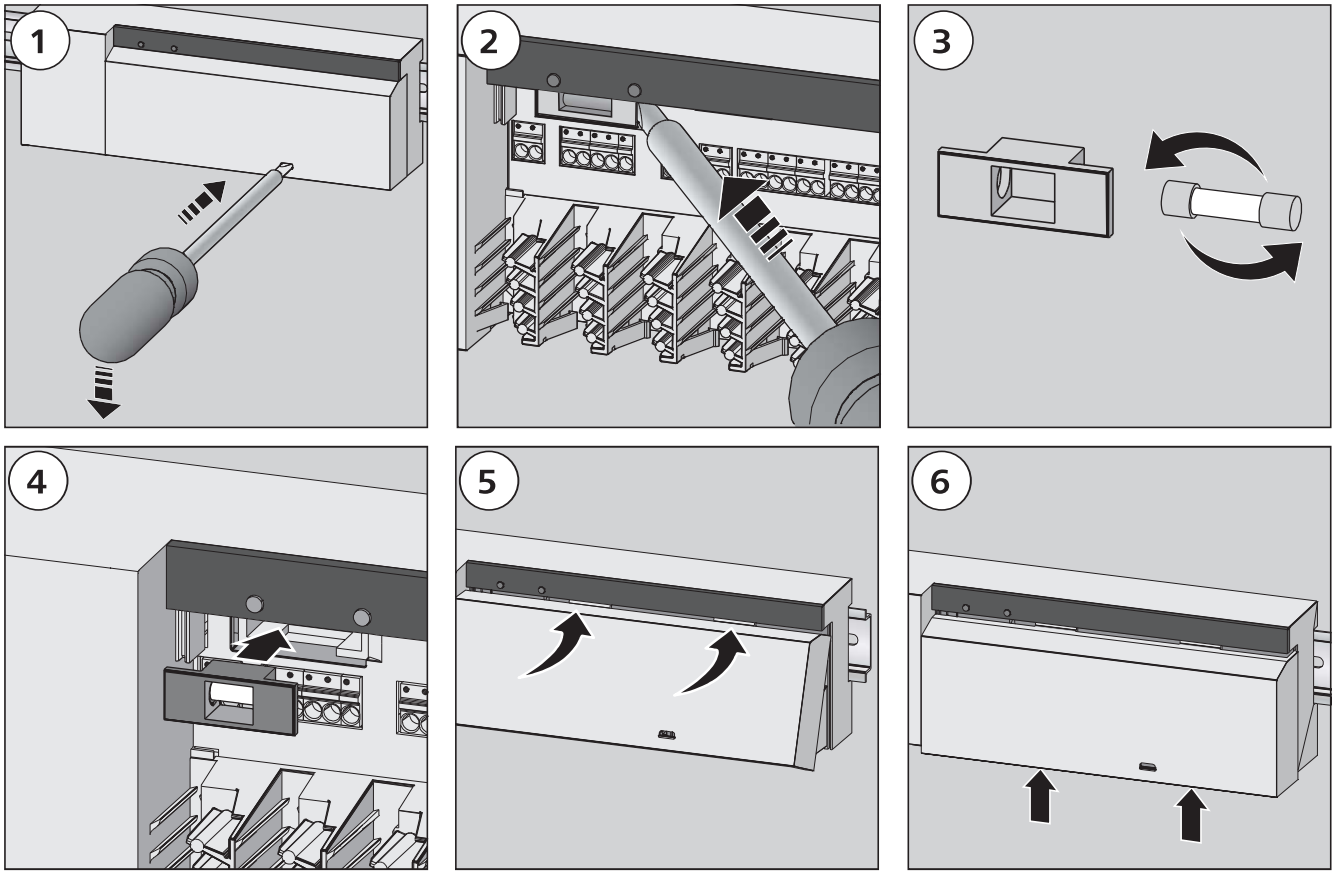
6.2 Fuse change

Warning

Electrical voltage! Danger to life!
The base station is live.

- Always disconnect from the mains network and secure against unintended activation before opening the base station.



6.3 Cleaning

Only use a dry and solvent-free, soft cloth for cleaning.

7 Decommissioning

7.1 Decommissioning

Warning

Electrical voltage! Danger to life!
The base station is live.

- ➢ Always disconnect from the mains network and secure against unintended activation before opening it.
- ➢ Disconnect external voltages existing at the pump and the boiler contact and secure against unintended activation.

- ➢ Pull the mains plug and and disconnect the entire installation.
- ➢ Remove the wiring to all externally connected components as e. g. pump, boiler and actuators.
- ➢ Uninstall the device and dispose of properly.

7.2 Disposal

The base stations must not be disposed of with domestic waste. The operator has the duty to hand the devices to appropriate collection points. The separate collection and orderly disposal of all materials will help to conserve natural resources and ensure a recycling in a manner that protects human health and the environment. If you need information about collection points for your devices, please contact your local municipality or your local waste disposal services.

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