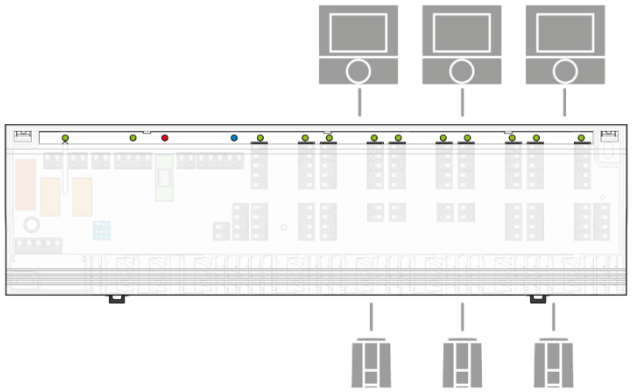
OEM Alpha Basis direct

The OEM Alpha Basis direct is the central connection unit of a room-by-room temperature control for the surface temperature adjustment of heating and cooling systems.

The OEM Alpha Basis direct is available in the versions with 6 or 10 zones in 24 V or 230 V. With minimum expense, the OEM Alpha Basis direct can be wired to all system components as e. g. thermostats and actuators. The system components are supplied directly with the voltage supply of the OEM Alpha Basis direct. All switching commands for the thermostats are forwarded directly to the connected system components via the .

Four versions can be chosen in order to comply with the desired installation requirements. With full equipment, the OEM Alpha Basis direct includes extensive functions for an energy-efficient and system-considerate comfort operation.

With the OEM Alpha Basis direct and its numerous differentiation possibilities you can ensure an optimum market position. It lets you offer easy installation and maximum surface temperature adjustment comfort to your customers.



1.1 Features

- Available in four versions: Standard, Standard Plus, Comfort and Control
- Design with 6 or 10 zones
- Optionally 24 V or 230 V version
- A maximum of 18 actuators can be connected
- Equipment for heating and/or cooling systems
- Simple, intuitive installation and operation
- Status signalling by LEDs
- Proven cable guide and standard-complying strain relief
- Screwless terminal connection technique
- Clearly structured connection terminals
- Timer module - System clock integrated into the casing cover
- Reduction channel for a time-controlled room temperature reduction
- Pump and boiler control
- Adjustable follow-up time for pump and boiler control
- Connection for a temperature limiter or dew point sensor
- Selectable control direction via DIP switch: NC or NO (NO: normally open / NC: normally closed)
- High functional security
- Maintenance-free

The Möhlenhoff OEM product quality ensures easy, intuitive installation, operation and maintenance of the entire system.

1.2 Variants

In the basic version, the OEM Alpha Basis direct is delivered as neutral device without logo and in grey, with transparent cover. The Comfort and Control variants have NC setting as standard. An operation of the variant Standard Plus with connected pump is only possible with the NC setting. The subsequent list shows the available versions.

Type	Version	Operating voltage	Zones	Equipment	Scope of supply
B 50302-06	Standard	24 V/230 V	6	Heating	• OEM Alpha Basis direct in individual packaging • Fuse set 24 V/230 V • Instructions in 12 languages
B 50302-10	Standard	24 V/230 V	10	Heating	
B 41402-06	Standard Plus	24 V	6	Heating/cooling, pump control	• OEM Alpha Basis direct in individual packaging • Instructions in 12 languages
B 40502-06	Comfort	24 V	6	Heating/cooling, pump and boiler control, status signalling	
B 40602-06	Control	24 V	6	Heating/cooling, pump and boiler control, status signalling, timer module	
B 41402-10	Standard Plus	24 V	10	Heating/cooling, pump control	
B 40502-10	Comfort	24 V	10	Heating/cooling, pump and boiler control, status signalling	
B 40602-10	Control	24 V	10	Heating/cooling, pump and boiler control, status signalling, timer module	

Möhlenhoff GmbH
Museumstraße 54a
38229 Salzgitter

☏ +49 5341 8475 0
kontakt@moehlenhoff.de
www.moehlenhoff.de

Möhlenhoff

Type	Version	Operating voltage	Zones	Equipment	Scope of supply
B 21402-06	Standard Plus	230 V	6	Heating/cooling, pump control	• OEM Alpha Basis direct in individual packaging • Instruction in 12 languages
B 20502-06	Comfort	230 V	6	Heating/cooling, pump and boiler control, status signalling	
B 20602-06	Control	230 V	6	Heating/cooling, pump and boiler control, status signalling, timer module	
B 21402-10	Standard Plus	230 V	10	Heating/cooling, pump control	
B 20502-10	Comfort	230 V	10	Heating/cooling, pump and boiler control, status signalling	
B 20602-10	Control	230 V	10	Heating/cooling, pump and boiler control, status signalling, timer module	

1.3 Equipment

The OEM Alpha Basis direct is offered in the versions with 6 or 10 zones in 24 V or 230 V. All versions use the same casing; for the version with 6 zones, not all zones are equipped. Different OEM Alpha Basis direct versions are available; they differ in their functional equipment. The individual equipment characteristics are explained in section 3.

1.3.1 Equipment overview

	24 V/230 V	24 V			230 V		
	Standard	Standard Plus	Comfort	Control	Standard Plus	Comfort	Control
Protective conductor intermediate connection					✓	✓	✓
Mains through clamp for pump/boiler circuit					✓	✓	✓
Mains through clamp for dew point sensor		✓	✓	✓			
Extended pump/boiler control – follow-up time configurable			✓	✓		✓	✓
Simple pump control		✓			✓		
Signal input for temperature limiter or dew point sensor		✓	✓	✓	✓	✓	✓
Reduction channel - connection for an external system clock	✓	✓	✓	✓*	✓	✓	✓*
Change-over connection Signal for heating/cooling		✓	✓	✓	✓	✓	✓
Timer module - casing cover with integrated system clock			Option	✓		Option	✓
Control direction normally closed (NC)/normally open (NO)	NC/NO	NC**	selectable	selectable	NC**	selectable	selectable
Function signalling by LEDs			✓	✓		✓	✓

** Programming of internal and external system clock are added up*
*** Without pump control also NO*

1.3.2 Possible equipment extension

	24 V/230 V	24 V			230 V		
	Standard	Standard Plus	Comfort	Control	Standard Plus	Comfort	Control
Valve protection function			✓	✓		✓	✓

1.4 Accessories

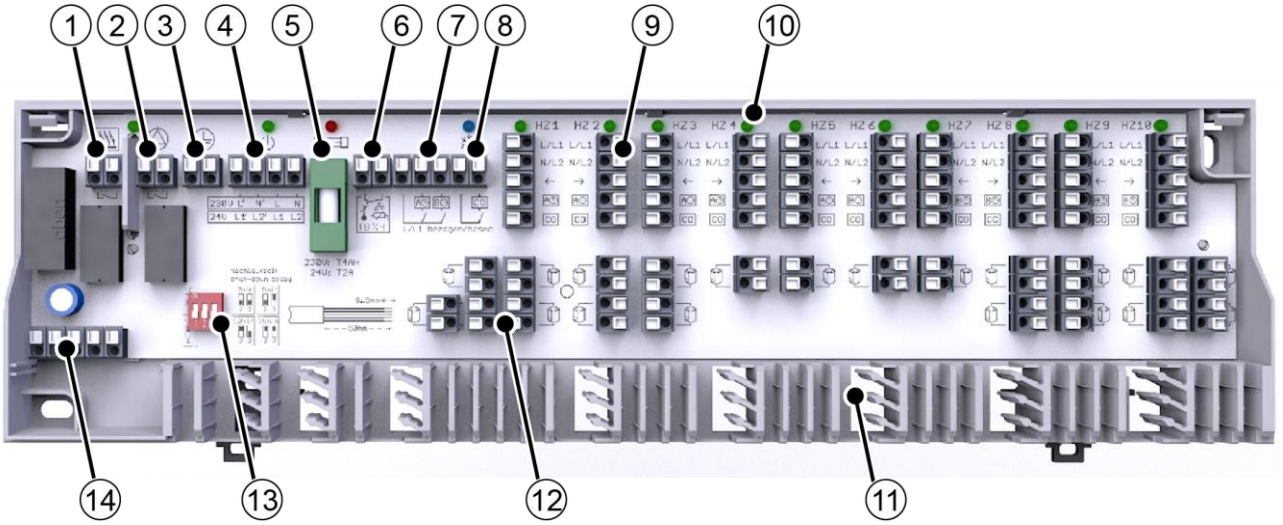
Type	Article description
ST 20402-00N2	Safety transformer according to EN 61558 for 24 V variant, primary 230 V 50/60 Hz, secondary 24 V 30 VA, no-load power consumption <0.5 W
DS 2000 N	External system clock, 2 channels

1.5 Possible extensions and differentiations to the basic version

Extensions	
Type	**Article description**
ALE 2001-00N3	Connection line with Euro connector for 230 V variant
TM 50502-00N0	Timer module - casing cover with integrated system clock for upgrading the Comfort variant to become the Control variant
HUS 326	DIN rail 326 mm, neutral, for installation in the heating circuit distributor

Differentiations	
Packaging	Packaging can be manufactured and printed individually according to requirements.
Casing	Bottom – adaptation of colour, Casing cover - completely overlapping casing cover, individual colour, transparency and shape
Imprint on casing	Laser marking of the company logo and the individual type designation and the device designation
Please contact us if you have further wishes.	

2 Device overview (example – Alpha Basis direct Control)



1 Boiler control	• Potential-free contact for controlling a boiler circuit • Starting and switching-off delay predefined with 2 minutes
2 Pump control	• Potential-free contact for controlling a pump circuit • Starting and switching-off delay predefined with 2 minutes • Pump protection circuit - Cyclic triggering of the pump once every 14 days for 1 minute after the last trigger
3 Protective conductor intermediate connection	• Terminal for the intermediate connection of the protective conductor of electrical consumers as e. g. pump (only 230 V version)
4 Voltage supply/through clamp	• Network connection of the OEM Alpha Basis direct • Through clamp for the connection of electrical consumers as e. g. pump (only 230 V version) • Through clamp for the connection of a dew point sensor (only 24 V version)
5 Fuse	• Protects the Alpha Basis direct by interrupting the circuit if the amperage exceeds a defined value for a predefined time.
6 Temperature limiter/dew point sensor	• Switching contact for connecting a temperature limiter or dew point sensor - The temperature limiter prevents excessive supply temperatures of floor heatings via a potential-free contact - The dew point sensor monitors the system in the cooling mode and switches it off when dewing is detected
7 Reduction channel - connection for an external system clock	• Transmission of up to two timer signals for a time-controlled reduction of the room temperature to connected thermostats via a potential-free contact • An Alpha Thermostat direct Control (No. 8), or an external system clock (No. 6) can be used as signal source.
8 Heating/cooling change-over	• Change-over of the complete room-by-room temperature control between heating and cooling • Supply of an external signal via potential-free contact • Forwarding of the change-over signal to connected thermostats
9 Connection for thermostat	• Quick connection of up to 10 thermostats • Voltage supply for connected thermostats
10 Status signalling by LEDs	• Clear status signalling, also with the casing cover closed, for: - Boiler/pump active (green) - Operating status active (green) - Fuse blown (red) - Cooling mode active (blue) - Heating zone active (green - one status LED per heating zone)
11 Cable guide and strain relief	• Proven, integrated cable guide and strain relief according to DIN EN 60730-1
12 Connection for actuators	• Voltage supply for connected actuators • Valve protection function at all outputs (optional) - Valve protection function once every 14 days for 10 minutes after the last triggering - Avoids the clogging of valves in times without temperature control

13 DIP switch	• Control direction normally closed (NC) / normally open (NO) adjustable by means of DIP switch • Increase of the switching-off delay of the boiler/pump contact by 5 to 15 minutes
14 Connection of timer module	• Connection for timer module for the Control variant, or for retrofitting the timer module for the Comfort variant

3 Technical data

The listed technical data relate to the maximum functional equipment of the OEM Alpha Basis direct. Individual positions may be omitted depending on the variant.

			24 V variant		**230 V variant**	
			6 zones	**10 zones**	**6 zones**	**10 zones**
Type		Standard	B 50302-06	B 50302-10	B 50302-06	B 50302-10
		Standard Plus	B 41402-06	B 41402-10	B 21402-06	B 21402-10
		Comfort	B 40502-06	B 40502-10	B 20502-06	B 20502-10
		Control	B 40602-06	B 40602-10	B 20602-06	B 20602-10
Operating voltage			24 V ±20 % 50 Hz		230 V / ±10% / 50 Hz	
Voltage supply			System transformer with Euro connector (accessory) / external voltage source		Euro connector (accessory) / external voltage source	
Power consumption in idle operation[1]			<1 W			
Power consumption in idle operation with transformer 20402-00N2			1.6 W		-	
max. power consumption (without pump/boiler consumer)			max. 36 VA		max. 50 VA	
Fuse			T2A		T4AH	
max. number of thermostats			6	10	6	10
max. number of connection terminals for actuators			15	21	15	21
max. connectible actuators		A5	15	18	15	18
		Third-party brand	Depending on the max. nominal load of all actuators	Depending on the max. nominal load of all actuators	15 (max. inrush current 500 mA per actuator)	18 (max. inrush current 500 mA per actuator)
max. nominal load of all actuators			24 W		-	
Pump circuit			Closing contact (monopolar switching)		Closing contact (monopolar switching) / Direct connection possible via L'/N'	
Boiler circuit			Closing contact (monopolar switching)			
Pump control and Boiler control	Switching power		2 A, 200 VA inductive			
	Switching element		Relay			
	Turn-on delay[2]		2 min (Switching pulses below 2 minutes will be suppressed)			
	Follow-up time[2]		2 min, additionally 0-15 minutes adjustable by DIP switch			
Valve protection function[3], [4]			14 days/10 min			
Pump protection function[4]			14 days/1 min			
Control direction normally closed (NC)/normally open (NO)			NC/NO (Standard, Standard Plus **without** connected pump) NC (Standard Plus **with** connected pump) adjustable via DIP switch (Comfort and Control)			
Change-over input			switchable via potential-free contact			
Temperature limiter or dew point sensor			potential-free break contact, switchable, 24 V/230 V, 8 A			
Heating programs (option)			2 via timer module			
Timer module[4, 5]			Weekly timer, two independent switching outputs, at least 4 reduction times per day and switching output can be programmed, power reserve			
Admissible ambient temperature			0 to +50 °C			
Admissible storage temperature			-20 to +70 °C			

[1] Without connected components
[2] Not in combination with an external timer
[3] Optional
[4] Comfort and Control only

		24 V variant		230 V variant	
		6 zones	**10 zones**	**6 zones**	**10 zones**
Admissible ambient humidity		80%, not condensing			
Temperature for ball pressure test		550 °C			
Pollution		2			
Rated impluse voltage		1500 V			
Connection terminals		screw-less terminals for 0.2 to 1.5 mm², vertical cable entry			
Connection line	massive	NYM-J/NYM-O (max. 5 x 1.5 mm²)			
	flexible	H03V2V2H2-F / H05V2V2H2-F			
Strain relief		integrated			
Standards and regulations		EN 60730-1, EN 60730-2-9			
ERP class acc. to EU 811/2013		1=1 %			
Protection class		III		II	
Protection type		IP 20			
Type action		Type 1		Type 1 C	
Material	Cover	ABS			
	Casing	ABS			
Colour	Cover	Transparent, polished in the area of the LEDs			
	Casing	light grey (RAL7035)			
Weight	Standard	410 g	424 g	410 g	424 g
	Standard Plus	428 g	448 g	430 g	450 g
	Comfort	442 g	466 g	448 g	472 g
	Comfort with valve protection function	442 g	462 g	447 g	480 g
	Control	450 g	477 g	450 g	477 g
	Control with valve protection function	461 g	483 g	461 g	483 g
Dimensions (H x L x D)		90 x 326.5 x 52 mm			
Type of installation		Wall installation/DIN rail (TS35/35 x 7.5 mm)			
Indicators (LED)	Heating zone active	green (one LED per HZ)			
	Fuse defective	red			
	Mains voltage on	green			
	Pump/boiler active	green			
	Cooling mode active	blue			

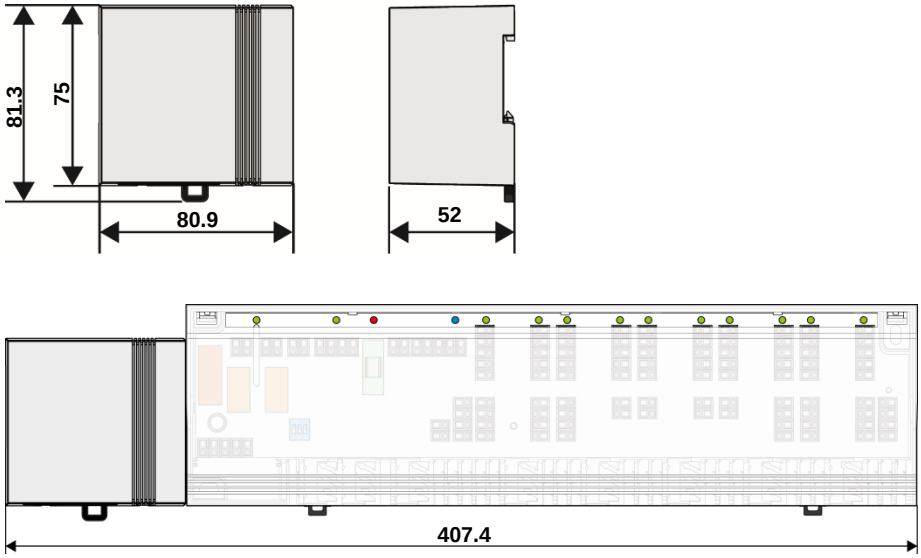
3.1 Dimensions

3.1.1 Basis

One casing is used for all variants of the OEM Alpha Basis direct. This ensures identical space requirements for different variants, allowing optimal planning of the installation position.

All indications in mm

3.1.2 Transformer for 24 V variant (accessory)



All indications in mm

3.2 Approvals & certificates

In addition to our numerous internal function and quality tests, all Möhlenhoff products are also extensively tested by independent testing institutes.

CE

The CE identification documents that the products that the products placed on the market comply with the applicable requirements of the EU Directives.

TÜVRheinland® CERTIFIED
Regular Production Surveillance
Safety
Type Approved
www.tuv.com
ID 1111209551

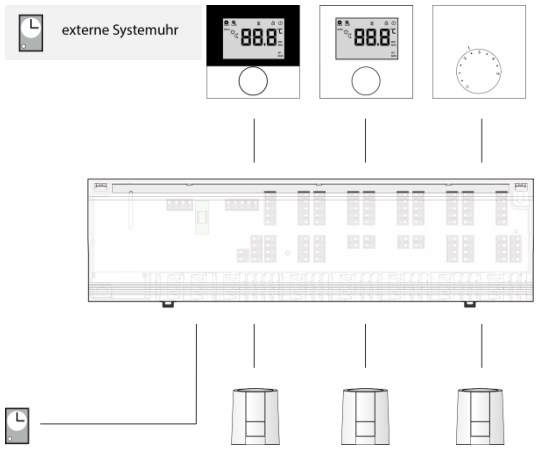
The product is certified by the TÜV Rheinland.

4 System visualisations

A selection of possible system variants for the realization of a room-by-room temperature control is shown in the following. A room-by-room control system can be realised with the OEM Alpha Basis direct and corresponding components. An individualisation of the room-by-room temperature control can be realized by adding to the system of compatible components, as e. g.

- the OEM Alpha Thermostat direct Analogue
- the OEM Alpha Thermostat direct Display, and
- thermal actuators of the type A 20x05 (230 V) or A 40x05 (24 V)

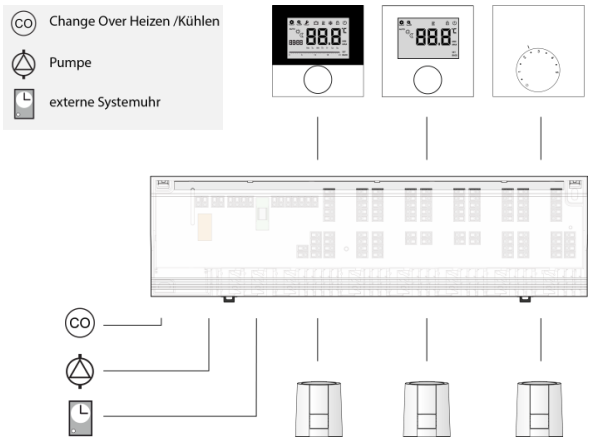
4.1 OEM Alpha Basis direct Standard – 24 V/230 V version



Characteristic	
Heating	✓
Cooling	
Simple pump control	
Extended pump/boiler control with lead time and follow-up time	
Connection for external system clock	✓[2]
Internal timer of an OEM Alpha Thermostat direct Display	✓[1]
Temperature limiter or dew point sensor	
OEM Alpha Thermostat direct Analogue	✓
OEM Alpha Thermostat direct Analogue HK	
OEM Alpha Thermostat direct Standard	✓
OEM Alpha Thermostat direct Control	✓

[1]not in combination with an external system clock
[2]not in combination with the external timer of an OEM Alpha Thermostat direct Control

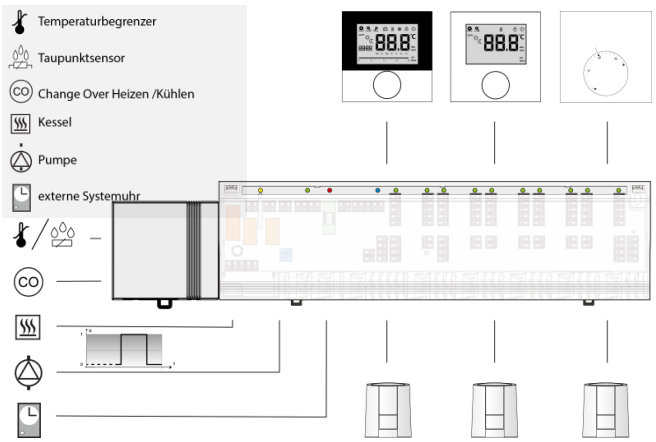
4.2 OEM Alpha Basis direct Standard Plus – 230 V version



Characteristic	
Heating	✓
Cooling	✓
Simple pump control	✓
Extended pump/boiler control with lead time and follow-up time	
Connection for external system clock	✓[2]
Internal timer of an OEM Alpha Thermostat direct Display	✓[1]
Temperature limiter or dew point sensor	✓
OEM Alpha Thermostat direct Analogue	
OEM Alpha Thermostat direct Analogue HK	✓
OEM Alpha Thermostat direct Standard	
OEM Alpha Thermostat direct Control	✓

[1]not in combination with an external system clock
[2]not in combination with the external timer of an OEM Alpha Thermostat direct Control

4.3 OEM Alpha Basis direct Comfort – 24 V version



Characteristic	
Heating	✓
Cooling	✓
Simple pump control	
Extended pump/boiler control with lead time and follow-up time	✓
Connection for external system clock	✓[2]
Internal timer of an OEM Alpha Thermostat direct Display	✓[1]
Temperature limiter or dew point sensor	✓
OEM Alpha Thermostat direct Analogue	
OEM Alpha Thermostat direct Analogue HK	✓
OEM Alpha Thermostat direct Standard	
OEM Alpha Thermostat direct Control	✓

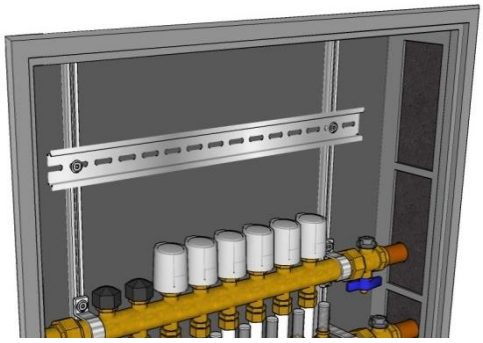
[1]not in combination with an external system clock
[2]not in combination with the external timer of an OEM Alpha Thermostat direct Control or timer module

5 Installation

5.1 Installation

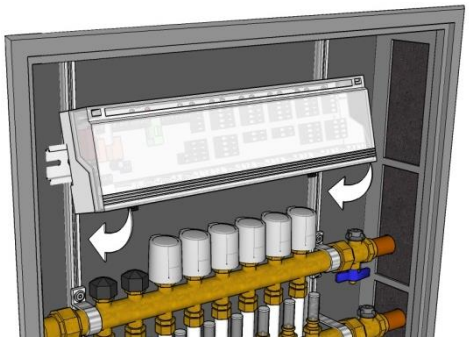
The OEM Alpha Basis direct can be installed onto the back wall or on a DIN rail in the heating circuit distributor, as well as directly on the wall near the heating circuit distributor. **DIN rail installation**

1



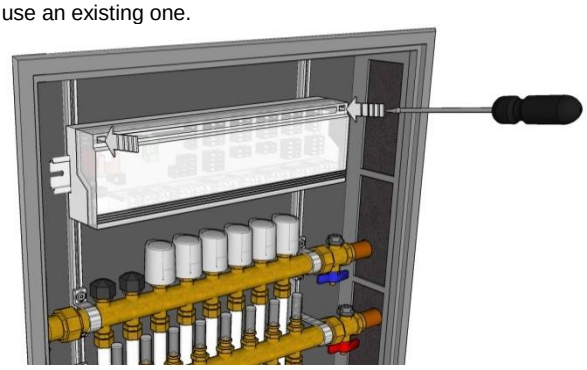
Install a DIN rail on-surface or in the heating circuit distributor cabinet, or use an existing one.

2



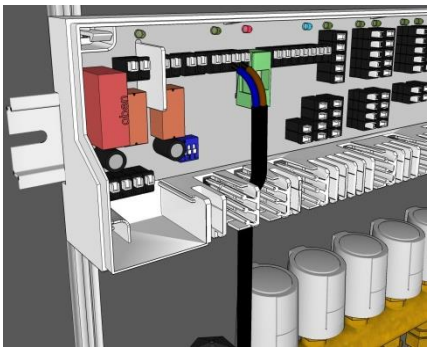
Position the basis slightly tilted onto the DIN rail and latch it in.

3



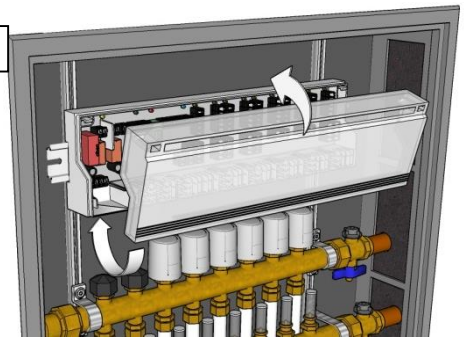
Loosen the casing cover at both latching points with a screwdriver and remove it.

4



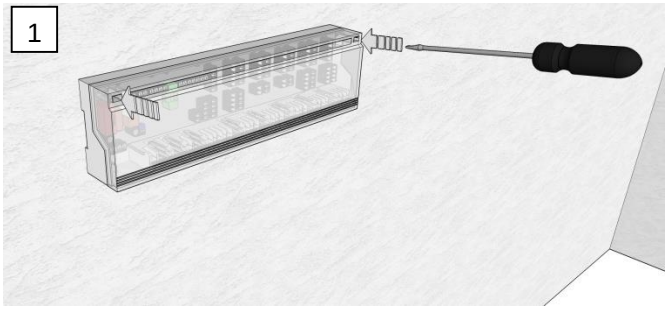
Lay the cable into the casing through the strain relief and install all cables to the basis using the clamping/plug-in technology; this is possible in a very short time.

5

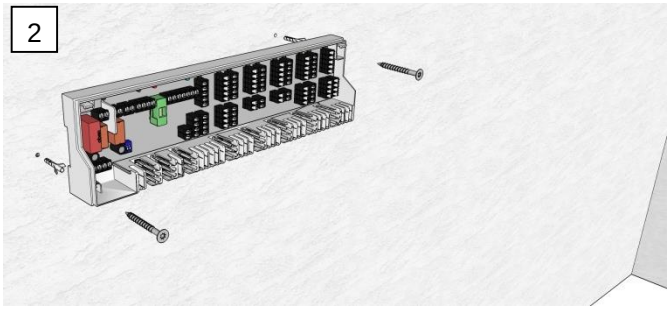


Close the cover and apply mains voltage. Now the basis is ready to operate.

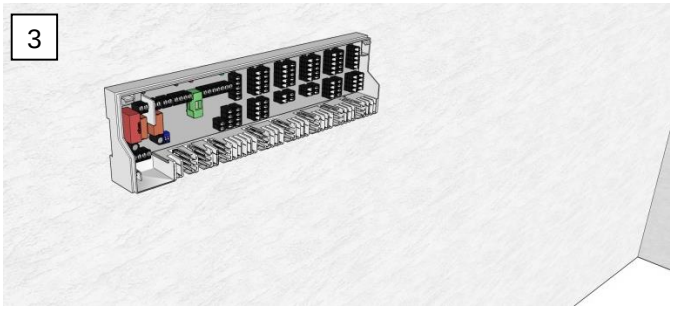
5.1.2 Wall installation



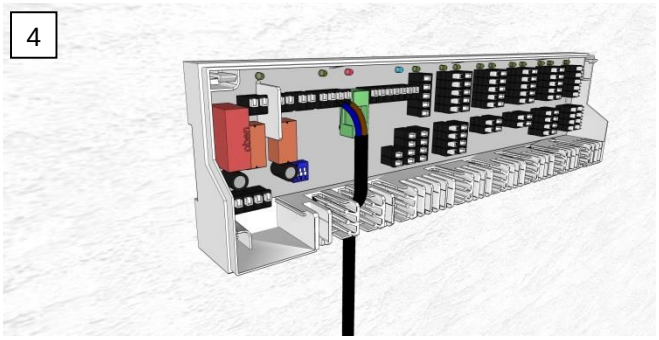
Loosen the casing cover at both latching points with a screwdriver and remove it.



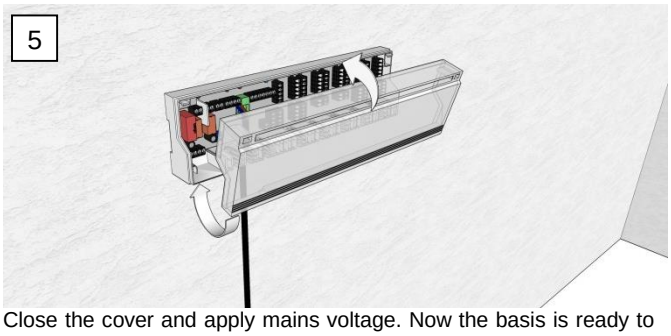
Mark the two fixing holes for the basis and drill them. The basis must horizontally aligned. Install the basis with dowels and screws (2 units M4) depending on the condition of the wall.



Align the basis and tighten the screws by hand.



Lay the cables into the casing through the strain relief and install all cables to the basis using the clamping/plug-in technology; this is possible in a very short time.



Close the cover and apply mains voltage. Now the basis is ready to operate.