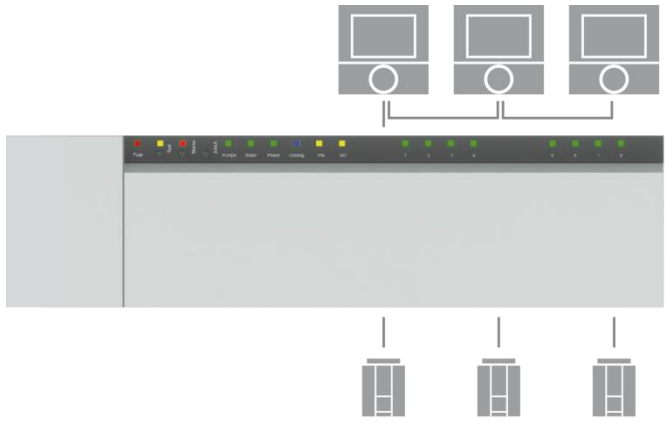
OEM Alpha 2: Base Station Bus

The OEM Alpha 2: Base Station BUS is the intelligent room-by-room temperature control for the future, ensuring maximum comfort and energy efficiency for surface temperature adjustment.

The OEM Alpha 2: Base Station BUS is a part of the OEM Alpha 2 System. It is the intelligent control and connection unit for the central processing of information and the communication with all system components. It registers and utilises a huge amount of measuring data for the individual, energy-efficient temperature control in every room in order to obtain maximum user comfort. A polarity reversal protected 2-wire BUS connection ensures the supply and the communication with all connected room control units. The actuators are supplied directly with the voltage supply of the Base Station BUS. Already in standard design, the highly developed system software fulfils all requirements of current and future systems – adaptations and updates for a technologically changing environment can be carried through comfortably through a MicroSD card slot.

The Ethernet version not only allows the flawless integration into the home network, and thus a comfortable control via PC and/or smart phone as well as over the Internet. The XML interface additionally enables an integration in superior building management and automation systems. Thus, the OEM Alpha 2: System Bus is Smart Home ready.

With the OEM Alpha 2: System Bus and its numerous visual and functional differentiation possibilities you can ensure an optimum market position, allowing you to offer a perfectly adjusted all-in-one system to your customers.



1.1 Features

- High-quality, modern OEM design
- OEM differentiation of appearance and function
- All-in-one – complete equipment for heating and/or cooling applications, already in the standard design
- Automatic configuration thanks to plug-and-play, also for future system extensions
- Simple, intuitive installation, operation and maintenance
- Connection of a maximum of 12 A5 actuators (1 - 2 per heating zone)
- The control direction of the switching outputs can be configured (NO: normally open / NC: normally closed)
- proven cable guide and strain relief
- Screwless plug-in/clamping connection technique
- Smart Start function for a more energy-efficient operation
- Perfect interaction of a maximum of 7 Base Stations via syBUS technology
- MicroSD card slot for individual settings by means of Micro SD card via Möhlenhoff OEM on-line service
- Easy operation, programming, initialisation
- Integrated system clock
- *Only Ethernet variant:* Smart Home ready, can easily be integrated into superior building automation systems via XML
- *Only Ethernet variant:* Easy integration into the home network
- *Only Ethernet variant:* Web-based application software for a comfortable control via PC and smartphone as well as over the Internet

1.2 Variants

In the basic version, the OEM Alpha 2: Base Station BUS will be delivered as neutral devices without logo and in grey. The subsequent list shows the available NC (normally closed) versions. All versions are also available with the initial status NO (normally open).

Version	Operating voltage	Zones	Delivery state:	Transformer	Web server	Scope of supply
BSB 40112-08	24 V	8	NC	✓	-	• OEM Alpha 2: Base Station in individual packaging incl. transformer • Quick Install Guide for overall system in 12 languages
BSB 40212-08	24 V	8	NC	✓	✓	

1.3 Accessories

- External timer DS2000
- Humidity controller with internal sensor
- Humidity controller with external sensor

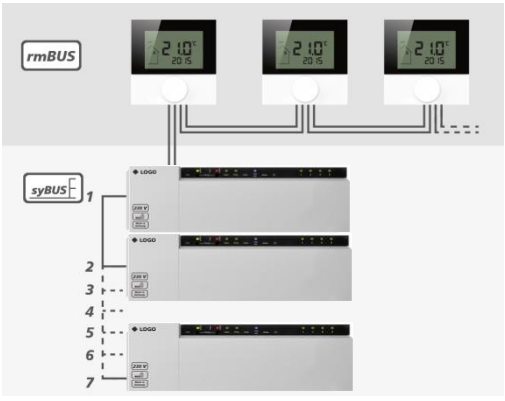
1.4 Optional extensions or differentiations to the basic version

Differentiation possibilities	
Packaging	Packaging can be manufactured and printed individually according to requirements.
Imprint on casing	Laser marking of the company logo and the individual type designation and your device designation
Light strip	Individual adaptation of colour, operating elements (square or round push-buttons) and indications (round, square or rectangular)
Casing	Bottom – adaptation of colour, marked casing lines on request Cover – completely overlapping cover, individual colour and transparency, shape and discontinuation by casing lines
Please contact us if you have further wishes.	

Extension options		
Instructions, language set 1	The scope of delivery is extended by detailed instructions for the base station and the room control units in the following languages (otherwise these are available for download under www.ezr-home.de).	German
		English
		French
		Dutch
		Italian
		Spanish
Instructions, language set 2	The scope of delivery is extended by detailed instructions for the base station and the room control units in the following languages (otherwise these are available for download under www.ezr-home.de).	English
		Danish/Norwegian
		Finnish
		Swedish
		Polish
		Russian
DIN rail	The scope of delivery is extended by a DIN rail for installation in the heating circuit distributor	
MicroSD Card	The scope of delivery is extended by a MicroSD card for the comfortable configuration and software updates to be performed via the MicroSD card slot of the base station.	

2 Function

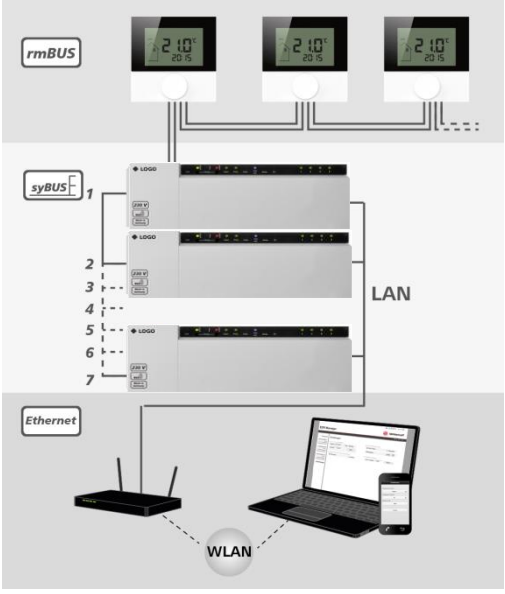
System functions of all designs



- **Coupling of a maximum of 7 Base Stations via bus line**
  - Safe communication between the Base Stations via System BUS (syBUS)
  - Forwarding of change-over signals (e. g. heating/cooling) and operation statuses (boiler/pump)
- **Safe communication via Bus line**
  - For a safe communication between the room control units and Base Stations via Room BUS (rmBus)
- **Voltage supply for connected room control units**
  - No battery change required
  - Optimal for new construction and redevelopment objects
- **Simple pairing at the touch of a button**
  - Fast allocation of room control units to the desired heating zones
- **Programming and control via the Room Control Unit Bus with display**
  - Comfortable commissioning of the system without auxiliary material
  - All functions available via menus at the Room Control Unit Bus with display
  - Reset to factory settings of the corresponding heating zone via Room Control Unit Bus with display

- **Ready for the future thanks to MicroSD card slot**
  - Quick upload, backup and transmission of system parameters
  - Upload of time programs as e. g. work/rest days, all days the same, special program
  - Conversion of Base Stations from Celsius to Fahrenheit
  - Parametrisation for NC or NO actuators
  - Deactivation of valve and pump protection function

Additional system functions of the Ethernet version



- **Integration into the home network**
  - Quick and easy implementation into the home network
  - System interface for superior control systems
- **Control via PC/smartphone**
  - Comfortable parametrisation and configuration of the systems via notebook, smartphone or tablet
  - Maximum comfort feeling in every room
- **Remote access to the entire installation**
  - Comfortable remote access to all functions and parameters of the installation
  - Rendezvous server for the realisation of a secure and direct connection over the Internet
- **Maximum comfort due to web application**
  - Intuitive web interface for comprehensive overview
  - Complete control over all functions
- **Individual software application**
  - Customer-specific software solutions/parametrisations for an optimum adjustment of your overall system including unique position characteristics
  - visual differentiation of the software interface by integration of your logo and adaptation of colours to your corporate design
- **Smart Home ready**
  - Integration into superordinate building management and automation systems via XML interface
  - Easy communication via an existing IP based network

Regulation and control functions	
	• **8-zone-variants** - Perfect for the use in detached and multi-family houses - Connections of up to two actuators per zone - Grouping of several heating circuits with only one room control unit in large rooms • **Comfortable plug-in/clamping technology** - Quick connections of up to 12 actuators - Minimum effort for an integration of the pump control, of a humidity controller and the control of a boiler • **Pilot function for heating and cooling via the boiler outlet** - Manual toggle of the overall system between the operating modes heating and cooling • **Toggle between heating and cooling via external signal** - Supply of an external signal via potential-free contact • **Dew point monitoring via potential-free contact** - Against mould formation and damage of the building structure by dew water • **Integrated pump module including pump protection function** - Pump activation via potential-free contact - Starting and coasting delay predefined with 2 minutes (parametrisable) - Cyclic switching of the pump in order to avoid damage during longer times of standstill • **Connection for safety temperature limiter** - Prevents excessive flow temperatures of floor heatings in order to protect sensitive floor coverings • **Emergency operation** - Cyclic triggering of the actuators of a zone if no signal is received from it for a prolonged time. - Prevents a complete cooling of the affected heating zone. • **Antifreeze protection** - Avoids the freezing of lines during times without temperature control (e. g. in case of absence) • **Floor temperature monitoring** - Ensures a minimum surface temperature in case of external heat input if floor sensors are used (cabled) with the room control unit • **Valve protection function at all outputs** - Cyclical triggering of actuators (parametrisable) - Avoids the clogging of valves in times without temperature control • **Möhlenhoff OEM on-line service (www.ezr-home.de)** - Parametrisation of individual system settings and week programs - World-wide access to and control of the OEM Alpha 2: System - Extensive product documentation downloadable • **Customer-specific functions** - Download of special system settings, individual week programs - individual programs possible at any time on request • **Smart Start function** - With self-learning effect - Automatic calculation of required heating lead and follow-up times - Exact provision of the temperature desired by the user at the set point of time with as low energy consumption as possible - No over-heating of rooms

Operation and indication	
	• **Programming and operation via pushbuttons** - Comfortable programming and operation of Base Stations via pushbuttons (always accessible even when the cover is closed) • **Clearly arranged, always well visible LED status indications for** - Operating status (on/off) - Fuse - Cooling mode - Warning message in case of thawing - Control direction of the switching outputs (NO: Normally open / NC: Normally closed) - System pairing - System errors - One status LED per heating zone - RBG pairing
Connections and outputs	
	• **Proven cable guidance and strain relief of the Alpha-Basis product family** • **Plugged and clamped terminals for solid and stranded cables 0.5 – 1.5 mm²** • **MicroSD card slot for updates and settings** • **Inputs:** - Change over (CO) (potential-free contact) - Humidity sensor (potential-free contact) - Setback (ECO operation) - Safety temperature limiter • **Outputs:** - Heat generator / Change over - Pump (also for high efficiency pumps) • **Other connections:** - Actuators - Mains connection - SystemBUS for the coupling of several Base Stations - Ethernet (optional)

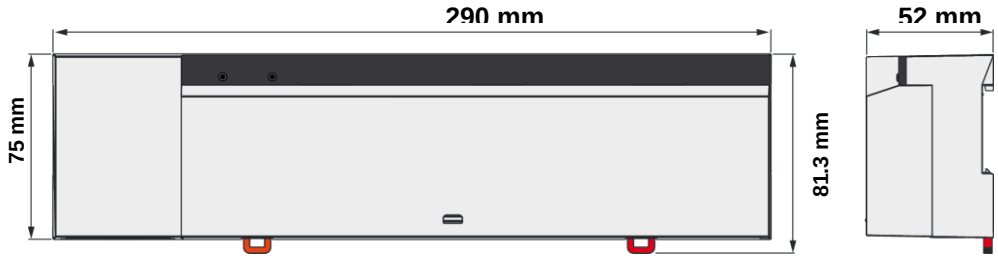
3 Technical data

	BSB 40112-08	BSB 40212-08
Max. number of heating zones	8	
Ethernet connection	-	RJ45
Operating voltage	24 V / ±20% / 50 Hz / external system transformer	
Power consumption in idle operation/with transformer 20402	0.3 W /0.6 W	1.1 W /1.4 W
Max. power input (without pump)	50 W (limited by the system transformer)	
Fuse	5 x 20 mm, T2A	
Protection class/protection type	II / IP20	
Max. number of actuators	4x2 + 4x1	
Max. nominal load of all actuators	24 W (12 x 2 W or 8 x 3 W resp. 18 x 1 W)	
Switching element design	Noiseless electronic (Triac) switch	
Switching power per heating zone	Max. 1 A admissible	
Overcharge protection	Power limitation caused by system transformer	
Pump connection	Contact: 1A (monopolar switching) / no through-connection possible	
Lead time/follow-up time	parametrisable	
High efficiency pump	parametrisable	
Switching power	8 A at cosj=1 / inductive max. 200 VA	
Boiler connection/CO output	Contact 1 A (monopolar, make contact)/invertible	
Lead time/follow-up time	parametrisable	
Switching power	1 A at cosj=1 / inductive max. 200 VA	
Reduction input	Switchable via potential-free contact	
Potential-free CO input	Switchable via potential-free contact	
TPS input	1 input for several sensors (via open collector), 1 connection for floating wiring	
Overtemperature limiter input	Voltage-guided switching input / 24 V_{AC}..230 V_{AC} tolerant	
BUS connection [syBUS]	RS485 with GND and 24 V possible for the supply of ext. components with a max. power consumption of 2 W	
BUS connection [rmBUS]	Polarity reversal-protected	
Max. Line length	500 m	
Installation wire [rmBUS]	2 x 2 x 0.8	
Connection terminals		
Conductor section rmBUS	0.2 to 1.5 mm²	
Line cross-section: massive	0.2 to 1.5 mm²	
Conductor section: Finely stranded with ADH without plastic sleeve	Max. 1.0 mm²	
Conductor section: Finely stranded with ADH with plastic sleeve	Max. 0.75 mm²	
Wire stripping length	8 to 9 mm	
Control response	PI / 2-point adjustable	
Controlling precision of the set target value:	±1 K	
Hunting	±0.2 K	
Admissible ambient temperature	0 to 60 °C	
Admissible ambient humidity	5 to 80%, not condensing	
Storage/transport temperature	-25 to +70 °C	
Standards and regulations	EN 60730-1 / EN60730-2-9 / ElektroG resp. RoHS compliant	
ERP class acc. to EU 811/2013	1=1%	
Mains connection design	System transformer with Euro plug	
Material	PC+ABS	
Colour	RAL7035 (light grey)	
Exterior dimensions [W x H x D]	370 x 75 x 52 mm	

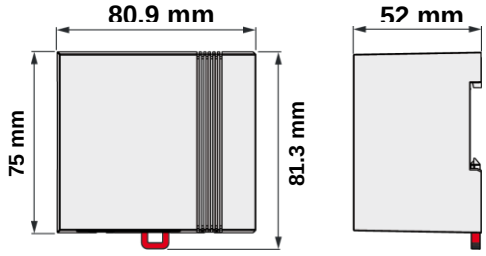
Weight	500 g
System transformer weight	600 g

3.1 Dimensions

3.1.1 8 zone Base Station



3.1.2 Transformer dimensions



3.2 Approvals & certificates

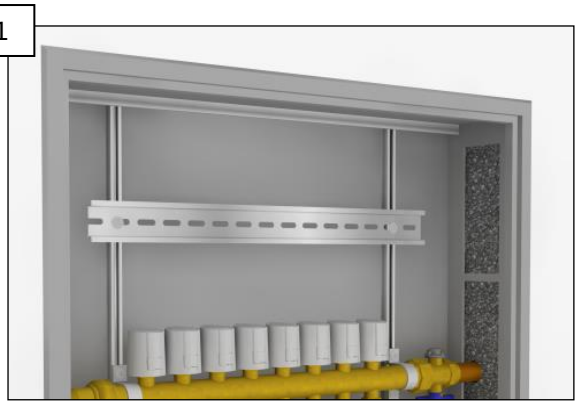
All BECLI products are extensively tested and certified by independent testing institutes.

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

4 Installation notes

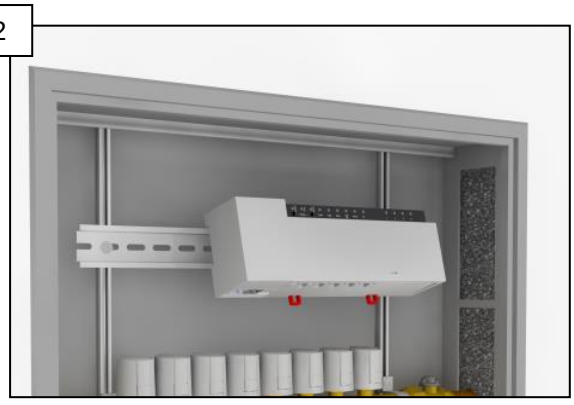
4.1 Installation

1



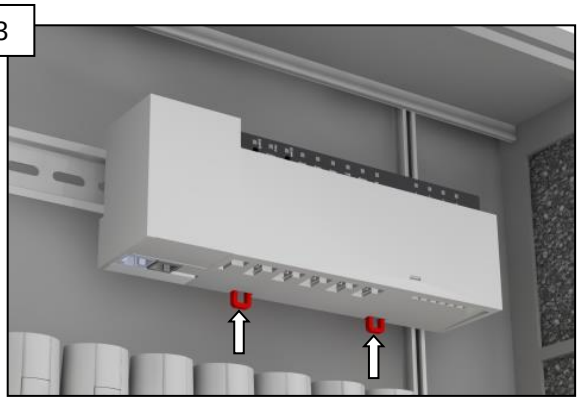
Install a DIN rail on-surface or in the heating circuit distributor cabinet.

2



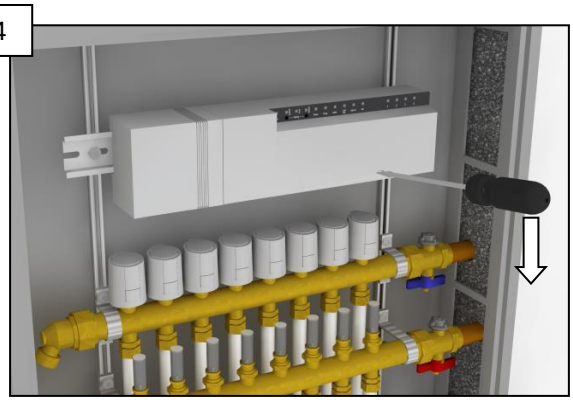
Position the Base Station slightly tilted onto the DIN rail and latch it in.

3



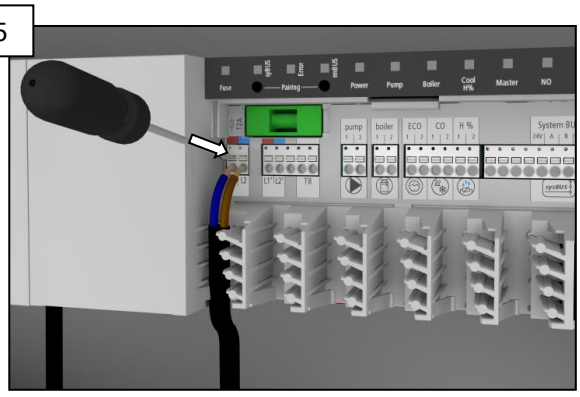
Fix the Base Station securely with the locking mechanism on the DIN rail.

4



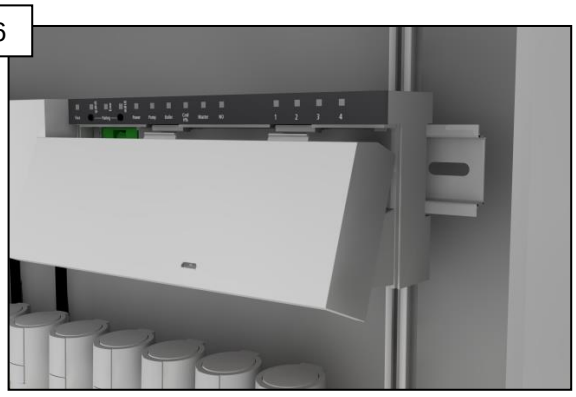
Remove the cover with a screwdriver.

5



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

6



Close the cover. Now the Base Station is ready to operate.