Alpha IP: Base Station Radio

The Alpha IP Base Station Radio 24 V and 230 V with 6 and 10 zones are intelligent control and connection units of a surface heating system for the central processing of information and communication with all system components. They register and utilise a huge amount of measuring data for the individual, energy-efficient temperature control in every room as well as for maximum user comfort.

This system is perfectly suitable for the new construction of detached and multi-family houses as well as retrofit solution for refurbishment.

For this, the 868 MHz radio technology ensures a safe, bi-directional communication of the allocated room control devices, Base Stations and connected valve drives, all this with a minimum of radio load.

1.1   Product characteristics

- High-quality, modern OEM design
- OEM differentiation of appearance
- 24 V and 230 V versions
- Variants with 6 or 10 zones
- Connection of a maximum of 15 A5 actuators (1 - 2 per zone)
- Proven cable guide and strain relief
- Screwless plug-in/clamping connection technique
- Easy operation, programming, initialisation
- Smart Start function for an operation with maximum energy efficiency
- Day/week program with individual daily profile
- Integrated system clock (date/time/summer-winter changeover)
- Holiday function
- Commissioning mode with 2-point behaviour
- Temperature compensation via offset
- Deactivation of individual rooms from heating or cooling operation
- Minimum and maximum target temperature can be set
- Standalone or in the building automation system with Homematic IP protocol

- Encryption and authentication of all data packets according to safety standards as e. g. AES-128 and CCM/RFC3610
- Automatic load balancing
- Connection of window contact/rotary window contact
- Parametrisable pump connection for the 230 V and 24 V version
- Coupling of a maximum of 7 base stations via radio by means of MIOB (multi-IP box)
- System update (only in connection with HAP Access Point)
- Control with and without app
- Functional extendibility by MIOB (multi-IO box)
  - CO input for heating/cooling change-over
  - Pump/boiler connection
  - Dew point monitoring
  - Dehumidifier control (depending on room control unit)
  - Target temperature limitation
  - ECO (external clock)
- Functional extendibility by floor sensor for monitoring the minimum temperature

1.2   Variants

In the basic version, the OEM Alpha IP: Base Stations Radio will be delivered as neutral device without logo and in white.

Version	Operating voltage	Zones	Delivery status	Transformer	Scope of supply
FAL 41011-06	24 V	6	NC	✔	• OEM Alpha IP: Base Station in individual packing (24 V variant including transformer)
FAL 41011-10	24 V	10	NC	✔	• Fixing screws, dowels
FAL 21001-06	230 V	6	NC	-	• Installation instructions in 12 languages
FAL 21001-10	230 V	10	NC	-	

1.3   Accessories

- Room control units with and without digital display, with and without humidity measurement
- Room temperature sensor
- Thermal actuators
- HAP (access point)

- Multi-IO box
- Floor sensor
- Door and window contact
- Several Alpha IP system extensions

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
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.alphaip.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.alphaip.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.	

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2   Features & functions

System functions of the OEM Alpha IP: Base Station

- **Variants with 6 and 10 zones**
  - Connections of up to two actuators per zone
  - Quick connections of up to 15 actuators (plug-in/clamping technique)
  - Control direction of the switching output (normally closed "NC" or normally open "NO")

- **Safely encrypted communication via Homematic IP Protocol**
  - Bidirectional 868.3 and 869.525 MHz radio technology
  - Long range with minimum radio load
  - Transmission of status and warning messages to the room control units.

- **Configuration and operation**
  - Configuration and operation via the room control units with display as well as via the smart phone app

- **Toggle between heating and cooling via external signal**
  - Supply of an external signal via potential-free contact by means of MIOB

- **Antifreeze protection**
  - Avoids the freezing of lines during times without temperature control (e. g. in case of absence)

- **Floor temperature monitoring**
  - Guarantees a minimum surface temperature in case of external heat input (fireplace, radiator, …) in combination with the floor sensor

- **Integrated pump module including pump protection function**
  - If necessary, heating zone 1 can be parametrised as the output of the pump control for the 230 V version (24 V with switching element). Thus, the heating zone becomes a directly interconnected 230 V source.
  - Local pump control / global pump control by means of MIOB
  - Pump activation via parametrisable heating zone 1
  - Parametrisable starting and coasting delay
  - Cyclic switching of the pump in order to avoid damage during longer times of standstill

- **Smart Start function**
  - With self-learning effect
  - Automatic calculation of required heating lead 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

- **Multi-floor solution**
  - Coupling of a maximum of 7 base stations in a system using MIOB

- **Emergency operation**
  - Cyclic triggering of the actuators of a zone if the corresponding room control unit does not receive any signal from it for a prolonged time (e. g. due to empty batteries).
  - Prevents a complete cooling of the affected zone.

- **Valve protection function at all outputs**
  - Cyclical triggering of actuators (parametrisable)
  - Avoids the clogging of valves in times without temperature control

- **Load equilibration**
  - Manages the control of the actuators in an intelligent way, ensuring a continuous flow of heating medium from the energy producer. This is particularly practical for heat pumps and condensing boilers.

- **Further configuration options are, among other things:**
  - Applied heating system (floor heating (FBH)) standard / FBH low energy / radiator / convector active / convector passive per zone
  - Room conditions (standard, with fireplace or external heat in conjunction with floor sensor) per zone
  - Blocking of heating or cooling per zone

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Operation and indication	
	• **Pairing the Homematic IP network** - For establishing the operational readiness, only a pairing process via the IP system button is necessary in order to integrate into the Homematic IP network. • **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** - IP system button (system pairing, factory reset) - Operating status (on/off) - System errors - One status LED each per heating zone (battery low, MIOB pairing, weak reception, emergency operation) - RBG pairing

Connections and outputs	
	• **Proven cable guidance and strain relief of the Alpha product family** • **Plugged and clamped terminals for solid and stranded cables 0.5 – 1.5 mm^2** • **Outputs:** - Pump (230 V / 24 V version) • **Other connections:** - Actuators - Mains connection - PE intermediate contact (for the pump) only for 230 V variants

Stand-alone operation: Surface heating	
	• **Simple installation** - Simple pairing of the components by pushing the system key - Comfortable commissioning of the system without auxiliary material - Fast allocation of room control units and sensors to the desired zones - All functions available via menus at the room control units with display - Grouping of several heating circuits with only one room control unit in large rooms • **Function extensions via Multi-IO box** - Toggle of the overall system between the operating modes heating and cooling (manually or via external signal) - Supply of an external signal via potential-free contact - Pilot function for heating and cooling via the boiler outlet (only with HAP) - Dew point monitoring via potential-free contact for protection against mould formation and damage of the building structure by dew water - Pump activation via potential-free contact with starting and coasting delay of 2 minutes, pre-defined (parametrisable), as well as cyclic switching of the pump in order to avoid damage during longer times of standstill

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Cloud control (extension option)	
	• **Extension of the stand-alone solution[1]** - Fast implementation into the cloud by supplementing with the HAP - Easiest installation of the components - Automatic software update via the HAP - World-wide system control via smart phone app (iOS, Android) using the Internet connection - All functions available via menus at the room control units with display or via smart phone app - Individual time profiles [1] The later extension of the stand-alone operation via cloud control requires a factory reset of the components with a subsequent teach-in via the Access Point (HAP).

| Extension options: Smart Home	
	• **Extension option: Heating Control** - Extension of the surface heating/cooling solution with cloud control - Easy installation and configuration via app - Solution for room temperature regulation with radiators and electric heaters - Several supplementary components as e. g. window contact (optical, or rotary handle), pluggable switch with power measurement - Automatic software update of all system components and functions via cloud service • **Extension option: Building technology** - The future offers will be extended by trades such as safety technology, light technology and ventilation technology. - Compatibility to Homematic IP components

3   Technical Data

	FAL 21001-06	FAL 21001-10	FAL 41011-06	FAL 41011-10
Max. Number of heating zones	6	10	6	10
Operating voltage	230 V / ±10% / 50 Hz		24 V / ±20% / 50 Hz / external system transformer	
Power consumption in idle operation/ with transformer 20402	1.2 W / -	1.2 W / -	0.3 W / 0.6 W	0.3 W / 0.6 W
Max. power input (without pump)	50 W		50 W (limited by the system transformer)	
Fuse	T6.3AH		T1.25A	
Max. power consumption	6.3 A		1.25 A	
Max. switching power for zone 1	1380 W		24 W	
Max. switching power for zone 2…6 / 2…10	230 W		24 W	
Protection class	I		III	
Degree of protection	IP20		IP20	
Radio technology	Radio, 868.3 and 869.525 MHz SRD band, cat. 2			
Radio protocol	Homematic IP			
Duty cycle	868.3 MHz < 1% per h; 869.525 MHz < 10% per h			
Typical radio free-field range	270 m (in open air)			
Max. number of actuators	3x2 + 3x1	5x2 + 5x1	3x2 + 3x1	5x2 + 5x1
Max. nominal load of all actuators	24 W (12 x 2 W or 8 x 3 W resp. 18 x 1 W)		24 W (12 x 2 W or 8 x 3 W resp. 18 x 1 W)	
Switching element design	Relay		Noiseless electronic (Triac) switch	
Switching power per heating zone	Max. 1 A admissible		Max. 1 A admissible	
Overcharge protection	Current limitation via device fuse		Power limitation caused by system transformer	
Pump connection	Contact: Heating zone 1C (monopolar switching/direct supply of the pump)		Only with switching element: Contact: Heating zone 1C (monopolar switching/direct supply of the pump)	
Lead time/follow-up time	parametrisable		parametrisable	
Switching power	3 A, 200 VA inductive			
Connection terminals				
Line cross-section: massive	0.75 to 1.5 mm²		0.75 to 1.5 mm²	
Conductor section: Finely stranded with ADH without plastic sleeve	max. 1.0 mm²		max. 1.0 mm²	
Conductor section: Finely stranded with ADH with plastic sleeve	max. 0.75 mm²		max. 0.75 mm²	
Wire stripping length	8 to 9 mm		8 to 9 mm	
Displays				
Heating zones LED	green (one LED per HZ)		green (one LED per HZ)	
System key	multicoloured		multicoloured	
Power / pairing	green		green	
Pump	green		green	
Operating elements				
System key	available		available	
Pairing	available		available	
Control				
Control response	PI / 2-point adjustable		PI / 2-point adjustable	
Controlling precision of the set target value:	±1 K		±1 K	
Hunting	±0.2 K		±0.2 K	
Admissible ambient temperature	0 to 50°C		0 to 50°C	
Admissible ambient humidity	5 to 80%, not condensing		5 to 80%, not condensing	
Storage/transport temperature	-20 °C to +80 °C		-20 °C to +80 °C	
Standards and regulations	2014/53/EU Radio Installations; 2014/30/EU EMC; 2011/65/EU ElektroG, resp. RoHS compliant			
ERP class acc. to EU 811/2013	1=1 %			
Mains connection design	NYM connection terminals 3 x 1.5 mm²		System transformer with Euro plug	
Material	PC		PC	
Colour	RAL9003 (signal white)			

Exterior dimensions (W x H x D) ☎	225 x 75 x 52 mm	225 x 75 x 52 mm	225 x 75 x 52 mm	225 x 75 x 52 mm
Weight	550 g	566 g	268 g	282 g
System transformer weight	–		718 g	
Packaging dimensions	365 x 155 x 65 mm			

3.1 Dimensions

3.1.1 Base station 6 and 10 zones
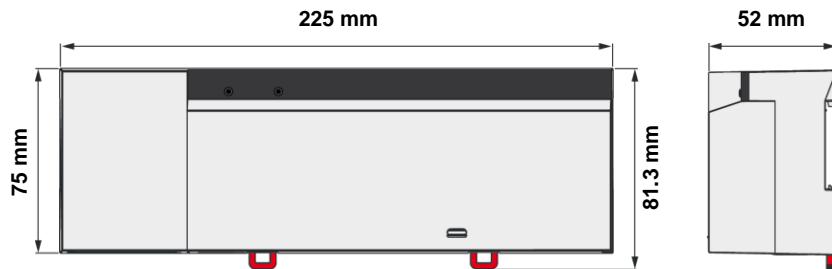
3.1.2 Transformer for 24 V variants
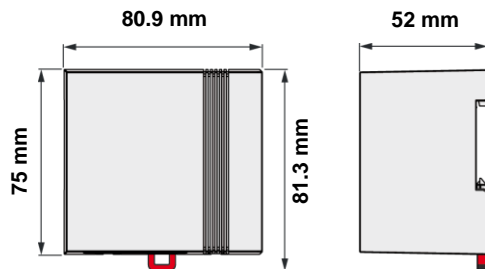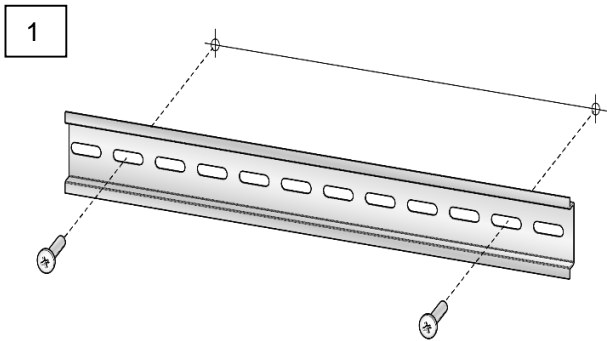

3.2 Approvals & certificates

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

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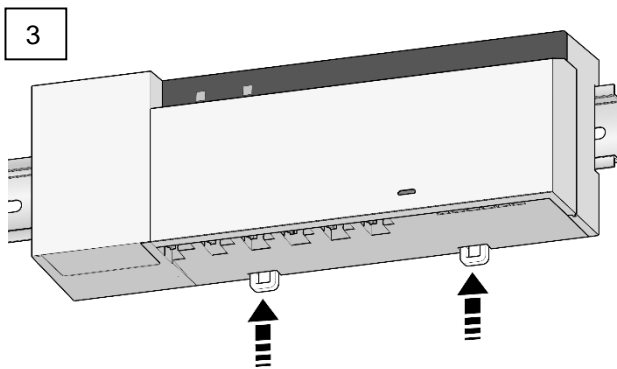133021.1632

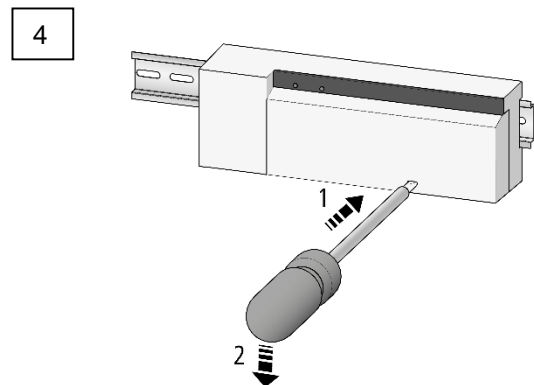Möhlenhoff

4   Installation notes

4.1   Installation

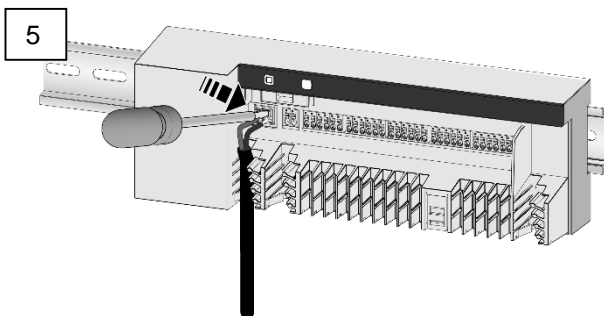Install a DIN rail on-surface or in the heating circuit distributor cabinet.
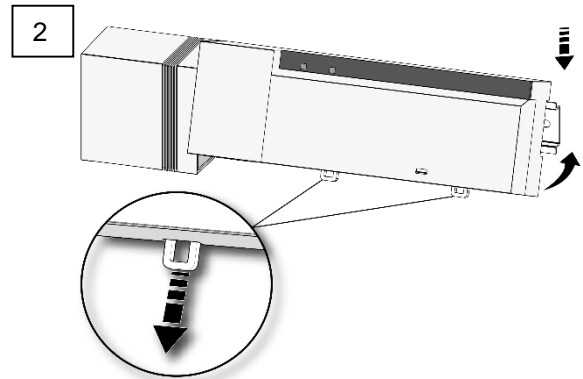
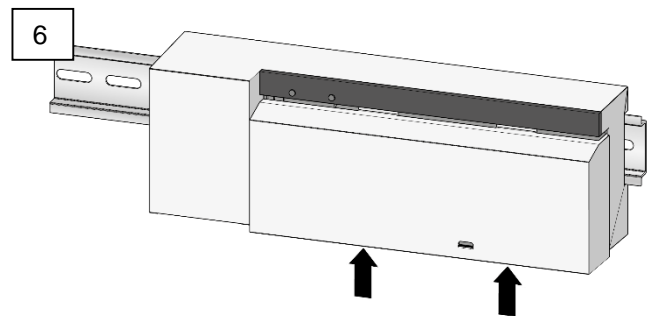Position the base station slightly tilted onto the DIN rail and latch it in.

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

Remove the cover with a screwdriver.

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.

Close the cover. Now the base station is ready to operate.

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