

COMFORT IP: Base Station Radio

The COMFORT IP Base Station Radio 230 V with 6 and 10 zones is an intelligent control and connection unit 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
- 230 V
- Variants with 6 or 10 zones
- Connection of a maximum of 15 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
- 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

Version	Operating voltage	Zones	Delivery status	Transformer	Scope of supply
EC-42010-06	230 V	6	NC	-	<ul style="list-style-type: none"> • COMFORT IP: Base Station in individual packing • Fixing screws, dowels • Installation instructions in 12 languages
EC-42010-10	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 COMFORT IP system extensions

2 Features & functions

System functions of the COMFORT 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. 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

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)
 - RGB pairing

Connections and outputs



- **Proven cable guidance and strain relief of the IP product family**
- **Plugged and clamped terminals for solid and stranded cables 0.5 – 1.5 mm²**
- **Outputs:**
 - Pump (230 V)
- **Other connections:**
 - Actuators
 - Main connection

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

Cloud control (extension option)



- **Extension of the stand-alone solution¹**
 - 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

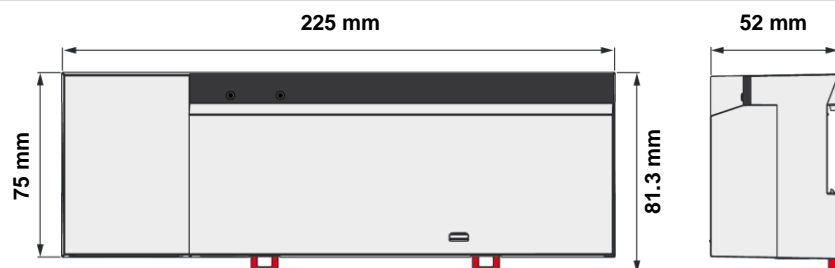
3 Technical Data

	FAL 21001-06	FAL 21001-10
Max. Number of heating zones	6	10
Operating voltage	230 V / $\pm 10\%$ / 50 Hz	
Power consumption in idle operation/ with transformer 20402	1.2 W / -	1.2 W / -
Max. power input (without pump)	50 W	
Fuse	T6.3AH	
Max. power consumption	6.3 A	
Max. switching power for zone 1	1380 W	
Max. switching power for zone 2...6 / 2...10	230 W	
Protection class	I	
Degree of protection	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
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	Relay	
Switching power per heating zone	Max. 1 A admissible	
Overcharge protection	Current limitation via device fuse	
Pump connection	Contact: Heating zone 1C (monopolar switching/direct supply of the pump)	
Lead time/follow-up time	parametrisable	
Switching power	3 A, 200 VA inductive	
Connection terminals		
Line cross-section: massive	0.75 to 1.5 mm ²	
Conductor section: Finely stranded with ADH without plastic sleeve	max. 1.0 mm ²	
Conductor section: Finely stranded with ADH with plastic sleeve	max. 0.75 mm ²	
Wire stripping length	8 to 9 mm	
Displays		
Heating zones LED	green (one LED per HZ)	
System key	multicoloured	
Power / pairing	green	
Pump	green	
Operating elements		
System key	available	
Pairing	available	
Control		
Control response	PI / 2-point adjustable	
Controlling precision of the set target value:	± 1 K	
Hunting	± 0.2 K	
Admissible ambient temperature	0 to 50°C	
Admissible ambient humidity	5 to 80%, not condensing	
Storage/transport temperature	-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 mm ²	
Material	PC	
Colour	RAL9003 (signal white)	

Exterior dimensions (W x H x D)	225 x 75 x 52 mm	225 x 75 x 52 mm
Weight	550 g	566 g
System transformer weight	-	
Packaging dimensions	365 x 155 x 65 mm	

3.1 Dimensions

3.1.1 Base station 6 and 10 zones



3.2 Approvals & certificates

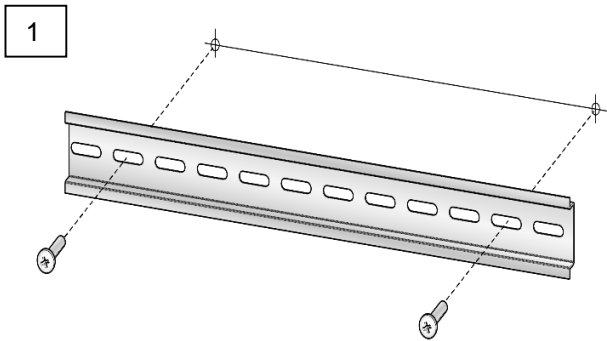


The CE identification documents that the products placed on the market comply with the applicable requirements of the EU Directives.

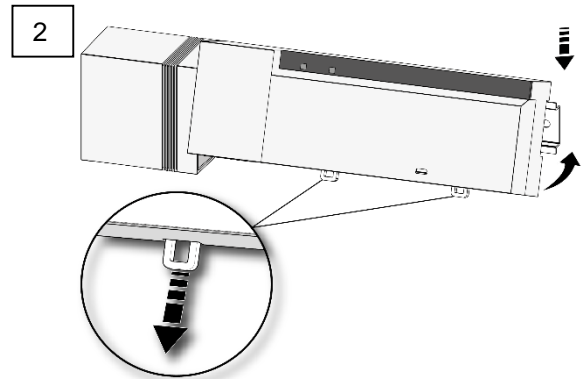


4 Installation notes

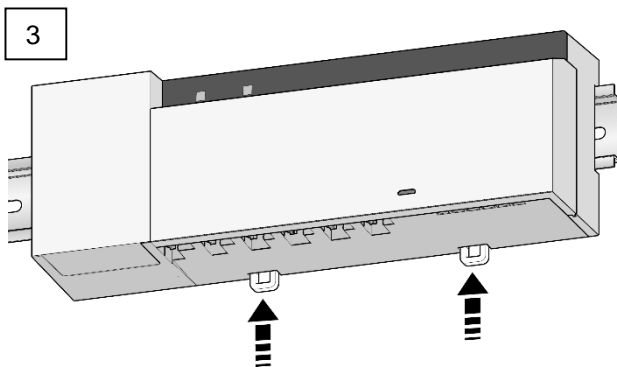
4.1 Installation



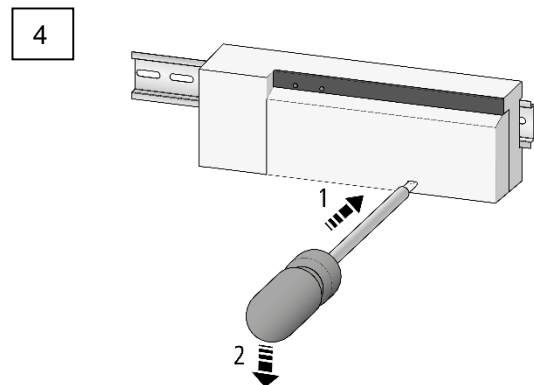
1
Install a DIN rail on-surface or in the heating circuit distributor cabinet.



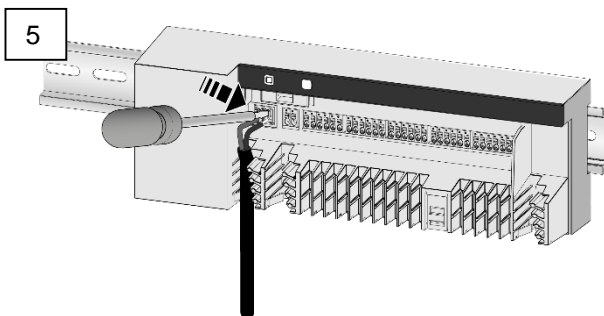
2
Position the base station slightly tilted onto the DIN rail and latch it in.



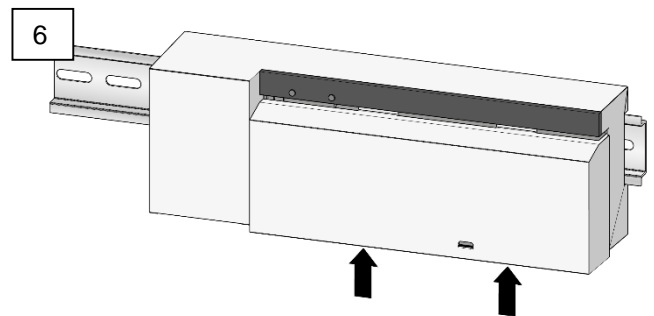
3
Fix the Base Station securely with the locking mechanism on the DIN rail.



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.