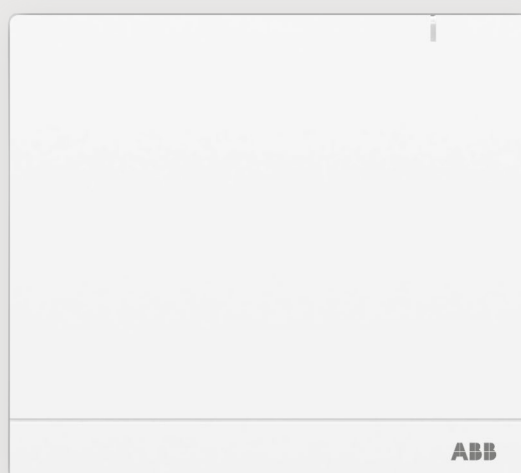


Product manual | 01.10.2021

ABB-free@home[®]

SAP/S.3



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1 Notes on the instruction manual

Please read through this manual carefully and observe the information it contains. This will assist you in preventing injuries and damage to property, and ensure both reliable operation and a long service life for the device.

Please keep this manual in a safe place.

If you pass the device on, also pass on this manual along with it.

ABB accepts no liability for any failure to observe the instructions in this manual.

If you require additional information or have questions about the device, please contact ABB or visit our Internet site at:

www.BUSCH-JAEGER.com

2 Safety

The device has been constructed according to the latest valid regulations governing technology and is operationally reliable. It has been tested and left the factory in a technically safe and reliable state.

However, residual hazards remain. Read and adhere to the safety instructions to prevent hazards of this kind.

ABB accepts no liability for any failure to observe the safety instructions.

2.1 Information and symbols used

The following Instructions point to particular hazards involved in the use of the device or provide practical instructions:



Danger

Risk of death / serious damage to health

- The respective warning symbol in connection with the signal word "Danger" indicates an imminently threatening danger which leads to death or serious (irreversible) injuries.



Warning

Serious damage to health

- The respective warning symbol in connection with the signal word "Warning" indicates a threatening danger which can lead to death or serious (irreversible) injuries.



Caution

Damage to health

- The respective warning symbol in connection with the signal word "Caution" indicates a danger which can lead to minor (reversible) injuries.



Attention

Damage to property

- This symbol in connection with the signal word "Attention" indicates a situation which could cause damage to the product itself or to objects in its surroundings.



NOTE

This symbol in connection with the word "Note" indicates useful tips and recommendations for the efficient handling of the product.



This symbol alerts to electric voltage.

2.2 Intended use

The System Access Point 2.0 is a central control and commissioning device. It connects the free@home participants with smartphone, tablet or computer. It is used to identify and configure devices during installation. In addition, the device executes time and astro programs and serves as an intermediary to switch functions using the free@home app. Only one System Access Point may be active on a network at any time.

The device is intended for the following:

- Operation according to the listed technical data and types of loads
- Installation in dry interior rooms
- Use with the connecting option available on the device

The intended use also includes adherence to all specification in this manual.



Note

Observe also the details on cyber security, See “Cyber security“ on page 8.

2.3 Improper use

Each use not listed in Chapter 2.2 “Intended use“ on page 6 is deemed improper use and can lead to personal injury and damage to property.

ABB is not liable for damages caused by use deemed contrary to the intended use of the device. The associated risk is borne exclusively by the user/operator.

The device is not intended for the following:

- Unauthorized structural changes
- Repairs
- Outdoor use
- The use in bathroom areas
- Insert with an additional bus coupler

2.4 Target group / Qualifications of personnel

Installation, commissioning and maintenance of the device must only be carried out by trained and properly qualified electrical installers.

The electrical installer must have read and understood the manual and follow the instructions provided.

The electrical installer must adhere to the valid national regulations in his/her country governing the installation, functional test, repair and maintenance of electrical products.

The electrical installer must be familiar with and correctly apply the "five safety rules" (DIN VDE 0105, EN 50110):

1. Disconnect
2. Secure against being re-connected
3. Ensure there is no voltage
4. Connect to earth and short-circuit
5. Cover or barricade adjacent live parts

2.5 Cyber security

Industry faces intensifying cyber security risks. In order to increase stability, security and robustness of its solutions, ABB has formally established cyber security robustness testing as part of the product development process.

In addition, the following measures are prerequisites for the safe operation of your free@home system.

Prevention of access to the different media

The careful isolation of the system against unauthorised access is the basis for each protective concept. In the case of a free@home system, only authorised persons may have physical access to the free@home system, as well as the System Access Point. During planning and installation all free@home media (cable and wireless) and all components prone to cyber attacks, must be protected as best as possible.

Sub-distributors with free@home devices should be either locked, or located in room to which only authorized persons have access.

Twisted Pair cabling

- The cable ends of the free@home Twisted Pair cable should not be visible or project out from the wall, neither inside nor outside the building.
- Bus lines in outdoor areas or in areas with limited protection represent an increased risk. Here the physical access to the free@home Twisted Pair cable should be made exceptionally difficult.

IP cabling within the building

The local network serves as a sensitive component for secure communication. Therefore, unauthorized access to the local network must be prevented. As a result, the usual security mechanisms for IP networks must be applied. These are, for example:

- Secure encryption of wireless networks.
- Use of complex passwords and protection of these against unauthorized persons.
- Physical access to network interfaces (Ethernet interfaces) should only be permitted in protected areas.
- MAC filter

Connection to the Internet

To prevent malpractice, no router ports from the Internet to the home network may be opened for free@home components. For secure remote access a VPN tunnel or the myBUSCH-JAEGER Portal / MyBuildings Portal can be used.

2.6 Safety instructions



Danger - Electric voltage!

Electric voltage! Risk of death and fire due to electric voltage of 100 ... 240 V. Dangerous currents flow through the body when coming into direct or indirect contact with live components. This can result in electric shock, burns or even death.

- Work on the 100 ... 240 V supply system may only be performed by authorised and qualified electricians.
- Disconnect the mains power supply before installation or dismantling.
- Never use the device with damaged connecting cables.
- Do not open covers firmly bolted to the housing of the device.
- Use the device only in a technically faultless state.
- Do not make changes to or perform repairs on the device, on its components or its accessories.



Caution! - Risk of damaging the device due to external factors!

Moisture and contamination can damage the device.

- Protect the device against humidity, dirt and damage during transport, storage and operation.

3 Information on protection of the environment

3.1 Environment



Consider the protection of the environment!

Used electric and electronic devices must not be disposed of with domestic waste.

- The device contains valuable raw materials which can be recycled. Therefore, dispose of the device at the appropriate collecting depot.

All packaging materials and devices bear the markings and test seals for proper disposal. Always dispose of the packaging material and electric devices and their components via the authorized collecting depots and disposal companies.

The products meet the legal requirements, in particular the laws governing electronic and electrical devices and the REACH ordinance.

(EU Directive 2012/19/EU WEEE and 2011/65/EU RoHS)

(EU REACH ordinance and law for the implementation of the ordinance (EC) No.1907/2006).

4 Setup and function

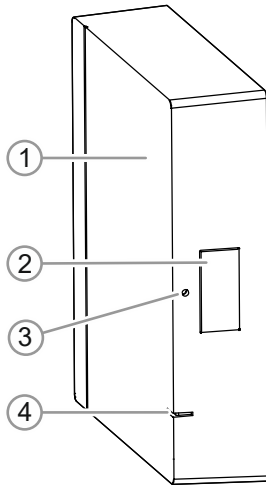


Abb. 1: Product overview

- [1] Top side of device
- [2] Access Point mode LED
- [3] Reset button
- [4] Status LED

This device is a central control and commissioning device for surface mounting at a fixed location. The System Access Point establishes the connection between the free@home participants and the smartphone, tablet or PC. It is used to identify and program the participants during commissioning. It also executes time and astro programs and serves as exchange to switch functions via the free@home app.

The web-based user interface of the System Access Point can be called up and operated simultaneously by several participants (computers and / or mobile devices) via the free@home app. This can, depending on the changes made, lead to losses in performance. This results in longer periods for implementing changes. Therefore, it is recommended to operate the user interface with only 4 participants at the same time.

After activating the bus voltage the System Access Point automatically detects all devices in the system, provided they have been connected correctly. The integrated bus coupler makes possible the connection to the free@home bus line.

When energized, a wireless device that has not been programmed is in programming mode for 30 minutes and can be logged into the system. Programmed devices share information about their type and supported functions with the System Access Point.

Also the System Access Point counts as a participant of the system.

Additional product features:

- LED as status indication

4.1 System features

Radio frequency	2.4 GHz
Funkprotokoll	free@home wireless
Verschlüsselung	AES-128
Reichweite im Gebäude	Typically 15 - 20 m (can vary greatly depending on structural conditions)
Teilnehmer in einem System	max. 150

Tab.1: System features

- All free@home devices support the well-known free@home functions.
- Robust communication through "mesh network".
- Einfacher Austausch von vorhandenen Schaltern dank kombinierter „Sensor / Aktor“-Geräte.
- Immediate function without programming (devices are pre-configured).
- A system can include wireless and wired devices.

4.2 Scope of supply

The following items are contained in the scope of supply:

- System Access Point 2.0
- mounting base
- 2 wall screws
- 2 wall anchors
- 1 free@home wired bus connection terminal (red / black)
- 1 power supply connection terminal (yellow / white)
- 1 plug power supply with adapter
- 1 strain-relief bracket with 2 screws

Optional accessories:

- external antenna
- SAP-A1.1 DIN Rail Adapter

5 Technical data

Designation	Value
SAP/5.3	
External Wall Plug Power Supply (enclosed, SELV)	24 VDC / 300 mA
* Alternative DIN Rail Power Supply Operating Voltage	24 VDC / 300 mA (SELV) NEC Class 2 (LPS) <ul style="list-style-type: none"> Connection terminal: 0.8 - 1.0 mm (AWG 18 - AWG 20) Line type: J-Y(St)Y, 2 x 2 x 0.8 mm Wire stripping: 6 - 7 mm
free@home Wired Bus Voltage	24 VDC via separate power supply (sold separately)
free@home Wired Bus Connection	<ul style="list-style-type: none"> Bus connection terminal: 0.8 - 1.0 mm (AWG 18 - AWG 20) Line type: J-Y(St)Y, 2 x 2 x 0.8 mm Wire stripping: 6 - 7 mm
Processor	1 GHz Dual Core Processor
Ethernet	RJ45
Protection Rating	IP20
Operating Temperature	-5° C - +45° C
Storage Temperature	-40° C - 70° C
USB-Port	2.0 (High Speed) Total USB current: 500 mA
Wireless (WL)	
Transmission protocol	free@home wireless
Transmission frequency	2.400 - 2.483 GHz
Maximum transmission power WL (wireless)	< 14 dBm
WLAN	
WLAN standard	IEEE 802.11 a/b/g/n/ac
WLAN frequency range	2.400 - 2.483 GHz 5.100 - 5.725 GHz
Maximum transmission power, WLAN	< 20 dBm

5.1 Dimensional drawings

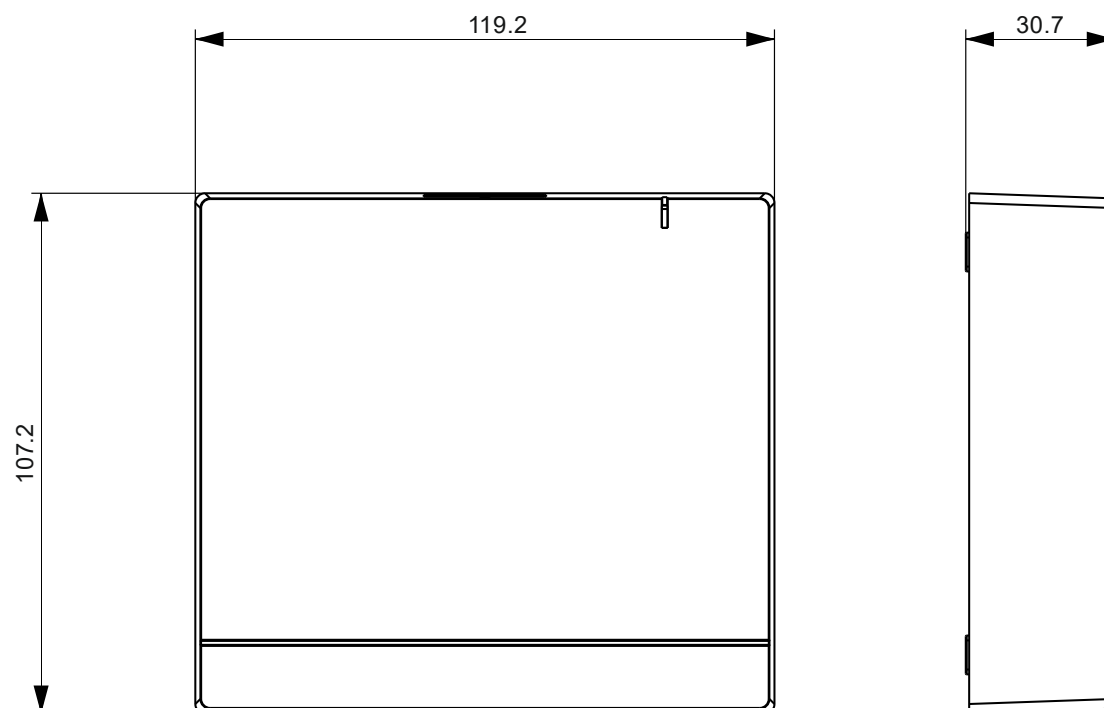


Fig. 2: Dimensions (all dimensions are in mm)

6 Connection, installation / mounting

6.1 Planning instructions



Note

Planning and application instructions for the system are available in system manual for ABB-free@home®. This can be downloaded via www.abb.com/freeathome.



Note

Transmitter and receiver communicate via radio control. The transmission range depends on the structural conditions. Walls and ceilings, especially steel reinforcements or metal claddings, reduce the transmission range. The distance of components to each other and to other transmitters that also emit high-frequency signals (e.g. computers, audio and video systems) should be at least 1 m.

6.2 Safety instructions



Danger - Electric shock due to short-circuit!

Risk of death due to electrical voltage of 100 to 240 V during short-circuit in the low-voltage line.

- Low-voltage and 100 - 240 V lines must not be installed together in a flush-mounted box!
- Observe the spatial division during installation (> 10 mm) of SELV electric circuits to other electric circuits.
- If the minimum distance is insufficient, use electronic boxes and insulating tubes.
- Observe the correct polarity.
- Observe the relevant standards.



Danger - Electric voltage!

Install the device only if you have the necessary electrical engineering knowledge and experience.

- Incorrect installation endangers your life and that of the users of the electrical system.
- Incorrect installation can cause serious damage to property, e.g. due to fire.

The minimum necessary expert knowledge and requirements for the installation are as follows:

- Apply the "five safety rules" (DIN VDE 0105, EN 50110):
 1. Disconnect
 2. Secure against being re-connected
 3. Ensure there is no voltage
 4. Connect to earth and short-circuit
 5. Cover or barricade adjacent live parts.
- Use suitable personal protective clothing.
- Use only suitable tools and measuring devices.
- Check the type of supply network (TN system, IT system, TT system) to secure the following power supply conditions (classic connection to ground, protective earthing, necessary additional measures, etc.).
- Observe the correct polarity.

6.3 Circuit diagrams

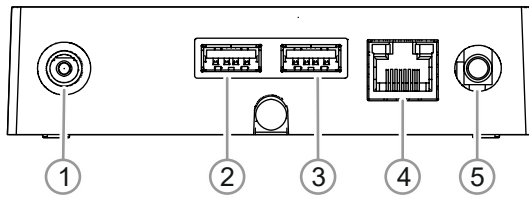


Fig. 3: Electrical connection

- [1] DC power jack
- [2] USB-Port (for future functional enhancements)
- [3] USB-Port (for future functional enhancements)
- [4] RJ connector (RJ45)
- [5] External antenna

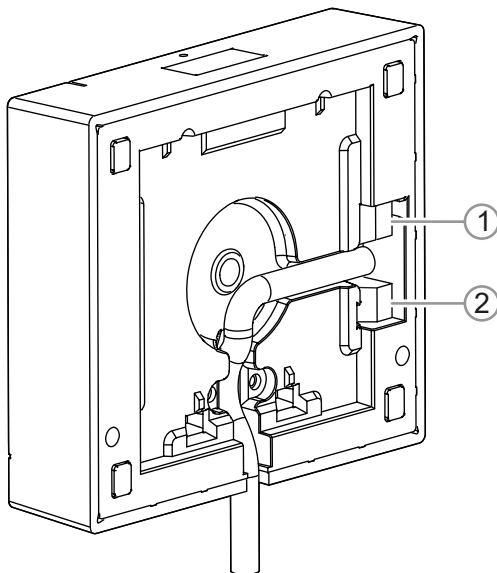


Fig. 4: Backside of device

- [1] Wired free@home bus
- [2] Alternative power input

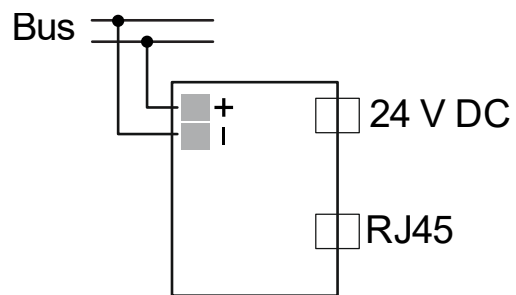


Fig. 5: Electrical connection

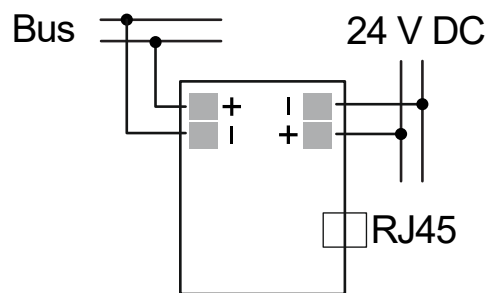


Fig. 6: Electrical connection: Alternative power input

6.4 Mounting



Attention! - Short-circuit and corrosion

Short-circuit and corrosion due to penetrating rain water.

- Use the supplied washers for fixing the wall bracket.
- Break out the water drainage [9] in the base plate.

The transmitter and receiver communicate via RF signals. The transmission range depends on the structural conditions. Walls, ceilings, and electrical equipment can affect wireless communication, especially steel reinforcements or other large metal objects. Electrical devices that send high-frequency signals (such as computers, wireless routers, audio systems, and video systems) should be at least 3-feet from this device.

- If the System Access Point is installed within a closed metallic housing (i.e. breaker box), the external antenna should be connected for WL operation and fed outside the box.
- Stationary surface-mounting in interior, dry rooms only. Observe all state and local regulations for installation.

There are three ways to mount the System Access Point 2.0:

Option A

1. Screw the mounting base directly onto the wall.
2. Set the System Access Point on top and push it downwards.

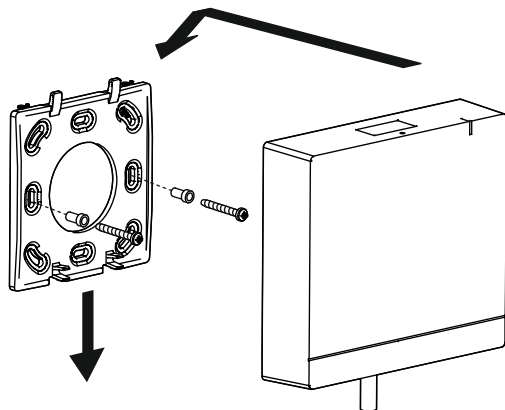


Fig. 7: Wall

Option B

1. Place the System Access Point on a flat surface (i.e. on a table).

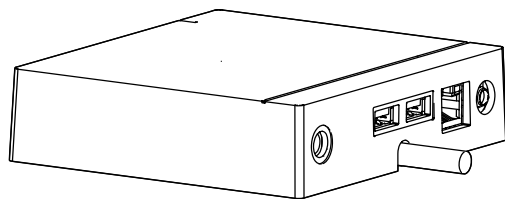


Fig. 8: Flat Surface

Option C

1. Attach the DIN Rail adapter to the DIN rail in the distributor.
2. Lock the System Access Point in place by placing it on top of the adapter and pressing it downwards.

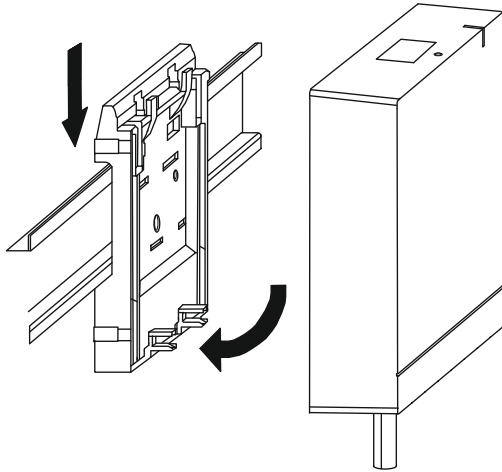


Fig. 9: DIN Rail

6.5 Electrical connection

- Cat5 or Cat6 wires are connected directly via the Ethernet port.
IMPORTANT: Use only shielded Cat5 or 6 wires.
- For installations with a plug-in connection, the socket outlet must be mounted close to the SysAP and be easy to access.

Use the enclosed power supply with the correct adapter to power the SysAP.

1. To connect the adapter to the power supply, simply slide it down the rails on the power supply until it locks in place (the figure of the adapter serves as an example).

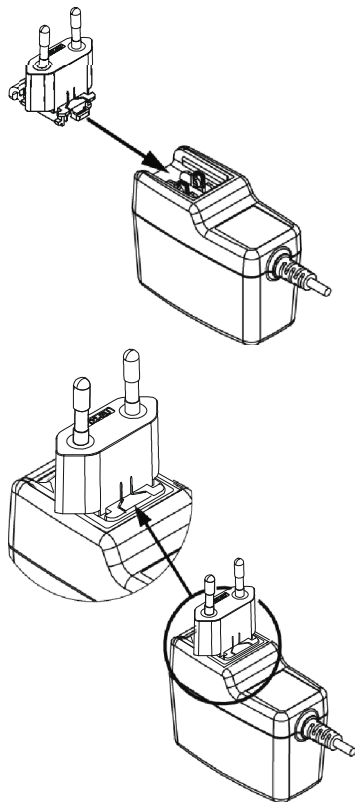


Fig. 10: Connecting the power adapter

- All other devices on the network (free@home wired bus) must be powered by a separate NEC Class 2 (LPS) power supply.



Note

When operating more than 64 devices, a second power supply must be used.

- Alternative: 24 V power cord, supplied by the DIN Rail Power Supply (See mounting diagram) instead of enclosed power supply.



Warning – Short-circuit hazard

- Ensure that the SELV circuits are spatially separated (> 10 mm) from other circuits.
- If the distance lies below the minimum distance, e. g. use electronic sockets / insulating hoses.



Warning

Do not attempt to power the device using both the DC power jack and the alternative DC power connection.

- Use only a single connection.

7 Commissioning

Commissioning of the device is always carried out via the Web-based surface of the System Access Point. It is assumed that the basic commissioning steps of the overall system have already been carried out. Knowledge about the Web-based commissioning software of the System Access Point is assumed.

The System Access Point establishes the connection between the free@home participants and the smartphone, tablet or PC. The System Access Point is used to identify and program the participants during commissioning.

Devices which are physically connected to the free@home bus, log themselves automatically into the System Access Point. They transmit information about their type and supported functions ().

When energized, wireless devices that have not been programmed are in programming mode for 30 minutes and can be logged into the system. Programmed devices share information about their type and supported functions with the System Access Point.

During initial commissioning all devices are given a universal name, e.g. "Sensor/switch actuator 1/1gang". The installer must assign names that are practical and specific for the system, e.g. in "Living room ceiling light".

The devices must be parameterised for the use of additional functions.



Notice

General information about commissioning and parameterization is available in the ABB-free@home® system manual.

7.1 Prerequisites

7.1.1 User interface

To open the web-based user interface of the System Access Point, you require a computer with LAN or WLAN network adapter and a installed internet browser.

The recommended browsers are:

- Firefox (from version 9)
- Google Chrome
- Safari

7.1.2 free@home app

For the installation of the free@home app you require a smartphone or tablet with an Android (from 5.0) or iOS (from iOS 12.2) operating system.

7.1.3 Home network

To be able to access the free@home app and Internet services (e.g. e-mail) at the same time during standard operation, the System Access Point must be integrated into the existing home network after commissioning. For this, a router with Ethernet or WLAN interface is required.

7.2 Network connection

The System Access Point makes available its own WLAN during commissioning. This allows it to be comfortably programmed in mobile mode, even when no network infrastructure is available.

However, in the final state the System Access Point should be set up as participant within the available network infrastructure.

The System Access Point can be connected to the available network infrastructure of the apartment either via the installed Ethernet port or the installed WLAN antenna.

Connection via WLAN

If the System Access Point cannot be connected to the Internet router via cable, it can be logged into the existing WLAN network via WLAN as a client.

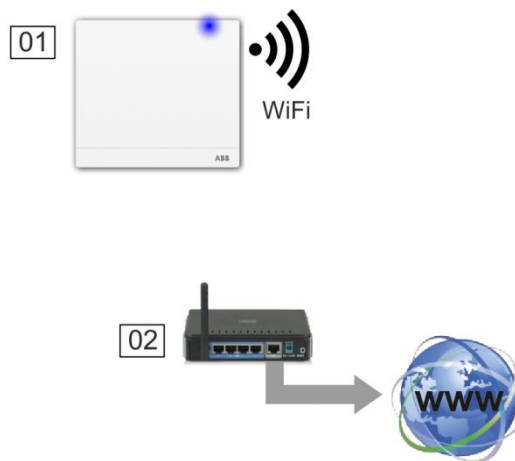


Fig. 11: Connection via WLAN

[1] System Access Point

[2] IP router

Connection via patch cable

If the System Access Point and Internet router are installed side by side, they can be connected via a patch cable.

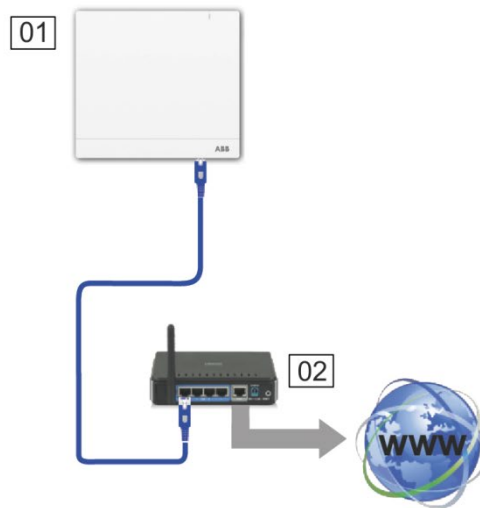


Fig. 12: Connection via patch cable

[1] System Access Point

[2] IP router

Connection via installation cable with structured cabling

If the System Access Point is connected via a CAT installation cable, the CAT cable can be connected via the RJ-45 socket using an LSA adapter.



Note

The System Access Point automatically switches to wired operation when a cable is plugged in.

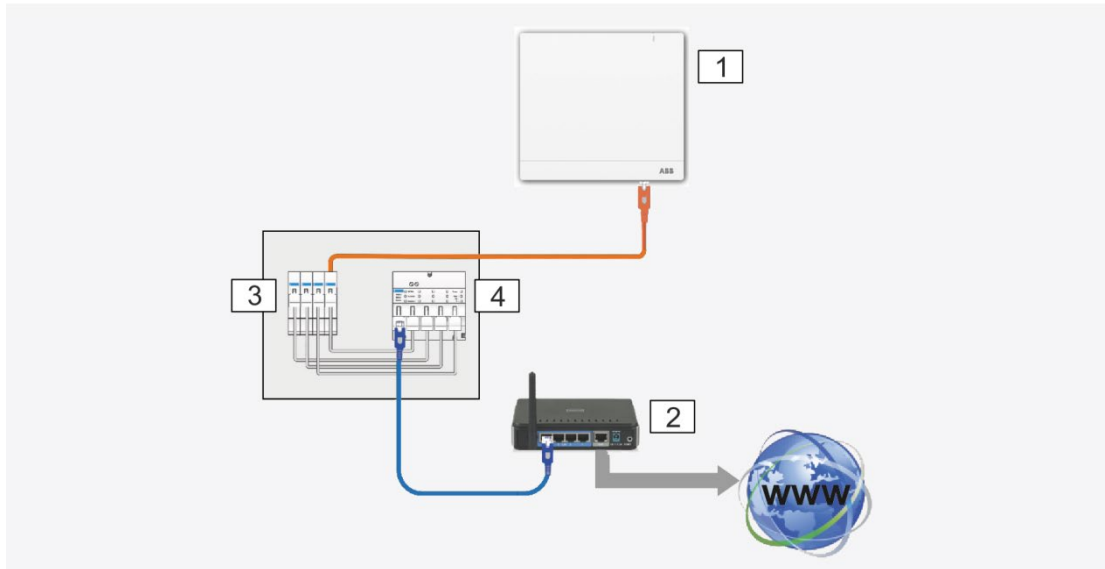


Abb. 13: Connection via installation cable with structured cabling

- [1] System Access Point
- [2] IP router
- [3] Ethernet patch terminal
- [4] Switch

7.3 Explanations about network functions

The access point mode is intended for commissioning of the system. The System Access Point establishes its own WLAN and acts as DHCP server (devices which connect themselves as client with the WLAN receive an IP address automatically).

Advantage: The system can be made operational and operated without a router (e.g. FRITZ!BOX).

Disadvantage: In access point mode the System Access Point cannot be simultaneously connected to an Internet router. For continuous operation the System Access Point should therefore be configured as LAN or WLAN client. This allows the users to both surf on the Internet with their devices and operate the free@home system without having to change between different WLAN networks.

Activating/deactivating access point mode (WLAN)

1. Press the access point button. (SAP/S.3 status LED lights up blue / SAP-S-2: left button lights up).

During initial commissioning the access point mode is automatically activated.

7.4 Establishing the connection to user interface of the System Access Point

Use one of the following options to open the user interface of the System Access Point:

Option A: Establishing the connection with smartphone or tablet

1. Install the freee free@home app for Android or iOS.
2. Energize the System Access Point. Ensure that the access point mode has not been activated. If it is activated (Status LED lights up blue), press the Access Point button to deactivate it.
3. Connect the end device to the WLAN of the system access point. (SSID: SysAPXXXX). Enter the password (see printing on the back of the System Access Point).

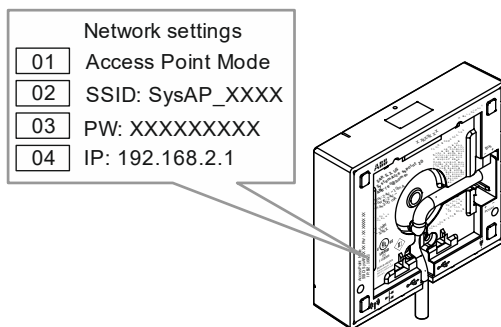


Fig. 14: Text on the rear side of the System Access Point

- [1] Access point mode
- [2] WLAN SSID
- [3] Password
- [4] IP address

4. Start the app.
5. The app automatically establishes a connection to the System Access Point.

Option B: Establishing the connection with a PC via WLAN

1. Energize the System Access Point. Ensure that the access point mode has not been activated. If it is activated (Status LED lights up blue), press the Access Point button to deactivate it.
2. Connect the end device to the WLAN of the system access point. (SSID: SysAPXXXX). Enter the password (see printing on the back of the System Access Point), See "Control elements" on page 60).
3. Connect the end device to the WLAN of the system access point. (SSID: SysAPXXXX). Enter the password (see printing on the back of the System Access Point).
4. Start your Internet browser. Enter the IP address "192.168.2.1" in the address line of your browser and confirm it.
5. The connection to the System Access Point is established.

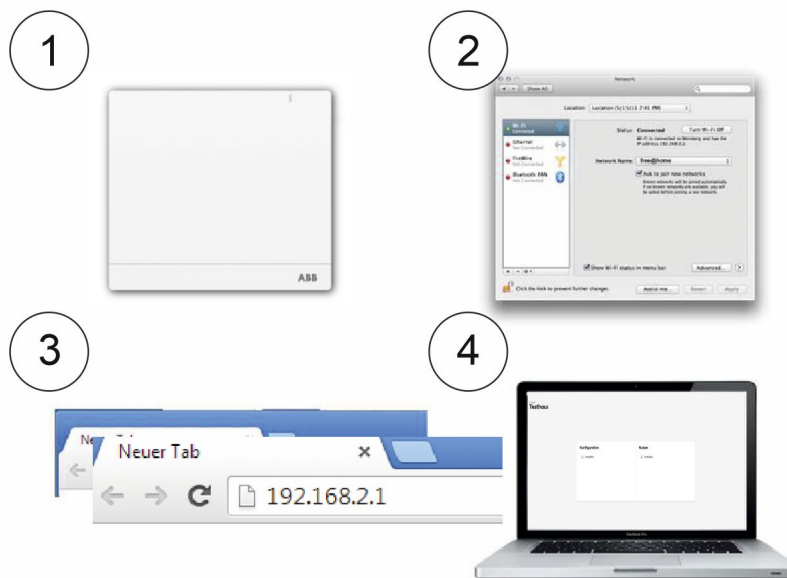


Fig. 15: Connection with PC via WLAN

Option B: Establishing the connection with the PC via patch cable and with router

1. Connect the System Access Point and the PC with a patch cable (no special crossover cable is required)
2. Energize the System Access Point. Ensure that the access point mode has not been activated. If it is activated (Status LED lights up blue), press the Access Point button to deactivate it.



Note

The System Access Point now operates as "DHCP Client", this means that it can only be reached under the IP address that is assigned to it automatically by the PC.

3. Call up the user interface of the System Access Point.
 - a) Open the Windows Explorer of your PC.
The System Access Point is displayed as device under "Network".
Double click on the device to open the user interface (The computer must support UPnP).
 - b) Enter the IP address that is automatically assigned by the router in the address line of your browser. You can find the assigned IP in the user interface of your router.
4. The connection to the System Access Point has been established.
Continue with the basic settings.

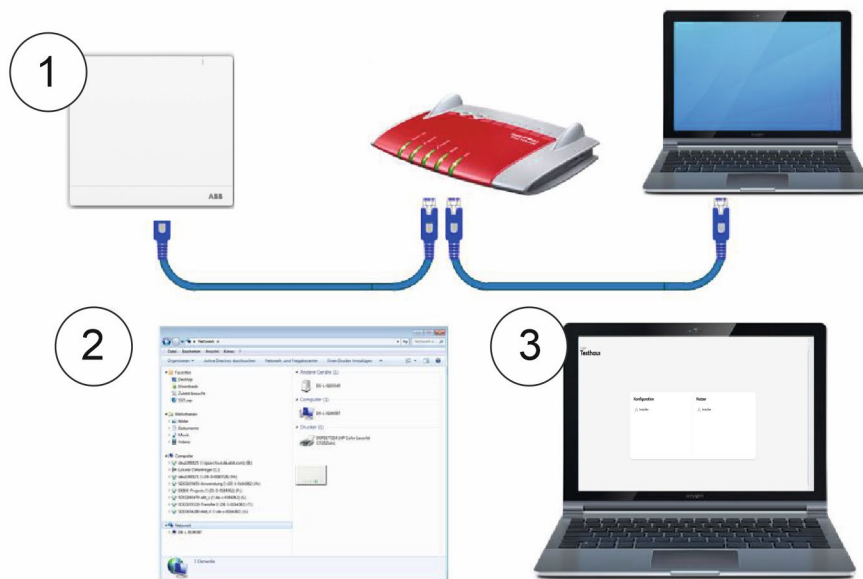


Fig. 16: Connection via patch cable and router



Note

Description of LED signals, see chapter 9.1 "Control elements" on page 60.

Option D: Establishing the connection with the PC via patch cable and without router

(Available from System Access Point Firmware Version 2.0)

1. Connect the System Access Point and the PC with a patch cable (no special crossover cable is required)
2. Energize the System Access Point. Ensure that the access point mode has not been activated. If it is activated (Status LED lights up blue), press the Access Point button to deactivate it.



Note

The System Access Point now operates as "DHCP Client", this means that it can only be reached under the IP address that is assigned to it automatically by the PC.

3. Call up the user interface of the System Access Point.
Open the Windows Explorer of your PC.
The System Access Point is displayed as device under "Network".
Double click on the device to open the user interface (The computer must support UPnP).
4. The connection to the System Access Point has been established.
Continue with the basic settings.

7.5 Basic settings

During initial commissioning of your free@home system you are requested to make a number of basic settings. Wenn Sie erstmalig auf Ihr System zugreifen starten Sie auf dem Willkommensbildschirm.

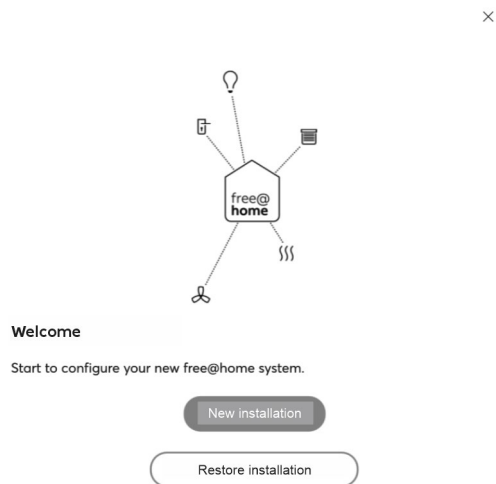


Fig. 17: Welcome screen

During initial commissioning of your system you can select whether you want to create a new installation, or whether you want to restore the old one. The configuration of a new installation is described in the following.

1. Tap on the "New installation" button.
 - The menu "Name and location" opens.

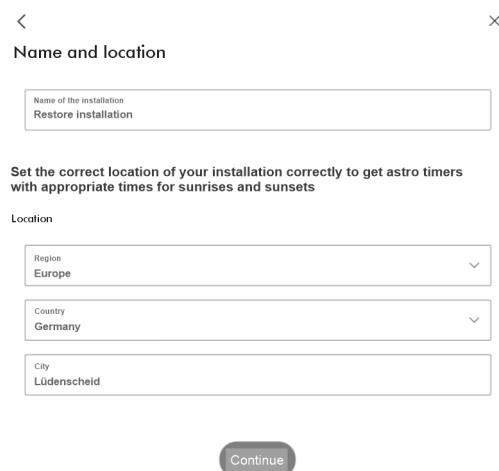


Fig. 18: Name and location

2. Assign a name to your system under "Name of installation".
 - This is the display name of the device within the IP network.
3. Enter the location data of your device under "Location".
 - Die Standortdaten dienen Grundlage für die Astro-Funktion.

4. Then tap on "Next".
 - The menu "Create installation user" opens.
5. Assign a password for the installer account.
6. Then tap on "Next".
 - You enter Summary.
7. Conclude initial commissioning by tapping on "Close".

**Note**

The password must consist of at least 4 characters. Passwords such as "12345" or "Password" are weak passwords and should not be used.

Language

The language of the display texts is changed via the language of the browser. The following languages are available:

German	French	Portuguese	Turkish
Danish	Italian	Russian	Czech
English	Norwegian	Swedish	
Spanish	Dutch	Chinese	
Finnish	Polish	Greek	

Tab.2: Languages

7.6 Structure of the main menu

Das Hauptmenü ist die Ausgangsbasis aller weiteren Schritte. It carries the same display name that the System Access Point carries within the network. Log yourself in with your configuration access to configure the system.

This page shows an overview about all configuration options. It is recommended to process the list from top to bottom to carry out a complete configuration of the system.

- free@home configuration
 - Here you configure your free@home system.
- House structure
 - Here you form the structure of your house within the web interface. For this you create floors and rooms.
- Devices, scenes and groups
 - Here you configure, position and link the devices that you use in your system.
- Timer
 - Here you can create and manage time-controlled events.
- Actions
 - Here you can create and manage event-based actions.
- Panels
 - In this menu you can configure the panels of your home.
- Notification center
 - In the notification center you can call up and manage messages.

Since the configuration steps follow each other consecutively, part of the steps is deactivated (greyed out) until the preceding step has been executed.

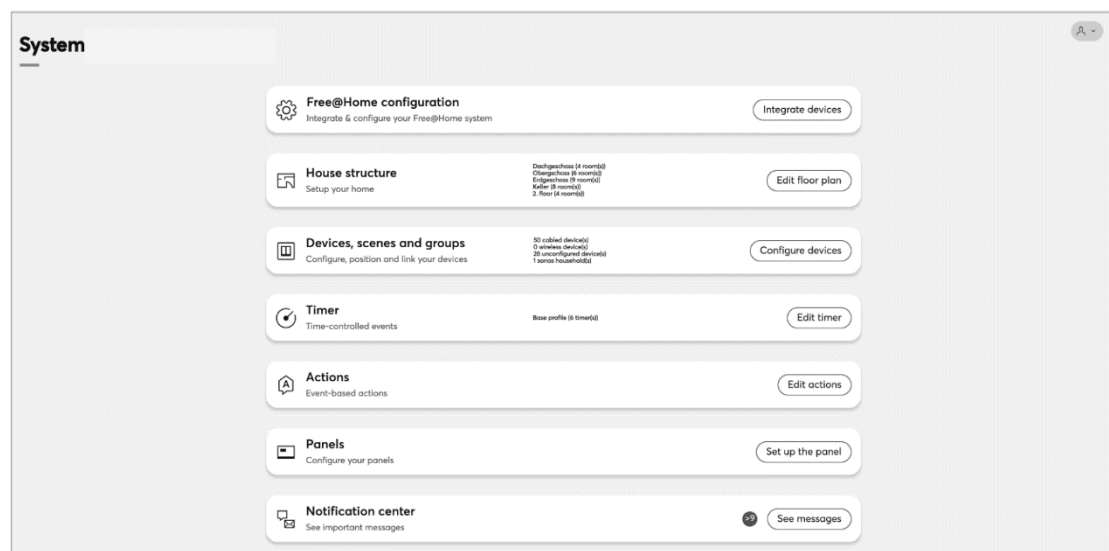


Fig. 19: Setup of the main menu

7.7 Setup of the submenu

The submenus "House structure" and "Devices scenes and groups" are divided into two areas: the floor plan (working area) on the left side and the list view on the right side.

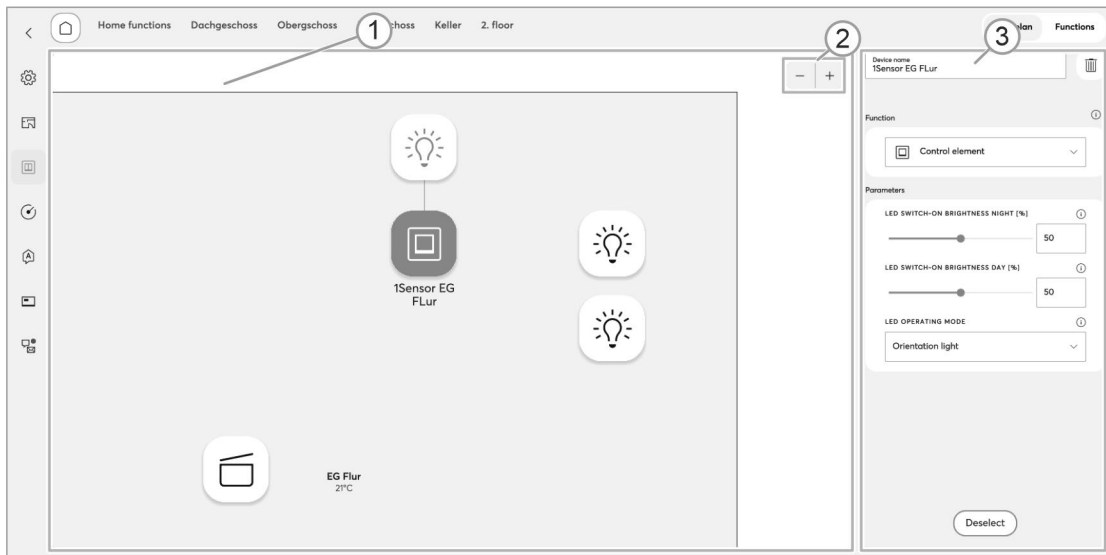


Fig. 20: Setup of the working area (with the example of the "Devices, scenes and groups" menu)

- [1] Floor plan
- [2] Enlarge/Reduce
- [3] Information/parameters about the selected device (only visible in submenu "Devices, scenes and groups")

House structure

- The floor plan can be enlarged or reduced via the plus and minus icon.
- Additional floors can be created via the plus icon.
- Rooms and corridors can be created in the list view.

Devices, scenes and groups

- The floor plan can be enlarged or reduced via the plus and minus icon.
- All configurations can be carried out both in the floor plan and in the list view.
- When a change is made in the floor plan, this change is also made in the list view and in reverse.
- Both areas represent different views of the same configuration.
- While the floor plan represents the graphical view and allows operation via drag and drop, the list view offers a clear tabular view.

7.8 Creating the house structure

The first step of the configuration is the creation of the house structure. Here a digital image of the apartment or the house with all its floors and rooms is created.

Die Hausstruktur wird im nächsten Schritt dafür verwendet, die im Haus vorhandenen Geräte ihrem Einbauort zuzuordnen. After commissioning has been completed, the created floor plan is also used for the visualization of the installation and as orientation aid for the switchable loads.

Starting point for the creation of the house structure is the main menu.

1. Tap on the "Edit floor plan" button in the "House structure" menu item.
2. Tap on the round plus icon [1] at the top right.
 - The "Create floor" [2] dialog opens.
3. Assign a floor name.
4. Confirm via the "Create floor" button.
 - The floor is added to the house structure.

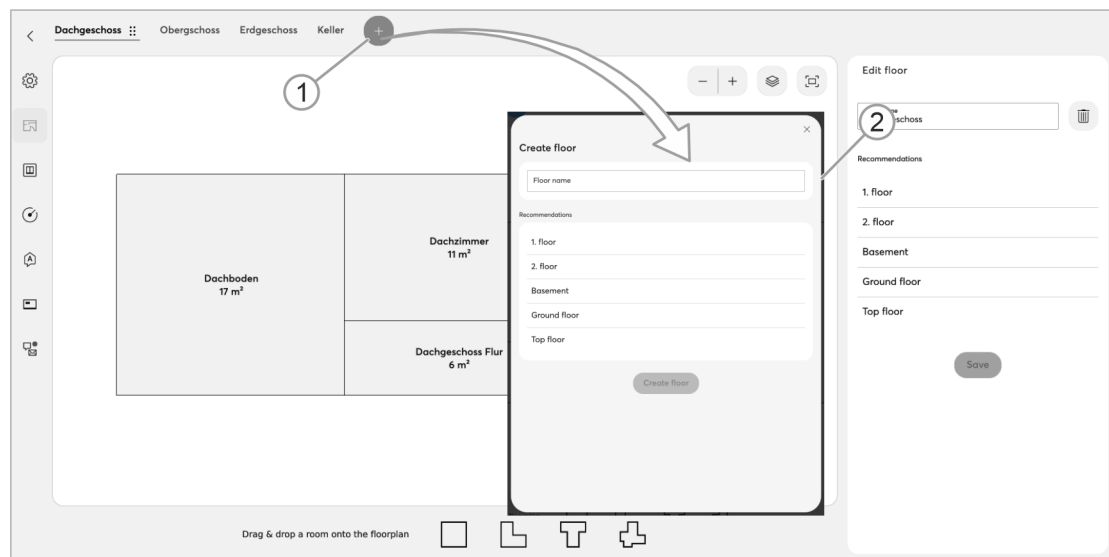


Fig. 21: Create house structure – Create floor

In the next step you create the required rooms. If available, you can copy an existing floor plan of a floor or continue with the empty floor. Das folgende Beispiel zeigt die Konfiguration anhand einer leeren Etage.

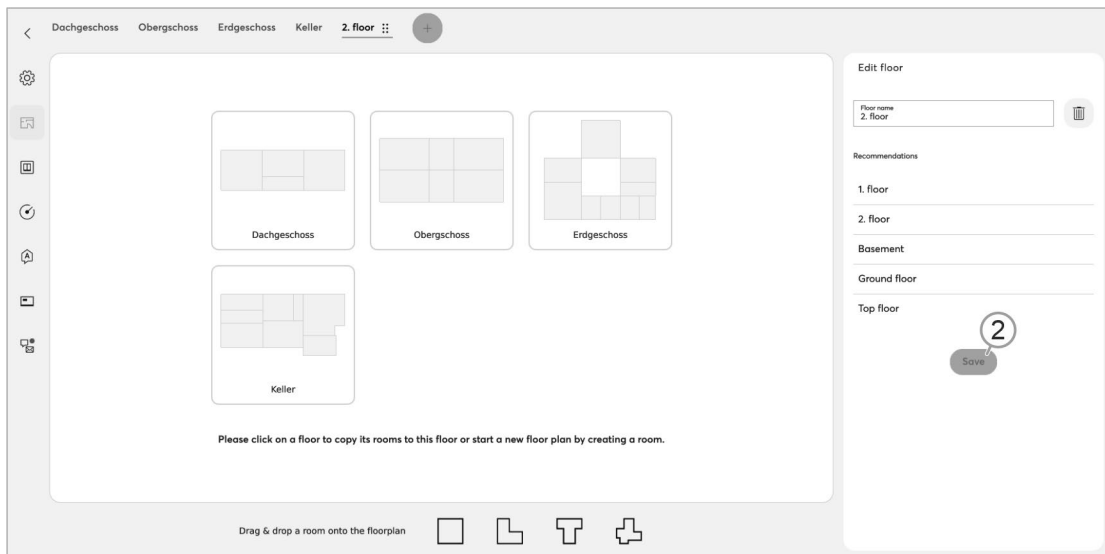


Fig. 22: Create house structure – Create floor plan

5. Start with an empty floor by tapping on the "Add room" button [1] in the list view on the right screen area.
 - The list menu changes into the "Create room" mode and a new room is added to the floor plan.
6. Assign a meaningful name.
7. Adjust the shape [1] and size [2] via the control icons at the edge of the room element.

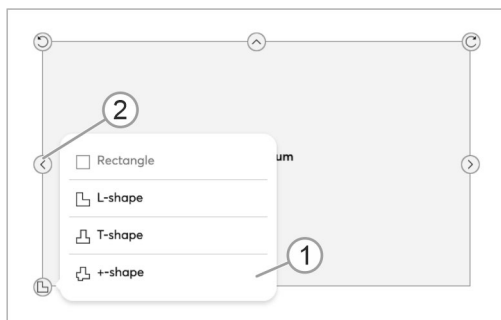


Fig. 23: Create house structure – Adjust room

8. Then tap on "Save".

7.9 Coupling of wireless devices with the System Access Point



The integration of devices and the configuration of the system is carried out via the "free@home configuration" menu.

free@home wireless devices must first be coupled with the System Access Point before they can be used in a project. The devices exchange a security key during the coupling process.

Communication between devices is carried out encrypted after coupling and they cannot be connected with another System Access Point. They must first be reset to the factory settings.

Carry out the following steps to integrate one or several devices into the system:

1. Install the free@home wireless device(s).
 2. Use your smartphone, tablet or PC to call up the user interface of the System Access Point that is ready for use.
 3. Switch on the mains power supply of the free@home wireless devices.
- The devices are now in programming mode for 30 minutes.

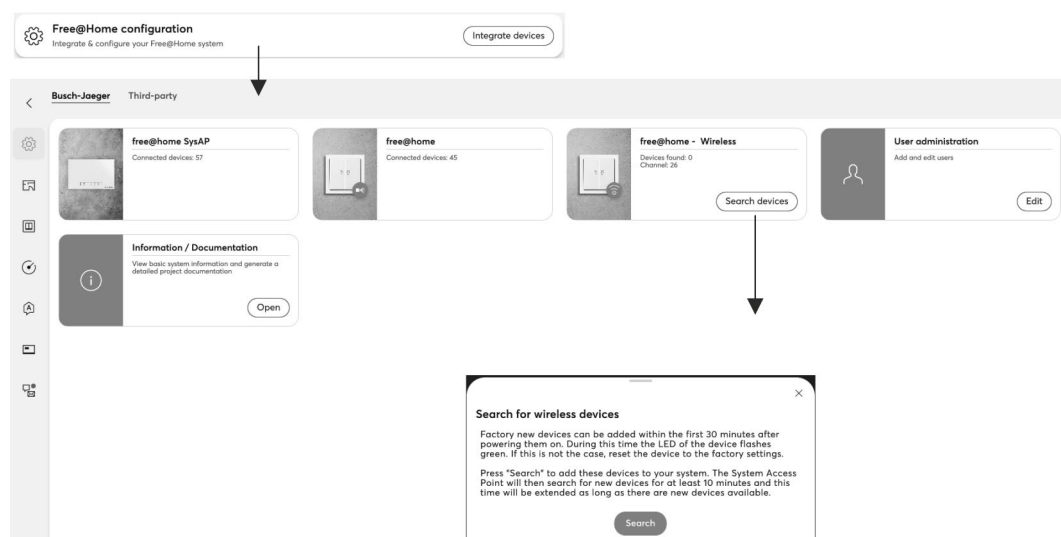


Fig 24: Coupling wireless devices with the System Access Point

4. Tap on the menu with the toothed-wheel icon in the user interface of the System Access Point.
5. Tap on the "Search for devices" button and then on the "Search" button in the "Search for wireless devices" window.
 - Close the notification window "Search for wireless devices" by clicking on "OK".
 - The System Access Point consecutively scans all free@home wireless channels. Devices that are in programming mode are automatically integrated into the system. The search process in the System Access Point ends 10 minutes after the last device has been found.
 - Integrated devices are listed in the user interface in submenu "Devices, scenes and groups".
 - To abort the search, click on "End search".

6. Use the serial numbers to check whether all installed devices have been found. If a device has not been found, reset it to the factory settings and start a new scanning process.

Possible reasons for not finding devices:

- The device is not in programming mode.
- The 30-minute programming time has expired.
- The device has already been coupled with a different system.

7.10 Allocating devices to rooms

In the next step the devices connected to the system must be identified. For this the devices are allocated to a room according to their function and are given a name. Then you can link the devices with each other and configure them.

All devices connected to the System Access Point are displayed in the configuration. These device can be configured with different functions.



Devices, scenes and groups
Configure, position and link your devices

Configuring, positioning and linking of the devices is carried out via menu "Devices, scenes and groups".

1. Tap on the menu with the switch icon in the user interface of the System Access Point.
 - The "building plan" opens.

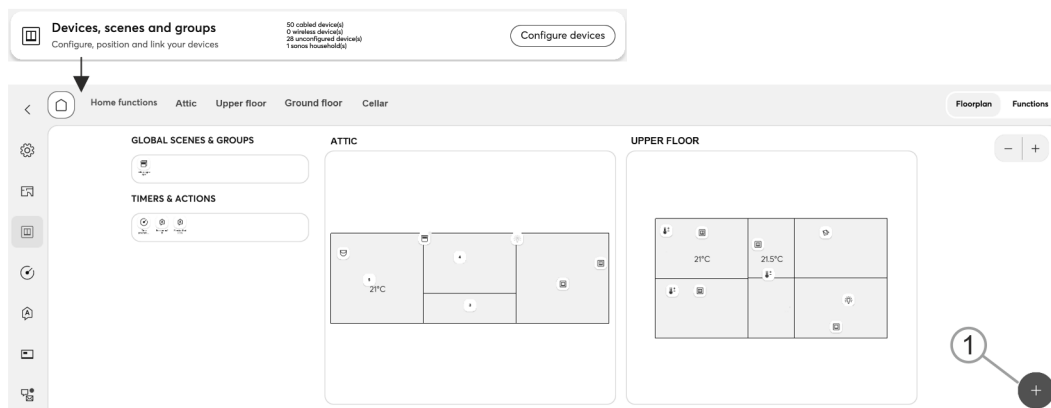


Fig. 25: Opening the building plan and list of components (example illustration)

2. Tap on the round plus icon [1] at the bottom right.
 - Menu "Select component" opens.
3. Tap on the desired characteristic in the list of components.
 - The menu with the available devices, functions and actuators opens.
4. Select the desired device and pull it into the building plan via drag-and-drop.

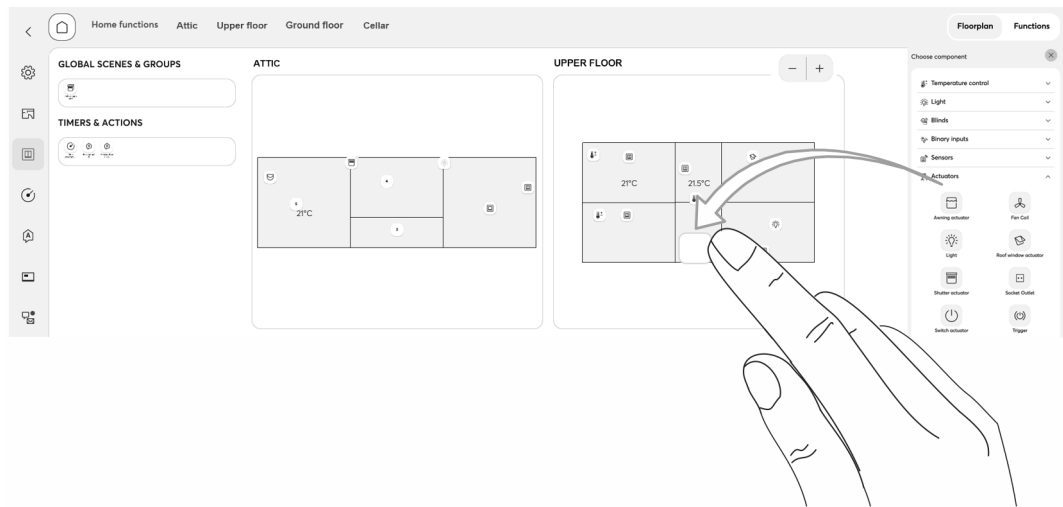


Fig. 26: Pulling the device out of the menu bar (example illustration)



Notice for operation via a mobile phone

The building plan/floor plan is not available in the app for mobile phones.

- Use the list view of the device configuration here for the location of the device See page 47.

If you pull a new device into a room via drag and drop, a pop-up window opens in which all devices that are located in the system are listed and which have not been allocated to a room. The devices are suitable respectively for the selected application (e.g. all blind actuators, if the blind application has been selected).

5. Select the corresponding channel.

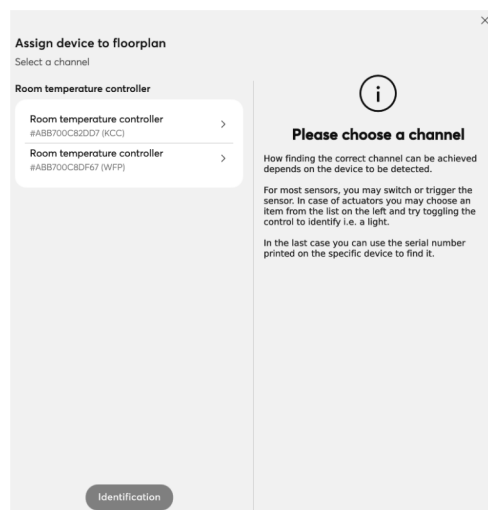


Fig. 27: Pop-up window with the suitable devices (example illustration)

7.10.1 Identification

If after positioning on the floor plan there are several possible devices in the pop-up window for selection, the device which switches the desired function must now be selected.

Identification via serial number

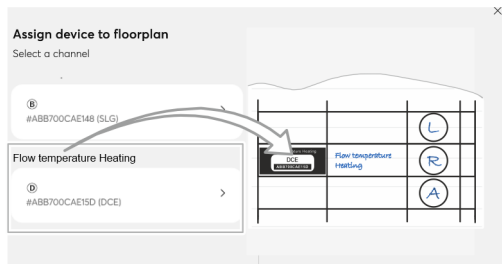


Fig. 28: Identification via serial number

- Compare the three-digit character code and the serial number of the identification label on your device plan, or on the device with the numbers in the list, and in this way identify the device you are searching for and, if necessary, also the channel.

Identification via local operation

Actuate the device that is to be linked with the selected application.

- Actuator: Press the "Ident" button on the device.
- Sensor: Press the rocker.

The associated device is selected automatically. In case an actuator has several channels, you need to select the correct channel.



Fig. 29: Identification via local operation

Identification via switching (only suitable for actuators)

If several devices are listed in the device list, you can identify them by switching the actual device.

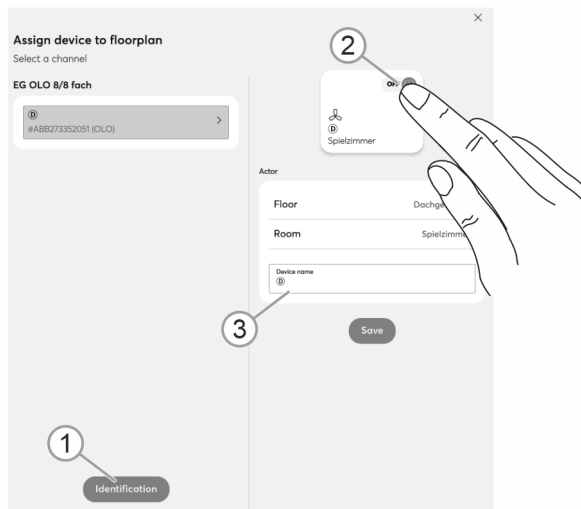


Fig. 30: Identification via switching

1. Open the device list.
2. Actuate the actual device.
 - The connected load is switched.
 - The device is then selected automatically in the device list.
3. Enter a name under which the application is to be displayed later, (e.g. "Ceiling light" or "Living room blind").
4. Tap on the "Save" button to take over the adjustments.
 - This takes over the entry.

7.11 Setting options per channel

General settings and special parameter settings must be made for each channel.

The settings are made via the Web-based user interface of the System Access Point.

Select device

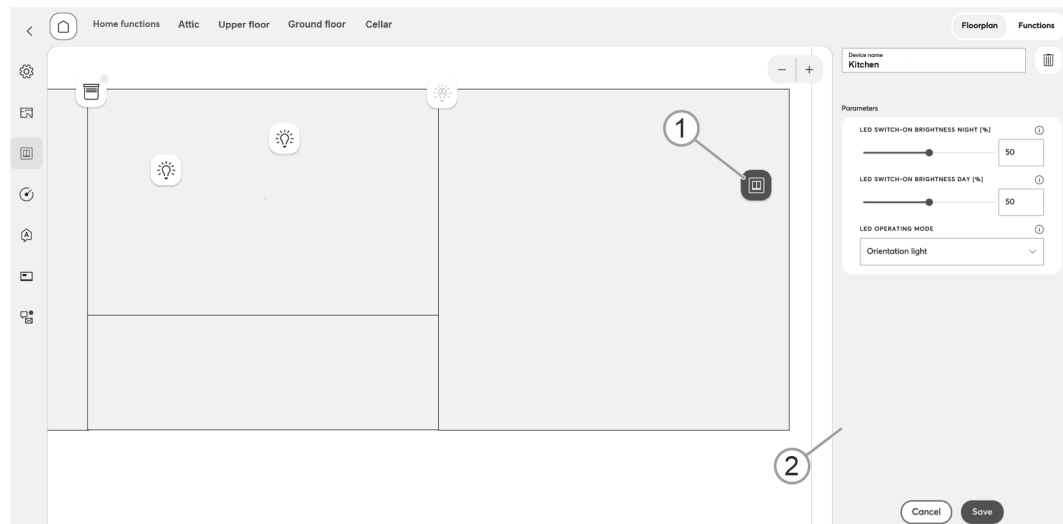
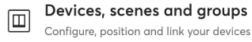


Fig. 31: Select device

1. Select the device icon [1] in the floor plan of the working area view.

All setting options for the respective channel are displayed in the list view [2]. For push-buttons (sensors) the corresponding push-button must be selected (Example: left rocker, right rocker).

7.12 Links



Devices, scenes and groups
Configure, position and link your devices

Configuring, positioning and linking of the devices is carried out via menu "Devices, scenes and groups".

Sensors and actuators can be linked with each other. This allows different actuators to be switched with one sensor.

The link is made via the configuration mode in the building plan of the Web-based user interface of the System Access Point.

1. Open the building plan

- Via menu "Devices, scenes and groups" on the main page
- Via the switch icon in the menu bar on the left side
- From the list of functions, via the "Floor plan" button

7.12.1 Linking sensor and actuator



Devices, scenes and groups
Configure, position and link your devices

Configuring, positioning and linking of the devices is carried out via menu "Devices, scenes and groups".

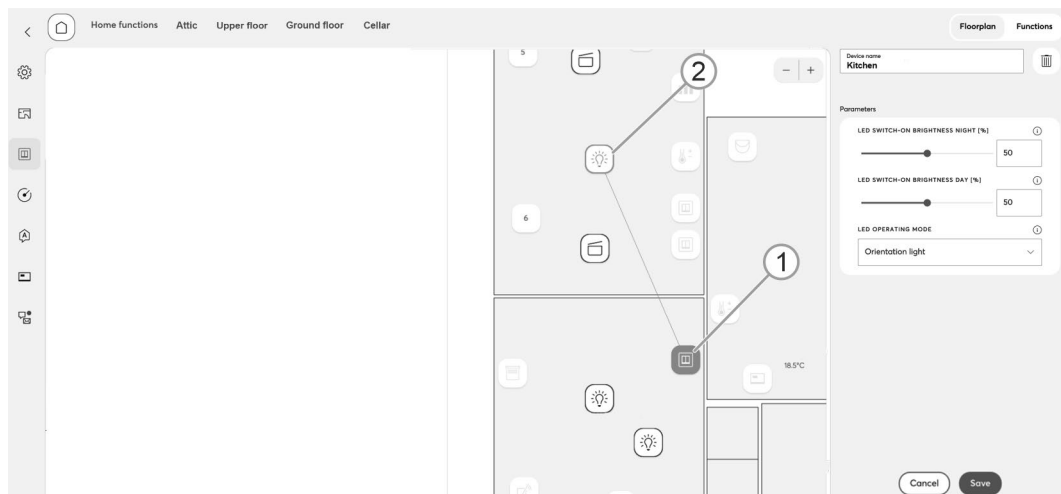


Fig. 32: Linking sensor and actuator (example illustration)

1. Select the sensor [1] in the building plan that is to be linked with the actuator (detailed information is available in the system manual).
2. Select the actuator [2] that is to be switched by the sensor.
3. If necessary, make changes to the parameter settings.
4. Tap on "Save" to take over the settings.
 - A blue connecting line indicates the link between the two devices.
 - The selection can be cancelled via the "Deselect" button.

7.12.2 Parameter settings System Access Point

Open overview of devices

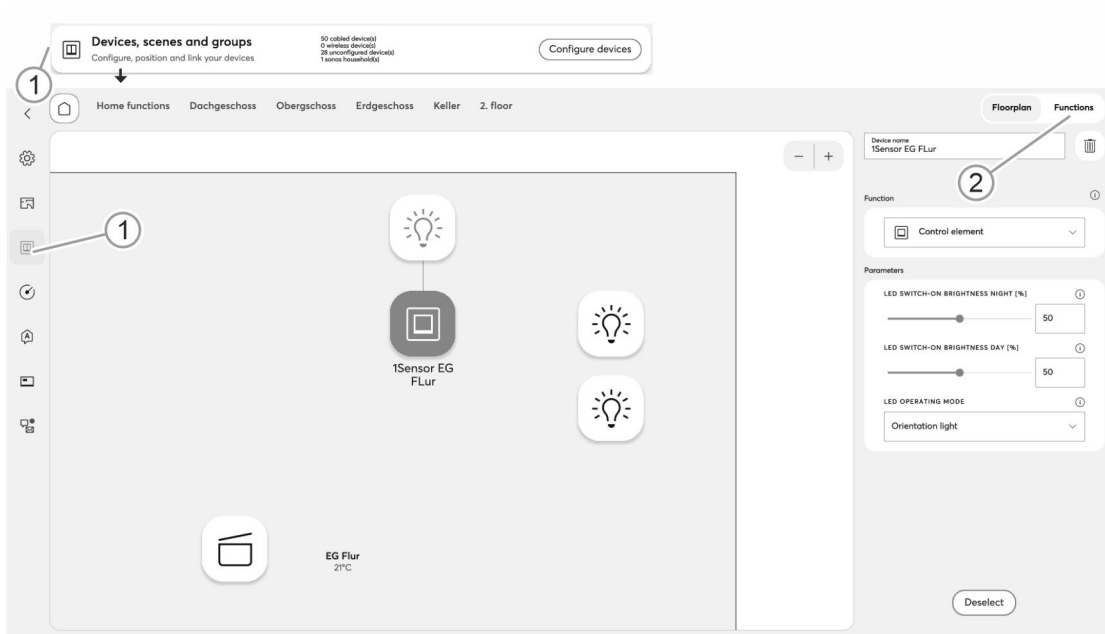


Fig. 33: Open overview of devices (example illustration)

1. Open window "Devices, scenes and groups" [1].
2. Select the "Functions" button [2].
 - The overview of devices opens.
 - Here you can view all devices that are located in the free@home system. The overview page displays information about the device name and the position of the respective device.

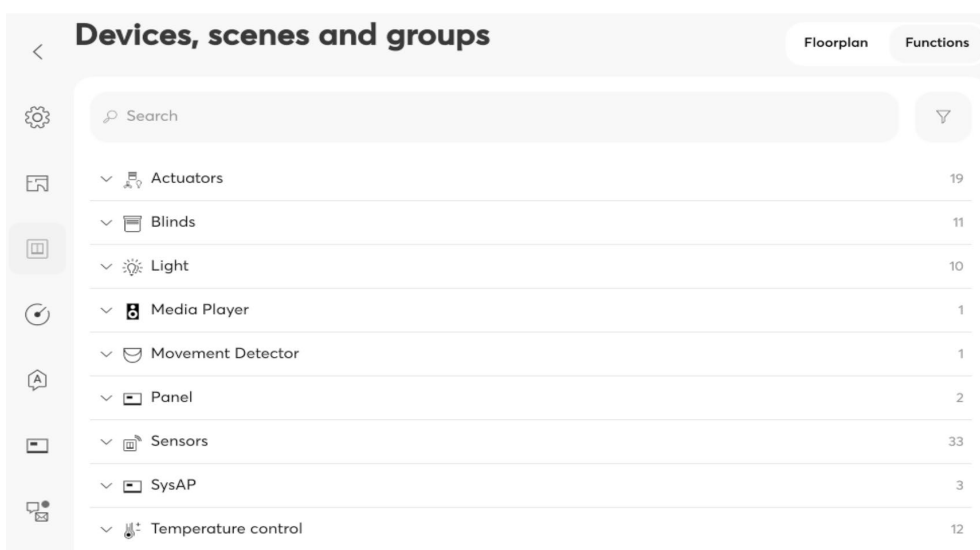


Fig. 34: Overview of devices (example illustration)

3. Tap on a device category.
 - The list of available devices opens.

4. Tap on the device whose information you want to edit.
 - A new window with the information about the respective device opens.

Click on the cogwheel symbol to access the "Devices, Scenes & Groups" overview. Here you can view all devices that are in your free@home system. The overview page shows information about the device name and the position of the respective device. You can edit the device information.

1. Tap a device category.
 - The list of available devices opens.
2. Tap the device whose information you want to edit.
 - The drop-down menu of the respective device opens.

The device menu displays information on the device name, the device position in the building and other settings.

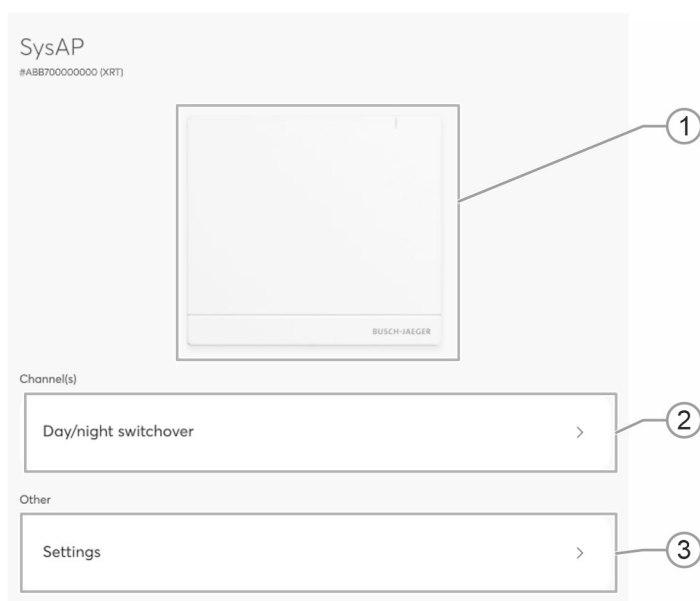


Fig. 35: Device menu

Pos.	Description
[1]	Presentation The device is displayed here. Tapping the display shows the device ID at the bottom right of the screen.
[2]	Channel Here you can access the parameterization of the channel. <ul style="list-style-type: none"> ▪Day/night switching <ul style="list-style-type: none"> – Opens the parameterization of the day/night changeover.
[3]	Other settings Here you can access the settings for channel selection, permissions and maintenance. You can also view the general device information.

7.12.2.1 Parameter settings Channel

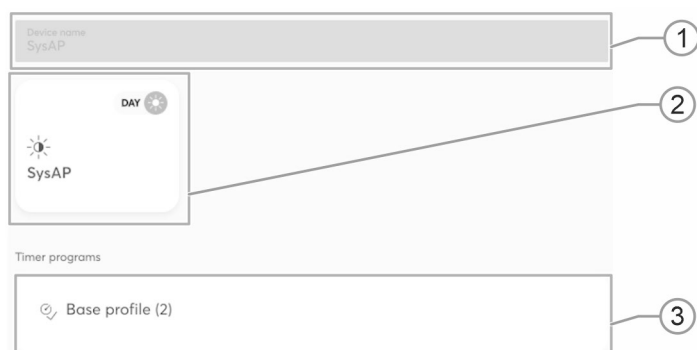


Fig. 36: Parameter channel

Under the channel settings, you can view information about the device name and position. You can also configure the ranges and parameters described below.

Pos.	Description
[1]	Device name The text field can be used to assign your own designation for the device.
[2]	Sensor Schalten Here the switchover between day and night can be made. During the change the LED brightness of the rockers changes or additional actions are carried out which have day/night as precondition.
[3]	Outgoing pairings Under the outgoing pairings you can create, delete or edit pairings. A distinction is made between channel and scene pairings. Ausgehende Verknüpfungen Unter „Ausgehende Verknüpfungen“ können Sie Verknüpfungen erstellen, löschen oder bearbeiten. You can also see for which devices a link was created. A difference is made between links of channels and scenes. <ul style="list-style-type: none"> ▪ Tap the plus symbol in front of the actuator, channel or scene to open a list. In the list, make the desired pairing by tapping the desired device. A successful pairing is indicated by a check mark. ▪ The pairing can be cancelled again by tapping the dustbin symbol.

7.12.2.2 Other settings

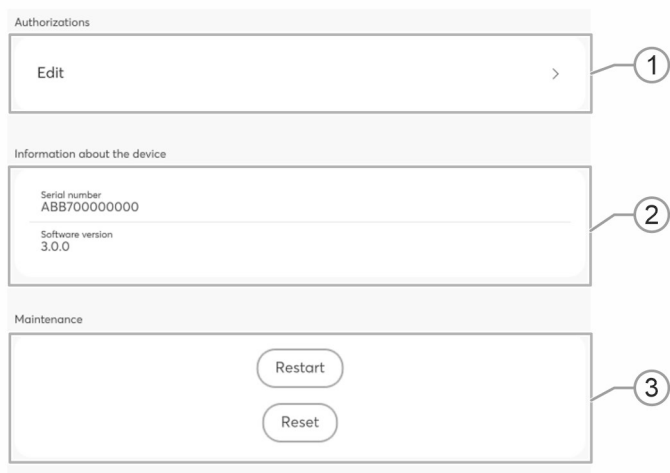


Fig. 37: Other settings

Under "Other settings" you can configure the areas described below.

Pos.	Description
[1]	Authorizations The "Authorizations" menu item is used to specify whether an installer authorization is required for the configuration. In addition, you can nevertheless assign users with read rights the authorization to switch this actuator.
[2]	Information about the device Listing of device information (device number, software version, etc.).
[3]	Maintenance By tapping the corresponding buttons, you can restart or reset the device. <ul style="list-style-type: none">RestartRestart deviceReset

7.12.3 Parameter settings of SysAP communication interface

Each System Access Point has two communication interfaces. The communication interfaces serve for communication with bus and wireless devices.

- 1. Tap on a device category.
 - The list of available devices opens.
- 2. Tap on the communication interface whose information you want to edit.
 - A new window with the information about the selected communication interface opens.

Via the device menu you can access additional settings of the communication interface.



Fig. 38: Device menu

Pos.	Description
[1]	Other settings Here you access the settings for channel selection, authorizations and maintenance. You can also view the general device information.

7.12.3.1 Other settings

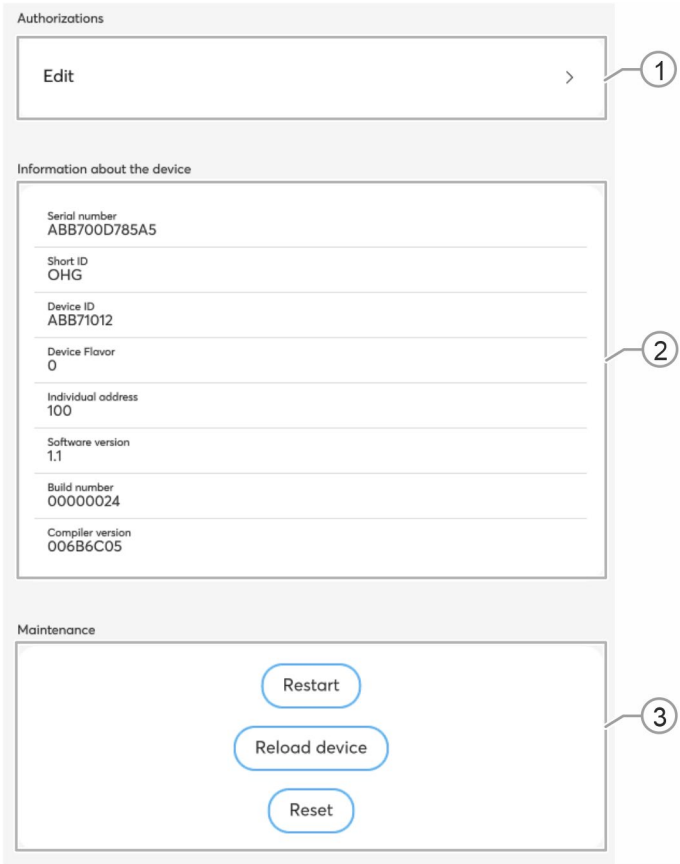


Fig. 39: Other settings

Under "Other settings" you can configure the areas described below.

Pos.	Description
[1]	Authorizations The "Authorizations" menu item is used to specify whether an installer authorization is required for the configuration. In addition, you can nevertheless assign users with read rights the authorization to switch this actuator.
[2]	Information about the device Listing of device information (device number, software version, etc.).
[3]	Maintenance By tapping the corresponding buttons, you can restart or reset the device. <ul style="list-style-type: none">RestartRestart deviceReset

7.12.4 Switching options

You can implement different circuits within the system. The most-commonly used combinations are described in the following.

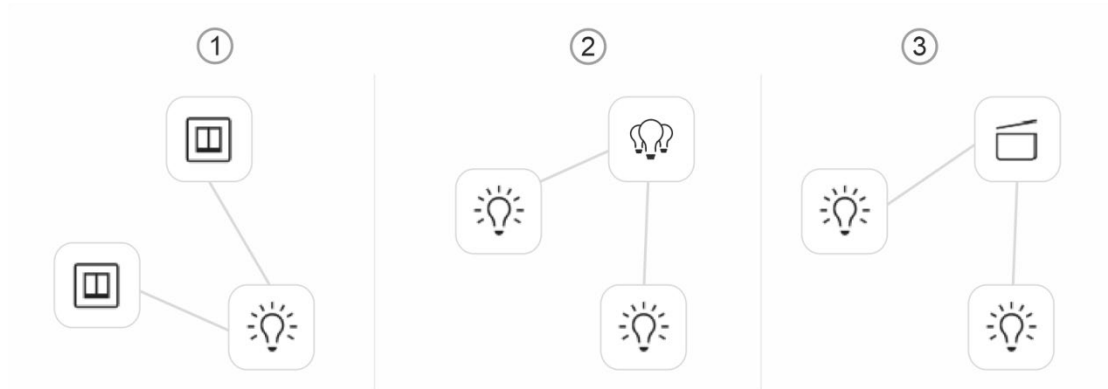


Fig. 40: Switching options

[1] Two-way circuit

[2] Group circuit

[3] Scene

Two-way circuit [1]

An actuator is connected with one or several sensors.

Group circuit [2]

Several actuators of the same type (e.g. all the lights in a corridor, all roller blinds of a room) are combined in a group. The group acts like a single actuator and can be connected with sensors or integrated into scenes (At "ON" all actuators of the group switch on. At "OFF" all actuators of the group switch off).

Scene [3]

A scene creates a state that can be defined by the user. This, for example, allows the user to create a "TV" scene that dims the living room light, switches off the lights in the corridor and dips the blinds. Scenes cannot be switched on or off. When a scene is called up, always the same, predefined state is established.

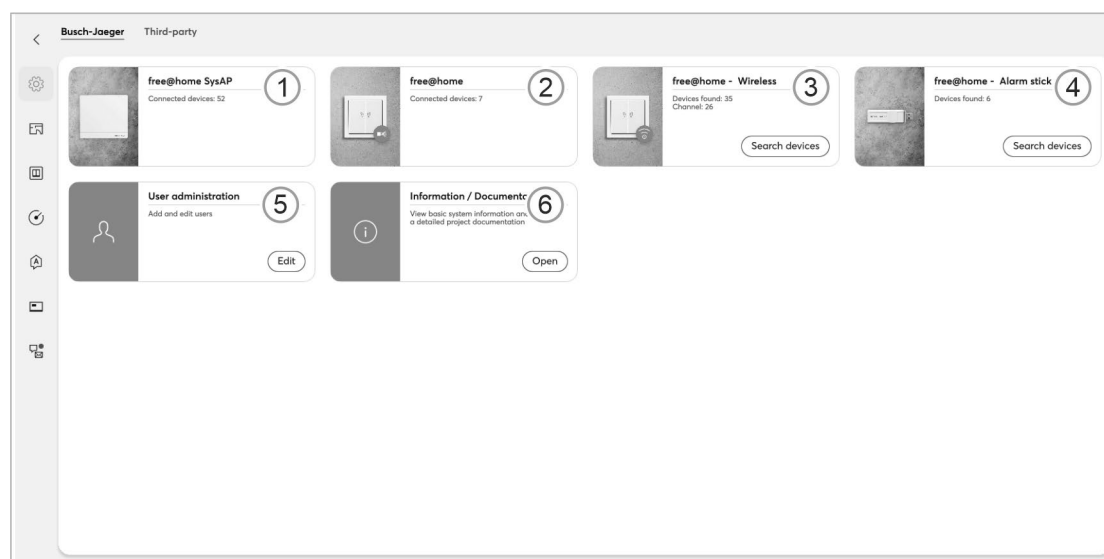
The states of the participants in a scene can be defined when the scene is created.

To switch a local scene, it can be linked with a sensor.

7.13 free@home configuration

There are a number of additional settings that you can make in the system configuration. These settings are reached as follows:

1. Change to the main menu.
2. Tap on the menu with the toothed-wheel icon in the user interface of the System Access Point.
 - The submenu "free@home configuration" opens.



Fug. 41: free@home configuration

The submenu is divided into several frames via which the different parts of the system can be configured. Via the tabs at the upper edge of the screen you can also switch between free@home functions and functions of third-party suppliers.

Pos.	Description
[1]	free@home SysAP In this menu you can make general settings to your free@home system (see chapter 7.13.1 "free@home SysAP" on page 56).
[2]	free@home Bus Via this menu you can call up a list of all bus devices available in the system. Via the search function you can also filter for bus devices and adjust the information displayed via the "Configure columns" function.
[3]	free@home wireless Via this function you can search for free@home wireless devices available in the system (see chapter 7.9 "Coupling of wireless devices with the System Access Point" on page 39).
[4]	free@home - Alarm stick Via this function you can search for free@home alarm sticks available in the system.
[5]	User administration In this menu you can create, edit user accounts and manage API access (see chapter 7.13.2 "User management" on page 58).
[6]	Information / Documentation In this menu you can call up the information about your software and create a document for it (see chapter 7.13.3 "Information / Documentation" on page 58).

7.13.1 free@home Sys AP

The installation settings are subdivided into the areas "System", "Connections" and "Integrations". A detailed description of the installation settings is available in the system manual. The available configuration options are described in the following:

Area		Description
System	Localisation	Setting of system name, units of measurement, date and time, as well as location.
	Backups	The data backup stores all the settings made. The backup is first carried out on the internal memory of the System Access Point. But it can also be exported. A data backup is created automatically at regular intervals. But it can also be created manually. Data backups that have been created by user type "Fitter", can be restored by other users. But they cannot be deleted by them.
	Geofencing locations	Via these options Geofencing locations can be edited and new ones added. Geofencing locations can be used, for example, when automated actions are to be carried out when exiting the house. Via these options Geofencing locations can be edited and new ones added. Geofencing locations can be used, for example, when automated actions are to be carried out when exiting the house.
	Migration assistant	The migration assistant can be used to transfer data from other system configurations into your system.
	Scripts	Here you can load scripts into your system.
	Service	<p>Firmware</p> <p>In the "Firmware" area you can load the current Firmware to your free@home devices. This process is only necessary when the update of the devices was rejected during the update dialogue (see chapter 8 "Update" on page 59).</p>
		<p>Remote maintenance</p> <p>You can activate the remote maintenance in the "Remote maintenance" area. This makes it possible for the installer to log himself into the system via his own terminal device.</p>
		<p>Additional settings</p> <p>When the check box is activated it defines additional settings such as the activation of the SSH access, renewal of certificates, etc.</p>
		<p>Factory status</p> <p>Resets the System Access Point completely or partly to the factory settings. The selection of the parameters to be reset is made in the pop-up window. All free@home devices connected to the bus are also reset.</p>
		<p>Restart</p> <p>Restarts the System Access Point.</p>
	Ignored devices	This list contains an overview of ignored devices.
Connections	MyBuildings	Here you can activate the remote access.
	Network	Here the network settings of the System Access Point can be programmed. Possible settings are different

		<p>colours.</p> <ul style="list-style-type: none"> LAN client: Used when the System Access Point is connected to the Internet router via network cable. <ul style="list-style-type: none"> This mode is activated automatically when the access point mode is deactivated. WLAN client: Used when the System Access Point is connected to the Internet router via WLAN.
	free@ home wireless	Here you can integrate wireless devices into your system.
Integration	Via area "Integration" you can integrate third-party software into your system (e.g. Hue or Sonos). You can also integrate hyperlinks.	

7.13.2 User management

User management is subdivided into sections "User" and API access". In the user management, additional users can be created or users deleted. Also access rights can be changed. The system differentiates between the following types of users:

User type	Description
Installer	Has all access rights (Master reset, creation of data protection).
Configuration user	Cannot make changes critical to the system (changing settings related to the bundling of channel settings for dimmers, re-configuration of binary inputs).
Resident	Cannot make changes to the system, but only operate the devices.
Operator	Cannot make changes to the system, but only operate the devices.
Only read-users	Cannot make changes to the system and cannot operate devices.

In the API access area you can define the actions that can be carried out via the respective API access (e.g. configure devices, manage actions, etc.).

7.13.3 Information / Documentation

In submenu "Information/documentation" you can view information about backend, system and other details. You can also export these data by tapping on the "Create documentation" button.

7.13.4 Third-party suppliers

Via the free@home configuration you can also integrate devices of third-party suppliers into your system. For the integration proceed as follows:

1. Change to the main menu.
2. Tap on the menu with the toothed-wheel icon in the user interface of the System Access Point.
 - The submenu "free@home configuration" opens.
3. In the free@home configuration, change to the "Others" tab.
 - The menu for integrating devices of third-party suppliers opens.
4. Select a third-party supplier in the list whose device you want to integrate.



Note

Detailed information about the integration of devices of third-party suppliers is available in the system manual (<https://abb.com/freeathome>).

8 Update

A firmware update is carried out via the Web-based user interface of the System Access Point (www.abb.com/freeathome).

Firmware update of the System Access Point and the free@home devices.



Note

The current Firmware versions of the free@home devices are displayed for the respective device via the device configuration on the maintenance side.

The update file contains both the updates of the System Access Point as well as the updates for all system devices.

The update consists of four steps:

1. Upload the firmware to the System Access Point.
 - Takes place automatically after selection of the update file.
2. Processing the Firmware.
 - Takes place automatically after the successful update. The process can take a few minutes.
3. Installation of the Firmware.
 - Takes place after confirming the update dialogue. The update takes a few minutes.
 - After the update has been carried out successfully, the System Access Point restarts. The device is rebooting, this may take up to several minutes. During this time access to the System Access Point via web interface or app is not possible.
4. Firmware update of all free@home devices connected to the bus.
 - Device updates can be supplied with a System Access Point update. These updates are offered in the web interface/app after the successful update of the System Access Point. A device update is displayed in the message center, but the sensor LEDs of the device also flash. The system can be operated as usual during the device update. The update may take several minutes.

9 Operation

9.1 Control elements

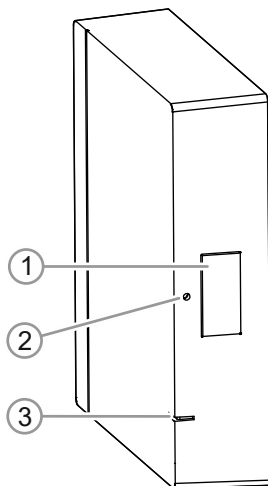


Fig. 42: Control and display elements

- [1] Access Point button
- [2] Reset button
- [3] LED Light

Element	Description	
Access point button	Button operation activates / deactivates the Access Point mode	
Reset button	By using a pin, press down and hold for 40 seconds or longer	
LED Light	LED green (brief)	voltage supplied
	LED orange (flashing)	Device is booting
	LED white	Device is ready for operation
	LED blue	Access Point mode (WLAN)
	LED red (flashing 2x)	Failed to join the network
	LED red / white (flashing)	No connection to MyBuildings
	LED off	No power

9.2 RESET (Resetting the device)



Note

During a master reset, without access to the web interface of the System Access Point, all user data, floor plans and time programs are permanently deleted.

To perform a master reset:

1. Press the reset button by using a pin and hold the button for at least 40 seconds.
 - The System Access Point starts the boot process and is back in its default state.

10 Maintenance

The device is maintenance-free. In case of damage, e.g. during transport or storage), do not perform repairs. Once the device is opened, the warranty is void.

Access to the device must be guaranteed for operation, testing, inspection, maintenance and repairs (according to DIN VDE 0100-520).

10.1 Cleaning



Caution! - Risk of damaging the device!

- When spraying on cleaning agents, these can enter the device through crevices.
 - Do not spray cleaning agents directly onto the device.
- Aggressive cleaning agents can damage the surface of the device.
 - Never use caustic agents, abrasive agents or solvents.

Clean dirty devices with a soft dry cloth.

- If this is insufficient, the cloth can be moistened slightly with a soap solution.

11 Notes

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Busch-Jaeger Elektro GmbH
A member of the ABB Group

Freisenbergstraße 2
58513 Lüdenscheid

www.BUSCH-JAEGER.com
info.bje@de.abb.com

Central sales service:
Tel.: +49 2351 956-1600
Fax: +49 2351 956-1700