

Product manual | 18.02.2020

ABB-free@home®

Split Unit Gateway

SUG-F-1.1



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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.

The following safety symbols are used in the operating manual:



This symbol alerts to electric voltage.

2.2 Intended use

The device must only be operated within the specified technical data.

The Split Unit Gateway is suitable for installing in a surface-mounted or flush-mounted box.

The Split Unit Gateway serves for activating air-conditioning devices, so-called split units, via an infrared interface.

The integrated bus coupler makes possible the connection to the ABB-free@home® bus.

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
- inserting of objects through device openings
- Use of available connection options contrary to technical data.

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.

2.4.1 Operation

No special qualifications are needed to operate the device.

2.4.2 Installation, commissioning and maintenance

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 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 / disassembly.
- 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.
- Keep the device away from water and wet surroundings.



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.

2.6 Liability and warranty

Improper use, non-observance of this manual, the use of inadequately qualified personnel, as well as unauthorized modification excludes the liability of the manufacturer for the damages caused. It voids the warranty of the manufacturer.

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

4.1 Introduction

The Split Unit Gateway forms the interface between the ABB-free@home® system and air-conditioning devices, so-called split units, from a wide range of manufacturers. The device converts the ABB-free@home® telegrams into infrared commands and transmits them to the Split Unit.

The Split Unit Gateway is installed in close proximity (maximum distance of 2 metres) to the Split Unit. The transmission unit of the enclosed cable is glued directly on the receiving unit of the Split Unit. The air-conditioning device then no longer receives commands from a remote control, but can be operated via any ABB-free@home® sensors or via the visualization.

The following functions are provided:

- Switch-on / switch-off
- Specifying the set-point temperature including parameterizable set-point temperature limit
- Setting the operating Mode (Automatic, Heating, Cooling, Ventilation, Drying)
- Control of fan speed level
- Slat adjustment horizontal and vertical
- Activation of silent mode



Notice

- Not all Split Units support all functions. Only functions that the respective Split Unit supports are enabled in the user interface.
Example: Some Split Units do not support all operating modes.
- The Split Unit Gateway supports 3 fan speed levels and automatic. To the extent a Split Unit supports fan speed levels, they are mapped accordingly.
Example: A Split Unit has 5 fan speed levels. Then levels 1/3/5 are mapped to 1/2/3 and levels 2+4 cannot be activated.
- The communication to the Split Unit is unidirectional. This means that while the Split Unit Gateway sends commands to the Split Unit, it does not receive a status message from it. Therefore, if a Split Unit is operated in parallel with a remote control, the status of the gateway can deviate from the actual status of the Split Unit. The same applies when a Split Unit is not ready to receive. Then, if necessary, a command may have to be sent via ABB-free@home® so that the status values are again being synchronized.

Basic information about system integration is contained in the system manual. It is available for downloading at <https://abb.com/freeathome>.

4.2 Device overview

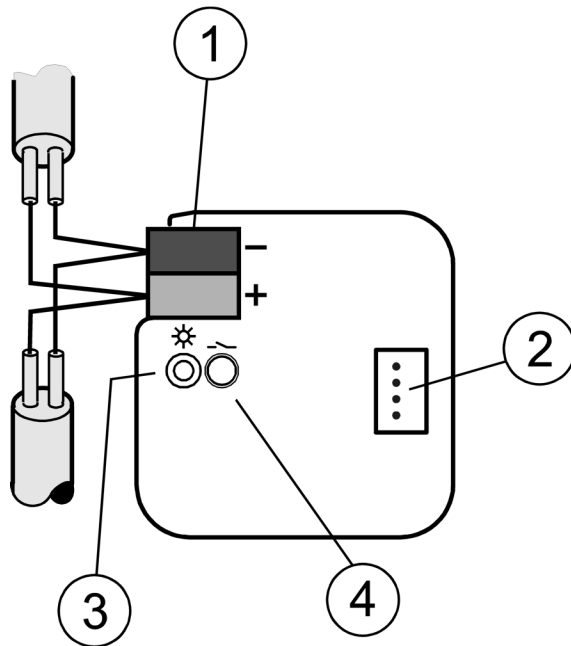


Fig. 1: Overview of devices

- [1] Bus connection terminal
- [2] Junction box IR cable
- [3] Identification LED
- [4] Identification button
(Device identification during commissioning)

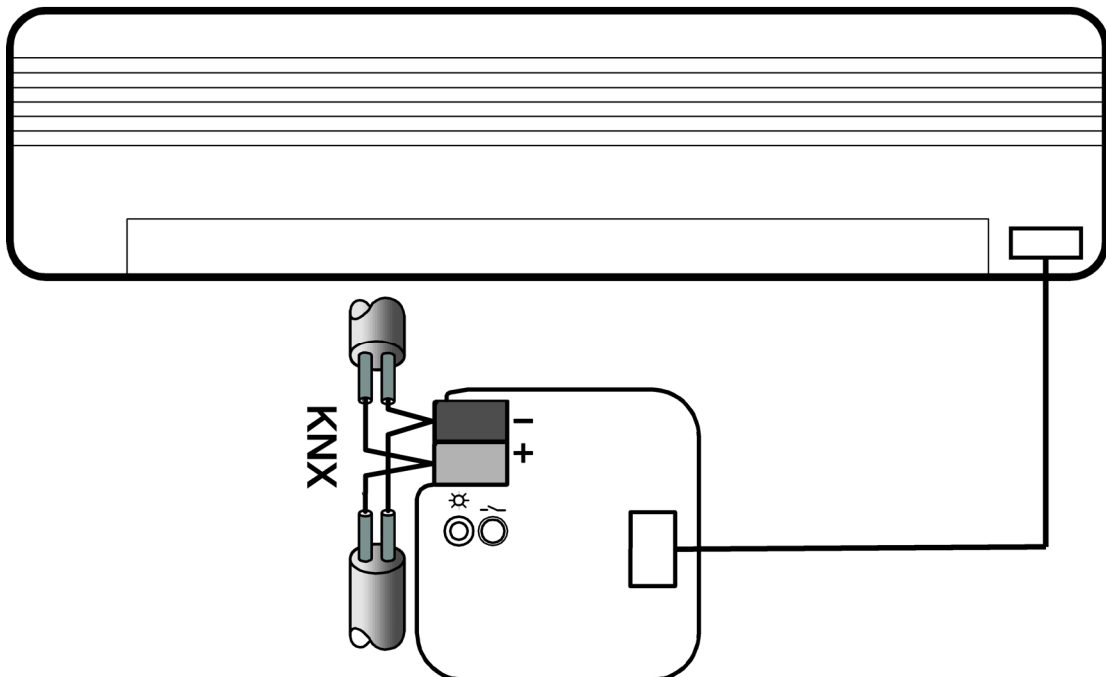


Fig. 2: Overview of devices with air-conditioning unit

4.3 Overview of types


Type	Product name	Actuator channels	Device
SUG-F-1.1	Split Unit Gateway	1	

Table 1: Overview of types

4.4 Overview of functions

The following table provides an overview of the possible functions and applications of the device:


Icon in the user interface	Information
	<p>Name: Split Unit Gateway</p> <p>Function: Activation of a Split Unit Gateway ("air-conditioning system") via infrared</p>

Table 2: Overview of functions

4.5 Functions

Split Units are devices from the heating, air-conditioning and ventilation sector that are generally operated with an infrared remote control.

The Split Unit Gateway is installed in close proximity (maximum distance of 2 metres) of the Split Unit and the transmission unit of the enclosed cable is glued directly on the receiving unit of the Split Unit.

This allows the Split Unit to be activated. The Split Unit Gateway makes it possible for the user to integrate the Split Unit into an existing free@home system and to control the system comfortably and energy-efficiently.

Available functions

Switching on/off

- Switches the Split Unit on or off.

Specifying the set-point temperature including parameterizable set-point temperature limit

- The setpoint is sent to the Split Unit.
- The control is then carried out by the Split Unit.

Setting the operating mode (Automatic, Heating, Cooling, Ventilation, Drying)

- These are the standard operating modes of most Split Units.

Control of fan speed level

- The fan speed level can be controlled.
- There are 3 fan speed levels (1, 2, 3) and the fan speed level can also be controlled automatically.
- The Split Unit then adjusts the fan speed level itself.

Slat adjustment horizontal and vertical

- The movement of the slats can be activated/deactivated for many Split Units.
- The slats adjust the direction of flow.

Activation of silent mode

- Many of the latest Split Units support this function.
- If this function is activated, the outdoor unit of the Split Unit runs with reduced power, which reduces the creation of noise, e.g. at night.



Notice

The communication to the Split Unit is unidirectional. This means that while the Split Unit Gateway sends commands to the Split Unit, it does not receive a status message back from it.

If a Split Unit is operated in parallel with a remote control, the status of the gateway can deviate from the actual status of the Split Unit.

The same applies when a Split Unit is not ready to receive. Then, if necessary, a command may have to be sent via ABB-free@home® so that the status values are again being synchronized.

4.6 Scope of supply

The scope of delivery contains the device including bus terminal for coupling to the ABB-free@home[®] bus, as well as an IR cable.

5 Technical data

5.1 Technical data

Designation		
Power supply	Supply voltage	Via ABB-free@home® bus (21 - 31 V DC)
	Power loss P	0.4 W max.
	Power consumption	Max. 12 mA
Connections	ABB-free@home®	Bus connecting terminal, screwless.
	Junction box IR cable	Plug-in terminal
	IR cable	Length: 2 m
Control and display elements	Identification LED	Device identification during commissioning
	Identification button	
Protection rating	IP 20 (in an installed state)	In accordance with EN 60 529
Protection class	III	According to DIN EN 61 140
Insulation category	Overvoltage category	III according to DIN EN 60 664-1
	Pollution degree	2 according to DIN EN 60 664-1
ABB-free@home® Safety extra-low voltage		SELV 30 V DC
Temperature range	Operation	-5 °C - +45 °C
	Storage	-25 °C - +55 °C
	Transport	-25 °C - +70 °C
Ambient conditions	Maximum humidity	95%, no dew permissible
	Air pressure	Atmosphere up to 2,000 m
Skin	Dimensions	39 x 40 x 12 mm (H x W x D)
Mounting	In flush-mounted or surface-mounted installation box	
Built-in position	Any	
Weight	0.02 kg	
Housing, colour	Plastic, halogen free, grey	
CE marking	According to EMC and low-voltage guideline	

Table 3: Technical data

5.2 Dimensional drawings

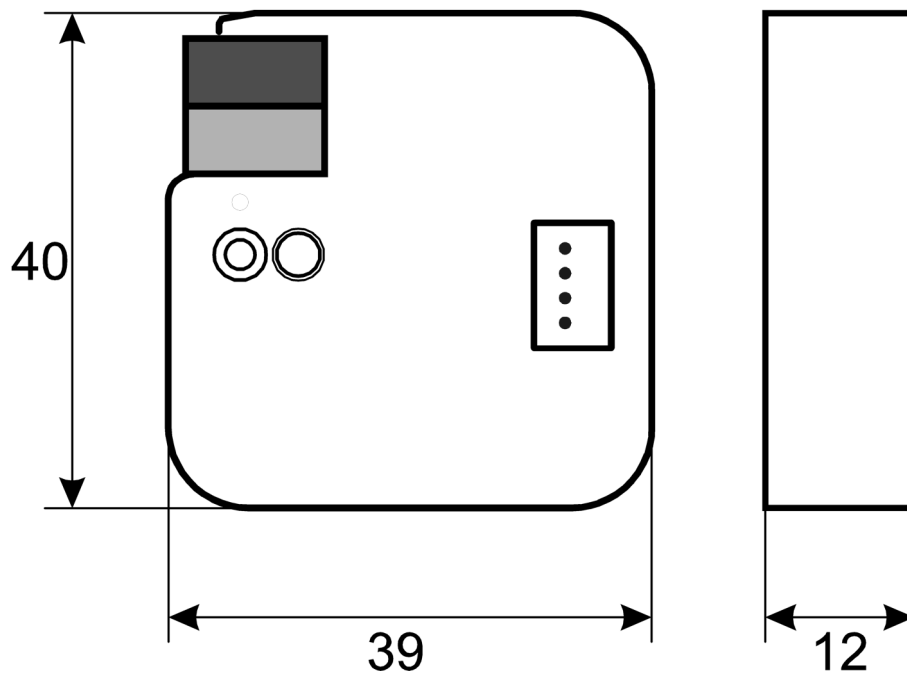


Fig. 3: Dimensions of Split Unit Gateway (specifications in mm)

6 Connection, installation / mounting

6.1 Requirements for the electrician



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 user of the electrical system.
- Incorrect installation can cause serious damage to property, e.g. due to fire.

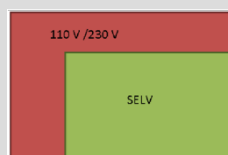
The minimum necessary expert knowledge and requirements for the installation are as follows:

- 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.).



Danger - Short-circuit in the low-voltage line

- Risk of death due to short-circuit
- Risk of death due to electrical voltage of 230 V during short-circuit in the low-voltage line.
 - During mounting observe the spatial division (> 10 mm) of SELV electric circuits to other electric circuits.



- If the minimum distance is insufficient, use electronic boxes or insulating tubes.
- Observe the correct polarity.

6.2 Mounting / dismantling

6.2.1 Mounting

- The device is suitable for installation in flush-mounted or surface-mounted boxes.
 - The device can be mounted in any position.
 - Maintain a maximum distance of 2 m to the Split Unit.
1. Pull off the adhesive label and glue it into the list (see system manual System Access Point).
 2. The bus connection is established by means of the enclosed bus connection terminal.
 3. The connection to the Split Unit is established with the enclosed IR cable. Plug the IR cable into the socket of the gateway and glue the transmission unit to the reception part of the Split Unit with the aid of the double-sided adhesive tape.



Notice

- The surfaces must be clean, free of grease and have a temperature of at least 10 °C.
- The description of the terminals is located on the housing.
- Ensure the cables have strain relief.

The device is ready for operation after the bus voltage and, if required, an auxiliary voltage has been applied.



Notice

- Access to the device must be guaranteed for operation, testing, inspection, for maintenance and repairs according to DIN VDE 0100-520.
- Instructions for mounting the supplied infrared cable are located in the associated mounting and operating manual.

6.2.2 Dismantling

Dismantling is carried out in the reverse order to mounting.

6.3 Electrical connection

- The connection to the bus line is made via the enclosed bus connection terminal (red/black).
- The device is ready for operation after the bus voltage has been applied.

Mounting and commissioning must only be carried out by qualified electrical installers. When planning and setting up electrical systems and security-related systems for the detection of intrusion and of fires, the relevant standards, guidelines, rules and regulations of the respective country are to be observed.

- Protect the device against humidity, dirt and damage during transport, storage and operation!
- Operate the device only within the specified technical data!
- Operate the device only in a closed housing (distributor)!
- Prior to performing installation work the device is to be deactivated.



Danger - Contact currents due to feedback

Danger to life

- To prevent dangerous contact currents due to feedback from different external conductors, an all-pole deactivation is to be carried out when extending or changing the electric connection.

7 Commissioning

7.1 Requirements for commissioning

A System Access Point is required to make the device operational. The device is ready when the bus voltage is applied.

7.2 Initial commissioning

Commissioning is always carried out via the Web-based surface of the System Access Point.

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

Devices which are physically connected to the ABB-free@home® bus, log themselves automatically into the System Access Point. They transmit information about their type and supported functions (see table "Overview of functions" on page 12).

During initial commissioning all devices are given a generic name (e.g. Split Unit Gateway, etc.). The user can change this name to a name practical for the system (Example: "Split Unit living room").

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

Commissioning of the Split Unit Gateway is described in the following chapters. Here it is assumed that the basic commissioning steps of the overall system have already been carried out. General knowledge about the Web-based commissioning software of the System Access Point is assumed.



Notice

General information about commissioning and parameterization is available in the system manual and in the technical reference manual of the "System Access Point" at www.abb.com/freeathome.

7.3 Allocation of devices and definition of channels

The devices connected to the system must be identified, i.e. they are allocated to a room according to their function and are given a practical name.



The allocation is made via the "Devices" allocation function of the Web-based user interface of the System Access Point.

7.3.1 Add device

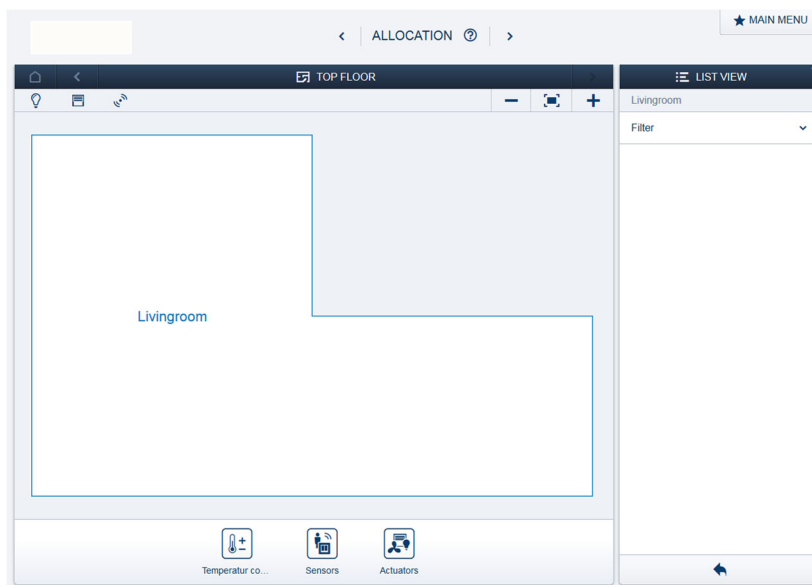


Fig. 4: Selecting the device group

1. Select the correct device group in the "Add device" bar.



Notice

Ensure that the correct filter is set, so that the correct device group is displayed.

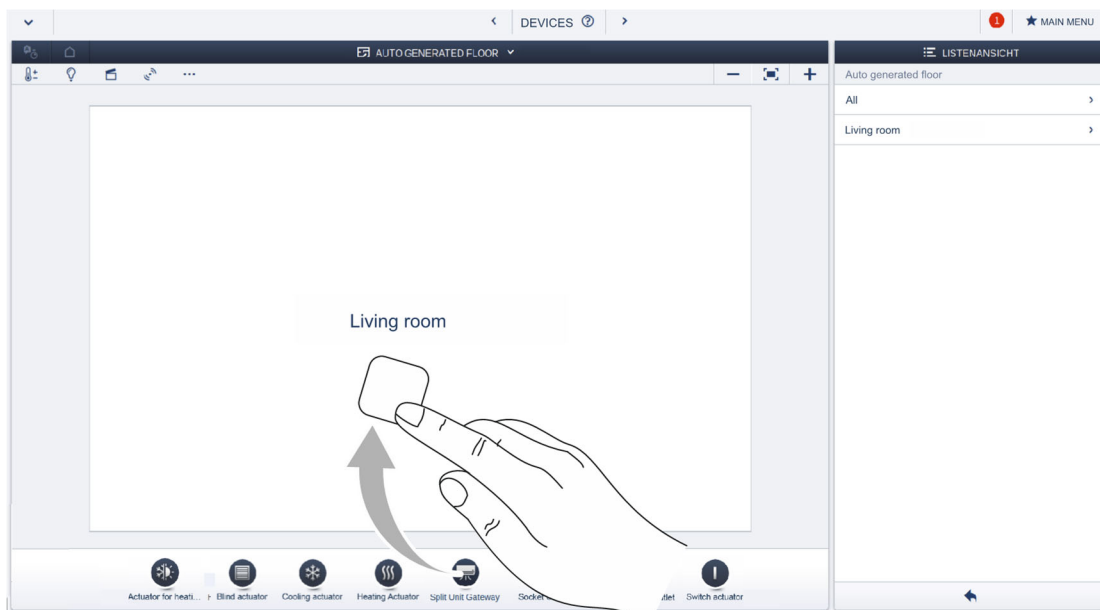


Fig. 5: Add device

2. In the "Add device" bar select the desired application and pull the icon via drag-and-drop onto the floor plan in the working area.

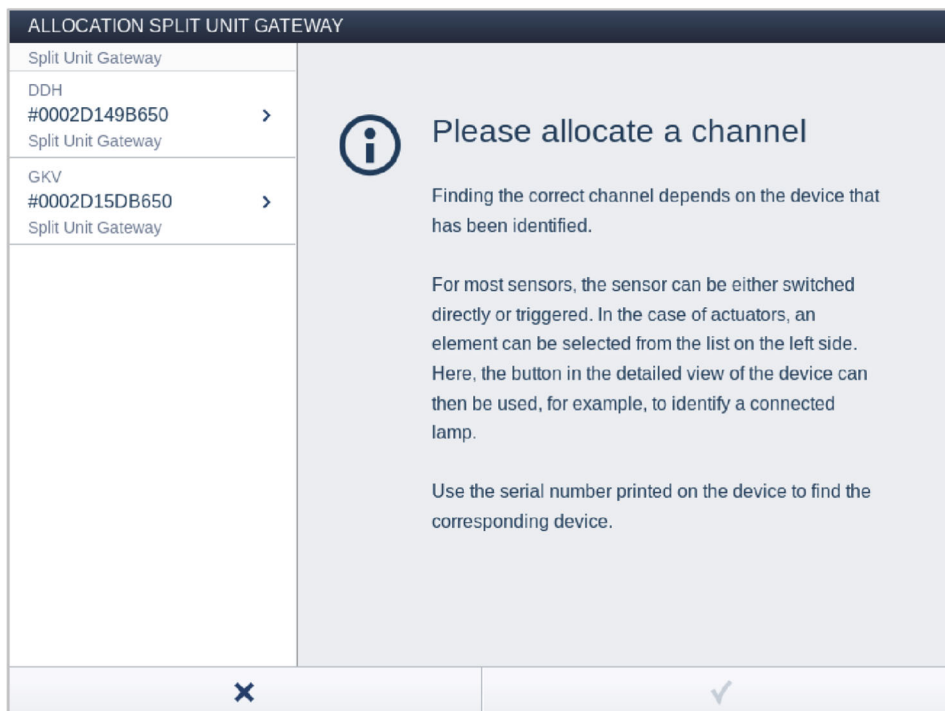


Fig. 6: Allocation of devices

- If several devices suitable for the selected application are integrated, a dialogue field with the listed devices is displayed.
- The desired channel can now be identified in two ways.

Identification via serial number

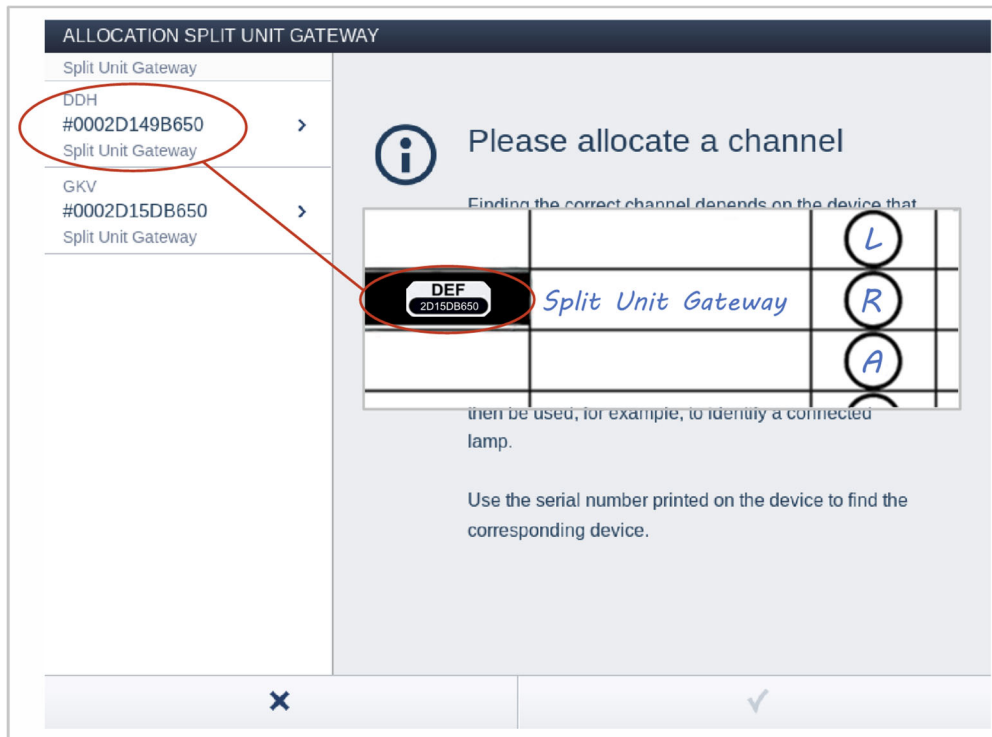


Fig. 7: Identification via serial number

- Compare the serial number and the short ID of the identification label printed on the device with the numbers and IDs in the list. This is how the searched for device and possibly the searched for channel are identified.
The specifications of the identification label should also be transmitted to the device plan.

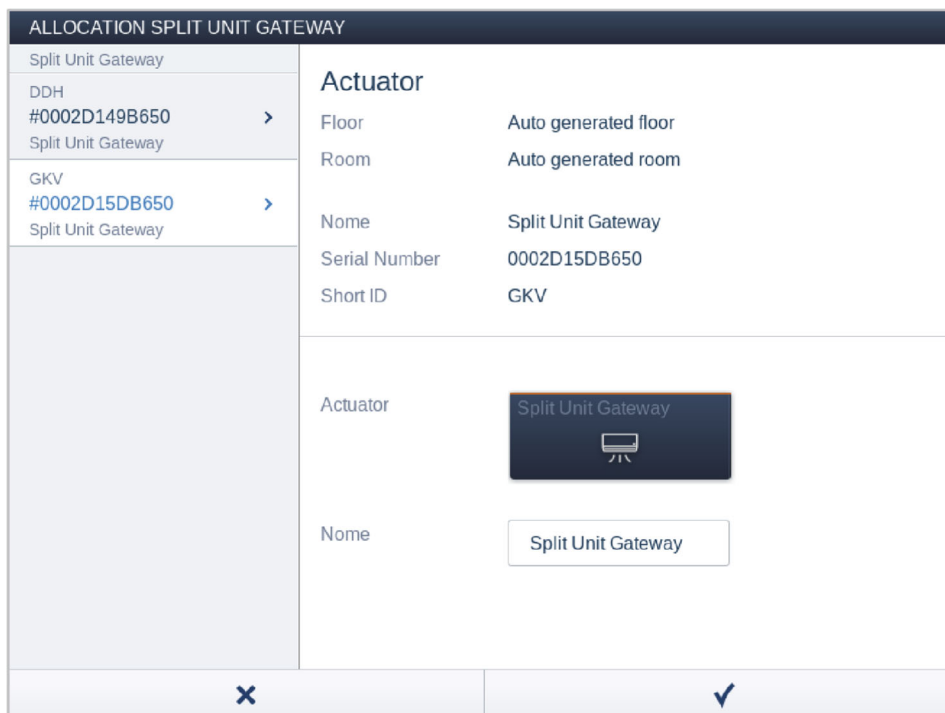
Identification via switching

Fig. 8: Identification via switching

1. Select a device and a channel from the list.
2. Press the button in the detailed view of the device.

3. The control element of the Split Unit Gateway opens.

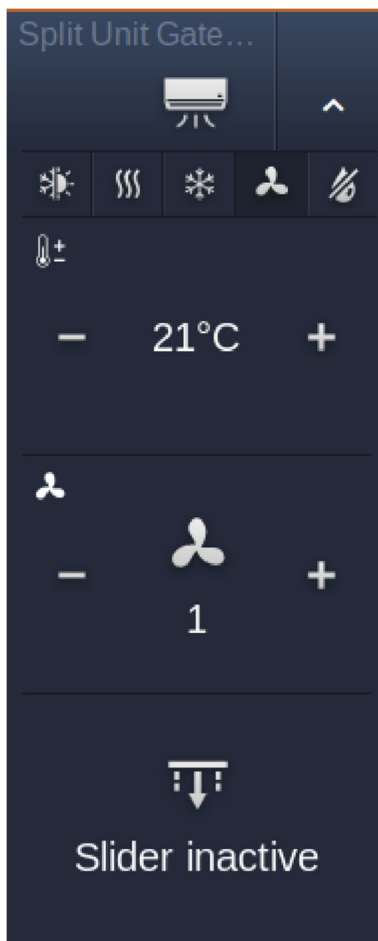


Fig. 9: Control element Split Unit Gateway

4. Perform a function.
The connected load is switched correspondingly via the control element. Continue until you have found the device you are looking for.

Identification via the identification button



Notice

You can carry out the identification via the identification button only if you have authorization for direct access to the Split Unit Gateway.

1. Press the identification button on the Split Unit Gateway.
 - The identification LED lights up.
 - The software indicates the device that is being switched.

Assigning a name


ALLOCATION SPLIT UNIT GATEWAY	
Split Unit Gateway	
DDH #0002D149B650	>
Split Unit Gateway	
GKV #0002D15DB650	>
Split Unit Gateway	
Actuator	
Floor	Auto generated floor
Room	Auto generated room
Nome	Split Unit Gateway
Serial Number	0002D15DB650
Short ID	GKV
Actuator	
Nome	<input type="text" value="Split Unit Gateway"/>
✘ ✓	

Fig. 10: Assigning a name

2. Enter a name that is easy to understand and under which the application is to be displayed later, e.g. "Gateway living room".
 - The name can be changed in the list view of the device later at any time.
3. Press the tick at the bottom right.
This takes over the entry.

7.4 Setting options per channel

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



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

Select device

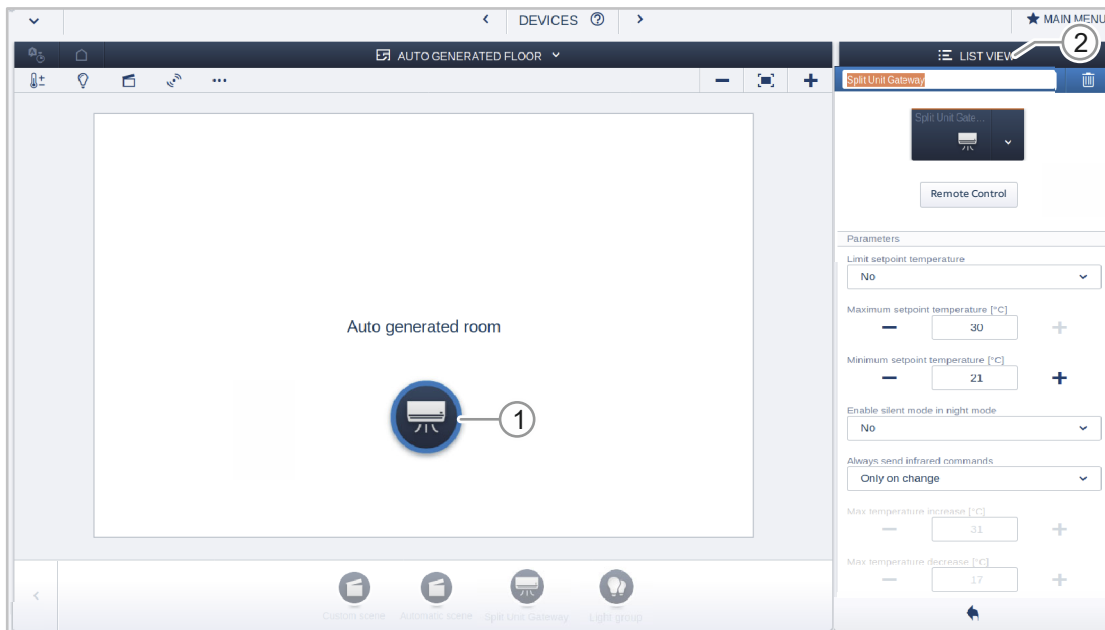


Fig. 11: Select device

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].
The settings in the following section are available.

7.4.1 Settings of the Split Unit Gateway

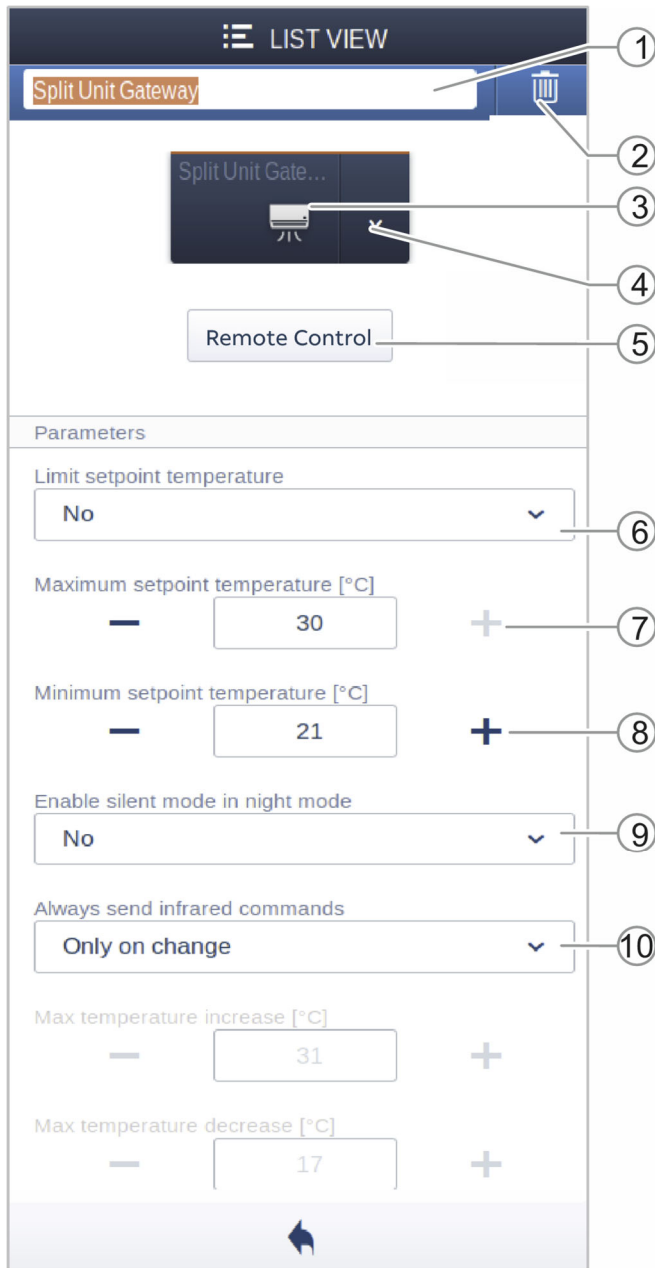


Fig. 12: Parameter settings

- [1] Changing the name
- [2] Deleting the channel
- [3] Switching the actuator on/off via the button
- [4] Call-up or closing the control element of the actuator via the arrow button (For description, see Chapter 9 "Operation")
- [5] Call-up of the selection for allocating the corresponding remote control via button (Description See "Selecting remote control" on page 29.)
- [6] Specification for limiting the setpoint temperature range. If the setpoint temperature limit is activated while the current setpoint temperature is outside setpoint temperature range, the setpoint temperature is shifted to the top or bottom limit of the range.
- [7] Setting the maximum setpoint temperature via the +/- buttons. This parameter fixes the limits for the setpoint temperature. If a temperature value above the maximum setpoint temperature is sent to the Split

Unit Gateway, the highest permitted value is sent to the Split Unit. The status value is adjusted accordingly.

- [8] Setting the minimum setpoint temperature via the +/- buttons. This parameter fixes the limits for the setpoint temperature. If a temperature value below the minimum setpoint temperature is sent to the Split Unit Gateway, the lowest permitted value is sent to the Split Unit. The status value is adjusted accordingly.



Notice

It must be checked whether the Split Unit supports the desired temperature range. This is available in the documentation of the Split Unit manufacturer.

- [9] Specification whether the outdoor unit of the Split Unit is to be set into a low-noise operating mode. The precise behaviour of the Split Unit in this mode is available in the Split Unit product manual.



Notice

It must be checked whether the silent mode is supported by the Split Unit.

- [10] Specification whether the infrared commands are always to be sent. If the Split Unit is operated in parallel with a remote control, the status of the Split Unit can deviate from the status of the gateway. To ensure that the Split Unit always takes on the correct status, this parameter must be activated. It can, however, lead to an increase in acknowledgment tones of the Split Unit Gateway.

Selecting remote control

The model of the remote control can be selected and allocated in the list view of the device via the "Remote control" button. This selection window displays the manufacturer of the Split Unit and the model of the remote control. Select the appropriate specifications and confirm them with a tick.

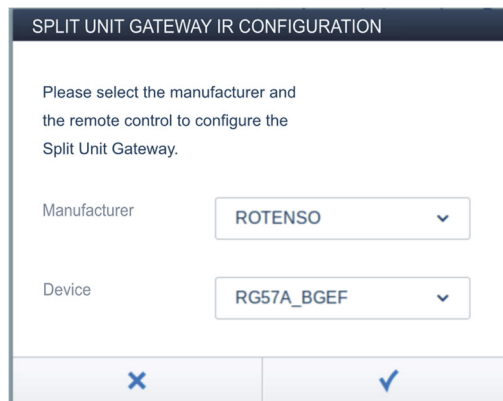
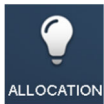


Fig. 13: Select the remote control

7.5 Links

7.5.1 Split Unit Gateway Linking with scene

A Split Unit Gateway created via the allocation function (actuator) can be linked with a scene.



The link is made via the "Devices" allocation function of the Web-based user interface of the System Access Point.

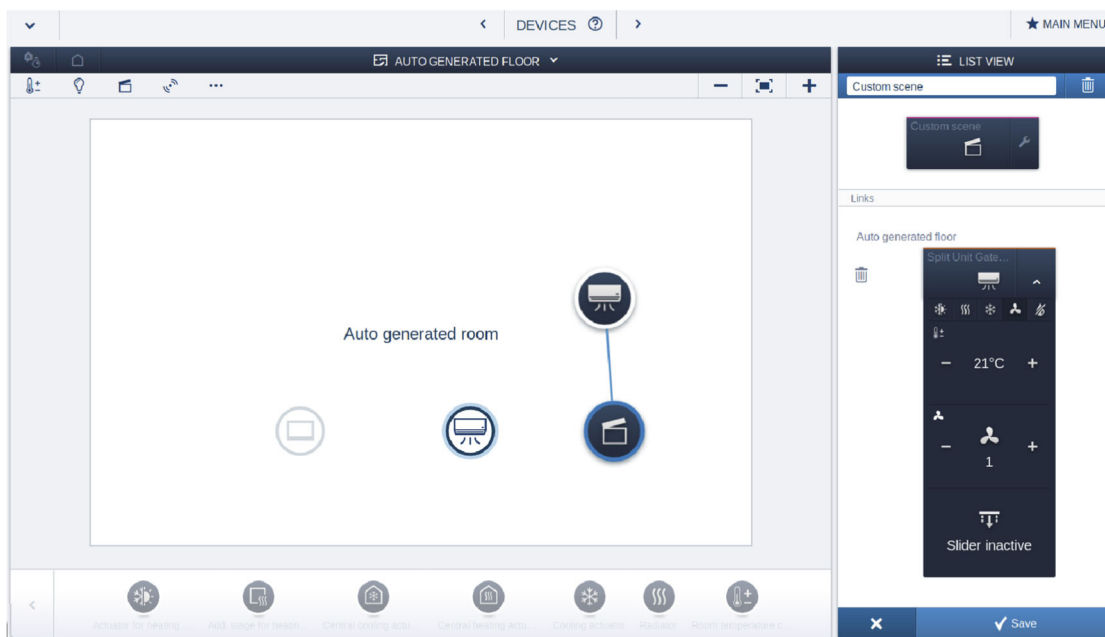


Fig. 14: Link with scene

1. First click/tap on the created scene [2] (information for creating scenes is available in the free@home system manual) and then on the desired Split Unit Gateway [1].
2. Press the tick at the bottom right to take over the entries.
 - A blue connecting line indicates the link between the Split Unit Gateway and the scene.

7.6 Creating a function on a ABB-free@homeTouch 4.3"



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

In the panel configuration the buttons of the device can be freely equipped.

The function of the Split Unit Gateway can be positioned in the panel view the same as other functions. The general process is described in the product manual of the ABB-free@homeTouch 4.3".

7.7 Failure and recovery of bus voltage

At a bus voltage failure you receive an error message. The status of the device (and the Split Unit) remains unchanged.

The Split Unit Gateway does not respond during a bus voltage failure. After the recovery of the bus voltage the status of the Split Unit normally remains unchanged. In exceptional cases it can happen that the Split Unit is switched off at the recovery of the bus voltage.

8 Updating options

The firmware update is carried out via the Web-based user interface of the System Access Point, see www.abb.com/freathome.

9 Operation

Operation is carried out via the control element of the Split Unit Gateway in the Web-based user interface of the System Access Point or in the free@home app.

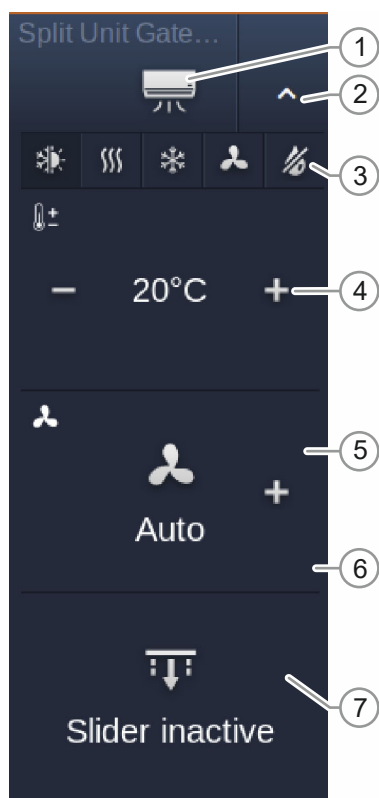


Fig. 15: Control element in the Web-based user interface of the System Access Point

- [1] Switching the actuator on/off via the button
- [2] Call-up or closing the control element of the actuator via the arrow button (only visible in the panel configuration)
- [3] Selection of the Split Unit operating mode:
 - Automatic
 - Heating
 - Cooling
 - Ventilation
 - Drying
- [4] Setting the setpoint temperature via the -/+ buttons. When the limit value of the specified maximum/minimum setpoint temperature is reached, the -/+ characters are faded in or out.
- [5] Setting the fan speed level via the -/+ buttons. Three fan speed levels are supported.
- [6] Enable or disable Silent Mode (not visible in the Figure)
- [7] Enable or disable the slat adjustment horizontal and vertical

Operation can also be carried out via a ABB-free@homeTouch 4.3". Here the control element has the following appearance. The functions are as described above.

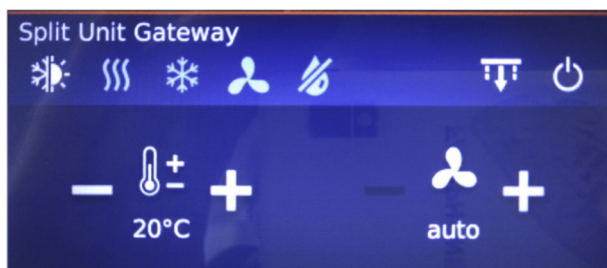
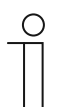


Fig. 16: Control element on a ABB-free@homeTouch 4.3"



Notice

The actuator is switched on/off via the on/off characters.

10 Maintenance

10.1 Maintenance-free device

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).

10.2 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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