Product manual | 27.01.2022

ABB-free@home® flex

Control element flex, 1-gang, wireless 62711-WL-500

Control element flex, 2-gang, wireless 62721-WL-500

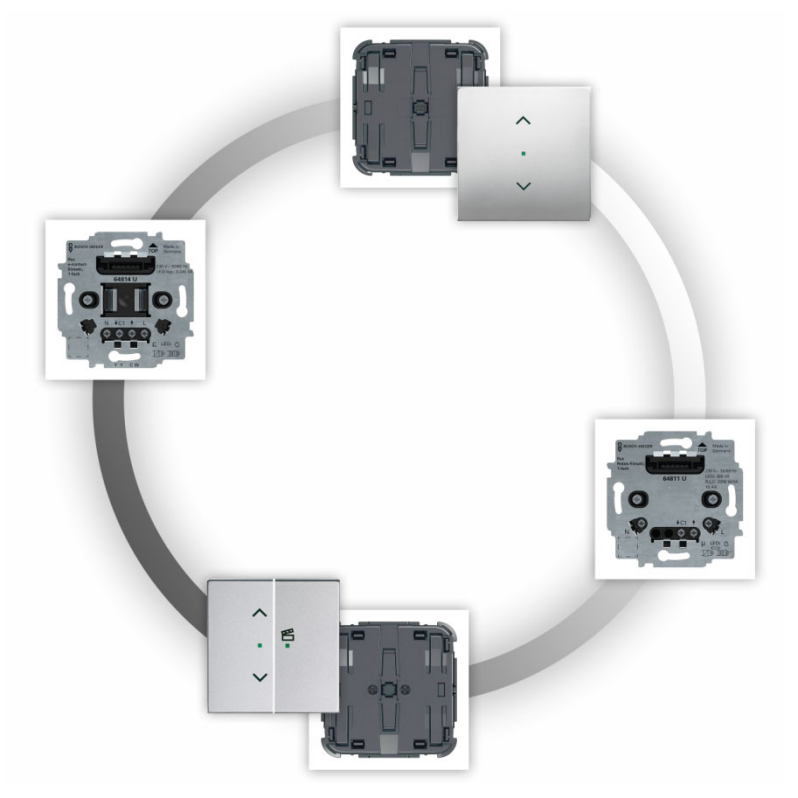


Table of contents

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

1.1 Design lines

This product manual serves, among others, for the technical planning of the simple to complex installations of flex touch control elements.

The different design lines of the device groups and devices are not listed in this system product manual. The sections for the design line are marked with a "xxx" at the article numbers of the respective devices.

Please obtain the desired current design versions and the corresponding complete article numbers as well as the order numbers from the respective product catalogues or the online catalogue at https://busch-jaeger-catalogue.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 ABB-free@home® flex touch control device is a combination of flex flush-mounted insert (actuator) and flex control element. The device elements must only be combined with each other within the product group of ABB-free@home® flex. A combination with switch inserts or control elements of other manufacturers is not possible.

The following actuators or inserts can be combined with control elements 64711-WL and 64721-WL:

- The switch actuators 64811 U-500 and 64821 U-500 serve for switching lighting systems.
- Switch actuator 64814 U-500 is planned for installation in systems without neutral conductors and serves for switching lighting systems.
- Sub-insert 64891 U-500 can be physically combined with the different flexTronic inserts, e.g. on a Relay insert flex, 1 gang. Up to nine subs can be combined with a main. The maximum total cable length amounts to 100 meters.
- Dimming actuator 64851 U-500 serves for dimming and switching of lighting.
- Blind actuator 64831 U-500 serves for the control of roller blinds, blinds or awnings.

The ABB-free@home® flex control devices are designed for dry interior areas. Mounting is permitted only in commercially available device boxes according to DIN 49073 (e.g. ABB FM box brickwork (article no. 3040), FM box hollow wall (article no. 3050) or FM box concrete (article no. 3060)).

2.3 Improper use

Each use not listed in Chapter 2.2 “Intended use“ on page 5 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

2.4 Target group / Qualifications of personnel

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.

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

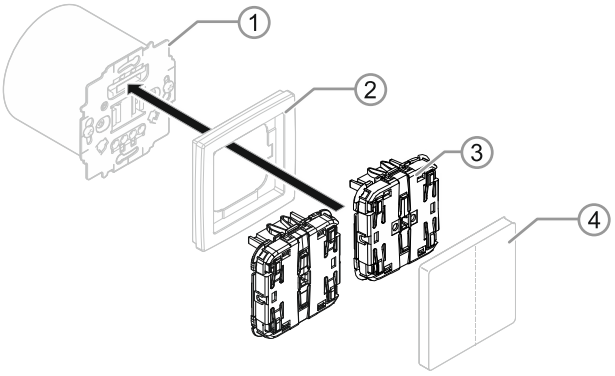


Fig. 1: Setup of ABB-free@home® flex touch control device

[1] flexTronics FM insert

[2] Cover frame

[3] ABB-free@home® flex Touch control element (1gang or 2gang)

[4] Rocker (1gang or 2gang, with or without icons)

ABB-free@home® flex touch control devices are of modular design. The ABB-free@home® flex control element is attached to the flex insert (actuator).

The functions of the mounted device are determined by the combination of the touch control element and the actuator. The selection of the correct device combination is determined by the desired use.

Areas of application:

- Dimming
- Roller blind/blind control
- Switching
- Switching (e-contact)
- Operation via the sub

4.1 Possible combinations

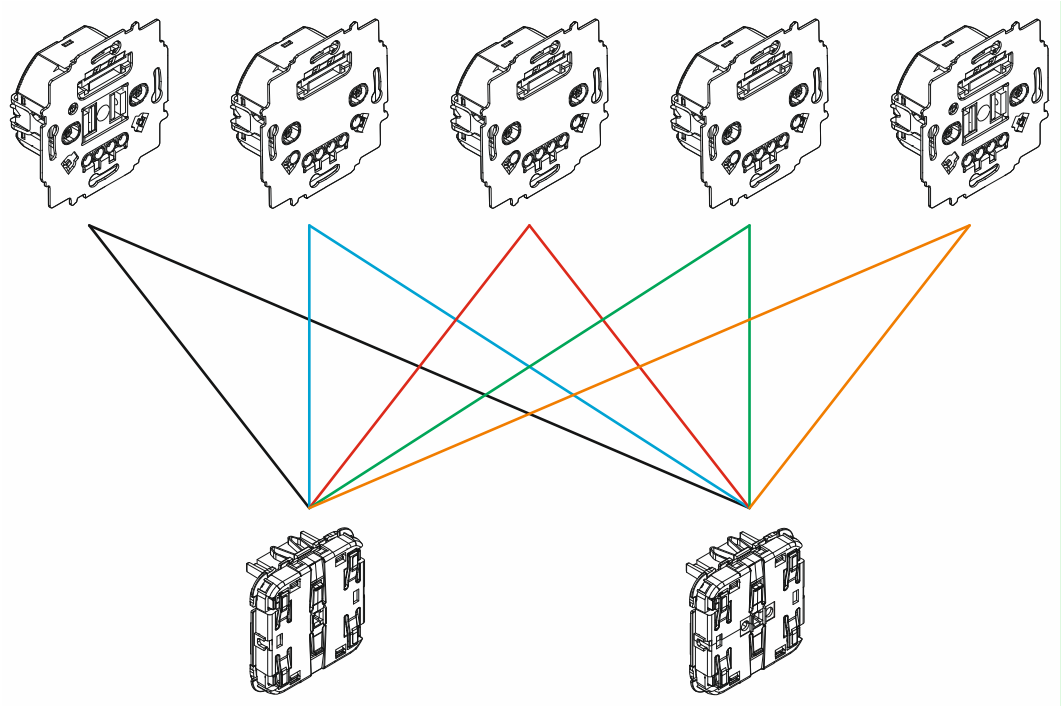
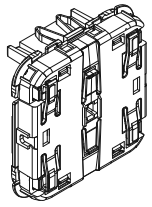
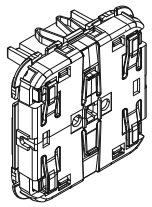


Fig. 2: ABB-free@home® flex Possible combinations

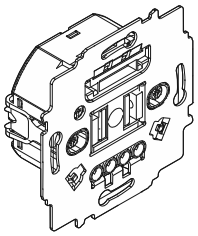
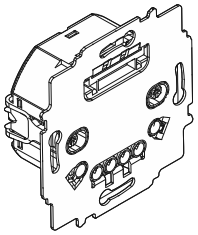
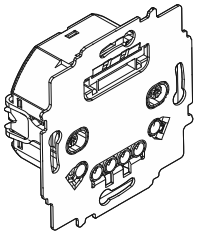
The interface between the ABB-free@home® flex touch control element and the actuators is standardized. All touch control elements can be combined with all actuators. This allows the desired switching and touch functions to be implemented. However, not all combinations are practical.

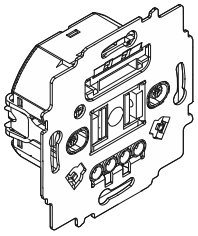
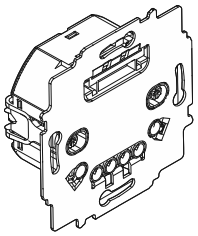
4.2 Overview of types

The following ABB-free@home® flex control elements are available for implementing a control:

Device	Article number / Product name	Application
	62711-WL-500 Control element flex, 1-gang, wireless	Control of actuators: ▪ In the state of delivery, the rocker always controls the actuator. ▪ The factory link can be deleted. ▪ The configuration can be freely selected. The rocker can be freely paired with actuators, scenes, etc.
	62721-WL-500 Control element flex, 2-gang, wireless	Control of actuators: ▪ In the state of delivery, the left rocker always controls the actuator. ▪ The right rocker can be freely configured if it is not allocated at the factory to a second actuator channel e.g. Relay insert flex, 2 gang ▪ The right rocker in combination with a dimmer or blind insert can call up light values or hanging positions.

The following ABB flexTronics® inserts (actuators) can be combined with the ABB-free@home® flex control elements:

Device	Article number / Product name	Application
	64814 U-500 e-contact insert flex, 1-gang	Application in old installations in locations where an N-busbar is not available. ▪ Noiseless switching of lighting systems ▪ 2-wire connection (neutral busbar is not required, but can be connected as an option)
	64811 U-500 Relay insert flex, 1 gang	Switching of lighting systems
	64821 U-500 Relay insert flex, 2 gang	
	64891 U-500 Sub-insert flex	Control of actuators and actuator groups with communication via the sub.

	64851 U-500 LED dimmer insert flex, 1gang	Switching and dimming of lighting systems ▪ 2-wire connection (neutral busbar is not required, but can be connected as an option)
	64831 U-500 Blind insert flex, 1 gang	Control of roof windows, roller blinds, blinds and awnings

5 Technical data

ABB-free@home® flexTouch control element

Designation	Value
Degree of protection	IP20
Temperature range	-5 °C - +45 °C
Storage temperature	-25 °C - +70 °C
Transmission protocol	▪ free@home wireless (IEEE 802.15.4) ▪ Bluetooth low energy
Transmission frequency	2.400 - 2.483 GHz
Maximum transmission power ▪ WL (wireless) ▪ Bluetooth LE (BLE)	 < 15 dBm < 10 dBm

Table 1: Technical data 62711-WL-500 / 62721-WL-500

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.).

6.2 Mounting / dismantling

Caution! The device can sustain damage when coming into contact with hard objects!

The plastic parts of the device are sensitive.

– Pull the attachment off only with your hands.
– Do not lever parts off with screwdrivers or similar hard objects.

6.2.1 Mounting possibilities

The wall mounting / ceiling mounting of the flush-mounted inserts takes place in a standard flush-mounted box or device box. The following mounting situations are possible, for example:

Wall mounting

- Stone walls
- Plaster walls
- Hollow walls
- Insulated walls

The devices are not suitable for:

- Purely surface mounting

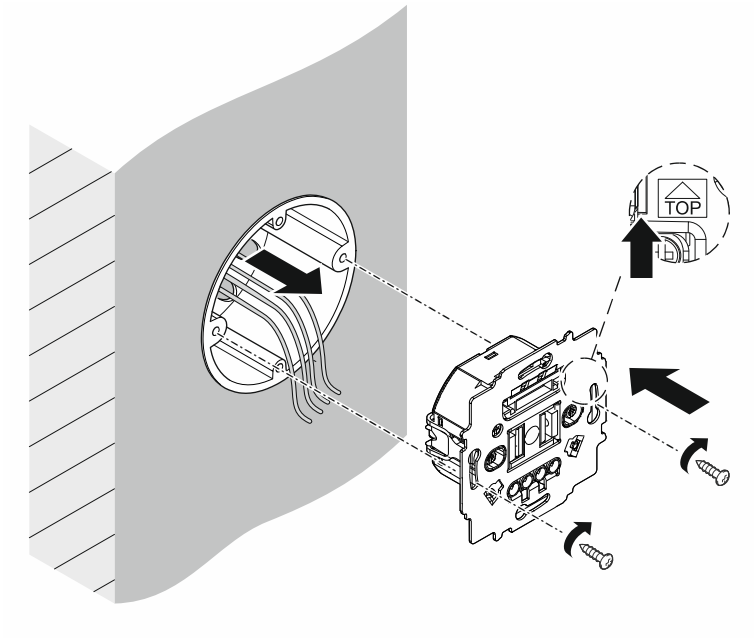
If a flush-mounted installation is not desired or not possible, the flush-mounted inserts can also be mounted in surface-mounted housings for flush-mounted inserts.

All ABB flexTronics® / ABB-free@home® flexdevices are mounted or disassembled the same way.

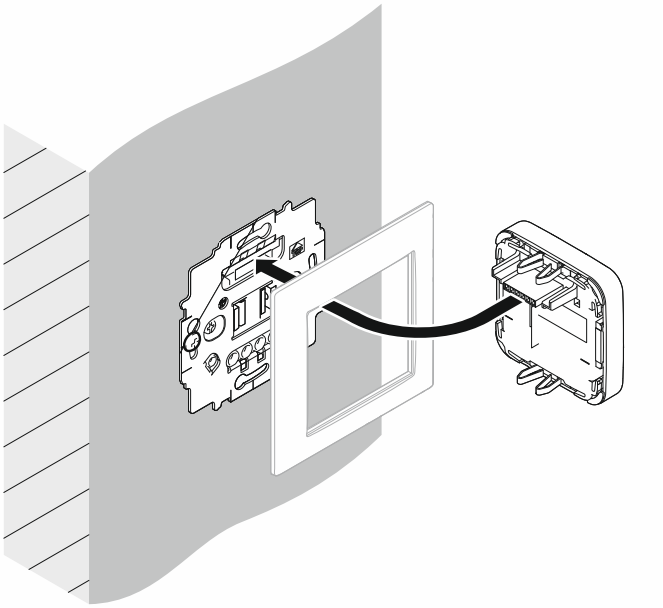
To install the device combination, perform the following steps:

Attention! – Malfunction

Do not attach or change the control element when the insert is under voltage. This can lead to malfunctions.



1. Mount and connect flush-mounted device inserts.
   – Circuit diagrams, see chapter 6.3 “Electrical connection“ on page 17.



2. Plug the sensor or control element together with the cover frame onto the flush-mounted device insert.

– The device combination is mounted.

6.3 Electrical connection

Connection e-contact insert flex, 1-gang

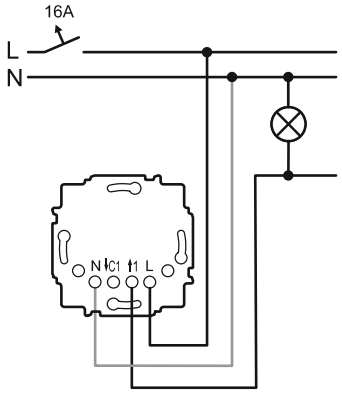


Fig. 3: Connection e-contact insert flex, 1-gang

N-busbar is optional

Connection Relay insert flex, 1 gang

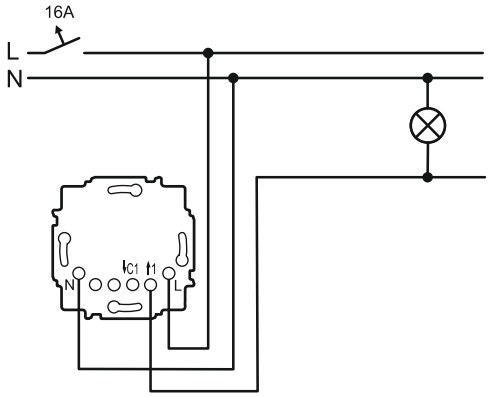


Fig. 4: Connection Relay insert flex, 1 gang

Connection Relay insert flex, 2 gang

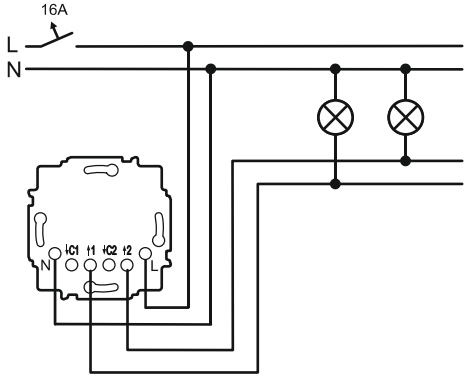


Fig. 5: Connection Relay insert flex, 2 gang

Connection LED dimmer insert flex, 1gang

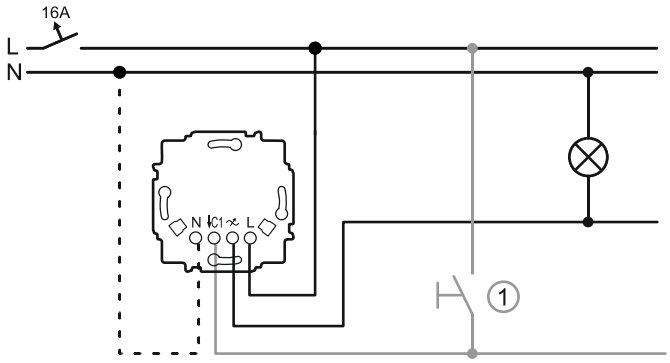


Fig. 6: Connection LED dimmer insert flex, 1gang

[1] Optional connection of standard push-buttons, e.g. 2020 US/500

Connection Blind insert flex, 1 gang

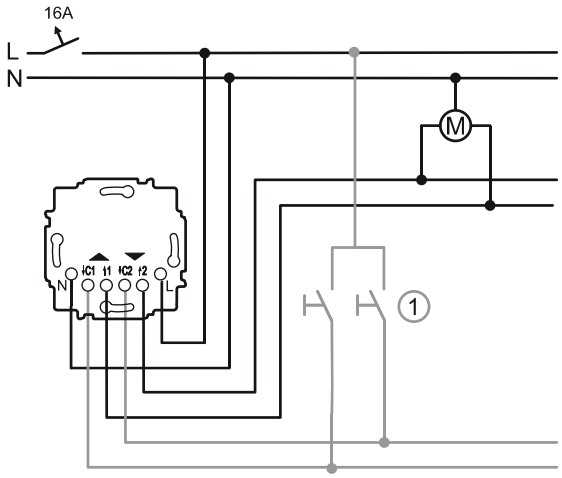


Fig. 7: Connection Blind insert flex, 1 gang

[1] Optional connection of standard push-buttons, e.g. 2020 US/500

6.4 Case studies

Lighting circuit with sub

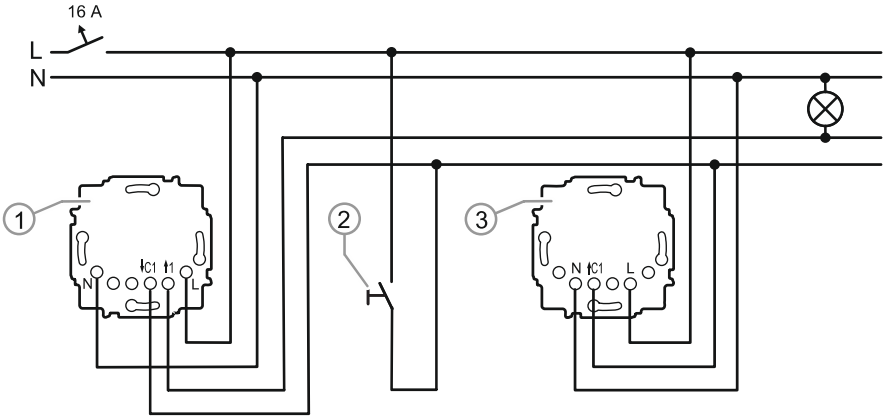


Fig. 8: Lighting circuit with sub

[1] Main:
Relay insert flex, 1 gang with Control element flex, 1gang

[2] Optional standard push-button
Connection of 2020 US/500, for example.

[3] Sub:
Sub-insert flex with Control element flex, 1gang

The circuit can be extended with a maximum of nine additional subs.

7 Commissioning

The following prerequisites and system limits apply for commissioning the Weather station flex, wireless.

Prerequisites

- Operation and configuration app "ABB-free@home® App Next"
- Registration at MyBuildings
- Depending on the desired expansion stage of the operating mode, additional components are required.
  - Room control: Additional ABB-free@home® flex devices for the setup of a mesh network are necessary.
  - Home automation (SysAP): For integration in ABB-free@home® installation with a System Access Point.
- Setup of radio network: Several devices must be available and they must be visible together, see .

System limits

- **Bluetooth®:**
  - The radio range between the devices amounts to a maximum of 10 meters.
  - A Bluetooth® connection is used for the connection between the smartphone and an additional device. If thick walls are located within the planned radio line, the attainable transmission ranges are greatly reduced.
  - The same applies to connections on other floors. In this case the radio signals must pass through floor ceilings.
- **Wireless 2.4 GHz:**
  - The radio range between the devices amounts to a maximum of 30 meters.
  - If thick walls are located within the planned radio line, the attainable transmission ranges are greatly reduced.
  - The same applies to connections on other floors. In this case the radio signals must pass through floor ceilings.

Special measures for commissioning are not required. The ABB-free@home® flex device is ready for operation directly after connection and assembly.

The function of the respective device depends on the combination of ABB flexTronics® insert and ABB-free@home® flex control element.

– If the sensor shows 1 rocker, the rocker is linked with the actuator function via default (dimming, switching, blind).

– If the sensor shows 2 rockers (2gang sensor), the left rocker is linked with the actuator function via default (dimming, switching, blind).

  The right rocker has no function via default.

The further parameter setting is carried out via the ABB-free@home® App Next or the System Access Point. Here both rockers can be freely linked and occupied with functions, e.g. for blind control, see “Operation“ on page 44.

7.1 Expansion stages (operating modes)

The following expansion stages are available for the ABB-free@home® flex touch control elements.

Individual control

– Stand-alone operation of the devices
– The configuration and control is carried out via Bluetooth with the ABB-free@home® App Next per smartphone or tablet

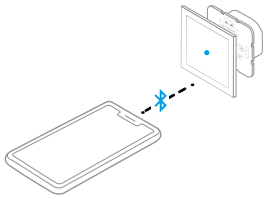


Fig. 9: Example of individual control

– Individual control of blind and lighting with a single control element. The different functions are implemented via smartphone or tablet.
– Several devices can be combined for one project in the app. This makes fast access possible to the respective devices and the simple change between devices. The devices cannot communicate with each other or configured with each other.

Room control

– Mesh networking for implementing a larger transmission range and stable communication.

– The myBusch-Jaeger Cloud is required for the room control.

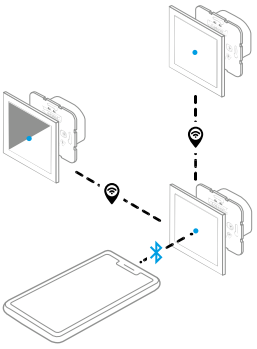


Fig. 10: Example of room control

The configuration of the ABB-free@home® flex touch control element is carried out via the ABB-free@home® App Next. For this the registration at https://mybuildings.abb.com and the coupling of the smartphone are necessary.

- Up to 32 devices can be linked with each other within the room control via a wireless mesh network.
- The local operation of the ABB-free@home® flex touch control element is possible at all times, and the access from the smartphone to one of the devices is carried out with Bluetooth via the ABB-free@home® App Next.
- Device data are stored in the Cloud.

Home automation

– The room control can be expanded with the available hardware ABB-free@home® flex for the entire home automation.
– The ABB-free@home® System Access Point is the central control element of the home automation.

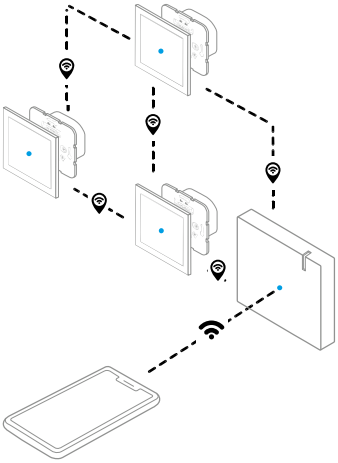


Fig. 11: Example of home automation

- Operation via the "ABB-free@home® App Next".
- Operation is also possible via the System Access Point.
- Device data are stored in the ABB-free@home® System Access Point.
- When connected to ABB-free@home® the Bluetooth connection is deactivated.

Notice

The following information is available in the ABB-free@home® system manual.

– Commissioning
– Parameter setting
– Update

The product-specific settings and parameters are available in “Parameters“ on page 24.

7.2 Parameters

7.2.1 Switching

Fig. 12: Parameters of rocker

Under the rocker settings you can view information about the device name and positions of the device. You can also configure the areas described in the following.

Pos.	Description
[1]	**Sensor configuration** The sensor is blocked by activating the checkbox. Further configuration is not possible.
[2]	**Links** Under "Links" you can create, delete or edit links. You can also see for which devices a link was created. A difference is made between links of channels and scenes. ▪ A list opens when tapping the plus icon in front of the channel or scene. Create the desired link in the list by tapping on the desired device. ▪ The link can be deleted again by tapping on the dustbin icon.
[3]	**Function** The function is selected automatically in dependence of the selected link. It can be changed if necessary. ▪ Control element For switching a lamp on/off ▪ Dimming operation For switching lamps on and off or changing the brightness ▪ Switching operation with switch-off delay The actuator switches on for a defined switch-off delay. It switches off again after the switch-off delay has expired. Example of application: The lamp in a stairwell is switched off again after the defined switch-off delay. ▪ Force-position of sensor On/Off The actuator is switched off and blocked in dependence of the configuration. When the blockage is active, the actuator cannot be switched via an additional sensor or time program. ▪ Blind operation For the control of movement commands ▪ Blind blockage The blind is moved into the "Top" or "Bottom" state and locked against any further operation. ▪ Scene sensor ▪ Timer sensor

	Parameters	
[4]	**LED switch-on brightness, night [%]**	**Notice:** Please observe that the automatically created time profile for the day/night switchover is activated. The brightness of the sensor LED for the night can be specified with the sliding controller or input in the text field.
	LED switch-on brightness, day [%]	**Notice:** Please observe that the automatically created time profile for the day/night switchover is activated. The brightness of the sensor LED for the day can be specified with the sliding controller or input in the text field.
	LED operating mode	The following setting options are available for the LED operating mode: ▪ Light for orientation: The LED lights up permanent. ▪ Status display: The LED lights up when the actuator is switched on, and the LED is off when the actuator is switched off. ▪ Status display with light for orientation: If the actuator is switched off, the LED lights up with the configured day/night brightnesses. The LED lights up with 100% when the actuator is switched on. ▪ Off: The LED is switched off permanent. **Notice:** Depending on the selected sensor function, it can be that individual LED operating modes are not available.

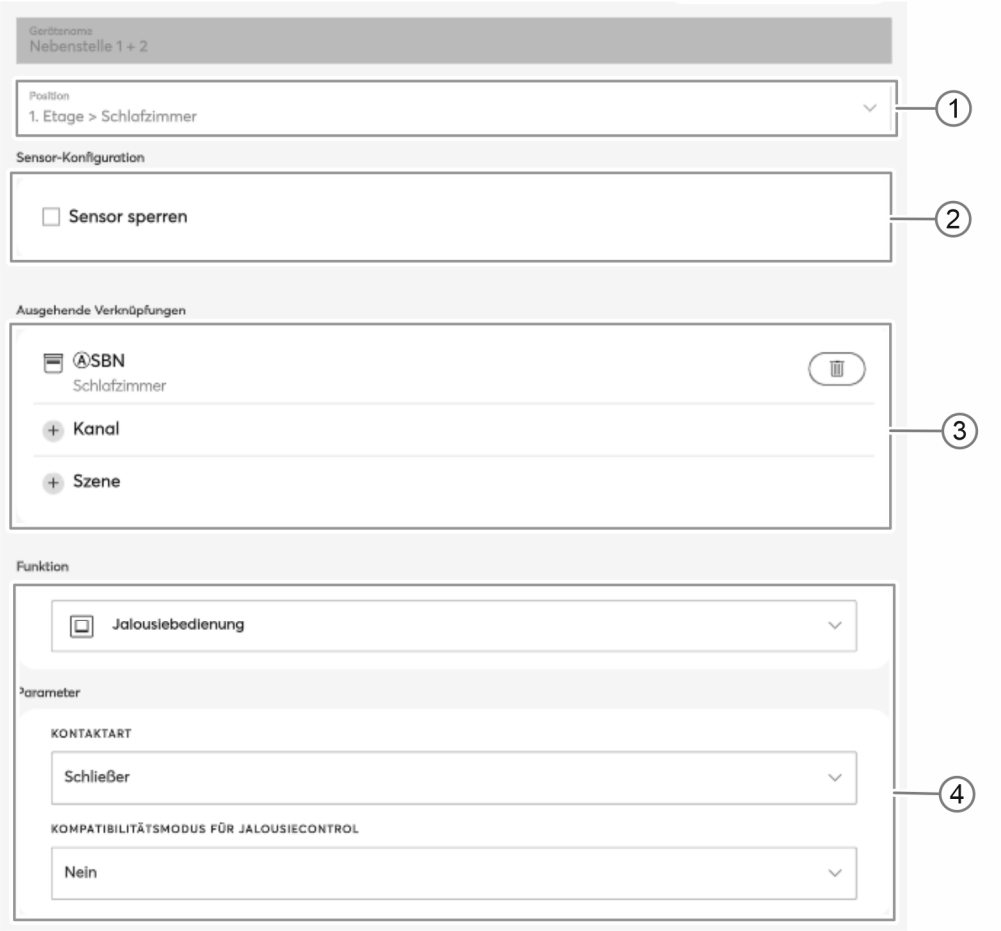


Fig. 13: Parameter extension unit

Under the extension unit settings you can view information about the device name and positions of the device. You can also configure the settings described in the following.

Pos.	Description
[1]	**Sensor configuration** The sensor is blocked by activating the checkbox. Further configuration is not possible.
[2]	**Links** Under "Links" you can create, delete or edit links. You can also see for which devices a link was created. A difference is made between links of channels and scenes. ▪ A list opens when tapping the plus icon in front of the channel or scene. Create the desired link in the list by tapping on the desired device. ▪ The link can be deleted again by tapping on the dustbin icon.
[3]	**Function** The function is selected automatically in dependence of the selected link. It can be changed if necessary. ▪ Control element ▪ Dimming operation ▪ Switch operation with switch-off delay ▪ Staircase light sensor ▪ Force-position sensor On/Off ▪ Blind operation ▪ Disable blind ▪ Scene sensor ▪ Timer sensor
[4]	**Parameters** **Contact type** In this drop-down menu the contact type for the extension unit can be selected. The following values are available: ▪ Normally closed contact ▪ Normally open contact

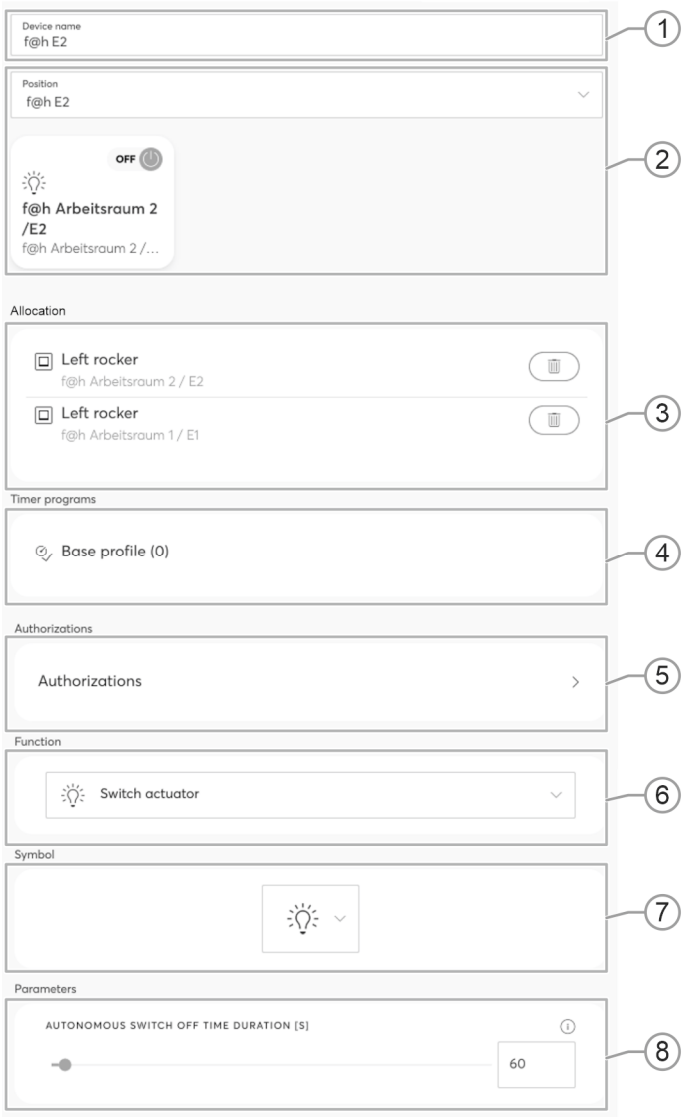


Fig. 14: Actuator parameters

Under the actuator settings you can configure the settings described in the following.

Pos.	Description
[1]	**Device name** An independent designation for the device can be allocated via the text field.
[2]	**Position** By tapping on the drop-down menu you can assign a position to the device in the building structure you defined (e.g. assignment to a room on a certain floor).
[3]	**Links** Via this function you can also see for which devices a link has been created. ▪ The pairing can be deleted again by tapping on the dustbin icon.
[4]	**Time programs** This overview displays all previously created time programs. The number after a time program indicates how often the actuator is used in this time profile. Select a time program for adding it to the actuator.
[5]	**Authorizations** Menu item "Authorizations" is used to specify whether a user with installer authorization is required for the configuration of the actuator. In addition, you can nevertheless assign users with read rights the authorization to switch this actuator.
[6]	**Function** The current function of the actuator is displayed via menu item "Function". You can change the function if necessary. ▪ Switch actuator ▪ Heating mode ▪ Cooling mode ▪ Additional heating stage ▪ Additional cooling stage ▪ Push-button ▪ Central heating actuator ▪ Central cooling actuator ▪ Two-point heating controller ▪ Two-point cooling controller ▪ Automatic heating/cooling mode ▪ Two-point heating/cooling controller **Notice:** The named functions refer to a switch actuator. Other functions are displayed when using a dimmer or blind actuator.
[7]	**Icon** The icon menu item can be used to specify an icon with which the actuator is portrayed.
[8]	**Parameters** **Switch-off delay (s)** The time after which the actuator switches off again can be specified via the sliding controller or by entry in the text field after it was switched on by a movement detector or via the staircase lighting function.

- Heating mode

  For operating a heat-based automatic single-room control. The temperature is regulated to the setpoint value defined in the parameter.

- Cooling mode

  For operating a cooling-based automatic single-room control. The temperature is regulated to the setpoint value defined in the parameter.

- Additional heating stage

  In addition to the control function described under heating, the additional stage enables the activation of an additional heating circuit. This type of additional stage is used, for example, to quickly heat up a bathroom with floor heating via a heated towel rack.

- Additional cooling stage

  In addition to the control function described under cooling, the additional stage enables the activation of an additional cooling device. This type of additional stage is used, for example, to quickly cool a room via an added cooling device.

- Push-button

  Triggering or switching over of operating modes with a button operation, for example

- Central heating actuator

  Central heating actuator installation with rail-mounting actuators in the sub-distribution.

- Central cooling actuator

  Central cooling actuator installation with rail-mounting actuators in the sub-distribution.

- Two-point heating controller

  The controller switches on when the room temperature exceeds the preconfigured threshold value and remains active until the heating requirement drops below the preconfigured bottom threshold value again.

- Two-point cooling controller

  The controller switches on when the room temperature exceeds the preconfigured threshold value and remains active until the cooling requirement drops below the preconfigured bottom threshold value again.

- Automatic heating/cooling mode

  This function is used for 2-pipe heating/cooling systems.

  A switchover between heating and cooling mode of the device can be made automatically over the whole system via a linked binary input, e.g. for four busbar systems that permit the switchover between heating and cooling at all times. The device switches automatically between heating and cooling and to the associated setpoint.

- Two-point heating/cooling controller

  The controller switches on when the room temperature exceeds or drops below the preconfigured threshold value and remains active until the cooling/heating requirement exceeds/drops below the preconfigured bottom threshold value again.

7.2.2 Dimming

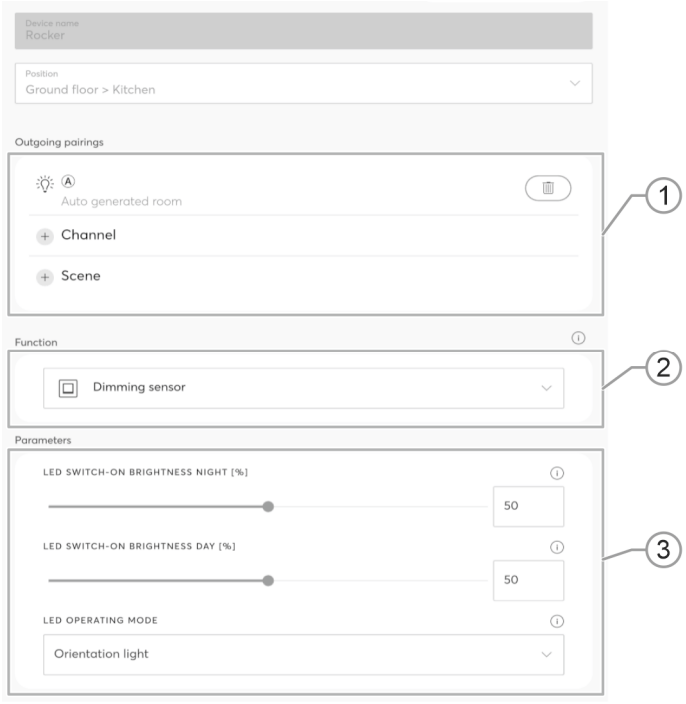


Fig. 15: Parameters of rocker

Under the rocker settings you can view information about the device name and positions of the device. You can also configure the areas described in the following.

Pos.	Description
[1]	**Links** Under "Links" you can create or delete links. You can also see for which devices a link was created. A difference is made between links of channels and scenes. ▪ A list opens when tapping the plus icon in front of the channel or scene. Create the desired link in the list by tapping on the desired device. A successfu link is indicated with a tick. ▪ The link can be deleted by tapping on the dustbin icon.
[2]	**Function** The function is selected automatically in dependence of the selected link. It can be changed if necessary. ▪ Control element For the control of switching processes ▪ Dimming operation For the control of dimming processes ▪ Switching operation with switch-off delay A specified switch-off delay starts after the successful switching process. This, for example, specifies how long the light remains switched on after the actuator has deactivated the load. ▪ Sensor force-position On/Off The actuator is put into the "Activated" or "Deactivated" state and locked against any further operation. After cancelling the forced control, the actuator returns to its original state. ▪ Block actuator The actuator is put into the "Deactivated" state and locked against any further operation. After cancelling the forced control, the actuator returns to its original state.

	Parameters	
	LED switch-on brightness, night [%]	**Notice:** Please observe that the automatically created time profile for the day/night switchover is activated. The brightness of the sensor LED for the night can be specified with the sliding controller or input in the text field.
	LED switch-on brightness, day [%]	**Notice:** Please observe that the automatically created time profile for the day/night switchover is activated. The brightness of the sensor LED for the day can be specified with the sliding controller or input in the text field.
[3]	**LED operating mode**	The following setting options are available for the LED operating mode: ▪ Light for orientation: The LED lights up permanent. ▪ Status display: The LED lights up when the actuator is switched on, and the LED is off when the actuator is switched off. ▪ Status display with light for orientation: If the actuator is switched off , the LED lights up with the configured day/night brightnesses. The LED lights up with 100% when the actuator is switched on. ▪ Off: The LED is switched off permanent. **Notice:** Depending on the selected sensor function, it can be that individual LED operating modes are not available.

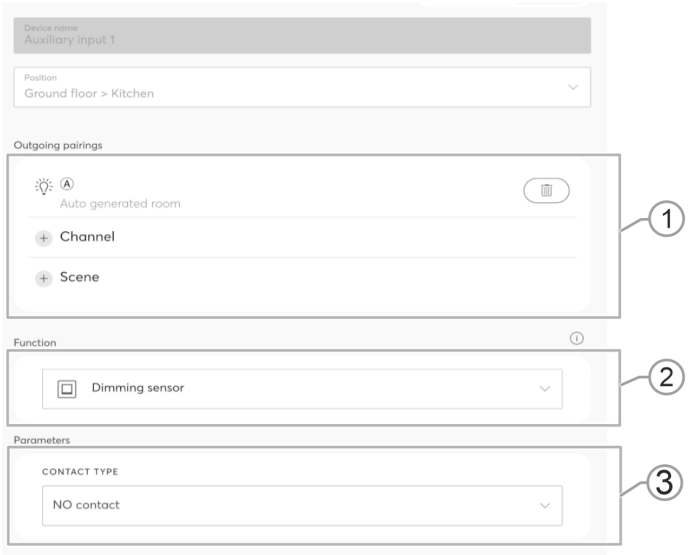


Fig. 16: Parameters of sub

Under the sub settings you can view information about the device name and positions of the device. You can also configure the settings described in the following.

Pos.	Description
[1]	**Links** Under "Links" you can create or delete links. You can also see for which devices a link was created. A difference is made between links of channels and scenes. ▪ A list opens when tapping the plus icon in front of the channel or scene. Create the desired link in the list by tapping on the desired device. ▪ The link can be deleted by tapping on the dustbin icon.
[2]	**Function** The function is selected automatically in dependence of the selected link. It can be changed if necessary. ▪ Control element For the control of switching processes ▪ Dimming operation For switching lamps On and Off or changing the brightness ▪ Switching operation with switch-off delay The actuator switches on for a defined switch-off delay. It switches off again after the switch-off delay has expired. Example of application: The lamp in a stairwell is switched off again after the defined switch-off delay.
[3]	**Parameters** **Contact type** In this drop-down menu, the contact type for the sub can be selected. The following values are available: ▪ Normally closed contact ▪ Normally open contact

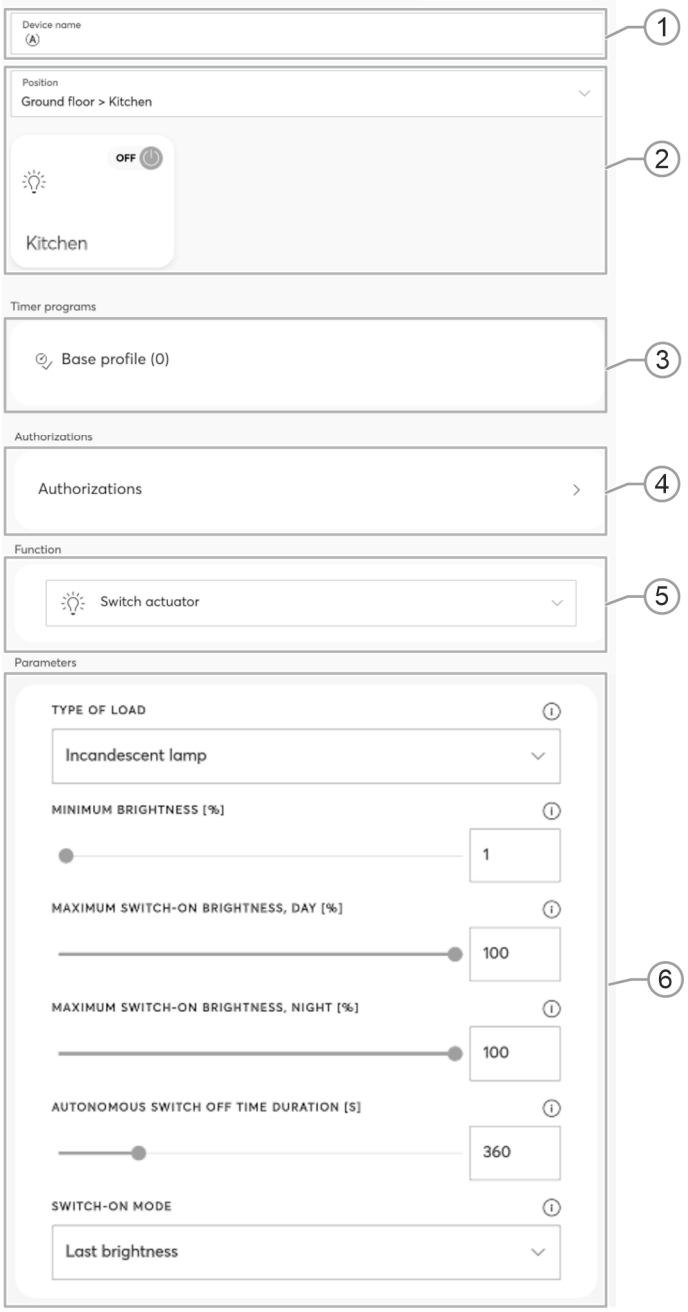


Fig. 17: Actuator parameters

Under the actuator settings you can configure the settings described in the following.

Pos.	Description
[1]	**Device name** An independent designation for the device can be allocated via the text field.
[2]	**Position** By tapping on the drop-down menu you can assign a position to the device in the building structure you defined (e.g. assignment to a room on a certain floor).
[3]	**Time programs** This overview displays all previously created time programs. The number after a time program indicates how often the actuator is used in this time profile. Select a time program for adding to the actuator.

[4]	**Authorizations** Menu item "Authorizations" is used to specify whether a user with installer authorization is required for the configuration of the actuator. In addition, you can nevertheless assign users with read rights the authorization to switch this actuator.	
[5]	**Function** The current function of the actuator is displayed via menu item "Function". You can change the function if necessary.	
[6]	**Parameters**	
	Load type	The parameter us used to specify the load type of the dimmer. ▪ Incandescent lamp (Trailing edge control) ▪ Inductive load (Leading edge control) ▪ Dimmable LED/KLL (Leading edge control) **Notice:** Please observe the fundamental principle of the respective type of load (leading edge control).
	Minimum brightness [%]	This parameter defines the minimum brightness to which the lamp can be dimmed.
	Maximum switch-on brightness, day [%]	The switch-on brightness of the lamp connected to the actuator can be specified for the day with the sliding controller or input in the text field.
	Maximum switch-on brightness, night [%]	The switch-on brightness of the lamp connected to the actuator can be specified for the night with the sliding controller or input in the text field.
	Switch-off delay (s)	The time after which the actuator switches off again can be specified via the sliding controller or by entry in the text field after it was switched on by a movement detector or via the staircase lighting function.
	Switch-on mode	The parameter us used to specify the switch-on mode of the dimmer. ▪ Last brightness The dimmer is switched on with the brightness used last. ▪ Maximum brightness The dimmer is switched on with the maximum brightness.

7.2.3 Blind

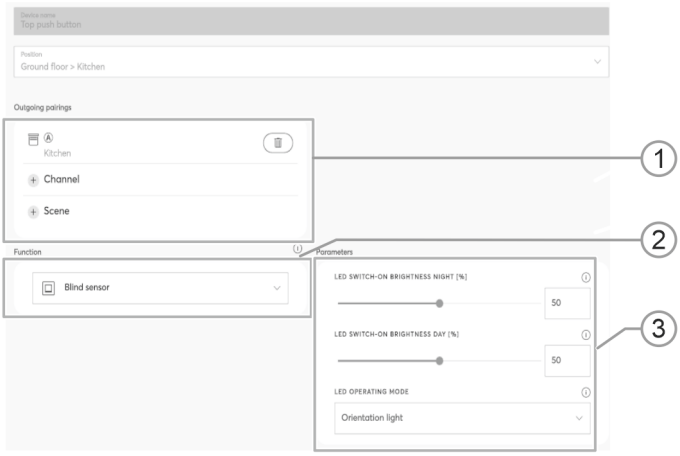


Fig. 18: Parameters of rocker

Under the rocker settings you can view information about the device name and positions of the device. You can also configure the areas described in the following.

Pos.	Description	
[1]	**Links** Under the "Links", you can create, delete or edit links. You can also see for which devices a link was created. A difference is made between links of channels and scenes. ▪ A list opens when tapping the plus icon in front of the channel or scene. Create the desired link in the list by tapping the desired device. ▪ The link can be deleted again by tapping on the dustbin icon.	
[2]	**Function** The function is selected automatically in dependence of the selected link. It can be changed if necessary. ▪ Blind operation For the control of movement commands ▪ Blind blockage The blind is moved into the "Top" or "Bottom" state and locked against any further operation. After cancelling the forced control, the blind returns to its original state.	
[3]	**Parameters**	
	LED switch-on brightness, night [%]	The brightness of the sensor LED for the night can be specified with the sliding controller or input in the text field.
	LED switch-on brightness, day [%]	The brightness of the sensor LED for the day can be specified with the sliding controller or input in the text field.
	LED operating mode	**Notice:** Please observe that the automatically created time profile for the day/night switchover is activated. The following setting options are available for the LED operating mode: ▪ Light for orientation: The LED lights up permanent. ▪ Status display: The LED lights up when the actuator is switched on, and the LED is off when the actuator is switched off. ▪ Status display with light for orientation: If the actuator is switched off, the LED lights up with the configured day/night brightnesses. The LED lights up with 100% when the actuator is switched on. ▪ Off: The LED is switched off permanent. **Notice:** Depending on the selected sensor function, it can be that individual LED operating modes are not available.

Fig. 19: Parameter actuator

Under the actuator settings, you can configure the areas described below.

Pos.	Description	
[1]	**Device name** The text field can be used to assign your own designation for the device.	
[2]	**Position** By tapping the drop-down menu, you can assign the device a position in the building structure you have defined (e.g. assignment to a room on a specific floor).	
[3]	**Incoming pairings** You can use this function to connect the actuator with a function of an extension unit and a rocker. Tap the plus symbol in front of the function, extension or rocker to open a list. In this list, the desired pairing can be selected by tapping on it. A successful pairing is indicated by a check mark. ▪Tap the trash can icon to cancel the pairing.	
[4]	**Timer programs** Listing and configuration of timer programs. ▪Tapping on a timer program opens the configuration. By tapping on the plus symbol, you can configure a new time program.	
[5]	**Calibration** You can calibrate the blind via the Calibration menu item.	
[6]	**Authorizations** The "Authorizations" menu item is used to specify whether an installer authorization is required for the configuration.	
[6]	**Function** The function of the actuator is defined via the "Function" menu item. ▪ Blind actuator ▪ Roller blind actuator ▪ Roof window actuator ▪ Awning actuator	
[7]	**Symbol** The menu item Symbol is used to define a symbol with which the actuator is displayed.	
[8]	Parameters	
	Total travel time upwards [s]	Setting the movement time up/down in seconds via the -/+ buttons
	Total travel time down [s]	Setting the movement time up/down in seconds via the -/+ buttons
	Total slat travel time [ms]	Setting the time in milliseconds via the −/+ buttons, which the slats require for a complete change in direction of their angle. The time for a single step is fixed at 200 ms and cannot be changed.
	Behaviour during faults	Display of information only. No settings possible.
	Motor dead time [ms]	Setting the motor pause time in milliseconds via the -/+ buttons ▪This value is required for the slat adjustment. ▪Check the operating instructions of the blind motor to determine the correct motor dead time (period between switching the actuator and starting the motor).

Blind actuator functions

Blind actuators are used for numerous applications. They can, for example, control a roller blind motor, a motorized roof window or an awning. Each channel of a free@home blind actuator can be optimized for one of these applications via the "Function" parameter [4].

Depending on the type of actuator selected, a distinction is made between the displayed icon and the function:

event		Behavior			
		Roller blind actuator	**Blind actuator**	**Roof window actuator**	**Awning actuator**
Wind alarm	**Occurrence**	Move up and lock	Move up and lock	Close and lock (∨)	Retract and lock (∧)
	Cancel	Selectable	Selectable	Selectable	Selectable
Rain alarm	**Occurrence**	Move down and lock	Move up and lock	Close and lock (∨)	Retract and lock (∧)
	Cancel	Selectable	Selectable	Selectable	Selectable
Frost alarm	**Occurrence**	Move and block	Move and block	Close and lock (∨)	Retract and lock (∧)
	Cancel	Selectable	Selectable	Selectable	Selectable
Force-position (in actions)	**Occurrence**	Selectable (up/down)	Selectable (up/down)	Selectable (up/down)	Selectable (up/down)
	Cancel	Back to position	Back to position	Back to position	Back to position
Window contact	**Window tilted**	–	–	–	–
	Window open	During movement in any direction, move to the top and block. Without movement, block immediately.	During movement in any direction, move to the top and block. Without movement, block immediately.	–	–
	Window closed	Retain position	Retain position	–	–

Table 2: Blind actuator functions

Alarm priorities:

Force-position > Wind alarm > Window contact > Frost alarm > Rain alarm.

The following methods can be selected for cancelling an alarm:

- Remain on the position.
- Go back to the previous position.

This method is not selected for every alarm type, but for all alarms of the blind actuator channel.

8 Operation

8.1 General control and display functions

Three different operating modes are available depending on the selected expansion stage.

- Push-button switch mode / local operation
- Operation via the ABB-free@home® App Next and Bluetooth
- Operation via the System Access Point

Notice
The function of the rockers depends on the flex insert used.

Push-button switch mode / local operation

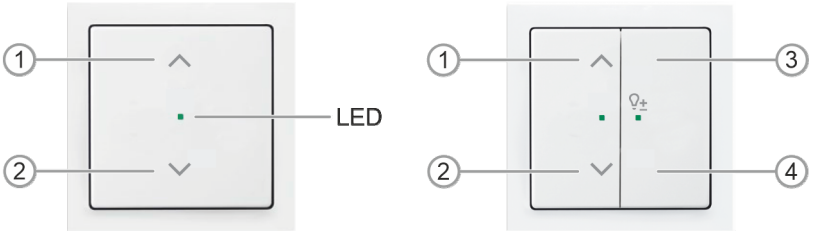


Fig. 20: Control element flex, 1-gang, wireless and Control element flex, 2-gang, wireless

[1] Rocker; button contact 1, top (left)
[2] Rocker; button contact 2, bottom (left)
[3] Rocker; button contact 3, top (right)
[4] Rocker; button contact 4, bottom (right)
LED: Light for orientation (green) / dimmable status display

Function

Rocker button top [1] and bottom [2]:

– Brief press of the button:
  Lighting on/off.
  The behaviour of the LED depends on the configuration.
– Long press of the button (in combination with the dimmer insert):
  Reducing/raising the brightness.
– Long press of the button (in combination with the blind insert):
  The blind/roller blind moves up/down.

Room control - Operation via the ABB-free@home® App Next and Bluetooth

– Operation with mobile device or tablet via Bluetooth connection.
– In this operating mode access is established to an individual device or to the entire mesh network via the ABB-free@home® App Next app.
– The respective range of available functions corresponds to the functions that are displayed in the ABB-free@home® App Next.
– A login of a non-programmed device into the system is possible at all times via Bluetooth.

Home automation - Operation via the System Access Point

– Operation is effected via the ABB-free@home® App Next.
– Operation is also possible from the System Access Point.
– As soon as a System Access Point (from Firmware version 3.0 of the System Access Point) is available in the system, the devices are made operational via the user interface of the System Access Point.
– Bluetooth is deactivated after the device has been programmed via the System Access Point.

LED status display

Display	Function
Continuous on or off	Light for orientation or off
Flashes (0.5 sec. on, 0.5 sec. off)	Error, e.g. overload, defective load, excess temperature
	Alarm, e.g. message of weather station
Flashes fast (0.25 sec. on / 0.25 sec off)	Firmware update of the FM insert
Pulsates (0.5 sec. on / 0.25 sec. off)	The device is in programming mode. During programming mode the device can be read into the app or the System Access Point.
Flashes fast for 10 seconds, then fast for 5 seconds.	During the restoration of factory settings (master reset)

Table 3: LED status display

8.2 Push-button procedures:

8.2.1 Restore factory settings

1. De-energize the free@home wireless device.
   Alternative: Pull off the control element of the device.
2. Keep the button at the bottom left pressed.
3. Switch the device on again.
   Alternative: Plug on the control element while keeping the button on the bottom left pressed and keep it pressed.
   – The LED flashes slowly for 10 seconds, then fast for 5 seconds and then goes out.
   – The factory settings are restored and the device can now be programmed again.

Alternative procedure:

1. Keep the left bottom button of the control element pressed.
   – After a while the LED begins to flash.
2. Keep the left bottom button of the control element pressed until the sensor LED goes out. This takes approximately 15 seconds.
3. Press the left bottom button of the control element once briefly.
   – The sensor LED lights up.
4. Press the bottom left button again briefly.
   – The sensor LED goes out.
   – The factory settings are restored and the device can now be programmed again.

Notice
The own settings are retained during a power failure.

9 Maintenance

9.1 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.

10 Notes

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