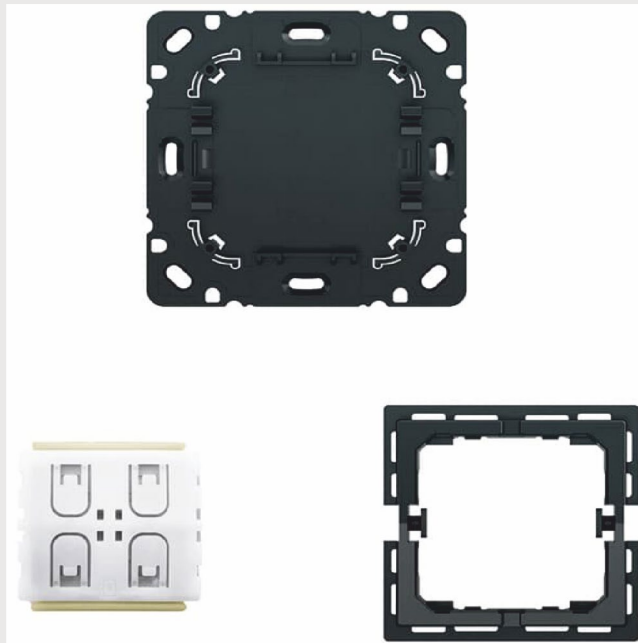


62721/xx-U-WL-500

Smart switch



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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 include 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:

<https://new.abb.com/en>

2 Trademarks

Die Wortmarke Bluetooth® und die Bluetooth®-Logos sind eingetragene Marken von Bluetooth SIG, Inc.. Jede Verwendung dieser Marken durch Busch-Jaeger Elektro GmbH erfolgt unter Lizenz. Andere Marken und Handelsnamen sind Eigentum ihrer jeweiligen Eigentümer.

3 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.

3.1 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.

3.2 Intended use

The Smart switch is designed for switching and dimming of Smart Home devices of the ABB-free@home® system. Lamps, socket outlets, blinds or light scenes can be controlled via the freely configurable push-button contacts.

3.3 Improper use

Each use not listed in Chapter 3.2 “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
- Outdoor use
- Security relevant applications such as emergency-off circuits or emergency call services

3.4 Target group / Qualifications of personnel

3.4.1 Operation

No special qualifications are needed to operate the device.

3.4.2 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.

3.5 Cyber security

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

The following measures are prerequisite for the safe operation of your ABB-free@home® system.

Prevention of access to the different media

The careful isolation of the system against unauthorized access is the basis for every protective concept. In case of a ABB-free@home® system, it is only authorized persons (fitter, caretaker, user) who are allowed physical access to the ABB-free@home® system. During planning and installation the ABB-free@home® media (cable and wireless) and the critical points must be protected as best as possible.

Sub-distributions with ABB-free@home® devices are to be locked or located in rooms to which only authorized persons have access.

Bus cabling

- The cable ends of the ABB-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 ABB-free@home® Twisted Pair cable should be made exceptionally difficult.

IP cabling within the building

The local network represents a sensitive component for safe communication. That is why unauthorized access to the local network should be prevented. The normal security mechanisms for IP networks are to be used. These, for example, are:

- Safe 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 possible in protected areas.
- MAC filter

Connection to the Internet

To prevent improper use, no router ports from the Internet into the home network are to be opened for ABB-free@home® components. A VPN tunnel or the MyBuildings portal is suitable for secure remote control.

Data protection

We take the protection of your personal data very seriously and adhere to the legally valid regulations regarding data protection. Personal data are obtained and processed only to the extent necessary for the operation of this online offer. The following declaration provides you with an overview of how we guarantee this protection and what type of data we record and for what purpose.

Personal data (also telemetry data)

Personal data consists of details regarding the personal or factual circumstances of a certain or identifiable natural person. Information that cannot be connected directly or indirectly to your identity, such as the number of users of a page, is not personal data.

In the case MyBuildings these consist of data you have made available to us yourself, such as registration data, contact data, or data added in connection with the services used, such as bank data, as well as data of devices which have been allocated to the user account.

The personal data you have made available to us within the scope of this online offer will be used exclusively for this purpose. Your personal data are not passed on to third parties if you do not expressly permit this or we are obligated to do so based on a law or decision of a court or public authority. An exception to this are order processors, whom we carefully select and contractually obligate to observe our instructions and to strictly adhere to the required technical and organisational measures for data protection.

Duration of storage and deletion

Your personal data will be deleted in accordance with the data protection law as soon as the purposes for the above-stated storage become inapplicable. However, a storage beyond the achievement of purpose can take place when we are obligated to do so on the basis of legal regulations. In this case, processing will be limited and the data will be deleted after the respective legal obligations have been abolished or been met.

Notice on privacy policies: <https://new.abb.com/privacy-policy/en>

Concrete handling of personal data that are obtained, stored and processed by the ABB-free@home® System Access Point 2.0:

Description	Processing options	Obtaining consent	Revocation of consent
User name (an alias or pseudonym)	The name of the user is entered in the app or in the web interface and used for the listing of possible users on the login screen.	The user must confirm the general business terms and conditions before the installation of the DUT and the app.	The user can revoke his agreement by resetting the DUT on the factory settings.
E-mail address of the user	An e-mail address (independent of the user!) can be entered in the app and the DUT to be able to be notified about a configured event (e.g. Failure of the heating system).	See "User name" These details are optional.	See "User name"
Local data (city, urban area) on the location of the test specimen	The DUT uses this information only locally. Application: Control of blinds depending on summer or winter season.	The user must confirm the general business terms and conditions before the installation of the DUT and the app.	See "User name" or simply delete the entry.
Location coordinates (lat/long) for the location of the DUT	The DUT uses this information to implement the application: Geofencing. Data are transmitted to the mobile app.	The user must confirm the general business terms and conditions before the installation of the test specimen and the app.	See "User name" or simply delete the entry.
Certificate that is used to authenticate the DUT by the Cloud service	DUT authentication at the Cloud service	The user must confirm the general business terms and conditions before the installation of the DUT and the app.	See "User name" or logout from Cloud service.

Table:1 Handling of obtained personal data



Notice

Further instructions are available in the corresponding chapter of this product manual or in the system manual for ABB-free@home®!

Concrete handling of telemetry data that are recorded, stored and processed by ABB-free@home® System Access Point 2.0:

The telemetry data include all sensors and actuators that are connected via the cable-bound or wireless interfaces with the SysAP. Also IP-connected devices that are controlled by the SysAP or from which it requests information, are enclosed (e.g. Philips HUE, Sonos loudspeakers, etc.). The telemetry data also include events at which a sensor sends data or an actuator receives control messages that changes its state, as well as data that are exchanged with IP-connected devices within the local network. The telemetry data also include information that was exchanged with the mobile app, and whether/when a user was logged into the SysAP, whether/when/which configurations were changed by whom.

Description	Purpose	Security check	Personal data
Local recording is supported	Can be shared with ABB R&D. R&D can verify protocols on the basis of: - Problems at the configuration - Competitive conditions between different devices/processes	The user can exchange protocols with ABB but the automatic exchanged is not activated. Can be used to detect brute-force-attacks	N/A
Backup files (can be generated by the user)	Can be passed on to ABB to understand the structure of the system configuration and to support customers and R&D during the determination of causes of problems.	K.A. (The data are not used for the security check)	PersData-x (see the table at the top)
All telemetry data (data supplied by sensors and switching frequencies of actuators, etc.) are stored in the Cloud/IoT-Hub.	Foresighted maintenance: The target of ABB is to inform the customer when a product has reached the end of its service life or to notify the state the product is in. There is the option of recording operating hours and switching cycles.	Telemetry data are used to increase the security of the product by the recognition of anomalies. The anomalies could include several incorrect password entries within a short space of time. These telemetry data can be used to inform the user at the login via a dialogue that there was an attempt to find out your account / your PIN code / etc.	N/A

Table:2 Handling of the collected telemetry data



Notice

Further instructions are available in the corresponding chapter of this product manual or in the system manual for ABB-free@home®!

Secure Shell Protocol

The Secure Shell Protocol (SSH) is a cryptographic network protocol for the remote login and the secure operation of network services via an unsecured network.

This function can only be used by the ABB technician, not by the end customer.

The end customer always has his device under his own control. Without activation by the user/end customer, the interface cannot be used by anyone.

The interface is only intended for use in the local network with physical access to the device. The end customer should not set up port forwarding, VPN or similar, to make remote access possible.

The interface must only be activated when the respective ABB technician has identified himself with his personal ID and his employee ID.



Attention! - Access to the interface

ABB Technicians would never request this from the customer, especially not on the telephone! Every try to convince the customer to remotely access the interface, should be reported via cybersecurity@ch.abb.com.

To activate the Secure Shell Protocol, proceed as follows:

1. Log yourself into the System Access Point.



Fig. 1: ABB-free@home® Configuration

2. Select “ABB-free@home® configuration” via the main menu or the page menu in the user interface of the System Access Point.

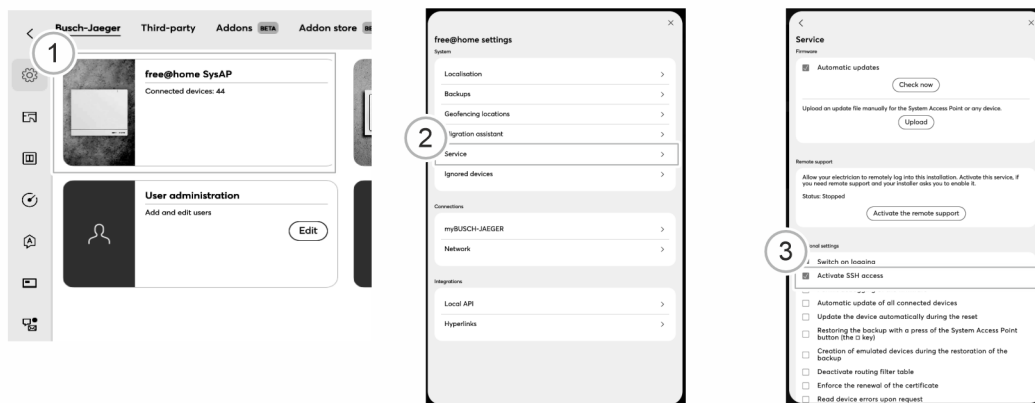


Fig. 2: Activating the Secure Shell Protocol

3. Tap on the tile “free@home System Access Point” [1].
4. Tap on “Service” [2].
5. In section “Further settings” activate the checkbox “Activate SSH access” [3].

Certificate REST API

The Rest API makes it possible for developers to implement own scripts based on JAVA. Scripts that use the local REST interface can be signed via certificate. The System Access Point 2.0 offers the option to generate and download such a certificate.

This setting is an option that is only intended for developers. There are simple templates available. The corresponding developer documentation can via:

<https://developer.eu.mybuildings.abb.com/>

General deleting functions of ABB-free@home® System Access Point 2.0:

Description	Target group	Confirmation
The user has the option to reset the DUT to the factory settings. In this case all configuration data that were created by the user or created as a result of the entries made available by the user, were deleted from the flash memory. All configuration data that were created in defined configuration files (XML documents), are deleted from the file system in the flash memory. Then new configuration files without content are created.	User data and personal data on the device	After the successful reset to the factory settings the device is in the state of delivery.
The user can log the device out of the Cloud service.	Personal data about associated services	The status of the Cloud connection is "isolated".

Table:3 General deleting functions



Notice

Further instructions are available in the corresponding chapter of this product manual or in the system manual for ABB-free@home®!

Shut-down, archiving and destruction

If the device is to be taken out of operation, archived or destroyed, first remove all sensitive and personal data from the device with the function "Reset to factory settings" (see chapter "Factory settings" on page 23).

4 Information on protection of the environment

4.1 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).

5 Product Overview

5.1 Setup

Smart switch

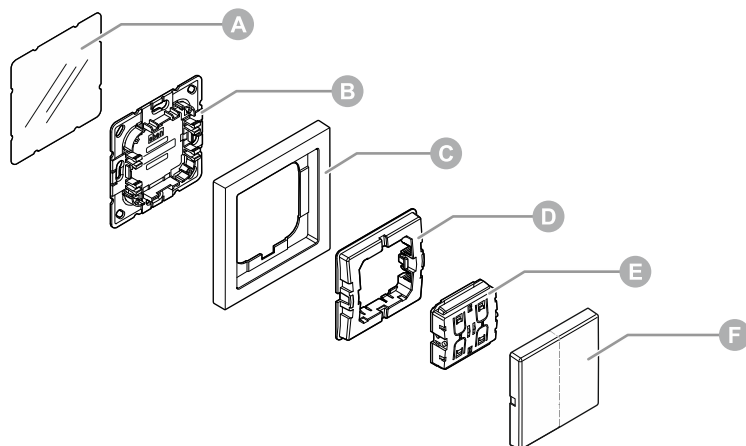


Fig. 3: Overview of devices Smart switch

- [A] Double-sided adhesive film
- [B] Mounting plate
- [C] Cover frame (not included in the scope of delivery)
- [D] Intermediate ring
- [E] Smart switch-insert with integrated antenna
- [F] Rocker(s) (not included in the scope of delivery)



Notice

Additional information about possible switch ranges is available in the electronic catalogue (www.busch-jaeger-catalogue.com).

5.2 Functions

The Smart switch is a wireless push-button without battery. The necessary electric voltage for the transmission of signals is generated with the "Energy Harvesting" technology when the rockers are pressed.

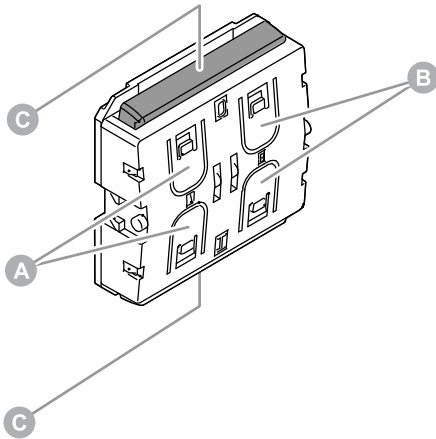


Fig. 4: Smart switch insert

[A] Switch contact for rocker(s) - channel A

[B] Switch contact for rocker(s) - channel B

[C] Integrated kinetic energy generator

The Smart switch is designed for switching and dimming of Smart Home devices of the ABB-free@home® system. Lamps, socket outlets, blinds or light scenes can be controlled via the freely configurable push-button contacts.

A radio signal is sent both when pressing and when releasing the push-button. A distinction can be made between a long and a short press of the button. This also makes the implementation of dimming or blind commands possible.

The Smart switch must be programmed in an installation with a ABB-free@home® WL or flexTronics WL device. This device then acts as proxy (interface between two participants) for the free@home or flexTronics system. With a ABB-free@home® WL proxy device a Smart switchdevice can be logged in, for a flexTronics WL proxy device up to three Smart switch devices.



Notice

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

6 Technical data

6.1 Technical data

Description	Value
Energy generation	Integrated kinetic energy generator
Radio standard	IEEE 802.15.4
Radio frequency	2.4 - 2.48 GHz
Transmission performance	0.4 dBm
Radio range	< 75 m in free field, < 10 m in buildings
Radio certifications	RED
Device interface for configuration	NFC (ISO 14443)
Security / encryption:	AES128
Protection rating	IP20
Ambient temperature	-5°C to +45°C
Storage temperature	-25 °C ... +65 °C

Table:4 Technical Data

7 Connection, installation / mounting

7.1 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.

The independence from a power supply allows the device to be installed at all locations that make signal transmission possible. That is why the radio range is to be taken into consideration when selecting the mounting location. Switch ranges with metal frames can additionally reduce the transmission range.



Notice

Test the transmission range before mounting. For this, program the device (see chapter “Commissioning via NFC” on page 21) by holding it at the mounting site and switching the receiver.

The device must only be installed in dry areas and must be protected against dripping water and condensate.

Radio transmission ranges

Walls, ceilings and other building obstacles reduce the transmission range of the radio signal.

The following ranges are guideline values and may vary depending on local conditions:

Direct transmission path without obstacles	Approx. 15 m
Wood, plaster, glass (uncoated)	10.5 to 15 m
Bricks, chipboard	10 to 14 m
Reinforced concrete	1.5 to 13.5 m
Metal, aluminium lamination	0 to 1.5 m

Fire walls, lift wells, staircases and supply areas are considered as separating walls, just like the installation of the receiver in metal housings.

Do not install the device close to electric inducted magnetic fields such as large transformers since this can interfere with the wireless communication. The distance should be at least 1 meter.

7.2 Mounting

Use the supplied adhesive film for mounting on flat, even surfaces (e.g. tiles or glass).

If used with heavy cover frames, fasten the device with screws.

To install the device, perform the following steps:

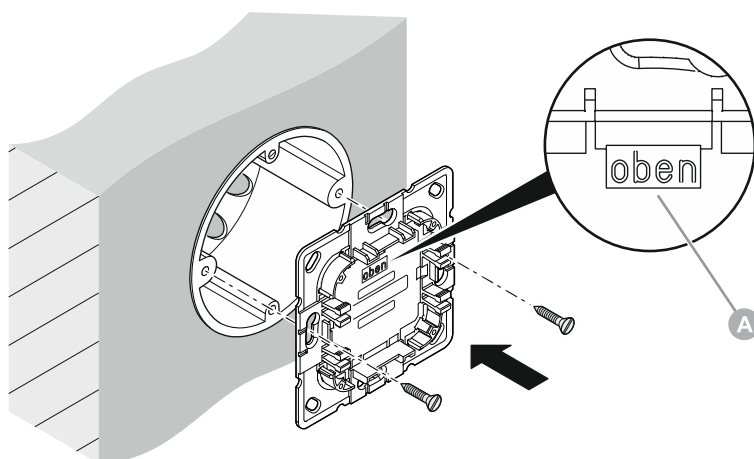


Fig. 5: Attaching the mounting plate

1. Attach the mounting plate at the mounting site.
Ensure that the mounting plate is correctly aligned. Observe the “Top” marking [A].
 - In case of rough surfaces and flush-mounted boxes according to DIN 49073:
 - Install the mounting plate with commercially available screws and dowels. In case of an existing flush-mounted box, use the keyholes of the mounting plate.
 - In case of flat surfaces (e.g. tiles, glass):
 - Glue the adhesive film on the rear side of the mounting plate.
 - Glue the mounting plate on the installation site and press it firmly.

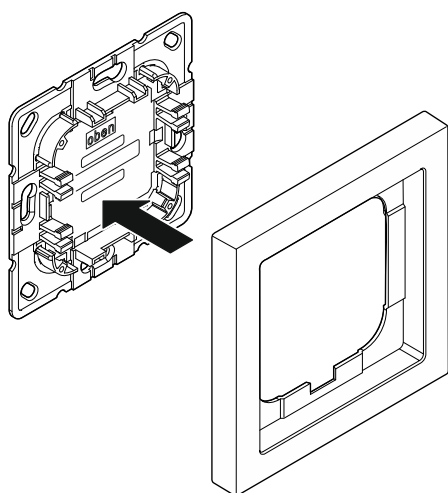


Fig. 6: Positioning the cover frame

2. Position the cover frame on the mounting plate.

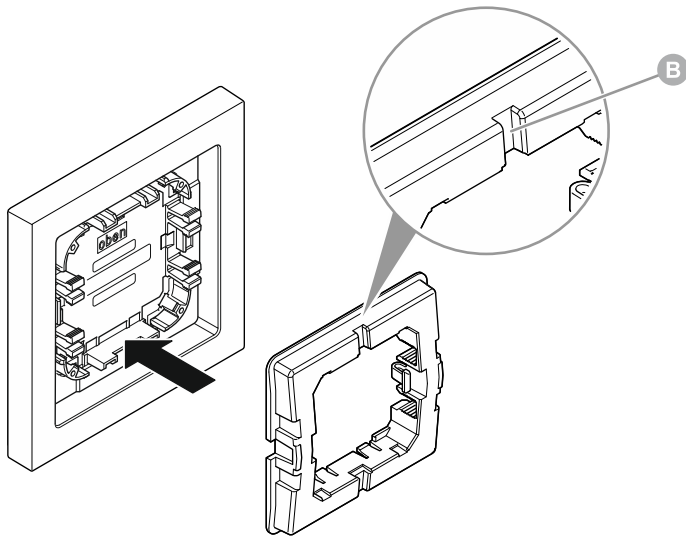


Fig. 7: Mounting the intermediate ring

3. Clip the intermediate ring into the mounting plate.
 - Ensure that the groove on the intermediate ring is positioned vertical [B].
 - This firmly clamps the cover frame.

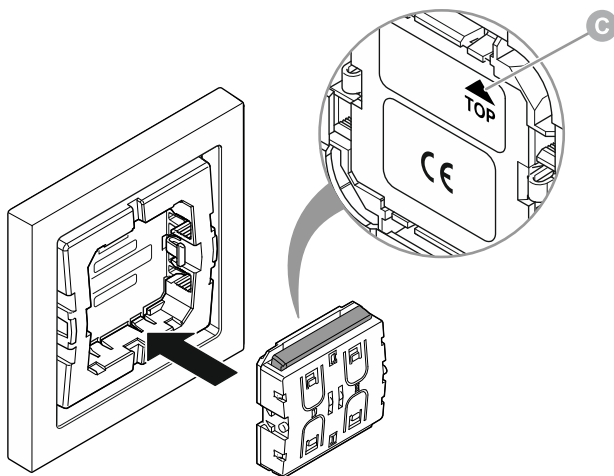


Fig. 8: Mount the Smart switch insert

4. Smart switch Clip the insert into the intermediate ring.
 - Ensure that the arrow on the rear side of the insert points upwards [C].

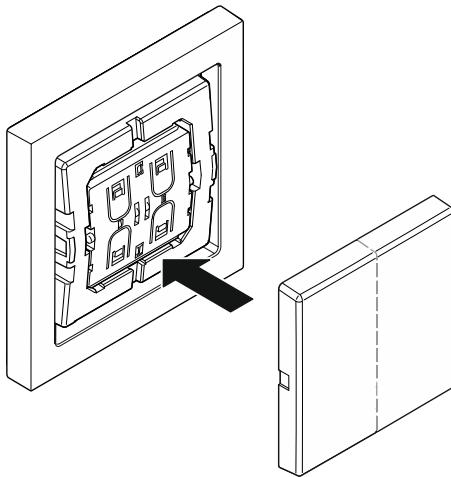


Fig. 9: Latching the rocker(s)

5. Latch the rocker(s) on the Smart switch insert.
 - Mounting a rocker/series rocker is possible.

7.3 Dismantling

Dismantling is carried out in the reverse order to mounting.

7.4 Electrical connection

The device has no electrical connection and requires no external power supply.

8 Commissioning

8.1 System requirements

The Smart switch must be programmed in an installation with a ABB-free@home® WL or flexTronics WL device. This WL device then acts as proxy (interface between two participants) for the free@home or flexTronics system.

The Smart switch is automatically connected with the actuator channel of the proxy device during commissioning. However, it can also be allocated to any different actuator in the system.

Prerequisites:

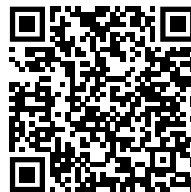
- The current version of the app ABB-free@home® Next App is installed on your smartphone, at least however, version 2.4
- The smartphone has an NFC and Bluetooth® function.
- The smartphone has a connection with MyBuildings.
- The Smart switch is located in the radio range of the WL device (proxy).
 - The proxy device can be integrated in a system of extension stage “Room control” or “Home automation”.
- The ABB-free@home® Next App can be downloaded free of charge from the Apple App Store and from Google Play (see see chapter “Downloading and installing the app“ on page 20).

8.2 Downloading and installing the app

Download the app ABB-free@home® Next App from the respective store and install it on your smartphone.



Android



IOS

8.3 Commissioning via NFC

To connect the device with the app, proceed as follows.

1. Activate the NFC and Bluetooth® on your smartphone.
2. Open the existing installation in the app ABB-free@home® Next App.

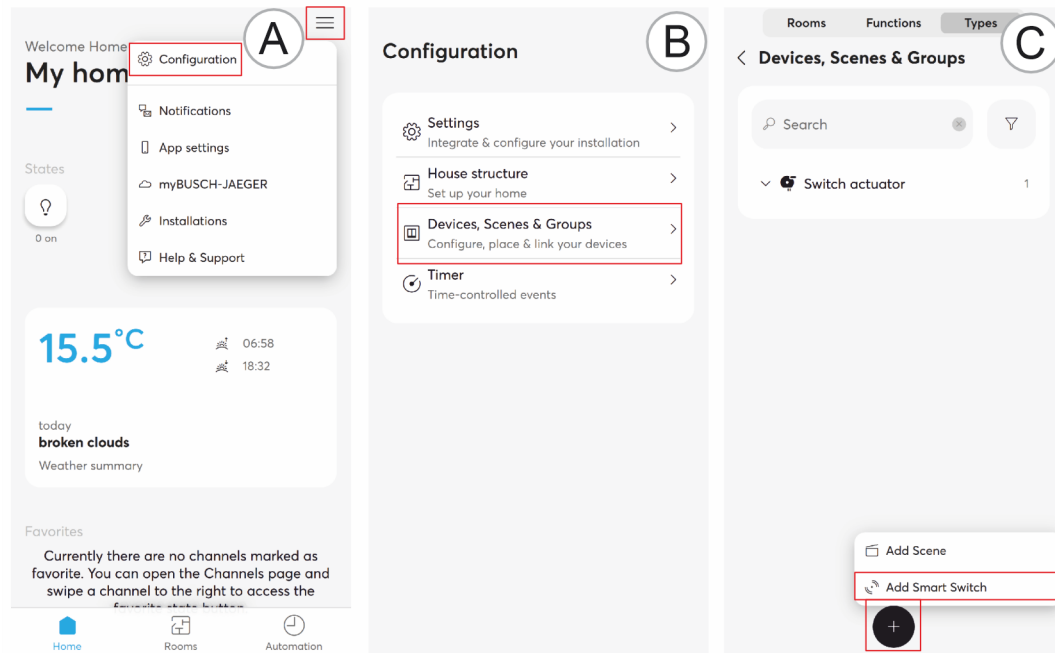


Fig. 10: Integrating the device [A] - [C] (example illustration)

3. Open the Burger menu and select "Configuration" [A].
4. Select "Devices, scenes & groups" [B], to gain access to the device list.
5. Tap on the plus icon and then on "Add smart switch" [C].

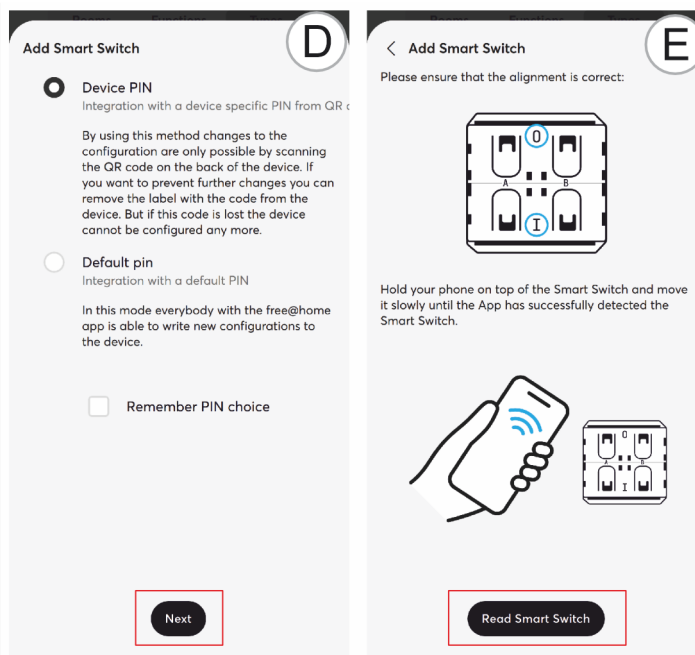


Fig. 11: Integrating the device [D] - [E] (example illustration)

6. Select the desired access option on the device [D] and confirm the selection with "Continue".
 - With setting "Device PIN" the access to the device via the app is possible only by scanning the QR code on the rear side of the device.
 - The setting "Standard PIN" makes possible the direct access to the device via the app.



Notice

Commissioning with the standard PIN is not recommended since the device is not protected against foreign access via the app ABB-free@home® Next App.

7. Hold the smartphone as close as possible to the device and start the connection with "Read in smart switch" [E].
 - The connection with the smart switch is established.
8. Then select whether the smart switch is equipped with a "Rocker" (2-channel operation) or "Double rocker" (4-channel operation).
9. Tap on the list of available devices on the desired receiver device with which the smart switch is to be connected.
 - The configuration is saved on the selected proxy device.
10. Assign a device name and position the device inside the installation (specification of floor and room). Then confirm the settings with "Finished".

The smart switch is now connected with the receiver device (proxy).

9 Operation

9.1 Factory settings

The device has no reset function.

Configure the device anew to connect it with a different receiver device.

**Notice**

If the connected receiver device is deleted, this is displayed with a warning in the ABB-free@home® Next App.

The device must be connected with a different receiver device.

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 Declaration of conformity

ABB herewith declares, that radio system type 62721/xx-U-WL-500 conforms to directive 2014/53/EU.

The complete text of the EU Declaration of Conformity is available at the following Internet address:

62721 U-WL-500	https://new.abb.com/products/2CKA006710A0048/
62721/01 U-WL	https://new.abb.com/products/2CKA006710A0052/
62721/10 U-WL-500	https://new.abb.com/products/2CKA006710A0049/
62721/11 U-WL-500	https://new.abb.com/products/2CKA006710A0053/

Table:5 Link to Declaration of Conformity

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