

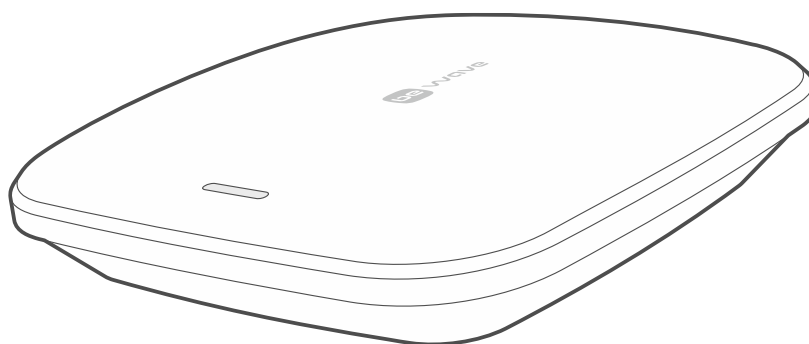


BE WAVE system controller

Smart HUB Plus Smart HUB Smart HUB Plus LV

EN

Firmware version 1.3



smart_hub_en 08/26

IMPORTANT

Changes, modifications or repairs not authorized by the manufacturer shall void your rights under the warranty.

The symbols on the rating plate of the device indicate:



The device meets the requirements of the applicable EU directives.



The device must not be disposed of with other municipal waste. It should be disposed of in accordance with the existing rules for environment protection (the device was placed on the market after 13 August 2005).



Protection class II (protective insulation).



The device is designed for indoor installation.



Alternating current (AC).



Direct current (DC).



Prior to installation, please read carefully the manual.

Hereby, SATEL sp. z o.o. declares that the radio equipment type Smart HUB Plus / Smart HUB / Smart HUB Plus LV is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address:
www.satel.pl/ce

Signs in this manual



Caution – information on the safety of users, devices, etc.



Note – suggestion or additional information.

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1. Introduction

This manual will help you install the Smart HUB Plus / Smart HUB / Smart HUB Plus LV controller. The BE WAVE system combines building automation functions and security functions which protect against burglary, fire or other emergencies. You can manage and control it from the Be Wave mobile app or the BE WAVE Soft program.

The manual applies to the controller with electronics version:

Smart HUB / Smart HUB Plus: 1.5

Smart HUB Plus LV 1.2



The performance of extra features such as SMS, CLIP or push notifications depends on external networks and third-party services – including telecommunications providers – which are beyond our control. These services may occasionally experience disruptions that affect the delivery of notifications. The proper functioning of these features may also depend on the settings of your devices. While we do our best to minimize the risk of such issues, we cannot accept responsibility for the uninterrupted and error-free operation of features that rely on third-party services, particularly telecommunications networks or from the actions of device manufacturers.

The alarm system cannot prevent burglary, hold-up or fire from happening, but in emergency situation it will allow you to take steps to minimize the potential damage (it will signal an alarm using visual or audible signaling, notify the system users or the appropriate authorities of the alarm etc.). As a result, it may deter potential intruders.

2. Features

Devices in the system

- Support for up to 128 wireless devices and virtual IP devices.
- Wireless devices:
 - operation in the 868 MHz frequency band,
 - AES encrypted two-way radio communication,
 - transmission channel diversity – 4 channels for automatic selection of the one that will enable transmission without interference with other signals,
 - additional transmission channel to receive images from the APCAM-200 (Motion Detector Cam) and AOCAM-210 (Outdoor Motion Detector Cam) detectors.
- Virtual IP devices:
 - IP zones (receiving HTTP notifications),
 - IP outputs (sending HTTP notifications).

System division

- Capability to assign devices to 50 rooms.

Users

- Up to 50 users.

Be Wave app

- Mobile app to manage the system:
 - communication via the local network or establishing connection through the Internet using the SATEL server,

- system programming,
- system control,
- system diagnostics,
- valid for installation on up to 5 different mobile devices of the user.

BE WAVE Soft program

- Program to manage the system:
 - communication via the local network or establishing connection through the Internet using the SATEL server,
 - system programming,
 - system control,
 - system diagnostics,
 - valid for installation on a computer with the Windows 10 / Windows 11 system (or newer).

Arming

- Capability to arm the system fully or partially.

Scenes and routines

- Up to 100 scenes and routines.
- Scenes for easier control.
- Routines for automated system operation.

Schedules

- Up to 50 schedules.
- Capability to use schedules for routines.

Event log

- 8000 event log entries.

Messaging

- Event notification types:
 - push,
 - email messages,
 - SMS [Smart HUB Plus / Smart HUB Plus LV],
 - CLIP [Smart HUB Plus / Smart HUB Plus LV].

Reporting

- Reporting events to two monitoring stations.
- Support for Contact ID, SIA and Bold Manitou communication formats.
- Data transmission via Ethernet or cellular network [Smart HUB Plus / Smart HUB Plus LV].
- Dual Path Reporting compliant with EN 50136 [Smart HUB Plus / Smart HUB Plus LV].

Firmware update

- Capability to update firmware of the controller and the devices in the system.

Mainboard

- Built-in Ethernet (LAN) port.

- Built-in Wi-Fi:
 - operating in the 2.4 and 5 GHz bands,
 - IEEE 80.11 b/g/n (2,4 GHz) / IEEE 802.11 a/n (5 GHz) standards.
- Built-in cellular telephone [Smart HUB Plus / Smart HUB Plus LV]:
 - operating in the 2G and 4G networks,
 - dual SIM support.
- LED indicators.
- Powered by:
 - 230 VAC [Smart HUB Plus / Smart HUB],
 - 9...28 VDC [Smart HUB Plus LV].
- Backup battery.
- Battery charging circuit.
- Battery status control and low battery disconnect system.
- Tamper protection against enclosure opening and removal from mounting surface.

3. Supported devices

You can install up to 128 wireless devices and virtual IP devices in the system.

3.1 Wireless devices

3.1.1 Detectors

APD-200 (Motion Detector) – detector that uses infrared to detect motion.

APD-200 Pet (Motion Detector Pet) – detector that uses infrared to detect motion. It ignores moving pets up to 20 kilos.

APCAM-200 (Motion Detector Cam) – detector that uses infrared to detect motion. It has a camera that sends photos in case of alarm or on user's request.

APMD-250 (Motion Detector Plus) – detector that uses infrared and microwaves to detect motion.

AOD-210 (Outdoor Motion Detector) – detector that uses infrared and microwaves to detect motion. It ignores moving pets up to 20 kilos. It is designed for outdoor installation.

AOCAM-210 (Outdoor Motion Detector Cam) – detector that uses infrared and microwaves to detect motion. It has a camera that sends photos in case of alarm or on user's request. It ignores moving pets up to 20 kilos. It is designed for outdoor installation.

ACD-220 (Curtain Detector) – detector that uses infrared to detect motion in an area shaped like a curtain.

AOCD-260 (Outdoor Curtain Detector) – detector that uses infrared and microwaves to detect motion in an area shaped like a curtain. It is designed for outdoor installation.

APC-200 (Ceiling Motion Detector) – ceiling detector that uses infrared to detect motion. Available in two variants:

APC-200 R – for mounting in a suspended ceiling.

APC-200 S – for mounting on the surface of the ceiling.

APMC-250 (Ceiling Motion Detector Plus) – ceiling detector that uses infrared and microwaves to detect motion. Available in two variants:

APMC-250 R – for mounting in a suspended ceiling.

APMC-250 S – for mounting on the surface of the ceiling.

AGD-200 (Glass Break Detector) – detector that detects a glass break.

AXD-200 (Multipurpose Detector) – multipurpose detector that can be used as:

Shock detector – detects shocks accompanying attempts to force open a door or window.

Opening detector – detects the opening of a door or window. You can connect a wired NC detector to it (e.g. a wired opening detector). The built-in opening sensor can be disabled.

Shock and opening detector – detects shocks accompanying attempts to force open a door or window. It also detects the opening of a door or window. You can connect a wired NC detector to it (e.g. a wired opening detector). The built-in opening sensor can be disabled.

Flood detector – detects indoor water flooding. The FPX-1 probe by SATEL is required.

Temperature sensor – measures the air temperature.

Roller shutter detector – detects the opening of a door or window. You can connect to it a wired roller shutter detector and a wired NC detector (e.g. a wired opening detector).

AXD-200 Lite (Opening Detector) – detector that detects the opening of a door or window. You can connect a wired NC detector to it (e.g. a wired opening detector). The built-in opening sensor can be disabled.

AFD-200 (Flood Detector) – detector that detects indoor water flooding.

ASD-200 (Fire Detector Plus) – detector that detects the presence of smoke or a rapid temperature rise (early signs of fire).

ASD-250 (Fire Detector Pro) – detector that detects the presence of smoke (early sign of fire). It meets the EN 14604 requirements.

ACMD-200 (Carbon Monoxide Detector) – detector that detects hazardous concentration of carbon monoxide.

ADD-200 (Outdoor Dusk Detector) – detector that detects dusk and dawn based on the measurement of light intensity. It is designed for outdoor installation.

ATPH-200 (Multi Sensor) – detector that measures temperature, pressure and humidity.

3.1.2 Actuators

ADC-200 (Smart Dimmer) – dimmer used to adjust the brightness of 230 VAC lighting. It can be used to turn on / turn off / dim down / dim up the lights.

ARC-200 (Smart RGBW LED Driver) – controller used to control the light color and adjust the brightness of 12...48 VDC LED lighting. It can be used to turn on / turn off / dim down / dim up the lights / change the light color.

ARSC-200 (Smart Blinds) – controller used to open and close roller blinds / shutters / electric windows. It controls devices driven by a 230 VAC motor with limit switches.

ART-210 (Smart Thermostat) – radiator thermostat used to maintain the set room temperature by regulating the flow of warm water to the radiator.

ASW-200 (Smart Plug) – plug used to turn ON / OFF any 230 VAC electrical appliance connected to its outlet.

ASW-210 (Smart 2-CH Relay) – controller used to turn ON / OFF up to two 230 VAC electrical appliances.

ASW-220 (Smart 2-CH Relay PM) – controller used to turn ON / OFF up to two 230 VAC electrical appliances. It measures the power consumed by appliances connected to the controller outputs.

3.1.3 Sounders

ASP-200 (Outdoor Siren) – siren that emits sound and light. It is designed for outdoor installation.

ASP-215 (Indoor Siren) – siren that emits sound and light.

3.1.4 Keypad

AKP-200 (Smart Keypad) – keypad used to control the BE WAVE system.

3.1.5 Keyfobs and buttons

APT-200 (Smart Keyfob) – keyfob used to control the BE WAVE system remotely.

APT-210 (Smart Keyfob) – keyfob used to control the BE WAVE system remotely.

APB-200 (Panic Button) – panic button.

APB-210 (Smart Button) – control button.

3.1.6 Expanders

ACX-210 (Mini Multi Extender) – expander that allows you to use wired detectors in a wireless system and to control wired devices. Due to its small size, it can be installed inside another device enclosure.

ACX-220 (Multi Extender) – expander that allows you to use wired detectors in a wireless system and to control wired devices.

AUT-200 (Wireless Universal Transmitter) – module that allows you to use wired detectors in a wireless system.

ATX-200 (Smart Switch Controller) – module that enables electrical switches to be used to control the BE WAVE system.

3.1.7 Repeater

ARU-200 (Smart Repeater) – radio signal repeater that extends the range of radio communication in the BE WAVE system. This allows you to install wireless devices further away from the controller.



Required firmware version of the repeater: 2.00 (or newer).

3.2 Virtual IP devices

An IP device can receive and send HTTP notifications. When an HTTP notification is received (e.g. from an IP camera), the IP zone is violated. When the IP output is activated / deactivated, an HTTP notification is sent.



For security reasons, it is not recommended to use HTTP requests outside of the local network. These requests are not encrypted.

4. Installation



If the device is mounted higher than 2 m above the ground, it can become a danger when it falls off the wall.

There is a danger of battery explosion when using a different battery than recommended by the manufacturer, or handling the battery improperly.

Do not crush the battery, cut it or expose it to high temperatures (throw it into the fire, put it in the oven, etc.).

Do not expose the battery to very low pressure due to the risk of battery explosion or leakage of flammable liquid or gas.

4.1 Installing the Smart HUB Plus / Smart HUB controller



The controller can be connected to a power outlet whose voltage is the same as the voltage indicated on the controller's rating plate.

Do not connect the controller to a power outlet if the controller power cable or enclosure are damaged.

Do not touch the power cable plug with wet hands.

Do not pull the cable to disconnect it from the outlet. Pull the plug instead.

If smoke is coming out of the device, disconnect the power cable from the outlet.

Do not place heavy objects on the controller.

Do not install the controller at locations above 2000 m above sea level.

4.1.1 Description of the Smart HUB Plus / Smart HUB controller

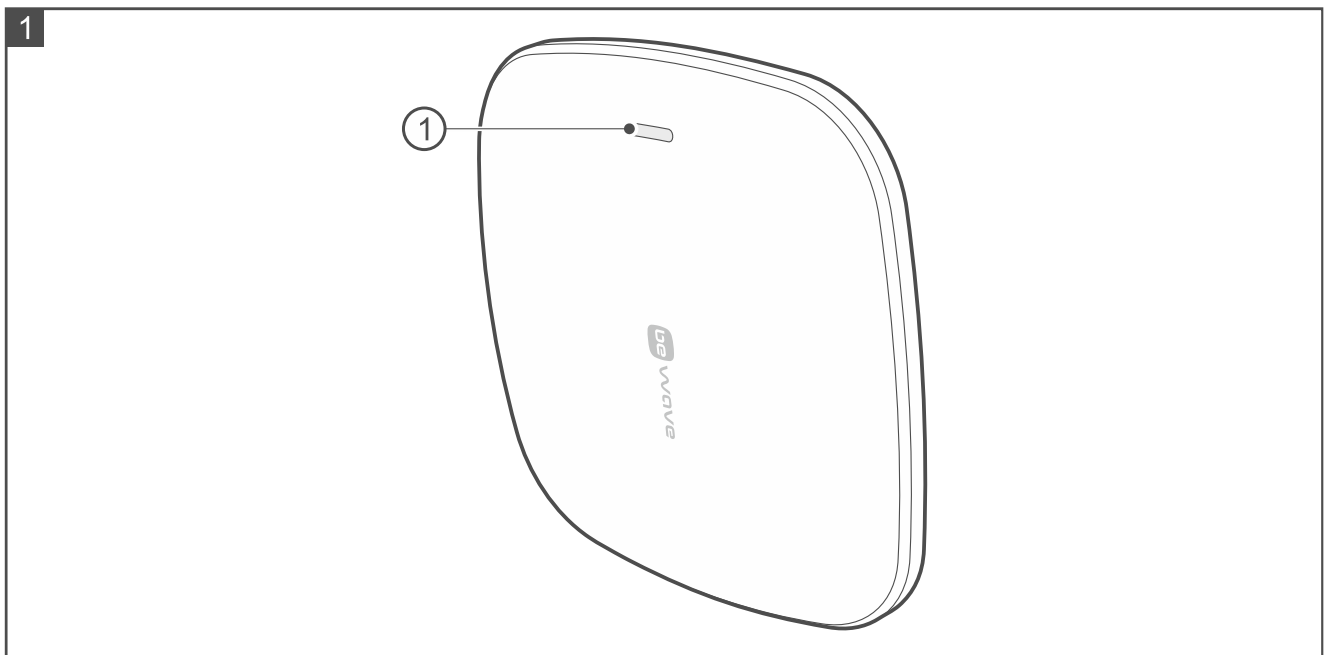


Figure 1 shows the controller's front side:

① LED indicator:

flashing in pink – controller startup in progress,

ON in pink – controller operates in the Wi-Fi access point mode (you can connect to the controller in the BEWAVE_AP network),

ON in blue – controller is connected to a local network but has no access to the Internet or no connection to the SATEL server,

ON in green – controller is connected to the Internet,

additionally flashing in yellow – trouble,

additionally flashing in red – alarm,

colors changing smoothly – controller's firmware update in progress,

ON in white – controller's factory reset in progress.

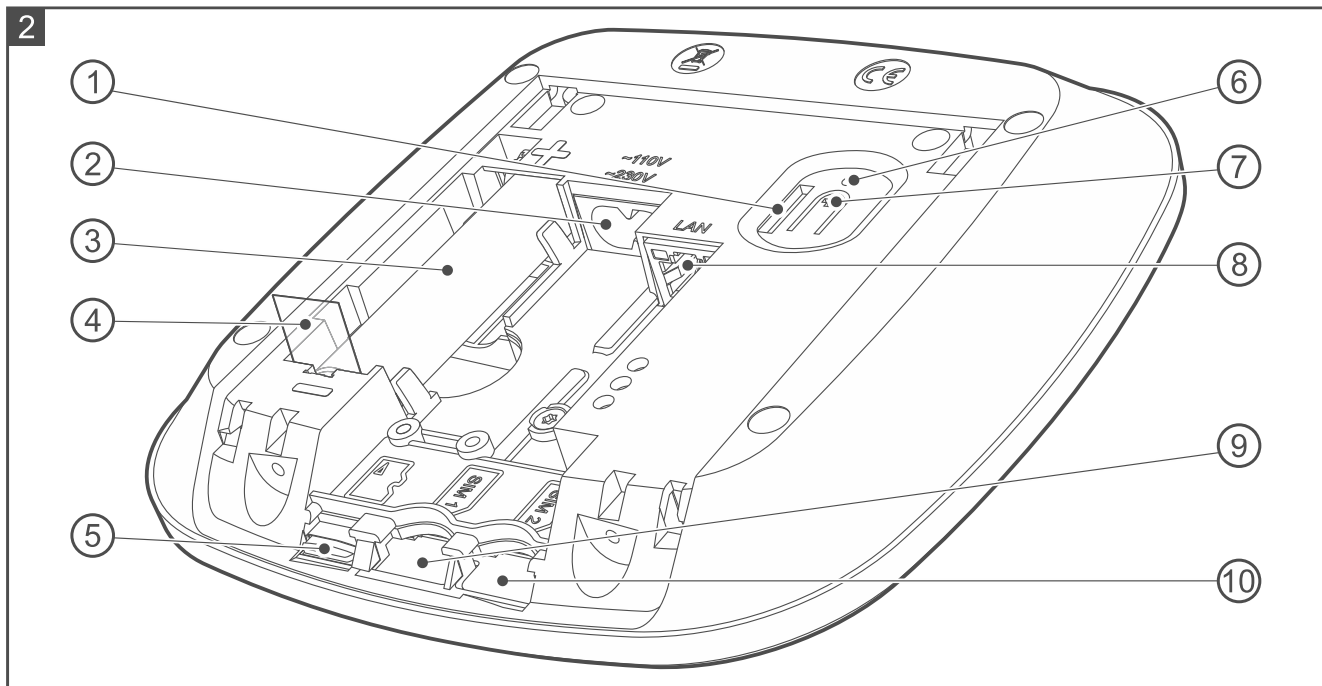


Figure 2 shows the inside of the Smart HUB Plus / Smart HUB controller after opening the enclosure.

- ① tamper protection.
- ② power cable port.
- ③ lithium-ion rechargeable battery (3.6 V / 3200 mAh).
- ④ battery insulator pull tag.
- ⑤ SD memory card (factory-installed). Stored on the SD card are:
 - backup settings (in order to restore settings in case of trouble or copy settings to another controller),
 - photos sent by the Motion Detector Cam,
 - photos used in the Be Wave app (for personalized room views),
 - data from devices measuring temperature, pressure, humidity, power consumption, etc.,
 - file of system items names (it can be created if the file is to be forwarded to the monitoring station).
- ⑥ factory reset pinhole – see “Hardware factory restore” p. 71.
- ⑦ button to enable / disable the Wi-Fi access point mode (press and hold for 5 seconds).
- ⑧ LAN cable port.
- ⑨ SIM1 slot for first SIM card [Smart HUB Plus].
- ⑩ SIM2 slot for second SIM card [Smart HUB Plus].

4.1.2 Installation tips for the Smart HUB Plus / Smart HUB controller

- The controller should be installed indoors, in spaces with normal air humidity.
- You can mount the controller on the wall or place it on a tabletop.
- The place of installation should be close to a 230 VAC power outlet. The outlet must be readily available.
- The electrical circuit to which the controller is to be connected must have suitable protection.

- The BE WAVE wireless devices you are planning to install must be within the range of the controller's radio communication. Keep this in mind when selecting a place of installation for the controller. Please note that thick walls, metal partitions, etc. will reduce the range of the radio signal.

4.1.3 Mounting the Smart HUB Plus / Smart HUB controller

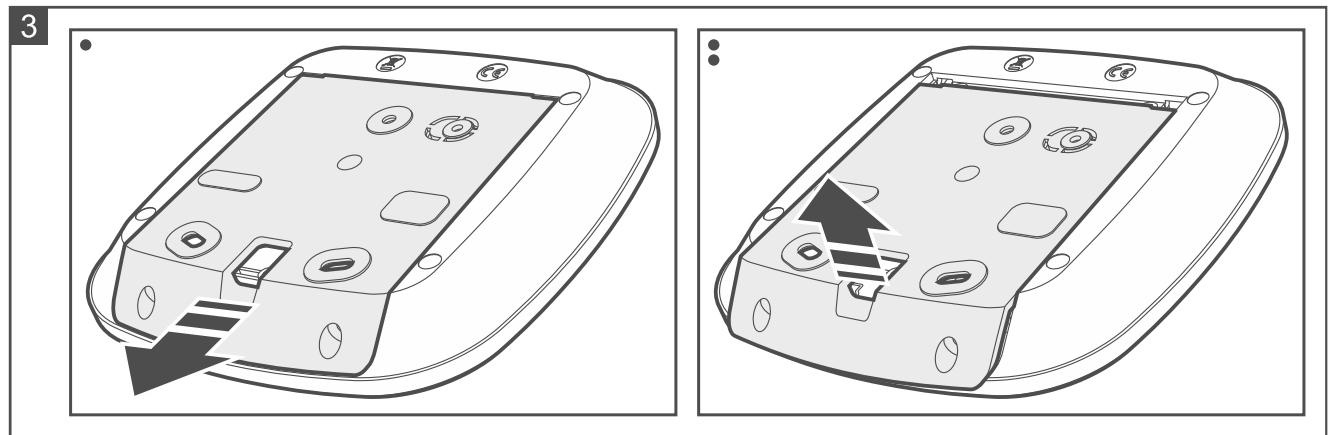


If the controller is to meet the requirements of Standard EN 50131 for Grade 2, mount the controller on the wall.

Do not mount the controller on the wall with cables pointing upwards.

If the controller is to remain placed on the tabletop, skip steps 2, 3 and 5 and apply adhesive anti-slip pads on the bottom of the enclosure (Fig. 14). The pads are supplied with the controller.

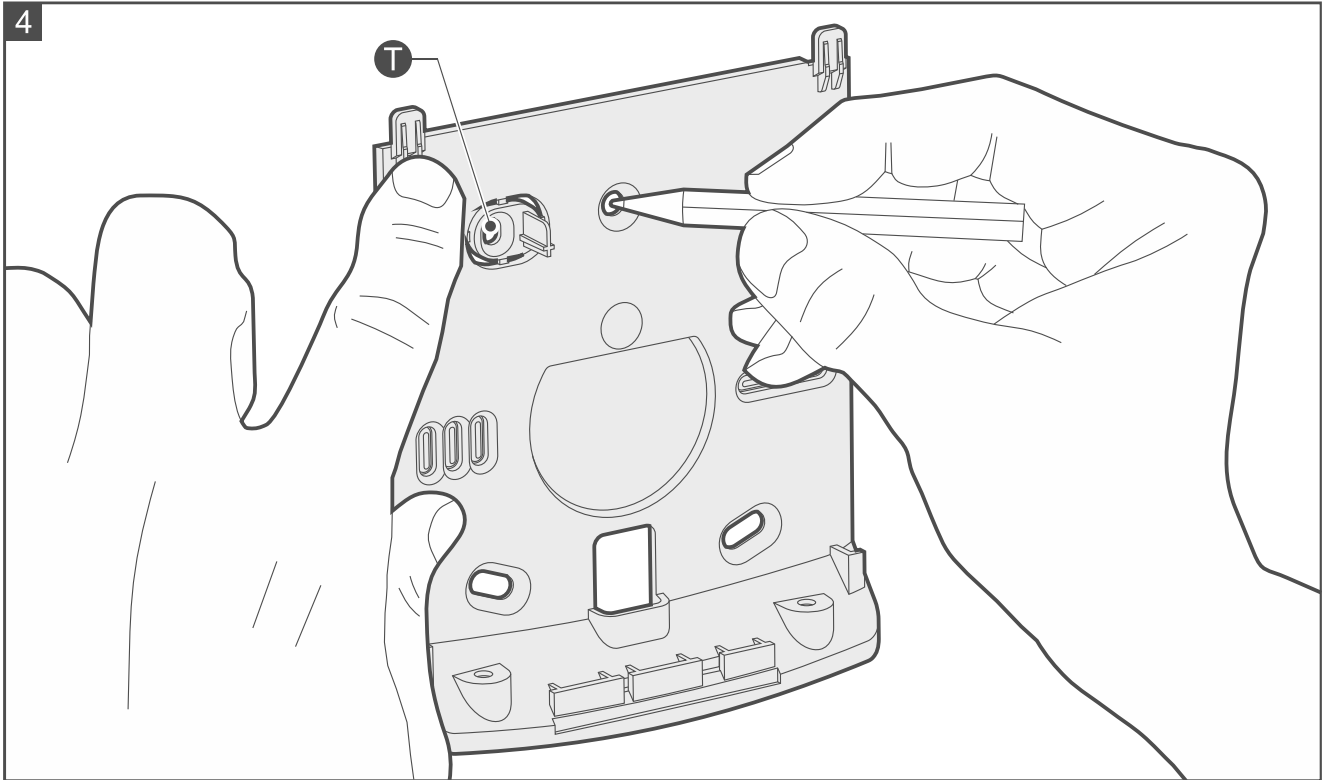
1. Open the controller enclosure (Fig. 3).



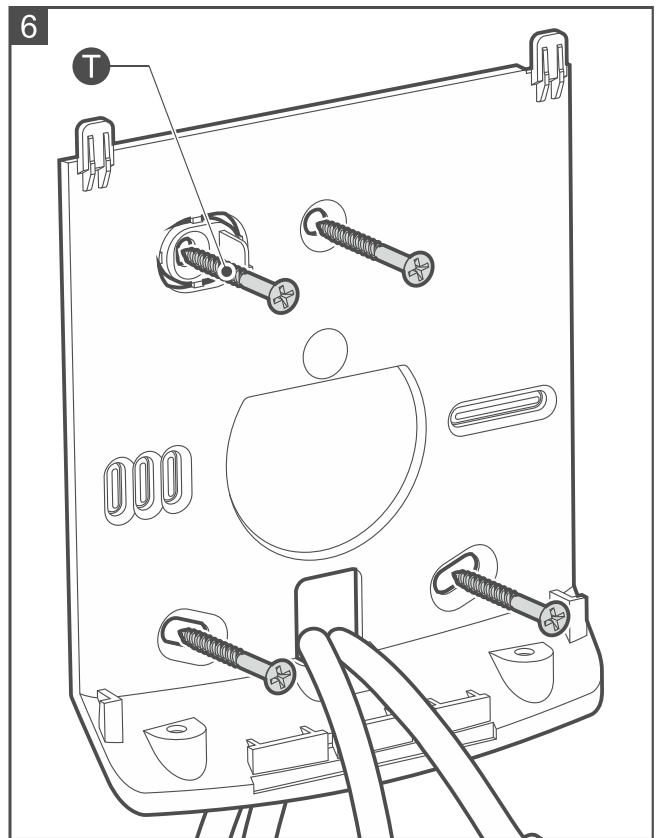
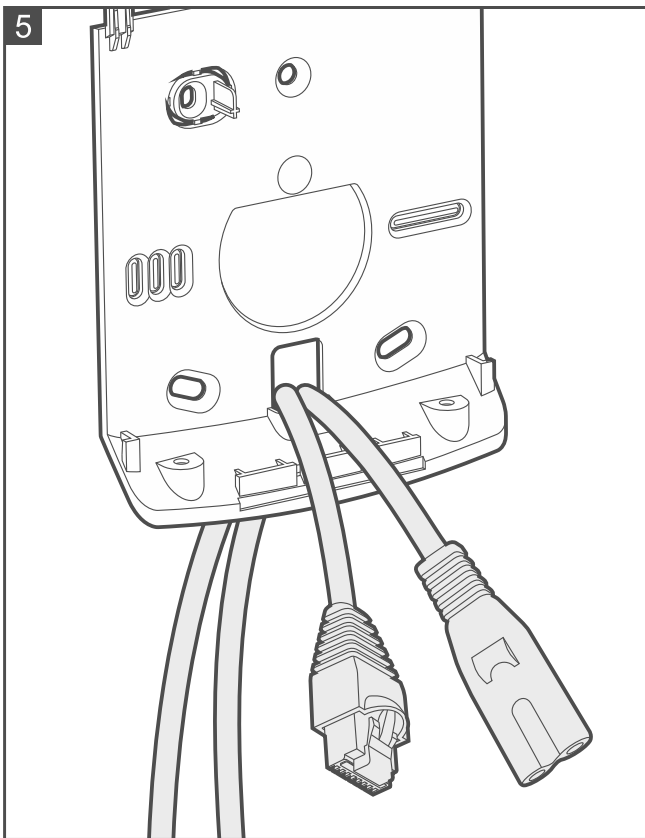
2. Place the enclosure base against the wall and mark the location of the mounting holes (Fig. 4). If the controller is to detect removal from the surface, mark the location of the hole in the tamper protection element (marked with the **T** symbol in the figure).



The controller must detect removal from the surface if it is to meet the requirements of Standard EN 50131 for Grade 2.

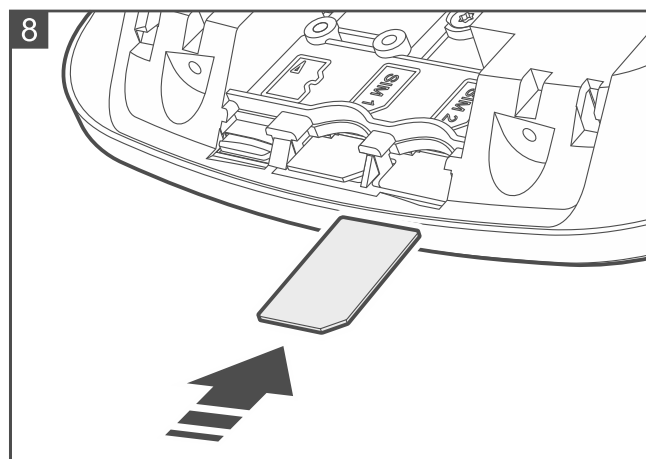
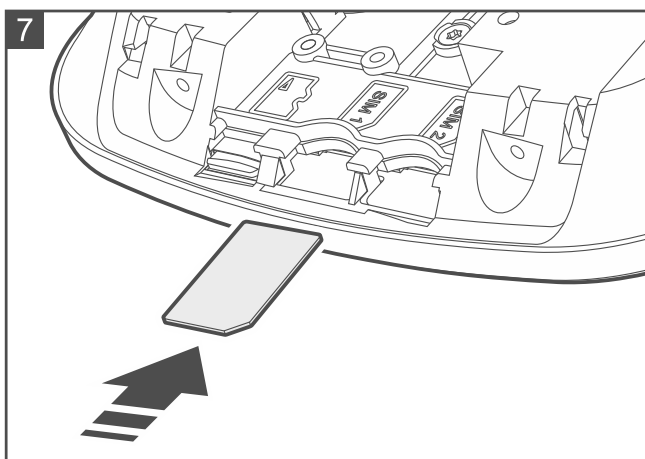


3. Drill the holes in the wall for wall plugs (anchors). Select wall plugs specifically intended for the mounting surface (different for concrete or brick wall, different for plaster wall, etc.).
4. Run the cable(s) through the opening in the enclosure base (Fig. 5).
5. Secure the enclosure base to the wall with screws (Fig. 6).



6. Insert a mini SIM card into the SIM1 slot (Fig. 7) [Smart HUB Plus].

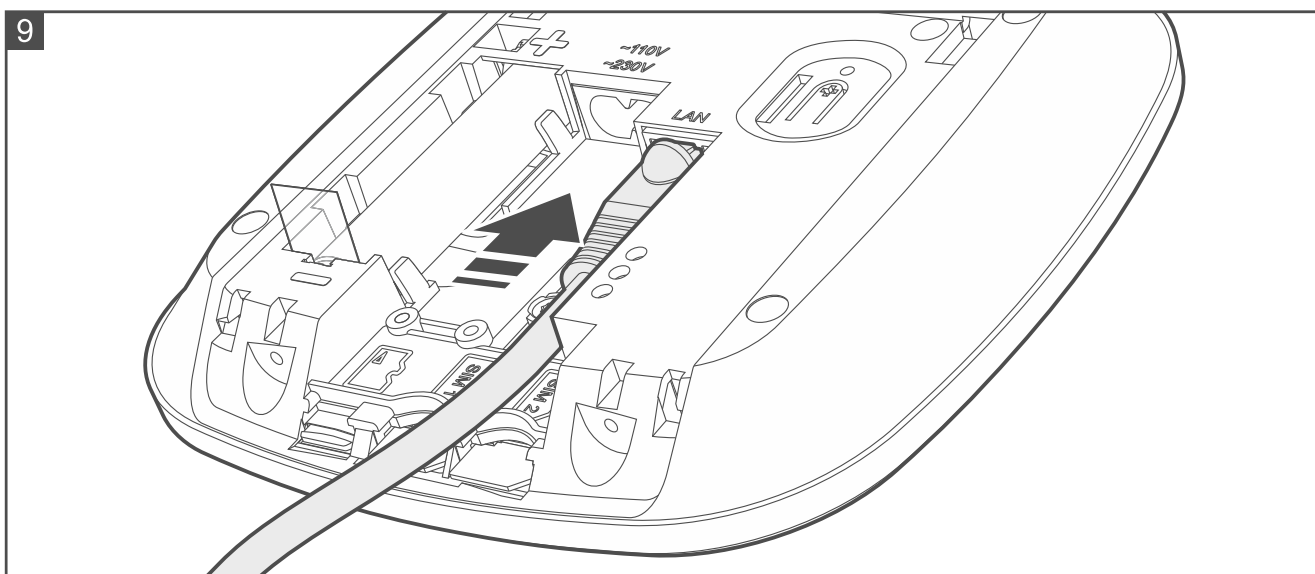
7. If you want to use two cards, insert the second mini SIM card into the SIM2 slot (Fig. 8) [Smart HUB Plus].



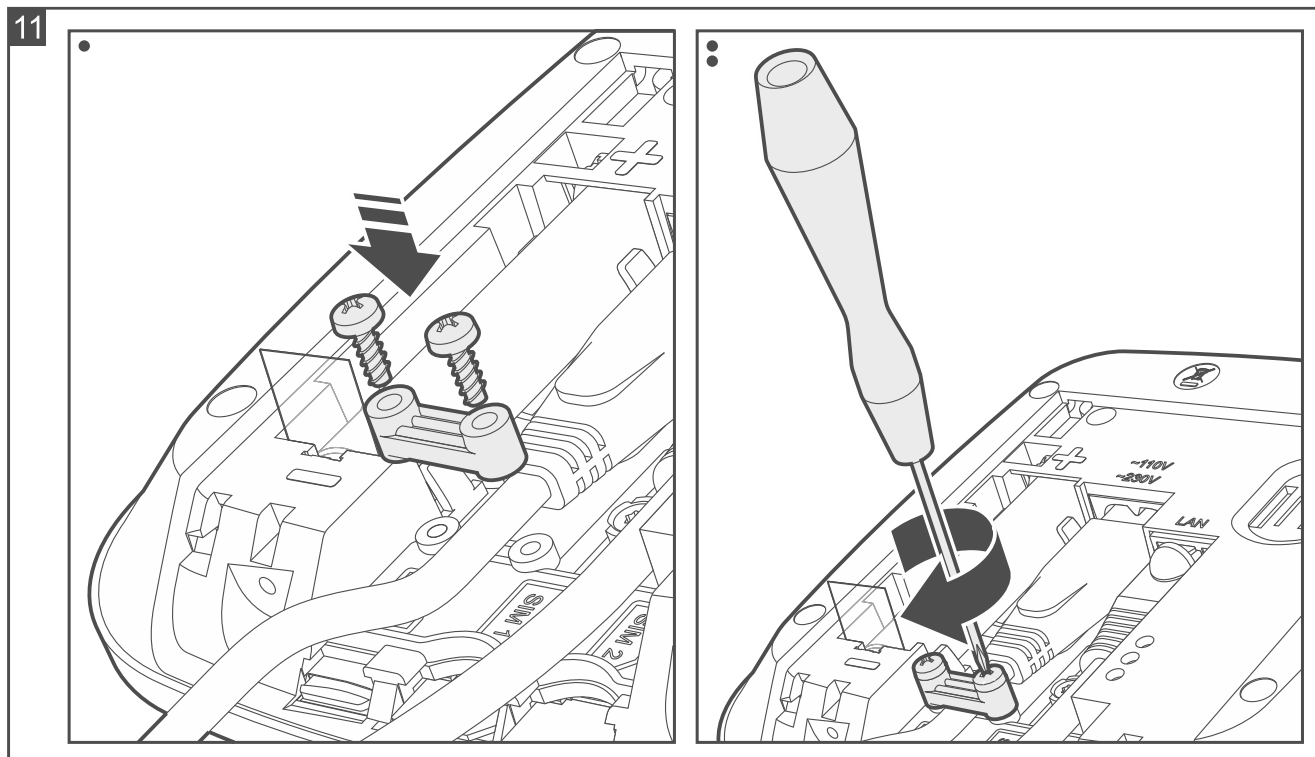
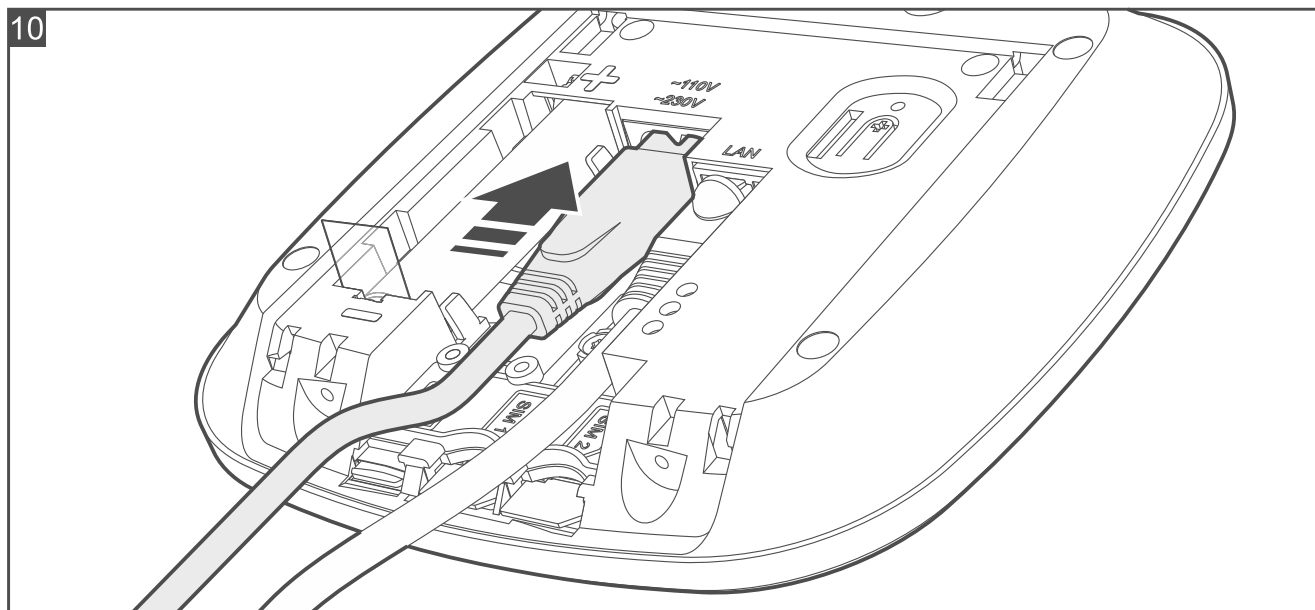
8. If the controller is to be connected to the wired LAN network, connect the cable to the LAN port (Fig. 9). Use a cable compliant with the 100Base-TX standard with the RJ-45 plug (the same as for connecting the computer to the network).



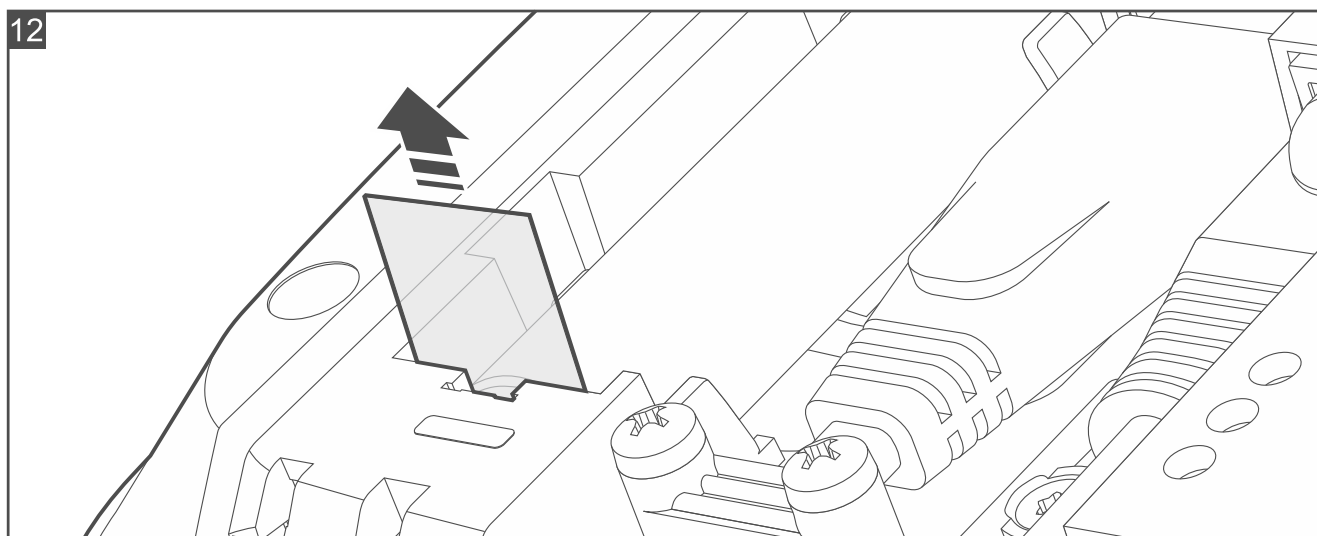
The controller can only operate in the local area networks (LAN). It must not be connected directly to the public computer network (MAN, WAN). To establish connection with a public network, use a router or xDSL modem.



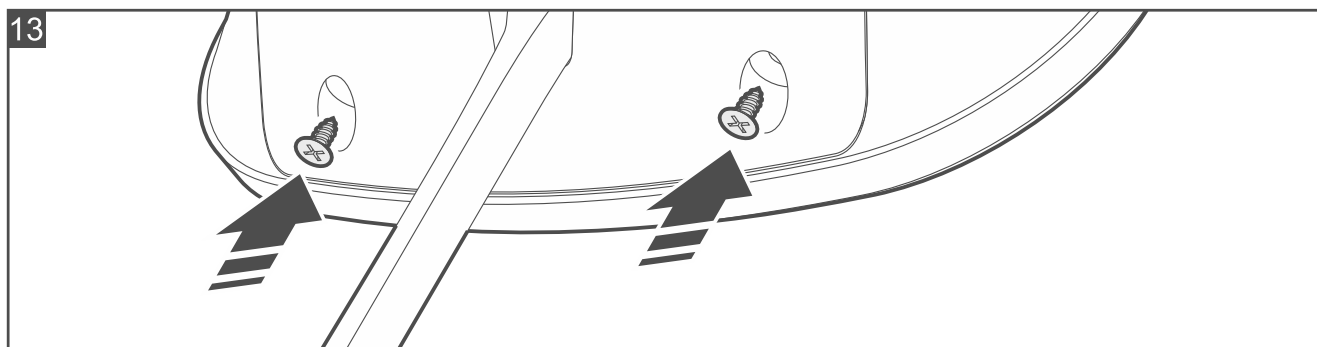
9. Connect the power cable to the power cable port in the controller (Fig. 10) and secure the cable fastener with screws (Fig. 11).



10. Remove the battery insulator tag (Fig. 12). The controller will power on (the controller LED indicator will start flashing).

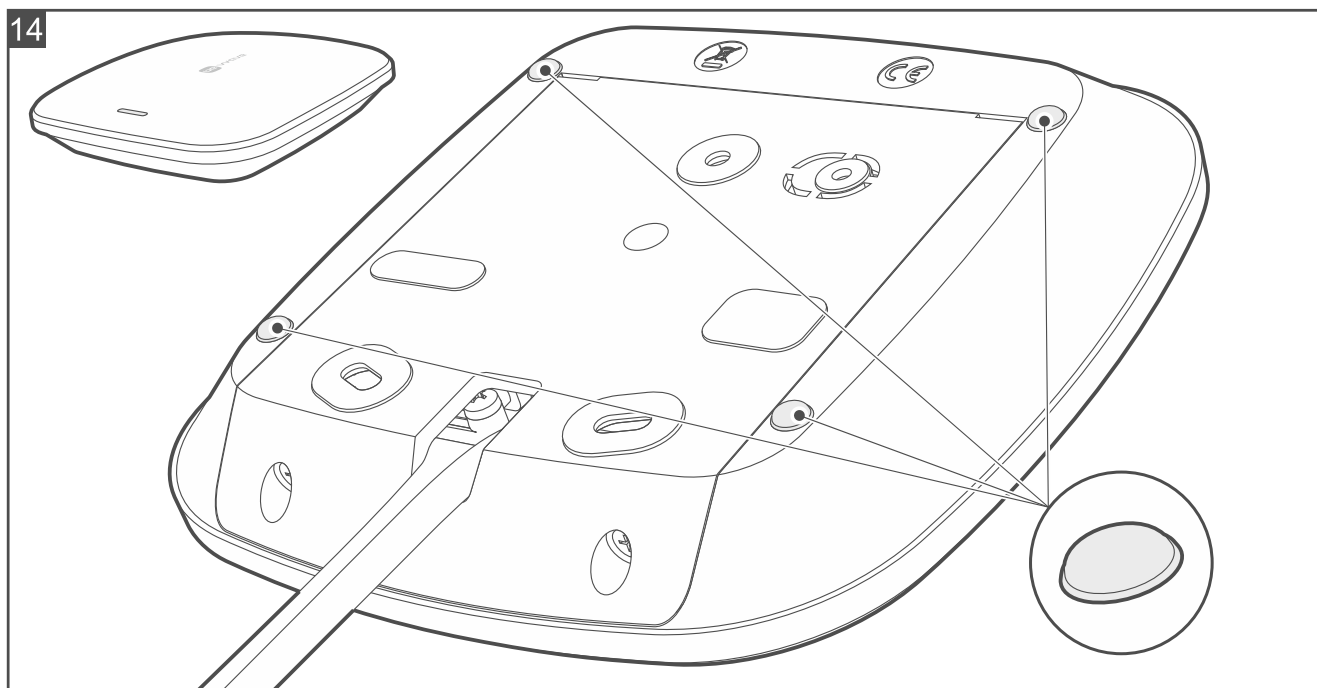


11. Close the enclosure and secure it with screws (Fig. 13).



12. Plug the power cable to the power outlet.

13. Start the Be Wave app to configure the controller settings and add BE WAVE devices.



4.2 Installing the Smart HUB Plus LV controller



Disconnect power before making any electrical connections.

Do not place heavy objects on the controller.

4.2.1 Description of the Smart HUB Plus LV controller



Figure 15 shows the controller's front side:

- ① LED indicator:
- flashing in pink – controller startup in progress,
 - ON in pink – controller operates in the Wi-Fi access point mode (you can connect to the controller in the BEWAVE_AP network),
 - ON in blue – controller is connected to a local network but has no access to the Internet or no connection to the SATEL server,
 - ON in green – controller is connected to the Internet,
 - additionally flashing in yellow – trouble,
 - additionally flashing in red – alarm,
 - colors changing smoothly – controller's firmware update in progress,
 - ON in white – controller's factory reset in progress.

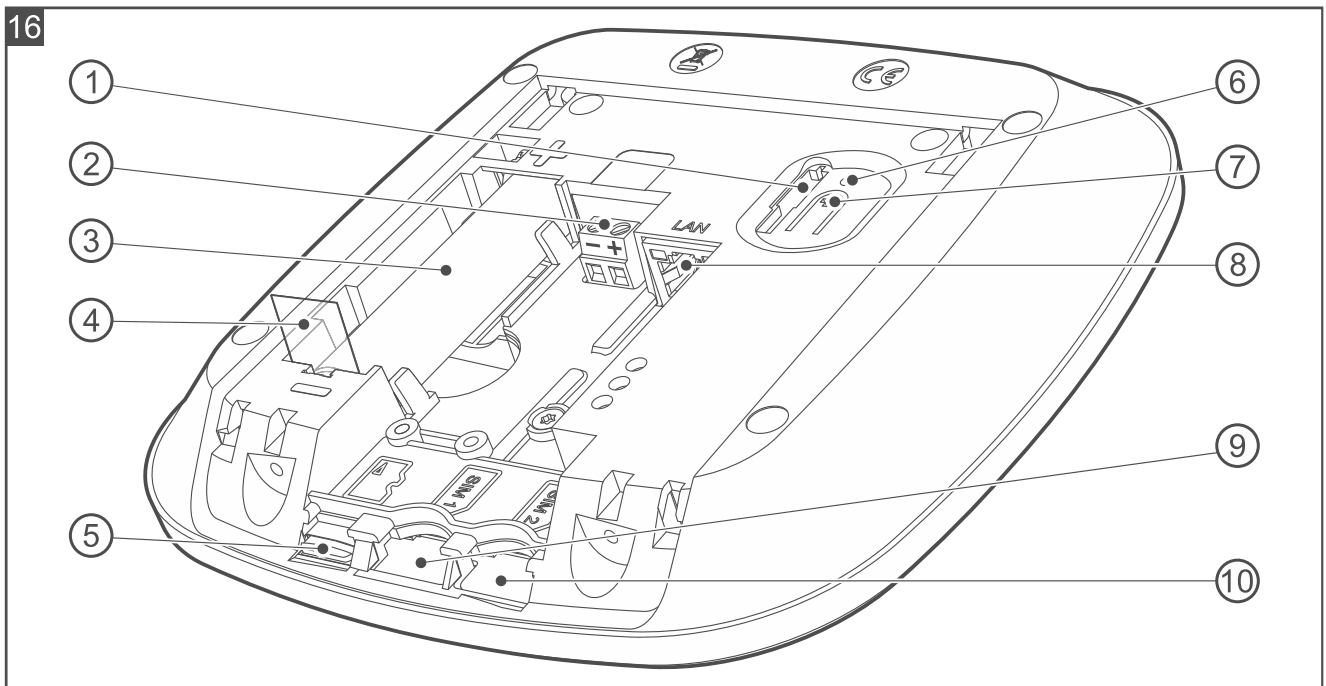


Figure 16 shows the inside of the Smart HUB Plus LV controller after opening the enclosure.

- ① tamper protection.
- ② 9...28 VDC terminals.
- ③ lithium-ion rechargeable battery (3.6 V / 3200 mAh).
- ④ battery insulator pull tag.
- ⑤ SD memory card (factory-installed). Stored on the SD card are:
 - backup settings (in order to restore settings in case of trouble or copy settings to another controller),
 - photos sent by the Motion Detector Cam,
 - photos used in the Be Wave app (for personalized room views),
 - data from devices measuring temperature, pressure, humidity, power consumption, etc.,
 - file of system items names (it can be created if the file is to be forwarded to the monitoring station).
- ⑥ factory reset pinhole – see “Hardware factory restore” p. 71.
- ⑦ button to enable / disable the Wi-Fi access point mode (press and hold for 5 seconds).
- ⑧ LAN cable port.
- ⑨ SIM1 slot for first SIM card.
- ⑩ SIM2 slot for second SIM card.

4.2.2 Installation tips for the Smart HUB Plus LV controller

- The controller should be installed indoors, in spaces with normal air humidity.
- You can mount the controller on the wall or place it on a tabletop.
- The BE WAVE wireless devices you are planning to install must be within the range of the controller's radio communication. Keep this in mind when selecting a place of installation for the controller. Please note that thick walls, metal partitions, etc. will reduce the range of the radio signal.

4.2.3 Mounting the Smart HUB Plus LV controller



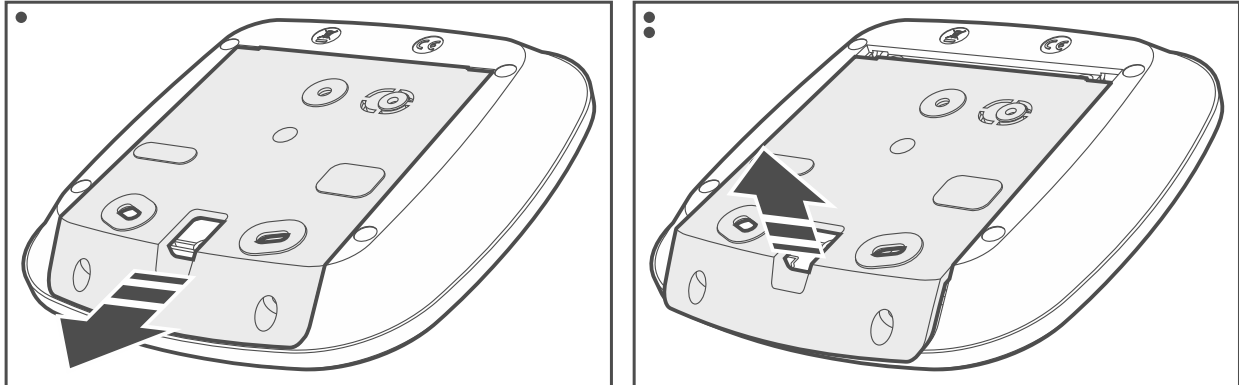
If the controller is to meet the requirements of Standard EN 50131 for Grade 2, mount the controller on the wall.

Do not mount the controller on the wall with cables pointing upwards.

If the controller is to remain placed on the tabletop, skip steps 2, 3 and 5 and apply adhesive anti-slip pads on the bottom of the enclosure (Fig. 14). The pads are supplied with the controller.

1. Open the controller enclosure (Fig. 17).

17

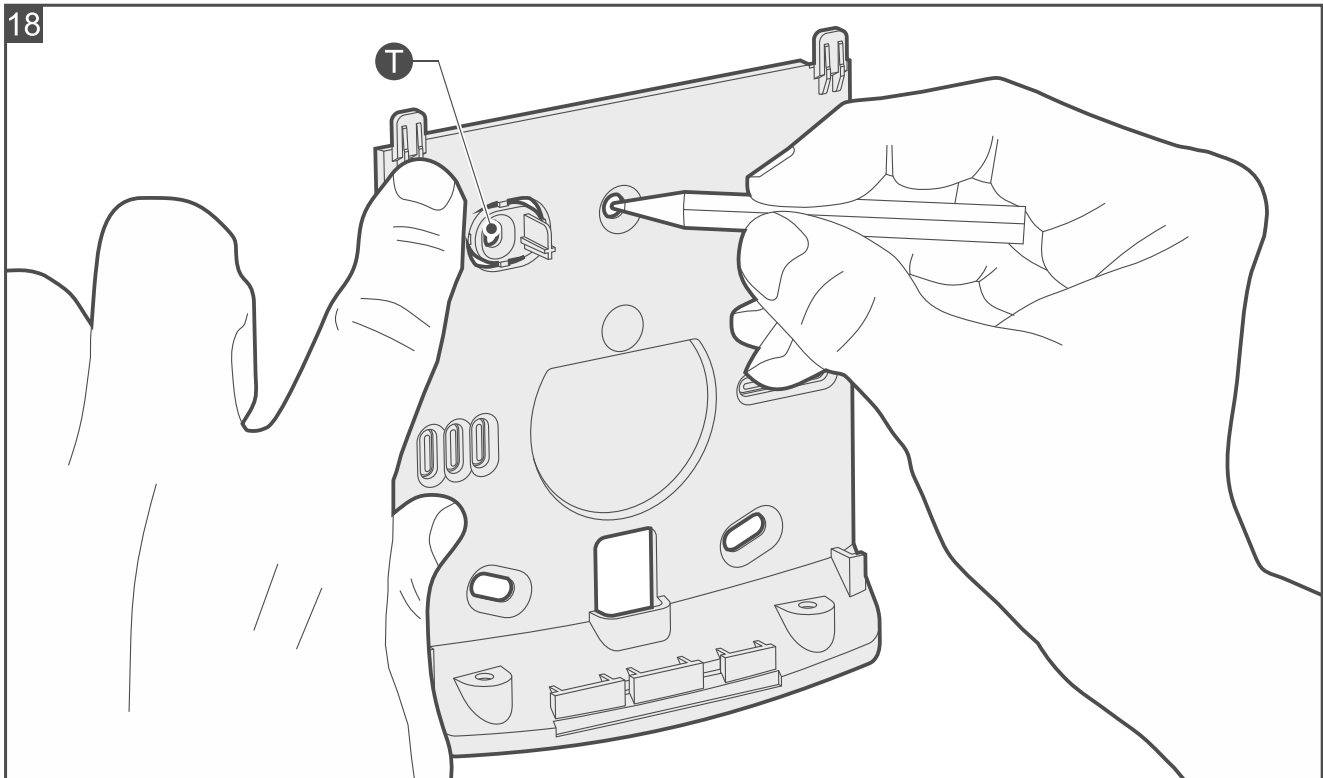


2. Place the enclosure base against the wall and mark the location of mounting holes (Fig. 18). If the controller is to detect removal from the surface, mark the location of the hole in the tamper protection element (marked with the **T** symbol in the figure).

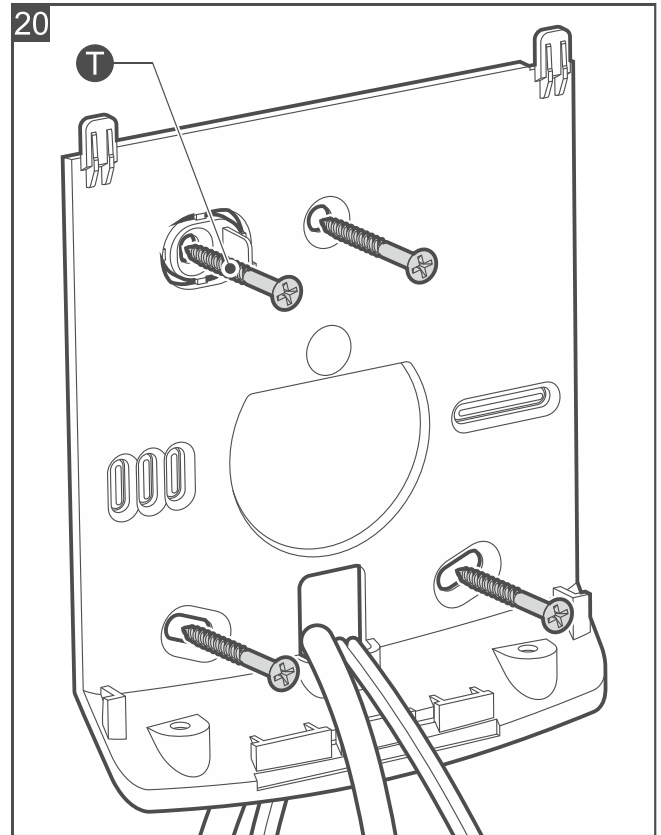
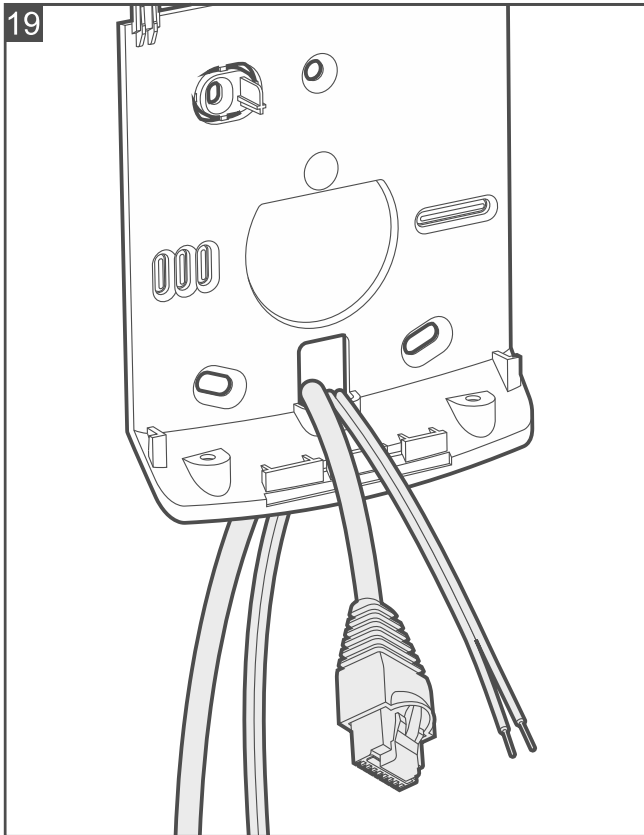


The controller must detect removal from the surface if it is to meet the requirements of Standard EN 50131 for Grade 2.

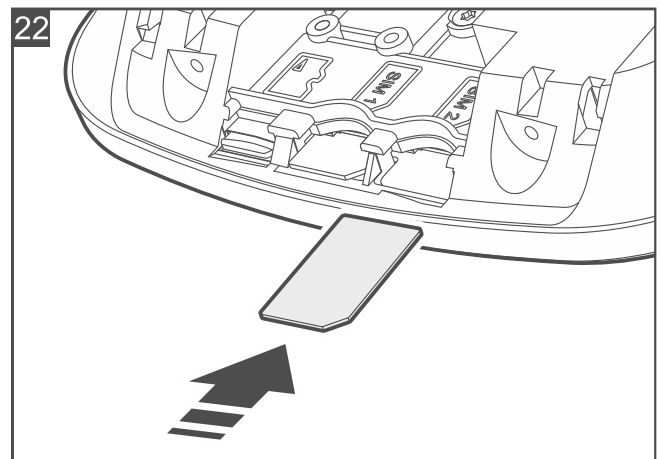
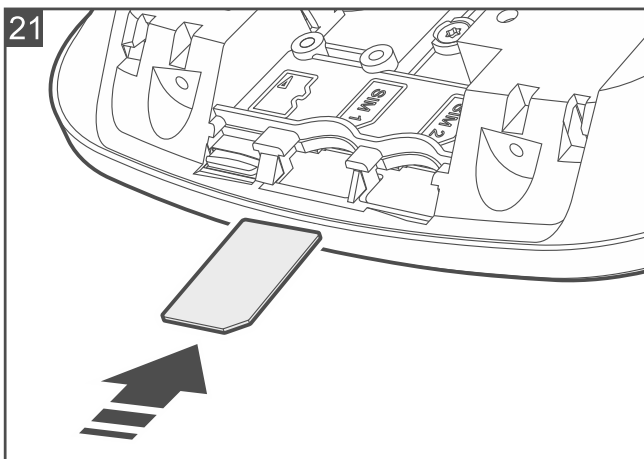
18



3. Drill the holes in the wall for wall plugs (anchors). Select wall plugs specifically intended for the mounting surface (different for concrete or brick wall, different for plaster wall, etc.).
4. Run the cable(s) through the opening in the enclosure base (Fig. 19).
5. Secure the enclosure base to the wall with screws (Fig. 20).



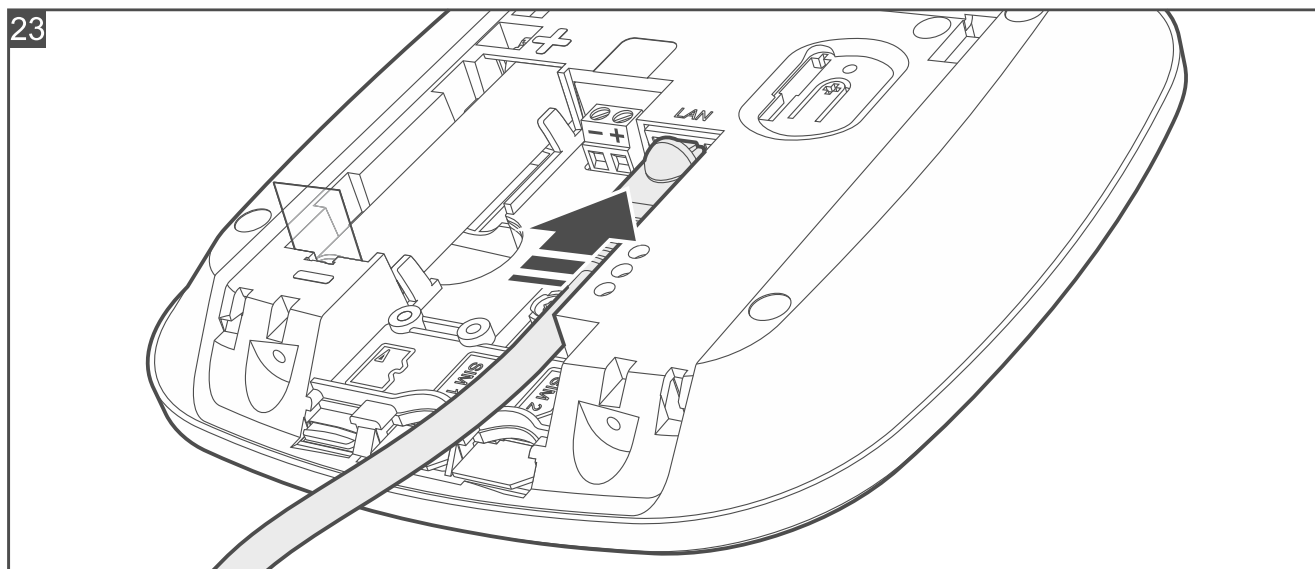
6. Insert a mini SIM card into the SIM1 slot (Fig. 21).
7. If you want to use two cards, insert the second mini SIM card into the SIM2 slot (Fig. 22).



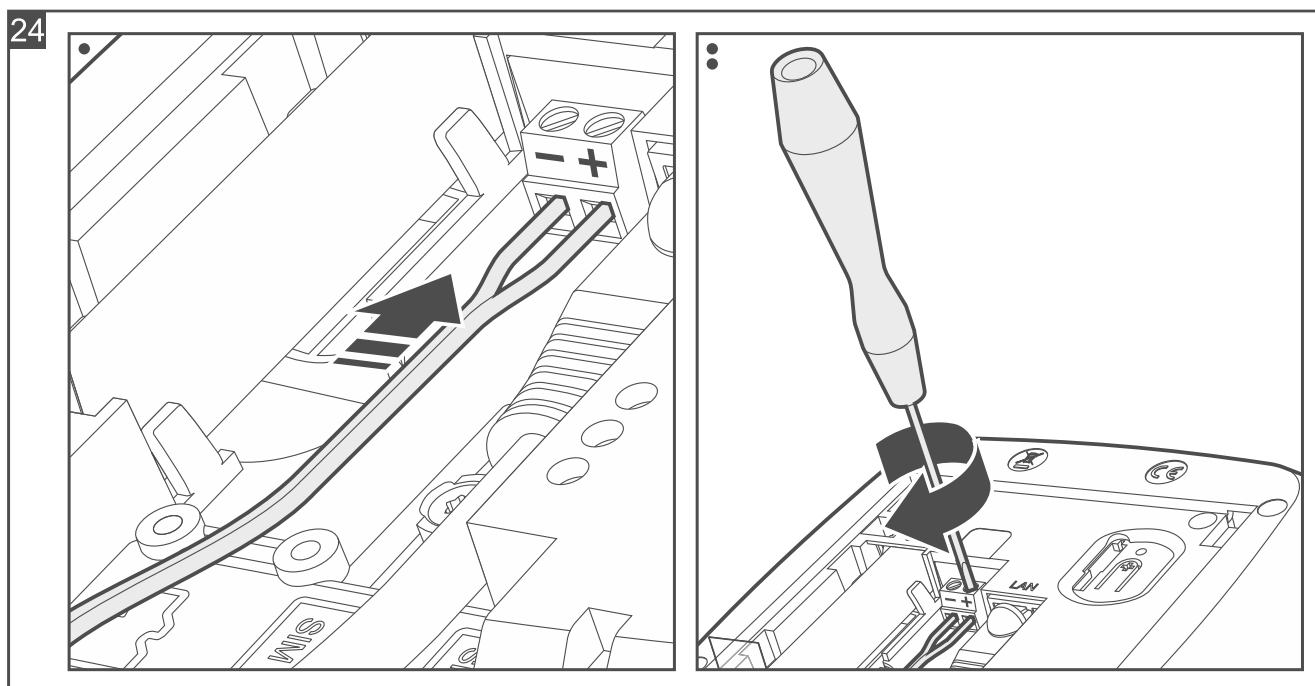
8. If the controller is to be connected to the wired LAN network, connect the cable to the LAN port (Fig. 23). Use a cable compliant with the 100Base-TX standard with the RJ-45 plug (the same as for connecting the computer to the network).

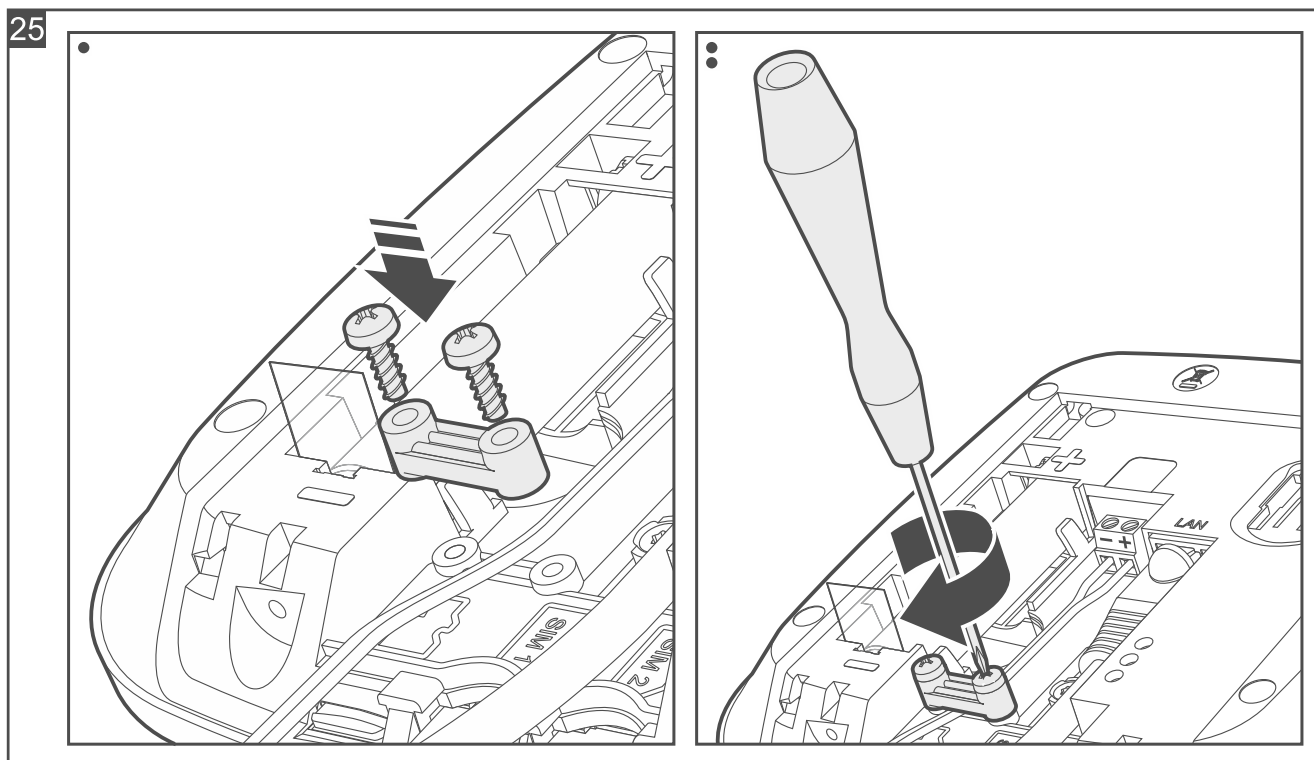


The controller can only operate in the local area networks (LAN). It must not be connected directly to the public computer network (MAN, WAN). To establish connection with a public network, use a router or xDSL modem.

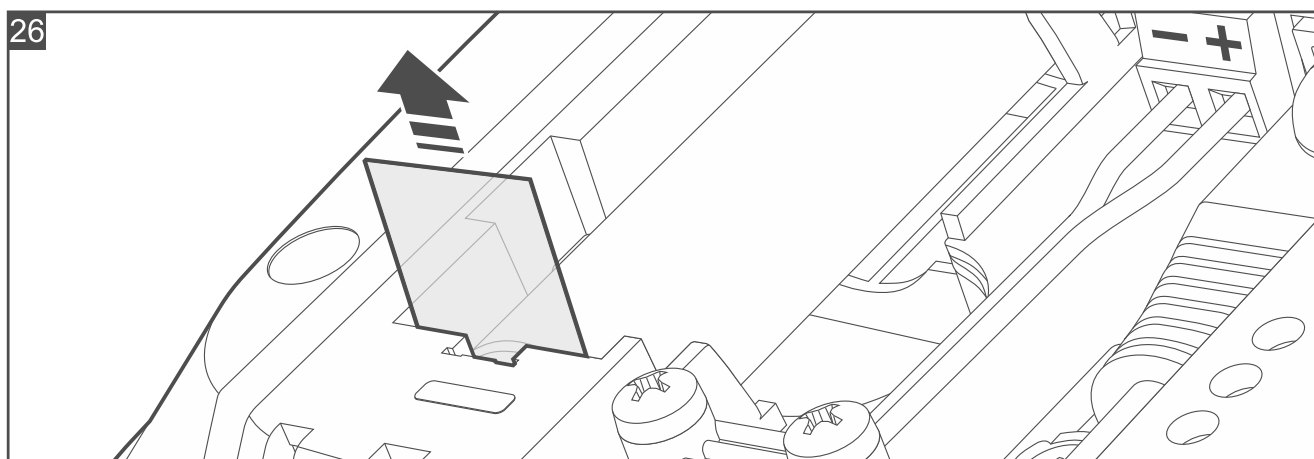


9. Screw the power wires to the terminals (Fig. 24) and secure the power wires fastener with screws (Fig. 25).

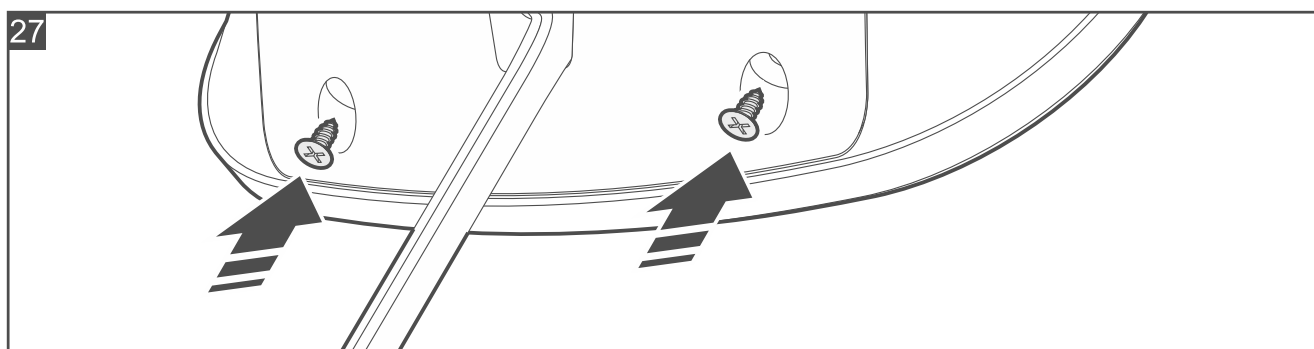




10. Remove the battery insulator tag (Fig. 26). The controller will turn on (the controller LED indicator will start flashing).



11. Close the enclosure and secure it with screws (Fig. 27).



12. Power on the controller.

13. Start the Be Wave app to configure the controller settings and add BE WAVE devices.

4.3 Installing wireless devices

For details on how to install wireless devices in the BE WAVE system, please refer to the manuals of these devices.

5. Managing, programming and controlling the BE WAVE system

You can manage, program and control the BE WAVE system, using the:

- Be Wave app,
- BE WAVE Soft program.

5.1 Be Wave app

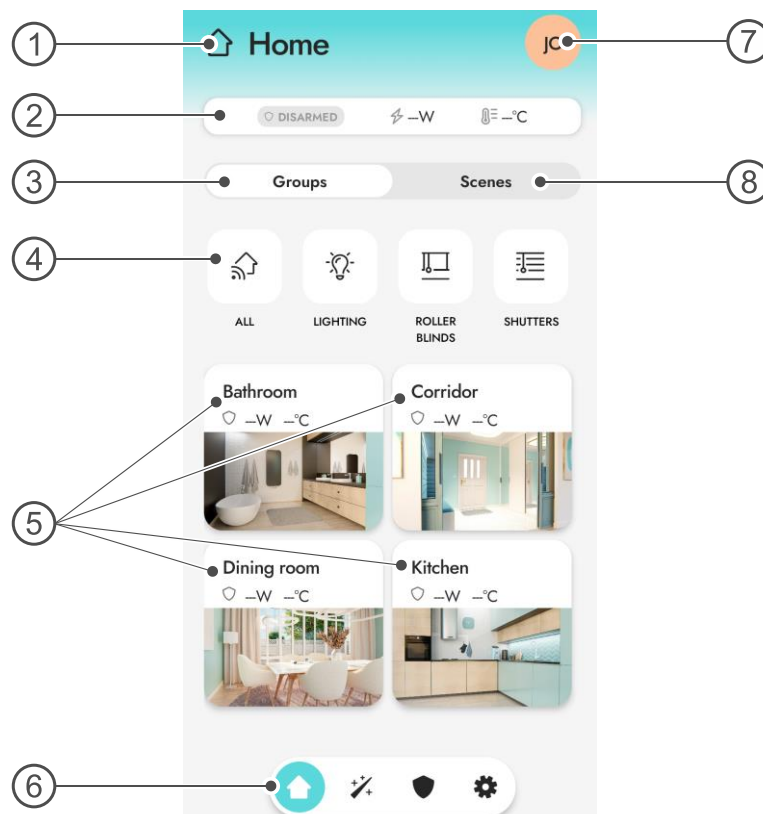
The Be Wave app is designed for mobile devices. You can download it from these online stores: „Google Play” (for Android devices) and “App Store” (for iOS devices). Required Android version: 11 (or newer). Required iOS version: 11 (or newer).

Required Be Wave app version: 1.3.

5.1.1 Description of the site preview screen in the Be Wave app



The screenshot is an example. It shows the screen after the controller (site) and devices have been added to the app.



Explanation:

- ① icon and name of the site (controller). Tap to open the *Select an account* screen.
- ② status bar.
- ③ *Groups* tab. Tap to show groups.
- ④ groups. Tap a group to open the group screen.

- ⑤ rooms: Tap a room to open the room screen.
- ⑥ menu bar:
 -  - tap to open the site preview screen.
 -  - tap to open the *Automation* screen.
 -  - tap to open the *Alarm system* screen.
 -  - tap to open the *Settings* screen.
- ⑦ profile icon. Tap to open the *My profile* screen.
- ⑧ *Scenes* tab. Tap to show the scenes created in the system.

5.1.2 Changing the app language

1. Tap the icon or name of the site. The *Select an account* screen will be displayed.
2. Tap  in the top right corner. The *Common settings* screen will be displayed.
3. Tap *Application language*. The *Language* screen will be displayed.
4. Select the language to be used in the app.
5. Tap *Save*.

5.1.3 Changing the app theme

1. Tap the icon or name of the site. The *Select an account* screen will be displayed.
2. Tap  in the top right corner. The *Common settings* screen will be displayed.
3. Tap *Theme*. The *Theme* screen will be displayed.
4. Select the theme to be used in the app.
5. Tap *Save*.

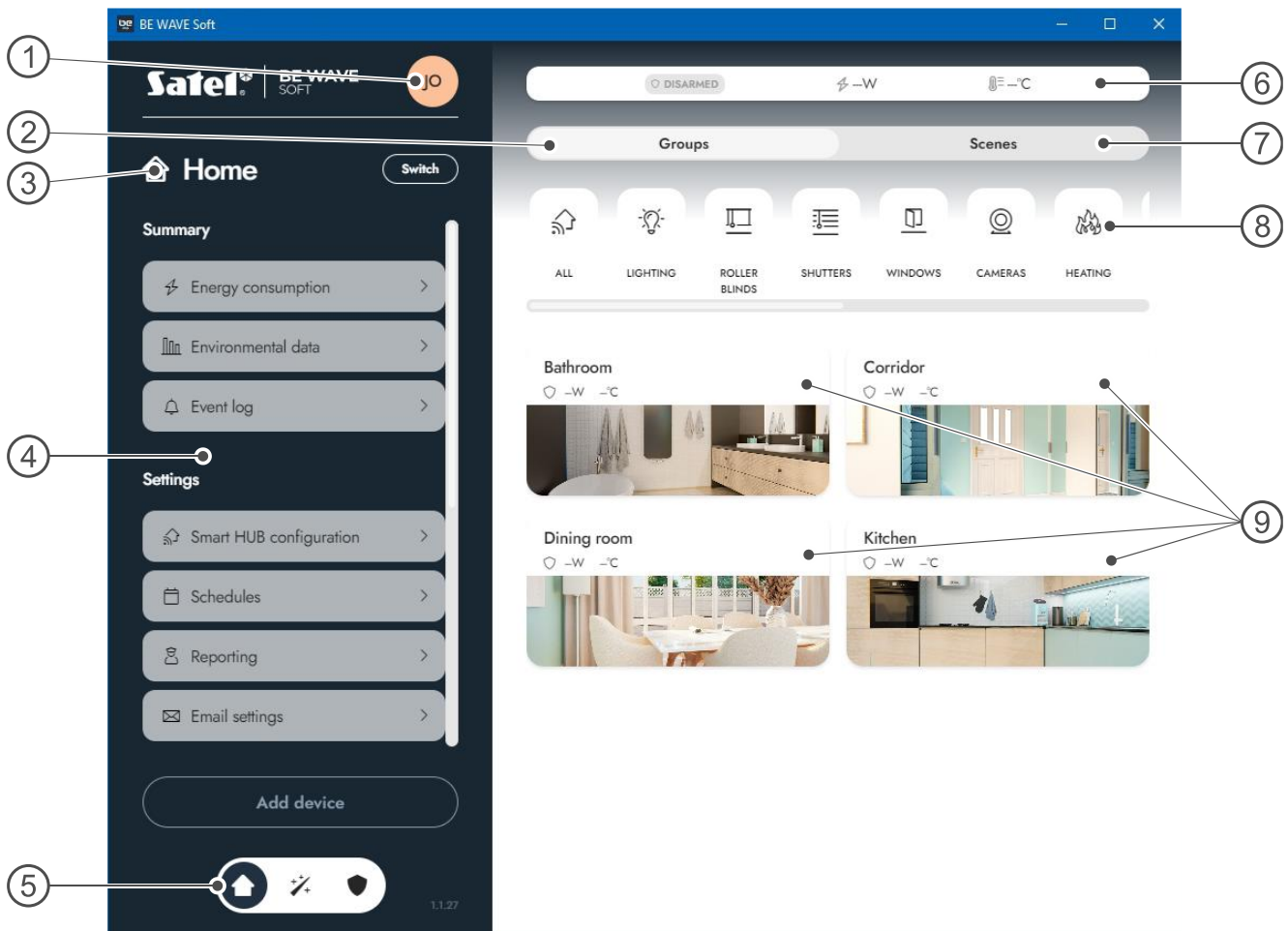
5.2 BE WAVE Soft program

The BE WAVE Soft program is designed for Windows computers. You can download it from www.satel.pl. Required operating system version: Windows 10 / Windows 11 (or newer).
Required BE WAVE Soft program version: 1.1.

5.2.1 Description of the site preview window in the BE WAVE Soft program



The screenshot is an example. It shows the window after the controller (site) and devices have been added to the program.



Explanation:

- ① profile icon. Click to open the *My profile* window.
- ② *Groups* tab. Click to show groups.
- ③ icon and name of the site (controller). Click the *Switch* button to open the *Select an account* window.
- ④ side menu (contains the same elements as the *Settings* screen in the Be Wave app).
- ⑤ menu bar:
 - 🏠 - click to open the home screen.
 - ⚙️ - click to open the *Automation* window.
 - 🛡️ - click to open the *Alarm system* window.
- ⑥ status bar.
- ⑦ *Scenes* tab. Click to show the scenes created in the system.
- ⑧ groups. Click a group to open the group window.
- ⑨ rooms: Click a room to open the room window.

5.2.2 Changing the program language

1. Click the *Switch* button next to the site name. The *Select an account* window will be displayed.
2. Click  in the top right corner. The *Common settings* window will be displayed.
3. Click *Application language*. The *Language* window will be displayed.

4. Select the language to be used in the app.
5. Click Save.

5.2.3 Changing the program theme

1. Click the *Switch* button next to the site name. The *Select an account* window will be displayed.
2. Click  in the top right corner. The *Common settings* window will be displayed.
3. Click *Theme*. The *Theme* window will be displayed.
4. Select the theme to be used in the program.
5. Click Save.

5.3 Adding the controller (site)



After start-up, the controller with factory settings operates in the Wi-Fi access point mode (the controller's LED indicator is ON in pink). It allows the app to connect to the controller.

5.3.1 Adding the controller in the Be Wave app

Adding the first controller (site)



Before you start the Be Wave app, connect your phone to the BEWAVE_AP network. The network's full name contains the MAC address of the controller. Make sure it is the MAC address of your controller.

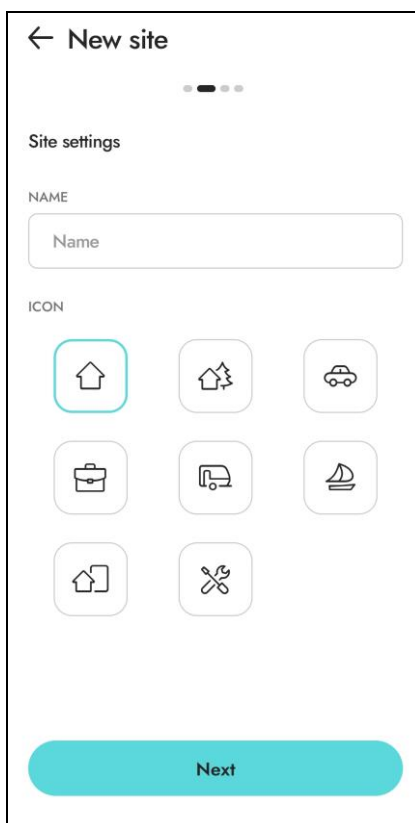
1. Start the Be Wave app. The *Add new site* screen will be displayed.



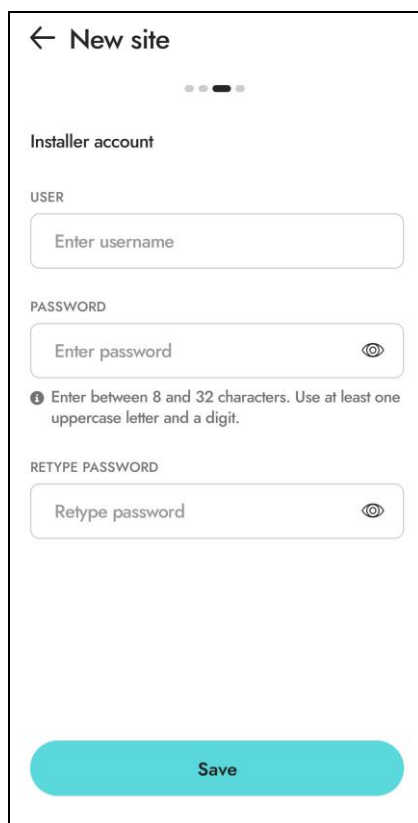
2. Tap the controller (site) you want to add. Different buttons will appear at the bottom of the screen.



3. Tap *Connect*. The *New site – Site settings* screen will be displayed.



4. Enter the name of the site and select one of the icons to represent the site, then tap *Next*. The *New site – Installer account* screen will be displayed.



The screenshot shows the 'New site' screen with a back arrow and the title 'New site'. Below the title is a progress indicator with four dots, the second of which is filled. The section is titled 'Installer account'. It contains three input fields: 'USER' with the placeholder 'Enter username', 'PASSWORD' with the placeholder 'Enter password' and an eye icon, and 'RETYPE PASSWORD' with the placeholder 'Retype password' and an eye icon. Below the password fields is a note: 'Enter between 8 and 32 characters. Use at least one uppercase letter and a digit.' At the bottom is a large blue 'Save' button.

5. Enter the username and password for the installer, then tap *Save*. The *New site – Communication methods* screen will be displayed.



The screenshot shows the 'New site' screen with a back arrow and the title 'New site'. Below the title is a progress indicator with four dots, the third of which is filled. The section is titled 'Communication methods'. It contains three sections: 'SIM CARDS' with two options 'SIM1' and 'SIM2', each with a right arrow; 'LAN' with one option 'LAN' and a right arrow; and 'Wi-Fi' with four options: '_gomis_', 'DIRECT-7A-HP PageWide Pro 477dw', 'GUEST_S', and 'Huawei Play 24', each with a right arrow. At the bottom is a large grey 'Save' button.

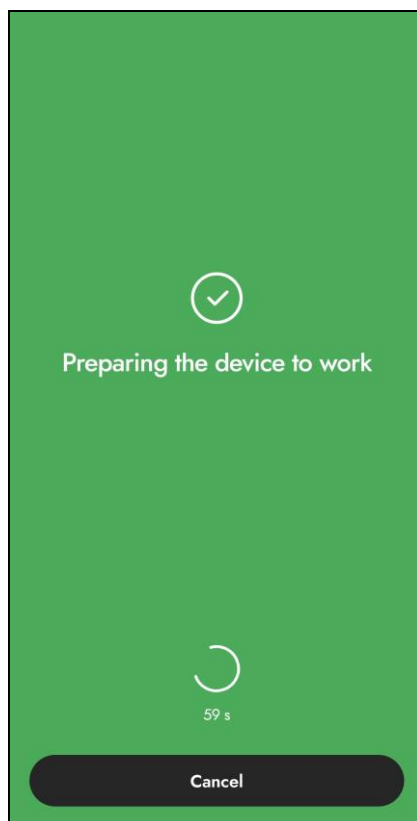
6. Select the communication method to be used with the controller. A screen with the settings for the selected communication method will be displayed (see “Communication settings” p. 56). Once the settings are configured and saved, you will return to the *New*

site – *Communication methods* screen. Tap *Save*. A message will be displayed saying that the controller is being prepared to work.

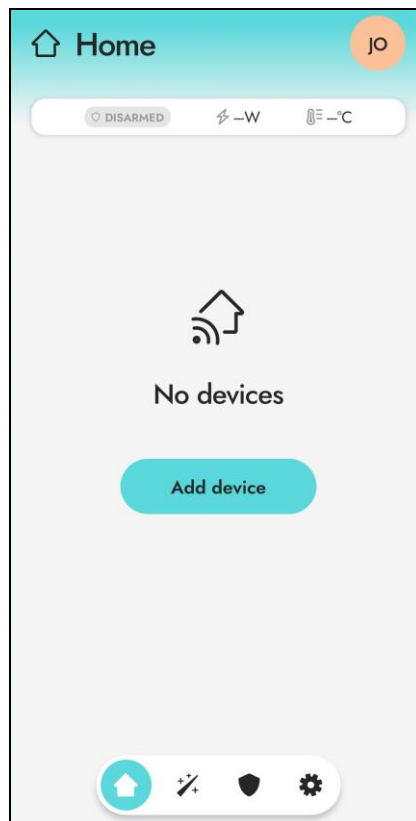


While the controller is being prepared to work, the Wi-Fi access point mode will be disabled. The controller will switch to the selected communication method.

If a Wi-Fi network is to be used for communication, select a password-protected network. The device does not connect to open networks (not protected by a password).

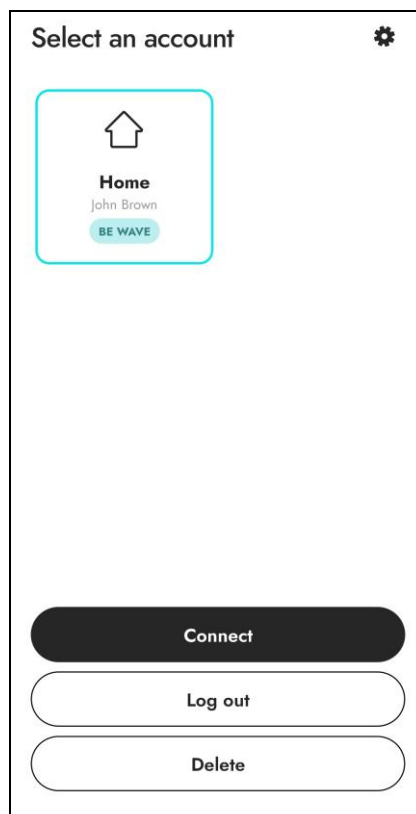


- When the app connects to the controller by means of the selected communication method, the site preview screen will be displayed. You can add the first device to the system.

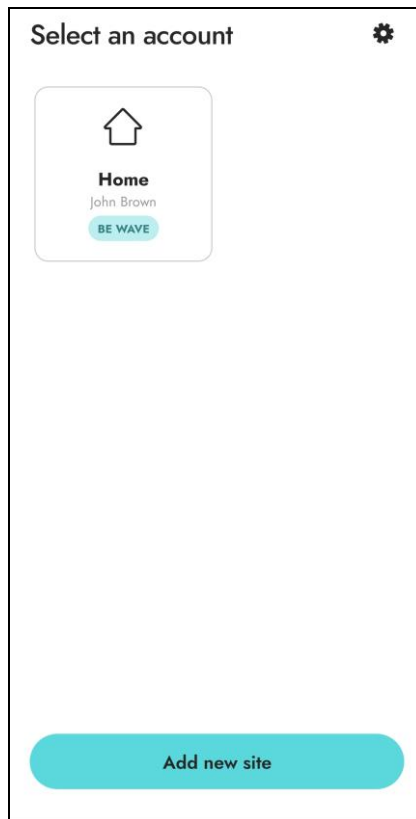


Adding another controller (site)

- Tap the icon or name of the site. The *Select an account* screen will be displayed.



2. Tap a blank space on the screen to deselect the site. The *Add new site* button will be displayed at the bottom of the screen.



3. Connect your phone to the BEWAVE_AP network. The network's full name contains the MAC address of the controller. Make sure it is the MAC address of the new controller.
4. Tap the *Add new site* button. The *Add new site* screen will be displayed.
5. In the next steps, the procedure is the same as for adding the first controller.

5.3.2 Adding the controller in the BE WAVE Soft program



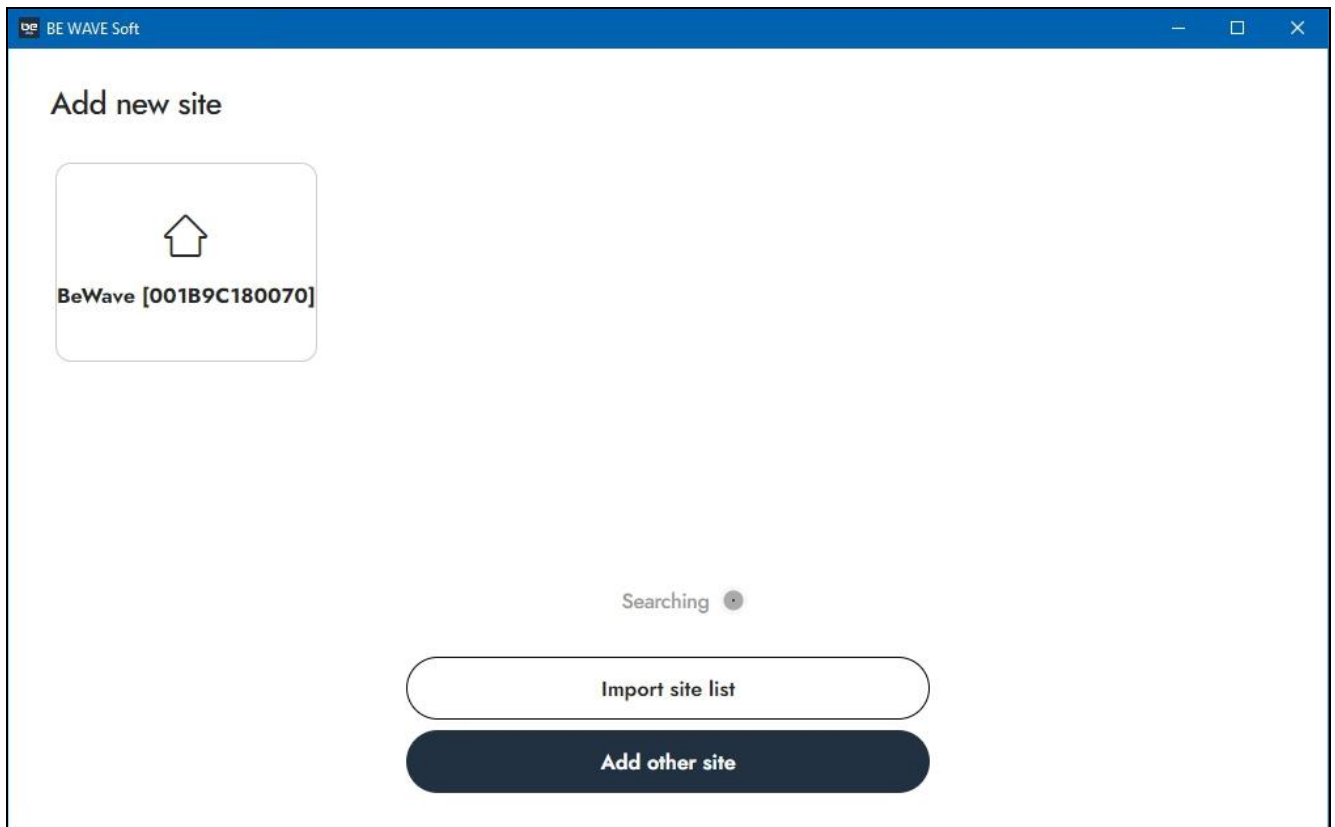
The computer must be connected to the same local network as the controller or must be equipped with a Wi-Fi network card.

Adding the first controller (site)

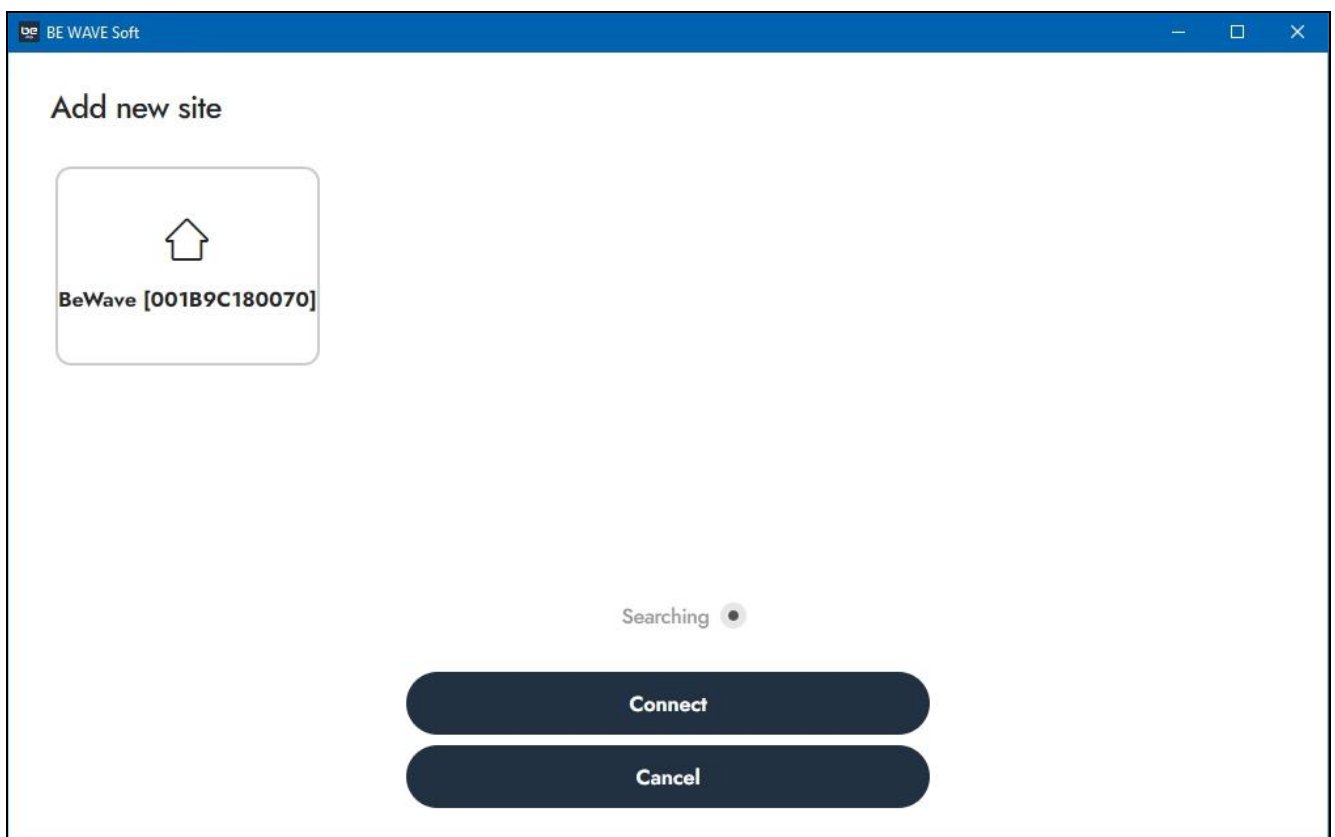


If the controller is not connected to the local network, before you start the BE WAVE Soft program, connect your computer to the BEWAVE_AP network. The network's full name contains the MAC address of the controller. Make sure it is the MAC address of your controller.

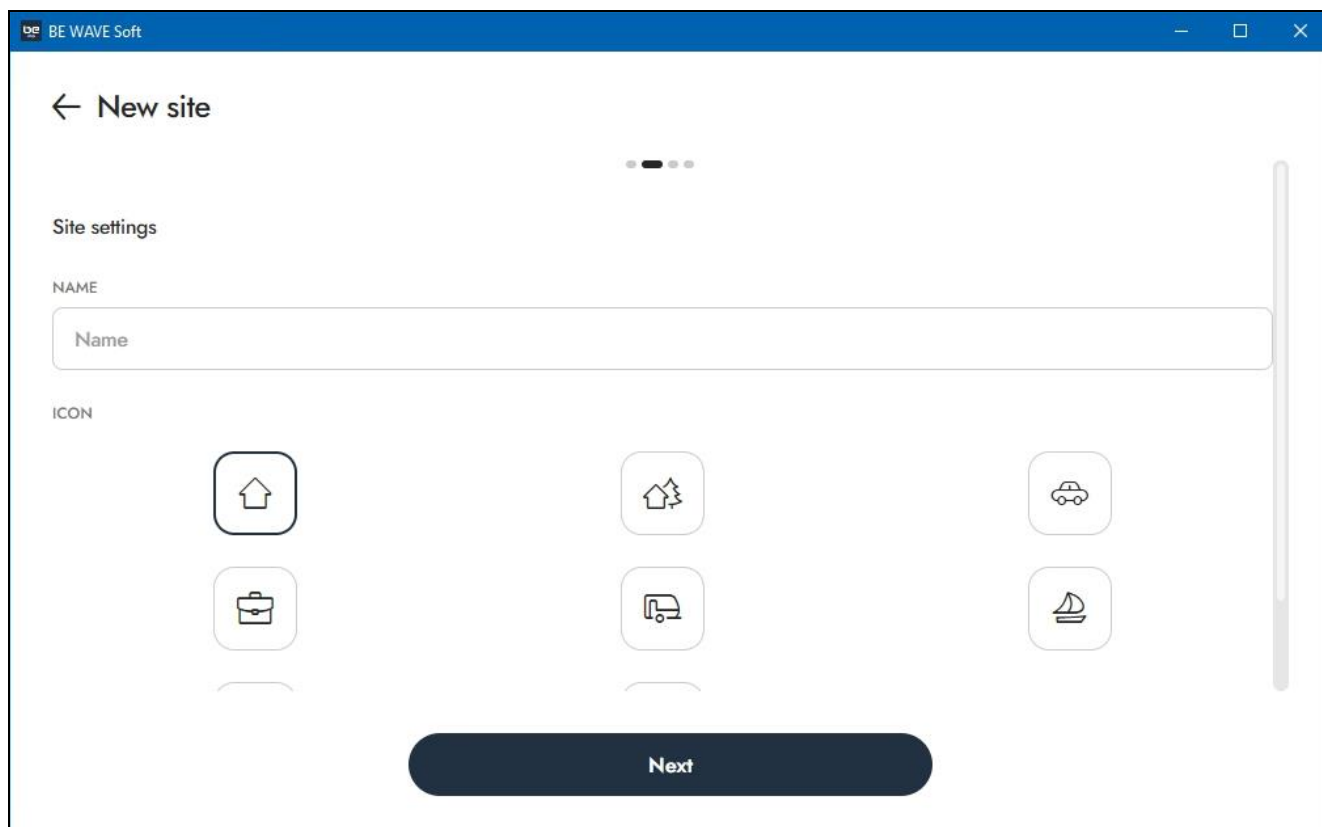
1. Start the BE WAVE Soft program.
2. The *Add new site* window will be displayed.



3. Click the controller (site) you want to add. Different buttons will appear at the bottom of the window.

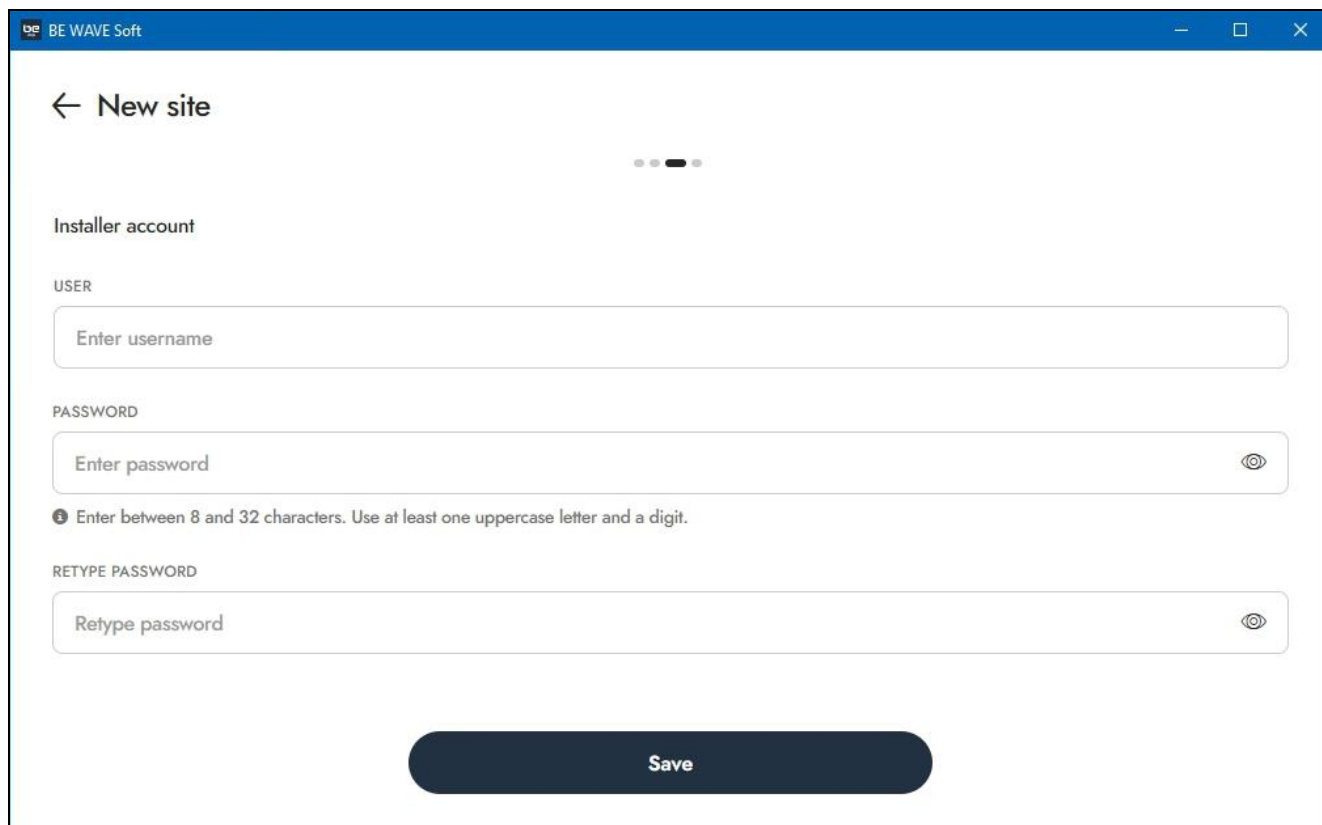


4. Click *Connect*. The *New site – Site settings* window will be displayed.



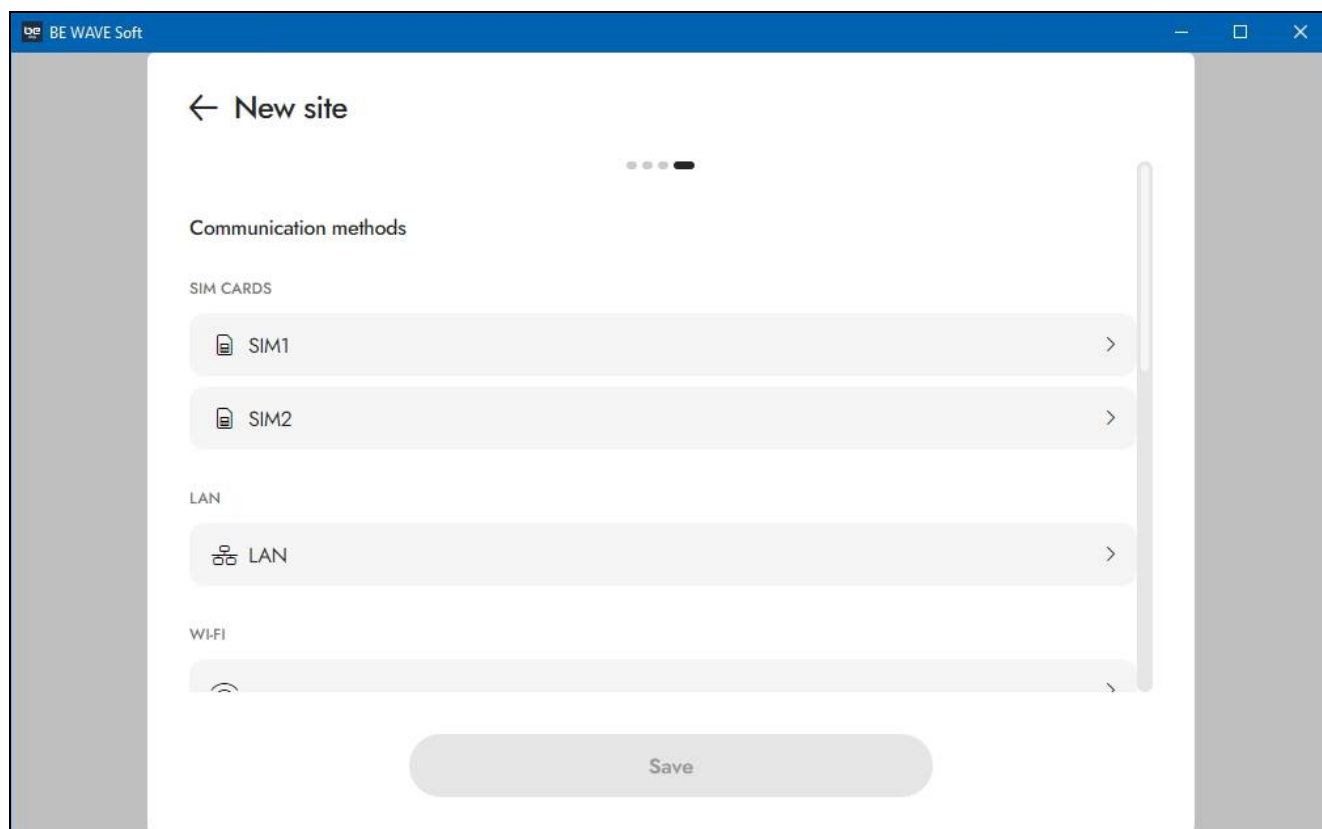
The screenshot shows a web application window titled "BE WAVE Soft". The main heading is "New site" with a back arrow. Below it is a progress indicator with three dots, the second of which is filled. The section is titled "Site settings". There is a "NAME" label above a text input field containing the placeholder "Name". Below this is an "ICON" section displaying six icons in a 2x3 grid: a house, a house with a tree, a car, a briefcase, a truck, and a sailboat. At the bottom of the form is a dark blue button labeled "Next".

5. Enter the name of the site and select one of the icons to represent the site, then click *Next*. The *New site – Installer account* window will be displayed.



The screenshot shows the same web application window, but the section is now titled "Installer account". It features three input fields: "USER" with the placeholder "Enter username", "PASSWORD" with the placeholder "Enter password" and an eye icon, and "RETYPE PASSWORD" with the placeholder "Retype password" and an eye icon. A small information icon and text are located between the password and retype password fields: "Enter between 8 and 32 characters. Use at least one uppercase letter and a digit." At the bottom of the form is a dark blue button labeled "Save".

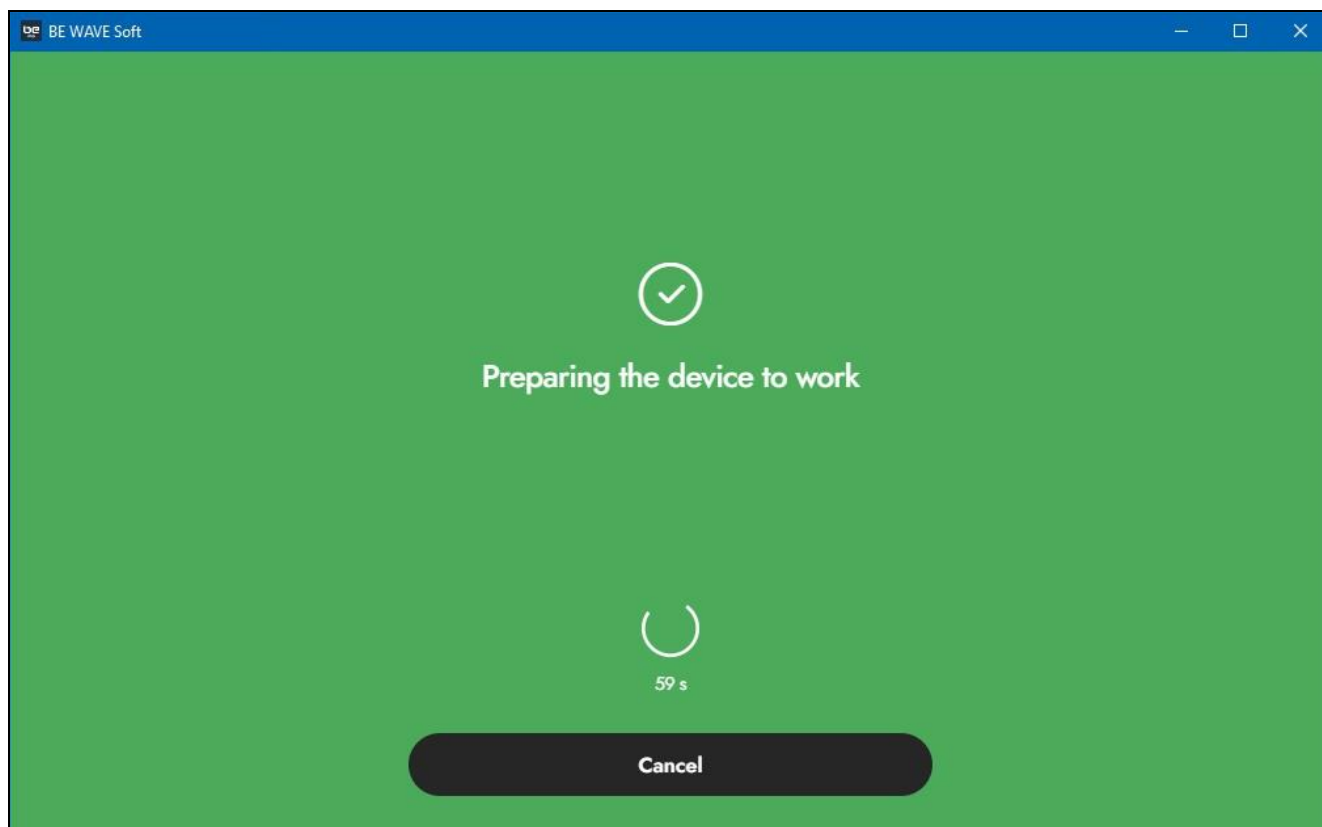
6. Enter the username and password for the installer, then click **Save**. The *New site – Communication methods* window will be displayed.



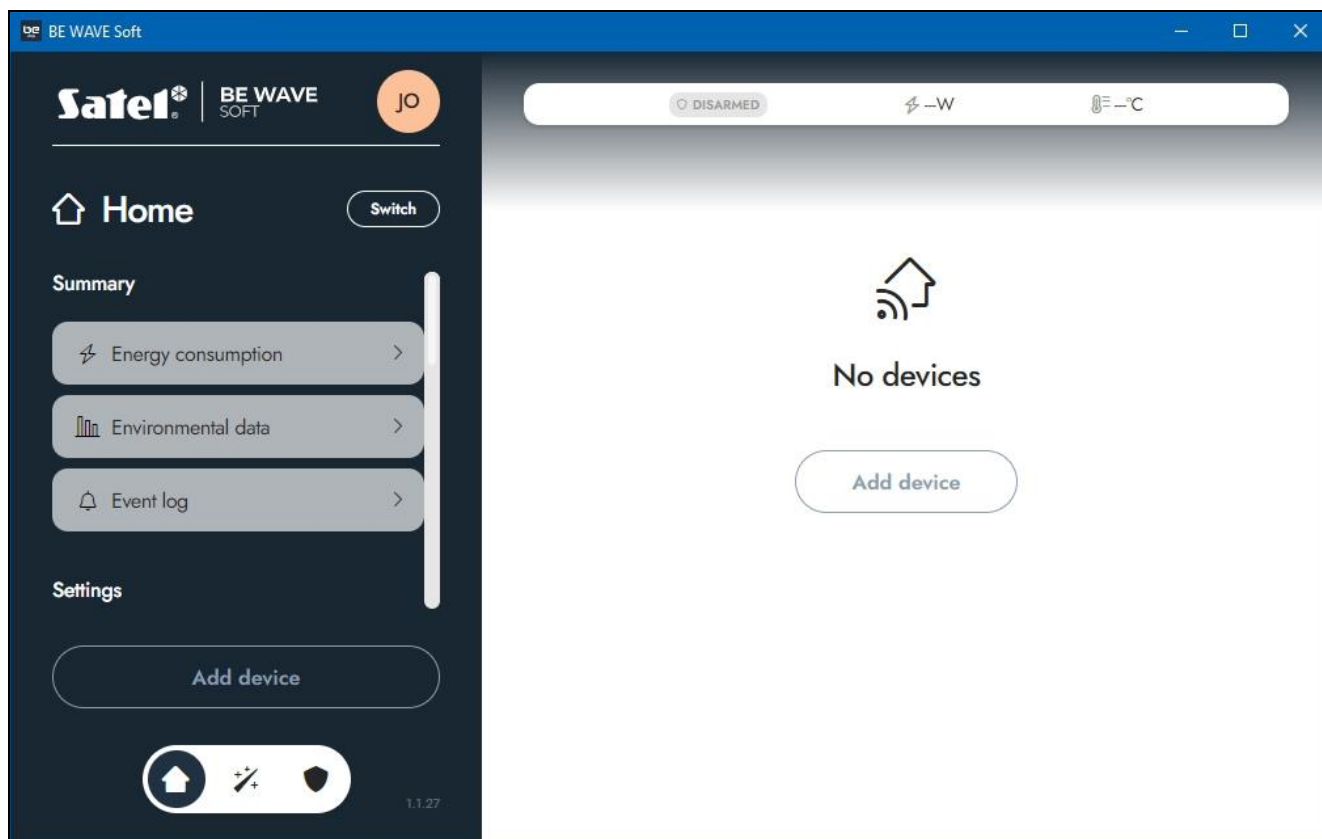
7. Select the communication method to be used with the controller. A window with the settings for the selected communication method will be displayed (see “Communication settings” p. 56). Once the settings are configured and saved, you will return to the *New site – Communication methods* window. Click **Save**. A message will be displayed saying that the controller is being prepared to work.



While the controller is being prepared to work, the Wi-Fi access point mode will be disabled. The controller will switch to the selected communication method.

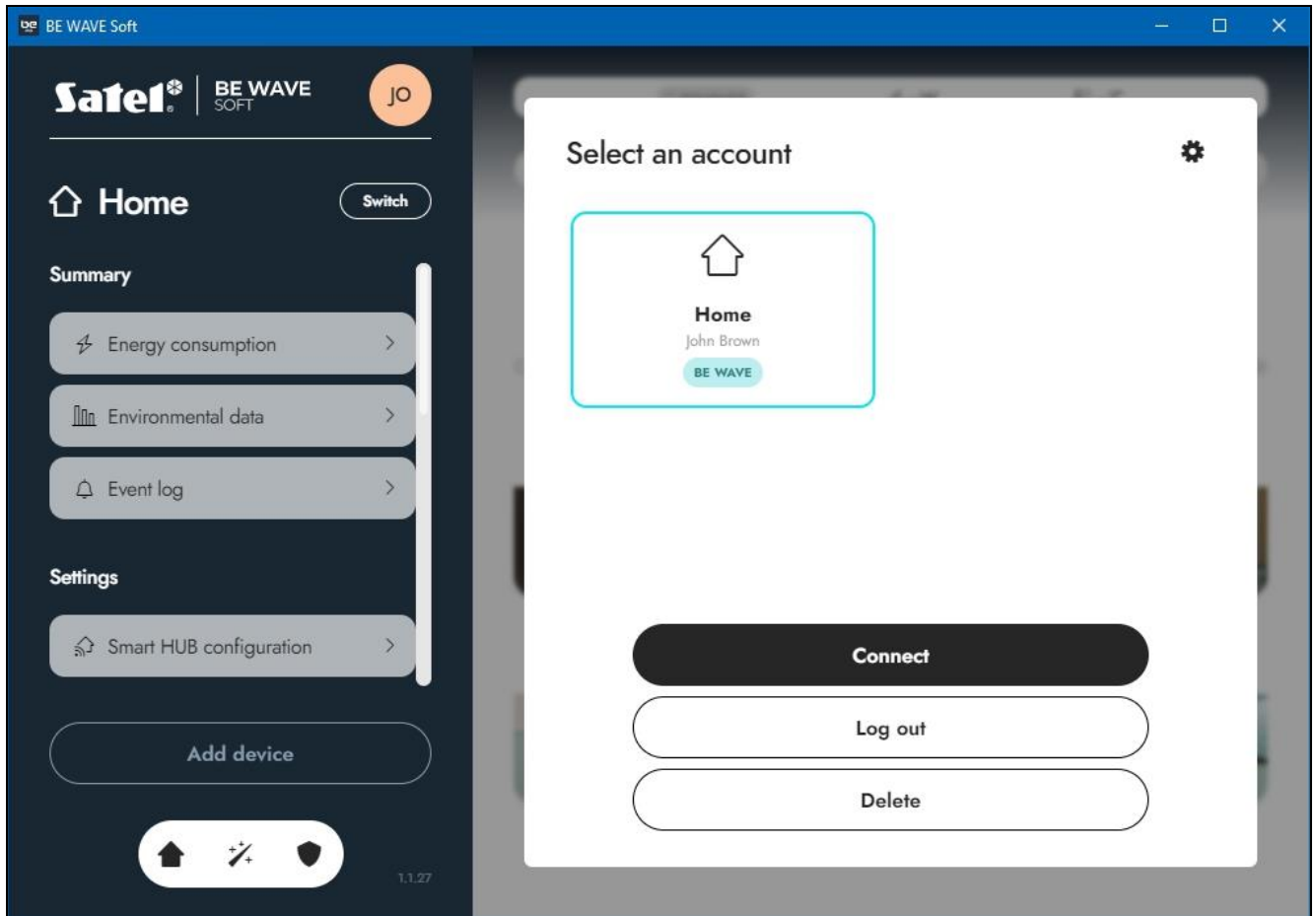


8. When the program connects to the controller by means of the selected communication method, the site preview window will be displayed. You can add the first device to the system.



Adding another controller (site)

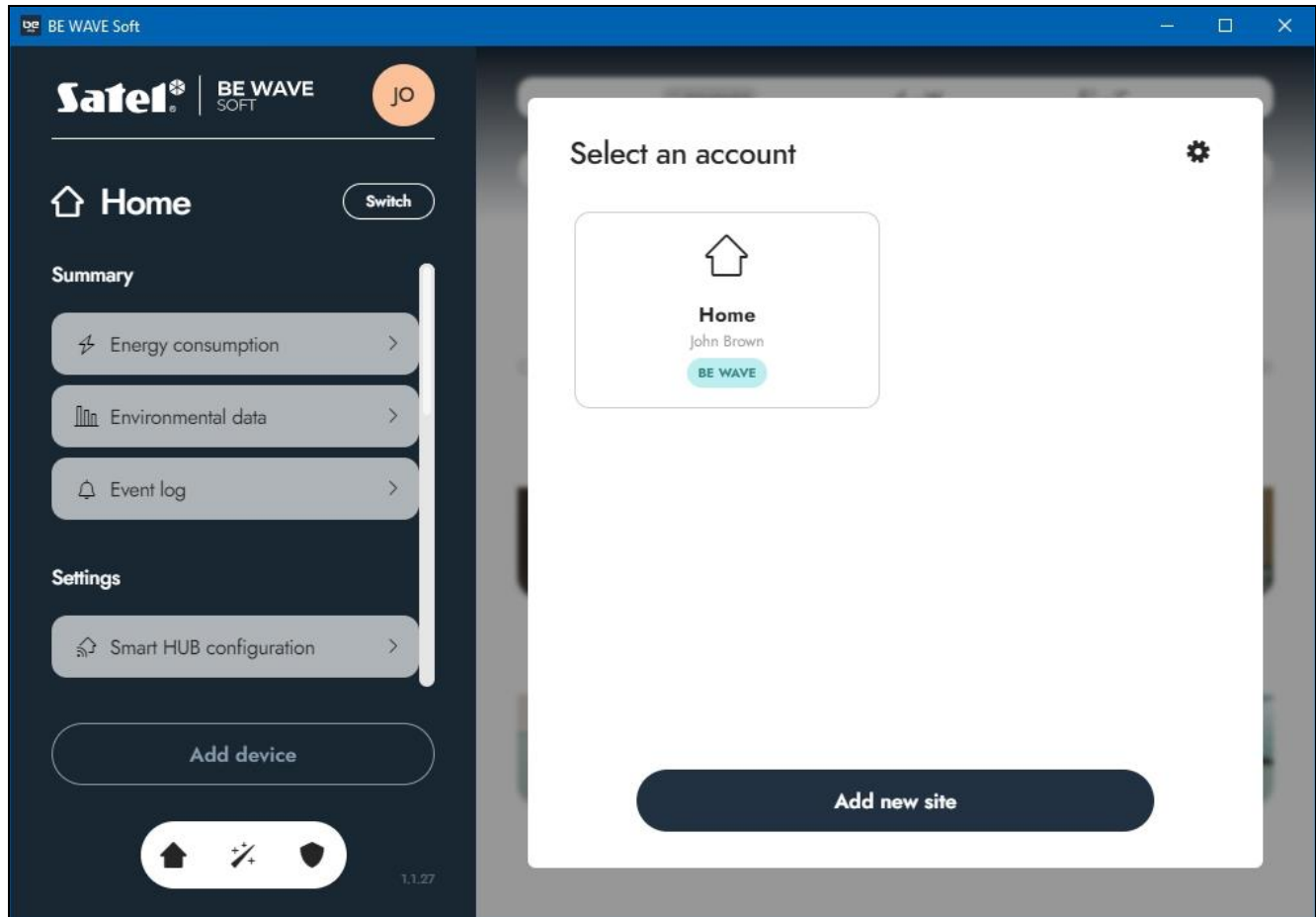
1. Click the *Switch* button next to the site name. The *Select an account* window will be displayed.



- Click a blank space inside the window to deselect the site. The *Add new site* button will be displayed at the bottom of the window.



If the controller is not connected to the local network, connect your computer to the BEWAVE_AP network. The network's full name contains the MAC address of the controller. Make sure it is the MAC address of the new controller.



- Click *Add new site*. The *Add new site* window will be displayed.
- In the next steps, the procedure is the same as for adding the first controller.

5.4 Adding a wireless device to the system

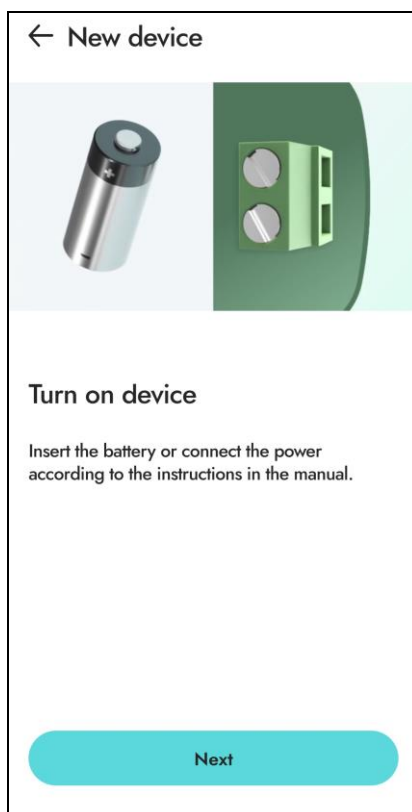


Before adding a device that was previously registered to the BE WAVE / ABAX 2 / ABAX system, you must restart it (remove the battery / power the device off for 30 seconds).

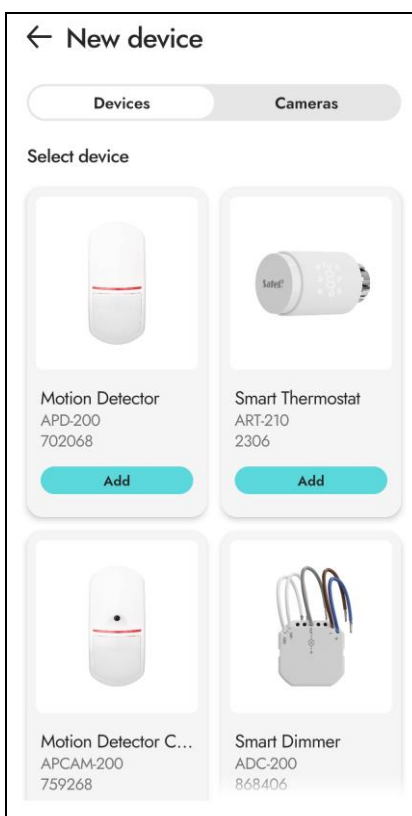
5.4.1 Adding a wireless device in the Be Wave app

Adding the first wireless device

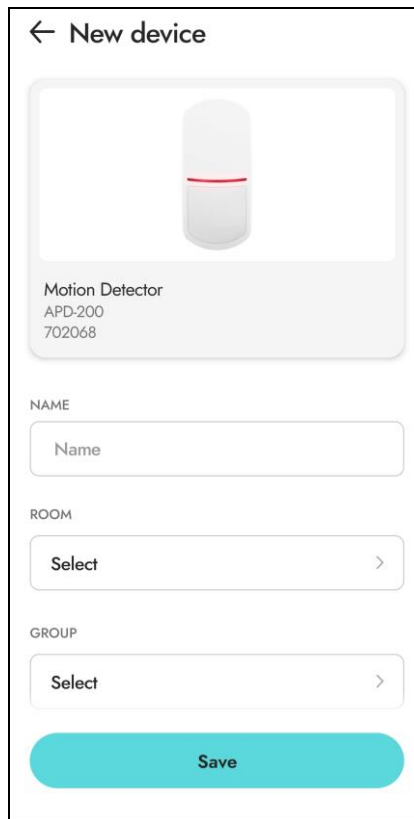
1. Tap the *Add device* button on the site preview screen. On a new screen you will be asked to turn on the device.



2. Insert the battery, connect the power, etc. (for detailed information, please refer to the manuals of particular devices), then tap *Next*. The list of devices you can add will be displayed (the screenshot is an example).



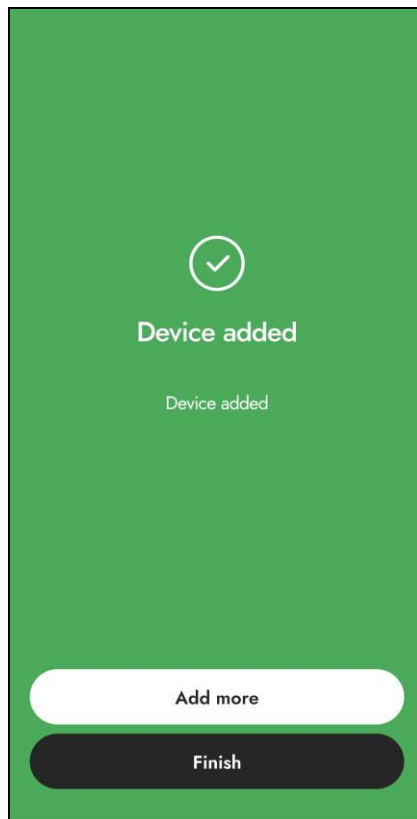
3. Tap the device you want to add. The device settings will be displayed (the screenshot is an example).



4. Configure the device settings (enter the name, assign the device to a room and to a group, etc. – see “Device settings” p. 51), then tap **Save**.
5. If the device offers several channels and you have not configured all of them, a warning will be displayed. You can tap *Cancel* to return to configuring the device, or tap *Yes* to add the configured channels.



6. If the device offers only one channel, you configured all channels or you tapped **Yes** on the warning screen, a message will be displayed saying that the device has been added.



7. Tap *Add more* if you want to add another device or *Finish* if you do not want add any more devices.
8. Configure additional settings if it is required for the device (e.g. sirens and other devices for which the *Alarm* operation mode has been selected require programming the alarm sources – see “Alarm source” p. 56).

Adding another wireless device

If you want to add another BE WAVE device, tap on the site preview screen:

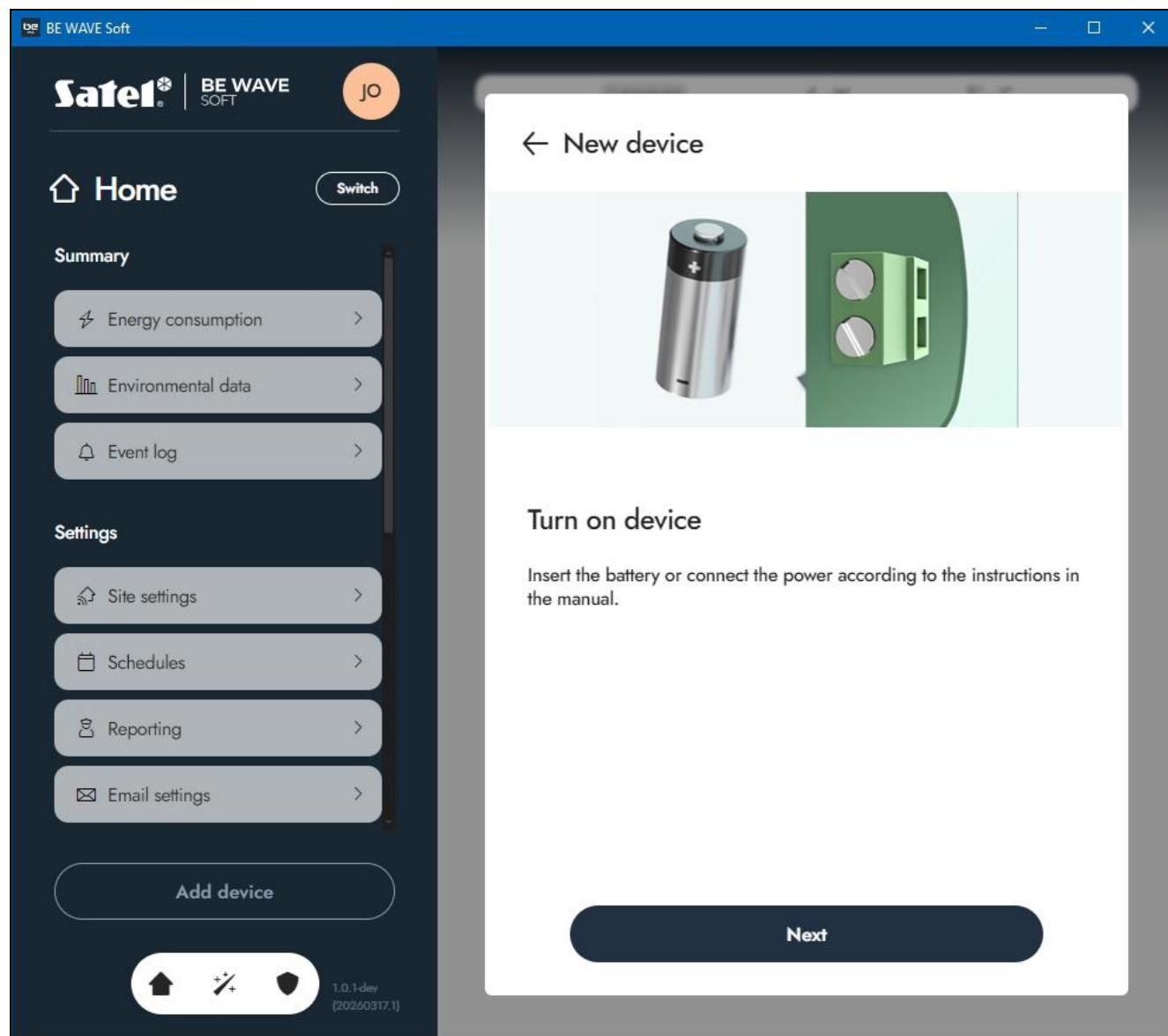
- group – at the bottom of the screen that will be displayed, the *Add device* button will be available.
- room – at the bottom of the screen that will be displayed, the *Add device* button will be available.
-  icon – at the bottom of the screen that will be displayed, the *Add device* button will be available.

When you tap the *Add device* button, the process of adding the device is the same as for the first device.

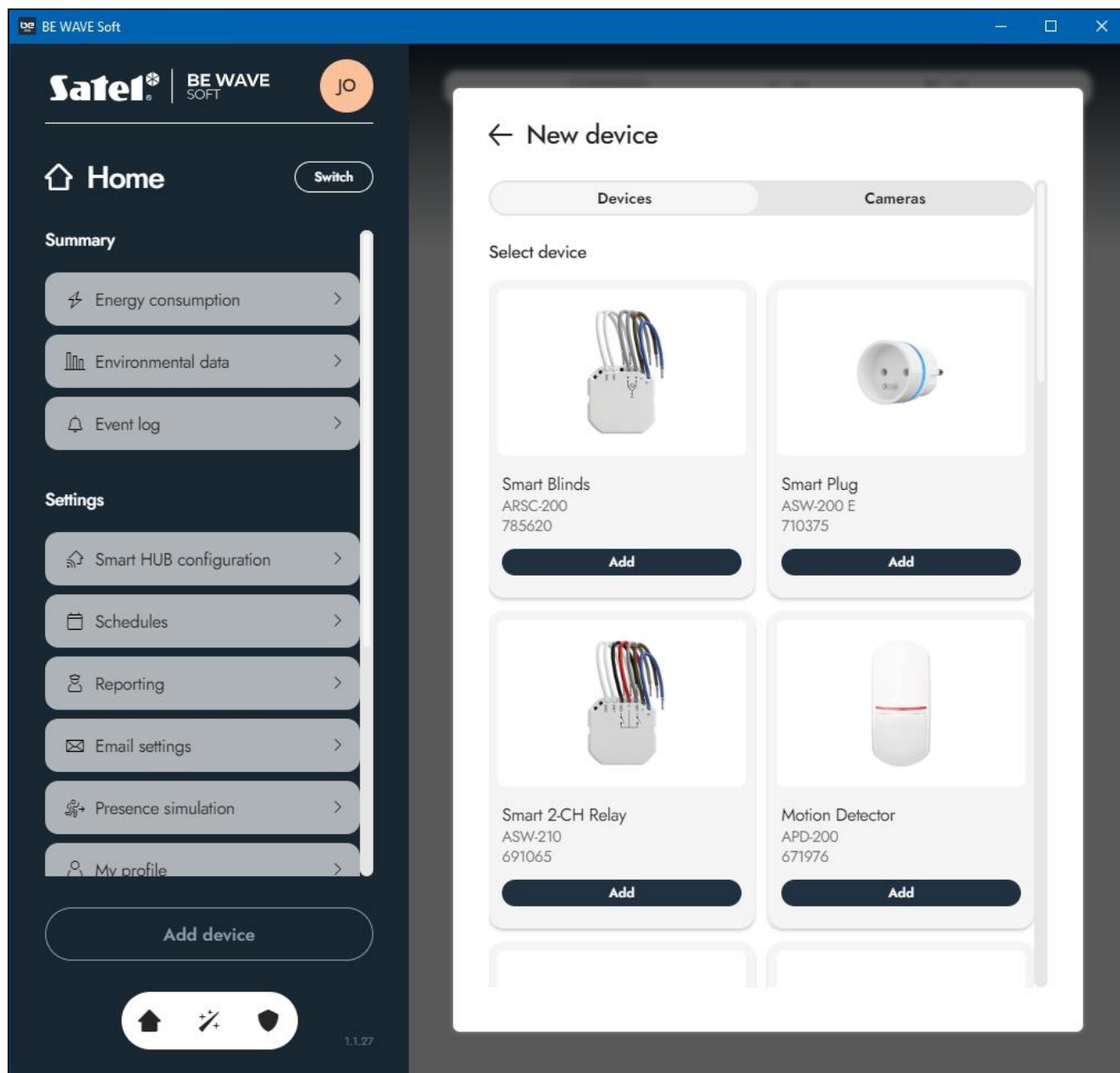
5.4.2 Adding a wireless device in the BE WAVE Soft program

Adding the first wireless device

1. Click the *Add device* button. In the new window you will be asked to turn on the device.



2. Insert the battery, connect the power, etc. (for detailed information, please refer to the manuals of particular devices), then click *Next*. The list of devices you can add will be displayed (the screenshot is an example).

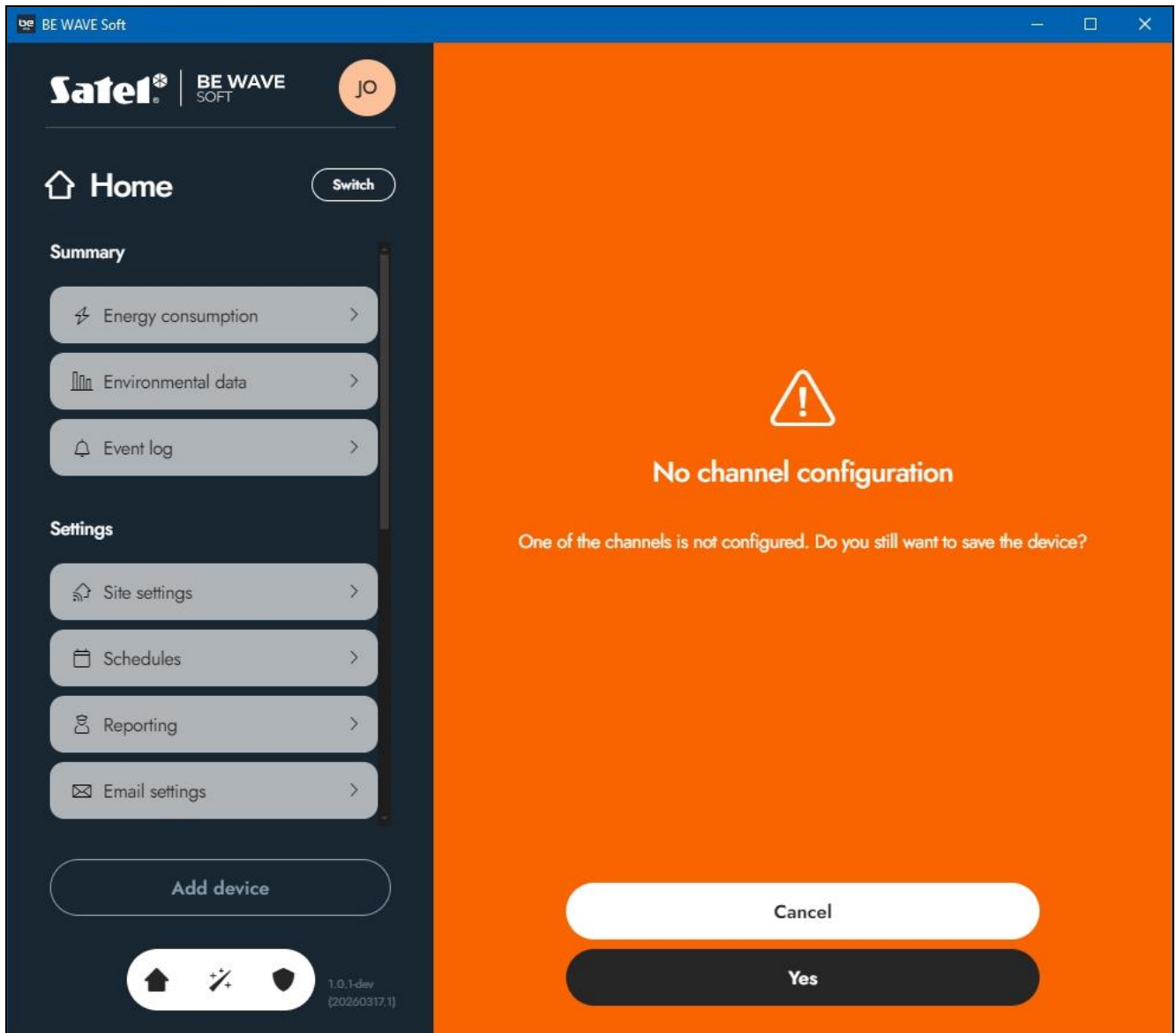


3. Click the device you want to add. The device settings will be displayed (the screenshot is an example).

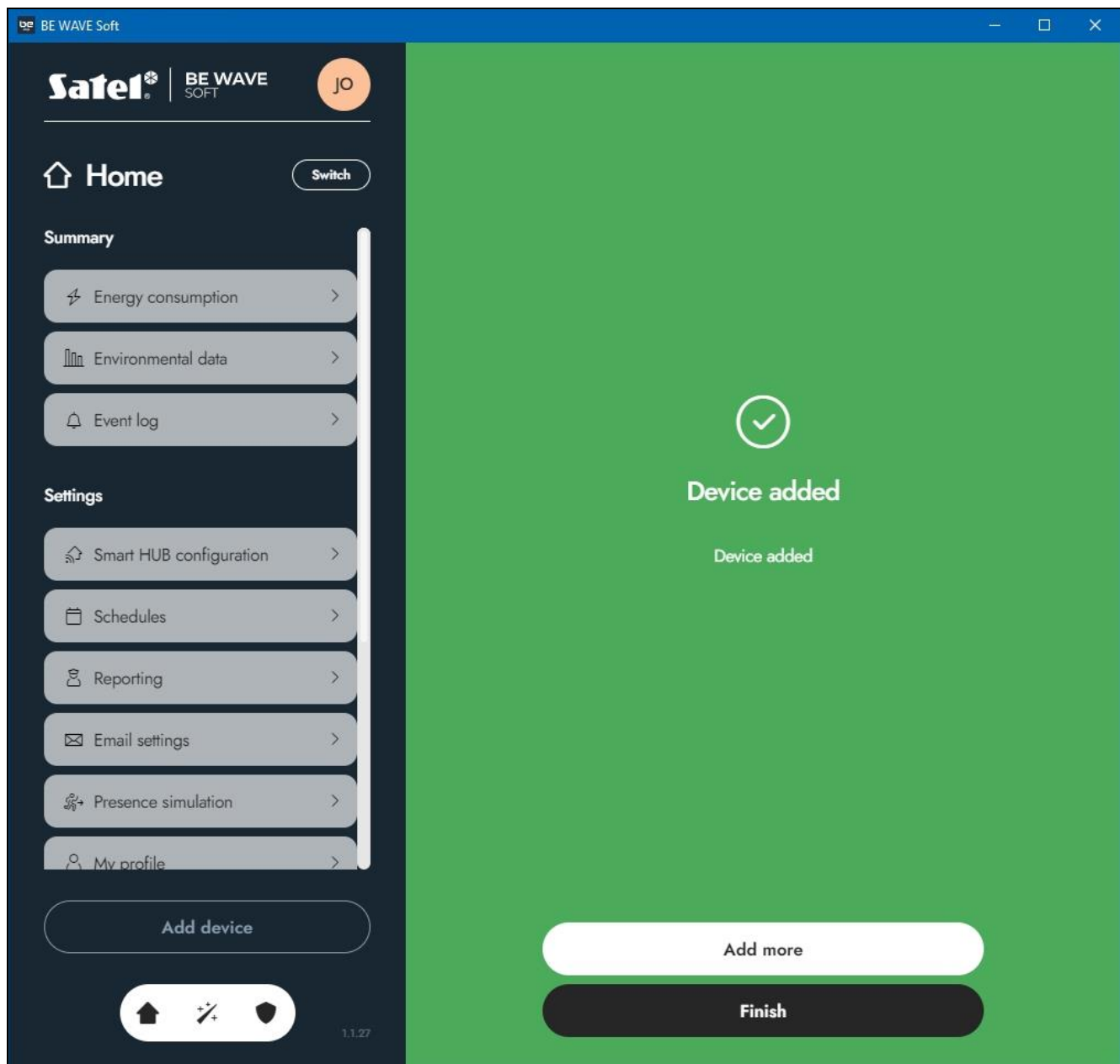
The screenshot displays the SATEL BE WAVE Soft web interface. On the left is a dark sidebar with the SATEL logo, a user profile icon 'JO', and a 'Home' button. Below these are sections for 'Summary' (Energy consumption, Environmental data, Event log) and 'Settings' (Smart HUB configuration, Schedules, Reporting, Email settings, Presence simulation, My profile). At the bottom of the sidebar is an 'Add device' button and a status bar with icons and the version '1.1.27'. The main content area is titled 'New device' and shows a 'Motion Detector' (APD-200, 671976) with a corresponding image. Below the image are four configuration sections: 'NAME' with a text input field; 'ROOM' with a dropdown menu; 'GROUP' with a dropdown menu; and 'ZONE TYPE' with a dropdown menu set to 'Instant'. A large 'Save' button is at the bottom of the form.

4. Configure the device settings (enter the name, assign the device to a room and to a group, etc. – see “Device settings” p. 51), then click Save.

5. If the device offers several channels and you have not configured all of them, a warning will be displayed. You can click *Cancel* to return to configuring the device, or click *Yes* to add the configured channels.



6. If the device offers only one channel, you configured all channels or you tapped Yes in the warning window, a message will be displayed saying that the device has been added.



7. Click *Add more* if you want to add another device or *Finish* if you do not want to add any more devices.
8. Configure additional settings if it is required for the device (e.g. sirens and other devices for which the *Alarm* operation mode has been selected require programming the alarm sources – see “Alarm source” p. 56).

Adding another wireless device

If you want to add another wireless device, click the *Add device* button on the side menu or click:

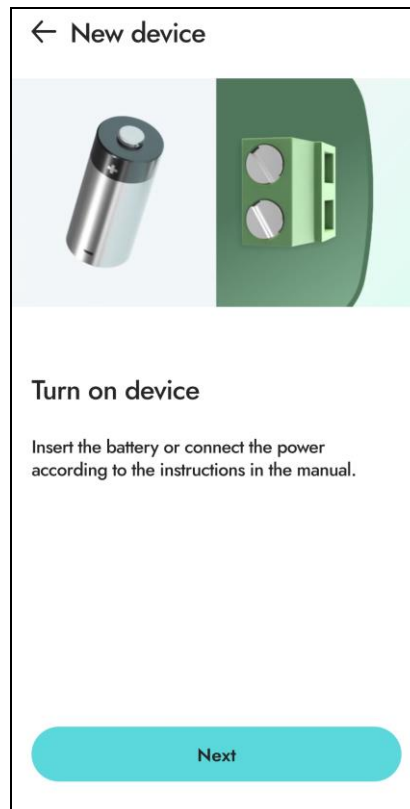
- group – at the bottom of the window that will be displayed, the *Add device* button will be available,
- room – at the bottom of the window that will be displayed, the *Add device* button will be available.

After you click the *Add device* button, the process of adding the device is the same as for the first device.

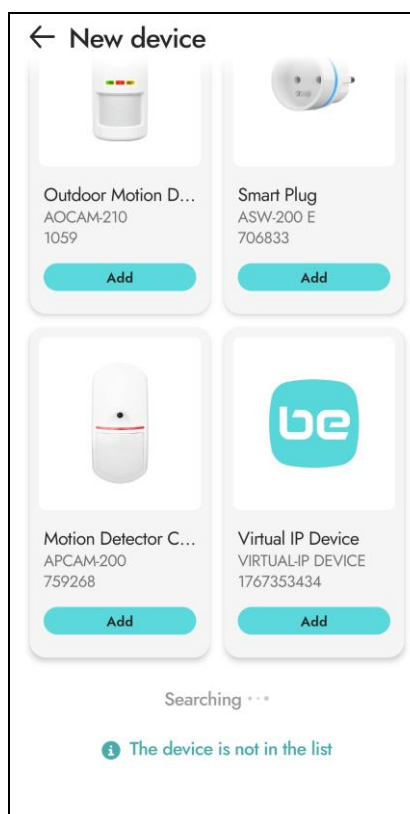
5.5 Adding a virtual IP device

5.5.1 Adding a virtual IP device in the Be Wave app

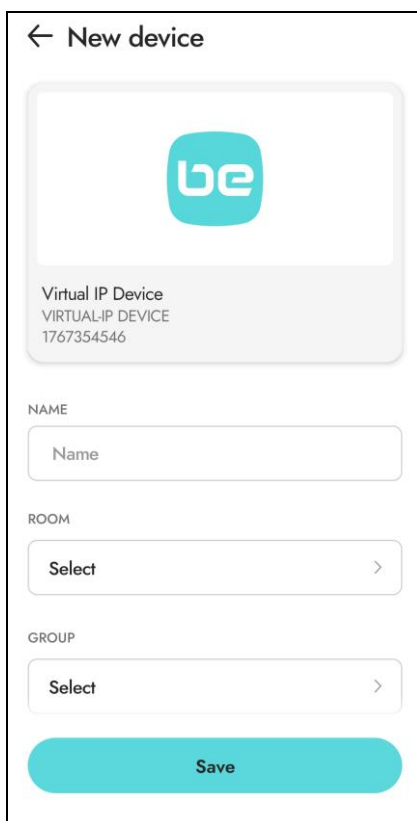
1. Tap the *Add device* button on the room screen, group screen or *Settings* screen. On a new screen you will be asked to turn on the device.



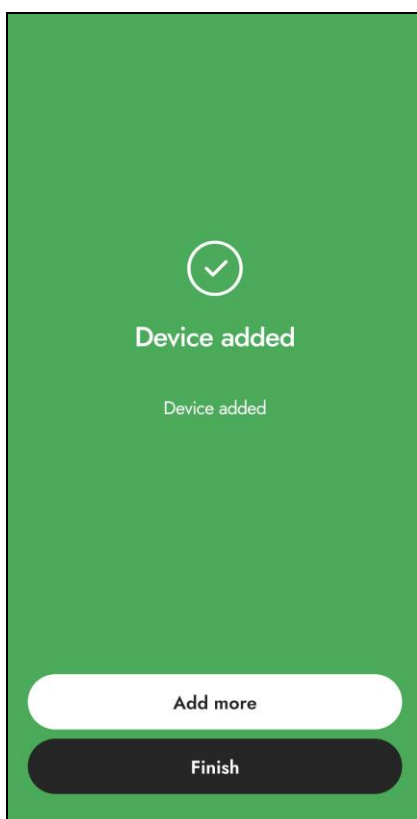
2. Tap *Next*. The list of devices you can add will be displayed (the screenshot is an example).



3. Tap *Virtual IP Device*. The IP device settings will be displayed (the screenshot is an example).



4. Configure the IP device settings (enter the name, assign the device to a room and to a group and select the zone type – see “Device settings” p. 51), then tap *Save*. A message will be displayed saying that the device has been added.

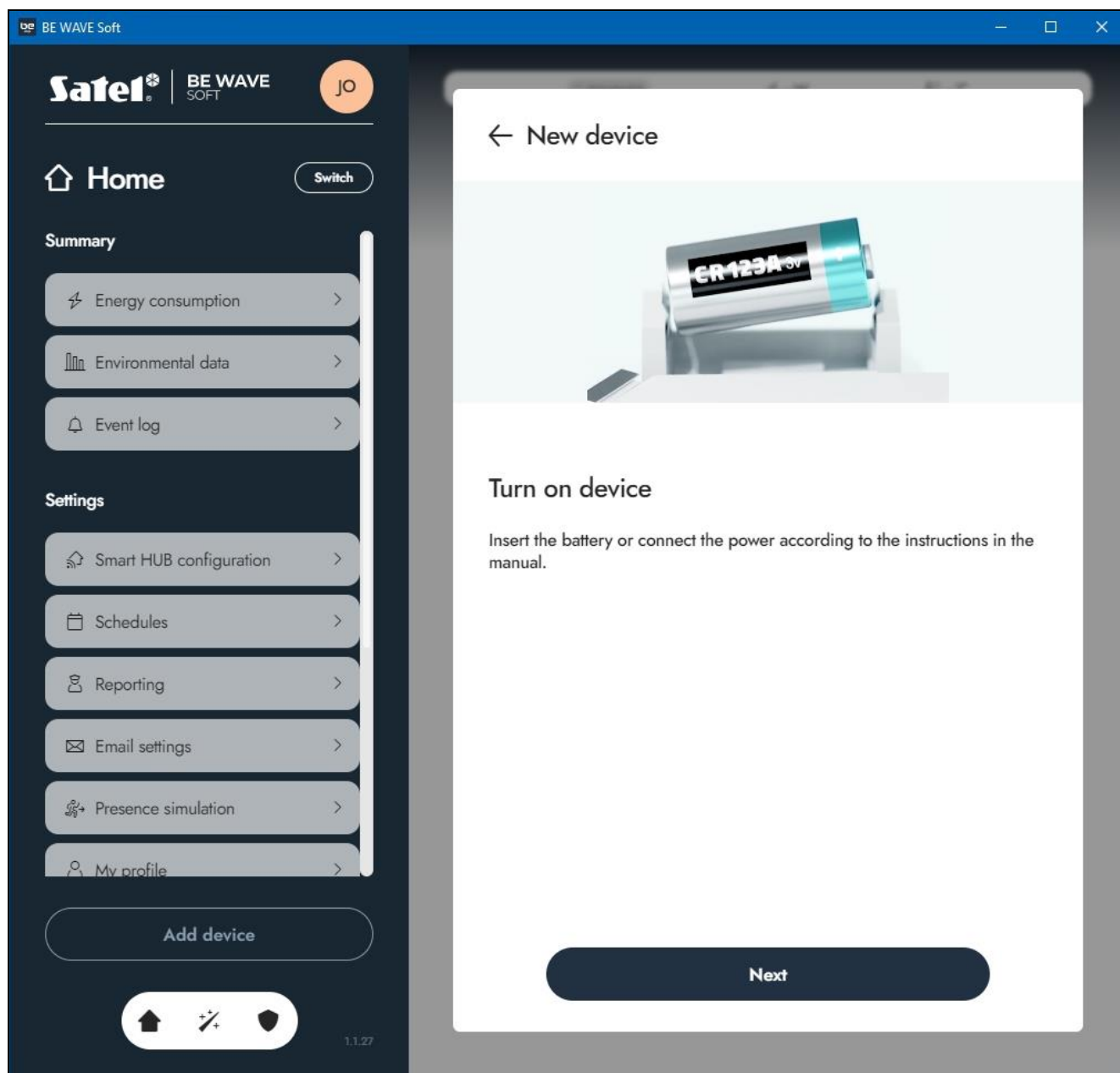


5. Tap *Add more* if you want to add another device or *Finish* if you do not want add any more devices.

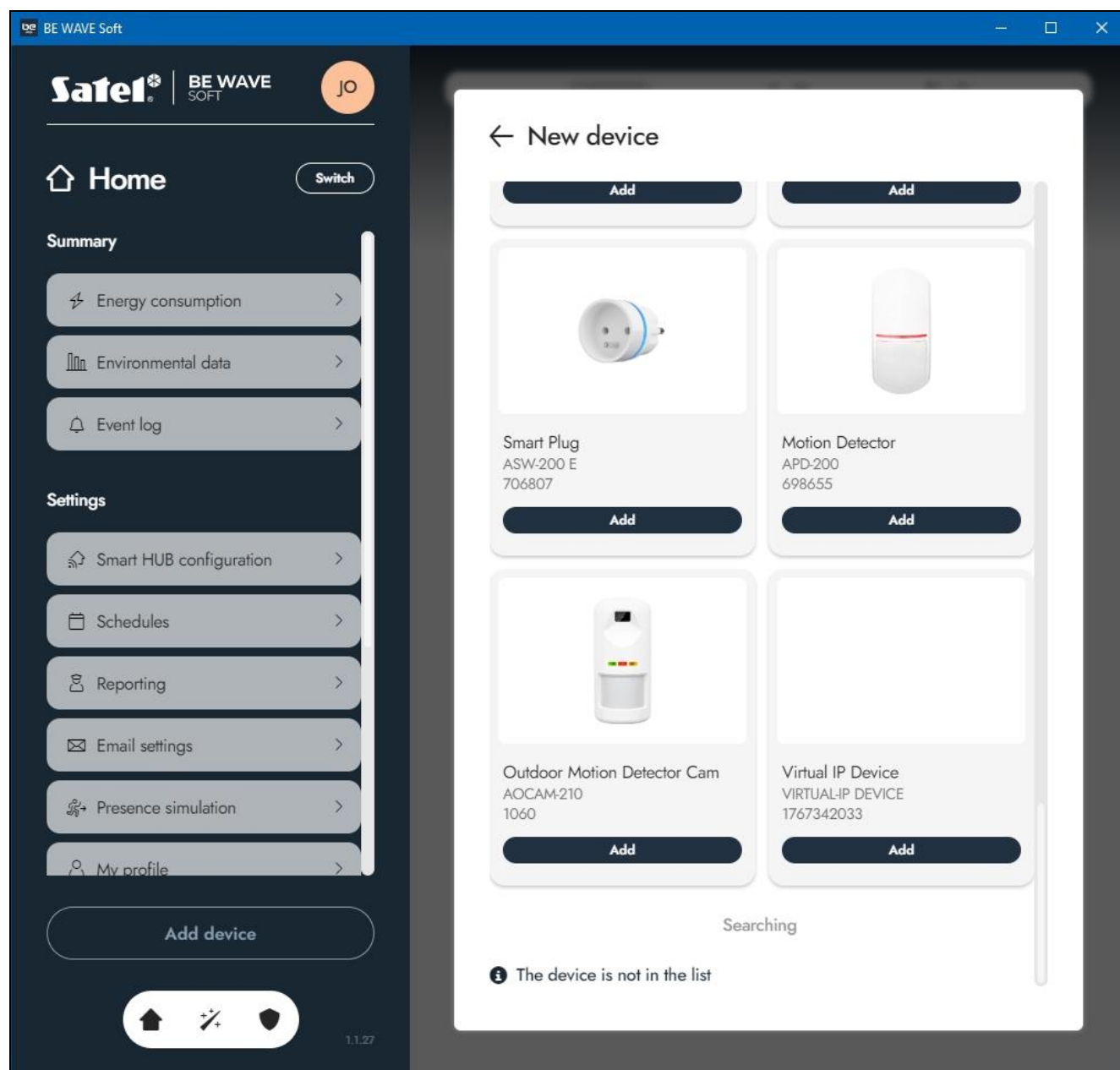
6. Configure additional settings of the IP device (see “IP device settings” s. 56).

5.5.2 Adding a virtual IP device in the BE WAVE Soft program

1. Click the *Add device* button on the side menu, in the room window or group window. In the new window you will be asked to turn on the device.



2. Click *Next*. The list of devices you can add will be displayed (the screenshot is an example).



3. Click *Virtual IP Device*. The IP device settings will be displayed (the screenshot is an example).

The screenshot displays the SATEL BE WAVE Soft web interface. On the left is a dark sidebar with the SATEL logo, a user profile 'JO', and a 'Home' button. Below this is a 'Summary' section with links for 'Energy consumption', 'Environmental data', and 'Event log'. A 'Settings' section follows with links for 'Smart HUB configuration', 'Schedules', 'Reporting', 'Email settings', 'Presence simulation', and 'My profile'. At the bottom of the sidebar is an 'Add device' button and a status bar with icons and the version '1.1.27'. The main content area is titled 'New device' and shows a preview of a 'Virtual IP Device' with ID '1767342064'. Below the preview are four form fields: 'NAME' (with a text input), 'ROOM' (a dropdown menu), 'GROUP' (a dropdown menu), and 'ZONE TYPE' (a dropdown menu set to 'Instant'). A large 'Save' button is at the bottom of the form.

BE WAVE Soft

SATEL® | BE WAVE SOFT

JO

Home

Switch

Summary

- Energy consumption
- Environmental data
- Event log

Settings

- Smart HUB configuration
- Schedules
- Reporting
- Email settings
- Presence simulation
- My profile

Add device

1.1.27

← New device

Virtual IP Device
VIRTUAL-IP DEVICE
1767342064

NAME

Name

ROOM

Select

GROUP

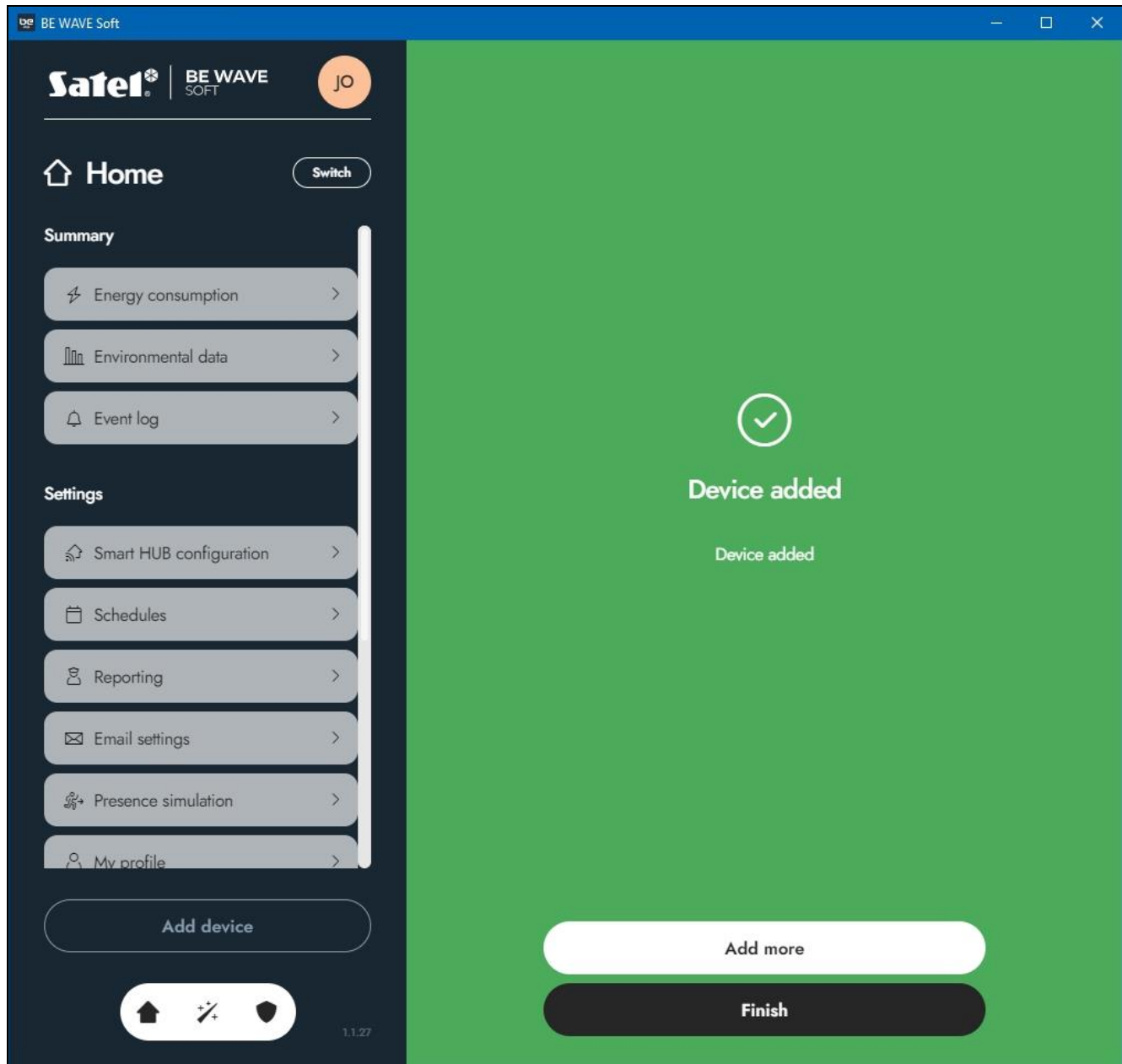
Select

ZONE TYPE

Instant

Save

4. Configure the IP device settings (enter the name, assign the device to a room and to a group and select the zone type – see “Device settings” p. 51), then tap *Save*. A message will be displayed saying that the device has been added.



5. Click *Add more* if you want to add another device or *Finish* if you do not want to add any more devices.
6. Configure additional settings of the IP device (see “IP device settings” p. 56).

5.6 Deleting a device

5.6.1 Deleting a device in the Be Wave app

1. Tap the room or group in which you want to delete a device. The room / group screen will be displayed.
2. Tap the device you want to delete. The device screen will be displayed.
3. Tap the *Delete device* button. You will be asked for confirmation.
4. Tap *Yes*. The device will be deleted.

5.6.2 Deleting a device in the BE WAVE Soft program

1. Click the room or group in which you want to delete a device. The room / group window will be displayed.
2. Click the device you want to delete. The device window will be displayed.
3. Click *Delete device*. You will be asked for confirmation.
4. Click Yes. The device will be deleted.

5.7 Description of settings

5.7.1 Device settings

The settings described in this section are available when adding a device or after tapping / clicking the *Edit device* button ([room] / [group] >[device] >*Edit device*).

Name – individual device name.

Room – room in which the device is installed.

Working mode – parameter for:

- AXD-200 detector (Multipurpose Detector). Select the purpose of the detector:

Shock detector – to detect shocks.

Opening detector – to detect the opening of a door or window. You can also connect a wired NC detector to it (e.g. a wired opening detector).

Shock and opening detector – to detect shocks and the opening of a door or window. You can also connect a wired NC detector to it (e.g. a wired opening detector).

Flood detector – to detect indoor water flooding.

Temperature sensor – to measure air temperature.

Roller shutter detector – to detect the opening of a door or window. You can also connect a wired roller shutter detector and a wired NC detector to it (e.g. a wired opening detector).

- ARC-200 controller (Smart RGBW LED Driver). Select the purpose of the controller:

RGB – to control an RGB LED strip.

RGBW – to control an RGBW LED strip.

COLD/WARM – to control a CCT LED strip.

MONO – to control a single color LED strip / LED bulb / halogen bulb.

- ARSC-200 controller (Smart Blinds). Select the purpose of the controller:

Blind – to open / close venetian blinds.

Shutter – to open / close roller shutters.

Window actuator – to open / close electric windows.

Group – group of devices to which the device belongs.

Operation mode – this parameter defines when the output / device is to be turned on.

Alarm – output / device is turned on after alarm is generated in the system. Programming of these settings is required: *Operating time* and *Alarm source*.

BI switch – after activation, the output / device changes its status to the opposite:

- if it was turned off, it will be turned on,
- if it was turned on, it will be turned off.

MONO switch – output / device is turned on for a programmed time. Programming of the *Operating time* parameter is required.

Thermostat cooling – output / device is turned on when the temperature rises above the set temperature. Programming of temperature is required.

Thermostat heating – output / device is turned on when the temperature drops below the set temperature. Programming of temperature is required.



If programming of additional parameters is required, they are available in the app / program after tapping / clicking the device.

Zone type – parameter for detectors, buttons and zones. In the description below, the general term “zone” is used. Select the zone type to define the reaction to detector violation, button pressing, zone violation, etc.:

Instant – when the zone is armed, zone violation will generate an alarm. Typically, this zone type is used for outdoor motion detectors and detectors protecting windows.

Entry/Exit – when the *Exit delay* countdown is running, zone violation will not generate an alarm. When the zone is armed, zone violation will start the *Entry delay* countdown. The system must be disarmed before the *Entry delay* is over. Otherwise, an alarm will be generated. Typically, this zone type is used for detectors protecting entrances/exits (e.g. front doors).

Interior delayed – when *Entry delay* is running, zone violation will start the *Delay time* countdown. The system must be disarmed before the *Delay time* is over. Otherwise, an alarm will be generated. When the zone is armed but the *Entry delay* countdown is not running, zone violation will generate an alarm. Typically, this zone type is used for indoor motion detectors and detectors protecting internal doors.

No alarm actions – zone violation will trigger no direct reaction. This zone can be used to run routines.

24h audible alarm – zone violation will generate an audible alarm. This zone type is intended for detectors that are to be always armed and generate loud alarms.

24h panic alarm – zone violation will generate a panic alarm. This zone type is intended for panic buttons.

24h silent alarm – zone violation will generate a silent panic alarm. Loud signaling will not be triggered but the event code can be sent to the monitoring station. This zone type is intended for panic buttons.

24h medical alarm – zone violation will generate a medical alarm. This zone type is intended for emergency call buttons.

24h fire alarm – zone violation will generate a fire alarm. This zone type is intended for fire detectors.

24h flood alarm – zone violation will generate a flood alarm. This zone type is intended for flood detectors.

Trouble – zone violation will generate a trouble. Zone restore means trouble restore.

Tamper – system reaction to device tamper:

Trouble only – device tamper only generates a trouble.

Loud alarm only when armed – device tamper generates a loud alarm only when the device is armed.

Always loud alarm – device tamper always generates a loud alarm.

Lighting type – parameter for the ADC-200 dimmer (Smart Dimmer). Select the light source connected to the dimmer:

Conventional / LED bulb – conventional filament bulb, halogen bulb or LED bulb.

With transformer – light source powered by an electronic or magnetic transformer.

Autodetection – dimmer will automatically recognize the type of connected load.

Type – parameter for:

- ADC-200 dimmer (Smart Dimmer) / ARC-200 controller (Smart RGBW LED Driver):
 - None** – no button is connected to the input.
 - Single** – a single button is connected to the input.
 - Double** – a double button is connected to the input.
- ASW 210 controller (Smart 2-CH Relay) / ASW-220 controller (Smart 2-CH Relay PM):
 - None** – no button is connected to the input.
 - Single** – a single button is connected to the input.

Button type – parameter for the ADC-200 dimmer (Smart Dimmer) / ARC-200 controller (Smart RGBW LED Driver) / ASW-210 controller (Smart 2-CH Relay) / ASW-220 controller (Smart 2-CH Relay PM), if *Single* type was selected, and the ATX-200 module (Smart Switch Controller). Specifies the type of the connected single button:

Switch

Bell

Local control – option for the ADC-200 dimmer (Smart Dimmer) / ARC-200 controller (Smart RGBW LED Driver) / ASW-210 controller (Smart 2-CH Relay) / ASW-220 controller (Smart 2-CH Relay PM). If enabled, the buttons connected to the inputs control the device directly. If disabled, the buttons connected to the inputs do not control the devices directly (can be used in routines).

Remember last value – option for the ADC-200 dimmer (Smart Dimmer) / ARC-200 controller (Smart RGBW LED Driver). If enabled, the device remembers the last settings (after turning the lighting off and on again the value set before turning the lighting off will be used).

Remember after power loss – option for a wired output (wireless expanders) / ADC-200 dimmer (Smart Dimmer) / ARC-200 controller (Smart RGBW LED Driver) / ARSC-200 controller (Smart Blinds) / ASW-200 plug (Smart Plug) / ASW-210 controller (Smart 2-CH Relay) / ASW-220 controller (Smart 2-CH Relay PM). If enabled, after the power is restored, the device status from before the power loss will be recovered (set values, etc.).

ECO mode – if enabled, periodical communication with the device takes place every 3 minutes. Thanks to this, the device battery life can be extended up to four times. If disabled, periodical communication with the device takes place every 24 seconds.



If you enable the ECO option for a detector, the delay between arming / disarming the system and sending this command to the detector can be up to three minutes.

Disable tamper – if enabled, the device does not report tamper.

5.7.2 Additional device settings

The settings described in this section are available after tapping / clicking the device ([room] / [group] >[device]).

Settings of devices with built-in temperature sensor

Temperature correction – the value by which the temperature information sent by the device is corrected.

Detector settings

Violation count – the number of violations after which the controller will report a violation. If the number of violations is lower, they will be ignored.

Counting time – time in which violations are counted.

Hardwired zones settings

Zone wiring type – type of detector and the way it is connected to the zone:

Not used – the zone is not used (no device is connected to the zone).

NC – the zone supports an NC (normally closed) detector.

NO – the zone supports an NO (normally open) detector.

EOL – the zone supports an NO or NC detector with EOL resistor in the circuit.

2EOL/NC – the zone supports an NC detector with two EOL resistors in the circuit.

2EOL/NO – the zone supports a detector of NO type with two EOL resistors in the circuit.

Sensitivity – time for which the zone must remain violated for the controller to report the violation.

Wireless siren settings

Optical signaling – if this option is enabled, the optical signaling is used.

Optical signaling period – duration of optical signaling. This parameter is available when the *Optical signaling* option is enabled.

Acoustic signaling – if this option is enabled, the acoustic signaling is used.

Acoustic signaling period – duration of acoustic signaling. This parameter is available when the *Acoustic signaling* option is enabled.

Alarm output settings

ON/OFF – enable this option to turn on the output for the *Operating time*. Disable this option to turn off the output.

Operating time – period of time during which the output is turned on.

BI switch output settings

ON/OFF – enable this option to turn on the output. Disable this option to turn off the output.

Schedule – schedule that controls the output.

MONO switch output settings

ON/OFF – enable this option to turn on the output for the *Operating time*. Disable this option to turn off the output.

Operating time – period of time during which the output is turned on.

Schedule – schedule that controls the output.

Thermostat settings

Temperature set – currently set temperature threshold.

Day temperature – day temperature threshold. Used when the thermostat operation is controlled by a schedule.

Night temperature – night temperature threshold. Used when the thermostat operation is controlled by a schedule.

ECO mode temperature – ECO mode temperature threshold.

Manual temperature – temperature threshold set manually.

BOOST mode period – operating time of the boost heat function.

Temperature sensor – device with a temperature sensor that provides temperature data.

Temperature correction – the value by which the temperature information sent by the device is corrected.

Schedule – schedule that controls the *Day temperature* and *Night temperature* thresholds. During the hours specified by the schedule, the *Day temperature* threshold is active. Outside those hours, the *Night temperature* threshold is active.

Hysteresis – temperature difference between turning the thermostat on and off. The thermostat will be turned on when temperature drops below the threshold (heating) / rises above the threshold (cooling) by a value higher than the hysteresis.

Detector with lighting feature settings

Lighting – enable this option to turn on the lighting. Disable this option to turn off the lighting.

ADC-200 dimmer settings

ON/OFF – enable this option to turn on the lighting. Disable this option to turn off the lighting.

Maximum level – maximum brightness level that can be set.

Minimum level – minimum brightness level that can be set.

Brightening time – time required to change the brightness from the minimum level to the maximum level.

Schedule – schedule that controls the dimmer.

ARC-200 controller settings

ON/OFF – enable this option to turn on the lighting. Disable this option to turn off the lighting.

Maximum level – maximum brightness level that can be set.

Minimum level – minimum brightness level that can be set.

Brightening time – time required to change the brightness from the minimum level to the maximum level.

Color – LED lighting color.

ARSC-200 controller settings

Upward driving time – time required to raise fully lowered blinds / open fully closed blinds / open fully closed window.

Downward driving time – time required to lower fully raised blinds / close fully open blinds / close fully open window.

Upward slats rotation time – time required to move the slats of horizontal blinds from the lower to the upper end position.

Downward slats rotation time – time required to move the slats of horizontal blinds from the upper to the lower end position.

Switch-on delay when up – motor inertia time during upward movement, i.e. the time from applying voltage to the actual start of the motor.

Switch-on delay when down – motor inertia time during downward movement, i.e. the time from applying voltage to the actual start of the motor.

Schedule – schedule that controls the controller.

ASW-200 smart plug settings

ON/OFF – enable this option to turn on the plug. Disable this option to turn off the plug.

LED indicator – operating mode of the LED indicator:

Disabled – if enabled, the LED indicator is disabled, i.e. it does not indicate when the plug is on but it indicates warm-up and troubles.

By consumption – if enabled, the LED indicator color shows the power consumption of the connected device. The color changes from blue (minimum power consumption) to red (maximum power consumption).

Predefined – color of the LED indicator when the plug is turned on.

Schedule – schedule that controls the plug.

Operating time – period of time during which the plug is turned on. This parameter is available if the *Alarm* or *MONO switch* operating mode has been selected for the plug.

5.7.3 Alarm source

The settings described in this section are available after tapping / clicking the *Alarm source* button ([room] / [group] >[device] >*Alarm source*).

Every alarm – if enabled, every alarm is signaled by the device.

Alarm signaling disabled – indicator shows if alarms are signaled by the device.

System alarm – if enabled, system alarms are signaled (e.g. alarms generated by scenes and routines). This option is available when the *Every alarm* option is disabled.

Devices – if enabled, you can select the devices from which alarms are signaled. This option is available when the *Every alarm* option is disabled.

Rooms – if enabled, you can select the rooms from which alarms are signaled. This option is available when the *Every alarm* option is disabled.

Arming mode – if enabled, you can select the arming modes for which alarms are signaled. This option is available when the *Every alarm* option is disabled.

5.7.4 IP device settings

The settings described in this section are available after tapping / clicking the *IP device settings* ([room] / [group] >[device] >*IP device settings*).

IP device – if enabled, the IP device is supported and its settings are available.



For an IP device, you can program the settings of both the IP zone and the IP output, only the IP zone or only the IP output.

Communication loss time – time after which the IP device reports a loss of communication if it does not receive the HTTP Keep-Alive request. If you enter 0, the communication supervision will be disabled.

HTTP Keep-Alive request – string of characters that must be included in the received HTTP notification to confirm that communication is to be maintained.

Return time – time after which the IP zone will return to normal state (zone restore). The countdown is reset after each violation.

HTTP violation request – string of characters that must be included in the received HTTP notification for the IP zone to be violated.



The 5000 port is used for receiving HTTP notifications.

IP output address – address to which HTTP notifications will be sent. You can enter the IP address or the domain name.

Port – number of the port used for sending HTTP notifications. If you enter 0, the service will be disabled. This port cannot be used by another service, device, etc.

HTTP output OFF request – string of characters to be sent in an HTTP notification if the IP output is deactivated.

HTTP output ON request – string of characters to be sent in an HTTP notification if the IP output is activated.

5.7.5 Communication settings

The settings described in this section are available when adding a controller (site) or after tapping / clicking *Connection methods* (*Settings* >*Site settings* >*Connection methods*).

SIM1 / SIM2 [Smart HUB Plus / Smart HUB Plus LV]



You can obtain the SIM card settings from the mobile network operator.

PIN – SIM card PIN code.

APN – access point name for Internet connection.

User – username for Internet connection.

Password – password for Internet connection.

DNS 1 – IP address of the DNS 1 server to be used by the controller.

DNS 2 – IP address of the DNS 2 server to be used by the controller.

SMS center number – telephone number of the operator's SMS center. If the number has been saved to the SIM card memory by the operator, there is no need to program it. Otherwise, enter the number if the controller is to send SMS messages.

Force network operator – codes of the operator of cellular network to which the SIM card is to log in. Enter in sequence:

- MCC (Mobile Country Code) – country code,
- MNC (Mobile Network Code) – operator code.

Enter the codes if you want the card to log in only to a specific operator's network. Remember that entering incorrect data may prevent logging in to the cellular network. If you do not enter the code, the card will log in to any available cellular network.

LAN

Configure connection manually – if enabled, you can program the network settings manually. If disabled, the controller automatically downloads network settings from the DHCP server.

IPv4 – controller IP address.

Mask – subnet mask in which the controller operates.

Gateway – IP address of the network device through which devices in the local network can communicate with devices in other networks.

DNS 1 – IP address of the DNS 1 server to be used by the controller.

DNS 2 – IP address of the DNS 2 server to be used by the controller.

Wi-Fi

Password – Wi-Fi access password.

Configure connection manually – if enabled, you can program the network settings manually. If disabled, the controller automatically downloads network settings from the DHCP server.

IPv4 – controller IP address.

Mask – subnet mask in which the controller operates.

Gateway – IP address of the network device through which devices in the local network can communicate with devices in other networks.

DNS 1 – IP address of the DNS 1 server to be used by the controller.

DNS 2 – IP address of the DNS 2 server to be used by the controller.

5.7.6 Advanced settings

The settings described in this section are available after tapping / clicking the *Advanced settings* button (*Settings > Site settings > Advanced settings*).

Alarm after 5 incorrect codes – if this option is enabled, using a wrong code 5 times will generate an alarm.

Lock keypad after 5 incorrect codes – if enabled, using a wrong code 5 times will lock the keypad for 90 seconds.

5.7.7 Reporting

The settings described in this section are available after tapping / clicking the *Reporting* button (*Settings > Reporting*).

Mode – the way of sending event codes to the monitoring stations:

Disabled – no event codes are sent.

Only to station 1 – event codes are only sent to station 1.

Only to station 2 – event codes are only sent to station 2.

To station 1 and 2 – event codes are sent to both monitoring stations.

To station 1 or 2 – the controller sends an event code to station 1 and, if unsuccessful, to station 2.

Station 1 / Station 2

Station 2 takes over link test – if enabled, when the controller fails to connect to station 1 during the link test, the controller will test the link to station 2. This option applies to the *SIA-IP* and *BOLD MANITOU* reporting types.

Type – you can select one of the following types: *SATEL IP*, *SIA IP* or *BOLD MANITOU*.

Channels – the order of using different transmission channels for the purpose of reporting. If an attempt to send an event code to the monitoring station via one channel fails, the controller will use the next channel in line. A successful attempt to send an event code to the monitoring station will terminate the procedure (with the exception of test transmissions). Select the channels to be used and arrange them in order on the list using drag and drop. If you select *NONE* or select no channel on the list, event codes will not be sent.

Reporting format – the format in which event codes are sent to the monitoring station. You can select *SIA* or *Contact ID*.

Device identifier – controller identifier for the purpose of reporting. It allows the monitoring station to determine where the events are being sent from. For the *Contact ID* format, enter 4 hexadecimal characters (digits or capital letters from A to F). For the *SIA* format, enter 4 or 6 hexadecimal characters (digits or capital letters from A to F).

Protocol – network protocol used to send event codes. You can select *TCP* or *UDP*.

Server 1 address – address of the monitoring station's server 1. You can enter the IP address or the domain name.

Port [server 1] – number of the port used for communication between the controller and the monitoring station's server 1. If you enter 0, the service will be disabled. This port cannot be used by another service, device, etc.

Server 2 address – address of the monitoring station's server 2. You can enter the IP address or the domain name.

Port [server 2] – number of the port used for communication between the controller and the monitoring station's server 2. If you enter 0, the service will be disabled. This port cannot be used by another service, device, etc.

SATEL station key – string of characters used for encrypting data sent to the monitoring station using *SATEL IP*. By default, you can enter up to 12 alphanumeric characters (digits, letters and special characters). If you enable the *HEX* option, you can enter 24 hexadecimal characters (digits or capital letters from A to F).

ETHM/GPRS key – string of characters used for identifying the controller for the purpose of *SATEL IP* reporting. By default, you can enter up to 5 alphanumeric characters (digits,

letters and special characters). If you enable the *HEX* option, you can enter 10 hexadecimal characters (digits or capital letters from A to F).

SIA ID – string of characters used for identifying the controller for the purpose of *SIA-IP* reporting. You can enter up to 16 hexadecimal characters (digits or capital letters from A to F).

SIA: Account prefix – string of characters used for additional identification of the controller for the purpose of *SIA-IP* reporting. The parameter allows you to expand the list of attributes used to identify the controller. You can enter up to 6 hexadecimal characters (digits or capital letters from A to F).

SIA: Receiver number – string of characters used for additional identification of the controller for the purpose of *SIA-IP* reporting. The parameter allows you to expand the list of attributes used to identify the controller. You can enter up to 6 hexadecimal characters (digits or capital letters from A to F).

Encryption – option applies to *SIA-IP*. If enabled, data being sent is encrypted, and date and time are sent with the event code (the monitoring station can program date and time in the controller).

Send date and time – option applies to *SIA-IP*. If enabled, date and time are sent with the event code (the monitoring station can program date and time in the controller).

Server 1 heartbeat interval – number of seconds between additional tests of link to server 1 for the *BOLD MANITOU* reporting. If you enter 0, the link to server will not be additionally tested.

Server 2 heartbeat interval – number of seconds between additional tests of link to server 2 for the *BOLD MANITOU* reporting. If you enter 0, the link to server will not be additionally tested.

Advanced settings – if enabled, additional reporting settings are available:

Number of attempts – number of attempts to send an event. If all attempts are failed, the controller will suspend monitoring.

Interval between attempts – time between each subsequent attempt to send an event.

Suspension period – time for which reporting will be suspended if all attempts to send an event through all provided transmission channels are failed. The controller will make another attempt to send the event after this time elapsed or after a new event occurred.

SIA-IP test period: Server 1 / Server 2 – number of days, hours, minutes and seconds between the tests of link to the server for the *SIA-IP* reporting.

Both server link test – option applies to *SIA-IP*. If enabled, the controller tests link to both servers of the monitoring station.

Server 2 takes over link test from server 1 – option applies to *SIA-IP*. If enabled, when the controller fails to connect to the monitoring station's server 1 during the link test, the controller will test link to server 2.

Send pictures only when the detector is armed – option applies to *BOLD MANITOU*. If enabled, pictures are only sent if the detector with camera is armed.

Send pictures to the station – option applies to *SATEL IP*. If enabled, the settings for sending pictures taken by camera detectors to the monitoring station are available.

Server 1 address – address of server 1 to which pictures are to be sent. You can enter the IP address or the domain name.

Port [server 1] – number of the port used for communication between the controller and server 1. If you enter 0, the service will be disabled. This port cannot be used by another service, device, etc.

Server 2 address – address of server 2 to which pictures are to be sent. You can enter the IP address or the domain name.

Port [server 2] – number of the port used for communication between the controller and server 2. If you enter 0, the service will be disabled. This port cannot be used by another service, device, etc.

Device identifier for picture sending – controller identifier for the purpose of sending pictures to the monitoring station. You can enter up to 8 alphanumeric characters (digits, letters and special characters).

Password – password used to log in the controller to the monitoring station for the purpose of sending pictures. You can enter up to 16 alphanumeric characters (digits, letters and special characters).

Send pictures only when the detector is armed – if enabled, pictures are only sent if the detector with camera is armed.

Test transmissions settings – if enabled, the test transmissions settings are available.

Every – if the test transmission is to be sent at specified time intervals, enter the interval in days, hours and minutes.

On time – if the test transmission is to be sent every day at a specified time, enter the hour and minutes.

Independent of events – option applies to test transmissions sent at specified time intervals. If enabled, the time is counted from the last test transmission. If disabled, the time is counted from the last transmission, regardless of whether it was a test transmission or another event code was sent.

5.7.8 Email settings

The settings described in this section are available after tapping / clicking the *Email settings* button (*Settings >Email settings*).

Subject – email subject. It is included in every notification email sent by the controller.

Email – email address to be displayed to email recipients as the sender's address.

SMTP server – address of the outgoing mail server.

SMTP port – number of the outgoing mail port.

TLS – encryption protocol used. You can select: *SSL_TLS*, *SSL_START_TLS* or *SSL_NO_TLS*.

Sender – name to be displayed to email recipients as the sender's name.

Authentication – if enabled, the authentication is enabled.

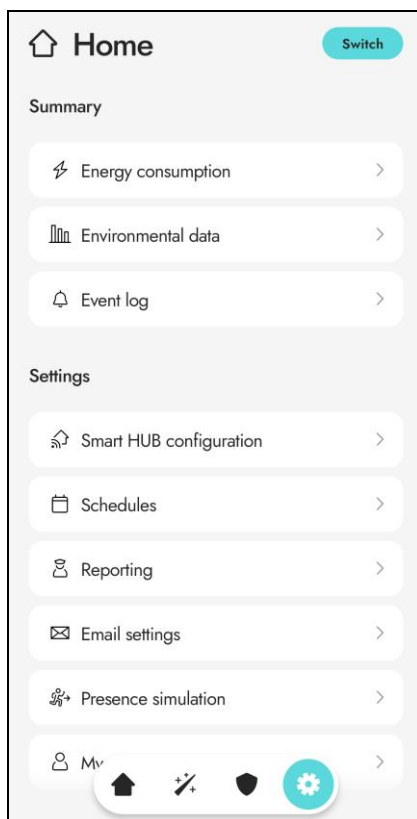
Username – email address used for authentication (login to mail account).

Password – password used for authentication.

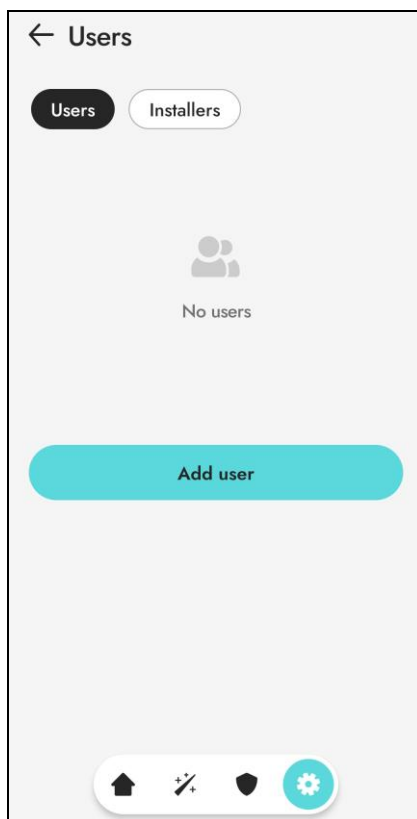
5.8 Adding a user

5.8.1 Adding a user in the Be Wave app

1. Tap  on the menu bar. The *Settings* screen will be displayed.



2. Tap the *Users* button. The *Users* screen will be displayed.



3. Tap the *Add user* button. The *New user* screen will be displayed.

← New user

USERNAME

Username

USER TYPE

User ☒

Installer ☐

SHARE

Entire site ☒

Part of the site ☐

Administrator ☐

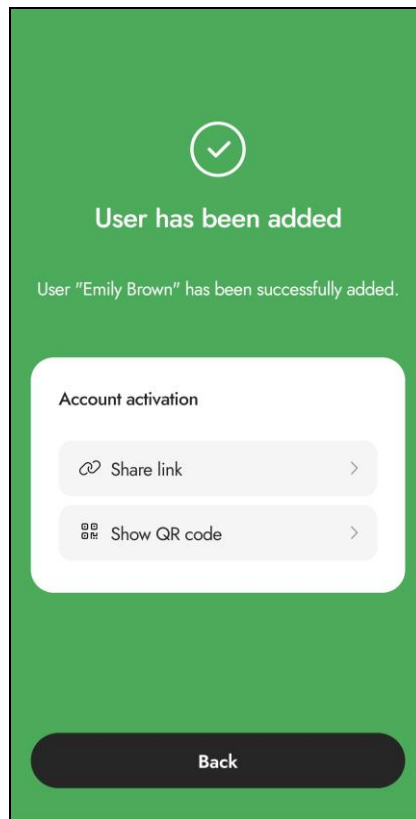
Save

4. Enter the username.
5. Select the user type: *User* or *Installer*.
6. If you selected the *User* type, you can select the *Entire site* (see “User with access to the entire site” p. 66) or *Part of the site* (see “User with access to a part of the site” p. 67) option.

7. Tap *Save*. A screen will be displayed saying that the user has been added. Two options to activate the new user account are available on the screen:
- tap *Share link* if you want to send a link to the user.
 - tap *Show QR code* if you want to share a QR code with the user.



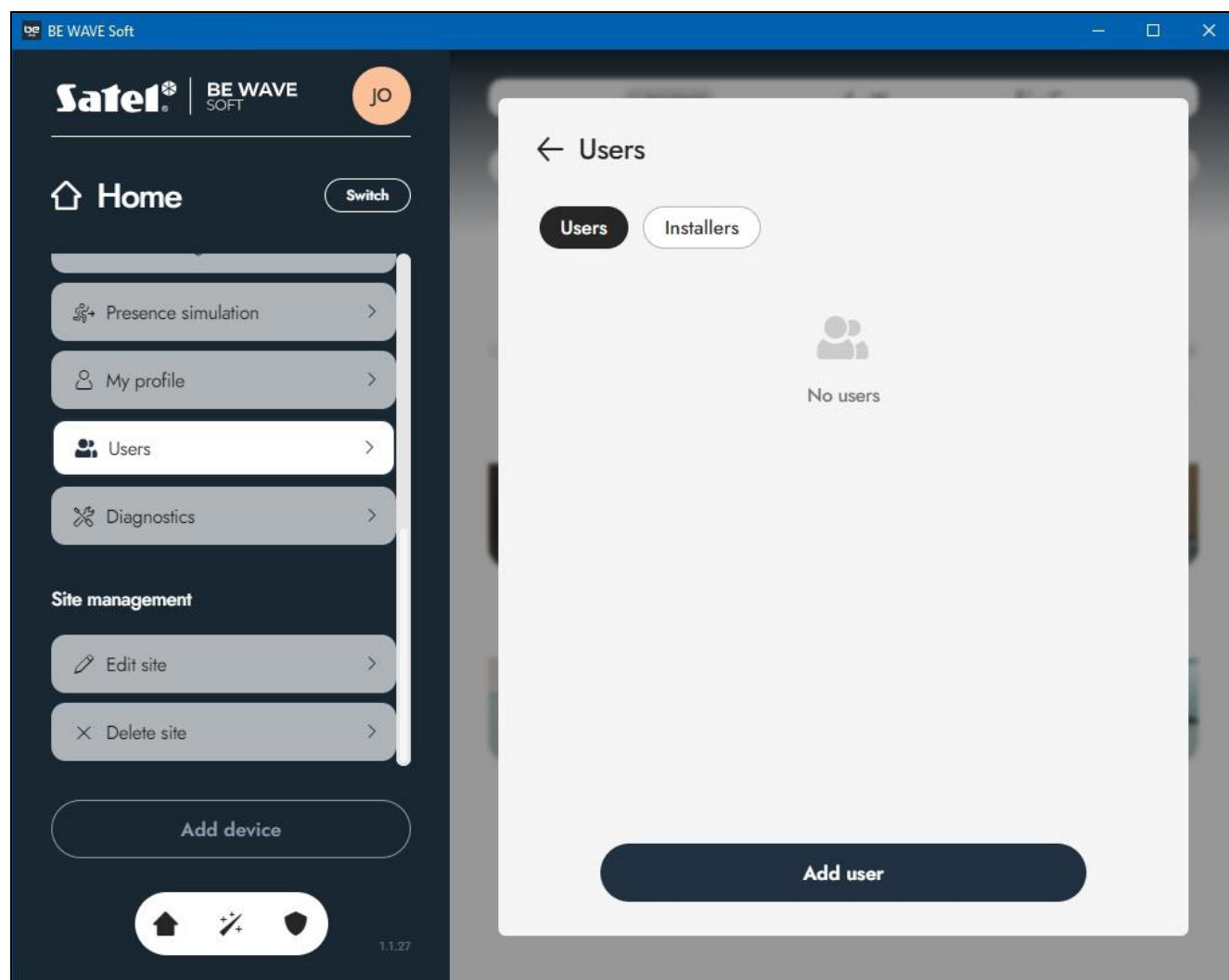
The user must activate the account within 24 hours of generating the link / QR code. Otherwise, the user will have to request a new link / QR code.



8. Tap *Back*. The *Users* screen will be displayed.

5.8.2 Adding a user in the BE WAVE Soft program

1. Click the *Users* button on the side menu. The *Users* window will be displayed.



2. Click *Add user* button. The *New user* window will be displayed.

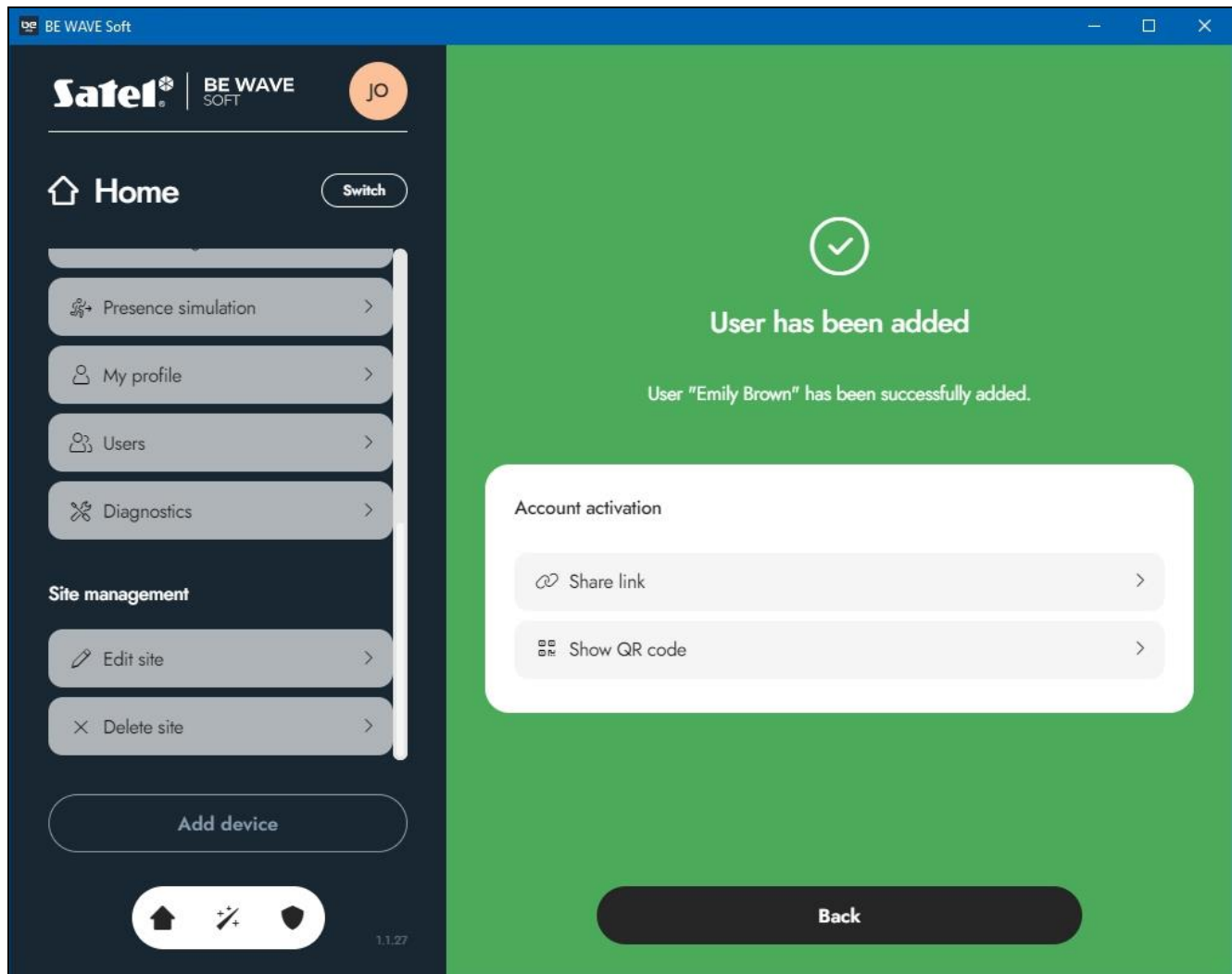
The screenshot displays the SATEL BE WAVE Soft application interface. On the left is a dark sidebar with navigation options: Home, Presence simulation, My profile, Users, Diagnostics, Site management, Edit site, and Delete site. At the bottom of the sidebar is an 'Add device' button. The main area on the right shows a 'New user' form. The form includes a 'USERNAME' field with a placeholder 'Username', a 'USER TYPE' section with radio buttons for 'User' (selected) and 'Installer', a 'SHARE' section with radio buttons for 'Entire site' (selected) and 'Part of the site', and an 'Administrator' toggle switch. A large 'Save' button is at the bottom of the form.

3. Enter the username.
4. Select the user type: *User* or *Installer*.
5. If you selected the *User* type, you can select the *Entire site* (see “User with access to the entire site” p. 66) or *Part of the site* (see “User with access to a part of the site” p. 67) option.

6. Click **Save**. A window will be displayed saying that the user has been added. Two options to activate the new user account are available in the window:
- tap *Share link* if you want to send a link to the user.
 - tap *Show QR code* if you want to share a QR code with the user.



The user must activate the account within 24 hours of generating the link / QR code. Otherwise, the user will have to request a new link / QR code.



7. Click **Back**. The *Users* window will be displayed.

5.8.3 User with access to the entire site

If you selected the *Entire site* option when adding the user, you can enable the *Administrator* option to grant the user additional privileges.

User privileges

Edit users – the user can manage users.

Scenes/routines – the user can manage scenes and routines.

Schedules – the user can manage schedules.

Presence simulation – the user has access to the *Presence simulation* function.

System notifications – the user receives notifications of system events.

5.8.4 User with access to a part of the site

If you selected the *Part of the site* option when adding the user, the button *Next* instead of *Save* will be displayed at the bottom of the screen. In the next steps you will be able to select the system elements to which the user is to have access:

- devices,
- arming modes,
- scenes.

5.9 Enabling SMS / CLIP notifications [Smart HUB Plus / Smart HUB Plus LV]

Requirements:

- SIM card must be installed in the controller,
- SIM card settings must be programmed in the controller (see “Communication settings” p. 56).

5.9.1 Enabling SMS / CLIP notifications in the Be Wave app

1. Tap  on the menu bar. The *Settings* screen will be displayed.
2. Tap *My profile*. The *My profile* screen will be displayed.
3. Tap *Notifications*. The *Notifications* screen will be displayed.
4. Enable the *Phone notifications* option. Additional settings will be displayed.
5. Enter the phone number to which messages should be sent.
6. Select which events the controller should notify about using SMS and/or CLIP.
7. Tap *Save*.

5.9.2 Enabling SMS / CLIP notifications in the BE WAVE Soft program

1. Click *My profile* on the side menu. The *My profile* window will be displayed.
2. Click *Notifications*. The *Notifications* window will be displayed.
3. Enable the *Phone notifications* option. Additional settings will be displayed.
4. Enter the phone number to which messages should be sent.
5. Select which events the controller should notify about using SMS and/or CLIP.
6. Click *Save*.

5.10 Enabling email notifications

Requirements:

- controller must be connected to the Internet,
- email settings must be programmed in the controller (see “Email settings” p. 60).

5.10.1 Enabling email notifications in the Be Wave app

1. Tap  on the menu bar. The *Settings* screen will be displayed.
2. Tap *My profile*. The *My profile* screen will be displayed.
3. Tap *Notifications*. The *Notifications* screen will be displayed.
4. Enable the *E-mail notifications* option. Additional settings will be displayed.
5. Enter the email address to which messages should be sent.
6. Select which events the controller should notify about using email.
7. Tap *Save*.

5.10.2 Enabling email notifications in the BE WAVE Soft program

1. Click *My profile* on the side menu. The *My profile* window will be displayed.
2. Click *Notifications*. The *Notifications* window will be displayed.
3. Enable the *E-mail notifications* option. Additional settings will be displayed.
4. Enter the email address to which messages should be sent.
5. Select which events the controller should notify about using email.
6. Click *Save*.

6. Testing

It is a good practice to test the devices after they are added to the system. We also recommend to periodically check if the devices work correctly. In the Be Wave app / BE WAVE Soft program you can enable the diagnostic mode when you want to carry out testing or maintenance of devices (battery replacement, cleaning the smoke chamber of the ASD-200 (Fire Detector Plus) / ASD-250 (Fire Detector Pro) detector, etc.). When the diagnostic mode is enabled:

- system cannot be armed,
- tamper alarms are not signaled,
- wireless detector LED indicators are ON (the indicators are normally OFF) – e.g. you can check if motion detectors detect motion,
- the AOD-210 (Outdoor Motion Detector), AOCAM-210 (Outdoor Motion Detector Cam) and ADD-200 (Outdoor Dusk Detector) detectors react quicker to changes in light intensity – you can cover the detector with a cardboard box, a thick, dark fabric, etc. The detector should detect dusk after 3 seconds,
- the AGD-200 (Glass Break Detector) reacts to the sound of breaking glass alone (high-frequency sound),
- tamper signaling in the wireless sirens is blocked – you can open the siren enclosure without starting the signaling.



After the diagnostic test is enabled, automatic calibration of the microwave sensor is carried out in wireless dual-technology motion detectors (APMD-250, AOD-210, AOCD-260, etc.). For 10 seconds after the test mode is enabled, there should be no moving object in the detection area of the microwave sensor, as this will prevent proper calibration of the sensor.

6.1 Enabling the diagnostic mode



All wireless devices will enter the diagnostic mode after some time (up to 24 seconds).

According to requirements of the EN 50131 standard, the level of radio signals sent by wireless devices is reduced when the diagnostic mode is enabled.

Remember to disable the diagnostic mode when testing and maintenance of the devices in the system is complete.

6.1.1 Enabling the diagnostic mode in the Be Wave app

1. Tap  on the menu bar. The *Settings* screen will be displayed.
2. Tap *Diagnostics*. The *Diagnostics* screen will be displayed.
3. Tap *Enable diagnostic mode*.

6.1.2 Enabling the diagnostic mode in the BE WAVE Soft program

1. Click *Diagnostics* on the side menu. The *Diagnostics* window will be displayed.
2. Click *Enable diagnostic mode*.

6.2 Disabling the diagnostic mode

6.2.1 Disabling the diagnostic mode in the Be Wave app

1. Tap  on the menu bar. The *Settings* screen will be displayed.
2. Tap *Diagnostics*. The *Diagnostics* screen will be displayed.
3. Tap *Disable diagnostic mode*.

6.2.2 Disabling the diagnostic mode in the BE WAVE Soft program

1. Click *Diagnostics* on the side menu. The *Diagnostics* window will be displayed.
2. Click *Disable diagnostic mode*.

7. Maintenance

7.1 Firmware update



The Update the system button is available when new firmware version is available.

When the firmware update is complete, the controller will be restarted.

Sending out the update file to the wireless devices may take some time. The update itself takes only several seconds. The device does not execute its normal functions then.

7.1.1 Starting the update in the Be Wave app

1. Tap  on the menu bar. The *Settings* screen will be displayed.
2. Tap the *Site settings* button. The *Site settings* screen will be displayed.
3. Tap the *Update the system* button. You will be asked for confirmation.
4. Tap *Yes* to update firmware of the controller and the devices in the system.

7.1.2 Starting the update in the BE WAVE Soft program

1. Click the *Site settings* button on the side menu. The *Site settings* window will be displayed.
2. Click the *Update the system* button. You will be asked for confirmation.
3. Click *Yes* to update firmware of the controller and the devices in the system.

7.2 Importing system settings from SD card

7.2.1 Importing system settings in the Be Wave app

1. Tap  on the menu bar. The *Settings* screen will be displayed.
2. Tap *Site settings*. The *Site settings* screen will be displayed.
3. Tap *Import settings from SD card*. You will be asked for confirmation.
4. Enter the password if access to the file is password-protected.

5. Tap Yes to import the settings from the SD card.

7.2.2 Importing system settings in the BE WAVE Soft program

1. Click the *Site settings* button on the side menu. The *Site settings* window will be displayed.
2. Click *Import settings from SD card*. You will be asked for confirmation.
3. Enter the password if access to the file is password-protected.
4. Click Yes to import the settings from the SD card.

7.3 Exporting system settings to SD card



The user settings are not exported.

7.3.1 Exporting system settings in the Be Wave app

1. Tap  on the menu bar. The *Settings* screen will be displayed.
2. Tap *Site settings*. The *Site settings* screen will be displayed.
3. Tap *Export settings to SD card*. You will be asked for confirmation.
4. Enter the password if access to the file should be password-protected.
5. Tap Yes to save the settings to SD card.

7.3.2 Exporting system settings in the BE WAVE Soft program

1. Click the *Site settings* button on the side menu. The *Site settings* window will be displayed.
2. Click *Export settings to SD card*. You will be asked for confirmation.
3. Enter the password if access to the file should be password-protected.
4. Click Yes to save the settings to SD card.

7.4 Replacing the battery in the controller



The rechargeable battery in the controller should be replaced by qualified personnel.

Be particularly careful when replacing the battery. The manufacturer is not liable for the consequences of incorrect installation of the battery.

The used batteries must not be discarded, but should be disposed of in accordance with the existing rules for environment protection.

The controller rechargeable battery will not be charged in temperatures below 0°C.

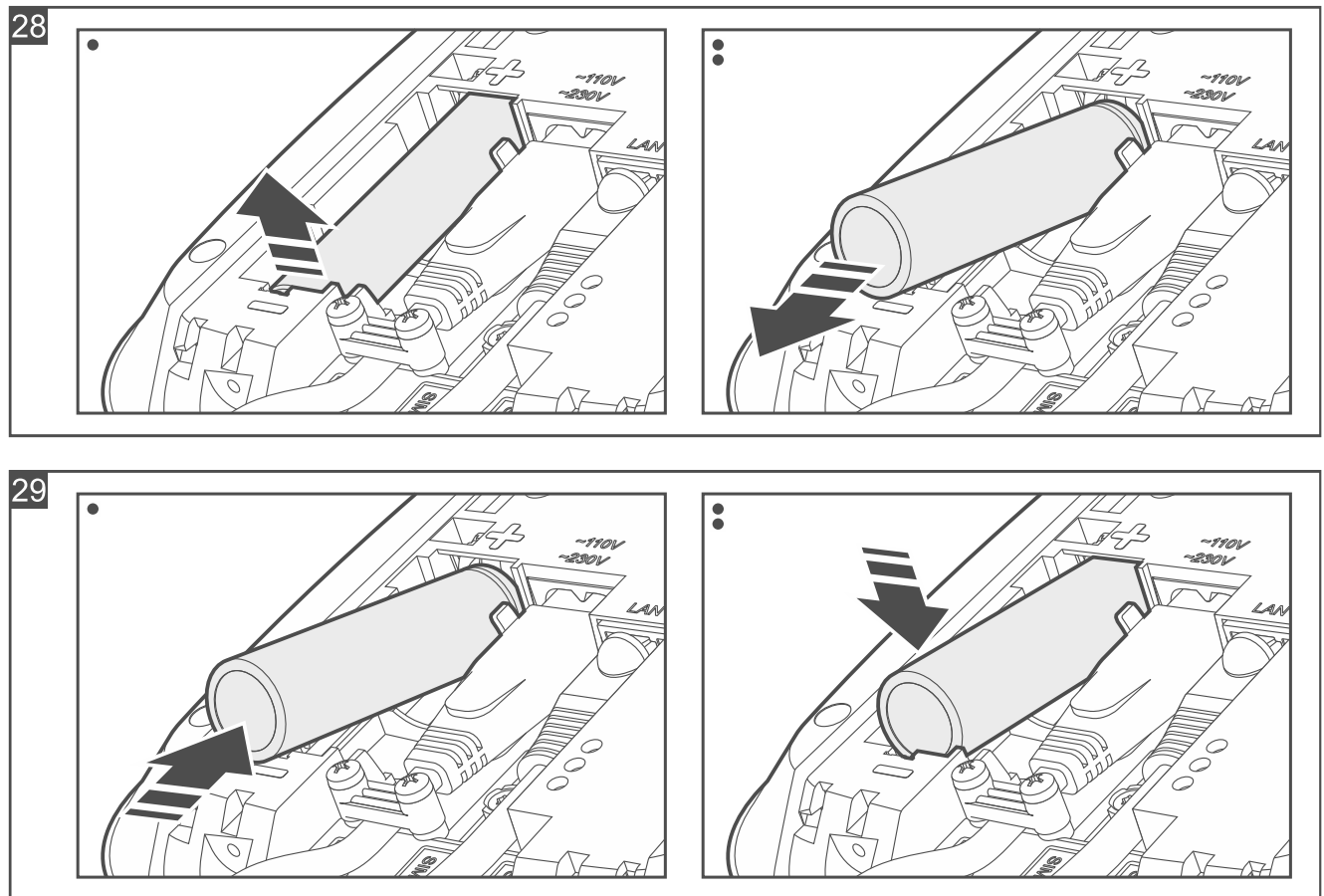
The Be Wave app will notify you that the rechargeable battery is low. The low battery should then be replaced as soon as possible.



The figures show how to replace the battery in the Smart HUB Plus / Smart HUB controller.

1. Enable the diagnostic mode (see “Enabling the diagnostic mode” p. 68).
2. Open the controller enclosure.
3. Remove the old battery (Fig. 28).
4. Install the new battery (Fig. 29).

5. Close the enclosure and secure it with screws.
6. Disable the diagnostic mode in the Be Wave app / BE WAVE Soft program.



7.5 Restoring the controller factory settings

7.5.1 Restoring the factory settings from the Be Wave app

8. Tap  on the menu bar. The *Settings* screen will be displayed.
9. Tap the *Site settings* button. The *Site settings* screen will be displayed.
10. Tap *Restore factory settings*. You will be asked for confirmation.
11. Tap *Yes* to restore the factory settings.

7.5.2 Restoring the factory settings from the BE WAVE Soft program

1. Click the *Site settings* button on the side menu. The *Site settings* window will be displayed.
2. Click *Restore factory settings*. You will be asked for confirmation.
3. Click *Yes* to restore the factory settings.

7.5.3 Hardware factory restore

1. Enable the diagnostic mode (see “Enabling the diagnostic mode” p. 68).
2. Open the controller enclosure.
3. Insert a pin in hole marked ⑥ (Fig. 2) and hold for 5 seconds.

7.6 Turning off the Smart HUB Plus / Smart HUB controller

1. Disconnect the power cable from the power outlet.

2. Remove the cover locking screws.
3. Open the controller enclosure.
4. Remove the battery.

7.7 Turning off the Smart HUB Plus LV controller

1. Turn off the controller DC power.
2. Remove the cover locking screws.
3. Open the controller enclosure.
4. Remove the battery.

8. Specifications

8.1 Smart HUB Plus / Smart HUB

Operating frequency band.....	868.0 MHz ÷ 868.6 MHz
Radio communication range (in open area)	up to 2000 m
Supply voltage	230 VAC, 50 Hz
Rechargeable battery.....	18650 3.6 V / 3200 mAh
Standby power consumption	
Smart HUB Plus	1.85 W
Smart HUB	1.82 W
Maximum power consumption	
Smart HUB Plus	2.8 W
Smart HUB	2.65 W
Standby current consumption from battery	
Smart HUB Plus	272 mA
Smart HUB	252 mA
Battery charging current.....	185 mA
Low battery voltage threshold	3.2 V
Battery cut-off voltage	2.7 V
Battery operating temperature	
discharging	-10°C...+60°C
charging.....	0°C...+45°C
Supported memory cards.....	microSD, micro SDHC
Security grade according to EN 50131-1	Grade 2
Complied with standards. EN 50130-4, EN 50130-5, EN 50131-1, EN 50131-3, EN 50131-5-3	
Environmental class according to EN 50130-5	II
Operating temperature range.....	-10°C...+55°C
Maximum humidity	93±3%
Dimensions	158 x 158 x 30 mm
Weight	
Smart HUB Plus	411 g
Smart HUB	406 g

8.2 Smart HUB Plus LV

Operating frequency band	868.0 MHz ÷ 868.6 MHz
Radio communication range (in open area)	up to 2000 m
Supply voltage	9...28 VDC
Rechargeable battery.....	18650 3.6 V / 3200 mAh
Standby current consumption	
9 VDC power	113 mA
28 VDC power	42 mA
Maximum current consumption	
9 VDC power	240 mA
28 VDC power	60 mA
Standby current consumption from battery	220 mA
Battery charging current.....	205 mA
Low battery voltage threshold	3.2 V
Battery cut-off voltage	2.7 V
Battery operating temperature	
discharging	-10°C...+60°C
charging.....	0°C...+45°C
Supported memory cards.....	microSD, micro SDHC
Security grade according to EN 50131-1	Grade 2
Complied with standards..EN 50130-4, EN 50130-5, EN 50131-1, EN 50131-3, EN 50131-5-3	
Environmental class according to EN 50130-5	II
Operating temperature range.....	-10°C...+55°C
Maximum humidity	93±3%
Dimensions	158 x 158 x 30 mm
Weight.....	324 g