



BE WAVE system controller

Smart HUB Plus Smart HUB

Firmware version 1.00

EN



CE

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Satel®

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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).
-  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 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 controller and other devices in the BE WAVE system. The BE WAVE system combines building automation functions and security functions which protect against burglary, fire or other emergencies. You can control the system using the Be Wave mobile app.

2. Smart HUB Plus / Smart HUB features

- Support for up to 128 BE WAVE 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 Motion Detector Cam.
- Capability to assign devices to 50 rooms.
- Up to 50 users.
- Be Wave 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.
- Capability to arm the system fully or partially.
- Up to 50 scenes and routines:
 - scenes for easier control.
 - routines for automated system operation.
- 8000 event log entries.
- Event notification types:
 - push,
 - SMS [Smart HUB Plus],
 - CLIP [Smart HUB Plus].
- Reporting:
 - reporting events to two monitoring stations,
 - support for Contact ID and SIA communication formats,
 - data transmission via Ethernet or cellular network [Smart HUB Plus],
 - Dual Path Reporting compliant with EN 50136 [Smart HUB Plus].
- Capability to update firmware of the controller and the devices in the system.
- 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]:
 - operating in the 2G and 4G networks,

- dual SIM support.
- LED indicator.
- Powered with 230 VAC.
- Backup battery.
- Battery charging circuit.
- Battery status control and low battery disconnect system.
- Tamper protection against enclosure opening and removal from mounting surface.

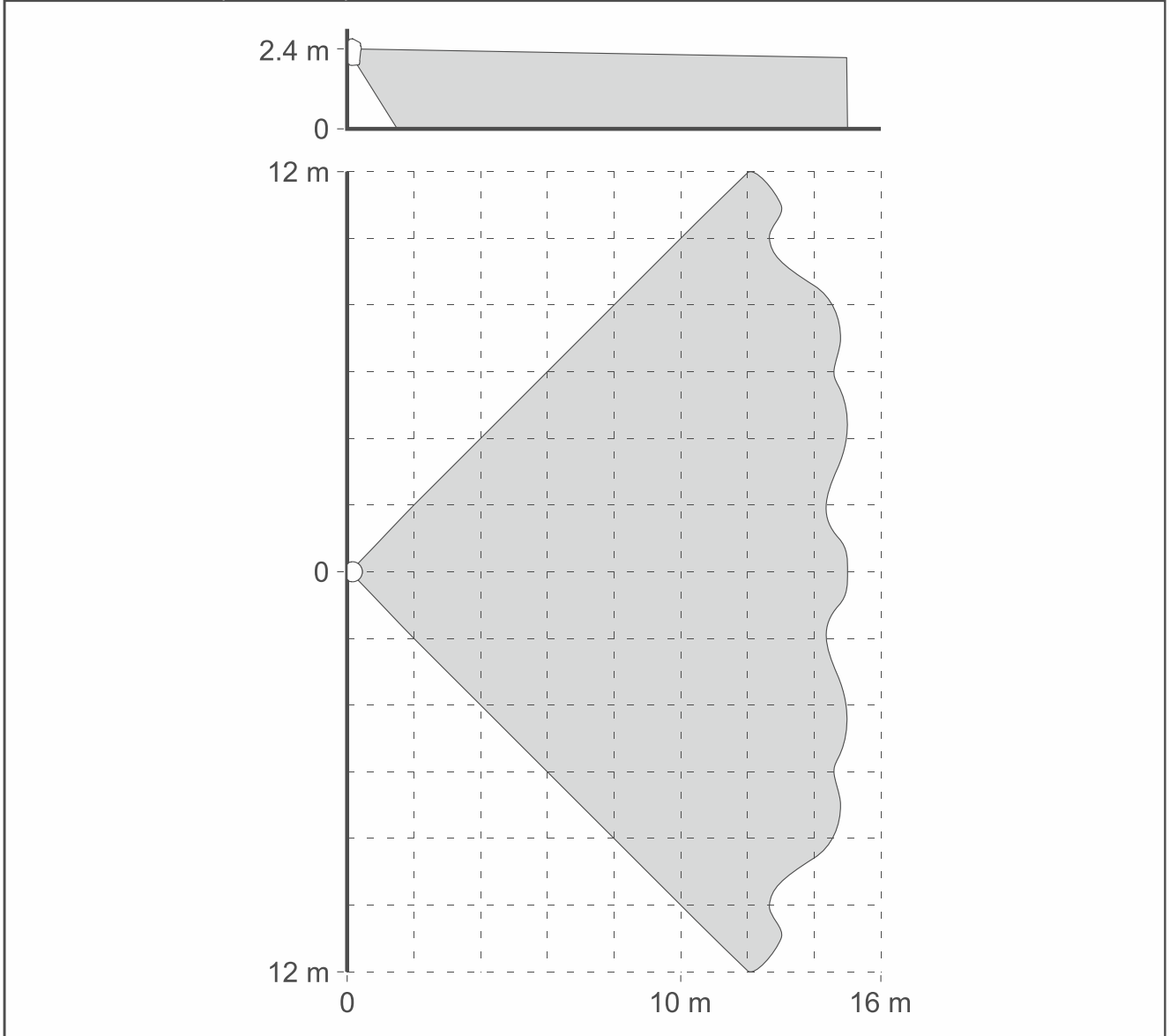
3. BE WAVE wireless devices

- 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.
- Remote settings programming.
- Remote firmware update (not applicable to Fire Detector Pro).

3.1 Motion Detector (APD-200)

It uses infrared to detect motion.

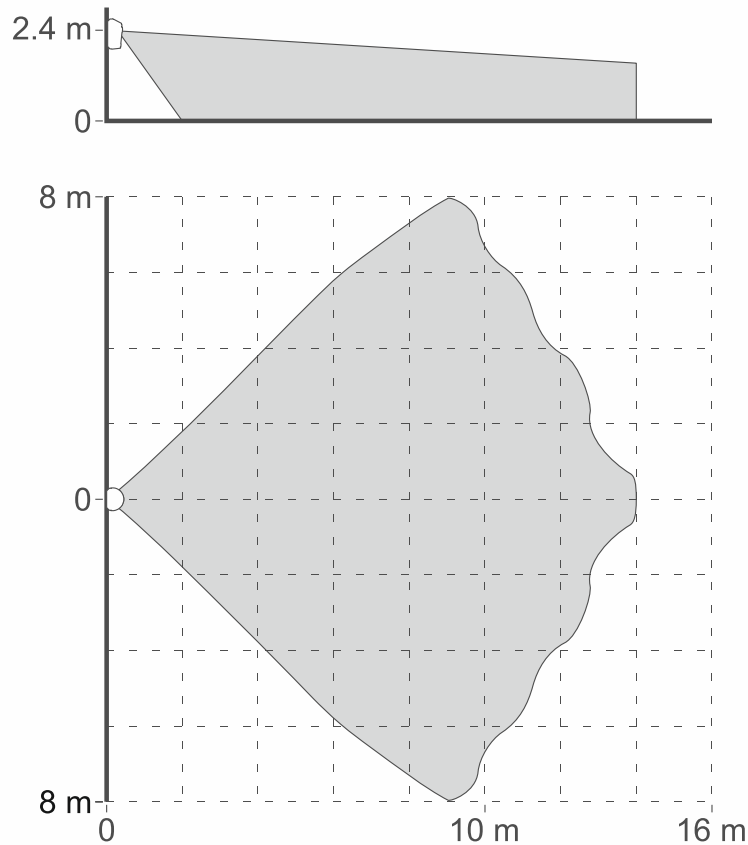
- Coverage area: 15 m x 24 m, 90° (see figure below).
- Digital motion detection algorithm.
- Digital temperature compensation.
- Capability to enable / disable the creep zone protection.
- Built-in temperature sensor (measuring range: -10°C...+55°C).
- LED indicators.
- Supervision of motion detection system.
- Battery status control.
- Tamper protection against enclosure opening and removal from mounting surface.

Motion Detector (APD-200)**3.2 Motion Detector Pet (APD-200 Pet)**

It uses infrared to detect motion. It ignores moving pets up to 20 kilos.

- Coverage area: 14 m x 16 m, 83° (see figure below).
- Digital motion detection algorithm.
- Digital temperature compensation.
- Built-in temperature sensor (measuring range: -10°C...+55°C).
- LED indicators.
- Supervision of motion detection system.
- Battery status control.
- Tamper protection against enclosure opening and removal from mounting surface.

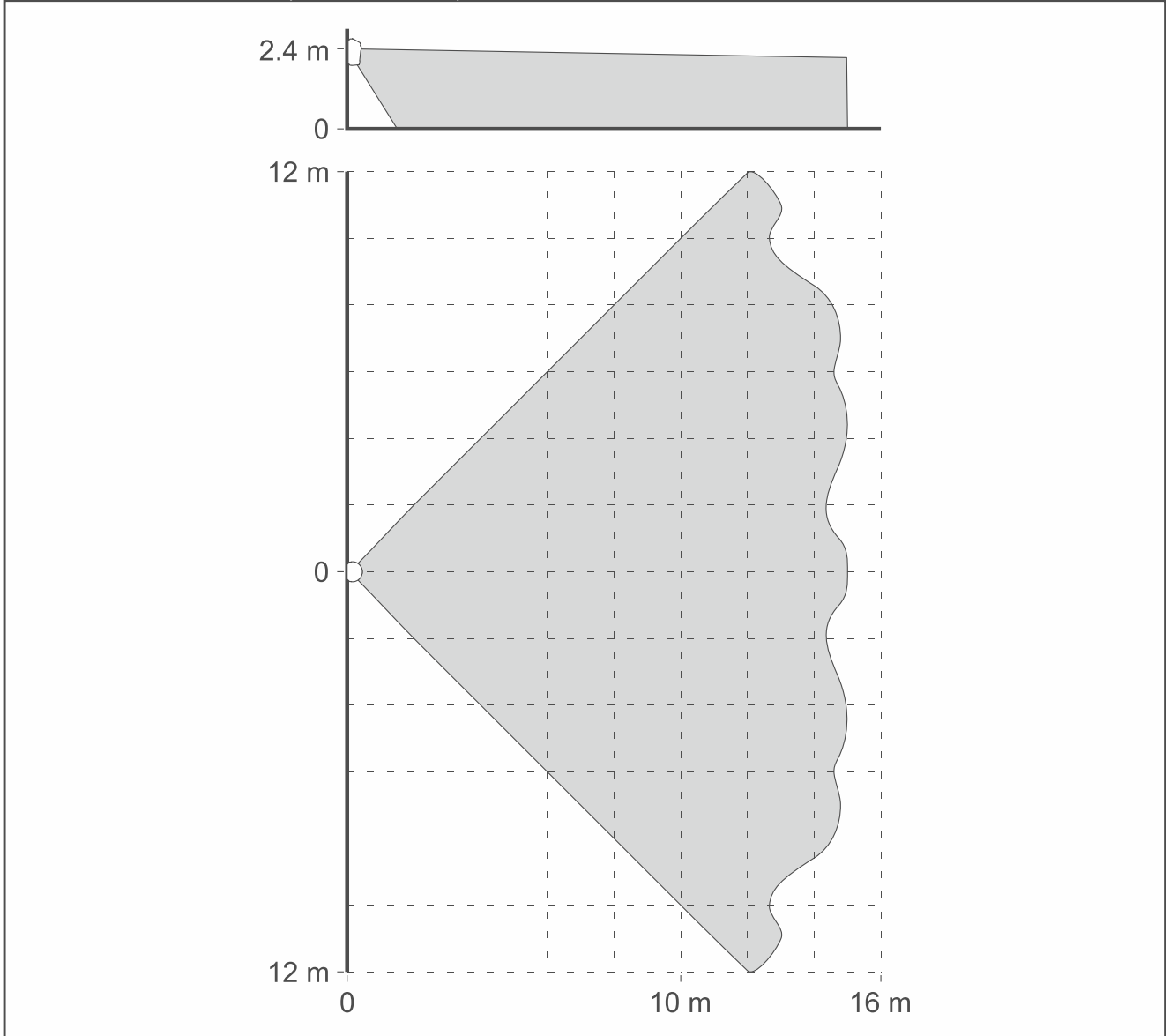
Motion Detector Pet (APD-200 Pet)



3.3 Motion Detector Cam (APCAM-200)

It uses infrared to detect motion. It has a camera that sends photos to the app in case of alarm or on user's request.

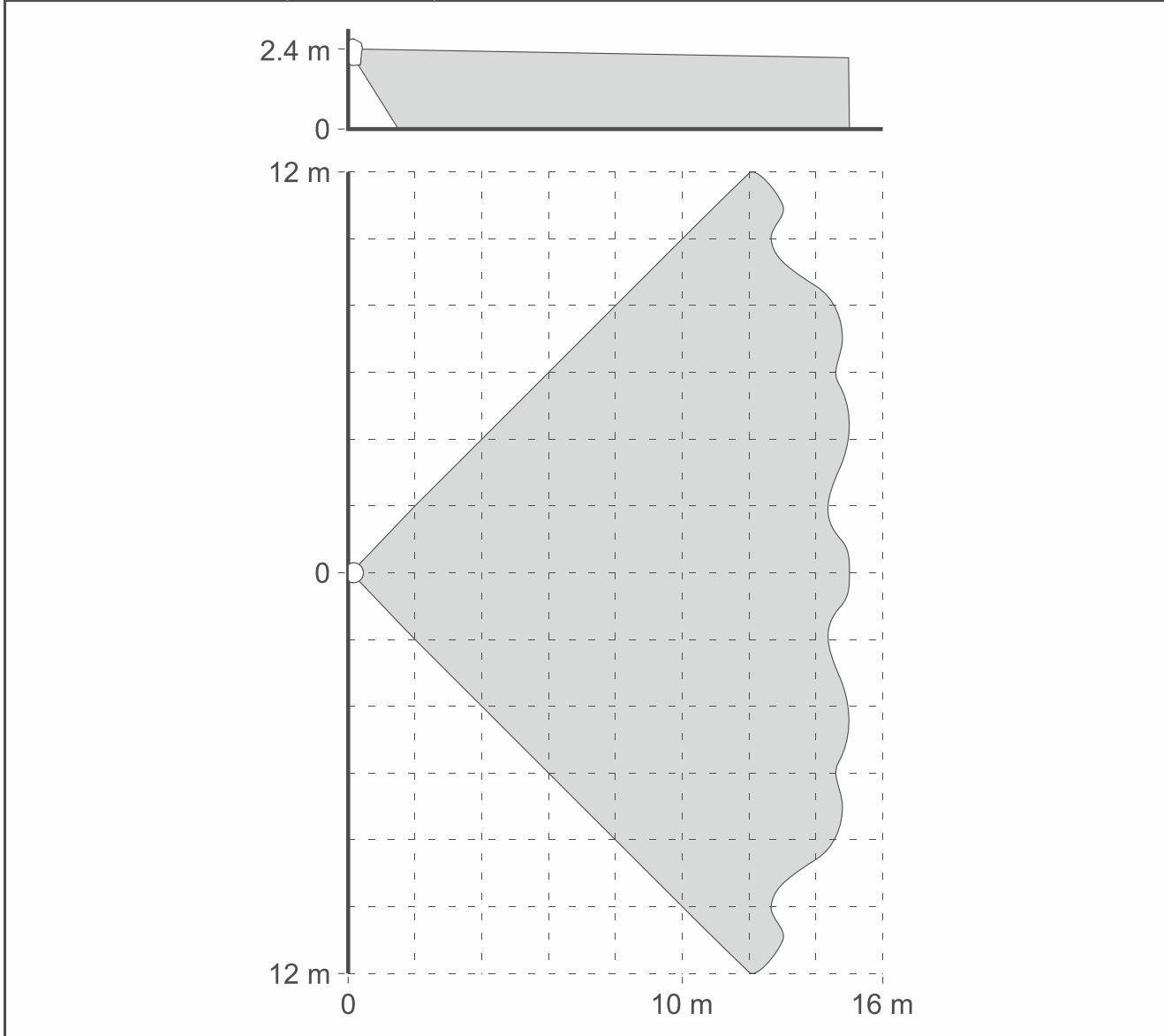
- Coverage area: 15 m x 24 m, 90° (see figure below).
- Digital motion detection algorithm.
- Digital temperature compensation.
- Capability to enable / disable the creep zone protection.
- Camera for alarm verification:
 - a series of 3 photos after alarm occurs,
 - switching to black and white mode in poor lighting,
 - infrared illumination in poor lighting,
 - capability to take photos on request,
 - image size: 640x480 pixels.
- Additional transmission channel in the 868 MHz frequency band for the purpose of sending photos.
- Built-in temperature sensor (measuring range: -10°C...+55°C).
- LED indicators.
- Supervision of motion detection system.
- Battery status control.
- Tamper protection against enclosure opening and removal from mounting surface.

Motion Detector Cam (APCAM-200)**3.4 Motion Detector Plus (APMD-250)**

It uses infrared and microwaves to detect motion.

- Coverage area: 15 m x 24 m, 90° (see figure below).
- Digital motion detection algorithm for both sensors.
- Digital temperature compensation.
- Capability to enable / disable the creep zone protection.
- Built-in temperature sensor (measuring range: -10°C...+55°C).
- LED indicators.
- Supervision of motion detection system.
- Battery status control.
- Tamper protection against enclosure opening and removal from mounting surface.

Motion Detector Plus (APMD-250)



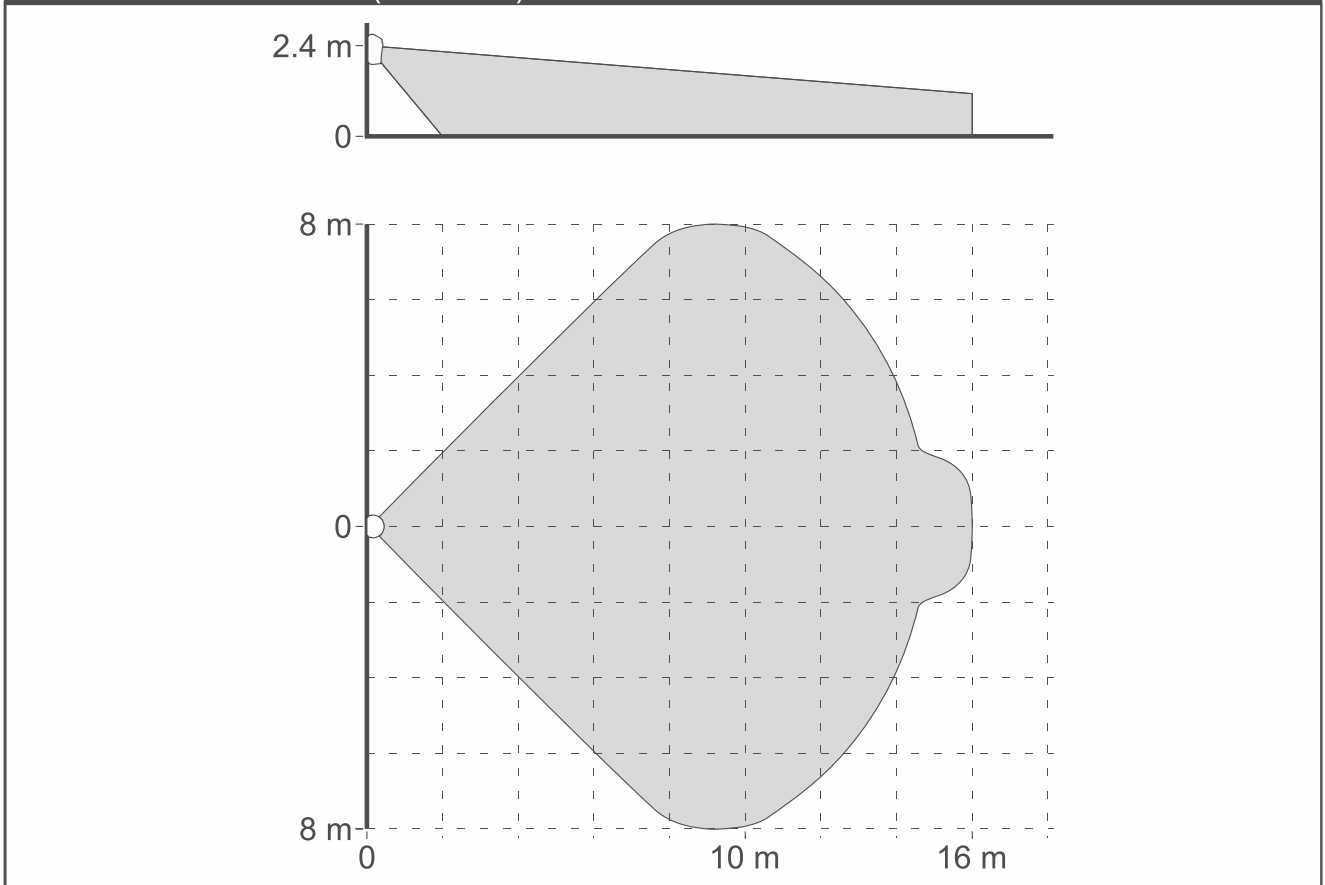
3.5 Outdoor Motion Detector (AOD-210)

It uses infrared and microwaves to detect motion. It ignores moving pets up to 20 kilos. It is designed for outdoor installation.

- Coverage area: 16 m x 16 m, 90° (see figure below).
- Digital motion detection algorithm for both sensors.
- Digital temperature compensation.
- Immunity to false alarms caused by objects moving but not changing their position (e.g. branches of trees).
- Creep zone protection.
- Built-in dusk sensor (measuring range: 2 lx...250 lx).
- Built-in temperature sensor (measuring range: -40°C...+55°C).
- LED indicators.
- Supervision of motion detection system.
- Battery status control.
- Tamper protection against enclosure opening and removal from mounting surface.

- Weatherproof enclosure.

Outdoor Motion Detector (AOD-210)

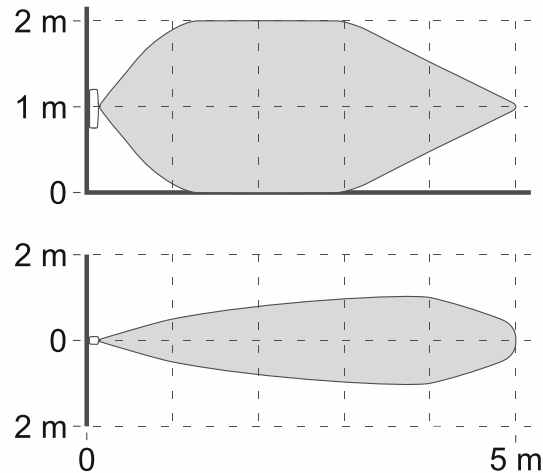


3.6 Curtain Detector (ACD-220)

It uses infrared to detect motion in an area shaped like a curtain.

- Coverage area: 5 m x 1 m, 15° (see figure below).
- Digital motion detection algorithm.
- Digital temperature compensation.
- Built-in temperature sensor (measuring range: -10°C...+55°C).
- LED indicators.
- Supervision of motion detection system.
- Battery status control.
- Tamper protection against enclosure opening and removal from mounting surface.

Curtain Detector (ACD-220)

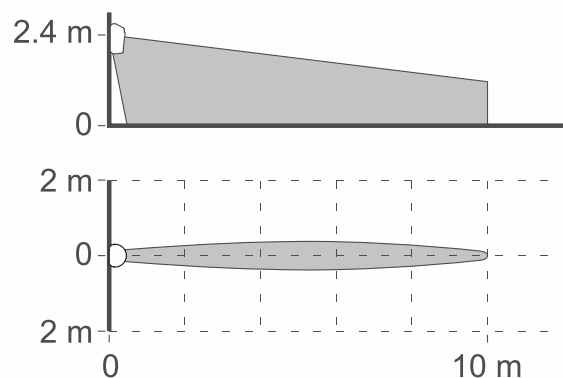


3.7 Outdoor Curtain Detector (AOCD-260)

It uses infrared and microwaves to detect motion in an area shaped like a curtain. It is designed for outdoor installation.

- Digital motion detection algorithm for both sensors.
- Digital temperature compensation.
- Built-in temperature sensor (measuring range: $-40^{\circ}\text{C} \dots +55^{\circ}\text{C}$).
- LED indicator.
- Supervision of motion detection system.
- Battery status control.
- Tamper protection against enclosure opening and removal from mounting surface.
- Weatherproof enclosure.

Outdoor Curtain Detector (AOCD-260)



3.8 Glass Break Detector (AGD-200)

It detects a glass break.

- Advanced, two-factor sound analysis (the sound of breaking glass must be preceded by a thump).
- Built-in temperature sensor (measuring range: $-10^{\circ}\text{C} \dots +55^{\circ}\text{C}$).
- Battery status control.
- LED indicator.
- Tamper protection against enclosure opening and removal from mounting surface.

3.9 Multipurpose Detector (AXD-200)

It can be used as:

- Shock detector
- Opening detector
- Shock and opening detector
- Flood detector
- Temperature sensor
- Built-in temperature sensor (measuring range: -10°C...+55°C).
- Battery status control.
- LED indicator.
- Tamper protection against enclosure opening and removal from mounting surface.
- A magnet for surface mounting and a magnet for flush mounting are provided (a magnet is used when the detector operates as *Opening detector* or *Shock and opening detector*).

3.9.1 Shock detector

It detects shocks accompanying attempts to force open a door or window.

3.9.2 Opening detector

It detects the opening of a door or window.

3.9.3 Shock and opening detector

It 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.

3.9.4 Flood detector

It detects indoor water flooding.



You need to buy the FPX-1 probe by SATEL.

3.9.5 Temperature sensor

It measures the air temperature.

3.10 Flood Detector (AFD-200)

It detects indoor water flooding.

- Built-in temperature sensor (measuring range: -10°C...+55°C).
- Detection of detector overturn.
- LED indicator.
- Built-in sounder (alarm and overturn signaling).
- Battery status control.

3.11 Fire Detector Plus (ASD-200)

It detects the presence of smoke or a rapid temperature rise (early signs of fire).

- Detection of dirt buildup in the smoke chamber.
- Temperature measurement range: 0°C...+55°C.
- LED indicator.
- Built-in sounder (alarm and low battery signaling).

- Detector test / reset button.
- Battery status control.
- Tamper protection against cover removal.



The detector is not a construction product as defined in Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011.

3.12 Fire Detector Pro (ASD-250)

It detects the presence of smoke (early sign of fire). It meets the EN 14604 requirements.

- Detection of dirt buildup in the smoke chamber.
- LED indicator.
- Built-in sounder (alarm and low battery signaling).
- Detector test / reset button.
- Battery status control.
- Tamper protection against cover removal.

3.13 Carbon Monoxide Detector (ACMD-200)

It detects hazardous levels of carbon monoxide.

- Digital temperature compensation.
- Built-in temperature sensor (measuring range: 0°C...+55°C).
- LED indicator.
- Built-in sounder (signaling of alarm, gas sensor failure and low battery).
- Detector test / reset button.
- Gas sensor supervision.
- Battery status control.
- Tamper protection against cover removal.



The gas sensor reaction to a decrease in the hazardous gas concentration is delayed, hence the restore of alarm can take place even a few minutes after the danger is over.

The gas sensor life is up to 10 years.

3.14 Outdoor Dusk Detector (ADD-200)

It detects dusk and dawn based on the measurement of light intensity. It is designed for outdoor installation.

- Immunity to short and accidental changes of light intensity.
- Built-in temperature sensor (measuring range: -20°C...+55°C).
- LED indicator.
- Battery status control.
- Weatherproof enclosure.

3.15 Multi Sensor (ATPH-200)

It measures temperature, pressure and humidity.

- Temperature sensor:
 - measuring range: -10°C...+55°C,

- measurement accuracy: $\pm 0.2^{\circ}\text{C}$.
- Barometric pressure sensor:
 - measuring range: 260...1260 hPa,
 - measurement accuracy: ± 0.1 hPa.
- Humidity sensor:
 - measuring range: 0%RH...93%RH,
 - measurement accuracy: $\pm 1.5\%$ RH.
- LED indicator.
- Sensors supervision.
- Battery status control.
- Tamper protection against enclosure opening and removal from mounting surface.



If any of the sensors is damaged, the LED indicator is flashing and the detector does not communicate with the controller.

3.16 Outdoor Siren (ASP-200)

The alarm siren emits sound and light signals. It is designed for outdoor installation.

- Battery status control.
- Weatherproofed electronic circuit.
- Tamper protection against enclosure opening and removal from mounting surface.
- Built-in spirit level to facilitate installation.
- High mechanical strength of the enclosure.



The siren is powered from a 3.6 V lithium thionyl chloride battery. It is a high-current, high-capacity battery. The battery must be replaced as described in the “Replacing the battery in the Outdoor Siren” (p. 74) section.

3.17 Indoor Siren (ASP-215)

The alarm siren emits sound and light signals.

- Built-in temperature sensor (measuring range: -10°C ... $+55^{\circ}\text{C}$).
- Battery status control.
- Tamper protection against enclosure opening and removal from mounting surface.
- High mechanical strength of the enclosure.



The siren signaling is started after a delay of up to 24 seconds.

3.18 Smart Blinds (ARSC-200)

It opens and closes roller blinds / shutters / window actuators. It controls devices driven by a 230 VAC motor with limit switches.

- Remote control or local control by means of control inputs.
- Automatic detection of blind / shutter travel time.
- Detection of blind / shutter errors (no power, incorrect position, mechanical jam, motor overheating).

- 2 control inputs:
 - capability to connect a double push-button or a roller blind switch,
 - local blind / shutter control,
 - capability to control any device in the system.
- Installed in a flush- or surface-mounted junction box with a minimum diameter of 60 mm.

3.19 Smart Thermostat (ART-210)

It controls the radiator valve and keeps the room temperature at a set level.

- Temperature setting in the range from 5°C to 30°C.
- Several operating modes.
- Remote control or manual control.
- Boost Heat.
- Capability to close the valve manually.
- Anti-scale function.
- Open window detection.
- Anti-freeze protection.
- Child Lock.
- Built-in temperature sensor (measuring range: -10°C...+55°C).
- LED display for easier control and configuration.
- Capability to rotate the messages on display by 180°.
- Battery status control.
- Installation on valves with the M30x1.5mm threaded connection.
- Capability to install on Danfoss RA, Danfoss RAV and Danfoss RAVL valves (adapters provided).
- Reducer ring provided for easier installation on valves with smaller diameter.

3.20 Smart Plug (ASW-200)

It turns ON / OFF any 230 VAC electrical appliance connected to its outlet.

- Control of electrical appliances up to 2300 W.
- Relay switched on when the voltage is at the zero cross point.
- LED indicator.
- Firmware protection against overload and overheating.

3.21 Smart 2-CH Relay (ASW-210)

It turns ON / OFF up to two 230 VAC electrical appliances.

- 2 relay outputs:
 - remote control,
 - local control by means of control inputs,
 - galvanic isolation of the outputs.
- 2 control inputs:
 - capability to connect a double push-button or a switch,
 - local control of the relay output,
 - capability to control any device in the system.

- Installed in a flush- or surface-mounted junction box with a minimum diameter of 60 mm.

3.22 Smart Keyfob (APT-210)

It remotely controls the system.

- 5 buttons.
- 3 LED indicators.
- Built-in sounder.
- Battery status control.

3.23 Smart Button (APB-210)

It controls the system.

- Control by:
 - single push,
 - double push,
 - triple push,
 - long hold.
- Battery status control.

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

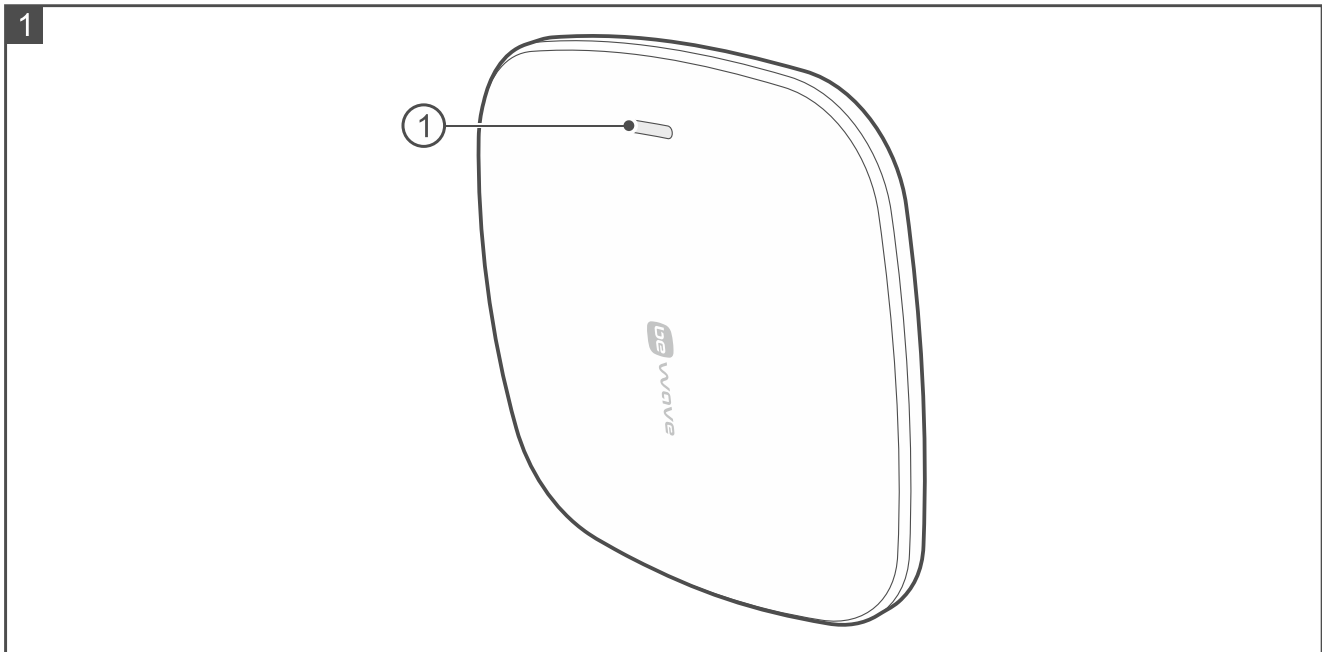


Figure 1 shows the controller's front side:

- 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.

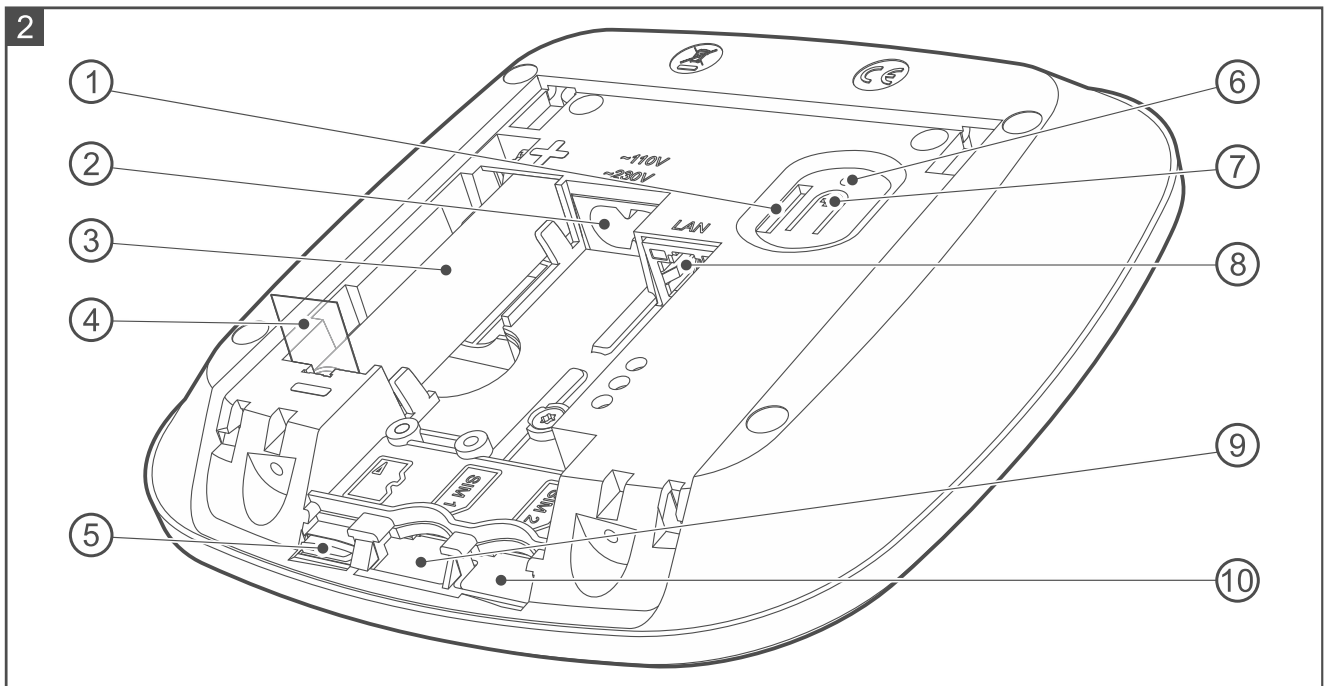


Figure 2 shows the inside of the controller after opening the enclosure.

- 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. 77.
- 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.

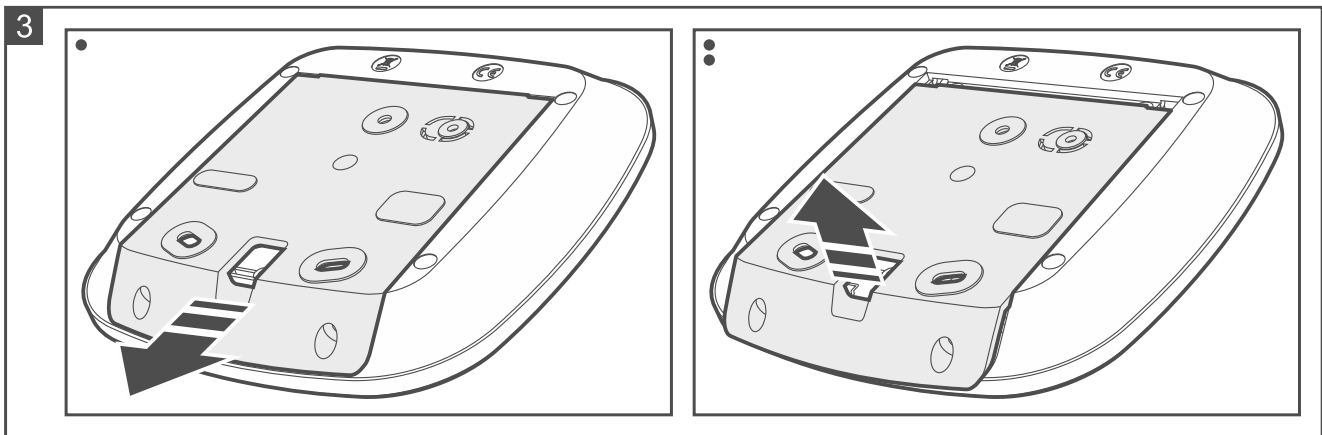
4.1.3 Mounting the Smart HUB Plus / Smart HUB controller

i *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.

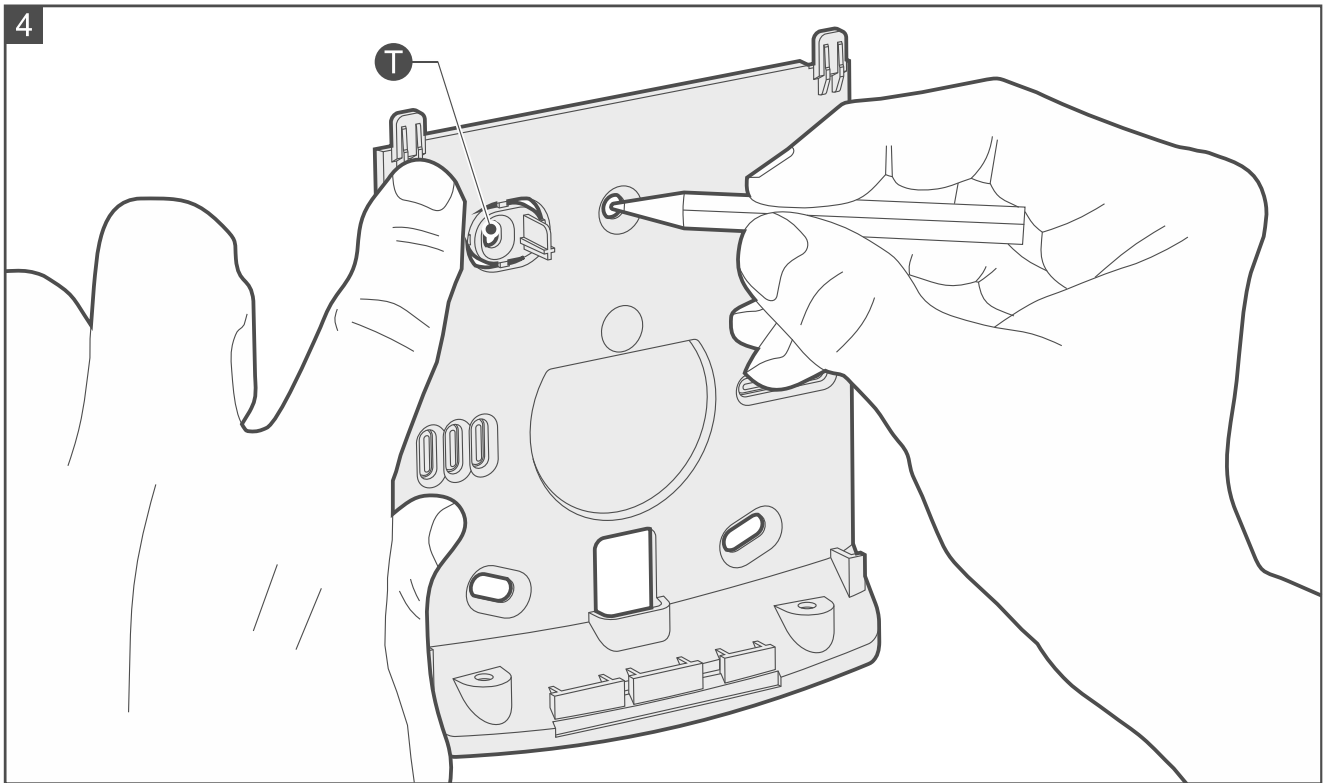
If the controller is to remain placed on the tabletop, skip steps 2, 3 and 5 and apply adhesive anti-slip pads on the bottom of the enclosure (Fig. 14). The pads are supplied with the controller.

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

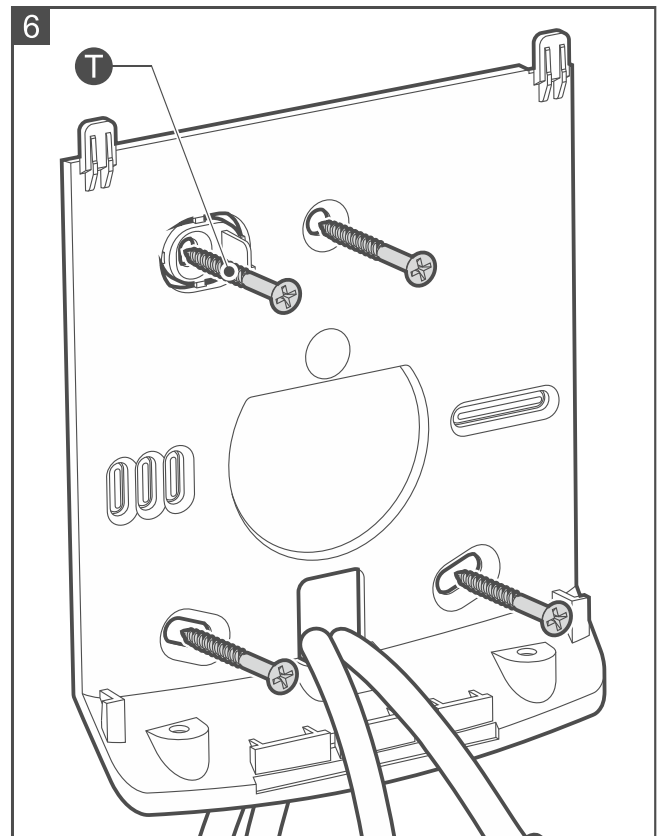
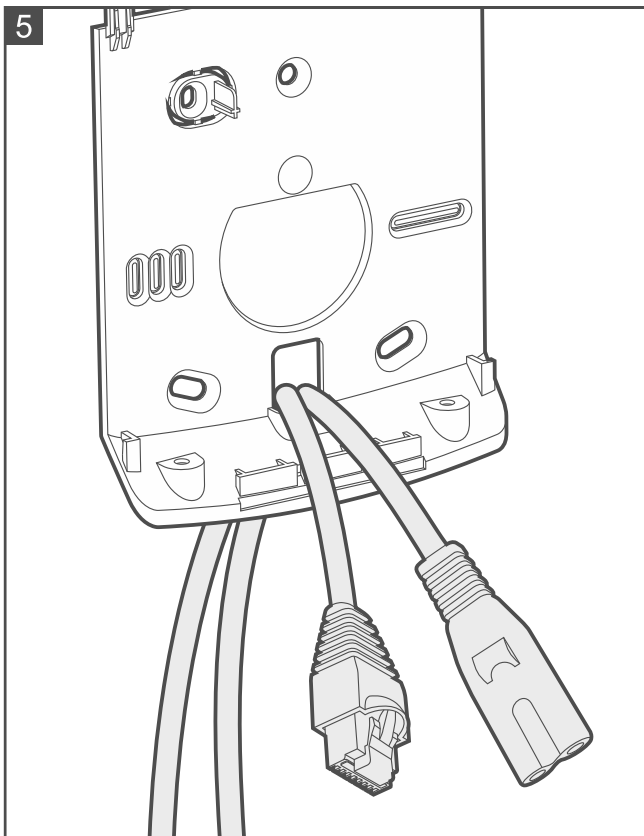


2. Place the enclosure base against the wall and mark the location of the mounting holes (Fig. 4). If the controller is to detect removal from the surface, mark the location of the hole in the tamper protection element (marked with the **T** symbol in the figure).

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

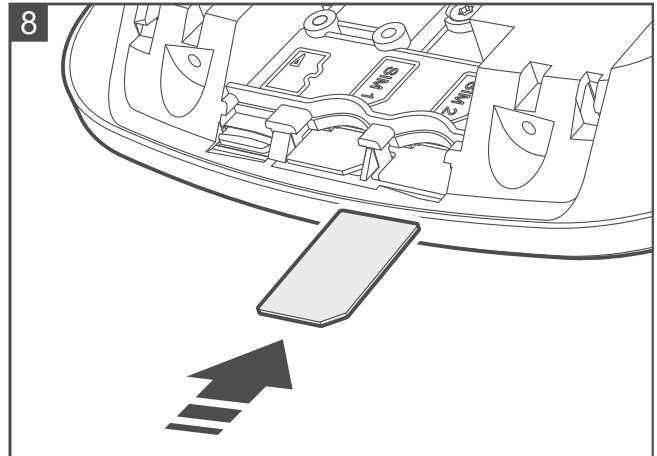
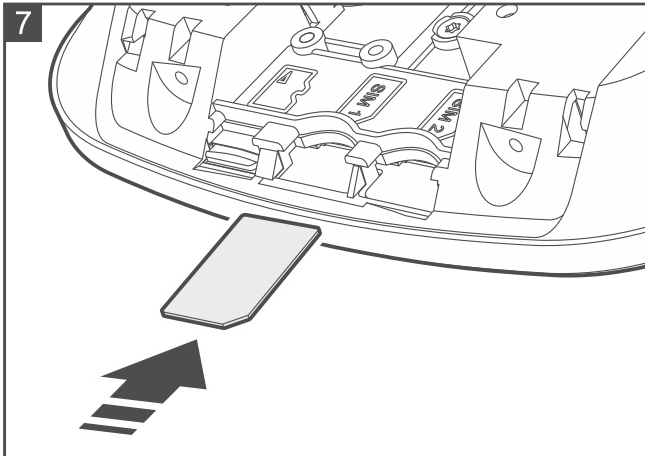


3. Drill the holes in the wall for wall plugs (anchors). Select wall plugs specifically intended for the mounting surface (different for concrete or brick wall, different for plaster wall, etc.).
4. Run the cable(s) through the opening in the enclosure base (Fig. 5).
5. Secure the enclosure base to the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



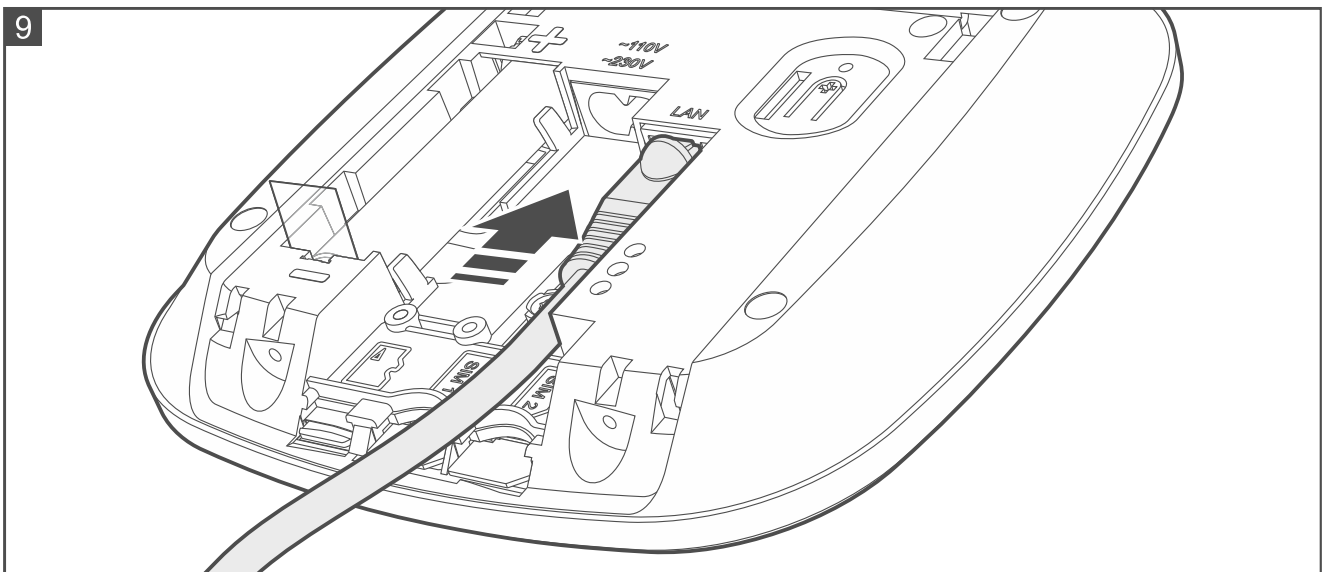
6. Insert a mini SIM card into the SIM1 slot (Fig. 7) [Smart HUB Plus].

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

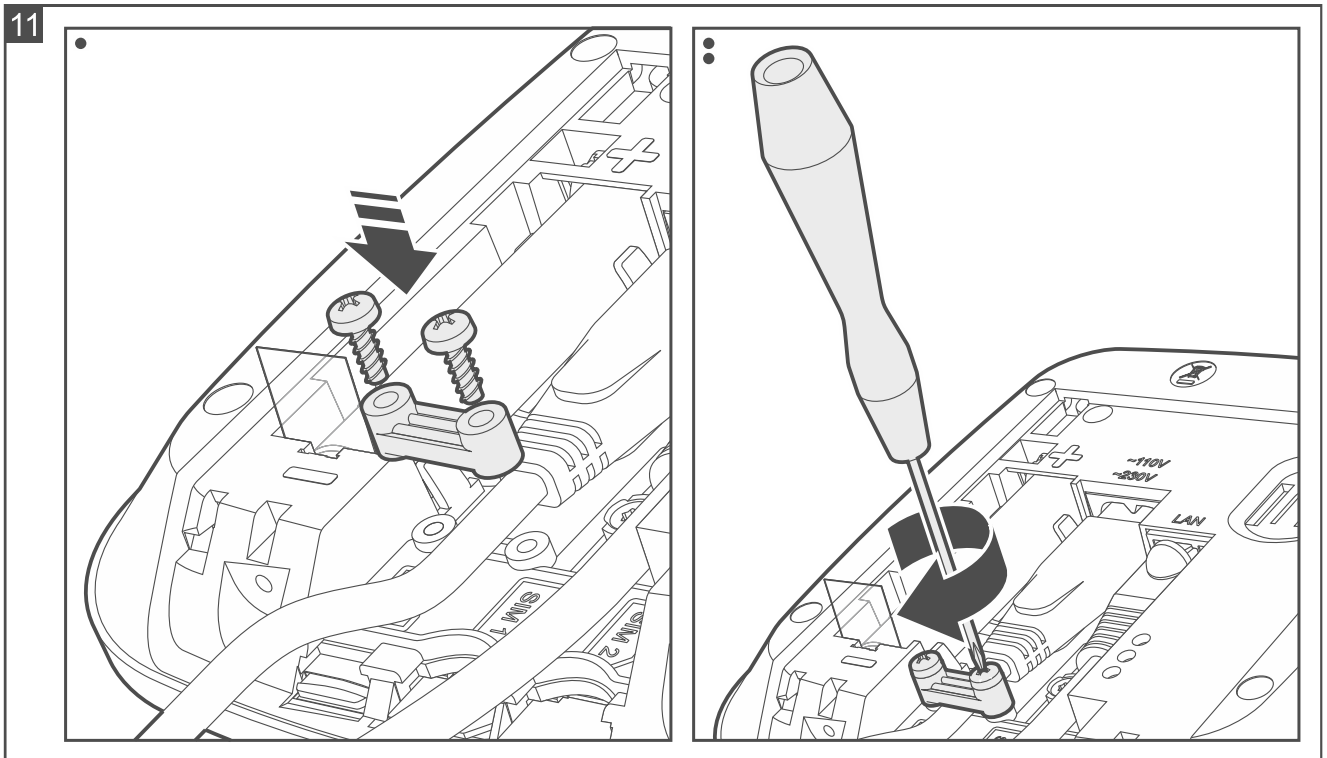
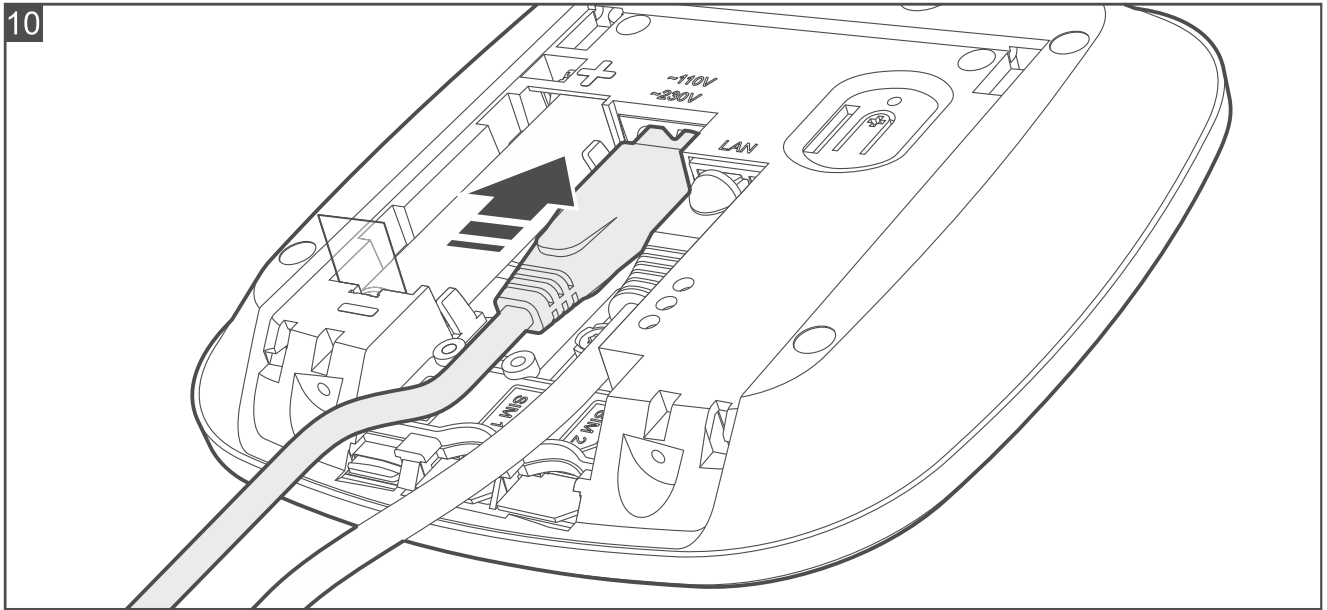


8. If the controller is to be connected to the wired LAN network, connect the cable to the LAN port (Fig. 9). Use a cable compliant with the 100Base-TX standard with the RJ-45 plug (the same as for connecting the computer to the network).

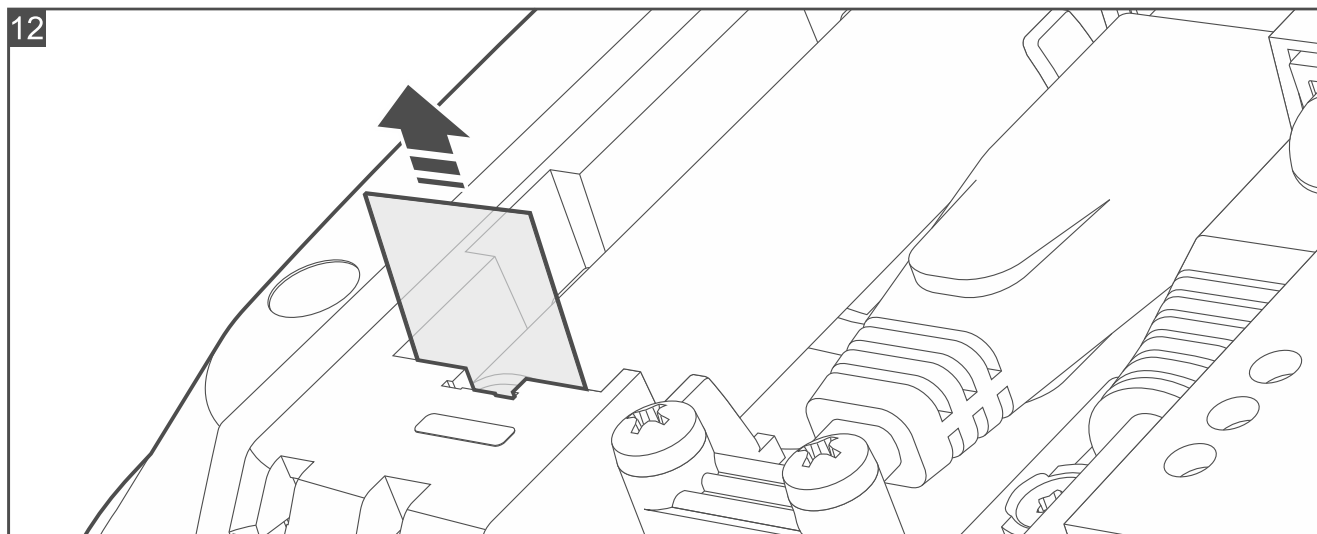
! The controller can only operate in the local area networks (LAN). It must not be connected directly to the public computer network (MAN, WAN). To establish connection with a public network, use a router or xDSL modem.



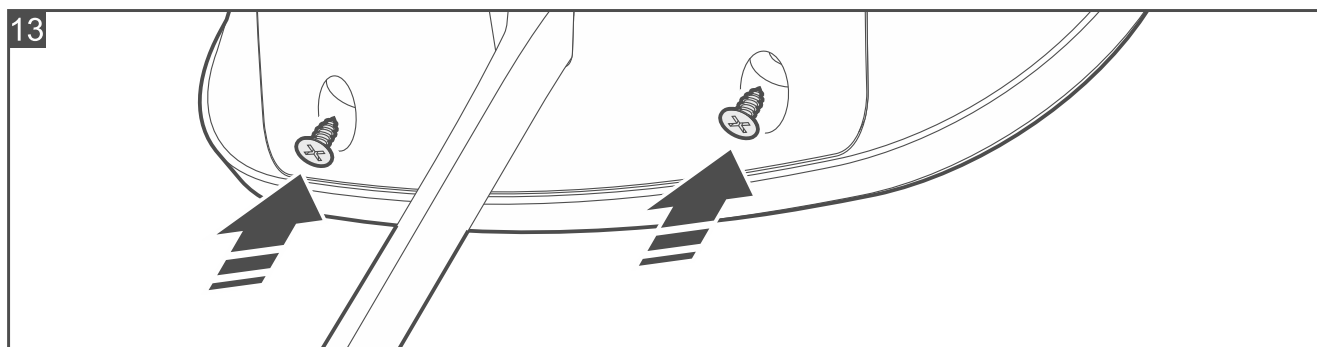
9. Connect the power cable to the power cable port in the controller (Fig. 10) and secure the cable fastener with screws (Fig. 11).



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

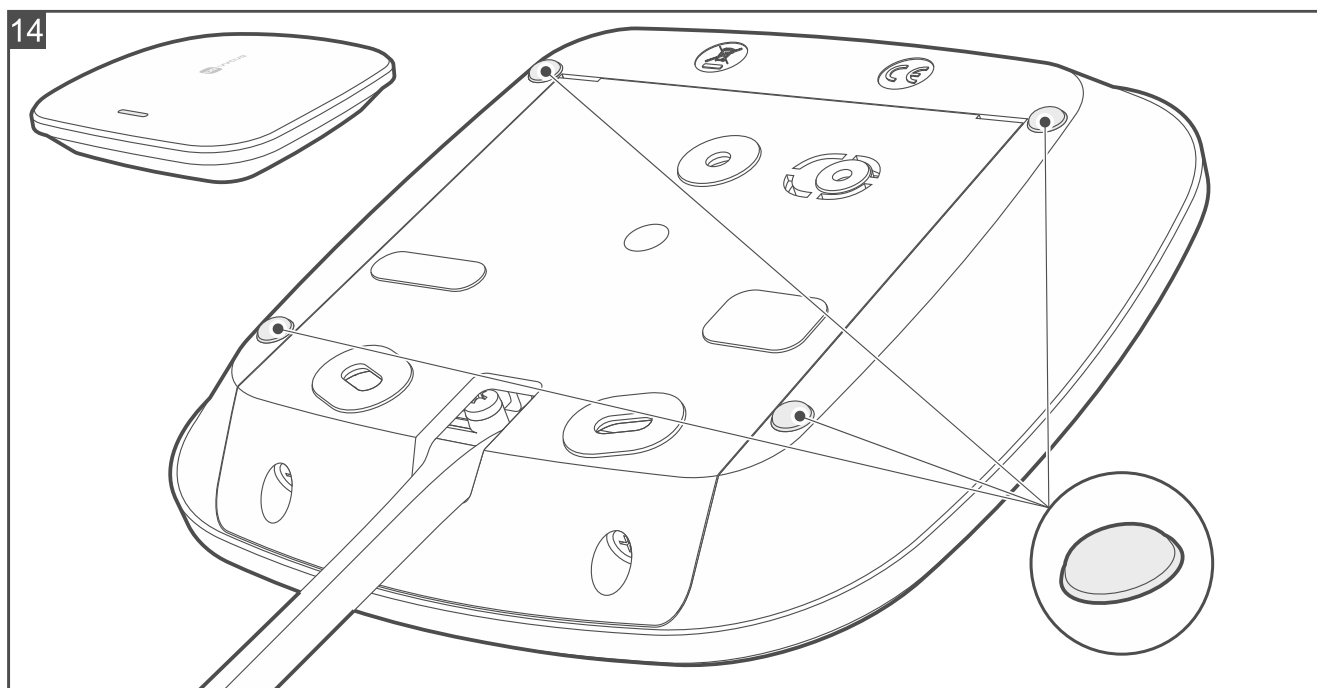


11. Close the enclosure and secure it with screws (Fig. 13).



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 Adding the controller to the Be Wave app

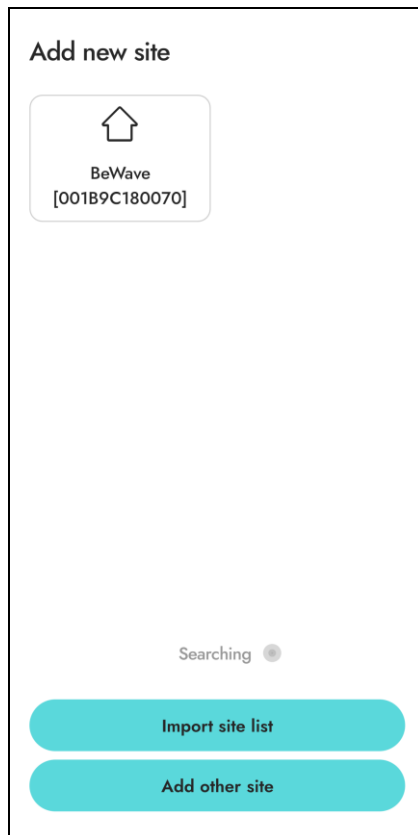


You can download the Be Wave app from “Google Play” (Android system devices) or “App Store” (iOS system devices). Required Android version: 11 (or newer). Required iOS version: 11 (or newer).

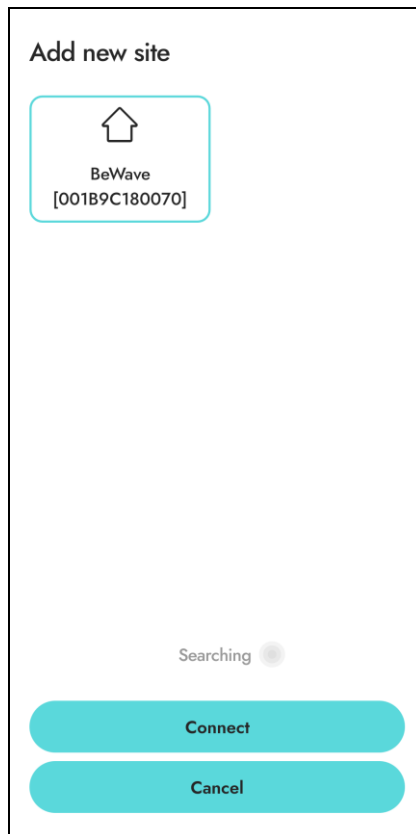
After start-up, the controller with factory settings operates in the Wi-Fi access point mode (the controller’s LED indicator is ON in pink). It allows the app to connect to the controller.

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.

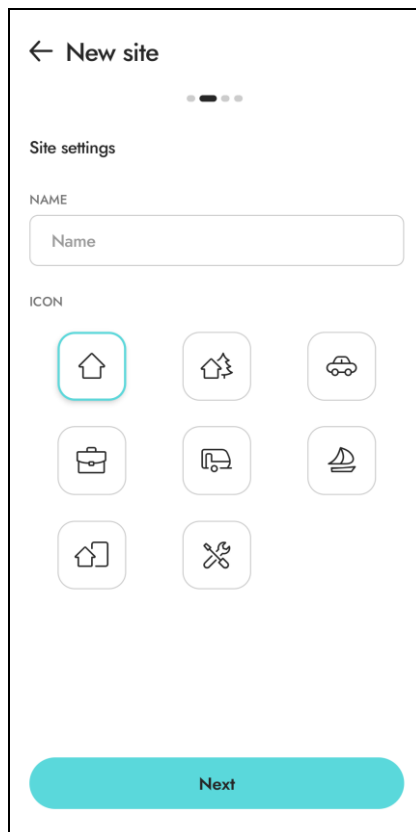
1. Start the Be Wave app. The *Add new site* screen will be displayed.



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 – Admin account* screen will be displayed.

← New site

Admin account

USER

Enter username

PASSWORD

Enter password

Enter between 8 and 16 characters. Use at least one uppercase letter and a digit.

RETYPE PASSWORD

Retype password

Save

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

← New site

Communication methods

SIM CARDS

SIM1

SIM2

LAN

LAN

WI-FI

gomis

DIRECT-7A-HP PageWide Pro 477dw

GUEST_S

Huawei Play 24

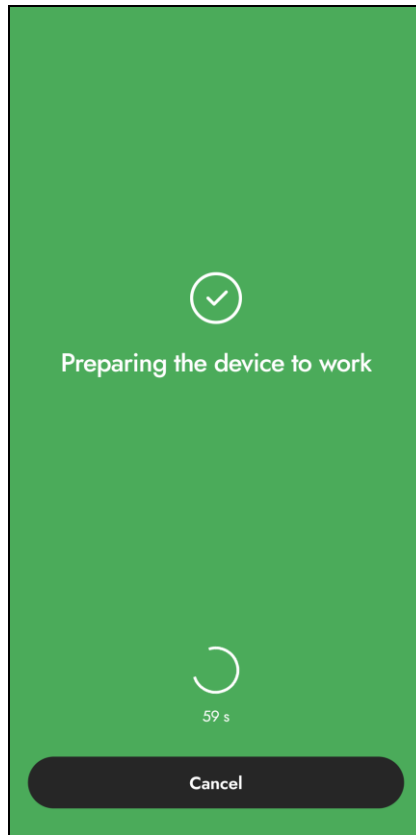
Save

6. Select the communication method to be used with the controller. A new screen will be displayed. Configure the settings for the selected communication method, then save the

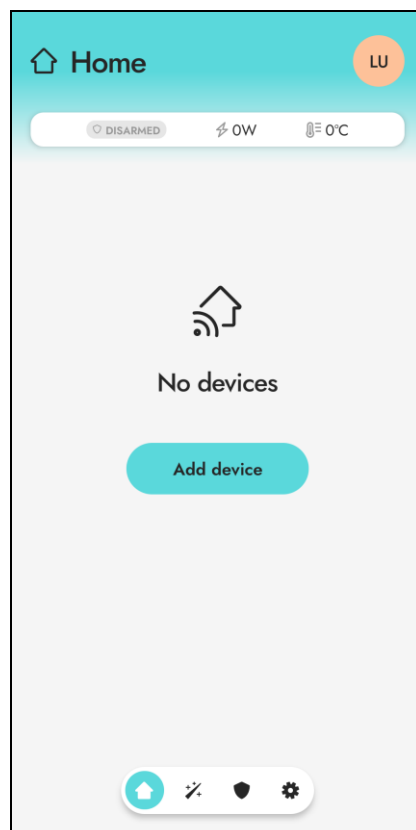
settings. You will return to the *New site – Communication methods* screen. Tap *Save*. A screen will be displayed saying that the controller is being prepared to work.



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.



7. When the app connects to the controller by means of the selected communication method, the app's home screen will be displayed. You can add the first BE WAVE device.



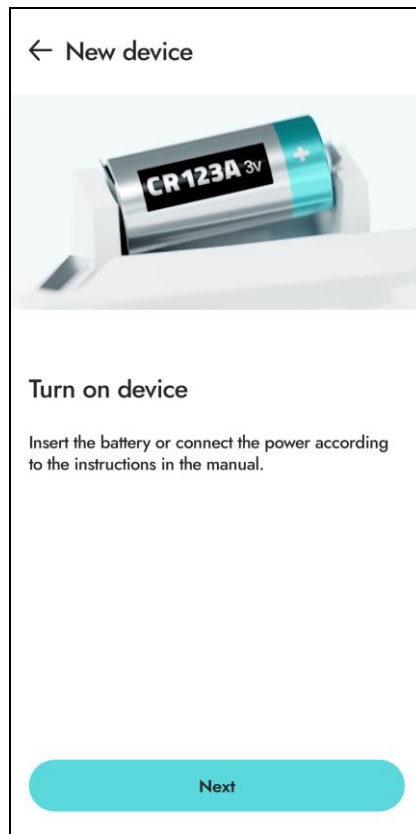
4.3 Adding a BE WAVE device to the system



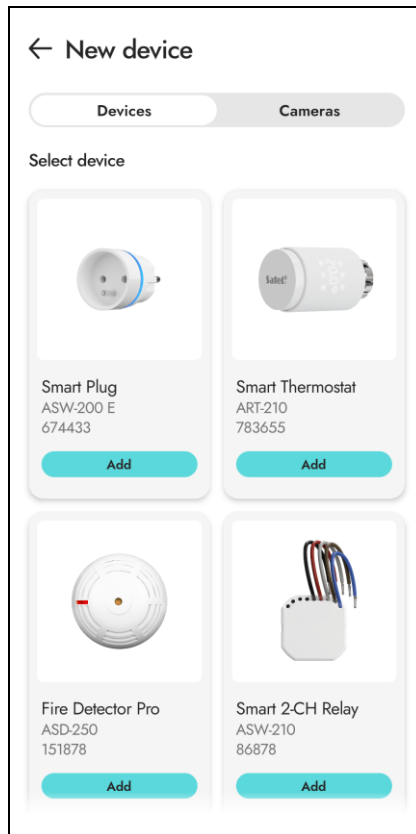
Before adding a device that was previously registered to the BE WAVE / ABAX 2 / ABAX system, you must restart it (remove the battery / power the device off for 30 seconds).

4.3.1 Adding the first BE WAVE device

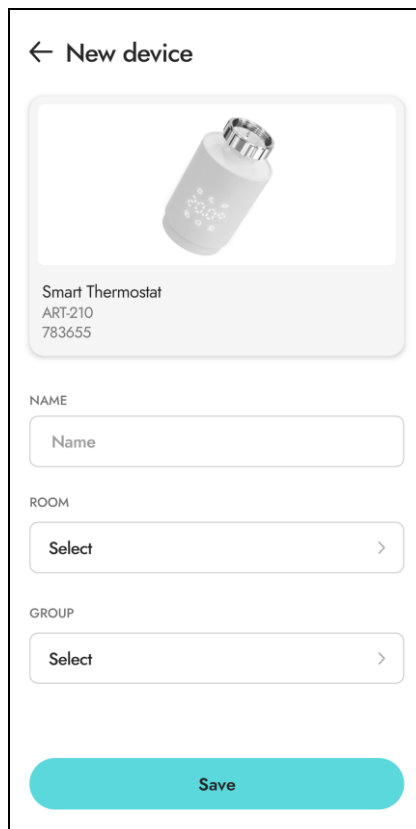
1. Tap the *Add device* button on the home screen. On a new screen you will be asked to turn on the device.



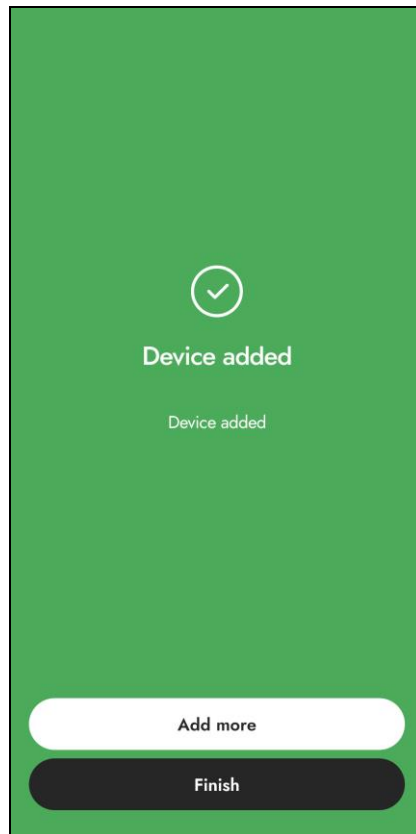
2. Insert the battery, connect the power, etc. (for detailed information, please refer to the sections on the installation of particular devices), then tap *Next*. The list of BE WAVE devices detected by the controller will be displayed (the screenshot is an example).



3. Tap the device you want to add. A screen with 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.), then tap *Save*. A screen 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 to add any more devices.

4.3.2 Adding another BE WAVE device

If you want to add another BE WAVE device, tap on the home 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.

4.4 Installing BE WAVE devices



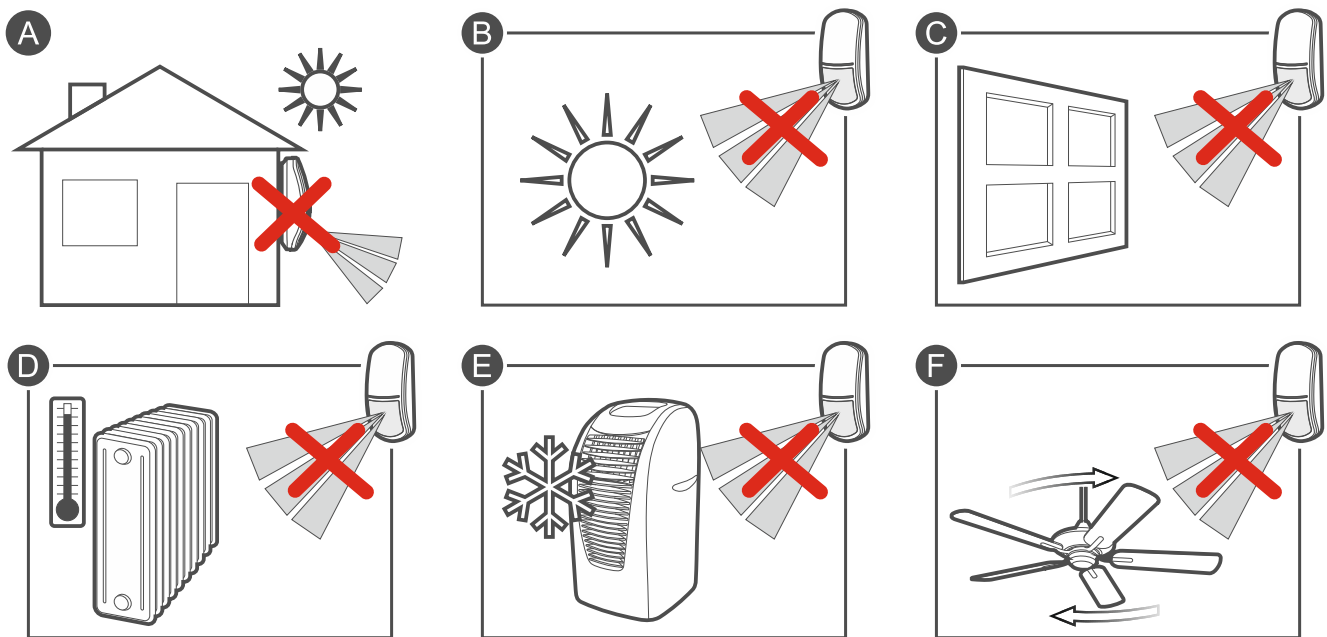
When selecting a place of installation, consider the radio communication range.

Thick walls, metal partitions, etc. reduce the range of the radio signal.

If you are using a double-sided mounting tape, remember to press it properly. First, stick the tape to the device and keep pressing for several seconds, then stick the device to the surface and keep pressing for several seconds.

4.4.1 Installing the Motion Detector, Motion Detector Pet, Motion Detector Cam and Motion Detector Plus

Installation tips for the Motion Detector, Motion Detector Pet, Motion Detector Cam and Motion Detector Plus



- The detector should be installed indoors, in spaces with normal air humidity.
- Do not install the detector outdoors (A).
- Do not aim the detector directly at sunlight or at surfaces reflecting sunlight (B).
- Do not aim the detector at a window because it may detect motion on the outside (C).
- Do not point the detector towards heat sources (D), air conditioners (E) or fans (F).
- No object should obstruct the detector's field of view.
- Install the detector at the recommended height:
 - Motion Detector, Motion Detector Cam and Motion Detector Plus: 2...2.4 m,
 - Motion Detector Pet: 2.4 m.



The Motion Detector Pet is pet immune when it is mounted at 2.4 m height with no vertical tilt.

Mounting the Motion Detector, Motion Detector Pet, Motion Detector Cam and Motion Detector Plus



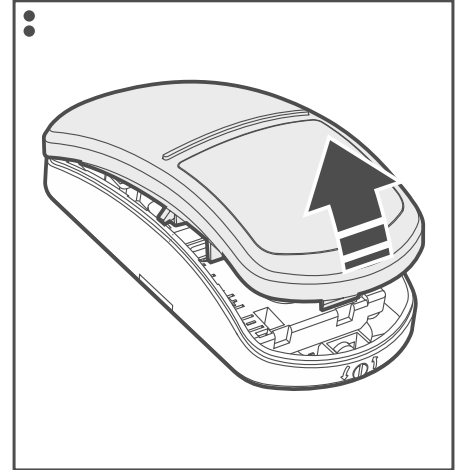
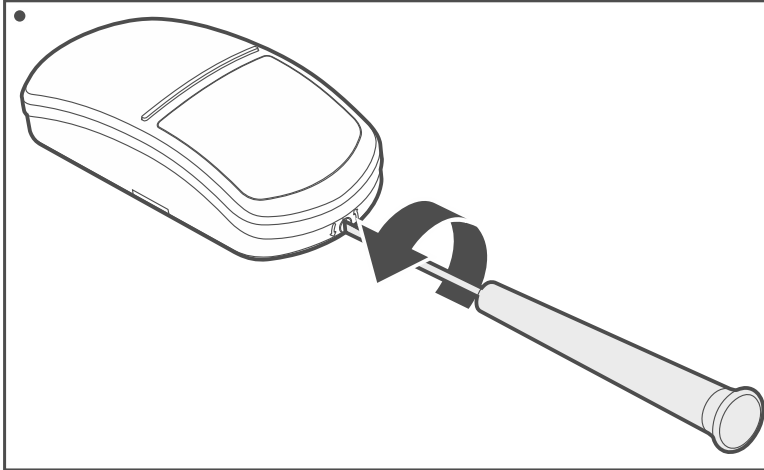
The figures are for reference only. There are small differences between the detectors.

1. Open the detector enclosure (Fig. 15).



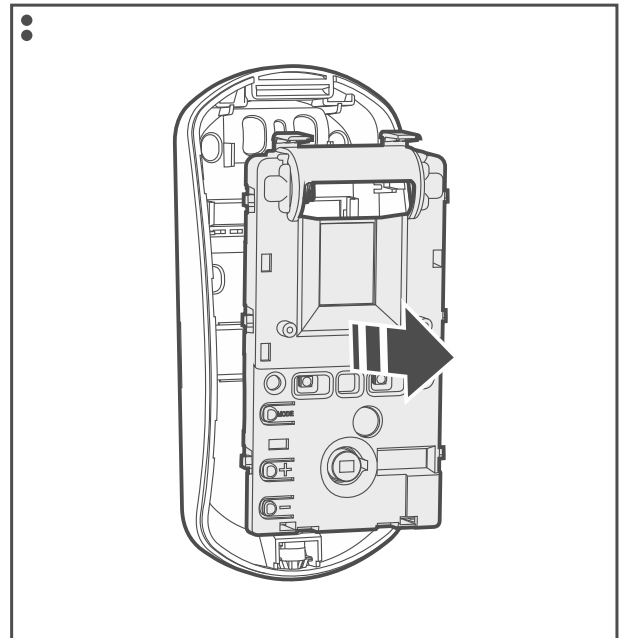
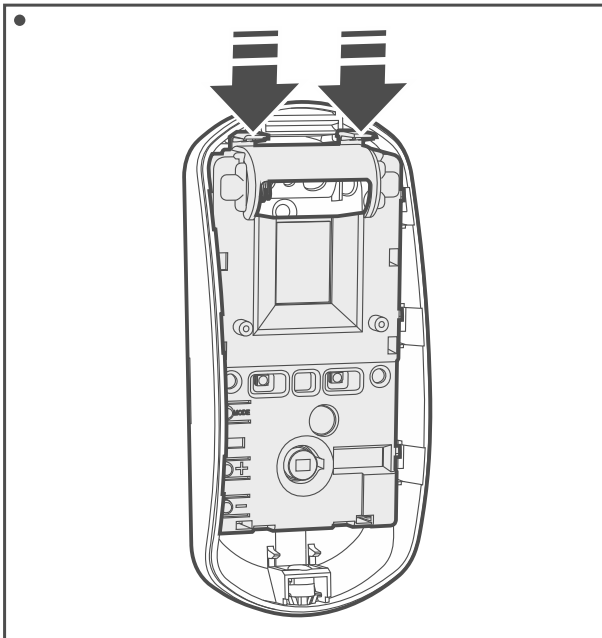
The inside of the cover and the electronics module of the Motion Detector Pet are marked with a blue circle. This makes it easier to identify the elements of the device.

15

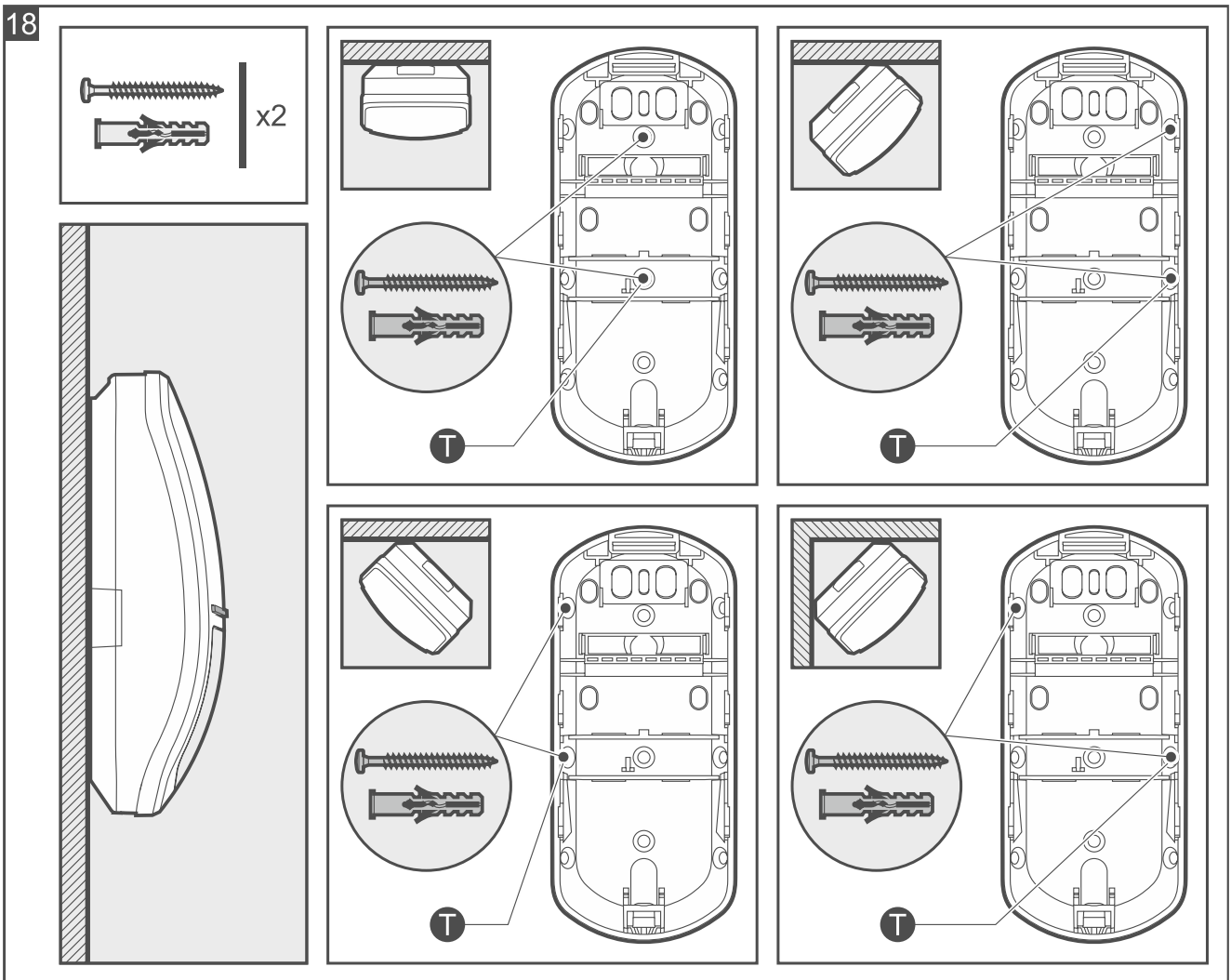
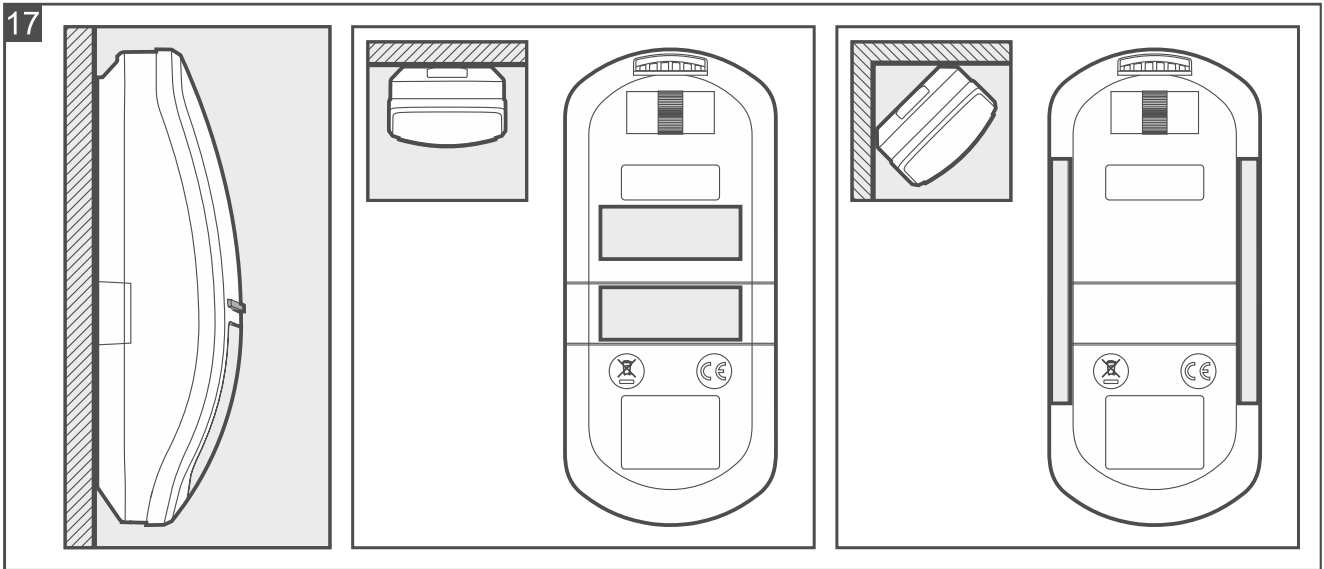


2. Press the catches and move the electronics module down, then remove it from the enclosure base (Fig. 16).

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3. If the detector is to be mounted on the wall using a double-sided mounting tape (Fig. 17):
- stick the tape to the enclosure base. Adjust the shape and position of the tape depending on the place of installation.
 - stick the enclosure base to the wall.



4. If the detector is to be secured to the wall with screws (Fig. 18) or to a bracket mounted on the wall or ceiling (Fig. 19):

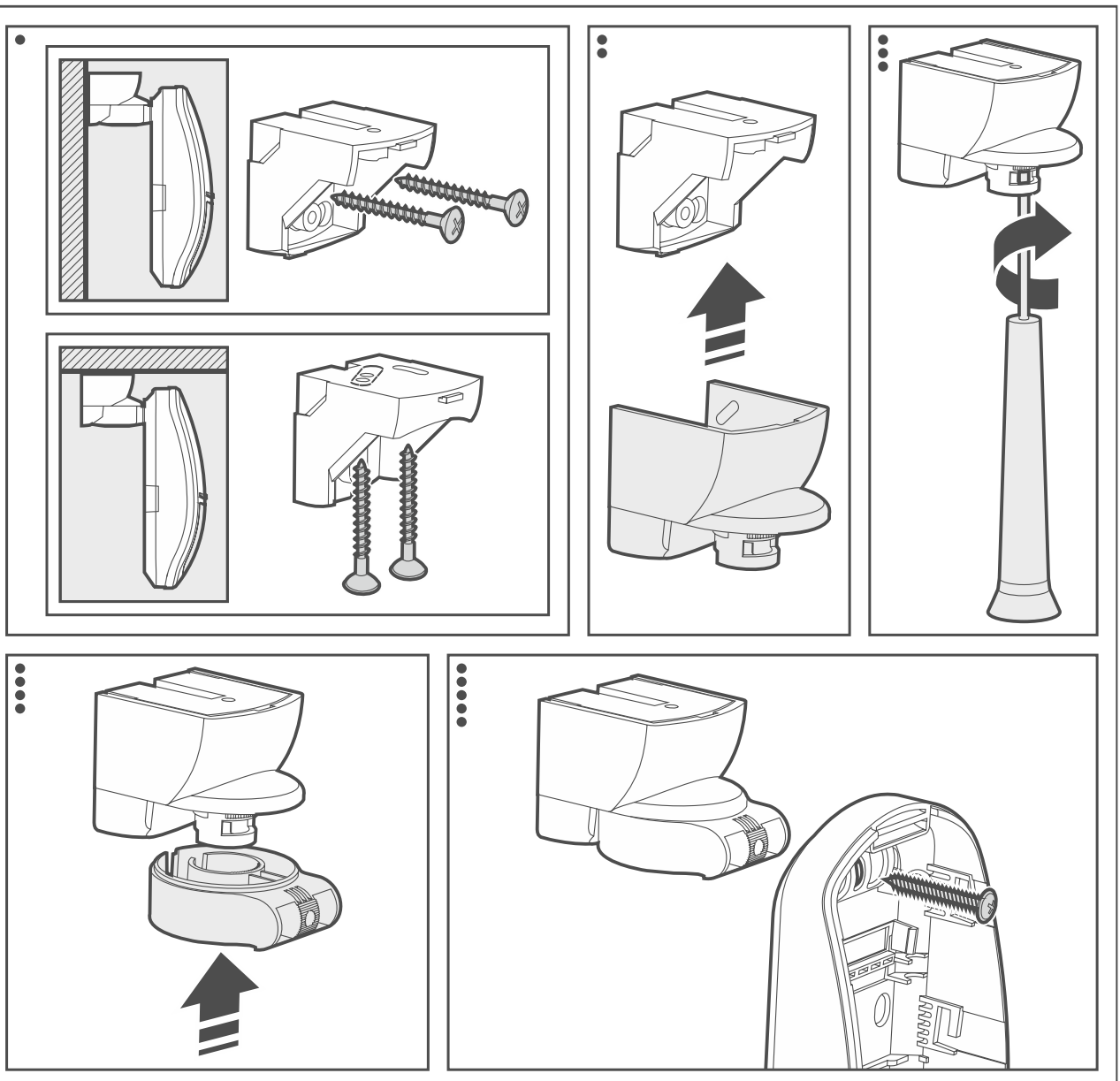
- make screw holes in the enclosure base.
- drill the holes in the wall for wall plugs (anchors). The wall plugs provided with the detector are intended for concrete or brick. For other types of surface (drywall, styrofoam), use other appropriately selected wall plugs.
- secure the enclosure base to the wall or a bracket with screws.



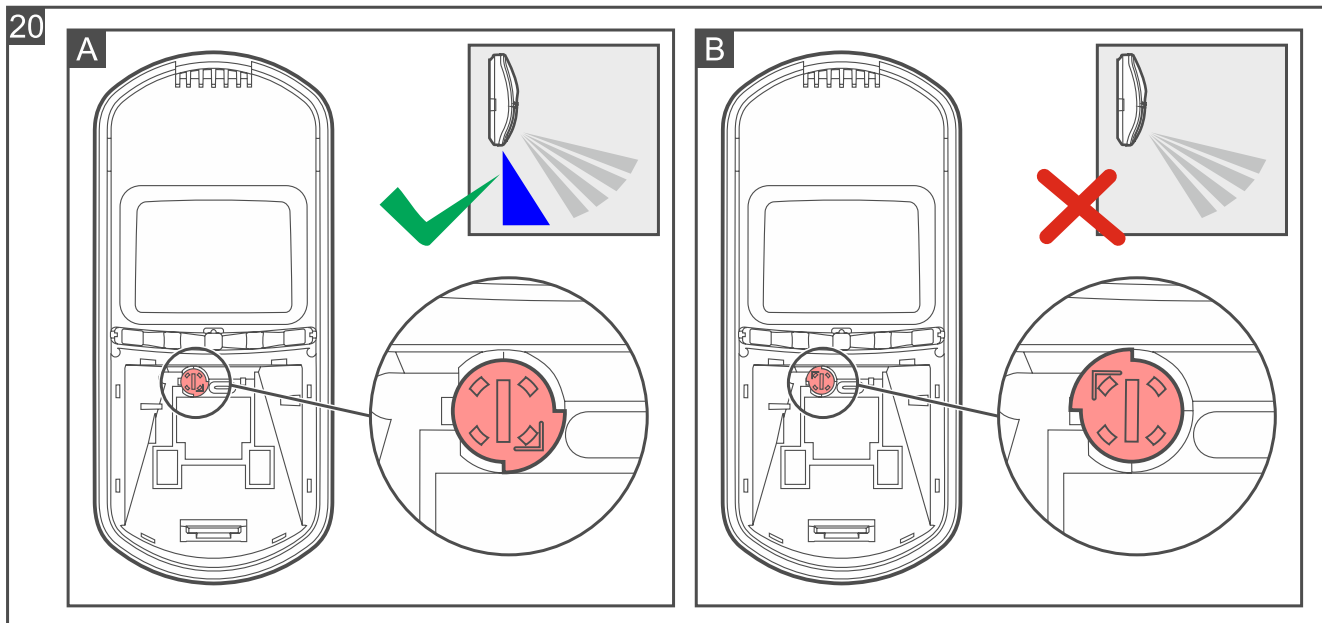
*If the detector is to detect removal from the surface, secure the detector to the wall with screws (do not use a bracket). In order for the detector to detect removal from the surface, fasten the screw in place marked with the **T** symbol in Fig. 18.*

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

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5. Use the knob on the cover to enable / disable the creep zone protection (not applicable to the Motion Detector Pet). Fig. 20 A – creep zone protected. Fig. 20 B – creep zone not protected.



6. Place the electronics module in the enclosure base and then move it up to lock it.
 7. Start the Be Wave app and add the detector to the system. When a request to turn on the device will be displayed, install the battery in the detector.
 8. Close the enclosure.



Before you close the enclosure of the Motion Detector Cam, remove the protective film from the camera lens.

4.4.2 Installing the Outdoor Motion Detector

Installation tips for the Outdoor Motion Detector

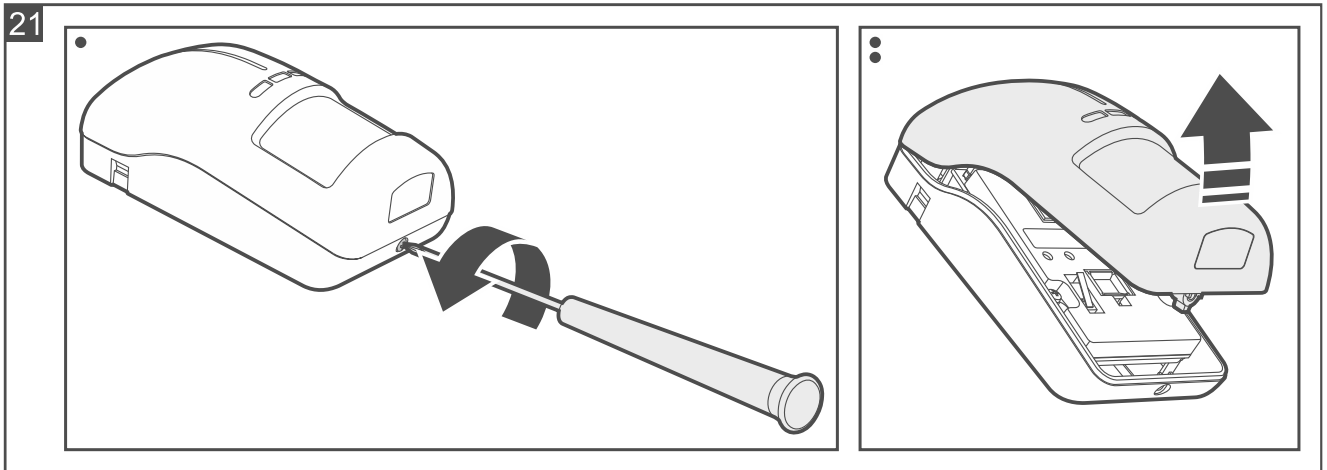
- Do not aim the detector directly at sunlight or at surfaces reflecting sunlight.
- Do not point the detector towards heat sources, air conditioners or fans.
- Objects that can be moved by the wind (e.g. branches, bushes, clotheslines, etc.) should be at least 3 m from the detector.
- No object should obstruct the detector's field of view.
- Install the detector at 2.4 m height.



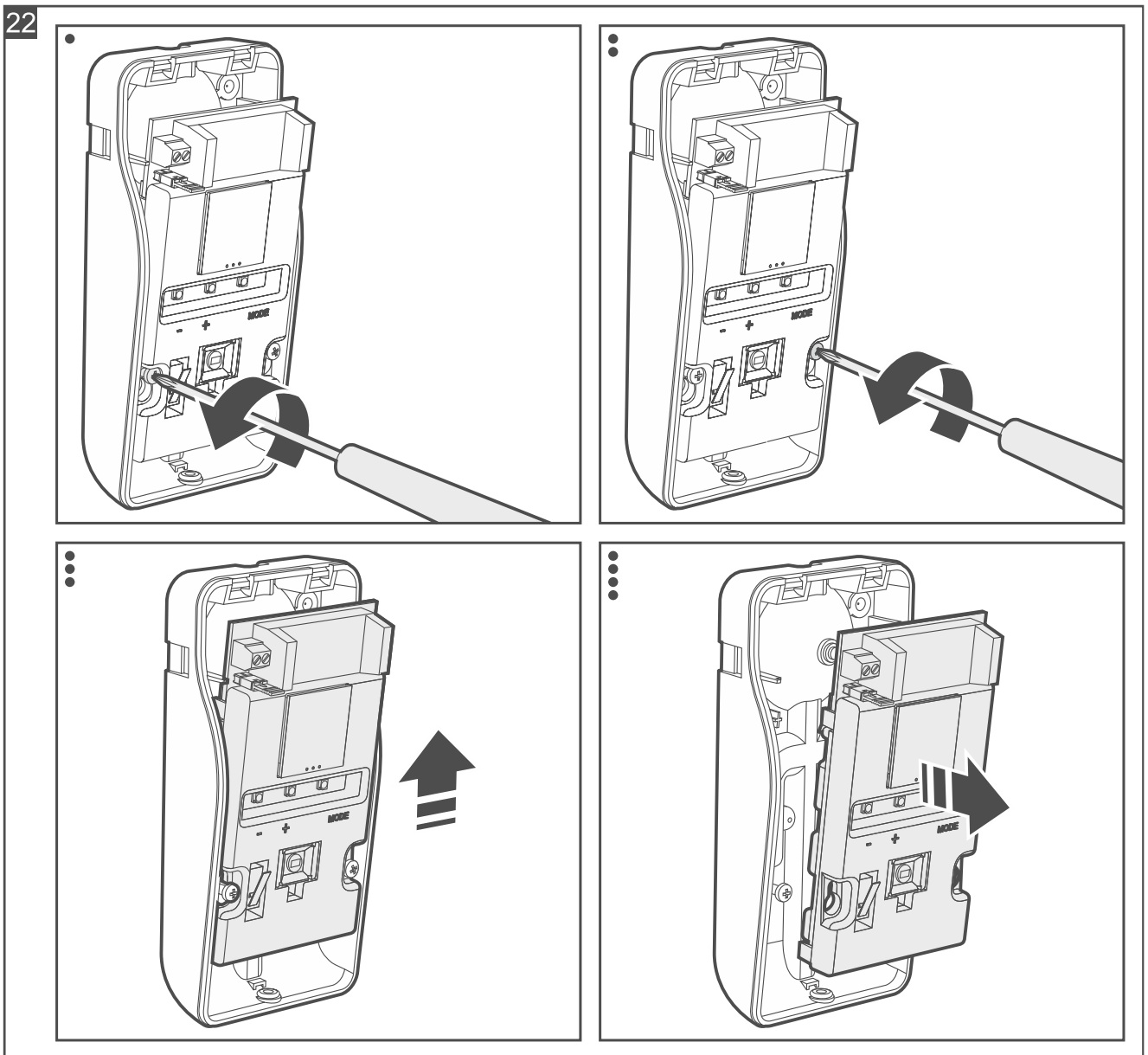
The Outdoor Motion Detector is pet immune when it is mounted at 2.4 m height with no vertical tilt.

Mounting the Outdoor Motion Detector

1. Open the detector enclosure (Fig. 21).



2. Remove the electronics module (Fig. 22).



3. Secure the enclosure base with screws to the wall (Fig. 23), to the angle bracket (see “Angle bracket mounting”) or to the ball bracket (see “Ball bracket mounting”). Select

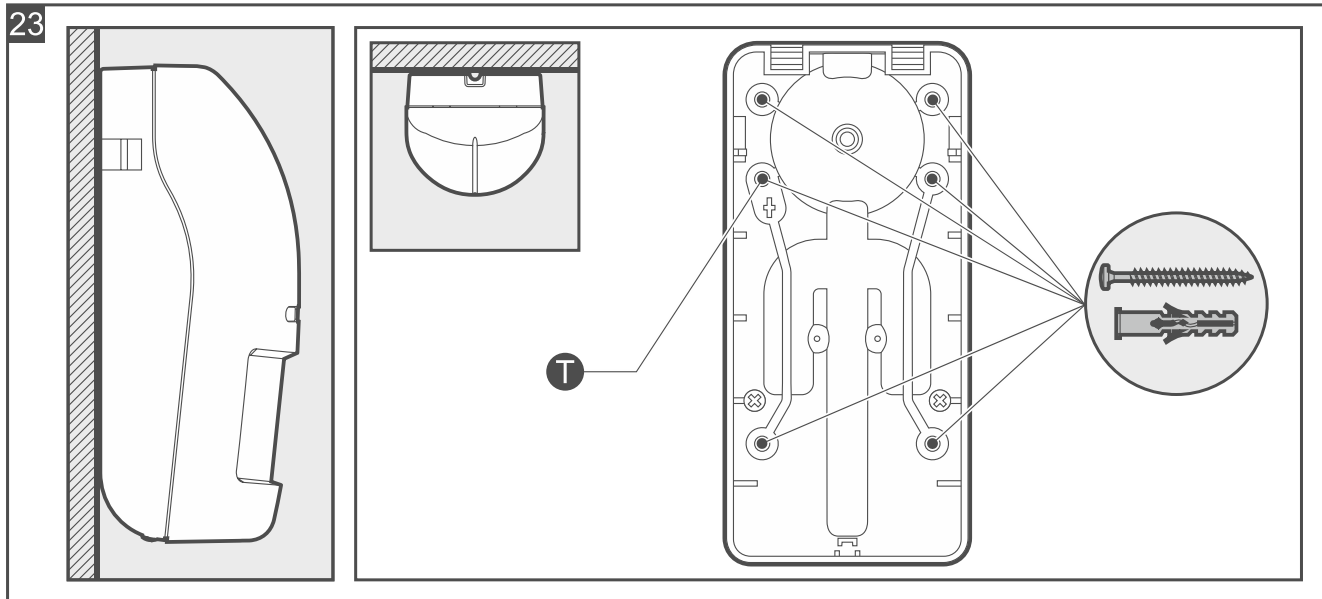
wall plugs specifically intended for the mounting surface (different for concrete or brick wall, different for plaster wall, etc.).



*In order for the detector to detect removal from the surface / bracket, fasten the screw in place marked with the **T** symbol in the figure.*

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

The brackets are sold separately. The BRACKET C bracket set includes the angle bracket and the ball bracket.



4. Place the electronics module in the enclosure base and secure it with screws.
5. If you mounted the detector on a bracket and used an additional tamper switch (requirement of Standard EN 50131 for Grade 2):
 - screw the tamper switch wires to the TMP terminals (black wire to one terminal, blue wire to the other),
 - remove the jumper from the pins below the terminals.
6. Start the Be Wave app and add the detector to the system. When a request to turn on the device will be displayed, install the battery in the detector. Secure the battery with the clip provided in the box.
7. Close the enclosure and lock it with a screw.

Angle bracket mounting



If the detector is not to detect removal of the bracket from the surface, you do not have to attach the additional tamper switch (skip the steps regarding its installation).

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

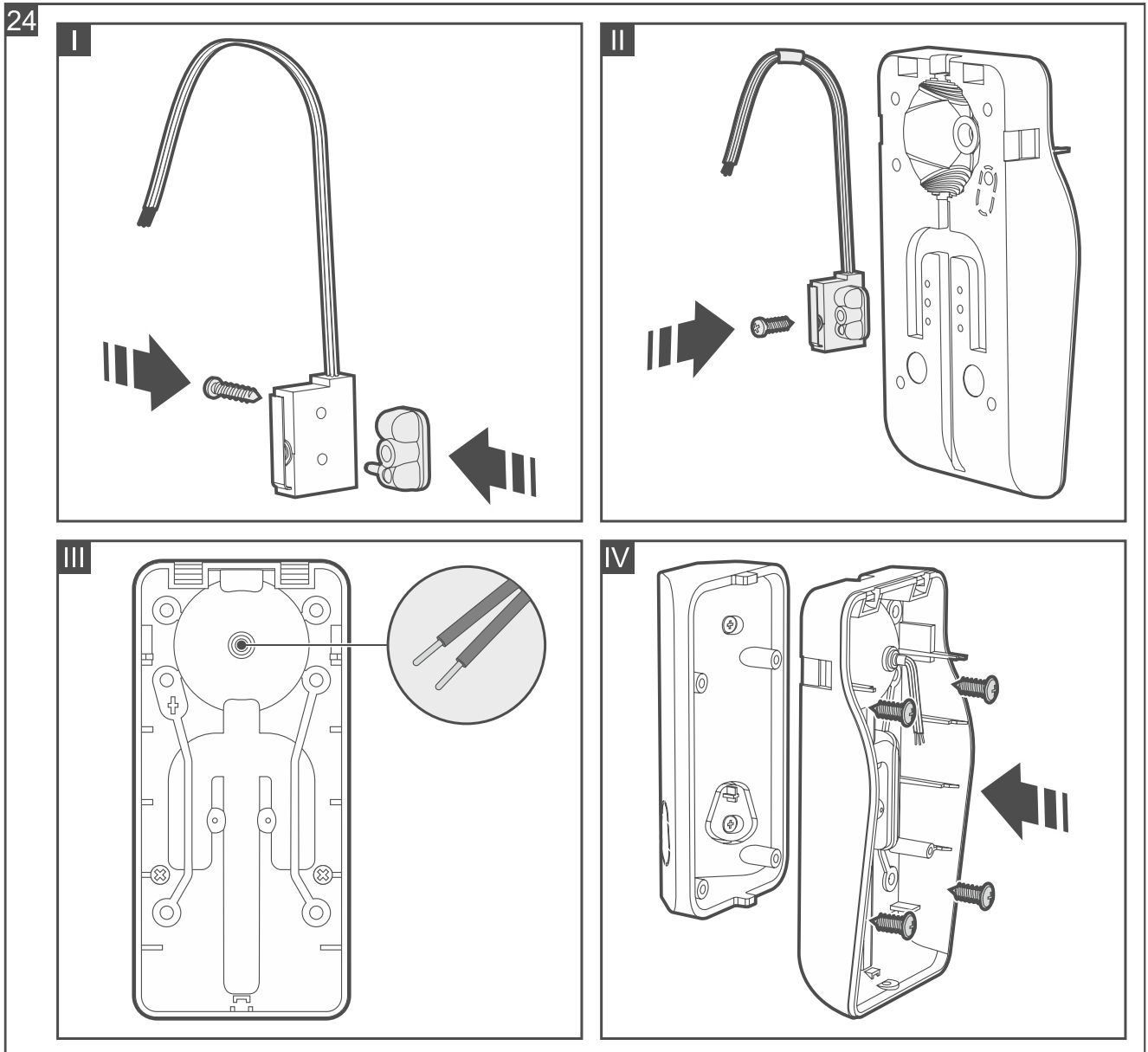
1. Place the angle bracket against the wall and mark the location of the mounting holes.
2. Drill the holes in the surface for wall plugs (anchors). Select wall plugs specifically intended for the mounting surface (different for concrete or brick wall, different for plaster wall, etc.).
3. Secure the angle bracket to the surface with screws.

4. Attach the additional tamper switch:

- screw the holder to the tamper switch (Fig. 24-I),
- screw the holder with the tamper switch to the enclosure base (Fig. 24-II).



The figure shows how to attach the tamper switch in one of the two available positions. When selecting the position, consider the way of angle bracket mounting. If the tamper switch is to be attached in the other position, screw the holder to the tamper switch on the other side.



5. Make an opening for the tamper switch wires in the enclosure base (Fig. 24-III).

6. Run the tamper switch wires through the opening.



It is recommended that the tamper switch wires be placed in a heat shrink tubing. It reduces the risk of getting water into the enclosure.

7. Secure the enclosure base to the bracket with screws (Fig. 24-IV).

Ball bracket mounting

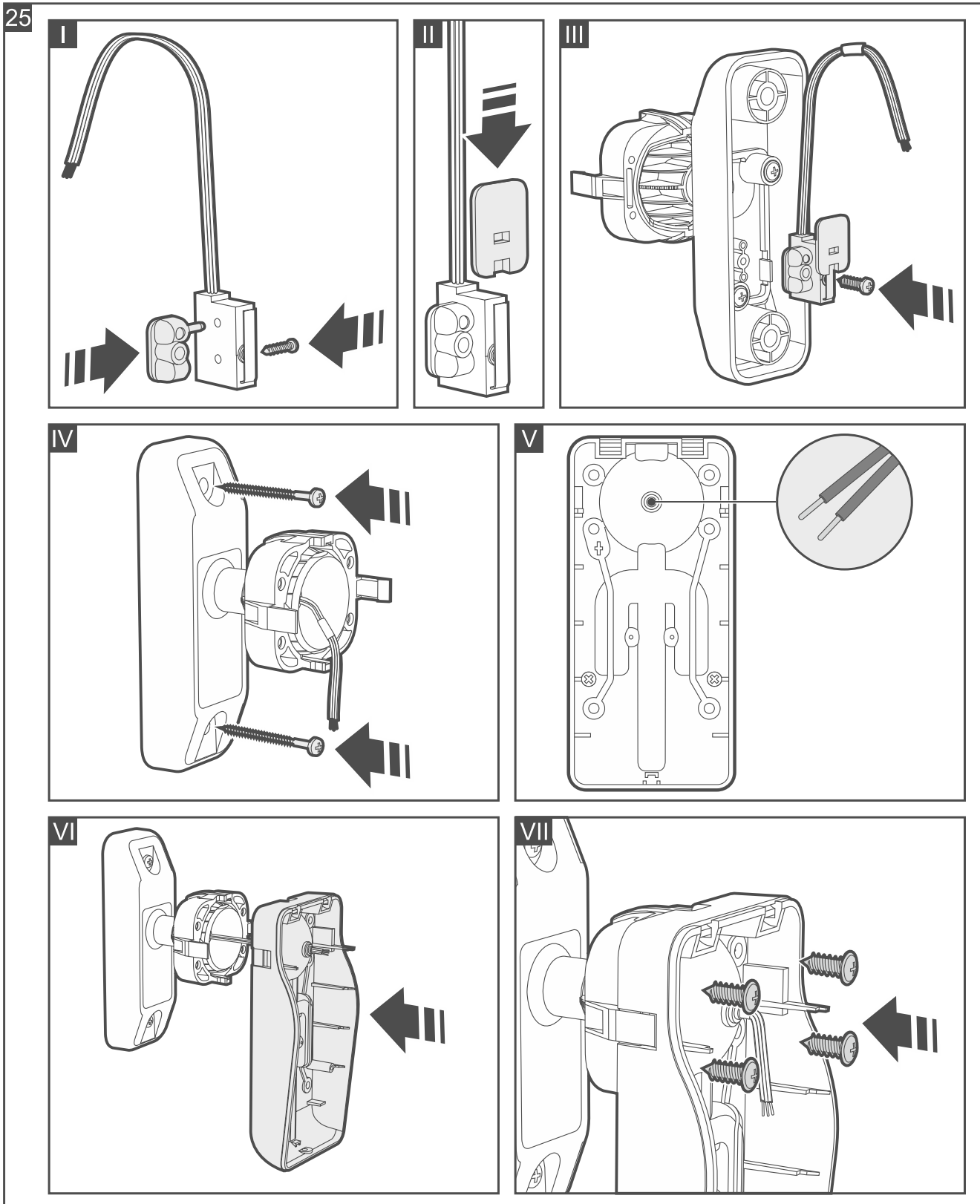


If the detector is not to detect removal of the bracket from the surface, you do not have to attach the additional tamper switch (skip the steps regarding its installation).

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

1. Attach the additional tamper switch:

- screw the holder to the tamper switch (Fig. 25-I),
- attach the unit making the surface bigger on the tamper switch (Fig. 25-II),
- screw the holder with the tamper switch to the ball bracket base (Fig. 25-III).



2. Run the tamper switch wires through the opening in the handle of the bracket.

3. Place the ball bracket against the wall and mark the location of the mounting holes.
4. Drill the holes in the surface for wall plugs (anchors). Select wall plugs specifically intended for the mounting surface (different for concrete or brick wall, different for plaster wall, etc.).
5. Secure the ball bracket to the surface with screws (Fig. 25-IV).
6. Make an opening for the tamper switch wires in the enclosure base (Fig. 25-V).
7. Run the tamper switch wires through the opening.



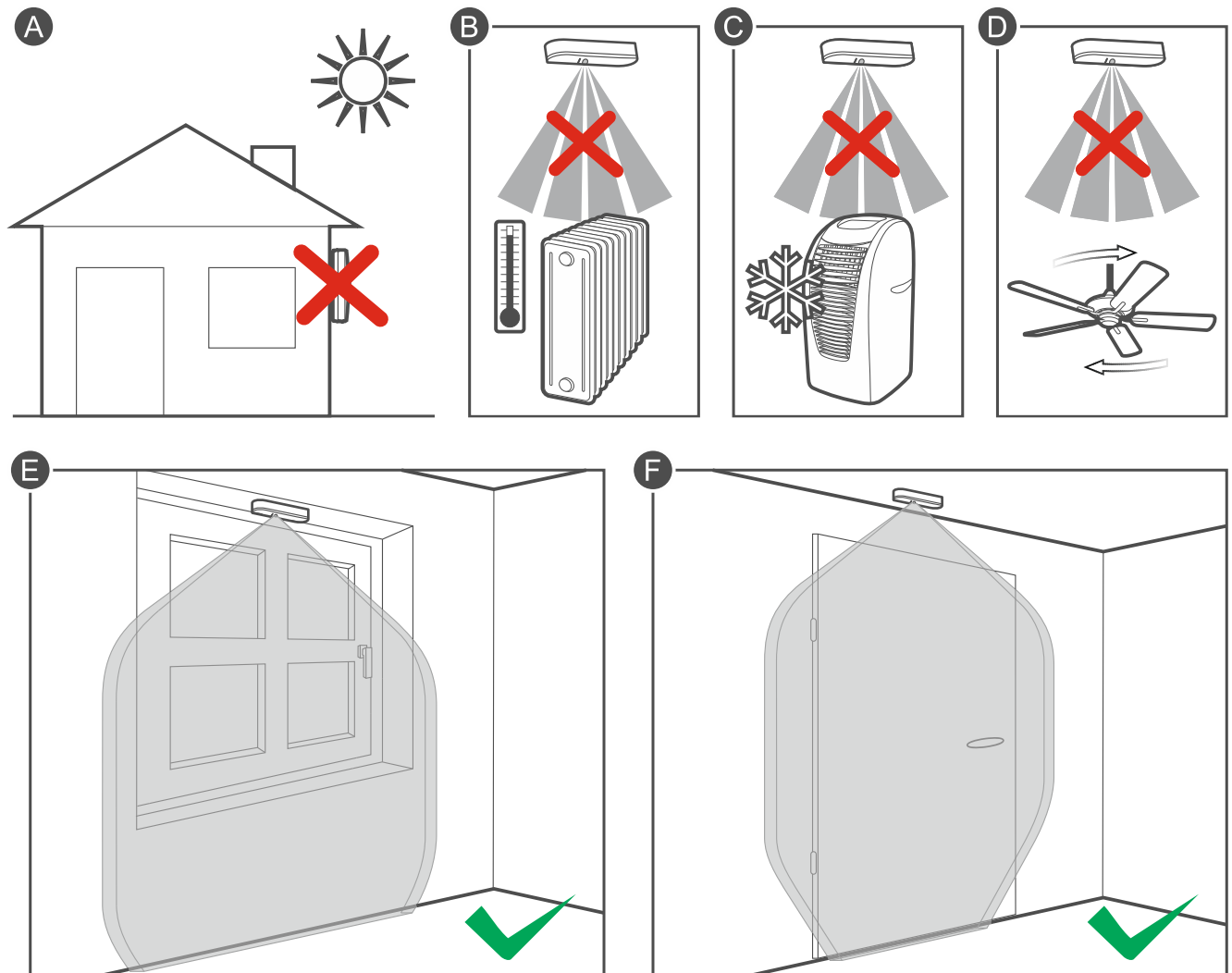
It is recommended that the tamper switch wires be placed in a heat shrink tubing. It reduces the risk of getting water into the enclosure.

8. Secure the enclosure base to the bracket with screws (Fig. 25-VII).

4.4.3 Installing the Curtain Detector

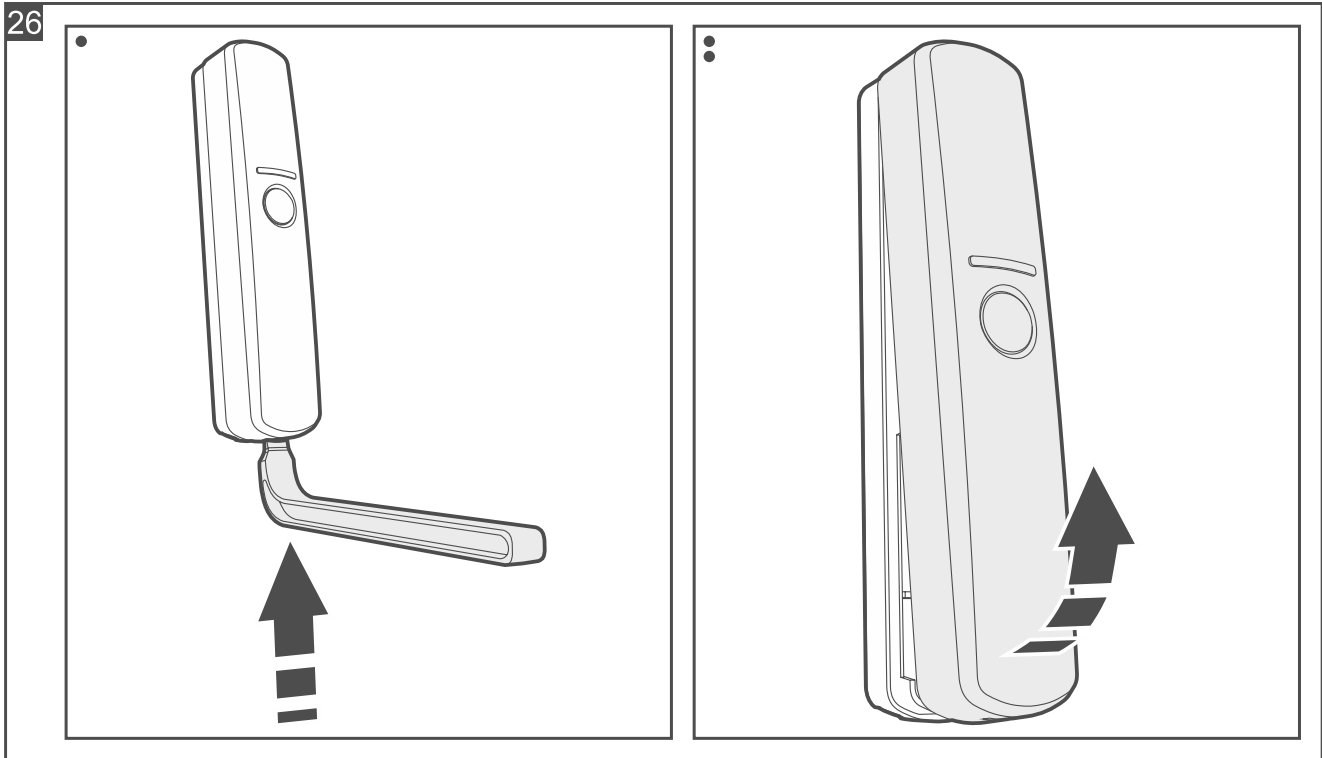
Installation tips for the Curtain Detector

- The detector should be installed indoors, in spaces with normal air humidity.
- Do not install the detector outdoors (A).
- Do not aim the detector directly at sunlight or at surfaces reflecting sunlight.
- Do not point the detector towards heat sources (B), air conditioners (C) or fans (D).
- No object should obstruct the detector's field of view.

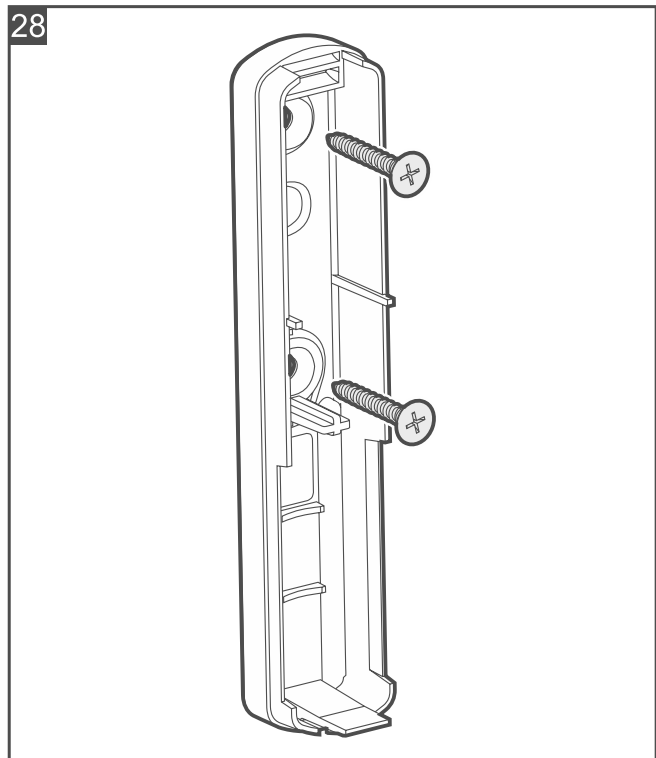
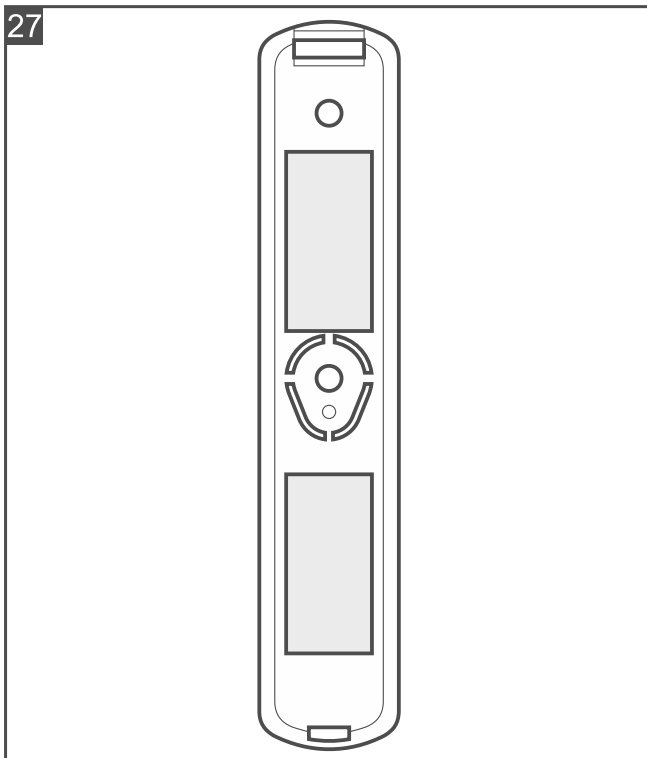


Mounting the Curtain Detector

1. Open the detector enclosure (Fig. 26). The enclosure opening tool, shown in the figure, is provided with the detector.



2. If the detector is to be mounted on the surface using a double-sided mounting tape (Fig. 27):
 - stick the tape to the enclosure base.
 - stick the enclosure base to the surface.



3. If the detector is to be mounted on the surface with screws:
 - place the enclosure base against the surface and mark the location of the mounting holes.
 - drill the holes in the surface for wall plugs (anchors). The wall plugs provided with the detector are intended for concrete or brick. For other types of surface (drywall, styrofoam), use other appropriately selected wall plugs.
 - secure the enclosure base to the surface with screws (Fig. 28).



If the detector is to detect removal from the surface, secure the detector with screws.

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

4. Start the Be Wave app and add the detector to the system. When a request to turn on the device will be displayed, install the battery in the detector.
5. Close the enclosure.

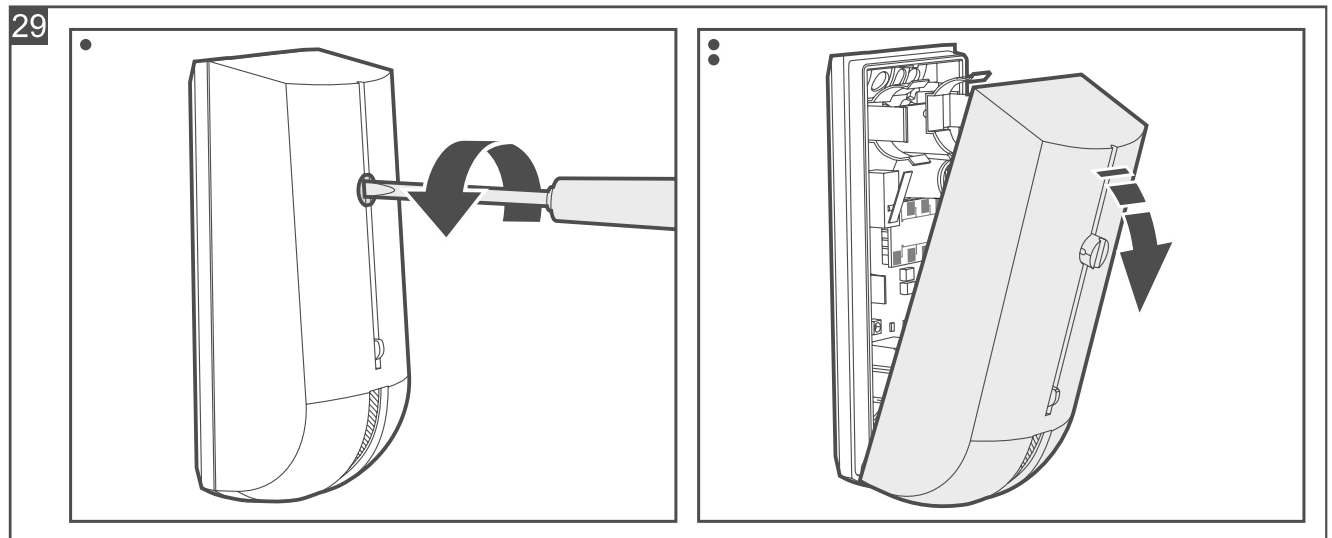
4.4.4 Installing the Outdoor Curtain Detector

Installation tips for the Outdoor Curtain Detector

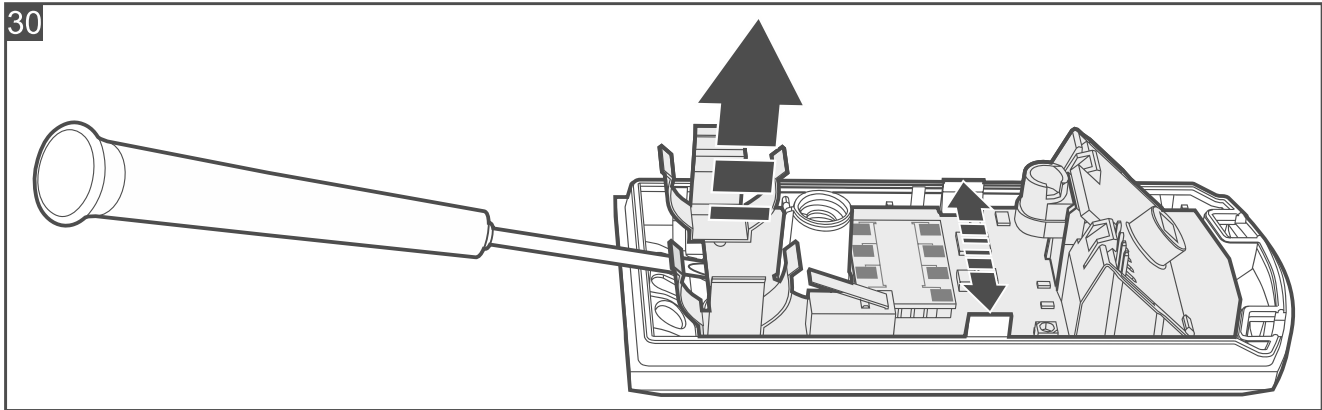
- Do not aim the detector directly at sunlight or at surfaces reflecting sunlight.
- Do not point the detector towards heat sources, air conditioners or fans.
- Objects that can be moved by the wind (e.g. branches, bushes, clotheslines, etc.) should be at least 3 m from the detector.
- No object should obstruct the detector's field of view.
- Install the detector at 2.4 m height.

Mounting the Outdoor Curtain Detector

1. Open the detector enclosure (Fig. 29).



2. Push the fastening catches outward and remove the electronics board (Fig. 30).



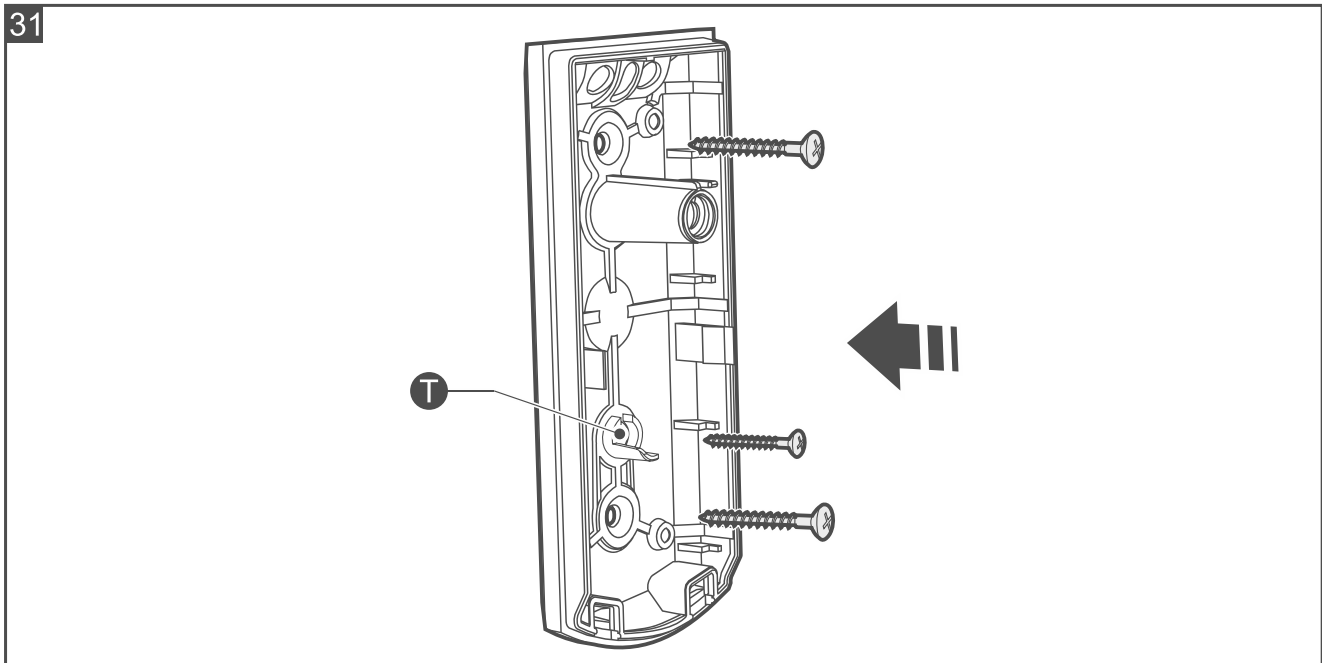
3. Secure the enclosure base to the wall (Fig. 31) or to the bracket mounted on the wall (Fig. 32). The wall plugs provided with the detector are intended for concrete or brick. For other types of surface (drywall, styrofoam), use other appropriately selected wall plugs.

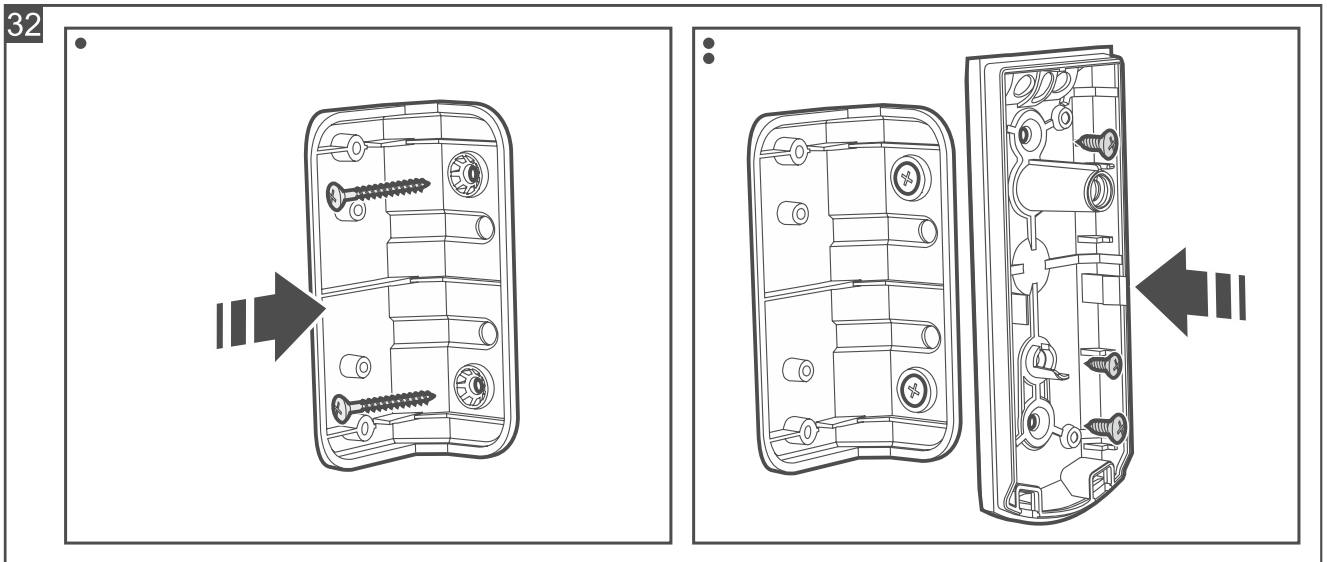


*If the detector is to detect removal from the surface, secure the detector to the wall (do not use a bracket). In order for the detector to detect removal from the surface, fasten the screw in place marked with the **T** symbol in the figure.*

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

*To secure the tamper protection element (opening marked with the **T** symbol in the figure), use a smaller screw.*



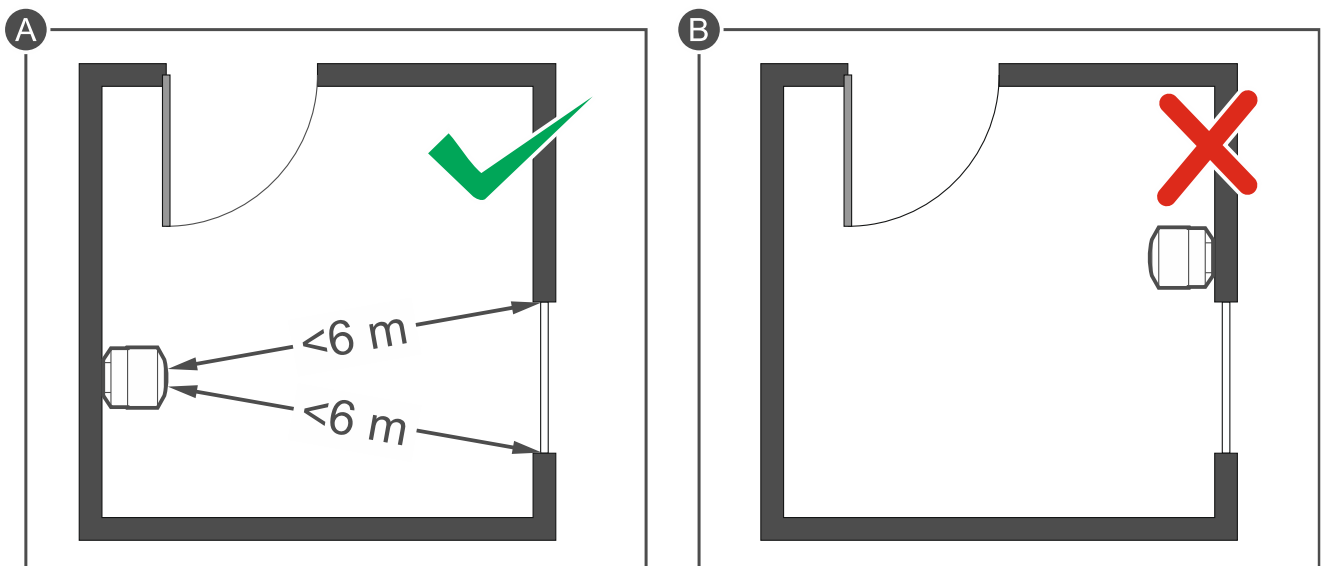


4. Fasten the electronics board in the enclosure.
5. Start the Be Wave app and add the detector to the system. When a request to turn on the device will be displayed, install the battery in the detector.
6. Close the enclosure.

4.4.5 Installing the Glass Break Detector

Installation tips for the Glass Break Detector

- The detector should be installed indoors, in spaces with normal air humidity.
- Do not install the detector outdoors.
- Direct the detector microphone towards the protected glass pane – the best place to mount the detector is the wall opposite the protected glass pane.
- The distance between the detector and the protected glass pane must not exceed the detection range (6 m).
- The detection range depends on the room acoustics. Shades, curtains, furniture upholstery, acoustic tiles, etc. reduce the detection range.
- Do not install the detector on the same wall as the protected glass pane.
- Do not install the detector in the vicinity of sound emitting devices (loudspeaker, bell, air conditioner, etc.).

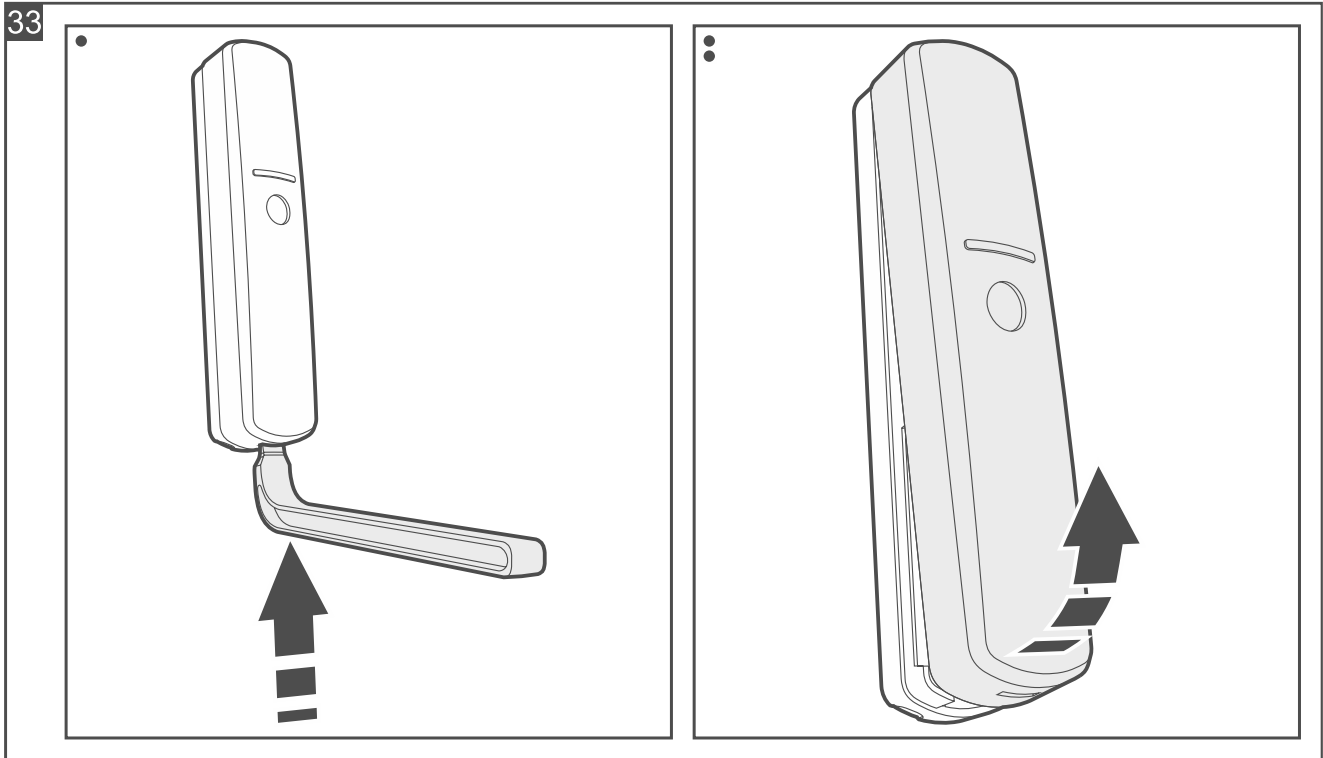


Mounting the Glass Break Detector

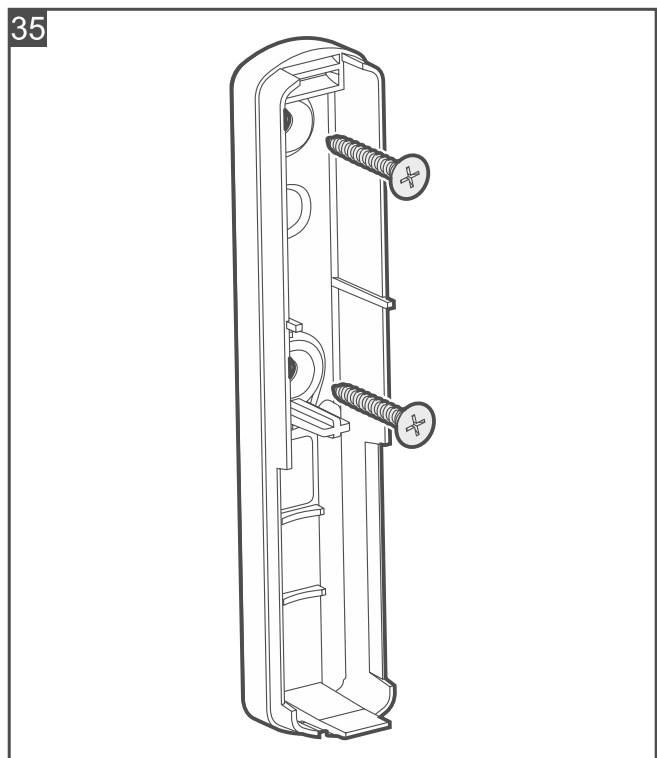
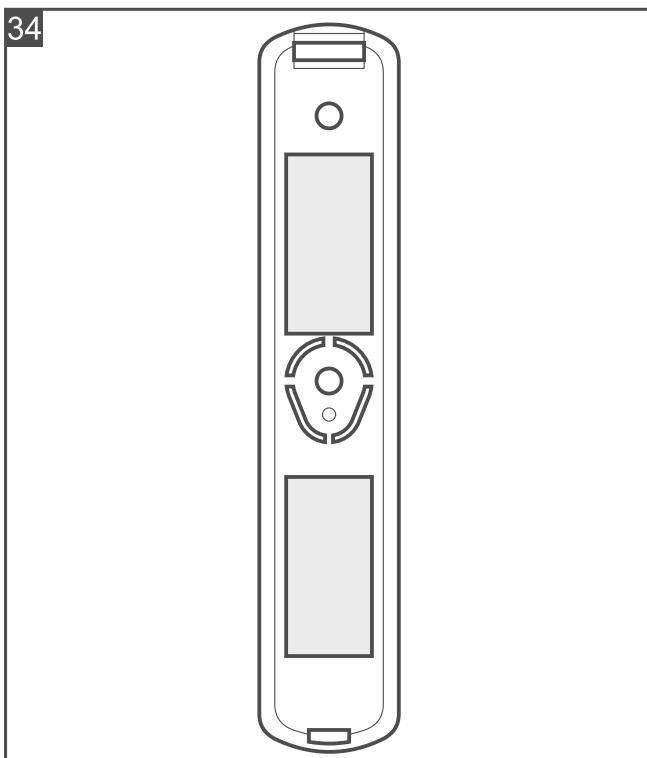


The figures show the detector mounted vertically, but it may be mounted in any position (with no effect on its operation).

1. Open the detector enclosure (Fig. 33). The enclosure opening tool, shown in the figure, is provided with the detector.



2. If the detector is to be mounted on the surface using a double-sided mounting tape (Fig. 34):
 - stick the tape to the enclosure base.
 - stick the enclosure base to the surface.



3. If the detector is to be mounted on the surface with screws:
 - place the enclosure base against the surface and mark the location of the mounting holes.
 - drill the holes in the surface for wall plugs (anchors). The wall plugs provided with the detector are intended for concrete or brick. For other types of surface (drywall, styrofoam), use other appropriately selected wall plugs.
 - secure the enclosure base to the surface with screws (Fig. 35).



If the detector is to detect removal from the surface, secure the detector with screws.

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

4. Start the Be Wave app and add the detector to the system. When a request to turn on the device will be displayed, install the battery in the detector.
5. Close the enclosure.

4.4.6 Installing the Multipurpose Detector



Remember the detector may be used for different purposes and it affects the way it should be installed.

Description of the Multipurpose Detector

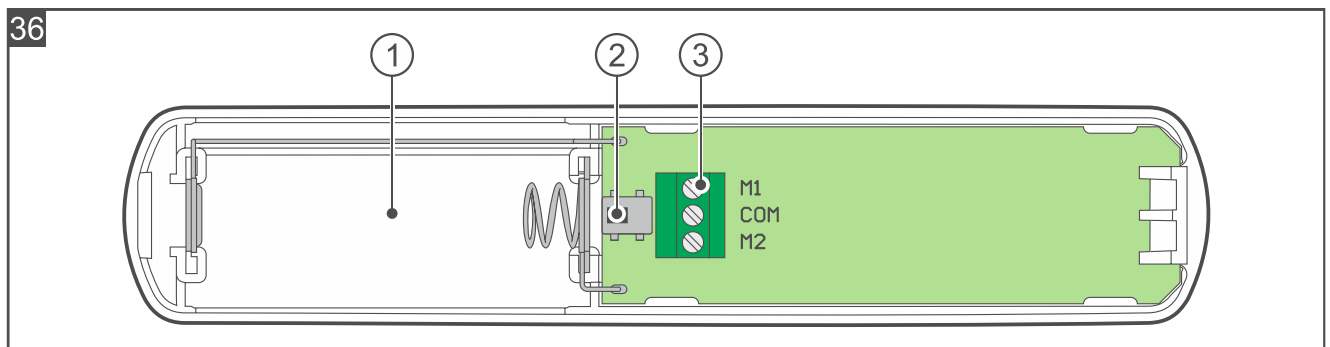


Figure 36 shows the inside of the detector after opening the enclosure.

- ① battery holder.
- ② tamper switch.
- ③ terminals:

M1 - terminal for connecting a wired NC detector (*Shock and opening detector*) or the FPX-1 flood probe (*Flood detector*).

COM - common ground.

M2 - terminal for disabling the built-in opening sensor (*Shock and opening detector*). If you want to disable the built-in opening sensor, connect the terminal to the COM terminal.



By default, the M1 and COM terminals are shorted with a wire. Do not remove the wire if you are not planning to connect a wired detector or the flood probe to the terminals.

Installation tips for the Multipurpose Detector

- The detector should be installed indoors, in spaces with normal air humidity.
- Do not install the detector outdoors.

Opening detector / Shock and opening detector

- Install the detector on the window / door frame (fixed surface). Install the detector in the upper part of the window frame. This will reduce the risk of flooding the detector when the window is tilted or open.
- Install the magnet on the window / door (moving surface).
- Do not install the detector on ferromagnetic surfaces or in the vicinity of strong magnetic or electric fields.

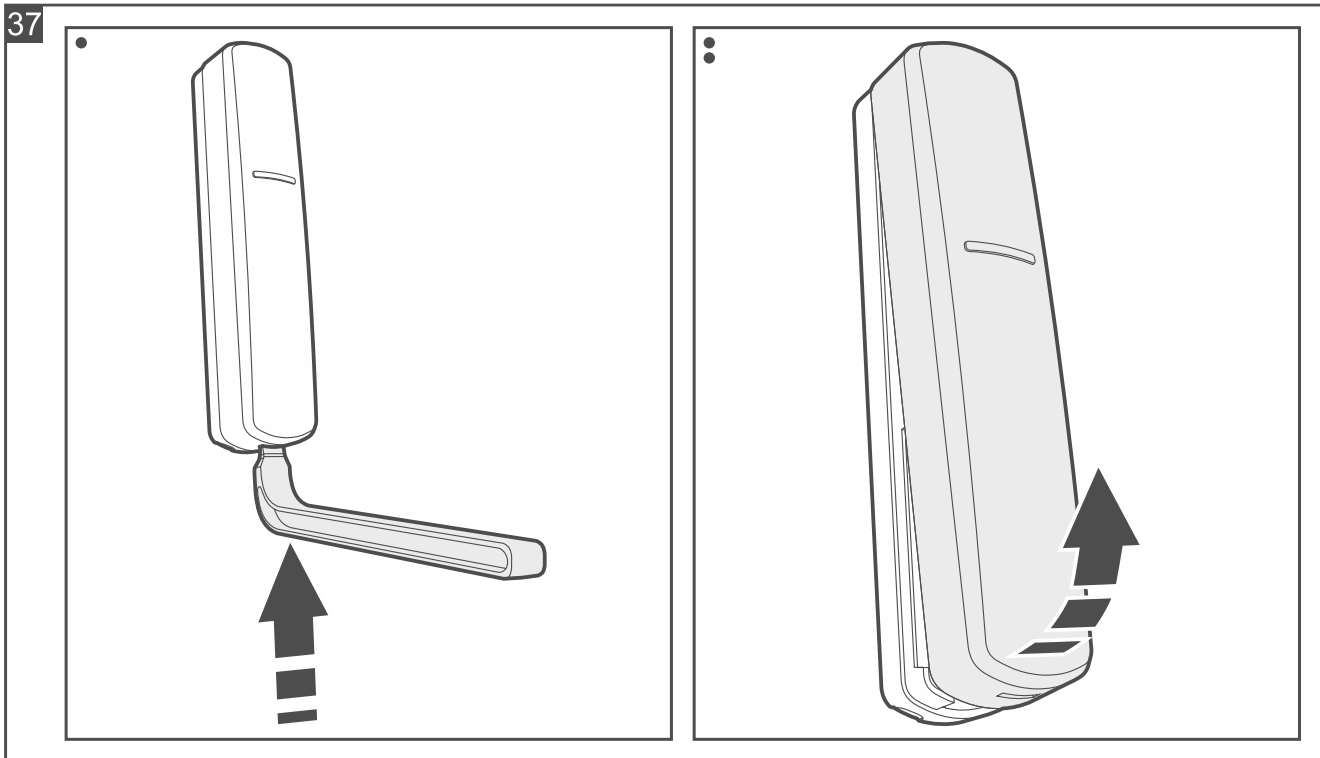
Shock and opening detector

- To connect the outdoor detector, use wires with a cross-section of 0.5-0.75 mm². The length of wires must not exceed 3 m.

Mounting the Multipurpose Detector

i | *The figures show the detector mounted vertically, but it may be mounted in any position (with no effect on its operation).*

1. Open the detector enclosure (Fig. 37). The enclosure opening tool, shown in the figure, is provided with the detector.



2. **Shock and opening detector.** If you want to connect a wired NC detector:

- make the opening for a cable in the enclosure base.
- run the detector cable through the opening.

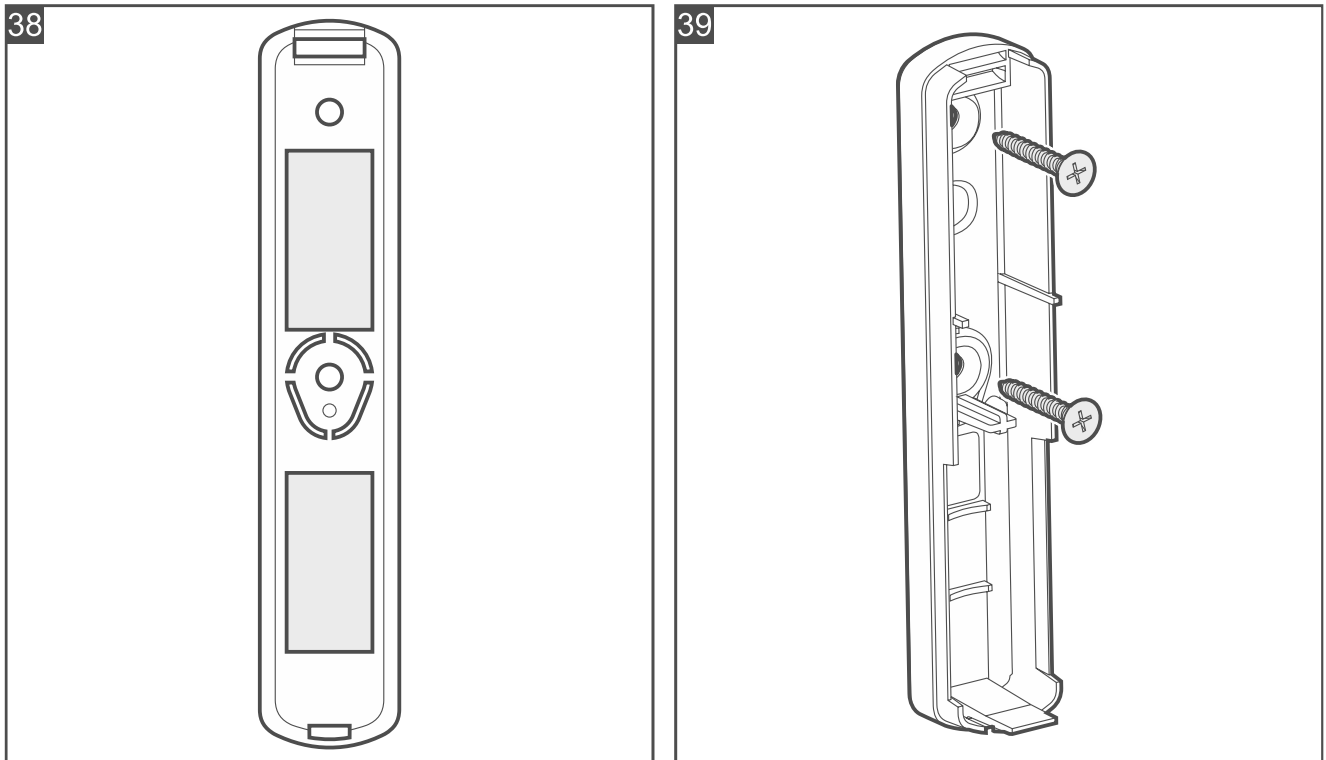
3. **Flood detector:**

- make the opening for a cable in the enclosure base.
- run the FPX-1 flood probe cable through the opening.

i | *The FPX-1 flood probe is sold separately.*

4. If the detector is to be mounted on the surface using a double-sided mounting tape (Fig. 38):
 - stick the tape to the enclosure base.

- stick the enclosure base to the surface.



5. If the detector is to be mounted on the surface with screws:
 - place the enclosure base against the surface and mark the location of the mounting holes.
 - drill the holes in the surface for wall plugs (anchors). The wall plugs provided with the detector are intended for concrete or brick. For other types of surface (drywall, styrofoam), use other appropriately selected wall plugs.
 - secure the enclosure base to the surface with screws (Fig. 39).



If the detector is to detect removal from the surface, secure the detector with screws.

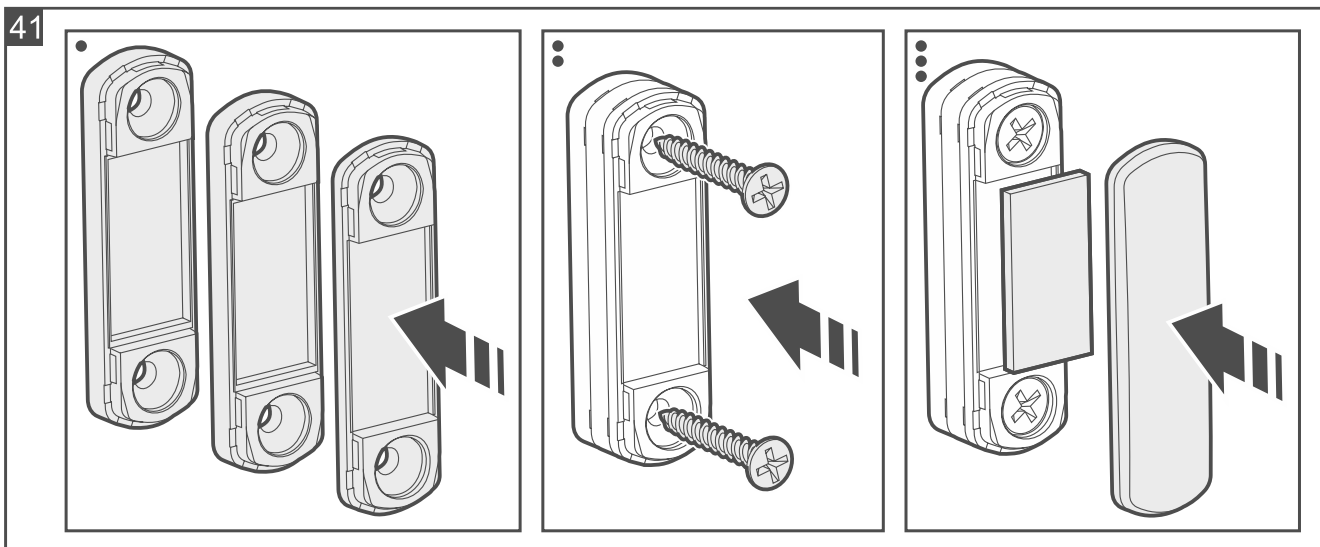
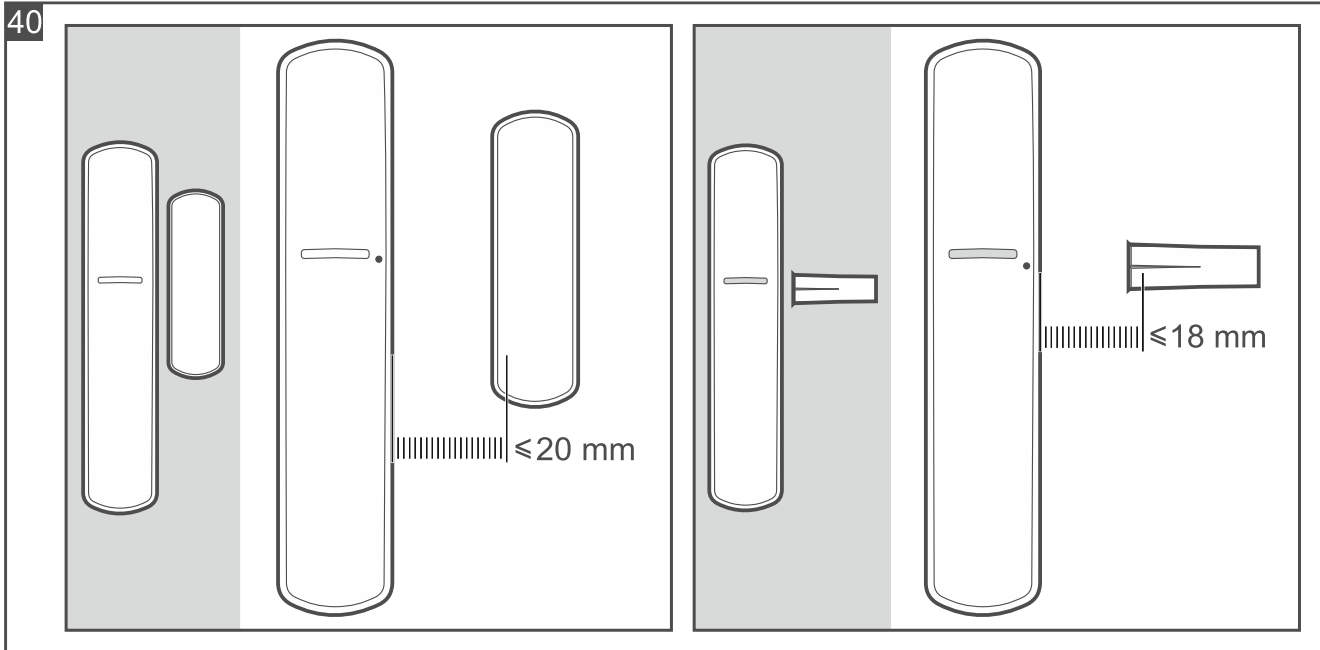
The detector must detect removal from the surface if it is to meet the requirements of Standard EN 50131 for Grade 2.

If the detector is to operate as the Shock detector or Shock and opening detector, it is recommended to secure it to the surface with screws.

6. **Opening detector / Shock and opening detector.** Install the magnet as shown in Fig. 40. You can secure the surface magnet using a double-sided mounting tape or screws. You can use several spacers (Fig. 41). To make a hole for the flush magnet, use the $\varnothing 9$ mm drill bit.



If you are planning to disable the built-in opening sensor, do not install the magnet.

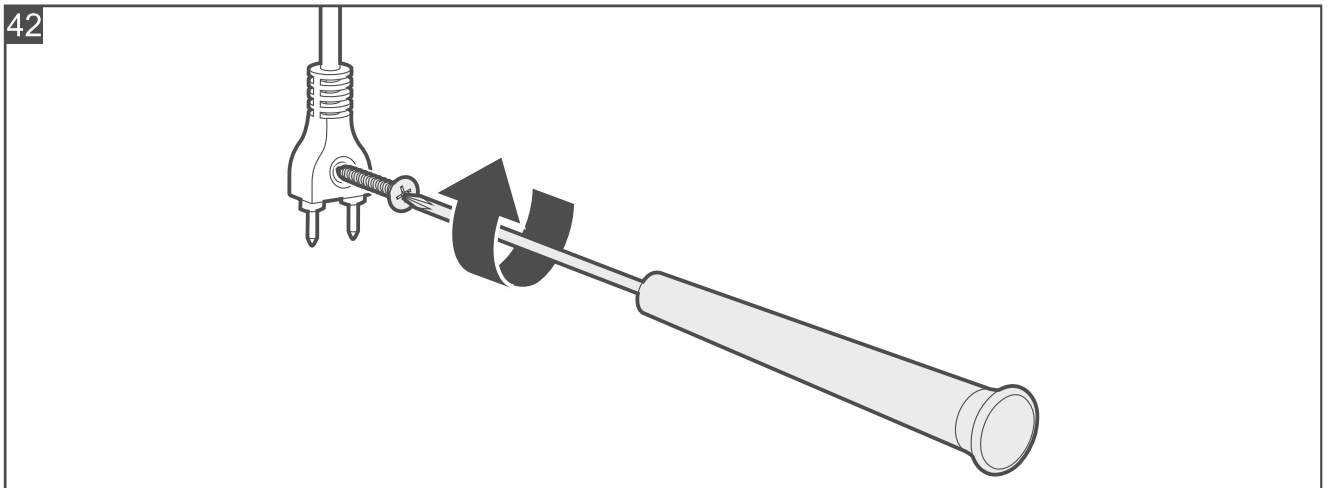


7. **Shock and opening detector.**

- if you are connecting a wired NC detector, screw the detector wires to the COM and M1 terminals on the electronics board.
- if you want to disable the built-in opening sensor, use a wire to connect the M2 and COM terminals.

8. **Flood detector.**

- secure the flood probe to the wall with screws (Fig. 42).
- screw the probe wires to the COM and M1 terminals on the electronics board.



9. Start the Be Wave app and add the detector to the system. When a request to turn on the device will be displayed, install the battery in the detector.
10. Close the enclosure.

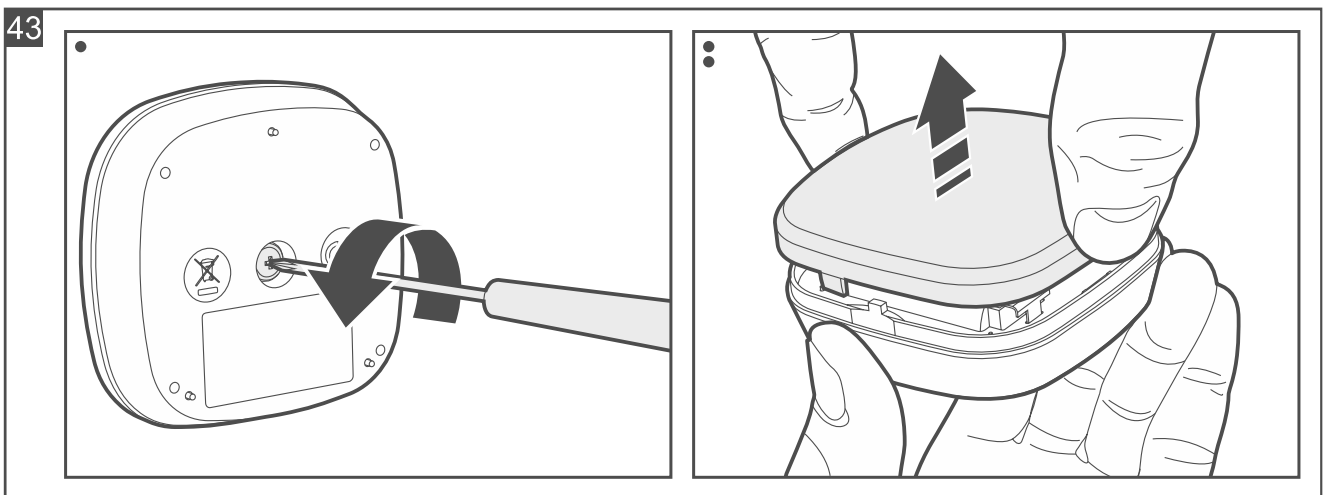
4.4.7 Installing the Flood Detector

Installation tips for the Flood Detector

- The detector should be installed indoors, in spaces with normal air humidity.
- Do not install the detector outdoors.
- Place the detector on the floor in an area prone to flooding.

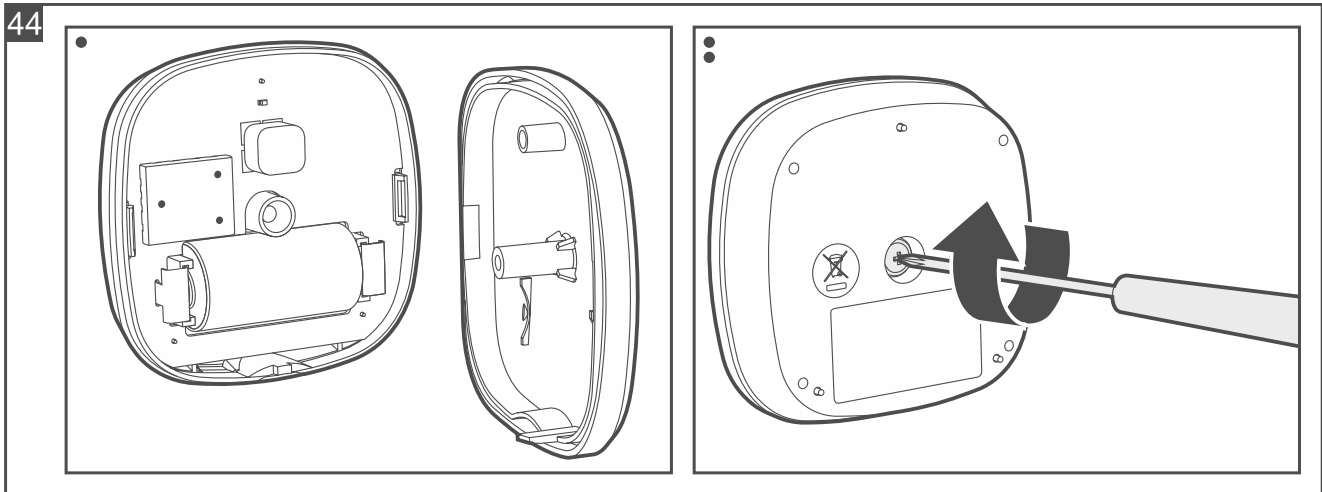
Start-up the Flood Detector

1. Open the detector enclosure (Fig. 43).



2. Start the Be Wave app and add the detector to the system. When a request to turn on the device will be displayed, install the battery in the detector.

3. Close the detector enclosure (note that the cover only fits in one position) and secure it with a screw (Fig. 44).

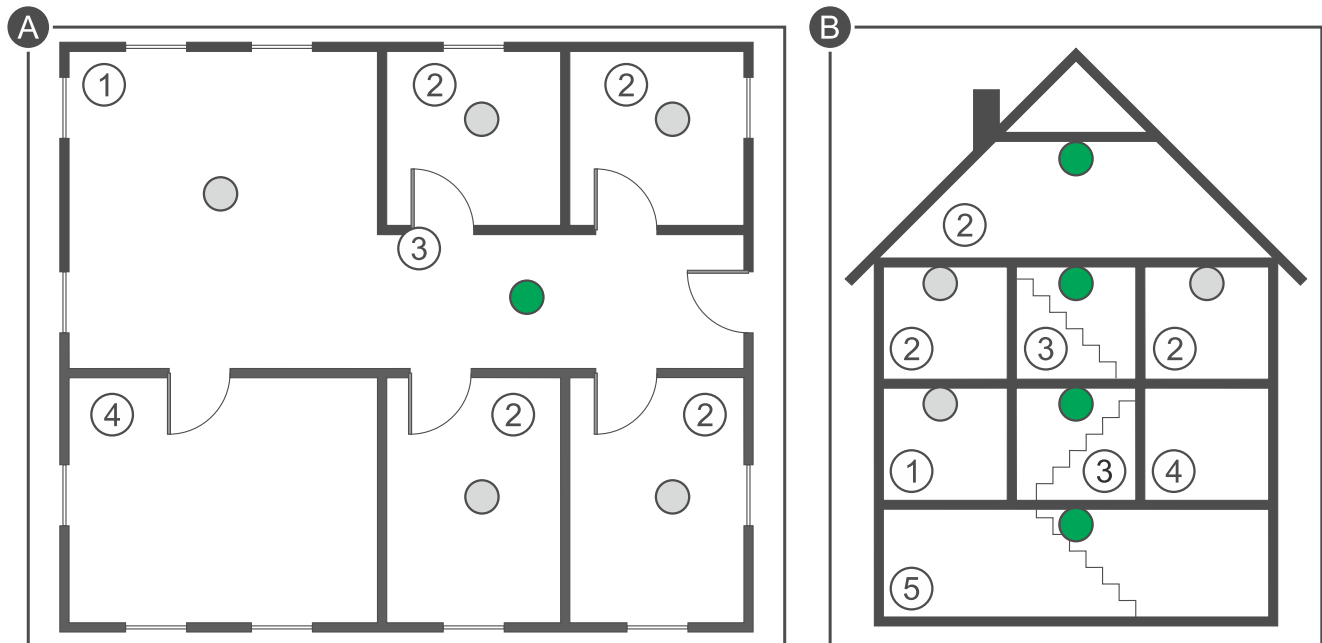


4. Place the detector on the floor in the selected area.

4.4.8 Installing the Fire Detector Plus / Fire Detector Pro

Installation tips for the Fire Detector Plus / Fire Detector Pro

- The detector should be installed indoors, in spaces with normal air humidity.
- Do not install the detector outdoors.
- The detector should be installed on the ceiling, as close as possible to the center of the room.
- Do not install the detector in places with high concentration of dust and/or formation and condensation of water steam.
- Do not install the detector near heaters, cookers, fans or air-conditioner outlets.
- Do not install the detector in places where there is no unobstructed movement of air (e.g. in recesses, niches, etc.).



Explanations for figures A and B:

① living room.

- ② bedroom.
- ③ hall, lobby, etc.
- ④ kitchen.
- ⑤ basement.
- primary location for detector installation.
- additional location for detector installation.

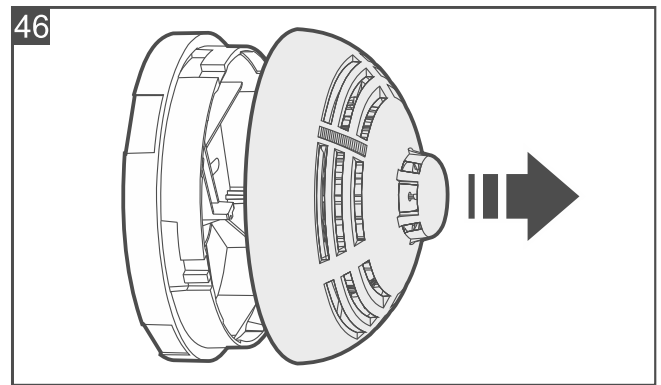
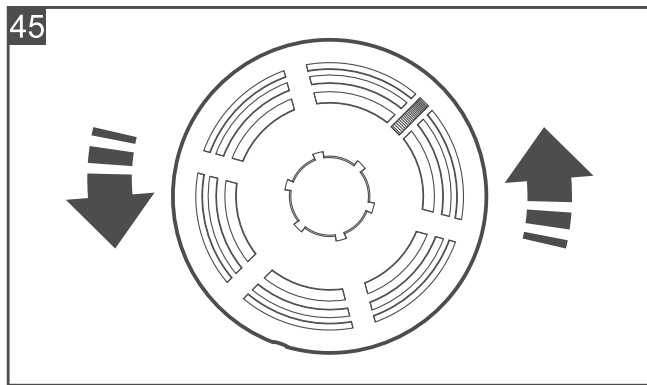
Mounting the Fire Detector Plus / Fire Detector Pro



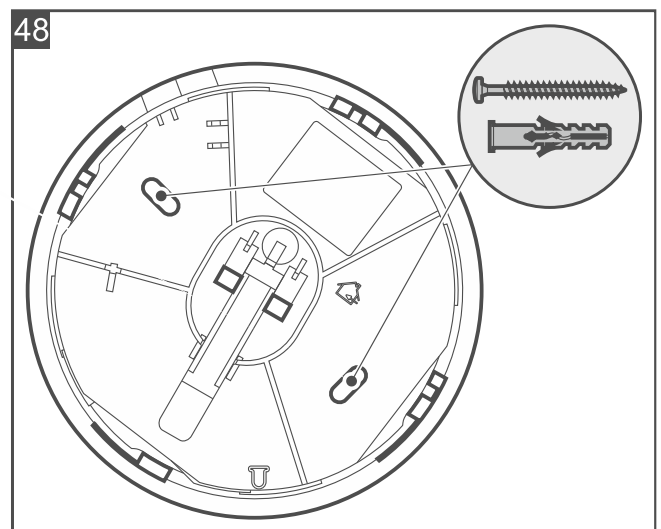
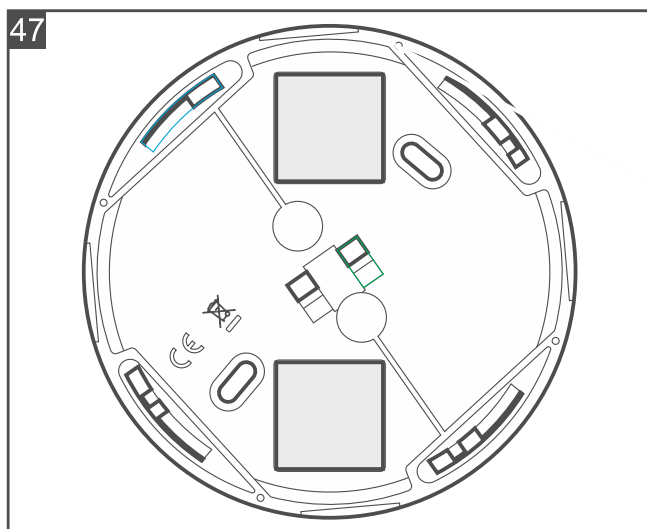
The figures show the Fire Detector Plus.

Do not remove the jumper from the pins on the Fire Detector Pro electronics board.

1. Remove the plastic dust cup.
2. Turn the cover counter-clockwise (Fig. 45) and remove it (Fig. 46).



3. If the detector is to be mounted on the ceiling using a double-sided mounting tape (Fig. 47):
 - stick the tape to the enclosure base.
 - stick the enclosure base to the ceiling.



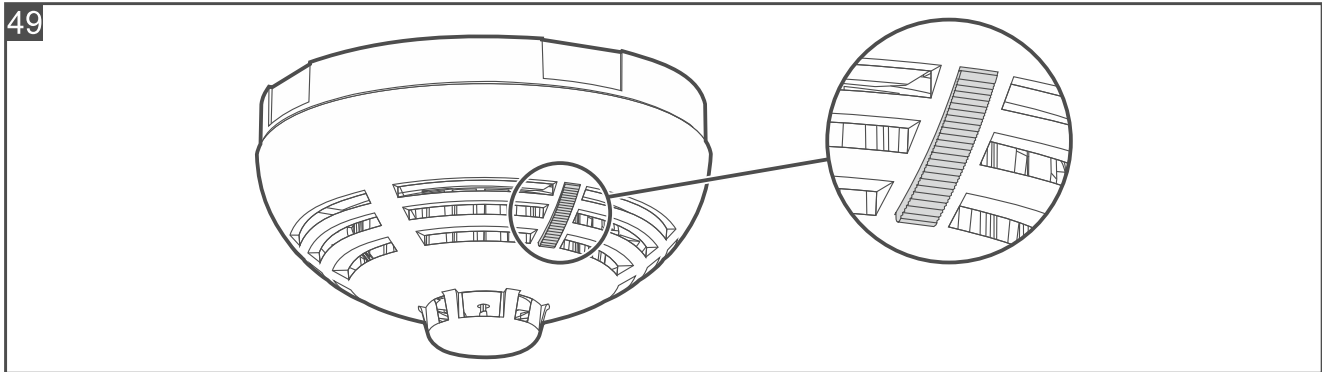
4. If the detector is to be mounted on the ceiling with screws:
 - place the enclosure base against the ceiling and mark the location of the mounting holes (Fig. 48).

- drill the holes in the ceiling for wall plugs (anchors). The wall plugs provided with the detector are intended for concrete or brick. For other types of surface (drywall, styrofoam), use other appropriately selected wall plugs.
 - secure the enclosure base to the ceiling with screws.
5. Start the Be Wave app and add the detector to the system. When a request to turn on the device will be displayed, install the battery in the detector.
 6. Replace the detector cover and lock it with a screw. The screw is provided in a bag together with the wall plugs and screws for mounting.



The cover cannot be replaced when there is no battery inside the detector.

7. Press the test / reset button (Fig. 49). A fire alarm should be generated soon after. The alarm will be signaled by the detector (continuous sound, LED indicator ON). You will receive a notification from the Be Wave app.



8. Press again the test / reset button to clear the alarm.



If in the premises where the detector is installed, any work is being carried out that may cause dirt to build up in the smoke chamber, put a plastic dust cover on the detector. Remove it after the work is finished.

4.4.9 Installing the Carbon Monoxide Detector

Installation tips for the Carbon Monoxide Detector

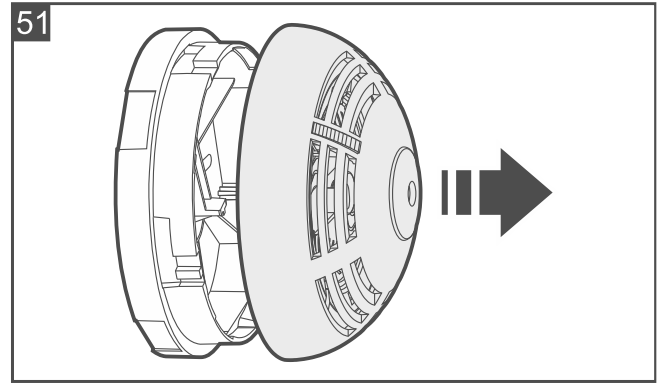
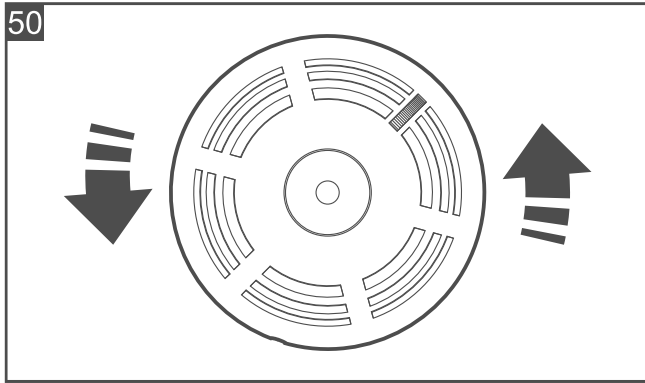
- The detector should be installed indoors, in spaces with normal air humidity.
- Do not install the detector outdoors.
- Recommended place of installation:
 - bedroom,
 - room with a fireplace / combustion equipment, where there is a risk that carbon monoxide is produced.
- Install the detector at a height of about 1.5-2 meters from the ground.
- Do not install the detector in places where lacquers, glues, paint removers or aerosols are used. It may cause damage to the gas sensor.

Mounting the Carbon Monoxide Detector

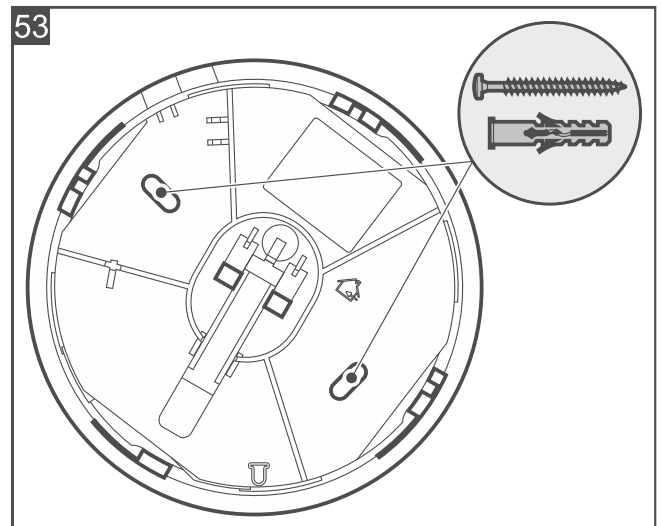
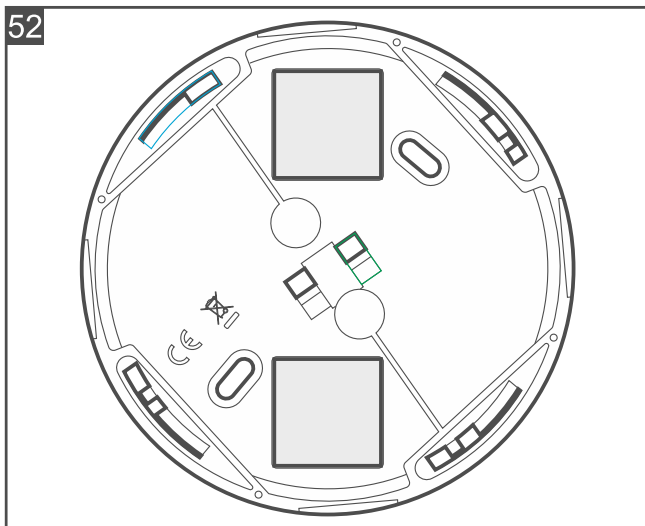


Do not remove the jumper from the pins on the electronics board.

1. Turn the cover counter-clockwise (Fig. 50) and remove it (Fig. 51).



2. If the detector is to be mounted on the wall using a double-sided mounting tape (Fig. 52):
 - stick the tape to the enclosure base.
 - stick the enclosure base to the wall.

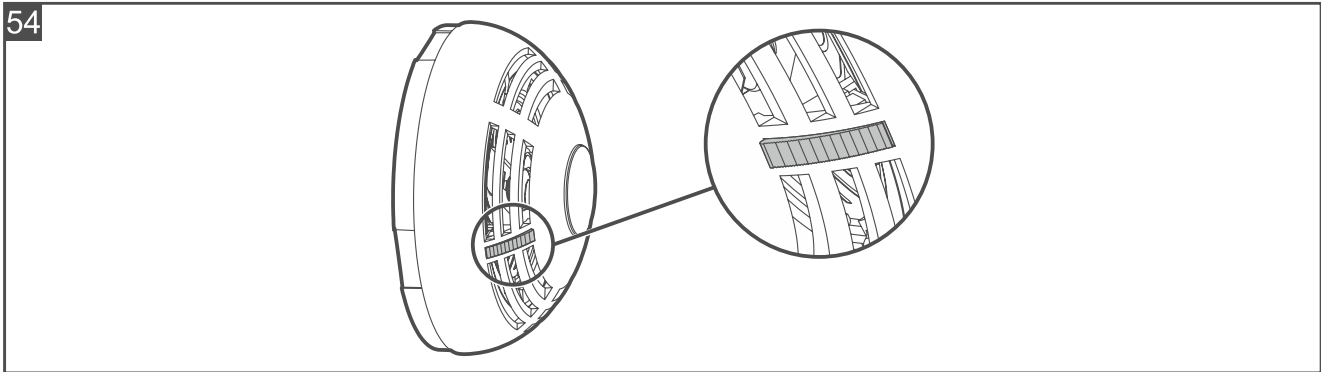


3. If the detector is to be mounted on the wall with screws:
 - place the enclosure base against the wall and mark the location of the mounting holes (Fig. 53).
 - drill the holes in the wall for wall plugs (anchors). The wall plugs provided with the detector are intended for concrete or brick. For other types of surface (drywall, styrofoam), use other appropriately selected wall plugs.
 - secure the enclosure base to the wall with screws.
4. Start the Be Wave app and add the detector to the system. When a request to turn on the device will be displayed, install the battery in the detector.
5. Replace the detector cover and lock it with a screw. The screw is provided in a bag together with the wall plugs and screws for mounting.



The cover cannot be replaced when there is no battery inside the detector.

- Press the test / reset button (Fig. 54). An alarm should be generated soon after. The alarm will be signaled by the detector (continuous sound, LED indicator ON). You will receive a notification from the Be Wave app.



- Press again the test / reset button to clear the alarm.

4.4.10 Installing the Outdoor Dusk Detector

Installation tips for the Outdoor Dusk Detector

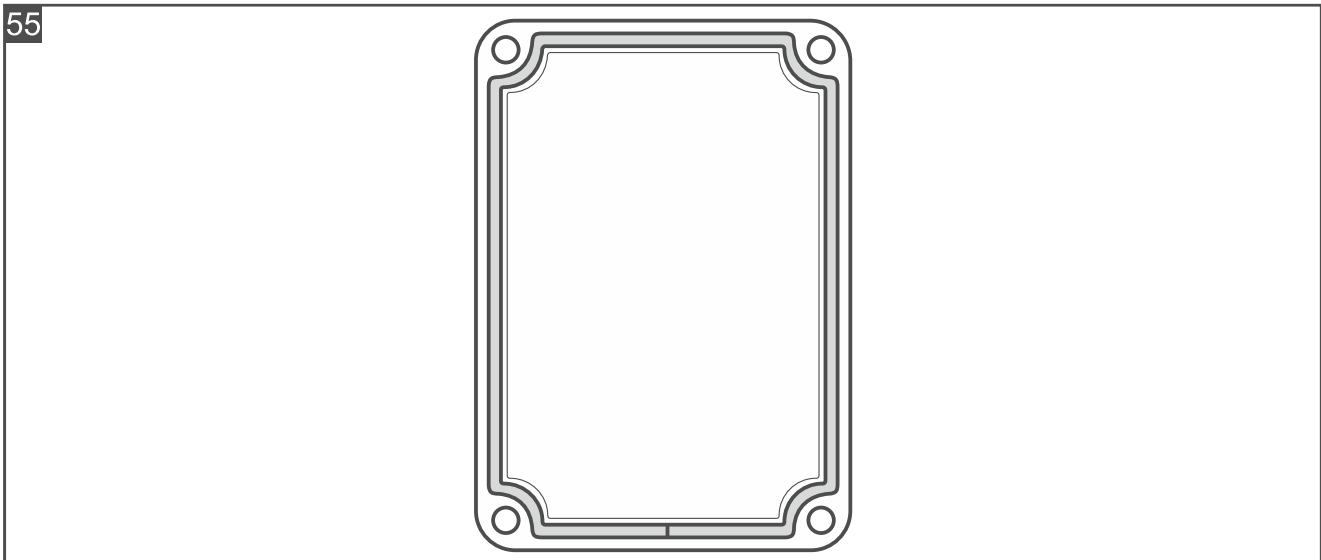
- Do not install the detector in places where it will be exposed to direct sunlight. Excessive temperature may e.g. cause damage to the dusk sensor or battery.

Mounting the Outdoor Dusk Detector



The figures show the detector mounted vertically, but it may be mounted in any position (with no effect on its operation).

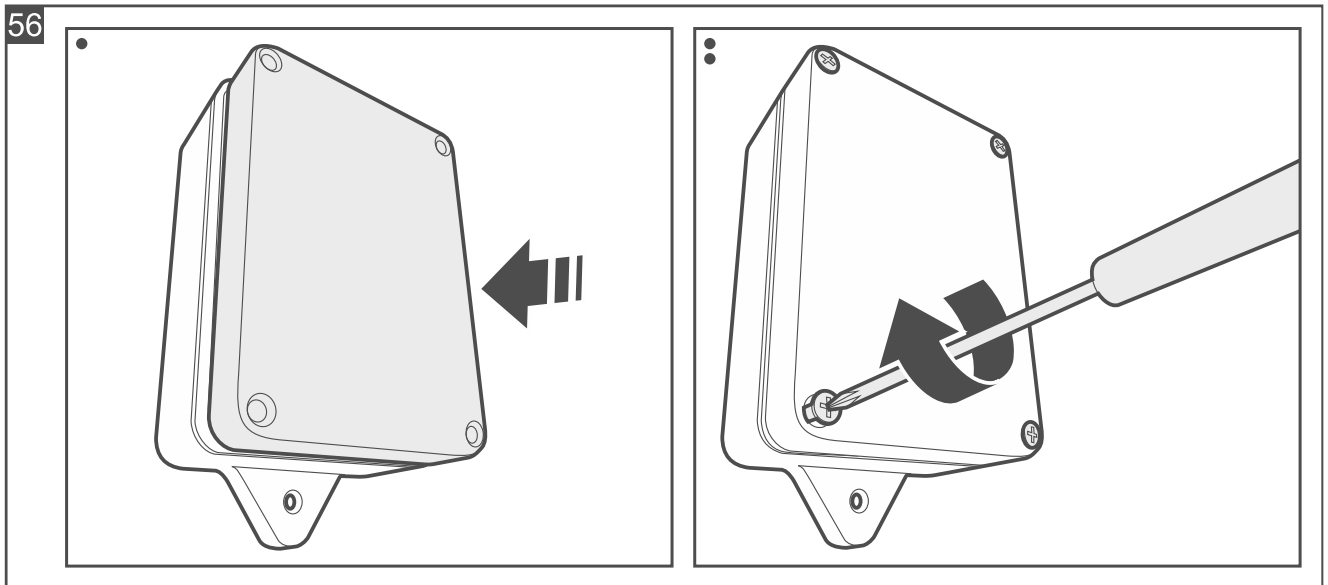
- Press the gasket into the groove of the enclosure cover. The gasket must fill the entire groove. Both ends of the gasket should meet (Fig. 55). The gasket is longer than the groove. Cut the excess gasket when you have filled the entire groove.



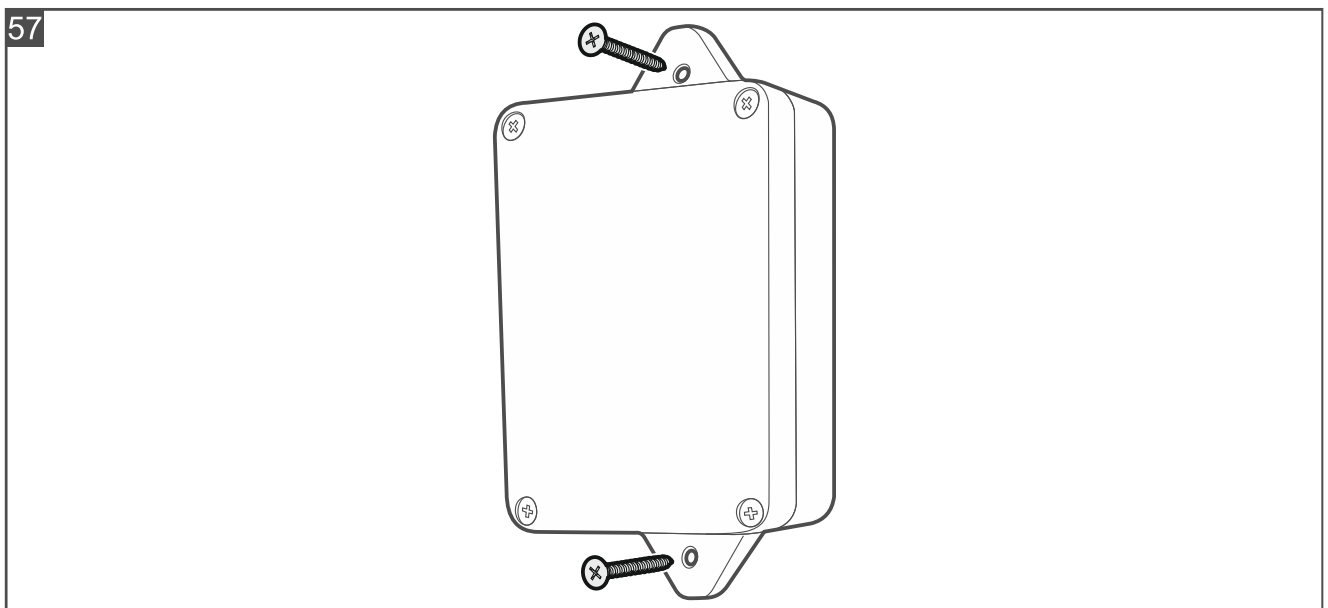
- Start the Be Wave app and add the detector to the system. When a request to turn on the device will be displayed, install the battery in the detector.
- Replace the cover and secure it to the enclosure base with screws (Fig. 56).



When replacing the cover, make sure the gasket ends are on the bottom.



4. Place the detector against the surface and mark the location of the mounting holes.
5. Drill the holes in the surface for wall plugs (anchors). Select wall plugs specifically intended for the mounting surface (different for concrete or brick wall, different for plaster wall, etc.).
6. Secure the detector to the surface with screws (Fig. 57).



4.4.11 Installing the Multi Sensor

Installation tips for the Multi Sensor

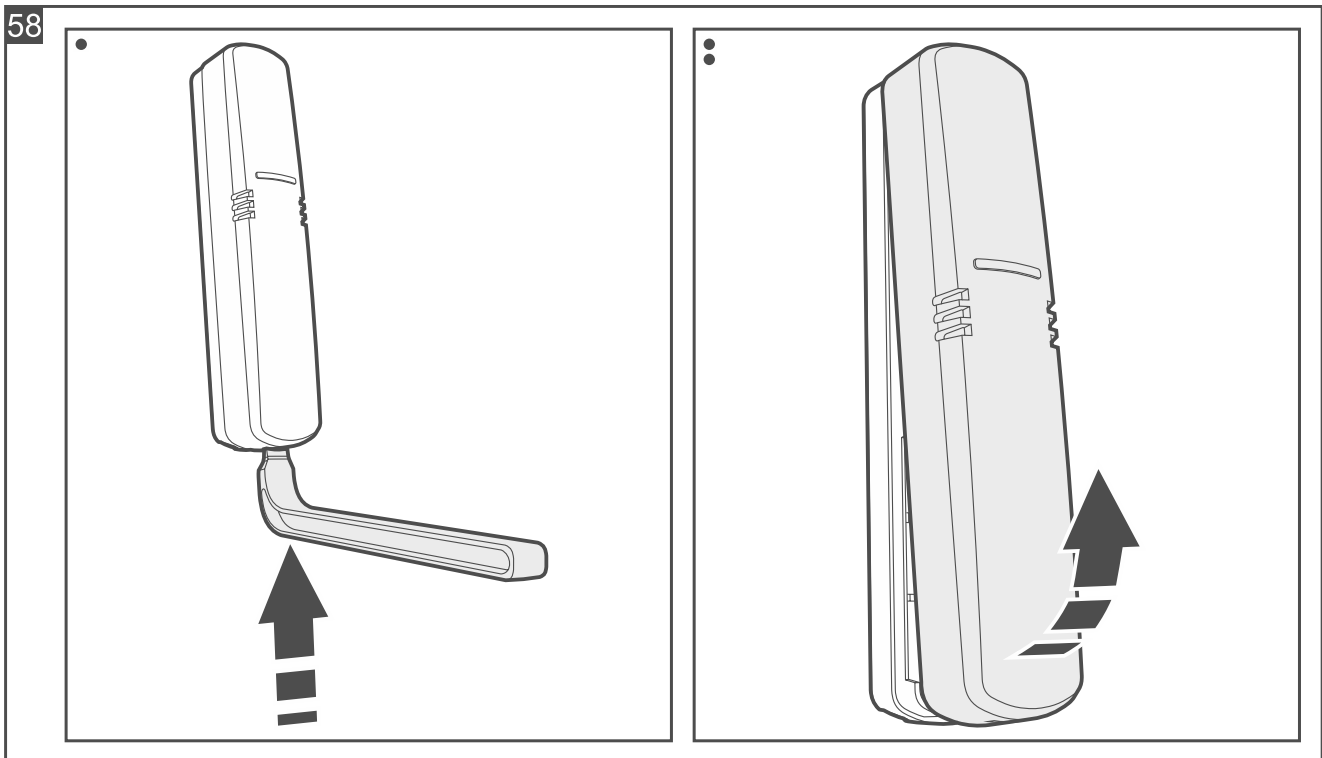
- The detector should be installed indoors, in spaces with normal air humidity.
- Do not install the detector outdoors.

Mounting the Multi Sensor

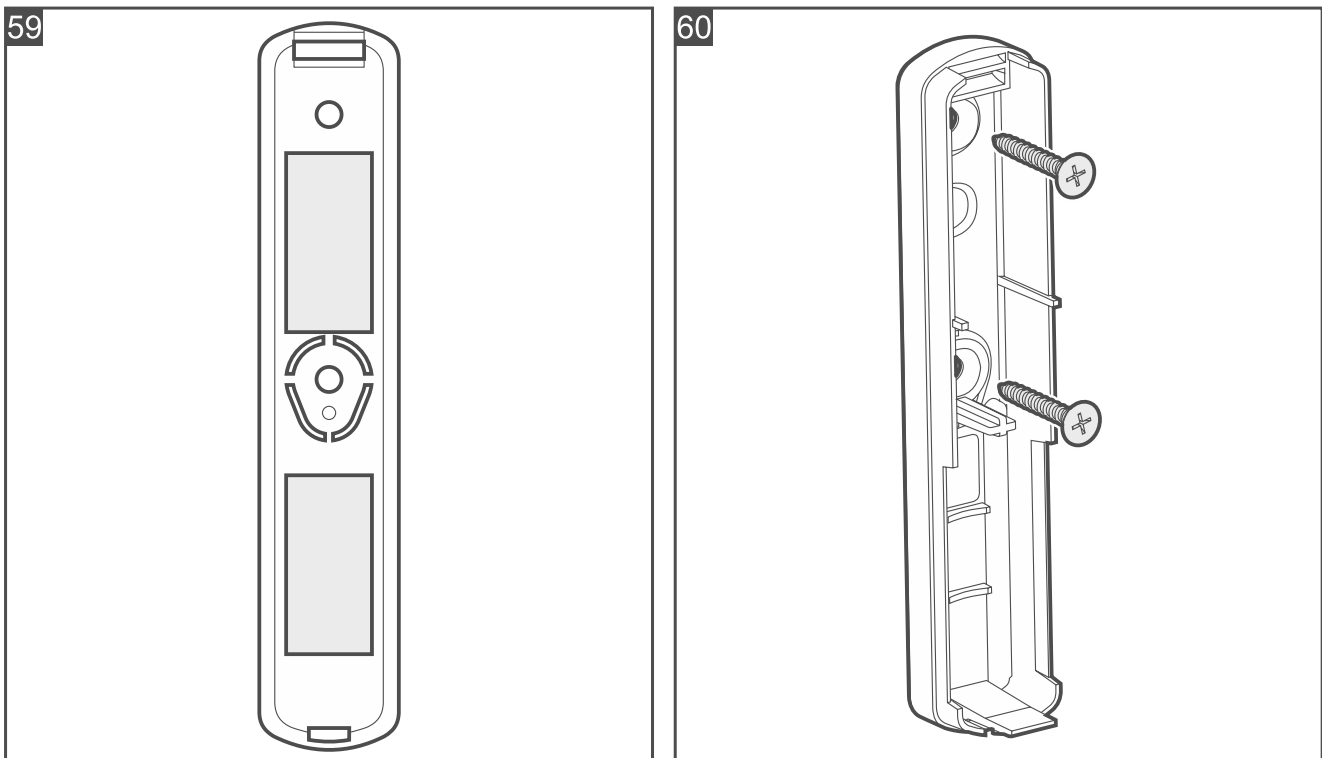


The figures show the detector mounted vertically, but it may be mounted in any position (with no effect on its operation).

1. Open the detector enclosure (Fig. 58). The enclosure opening tool, shown in the figure, is provided with the detector.



2. If the detector is to be mounted on the surface using a double-sided mounting tape (Fig. 59):
 - stick the tape to the enclosure base.
 - stick the enclosure base to the surface.



3. If the detector is to be mounted on the surface with screws:
 - place the enclosure base against the surface and mark the location of the mounting holes.

- drill the holes in the surface for wall plugs (anchors). The wall plugs provided with the detector are intended for concrete or brick. For other types of surface (drywall, styrofoam), use other appropriately selected wall plugs.
- secure the enclosure base to the surface with screws (Fig. 60).



If the detector is to detect removal from the surface, secure the detector with screws.

4. Start the Be Wave app and add the detector to the system. When a request to turn on the device will be displayed, install the battery in the detector.
5. Close the enclosure.

4.4.12 Installing the Outdoor Siren

Installation tips for the Outdoor Siren

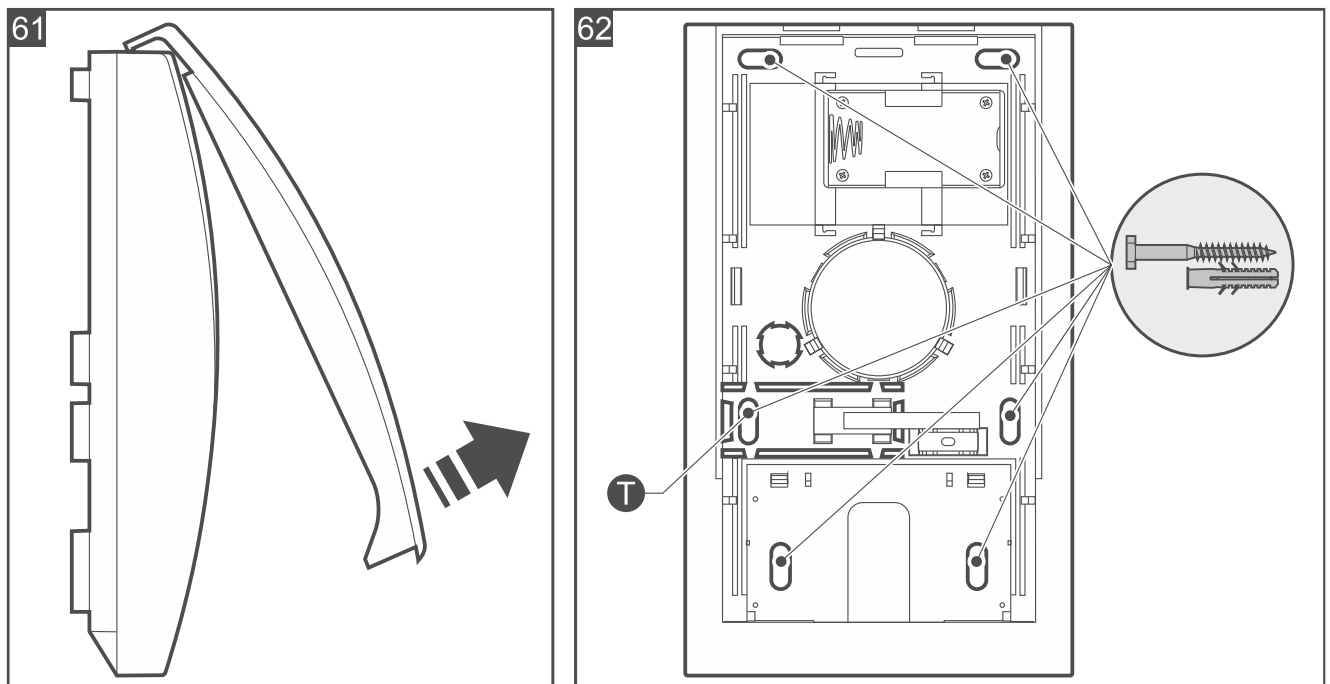
- Install the siren on the wall, high above the floor, at a hard to access location, so as to minimize the risk of tampering.
- Leave a free space above the siren (at least 2.5 cm). Otherwise, it will be impossible to replace / remove the cover.

Mounting the Outdoor Siren



Never shorten or deform the antenna.

1. Remove the cover locking screws.
2. Lift up the cover and remove it (Fig. 61).



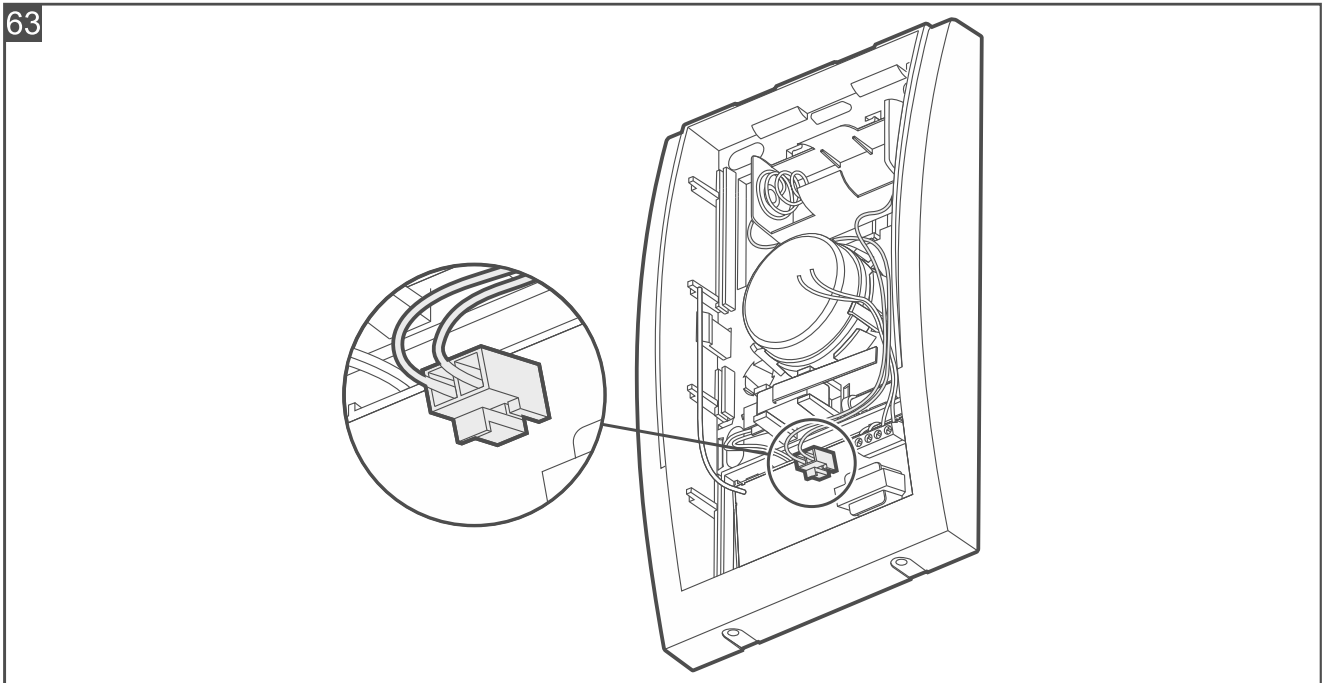
3. Move aside the catches holding the electronics module and remove it.
4. Place the enclosure base against the wall and mark the location of the mounting holes (Fig. 62). If the siren is to detect removal from the surface, mark the location of the hole in the tamper protection element (marked with the **T** symbol in the figure).



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

5. 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.).

6. Secure the enclosure base to the wall with screws. If the siren is to detect removal from the surface, secure also the tamper protection element.
7. Fasten the electronics module in the enclosure base.
8. Connect the battery holder to the electronics module (Fig. 63).



9. Start the Be Wave app and add the siren to the system. When a request to turn on the device will be displayed, install the battery in the siren.

i *When the battery is installed, the leftmost LED will start flashing to indicate that the battery initialization procedure has begun. Given the specific nature of the battery, it must be properly initialized to reach the required performance. When the battery is being initialized, you can add the siren to the system but the siren will not be ready for normal work until the LED stops flashing.*

10. Replace the siren cover and lock it with a screw.

4.4.13 Installing the Indoor Siren

Installation tips for the Indoor Siren

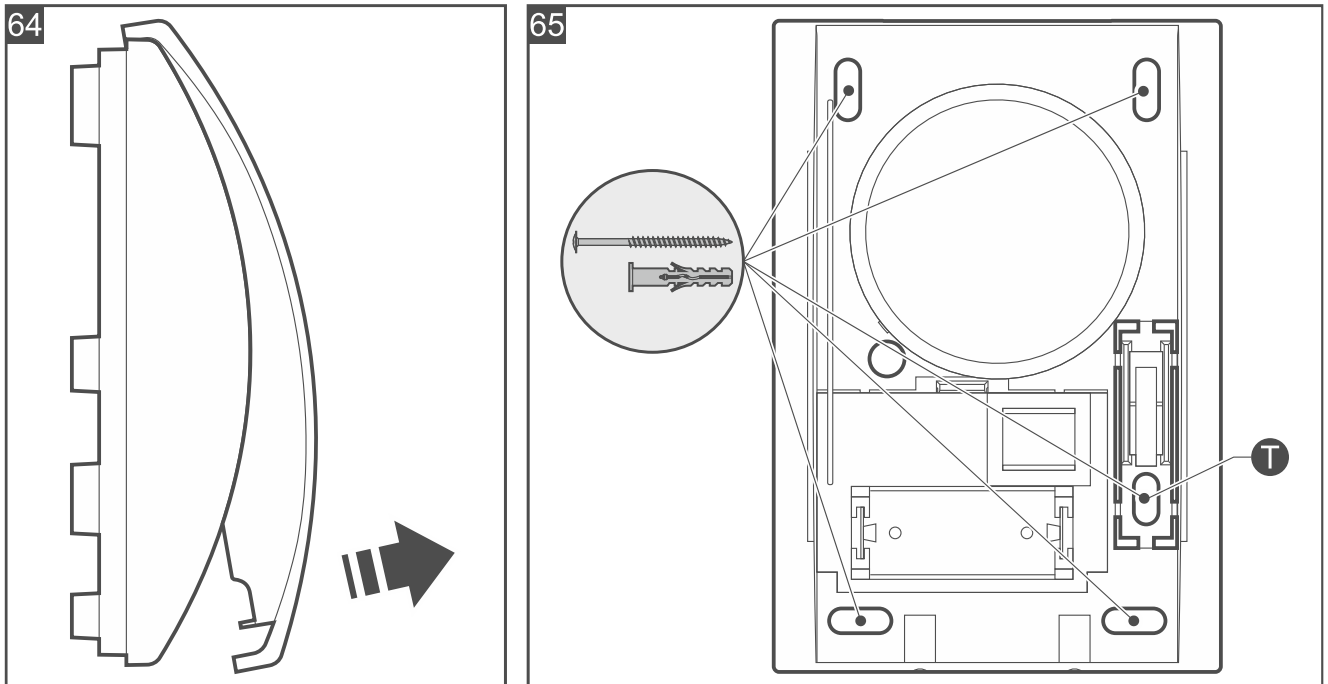
- The siren should be installed indoors, in spaces with normal air humidity.
- Do not install the siren outdoors.
- Install the siren on the wall, high above the floor, at a hard to access location, so as to minimize the risk of tampering.
- Leave a free space above the siren (at least 1 cm). Otherwise, it will be impossible to replace / remove the cover.

Mounting the Indoor Siren

! **Never shorten or deform the antenna.**

1. Remove the cover locking screws.

2. Lift up the cover and remove it (Fig. 64).



3. Place the enclosure base against the wall and mark the location of the mounting holes (Fig. 65). If the siren 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 siren must detect removal from the surface if it is to meet the requirements of Standard EN 50131 for Grade 2.

4. Drill the holes in the wall for wall plugs (anchors). The wall plugs provided with the siren are intended for concrete or brick. For other types of surface (drywall, styrofoam), use other appropriately selected wall plugs.
5. Secure the enclosure base to the wall with screws. If the siren is to detect removal from the surface, secure also the tamper protection element.
6. Start the Be Wave app and add the siren to the system. When a request to turn on the device will be displayed, install the battery in the siren.
7. Replace the siren cover and lock it with a screw.

4.4.14 Installing the Smart Blinds



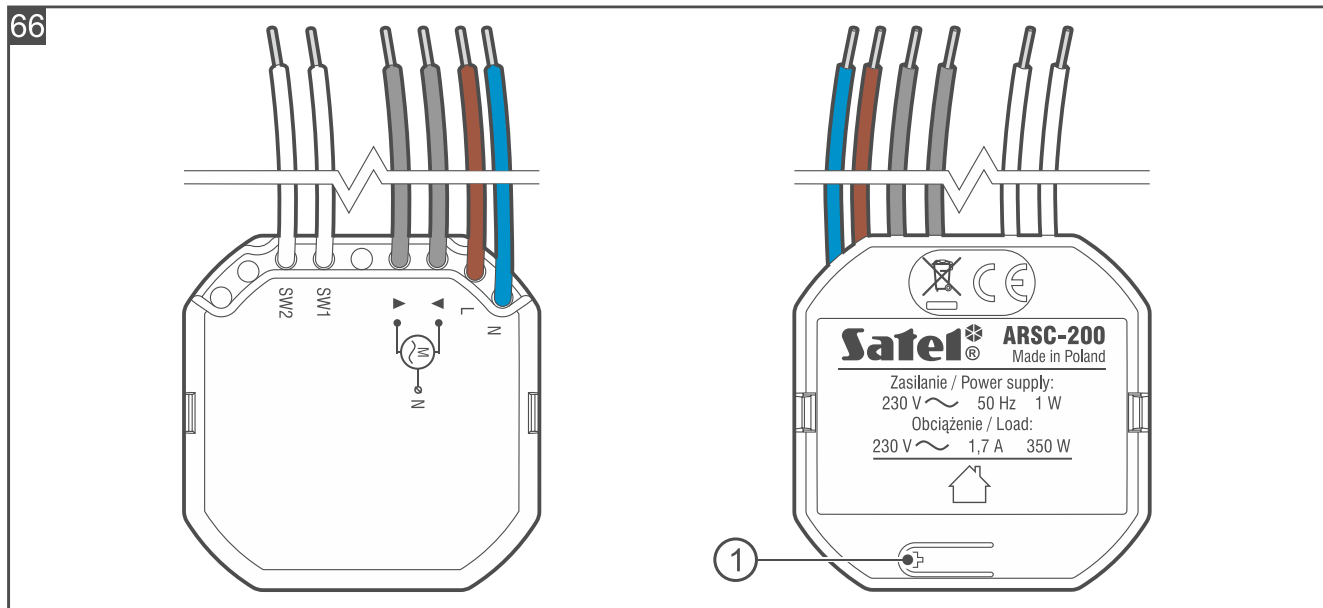
The device should be installed by qualified personnel.

Disconnect power before making any electrical connections.

Connect the controller to a single-phase network according to the applicable standards.

Do not remove the controller from the enclosure. Installing the controller without enclosure or with a damaged enclosure poses a risk of electric shock and may damage the device.

Description of the Smart Blinds



① button used to:

- register the controller in the system – press while adding the controller to the system,
- block / unblock the registration – press and hold for 10 seconds to block / unblock the capability to add the controller to the system.

Wires

- N** [blue] - for connecting 230 VAC supply neutral wire.
- L** [brown] - for connecting 230 VAC supply phase wire.
- ▼ [gray] - for connecting the blind / shutter motor – downward motion.
- ▲ [gray] - for connecting the blind / shutter motor – upward motion.
- SW1** [white] - control input 1.
- SW2** [white] - control input 2.



Do not connect more than one blind / shutter motor to the controller.

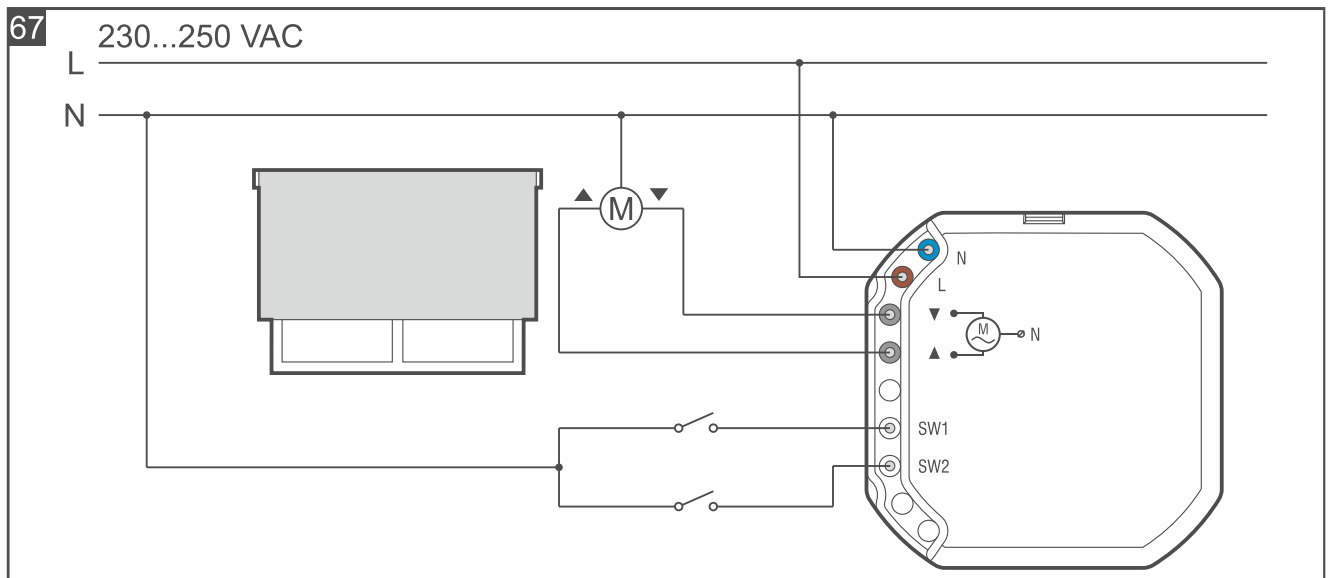
The controller inputs are not galvanically isolated.

Installation tips for the Smart Blinds

- The controller should be installed indoors, in spaces with normal air humidity.
- The electrical circuit to which the controller is to be connected must have suitable protection.
- Install the controller in an electrical junction box (a deep junction box with a diameter of at least 60 mm).
- To connect the wires, use screw terminal blocks, splicing connectors, etc.
- You can connect a 230 VAC blind / shutter motor with limit switches to the controller. The motor's current consumption cannot exceed 1.7 A.
- You can connect a double push-button or a roller blind switch to the controller inputs. The push-button is the preferred choice. It provides more functionality.
- To connect the push-button / switch, use flexible wires with a cross-section of 0.5-0.75 mm².

Mounting the Smart Blinds

1. Power off the circuit to which the controller is to be connected.
2. Open the electrical junction box in which the controller is to be installed.
3. Connect the controller to the 230 VAC supply circuit (Fig. 67):
 - brown wire [L] to phase wire.
 - blue wire [N] to neutral wire.
4. Connect the blind / shutter motor to the controller output (Fig. 67).
5. Connect a double push-button / roller blind switch to the controller inputs (Fig. 67).



6. Place the controller in the junction box. Make sure the electrical wires are behind the controller enclosure.
7. Power on the circuit to which the controller is connected.
8. Start the Be Wave app and add the controller to the system. When a request to turn on the device will be displayed, press the button marked with the + symbol on the enclosure (Fig. 66).
9. Close the junction box.

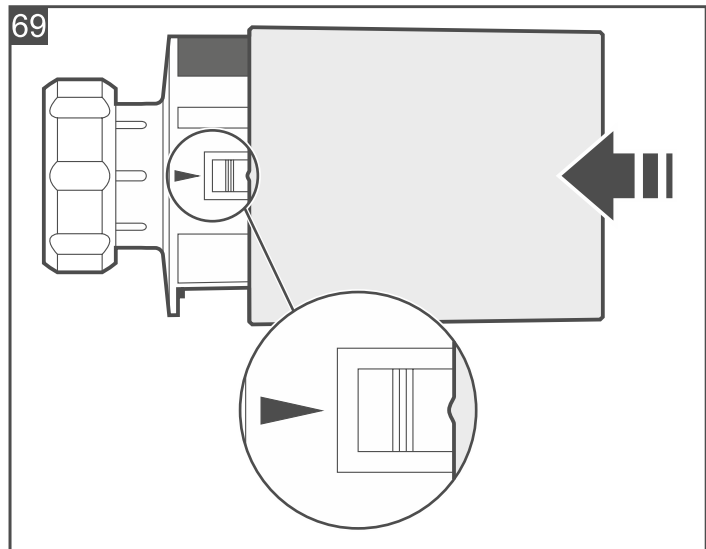
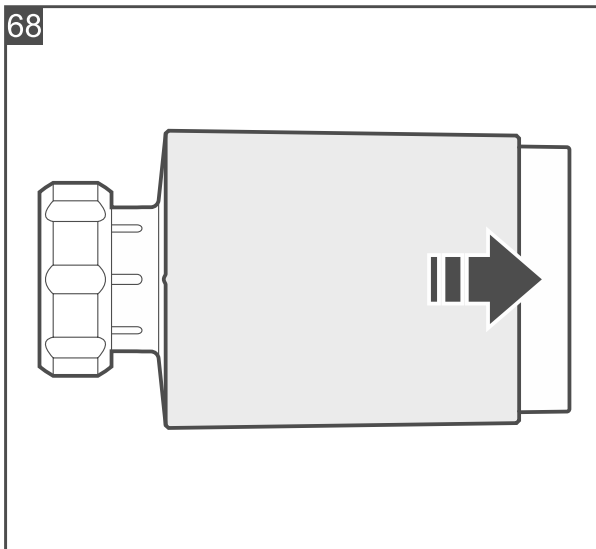
4.4.15 Installing the Smart Thermostat

Installation tips for the Smart Thermostat

- The thermostat should be installed indoors, in spaces with normal air humidity.
- The thermostat is fitted for radiator valves with the M30 x 1.5 mm threaded connection. It is compatible with most radiator valves on the market.
- In order to install the thermostat on the Danfoss RA, Danfoss RAV or Danfoss RAVL valve, use one of the provided adapters.
- The thermostat should be installed in such a way to ensure display visibility and knob accessibility.
- You do not need any special tools to install the thermostat. Draining the heating system is not required.
- Before you remove the old thermostatic head, make sure to turn it several times from minimum to maximum position and back. Unscrew the old thermostat when it is in the maximum position. When the thermostat is removed, the valve pin should be fully extended.

Mounting the Smart Thermostat



1. Remove the thermostat cover (Fig. 68).



2. Start the Be Wave app and add the thermostat to the system. When a request to turn on the device will be displayed, install two 1.5 V LR6 AA alkaline batteries (they are not supplied with the thermostat).

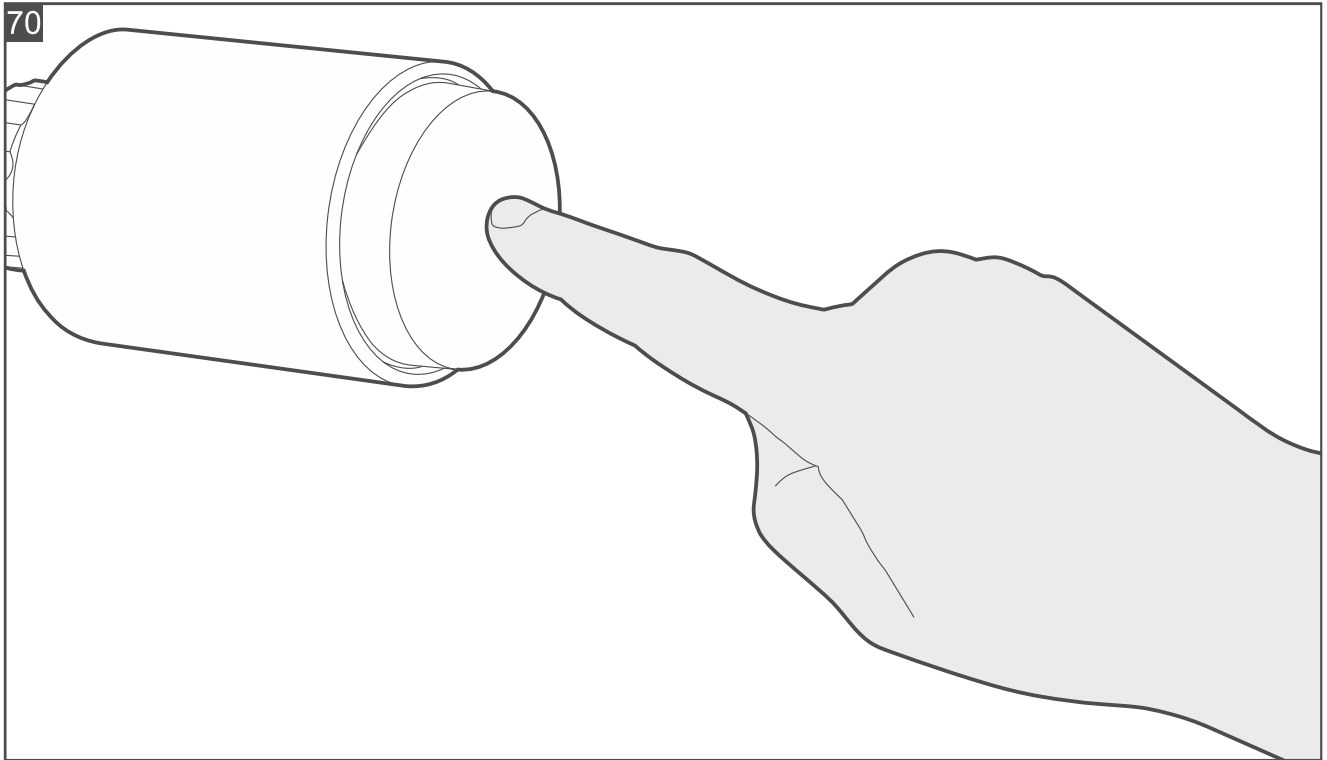


When the batteries are installed, the actuator rod that moves the valve pin should be completely withheld inside the thermostat cover. If the actuator rod is not completely withheld inside the cover, remove the batteries and install them again.

After the thermostat has started, the   message will be displayed. The message indicates that the thermostat is ready for calibration.

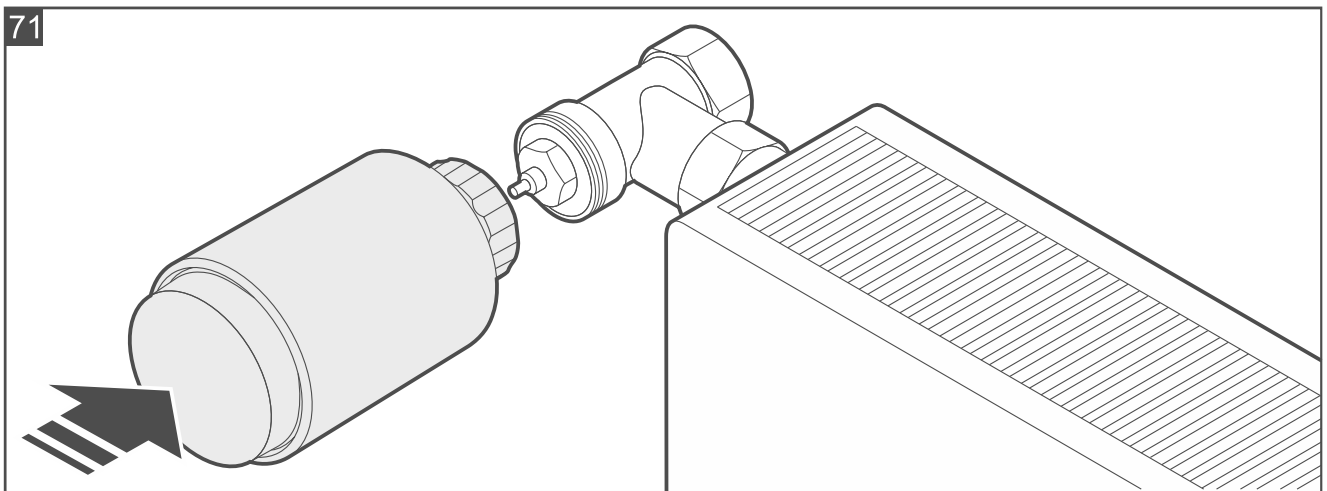
3. Replace the thermostat cover. The marks on the body and cover will help you replace the cover correctly (Fig. 69).
4. Mount the thermostat on the valve (see: “Mounting on M30x1.5 mm valve”, “Mounting on Danfoss RA valve”, “Mounting on Danfoss RAV valve” or “Mounting on Danfoss RAVL valve”).

5. Press the knob (Fig. 70). The thermostat will be calibrated.

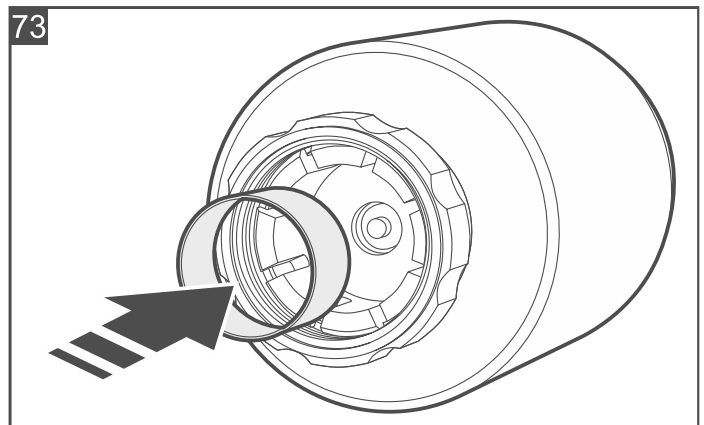
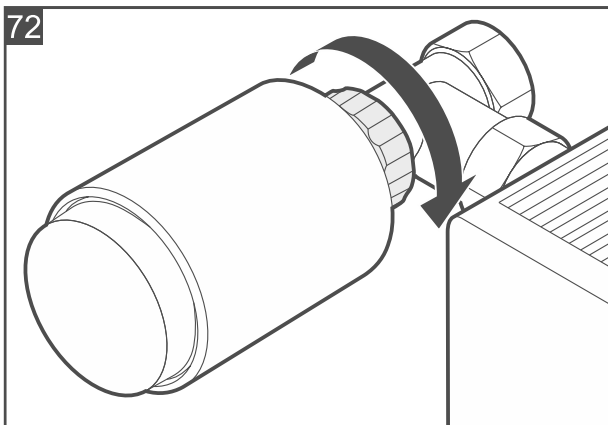


Mounting on M30x1.5 mm valve

1. Place the thermostat on the valve (Fig. 71).



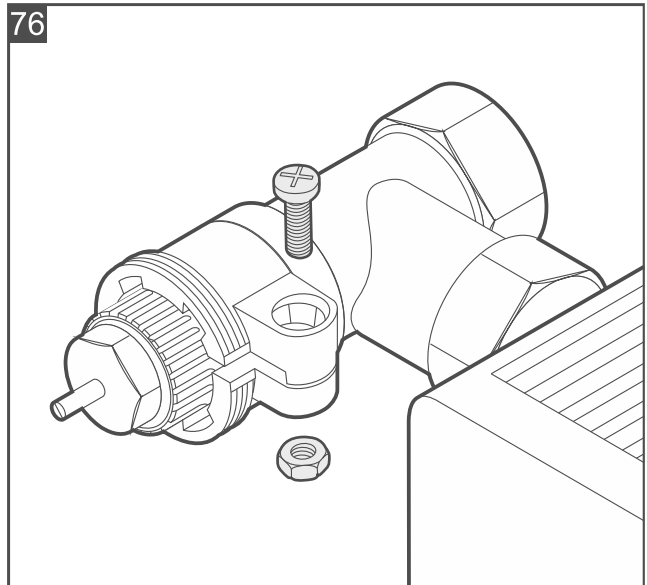
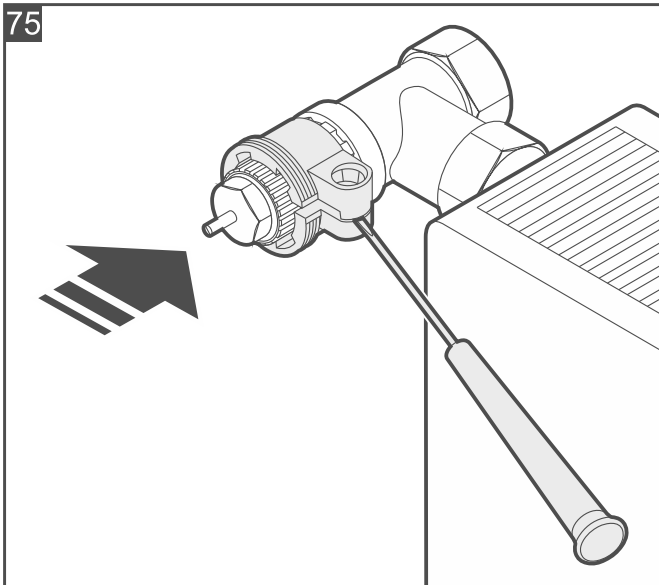
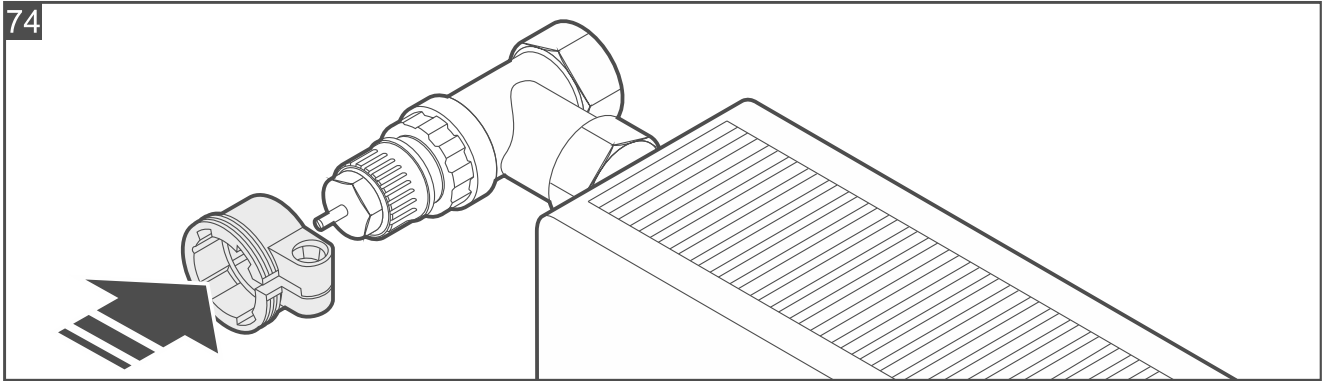
2. Tighten the thermostat on the valve (Fig. 72).



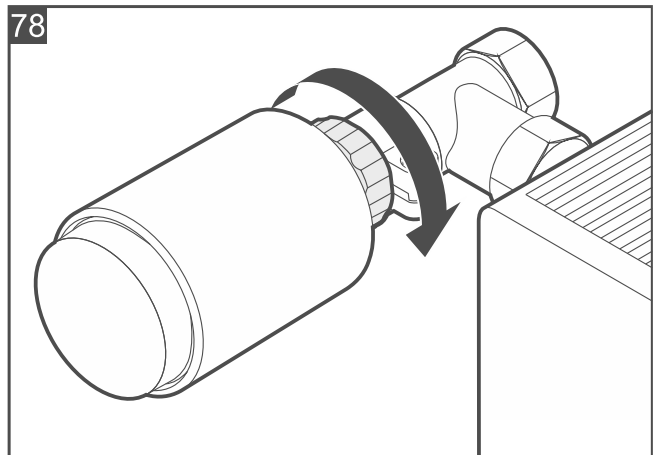
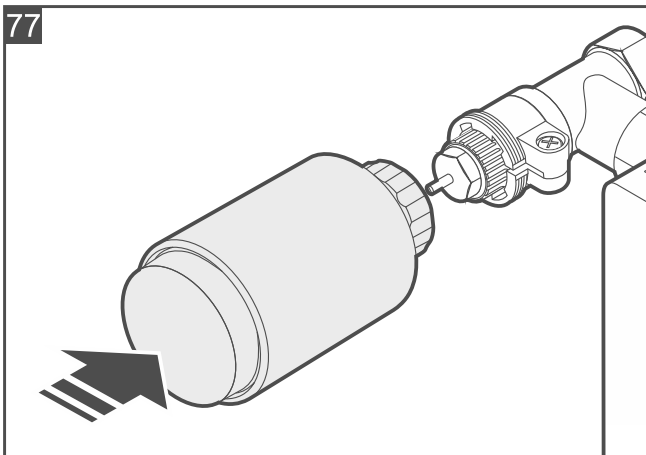
3. If the thermostat is seated loosely on the valve, use the reducer ring. Unscrew the thermostat, place the reducer ring inside its flange (Fig. 73), then repeat points 1 and 2.

Mounting on Danfoss RA valve

1. Fasten the adapter on the valve.
 - 1.1. Place the adapter on the valve (Fig. 74).
 - 1.2. Bend open the adapter clamp with a screwdriver and press the adapter against the valve flange (Fig. 75). Make sure the bumps inside the adapter line up with the notches on the valve body.
 - 1.3. Secure the adapter clamp with a screw (Fig. 76).



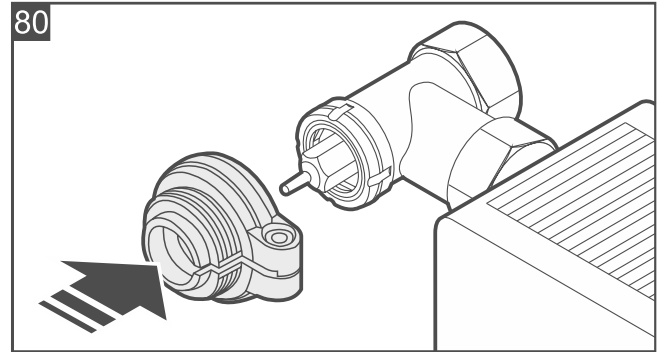
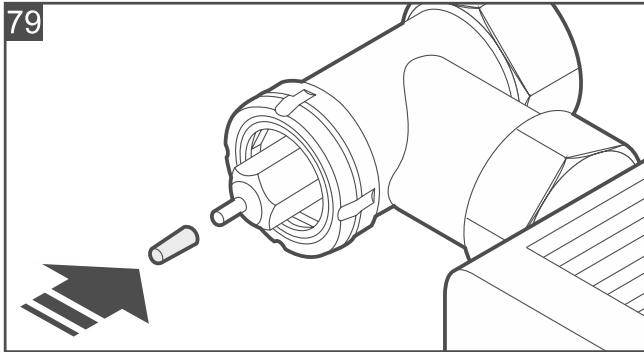
2. Place the thermostat on the valve (Fig. 77).



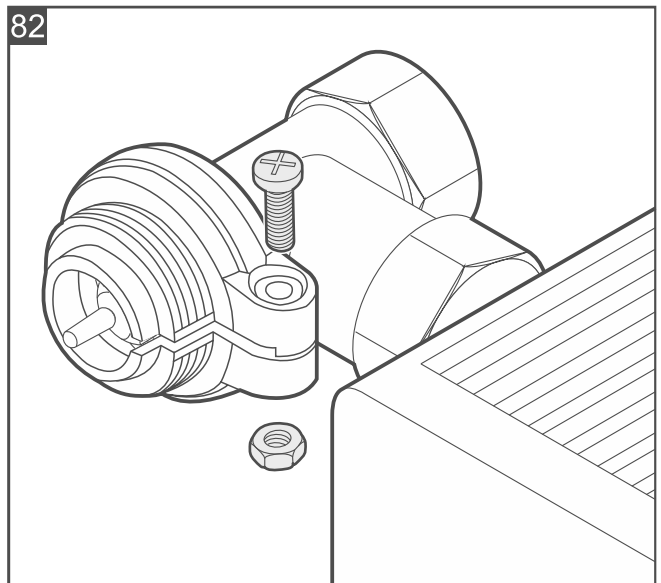
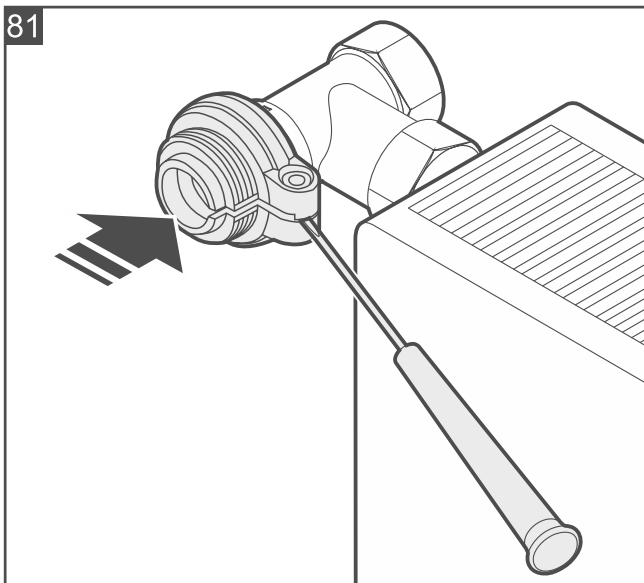
3. Tighten the thermostat on the adapter (Fig. 78).
4. If the thermostat is seated loosely on the valve, use the reducer ring. Unscrew the thermostat, place the reducer ring inside its flange (Fig. 73), then repeat points 2 and 3.

Mounting on Danfoss RAV valve

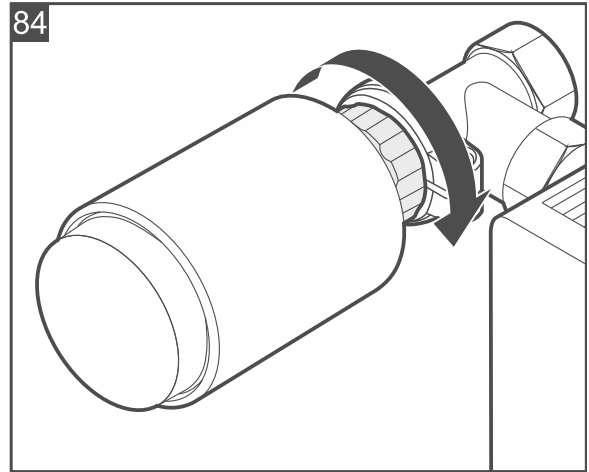
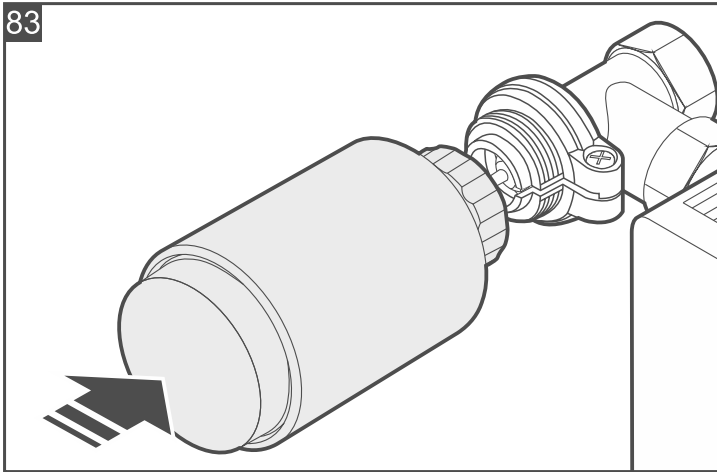
1. Place the cap on the valve pin (Fig. 79).



2. Fasten the adapter on the valve.
 - 2.1. Place the adapter on the valve (Fig. 80).
 - 2.2. Bend open the adapter clamp with a screwdriver and press the adapter against the valve flange face (Fig. 81).
 - 2.3. Secure the adapter clamp with a screw (Fig. 82).



3. Place the thermostat on the valve (Fig. 83).

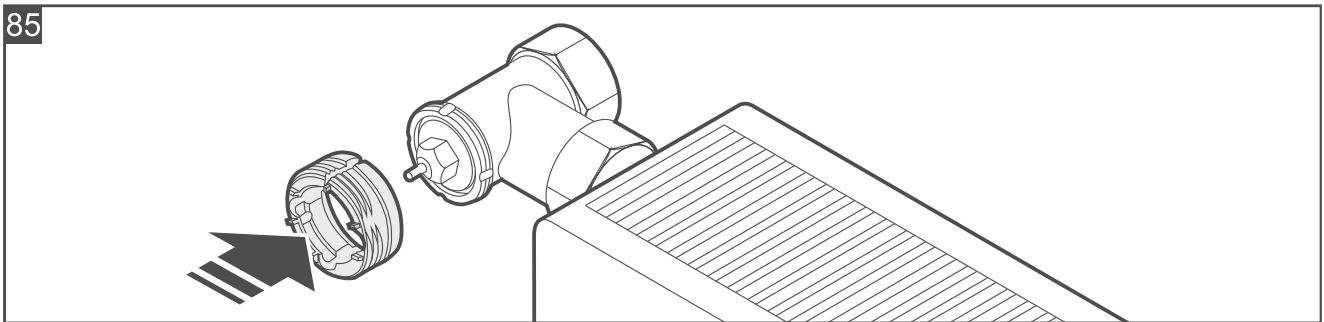


4. Tighten the thermostat on the adapter (Fig. 84).

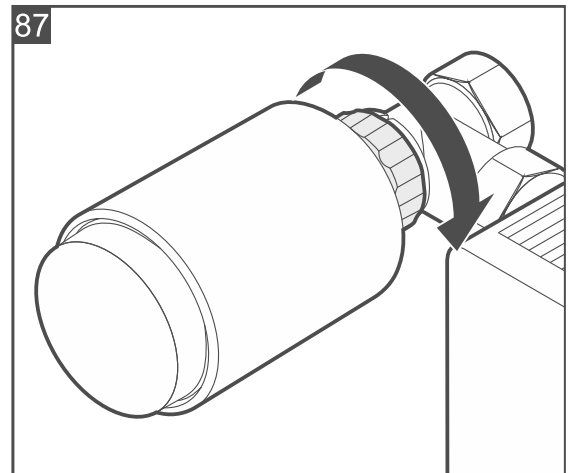
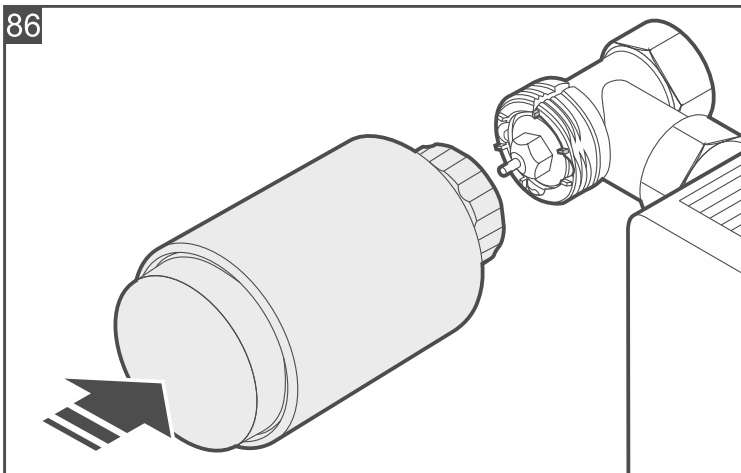
5. If the thermostat is seated loosely on the valve, use the reducer ring. Unscrew the thermostat, place the reducer ring inside its flange (Fig. 73), then repeat points 3 and 4.

Mounting on Danfoss RAVL valve

1. Mount the adapter on the valve. Press it against the valve flange face (Fig. 85).



2. Place the thermostat on the valve (Fig. 86).



3. Tighten the thermostat on the adapter (Fig. 87).

4. If the thermostat is seated loosely on the valve, use the reducer ring. Unscrew the thermostat, place the reducer ring inside its flange (Fig. 73), then repeat points 2 and 3.

4.4.16 Installing the Smart Plug

Installation tips for the Smart Plug

- The plug should be installed indoors, in spaces with normal air humidity.

- Do not install the plug outdoors.
- You can connect a 230 VAC appliance up to 2300 W to the socket (do not use the plug to control appliances whose current consumption is greater than 10 A).



For loads other than resistive, it should not exceed 3 A at 230 VAC. The power factor ($\cos\phi$) must be equal to or greater than 0.4.

Start-up the Smart Plug

Start the Be Wave app and add the plug to the system. When a request to turn on the device will be displayed, connect the plug to the 230 VAC outlet.

4.4.17 Installing the Smart 2-CH Relay



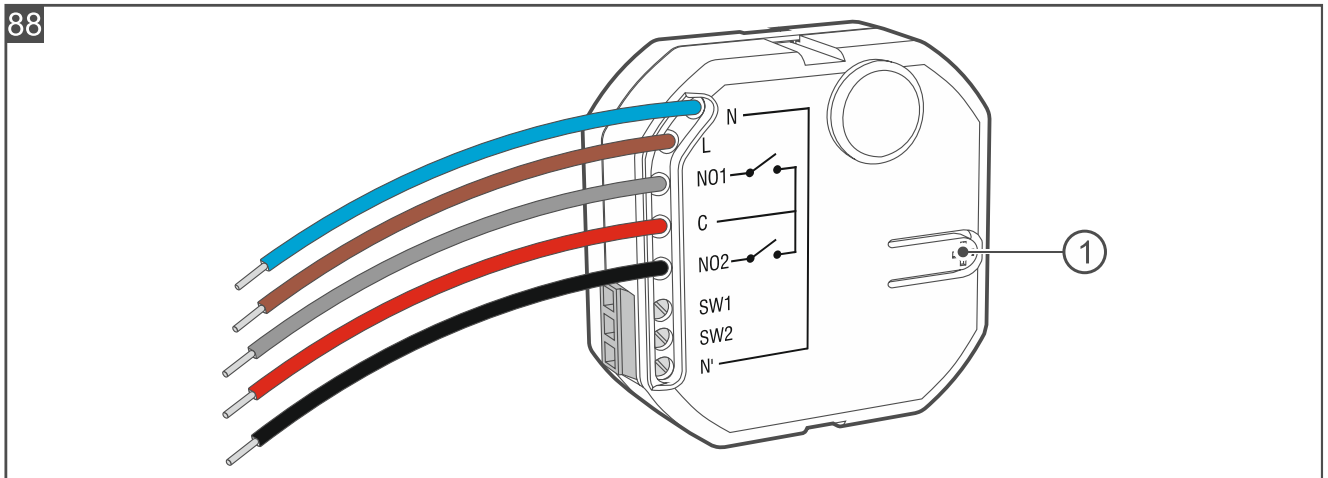
The device should be installed by qualified personnel.

Disconnect power before making any electrical connections.

Connect the controller to a single-phase network according to the applicable standards.

Do not remove the controller from the enclosure. Installing the controller without enclosure or with a damaged enclosure poses a risk of electric shock and may damage the device.

Description of the Smart 2-CH Relay



① button used to:

- register the controller in the system – press while adding the controller to the system,
- block / unblock the registration – press and hold for 10 seconds to block / unblock the capability to add the controller to the system.

Wires

- N [blue]** - for connecting 230 VAC supply neutral wire.
- L [brown]** - for connecting 230 VAC supply phase wire.
- NO1 [gray]** - NO contact of the relay output 1 (normally it is disconnected from the common contact C – does not conduct electricity).
- NO2 [black]** - NO contact of the relay output 2 (normally it is disconnected from the common contact C – does not conduct electricity).
- C [red]** - common contact C of the relay outputs.



Given the specific character of radio communication, it is not recommended that the controller be used in applications where quick switching of the output status is required.

Using the relay outputs for frequent (more than once every 10 seconds) switching of capacitive loads, e.g. LED lighting power supplies, LED lamps, etc. is not recommended.

Do not connect more than one LED lighting power supply to the relay output.

Terminals

- SW1** - control input 1.
SW2 - control input 2.
N' - for connecting 230 VAC supply neutral wire.



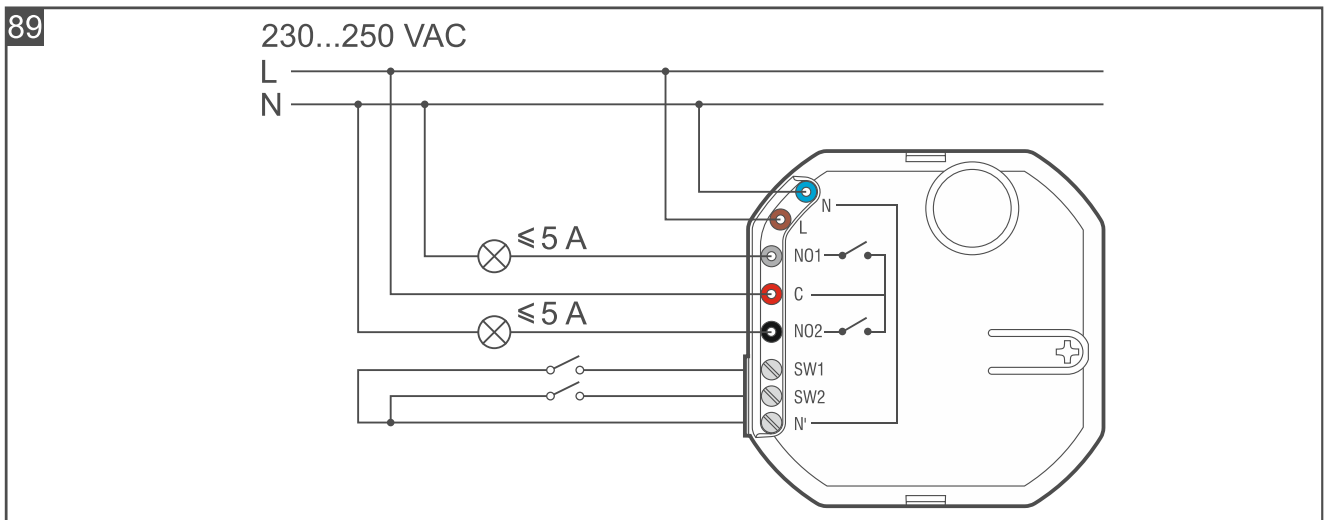
The controller inputs are not galvanically isolated.

Installation tips for the Smart 2-CH Relay

- The controller should be installed indoors, in spaces with normal air humidity.
- The electrical circuit to which the controller is to be connected must have suitable protection.
- Install the controller in an electrical junction box (a deep junction box with a diameter of at least 60 mm).
- To connect the wires, use screw terminal blocks, splicing connectors, etc.
- To the relay output you can connect a 230 VAC appliance with power consumption up to 5 A.
- To the control input you can connect a push-button or a switch.
- To connect the push-button / switch, use flexible wires with a cross-section of 0.5-0.75 mm².

Mounting the Smart 2-CH Relay

1. Power off the circuit to which the controller is to be connected.
2. Open the electrical junction box in which the controller is to be installed.
3. Connect the controller to the 230 VAC supply circuit (Fig. 89):
 - brown wire [L] to phase wire.
 - blue wire [N] to neutral wire.
4. Connect the wires of controller relay outputs to the wires of electrical circuits to be controlled by the controller (Fig. 89).
5. Connect the push-buttons / switches to the controller inputs (Fig. 89).



6. Place the controller in the junction box. Make sure the electrical wires are behind the controller enclosure.
7. Power on the circuit to which the controller is connected.
8. Start the Be Wave app and add the controller to the system. When a request to turn on the device will be displayed, press the button marked with the + symbol on the enclosure (Fig. 88).
9. Close the junction box.

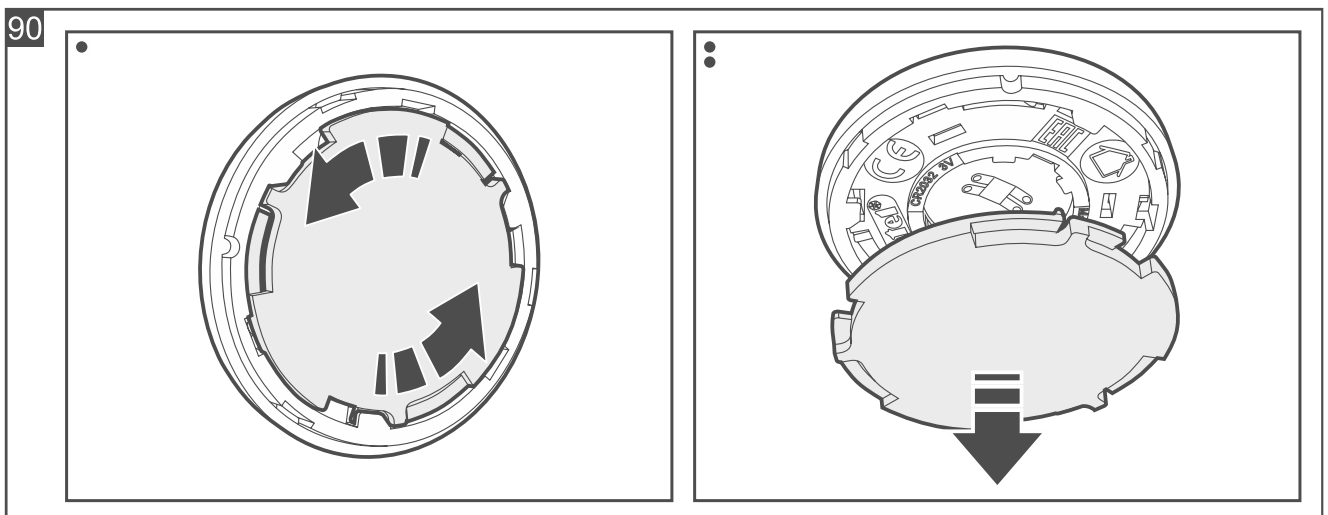
4.4.18 Installing the Smart Button

Installation tips for the Smart Button

- The button should be installed indoors, in spaces with normal air humidity.
- Do not install the button outdoors.

Mounting the Smart Button

1. Open the button enclosure (Fig. 90).



2. Stick the double-sided mounting tape to the enclosure base.
3. Stick the enclosure base to the surface.
4. Start the Be Wave app and add the button to the system. When a request to turn on the device will be displayed, install the battery in the button.
5. Close the button enclosure.

4.5 Adding the Smart Keyfob to the system

Start the Be Wave app and add the Smart Keyfob to the system. When a request to turn on the device will be displayed, press any button on the keyfob.

5. 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. The diagnostic mode is available in the Be Wave app for the purpose of testing and maintenance (battery replacement, cleaning the smoke chamber of the Fire Detector Plus / Fire Detector Pro, etc.). When the diagnostic mode is enabled:

- detector LED indicators are ON (the indicators are normally OFF) – e.g. you can check if motion detectors detect motion,
- the Outdoor Motion Detector and the Outdoor Dusk Detector 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 Glass Break Detector reacts to the sound of breaking glass alone (high-frequency sound),
- tamper signaling in the 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 the Motion Detector Plus, Outdoor Motion Detector and Outdoor Curtain Detector. For 10 seconds after the diagnostic 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.

5.1 Enabling the diagnostic mode

1. Tap the  icon.
2. Tap *Diagnostics > Enable diagnostic mode*.




All 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 BE WAVE devices is complete.

6. Maintenance

6.1 Firmware update

1. Tap the  icon.
2. Tap *Smart HUB configuration > Update the system*.
3. Tap *Yes* to update firmware for the controller and the BE WAVE devices.



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 BE WAVE devices may take some time. The update itself takes only several seconds. The device does not execute its normal functions then.

6.2 Replacing the battery



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 Smart HUB Plus / Smart HUB rechargeable battery will not be charged in temperatures below 0°C.

6.2.1 Replacing the rechargeable battery in the Smart HUB Plus / Smart HUB controller

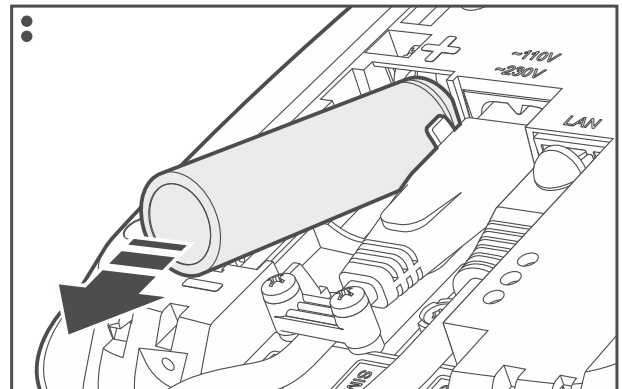
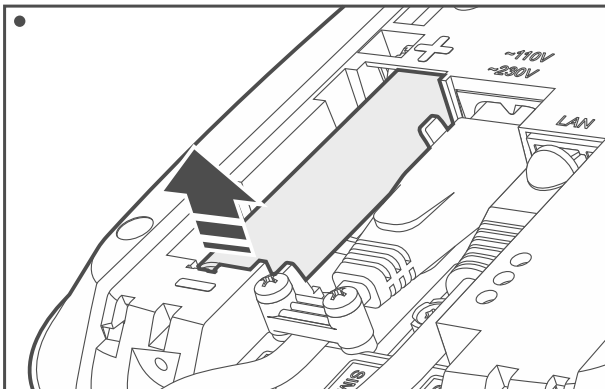


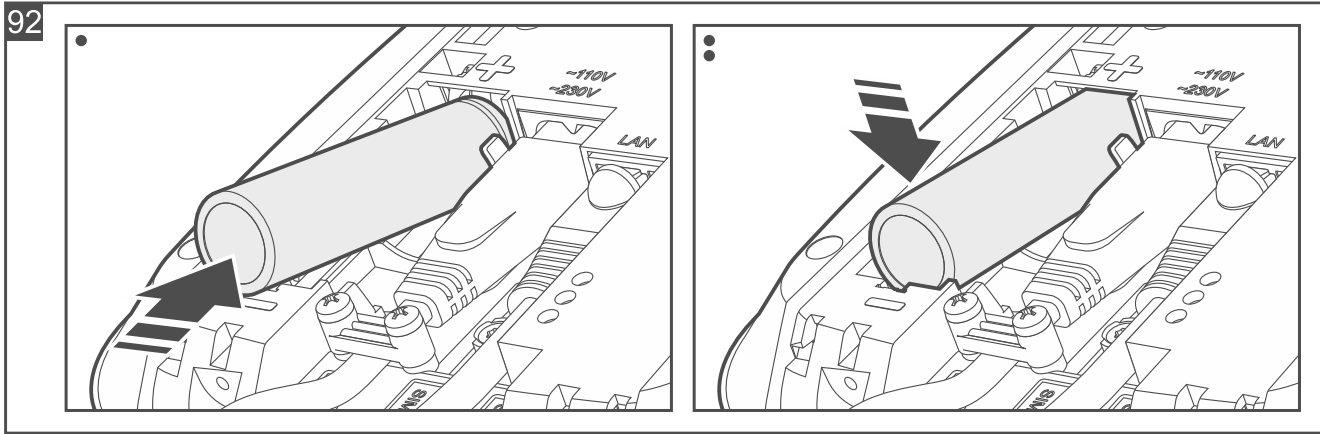
The rechargeable battery in the controller should be replaced by qualified personnel.

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

1. Enable the diagnostic mode in the Be Wave app.
2. Open the controller enclosure.
3. Remove the old battery (Fig. 91).
4. Install the new battery (Fig. 92).
5. Close the enclosure and secure it with screws.
6. Disable the diagnostic mode in the Be Wave app.

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6.2.2 Replacing the battery in the BE WAVE device

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

The Fire Detector Plus, Fire Detector Pro and Carbon Monoxide Detector additionally produce a series of 3 LED flashes and 3 beeps every 30 seconds to indicate low battery.

1. On the Be Wave home screen tap the room in which the low battery device is installed.
2. Tap the name of the low battery device.
3. Tap *Battery replacement*.
4. Open the device enclosure.
5. Remove the low battery.
6. Install the new battery.
7. Close the device enclosure.
8. Tap *Unbypass device* in the Be Wave app.

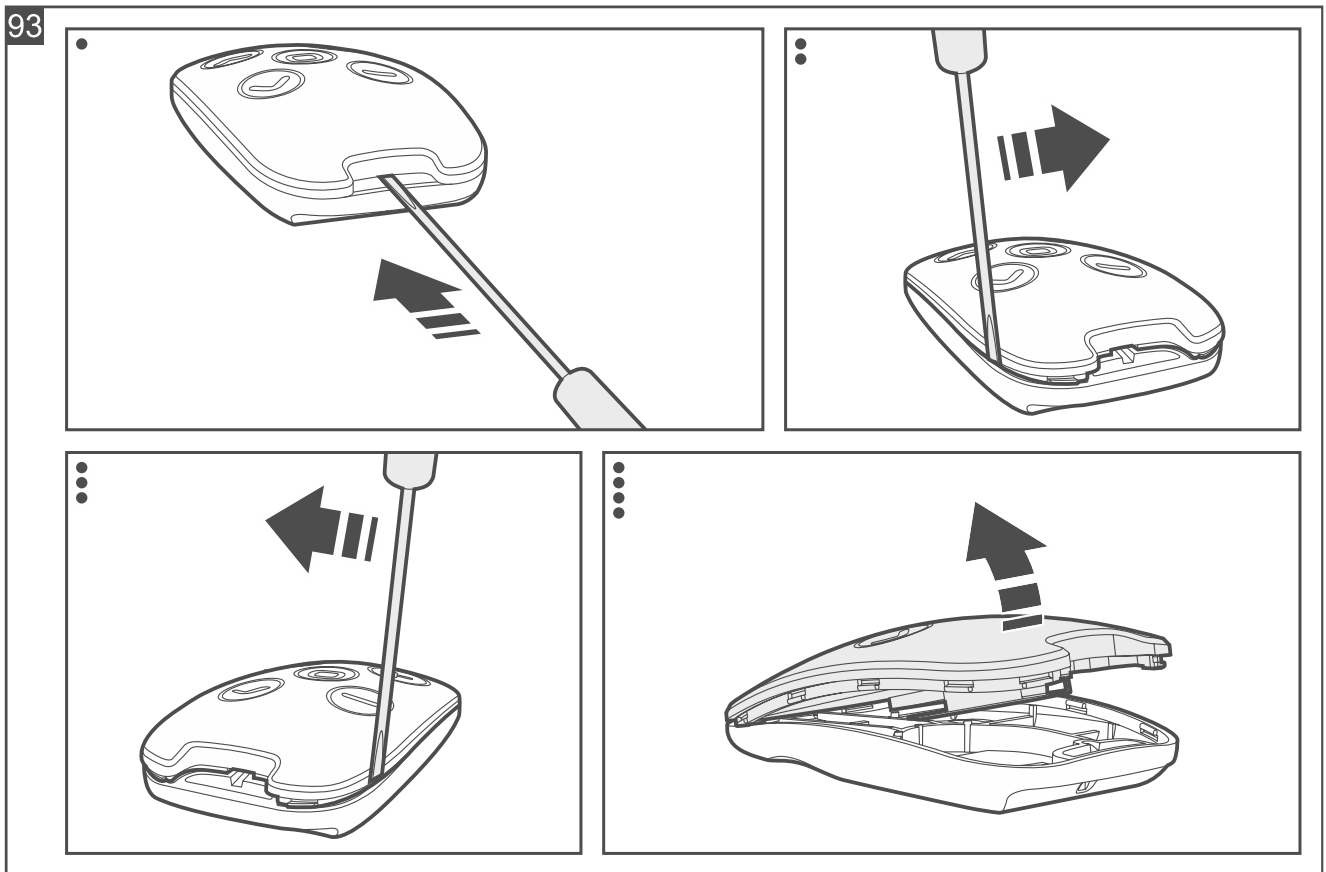
Replacing the battery in the Outdoor Siren



The new battery must be installed as described below to run the battery initialization procedure. The required power supply parameters are only possible with the properly initialized battery.

1. On the Be Wave home screen tap the room in which the low battery siren is installed.
2. Tap the name of the low battery siren.
3. Tap *Battery replacement*.
4. After the leftmost LED on the siren starts flashing every 3 seconds, you can open the siren enclosure.
5. Remove the low battery.
6. Press and hold down the tamper switch.
7. Install the new battery.
8. When the leftmost LED on the siren starts flashing every second, release the tamper switch. The flashing LED indicates that the battery is being initialized. As long as the LED keeps flashing, the siren is not ready for normal work.
9. Start the "Unbypass device" function in the Be Wave app.

Opening the Smart Keyfob enclosure



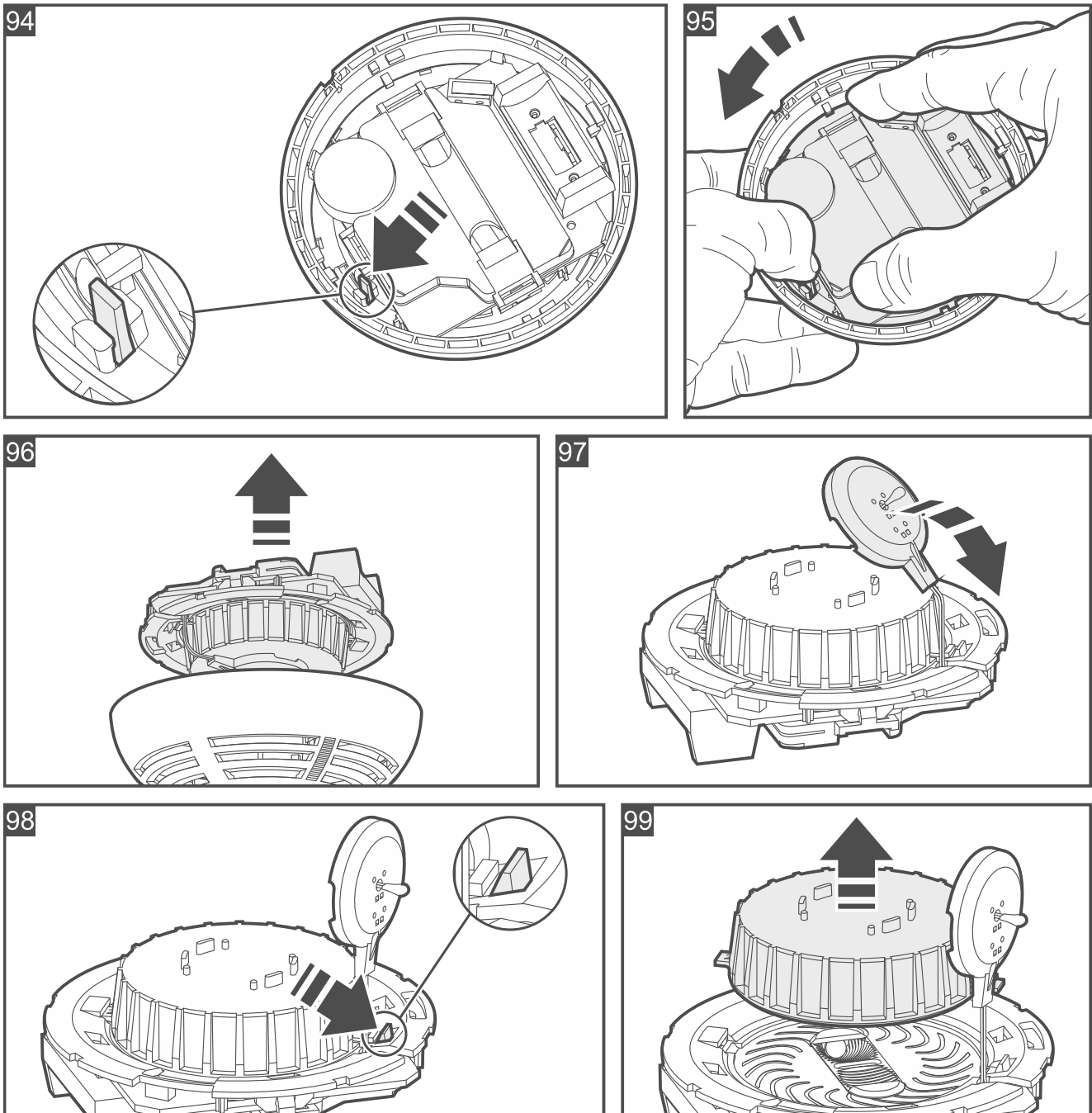
6.3 Cleaning the Fire Detector Plus / Fire Detector Pro smoke chamber



The Be Wave app will notify you that the smoke chamber needs to be cleaned.

The figures show the Fire Detector Plus.


1. Enable the diagnostic mode in the Be Wave app.
2. Remove the cover locking screw and open the detector enclosure.
3. Remove the battery.
4. Pull the release lever (Fig. 94) to unlock the electronics module and turn it counter-clockwise (Fig. 95).
5. Remove the electronics module with the smoke chamber (Fig. 96).
6. For the Fire Detector Plus, remove the element with the thermistor from the smoke chamber cover (Fig. 97).
7. Release the mounting catch (Fig. 98) and remove the smoke chamber cover (Fig. 99).



8. Using a soft brush or compressed air, clean the labyrinth in the cover, as well as the base of the smoke chamber. Pay attention to the recesses where LEDs are installed.
9. Replace the smoke chamber cover.
10. For the Fire Detector Plus, replace the element with the thermistor on the smoke chamber.
11. Secure the electronics module with the smoke chamber in the cover and turn it clockwise.
12. Install the battery.
13. Replace the detector cover and lock it with a screw.
14. Press the test / reset button. A fire alarm should be generated soon after. The alarm will be signaled by the detector (continuous sound, LED indicator ON). You will receive a notification from the Be Wave app.
15. Press again the test / reset button to clear the alarm.
16. Disable the diagnostic mode in the Be Wave app.

6.4 Restoring the controller factory settings

6.4.1 Restoring the factory settings from the Be Wave app

1. Tap the  icon.
2. Tap *Smart HUB configuration* > *Restore factory settings*.
3. Tap *Yes* to restore the factory settings.

6.4.2 Hardware factory restore

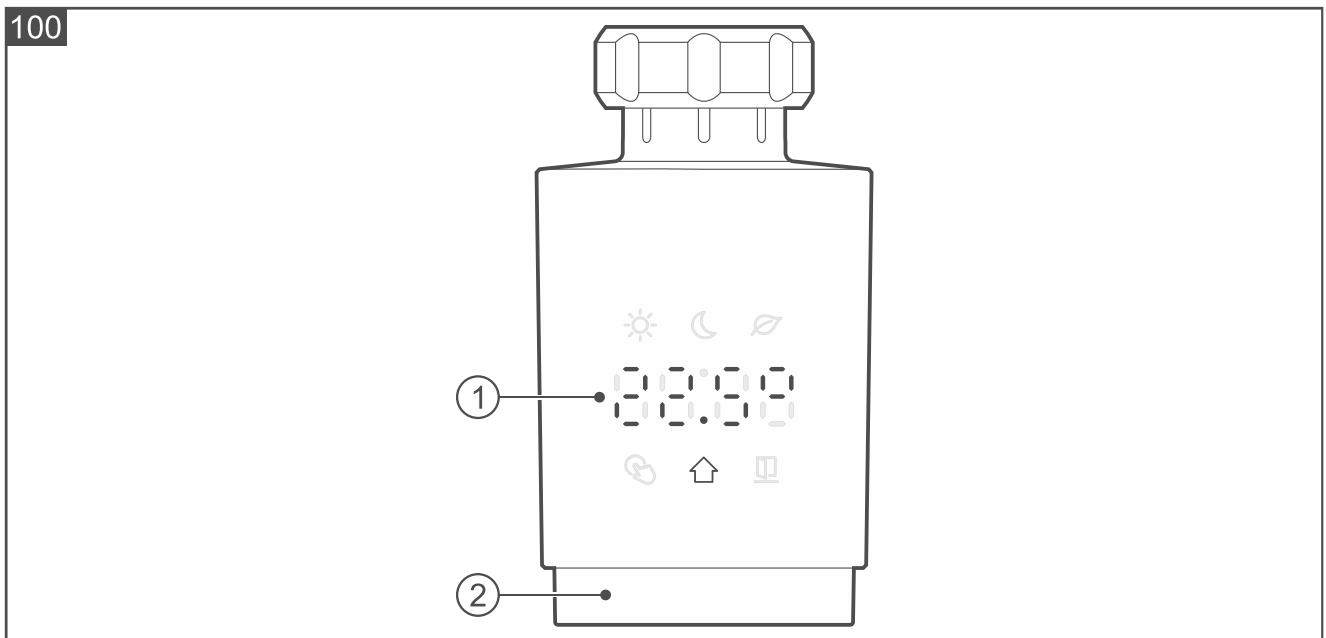
1. Enable the diagnostic mode in the Be Wave app.
2. Open the controller enclosure.
3. Insert a pin in the hole marked ⑥ in Fig. 2 and hold for 5 seconds.

6.5 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. Manual operation of the devices

7.1 Manual operation of the Smart Thermostat



- ① LED display.
- ② knob.







7.1.1 LED display

Normally, the display is off. Touch the knob (Fig. 70) to turn on the display.















After turning on, the display shows temperature in degrees Celsius from the selected sensor (Fig. 100). Symbols and messages are also displayed.

The display will be turned off after 20 seconds since your last activity using the knob.


Symbols on the display

-  temperature set for the day is displayed.
-  temperature set for the night is displayed.
-  temperature set for the *ECO* operating mode is displayed.
-  temperature set manually is displayed.
-  temperature from the sensor is displayed.
-  open window has been detected and the valve is closed.

Messages on the display

-  thermostat ready for calibration to be started. Press the knob to start the calibration.
-  thermostat adaptation in progress.
-  the knob is blocked. Press and hold the knob for 3 seconds to unblock it. The knob can be unblocked if it has been blocked manually. If the Child Lock option is enabled in the Be Wave app, then knob cannot be unblocked manually.
-  low batteries (battery voltage dropped below 2.3 V). Replace the batteries.
-  anti-freeze protection is enabled.
-  heat boost is enabled (number at the end is the minutes remaining until the end of the function). If you want to stop the heat boost, press and hold the knob for 3 seconds.
-  valve is closed. Press or turn the knob to open the valve.
-  trouble with changing the valve position. Make sure the thermostat is mounted correctly on the valve and check the valve operation or restart the thermostat (remove the batteries and insert them again).
-  incorrect operating range of the thermostat (calibration failure). Make sure the thermostat is mounted correctly on the valve or restart the thermostat (remove the batteries and insert them again).
-  valve control disabled to protect against complete battery discharge (battery voltage dropped below 2.2 V). Replace the batteries.
-  problem with the knob.
-  motor error.
-  internal error.
-  unable to fully close the valve (calibration failure). Make sure the thermostat is mounted correctly on the valve or restart the thermostat (remove the batteries and insert them again).

Rotating the temperature / messages on the display by 180°

1. Remove the thermostat cover (Fig. 68).
2. Remove the batteries.
3. Install the batteries again. The  message will be displayed.
4. Press and hold the knob for 5 seconds (Fig. 70). The message on the display will be rotated by 180°.
5. Replace the thermostat cover (Fig. 69).

7.1.2 Knob

Press (Fig. 70) – turn on the display / change the operating mode / confirm new temperature settings.

Press and hold for 3 seconds – block the knob / unblock the knob / edit temperature for the selected operating mode / stop the heat boost.

Turn right – temperature up.

Turn left – temperature down.

Press and turn right – start the heat boost.

Press and turn left – fully close the valve.

7.1.3 Changing the operating mode manually

1. Press the knob to turn on the display.
2. Keep pressing the knob until the temperature for the operating mode you want to enable is displayed.
3. Wait 10 seconds. The temperature from the selected sensor will be displayed.

7.1.4 Temporarily setting other temperature



This temperature will be used until the operating mode will be changed.

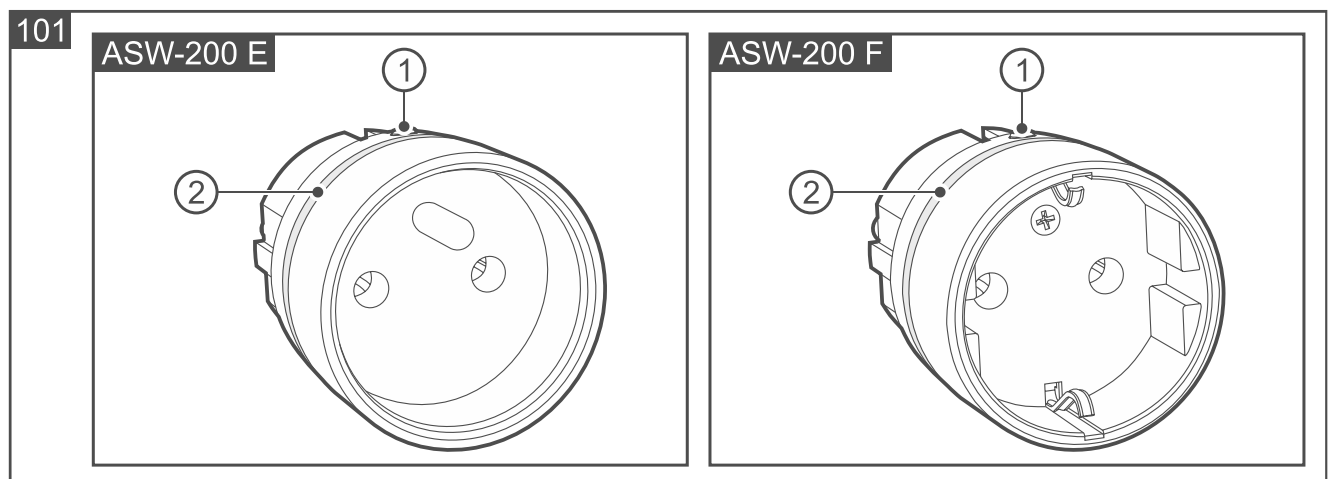
This function is not available when the ECO operating mode is enabled. First change the operating mode, then change the temperature.

1. Press the knob to turn on the display.
2. Press the knob to display the currently set temperature.
3. Turn the knob to set the new temperature.
4. Press the knob to confirm the change.

7.1.5 Changing the temperature setting for the selected operating mode

1. Press the knob to turn on the display.
2. Keep pressing the knob until the temperature for the operating mode you want to edit is displayed.
3. Press and hold the knob for 3 seconds. The temperature on the display will start flashing.
4. Turn the knob to set the new temperature.
5. Press the knob to confirm the change.
6. Keep pressing the knob until the temperature for the operating mode you want to enable is displayed.

7.2 Manual operation of the Smart Plug



① LED indicator.

② button.

7.2.1 LED indicator

You can configure the LED indicator in the Be Wave app. When enabled, the LED indicator indicates:

ON – plug is turned on. In the app you can select whether the color should be dependent on the power consumption or it should be one color.

flashing in yellow – plug is turned off due to overload. The power consumption of the appliance connected to the plug exceeds 2300 W and the plug cannot control it.

flashing in red – plug is turned off due to overheating. The plug will go back to work when it cools down.

7.2.2 Button

Press – turn on / off the plug (device connected to the plug).

Press and hold for 10 seconds – block / unblock the capability to add the plug to the system.

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 1100 m
Supply voltage	230 VAC, 50-60 Hz
Rechargeable battery.....	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.....	250 mA
Low battery voltage threshold	3.2 V
Battery cut-off voltage	2.8 V
Battery operating temperature	
discharging	-10°C...+60°C
charging.....	0°C...+45°C
Supported memory cards.....	microSD, micro SDHC
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 Motion Detector (APD-200)

Operating frequency band	868.0 MHz ÷ 868.6 MHz
Radio communication range (in open area)	up to 2000 m
Battery	CR123A 3 V
Battery life expectancy	up to 2 years
Standby current consumption	70 µA
Low battery voltage threshold	2.75 V
Temperature measurement range	-10°C...+55°C
Temperature measurement accuracy	±1°C
Detectable speed	0.3...3 m/s
Warm-up period	35 s
Recommended installation height	2 m...2.4 m
Coverage area	15 m x 24 m, 90°
Complied with standards	EN 50131-1, EN 50130-4, EN 50130-5
Security grade according to EN 50131-2-2 (detector mounted directly to the wall)	Grade 2
Environmental class according to EN 50130-5	II
Operating temperature range	-10°C...+55°C
Maximum humidity	93±3%
Dimensions	62 x 137 x 42 mm
Weight	132 g

Hereby, SATEL sp. z o.o. declares that the radio equipment type APD-200 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

8.3 Motion Detector Pet (APD-200 Pet)

Operating frequency band	868.0 MHz ÷ 868.6 MHz
Radio communication range (in open area)	up to 2000 m
Battery	CR123A 3 V
Battery life expectancy	up to 2 years
Standby current consumption	70 µA
Low battery voltage threshold	2.75 V
Temperature measurement range	-10°C...+55°C
Temperature measurement accuracy	±1°C
Detectable speed	0.3...3 m/s
Warm-up period	35 s
Recommended installation height	2.4 m
Coverage area	14 m x 16 m, 83°
Complied with standards	EN 50131-1, EN 50130-4, EN 50130-5

Security grade according to EN 50131-2-2	Grade 2
Environmental class according to EN 50130-5	II
Operating temperature range	-10°C...+55°C
Maximum humidity	93±3%
Dimensions	62 x 137 x 42 mm
Weight.....	107 g

Hereby, SATEL sp. z o.o. declares that the radio equipment type APD-200 Pet 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

8.4 Motion Detector Cam (APCAM-200)

Operating frequency band.....	868.0 MHz ÷ 868.6 MHz
Radio communication range (in open area)	up to 1100 m
Battery.....	CR123A 3 V
Battery life expectancy	up to 2 years
Standby current consumption	90 µA
Low battery voltage threshold	2.75 V
Temperature measurement range	-10°C...+55°C
Temperature measurement accuracy	±1°C
Detectable speed	0.3...3 m/s
Warm-up period	35 s
Camera	
Image resolution	640 x 480 pixels
Image file format.....	JPG
Number of photos after alarm	3
Recommended installation height	2 m...2.4 m
Coverage area	15 m x 24 m, 90°
Complied with standards.....	EN 50131-1, EN 50130-4, EN 50130-5
Environmental class according to EN 50130-5	II
Operating temperature range.....	-10°C...+55°C
Maximum humidity	93±3%
Dimensions	62 x 137 x 43 mm
Weight.....	159 g

Hereby, SATEL sp. z o.o. declares that the radio equipment type APCAM-200 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

8.5 Motion Detector Plus (APMD-250)

Operating frequency band.....	868.0 MHz ÷ 868.6 MHz
Radio communication range (in open area)	up to 2000 m

Battery	CR123A 3 V
Battery life expectancy.....	up to 2 years
Standby current consumption	75 μ A
Low battery voltage threshold.....	2.75 V
Temperature measurement range	-10°C...+55°C
Temperature measurement accuracy	\pm 1°C
Microwave frequency	24.125 GHz
Detectable speed.....	0.3...3 m/s
Warm-up period	40 s
Recommended installation height.....	2 m...2.4 m
Coverage area	15 m x 24 m, 90°
Complied with standards.....	EN 50131-1, EN 50130-4, EN 50130-5
Security grade according to EN 50131-2-4 (detector mounted directly to the wall)	Grade 2
Environmental class according to EN 50130-5	II
Operating temperature range.....	-10°C...+55°C
Maximum humidity	93 \pm 3%
Dimensions	62 x 137 x 42 mm
Weight.....	152 g

Hereby, SATEL sp. z o.o. declares that the radio equipment type APMD-250 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

8.6 Outdoor Motion Detector (AOD-210)

Operating frequency band	868.0 MHz \div 868.6 MHz
Radio communication range (in open area).....	up to 2000 m
Battery	CR123A 3 V
Battery life expectancy.....	up to 2 years
Standby current consumption	75 μ A
Low battery voltage threshold.....	2.75 V
Light intensity measurement range.....	2 lx...250 lx
Temperature measurement range	-40°C...+55°C
Temperature measurement accuracy	\pm 1°C
Microwave frequency	24.125 GHz
Detectable speed.....	0.3...3 m/s
Warm-up period	40 s
Recommended installation height.....	2.4 m
Coverage area	16 m x 16 m, 90°
Complied with standards.....	EN 50131-1, EN 50130-4, EN 50130-5
Security grade according to EN 50131-2-4	Grade 2
Environmental class according to EN 50130-5	IIIa
Operating temperature range.....	-40°C...+55°C
Maximum humidity	93 \pm 3%

IP code.....	IP54
Dimensions	65 x 138 x 58 mm
Weight.....	182 g

Hereby, SATEL sp. z o.o. declares that the radio equipment type AOD-210 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

8.7 Curtain Detector (ACD-220)

Operating frequency band.....	868.0 MHz ÷ 868.6 MHz
Radio communication range (in open area)	up to 2000 m
Battery.....	CR123A 3 V
Battery life expectancy.....	up to 2 years
Standby current consumption	70 µA
Low battery voltage threshold	2.75 V
Temperature measurement range	-10°C...+55°C
Temperature measurement accuracy	±1°C
Detectable speed	0.3...1 m/s
Warm-up period	5 s
Coverage area	5 m x 1 m, 15°
Complied with standards.....	EN 50130-4, EN 50130-5
Environmental class according to EN 50130-5	II
Operating temperature range.....	-10°C...+55°C
Maximum humidity	93±3%
Dimensions	20 x 102 x 25 mm
Weight.....	43 g

Hereby, SATEL sp. z o.o. declares that the radio equipment type ACD-220 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

8.8 Outdoor Curtain Detector (AOCD-260)

Operating frequency band.....	868.0 MHz ÷ 868.6 MHz
Radio communication range (in open area)	up to 2000 m
Battery.....	CR123A 3 V
Battery life expectancy.....	up to 2 years
Standby current consumption	70 µA
Low battery voltage threshold	2.75 V
Temperature measurement range	-40°C...+55°C
Temperature measurement accuracy	±1°C
Microwave frequency	24.125 GHz
Detectable speed	0.3...3 m/s

Warm-up period	45 s
Recommended installation height.....	2.4 m
Coverage area	10 m x 0.6 m, 6°
Complied with standards.....	EN 50131-1, EN 50130-4, EN 50130-5
Security grade according to EN 50131-2-4 (detector mounted directly to the wall)	Grade 2
Environmental class according to EN 50130-5	IIIa
Operating temperature range.....	-40°C...+55°C
Maximum humidity	93±3%
IP code.....	IP54
Dimensions	44 x 105 x 40 mm
Weight.....	118 g

Hereby, SATEL sp. z o.o. declares that the radio equipment type AOCD-260 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

8.9 Glass Break Detector (AGD-200)

Operating frequency band	868.0 MHz ÷ 868.6 MHz
Radio communication range (in open area)	up to 2000 m
Battery	CR123A 3 V
Battery life expectancy	up to 2 years
Standby current consumption	90 µA
Low battery voltage threshold	2.75 V
Temperature measurement range	-10°C...+55°C
Temperature measurement accuracy	±1°C
Detection range	up to 6 m
Complied with standards.....	EN 50130-4, EN 50130-5, EN 50131-5-3
Environmental class according to EN 50130-5	II
Operating temperature range.....	-10°C...+55°C
Maximum humidity	93±3%
Dimensions	20 x 102 x 23 mm
Weight.....	39 g

Hereby, SATEL sp. z o.o. declares that the radio equipment type AGD-200 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

8.10 Multipurpose Detector (AXD-200)

Operating frequency band	868.0 MHz ÷ 868.6 MHz
Radio communication range (in open area)	up to 2000 m
Battery	CR123A 3 V
Battery life expectancy	up to 2 years

Standby current consumption	20 μ A
Low battery voltage threshold	2.75 V
Temperature measurement range	-10°C...+55°C
Temperature measurement accuracy	\pm 1°C
Complied with standards.....	EN 50130-4, EN 50130-5, EN 50131-1, EN 50131-2-6, EN 50131-5-3
Security grade according to EN 50131-2-6	Grade 2
Environmental class according to EN 50130-5	II
Operating temperature range.....	-10°C...+55°C
Maximum humidity	93 \pm 3%
Enclosure dimensions.....	20 x 102 x 23 mm
Surface mounted magnet enclosure dimensions	15 x 52 x 6 mm
Surface mounted magnet spacer dimensions	15 x 52 x 6 mm
Flush mounted magnet enclosure dimensions.....	\varnothing 10 x 28 mm
Weight.....	59 g

Opening detector / Shock and opening detector

Maximum gap

surface magnet	20 mm
flush magnet.....	18 mm

Shock detector / Shock and opening detector

Shock detection range (depending on the surface type)..... up to 3 m



This range is for reference only. Please test the actual range when mounting the detector.

Hereby, SATEL sp. z o.o. declares that the radio equipment type AXD-200 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

8.11 Flood Detector (AFD-200)

Operating frequency band.....	868.0 MHz \div 868.6 MHz
Radio communication range (in open area)	up to 600 m
Battery.....	CR123A 3 V
Battery life expectancy	up to 5 years
Standby current consumption	45 μ A
Low battery voltage threshold	2.75 V
Temperature measurement range	-10°C...+55°C
Temperature measurement accuracy	\pm 1°C
Environmental class according to EN 50130-5	II
Operating temperature range.....	-10°C...+55°C
Maximum humidity	93 \pm 3%
IP code.....	X4
Dimensions	65 x 65 x 24 mm
Weight.....	47 g

Hereby, SATEL sp. z o.o. declares that the radio equipment type AFD-200 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

8.12 Fire Detector Plus (ASD-200)

Operating frequency band	868.0 MHz ÷ 868.6 MHz
Radio communication range (in open area)	up to 2000 m
Battery	CR123A 3 V
Battery life expectancy	up to 2 years
Standby current consumption	30 µA
Low battery voltage threshold	2.75 V
Static response temperature	54°C
Temperature measurement range	0°C...+55°C
Temperature measurement accuracy	±1°C
Operating temperature range	0°C...+55°C
Maximum humidity	93±3%
Enclosure dimensions	ø108 x 61 mm
Weight	172 g

Hereby, SATEL sp. z o.o. declares that the radio equipment type ASD-200 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

8.13 Fire Detector Pro (ASD-250)

Operating frequency band	868.0 MHz ÷ 868.6 MHz
Radio communication range (in open area)	up to 2000 m
Battery	CR123A 3 V
Battery life expectancy	up to 2 years
Standby current consumption	90 µA
Low battery voltage threshold	2.75 V
Operating temperature range	0°C...+55°C
Maximum humidity	93±3%
Dimensions	ø108 x 54 mm
Weight	172 g

Hereby, SATEL sp. z o.o. declares that the radio equipment type ASD-250 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

The ASD-250 wireless smoke detector conforms to the essential requirements of the EU Regulations and Directives:

CPR 305/2011 Regulation of the European Parliament and of the Council of 9 March 2011 laying down harmonized conditions for the marketing of construction products and repealing the Council Directive 89/106/EEC on construction products;

RED Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014 on the harmonization of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC.

The CNBOP-PIB Certification Body in Józefów issued the Certificate of Constancy of Performance 1438-CPR-0645 for the construction product ASD-250 Wireless Smoke Detector, confirming its compliance with the requirements of EN 14604:2006.

The CNBOP-PIB Certification Body in Józefów has tested the ASD-250 Wireless Smoke Detector confirming its compliance with the EN 14604 Standard, within the scope of Appendix L (approved for the use in caravans and camper vans).

The Certificate and the Declaration of Performance can be downloaded from the www.satel.pl website.



SATEL Sp. z o.o. • ul. Budowlanych 66 • 80-298 Gdańsk • POLAND

1438

1438-CPR-0645

DOP/CPR/0645

EN 14604

Fire safety. ASD-250 wireless smoke detector, stand-alone, capable of interacting over the air with the intruder alarm system, based on scattered light principle, designed for indoor use.

Declaration of Performance DOP/CPR/0645

Application – fire safety.

Technical specifications – see this manual.

8.14 Carbon Monoxide Detector (ACMD-200)

Operating frequency band.....	868.0 MHz ÷ 868.6 MHz
Radio communication range (in open area)	up to 2000 m
Battery.....	CR123A 3 V
Battery life expectancy	up to 2 years
Standby current consumption	62 µA
Low battery voltage threshold	2.75 V
Temperature measurement range	0°C...+55°C
Temperature measurement accuracy	±1°C
Operating temperature range.....	0°C...+55°C
Maximum humidity	93±3%
Dimensions	ø108 x 54 mm
Weight.....	153 g

Hereby, SATEL sp. z o.o. declares that the radio equipment type ACMD-200 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

8.15 Outdoor Dusk Detector (ADD-200)

Operating frequency band	868.0 MHz ÷ 868.6 MHz
Radio communication range (in open area)	up to 2000 m
Battery	CR123A 3 V
Battery life expectancy	up to 2 years
Standby current consumption	20 µA
Low battery voltage threshold	2.75 V
Light intensity measurement range	2 lx...250 lx
Temperature measurement range	-20°C...+55°C
Temperature measurement accuracy	±1°C
Warm-up period	5 s
Environmental class according to EN 50130-5	III
Operating temperature range	-20°C...+55°C
Maximum humidity	93±3%
IP code	IP65
Dimensions	58 x 115 x 34 mm
Weight	95 g

Hereby, SATEL sp. z o.o. declares that the radio equipment type ADD-200 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

8.16 Multi Sensor (ATPH-200)

Operating frequency band	868.0 MHz ÷ 868.6 MHz
Radio communication range (in open area)	up to 600 m
Battery	CR123A 3 V
Battery life expectancy	up to 5 years
Standby current consumption	48 µA
Low battery voltage threshold	2.75 V
Temperature measurement range	-10°C...+55°C
Temperature measurement accuracy	±0.2°C
Temperature measurement resolution	0.1°C
Pressure measurement range	260...1260 hPa
Pressure measurement accuracy	±0.1 hPa
Pressure measurement resolution	0.1 hPa
Humidity measurement range	0%RH...93%RH
Humidity measurement accuracy	±1.5%RH

Humidity measurement resolution.....	0.1%RH
Environmental class according to EN 50130-5	II
Operating temperature range.....	-10°C...+55°C
Maximum humidity	93±3%
Dimensions	20 x 102 x 23 mm
Weight.....	43 g

Hereby, SATEL sp. z o.o. declares that the radio equipment type ATPH-200 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

8.17 Outdoor Siren (ASP-200)

Operating frequency band.....	868.0 MHz ÷ 868.6 MHz
Radio communication range (in open area)	up to 2000 m
Battery.....	ER34615 3.6 V
Battery life expectancy	up to 2.5 years
Standby current consumption	650 µA
Sound pressure level (at 1 m distance).....	up to 105 dB
Complied with standards.....	EN 50130-4, EN 50130-5, EN 50131-1, EN 50131-4, EN 50131-5-3
Security grade according to EN 50131-1	Grade 2
Environmental class according to EN 50130-5	IIIA
Operating temperature range.....	-40°C ...+55°C
Maximum humidity	93±3%
Dimensions	148 x 254 x 64 mm
Weight.....	762 g

Hereby, SATEL sp. z o.o. declares that the radio equipment type ASP-200 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

8.18 Indoor Siren (ASP-215)

Operating frequency band.....	868.0 MHz ÷ 868.6 MHz
Radio communication range (in open area)	up to 2000 m
Battery.....	CR123A 3 V
Battery life expectancy	up to 2 years
Standby current consumption	70 µA
Low battery voltage threshold	2.75 V
Temperature measurement range	-10°C...+55°C
Temperature measurement accuracy	±1°C
Sound pressure level (at 1 m distance).....	up to 105 dB
Complied with standards.....	EN 50130-4, EN 50130-5, EN 50131-1, EN 50131-4, EN 50131-5-3
Security grade according to EN 50131-1	Grade 2

Environmental class according to EN 50130-5	II
Operating temperature range.....	-10°C...+55°C
Maximum humidity	93±3%
Dimensions	87 x 133 x 37 mm
Weight.....	180 g

Hereby, SATEL sp. z o.o. declares that the radio equipment type ASP-215 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

8.19 Smart Blinds (ARSC-200)

Operating frequency band	868.0 MHz ÷ 868.6 MHz
Radio communication range (in open area)	up to 1000 m
Supply voltage	230 VAC, 50-60 Hz
Standby power consumption.....	0.45 W
Maximum power consumption	1 W
Maximum load	1.7 A / 350 W / 230 VAC
Complied with standards.....	EN 50130-4, EN 50130-5
Environmental class according to EN 50130-5	II
Operating temperature range.....	-10°C...+55°C
Maximum humidity	93±3%
Dimensions	47 x 47 x 22 mm
Weight.....	41 g

Hereby, SATEL sp. z o.o. declares that the radio equipment type ARSC-200 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

8.20 Smart Thermostat (ART-210)

Operating frequency band	868.0 MHz ÷ 868.6 MHz
Radio communication range (in open area)	up to 500 m
Batteries.....	2 x 1.5 V LR6 AA
Battery life expectancy.....	up to 2 years
Standby current consumption	74 µA
Low battery voltage threshold	2.3 V
Temperature measurement range	-10°C...+50°C
Temperature measurement accuracy	±0.1°C
Temperature adjustment range.....	5°C...30°C
Temperature adjustment accuracy	±0.5°C
Operating temperature range.....	-10°C...+50°C
Maximum humidity	93±3%
Enclosure dimensions.....	ø56 x 97 mm

Weight..... 166 g

Hereby, SATEL sp. z o.o. declares that the radio equipment type ART-210 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

8.21 Smart Plug (ASW-200)

Operating frequency band..... 868.0 MHz ÷ 868.6 MHz
 Radio communication range (in open area) up to 1000 m
 Supply voltage 230 VAC, 50-60 Hz
 Standby power consumption.....0.73 W
 Maximum power consumption1.37 W
 Rated current (resistive load)10 A
 Complied with standards.....EN 50130-4, EN 50130-5
 Environmental class according to EN 50130-5 II
 Operating temperature range.....-10°C...+55°C
 Maximum humidity93±3%
 Dimensions:
 ASW-200 E..... ø45 x 67 mm
 ASW-200 F..... ø45 x 70 mm
 Weight:
 ASW-200 E..... 60 g
 ASW-200 F..... 61 g

Hereby, SATEL sp. z o.o. declares that the radio equipment type ASW-200 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

8.22 Smart 2-CH Relay (ASW-210)

Operating frequency band..... 868.0 MHz ÷ 868.6 MHz
 Radio communication range (in open area) up to 1000 m
 Supply voltage 230 VAC, 50-60 Hz
 Standby power consumption.....0.47 W
 Maximum power consumption1 W
 Rated switching voltage250 VAC
 Relay outputs rated load – AC1 5 A / 250 VAC
 Minimum switching current.....10 mA
 Rated switching current.....5 A
 Maximum breaking capacity – AC1..... 1250 VA
 Minimum breaking capacity.....50 mW
 Contact resistance ≤ 100 mΩ
 Electrical life (number of cycles) – AC1 (360 cycles/hour) > 10⁵
 Complied with standards.....EN 50130-4, EN 50130-5

Environmental class according to EN 50130-5	II
Operating temperature range.....	-10°C...+55°C
Maximum humidity	93±3%
Dimensions	47 x 47.4 x 22 mm
Weight.....	40 g

Hereby, SATEL sp. z o.o. declares that the radio equipment type ASW-210 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

8.23 Smart Keyfob (APT-210)

Operating frequency band	868.0 MHz ÷ 868.6 MHz
Radio communication range (in open area)	up to 500 m
Battery	CR 2032 3 V
Low battery voltage threshold	2.6 V
Environmental class according to EN 50130-5	II
Operating temperature range.....	-10°C...+55°C
Maximum humidity	93±3%
Dimensions	37 x 66 x 14 mm
Weight.....	25 g

Hereby, SATEL sp. z o.o. declares that the radio equipment type APT-210 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

8.24 Smart Button (APB-210)

Operating frequency band	868.0 MHz ÷ 868.6 MHz
Radio communication range (in open area)	up to 500 m
Battery	CR2032 3 V
Battery life expectancy.....	up to 3 years
Standby current consumption	5 µA
Low battery voltage threshold	2.6 V
Environmental class according to EN 50130-5	II
Operating temperature range.....	-10°C...+55°C
Maximum humidity	93±3%
Dimensions	ø50 x 13 mm
Weight.....	17 g

Hereby, SATEL sp. z o.o. declares that the radio equipment type APB-210 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