

MotionProtect S Plus Jeweller user manual

Updated June 26, 2024



MotionProtect S Plus Jeweller is a wireless motion detector. Detects movement at a distance of up to 12 meters*. Ignores pets when installed and configured correctly. Together with the IR sensor, the detector applies a radio-frequency scan with a K-band microwave sensor that filters out thermal interference. The device is designed for indoor use only.

MotionProtect S Plus communicates with the hub using an encrypted Jeweller radio protocol. The communication range without obstacles is up to 1,200 meters.

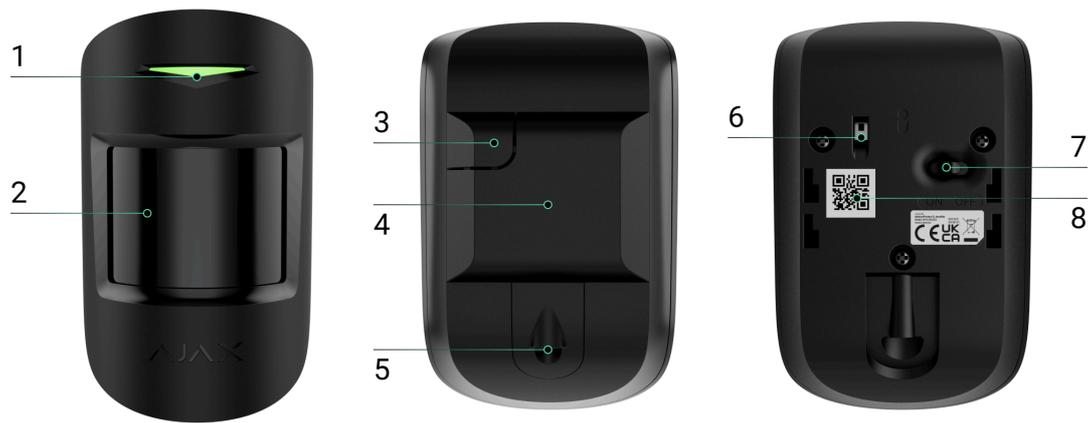
* – for INCERT compliance 10 meters (high sensitivity)



This product line is developed for projects. Only accredited Ajax Systems partners can sell, install, and administer **Superior** products.

Superior, Fibra, and Baseline product lines are mutually compatible. This opens up numerous possibilities for building systems of any configuration.

Functional elements



1. LED indicator.
2. Motion detector lens.
3. Perforated part of the mounting panel. Do not break it off. It is needed for a tamper triggering in case of any attempt to detach the detector from the surface.
4. SmartBracket mounting panel with holding screw. To remove the panel, slide it down.
5. Holding screw to secure the detector on SmartBracket.
6. Tamper button. Triggers when someone tries to detach the detector from the surface or remove it from the mounting panel.
7. Device switch.
8. QR code with the device ID. It is used to pair the device with an Ajax hub.

Compatible hubs and range extenders

An Ajax hub with the firmware OS Malevich 2.16 and higher is required for the detector to operate.

Hubs	Radio signal range extenders
<ul style="list-style-type: none">• <u>Hub Plus</u>	<ul style="list-style-type: none">• <u>ReX</u>

- Hub 2 (2G)

- Hub 2 (4G)

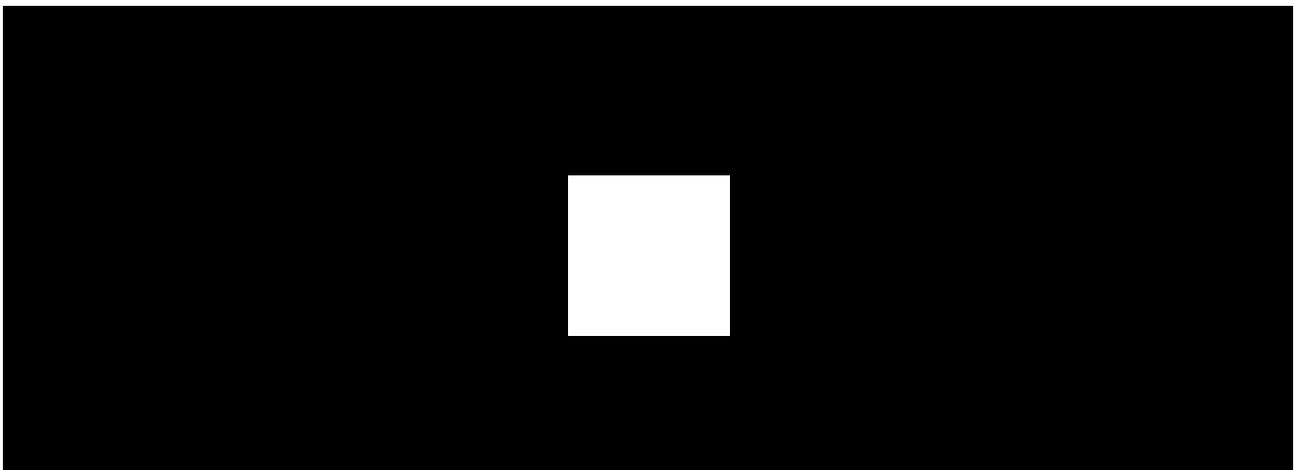
- Hub 2 Plus

- Hub Hybrid (2G)

- Hub Hybrid (4G)

- ReX 2

Operating principle



00:00

00:12

MotionProtect S Plus is a wireless IR motion detector with an additional microwave sensor. It can identify intrusions by detecting moving objects with temperatures close to the temperature of the human body.

When an armed detector identifies motion, it conducts an additional RF scan of the room with a built-in K-band microwave sensor to eliminate false alarms due to thermal interference: air flows, heated curtains and blinds, fans, fireplaces, air conditioners, and other likely sources of false alarms.



Do not install the device near other MotionProtect Plus Jeweller, MotionProtect S Plus Jeweller, or MotionProtect Plus Fibra. The minimum distance between devices should be **at least 20 centimeters**. Otherwise, it can decrease detection quality or trigger false alarms due to wave interference of K-band microwave sensors.

In case of an alarm, it instantly sends an alarm to the hub, activating the sirens connected to the system, triggering scenarios, and notifying users and the security company. All MotionProtect S Plus alarms and events are recorded in the event feed of the Ajax apps.

Users and the monitoring company know exactly where motion is detected. The notifications contain the name of the hub (protected facility), the name of the device, and the virtual room to which the detector is assigned.



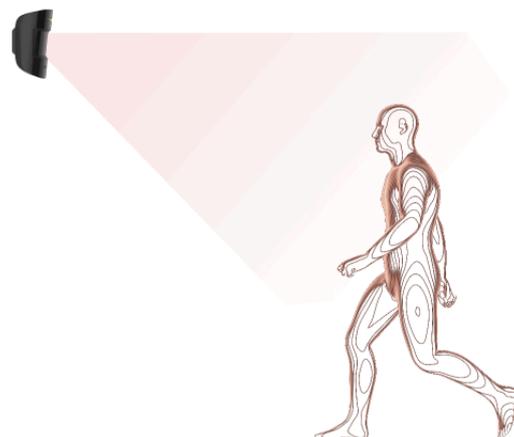
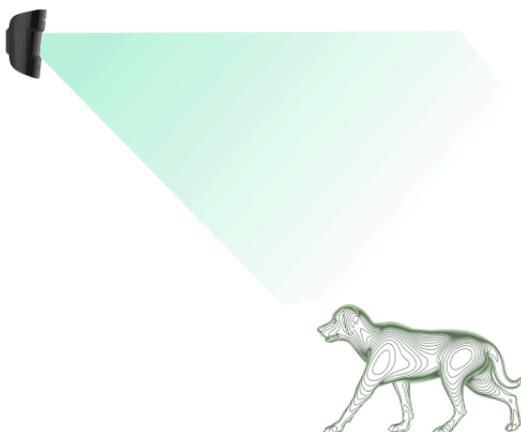
The detector doesn't go to the armed mode instantly. The time it takes to switch to armed mode depends on exit delays (specified in the detector settings) and the hub-detector polling interval (**Jeweller** or **Jeweller/Fibra** settings, the default value is 36 seconds). In the first case, the delay is set by an admin or a PRO-user with admin rights. In the second case, the delay occurs because the hub takes one polling interval to notify the detector about the transition to armed mode.

How Ajax notifies of alarms

More about Ajax motion detectors

Pet immunity

When properly installed and configured, MotionProtect S Plus does not react to pets weighing up to 20 kg and below 50 cm in height. To install and configure the detector, follow our recommendations.



How to install the detector correctly

Temperature compensation

Temperature compensation is necessary for the detector's response to movements, even if the room temperature is close to the human body temperature. Read more about temperature compensation in [this article](#).

Sending events to the monitoring station

The Ajax system can transmit alarms to the [PRO Desktop](#) monitoring app as well as the central monitoring station (CMS) in the formats of **SurGard (Contact ID)**, **SIA (DC-09)**, **ADEMCO 685**, and [other protocols](#).

MotionProtect S Plus can transmit the following events:

1. Motion alarm.
2. Tamper alarm. Tamper recovery.
3. Loss of connection with the hub. Restoration of connection.
4. Permanent deactivation/activation of the detector.
5. One-time deactivation/activation of the detector.

When an alarm is received, the operator of the security company monitoring station knows what happened and precisely where to send a rapid response team. The addressability of Ajax devices allows sending events to the PRO Desktop or the CMS the type of the device, its name, security group, and virtual room. Note that the list of transmitted parameters may differ depending on the kind of CMS and the selected protocol for communication with the monitoring station.



The device ID and the loop (zone) number can be found in the [device states in the Ajax app](#).

Adding to the system



MotionProtect S Plus is incompatible with [Hub](#), third-party security central panels, and ocBridge Plus and uartBridge integration modules.

To connect **MotionProtect S Plus** to the hub, the detector must be located at the same secured facility as the system (within the range of the hub radio network). For the detector to work via the [ReX](#) or the [ReX 2](#) radio signal range extender, you must first add the detector to the hub, then connect it to **ReX** or **ReX 2** in the settings of the range extender.



The hub and the device operating at different radio frequencies are incompatible. The radio-frequency range of the device may vary by region. We recommend purchasing and using Ajax devices in the same region. You can check the range of operating radio frequencies with the [technical support service](#).

Before adding a device

1. Install an [Ajax PRO app](#).
2. Log in to a [PRO account](#) or create a new one.
3. Select a space or create a new one.

[What is a space](#)

[How to create a space](#)



The **space** functionality is available for apps of such versions or later:

- Ajax Security System 3.0 for iOS;
- Ajax Security System 3.0 for Android;
- Ajax PRO: Tool for Engineers 2.0 for iOS;
- Ajax PRO: Tool for Engineers 2.0 for Android;

- Ajax PRO Desktop 4.0 for macOS;
- Ajax PRO Desktop 4.0 for Windows.

4. Add at least one virtual room.
5. Add a compatible hub to the space. Ensure the hub is switched on and has internet access via Ethernet, Wi-Fi, and/or mobile network.
6. Ensure the space is disarmed, and the hub is not starting an update by checking statuses in the Ajax app.



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Connecting to the hub

1. Open the Ajax PRO app. Select the hub where you want to add the detector.
2. Go to the **Devices**  tab and click **Add Device**.
3. Name the detector, scan, or type in the QR code (placed on the detector and the package box), and select a room and a group (if Group mode is enabled).



4. Press **Add**.
5. Switch on the detector by holding the power button.



If the connection fails, turn the detector off and try again in 5 seconds. Note that if the maximum number of devices has already been added to the hub (depending on the hub model), you will be notified when you try to add a new one.

The detector connected to the hub will appear in the list of hub devices in the Ajax app. Updating the statuses of devices in the list depends on the **Jeweller** or **Jeweller/Fibra** settings; the default value is 36 seconds.



MotionProtect S Plus works with one hub. When connected to a new hub, the detector stops sending events to the old one. When added to a new hub, the detector is not removed from the device list of the old hub. This must be done through the Ajax app.

Malfunctions

When a malfunction is detected, the Ajax app displays a malfunction counter on the device icon. All malfunctions are shown in the detector states. Fields with malfunctions will be highlighted in red.

A malfunction is displayed if:

- The detector temperature is outside acceptable limits.
- The detector enclosure is open (tamper is triggered).
- No connection with the hub or radio signal range extender via Jeweller.
- The detector battery is low.

Icons

The icons display some MotionProtect S Plus states. To access them:

1. Sign in to the [Ajax app](#).
2. Select the hub.
3. Go to the **Devices**  tab.

Icon	Meaning
	Jeweller signal strength. Displays the signal strength between the hub and the detector. The recommended value is 2–3 bars. Learn more
	The detector battery charge level is OK. Learn more
	The detector has a malfunction. The list of malfunctions is available in the detector states. Learn more
	The detector operates via a radio signal range extender .
	The detector operates in the Always Active mode. Learn more
	Delay When Entering and/or Leaving enabled. Learn more
	MotionProtect S Plus will be armed when Night Mode is enabled. Learn more
	MotionProtect S Plus has detected motion. The icon is displayed when the detector is armed.
	MotionProtect S Plus is permanently deactivated.

	<u>Learn more</u>
	MotionProtect S Plus has tamper alarms permanently deactivated. <u>Learn more</u>
	MotionProtect S Plus is deactivated for a time the armed mode is active. <u>Learn more</u>
	MotionProtect S Plus has tamper alarms deactivated for a time the armed mode is active. <u>Learn more</u>
	The device was not transferred to the new hub. <u>Learn more</u>

States

The states include information about the device and its operating parameters. The states of MotionProtect S Plus can be found in Ajax apps:

1. Go to the **Devices**  tab.
2. Select **MotionProtect S Plus** from the list.

Parameter	Value
Malfunction	Clicking on  opens the MotionProtect S Plus malfunctions list. The field is displayed if a malfunction is detected.
Temperature	Detector temperature. The acceptable error between the value in the app and the temperature at the installation site: 2 °C.

	<p>The value is updated as soon as the detector detects a temperature change of at least 1 °C.</p> <p>You can create a scenario by temperature to control automation devices.</p> <p>Learn more</p>
Jeweller Signal Strength	<p>Signal strength between the hub or range extender and the detector on the Jeweller channel.</p> <p>The recommended value is 2–3 bars.</p>
Connection via Jeweller	<p>Connection status on the Jeweller channel between the hub or the range extender and the detector:</p> <ul style="list-style-type: none"> • Online – the detector is connected to the hub or the range extender. • Offline – the detector is not connected to the hub or the range extender.
ReX	<p>Displays the status of using a radio signal range extender.</p>
Battery Charge	<p>Battery level of the device. Displayed as a percentage.</p> <p>When the batteries are low, the Ajax apps and the security company will receive appropriate notifications. After sending a low battery notification, the detector can work for up to 2 months.</p> <p>How the battery charge is displayed</p>
Lid	<p>The status of the detector tamper that responds to detachment or opening of the device enclosure:</p> <ul style="list-style-type: none"> • Open – the detector was removed from the SmartBracket, or its integrity was compromised. Check the device.

	<ul style="list-style-type: none"> • Closed – the detector is installed on the SmartBracket mounting panel. The integrity of the device enclosure and the mounting panel is not compromised. Normal state. <p><u>Learn more</u></p>
Sensitivity	<p>Sensitivity level of the motion detector:</p> <ul style="list-style-type: none"> • Low. • Normal. • High.
Always Active	<p>When this option is enabled, the detector is constantly armed, detects motion, and raises alarms.</p> <p><u>Learn more</u></p>
Permanent Deactivation	<p>Shows the status of the device permanent deactivation setting:</p> <ul style="list-style-type: none"> • No – the device operates in the normal mode. • Entirely – the detector is entirely excluded from the operation of the system. The device does not execute system commands and does not report alarms or other events. • Lid only – the hub administrator has disabled notifications about triggering of the device tamper. <p><u>Learn more</u></p>
One-Time Deactivation	<p>Shows the status of the device one-time deactivation setting:</p> <ul style="list-style-type: none"> • No – the device operates in the normal mode. • Entirely – the detector is entirely excluded from the operation of the system for a time the armed mode is active. The device does

not execute system commands and does not report alarms or other events.

- **Lid only** – notifications on the tamper triggering are disabled for a time the armed mode is active.

[Learn more](#)

Alarm Reaction

Operating Mode

Shows how the detector reacts to alarms:

- **Instant Alarm** – the armed detector immediately reacts to a threat and raises the alarm.
- **Entry/Exit** – when a delay is set, the armed device starts the countdown and doesn't raise the alarm even if triggered until the countdown ends.
- **Follower** – the detector inherits the delays from Entry/Exit detectors. However, when the Follower is triggered individually, it immediately raises the alarm.

Delay When Entering, sec

Delay when entering (alarm activation delay) is the time the user has to disarm the security system after entering the premises.

[Learn more](#)

Delay When Leaving, sec

Delay when leaving (arming delay) is the time the user has to leave the premises after arming.

[Learn more](#)

Arm in Night Mode

When this option is enabled, the detector will enter the armed mode when the system is set to **Night Mode**.

Night Mode Delay When Entering, sec	Entry delay time in Night Mode . Delay when entering (alarm activation delay) is the time the user has to disarm the security system after entering the premises. Learn more
Night Mode Delay When Leaving, sec	Exit delay time in Night Mode . Delay when leaving (arming delay) is the time the user has to leave the premises after arming. Learn more
Firmware	Detector firmware version.
Detector ID	Detector ID. Also available on the QR code on the detector enclosure and its package box.
Device №	Number of the device loop (zone).

Settings

To change MotionProtect S Plus settings in the Ajax apps:

1. Go to the **Devices**  tab.
2. Select **MotionProtect S Plus** from the list.
3. Go to **Settings** by clicking on the gear icon .
4. Set the required parameters.
5. Click **Back** to save the new settings.

Setting	Value
Name	Name of the detector. Displayed in the list of hub devices, the text of SMS and notifications in the event feed. To change the name of the detector, click on the text field.

	The name can contain up to 12 Cyrillic characters or 24 Latin characters.
Room	<p>Selecting the virtual room to which MotionProtect S Plus is assigned.</p> <p>The room's name is displayed in the SMS text and notifications in the event feed.</p>
Alarm LED indication	When the option is disabled, the LED indicator of the detector doesn't notify about alarms or tamper triggering.
Sensitivity	<p>Sensitivity level of the motion detector.</p> <p>The choice depends on the type of the object, the presence of probable sources of false alarms, and the specifics of the secured area:</p> <ul style="list-style-type: none"> • Low – it does not respond to animals up to 50 cm in height. • Normal (by default) – it does not respond to small dogs (up to 35 cm in height). • High – the detector does not respond to cats (up to 25 cm in height). <p><u>Why motion detectors react to animals and how to avoid this</u></p>
Always Active	<p>When this option is enabled, the detector is always in the armed mode and detects motion.</p> <p><u>Learn more</u></p>
Alert with a siren if motion detected	When this option is enabled, the <u>sirens added to the system</u> are activated when motion is detected by MotionProtect S Plus.

Alarm Reaction

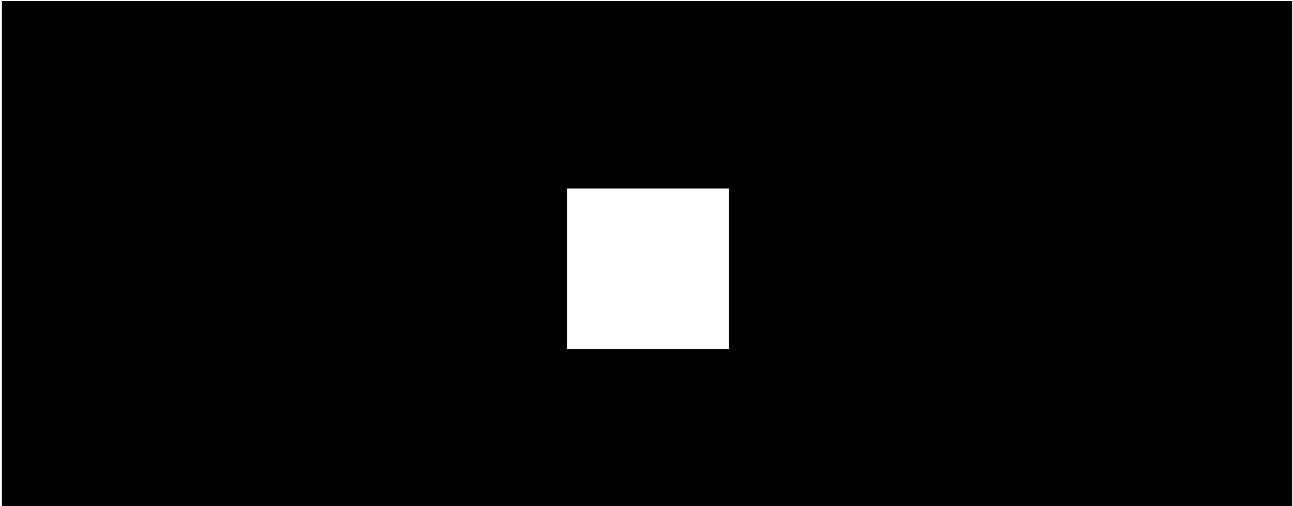
Operating Mode	<p>Specify how this device will react to alarms:</p> <ul style="list-style-type: none"> • Instant Alarm – the armed detector immediately reacts to a threat and raises the alarm.
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	<ul style="list-style-type: none"> • Entry/Exit – when a delay is set, the armed device starts the countdown and doesn't raise the alarm even if triggered until the countdown ends. • Follower – the detector inherits the delays from Entry/Exit detectors. However, when the Follower is triggered individually, it immediately raises the alarm.
<p>Delay When Entering, sec</p>	<p>Selecting delay time when entering: 5 to 120 seconds.</p> <p>Delay when entering (alarm activation delay) is the time the user has to disarm the security system after entering the premises.</p> <p><u>Learn more</u></p>
<p>Delay When Leaving, sec</p>	<p>Selecting delay time when leaving: 5 to 120 seconds.</p> <p>Delay when leaving (arming delay) is the time the user has to leave the premises after arming.</p> <p><u>Learn more</u></p>
<p>Arm in Night Mode</p>	<p>When this option is enabled, the detector will enter the armed mode when the system is set to Night Mode.</p> <p><u>Learn more</u></p>
<p>Night Mode Delay When Entering, sec</p>	<p>Delay time when entering in Night Mode.</p> <p>Delay when entering (alarm activation delay) is the time the user has to disable Night Mode after entering the premises.</p> <p><u>Learn more</u></p>
<p>Night Mode Delay When Leaving, sec</p>	<p>Delay time when leaving in Night Mode.</p> <p>Delay when leaving (arming delay) is the time the user has to leave the premises after enabling Night Mode.</p>

	<p>Learn more</p>
Jeweller Signal Strength Test	<p>Switches the detector to the Jeweller signal strength test mode. The recommended value is 2–3 bars.</p> <p>Learn more</p>
Detection Zone Test	<p>Switches the detector to the detection zone test mode.</p> <p>Learn more</p>
Signal Attenuation Test	<p>Switches the detector to the signal attenuation test mode.</p> <p>Learn more</p>
User Guide	<p>Opens the MotionProtect S Plus user manual in the Ajax app.</p>
Permanent Deactivation	<p>Allows the user to disable the device without removing it from the system.</p> <p>Three options are available:</p> <ul style="list-style-type: none"> • No – the device operates in normal mode and transmits all events. • Entirely – the device does not execute system commands and does not participate in automation scenarios, and the system ignores alarms and other device notifications. • Lid only – the system ignores the detector tamper triggering notifications. <p>Learn more</p>
One-Time Deactivation	<p>Allows the user to disable events of the device until the first disarm.</p> <p>Three options are available:</p>

	<ul style="list-style-type: none"> • No – the device operates in normal mode and transmits all events. • Entirely – the device is entirely excluded from the operation of the system for a time the armed mode is active. The device does not execute system commands and does not report alarms or other events. • Lid Only – notifications on the tamper triggering are disabled for a time the armed mode is active. <p>Learn more</p>
Unpair Device	Unpairs the detector, disconnects it from the hub, and deletes its settings.

Indication



00:00

00:03

Indication	Event	Note
Lights up green for about one second.	Turning on the detector.	
Lights up continuously for a few seconds.	Pairing the detector with a hub.	
Lights up green for about one second.	Alarm/tamper activation.	An alarm is sent once in 5 seconds.

During the alarm, it slowly lights up and goes off green.

Battery needs replacing.

Replacement of the detector battery is described in the [Battery Replacement](#) manual.

Functionality testing

The Ajax system offers several types of tests to help select the correct installation place for the devices. Tests do not start immediately. However, the waiting time does not exceed the duration of one “hub–device” polling interval. The polling interval can be checked and configured at hub settings (**Hub** → **Settings** ⚙️ → **Jeweller** or **Jeweller/Fibra**).

To run a test in the Ajax app:

1. Select the required hub.
2. Go to the **Devices** 📱 tab.
3. Select **MotionProtect S Plus** from the list.
4. Go to **Settings** ⚙️.
5. Select a test:
 1. [Jeweller Signal Strength Test](#).
 2. [Detection Zone Test](#).
 3. [Signal Attenuation Test](#).
6. Run the test.

Detector placement



The device is designed for indoor use only.

When choosing where to place MotionProtect S Plus, consider the parameters that affect its operation:

- Motion detection zone.
- Jeweller radio signal strength.
- Distance between the detector and the hub or radio signal range extender.
- Presence of obstacles for radio signal passage: walls, interfloor ceilings, large objects located in the room.
- Distance between the detector and other MotionProtect Plus Jeweller, MotionProtect S Plus Jeweller, or MotionProtect Plus Fibra should be 20 centimeters or more.

Consider the recommendations for placement when developing a project for the security system of the facility. The security system must be designed and installed by specialists. A list of recommended partners is [available here](#).

Signal strength

The Jeweller signal strength is determined by the number of undelivered or corrupted data packages over a certain period of time. The icon  on the **Devices**  tab indicates the signal strength:

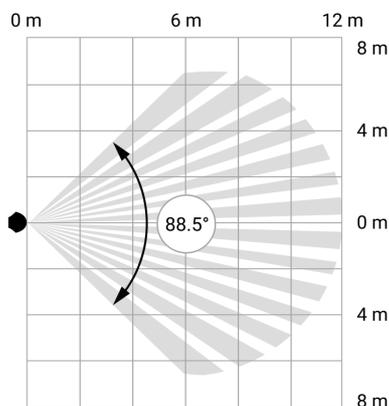
- **Three bars** – excellent signal strength.
- **Two bars** – good signal strength.
- **One bar** – low signal strength, stable operation is not guaranteed.
- **Crossed out icon** – no signal.



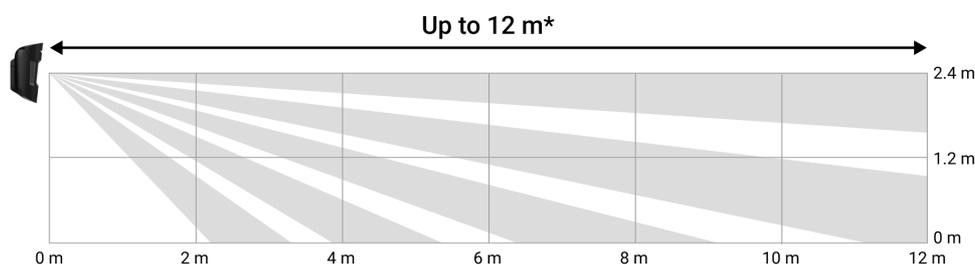
Check the Jeweller signal strength before final installation. With a signal strength of one or zero bars, we do not guarantee stable operation of the device. Consider to relocate the device as repositioning even by 20 cm can significantly improve the signal strength. If there is still poor or unstable signal after the relocation, use a [radio signal range extender](#).

Motion detection zone

When choosing the installation place, consider the direction of the lens, viewing angles of the detector, and the presence of obstacles impairing the view. The intended path of the intruder must be perpendicular to the axis of the detector's lens. Ensure that furniture, houseplants, vases, decorative or glass elements do not obstruct the view of the detector.



Horizontal viewing angle of the detector



Vertical viewing angle of the detector

* – for INCERT compliance 10 meters (high sensitivity)

When installing the detector, perform the Detection Zone Test. This allows you to check the operation of the device and accurately determine the sector in which the detector registers motion.

Do not install the detector

1. Outdoors. This can lead to false alarms and detector failure.
2. In places where objects and structures may block the detector's view. For example, behind a flower or a column. In this case, the view will be limited, and it will be more difficult for MotionProtect S Plus to detect motion.

3. In places where glass structures may obstruct the detector's view. MotionProtect S Plus does not register motion behind glass.
4. Inside premises with temperature and humidity outside the permissible limits. This could damage the detector.
5. Closer than 1 meter from the hub or radio signal range extender. This can lead to a loss of communication with the detector.
6. In places with low or unstable signal strength. This may result in the loss of the connection with the hub.
7. Near other MotionProtect Plus Jeweller, MotionProtect S Plus Jeweller, or MotionProtect Plus Fibra. The minimum distance between devices should be **at least 20 centimeters**. Otherwise, it can decrease detection quality or trigger false alarms due to wave interference of K-band microwave sensors.

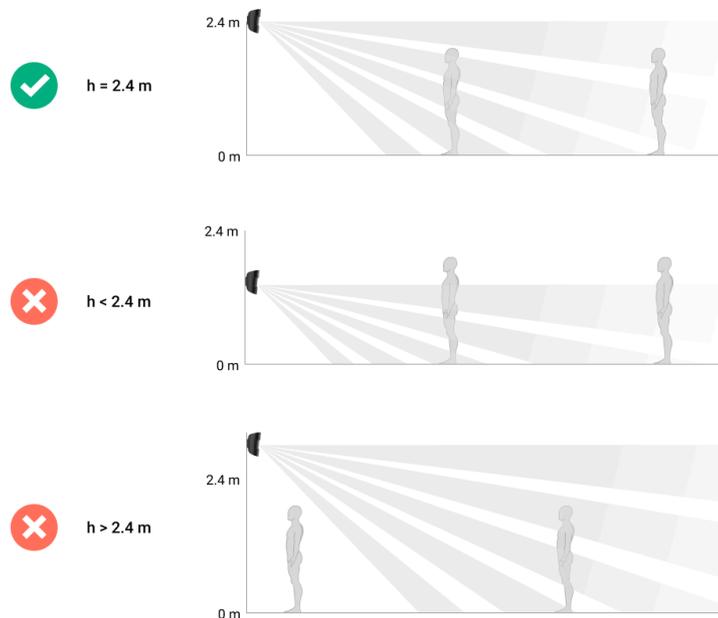
Installation



Before installing MotionProtect S Plus, ensure that you have selected the optimal location that complies with the requirements of this manual.

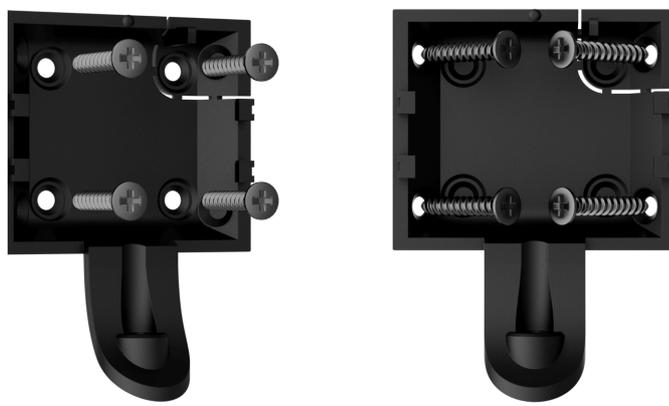
To mount a detector:

1. Remove the SmartBracket mounting panel from the detector by sliding it down. Unscrew the holding screw first.
2. Fix the SmartBracket panel using double-sided tape or other temporary fasteners. The panel can be mounted on a vertical surface or in a corner of the room. **The installation height is 2.4 meters.**



Double-sided tape can only be used for temporary installation. The device attached by the tape may come unstuck from the surface at any time. As long as the device is taped, the tamper will not be triggered when the device is detached from the surface.

3. Place the detector on SmartBracket. The device's LED indicator will flash. It is a signal indicating that the tamper on the detector is closed.
4. Run the Jeweller signal strength test. The recommended signal strength is two or three bars. If the signal strength is low (a single bar), we do not guarantee stable operation of the device. Consider relocating the device as repositioning even by 20 cm can significantly improve the signal strength. If there is still poor or unstable signal after the relocation, use a radio signal range extender.
5. Run the Detection zone test. To check the motion detector, walk around the premises while observing the LED and determine the detection zone of the detector. The maximum range of motion detection is 12 meters*. If the detector did not respond to movement during the test in 5 out of 5 cases, relocate the device.
6. Remove the detector from SmartBracket.
7. SmartBracket has special recesses that need to be drilled to fix the panel with the bundled screws. Attach the SmartBracket mounting panel with the bundled screws using all fixation points (one of them is in the perforated part of the mounting panel above the tamper). When using other fasteners, make sure they do not damage or deform the mounting panel.



8. Place the detector on the SmartBracket mounting panel.
9. Tighten the holding screw on the bottom of the detector's enclosure. The screw is needed for more reliable fastening and protection of the detector from quick dismantling.



* – for INCERT compliance 10 meters (high sensitivity)

Maintenance

Check the functioning of the detector regularly. The optimal frequency of checks is once every three months. Clean the device enclosure of dust, cobwebs, and other contaminants as they emerge. Use a soft dry wipes suitable for equipment care.

Do not use substances that contain alcohol, acetone, petrol, and other active solvents to clean the detector.

The pre-installed battery ensures up to 5 years of autonomous operation. The security system will send an early warning about replacing the battery. In case of an alarm, the LED will slowly light up green and go out.

How to replace batteries

Technical specifications

All technical specifications of MotionProtect S Plus Jeweller

Compliance with standards

Setup in compliance with EN requirements

Warranty

Warranty for the Limited Liability Company “Ajax Systems Manufacturing” products is valid for 2 years after the purchase.

If the device does not function correctly, please contact the Ajax Technical Support first. In most cases, technical difficulties can be resolved remotely.

Warranty obligations

User agreement

Contact Technical Support:

- e-mail
- Telegram

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