

# Motion Protect Outdoor User Manual



**Motion Protect Outdoor** is a wireless outdoor motion detector for the Ajax security system. The detector communicates with the hub via protected Jeweller radio protocol at a distance up to 1,700 meters in the line of sight. Motion Protect Outdoor features protection against blocking the detector view (anti-masking system) and triggering by pets (pet immunity). The motion detection distance is adjustable: from 3 up to 15 meters.

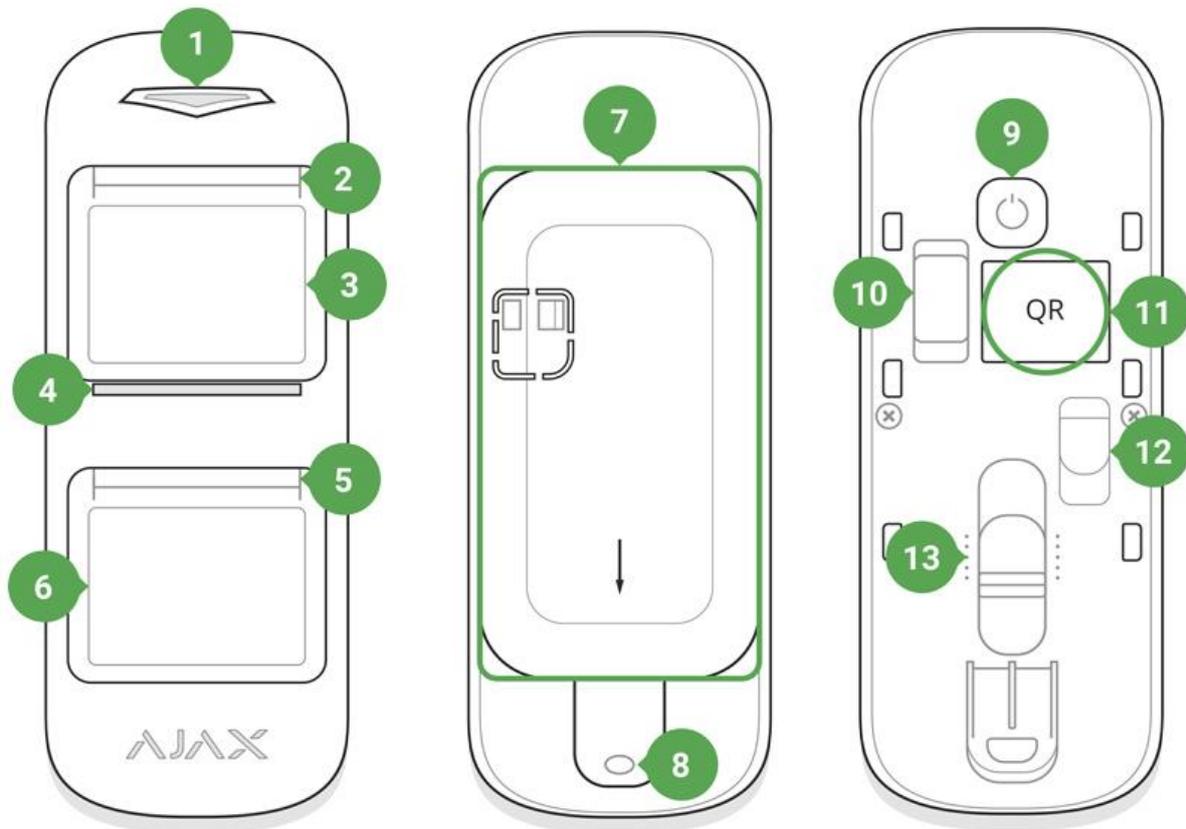
Motion Protect Outdoor can operate both on pre-installed batteries or use an external power supply. Depending on the detector settings, the batteries' life is up to 5 years.

Motion Protect Outdoor does not support connection via the ocBridge Plus and uartBridge integration modules.

The user can configure the detector via the Ajax app for iOS, Android, macOS, and Windows. The security system notifies users of all events through push notifications, SMS, and calls (if activated).

The Ajax security system can be connected to a central monitoring station of a security company.

# Functional Elements

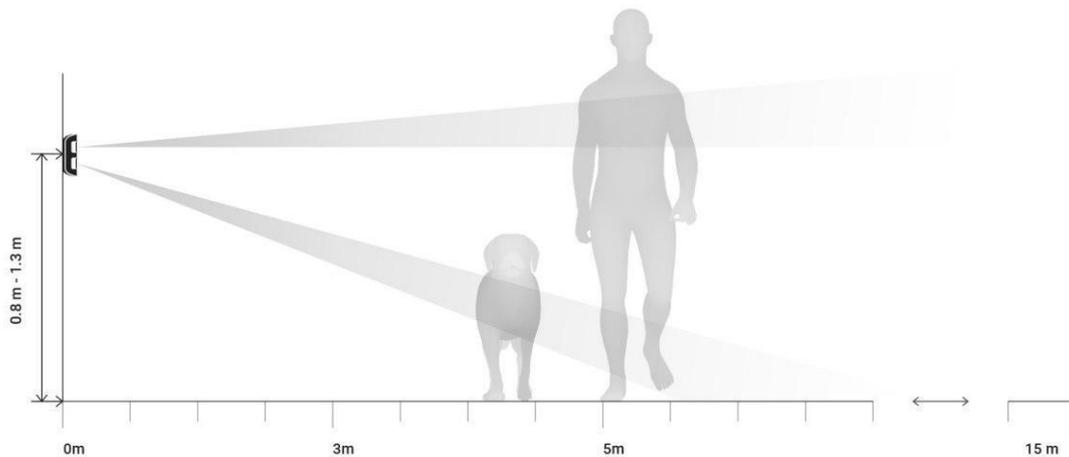


1. Main light indicator
2. Upper light indicator and masking sensor
3. Upper motion sensor lens
4. Varnish masking sensor
5. Lower light indicator and masking sensor
6. Lower motion sensor lens
7. Smart Bracket attachment panel (perforated part is required for actuating the tamper button in case of any attempt to dismantle the detector)
8. The hole for attaching Smart Bracket panel with a screw
9. "On" button
10. Tamper button
11. QR Code
12. Connector for external power supply cable outlet
13. Scrollbar for adjusting the motion detection range

# Operating Principle

When the system is armed, the detector continuously receives signals from two PIR sensors. If both sensors detect identical motion, Motion Protect Outdoor instantly transmits an alarm signal to the hub and blinks with a green LED. Motion Protect Outdoor ignores animals, birds, insects, as well as swaying plants and trees.

By a motion alarm, the security system also can activate sirens and notify a security company if connected.



The detector recognizes motion and sends the first alarm immediately, but next alarms until disarming are transmitted no more than once in 5 seconds.

If a motion is detected before the system is armed, the detector will be armed not immediately, but during the next polling by the hub.

## Anti-masking system

**Masking** is an attempt to block in any way the view of the detector's lens.

Motion Protect Outdoor detects the following types of masking:

- An obstacle in front of both lenses (an object on the height of the detector and at a distance of up to 20 cm in front of it)
- An obstacle in front of any of the lenses (an object at a distance of up to 10 cm in front of one of the lenses)
- Painting or pasting any of the lenses with an opaque substance
- Pasting the detector front side with an opaque substance
- Applying an aerosol or painting the detector front side with lacquer/paint

If one or more types of masking are detected, the detector generates a masking alarm and lights up a green LED for 1 second.

Motion Protect Outdoor detects masking regardless of the security state: armed or disarmed.

### Response time to masking

| Masking type  | Active mode (detector is armed) |                    | Passive mode (detector is disarmed) |                    |
|---|---------------------------------|--------------------|-------------------------------------|--------------------|
|   | Time to alarm, s                | Time to restore, s | Time to alarm, s                    | Time to restore, s |
| An obstacle in front of both lenses                                     | 1                               | 5,4                | 300                                 | 18                 |
| An obstacle in front of any of the lenses                               | 150                             | 13                 | 150                                 | 5,4                |
| Pasting or painting any of the lenses                                   | 150                             | 13                 | 150                                 | 5,4                |
| Pasting the detector front side   | 150                             | 9                  | 300                                 | 18                 |
| Applying aerosol or painting the detector front side with lacquer/paint | 150                             | 9                  | 150                                 | 9                  |

# Connecting

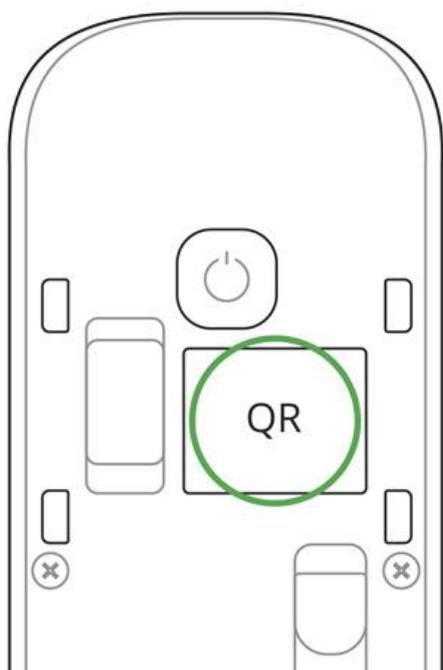
## Before starting connection:

1. Following the hub user guide, install the [Ajax app](#). Create the account, add the hub, and create at least one room.
2. Switch on the hub and check the internet connection (via Ethernet cable and/or GSM network).
3. Make sure that the hub is disarmed and does not update by checking its status in the Ajax app.

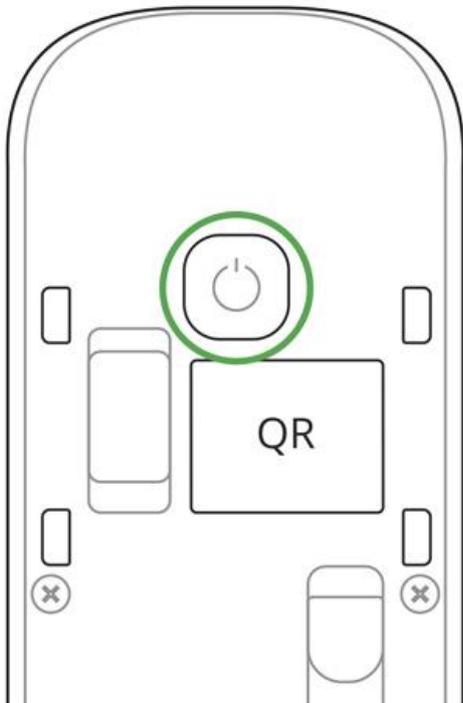
Only users with administrator rights can add the device to the hub

## How to connect the device to the hub:

1. Select the **Add Device** option in the Ajax application.
2. Name the device, scan/write manually the **QR Code** (located on the body and packaging), and select the location room.



3. Select **Add** — the countdown will begin.
4. Switch on the device by pressing the on/off button for 3 seconds.



For the detection and interfacing to occur, the detector should be located within the coverage area of the wireless network of the hub (at a single protected object). Request for connection to the hub is transmitted for a short time at the time of switching on the device.

Motion Protect Outdoor turns off automatically after 6 seconds, if it failed to connect to the hub. To retry the connection, you do not need to switch off the device. If the detector has already been assigned to another hub, turn off Motion Protect Outdoor, and then follow the standard addition procedure.

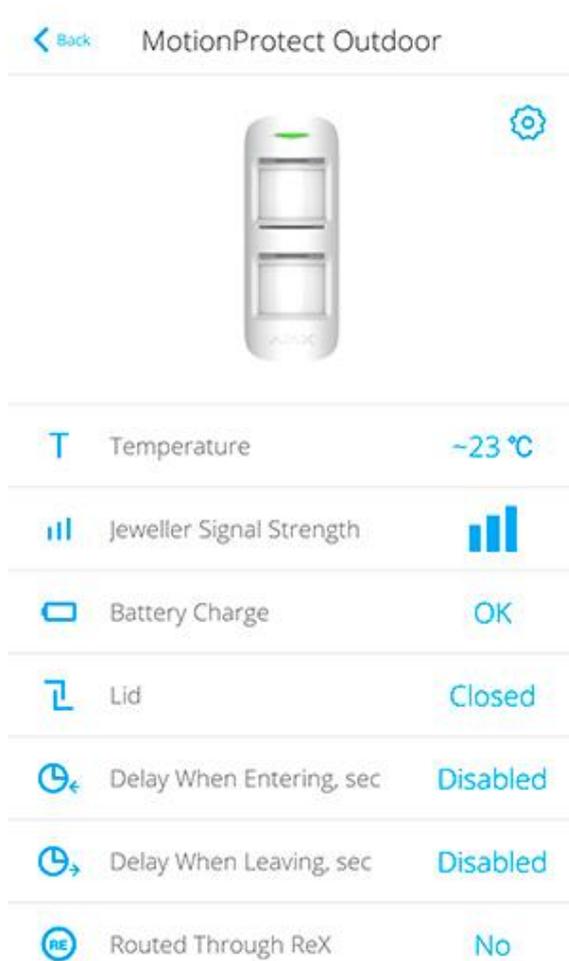
If the connection to the hub failed, repeat the connection attempt after 30 seconds.

The device connected to the hub will appear in the list of devices of the hub in the app. The update of the detector statuses in the list depends on the device ping interval set in the hub settings (the default value is 36 seconds).

To avoid masking alarms, switch off anti-masking in the device settings before the installation!

# States

1. Devices
2. Motion Protect Outdoor



← Back MotionProtect Outdoor

Temperature -23 °C

Jeweller Signal Strength

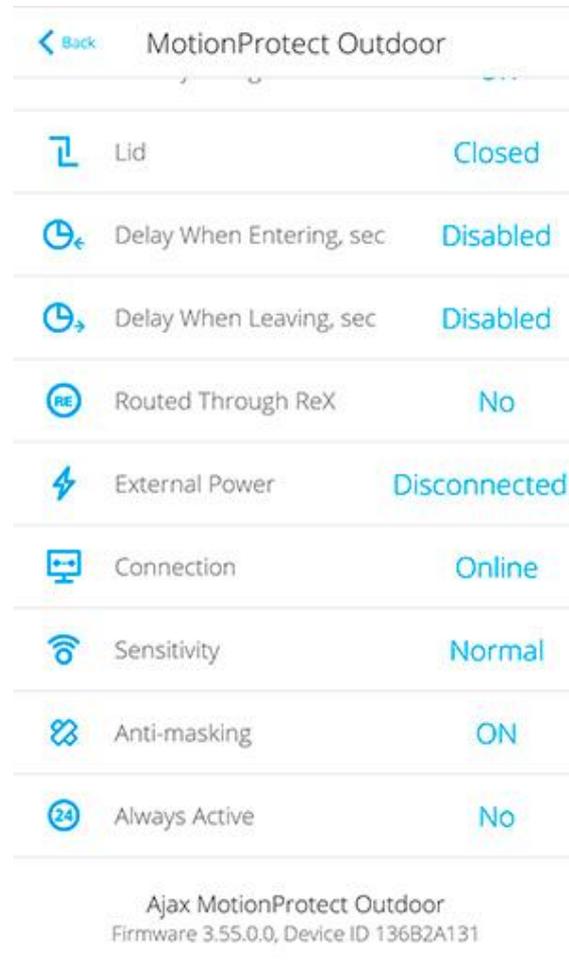
Battery Charge OK

Lid Closed

Delay When Entering, sec Disabled

Delay When Leaving, sec Disabled

Routed Through ReX No



← Back MotionProtect Outdoor

Lid Closed

Delay When Entering, sec Disabled

Delay When Leaving, sec Disabled

Routed Through ReX No

External Power Disconnected

Connection Online

Sensitivity Normal

Anti-masking ON

Always Active No

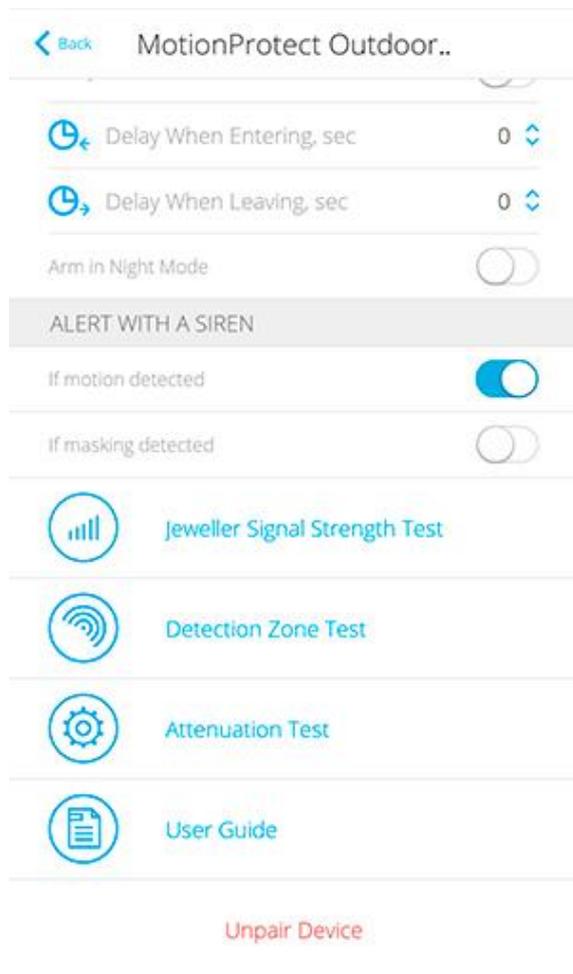
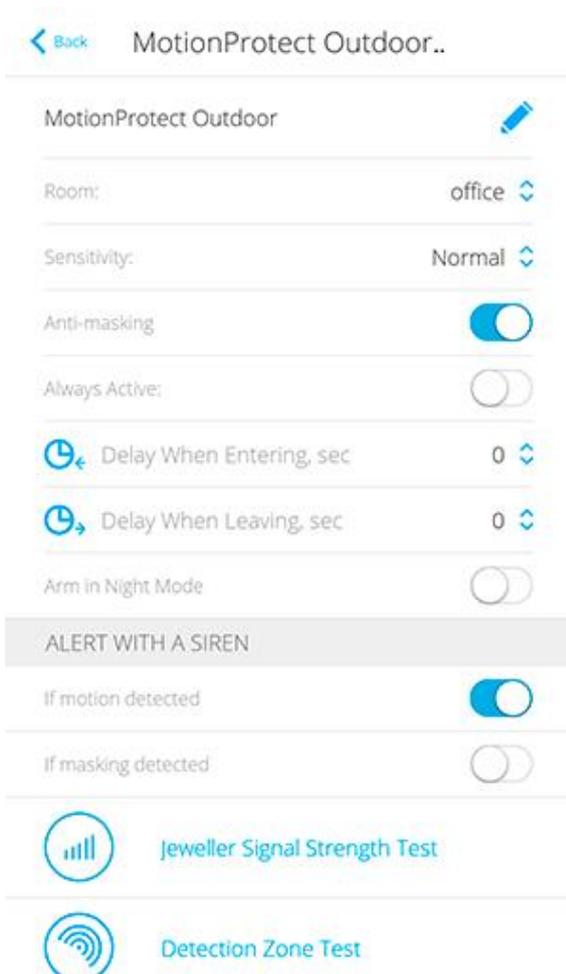
Ajax MotionProtect Outdoor  
Firmware 3.55.0.0, Device ID 136B2A131

| Parameter                | Value  |
|--------------------------|--|
| Temperature              | Temperature of the Detector. Measured on the processor and changes gradually             |
| Jeweller Signal Strength | Signal strength between the hub and the detector   |
| Connection               | Connection status between the hub and the detector                                       |
| Battery Charge           | Battery level of the detector, displayed in increments of 25%                            |
| Lid                      | The tamper mode of the detector, which reacts to the detachment of or damage to the body |
| Delay when entering, sec | Delay time when entering   |
| Delay when leaving, sec  | Delay period after the security system is armed  |

|                    |   |
|--------------------|---|
| Routed Through ReX | Displays the status of using the ReX range extender         |
| External Power     | Displays the status of using the external power supply      |
| Sensitivity        | Sensitivity level of the motion detector: low, normal, high |
| Anti-masking       | Has the anti-masking option been enabled                    |
| Always Active      | When turned on, the motion detector always detects movement |
| Firmware           | Detector firmware version                                   |
| Device ID          | Device identifier   |

# Settings

1. Devices
2. Motion Protect Outdoor
3. Settings



| Setting                               | Value  |
|---------------------------------------|--|
| First field                           | Detector name, can be edited   |
| Room                                  | Selecting the virtual room to which the device is assigned   |
| Delay when entering, sec              | Selecting delay time when entering   |
| Delay when leaving, sec               | Delay period after the security system is armed  |
| Delays in night mode                  | When enabled, the detector will experience a delay in the night mode   |
| Arm in night mode                     | When turned on, the detector will switch to armed mode when using night mode   |
| Sensitivity                           | Choosing the sensitivity level of the motion sensor:<br><br>High<br><br>Normal<br><br>Low  |
| Anti-masking                          | If active, sensor will always detect masking   |
| Always active                         | When turned on, the detector always registers motion   |
| Alert with a siren if motion detected | If active, Home Siren and Street Siren are activated when the motion detected  |
| Jeweller Signal Strength Test         | Switches the detector to the Jeweller signal strength test mode  |
| Detection Zone Test                   | Switches the detector to the detection area test:<br><br>General motion detector test<br><br>Upper motion detector test<br><br>Lower motion detector test<br><br>Masking sensor test |
| Attenuation test                      | Switches the detector to the signal fade test mode (available in detectors with <b>firmware version 3.50 and later</b> )   |
| User Guide                            | Opens the detector User Guide  |
| Un pair Device                        | Disconnects the detector from the hub and deletes its settings   |

# Indication

Motion Protect Outdoor light indicator may light up red or green depending on the device status.

## Indication When Pressing the “On” button

| Event   | Indication                                       |
|---|--|
| Pressing the power button (detector is switched on) | Lights up red while the button is held down      |
| Switching on  | Lights up green while the device is switching on |
| Switching off                                       | Initially lights up red, then blinks three times |

## Turned-on detector indication

| Event   | Indication  | Note   |
|---|---|--|
| Detector connection to the hub                                  | Lights up green for a few seconds                               |  |
| Hardware error  | Blinks red continuously   | The detector requires repair, please contact Support Service                       |
| Motion- and masking-triggered alarm or tamper button triggering | Lights up green for about one second                            |  |
| Battery needs replacing   | During the alarm, it slowly lights up green and slowly goes out | Replacement of the detector battery is described in the Battery replacement manual |

# Functionality Testing

The Ajax security system allows conducting tests for checking the functionality of connected devices.

The tests do not start immediately but within a period of 36 seconds when using default settings. The test time start depends on the settings of the detector ping interval (the “**Jeweller**” menu in the hub settings).

According to the requirements of EN50131, the level of the radio signal sent by wireless devices is reduced during the test mode.

## Choosing an installation place

Before installing the detector, conduct the Jeweller signal strength test.

Install Motion Protect Outdoor at the height of 0.8 – 1.3 m, ensuring the upper lens axis to be parallel to the ground, and the supposed intrusion path is perpendicular to the lens axis.

Motion Protect Outdoor sends an alarm to the hub only if both PIR sensors detect identical motion. The difference in time of motion detection should not exceed 1.5 seconds.

Check the detector functioning at the alleged installation place. When choosing the location of Motion Protect Outdoor, take into account the radio signal communication range.

If the signal level is low (one bar), we cannot guarantee the stable operation of the detector. Take all possible measures to improve the quality of the signal. At least, move the detector: even a 20 cm shift can significantly improve the quality of signal reception.

If the detector has low or unstable signal strength even after moving, use a ReX Radio signal range extender.

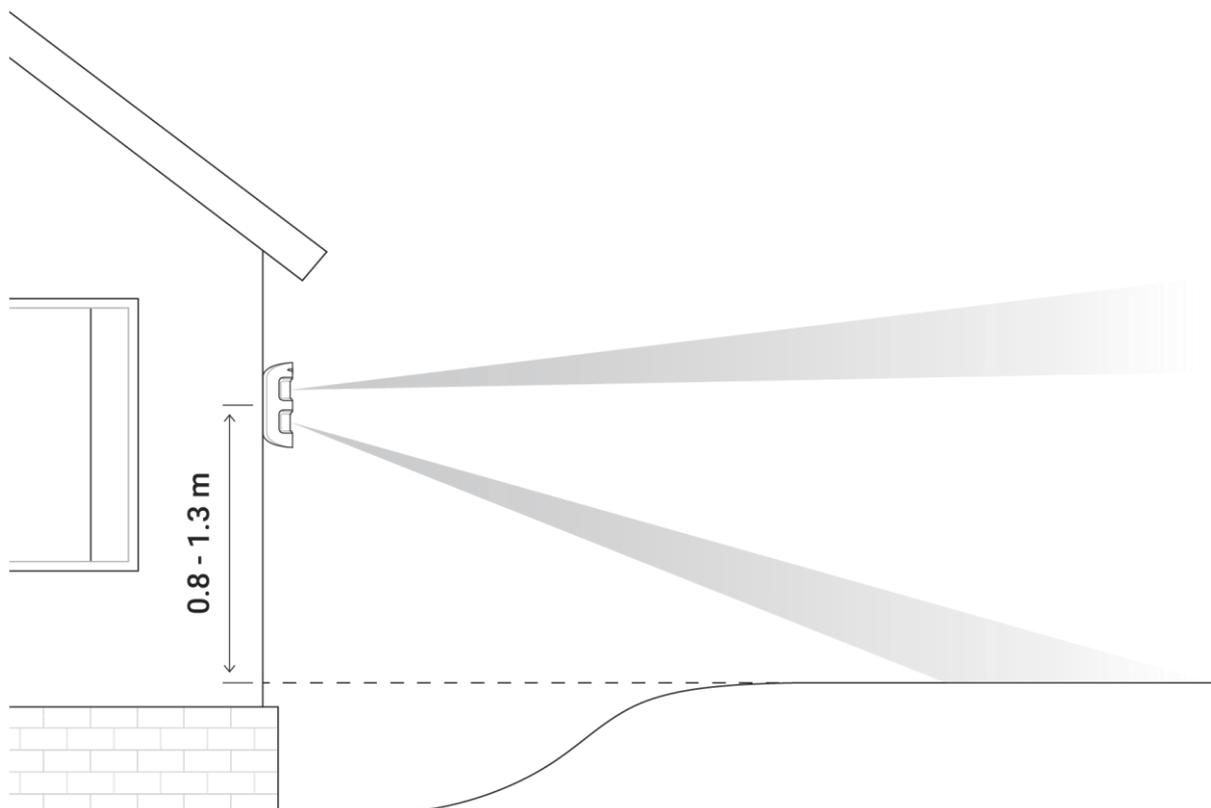
Be careful when mounting the attachment panel. Excessive force during its mounting can lead to deformation of the panel and, consequently, to the inability to install the detector or to its unreliable fixation. Attach Smart Bracket with the bundled fixing tools. Using any other tools, e.g., large diameter screws may damage the attachment panel. We do not recommend using double-sided adhesive tape for permanent mounting. The tape runs dry with time, which can cause falling, false triggering, and detector malfunction.

### Do not install the detector:

- Opposite the trees whose leaves can be in the detection zone of the upper and lower PIR sensors of the detector.
- Opposite the bushes higher than 80 cm.
- Near metal objects and mirrors (they can shield the radio signal and lead to its attenuation).
- Closer than 1 meter from the hub.

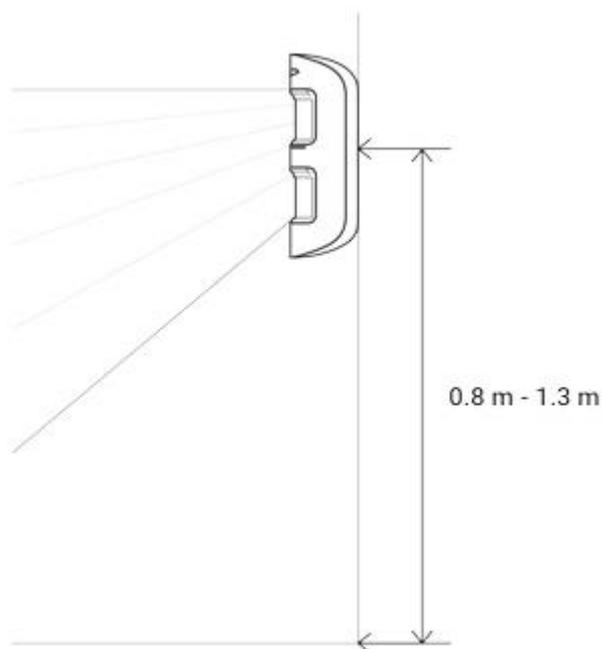
Note that Motion Protect Outdoor does not detect movement behind the glass. Therefore, do not install the detector in locations where glass objects can obstruct the detector's view. For example, in places where a glass door can obstruct the view of the device.

Install detector at a height 0.8 to 1.3 meters so that its upper lens looks parallel to the ground. If the site is uneven, the installation height is considered from the highest point of the territory controlled by the detector.

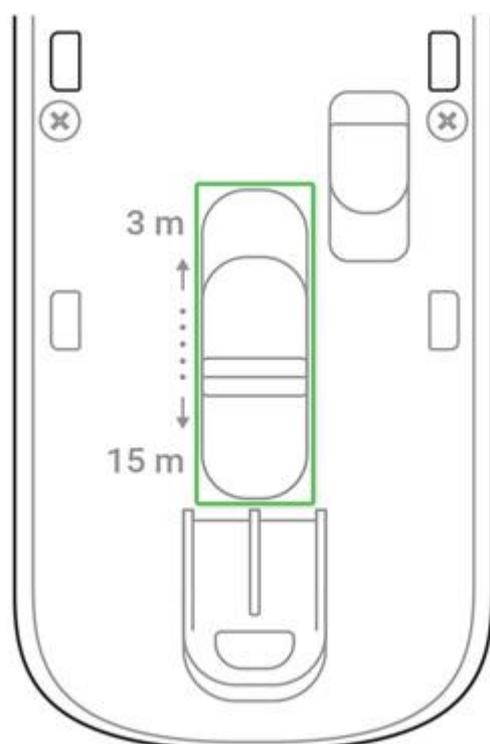


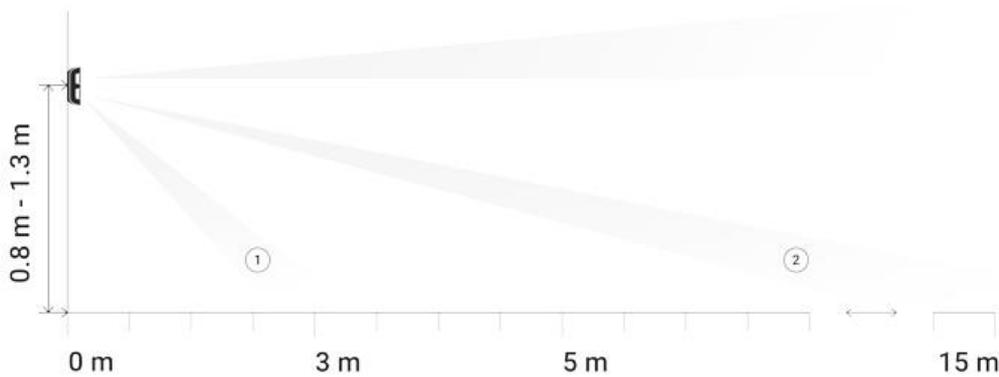
## Detector installation procedure

1. Fix the Smart Bracket attachment panel on the surface temporarily using bundled screws or double-sided adhesive tape. Consider the installation height: 0.8 – 1.3 meters.



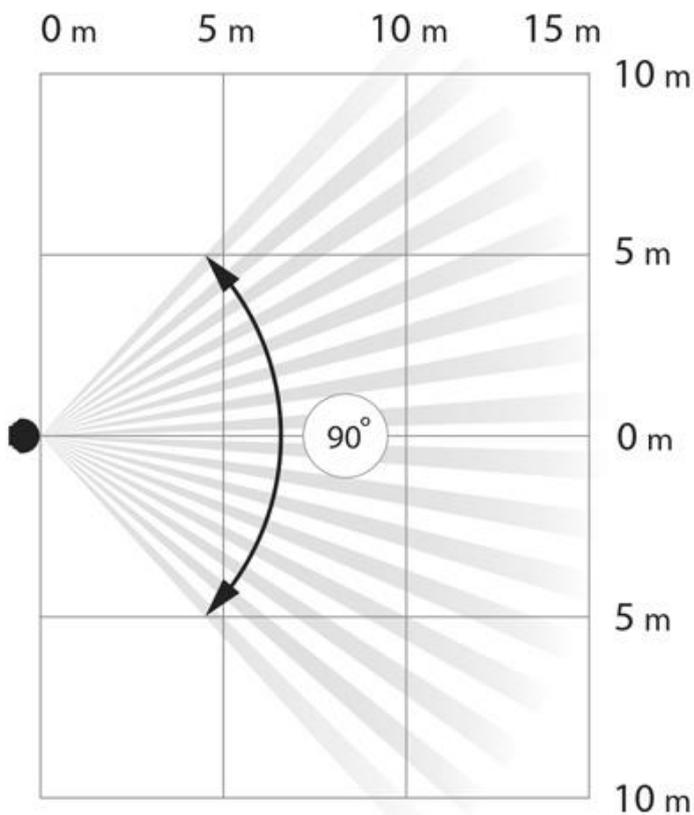
2. Select the motion detection distance (3 to 15 m) using the adjustment scroll bar.





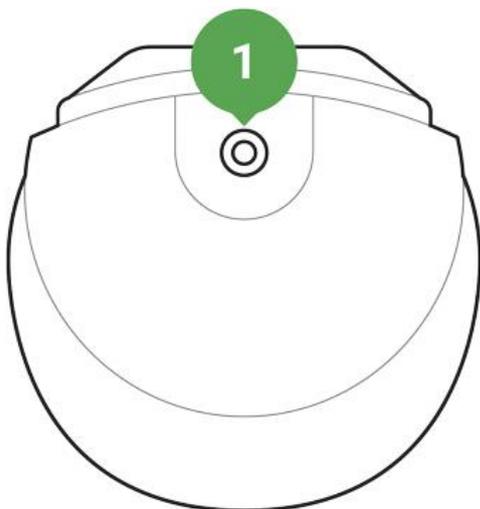
*The lower PIR sensor beam direction with the specified minimum (1) and maximum (2) detection range*

- Put Motion Protect Outdoor on the Smart Bracket attachment panel. Leave the detection area (horizontal detection angle —  $90^\circ$ ) and make sure that there are no moving objects within the detection area to calibrate anti-masking sensors properly.



Attention! The anti-masking sensors will begin to calibrate automatically when the detector has been put on the Smart Bracket attachment panel. Calibration lasts up to 30 seconds and is followed by the flashing upper and lower LED indicators.

4. Conduct the Detection Zone Test for upper and lower sensors separately, both sensors simultaneously, and anti-masking test in the [Ajax app](#). If the detector does not react to motion, select the appropriate sensitivity level, detection range, and check the detector slope angle.
5. If all tests have been appropriately passed, fix the Smart Bracket to the surface with screws permanently, put Motion Protect Outdoor on the attachment panel, and wait until the end of calibration. Fix the detector on the attachment panel with the bundled screw.

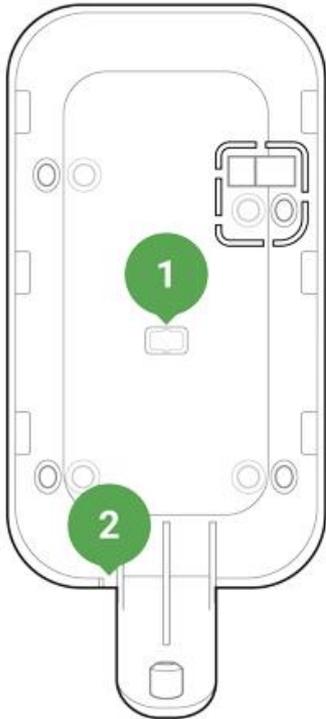


## Connecting External Power Supply

Motion Protect Outdoor can use external power supply 5-28 V DC, 200 mA. If the external power supply is connected, there is no need to remove the pre-installed batteries. Batteries provide the detector with the backup power source.

### **To connect the external power supply:**

1. Disassemble the detector body: remove the screws and open the lid.
2. Break off special caps on the Smart Bracket attachment panel:

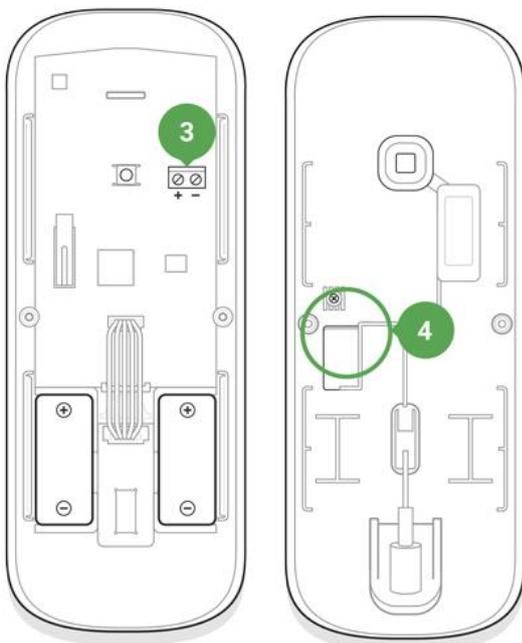


1. A cap for putting out the power supply wire behind the Smart Bracket attachment panel

2. A cap for putting out the power supply wire below the Smart Bracket attachment panel

3. Run the external power supply dead wire through the attachment panel and cap.

4. Connect the cable to the terminal strips observing polarity. Fix the wire with the clamp.



- 3. Terminal strips on the detector board
- 4. The clamp on the back of the detector body

- 5. Switch on the power supply. The value of the **External Power Supply** field in the detector settings will change to **Connected**.

Use grounded power supply source only!

- 6. Fix the rear of the body with screws, install the detector and wait until the end of calibration.

## Maintenance

Check the operational capability of the detector regularly. Clean the detector body from dust, spider web, and other contaminants as they appear. Use soft dry napkin suitable for tech equipment.

Do not use any substances containing alcohol, acetone, gasoline, and other active solvents to clean the detector.

The pre-installed battery ensures up to 5 years of autonomous operation (with the 3 minutes ping interval by the hub). If the detector battery is low, the system notifies the user, and the LED indicator smoothly lights up and goes off if a glass break is detected or the tamper is triggered.

## Tech Specs

|                                     |  |
|-------------------------------------|--|
| Sensing element                     | PIR sensor, 2 pcs  |
| Detection angle, horizontal         | 90°  |
| Motion detection distance           | Adjustable, 3–15 m when the detector is installed at 1 m height      |
| Protection against masking          | Yes  |
| Pet ignoring function               | Yes, height up to 80 cm when the detector is installed at 1 m height |
| Protection against false triggering | Yes, algorithmic analysis  |

|                             |   |
|-----------------------------|---|
| Frequency band              | 868.0 – 868.6 MHz or 868.7 – 869.2 MHz, depending on the sales region |
| Compatibility               | Operates only with Hub, Hub Plus, Hub 2 and ReX                       |
| Maximum radio signal power  | Up to 20 mW   |
| Radio signal modulation     | GFSK  |
| Radio signal range          | Up to 1,700 m (where there are no obstacles)                          |
| Power supply                | 2 × CR123A, 3 V   |
| Battery life                | Up to 5 years   |
| External power              | 5 – 28 V DC, 200 mA   |
| Usage                       | Indoors and outdoors  |
| Body protection level       | IP55  |
| Anti-tamper switch          | Yes   |
| Operating temperature range | From -25°C to +60°C   |
| Operating humidity          | Up to 95%   |
| Overall dimensions          | 183 × 70 × 65 mm  |
| Weight                      | 322 g   |

## Complete set

1. Motion Protect Outdoor
2. Smart Bracket mounting panel
3. CR123A battery — 2 pcs. (pre-installed)
4. Installation kit
5. Quick Start Guide

# Warranty

Warranty for the “AJAX SYSTEMS MANUFACTURING” LIMITED LIABILITY COMPANY products is valid for 2 years after the purchase and does not apply to the pre-installed battery.

If the device does not work correctly, you should first contact the support service—in half of the cases, technical issues can be solved remotely!