

# DualCurtain Outdoor User Manual

Updated May 7, 2021



**DualCurtain Outdoor** is a wireless bi-directional outdoor curtain motion detector with an adjustable detection range of up to 30 meters. It has anti-masking protection and ignores animals if set up and installed correctly.

The detector has a narrow horizontal viewing angle and is designed to control the perimeter and passages to the protected facility: windows, arches, doors, gates.

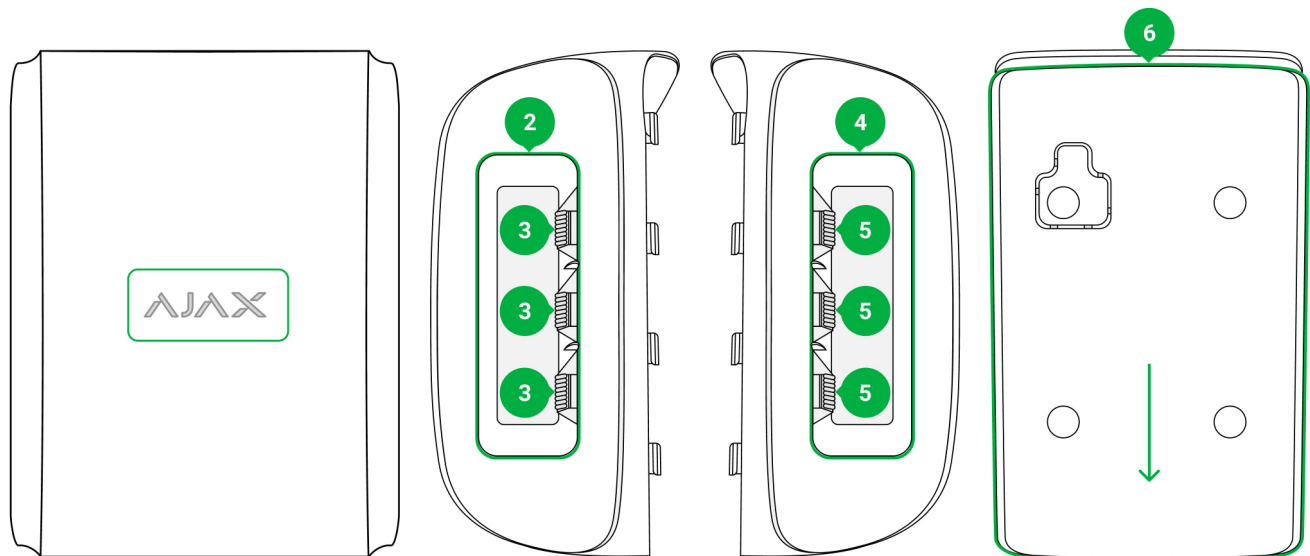


The detector only works with [Hub Plus](#), [Hub 2](#), [Hub 2 Plus](#), and the [ReX range extender](#). Connection to [Hub](#) and the [ocBridge Plus](#) and [uartBridge](#) integration modules is not supported!

DualCurtain Outdoor operates as part of the Ajax security system by connecting via the [Jeweller](#) secure radio communication protocol to the hub. The communication range without obstacles is up to 1,700 meters.

## Functional elements

### Detector body elements



1. Ajax logo with an LED indicator
2. Right detector lens
3. Masking sensors on the right side of the detector
4. Left detector lens
5. Masking sensors on the left side of the detector
6. SmartBracket attachment panel (to remove, slide the panel down)

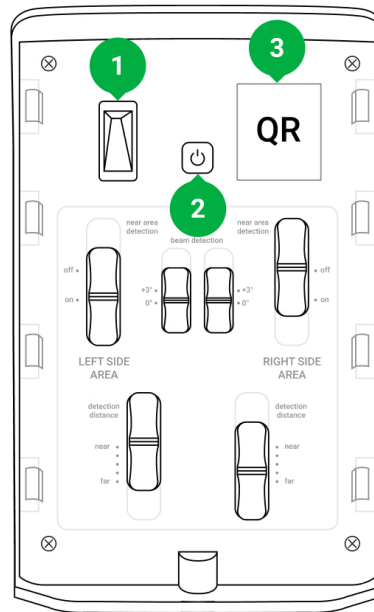


The perforated part is necessary to trigger a tamper if there is an attempt to detach the detector from the surface. Do not detach it!

7. The hole for attaching SmartBracket panel with a screw



Controls and adjustment elements are located on the back of the detector.

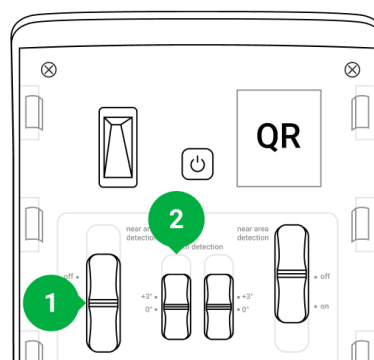


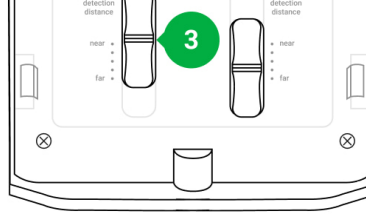
1. Tamper button. Triggers when an attempt is made to detach the detector from the surface or remove it from its mounting

### What is a tamper

2. Detector switch
3. Detector QR code. Is used to connect to the Ajax security system

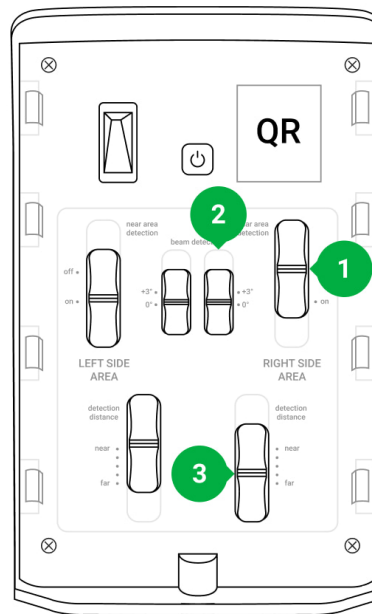
## Adjustment elements for the left side of the detector





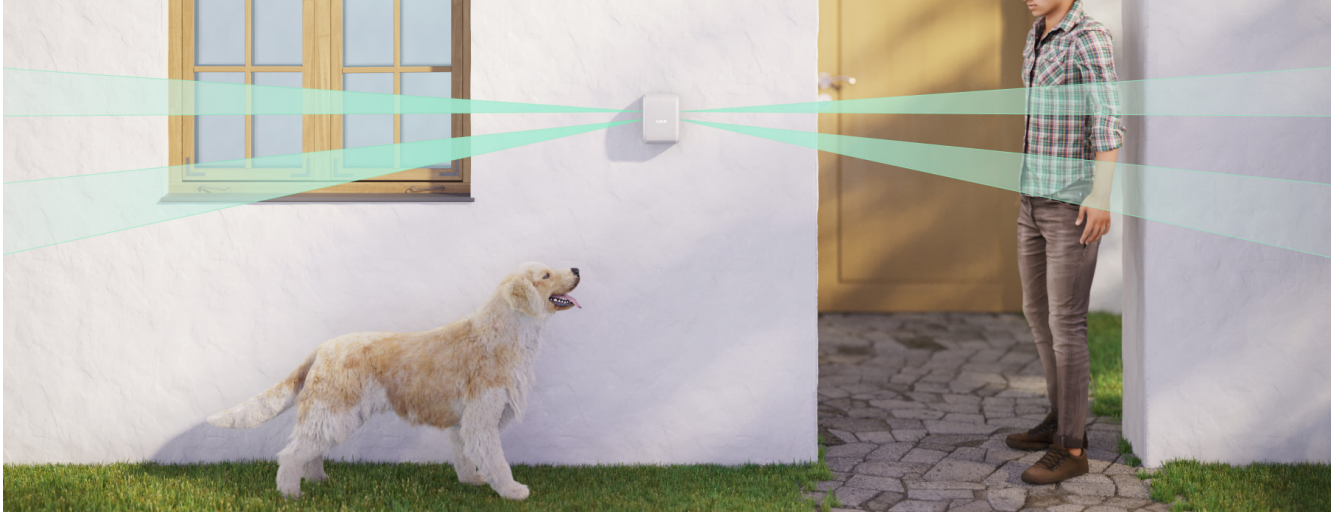
1. **Near area detection** switch for the left side of the detector
2. **Beam direction** switch for the left side of the detector for 3°
3. Scrollbar for adjusting the **Detection distance** of the left side of the detector

## Adjustment elements for the right side of the detector



1. **Near area detection** switch for the right side of the detector
2. **Beam direction** switch for the right side of the detector for 3°
3. Scrollbar for adjusting the **Detection distance** of the right side of the detector

## Operating principle



DualCurtain Outdoor is a bi-directional outdoor curtain motion detector. IR sensors of the detector identify intrusions by detecting moving objects with temperatures close to that of the human body.

### [Learn more about Ajax motion detectors](#)

The detector in the armed mode constantly reads the sensor signals. When a motion is detected, DualCurtain Outdoor transmits an alert to the hub and alarms by flashing the logo (if the indication is on). Motion is detected if both IR sensors on one side detect a threat.

When alerted, the hub activates sirens, starts scenarios, notifies users and the security company. All DualCurtain Outdoor alerts and events are recorded in the notification feed of the Ajax app.




The detector informs about consecutive triggering at intervals of 5 seconds. Keep this in mind when testing the detector.

DualCurtain Outdoor includes two opposing narrow-angle motion detectors. They provide motion detection in a narrow lane up to 30 meters long (15 meters in each direction).



The motion detection distance for each side can be adjusted independently, allowing you to set the detection zone precisely and avoid false alarms on bushes, trees, or other objects.

Users are notified of where the motion was detected. The notifications include the name of the device, the virtual room, and the party that triggered it. Pressing the  button opens an image of the party that raised the alarm.



The detector doesn't go into the armed mode instantly. The arming time depends on two factors: exit delays (specified in the detector settings) and the detector ping interval (Jeweller settings, the default value is 36 seconds).

In the first case, the delay is set by a user. In the second case, the delay is due to the fact that the hub notifies the detector about the transition to the armed mode not instantly, but within one ping interval.

## Pet immunity

When set up and installed correctly, DualCurtain Outdoor ignores animals up to 80 centimeters tall. The detector is equipped with four IR sensors (two on each side). DualCurtain Outdoor only raises an alarm when motion is detected by two sensors on one side.

## Anti-masking system

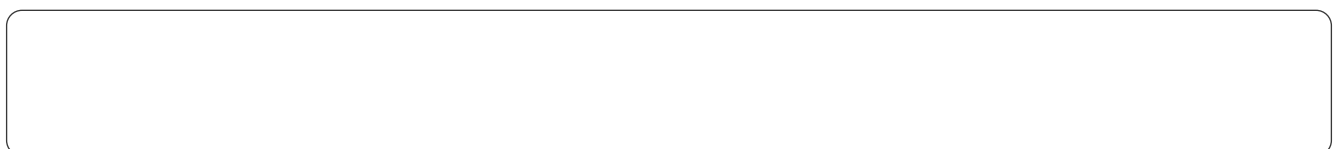
**Masking** is an attempt to block the view of the detector by painting over it, covering it, placing an obstacle in front of the detector's lens, or otherwise.

**DualCurtain Outdoor detects the following types of masking:**

- Obstacle in front of the detector's lens at a distance of up to 10 centimeters (depends on the material).
- Painting over the lenses or the detector's side.
- Taping the lenses or the detector's side.

Masking type	Time to alarm, seconds	Time to restore, seconds
Obstacle in front of the detector's lenses (at a distance of up to 10 centimeters from the lens)	7	20
Painting over the lenses or the detector's side	100	20
Taping the lenses or the detector's side	100	20

The system informs the users and the security company monitoring station about masking. For extra protection and awareness, turn on the siren response to masking. The maximum masking detection time is 180 seconds (depends on the type of obstacle and the distance to it).



To filter out false alarms, DualCurtain Outdoor uses a three-stage software algorithm that analyzes the signals from two narrow-angle IR sensors of the optical system – ELSA.

### **1. Form analysis**

The shapes of both IR sensor signals should indicate the crossing of the protected zone. In any direction: either perpendicular or along the direction of the detector optics. At the same stage, a correction for the signal intensity is made to take into account the distance from the sensors and the size of the object.

### **2. Comparison of patterns**

The signal amplitudes are verified with the pattern database. To create it, we analyzed millions of test triggers of curtain detectors on people, animals, lights, and other natural disturbances in various weather conditions. Signal patterns should be the same or insignificantly different from those typical to humans.

### **3. Time verification**

When signals from both IR sensors match the conditions: this is a motion and it is typical for a human, the ELSA algorithm compares the time windows of the signals – whether the upper and lower sensors detected the motion synchronously.

The system raises an alarm if all three conditions were met. The ELSA algorithm takes less than 1 second to render a “threat” or a “false alarm” verdict.

## **Near area detection**

Outdoor curtain detectors have a blind spot near the detector. Its size depends on the height of the installation, the type of the detector, and the motion detection distance. The blind spot creates a potential vulnerability in the security system.



When the option is enabled, DualCurtain Outdoor significantly reduces the blind spot near the sensors and can protect doors, windows, and other pathways into the room that are in close proximity to the detector.

The **Near area detection** mode is customizable for each side on the back of the detector body, and it allows the sensors to detect motion when a person crosses the protected perimeter near the device body, leveling out the blind spot.



The **Near area detection** mode is designed to protect windows and other passages that are not accessible to animals. It excludes pet immunity in the proximity of the detector.

## Viewing angle shift

DualCurtain Outdoor supports the viewing angle shift function via the **beam direction** slider. When the function is on, the horizontal viewing angle is shifted by 3 degrees. The function is set individually for each side on the back of the detector body.

This helps avoid blind spots and view limitations if there are obstacles in the way of the detector's detection zone. For example, gutters, columns, or lamps.

## Event transmission to the monitoring station

The Ajax security system can transmit alarms to the central monitoring station (CMS) in such protocol formats as **Sur-Gard (ContactID)**, **SIA DC-09**, and other proprietary protocols. A complete list of supported protocols is [available here](#).

[Which CMSs can the Ajax security system be connected to](#)



The detector is not compatible with [Hub](#), third-party security central units, and [ocBridge Plus](#) and [uartBridge](#) integration modules.

## Before adding a device


1. Install the [Ajax app](#). Create an [account](#). Add a hub to the app and create at least one room.
2. Make sure that the hub is on and has Internet access (via Ethernet cable, Wi-Fi, and/or mobile network). You can do this in the Ajax app or by checking the hub logo on the faceplate. The logo should light up white or green if the hub is connected to the network.
3. Make sure that the hub is disarmed and does not start updates by checking its status in the Ajax app.



Only a user or a PRO with administrator rights can add a device to the hub.

### Types of accounts and their rights

## How to add DualCurtain Outdoor to the system

1. Open the Ajax app. If your account has access to multiple hubs, select the one to which you want to add DualCurtain Outdoor.
2. Go to the **Devices**  menu and click **Add Device**.
3. Name the detector, scan or type in the QR code (placed on the detector body

The connected detector will appear in the list of hub devices in the Ajax app. Device statuses updating in the list depends on the **Jeweller settings**; the default value is 36 seconds.





If the connection failed, try again after 5 seconds. If the maximum number of devices has already been added to the hub, you will be notified when you try to add a new one.






DualCurtain Outdoor works only with one Ajax hub. When connected to a new hub, the detector stops sending commands to the old one. Once added to a new hub, DualCurtain Outdoor is not removed from the device list of the old hub. This must be done through the Ajax app.

## Icons

The icons represent some of DualCurtain Outdoor statuses. You can see them in the **Devices**  tab, in the Ajax app.


Icon	Value
	Jeweller signal strength between the hub (or a ReX range extender) and the detector
	DualCurtain Outdoor battery level
	Malfunction detected. A list and description of malfunctions are available in the detector states
	DualCurtain Outdoor works via a ReX radio signal range extender


	<a href="#"><u>Learn more</u></a>
	KeyPad Combi body status notifications are temporarily disabled <a href="#"><u>Learn more</u></a>
	KeyPad Combi is temporarily excluded from the system operation <a href="#"><u>Learn more</u></a>

## What do icons mean in Ajax mobile apps

### States

The states include information about the device and its operating parameters. The states of DualCurtain Outdoor can be found in the Ajax app:

1. Go to the **Devices**  tab.
2. Choose DualCurtain Outdoor in the list.

Parameter	Value
Malfunction	Pressing  opens the DualCurtain Outdoor malfunctions list.  <b>The field is displayed only if a malfunction is detected</b>

Connection	<p>the ReX range extender and the DualCurtain Outdoor detector:</p> <ul style="list-style-type: none"><li>● <b>Online</b> – the detector is online</li><li>● <b>Offline</b> – no connection to the detector</li></ul>
Battery charge	<p>The battery charge level of the device. Two states are available:</p> <ul style="list-style-type: none"><li>● OK</li><li>● Battery low</li></ul> <p>When the batteries are discharged, the Ajax apps and the security company will receive appropriate notifications.</p> <p>After sending a low battery notification, the detector can work for up to 2 months</p> <p><b><u>How battery charge is displayed in Ajax apps</u></b></p>
Lid	<p>The status of the detector's tamper that responds to detachment of or damage to the body:</p> <ul style="list-style-type: none"><li>● Opened</li><li>● Closed</li></ul> <p><b><u>What is a tamper</u></b></p>
	<p>Delay when entering time (5 to 120 seconds).</p>

arming

## What is Delay When Leaving

Temporary deactivation

Shows the status of the device temporary deactivation function:

- **No** – the device operates normally and transmits all events
- **Lid only** – the hub administrator has disabled notifications about the body opening
- **Entirely** – the hub administrator has entirely excluded the detector from the system. The device does not execute system commands and does not report alarms or other events
- **By number of alarms** – the device is automatically disabled when the number of alarms is exceeded (specified in the settings for **Devices Auto Deactivation**). The feature is configured in the Ajax PRO app

Learn more

### Left side

Active

Indicates whether the **left** side of the device is on.

The states of the left side (below) will be available if the side is active

Sensitivity level of the **left** side of the motion

Anti-masking	<ul style="list-style-type: none"> <li>● <b>Alarm</b> – masking detected</li> <li>● <b>On</b> – the anti-masking system is on</li> <li>● <b>Off</b> – the anti-masking system is off</li> </ul> <p><a href="#"><u>Learn more</u></a></p>
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<b>Right side</b>	
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Active	<p>Indicates whether the <b>right</b> side of the device is on.</p> <p>The states of the right side (below) will be available if the side is active</p>
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Sensitivity	<p>Sensitivity level of the <b>right</b> side of the motion detector:</p> <ul style="list-style-type: none"> <li>● Low</li> <li>● Medium</li> <li>● High</li> </ul>
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Always active	<p>When enabled, the <b>right</b> side of the detector is constantly armed and detects motion</p> <p><a href="#"><u>Learn more</u></a></p>
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	<p>Masking state of the <b>right</b> sensor of the detector:</p>
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# Settings


**Note** that only part of the detector parameters can be configured in the Ajax app. Detection distance, horizontal viewing angle shift, and near zone detection are adjustable with switches on the detector body.

## To change the detector settings in the Ajax app:

1. Go to the **Devices**  tab.
2. Choose DualCurtain Outdoor in the list.
3. Go to **Settings** by clicking on the gear icon .



To apply the settings after the change, click the **Back** button.

Settings	Value
First field	Detector name. Displayed in the list of hub devices, SMS text, and notifications in the event feed.  To change the detector name, click on the pencil icon  .



<p>Delay when leaving, s</p>	<p>Delay when leaving time (5 to 120 seconds). Turns on for both sides of the detector.</p> <p>Delay when leaving (arming delay) – this is the time the user has to leave the secured area after arming</p> <p><b><u>What is Delay When Leaving</u></b></p>
<p>Delays in Night mode</p>	<p>When enabled, the delays when entering and leaving apply to the Night mode.</p> <p>The field is displayed and active if delays are enabled, as well as the <b>Arm in Night mode</b> feature</p> <p><b><u>What is Night mode</u></b></p>
<p>Arm in Night mode</p>	<p>If active, the device will switch to Armed mode when using Night mode</p> <p><b><u>What is Night mode</u></b></p>
<p>Alarm LED indication</p>	<p>Allows you to disable the flashing of the Ajax logo on the detector in case of an alarm, tamper triggering or masking detection</p>

	the detector doesn't react to motion in 5 cases out of 5, the sensitivity can be increased
Always active	<p>When enabled, the <b>left</b> side of the detector is constantly armed and detects motion</p> <p><a href="#"><u>Learn more</u></a></p>
Anti-masking	<p>When enabled, DualCurtain Outdoor will detect masking on the <b>left</b> side of the detector</p> <p><a href="#"><u>Learn more</u></a></p>
<b>Right side</b>	
Active	When enabled, the <b>right</b> side of the detector will be active
Sensitivity	<p>Selection of the sensitivity level of the <b>right</b> side of the motion detector:</p> <ul style="list-style-type: none"> <li>● Low</li> <li>● Normal (default)</li> <li>● High</li> </ul> <p>The choice of the sensitivity level is determined during the detection zone test. If during the test</p>

Alert with a siren if masking detected – left	<p>the <b>left</b> side of the detector</p> <p>When enabled, the <u>sirens</u> connected to the system are activated when masking of the <b>left</b> side of the detector is identified</p>
Alert with a siren if motion detected – right	<p>When enabled, the <u>sirens</u> connected to the system are activated when motion is detected on the <b>right</b> side of the detector</p>
Alert with a siren if masking detected – right	<p>When enabled, the <u>sirens</u> connected to the system are activated when masking of the <b>right</b> side of the detector is identified</p>
Jeweller Signal Strength Test	<p>Switches the detector to the Jeweller signal strength test mode.</p> <p>The test allows you to check the signal strength between the hub (or ReX range extender) and the detector and choose the optimal installation location</p> <p><u><b>What is Jeweller Signal Strength Test</b></u></p>
	<p>Switches the detector to the detection zone test mode.</p> <p>The test allows you to check how the detector responds to motion and masking and to</p>

## What is Attenuation Test

User Manual

Opens the DualCurtain Outdoor User Manual in the Ajax app

Temporary deactivation

Allows the user to disable the device without removing it from the system. Two options are available:

- **Entirely** – the device will not execute commands or participate in automation scenarios. The system will ignore alarms and other device notifications
- **Lid only** – the system will only ignore notifications about the device tamper triggering

### Learn more

The system can also automatically deactivate devices when the set number of alarms is exceeded

### Learn more

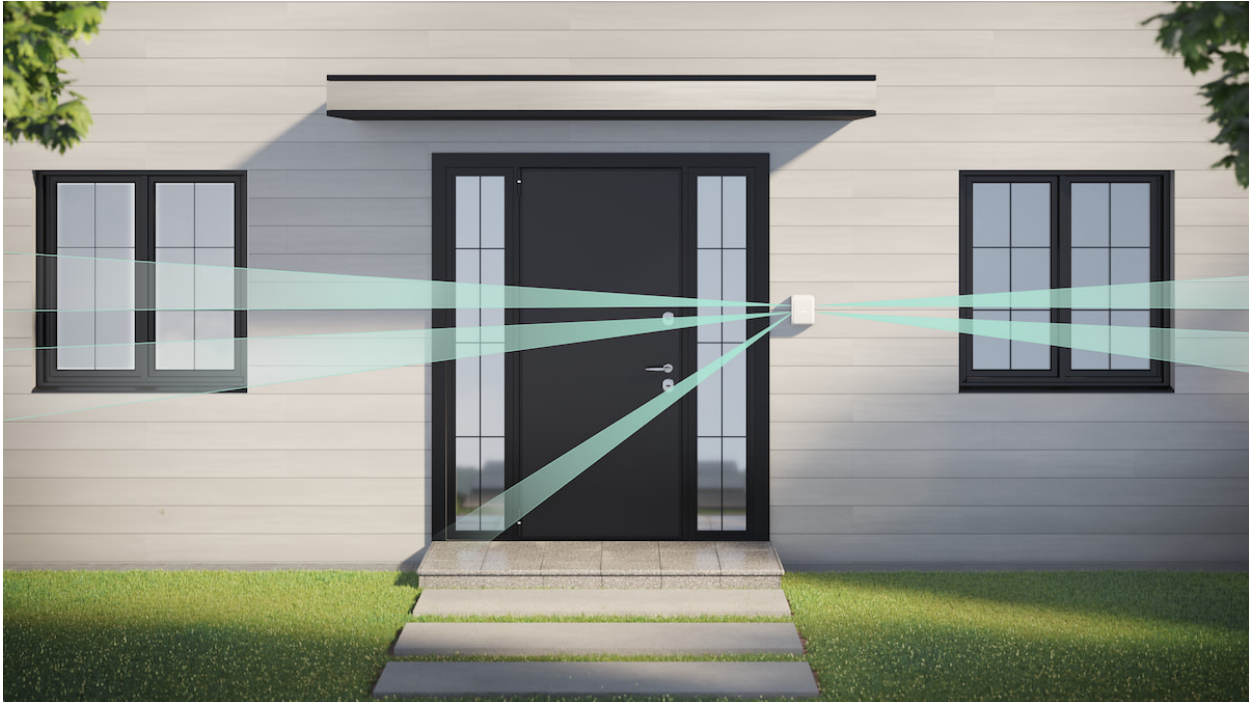
First lights red, then blinks three times and turns off	Deactivation
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## Enabled detector indication

Indication	Event
Lights up green for 1 second	Alarm, masking, or tamper activation
Blinks red after the first power on	Hardware error. The detector requires repairing, please contact <a href="#">Support Service</a>
Blinks red in a few minutes after installing in SmartBracket	Calibration was not successful – something was obstructing the detector’s view during calibration, or it was not installed correctly. Recalibrate the detector. Take off the detector from the bracket, then put it back. Make sure that nothing interferes with the detector’s view. Re-adjustment will start automatically
Lights green for a few seconds	Detector connection to the hub
In case of alarm, masking or tampering, it lights up smoothly and goes out in green	Detector batteries need to be replaced. The instruction on how to replace the batteries is <a href="#">available here</a>

- Attenuation Test

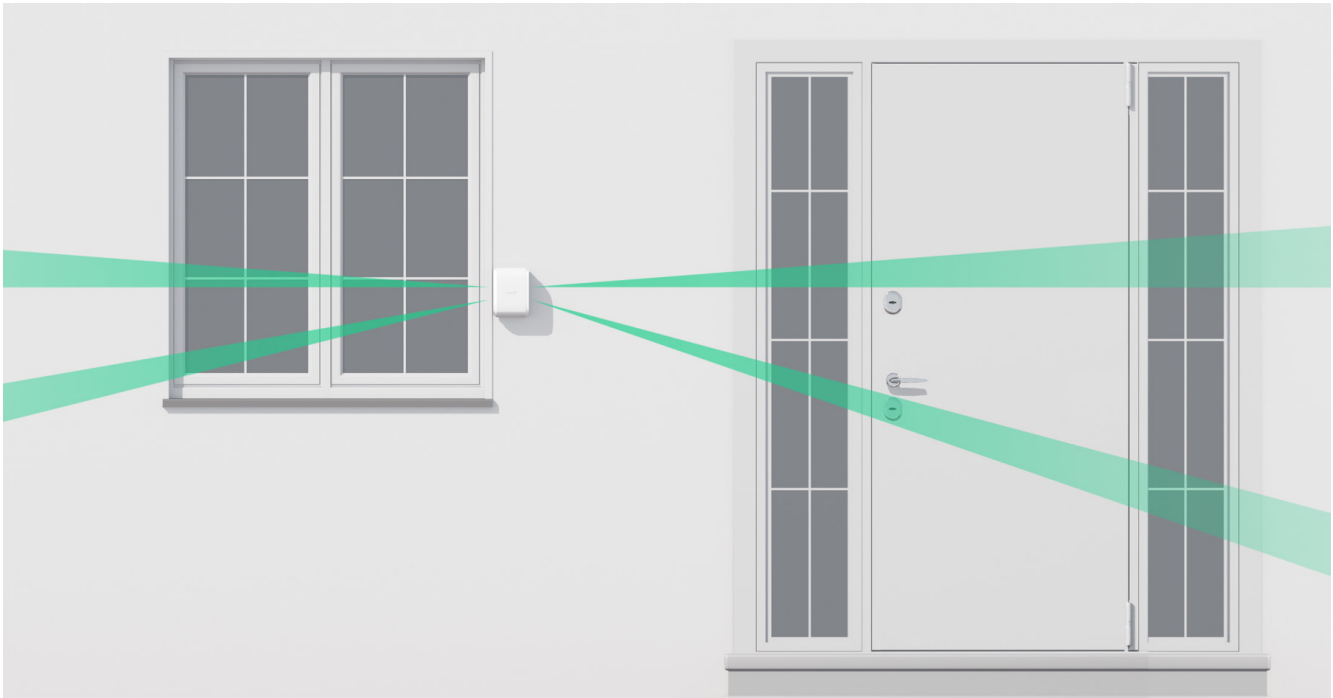
## Choosing a location



DualCurtain Outdoor is suitable for the protection of the area around the secured

animals.

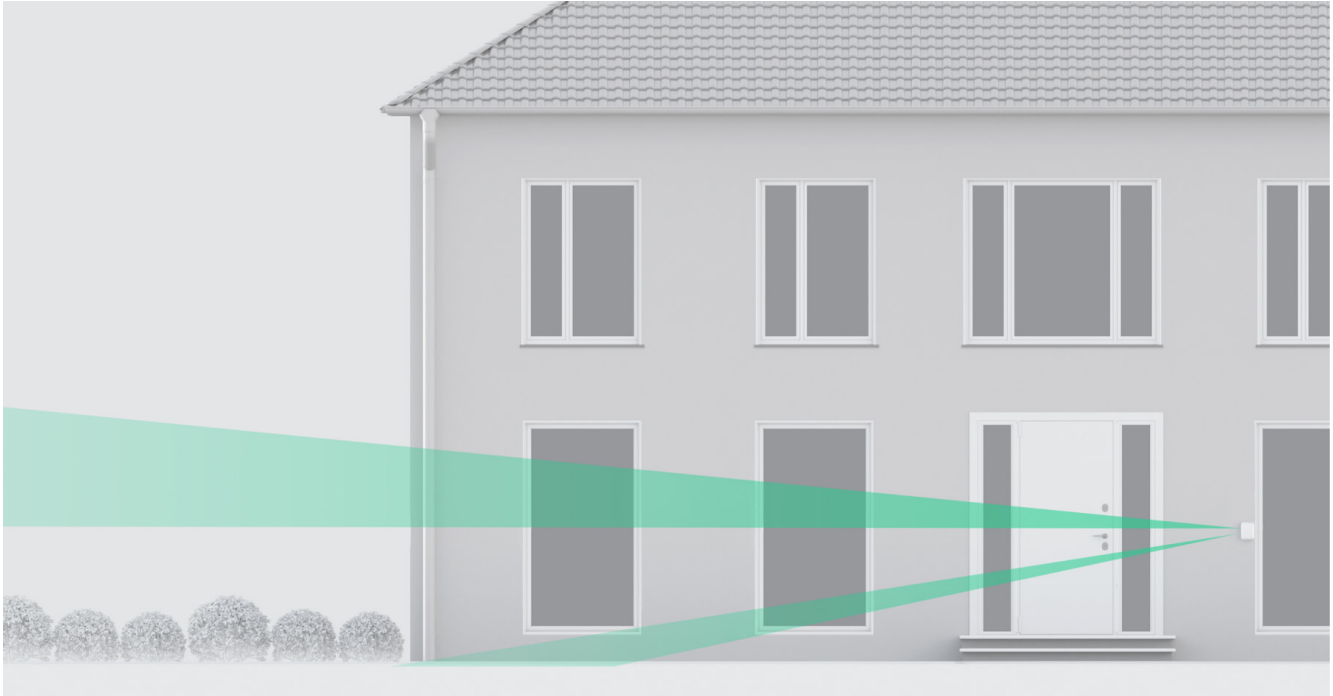
If the device is used to protect windows or window displays, **the detector is placed at the height of 0.5 to 0.6 meters from the window sill.**



low (a single bar), we cannot guarantee a stable operation of the security system. At the very least, relocate the device as repositioning even by 20 cm can significantly improve the signal reception.

If poor or unstable signal strength is still reported after the relocation of the detector, use the [ReX radio signal range extender](#).

## Detection zone





Fourth division	Up to 12 meters
Fifth division (corresponds to the <b>far</b> inscription on the detector body)	Up to 15 meters



The detection distance was tested at the medium sensitivity level, ambient temperature of +23°C, and clear weather. Motion type – walking. Under other conditions, the results may be different.

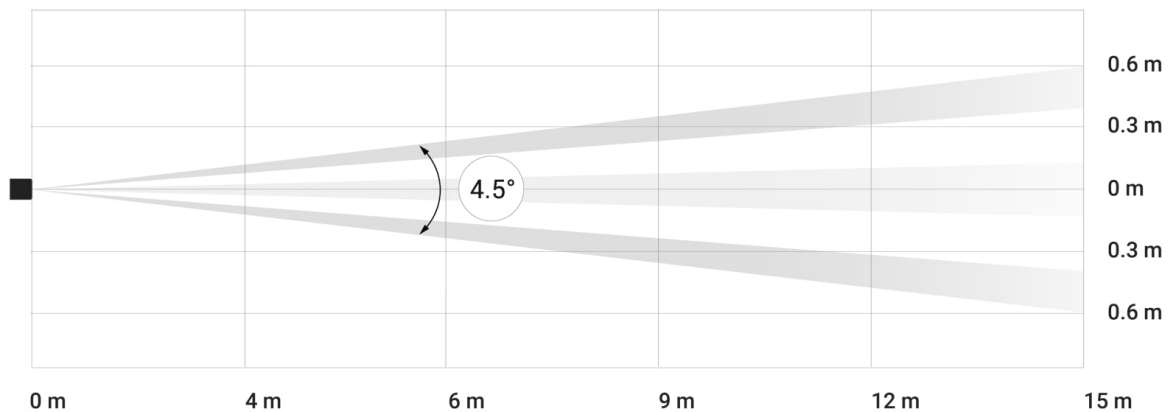
When choosing where to place the detector, be sure to use the Detection zone test to determine the sector, in which the detector recognizes motion, as accurately as possible.

If there are obstacles in the view path of the detector, such as gutters, columns or lamps, set the viewing angle to 3 degrees (the scrollbar labeled **beam direction** on the back of the detector).



If appropriate, turn on **Near area detection (Near area detection scrollbar)** for the desired side. The mode allows the detector sensors to detect motion when an attempt is made to break in at the very body of the device, reducing the blind spot.

When installing, also consider the width of the detection zone. Incorrect choice of the detector installation site can lead to false alarms or incorrect operation of the detector.



Avoid the situations where the detector identifies movement at a greater distance than required. To do this, adjust and set the desired detection distance. The best place to install the detector may be within an enclosed place. For example, when the detection zone of the detector is limited by a fence. This will reduce the likelihood of false alarms in response to external factors.

Make sure that no obstacles block the view of the detector. Note that DualCurtain Outdoor does not detect movement behind the glass. Therefore, do not install the detector where an open window or a door may obstruct the view of the device.

## **Do not install the detector**

- Near metal objects and mirrors (they can shield the radio signal and lead to its attenuation).



Before mounting, set the desired detection distance of the detector (**Detection distance** scrollbar), the viewing angle deviation (**Beam direction** scrollbar), and activate the Near area detection mode (**Near area detection** scrollbar), if necessary.

1. Temporarily attach the SmartBracket panel with the bundled ties (or other temporary fasteners, such as double-sided tape). The installation height is 0.8 to 1.3 meters above the ground, if you need to protect a door, an arch, another

or if a single bar is displayed, move the detector or use the [ReX range extender](#).



Ties or double-sided adhesive tape are only used to temporarily mount the detector. The device attached with adhesive tape can at any time be detached from the surface and fall, which may lead to failure. Note that as long as the device is installed with ties or adhesive tape, the tamper will not be triggered when someone tries to dismantle the detector.

5. Make detection zone tests. First, of the lower sensors, and then of the upper ones. This will help determine and set the required maximum detection distance of the detector (determined by a lower sensor). Then, perform the detection zone test for both sensors simultaneously, as well as the masking sensors test. If there is no response to motion, select the appropriate

Do not use substances that contain alcohol, acetone, gasoline or other active solvents to clean the detector. Carefully wipe the lens – scratches on the plastic can reduce the detector sensitivity.

The pre-installed batteries provide up to 4 years of battery life based on 1 alarm per day with standard Jeweller settings (ping period – 36 seconds). When the detector batteries are discharged, the security system will send an appropriate notification, and the LED will light up and go out gradually when the detector detects a movement or the tamper is activated.

DualCurtain Outdoor can work up to 2 months after the low battery signal. However, we recommend you replace the batteries immediately upon notification. It is advisable to use lithium batteries. They have a large capacity and are less



## 5. Quick Start Guide

### Warranty

The warranty for the AJAX SYSTEMS MANUFACTURING Limited Liability Company products is valid for 2 years after purchase and does not extend to the bundled batteries.

If the device does not function properly, we recommend that you first contact the support service as technical issues can be resolved remotely in half of the cases!



