MotionCam Outdoor User Manual

Updated July 13, 2021



MotionCam Outdoor is a wireless outdoor motion detector with a camera for alarm verification. Detects movement at a distance of 3 to 15 meters. Has anti-masking protection, ignores animals when correctly configured and installed.

The detector only works with Hub 2 and Hub 2 Plus. Connecting to other hubs, ReX range extenders, and ocBridge Plus and uartBridge integration modules is not supported!

MotionCam Outdoor works as part of the Ajax security system by connecting to the hub via **Jeweller** and **Wings** encrypted radio protocols. The communication range without obstacles is up to 1,700 meters.

Buy MotionCam Outdoor



- 1. Hood visor to protect camera and masking sensors from snow and rain
- 2. Camera
- 3. LED indicator
- 4. Motion detector lens
- 5. Infrared (IR) backlight for taking pictures in the dark
- 6. SmartBracket mounting plate. To remove the plate, slide it down



The perforated part is necessary to trigger a tamper in case of any attempt to detach the detector from the surface. Do not detach it!

- 7. The hole for attaching SmartBracket mounting panel with a screw
- 8. Power button
- **9.** <u>Tamper button</u>. Triggers when an attempt is made to detach the detector from the surface or remove the mount

11. Scrollbar for adjusting the detection range

Operating principle



00:00

00:08 🧊 🎧

MotionCam Outdoor is an outdoor motion detector with a camera. IR sensors of the detector identify intrusions by detecting moving objects with temperatures close to that of the human body. Visual verification helps you instantly assess the situation, relieving users of unnecessary anxiety, and security companies – from false calls of patrols.

Learn more about Ajax motion detectors

In the armed mode, the detector constantly reads signals from infrared (IR) sensors. When motion is detected, MotionCam Outdoor transmits an alarm to the hub and signals it by flashing the LED indicator (if indication is enabled).

An alarm is detected if both IR sensors detect a movement. The detector takes 1 to 5 photos at a time (depending on the settings) and transmits them to the hub. You can enable the Send Photo in Case of Alarm function in the **detector settings**.

monitoring station of the security company and to all users of the system who have access to the hub's event feed. All alarms, photos, and events of MotionCam Outdoor are recorded in the event feed of the Ajax app.

The detector doesn't go into the armed mode instantly. The time for switching to armed mode depends on two factors: exit delays (specified in the detector settings) and the hub – detector ping interval (Jeweller settings, the default value is 36 seconds). In the first case, the delay is set by the user. In the second case, the delay is caused by the fact that the hub notifies the detector about the transition to the armed mode not instantly, but within one ping interval.

The range of motion detection is set manually – with a scrollbar on the detector body – and is from 3 to 15 meters. This allows you to accurately set the detection area and avoid false triggerings on bushes, trees, or other objects.

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



Photo verification of alarms

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which is activated only when an alarm is raised.

A series of photos are played back in the app as animation, which allows you to evaluate the incident in dynamics. Photos are available both in Ajax apps and in the monitoring station software of the security company. MotionCam Outdoor uses the **Wings** radio protocol to transmit photos.

The delivery time of a photo to Ajax apps depends on the selected image resolution, Jeweller and Wings signal strength, and the internet speed at the hub. The alarm signal is transmitted in 0.15 seconds.

Photo resolution	Delivery time of one photo
320 × 176 (default)	Up to 9 seconds
640 × 352	Up to 20 seconds

The table shows the delivery time for one photo when the signal strength between the hub and MotionCam Outdoor is 2–3 bars and the hub is connected via Ethernet.

Temperature compensation

The detector perceives a person and other objects as heat spots. The device monitors these heat spots and, if they move, signals an alarm. MotionCam Outdoor reacts to the movement of heat spots with the temperature close to that of the human body.

In the case where the ambient temperature is about the temperature of the human body, the correct operation of the detector is not guaranteed unless temperature compensation is applied. Owing to it, the detector identifies movement over the entire operating temperature range.

Learn more

Pet immunity



When set up and installed correctly, MotionCam Outdoor ignores animals up to 80 centimeters tall. The detector has two IR sensors and raises an alarm only when movement is detected by both sensors.

If installed correctly, animals will only enter the detection zone of one of the detector's sensors. This way, MotionCam Outdoor eliminates false alarms. And for additional protection against false alarms, the detector uses the LISA software algorithm.

Why motion detectors react to animals and how to avoid it

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.

- 2. Painting over the detector lens.
- 3. Sticking over the detector lens.

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

The system informs the users and the monitoring station of the security company about masking. For additional protection and notification, enable the reaction of sirens to masking (you can do this in the detector **Settings**).

The maximum time of masking detection is 180 seconds (depends on the type of obstacle and the distance to it).

Note that the anti-masking system is always active and works regardless of the detector or system security mode.

For additional protection of the camera or the masking detection system from false alarms on heavy rain or snow, a Hood visor is provided.

Anti-masking and its implementation in Ajax outdoor detectors

Protection against false triggering



MotionCam Outdoor features two independent IR sensors, the signals of which are analyzed by a two-stage LISA algorithm. As soon as both IR sensors detect movement, LISA performs correlation and spectral analysis of the signals, which allows you to instantly distinguish between real threats and interference.

Correlation analysis

Each time a motion is detected, the LISA algorithm analyzes and compares the waveforms of two signals in real-time. If the waveforms are similar, the detector triggers an alarm.

Spectral analysis

When both sensors detect motion, but correlation analysis does not reveal sufficient similarity of waveforms, LISA compares the frequency components of the signals from the two sensors.

Sending events 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

Adding to the system

The detector is incompatible with Hub and Hub Plus hubs, ReX radio signal range extender, third-party security central units, as well as ocBridge Plus and uartBridge integration modules.

Before adding a device

- 1. Install the <u>Ajax app</u>. Create an <u>account</u>. Add a hub to the app and create at least one virtual room.
- 2. Make sure that the hub is on and has access to the internet (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 the hub is disarmed and does not start updates by checking its status in the Ajax app.

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

Types of accounts and their rights

How to add MotionCam Outdoor to the system

- 4. Click Add; the countdown will begin.
- 5. Switch on the device by holding the power button for 3 seconds.

To make sure MotionCam Outdoor is connected to the hub, the detector must be located at the same secured facility as the system (within the range of the hub's radio network).

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 settings; the default value is 36 seconds.

If the connection fails, 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.

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

lcons

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

lcon	Value
al.	Jeweller signal strength – displays the signal strength between the hub and the detector
	MotionCam Outdoor battery level

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0	MotionCam Outdoor will work when Night Mode is enabled
<u>_</u> ?*•	MotionCam Outdoor has detected motion
ġ	MotionCam Outdoor is temporarily disabled
U.	MotionCam Outdoor has been disabled due to the exceeding of the number of alarms
У	MotionCam Outdoor has temporarily disabled tamper triggering events

States

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

1. Go to the **Devices •** tab.

2. Select MotionCam Outdoor from the list.

Parameter	Value

Jeweller Signal Strength	Signal strength between the hub and MotionCam Outdoor. Recommended values – 2-3 bars. Jeweller is a protocol for transmitting MotionCam Outdoor events and alarms
Battery Charge	 The battery charge level of the device: OK Battery low When the batteries are discharged, 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. How the battery charge is displayed Battery life calculator
Lid	The status of the detector's tamper that responds to detachment or removal attempts: • Opened • Closed Learn more
	Delay time when entering (5 to 120 seconds).

Connection	 Connection status between the hub and the MotionCam Outdoor detector: Online – the detector is connected Offline – no connection to the detector
Wings Signal Strength	Wings signal strength between the hub and MotionCam Outdoor. Recommended values – 2-3 bars. Wings is a protocol for transmitting MotionCam Outdoor photo verification in case of an alarm
Camera	 MotionCam Outdoor camera status: Online – camera is enabled and can take photos Offline – there is no connection with the detector camera on Wings frequencies
Sensitivity	 Sensitivity level of the motion detector: Low Medium High
	Detector masking state:

	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 triggering on the device body
Temporary Deactivation	• 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
	Devices Auto Deactivation settings). The feature is configured in the Ajax PRO app
	Learn more
Firmware	Detector firmware version
ID	Detector ID. Also available on the QR code on the detector body and the packaging
Device №	Number of the device loop (zone)

Settings

Note that the motion detection range is set using a switch on the detector body.

Settings	Value
	Detector name. Displayed in the list of hub devices, SMS text, and in notifications in the event feed.
First field	To change the detector name, click on the pencil icon 🖍.
	The name can contain up to 12 Cyrillic characters or up to 24 Latin characters
Room	Selecting the virtual room to which the MotionCam Outdoor is assigned. The name of the room is displayed in the SMS text and in notifications in the event feed
	Sensitivity level of the motion detector.
Sensitivity	The choice depends on the type of object, the presence of potential sources of false alarms, and the protected area:
	• Low — there are likely sources of false alarms in the protected area. For example, tall bushes.
	• Medium (default value) – recommended value, suitable for most objects. Do not change it if the detector is working correctly.
	• High — there is no interference in the protected area, the maximum detection range and speed of alarm detection are important.

Always Active	Learn more
Alarm LED indication	Allows you to disable the flashing of the detector LED in case of alarm, tamper triggering, or masking detection
Image resolution	 Selecting the image resolution (in pixels): 320 × 176 640 × 352 The higher the resolution, the more detailed the image is. However, keep in mind that high resolution will increase the delivery time of photos to the hub Learn more
Send photo in case of alarm	 Selecting the number of photos in case of alarm: No photo 1 photo Series of 2 Series of 3 Series of 4 (only available at 320 × 176 resolution)

Delay When Entering, s	Delay time when entering (5 to 120 seconds). Delay when entering (alarm activation delay) is the time the user has to disarm the security system after entering the secured area
Delay When Leaving, s	Delay time when leaving (5 to 120 seconds). Delay when leaving (arming delay) is the time the user has to leave the secured area after arming Learn more
Delays in Night Mode	If active, the delays when entering and leaving apply to the Night Mode . The field is displayed and active if delays are enabled, as well as the Arm in Night Mode feature Learn more
Arm in Night Mode	If active, the detector switches to the armed mode when Night Mode is enabled Learn more

	Learn more
Detection Zone Test	Switches the detector to the detection zone test mode. The test checks how the detector responds to motion and masking and determines the optimum installation place. 4 test types are supported: • Upper sensor of the detector • Lower sensor of the detector • Masking sensors • All motion sensors together Learn more
Wings Signal Strength Test	Switches the detector to the Wings signal strength test mode. The test checks the signal strength between the hub and the detector at Wings frequencies to determine the optimum installation place

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Temporary Deactivation	 scenarios. The system will ignore device alarms and other notifications Lid only – the system will ignore notifications about the triggering of the device tamper only
	Learn more
	The system can also automatically deactivate devices when the set number of alarms is exceeded
	Learn more
User Manual	Opens the MotionCam Outdoor User Manual in the Ajax app
Unpair Device	Unpairs the detector, disconnects it from the hub, and deletes its settings

Photo verification of alarms in Ajax apps



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A series of photos are played back in the application as animation, so the user is able to evaluate the unfolding of the incident over time.



To save a series of photos, click on the button highlighted in the screenshot. You



Indication when pressing the power button

Indication	Event
Lights up red while the button is pressed	Pressing the power button when the detector is on
Lights up green while the device is being activated	Turning on
First lights up red, then flashes three times and goes off	Turning off

Active detector indication

runctionality testing

The Ajax security system has several tests for choosing the right installation place for the devices. MotionCam Outdoor tests do not start straight away but not later than over a single hub-detector ping period (36 seconds under default settings of the hub). You can change the ping period of devices in the **Jeweller** menu of the hub settings.

There are 4 tests available for MotionCam Outdoor:

- Jeweller Signal Strength Test
- Wings Signal Strength Test
- Detection Zone Test
- Signal Attenuation Test

To run a test, in an Ajax app:

- **1.** Select the hub if you have several of them or if you are using a PRO app.
- 2. Go to the **Devices** \bigcirc menu.

MotionCam Outdoor is suitable for the protection of the area around the secured site. It may guard a courtyard of a private house, a parking, unheated premises, and other sites. The detector can be installed both outdoors and indoors.

The detector is placed 0.8 – 1.3 meters above ground level. This height is a prerequisite for the effective work of the pet immunity function. Placement at a different height can lead to false alarms due to pets or to poor detection of human movement.

The detector should be installed on a flat stable surface, for example on the wall of a house or on a fence. If the detector is installed on an unstable surface, this may lead to false alarms.



The top beam of the detector should be aimed parallel to the ground. If the area is not flat, the installation height is calculated from the highest point of the monitored area.

extenders, so connect it directly to the hub.

Detection zone





Scrollbar position	Motion detection distance
First bar (corresponds to the near inscription on the detector body)	Up to 4 meters
Second bar	Up to 5 meters
Third bar	Up to 7 meters
Fourth bar	Up to 12 meters
Fifth bar (corresponds to the far inscription on the detector body)	Up to 15 meters



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

detector in locations where an open window or door can obstruct its view.

When installing, also consider the width of the detection zone. Incorrect detector placement can lead to false alarms.



Do not install the detector

- Near the initial and mirrors. They can shield and attenuate the radio signal.
- Opposite the trees with leaves in the detection zone of both IR sensors of the detector. This can lead to false alarms in warm weather.
- In places where the detection zone of the detector might include bushes 80 centimeters high or above. This can lead to false alarms in warm weather.
- In places with low or unstable signal strength.
- Closer than 1 meter to the hub.

Detector installation

temporary fasteners, such as double-sided adhesive tape). Installation height is 0.8 – 1.3 meters from the ground.

The detector should be installed at the recommended height to ensure the correct operation of the pet immunity function. To install the SmartBracket mount on ties, first make holes in it.

- **2.** Install the detector on the SmartBracket panel.
- 3. Leave the detector detection zone (horizontal angle of view 90°) and make sure there is no movement within the detector field of view. This is necessary for correct calibration of the masking sensors. During the calibration, the detector will flash green around once per second. Calibration takes up to 2 minutes.

time. In addition, the device may fail if hit. Note that while the device is secured with ties or adhesive tape, the tamper will not trigger if the detector is detached from the surface.

- 7. Attach MotionCam Outdoor to the mounting plate, wait for the calibration to complete, and tighten the screw at the bottom of the body. The screw is needed for more reliable fastening and protection of the detector from quick dismantling.
- **8.** Once the detector is attached firmly to SmartBracket, the LED will flash to indicate that the tamper has been triggered. If the LED does not light up after the device is attached to SmartBracket, check the tamper status in the Ajax app and then make sure the panel is firmly attached.

are less affected by temperatures.

How long Ajax devices operate on batteries, and what affects this

How to replace batteries in MotionCam Outdoor detector

Technical Specifications

Classification	Radio-interlinked photoelectric security detector
Installation method	Outdoors and indoors
Type of detector	Wireless

	 Vertical – 50°
TV distortion (EBU standard)	Barrel, –17%
Sending photo in case of alarm	 Photo resolution: 320 × 176 pixels (default) 640 × 352 pixels Shooting series of up to 5 photos Learn more
Infrared backlight for shooting in the dark	Yes

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Battery life	setting enabled) Calculate the battery life
Protection class	IP55
Operating temperature range	From −25°C to +60°C
Operating humidity	Up to 95%
Dimensions	206 × 108 × 93 mm
Weight	470 g
Service life	10 years

half of the cases, technical issues can be solved remotely!

Warranty Obligations

User Agreement

Technical support: support@ajax.systems