Hub 2 Plus user manual

Updated October 9, 2024

Hub 2 Plus is a central device in the Ajax system, which controls the operation of all connected devices and interacts with the user and the security company.

The hub reports the opening of doors, breaking of windows, threat of fire or flood, and automates routine actions using scenarios. If outsiders enter the secure room, Hub 2 Plus will send photos from **MotionCam** / **MotionCam Outdoor** motion detectors and notify a security company patrol.

Hub 2 Plus central unit must be installed indoors only.

Hub 2 Plus needs Internet access to connect to the Ajax Cloud service. The central unit is connected to the Internet via Ethernet, Wi-Fi, and two SIM cards (2G/3G/4G).

Connecting to Ajax Cloud is necessary for configuring and managing the system through Ajax apps, transmitting notifications about alarms and events, as well as for updating **OS Malevich**. All data on Ajax Cloud is stored under multilevel protection, information is exchanged with the hub via an encrypted channel.

> Connect all communication channels to ensure a more reliable connection with Ajax Cloud and to secure against interruptions in the work of telecom operators.

You can manage the security system and quickly respond to alarms and notifications through **apps** for iOS, Android, macOS, and Windows. The system allows you to choose of what events and how to notify the user: by push notifications, SMS, or calls.

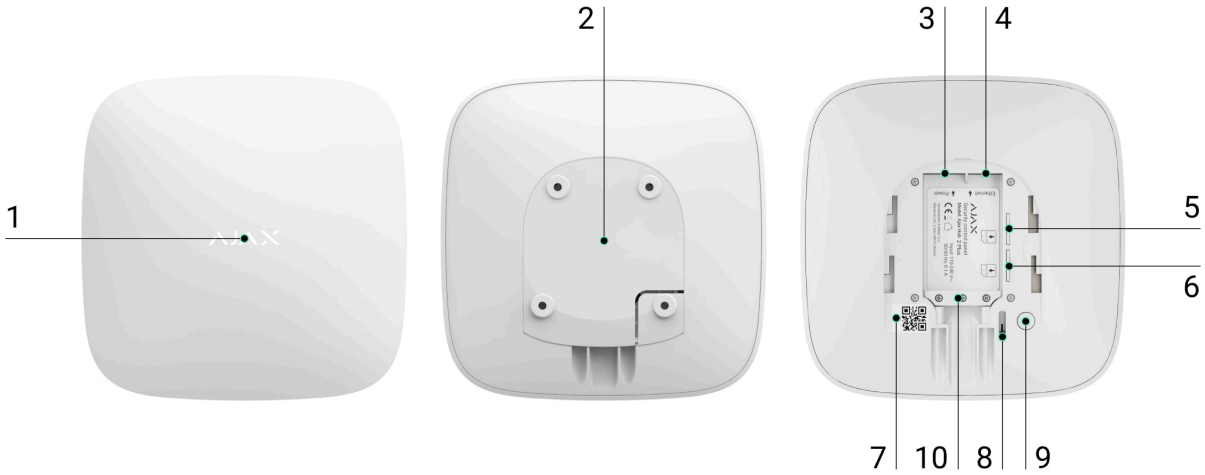
- **How to set up push notifications on iOS**
- **How to set up push notifications on Android**

If the system is connected to a security company, events and alarms will be transmitted to the monitoring station — **directly and/or through Ajax Cloud**.

Buy Hub 2 Plus central unit

Learn more about Ajax accessories for hubs

Functional elements



1. Ajax logo featuring LED indicator
2. SmartBracket mounting panel. Slide it down with force to open

> Perforated part is required for actuating the tamper in case of any attempt to dismantle the hub. Do not break it off.

3. Power cable socket
4. Ethernet cable socket
5. Slot for micro SIM 2
6. Slot for micro SIM 1
7. QR Code
8. Tamper button
9. Power button
10. Cable retainer clamp

Operating principle

The hub monitors the security system operation by communicating with connected devices via the **Jeweller encrypted protocol**. The communication range is up to

2000 m without obstacles (for example, walls, doors, inter-floor constructions). If the detector is triggered, the system raises the alarm in 0.15 seconds, activates the sirens, and notifies the central monitoring station of the security organization and the users.

If there is interference at the operating frequencies or when jamming is attempted, Ajax switches to a free radio frequency and sends notifications to the central monitoring station of the security organization and to system users.

What jamming of a wireless security system is and how to resist it

Hub 2 Plus supports up to 200 Ajax devices connected, which protect against intrusion, fire, and flooding, as well as control electrical appliances automatically according to scenarios or manually from an app.

To send photos from **MotionCam** / **MotionCam Outdoor** motion detector, a separate Wings radio protocol and a dedicated antenna are used. This ensures the delivery of visual alarm verification even with an unstable signal level and interruptions in communication.

List of Jeweller devices

Hub 2 Plus is running under a real-time operating system OS Malevich. Similar OS control spacecraft systems, ballistic missiles, and car brakes. OS Malevich expands the capabilities of the security system, **automatically updating** by air without user intervention.

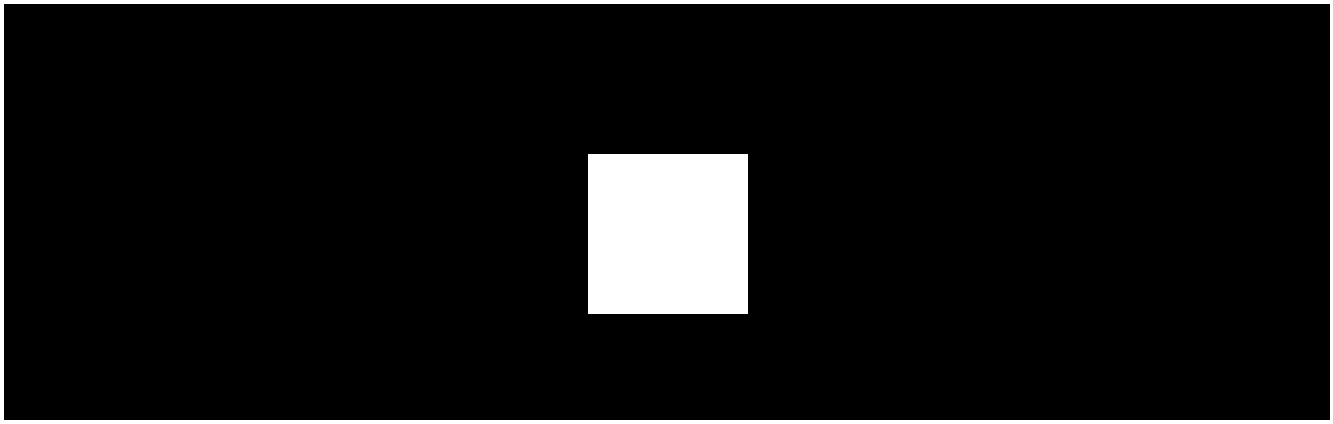
Use scenarios to automate the security system and decrease the number of routine actions. Set up the security schedule, program actions of automation devices (**Relay**, **WallSwitch**, or **Socket**) in response to an alarm, temperature change, pressing of the **Button** or by schedule. A scenario can be created remotely in the Ajax app.

How to create and configure a scenario in the Ajax system

LED indication

Hub has two LED indication modes:

- **Hub – server connection.**
- **British disco.**



00:00 00:06

Hub – server connection

Hub – server connection mode is enabled by default. The hub LED has a list of indications showing the system state or events occurring. The Ajax logo on the front side of the hub can light up red, white, purple, yellow, blue, or green, depending on the state.

Indication	Event	Note
Lights up white.	Two communication channels are connected: Ethernet and SIM card.	If the external power supply is off, the indicator will flash every 10 seconds. After a loss of power, the hub will not light up immediately, but will start flashing in 180 seconds.
Lights up green.	One communication channel is connected: Ethernet or SIM card.	If the external power supply is off, the indicator will flash every 10 seconds.

		After a loss of power, the hub will not light up immediately, but will start flashing in 180 seconds.
Lights up red.	The hub is not connected to the internet or there is no connection with the Ajax Cloud service.	If the external power supply is off, the indicator will flash every 10 seconds. After a loss of power, the hub will not light up immediately, but will start flashing in 180 seconds.
Lights up 180 seconds after the loss of power, then flashes every 10 seconds.	The external power supply is disconnected.	The LED indication colour depends on the number of communication channels connected.
Blinks red.	The hub is reset to factory settings.	

If your hub has different indications, please contact our **Technical Support**. They will help you.

Access to indications

Hub users can see the **British disco** indication after they:

- Arm/disarm the system using the Ajax keypad.
- Enter the correct user ID or personal code on the keypad and perform an action that has already been performed (for example, the system is disarmed and the disarm button is pressed on the keypad).
- Press the SpaceControl button to arm/disarm the system or activate **Night Mode**.
- Arm/disarm the system using Ajax apps.

All users can see the **Changing hub's state** indication.

British Disco

The function is enabled in the hub settings in the PRO app (Hub → Settings → Services → LED indication).

Indication is available for hubs with firmware version OS Malevich 2.14 or higher and in apps of the following versions or higher:

- Ajax PRO: Tool for Engineers 2.22.2 for iOS
- Ajax PRO: Tool for Engineers 2.25.2 for Android
- Ajax PRO Desktop 3.5.2 for macOS
- Ajax PRO Desktop 3.5.2 for Windows

Indication	Event	Note
Changing hub's state		
White LED flashes once per second.	**Two-Stage Arming** or **Delay When Leaving**.	One of the devices is performing **Two-Stage Arming** or **Delay When Leaving**.
Green LED flashes once per second.	Entry indication.	One of the devices is performing **Delay When Entering**.
White LED lights up for 2 seconds.	Arming is completed.	The hub (or one of the groups) is changing its state from Disarmed to Armed.
Green LED lights up for 2 seconds.	Disarming is completed.	The hub (or one of the groups) is changing its state from Armed to Disarmed.

Alerts and Malfunctions		
Red and purple LED flashes in sequence for 5 seconds.	Confirmed hold-up alarm.	There is an unrestored state after a confirmed hold-up alarm. The indication is displayed only if **Restoration after confirmed hold-up alarm** is enabled in the settings.
Red LED lights up for 5 seconds.	Hold-up alarm.	There is an unrestored state after a hold-up alarm. The indication is not displayed if there is a confirmed hold-up alarm state. The indication is displayed only if **Restoration after hold-up alarm** is enabled in the settings.
Red LED flashes.	The number of flashes equals the Device No. of a hold-up device (DoubleButton), the first to generate the hold-up alarm.	There is an unrestored state after the confirmed or unconfirmed hold-up alarm: • **Single hold-up alarm** or

		• **Confirmed hold-up alarm**
Yellow and purple LED flashes sequentially for 5 seconds.	Confirmed intrusion alarm.	There is an unrestored state after the confirmed intrusion alarm. The indication is displayed only if **Restoration after confirmed intrusion alarm** is enabled in the settings.
Yellow LED lights up for 5 seconds.	Intrusion alarm.	There is an unrestored state after the intrusion alarm. The indication is not displayed if there is a confirmed intrusion alarm condition. The indication is displayed only if **Restoration after intrusion alarm** is enabled in the settings.
Yellow LED flashes.	The number of flashes equals the Device No. that first generated the intrusion alarm.	There is an unrestored state after the confirmed or unconfirmed intrusion alarm: • **Single intrusion alarm**

		or • **Confirmed intrusion alarm**
Red and blue LED flashes in sequence for 5 seconds.	Lid opening.	There is an unrestored tamper state or an open lid on any of the devices, or the hub. The indication is displayed only if **Restoration after Lid opening** is turned on in the settings.
Yellow and blue LED flashes in sequence for 5 seconds.	Other malfunctions.	There is an unrestored fault state or a malfunction of any device or the hub. The indication is displayed only if **Restoration after faults** is enabled in the settings. Currently, **Restoration after faults** is not available in Ajax apps.
Dark blue LED lights up for 5 seconds.	Permanent deactivation.	One of the devices is permanently deactivated or the lid state notifications are disabled.

Blue LED lights up for 5 seconds.	Automatic deactivation.	One of the devices is automatically deactivated by an opening timer or the number of detections.
Green and blue LED flashes in sequence.	Alarm timer expiration. **Learn more about Alarm confirmation feature**	Displayed after the alarm timer expires (to confirm the alarm).

When nothing is happening in the system (no alarm, malfunction, lid opening, etc.), the LED displays two hub states:

- Armed/partially armed or **Night Mode** enabled — the LED lights up white.
- Disarmed — the LED lights up green.

> In hubs with firmware **OS Malevich 2.15.2** and higher, the LED lights up green when set to Armed/partially armed or **Night Mode**.

Alert indication

If the system is disarmed and any of the indications from the table is present, the yellow LED flashes once per second.

> If there are several states in the system, the indications are displayed one by one, in the same sequence as shown in the table.

Ajax account

The security system is configured and controlled through **Ajax apps**. Ajax applications are available to professionals and users on iOS, Android, macOS, and Windows.

The settings of Ajax system users and the parameters of connected devices are stored locally on the hub and are inextricably linked with it. Changing the hub administrator does not reset the settings of the connected devices.

To configure the system, install the Ajax app and **create an account**. One phone number and email address may be used to create only one Ajax account. There is no need to create a new account for each hub — one account can manage multiple hubs.



Your account can combine two roles: the administrator of one hub and the user of another hub.

Security requirements

When installing and using Hub 2 Plus, strictly adhere to the general electrical safety regulations for using electrical appliances, as well as the requirements of regulatory legal acts on electrical safety.

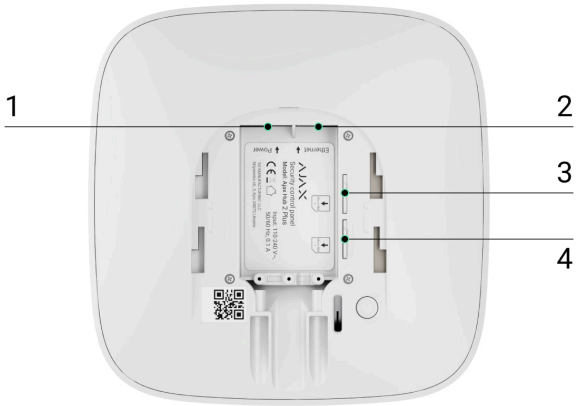
It is strictly forbidden to disassemble the device under voltage. Also, do not use the device with a damaged power cable.

Connecting to the network

1. Remove the SmartBracket mounting panel by sliding it down with force. Avoid damaging the perforated part — it’s essential for the tamper activation in case of hub dismantling.



2. Connect the power supply and Ethernet cables to the appropriate sockets, install SIM cards.



1 — Power socket
2 — Ethernet socket
3, 4 — Slots for installing micro-SIM cards

3. Press and hold the power button for 3 seconds until the Ajax logo lights up. It takes about 2 minutes for the hub to upgrade to the latest firmware and connect to the Internet. The green or white logo color indicates that the hub is running and connected to Ajax Cloud.



If the Ethernet connection is not established automatically, disable proxy and MAC address filtration and activate DHCP in the router settings. The hub will automatically receive an IP address. After that, you will be able to set up a static IP address of the hub in the Ajax app.

4. To connect to the cellular network, you need a micro SIM card with a disabled PIN code request (you can disable it using a mobile phone) and a sufficient amount on your account to pay for the services at your operator's rates. If the hub does not connect to the cellular network, use Ethernet to configure the network parameters: roaming, APN access point, username, and password. Contact your telecom operator for support to find out these options.

Adding a hub to the Ajax app

1. Turn on the hub and wait until the logo lights up green or white.
2. Open the Ajax app. Give access to the requested system functions to fully use the capabilities of the Ajax app **and not to miss alerts about alarms or events**.

   - How to set up notifications on iOS
   - How to set up notifications on Android

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 higher:

- 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.

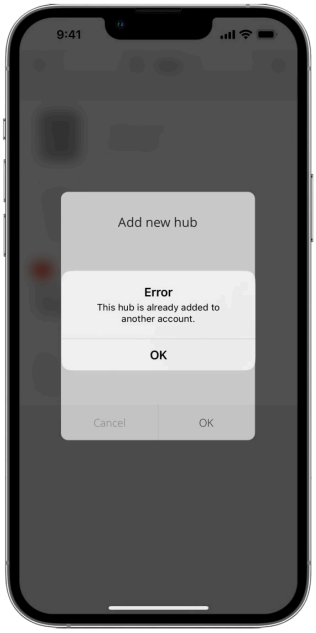
4. Open the **Add hub** menu Select the way of registering: manually or step-by-step guidance. If you are setting the system up for the first time, use step-by-step guidance.
5. Specify the name of the hub and scan the QR code located under the SmartBracket mounting panel or enter it manually.
6. Wait until the hub is added. The linked hub will be displayed in the **Devices** tab .

After adding a hub to your account, you become the administrator of the device. Administrators can invite other users to the security system and determine their rights. Hub 2 Plus central unit can have up to 200 users.

Changing or removing the administrator does not reset the settings of the hub or connected devices.

If there are already users on the hub, the hub admin, PRO with full rights, or the installation company maintaining the selected hub can add your account. You will receive a notification that the hub is already added to another account. Contact with Technical Support to determine who has admin rights on the hub.

Ajax system user rights



Hub icons

Icons display some of Hub 2 Plus statuses. You can see them in the Ajax app, in the **Devices** menu .

Icons	Meaning
2G	2G connected
3G	3G connected
4G	LTE connected
	SIM card is not installed
	The SIM-card is defective or has a PIN-code on it
	Hub 2 Plus battery charge level. Displayed in 5% increments
	Hub 2 Plus malfunction is detected. The list is available in hub states list
	The hub is directly connected to the central monitoring station of the security organization
	The hub have lost connection with the central monitoring station of the security organization via direct connection

Hub states

States can be found in the **Ajax app**:

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

Parameter	Meaning
Malfunction	Click ⓘ to open the list of Hub 2 Plus malfunctions. The field appears only if a malfunction is detected
Cellular Signal Strength	Shows the signal strength of the mobile network for the active SIM card. We recommend installing the hub in places with the signal strength of 2-3 bars. If the signal strength is weak, the hub will not be able to dial-up or send an SMS about an event or alarm
Battery Charge	Battery level of the device. Displayed as a percentage **How battery charge is displayed in Ajax apps**
Lid	Status of the tamper that responds to hub dismantling: • **Closed** — the hub lid is closed • **Opened** — the hub removed from SmartBracket holder **What is a tamper?**
External power	External power supply connection status:

	• **Connected** — the hub is connected to external power supply • **Disconnected** — no external power supply
Connection	Connection status between the hub and Ajax Cloud: • **Online** — the hub is connected to Ajax Cloud • **Offline** — the hub is not connected to Ajax Cloud
Cellular Data	The hub connection status to the mobile Internet: • **Connected** — the hub is connected to Ajax Cloud via mobile Internet • **Disconnected** — the hub is not connected to Ajax Cloud via mobile Internet If the hub has enough funds on the account or has bonus SMS/calls, it will be able to make calls and send SMS messages even if the **Not connected** status is displayed in this field
Active SIM	Displays the active SIM card: SIM card 1 or SIM card 2
SIM 1	The number of the SIM card installed in the first slot. Copy the number by clicking it
SIM 2	The number of the SIM card installed in the second slot. Copy the number by clicking it
Wi-Fi	Internet connection status of the hub via Wi-Fi. For greater reliability, it is recommended to install the hub in places with the signal strength of 2-3 bars
Ethernet	Internet connection status of the hub via Ethernet: • **Connected** — the hub is connected to Ajax Cloud via Ethernet

	• **Disconnected** — the hub is not connected to Ajax Cloud via Ethernet
Average noise (dBm)	Noise power level at the hub installation site. The first two values show the level at Jeweller frequencies, and the third — at Wings frequencies. The acceptable value is –80 dBm or lower. For example, –95 dBm is considered acceptable and –70 dBm is invalid. ## What is security system jamming
Monitoring Station	The status of direct connection of the hub to the central monitoring station of the security organization: • **Connected** — the hub is directly connected to the central monitoring station of the security organization • **Disconnected** — the hub is not directly connected to the central monitoring station of the security organization If this field is displayed, the security company uses a direct connection to receive events and security system alarms ## What is a direct connection?
Hub model	Hub model name
Hardware version	Hardware version. Unable to update
Firmware	Firmware version. Can be updated remotely
ID	ID/serial number. Also located on the device box, on the device circuit board, and on the QR code under the SmartBracket panel
IMEI	A unique 15-digit serial number for identifying the hub's modem on a GSM network. It is shown only when a SIM card is installed in the hub.

Connection of detectors and devices

The hub doesn't support uartBridge and ocBridge Plus integration modules.

When adding a hub to your account using the step-by-step guidance, you will be prompted to connect devices to the hub. However, you can refuse and return to this step later.

To add a device to the hub, in the Ajax app:

1. Open the room and select **Add device**.
2. Name the device, scan its QR code (or enter it manually), select a group (if group mode is enabled).
3. Click **Add** – the countdown for adding a device will begin.
4. Follow the instructions in the app to connect the device.

Please note that in order to link to the hub, the device must be located within the hub's radio communication range (at the same protected object).

Hub settings

Settings can be changed in the **Ajax app**:

1. Go to the **Devices** tab .
2. Select Hub 2 Plus from the list.
3. Go to **Settings** by clicking on the icon .

Note that after changing the settings, you should click the **Back** button to save them.

Name

Room

Ethernet

Wi-Fi

Cellular

Keypad access codes

Code Length Restrictions

Security Schedule

Detection Zone Test

Jeweller

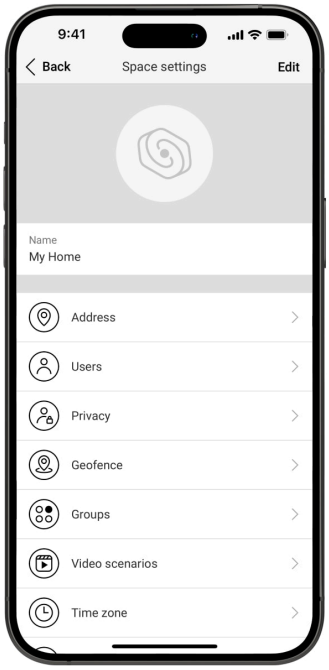
Telephony settings

Service

Transfer settings to another hub

Remove hub

Space settings



Settings can be changed in the **Ajax app**:

1. Select the space if you have several of them or if you are using a PRO app.
2. Go to the **Control** tab.
3. Go to **Settings** by tapping the gear icon [gear icon] in the bottom right corner.
4. Set the required parameters.
5. Tap **Back** to save the new settings.

How to configure a space

Hub settings reset

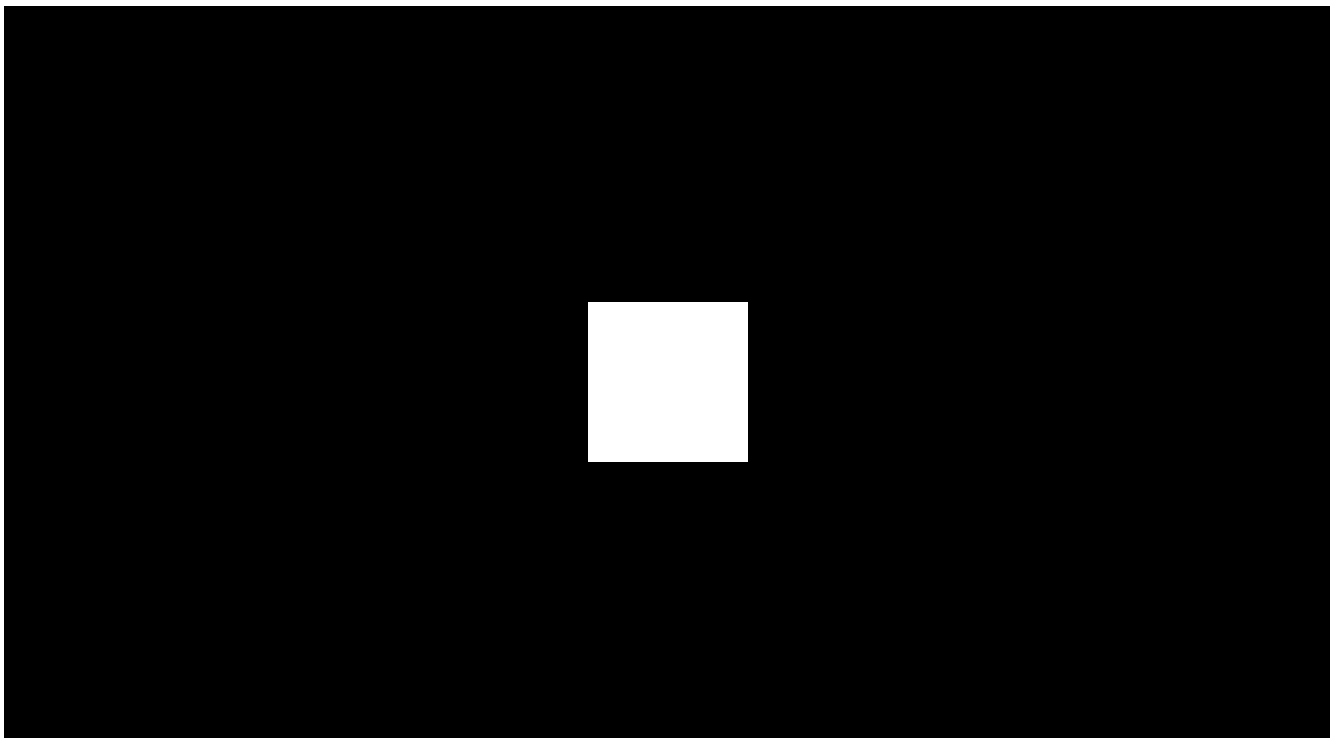
Resetting the hub to the factory settings:

1. Turn on the hub if it is off.
2. Remove all users and installers from the hub.
3. Hold the power button for 30 s — the Ajax logo on the hub will start blinking red.

4. Remove the hub from your account.

> Resetting the hub does not delete connected users.

Video surveillance



You can connect third-party cameras to the security system: seamless integration with Dahua, Hikvision, and Safire IP cameras and video recorders has been implemented. You can also connect third-party cameras supporting RTSP protocol. You can connect up to 100 video surveillance devices to the system.

How to add a camera to the Ajax system

Installation

Prior to installing the hub, make sure that you have selected the optimal location and that it complies with the requirements of this manual. It is desirable that the hub be hidden from direct view.

Make sure that the communication between the hub and all connected devices is stable. If the signal strength is low (a single bar), we cannot guarantee a stable operation of the security system. Implement all potential measures to improve the signal quality. At the very least, relocate the hub as even repositioning by 20 cm can significantly improve the signal reception.

If the device has a low or unstable signal strength, use a **radio signal range extender**.

When installing and using the device, follow the general electrical safety regulations for using electrical appliances, as well as the requirements of regulatory legal acts on electrical safety. It is strictly forbidden to disassemble the device under voltage. Do not use the device with a damaged power cable.

Hub installation:

1. Fix the SmartBracket mounting panel with bundled screws. When using other fasteners, make sure they do not damage or deform the panel.

> ⚠ We do not recommend using double-sided adhesive tape for installation: it can cause a hub to fall in case of an impact.

2. Secure the power and Ethernet cables with the supplied cable retainer clamp and screws. Use cables with a diameter no larger than the supplied ones. The cable retainer clamp must fit tightly to the cables so that the hub lid closes easily. This will reduce the likelihood of sabotage, as it takes a lot more to tear away a secured cable.
3. Attach the hub to the mounting panel. After installation, check the tamper status in the Ajax app and then the quality of the panel fixation. You will receive a notification if an attempt is made to tear the hub off the surface or remove it from the mounting panel.
4. Fix the hub on the SmartBracket panel with bundled screws.



Do not flip the hub when attaching vertically (for example, on a wall). When properly fixed, the Ajax logo can be read horizontally.



Do not place the hub:

- Outside the premises (outdoors).
- Nearby or inside any metal objects or mirrors causing attenuation and screening of the signal.
- In places with high radio interference level.
- Close to radio interference sources: less than 1 meter from the router and power cables.
- Inside any premises with the temperature and humidity beyond the range of permissible limits.

Maintenance

Check the operational capability of the Ajax system on a regular basis. Clean the hub body from dust, spider webs and other contaminants as they appear. Use soft dry napkin suitable for equipment maintenance.

Do not use any substances containing alcohol, acetone, gasoline and other active solvents for cleaning the hub.

How to replace hub battery

Learn more about Ajax accessories for hubs

The package includes

1. Hub 2 Plus
2. SmartBracket mounting panel
3. Power cable
4. Ethernet cable
5. Installation kit
6. Starter pack — not available in all countries
7. Quick start guide

Technical specifications

All technical specifications of Hub 2 Plus

Compliance with standards

Warranty

The warranty for the Limited Liability Company “Ajax Systems Manufacturing” products is valid for 2 years after the purchase and does not apply to the bundled rechargeable battery.

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.

Warranty obligations

User agreement

Contact Technical Support

- email
- Telegram

Subscribe to the newsletter about safe life. No spam

Email

Subscribe