TurretCam HLVF user manual

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TurretCam HLVF is a wired AI-powered security IP camera with a 2.8–12 mm motorized varifocal lens that provides clear and detailed images at any focal length. The camera supports the True WDR technology for accurate color reproduction in scenes with high-contrast lighting. Also, the device features hybrid illumination that combines infrared (IR) and white light to enhance nighttime visibility.

The camera features a built-in microphone, as well as audio and alarm inputs/outputs, which expand integration capabilities with other security devices. The camera supports PoE and 12 V⎓ power supply options.

The camera is connected to the system via Ethernet. The recorded videos can be stored on an Ajax NVR added to the same network, or on a memory card installe the camera.

The camera is available in two versions:

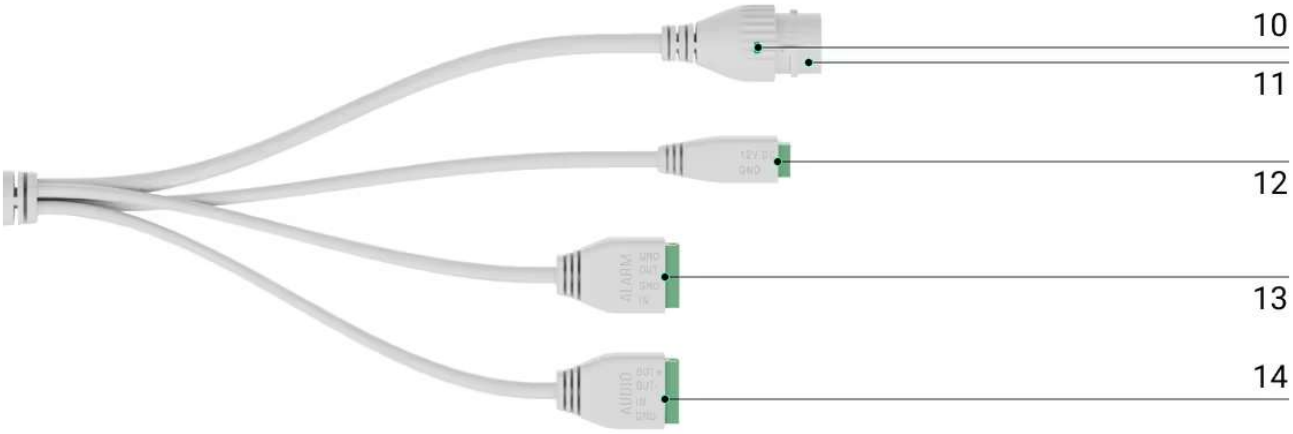
- TurretCam HLVF (5 Mp);
- TurretCam HLVF (8 Mp).

Buy TurretCam HLVF

Camera versions with other enclosures are also available. All Ajax cameras are available here.

Functional elements





1. Holder.
2. Enclosure.
3. Lens.
4. White LED. When motion is detected, the camera instantly turns on white light to bring out the object's colors.
5. Microphone.
6. Reset button.
7. Slot for microSD card.
8. QR code with the device ID. Used to add the camera to a space.
9. Cable with connectors.
10. LED indicator.
11. Ethernet connector.
12. Power supply connector.
13. Alarm input/output connector.
14. Audio input/output connector.

Operating principle

TurretCam HLVF is an IP camera that uses artificial intelligence (AI) for object recognition. Its algorithms can identify moving objects, distinguishing between humans, animals, or vehicles.

The camera is equipped with a 2.8–12 mm motorized varifocal lens that allows remote adjustment of the focal length. Motorized zoom and focus enable precise framing of the protected area without physical access to the camera. The audio and alarm inputs/outputs expand integration capabilities with third-party devices.

The device features hybrid illumination, combining infrared and white light to ensure high-quality images in any lighting conditions. TurretCam HLVF automatically switches between IR and white light depending on the scene, delivering clear black-and-white images in low light and providing color pictures when motion is detected or additional illumination is required. The camera also adjusts the light intensity in real time to prevent overexposure, ensuring clear visibility of both near and distant objects.

You can install a microSD card with a memory capacity of 32 to 256 GB (not included in the camera complete set). The memory card should be V30 or faster. Additionally, the device can operate without a memory card or via NVR.

Using the video storage calculator, you can calculate the NVR or camera required storage capacity and estimated recording time based on the video stream settings.

TurretCam HLVF enables you to:

1. Watch the video in real-time with the ability to zoom in for a closer look.
2. Remotely adjust the zoom and focus using the motorized varifocal lens for optimal framing of the monitored area.
3. Access archived videos, navigating through them based on recording chronology and calendar (this feature is available if a microSD memory card is installed in the camera, or it is connected to NVR with an installed hard disk).
4. Configure motion detection zones and adjust the sensitivity level.
5. View the **Video wall** that combines images from all connected cameras.
6. Quickly access automation device control from the cameras' video player menu.
7. Create video scenarios that send a short video from the selected camera to the Ajax app when the security detector is triggered.
8. Download the required segments of video recordings from the archive to smartphones or PCs (this feature is available if a microSD memory card is installed in the camera, or it is connected to NVR with an installed hard disk).
9. Configure connection via ONVIF to integrate the device with video management systems (VMS) such as Milestone, Genetec, and Digifort.

The video recording segments downloaded from TurretCam HLVF have the **Ajax digital signature** that verifies the integrity of the exported video. To verify the authenticity of the downloaded video recordings, use the **Ajax Media Player** tool.

Learn more about Ajax Media Player

How to download videos from the archive in Ajax apps

How to configure temporary camera video access

How to configure privacy settings in the Ajax system

An admin or PRO with rights to configure the system can set up a connection via ONVIF in Ajax apps.

How to configure ONVIF authorization

Video scenarios

An Ajax system allows the use of IP cameras for alarm verification. Video scenarios enable the substantiation of alarm triggers with the corresponding video from cameras installed at the facility.

Cameras can be configured to respond to alarms from a single device, multiple devices, or all connected devices. Combined detectors can register various types of alarms, allowing you to configure responses to a wide range of alarm types, whether it's just one, several, or all of them.

Learn more

You can also configure the sirens to activate when motion or a specific AI-recognised object is detected. When video devices detect motion or a specific AI-recognised object, the system automatically activates sirens added to the hub to sound an alarm.

Learn more

Video wall in Ajax apps

The user can manage videos on the **Video wall** tab, which is accessible once at least one camera has been added. This feature ensures quick access to all connected cameras, which are displayed in accordance with privacy settings.

In mobile Ajax apps, you can:

1. Control the camera’s zoom and focus.
2. Switch between cameras.
3. View recorded footage together with other cameras.
4. Search for the desired camera by name.
5. Manage a PTZ camera.

In desktop Ajax apps, you can:

1. Control the camera’s zoom and focus.
2. Switch between cameras.
3. View recorded footage together with other cameras.
4. Search for the desired camera by name.
5. Organize cameras by room, NVR, or group.
6. Manage a PTZ camera.
7. Save customized layouts for displaying video from cameras.
8. Change the order in which the camera video is displayed.
9. Create templates for displaying videos in a slide show.

How to use the video wall widget in Ajax PRO Desktop

What keyboard shortcuts are available in Ajax PRO Desktop

How to configure privacy settings in the Ajax system

You can stream video from the cameras directly to your smart TV using the **Ajax TV** app. With **Ajax TV,** you can monitor multiple cameras simultaneously, switch between devices, and open any camera in full-screen mode on smart TVs or TVs connected to smart TV set-top boxes.

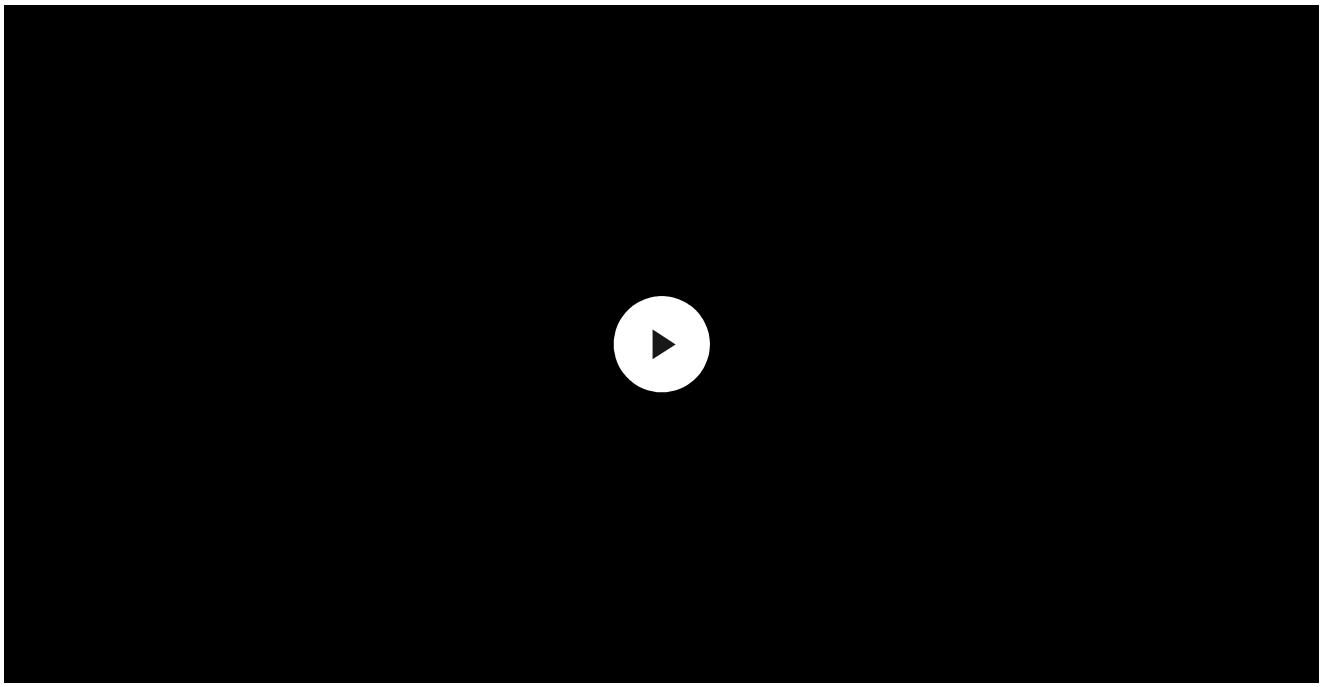
Learn more about the Ajax TV app

Privacy zones

The system allows hiding parts of the frame. For instance, if a sensitive area or c t is in view, activity around it can be recorded without revealing its contents by setting up the right zone. No motion or object will be detected and recorded in the privacy zone.

To do this, in Ajax apps:

1. Go to the **Devices** tab.
2. Select the camera from the list. Optionally, if the camera is connected to the video recorder, find **NVR**, tap **Cameras**, and select the camera.
3. Go to the device states by tapping the gear icon.
4. Tap the gear icon again to open **Settings**.
5. Select the **Privacy zones** menu.
6. Open the **Configure privacy zones** menu and select the required area.



7. Tap the ✓ icon and return to the camera settings.

The user can create up to four private zones.

Line crossing detection

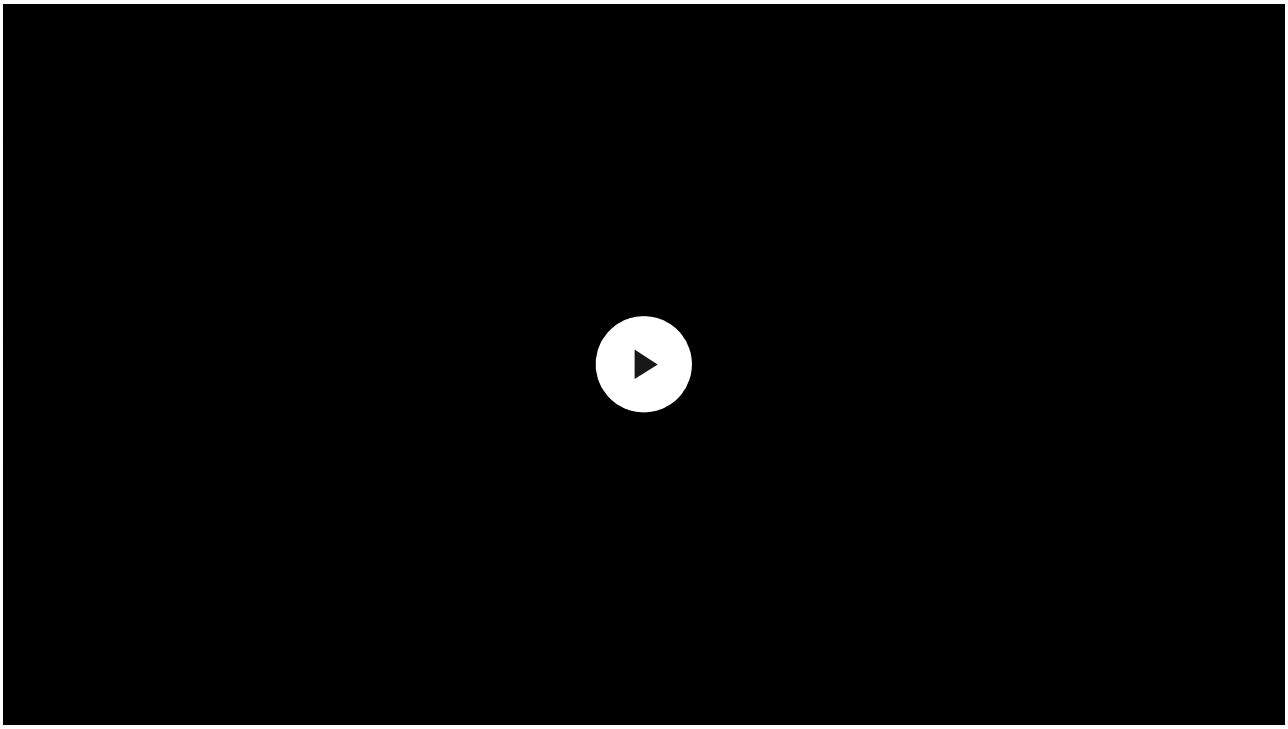
Line crossing detection is a feature that enables video surveillance cameras to respond when a specified object — such as a person, pet, or vehicle — crosses a virtual line drawn in the camera frame. When the line is crossed, the system can send a notification or an alarm and record the crossing footage in the archive.

To add a line in an Ajax app:

1. Select the required space.
2. Go to the **Devices** tab.

3. Select the camera from the list. If it is connected to a network video recorder, find **NVR** and tap **Cameras**.
4. Open the camera **settings** by tapping the gear icon twice.
5. Go to the **Detection** menu.
6. Open the **Line crossing detection** settings.
7. Tap **Add** or + in the upper-right corner.
8. In the menu that opens, configure the following:

   a. **Set line crossing rule**. Adjust the line position and crossing direction.



   b. Enter a name for the line in the **Title** field.

   c. Select the required triggers.
9. Tap **Save** to add the line.

After adding a line, it is strongly recommended to test how the camera detects line crossings. For guidance on fine-tuning the line for accurate detection, refer to the Recommendations and best practices section.

You can add **up to 4 lines** per camera.

Line crossing detection in Ajax video surveillance

On-screen display (OSD)

On-screen display (OSD) allows you to overlay additional information on the camera video. You can display the current date, time, date and time, or custom text. OSD elements are shown on live video and recordings. You can add up to four OSD elements to a single video stream.

For the **Custom text** element, you can enter up to 48 characters, including Latin and Cyrillic letters, numbers, and special characters.

To add an OSD element:

1. In the device list, select the required camera.
2. Open the camera settings.
3. Go to **On-screen display (OSD)**.
4. Tap **Add element** and select the required element type.
5. Select the required position on the screen: top left, top right, bottom left, or bottom right.
6. Configure the settings for the selected element type:
   - **Date and time:** select the date and time formats.
   - **Date:** select the date format.
   - **Time:** select the time format.
   - **Custom text:** enter the text to display.
7. Select the required overlay text size.
8. Tap **Save**.

If needed, you can edit or delete an OSD element.

Firmware update

If a new firmware version for TurretCam HLVF is available, the icon appears in Ajax apps in the **Devices** tab. An admin or a PRO with access to the system settings can launch an update via device states or settings. The on-screen instructions help to update the firmware successfully.

You can also update the firmware of all video devices that require an update simultaneously using the **Video update center**.

To update device firmware using the **Video update center**:

1. Open an Ajax app and go to the **Control** tab.
2. Open the space settings.
3. Go to **Video update center**. A list of devices with available firmware updates is displayed.
4. To update the firmware:
   - For a single device: tap **Update firmware** next to the required device.
   - For all devices simultaneously: tap **Update all**.

JetSparrow data transfer protocol

JetSparrow is Ajax proprietary video transmission technology that provides encrypted real-time video streaming for users who are watching live video and archive recordings on any Ajax video device.

JetSparrow uses mutual Transport Layer Security (mTLS) to authenticate communication between devices and ensure secure data transmission. The technology provides fast access to live video and enables smooth navigation through video archives by automatically switching between available video streams to maintain uninterrupted playback and minimize latency.

Selecting the installation site



When choosing where to place TurretCam HLVF, consider the camera's viewing angle and any potential obstacles that might obstruct its view.

How to install an Ajax camera for better AI recognition

To ensure stable focus performance, we recommend installing varifocal cameras on solid, rigid mounting surfaces. Long-term exposure to continuous movement or vibration of the mounting structure may gradually affect focus accuracy. This includes structures that regularly sway or transmit vibration from machinery, vehicles, or other equipment.

Consider the placement recommendations when designing the security system project for your object. The security system should be designed and installed by professionals. A list of recommended partners is available here.

Where not to install the camera

1. Indoors or outdoors, where the temperature and humidity levels do not align the specified operating parameters.
2. In locations where objects or structures might obstruct the camera's view.

3. Too close to reflective surfaces, such as walls or glass, where IR or white light may reflect into the lens, reducing image quality.

Installation

⚠ Avoid direct eye exposure to the camera's LED illumination when active. The LEDs may cause temporary glare or visual impairment.

Before installing TurretCam HLVF, ensure that you have chosen the optimal location that complies with this manual's requirements.

When connecting an external power supply and using TurretCam HLVF, follow the general electrical safety regulations for using electrical appliances, as well as the requirements of regulatory legal acts on electrical safety.

To install the device:

1. Using the bundled hexagon key (Ø 2.5 mm), loosen the two screws and detach the camera enclosure from the holder. Hold the enclosure to prevent the camera from falling.
2. Remove the screws securing the protective cover. Insert a microSD card (not included) into the appropriate slot. Replace the protective cover and secure it with the screws.

ⓘ After adding the device to the system, format the memory card in the camera settings.



3. Use the installation template to mark the locations for drilling holes on the surface where you plan to mount the camera. Secure the template to the chosen installation location with tape and drill three holes as indicated on the template.

> Before you start drilling, consider the camera's orientation, the position of the built-in microphone and external speaker, and any potential obstacles.

4. If the camera is not powered by PoE, connect the power cable to the terminal block included in the complete set.
5. If necessary, connect the alarm and audio cables to the terminal blocks included in the complete set.
6. Connect the Ethernet cable to the camera. If the camera is powered by PoE, no external power supply is required.
7. Insert the terminal blocks into the corresponding slots.
8. Route the cables through the camera holder and secure the holder to the surface using the bundled screws.
9. Place the camera enclosure in the holder, ensuring that the camera lens faces the protected area. Use the bundled hexagon key (Ø 2.5 mm) to tighten the screw. Check that the installation is secure.

> Recommended electrical parameters for the power supply are 12 V⎓ and 1 A.

10. Turn on the camera. Once the network connection is established, the LED indicator on the cable connector will light up green.
11. Add the camera to the system.
12. Adjust the camera's viewing angle by loosening the screw and rotating the camera enclosure. The focal length can be configured remotely in an Ajax app.

Adding to the system

Before adding the device

1. Install an Ajax app.
2. Log in to your account or create a new one.
3. Select a space or create a new one.
4. Add at least one virtual room.
5. Ensure the space is disarmed.

⚠ Only a PRO or a space admin with the rights to configure the system can add the device to the space.

Types of accounts and their rights

Adding to the space

Adding as a standalone device: Adding to NVR:

1. Open the Ajax app. Select a space to which you want to add the device.
2. Go to the **Devices** tab and tap **Add device**.
3. Scan the QR code or enter the device ID manually. A QR code with an ID is placed on the device enclosure. Also, it is duplicated on the device packaging.
4. Assign a name to the device.
5. Select a virtual room and a security group (if Group mode is enabled).
6. Tap **Add device** to proceed.
7. Wait for TurretCam HLVF to establish the connection. Once connected, you will see the live image from the device.
8. Tap **Finish** to add the device.

The connected device will now appear in the list of devices in an Ajax app.

Note that TurretCam HLVF is compatible with only one space. To connect the device to the new space, remove it from the device list of the old one. This removal process needs to be done manually in an Ajax app.

You can calculate the number of cameras and NVRs that can be added to the space using the video device calculator.

Pairing with an Ajax NVR

If TurretCam HLVF has already been added to the space as a standalone device, you can easily pair it with an Ajax NVR. If not, refer to the Adding to the space section to know how to add TurretCam HLVF to the NVR or as a standalone device.

To pair TurretCam HLVF with the NVR, in an Ajax app:

1. Go to the **Devices** tab.
2. Select **NVR** from the list and tap **Cameras**.
3. Tap **Add camera** and wait until the network scan is complete and the available devices connected to the local network are displayed.

   Note that TurretCam HLVF must be connected to the same local network as the NVR.

4. Select the required camera.

   If the required camera is not found automatically:

   I. Tap **Add manually**.
   II. Tap **Native video device**.
   III. Select the required camera from the list of cameras available in the space.
5. Tap **Confirm**.
6. Wait for the system to add the device, then tap **Close**.

The device will now appear in the list of NVR cameras in an Ajax app.

Note that one camera can be paired with several video recorders in one space at th same time.

Configuring the alarm input/output port connection

The camera supports connecting external devices via the alarm input and output terminals. This allows the camera to receive signals from wired detectors and control external equipment in response to configured events.

The **alarm input** terminal enables the camera to receive signals from external devices, including wired detectors or buttons. When the input state changes, the camera can trigger configured actions, such as starting video recording or activating a device connected to the alarm output.

The **alarm output** terminal allows the camera to control external devices when a configured event occurs. It can activate a siren or lighting via an external relay, an electric lock, or a control relay.

Alarm OUT operating range is 24 V⎓, 300 mA. The **alarm output** terminal does not provide continuity when checked with a tester. To verify the alarm output, use the **Send test impulse** button in the Alarm IN/OUT contacts settings in the app.

To connect external devices via the alarm input/output terminals:

1. Connect the alarm cables to the terminal blocks provided with the camera. For wiring details, refer to the Installation section.
2. Open the Alarm IN/OUT contacts settings in an Ajax app and configure the required parameters.

Configuring the audio input/output port connection

The camera supports two-way audio communication via the audio input and output terminals. This allows connecting external audio devices with more powerful microphones and speakers for audio recording and playback.

The **audio input** terminal is used to connect an external microphone for recording audio. It supports active microphones with a built-in preamplifier.

The **audio output** terminal allows connecting an external audio playback device. It can be connected to an external preamplifier and a speaker or loudspeaker to enable

sound playback or two-way audio communication. In the Audio settings, you can select whether the connected speaker is active or passive (by default).

> You can connect an external active speaker with a minimum power of 3 W and an impedance of ≥ 4 Ω to the audio output terminal.

To connect external devices via the audio input/output terminals:

1. Connect the audio cables to the terminal blocks provided with the camera. For wiring details, refer to the Installation section.
2. Open the Audio settings in an Ajax app. Select the **Connected external microphone** option for the **Audio input** setting and configure the required parameters.

Resetting to the default settings

To reset the camera to the default settings:

1. Turn off the camera by disconnecting the external power supply or Ethernet cable (if it is powered by PoE).
2. Press and hold the reset button.
3. Power the camera while the reset button is pressed, and wait until the button's LED indicator lights up violet. This will take about 50 seconds.

> The button's LED indicator lights up blue for 20 seconds after powering the camera with a pressed reset button. Then it turns off for 30 seconds and lights up violet. This means that the camera has been restored to the default settings.

4. Release the button.

Icons

Icons in an Ajax app display some of TurretCam HLVF's states. You can check icons in the **Devices** – tab.

Icon	Meaning
	The device operates in **Night mode**. Learn more
	The microSD card is not installed.
	The microSD card is installed.
	A malfunction of the microSD card is detected. Formatting the microSD card is recommended.
	The microSD card is being formatted.
	Firmware update is available. Go to the device states or settings to find the description and launch an update.
	Firmware update is in progress: downloading/installing the latest version.
	The new firmware installation has failed.
	The device has lost connection with the Ajax Cloud server.
	The device connection via ONVIF is enabled. Learn more
	There is no access to view the device's video.

States

The states include information about the device and its operating parameters. You can find TurretCam HLVF states in Ajax apps:

1. Go to the **Devices** tab.
2. Select **TurretCam HLVF** in the list. Optionally, if the camera is connected to the video recorder, find **NVR**, tap **Cameras**, and select **TurretCam HLVF**.
3. Go to the device states by tapping the gear icon.

Parameter	Meaning
Malfunction	Tapping on opens the list of device malfunctions. The field is displayed only if a malfunction is detected.

Firmware update	The field is displayed when the firmware update is available: • **New firmware version available** — the new firmware is available for download and installation. • **Downloading… —** firmware downloading is in progress. It is displayed as a percentage. • **Installing…** — the firmware is being installed. • **Failed to update firmware —** the new firmware could not be installed. Tapping on ⓘ opens more information about the device's firmware update.
Connection	Status of the device's internet connection via Ethernet: • **Online —** the camera is connected to the network. Normal state. • **Offline** — the camera is not connected to the network. Please check your wired internet connection. Tapping the icon ⓘ displays the network parameters.
Connection to NVR	Displayed when the camera is connected to the NVR. Status of the device connection to the NVR: • **Online** — the camera is connected to the network via the NVR. Normal state. • **Offline —** the camera is not connected to the network via the NVR. Please check your wired internet connection. Tapping the icon ⓘ displays the network parameters.
Storage location	Displays the list of storage devices connected to the camera: • **Memory card —** data is recorded on a memory card (not included) installed in the camera. • **NVR hard drive** — data is recorded on the NVR hard disk. Tapping the icon ⓘ displays the recording mode and storage settings.
Memory card	Status of the memory card connection to the camera: • **OK** — the memory card is communicating with the camera. Normal state. • **Error —** there is an error in the memory card operation. Chec' details by tapping the icon. Follow the instructions provi in the app. • **Not installed** — the memory card is not installed in the camera.

	• **Requires formatting** — the memory card formatting is recommended. If the memory card contains data, it will be permanently deleted. • **Works with errors** — the memory card has issues. Press the reset camera button or format the memory card. • **Formatting…** — the memory card is being formatted.
Resolution	The current camera resolution.
Frame rate	The current camera frame rate.
Bit rate	The current camera bit rate.
Video codec	The current video codec: • **H.265** • **H.264**
Motion detection	The **Motion detection** function status: • **On** • **Off**
Object detection	The **Object detection** function settings: • **Human** • **Pet** • **Vehicle** • **Off**
ONVIF integration	Shows the current status of the device's ONVIF integration. This state is displayed only when ONVIF integration is enabled.
Permissions to view	Displays the number of users who have access to view video from the device. Tapping on (i) displays the list of users, installers, and companies with access under certain conditions. The state is not available in Ajax PRO apps. You can configure privacy permissions for individual users or manage access for multiple users, installers, and companies simultaneously. For details, refer to the Privacy settings in an Ajax system article.
Uptime	The camera's operating time since the last reboot.
Alarm response	
Operating mode	Shows how the device reacts to alarms:

	• **Independent alarm** — the device reacts to a threat according to its settings and doesn't trigger other devices. • **Instant alarm** — the armed device immediately reacts to a threat and raises the alarm. • **Entry/Exit** — when a delay is set, the armed device starts the countdown and doesn't raise the alarm even if triggered until the countdown ends. • **Follower** — the device inherits the delays from **Entry/Exit** devices. However, when the **Follower** is triggered individually, it immediately raises the alarm.
Delay when entering	Delay when entering (alarm activation delay) is the time the user has to disarm the security system after entering the premises. Learn more
Delay when leaving	Delay when leaving (arming delay) is the time the user has to leave the premises after arming. Learn more
Arm in Night mode	When this option is enabled, the device will enter the armed mode when the system is set to **Night mode**. Learn more
Night mode delay when entering	Entry delay time in **Night mode**. Delay when entering (alarm activation delay) is the time the user has to disarm the security system after entering the premises. Learn more
Night mode delay when leaving	Exit delay time in **Night mode**. Delay when leaving (arming delay) is the time the user has to leave the premises after arming. Learn more
Firmware	Device firmware version.
Device ID	Device ID. It is also available on the QR code on the device enclosure and its package box.

Settings

To change camera settings, in an Ajax PRO app:

1. Go to the **Devices** tab.

2. Select **TurretCam HLVF** in the list. Optionally, if the camera is connected to the video recorder, find **NVR**, tap **Cameras**, and select **TurretCam HLVF**.
3. Go to the device states by tapping the gear icon ⚙.
4. Tap the gear icon ⚙ again to open **Settings**.
5. Set the required parameters.
6. Tap **Back** to save the new settings.

An Ajax system enables PROs to apply multiple preconfigured settings to multiple video devices simultaneously via setting templates.

Learn more about settings templates

Setting	Meaning
Name	Device name. It is displayed in the list of space devices, text of SMS and notifications in the event feed. To change the device name, tap on the text field. The name can contain up to 24 Latin characters or up to 12 Cyrillic characters.
Room	Selecting the virtual room to which TurretCam HLVF is assigned. The room name is displayed in the text of SMS and notifications in the event feed.
Recording preferences	Selection of the **Recording mode** for each storage: • **On detection or scenario** • **Continuous** • **Never** Selection of the armed mode when the camera records video: • **When armed** • **Always**
Notifications from camera detectors	Opens a menu with **Notifications from camera detectors settings**. Learn more
Detection	Opens a menu with **Detection** settings. Learn more

Alarm IN/OUT contacts	Opens a menu with **Alarm IN/OUT contacts** settings. Learn more
Video stream	Opens a menu with **Video stream** settings. Learn more
Image	Opens a menu with **Image** settings. Learn more
On-screen display (OSD)	Allows overlaying additional information on the camera video, such as date, time, date and time, or custom text. You can also configure the position and font size of OSD elements and add up to four elements to the video.
Audio	Settings for audio capture and playback.
Privacy zones	Allows the user to select zones that are not displayed on the camera video. Instead, the user sees a black rectangle. Learn more
Alarm response	Opens a menu with **Alarm response** settings. Learn more
Firmware update	Switches the device to the firmware updating mode if a new version is available. Learn more
Connection	The setting for selecting the camera's connection type to the Ajax Cloud server via Ethernet. Available connection types: • **DHCP** • **Static**
Archive	Selection of the maximum archive depth. It can be set in the range of 1 to 360 days or can be unlimited.
Service	Opens a menu with **Service** settings. Learn more
Monitoring	This setting is available only in Ajax PRO apps.

	Allows a PRO with rights to configure the system to set up: • **Zone number for CMS events** — unique identifier of the device in events it reports to CMS; • **Send events on detections to CMS** — whether the device will send notifications on motion or object detection to CMS.
Report a problem	Allows the user to describe a problem and send a report.
User manual	Opens the TurretCam HLVF user manual in an Ajax app.
Unpair from NVR	Unpairs the device from the NVR to which it was paired. The option is available if the device is paired with the NVR.
Delete device	Erases all device settings and deletes the device from the space. Also, it unpairs the device from the NVR if such connection is set up.

Notifications from camera detectors

Setting	Meaning
Notify if detected	The user can select the type of object or motion, and when it's recognized, a notification is received and sirens are activated: • **Human** • **Pet** • **Vehicle** • **Any motion** • **Line crossing** You can configure each event type with one of the following alert options: **Regular notification** or **Alarm**. The selected option determines the event color in the notifications feed and the alert type on the phone. Note that the corresponding types of object or motion should be enabled in the **Detection** settings. To specify whether motion detection should activate the sirens, tap on the required type of object or motion and enable the **Activate sirens upon detection** option.

	⚠ The feature is available when the camera and at least one siren are added to an Ajax hub with OS Malevich 2.31 and later versions. Note that the camera and the hub must be online at the moment of motion detection so the system can activate the sirens. Learn more
When to notify	Selection of the mode when the camera sends notifications: • **When camera armed** • **Always**
Notification delay and interval	
Interval in reporting similar events	Selecting the time interval in reporting similar events: from **30 seconds** to **8 hours**. The default interval is **3 minutes**. Selected time applies for each detection type separately and helps to avoid repeated informing of the same triggering reason.
Duration of object detection for notification	Selecting how long an object should remain in the camera's field of view so the system sends a notification about the detected object. The available values are **Notify instantly** or **2**, **3**, **4**, or **5 seconds**. The default time is **2 seconds**.

Detection settings

Setting	Meaning
Motion detection	When the option is enabled, the camera detects motion using its built-in software.
Analyze image	The software algorithm of image analysis that is used for motion detection. The option is available when **Motion detection** is enabled.
Motion detection settings	Opens a menu with motion detection settings: • **Adjust activity zone** — defines the specific area within the field of view where the camera should detect motion.

	• **Sensitivity threshold** — defines the device's sensitivity to the motion in the activity zone. • **Area occupied by detectable objects** — specifies the size of the area in the camera's field of view that a moving object should occupy for the device to be triggered. The option is available when **Motion detection** is enabled.
Object detection	When the option is enabled, the camera identifies the type of moving objects using a built-in algorithm. In the video, people, pets, and vehicles are highlighted with colored rectangles.
Object detection settings	Opens the menu with object detection settings: • **Adjust object detection zone** — defines the specific area within the field of view where the camera should identify the type of moving objects. • **Human detection** — enables detection of people in the video. • **Pet detection** — enables detection of pets in the video. • **Vehicle detection** — enables detection of vehicles in the video. • **Sensitivity** — defines the accuracy of the object recognition. The setting is available for each object type. The option is available when **Object detection** is enabled.
Line crossing detection	Enables detection of objects that cross a virtual line in the camera's field of view. Learn more

Alarm IN/OUT contacts settings

Setting	Meaning
Input (camera trigger)	
Operation status	Selecting the state of the connected device: • **Enabled** • **Disabled**
Title	Wired sensor name.
Default state	Selecting the normal contact state of the connected device: • **Normally open** • **Normally closed**

Output (controlled device)	
Operation status	Selecting the state of the connected device: • **Enabled** • **Disabled**
Title	Wired sensor name.
Default state	Selecting the normal contact state of the connected device: • **Normally open** • **Normally closed**
Pulse duration	Pulse time of the device. If the pulse from the device lasts longer than specified in this setting, an alarm will be activated. This option can be used to filter out false alarms.
Send test impulse	Runs a test of the connected Alarm OUT output. Events are not generated when this button is tapped in the settings. The **alarm output** terminal does not provide continuity when checked with a tester.

Video stream settings

Settings for mainstream and substream parameters.

Setting	Meaning
Mainstream	
Video codec	Selecting the video compression standard: • H.265 • H.264 • MJPEG
Resolution	Selecting the mainstream resolution (depending on the camera's version): • 3840 × 2160

	• 3072 × 1728 • 2944 × 1656 • 2880 × 1620 • 2592 × 1944 • 2560 × 1440 • 2304 × 1296 • 1920 × 1080 • 1024 × 576
Frame rate	Selecting the frame rate: from 3 to 25 with an increment of 1 frame/s.
Bit rate type	Selecting the bit rate type: • **Variable (VBR)** • **Constant (CBR)**
Bit rate	Setting the bit rate in kbit/s.
GOP length	Selecting the GOP length: from 1 to 250 with an increment of 1 frame.
VBR quality / CBR quality	Selecting the compression quality: from 0 to 100 with an increment of 1.
Substream	
Video codec	Selecting the video compression standard: • H.265 • H.264
Resolution	Selecting the substream resolution: • 720 × 480 • 720 × 576 • 1024 × 576
Frame rate	Selecting the frame rate: from 3 to 25 with an increment of 1 frame/s.
Bit rate type	Selecting the bit rate type: • **Variable (VBR)** • **Constant (CBR)**
Bit rate	Setting the bit rate in kbit/s.
GOP length	Selecting the GOP length: from 1 to 250 with an increment of 1 fr
VBR quality / CBR quality	Selecting the compression quality: from 0 to 100 with an increment of 1.

Image settings

Settings for camera image quality.

Setting	Meaning
Image settings	Selecting image settings mode: • **General** — applies a single set of image parameters to all lighting conditions. • **Scene-specific** — allows configuration of image parameters separately for specific lighting conditions. Learn more
Capturing mode	Selecting specific settings for each scene and video capturing conditions: • **Day** • **Night (IR light)** • **Night (white light)** You can configure the image brightness, color saturation, sharpness, and contrast for each video capturing condition. For the **Scene-specific** image settings only.
Vivid mode: Color intensity style	Turning display settings for a warmer, brighter, and richer image beyond the natural tone.
Brightness	Adjusting the image brightness.
Color saturation	Adjusting the image color saturation.
Sharpness	Adjusting the image sharpness.
Contrast	Adjusting the image contrast.
Image rotation	Selecting the camera image orientation: • **Default view** — the camera image is displayed as captured by the lens, without rotation. Use this option if the camera is installed in the standard upright position. • **90°**— the camera image is rotated by 90° clockwise. • **180°** — the camera image is rotated by 180 degrees. Use this option if the camera is installed upside down (e.g., on a ceilin • **270°**— the camera image is rotated by 270° clockwise.
Wide dynamic range (WDR)	Enabling or disabling the WDR.

	When WDR is enabled, it helps to enhance the camera images, with too dark or too bright areas.
Lighting stabilization	Adjusting the exposure: • **1–2.9** — adjusting WDR levels. • **3–5** — activating and adjusting HDR levels. This setting is available if **Wide dynamic range (WDR)** is enabled.
Day/Night mode	Selecting the camera vision mode depending on the light conditions: • **Day** — IR backlight is always off. • **Night** — IR backlight is always on. • **Auto** — IR backlight automatically switches according to the **Mode switching conditions** settings.
Mode switching conditions	Selecting the conditions for switching between the day and night modes: • **Later to Night / Earlier to Day** • **Medium** • **Earlier to Night / Later to Day** This setting is available if **Day/Night mode** is set to **Auto**.
Scene illumination	Selecting the scene illumination mode: • **Disabled** — the camera does not use any built-in illumination. The mode is suitable for well-lit areas or when external lighting is used. • **Infrared light** — the camera uses IR illumination to capture black-and-white images in low-light conditions. IR light is invisible to the human eye and does not attract attention. • **White LED** — the camera uses a visible white LED to illuminate the scene. The mode provides color video at night and can deter intruders by attracting attention. • **Hybrid light** — the camera operates in the **Infrared light** mode by default. When AI-powered object detection is triggered, the white LED turns on to provide color images.
Triggers for light switching	Selecting which activity in the camera's field of view will activate the white light mode: • **Human** • **Pet** • **Vehicle** • **Any motion** • **Line crossing**

	This setting is available if **Scene illumination** is set to **Hybrid light**.
Infrared illumination (IR) mode	Adjusting the intensity of the IR backlight: • **Auto** • **Custom** The setting is used to capture clear black-and-white images at night or in low light and ensures visibility using IR LEDs when conventional lighting is ineffective. This setting is available if **Scene illumination** is set to **Infrared light**.
IR intensity	Adjusting the IR light intensity. This setting is available if **Infrared illumination (IR) mode** is set to **Custom**.
White LED illumination mode	Adjusting the white LED illumination intensity: • **Auto** • **Custom** The setting is used to capture clear color images at night or in low light and ensures visibility using white LEDs when normal lighting is ineffective. This setting is available if **Scene illumination** is set to **White LED**.
LED intensity	Adjusting the white LED illumination intensity. This setting is available if **White LED illumination mode** is set to **Custom**.
Set exposure based on	Selecting the frame area on which the exposure is based on: • **Entire frame** • **Frame's top** • **Frame's right** • **Frame's bottom** • **Frame's left** • **Frame's center**
Exposure mode	Selecting the exposure mode: • **Auto** • **Manual setup**
Image preferences	Adjusting the shutter speed for less motion blur or for less noise in the image. This setting is available if **Exposure mode** is set to **Auto**.

Exposure compensation	Ability to override automatic exposure settings to manually control the image brightness. This setting is available if **Exposure mode** is set to **Auto**.
Shutter speed	Selecting the shutter speed to ensure correct exposure for the image. This setting is available if **Exposure mode** is set to **Manual setup**.
Noise reduction	Enabling or disabling the noise reduction.
Parameter value	Adjusting the noise reduction level. This setting is available if **Noise reduction** is enabled.
Anti-flicker (Power frequency)	Selecting the power grid frequency to reduce the image flickering. This setting is used if the camera is capturing the video in low-light conditions and lamps are flickering on the camera image with the power grid frequency. Available parameters: • **50 Hz** • **60 Hz** • **Disabled** — anti-flicker is off.

Audio settings

Settings	Meaning
Audio output	Selecting the state of the connected device: • **Enabled** • **Disabled**
Output volume	Adjusting the volume of the audio output device's speaker.
Test volume	Testing the volume of the audio output device's speaker.
Audio input	Selecting the state of the connected device: • **Disabled** • **Built-in microphone** • **Connected external microphone**
Audio codec	Selecting the audio codec. This option is available if **Connected external microphone** is selected.
Bit rate	Setting the bit rate in kbps.

	This option is available if **Connected external microphone** is selected.
Sample rate	Setting the sample rate in kHz. This option is available if **Connected external microphone** is selected.
Microphone gain	Adjusting the microphone sensitivity level. This option is available if **Connected external microphone** is selected.

Alarm response settings

Setting	Meaning
Operating mode	Specify how this device will react to alarms: • **Independent alarm** — the device reacts to a threat according to its settings and doesn't trigger other devices. • **Instant alarm** — the armed device immediately reacts to a threat and raises the alarm. • **Entry/Exit** — when a delay is set, the armed device starts the countdown and doesn't raise the alarm even if triggered until the countdown ends. • **Follower** — the device inherits the delays from **Entry/Exit** devices. However, when the **Follower** is triggered individually, it immediately raises the alarm.
Delay when entering	Selecting delay time when entering: 5 to 255 s. Delay when entering (alarm activation delay) is the time the user has to disarm the security system after entering the premises. Learn more
Delay when leaving	Selecting delay time when leaving: 5 to 255 s. Delay when leaving (arming delay) is the time the user has to leave the premises after arming. Learn more
Arm in Night mode	When enabled, the device switches to the armed mode when the system is set to **Night mode**. Learn more
Night mode delay when entering	Delay time when entering in **Night mode**.

	Delay when entering (alarm activation delay) is the time the user has to disarm the security system after entering the premises. Learn more
Night mode delay when leaving	Delay time when leaving in **Night mode**. Delay when leaving (arming delay) is the time the user has to leave the premises after arming. Learn more
Night mode delay	Delay time in **Night mode**: 5 to 255 seconds. It is the time the user has to disable **Night mode** (alarm activation delay) after the Entry/Exit detector is triggered. The setting is displayed if the device is set to the **Follower** operating mode and the **Arm in Night mode** option is enabled. Learn more

Service settings

Setting	Meaning
Time zone	Time zone selection. It is configured by a user and is displayed when a user views video from the camera.
Connection via ONVIF	Configuring the device's connection via ONVIF to third-party VMSs. Learn more
Security certificates	Allows you to download built-in cloud certificates for secure HTTPS integration with third-party systems via ONVIF.
Cloud connection	
Delay of cloud connection loss alarm, sec	The delay helps reduce the risk of a false server connection loss event. The delay can be set in the range of 30 to 600 seconds.
Cloud polling interval, sec	The frequency of polling the Ajax Cloud server is set in the range of 30 to 300 seconds. The shorter the interval, the faster the cloud connection loss will be detected.

Get notified of server connection loss without alarm	When the toggle is enabled, the system notifies users about server connection loss using a standard notification sound instead of a siren alert.

Indication

The green LED indicator is placed on the camera Ethernet connector.

Event	Indication
The network connection is established.	Lights up green.

Malfunction

When the device detects a malfunction, a malfunction counter is displayed in the Ajax app in the upper left corner of the device icon. All malfunctions can be seen in the device states. Fields with malfunctions will be highlighted in red.

Malfunction is displayed if:

- The camera has lost connection with the server.
- The camera's storage device is malfunctioning. Press the camera's reset button or format the storage device in the camera settings.
- The storage device needs to be formatted. Format the storage device in the camera settings.

Maintenance

Regularly check the functioning of the device. If you notice any image degradation, loss of clarity, or darkening, check the camera for dirt. To maintain image quality, clean the camera optical surface with a clean, soft, slightly damp lint-free microfiber cloth. Remove dust and other solid particles from the surface before wiping it. Do not use paper towels, abrasive materials, or rough fabrics, and do not apply excessive pressure. Do not apply liquid directly to the camera — dampen the cloth instead.

Do not use substances that contain alcohol, acetone, petrol, or other active solvents to clean the device. Wipe the lens carefully, as scratches can result in poor-quality

images and camera failure.

Technical specifications

Technical specifications for TurretCam HLVF (5 Mp)

Technical specifications for TurretCam HLVF (8 Mp)

Compliance with standards

Warranty

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

If the device does not operate properly, we recommend contacting support service first, as most technical issues can be resolved remotely.

Warranty obligations

User Agreement

Contact Technical Support:

- email
- Telegram

Manufactured by “AS Manufacturing” LLC



Need help?

Explore the full potential of an Ajax system through detailed manuals, articles, tools, and FAQs. For immediate assistance, our AI-powered chatbot and professional technical support team are available 24/7.

Ask a question

Subscribe

Subscribe to our emails about secure life. No spam.

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Watch product demos, field-tested tips, and expert insights from security professionals.

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Ask a question

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4,500,000

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Intrusion protection

Video surveillance

Fire and life safety

Comfort and automation

All products

Services

System integrations

Ajax Ready products

Fibra wired protocol

Ajax radio protocols

Software

Ajax Security System

Ajax PRO: Tool for Engineers

Ajax Desktop

Ajax PRO Desktop

Ajax Response

Ajax TV

Ajax Translator PRO

Ajax Cloud Signaling

Ajax Media Player

Scenarios

Available on App Store

Available on Google Play

Solutions

Support

Customer stories
Solutions by facility type
Commercial fire detection and alarm system
Wireless Grade 3 solution
Wired Grade 3 solution
Outdoor intrusion protection
Video surveillance solution
Integration with Yale smart locks
Water damage prevention
Upgrades and retrofits
Why Ajax
How it works

Manuals and articles
Compliance with standards

Tools

Ajax device compatibility
CMS software compatibility
Ajax Services availability
Video storage calculator
Video device calculator
Battery life calculator
Radio communication range calculator
Switches and outlets configurator
Fibra power supply calculator
All web tools

Monitoring solutions and integrations

Intrusion alarm monitoring
Video monitoring and visual alarm verification
Audio alarm verification

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Ajax PRO channel
Reviews and feedback

For partners

For partners
Ajax Academy
Partner Portal
Ajax PRO channel

Schweiz Privacy policy Report a vulnerability IMPRESSUM GDPR White Paper NDAA Statement Cookie policy
Anti-Spam Policy Ajax Services T&C End user agreement Data Processing Agreement Warranty

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