

**AXIS Q36-VE Network Camera Series**

**AXIS Q3615-VE Network Camera**

**AXIS Q3617-VE Network Camera**

**User Manual**

# AXIS Q36-VE Network Camera Series

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# AXIS Q36-VE Network Camera Series

## About this manual

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### About this manual

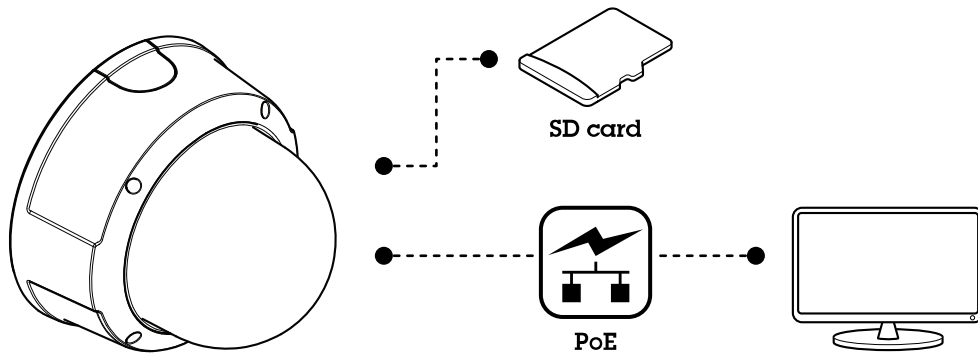
This user manual describes multiple products. Some of the instructions may not be relevant for your product.

# AXIS Q36-VE Network Camera Series

## Solution overview

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### Solution overview

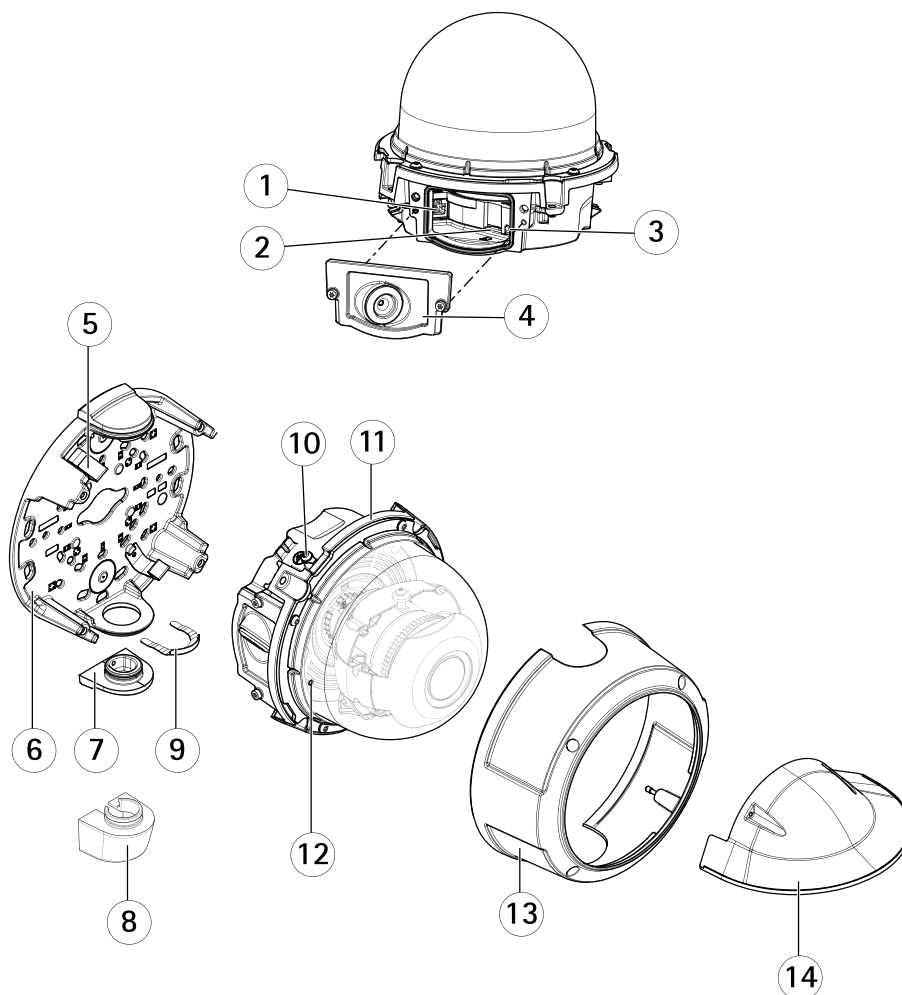


# AXIS Q36-VE Network Camera Series

## Product overview

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### Product overview



- 1 Network connector
- 2 SD card slot
- 3 Control button
- 4 Bracket
- 5 Spring
- 6 Mounting bracket
- 7 Side lid
- 8 Conduit adapter
- 9 Locking clip
- 10 Grounding screw
- 11 Unit casing
- 12 LED indicator
- 13 Dome cover
- 14 Weather shield

# AXIS Q36-VE Network Camera Series

## Find the device on the network

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### Find the device on the network

To find Axis devices on the network and assign them IP addresses in Windows®, use AXIS IP Utility or AXIS Device Manager. Both applications are free and can be downloaded from [axis.com/support](http://axis.com/support).

For more information about how to find and assign IP addresses, see the document *How to assign an IP address and access your device* on the device page at [axis.com](http://axis.com).

### Access the device

1. Open a browser and enter the IP address or host name of the Axis device.  
  
If you have a Mac computer (OS X), go to Safari, click Bonjour and select the device from the drop-down list. To add Bonjour as a browser bookmark, go to **Safari > Preferences**.  
  
If you do not know the IP address, use AXIS IP Utility or AXIS Device Manager to find the device on the network.
2. Enter the username and password. If you access the device for the first time, you must set the root password. See *Set a new password for the root account* on page 6.
3. The live view page opens in your browser.

### Secure passwords

#### Important

Axis devices send the initially set password in clear text over the network. To protect your device after the first login, set up a secure and encrypted HTTPS connection and then change the password.

The device password is the primary protection for your data and services. Axis devices do not impose a password policy as they may be used in various types of installations.

To protect your data we strongly recommend that you:

- Use a password with at least 8 characters, preferably created by a password generator.
- Don't expose the password.
- Change the password at a recurring interval, at least once a year.

### Set a new password for the root account

#### Important

The default administrator username is **root**. If the password for root is lost, reset the device to factory default settings.

1. Type a password. Follow the instructions about secure passwords. See *Secure passwords* on page 6.
2. Retype the password to confirm the spelling.
3. Click **Create login**. The password has now been configured.

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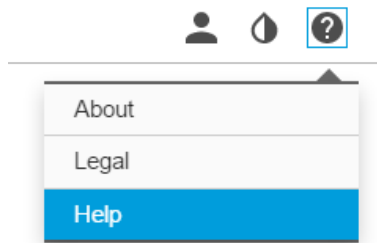
## Additional settings

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### Additional settings

#### Need more help?

You can access the built-in help from the device's webpage. The help provides more detailed information on the device's features and their settings.



#### Pan, tilt, roll, and zoom (PTRZ)

The PTRZ feature is only intended for installation purposes. The PTRZ page appears in the setup sequence when starting the camera for the first time, or after a reset to factory default. To change the PTRZ settings, see *Set PTRZ and focus on page 8*.

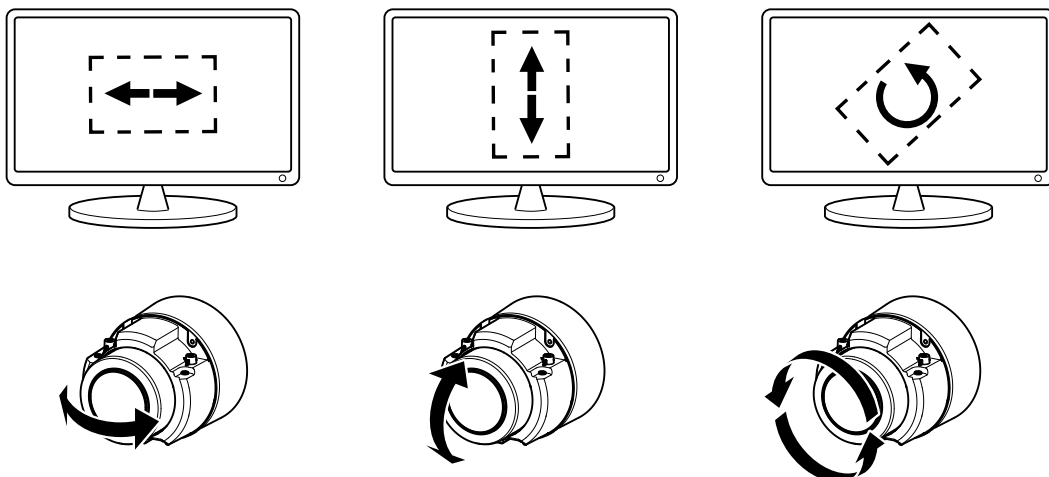
With the PTRZ (Pan, Tilt, Roll, Zoom) feature you can remotely move your camera in several directions to complete the installation without physically adjusting the camera.

**Pan** - the side to side movement of the camera

**Tilt** - the up or down movement of the camera

**Roll** - the rotation of the lens about its center

**Zoom** - makes the image larger and nearer, or smaller and further away.



*The illustration shows how the directions pan, tilt, and roll affect the live view image.*

# AXIS Q36-VE Network Camera Series

## Additional settings

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### Set PTRZ and focus

1. Go to **Settings > System > Orientation**.
2. Click the **PTRZ** button to open the same window that appeared during the initial setup of the product.
3. Adjust the camera according to the online instructions.
4. Close the window when you are satisfied.

#### Note

- If the camera can't perform PTRZ or focus, calibrate the PTRZ and optics, and try again. To calibrate, go to **Settings > System > Maintenance**.

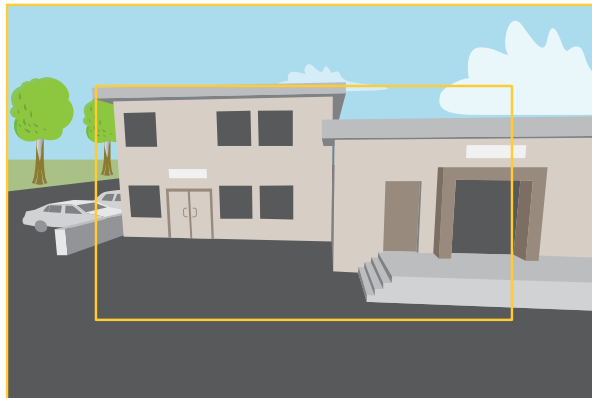
See also *Pan, tilt, roll, and zoom (PTRZ)* on page 7.

### Capture modes

Capture mode defines the maximum frame rate available in the Axis product. Depending on which capture mode you select, you may not be able to use WDR.

A capture mode consists of a resolution and the corresponding frame rate available in the product. The capture mode setting affects the camera's field of view and aspect ratio.

The lower resolution capture mode is cropped out from the highest resolution.



*The image shows how the field of view and aspect ratio can change between two different capture modes.*

Which capture mode to choose depends on the requirements of frame rate and resolution for the specific surveillance setup. For specifications about available capture modes, see the product's datasheet at [axis.com](http://axis.com).

### Select capture mode

Which capture mode to choose depends on the requirements of frame rate and resolution for the specific surveillance setup. For specifications about available capture modes, see the product's datasheet. To find the latest version of the datasheet, go to [axis.com](http://axis.com).

### Hide parts of the image with privacy masks

You can create one or several privacy masks to hide parts of the image.

1. Go to **Settings > Privacy mask**.



# AXIS Q36-VE Network Camera Series

## Additional settings

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2. Click **New**.
3. Adjust the size, color, and name of the privacy mask according to your needs.

### Reduce noise in low-light conditions

To reduce noise in low-light conditions, you can adjust one or more of the following settings:

#### Note

A high max shutter value can result in motion blur.

- To slow down the shutter speed, set max shutter to the highest possible value.
- Reduce sharpness in the image.

### Select exposure mode

There are different exposure mode options in the camera that adjusts aperture, shutter speed, and gain to improve image quality for specific surveillance scenes. Go to **Settings > Image > Exposure** and select between the following exposure modes:

### Maximize details in an image

#### Important

If you maximize details in an image, the bitrate will probably increase and you might get a reduced frame rate.

- Make sure to select the capture mode that has the highest resolution.
- Set the compression as low as possible.
- Select MJPEG streaming.
- Turn off Zipstream functionality.

### Stabilize a shaky image with Electronic Image Stabilization (EIS)

Electronic Image Stabilization (EIS) can be used in environments where the product is mounted in an exposed location and subject to vibrations, for example, wind or passing traffic. Turn on EIS to get a smoother and steadier image without blur.

EIS also reduces the file size of the compressed image and lowers the bitrate of the video stream.

#### Note

When EIS is turned on the image is cropped slightly, lowering the maximum resolution.

1. Go to **Settings > Image > Image correction**.
2. Turn on EIS.

### Compensate for barrel distortion

Barrel distortion is a phenomenon where straight lines appear increasingly bent closer to the edges of the frame. A wide field of view often creates barrel distortion in an image. Barrel distortion correction compensates for this distortion.

#### Note

Barrel distortion correction affects the image resolution and field of view.

# AXIS Q36-VE Network Camera Series

## Additional settings

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1. Go to Settings > Image > Image correction.
2. Turn on Barrel distortion correction (BDC).
3. Set the level of correction that gives you the best image.

### View area

A view area is a cropped part of the full view. You can stream and store view areas instead of the full view to minimize bandwidth and storage needs. If you enable PTZ for a view area, you can pan, tilt and zoom within it. By using view areas you can remove parts of the full view, for example, the sky.

When you set up a view area, we recommend you to set the video stream resolution to the same size as or smaller than the view area size. If you set the video stream resolution larger than the view area size it implies digitally scaled up video after sensor capture, which requires more bandwidth without adding image information.

### Handle scenes with strong backlight

Dynamic range is the difference in light levels in an image. In some cases the difference between the darkest and the brightest areas can be significant. The result is often an image where either the dark or the bright areas are visible. Wide dynamic range (WDR) makes both dark and bright areas of the image visible.

1. Go to Settings > Image > Wide dynamic range.
2. If required, turn on WDR.
3. Use the Contrast slider to adjust the amount of WDR.



*Image without WDR.*



*Image with WDR.*

#### Note

WDR may cause artifacts in the image.

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## Additional settings

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Find out more about WDR and how to use it at [axis.com/web-articles/wdr](http://axis.com/web-articles/wdr).

### Overlays

Overlays are superimposed over the video stream. They are used to provide extra information during recordings, such as a timestamp, or during product installation and configuration. You can add either text or an image.

#### About overlay text

An overlay text can include the current date and time, or a text string. When using a text string, so-called modifiers can be used to display, for example, the current bit rate or the current frame rate.

You can choose between the following text overlay sizes:

| Size   | Text height | Background height |
|--------|-------------|-------------------|
| Small  | 10 pixels   | 20 pixels         |
| Medium | 16 pixels   | 28 pixels         |
| Large  | 21 pixels   | 36 pixels         |

#### Show a text overlay in the video stream when the device detects motion

This example explains how to display the text "Motion detected" when the device detects motion:

Make sure that AXIS Video Motion Detection is running:

1. Go to **Settings > Apps > AXIS Video Motion Detection**.
2. Start the application if it is not already running.
3. Make sure you have set up the application according to your needs.

Add the overlay text:

4. Go to **Settings > Overlay**.
5. Enter #D in the text field.
6. Choose text size and appearance.

Create a rule:

7. Go to **System > Events > Rules** and add a rule.
8. Type a name for the rule.
9. In the list of conditions, select **AXIS Video Motion Detection**.
10. In the list of actions, select **Use overlay text**.
11. Select a view area.
12. Type "Motion detected".
13. Set the duration.
14. Click **Save**.

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## Additional settings

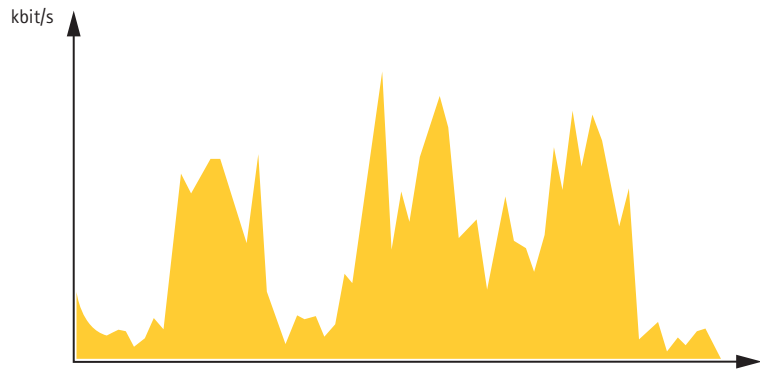
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### Bitrate control

With bitrate control, you can manage the bandwidth consumption of your video stream.

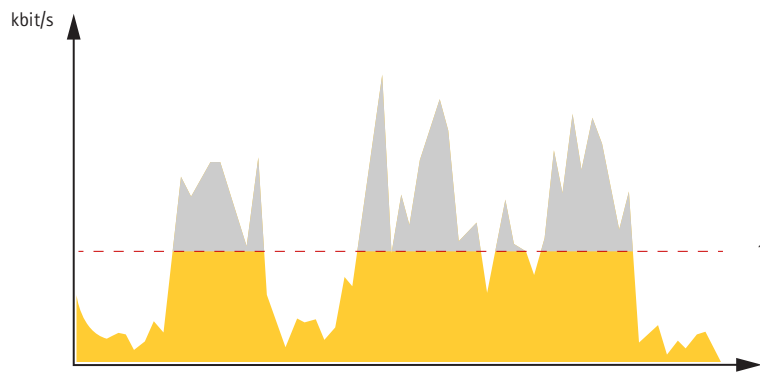
#### Variable bitrate (VBR)

With variable bitrate, the bandwidth consumption varies based on the level of activity in the scene. The more activity in the scene, the more bandwidth you need. You are guaranteed constant image quality but it requires storage margins.



#### Maximum bitrate (MBR)

With maximum bitrate, you can set a target bitrate to handle bitrate limitations in your system. You may see a decline in image quality or frame rate when the instantaneous bitrate is kept below the specified target bitrate. You can choose to either prioritize image quality or frame rate. We recommend that you configure the target bitrate to a higher value than the expected bitrate. This gives you a margin for additional complexity that needs to be captured.



1 Target bitrate

#### Average bitrate (ABR)

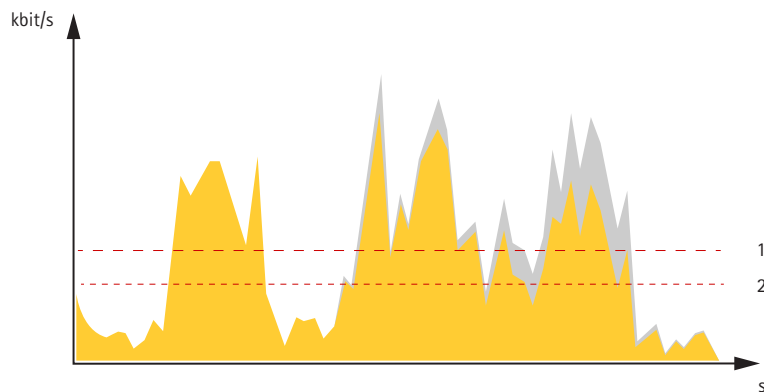
With average bitrate, the bitrate is automatically adjusted over a longer timescale. This is so you can meet the specified target and provide the best video quality based on your available storage. Bitrate is higher in scenes with a lot of activity, compared to static scenes. You are more likely to get better image quality when needed when using the average bitrate option. You can define the total storage required to store the video stream for a specified amount of time (retention time) when image quality is adjusted to meet the specified target bitrate. Specify the average bitrate settings in one of the following ways:

- To calculate the estimated storage need, set the target bitrate and the retention time.
- To calculate the average bitrate, based on available storage and required retention time, use the target bitrate calculator.

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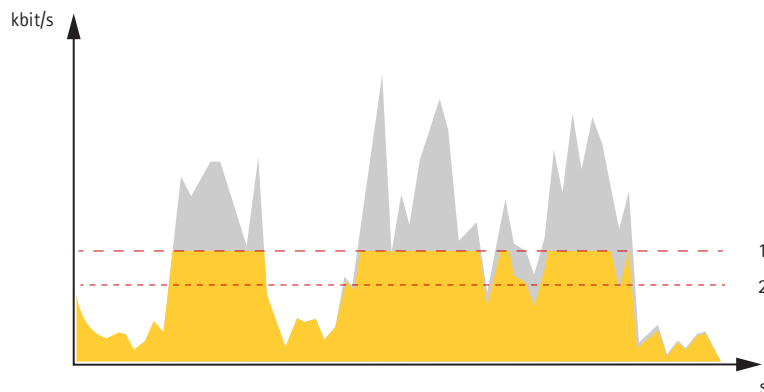
## Additional settings

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- 1 Target bitrate
- 2 Actual average bitrate

You can also turn on maximum bitrate and specify a target bitrate within the average bitrate option.



- 1 Target bitrate
- 2 Actual average bitrate

## Video compression formats

Decide which compression method to use based on your viewing requirements, and on the properties of your network. The available options are:

### Motion JPEG

Motion JPEG, or MJPEG, is a digital video sequence that is made up of a series of individual JPEG images. These images are then displayed and updated at a rate sufficient to create a stream that shows constantly updated motion. For the viewer to perceive motion video the rate must be at least 16 image frames per second. Full motion video is perceived at 30 (NTSC) or 25 (PAL) frames per second.

The Motion JPEG stream uses considerable amounts of bandwidth, but provides excellent image quality and access to every image contained in the stream.

### H.264 or MPEG-4 Part 10/AVC

#### Note

H.264 is a licensed technology. The Axis product includes one H.264 viewing client license. To install additional unlicensed copies of the client is prohibited. To purchase additional licenses, contact your Axis reseller.

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## Additional settings

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H.264 can, without compromising image quality, reduce the size of a digital video file by more than 80% compared to the Motion JPEG format and by as much as 50% compared to the MPEG-4 standard. This means that less network bandwidth and storage space are required for a video file. Or seen another way, higher video quality can be achieved for a given bitrate.

### Reduce bandwidth and storage

#### Important

If you reduce the bandwidth it can result in loss of details in the picture.

1. Go to live view and select H.264.
2. Go to **Settings > Stream**.
3. Do one or more of the following:
  - Turn on the Zipstream functionality and select the desired level.
  - Turn on dynamic GOP and set a high GOP length value.
  - Increase the compression.
  - Turn on dynamic FPS.

### Set up network storage

To store recordings on the network, you need to set up network storage:

1. Go to **Settings > System > Storage**.
2. Click **Setup** under **Network storage**.
3. Enter the IP address of the host server.
4. Enter the name of the shared location on the host server.
5. Move the switch if the share requires a login, and enter username and password.
6. Click **Connect**.

### Set up rules and alerts

You can create rules to make your device perform an action when certain events occur. A rule consists of conditions and actions. The conditions can be used to trigger the actions. For example, the device can start a recording or send an email when it detects motion, or show an overlay text when it records.

### Trigger an action

1. Go to **Settings > System > Events** to set up a rule. The rule defines when the camera will perform certain actions. Rules can be setup as scheduled, recurring, or for example, triggered by motion detection.
2. Select the **Condition** that must be met to trigger the action. If you specify more than one condition for the rule, all of the conditions must be met to trigger the action.
3. Select which **Action** the camera should perform when the conditions are met.

#### Note

If you make changes to an active rule, then the rule needs to be restarted for the changes to take effect.

# AXIS Q36-VE Network Camera Series

## Additional settings

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### Record video when the camera detects motion

This example explains how to set up the camera to start recording to the SD card five seconds before it detects motion and to stop one minute after.

Make sure that AXIS Video Motion Detection is running:

1. Go to **Settings > Apps > AXIS Video Motion Detection**.
2. Start the application if it is not already running.
3. Make sure you have set up the application according to your needs.

Create a rule:

1. Go to **Settings > System > Events** and add a rule.
2. Type a name for the rule.
3. In the list of conditions, under **Application**, select **AXIS Video Motion Detection (VMD)**.
4. In the list of actions, under **Recordings**, select **Record video while the rule is active**.
5. Select an existing stream profile or create a new one.
6. Set the prebuffer time to 5 seconds.
7. Set the postbuffer time to 60 seconds.
8. In the list of storage options, select **SD card**.
9. Click **Save**.

### Applications

AXIS Camera Application Platform (ACAP) is an open platform that enables third parties to develop analytics and other applications for Axis products. To find out more about available applications, downloads, trials and licenses, go to [axis.com/applications](http://axis.com/applications).

To find the user manuals for Axis applications, go to [axis.com](http://axis.com).

#### Note

- Several applications can run at the same time but some applications might not be compatible with each other. Certain combinations of applications might require too much processing power or memory resources when run in parallel. Verify that the applications work together before deployment.

# AXIS Q36-VE Network Camera Series

## Troubleshooting

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### Troubleshooting

If you can't find what you're looking for here, try the troubleshooting section at [axis.com/support](https://axis.com/support).

### Reset to factory default settings

#### Important

Reset to factory default should be used with caution. A reset to factory default resets all settings, including the IP address, to the factory default values.

To reset the product to the factory default settings:

1. Disconnect power from the product.
2. Press and hold the control button while reconnecting power. See *Product overview on page 5*.
3. Keep the control button pressed for 15–30 seconds until the status LED indicator flashes amber.
4. Release the control button. The process is complete when the status LED indicator turns green. The product has been reset to the factory default settings. If no DHCP server is available on the network, the default IP address is 192.168.0.90.
5. Use the installation and management software tools to assign an IP address, set the password, and access the video stream.


The installation and management software tools are available from the support pages on [axis.com/support](https://axis.com/support).

It is also possible to reset parameters to factory default through the web interface. Go to **Settings > System > Maintenance** and click **Default**.

### Check the current firmware

Firmware is the software that determines the functionality of network devices. One of your first actions when troubleshooting a problem should be to check the current firmware version. The latest version may contain a correction that fixes your particular problem.

To check the current firmware:

1. Go to the product's webpage.
2. Click on the help menu .
3. Click **About**.

### Upgrade the firmware

#### Important

Preconfigured and customized settings are saved when the firmware is upgraded (provided that the features are available in the new firmware) although this is not guaranteed by Axis Communications AB.

#### Important

Make sure the product remains connected to the power source throughout the upgrade process.

#### Note

When you upgrade the product with the latest firmware in the active track, the product receives the latest functionality available. Always read the upgrade instructions and release notes available with each new release before upgrading the firmware. To find the latest firmware and the release notes, go to [axis.com/support/firmware](https://axis.com/support/firmware).



# AXIS Q36-VE Network Camera Series

## Troubleshooting

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1. Download the firmware file to your computer, available free of charge at [axis.com/support/firmware](http://axis.com/support/firmware).
2. Log in to the product as an administrator.
3. Go to **Settings > System > Maintenance**. Follow the instructions on the page. When the upgrade has finished, the product restarts automatically.

AXIS Device Manager can be used for multiple upgrades. Find out more at [axis.com/products/axis-device-manager](http://axis.com/products/axis-device-manager).

### Technical issues, clues and solutions

If you can't find what you're looking for here, try the troubleshooting section at [axis.com/support](http://axis.com/support).

#### Problems upgrading the firmware

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|                          |   |
|--------------------------|---|
| Firmware upgrade failure | If the firmware upgrade fails, the device reloads the previous firmware. The most common reason is that the wrong firmware file has been uploaded. Check that the name of the firmware file corresponds to your device and try again. |
|--------------------------|---|

#### Problems setting the IP address

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|   |  |
|---|--|
| The device is located on a different subnet                         | If the IP address intended for the device and the IP address of the computer used to access the device are located on different subnets, you cannot set the IP address. Contact your network administrator to obtain an IP address.  |
| The IP address is being used by another device                      | Disconnect the Axis device from the network. Run the ping command (in a Command/DOS window, type <code>ping</code> and the IP address of the device): <ul style="list-style-type: none"><li>• If you receive: <code>Reply from &lt;IP address&gt;: bytes=32; time=10...</code> this means that the IP address may already be in use by another device on the network. Obtain a new IP address from the network administrator and reinstall the device.</li><li>• If you receive: <code>Request timed out</code>, this means that the IP address is available for use with the Axis device. Check all cabling and reinstall the device.</li></ul> |
| Possible IP address conflict with another device on the same subnet | The static IP address in the Axis device is used before the DHCP server sets a dynamic address. This means that if the same default static IP address is also used by another device, there may be problems accessing the device.  |

#### The device cannot be accessed from a browser

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|  |   |
|--|---|
| Cannot log in                            | When HTTPS is enabled, ensure that the correct protocol (HTTP or HTTPS) is used when attempting to log in. You may need to manually type <code>http</code> or <code>https</code> in the browser's address field.<br><br>If the password for the user <code>root</code> is lost, the device must be reset to the factory default settings. See <i>Reset to factory default settings on page 16</i> .   |
| The IP address has been changed by DHCP  | IP addresses obtained from a DHCP server are dynamic and may change. If the IP address has been changed, use AXIS IP Utility or AXIS Device Manager to locate the device on the network. Identify the device using its model or serial number, or by the DNS name (if the name has been configured).<br><br>If required, a static IP address can be assigned manually. For instructions, go to <a href="http://axis.com/support">axis.com/support</a> . |
| Certificate error when using IEEE 802.1X | For authentication to work properly, the date and time settings in the Axis device must be synchronized with an NTP server. Go to <b>Settings &gt; System &gt; Date and time</b> .  |

#### The device is accessible locally but not externally

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To access the device externally, we recommend using one of the following applications for Windows®:

- AXIS Companion: free of charge, ideal for small systems with basic surveillance needs.
- AXIS Camera Station: 30-day trial version free of charge, ideal for small to mid-size systems.

For instructions and download, go to [axis.com/products/axis-companion](http://axis.com/products/axis-companion).

# AXIS Q36-VE Network Camera Series

## Troubleshooting

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### Problems with streaming

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|  |  |
|--|--|
| Multicast H.264 only accessible by local clients       | Check if your router supports multicasting, or if the router settings between the client and the device need to be configured. The TTL (Time To Live) value may need to be increased.  |
| No multicast H.264 displayed in the client             | Check with your network administrator that the multicast addresses used by the Axis device are valid for your network.<br><br>Check with your network administrator to see if there is a firewall preventing viewing.  |
| Poor rendering of H.264 images                         | Ensure that your graphics card is using the latest driver. The latest drivers can usually be downloaded from the manufacturer's website.   |
| Color saturation is different in H.264 and Motion JPEG | Modify the settings for your graphics adapter. Go to the adapter's documentation for more information.   |
| Lower frame rate than expected                         | <ul style="list-style-type: none"><li>• See <i>Performance considerations on page 18</i>.</li><li>• Reduce the number of applications running on the client computer.</li><li>• Limit the number of simultaneous viewers.</li><li>• Check with the network administrator that there is enough bandwidth available.</li><li>• Lower the image resolution.</li><li>• Log in to the device's webpage and set a capture mode that prioritizes frame rate. Changing the capture mode to prioritize frame rate might lower the maximum resolution depending on the device used and capture modes available.</li><li>• The maximum frames per second is dependent on the utility frequency (60/50 Hz) of the Axis device.</li></ul> |

### Performance considerations

When setting up your system, it is important to consider how various settings and situations affect the performance. Some factors affect the amount of bandwidth (the bitrate) required, others can affect the frame rate, and some affect both. If the load on the CPU reaches its maximum, this also affects the frame rate.

The following factors are the most important to consider:

- High image resolution or lower compression levels result in images containing more data which in turn affects the bandwidth.
- Rotating the image in the GUI will increase the product's CPU load.
- Access by large numbers of Motion JPEG or unicast H.264 clients affects the bandwidth.
- Simultaneous viewing of different streams (resolution, compression) by different clients affects both frame rate and bandwidth.

Use identical streams wherever possible to maintain a high frame rate. Stream profiles can be used to ensure that streams are identical.

- Accessing Motion JPEG and H.264 video streams simultaneously affects both frame rate and bandwidth.
- Heavy usage of event settings affects the product's CPU load which in turn affects the frame rate.
- Using HTTPS may reduce frame rate, in particular if streaming Motion JPEG.
- Heavy network utilization due to poor infrastructure affects the bandwidth.
- Viewing on poorly performing client computers lowers perceived performance and affects frame rate.
- Running multiple AXIS Camera Application Platform (ACAP) applications simultaneously may affect the frame rate and the general performance.

# AXIS Q36-VE Network Camera Series

## Specifications

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### Specifications

To find the latest version of the product's datasheet, go to the product page at [axis.com](http://axis.com) and locate **Support & Documentation**.

### LED indicators

**Note**

The Status LED can be configured to flash while an event is active.

| Status LED | Indication  |
|------------|---|
| Unlit      | Connection and normal operation.  |
| Green      | Shows steady green for 10 seconds for normal operation after startup completed.     |
| Amber      | Steady during startup. Flashes during firmware upgrade or reset to factory default. |
| Amber/Red  | Flashes amber/red if network connection is unavailable or lost.                     |

### SD card slot

**NOTICE**

- Risk of damage to SD card. Do not use sharp tools, metal objects, or excessive force when inserting or removing the SD card. Use your fingers to insert and remove the card.
- Risk of data loss and corrupted recordings. Do not remove the SD card while the product is running. Unmount the SD card from the product's webpage before removal.

This product supports microSD/microSDHC/microSDXC cards.

For SD card recommendations, see [axis.com](http://axis.com).



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### Buttons

#### Control button

The control button is used for:

- Resetting the product to factory default settings. See *Reset to factory default settings* on page 16.

### Connectors

#### Network connector

RJ45 Ethernet connector with Power over Ethernet (PoE).

