

AXIS Q1615-LE Mk III Network Camera

User Manual

AXIS Q1615-LE Mk III Network Camera

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Get started

Get started

Installation



To watch this video, go to the web version of this document.

help.axis.com/?&tpald=63089&tsection=installation

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.

For more information about how to find and assign IP addresses, go to *How to assign an IP address and access your device*.

Browser support

You can use the device with the following browsers:

	Chrome™	Firefox®	Edge™	Safari®
Windows®	recommended	recommended	✓	
macOS®	recommended	recommended	✓	✓
Linux®	recommended	recommended	✓	
Other operating systems	✓	✓	✓	✓*

To use AXIS OS web interface with iOS 15 or iPadOS 15, go to **Settings > Safari > Advanced > Experimental Features and disable **NSURLSession Websocket**.*

If you need more information about recommended browsers, go to *AXIS OS Portal*.

Open the device's webpage

1. Open a browser and enter the IP address or host name of the Axis device.
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 3*.

Set a new password for the root account

The default administrator username is `root`. There's no default password for the root account. You set a password the first time you log in to the device.

1. Type a password. Follow the instructions about secure passwords. See *Secure passwords on page 4*.

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2. Retype the password to confirm the spelling.
3. Click **Add user**.

Important

If you lose the password for the root account, go to *Reset to factory default settings on page 18* and follow the instructions.

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.

Webpage overview

This video gives you an overview of the device interface.



To watch this video, go to the web version of this document.

help.axis.com/?&pid=63089§ion=webpage-overview

Axis device web interface

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Configure your device

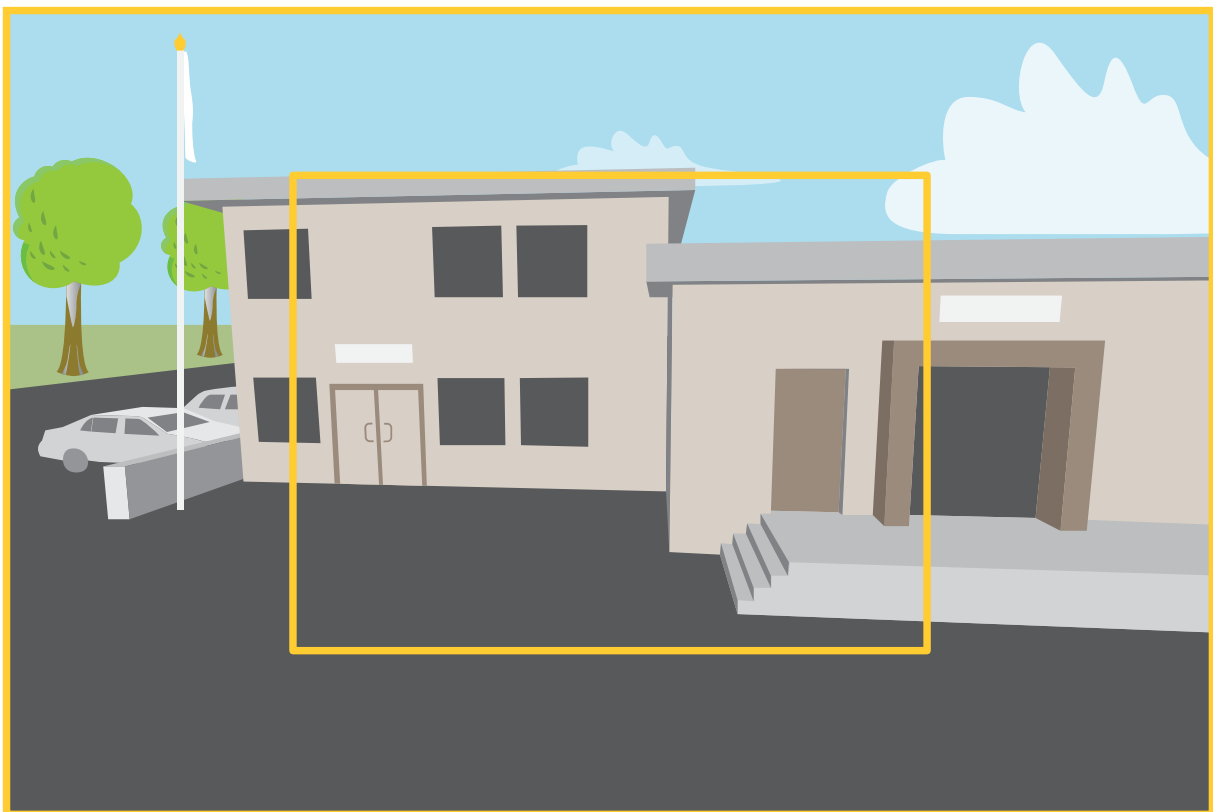
Configure your device

Image quality

Capture modes

A capture mode is a preset configuration that defines how the camera captures images. The capture mode setting can affect the camera's field of view and aspect ratio. The shutter speed can also be affected, which in turn affects the light sensitivity.

The lower resolution capture mode might be sampled from the original resolution, or it might be cropped out from the original, in which case the field of view could also be affected.



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

What capture mode to choose depends on the requirements for the frame rate and resolution of the specific surveillance setup. For specifications about available capture modes, see the product's datasheet at axis.com.

Replace the lens

1. Stop all recordings and disconnect power from the product.
2. Disconnect the lens cable and remove the standard lens.
3. Attach the new lens and connect the lens cable.
4. Reconnect the power.

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5. Log in to the product's webpage, go to the **Image** tab and then select the **P-Iris** lens you have installed.

Note

If you use a DC iris lens, select **Generic DC Iris**.

6. For the changes to take effect, you need to restart the device. Go to **System > Maintenance** and click **Restart**.
7. Adjust the zoom and focus.

Select exposure mode

To improve image quality for specific surveillance scenes, use exposure modes. Exposure modes lets you control aperture, shutter speed, and gain. Go to **Video > Image > Exposure** and select between the following exposure modes:

- For most use cases, select **Automatic** exposure.
- For environments with certain artificial lighting, for example fluorescent lighting, select **Flicker-free**.
Select the same frequency as the power line frequency.
- For environments with certain artificial light and bright light, for example outdoors with fluorescent lighting at night and sun during daytime, select **Flicker-reduced**.
Select the same frequency as the power line frequency.
- To lock the current exposure settings, select **Hold current**.

Reduce noise in low-light conditions

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

- Adjust the trade-off between noise and motion blur. Go to **Video > Image > Exposure** and move the **Blur-noise trade-off** slider toward **Low noise**.
- Set the exposure mode to automatic.

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.

Note

When you reduce the max gain, the image can become darker.

- Set the max gain to a lower value.
- If possible, open the aperture.
- Reduce sharpness in the image, under **Appearance**.

Reduce motion blur in low-light conditions

To reduce motion blur in low-light conditions, adjust one or more of the following settings in **Video > Image > Exposure**:

- Move the **Blur-noise trade-off** slider toward **Low motion blur**.

Note

When you increase the gain, image noise also increases.

- Set **Max shutter** to a shorter time, and **Max gain** to a higher value.

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Note

When you open the aperture, the depth of field gets shallower.

- Move the **Aperture** slider toward **Open**.

If you still have problems with motion blur:

- Increase the light level in the scene.
- Mount the camera so that objects move toward it or away from it rather than sideways.

Note


If you use a lens with a larger aperture, the depth of field gets shallower.

- Change to a lens with a larger aperture.

Maximize the details in an image

Important

If you maximize the 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.
- Go to **Video > Stream > General** and set the compression as low as possible.
- Below the live view image, click  and in **Video format**, select **MJPEG**.
- Go to **Video > Stream > H.264 and H.265 encoding > Zipstream** and select **Off**.

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.



Image without WDR.

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Configure your device



Image with WDR.

Note

- WDR can cause artifacts in the image.
- WDR may not be available for all capture modes.

1. Go to **Video > Image > Wide dynamic range**.
2. Turn on WDR.
3. If you still have problems, go to **Exposure** and adjust the **Exposure zone** to cover the area of interest.

Find out more about WDR and how to use it at axis.com/web-articles/wdr.

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.

EIS makes the image smoother, steadier and less blurry. It also reduces the file size of the compressed image and lowers the bitrate of the video stream.

Note

The image is cropped slightly when EIS is enabled, lowering the maximum resolution.

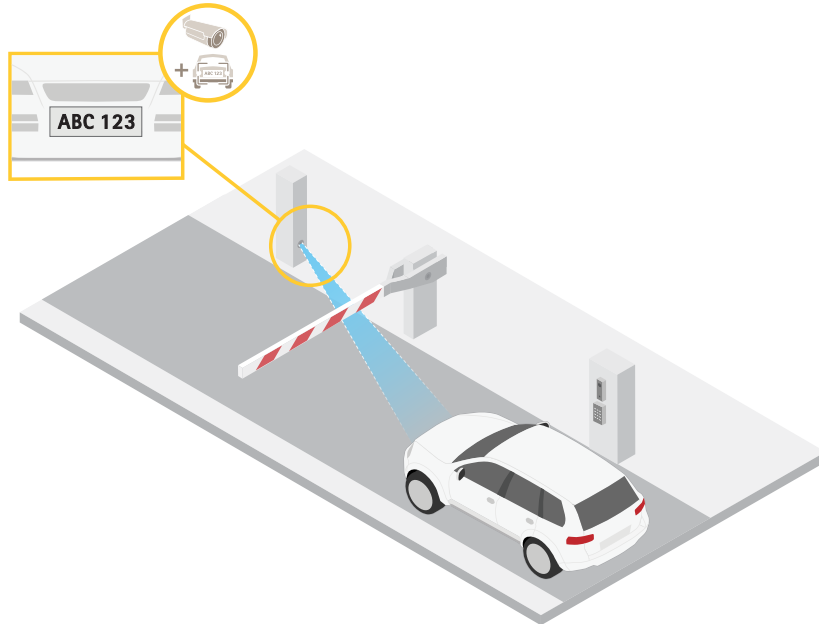
1. Go to **Video > Installation > Image correction**.
2. Turn on **Electronic image stabilization (EIS)**.



Verify the pixel resolution

To verify that a defined part of the image contains enough pixels to, for example, recognize license plates, you can use the pixel counter.

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1. Go to **Video > Image** and click .
2. Click  for Pixel counter.
3. In the camera's live view, adjust the size and position of the rectangle around the area of interest, for example where you expect license plates to appear.
4. You can see the number of pixels for each of the rectangle's sides, and decide if the values are enough for your needs.

Optimize the image for traffic surveillance

To get the best possible image for traffic surveillance, use the AXIS Traffic Wizard in combination with the Traffic overview scene profile.

1. Go to **Settings > Apps > AXIS Traffic Wizard**.
2. Start the application if it is not already running.
3. To set up the application, click **Open**.
4. Select units (metric or imperial).
5. Enter the values for Road distance, Camera height, Vehicle distance and Max speed.
6. To make both dark and bright areas of the image visible, turn on WDR.
7. Set the level of low-light gain depending on the light conditions.
8. If external IR illumination is available, select the **Supplemental IR illumination** checkbox.
9. Click **Save**.
10. Go to **System > Orientation**.
11. Select **Traffic overview** under Scene profile.

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12. Click **Done**.

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.


Pan, tilt, and zoom (PTZ)

Guard tours

A guard tour displays the video stream from different preset positions either in a predetermined or random order, and for configurable periods of time. Once started, a guard tour continues to run until stopped, even when there are no clients (web browsers) viewing the images.

Create a guard tour with preset positions

A guard tour displays the video stream from different preset positions either in a predetermined or random order, and for configurable periods of time.

1. Go to **PTZ > legacy device interface**.
2. In the legacy device interface, go to **PTZ > Guard tours**.
3. Click **+**.
4. To edit the guard tour's properties, click .
5. Type a name for the guard tour and specify the pause length in minutes between each tour.
6. If you want the guard tour to go to the preset positions in a random order, turn on **Shuffle**.
7. Click **Done**.
8. Click **Add** to add the preset positions that you want in your guard tour.
9. Click **Done** to exit the guard tour settings.
10. To schedule the guard tour, go to **System > Events**.

Privacy masks

A privacy mask is a user-defined area that prevents users from viewing a part of the monitored area. In the video stream, privacy masks appear as blocks of solid color or blurred image elements.

You'll see the privacy mask on all snapshots, recorded video, and live streams.

You can use the VAPIX® application programming interface (API) to hide the privacy masks.

Important

If you use multiple privacy masks it may affect the product's performance.


You can create several privacy masks. The maximum number of masks depends on the complexity of all the masks combined. The more anchor points in each mask, the fewer masks you can create. Each mask can have 3 to 10 anchor points.

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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 **Video > Privacy masks**.
2. Click  .
3. Click the new mask and type a name.
4. Adjust the size and placement of the privacy mask according to your needs.
5. To change the color for all privacy masks, expand **Privacy masks** and select a color.

See also *Privacy masks on page 10*

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.



Show a text overlay in the video stream when the device detects an object

This example explains how to display the text "Motion detected" when the device detects an object.

Make sure that **AXIS Object Analytics** is running:

1. Go to **Apps > AXIS Object Analytics**.
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:

1. Go to **Video > Overlays**.
2. Under **Overlays**, select **Text** and click  .
3. Enter #D in the text field.
4. Choose text size and appearance.
5. To position the text overlay, click  and select an option.

Create a rule:

1. Go to **System > Events** and add a rule.
2. Type a name for the rule.
3. In the list of conditions, under **Application**, select **Object Analytics**.
4. In the list of actions, under **Overlay text**, select **Use overlay text**.
5. Select a video channel.
6. In **Text**, type "Motion detected".
7. Set the duration.

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8. Click Save.

Streaming and storage

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

Note

To ensure support for the Opus audio codec, the Motion JPEG stream is always sent over RTP.

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.

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 older MPEG formats. 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

Reducing the bandwidth can result in loss of details in the image.

1. Go to **Video > Stream**.
2. Click  in the live view.
3. Select **Video format H.264**.
4. Go to **Video > Stream > General** and increase **Compression**.
5. Go to **Video > Stream > H.264 and H.265 encoding** and do one or more of the following:
 - Select the **Zipstream** level that you want to use.
 - Turn on **Dynamic FPS**.
 - Turn on **Dynamic GOP** and set a high **Upper limit GOP length** value.

Bitrate control

Bitrate control helps you to manage the bandwidth consumption of your video stream.

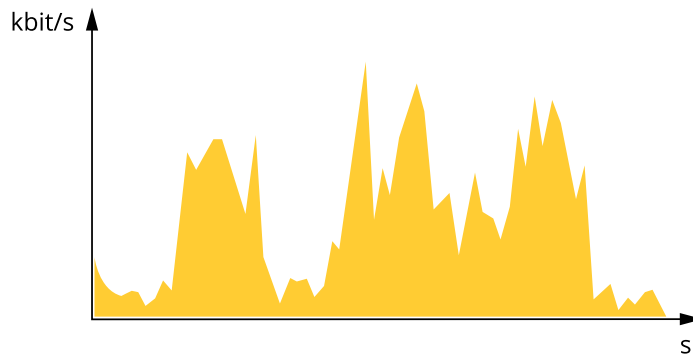
Variable bitrate (VBR)

Variable bitrate allows the bandwidth consumption to vary depending on the level of activity in the scene. The more activity,

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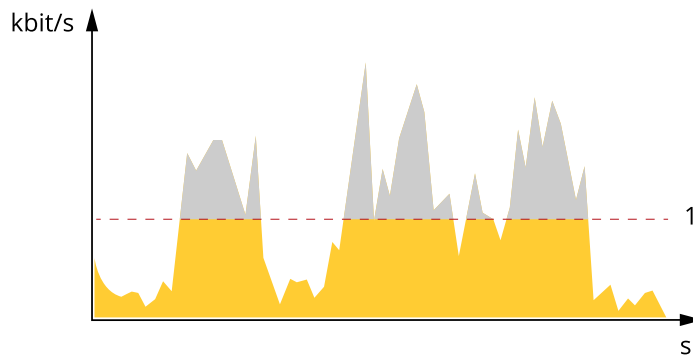
Configure your device

the more bandwidth you need. With variable bitrate you are guaranteed constant image quality, but you need to make sure you have storage margins.



Maximum bitrate (MBR)

Maximum bitrate lets you set a target bitrate to handle bitrate limitations in your system. You might see a decline in image quality or frame rate as the instantaneous bitrate is kept below the specified target bitrate. You can choose to prioritize either 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 in case there is a high level of activity in the scene.



1 Target bitrate

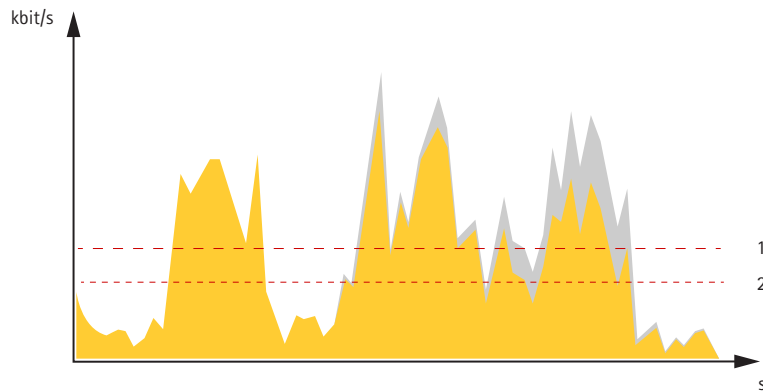
Average bitrate (ABR)

With average bitrate, the bitrate is automatically adjusted over a longer period of time. 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 in scenes with a lot of activity if you use 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.

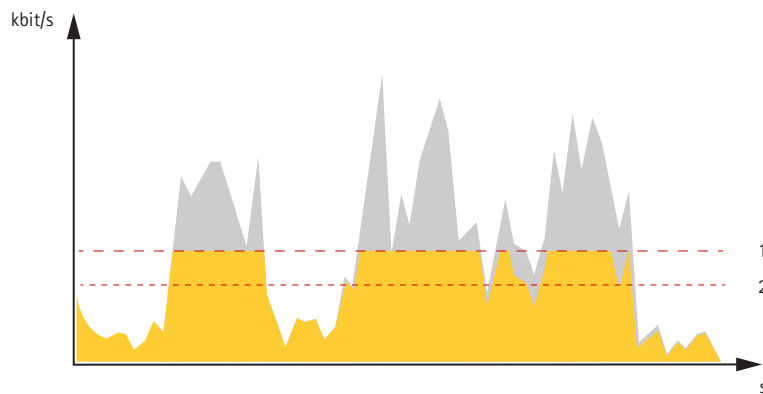
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- 1 Target bitrate
- 2 Actual average bitrate

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



- 1 Target bitrate
- 2 Actual average bitrate

Set up network storage

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

1. Go to **System > Storage**.
2. Click **+** **Add network storage** under **Network storage**.
3. Type the IP address of the host server.
4. Type the name of the shared location on the host server under **Network share**.
5. Type the username and password.
6. Select the SMB version or leave it on **Auto**.
7. Select **Add share even if connection fails** if you experience temporary connection issues, or if the share is not yet configured.
8. Click **Add**.

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Add audio to your recording

1. Go to **Video > Stream > Audio** and include audio.
2. If the device has more than one input source, select the correct one in **Source**.
3. Go to **Audio > Device settings** and turn on the correct input source.
4. If you make any changes to the input source, click **Apply changes**.
5. Edit the stream profile that is used for the recording:
 - 5.1 Go to **System > Stream profiles** and select the stream profile.
 - 5.2 Select **Include audio** and turn it on.
 - 5.3 Click **Save**.

Events

Set up rules for events

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 while the device is recording.

To learn more, check out our guide *Get started with rules for events*.

Trigger an action

1. Go to **System > Events** and add a rule. The rule defines when the device will perform certain actions. You can set up rules as scheduled, recurring, or manually triggered.
2. Enter a **Name**.
3. 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.
4. Select which **Action** the device should perform when the conditions are met.

Note

If you make changes to an active rule, the rule must be turned on again for the changes to take effect.

Note

If you change the definition of a stream profile that is used in a rule, then you need to restart all the rules that use that stream profile.

Trigger an alarm if someone opens the housing

This example explains how to trigger an alarm if someone opens the housing.

Add a recipient:

1. Go to **System > Events > Recipients** and click **Add recipient**.
2. Type a name for the recipient.
3. Select **Email**.
4. Type an email address to send the email to.

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5. The camera doesn't have its own email server, so it will need to log into another email server to be able to send mails. Fill in the rest of the information according to your email provider.
6. To send a test email, click **Test**.
7. Click **Save**.

Create a rule:

8. Go to **System > Events > Rules** and add a rule.
9. Type a name for the rule.
10. In the list of conditions, select **Casing open**.
11. In the list of actions, select **Send notification to email**.
12. Select a recipient from the list.
13. Type a subject and a message for the email.
14. Click **Save**.

Record video when the camera detects an object

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

Make sure that AXIS Object Analytics is running:

1. Go to **Apps > AXIS Object Analytics**.
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 **System > Events** and add a rule.
2. Type a name for the rule.
3. In the list of conditions, under **Application**, select **Object Analytics**.
4. In the list of actions, under **Recordings**, select **Record video while the rule is active**.
5. In the list of storage options, select **SD_DISK**.
6. Select a camera and a stream profile.
7. Set the prebuffer time to 5 seconds.
8. Set the postbuffer time to 1 minute.
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.

To find the user manuals for Axis applications, go to help.axis.com.

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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.



To watch this video, go to the web version of this document.

help.axis.com/?&piald=63089&tsection=about-applications

How to download and install an application



To watch this video, go to the web version of this document.

help.axis.com/?&piald=63089&tsection=about-applications

How to activate an application licence code on a device

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Troubleshooting

Troubleshooting

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 22*.
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 device.

The installation and management software tools are available from the support pages on axis.com/support.

You can also reset parameters to factory default through the device's webpage. Go to **Maintenance > Factory default** and click **Default**.

Check the current firmware version

Firmware is the software that determines the functionality of network devices. When you troubleshoot a problem, we recommend you to start by checking the current firmware version. The latest firmware version might contain a correction that fixes your particular problem.

To check the current firmware:

1. Go to the device interface > **Status**.
2. See the firmware version under **Device info**.

Upgrade the firmware

Important

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

Important

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

Note

When you upgrade the device 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 you upgrade the firmware. To find the latest firmware and the release notes, go to axis.com/support/firmware.

1. Download the firmware file to your computer, available free of charge at axis.com/support/firmware.
2. Log in to the device as an administrator.
3. Go to **Maintenance > Firmware upgrade** and click **Upgrade**.

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When the upgrade has finished, the product restarts automatically.

You can use AXIS Device Manager to upgrade multiple devices at the same time. Find out more at 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.

Problems upgrading the firmware

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 after firmware upgrade	If you experience problems after a firmware upgrade, roll back to the previously installed version from the Maintenance page.

Problems setting the IP address

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">If you receive: <code>Reply from <IP address>: 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.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.
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 can't be accessed from a browser

Can't 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. 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 18</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). If required, a static IP address can be assigned manually. For instructions, go to axis.com/support .
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 System > Date and time .

The device is accessible locally but not externally

To access the device externally, we recommend you to use 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/vms.

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Problems with streaming

Multicast H.264 only accessible by local clients	Check if your router supports multicasting, or if you need to configure the router settings between the client and the device. You might need to increase the TTL (Time To Live) value.
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. Check with your network administrator to see if there is a firewall that prevents viewing.
Poor rendering of H.264 images	Ensure that your graphics card uses the latest driver. You can usually download the latest drivers 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">• See <i>Performance considerations on page 20</i>.• Reduce the number of applications running on the client computer.• Limit the number of simultaneous viewers.• Check with the network administrator that there is enough bandwidth available.• Lower the image resolution.• Log in to the device's webpage and set a capture mode that prioritizes frame rate. If you change the capture mode to prioritize frame rate it might lower the maximum resolution, depending on the device used and capture modes available.• The maximum frames per second is dependent on the utility frequency (60/50 Hz) of the Axis device.

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 Q1615-LE Mk III Network Camera

Troubleshooting

Contact support

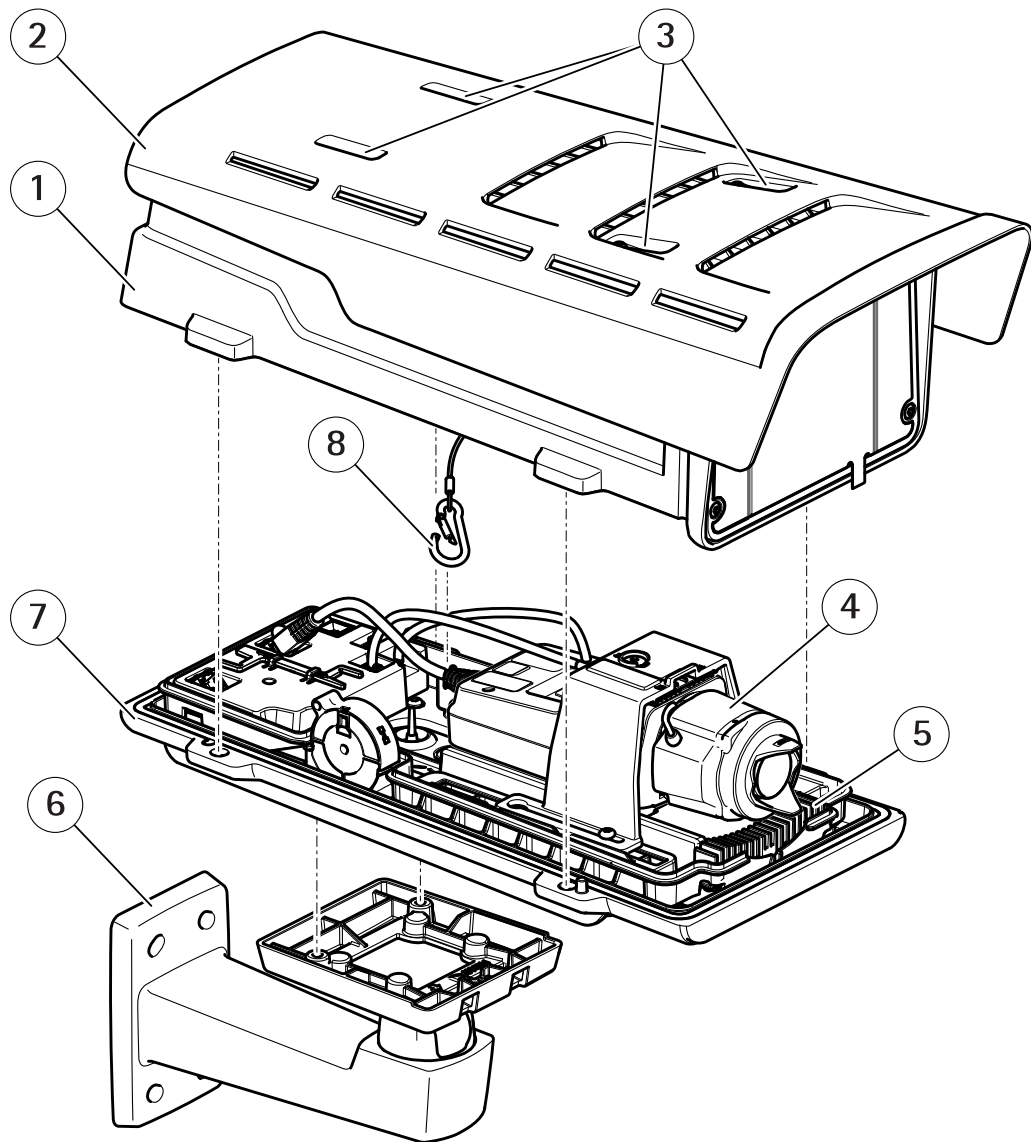
Contact support at axis.com/support.

AXIS Q1615-LE Mk III Network Camera

Specifications

Specifications

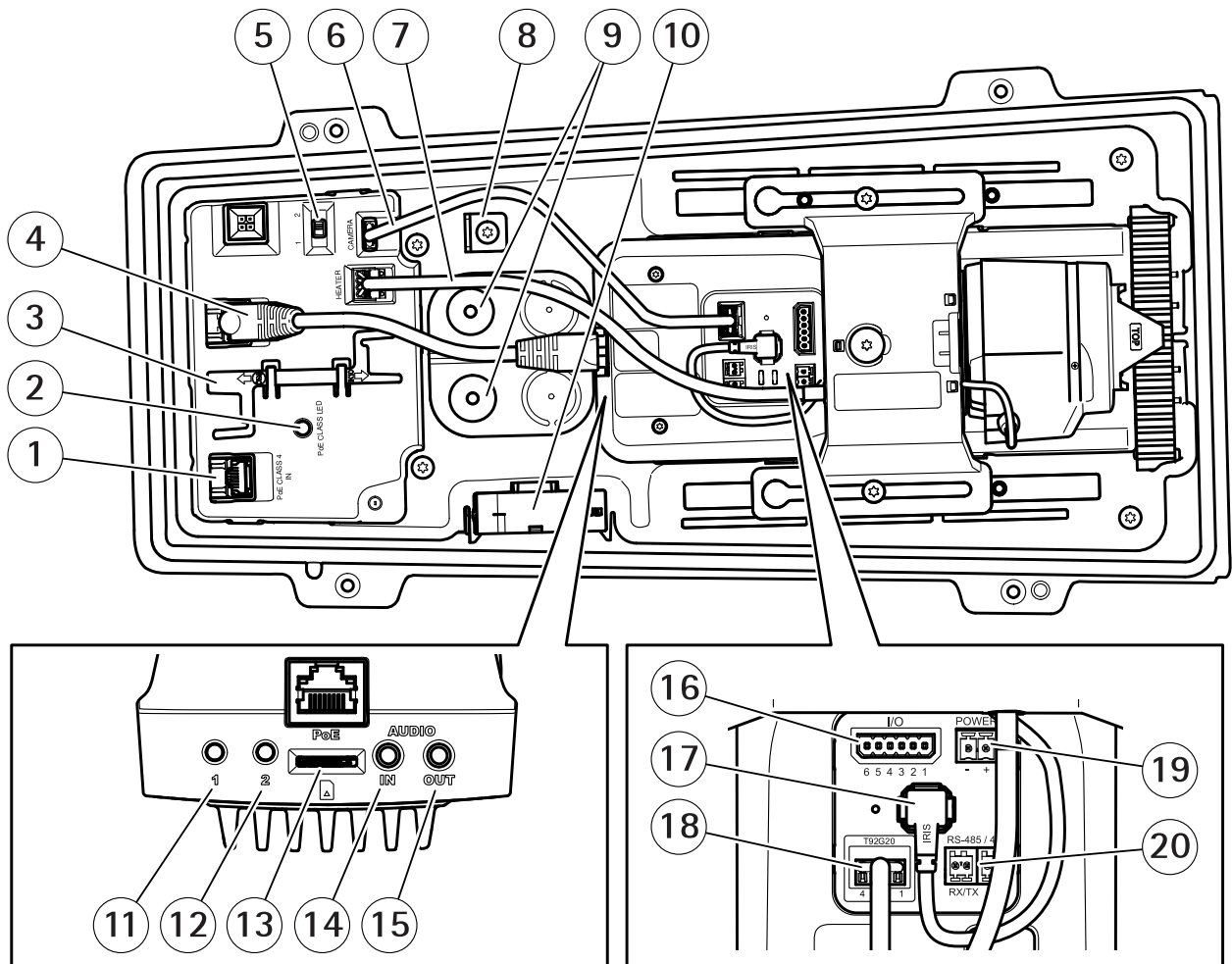
Product overview



- 1 Top cover
- 2 Sunshield
- 3 Sunshield adjustment screws
- 4 Network camera
- 5 Heater
- 6 Wall mount
- 7 Bottom cover
- 8 Safety hook

AXIS Q1615-LE Mk III Network Camera

Specifications



- 1 Network connector (PoE in)
- 2 PoE class LED
- 3 IK10 tool
- 4 Network connector (PoE out)
- 5 Cold startup delay switch (Pos 1: Startup -20°, Pos 2: Startup: 0°)
- 6 Camera housing communication cable
- 7 Camera heater
- 8 Safety hook anchor
- 9 Cable gasket (x2)
- 10 Fan
- 11 Control button (1)
- 12 Function button (2)
- 13 microSD Card slot
- 14 Audio in
- 15 Audio out
- 16 I/O connector
- 17 Iris connector
- 18 Camera housing communication connector
- 19 Power connector (Indoor use only)
- 20 RS485/RS422 connector

AXIS Q1615-LE Mk III Network Camera

Specifications

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.

Status LED behavior for focus assistant

Note

Only valid for optional P-iris, DC-iris or manual iris lenses.

The status LED flashes when the Focus Assistant is active.

Color	Indication
Red	The image is out of focus. Adjust the lens.
Amber	The image is close to focus. The lens needs fine tuning.
Green	The image is in focus.

Buzzer signal for focus assistant

Note

Only valid for optional P-iris, DC-iris or manual iris lenses.

Buzzer	Lens
Fast interval	Optimally adjusted
Medium interval	Less optimally adjusted
Slow interval	Poorly adjusted

Status LED behavior and buzzer signal for leveling assistant

For information on the function button used for leveling the camera, see *page 25*.

Press and hold the function button (2) for more than two seconds to level the camera.

- When the camera is level, both LEDs are steady green, and the beep is continuous.
- When the camera is not level, the LEDs flash a combination of red, green and orange, and the beep occurs at slow intervals.

Both LEDs briefly flash green to indicate that the leveling is getting better.

AXIS Q1615-LE Mk III Network Camera

Specifications

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.



microSD, microSDHC, and microSDXC Logos are trademarks of SD-3C LLC. microSD, microSDHC, microSDXC are trademarks or registered trademarks of SD-3C, LLC in the United States, other countries or both.

Buttons

Control button

The control button is used for:

- Resetting the product to factory default settings. See *Reset to factory default settings on page 18*.

Function button

Note

Focus assistant is only valid for optional P-iris, DC-iris or manual iris lenses.

Use the function button to activate the following functions:

Leveling assistant – This function helps to make sure the camera is level. To start the leveling assistant, press the button for about 3 seconds. Press again to stop the leveling assistant. The status LED and buzzer signal assist leveling of the camera, see *Status LED behavior and buzzer signal for leveling assistant on page 24*. The camera is level when the buzzer beeps continuously.

Focus assistant – This function is used for enabling the focus assistant. To enable the focus assistant, press and very quickly release the button. Press again to stop the focus assistant. To find out more, see the Installation Guide.

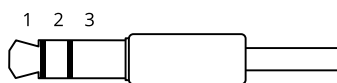
Connectors

Network connector

RJ45 Ethernet connector with Power over Ethernet (PoE).

Audio connector

- **Audio in** – 3.5 mm input for a mono microphone, or a line-in mono signal (left channel is used from a stereo signal).
- **Audio out** – 3.5 mm output for audio (line level) that can be connected to a public address (PA) system or an active speaker with a built-in amplifier. A stereo connector must be used for audio out.



Audio input

AXIS Q1615-LE Mk III Network Camera

Specifications

1 Tip	2 Ring	3 Sleeve
Balanced microphone (with or without phantom power) or line, "hot" signal	Balanced microphone (with or without phantom power) or line, "cold" signal	Ground

Audio output

1 Tip	2 Ring	3 Sleeve
Channel 1, unbalanced line, mono	Channel 1, unbalanced line, mono	Ground

I/O connector

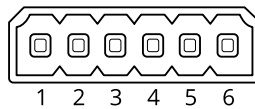
Use the I/O connector with external devices in combination with, for example, motion detection, event triggering, and alarm notifications. In addition to the 0 V DC reference point and power (DC output), the I/O connector provides the interface to:

Digital input – For connecting devices that can toggle between an open and closed circuit, for example PIR sensors, door/window contacts, and glass break detectors.

Supervised input – Enables possibility to detect tampering on a digital input.

Digital output – For connecting external devices such as relays and LEDs. Connected devices can be activated by the VAPIX® Application Programming Interface, through an event or from the product's webpage.

6-pin terminal block

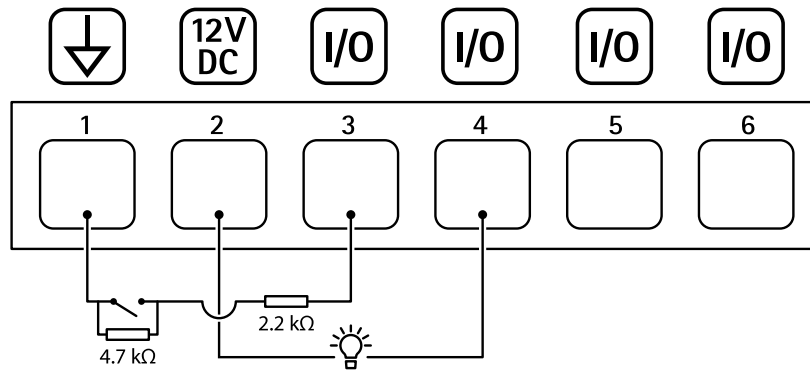


Function	Pin	Notes	Specifications
DC ground	1		0 V DC
DC output	2	Can be used to power auxiliary equipment. Note: This pin can only be used as power out.	12 V DC Max load = 50 mA
Configurable (Input or Output)	3-6	Digital input – Connect to pin 1 to activate, or leave floating (unconnected) to deactivate. Pin 3 and 4 can be supervised. To use supervised input, install end-of-line resistors. See connection diagram for information about how to connect the resistors.	0 to max 30 V DC
		Digital output – Internally connected to pin 1 (DC ground) when active, and floating (unconnected) when inactive. If used with an inductive load, e.g., a relay, connect a diode in parallel with the load, to protect against voltage transients.	0 to max 30 V DC, open drain, 100 mA

Example

AXIS Q1615-LE Mk III Network Camera

Specifications



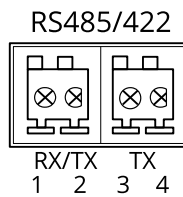
- 1 DC ground
- 2 DC output 12 V, max 50 mA
- 3 I/O configured as supervised input
- 4 I/O configured as output
- 5 Configurable I/O
- 6 Configurable I/O

RS485/RS422 connector

Two 2-pin terminal blocks for RS485/RS422 serial interface used to control auxiliary equipment such as pan-tilt devices.

The serial port can be configured to support:

- Two-wire RS485 half duplex
- Four-wire RS485 full duplex
- Two-wire RS422 simplex
- Four-wire RS422 full duplex point to point communication



Function	Pin	Notes
RS485B alt RS485/422 RX(B)	1	RX pair for all modes (combined RX/TX for 2-wire RS485)
RS485A alt RS485/422 RX(A)	2	
RS485/RS422 TX(B)	3	TX pair for RS422 and 4-wire RS485
RS485/RS422 TX(A)	4	

Important

The maximum cable length is 30 m (98 ft).

AXIS Q1615-LE Mk III Network Camera

PTZ drivers

PTZ drivers

APTP

This is a list of models supported by this driver. The physical installation depends on your Axis product and the PTZ unit.

Important

Check what serial communication your Axis product and the PTZ unit will support.

Supported models with RS485 2-wire interface:

- AXIS T99A Positioning Unit Series.

For information about compatible Axis products, see axis.com.

Other models may be supported but this has not been verified by Axis.

Technical information

DEFAULT capabilities for PTZ driver:

Driver	APTP
Version	1.1.0

DEFAULT serial configuration:

PortMode	RS485
BaudRate	115200
DataBits	8
StopBits	1
Parity	None

DEFAULT supported capabilities in this PTZ driver:

Note

Different PTZ units may have other capabilities (both less and more).

Movement	Absolute	Relative	Continuous
Pan	yes	yes	yes
Tilt	yes	yes	yes

Connection

For the RS485/RS422 pin assignment on your device, see *RS485/RS422 connector on page 27*.

To change serial port settings, go to **System > Plain config > Serial** in the device interface.

Pelco

This is a list of models supported by this driver. The physical installation depends on your Axis product and the PTZ unit.

Important

Check what serial communication your Axis product and the PTZ unit will support.

AXIS Q1615-LE Mk III Network Camera

PTZ drivers

Supported models:

- Pelco DD5-C
- Pelco Esprit ES30C/ES31C
- Pelco LRD41C21
- Pelco LRD41C22
- Pelco Spectra III
- Pelco Spectra IV
- Pelco Spectra Mini
- Videotec DTRX3/PTH310P
- Videotec ULISSE
- PTK AMB
- YP3040

Other models may be supported but this has not been verified by Axis.

Technical information

DEFAULT capabilities for PTZ driver:

Driver	Pelco
Version	4.17

DEFAULT serial configuration:

PortMode	RS485
BaudRate	2400
DataBits	8
StopBits	1
Parity	None

DEFAULT supported capabilities in this PTZ driver:

Note

Different PTZ units may have other capabilities (both less and more).

Movement	Absolute	Relative	Continuous
Pan	no	yes	yes
Tilt	no	yes	yes
Zoom	no	yes	yes
Focus	no	yes	yes
Iris	no	yes	yes

AXIS Q1615-LE Mk III Network Camera

PTZ drivers

Autolris	yes
AutoFocus	yes
IrCutFilter	no
BackLight	yes
OSDMenu	yes

Connection

For the RS485/RS422 pin assignment on your device, see *RS485/RS422 connector on page 27*.

To change serial port settings, go to **System > Plain config > Serial** in the device interface.

Visca

This is a list of models supported by this driver. The physical installation depends on your Axis product and the PTZ unit.

Important

Check what serial communication your Axis product and the PTZ unit will support.

Supported models with RS422 4-wire interface:

- Sony EVI-D70/D70P
- WISKA DCP-27 (PT-head)

Supported models with RS232 interface (may require external RS422-4-wire/RS232 converter):

- Axis EVI-D30/D31
- Sony EVI-G20/G21
- Sony EVI-D30/D31
- Sony EVI-D100/D100P
- Sony EVI-D70/D70P

Other models may be supported but this has not been verified by Axis.

Technical information

DEFAULT capabilities for PTZ driver:

Driver	Visca/EVI
Version	4.11

DEFAULT serial configuration:

PortMode	RS422
BaudRate	9600
DataBits	8
StopBits	1
Parity	None

DEFAULT supported capabilities in this PTZ driver:

AXIS Q1615-LE Mk III Network Camera

PTZ drivers

Note

Different PTZ units may have other capabilities (both less and more).

Movement	Absolute	Relative	Continuous
Pan	yes	yes	yes
Tilt	yes	yes	yes
Zoom	yes	yes	yes
Focus	yes	yes	yes
Iris	yes	yes	no

AutoIris	yes
AutoFocus	yes
IrCutFilter	yes
BackLight	yes
OSDMenu	no

Connection

For the RS485/RS422 pin assignment on your device, see *RS485/RS422 connector on page 27*.

To change serial port settings, go to **System > Plain config > Serial** in the device interface.

