

AXIS Q19-E Series

AXIS Q1941-E Thermal Network Camera

AXIS Q1942-E Thermal Network Camera

AXIS Q19-E Series

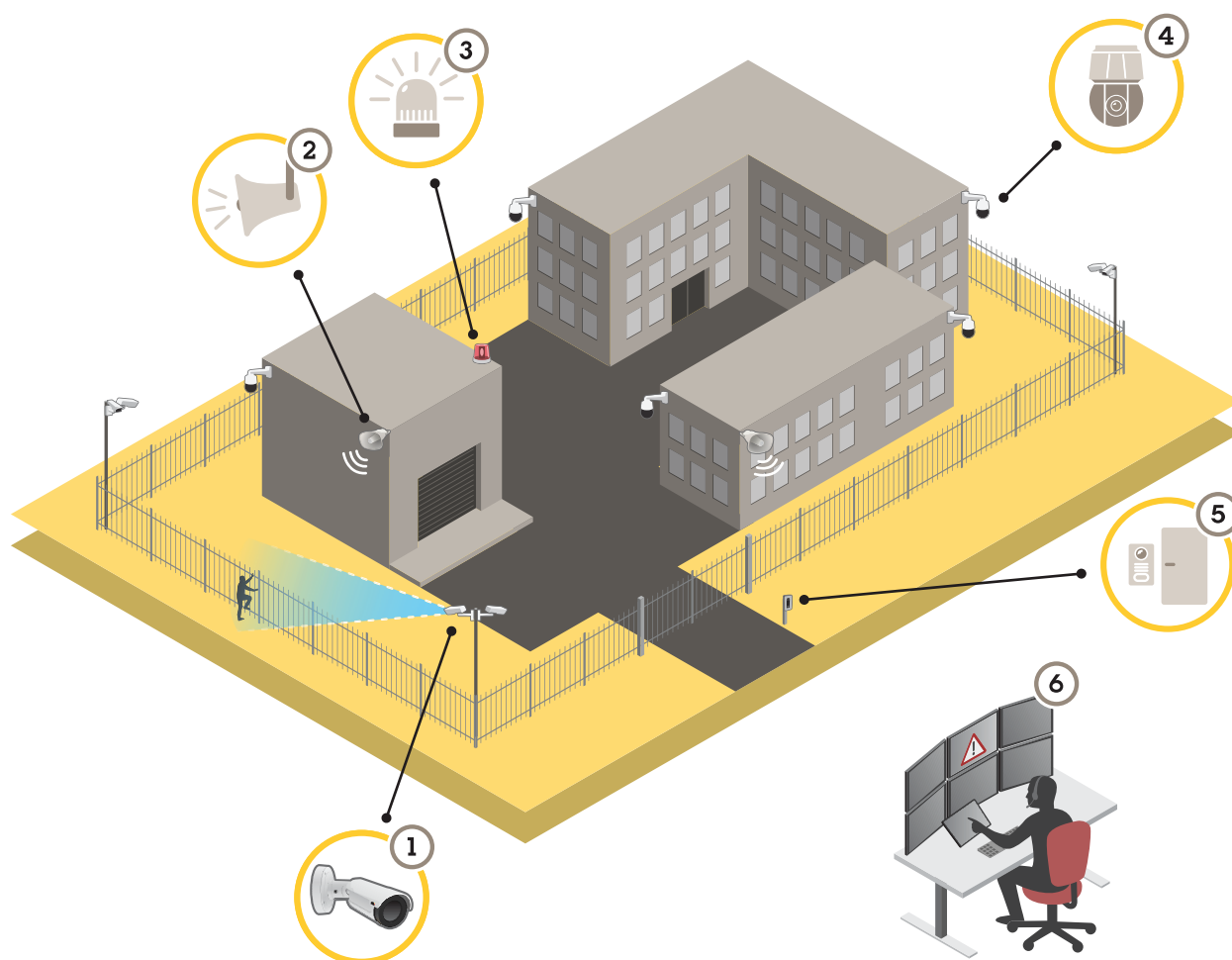
Table of Contents

System overview	3
About perimeter protection	3
Setup	5
How to access the product	5
About the product's built-in help	6
About applications	6
How to connect a flashing beacon	7
How to connect a network horn speaker	9
How to reduce bandwidth and storage	9
Daily use	11
About color palettes	11
About electronic image stabilization and shaky images	11
Troubleshooting	12
How to reset to factory default settings	12
How to check the current firmware	12
How to upgrade the firmware	12
Technical issues, clues and solutions	13
Performance considerations	14
Technical specifications	15
Product overview	15
LED Indicators	15
SD card slot	16
Buttons	16
Connectors	16

AXIS Q19-E Series

System overview

System overview



- 1 *AXIS Q1941-E/Q1942-E with AXIS Perimeter Defender*
- 2 *Horn speaker*
- 3 *Flashing beacon*
- 4 *PTZ network camera*
- 5 *Door controller*
- 6 *Surveillance center*

About perimeter protection

For areas in need of intrusion detection, you can set up perimeter protection using thermal cameras with analytics. The main objective for perimeter protection is to detect a threat or an actual intrusion at the earliest possible stage.

To set up perimeter protection, you need to install an analytics application for perimeter surveillance and protection on your thermal camera. Axis provides the AXIS Perimeter Defender application for this purpose. You can read more about AXIS Perimeter Defender at www.axis.com.

AXIS Q19-E Series

System overview

- Use a flashing beacon (3) to let possible intruders know that your perimeter is protected (see *How to connect a flashing beacon on page 7*).
- To further warn and deter, connect a horn speaker (2) that plays a pre-recorded warning message (see *How to connect a network horn speaker on page 9*).

Setup

How to access the product

AXIS IP Utility and AXIS Camera Management are recommended methods for finding Axis products on the network and assigning them IP addresses in Windows®. Both applications are free and can be downloaded from www.axis.com/support

The product can be used with the following browsers:

- Chrome™ (recommended), Firefox®, Edge®, or Opera® with Windows®
- Chrome™ (recommended) or Safari® with OS X®
- Chrome™ or Firefox® with other operating systems.

How to access the product from a browser

1. Start a web browser.
2. Enter the IP address or host name of the Axis product in the browser's address field.

To access the product from a Mac computer (OS X), go to Safari, click on Bonjour and select the product from the drop-down list.

If you do not know the IP address, use AXIS IP Utility to locate the product on the network. For information about how to discover and assign an IP address, see the document *Assign an IP Address and Access the Video Stream* on Axis Support web at www.axis.com/support

Note

To show Bonjour as a browser bookmark, go to **Safari > Preferences**.

3. Enter your username and password. If this is the first time the product is accessed, the root password must first be configured.
4. The product's live view page opens in your browser.

Note

The controls and layout of the live view page may have been customized to meet specific installation requirements and user preferences. Consequently, some of the examples and functions featured here may differ from those displayed in your own live view page.

About secure passwords

Important

When setting the initial password, the password is sent in clear text over the network. If there is a risk of network sniffing, first set up a secure and encrypted HTTPS connection before resetting the passwords.

The device password is the primary protection for the data and services. Axis' products do not impose a password policy as products may be used in various types of installations, but to protect your data do the following:

- Don't use the default password that comes with the products.
- Use a password with at least 8 characters, preferably using a password generator.
- Don't expose the password.
- Change password at a recurring interval, at least once a year.

AXIS Q19-E Series

Setup

Set a password for the root account

Important

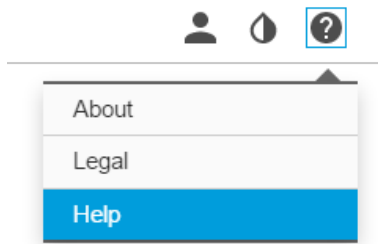
The default administrator user name **root** is permanent and cannot be deleted. If the password for root is lost, the product must be reset to the factory default settings.

The default root account has full privileges and should be reserved for administrative tasks. Always create a user account with limited privileges for daily use. This reduces the exposure of the administrative account.

1. Make sure to follow the instructions about secure passwords, see *About secure passwords on page 5*.
2. Type a password and then retype it to confirm the spelling.
3. Click **Create login**. The password has now been configured.

About the product's built-in help

To set up the product, you need to access the product's webpage. In the webpage you can also find detailed instructions in the product's built-in help.



About applications

AXIS Camera Application Platform (ACAP) is an open platform that enables third parties to develop analytics and other applications for Axis products. For information about available applications, downloads, trials and licenses, go to www.axis.com/applications

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

Note

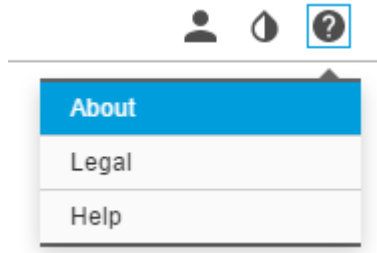
- Several applications can run at the same time but some applications might not be compatible with each other. Certain combinations of applications might require too much processing power or memory resources when run in parallel. Verify that the applications work together before deployment.

About application licences

Some applications need a license to run. Licenses can be installed in two ways:

- Automatic installation – requires access to the Internet
- Manual installation – obtain the license key from the application vendor and upload the key to the Axis product

To request a license, the Axis product serial number (S/N) is required. The serial number can be found on the product label and under **About**.



How to install the application on the camera

License key

To access the application, you need an activated license. To activate the license you need a license key. If you don't have a license key on the computer, go to www.axis.com To get a license key you need the license code and the Axis product serial number. Save the license key file on the computer.

Note

The software license is only valid for one camera. You cannot activate the software on another camera without a new registration key.

1. For products with firmware 7.10 or later, go to **Settings > Apps** to install the application.
For products with firmware 6.50 or previous, go to **Setup > Applications** to install the application.
2. Upload the application file (.eap) to the camera.
3. Activate the license. The procedure depends on the camera's current firmware version. See the product's built-in help for instructions on how to browse to the license file and activate the license.
4. To set up the application, go to *How to access the application settings*.

How to access the application settings

1. To access the settings for a specific application, do one of the following:
 - For products with firmware 7.10 or later, go to **Settings > Apps**, select the application and click **Open** to open the application settings.
 - For products with firmware 6.50 or previous, click on the **Live view** button or go to **Setup > Applications > [Application name]** and click on the setup link to open the application settings.

How to connect a flashing beacon

Use a flashing beacon to let possible intruders know that your perimeter is protected.

This scenario explains how to connect a flashing beacon and set it up to flash whenever the thermal camera detects an intrusion. In this scenario the beacon can only be activated to flash due to alarms outside office hours, between 18.00 and 08.00 Monday-Friday, and it should flash for 30 seconds each time it is activated.

Required hardware

- Multicable, see *page 16*
- Connecting wires (one blue and one red, min area: 0.25 mm², max area: 0.5 mm²)
- Flashing beacon (12 V DC, max 50 mA)

AXIS Q19-E Series

Setup

Note

The maximum length of the connecting wires depends on the wire area and the power consumption of the beacon.

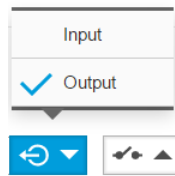
Physical connection

1. Connect the multicable to the camera.
2. Connect the red wire to pin 2 (DC output, +12 V DC) of the multicable I/O terminal connector.
3. Connect the other end of the red wire to the connector marked with + on the flashing beacon.
4. Connect the blue wire to pin 3 (I/O port) of the multicable I/O terminal connector.
5. Connect the other end of the blue wire to the connector marked with - on the flashing beacon.

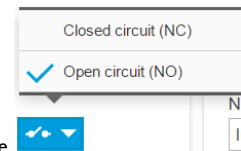
Configure I/O ports

You need to connect the flashing beacon to the camera in the camera's webpage. The first part of this is to configure the I/O ports:

1. Go to **System > I/O ports**.



2. Select **Output** in the **Port 1** drop-down list.
3. Give the output module a descriptive name, for example "Flashing beacon".



4. To make the beacon start flashing whenever an event is triggered, select **Open circuit** in the drop-down list.

Create an action rule

For the camera to send a notification to the beacon to start flashing when something is detected, you need to create an action rule in the camera:

1. Go to **System > Events > Action rules**.
2. Click **Add**.
3. Select **Enable rule** and give the action rule a name, for example "Flashing beacon".
4. Select **Applications** from the **Trigger** drop-down list.
5. Select the perimeter protection application from the drop-down list.
6. Set the **Schedule** to **After hours**.
7. Select **Output port** from the **Type** drop-down list.
8. Select "Flashing beacon" from the **Port** drop-down list.
9. Set the duration to 30 seconds.
10. Click **Ok**.

How to connect a network horn speaker

Use a network horn speaker to warn and deter possible intruders.

This scenario explains how to connect an Axis network horn speaker to the camera and set it up to play an audio clip whenever the thermal camera detects an intrusion. In this scenario, the horn speaker can only be activated due to alarms coming outside office hours, between 18.00 and 08.00 Monday-Friday.

Before you start the setup, an audio clip must be available in the horn speaker and you need to know the number of the audio clip.

To find out the number of your audio clip, type the following command: `http://[HornSpeakerIP]/axis-cgi/param.cgi?action=list`, where `[HornSpeakerIP]` is the IP address of the horn speaker. You find the number after the letter M in the list displayed.

Set up recipient

Connect the camera to the horn speaker by setting it up as a recipient in the camera:

1. Go to **System > Events > Recipients**.
2. Click **Add**.
3. Give the recipient a name, for example "Horn speaker".
4. Select **HTTP** from the **Type** drop-down list.
5. Enter `http://[HornSpeakerIP]/axis-cgi/playclip.cgi?clip=[x]` in the url field, where `[HornSpeakerIP]` is the IP address of the horn speaker and `[x]` is the audio clip number.
6. Enter the user name and password of the horn speaker under **Login Credentials**.
7. Click **Ok**.

Create an action rule

For the camera to send a notification to the horn speaker to play the audio clip when something is detected, create an action rule in the camera:

1. Go to **System > Events > Action rules**.
2. Click **Add**.
3. Select **Enable rule** and give the action rule a name, for example "Horn speaker".
4. Select **Applications** from the **Trigger** drop-down list.
5. Select the perimeter protection application from the drop-down list.
6. Set the **Schedule** to **After hours**.
7. Select **Send notification** from the **Type** drop-down list.
8. Select **Horn speaker** from the **Recipient** drop-down list.
9. Click **Ok**.

How to reduce bandwidth and storage

Important

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

1. Go to live view and select H.264.
2. Go to the **Stream** tab.

AXIS Q19-E Series

Setup

3. Do one or more of the following:
 - Turn on the Zipstream functionality.
 - Turn on the GOP and set a high GOP length value.
 - Increase the compression.
 - Turn on the dynamic FPS.

AXIS Q19-E Series

Daily use

Daily use

About color palettes

Color palettes applied to thermal images help the human eye distinguish image details. The colors in the palette are artificially created pseudocolors that emphasize temperature differences.

Color palette recommendation

The product has several color palettes to choose from. If an operator watches the video stream, choose any of the palettes. If the video stream is only used by applications, select the white-hot palette.

About electronic image stabilization and shaky images

Electronic Image Stabilization (EIS) reduces blurriness caused by camera vibrations. For example, wind or traffic can cause the camera to shake and make the image blurry. EIS also reduces the file size of the compressed image and lowers the bitrate of the video stream.

Troubleshooting

How to reset to factory default settings

How to 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*.
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 www.axis.com/support

How to 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**.

How to 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.

Note

When you upgrade the product with the latest firmware, 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 www.axis.com > product > Support & Documentation.

1. Download the latest firmware file to your computer, available free of charge at www.axis.com/support/firmware
2. Log in to the product as an administrator.
3. Go to **Settings > System > Maintenance** in the product's webpage and follow the instructions.

AXIS Q19-E Series

Troubleshooting

4. The upgrade takes a while, don't break the power to the product. When the upgrade is finished, the product restarts automatically.

AXIS Camera Management can be used for multiple upgrades, see www.axis.com/products/axis-camera-management for more information.

Technical issues, clues and solutions

If you can't find what you're looking for here, try the troubleshooting section at www.axis.com/support

Problems upgrading the firmware

Firmware upgrade failure	If the firmware upgrade fails, the product 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 product and try again.
--------------------------	---

Problems setting the IP address

The product is located on a different subnet	If the IP address intended for the product and the IP address of the computer used to access the product 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 product from the network. Run the ping command (in a Command/DOS window, type <code>ping</code> and the IP address of the product): <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 product.• If you receive: <code>Request timed out</code>, this means that the IP address is available for use with the Axis product. Check all cabling and reinstall the product.
--	---

Possible IP address conflict with another device on the same subnet	The static IP address in the Axis product 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 product.
---	---

The product cannot be accessed from a browser

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.
---------------	--

If the password for the user `root` is lost, the product must be reset to the factory default settings. See *How to reset to factory default settings*.

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 Camera Management to locate the product on the network. Identify the product 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 www.axis.com/support.

Certificate error when using IEEE 802.1X	For authentication to work properly, the date and time settings in the Axis product must be synchronized with an NTP server. Go to Settings > System > Date and time
--	---

The product is accessible locally but not externally

Router configuration	Check that your router allows incoming data traffic to the Axis product. The router must support UPnP™.
----------------------	---

Firewall protection	Check the Internet firewall with your network administrator.
---------------------	--

AXIS Q19-E Series

Troubleshooting

Problems with streaming

Multicast H.264 only accessible by local clients	Check if your router supports multicasting, or if the router settings between the client and the product 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 product are valid for your network. 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.
Lower frame rate than expected	<ul style="list-style-type: none">• See <i>Performance considerations on page 14</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.• In the product's webpage, set a capture mode that prioritizes frame rate. Changing the capture mode to prioritize frame rate might lower the maximum resolution depending on the product used and capture modes available.• The maximum frames per second is dependent on the utility frequency (60/50 Hz) of the Axis product.

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.
- 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.

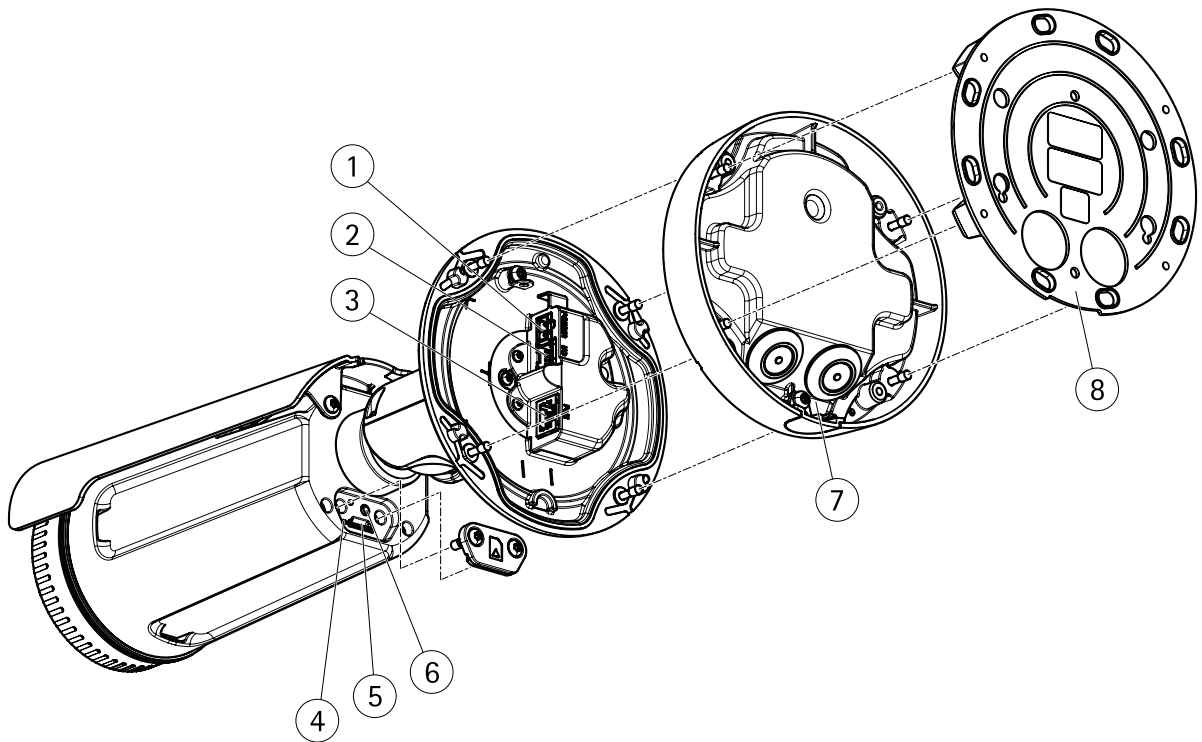
AXIS Q19-E Series

Technical specifications

Technical specifications

To find the latest version of the datasheet, go to www.axis.com > product > Support & Documentation.

Product overview



- 1 Power connector
- 2 I/O and audio terminal connector (multi-connector)
- 3 Network connector
- 4 Status indicator LED
- 5 MicroSD memory card slot
- 6 Control button
- 7 Foot
- 8 Mounting bracket

LED Indicators

Status LED	Indication
Unlit	Connection and normal operation.
Green	Connection and normal operation.
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.
Red	Firmware upgrade failure.

AXIS Q19-E Series

Technical 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. Disconnect power or unmount the SD card from the product's webpage before removal.

This product supports microSD/microSDHC/microSDXC cards (not included).

For SD card recommendations, see www.axis.com

Buttons

Control button

For location of the control button, see *Product overview on page 15*.

The control button is used for:

- Resetting the product to factory default settings. See *page 12*.
- Connecting to an AXIS Video Hosting System service. See . To connect, press and hold the button for about 3 seconds until the Status LED flashes green.
- Connecting to AXIS Internet Dynamic DNS Service. See . To connect, press and hold the button for about 3 seconds.

Connectors

Power connector

Terminal connector for connecting AC/DC power supply.

Network connector

RJ45 Ethernet connector with Power over Ethernet (PoE).

NOTICE

The product shall be connected using a shielded network cable (STP). All cables connecting the product to the network shall be intended for their specific use. Make sure that the network devices are installed in accordance with the manufacturer's instructions. For information about regulatory requirements, see the Installation Guide available at www.axis.com

Multicable connectors

When connecting external equipment to the Axis product, an Axis multicable is required in order to maintain the product's IP rating. The Axis multicable can be purchased from your Axis reseller. To locate the multi-connector, see *Product overview on page 15*.

The multicable provides the following connectors:

Power connector – 2-pin terminal block used for power input. The polarity of the cables does not matter. Use a Safety Extra Low Voltage (SELV) compliant limited power source (LPS) with either a rated output power limited to ≤ 100 W or a rated output current limited to ≤ 5 A.

Audio in (pink) – 3.5 mm input for a mono microphone, or a line-in mono signal (left channel is used from a stereo signal).

Audio out (green) – 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 the audio out.

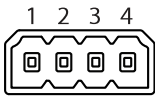
AXIS Q19-E Series

Technical specifications

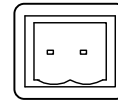
I/O terminal connector – Use with external devices in combination with, for example, tampering alarms, motion detection, event triggering, time lapse recording and alarm notifications. In addition to the 0 V DC reference point and power (DC output), the I/O connector provides the interface to:

- **Digital output** – For connecting external devices such as relays and LEDs. Connected devices can be activated by the VAPIX® Application Programming Interface, output buttons on the Live View page or by an Action Rule. The output will show as active (shown under **System Options > Port & Devices > Port Status**) if the alarm device is activated.
- **Digital input** – An alarm input for connecting devices that can toggle between an open and closed circuit, for example: PIRs, door/window contacts, glass break detectors, etc. When a signal is received the state changes and the input becomes active (shown under **System Options > Port & Devices > Port Status**).

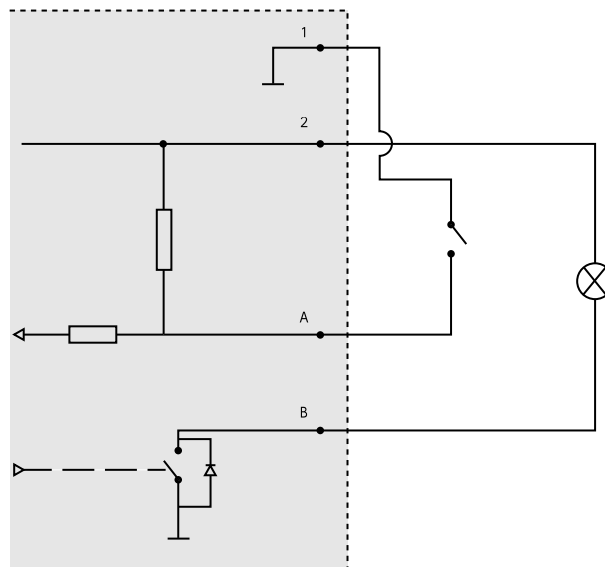
I/O connector



Power input



Function	Pin	Notes	Specifications
0 V DC (-)	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)	3-4	Digital input – Connect to pin 1 to activate, or leave floating (unconnected) to deactivate.	0 to max 30 V DC
		Digital output – Connected to pin 1 when activated, floating (unconnected) when deactivated. If used with an inductive load, e.g. a relay, a diode must be connected in parallel with the load, for protection against voltage transients.	0 to max 30 V DC, open drain, 100 mA



- 1 0 V DC (-)
- 2 DC output 12 V, max 50 mA
- A I/O configured as input

AXIS Q19-E Series

Technical specifications

B I/O configured as output

