USER MANUAL

AXIS P1355–E Network Camera
About this document
This manual is intended for administrators and users of the AXIS
P1355–E Network Camera, and is applicable to firmware 5.40 and later.
It includes instructions for using and managing the product on your
network. Previous experience of networking will be of use when using
this product. Some knowledge of UNIX or Linux-based systems may also
be beneficial, for developing shell scripts and applications. Later version
of this document will be posted to the Axis website, as required. See
also the product’s online help, available via the web-based interface.

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Every care has been taken in the preparation of this document. Please
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purpose.

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Axis AB has intellectual property rights relating to technology embodied
in the product described in this document. In particular, and without
limitation, these intellectual property rights may include one or more
of the patents listed at http://www.axis.com/patent.htm and one or
more additional patents or pending patent applications in the US and
other countries.

This product contains licensed third-party software. See the menu item
“About” in the product’s user interface for more information.

This product contains source code copyright Apple Computer,
Inc., under the terms of Apple Public Source License 2.0 (see
http://www.opensource.apple.com/appsl). The source code is available

Equipment Modifications
This equipment must be installed and used in strict accordance with
the instructions given in the user documentation. This equipment contains
no user-serviceable components. Unauthorized equipment changes or
modifications will invalidate all applicable regulatory certifications
and approvals.

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

Regulatory Information
Europe
This product complies with the applicable CE marking directives
and harmonized standards:
Electromagnetic Compatibility (EMC), on page 2.
• Restrictions of Hazardous Substances (RoHS) Directive 2011/65/EU.
See Disposal and Recycling, on page 2.
A copy of the original declaration of conformity may be obtained from
Axis Communications AB. See Contact Information, on page 3.

Electromagnetic Compatibility (EMC)
This equipment has been designed and tested to fulfill applicable
standards for:
• Radio frequency emission when installed according to the
instructions and used in its intended environment.
• Immunity to electrical and electromagnetic phenomena when
installed according to the instructions and used in its intended
environment.

USA
This equipment has been tested using a shielded network cable (STP)
and found to comply with the limits for a Class B digital device,
pursuant to part 15 of the FCC Rules. These limits are designed
to provide reasonable protection against harmful interference in a
residential installation. This equipment generates, uses and can radiate
radio frequency energy and, if not installed and used in accordance
with the instructions, may cause harmful interference to radio
communications. However, there is no guarantee that interference
will not occur in a particular installation. If this equipment does
cause harmful interference to radio or television reception, which
can be determined by turning the equipment off and on, the user is
encouraged to try to correct the interference by one or more of the
following measures:
• Reorient or relocate the receiving antenna.
• Increase the separation between the equipment and receiver.
• Connect the equipment into an outlet on a circuit different from
that to which the receiver is connected.
• Consult the dealer or an experienced radio/TV technician for help.

Canada
This Class B digital apparatus complies with Canadian ICES-003.

Europe
This digital equipment fulfills the requirements for RF emission
according to the Class B limit of EN 55022.

This product fulfills the requirements for immunity according to
EN 61000-6-1 residential, commercial and light-industrial
environments.

This product fulfills the requirements for immunity according to
EN 61000-6-2 industrial environments.

This product fulfills the requirements for immunity according to
EN 55024 office and commercial environments.

Australia/New Zealand
This digital equipment fulfills the requirements for RF emission
according to the Class B limit of AS/NZS CISPR 22.

Japan
この装置は、クラスB情報技術装置です。この装置は、家庭
環境で使用することを目的としていますが、この装置がラジ
オやテレビジョン受信機に近接して使用されると、受信障
害を引き起こすことがあります。取扱説明書に従って正しい
取り扱いをして下さい。

Korea
이 기기는 가정용(이/B급) 전자파차장기로서 주로 가정에
서 사용하는 것을 목적으로 하며, 모든 지역에서 사용
할 수 있습니다。

Safety
This product complies with IEC/EN/UL 60950-1 and
IEC/EN/UL 60065-22, Safety of Information Technology
Equipment.

Disposal and Recycling
When this product has reached the end of its useful life, dispose of
it according to local raws and regulations. For information about
your nearest designated collection point, contact your local authority
responsible for waste disposal. In accordance with local legislation,
penalties may be applicable for incorrect disposal of this waste.

Europe
This symbol means that the product shall not be disposed of
together with household or commercial waste. Directive 2012/19/EU
on waste electrical and electronic equipment (WEEE) is applicable in
the European Union member states. To prevent potential harm to
human health and the environment, the product must be disposed of
in an approved and environmentally safe recycling process. For
information about your nearest designated collection point, contact
your local authority responsible for waste disposal. Businesses should contact the product supplier for information about how to dispose of this product correctly.

This product complies with the requirements of Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS).

China

This product complies with the requirements of the legislative act Administration on the Control of Pollution Caused by Electronic Information Products (ACPEIP).

Contact Information
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Sweden
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Fax: +46 46 13 61 30
www.axis.com

Support
Should you require any technical assistance, please contact your Axis reseller. If your questions cannot be answered immediately, your reseller will forward your queries through the appropriate channels to ensure a rapid response. If you are connected to the Internet, you can:

• download user documentation and software updates
• find answers to resolved problems in the FAQ database. Search by product, category, or phrase
• report problems to Axis support staff by logging in to your private support area
• chat with Axis support staff (selected countries only)
• visit Axis Support at www.axis.com/techsup/

Learn More!
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Hardware Overview

1. Focus puller
2. Zoom puller
3. LED indicator
4. SD card slot (microSD)
5. Audio in
6. Audio out
7. Network connector PoE
8. Power LED
9. Network LED
10. Control button
11. I/O terminal block
12. RS485/422 connector
13. Iris connector
1. Sunshield adjustment screw (2x)
2. Sunshield
3. Product number (P/N) & Serial number (S/N). The serial number may be required during the installation.
4. Top cover
5. Network camera
6. Housing LED indicator (fan and heater)
7. Network connector
8. Safety wire tab
9. Cable holes
10. Bottom cover screws (4x)
11. Bottom cover
12. Cable cover screws (2x)
13. Bottom cover
14. Heaters. Caution! May be hot
AXIS P1355–E Network Camera

Hardware Overview

15. Bracket screws (4x)
16. Bracket adapter
17. Network cable (route through wall bracket). Cable not included
18. Wall bracket
19. Bracket adjustment screw

Connectors

For technical specifications, see page 59.

Network connector – RJ45 Ethernet connector. Supports Power over Ethernet (PoE).

NOTICE

The product shall be connected using a shielded network cable (STP). All cables connecting the product to the network switch shall be shielded (STP) and intended for their specific use. Make sure that the network switch is properly grounded. For information about regulatory requirements, see Regulatory Information, on page 2.

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 audio out.

SD card slot – A standard or high-capacity microSD card (not included) can be used for local recording with removable storage.

NOTICE

To prevent corruption of recordings, the SD card should be unmounted before removal. To unmount, go to Setup > System Options > Storage > SD Card and click Unmount.

Control button – The control button is used for:

• Enabling the Focus Assistant. Press and very quickly release the Control button.
• Resetting the product to factory default settings. See page 53.
• Connecting to an AXIS Video Hosting System service. See page 46. To connect, press and hold the button for about 1 second until the Status LED flashes green.
• Connecting to AXIS Internet Dynamic DNS Service. See page 47. To connect, press and hold the button for about 3 seconds.

Power connector – 2-pin terminal block for power input. Use a limited power source (LPS) with either a rated output power limited to ≤100 W or a rated output current limited to ≤5 A.

I/O terminal connector – Use in applications for e.g. motion detection, event triggering, time lapse recording and alarm notifications. In addition to an auxiliary power and a GND pin, the I/O terminal 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 > Ports & Devices) 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 > Ports & Devices).

Note

The I/O connector is connected to the housing (fan/heater) on delivery, and will trigger an input port event to indicate a fan or heater error when activated. See Events, on page 38 for information about events.
Hardware Overview

RS-485/RS-422 connector – Two 2-pin terminal blocks for RS-485/RS-422 serial interface used to control auxiliary equipment, e.g. PTZ devices.

LED Indicators

<table>
<thead>
<tr>
<th>LED</th>
<th>Color</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network</td>
<td>Green</td>
<td>Steady for connection to a 100 MBit/s network. Flashes for network activity.</td>
</tr>
<tr>
<td></td>
<td>Amber</td>
<td>Steady for connection to a 10 MBit/s network. Flashes for network activity.</td>
</tr>
<tr>
<td></td>
<td>Unlit</td>
<td>No network connection.</td>
</tr>
<tr>
<td>Status</td>
<td>Green</td>
<td>Steady green for normal operation.</td>
</tr>
<tr>
<td></td>
<td>Amber</td>
<td>Steady during startup and when restoring settings.</td>
</tr>
<tr>
<td></td>
<td>Red</td>
<td>Slow flash for failed upgrade.</td>
</tr>
<tr>
<td>Power</td>
<td>Green</td>
<td>Normal operation.</td>
</tr>
<tr>
<td></td>
<td>Amber</td>
<td>Flashes green/amber during firmware upgrade.</td>
</tr>
</tbody>
</table>

Housing (fan and heater)

<table>
<thead>
<tr>
<th>LED</th>
<th>Color</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Green</td>
<td>Normal operation.</td>
</tr>
</tbody>
</table>
|        | Flashing green | Single flash: Heater error  
|        |        | Double flash: Fan error  
|        |        | Triple flash: General error  
|        |        | Alarm events will be triggered through the camera's input port.  
|        |        | Contact your Axis reseller for information about spare parts and troubleshooting. |

Note

- The Status LED can be configured to be unlit during normal operation. To configure, go to Setup > System Options > Ports & Devices > LED. See the online help for more information.
- The Status LED can be configured to flash while an event is active.
- The Status LED can be configured to flash for identifying the unit. Go to Setup > System Options > Maintenance.

Status LED when using Focus Assistant

<table>
<thead>
<tr>
<th>Status</th>
<th>Color</th>
<th>Indication</th>
</tr>
</thead>
</table>
|        | Green | Focus Assistant is enabled  
|        |       | The lens is optimally adjusted                                                      |
|        | Amber | The camera has been moved, or an object has been inserted in front of the lens. Exit and restart the Focus Assistant.  
|        |       | The lens is less optimally adjusted                                                  |
|        | Red   | The camera has been moved, or an object has been inserted in front of the lens. Exit and restart the Focus Assistant.  
|        |       | The lens is poorly adjusted                                                        |

Replacing the lens

It is possible to use optional lenses for the Axis product.

To replace the lens:

1. Disconnect the iris cable.
Hardware Overview

2. Unscrew the standard lens.
3. Attach and screw on the new lens.

Note
There is no need to restart the Axis product after changing the lens. However, the product must be restarted if you are interchanging between a P-iris, DC-Iris or fixed/manual iris lens. In order to set the focus and position the lens, the Axis product must be connected to the network.

To change the iris configuration:
1. Go to Setup > Video and Audio > Camera Settings. Iris configuration shows the current configured iris type.
2. Click Edit.
3. Select the installed iris lens from the drop-down list and click OK.

Note
For P-iris lenses not listed in the drop-down list, download the iris configuration file from www.axis.com. To upload and use the downloaded configuration file, click the Upload tab. Click Browse and select the configuration file. Click Upload. The installed iris lens should now be included in the Iris Selection drop-down list. Select it and press OK. If you select a DC Iris configuration file for a P-iris lens, an error message will appear below the iris configuration type in the Camera Settings page. For custom DC Iris lenses, select Generic DC Iris option.
Accessing the Product

To install the Axis product, refer to the Installation Guide supplied with the product.

The product can be used with most operating systems and browsers. The recommended browsers are Internet Explorer with Windows, Safari with Macintosh and Firefox with other operating systems. See Technical Specifications, on page 59. To view streaming video in Internet Explorer, allow installation of AXIS Media Control (AMC) when prompted.

Note
- QuickTime™ is also supported for viewing H.264 streams and for audio.
- If your computer restricts the use of additional software components, the product can be configured to use a Java applet for viewing Motion JPEG.

Access from a Browser

1. Start a browser (Internet Explorer, Firefox, Safari).
2. Enter the IP address or host name of the Axis product in the browser’s Location/Address field. To access the product from a Macintosh computer (Mac OS X), click on the Bonjour tab 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 Installation and Management Software CD or the document Assign an IP Address and Access the Video Stream on Axis Support web at www.axis.com/techsup

3. Enter your user name and password. If this is the first time the product is accessed, the root password must first be configured. For instructions, see Set the Root Password, on page 12.

4. The product’s Live View page appears 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.
Accessing the Product

Access from the Internet

Once connected, the Axis product is accessible on your local network (LAN). To access the product from the Internet you must configure your network router to allow incoming data traffic to the product. To do this, enable the NAT-traversal feature, which will attempt to automatically configure the router to allow access to the product. This is enabled from Setup > System Options > Network > TCP/IP Advanced.

For more information, please see NAT traversal (port mapping) for IPv4, on page 48. See also AXIS Internet Dynamic DNS Service at www.axiscam.net For Technical notes on this and other topics, visit the Axis Support web at www.axis.com/techsup

Set the Root Password

To gain access to the Axis product, you must set the password for the default administrator user root. This is done in the Configure Root Password dialog, which appears when the product is accessed for the first time.

To prevent network eavesdropping, the root password can be set via an encrypted HTTPS connection, which requires an HTTPS certificate. HTTPS (Hypertext Transfer Protocol over SSL) is a protocol used to encrypt traffic between web browsers and servers. The HTTPS certificate ensures encrypted exchange of information. See HTTPS, on page 48.

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. See Reset to Factory Default Settings, on page 53.

To set the password via a standard HTTP connection, enter it directly in the first dialog.

To set the password via an encrypted HTTPS connection, follow these steps:

1. Click Create self-signed certificate.
2. Provide the requested information and click OK. The certificate is created and the password can now be set securely. All traffic to and from the product is encrypted from this point on.
3. Enter a password and then re-enter to confirm the spelling. Click OK. The password has now been configured.

Set Power Line Frequency

Power line frequency is set the first time the Axis product is accessed and can only be changed from Plain Config (see page 53) or by resetting the product to factory default.
Accessing the Product

Select the power line frequency (50 Hz or 60 Hz) used at the location of the Axis product. Selecting the wrong frequency may cause image flicker if the product is used in fluorescent light environments.

When using 50 Hz, the maximum frame rate is limited to 25 fps.

Note

Power line frequency is different in different geographic regions. In the Americas, 60 Hz is usually used; most other parts of the world use 50 Hz. Local variations may apply, always check with the local authorities.

PTZ Mode

PTZ mode is set the first time the Axis product is accessed and can only be changed by resetting the product to factory default.

Digital PTZ is the default mode and should be used when a pan/tilt motor is not used.

If the camera is mounted to a pan/tilt motor, select Uploadable PTZ driver. For information about how to upload a PTZ driver, see Installing a PTZ driver, on page 31.

The Live View Page

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. The following provides an overview of each available control.

Controls on the Live View Page

Select a stream profile for the Live View page from the Stream Profile drop-down list. For information about how to configure stream profiles, see page 22.

Click Pulse to activate the product’s output port for a defined period of time. For information about how to enable and configure output buttons, see page 29.

Click the Active/Inactive buttons to manually activate and inactive the product’s output port. For information about how to enable and configure output buttons, see page 29.

The Manual Trigger button is used to trigger an action rule from the Live View page. For information about how to configure and enable the button, see Manual Trigger, on page 13.

Click Snapshot to save a snapshot of the video image. Right-click the video image to save it in JPEG format on your computer. This button is primarily intended for use when the AXIS Media Control viewer toolbar is not available. Enable this button from Live View Config > Action Buttons.

The Audio clip drop-down list allows you to play an audio clip from the Live View page. Select the audio clip and click the Play button.

Manual Trigger

The Manual Trigger is used to trigger an action rule from the Live View page. The manual trigger can for example be used to validate actions during product installation and configuration.

To configure the manual trigger:
Accessing the Product

1. Go to Setup > Events.
2. Click Add to add a new action rule.
3. From the Trigger drop-down list, select Input Signal.
4. From the second drop-down list, select Manual Trigger.
5. Select the desired action and configure the other settings as required.

For more information about action rules, see Events, on page 38.

To show the manual trigger buttons in the Live View page:
1. Go to Setup > Live View Layout.
2. Under Action Buttons, select Show manual trigger button.

AXIS Media Control viewer toolbar

The AXIS Media Control viewer toolbar is available in Internet Explorer only. See AXIS Media Control (AMC), on page 16 for more information. The toolbar displays the following buttons:

- The Play button connects to the Axis product and starts playing a media stream.
- The Stop button stops the media stream.
- The Snapshot button takes a snapshot of the video image. The location where the image is saved can be specified in the AMC Control Panel.
- Click the View Full Screen button and the video image will fill the entire screen. Press ESC (Escape) on the computer keyboard to cancel full screen view.
- The Record button is used to record the current video stream. The location where the recording is saved can be specified in the AMC Control Panel. Enable this button from Live View Config > Viewer Settings.

AMC Audio Controls

AMC audio buttons control the speakers and microphone connected to the client computer. The buttons are only visible when audio is enabled.

- Speaker button – Click to turn the speakers on or off.
- Microphone button – Click to mute or unmute the microphone. In Simplex – speaker only mode, the Microphone and Talk buttons must both be active to send audio to the Axis product. Click either button to stop audio transmission.
- Use the slider to control the volume of the speakers and the microphone.

Half-duplex mode

The Talk/Listen button is used to switch between sending and receiving audio. The button can be configured from the Audio tab in the AMC Control panel:

- Push-To-Talk mode: Click and hold the button to talk/send. Release the button to listen.
- Toggle mode: Click once to switch between talking and listening.

Simplex – speaker only mode

To send audio, the Talk and Microphone buttons must both be active. Click either button to stop audio transmission.
Accessing the Product

**PTZ Controls**

The Live View page also displays Pan/Tilt/Zoom (PTZ) controls. The administrator can enable/disable controls for specified users under System Options > Security > Users.

With the PTZ Control Queue enabled the time each user is in control of the PTZ settings is limited. Click the buttons to request or release control of the PTZ controls. The PTZ Control Queue is set up under PTZ > Control Queue.

- Click the Emulate joystick mode button and click in the image to move the camera view in the direction of the mouse pointer.
- Click the Center mode button and click in the image to center the camera view on that position. The center mode button could also be used to zoom in on a specific area. Click in the image and drag to draw a rectangle surrounding the area to be magnified. To zoom out, rotate the mouse wheel.
- Click the Ctrl panel button to open the PTZ control panel which provides additional PTZ controls. User-defined buttons can also appear in the Control panel. See Controls, on page 32.

The PTZ controls can be disabled under PTZ > Advanced > Controls, see Controls, on page 32.
Media Streams

The Axis product provides several audio and video stream formats. Your requirements and the properties of your network will determine the type you use.

The Live View page in the product provides access to H.264 and Motion JPEG video streams, audio streams and to the list of available stream profiles. Other applications and clients can access video and audio streams directly, without going via the Live View page.

How to Stream H.264

The video compression standard H.264 makes good use of bandwidth, and can provide high quality video streams at less than 1 Mbit/s.

Deciding which combination of protocols and methods to use depends on your viewing requirements, and on the properties of your network. The available options in AXIS Media Control are:

<table>
<thead>
<tr>
<th>Unicast RTP</th>
<th>This unicast method (RTP over UDP) is used for live unicast video, especially when it is important to always have an up-to-date video stream, even if some images are dropped. Unicasting is used for video-on-demand transmission so that there is no video traffic on the network until a client connects and requests the stream. Note that there are a maximum of 20 simultaneous unicast connections.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTP over RTSP</td>
<td>This unicast method (RTP tunneled over RTSP) is useful as it is relatively simple to configure firewalls to allow RTSP traffic.</td>
</tr>
<tr>
<td>RTP over RTSP over HTTP</td>
<td>This unicast method can be used to traverse firewalls. Firewalls are commonly configured to allow the HTTP protocol, thus allowing RTP to be tunneled.</td>
</tr>
<tr>
<td>Multicast RTP</td>
<td>This method (RTP over UDP) should be used for live multicast video. The video stream is always up-to-date, even if some images are dropped. Multicasting provides the most efficient usage of bandwidth when there are large numbers of clients viewing simultaneously. A multicast cannot however, pass a network router unless the router is configured to allow this. It is not possible to multicast over the Internet, for example. Note also that all multicast viewers count as one unicast viewer in the maximum total of 20 simultaneous connections.</td>
</tr>
</tbody>
</table>

AXIS Media Control negotiates with the Axis product to determine the transport protocol to use. The order of priority, listed in the AMC Control Panel, can be changed and the options disabled, to suit specific requirements.

Note

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

MJPEG

This format uses standard JPEG still images for the video stream. These images are then displayed and updated at a rate sufficient to create a stream that shows constantly updated motion.

The Motion JPEG stream uses considerable amounts of bandwidth, but provides excellent image quality and access to every image contained in the stream. The recommended method of accessing Motion JPEG live video from the Axis product is to use the AXIS Media Control in Internet Explorer in Windows.

AXIS Media Control (AMC)

AXIS Media Control (AMC) in Internet Explorer in Windows is the recommended method of accessing live video from the Axis product.
AXIS P1355–E Network Camera

Media Streams

The AMC Control Panel can be used to configure various video and audio settings. Please see the AXIS Media Control User’s Manual for more information.

The AMC Control Panel is automatically installed on first use, after which it can be configured. Open the AMC Control Panel from:

- Windows Control Panel (from the Start menu)
- Alternatively, right-click the video image in Internet Explorer and click Settings.

Alternative Methods of Accessing the Video Stream

You can also access video and images from the Axis product in the following ways:

- **Motion JPEG server push** (if supported by the client, Firefox, for example). This option maintains an open HTTP connection to the browser and sends data as and when required, for as long as required.
- **Still JPEG images in a browser.** Enter the path `http://<ip>/axis-cgi/jpg/image.cgi`
- **Windows Media Player.** This requires AXIS Media Control and the H.264 decoder to be installed. The following paths can be used:
  - Unicast via RTP: `axrtpu://<ip>/axis-media/media.amp`
  - Unicast via RTSP: `axrtsp://<ip>/axis-media/media.amp`
  - Unicast via RTSP, tunneled via HTTP: `axrtpsphttp://<ip>/axis-media/media.amp`
  - Multicast: `axrtpm://<ip>/axis-media/media.amp`

- **QuickTime™.** The following paths can be used:
  - `rtsp://<ip>/axis-media/media.amp`
  - `rtsp://<ip>/axis-media/media.3gp`
Media Streams

Note

- <ip>= IP address
- The Axis product supports QuickTime 6.5.1 and later.
- QuickTime adds latency to the video stream.
- It may be possible to use other players to view the H.264 stream using the paths above, although Axis does not guarantee this.

Accessing Audio Streams

The Live View page provides access to audio through AXIS Media Control; in addition audio can be accessed in the following ways:

- VAPIX® Application Programming Interface (API) For more information, visit www.axis.com/developer
- Windows Media Player supports simplex audio. The following paths can be used:
  - Unicast via RTP: axrtpu://<ip>/axis-media/media.amp
  - Unicast via RTSP: axrtsp://<ip>/axis-media/media.amp
  - Unicast via RTSP, tunneled via HTTP: axrtsphttp://<ip>/axis-media/media.amp
  - Multicast: axrtpm://<ip>/axis-media/media.amp
- QuickTime™ supports G.711 and AAC audio encoding. The following paths can be used:
  - rtsp://<ip>/axis-media/media.amp
  - rtsp://<ip>/axis-media/media.3gp
- The Java applet supports simplex audio with G.711 encoding.
Setting Up the Product

The Axis product can be configured by users with administrator or operator rights. To open the product's Setup pages, click Setup in the top right-hand corner of the Live View page.

- **Administrators** have unrestricted access to all settings.
- **Operators** have access to all settings except System Options

See also the online help.

**Basic Setup**

Basic Setup provides shortcuts to the settings that should be made before using the Axis product:

1. Users. See page 43.
2. TCP/IP. See page 45.
3. Date & Time. See page 44.
5. Focus. See page 19

The Basic Setup menu can be disabled from System Options > Security > Users.

**Focus**

You can focus the Axis product under **Video & Audio** > **Focus**. For most applications, the adjustments on the **Basic** tab are sufficient. If required, additional adjustments can be made on the **Advanced** tab. Before focusing, always click **Open** iris to open the iris to its maximum. This gives the smallest depth of field and thus best conditions for correct focusing. Click **Enable** iris when finished focusing.

**Basic**

Follow the on-screen instructions on the **Basic** tab to adjust zoom and focus. The pixel counter is used to determine the number of pixels in an area of the image, for example to ensure that the image size fulfills specific requirements. To position the pixel counter, click on the text and drag the window to the desired position.

**Note**

- The back focus (step 2) should only be reset if the camera has been focused previously.
- Set focus as precisely as possible using the focus puller on the lens (step 3) before starting the automatic fine-tuning (step 4).
- If the camera is placed so that it is difficult to look at the image and move the pullers at the same time, you can use the Focus Assistant to focus the camera; for instructions, see the Installation Guide supplied with the product.

**Advanced**

The tools on this page can be used to find the optimal focus position. Always open the iris before focusing and enable it when finished focusing. Focus is measured in the part of the image covered by the **Focus** window. Use the mouse to move and resize the window and then click **Fine-tune focus automatically**. If needed, click in the **Focus position bar** or on the arrows at the ends of the bar, to further adjust the focus. The buttons < and > move the focus position one step in either direction. The buttons <<< and >>> move the focus position multiple steps in either direction. Clicking on the bar sets focus to that position. If the camera is not focused after completing the above instructions, try the Full range focus scan. The scan, which can take several minutes, transforms the focus position bar to a graph where peaks indicate the best focus positions. Click in the graph to set focus to the desired position.
AXIS P1355–E Network Camera

Video and Audio

Video and Audio

The video and audio settings can be used to optimize video and audio quality. You can configure the following:

- Video stream settings. See page 20.
- Stream profiles. See page 22.
- Camera settings. See page 22.
- Overlay image. See page 24.
- Privacy mask. See page 25.
- Focus. See page 19.
- Audio settings. See page 25.
- Audio clips. See page 27.

Video Stream

You can define the following video stream settings from Video & Audio > Video Stream:

- Image. See page 21.
- MJPEG. See page 21.

Pixel Counter

The pixel counter shows the number of pixels in an area of the image. The pixel counter is useful in situations where there is a requirement that the image is a certain size, for example in face recognition.

The pixel counter can be accessed from:
Video and Audio

- **Video & Audio > Video Stream.** Under Preview, click Open and select the Show pixel counter option to enable the rectangle in the image. Use the mouse to move and resize the rectangle, or enter the number of pixels in the **Width** and **Height** fields and click **Apply**.

- **Video & Audio > Focus.** Select the Show pixel counter option to enable the rectangle in the image. Use the mouse to move and resize the rectangle, or enter the number of pixels in the **Width** and **Height** fields and click **Apply**.

- The Live View page in Internet Explorer in Windows. Right-click in the image and select **Pixel counter.** Use the mouse to move and resize the rectangle.

Image

The default image settings can be configured under **Video & Audio > Video Stream.** Select the **Image** tab.

The following settings are available:

- **Resolution.** Select the default resolution.
- **Compression.** The compression level affects the image quality, bandwidth and file size of saved images; the lower the compression, the higher the image quality with higher bandwidth requirements and larger file sizes.
- **Rotate image.** If required, the image can be rotated.
- **Mirror.** If required, the image can be mirrored.
- **Maximum frame rate.** To avoid bandwidth problems, the frame rate allowed to each viewer can be **Limited** to a fixed amount. Alternatively, the frame rate can be set as **Unlimited**, which means the Axis product always delivers the highest frame rate possible under the current conditions.

- **Overlay settings.** See **Overlay, on page 24.**

Click **Save** to apply the new settings.

H.264

H.264, also known as MPEG-4 Part 10/AVC, is a video compression standard that provides high quality video streams at low bit rates. An H.264 video stream consists of different types of frames such as I-frames and P-frames. An I-frame is a complete image whereas P-frames only contain the differences from previous frames.

The **GOV length** is the number of frames between two consecutive I-frames. Increasing the GOV length may save considerably on bandwidth requirements in some cases, but may also have an adverse affect on image quality.

The Axis product supports two **H.264 profiles.** The Main profile provides higher compression than the Baseline profile with the same video quality, but requires more processing power to decode.

The bit rate can be set as **Variable Bit Rate** (VBR) or **Constant Bit Rate** (CBR). VBR adjusts the bit rate according to the image complexity, using up more bandwidth for increased activity in the image, and less for lower image activity. CBR allows you to set a fixed **Target bit rate** that consumes a predictable amount of bandwidth. As the bit rate would usually need to increase for increased image activity, but in this case cannot, frame rate and image quality are affected negatively. To partly compensate for this, it is possible to prioritize either frame rate or image quality. Not setting a priority means that frame rate and image quality are equally affected. You must save your settings before they can take effect.

The current bit rate can be set to appear as text overlay. To do this, select the **Include text** check box option under **Overlay Settings** and enter the modifier #b; in the field.

MJPEG

Sometimes the image size is large due to low light or complex scenery. Adjusting the maximum frame size helps to control the bandwidth and storage used by the Motion JPEG video stream in these situations. Setting the frame size to the **Default** setting provides consistently good image quality at the expense of increased bandwidth and storage usage in low light. Limiting the frame size optimizes bandwidth and storage usage, but may give poor image quality. To prevent increased bandwidth and storage usage, the maximum frame size should be set to an optimal value.
AXIS P1355–E Network Camera

Video and Audio

Stream Profiles
A stream profile is a set of predefined stream settings including resolution, compression, frame rate and overlay settings. Stream profiles can be used:

- When setting up recording using action rules. See Events, on page 38.
- When setting up continuous recording. See Continuous Recording, on page 42.
- In the Live View page – select the stream profile from the Stream profile drop-down list.

For quick setup, use one of the predefined stream profiles. Each predefined profile has a descriptive name, indicating its purpose. If required, the predefined stream profiles can be modified and new customized stream profiles can be created.

To create a new profile or modify an existing profile, go to Setup > Video & Audio > Stream Profiles.

To select a default stream profile for the Live View page, go to Setup > Live View Config.

Camera Settings
The Video & Audio > Camera Settings page provides access to advanced image settings for the Axis product.

Image Appearance
 Increasing the Color level increases the color saturation. The value 100 gives maximum color saturation. The value 0 gives a black and white image.

The image Brightness can be adjusted in the range 0–100, where a higher value produces a brighter image.

Increasing the Sharpness can increase bandwidth usage. A sharper image might increase image noise especially in low light conditions. A lower setting reduces image noise, but the whole image will appear less sharp.

The Contrast changes the relative difference between light and dark. It can be adjusted using the slidebar.

White Balance
White balance is used to make colors in the image appear the same regardless of the color temperature of the light source. The Axis product can be set to automatically identify the light source and compensate for its color. Alternatively, select the type of light source from the drop-down list. For a description of each available setting, see the online help.

The white balance window is enabled for the Automatic and Automatic outdoor options that appear in the White balance drop-down list. Select one of the options from the drop-down list to set the white balance window properties. Select Automatic to use the default settings for the Automatic and Automatic outdoor options (in the White balance drop-down list). Select Custom to manually set a reference window for white balance in the view area.

Wide Dynamic Range
Wide dynamic range (Dynamic Contrast) can improve the exposure when there is a considerable contrast between light and dark areas in the image. Enable WDR in intense backlight conditions. Disable WDR in low light conditions for optimal exposure.

Note

This setting is only possible when using automatic exposure control.

Exposure Settings
Configure the exposure settings to suit the image quality requirements in relation to lighting, frame rate and bandwidth considerations.

Exposure value – Click in the bar to fine-tune the exposure.
Video and Audio

Exposure control – These settings is used to adapt to the amount of light used. Automatic is the default settings can be used in most situations. The shutter speed is automatically set to produce optimum image quality. Flicker-free 50 or 60 Hz is used to remove flicker which can be caused by fluorescent and other light sources. The Hold current option locks the current exposure settings.

Enable Backlight compensation – Enable this option if a bright spot of light, for example a light bulb, causes other areas in the image to appear too dark.

Exposure zones – This settings determines which part of the image is used to calculate the exposure. For most situations, the Auto setting can be used. For particular requirement, select a predefined area.

Shutter & Gain

The shutter and gain settings affect the amount of motion blur and noise in the image. To adapt to different lighting, available storage space and bandwidth, it is often necessary to prioritize either low motion blur or low noise. The Axis product allows using different prioritization in normal light and in low light.

Shutter speed is related to the amount of time the shutter is opened and is measured in seconds (s). A slow shutter speed allows more light to reach the sensor and can help produce a brighter image in low light situations. On the other hand, a slow shutter speed can cause moving objects to appear blurry.

Set Shutter to

- Auto to set the shutter speed automatically. If required, use Max shutter to limit the shutter speed to prevent the frame rate from being reduced. For example, to get 30 fps, set Max shutter to 1/30.
- Fixed to use a fixed shutter speed.

Gain, measured in decibel (dB), is the amount of amplification applied to the image. A high gain may provide a better image in low light situations but will increase the amount of image noise.

Set Gain to

- Auto to set the gain automatically. If required, use Max gain to limit the applied gain.
- Fixed to use a fixed gain.

When Shutter and Gain are both set to Auto, it is possible to set the Priority between low motion blur and low noise manually and to use a different Priority in Normal Light and in Low Light.

Example

Consider an area where people or vehicles move during the day, but where there should be no movements during night. To be able to, for example, recognize faces or license plates, move the normal light priority slider toward low motion blur. At nighttime, motion detection is more important than identification. Motion blur is acceptable and since low light can cause a lot of noise, move the low light priority slider toward low noise.

Example

If storage space or bandwidth is limited, try using a lower gain. This will reduce image noise and produce smaller image files.

Iris configuration

Iris configuration shows the current configured iris type. Do not change the iris configuration unless the lens has been changed, see Replacing the lens, on page 9.

Iris adjustment

Select Enable automatic iris adjustment to automatically compensate for changing light conditions. This option is not available if a fixed iris is used.

Use the Iris adjustment slider to set the preferred F-value. The scale represents the amount the iris is open. If set to 0, the iris is opened as much as possible. If set to 100, the iris is closed as much as possible. The actual F-value is shown below the slider. If automatic iris adjustment is enabled, the iris will stay at this position as long as light conditions are favorable. If light
conditions change, the iris will adjust itself to the best iris settings. If automatic iris adjustment is disabled, the iris will lock on the set position regardless of light conditions.

**Day/Night**

The IR cut filter prevents infrared (IR) light from reaching the image sensor. In poor lighting conditions, for example at night, or when using an IR lamp, set the IR cut filter to Off. This increases light sensitivity and allows the product to “see” infrared light. The image is shown in black and white when the IR cut filter is off.

If using automatic Exposure control, set the IR cut filter to Auto to automatically switch between On and Off according to the lighting conditions.

The Day/Night shift level bar helps determine when the camera will shift from day mode to night mode. Normally, the camera automatically changes mode from day to night when very dark (level 100 in the slider). By setting Day/Night shift level to a lower value, the camera will change to night mode earlier.

**Image Settings**

**View Area**

*Note*

View area is available only if digital PTZ was selected when configuring the product for the first time or after resetting to factory default.

A view area is a cropped part of the full view. The view area is treated as a video source in Live View and has its own video stream and PTZ settings.

When setting up a view area it is recommended that the video stream resolution is the same size as or smaller than the view area size. Setting the video stream resolution larger than the view area size implies digitally scaled up video after sensor capture, requiring more bandwidth without adding image information.

To enable a view area, go to Video & Audio > Camera Settings and select Enable View Area.

To configure the view area:

1. Go to Video & Audio > View Area.
2. Select an Aspect ratio and a Video stream resolution.
3. Use the mouse to move and resize the view area.
4. Select Enable PTZ to enable digital PTZ for the view area.
5. Click Save to save the settings.

*Note*

The PTZ functionality is useful during installation of the Axis product. Use a view area to crop out a specific part of the full view.

**Overlay**

Overlays are used to provide extra information, for example for forensic video analysis or during product installation and configuration. Overlays are superimposed over the video stream.

An overlay text can display the current date and time, or a text string. When using a text string, modifiers can be used to display information such as the current bit rate or the current frame rate. For information about available modifiers, see *File Naming & Date/Time Formats* in the online help.

To enable overlays:
AXIS P1355–E Network Camera

Video and Audio

1. Go to Video & Audio > Video Stream and select the Image tab.
2. To include an overlay image, select Include overlay image at the coordinates. The overlay image must first be uploaded to the Axis product, see Overlay Image.
3. To include date and time, select Include date and Include time.
4. To include a text string, select Include text and enter the text in the field. Modifiers can be used, see File Naming & Date/Time Formats in the online help.
5. Define text overlay characteristics in the relevant fields.
6. Click Save.

To modify the date and time format, go to System Options > Date & Time. See Date & Time, on page 44.

Overlay Image

An overlay image is a static image superimposed over the video stream. The image, for example company logo, is used to provide extra information or to mask a part of the image.

To use an overlay image, the image must first be uploaded to the Axis product:

1. Go to Video & Audio > Overlay Image.
2. Click Browse and browse to the file.
3. Click Upload.
4. Select the image to use from the Use overlay image list.
5. Click Save.

To display the overlay image:

1. Go to Video & Audio > Video Stream and select the Image tab.
2. Under Overlay Settings, select Include overlay image at the coordinates and enter the X and Y coordinates.
3. Click Save.

For information about supported image formats, see the online help.

Privacy Mask

A privacy mask is an area of solid color that prohibits users from viewing parts of the monitored area. Privacy masks cannot be bypassed via the VAPIX® Application Programming Interface (API).

The Privacy Mask List (Video & Audio > Privacy Mask) shows all the masks that are currently configured in the Axis product and indicates if they are enabled.

You can add a new mask, re-size the mask with the mouse, choose a color for the mask, and give the mask a name.

For more information, see the online help.

Important

Adding many privacy masks may affect the product’s performance.

Audio Settings

The audio functionality for each video stream is enabled under Video & Audio > Video Stream > Audio.
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Video and Audio

Audio Modes

The Axis product supports the following audio modes:

**Full duplex** – Simultaneous two-way audio allowing the Axis product to transmit and receive audio at the same time. There is no echo cancellation; if feedback loops appear, try moving the microphone or the speaker.

**Half-duplex** – Audio can be transmitted to and from the Axis product but only in one direction at a time. To transmit audio using the Live View page, use the Talk and Listen buttons, see AMC Audio Controls, on page 14.

**Simplex – speaker only** – Audio is transmitted from a client to the Axis product and can be played by a speaker connected to the product. To transmit audio using the Live View page, the Talk and Microphone buttons must both be active, see AMC Audio Controls, on page 14.

**Simplex – microphone only** – Audio captured by the product microphone is transmitted from the Axis product to one or more clients.

To set the audio mode, go to Video & Audio > Audio Settings and select the desired mode from the Audio mode drop-down list.

Audio Input

An external microphone or a line source can be connected to the product’s Audio-in connector. Configure the audio input settings under Video & Audio > Audio Settings.

**Note**

The internal microphone on this Axis product cannot be used.

**Note**

The internal microphone is used by default; the external microphone is used when connected. It is possible to disable the internal microphone by connecting a plug to the mic input.

Select **Microphone** to use an external microphone or **Line** to use a Line in device, e.g. an audio mixer for multiple microphones or a microphone with a built-in amplifier, as audio source.

The **Microphone power** option provides DC power for an external microphone. Microphone power should only be used with microphones that have no battery and when using the internal microphone. This setting should not be enabled when using a dynamic or battery powered microphone. Microphone power will not harm the microphone; if you are uncertain, try switching it off and on. To use a professional microphone requiring 48 V phantom power, you need an external power supply and a balanced-unbalanced converter [audio transformer] in between.

Use the **Input gain** to control the volume (dB Full Scale) of the audio input. If the sound is too low, choose a higher dB, to amplify the sound. If the sound is too high, choose a lower dB. The **Level** bar gives a visual representation of the audio signal level in dB relative to the full-scale input level.

- Green – the signal is at a good level.
- Yellow – the signal is becoming distorted.
- Red – the signal is distorted.

Use the **Encoding** option to select digital audio encoding format.

- **AAC** requires a license for both encoding and decoding. AAC is the least complicated and most widely used codec. If achieving the best possible audio quality is a priority, AAC is the recommended codec to use. An AAC license is included in the Axis product.

- **G711** is an unlicensed standard codec that is useful when integrating audio into a VoIP system

- **G726** is an unlicensed speech codec that is most commonly used within the security industry.

The **Sample rate** defines the number of times per second the sound is sampled. A higher sample rate will provide better audio quality, but also requires a greater bandwidth.
Video and Audio

Set the required Bit rate depending on the selected encoding. A higher bit rate will give better audio quality. A lower bit rate may have latency or delay, but will require less bandwidth.

For more information about these settings, please see the online help.

Audio Output

An external speaker can be connected to the product’s Audio-out connector (a built-in amplifier is required for this). The output can be connected to another amplifier with speakers. A stereo connector must be used for the audio out.

Configure the audio output settings under Video & Audio > Audio Settings.

Output gain - Control the volume (dB Full Scale) of the line audio output. If the sound is too low, choose a higher dB. If the sound is too high, choose a lower dB.

Audio Clips

An audio clip is a sound file that can be played when events occur or directly from the Live View page. The audio clip must first be uploaded to the Axis product or recorded by a microphone connected to the product.

To add, download, modify or remove audio clips, go to Video & Audio > Audio Clips. For more information see the online help.

To configure the Axis product to play audio clips when an event occurs, an action rule must be set up. For more information, see Events, on page 38.

Note

Audio clips cannot be used if the product’s audio functionality is enabled. The audio functionality is enabled on the Audio tab under Video & Audio > Video Stream.
You can customize the Live View page and alter it to suit your requirements. It is possible to define the following features of the Live View page.

- **Stream Profile.** See page 22.
- **Default Viewer for Browser.** See page 28.
- **Viewer Settings.** See page 29.
- **Action Buttons.** These are the buttons described in Controls on the Live View Page, on page 13.
- **User Defined Links.** See page 29.
- **Output Buttons.** See page 29.

### Default Viewer for Browsers

From Live View Config > Default Viewer select the default method for viewing video images in your browser. The product attempts to show the video images in the selected video format and viewer. If this is not possible, the product overrides the settings and selects the best available combination.
**AXIS P1355–E Network Camera**

## Live View Config

<table>
<thead>
<tr>
<th>Browser</th>
<th>Viewer</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows Internet Explorer</td>
<td>AMC</td>
<td>Recommended viewer in Internet Explorer (H.264/Motion JPEG).</td>
</tr>
<tr>
<td></td>
<td>QuickTime</td>
<td>H.264.</td>
</tr>
<tr>
<td>Java applet</td>
<td>Show</td>
<td>A slower imaging alternative to AMC (Motion JPEG). Requires one of the</td>
</tr>
<tr>
<td></td>
<td>Still image</td>
<td>following installed on the client:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• JVM (J2SE) 1.4.2 or higher.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• JRE (J2SE) 5.0 or higher.</td>
</tr>
<tr>
<td>Other browsers</td>
<td>Server Push</td>
<td>Recommended viewer for other browsers (Motion JPEG).</td>
</tr>
<tr>
<td></td>
<td>QuickTime</td>
<td>H.264.</td>
</tr>
<tr>
<td>Java applet</td>
<td>Show</td>
<td>A slower imaging alternative to Server Push (Motion JPEG only).</td>
</tr>
<tr>
<td></td>
<td>Still image</td>
<td>Displays still images only. Click the Refresh button in your browser to view a new image.</td>
</tr>
</tbody>
</table>

For more information, please see the online help 🌐.

### Viewer Settings

To configure options for the viewer, go to Live View Config > Viewer Settings.

- Select **Show viewer toolbar** to display the AXIS Media Control (AMC) or the QuickTime viewer toolbar under the video image in your browser.

- **H.264 decoder installation.** The administrator can disable installation of the H.264 decoder included with AXIS Media Control. This is used to prevent installation of unlicensed copies. Further decoder licenses can be purchased from your Axis reseller.

- Select **Show crosshair in PTZ joystick mode** to enable a cross that will indicate the center of the image in PTZ joystick mode.

- Select **Use PTZ joystick mode as default** to enable joystick mode. The mode can be changed temporarily from the PTZ control panel.

- Select **Enable recording button** to enable recording from the Live View page. This button is available when using the AMC viewer. The recordings are saved to the location specified in the AMC Control Panel. See **AXIS Media Control (AMC)**, on page 16.

### User Defined Links

To display user-defined links in the Live View page, select the **Show custom link** option, give the link a name and then enter the URL to link to. When defining a web link do not remove the 'http://' from the URL address. Custom links can be used to run scripts or activate external devices connected to the product, or they can link to a web page. Custom links defined as cgi links will run the script in the background, in a hidden frame. Defining the link as a web link will open the link in a new window.

### Output Buttons

External I/O devices connected to the Axis product’s output ports can be controlled directly from the Live View page.

To display output buttons in the Live View page:

1. Go to Setup > Live View Config.
2. Under **Output Buttons**, select the type of control to use:
AXIS P1355–E Network Camera

Live View Config

- **Pulse** activates the output for a defined period of time. The pulse time can be set from 1/100 second to 60 seconds.
- **Active/Inactive** displays two buttons, one for each action.

To configure the active and inactive states, go to System Options > Ports & Devices > I/O Ports and set the port’s **Normal state**.

For more information about I/O ports, see I/O Ports, on page 51.
PTZ (Pan Tilt Zoom)

The PTZ menu is available if digital PTZ (pan, tilt and zoom) is enabled in the selected view area or if a PTZ driver has been uploaded. For more information on view areas, see View Area, on page 24. For more information on how to upload a driver, see Installing a PTZ driver, on page 31.

Preset Positions

A preset position is a predefined view that can be used to quickly steer the camera to a specific location. Preset positions can be accessed in several ways:

- When setting up action rules. See page 38.
- When setting up Guard Tour. See page 32.

To add a preset position:

1. Go to PTZ > Preset Positions.
2. Use the pan, tilt and zoom controls to steer the camera view to the desired position.
3. Enter a descriptive name in the Current position field.
4. Click Add. The camera’s position and focus settings are saved as a preset position.

The product can be configured to return to the Home position when the PTZ functionality has been inactive for a specified length of time. Enter the length of time in the field and click Save. Set the time to zero to prevent the product from automatically returning to the Home position.

To include the preset position name in the overlay text, go to Video & Audio, select Include overlay text and enter the modifier #P in the field. For more information about modifiers, see File Naming & Date/Time Formats in the online help.

Installing a PTZ driver

This Axis product supports several PTZ devices. Please see www.axis.com for a complete list of supported devices, and to obtain the correct driver. To install a PTZ device you need to install the PTZ driver.

The above image is shown with digital PTZ enabled. The image may vary if a PTZ driver has been uploaded.
PTZ (Pan Tilt Zoom)

To install the PTZ driver go to PTZ > Driver Selection. Browse to find the driver (e.g. driver.ptz) and Upload. If the driver was successfully uploaded, it appears in the Select driver to use drop-down list. From this drop-down list, select the driver to install or remove, and click Save.

Select Activate PTZ to enable PTZ. The address of the connected device appears against Device ID. Choose the Device type from the drop-down list. To find which device type to use, consult the documentation supplied by the PTZ driver.

To complete the installation go to System Options > Ports & Devices > COM Port (see COM Port) and verify the settings.

Guard Tour

A guard tour displays the video stream from different preset positions, one-by-one, in a predetermined order or at random and for configurable time periods. The enabled guard tour will keep running after the user has logged off or closed the browser.

To add a guard tour:

1. Go to PTZ > Guard Tour and click Add.
2. Enter a descriptive name.
3. Specify the pause length between runs.
4. Select an available preset position and click Apply.
5. Specify the View Time in seconds or minutes.
6. Specify the View Order or select the Random view order option.
7. Click Save.

To modify or remove guard tours, go to PTZ > Guard Tour, select the guard tour in the Guard Tour List and click Modify/Remove.

For more information see the online help 🚚.

Note: This Axis product supports limited guard tours. The pause between successive guard tours must be set to at least 10 minutes.

Advanced

Device Settings

The Device Settings window displays driver specific settings. The appearance of this window can vary depending on the driver installed. Options that can be configured include:

- Driver Specific Settings from Video Source
- Mechanical Limits for Moving Video Source
- Light Control Video Source
- Extended Driver Specific Settings for Video Source

For download and installation information about PTZ drivers for your Axis product please visit www.axis.com/techsup/

Controls

Panel Shortcut Command Buttons can be configured to provide direct access to commands issued via the VAPIX® Application Programming Interface. The buttons will be displayed in the PTZ control panel, which is available in the Live View page through the Ctrl panel button, see page 15.

Deselect the options under Enable/Disable controls to disable the pan, tilt, zoom and focus controls.
PTZ (Pan Tilt Zoom)

Note
Disabling PTZ controls will not affect preset positions. For example, if the tilt control is disabled, the product can still move to preset positions that require a tilt movement.

Control Queue

The administrator can set up a queue for PTZ controllers from PTZ > Control Queue. Once set up, the PTZ Control Queue buttons appear in the Live View page offering one viewer exclusive control for a limited period of time. Other users will be placed in queue.

A user who belongs to a group (see Users, on page 43) with a higher PTZ priority can go before other users in the queue and take control of the product. The order of priority is as follows:

1. Administrator — An administrator takes over PTZ control regardless of who is first in queue. The administrator will be removed from the queue 60 seconds after the last PTZ control command.
2. Event — The Axis product can be configured to go to a preset position when triggered by an alarm (see Events, on page 38). The event will immediately be placed first in the queue except when an administrator is in control.
3. Operator — Same as administrator but with lower priority
4. Guard Tour — A guard tour (see page 32) has PTZ control for an indefinite period of time. It may be overridden by an operator, event or administrator. The guard tour will resume when higher priority groups leave the queue.
5. Viewer — Multiple viewers must wait for their turn. The viewer has 60 seconds PTZ control before control is passed on to the next viewer in queue.

Note
- The administrator can enable and disable PTZ controls for selected users.
- To identify different users in the viewer group, cookies must be enabled on the client.
Detectors

Camera Tampering

Camera Tampering can generate an alarm whenever the camera is repositioned, or when the lens is covered, sprayed or severely defocused. To send an alarm, for example an email, an action rule must be set up.

To configure tampering:

1. Go to Detectors > Camera Tampering.

2. Set the Minimum duration, that is, the time that must elapse before an alarm is generated. This can help prevent false alarms for known conditions that affect the image.

3. Select Alarm for dark images if an alarm should be generated if lights are dimmed or turned off, or if the lens is sprayed, covered, or rendered severely out of focus.

4. Click Save.

To configure the product to send an alarm when tampering occurs:

1. Go to Events > Action Rules.

2. Click Add to set up a new action rule.

3. Enter a Name for the action rule.

4. Under Condition, select Detectors from the Trigger list.

5. Select Tampering from the list of detectors.

6. Optionally, select a schedule and set additional conditions.

7. Select the action. To send an email, select Send Notification and select a Recipient from the list of defined recipients.

Note

The While the rule is active option under Duration cannot be used with camera tampering, since camera tampering does not have a duration and once it has been triggered it will not automatically return to its untriggered state.

For more information on actions rules, see Events, on page 38.

Motion Detection

Motion detection is used to generate an alarm whenever movement starts or stops in the camera view.

Motion detection is configured by defining up to 10 Include and Exclude windows:

- Include windows — define areas where motion should be detected
- Exclude windows — define areas within an Include window that should be ignored (areas outside Include windows are automatically ignored).

For instructions, see Set Up Motion Detection Windows, on page 35.

To control the number of motion detection alarms, the parameters Object Size, History and Sensitivity can be adjusted. See Motion Detection Parameters, on page 35.

Once motion detection windows are configured, the Axis product can be configured to perform actions when motion is detected. Possible actions include uploading images and start recording. For more information, see Setting Up an Action Rule, on page 39.
Detectors

Note
Using the motion detection feature may decrease the product’s overall performance.

Set Up Motion Detection Windows
To set up a motion detection Include Window, follow these instructions:

1. Go to Detectors > Motion Detection.
2. Select the Configure Included Windows option and click New. Select the new window in the list of windows and enter a descriptive name.
3. Adjust the size (drag the bottom right-hand corner) and the position (click on the text at the top and drag to the desired position) of the window.
4. Adjust the Object Size, History and Sensitivity profile sliders [see Motion Detection Parameters for details]. Any detected motion within an active window is indicated by red peaks in the Activity window.
5. Click Save.

To exclude parts of the include window, select the Configure Excluded Windows and position the exclude window within the include window.

To delete an include or exclude window, select the window in the list of windows and click Del.

Motion Detection Parameters
The parameters controlling motion detection are described in the table below:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Object Size</th>
<th>History</th>
<th>Sensitivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Object size relative to window size.</td>
<td>Object memory length.</td>
<td>Difference in luminance between background and object.</td>
</tr>
<tr>
<td>High level (100%)</td>
<td>Only very large objects trigger motion detection.</td>
<td>An object that appears in the window triggers motion detection for a long time before it is considered as non-moving.</td>
<td>Ordinary colored objects on ordinary backgrounds trigger motion detection.</td>
</tr>
<tr>
<td>Medium level (50%)</td>
<td></td>
<td>A large difference in luminance is required to trigger motion detection.</td>
<td></td>
</tr>
</tbody>
</table>
Detectors

<table>
<thead>
<tr>
<th>Low level (0%)</th>
<th>Even very small objects trigger motion detection.</th>
<th>An object that appears in the window triggers motion detection only for a very short time before it is considered as non-moving.</th>
<th>Only very bright objects on a dark background trigger motion detection.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Recommended values</strong></td>
<td>5–15%</td>
<td>60–90%</td>
<td>75–95%</td>
</tr>
<tr>
<td><strong>Default values</strong></td>
<td>15%</td>
<td>90%</td>
<td>90%</td>
</tr>
</tbody>
</table>

**Note**
- To trigger on small objects or movements, use several small motion detection windows rather than one large window and select a low object size.
- To avoid triggering on small objects, select a high object size.
- While monitoring an area where moving objects are not expected, select a high history level. This will cause motion detection to trigger as long as the object is present in the window.
- To only detect flashing light, select a low sensitivity. In other cases high sensitivity is recommended.

**Audio Detection**

The Axis product can be configured to generate an alarm when audio rises above or falls below the threshold value. The threshold value can be set in the range 0–100 where 0 is the most sensitive and 100 the least sensitive.

1. Go to Detectors > Audio Detection.
2. Set the audio alarm level and click Save.
3. Go to Events > Action Rules and set up an action rule, see Setting Up an Action Rule, on page 39.

Detected audio is indicated by colored peaks in the Activity indicator. An event is triggered when detected audio rises above or falls below the threshold value, which is represented by the bar.
Applications

Third party applications can be uploaded to and installed on the Axis product. Applications add functionality to the product, for example video analytics and intelligent video capabilities such as recognition, tracking, detection and counting. For information about available applications, downloads, trials and licenses, go to www.axis.com/applications

Note

- It is recommended to run one application at a time.
- Avoid running applications when the built-in motion detection is active.
AXIS P1355–E Network Camera

Events

The Axis product can be configured to perform actions when different events occur, for example, start a recording when motion is detected. The set of conditions that defines how and when the action is triggered is called an Action Rule.

Available Action Rule triggers and conditions include:

- **Applications** – use installed applications to trigger the rule, see Applications, on page 37.
- **Detectors**
  - Audio Detection — trigger the rule when audio is detected, see Audio Detection, on page 36.
  - Day/Night Mode — trigger the rule when the product switches between day mode (IR cut filter on) and night mode (IR cut filter off). This can for example be used to control an external infrared (IR) light connected to an output port.
  - Motion Detection — trigger the rule when motion is detected, see Motion Detection, on page 34.
  - Tampering — trigger the rule when tampering is detected, see Camera Tampering, on page 34.
- **Hardware**
  - Network — trigger the rule if network connection is lost or restored. This can for example be used to start recording to the SD card.
  - Temperature — trigger the rule if the temperature falls outside or inside the operating range of the product. This can for example be used to send maintenance notifications.
- **Input Signal**
  - Digital Input Port — trigger the rule when an I/O port receives a signal from a connected device, see I/O Ports, on page 51.
  - Manual Trigger — trigger the rule using the Manual Trigger button in the Live View page, see Controls on the Live View Page, on page 13. This can for example be used to validate actions during product installation and configuration.
- **PTZ**
  - Moving — trigger the rule when the camera view moves due to a PTZ operation. This can for example be used as an additional condition to prevent an action rule triggered by motion detection to record video while the camera view moves due to a PTZ operation.
  - Preset Reached — trigger the rule when the camera stops at a preset position. This can be for example be used with the Send Images action to upload images from the preset position.
- **Storage**
  - Available — trigger the rule when the storage device is unmounted or removed. This can for example be used to send maintenance notifications.
  - Full — trigger the rule when the storage device is full. Under normal operation, the oldest recordings will be overwritten to prevent the storage device from becoming full.
  - Locked — trigger the rule if the storage device is locked (write protected).
- **System**
  - System Initializing — trigger the rule when the product is being started. This can for example be used to send a notification when the product restarts.
- **Time**
AXIS P1355–E Network Camera

Events

- Recurrence — trigger the rule periodically, see Recurrences, on page 41. This can for example be used to upload an image every 5 minutes.
- Use Schedule — trigger the rule according to the selected schedule, see Schedules, on page 40.

Available actions include:

- Day/Night Vision Mode — set day mode (IR cut filter on) or night mode (IR cut filter off).
- Output Port — activate an I/O port to control an external device.
- Play Audio Clip — see Audio Clips, on page 27.
- PTZ Control
  - Preset Position — go to a preset position.
  - Guard Tour — start a guard tour, see Guard Tour, on page 32.
- Record Video — record video to a selected storage.
- Send Images — send images to a recipient.
- Send Notifications — send a notification message to a recipient.
- Status LED — flash the LED indicator. This can for example be used to validate triggers such as motion detection during product installation and configuration.

Setting Up an Action Rule

An action rule defines the conditions that must be met for the product to perform an action, for example record video or send email notifications. If multiple conditions are defined, all must be met to trigger the action.

The following example describes how to set up an action rule to record video to a network share if there is movement in the camera’s field of view.

Set up motion detection and add a network share:

1. Go to Detectors > Motion Detection and configure a motion detection window, see page 35
2. Go to System Options > Storage and set up the network share, see page 51.

Set up the action rule:

1. Go to Events > Action Rules and click Add.
2. Select Enable rule and enter a descriptive name for the rule.
3. Select Detectors from the Trigger drop-down list.
4. Select Motion Detection from the drop-down list. Select the motion detection window to use.
5. Optionally, select a Schedule and Additional conditions, see below.
6. Under Actions, select Record Video from the Type drop-down list.
7. Select a Stream profile and configure the Duration settings as described below.
8. Select Network Share from the Storage drop-down list.

To add additional criteria, select the Additional conditions option and add additional triggers. To prevent an action from being triggered repeatedly, a Wait at least time can be set. Enter the time in hours, minutes and seconds, during which the trigger should be ignored before the action rule can be activated again.
Events

The recording Duration of some actions can be set to include time immediately before and after the event. Select Pre-trigger time and/or Post-trigger time and enter the number of seconds. When While the rule is active is enabled and the action is triggered again during the post-trigger time, the recording time will be extended with another post-trigger time period.

For more information, see the online help.

Recipients

Recipients receive media files and notification messages. The following recipients are available:

<table>
<thead>
<tr>
<th>Recipient</th>
<th>Use with action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Email</td>
<td>Send Images</td>
</tr>
<tr>
<td></td>
<td>Send Notification</td>
</tr>
<tr>
<td>FTP</td>
<td>Send Images</td>
</tr>
<tr>
<td>HTTP</td>
<td>Send Images</td>
</tr>
<tr>
<td></td>
<td>Send Notification</td>
</tr>
<tr>
<td>Network Share</td>
<td>Send Images</td>
</tr>
<tr>
<td>TCP</td>
<td>Send Notification</td>
</tr>
</tbody>
</table>

Note

A network share can also be used as a storage device for recorded video. Go to System Options > Storage to configure a network share before setting up a continuous recording or an action rule to record video. See Storage, on page 50 for more information about storage devices.

To add a recipient:

1. Go to Events > Recipients and click Add.
2. Enter a descriptive name.
3. Select a recipient Type.
4. Enter the information needed for the recipient type.
5. Click Test to test the connection to the recipient.
6. Click OK.

Schedules

Schedules can be used as action rule triggers or as additional conditions, for example to record video if motion is detected outside office hours. Use one of the predefined schedules or create a new schedule as described below.

To create a new schedule:

1. Go to Events > Schedules and click Add.
2. Enter a descriptive name and the information needed for a daily, weekly, monthly or yearly schedule.
3. Click OK.

To use the schedule in an Action Rule, select the schedule from the Schedule drop-down list in the Action Rule Setup page.
Recurrences

Recurrences are used to trigger Action Rules repeatedly, for example every 5 minutes or every hour.

To set up a recurrence:

1. Go to Events > Recurrences and click Add.
2. Enter a descriptive name and recurrence pattern.
3. Click OK.

To use the recurrence in an Action Rule, first select Time from the Trigger drop-down list in the Action Rule Setup page and then select the recurrence from the second drop-down list.

To modify or remove recurrences, select the recurrence in the Recurrences List and click Modify or Remove.
Recordings

The Axis product can be configured to record video continuously or according to an action rule:

- To start a continuous recording, see page 42.
- To set up action rules, see page 39.
- To access recordings, see Recording List, on page 42.
- To configure camera controlled storage, see Storage, on page 50.

Recording List

Recorded videos are listed on the Recordings > List page. The list shows each recording’s start date and time, duration and the event that triggered the recording.

To play or download a recording, follow these steps:

1. Go to Recordings > List.
2. Use the filter to narrow the list of recordings. Enter the desired filter criteria and click Filter. Some filters may take a long time to complete.
3. Select the recording.
4. Click Play to play the recording, or click Download to download the recording.

Multiple recordings can be downloaded at the same time. Select the recordings and click Download. The downloaded file is a zip file containing a minimum of three files, of which the Matroska (.mkv) files are the actual recordings. The recordings are time-stamped with the date and time they were downloaded (that is, not the date the recordings were made).

Note

To play recordings in Windows Media Player, AXIS Matroska File Splitter must be installed. AXIS Matroska File Splitter can be downloaded from www.axis.com/techsup/software

For detailed recording and video information, select a recording and click Properties.

To remove a recording, select the recording and click Remove.

Continuous Recording

The Axis product can be configured to continuously save video to a storage device. See Storage, on page 50 for more information about storage devices. To prevent the disk from becoming full, it is recommended to configure the disk to automatically remove old recordings. If a new stream profile is selected while a recording is ongoing, the recording will be stopped and saved in the recording list and a new recording with the new stream profile will start. All previous continuous recordings will remain in the recording list until they are removed manually or through automatic removal of old recordings.

To start a continuous recording, follow these steps:

1. Go to Recordings > Continuous.
2. Select Enabled.
3. Select type of storage device from the Disk list.
4. Select a Stream profile to use for continuous recordings.
5. Click Save to save and start the recording.
System Options

Security

Users
User access control is enabled by default and can be configured under System Options > Security > Users. An administrator can set up other users by giving them user names and passwords. It is also possible to allow anonymous viewer login, which means that anybody may access the Live View page.

The user list displays authorized users and user groups (access levels):
- Viewer – Access to the Live View page
- Operator – Access to the Live View page and to all settings except System Options
- Administrator – Unrestricted access to all settings; can add, modify and remove other users.

Under HTTP/RTSP Password Settings, select the type of password to allow. You may need to allow unencrypted passwords if there are viewing clients that do not support encryption, or if you upgraded the firmware and existing clients support encryption but need to log in again and be configured to use this functionality.

Under User Settings, select the Enable anonymous viewer login option to allow anonymous users access to the Live View page.

Deselect the Enable Basic Setup option to hide the Basic Setup menu. Basic Setup provides quick access to settings that should be made before using the Axis product.

ONVIF
ONVIF (Open Network Video Interface Forum) is a global interface standard that makes it easier for end users, integrators, consultants, and manufacturers to take advantage of the possibilities offered by network video technology. ONVIF enables interoperability between different vendor products, increased flexibility, reduced cost and future-proof systems.

By creating a user you automatically enable ONVIF communication. Use the user name and password with all ONVIF communication with the product. For more information see www.onvif.org

IP Address Filter
IP address filtering is enabled on the System Options > Security > IP Address Filter page. Once enabled, the listed IP address are allowed or denied access to the Axis product. Select Allow or Deny from the list and click Apply to enable IP address filtering.

The administrator can add up to 256 IP address entries to the list (a single entry can contain multiple IP addresses).

HTTPS
The Axis product supports encrypted browsing using HTTPS. This is configured on the System Options > Security > HTTPS page.

A self-signed certificate can be used until a Certificate Authority-issued certificate has been obtained. Click Create self-signed certificate to install a self-signed certificate. Although self-signed certificates are free and offer some protection, true security is only implemented after the installation of a signed certificate issued by a Certificate Authority.

To obtain a signed certificate from an issuing Certificate Authority, click Create Certificate Request. When the signed certificate is returned, click Install signed certificate to import the certificate. The properties of any certificate request currently resident in the product or installed can be viewed by clicking Properties.

To enable HTTPS in the Axis product, the HTTPS Connection Policy must be set for each user group.

For more information, see the online help.
AXIS P1355–E Network Camera

System Options

IEEE 802.1X

IEEE 802.1X is a standard for port-based Network Admission Control providing secure authentication of wired and wireless network devices. IEEE 802.1X is based on EAP (Extensible Authentication Protocol).

To access a network protected by IEEE 802.1X, devices must authenticate themselves. The authentication is performed by a third-party entity called an authentication server, typically a RADIUS server, examples of which are FreeRADIUS and Microsoft Internet Authentication Service.

In Axis’ implementation, the network device and the authentication server authenticate themselves with the help of digital certificates using EAP-TLS (Extensible Authentication Protocol - Transport Layer Security). The certificates are provided by an Certification Authority (CA). You need:

- a CA certificate to validate the identity of the authentication server
- a CA-signed client certificate and a private key to authenticate the network device.

To allow the network device to access a network protected by IEEE 802.1X:

1. Obtain a CA certificate, a client certificate and a client private key (contact your network administrator).
2. Go to Setup > System Options > Security > IEEE 802.1X and upload the CA certificate, the client certificate and the client private key.
3. Under Settings, select the EAPOL version, provide your EAP identity and private key password.
4. Check the box to enable IEEE 802.1X and click Save.

Certificates

<table>
<thead>
<tr>
<th>CA Certificate</th>
<th>The CA certificate is used to validate the identity of the authentication server. Enter the path to the certificate directly, or locate the file using the Browse button. Then click Upload. To remove a certificate, click Remove.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client certificate</td>
<td>The client certificate and private key are used to authenticate the network device. They can be uploaded as separate files or in one combined file (e.g. a PFX file or a PEM file). Use the Client private key field if uploading one combined file. For each file, enter the path to the file, or locate the file using the Browse button. Then click Upload. To remove a file, click Remove.</td>
</tr>
</tbody>
</table>

Settings

<table>
<thead>
<tr>
<th>EAPOL version</th>
<th>Select the EAPOL version (1 or 2) as used in your network switch.</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAP identity</td>
<td>Enter the user identity (maximum 16 characters) associated with your certificate.</td>
</tr>
<tr>
<td>Private key password</td>
<td>Enter the password (maximum 16 characters) for the private key.</td>
</tr>
<tr>
<td>Enable IEEE 802.1X</td>
<td>Check the box to enable the IEEE 802.1X protocol.</td>
</tr>
</tbody>
</table>

Audio Support

Select Enable audio support to allow clients to retrieve audio streams from the Axis product. For information on how to configure audio settings, see Audio Settings, on page 25.

**Note**

Deselecting this option will disable audio globally in the Axis product, for configured events and profiles with audio as well.

Date & Time

The Axis product’s date and time settings are configured under System Options > Date & Time.

Current Server Time displays the current date and time (24h clock). The time can be displayed in 12h clock in the text overlay (see below).
AXIS P1355–E Network Camera

System Options

To change the date and time settings, select the preferred Time mode under New Server Time:

- **Synchronize with computer time** sets date and time according to the computer’s clock. With this option, date and time are set once and will not be updated automatically.

- **Synchronize with NTP Server** obtains date and time from an NTP server. With this option, date and time settings are updated continuously. For information on NTP settings, see NTP Configuration, on page 47.

  If using a host name for the NTP server, a DNS server must be configured. See DNS Configuration, on page 47.

- **Set manually** allows you to manually set date and time.

If using an NTP server, select your Time zone from the drop-down list. If required, check Automatically adjust for daylight saving time changes.

The Date & Time Format Used in Images is the date and time format displayed as a text overlay in the video stream. Use the predefined formats or see File Naming & Date/Time Formats in the online help for information on how to create custom date and time formats. To include date and time in the overlay text, go to Video & Audio and select Include date and Include time.

Network

Basic TCP/IP Settings

The Axis product supports IP version 4 and IP version 6. Both versions can be enabled simultaneously, and at least one version must always be enabled.

IPv4 Address Configuration

By default, the Axis product is set to use IPv4 (IP version 4) and to obtain the IP address automatically via DHCP. The IPv4 settings are configured under System Options > Network > TCP/IP > Basic.

DHCP (Dynamic Host Configuration Protocol) allows network administrators to centrally manage and automate the assignment of IP addresses. DHCP should only be enabled if using dynamic IP address notification, or if the DHCP can update a DNS server. It is then possible to access the Axis product by name (host name).

If DHCP is enabled and the product cannot be accessed, run AXIS IP Utility to search the network for connected Axis products, or reset the product to the factory default settings (see page 83) and then perform the installation again.

To use a static IP address, check Use the following IP address and specify the IP address, subnet mask and default router.

IPv6 Address Configuration

If IPv6 (IP version 6) is enabled, the Axis product will receive an IP address according to the configuration in the network router.

To enable IPv6, go to System Options > Network > TCP/IP > Basic. Other settings for IPv6 should be configured in the network router.

ARP/Ping

The product’s IP address can be assigned using ARP and Ping. For instructions, see Assign IP Address using ARP/Ping, on page 46.

The ARP/Ping service is enabled by default but is automatically disabled two minutes after the product is started, or as soon as an IP address is assigned. To re-assign IP address using ARP/Ping, the product must be restarted to enable ARP/Ping for an additional two minutes.

To disable the service, go to System Options > Network > TCP/IP > Basic and clear the option Enable ARP/Ping setting of IP address.

Pinging the product is still possible when the service is disabled.
**Assign IP Address using ARP/Ping**

The product's IP address can be assigned using ARP/Ping. The command must be issued within 2 minutes of connecting power.

1. Acquire a free static IP address on the same network segment as the computer.
2. Locate the serial number (S/N) on the product label.
3. Open a command prompt and enter the following commands:
   - **Linux/Unix syntax**
     ```
     arp -s <IP address> <serial number> temp
     ping -l 408 <IP address>
     ```
   - **Linux/Unix example**
     ```
     arp -s 192.168.0.125 00:40:8c:18:10:00 temp
     ping -l 408 192.168.0.125
     ```
   - **Windows syntax** (this may require that you run the command prompt as an administrator)
     ```
     arp -s <IP address> <serial number>
     ping -l 408 -t <IP address>
     ```
   - **Windows example** (this may require that you run the command prompt as an administrator)
     ```
     arp -s 192.168.0.125 00-40-8c-18-10-00
     ping -l 408 -t 192.168.0.125
     ```
4. Check that the network cable is connected to the Axis product and then restart the product by disconnecting and reconnecting power.
5. Close the command prompt when the product responds with reply from 192.168.0.125:... or similar.
6. Open a browser and type http://<IP address> in the Location/Address field.

For other methods of assigning the IP address, see the Installation and Management Software CD or the document *Assign an IP Address and Access the Video Stream* on Axis Support web at www.axis.com/techsup

**Note**

- To open a command prompt in Windows, open the Start menu and type cmd in the Run/Search field.
- To use the ARP command in Windows 7/Windows Vista, right-click the command prompt icon and select Run as administrator.
- To open a command prompt in Mac OS X, open the Terminal utility from Application > Utilities.

**AXIS Video Hosting System (AVHS)**

AVHS used in conjunction with an AVHS service, provides easy and secure Internet access to live and recorded video accessible from any location. For more information and help to find a local AVHS Service Provider go to www.axis.com/hosting

AVHS is enabled by default. The settings are configured under System Options > Network > TCP IP > Basic.

One-click enabled – Press the product's control button (see Hardware Overview, on page 6) to connect to an AVHS service over the Internet. Once registered, Always will be enabled and the Axis product stays connected to the AVHS service. If the product is not registered within 24 hours from when the button is pressed, the product will disconnect from the AVHS service.

Always – The Axis product will constantly attempt to connect to the AVHS service over the Internet. Once registered the product will stay connected to the service. This option can be used when the product is already installed and it is not convenient to use the one-click installation.
AXIS P1355–E Network Camera

System Options

AXIS Internet Dynamic DNS Service
AXIS Internet Dynamic DNS Service assigns a host name for easy access to the product. For more information, see www.axis.com/net.

To register the Axis product with AXIS Internet Dynamic DNS Service, go to System Options > Network > TCP/IP > Basic. Under Services, click the AXIS Internet Dynamic DNS Service Settings button (requires access to the Internet). The domain name currently registered at AXIS Internet Dynamic DNS service for the product can at any time be removed.

Advanced TCP/IP Settings

DNS Configuration
DNS (Domain Name Service) provides the translation of host names to IP addresses. The DNS settings are configured under System Options > Network > TCP/IP > Advanced.

Select Obtain DNS server address via DHCP to use the DNS settings provided by the DHCP server.

To make manual settings, select Use the following DNS server address and specify the following:

Domain name – Enter the domain(s) to search for the host name used by the Axis product. Multiple domains can be separated by semicolons. The host name is always the first part of a fully qualified domain name, for example, myserver is the host name in the fully qualified domain name myserver.mycompany.com where mycompany.com is the domain name.

Primary/Secondary DNS server – Enter the IP addresses of the primary and secondary DNS servers. The secondary DNS server is optional and will be used if the primary is unavailable.

NTP Configuration
NTP (Network Time Protocol) is used to synchronize the clock times of devices in a network. The NTP settings are configured under System Options > Network > TCP/IP > Advanced.

Select Obtain NTP server address via DHCP to use the NTP settings provided by the DHCP server.

To make manual settings, select Use the following NTP server address and enter the host name or IP address of the NTP server.

Host Name Configuration
The Axis product can be accessed using a host name instead of an IP address. The host name is usually the same as the assigned DNS name. The host name is configured under System Options > Network > TCP/IP > Advanced.

Select Obtain host name via IPv4 DHCP to use host name provided by the DHCP server running on IPv4.

Select Use the host name to set the host name manually.

Select Enable dynamic DNS updates to dynamically update local DNS servers whenever the Axis product’s IP address changes. For more information, see the online help.

Link-Local IPv4 Address
Link-Local Address is enabled by default and assigns the Axis product an additional IP address which can be used to access the product from other hosts on the same segment on the local network. The product can have a Link-Local IP and a static or DHCP-supplied IP address at the same time.

This function can be disabled under System Options > Network > TCP/IP > Advanced.

HTTP
The HTTP port used by the Axis product can be changed under System Options > Network > TCP/IP > Advanced. In addition to the default setting, which is 80, any port in the range 1024–65535 can be used.
## HTTPS

The HTTPS port used by the Axis product can be changed under System Options > Network > TCP/IP > Advanced. In addition to the default setting, which is 443, any port in the range 1024–65535 can be used.

To enable HTTPS, go to System Options > Security > HTTPS. For more information, see page 43.

## NAT traversal (port mapping) for IPv4

A network router allows devices on a private network (LAN) to share a single connection to the Internet. This is done by forwarding network traffic from the private network to the "outside", that is, the Internet. Security on the private network (LAN) is increased since most routers are pre-configured to stop attempts to access the private network (LAN) from the public network (Internet).

Use NAT traversal when the Axis product is located on an intranet (LAN) and you wish to make it available from the other (WAN) side of a NAT router. With NAT traversal properly configured, all HTTP traffic to an external HTTP port in the NAT router is forwarded to the product.

NAT traversal is configured under System Options > Network > TCP/IP > Advanced.

**Note**

- For NAT traversal to work, this must be supported by the router. The router must also support UPnP™.
- The router has many different names: "NAT router", "Network router", "Internet Gateway", "Broadband router", "Broadband sharing device" or "Home firewall" but the essential purpose of the device is the same.

Enable/Disable – When enabled, the Axis product attempts to configure port mapping in a NAT router on your network, using UPnP™. Note that UPnP™ must be enabled in the product (see System Options > Network > UPnP).

Use manually selected NAT router – Select this option to manually select a NAT router and enter the IP address for the router in the field. If no router is specified, the product automatically searches for NAT routers on your network. If more than one router is found, the default router is selected.

Alternative HTTP port – Select this option to manually define an external HTTP port. Enter the port number in the field. If no port is entered here, a port number is automatically selected when NAT traversal is enabled.

**Note**

- An alternative HTTP port can be used or be active even if NAT traversal is disabled. This is useful if your NAT router does not support UPnP and you need to manually configure port forwarding in the NAT router.
- If you attempt to manually enter a port that is already in use, another available port is automatically selected.
- When the port is selected automatically it is displayed in this field. To change this, enter a new port number and click Save.

## FTP

The FTP server running in the Axis product enables upload of new firmware, user applications, etc. The FTP server can be disabled under System Options > Network > TCP/IP > Advanced.

**Note**

This FTP server has nothing to do with the product’s ability to transfer images via FTP to other locations and servers.

## RTSP

The RTSP server running in the Axis product allows a connecting client to start an H.264 stream. The RTSP port number can be changed under System Options > Network > TCP/IP > Advanced. The default port is 554.

**Note**

H.264 video streams will not be available if the RTSP server is disabled.
SOCKS
SOCKS is a networking proxy protocol. The Axis product can be configured to use a SOCKS server to reach networks on the other side of a firewall or proxy server. This functionality is useful if the Axis product is located on a local network behind a firewall, and notifications, uploads, alarms, etc need to be sent to a destination outside the local network (for example the Internet).

SOCKS is configured under System Options > Network > SOCKS. For more information, see the online help.

QoS (Quality of Service)
QoS (Quality of Service) guarantees a certain level of a specified resource to selected traffic on a network. A QoS-aware network prioritizes network traffic and provides a greater network reliability by controlling the amount of bandwidth an application may use.

The QoS settings are configured under System Options > Network > QoS. Using DSCP (Differentiated Services Codepoint) values, the Axis product can mark the following types of traffic: live video, live audio, event/Alarm traffic and management traffic.

<table>
<thead>
<tr>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live audio DSCP will be equal to live video DSCP if H.264 over RTSP is used.</td>
</tr>
</tbody>
</table>

SMTP (email)
To send email messages from the Axis product via SMTP (Simple Mail Transfer Protocol), an SMTP mail server must be set up. This is done under System Options > Network > SMTP (email).

Enter the host names or IP addresses and port numbers for the primary and secondary mail servers in the fields provided. A From email address is also required. If the mail server requires authentication, check Use authentication to log in to this server and enter the necessary information.

SNMP
The Simple Network Management Protocol (SNMP) allows remote management of network devices. An SNMP community is the group of devices and management station running SNMP. Community names are used to identify groups.

The Axis product can be configured to support SNMP on the System Options > Network > SNMP page.

Depending on the level of security required, select the version on SNMP to use.

SNMP v1/v2 provides the lowest level of security. The community name can be specified as a password for read or read/write access to all supported SNMP devices. The default password for the Read community is public and the default password for the Write community is private.

<table>
<thead>
<tr>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>If HTTPS is enabled, SNMP v1 and SNMP v2c should be disabled.</td>
</tr>
</tbody>
</table>

Traps for SNMP v1/v2 are used by the Axis product to send messages to a management system on important events and status changes. Check Enable traps and enter the IP address where the trap message should be sent and the Trap community that should receive the message.

The following traps are available:

- Cold start
- Warm start
- Link up
- Authentication failed

SNMP v3 provides encryption and secure passwords. To use traps with SNMP v3, an SNMP v3 management application is required.

To use SNMP v3, HTTPS must be enabled, see HTTPS on page 43. To enable SNMP v3, check the box and provide the initial user password.
System Options

Note
The initial password can only be set once. If the password is lost, the Axis product must be reset to factory default, see Reset to Factory Default Settings, on page 53.

UPnP™
The Axis product includes support for UPnP™. UPnP™ is enabled by default and the product is automatically detected by operating systems and clients that support this protocol.

UPnP™ can be disabled under System Options > Network > UPnP™.

RTP/H.264
The RTP port range and multicast settings are configured under System Options > Network > RTP.

The RTP port range defines the range of ports from which the video/audio ports are automatically selected. For multicast streams, only certain IP addresses and port numbers should be used.

Select Always Multicast Video and/or Always Multicast Audio to start multicast streaming without opening an RTSP session.

Bonjour
The Axis product includes support for Bonjour. Bonjour is enabled by default and the product is automatically detected by operating systems and clients that support this protocol.

Bonjour can be disabled under System Options > Network > Bonjour.

Storage

SD Card

NOTICE
To prevent corruption of recordings, the SD card should always be unmounted before it is ejected.

The Axis product supports SD cards with the following file systems:

- ext4 — recommended due to its resilience against data loss if the card is ejected or if there is abrupt power loss. To access data stored on the card from the Windows operating system, a third-party ext4 driver or application is required.
- vFAT — most SD cards are pre-formatted with vFAT when purchased.

If required, the SD card can be manually formatted to the desired file system. To format the SD card:

1. Insert the SD card in the SD card slot.
2. Go to System Options > Storage and click SD Card.
3. Click Format and select the desired file system.

Note
During formatting any previous data stored on the disk will be lost.

Mounting is done automatically when the card is inserted or when the product is started. A manual mount is only required if the card has been unmounted and not ejected and re-inserted.

To unmount the SD card:

1. Go to System Options > Storage and click SD Card.
2. Click Unmount.
System Options

3. The card can now be removed.

The SD card is managed on the System Options > Storage page. Click SD Card to open Storage Management.

If the card's status shows as failed, click Check disk to see if the problem can be found and then try Repair. This option is only available for SD cards with ext4. For SD cards with vFAT, use a card reader or computer to troubleshoot the card.

To avoid filling the card, it is recommended to remove recordings continuously. Under Recording Settings, select Remove recordings older than and select the number of days or weeks.

To stop writing to the card and protect recordings from being removed, select Lock under Recording Settings.

Network Share

Network share allows you to add network storage such as a NAS (Network Attached Storage) or any server that uses CIFS (Common Internet File System) and use them for storage of recordings.

To add a network share:
1. Go to System Options > Storage.
2. Click Network Share.
3. Enter the IP address, DNS or Bonjour name to the host server in the Host field.
4. Enter the name of the share in the Share field. Sub folders cannot be used.
5. If required, select The share requires login and enter the user name and password.
6. Click Connect.

To clear all recordings and data from the Axis product’s folder on the designated share, click Clear under Storage Tools.

To avoid filling the share, it is recommended to remove recordings continuously. Under Recording Settings, select Remove recordings older than and select the number of days or weeks.

To stop writing to the share and protect recordings from being removed, select Lock under Recording Settings.

Ports & Devices

I/O Ports

The Axis product provides one input port and one output port for connection of external devices. For information on how to connect external devices, see Connectors, on page 8.

The I/O ports are configured under System Options > Ports & Devices > I/O Ports. The ports can be given descriptive names and their Normal states can be configured as Open circuit or Grounded circuit.

COM Port

The Axis product has one RS-485/RS-422 serial port. The port supports the following modes:

- Generic HTTP allows the Axis product to receive data and send commands via HTTP.
- Pan Tilt Zoom is used to control a PTZ device. The PTZ device requires a driver. See Installing a PTZ driver for more information. Drivers can be downloaded from www.axis.com
- Generic TCP/IP allows the Axis product to receive data and send commands via TCP/IP. Daisy chain server - Allows Daisy chain clients to communicate with the Axis product.

Select the desired Port Type from the drop-down list. For more information on Serial Port Settings and Daisy Chain Port Settings see the online help 📖.
Port Status

The list on the System Options > Ports & Devices > Port Status page shows the status of the product’s input and output ports.

Maintenance

The Axis product provides several maintenance functions. These are available under System Options > Maintenance.

Click Restart to perform a correct restart if the Axis product is not behaving as expected. This will not affect any of the current settings.

Click Restore to reset most settings to the factory default values. The following settings are not affected:

- the boot protocol (DHCP or static)
- the static IP address
- the default router
- the subnet mask
- the system time
- the IEEE 802.1X settings
- the focus position
- uploaded applications are kept but must be restarted

Click Default to reset all settings, including the IP address, to the factory default values. This button should be used with caution. The Axis product can also be reset to factory default using the control button, see Reset to Factory Default Settings, on page 53.

To identify the product or test the Status LED, click Flash LED under Identify and specify the duration in seconds, minutes or hours. This can be useful for identifying the product among other products installed in the same location.

For information about firmware upgrade, see Upgrading the Firmware, on page 55.

Support

Support Overview

The System Options > Support > Support Overview page provides information on troubleshooting and contact information, should you require technical assistance.

See also Troubleshooting, on page 55.

System Overview

To get an overview of the Axis product’s status and settings, go to System Options > Support > System Overview. Information that can be found here includes firmware version, IP address, network and security settings, event settings, image settings and recent log items. Many of the captions are links to the proper Setup page.

Logs & Reports

The System Options > Support > Logs & Reports page generates logs and reports useful for system analysis and troubleshooting. If contacting Axis Support, please provide a valid Server Report with your query.

System Log – Provides information about system events.

Access Log – Lists all failed attempts to access the product. The Access Log can also be configured to list all connections to the product (see below).
AXIS P1355–E Network Camera

System Options


You can view or download the server report. Downloading the server report creates a .zip file that contains a complete server report text file in UTF-8 format. Select the Include snapshot with default image settings option to include a snapshot of the product’s Live View that also shows the settings specified under Video Stream>Image>Image Appearance. The server report .zip file should always be included when contacting support.

Parameter List – Shows the product’s parameters and their current settings. This may prove useful when troubleshooting or when contacting Axis Support.

Connection List – Lists all clients that are currently accessing media streams.

Crash Report – Generates an archive with debugging information. The report takes several minutes to generate.

The log levels for the System Log and the Access Log are set under System Options > Support > Logs & Reports > Configuration. The Access Log can be configured to list all connections to the product (select Critical, Warnings & Info).

Advanced

Scripting

Scripting allows experienced users to customize and use their own scripts.

**NOTICE**

Improper use may cause unexpected behavior and loss of contact with the Axis product.

Axis strongly recommends that you do not use this function unless you understand the consequences. Axis Support does not provide assistance for problems with customized scripts.

To open the Script Editor, go to System Options > Advanced > Scripting. If a script causes problems, reset the product to its factory default settings, see page 53.

For more information, see www.axis.com/developer

File Upload

Files, for example web pages and images, can be uploaded to the Axis product and used as custom settings. To upload a file, go to System Options > Advanced > File Upload.

Uploaded files are accessed through http://<ip address>/<local>/<user>/<file name> where <user> is the selected user group (viewer, operator or administrator) for the uploaded file.

Plain Config

Plain Config is for advanced users with experience of Axis product configuration. Most parameters can be set and modified from this page. Help is available from the standard help pages.

To open Plain Config, go to System Options > Advanced > Plain Config. Axis Support does not provide assistance.

Reset to Factory Default Settings

**Important**

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

To reset the product to the factory default settings:
AXIS P1355–E Network Camera

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1. Disconnect power from the product.
2. Press and hold the control button and reconnect power. See Hardware Overview, on page 6.
3. Keep the control button pressed for about 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 tools provided on the Installation and Management Software CD to assign an IP address, set the password and access the video stream. This information is also available from the support pages on www.axis.com/techsup
6. Refocus the product.

It is also possible to reset parameters to factory default via the web interface. Go to Setup > System Options > Maintenance.
Troubleshooting

Checking the Firmware

Firmware is 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. The current firmware version in the Axis product is displayed in the page Setup > Basic Setup and in Setup > About.

Upgrading the Firmware

When you upgrade the product with the latest firmware from Axis website, 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 upgrade, follow these instructions:

1. Save the firmware file to your computer. The latest version of the firmware is available free of charge from Axis website at www.axis.com/techsup
2. Go to Setup > System Options > Maintenance in the products web pages.
3. Under Upgrade Server, click Browse and locate the file on your computer. Click Upgrade.

After starting the upgrade process, always wait at least 5–10 minutes before restarting the product, even if you suspect the upgrade has failed.

AXIS Camera Management can be used for multiple upgrades. See www.axis.com for more information.

Note

- Your dealer reserves the right to charge for any repair attributable to faulty upgrade by the user.
- Preconfigured and customized settings are saved when the firmware is upgraded (providing the features are available in the new firmware) although this is not guaranteed by Axis Communications AB.

Emergency Recovery Procedure

If power or network connection is lost during the upgrade, the process fails and the product becomes unresponsive. Flashing red Status indicator indicates a failed upgrade. To recover the product, follow the steps below. The serial number is found on the product's label.

1. In UNIX/Linux, type the following from the command line:
AXIS P1355–E Network Camera

Troubleshooting

arp -s <IP address> <serial number> temp
ping -l 408 <IP address>

In Windows, type the following from a command/DOS prompt (this may require that you run the command prompt as an administrator):

arp -s <IP address> <serial number>
ping -l 408 -t <IP address>

2. If the product does not reply in 30 seconds, restart it and wait for a reply. Press CTRL+C to stop Ping.

3. Open a browser and type in the product’s IP address. In the page that appears, use the Browse button to select the upgrade file to use. Then click Load to restart the upgrade process.

4. After the upgrade is complete (1–10 minutes), the product automatically restarts and shows a steady green on the Status indicator.

5. Reinstall the product, referring to the Installation Guide.

If the emergency recovery procedure does not get the product up and running again, contact Axis support at www.axis.com/techsup/

Symptoms, Possible Causes and Remedial Actions

Problems setting the IP address

<table>
<thead>
<tr>
<th>When using ARP/Ping</th>
<th>Try the installation again. The IP address must be set within two minutes after power has been applied to the product. Ensure the Ping length is set to 408. For instructions, see Assign IP Address using ARP/Ping, on page 46.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The product is located on a different subnet</td>
<td>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 will not be able to set the IP address. Contact your network administrator to obtain an IP address.</td>
</tr>
</tbody>
</table>
| 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 ping and the IP address of the product:  
- If you receive: Reply from <IP address>: bytes=32; time=10... 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: Request timed out, 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 http or https 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 Reset to Factory Default Settings, on page 83.
# Troubleshooting

## 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, see the Installation and Management Software CD or the document Assign an IP Address and Access the Video Stream on Axis Support web at www.axis.com/techsup

## Certificate error when using IEEE 802.1X

For authentication to work properly, the date and time settings in the Axis product should be synchronized with an NTP server. See Date & Time, on page 44.

## The product is accessible locally but not externally

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Router configuration</td>
<td>To configure your router to allow incoming data traffic to the Axis product, enable the NAT-traversal feature which will attempt to automatically configure the router to allow access to the Axis product, see NAT traversal (port mapping) for IPv4, on page 48. The router must support UPnP®.</td>
</tr>
<tr>
<td>Firewall protection</td>
<td>Check the Internet firewall with your network administrator.</td>
</tr>
<tr>
<td>Default routers required</td>
<td>Check if you need to configure the router settings from System Options &gt; Network &gt; TCP/IP &gt; Basic.</td>
</tr>
</tbody>
</table>

## Problems with streaming H.264

<table>
<thead>
<tr>
<th>Problem Description</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problems with AXIS Media Control (Internet Explorer only)</td>
<td>To enable the updating of video images in Internet Explorer, set the browser to allow ActiveX controls. Also, make sure that AXIS Media Control is installed on your computer.</td>
</tr>
<tr>
<td>No H.264 displayed in the client</td>
<td>Check that the relevant H.264 connection methods and correct interface are enabled in the AMC Control Panel (streaming tab). See AXIS Media Control (AMC), on page 16.</td>
</tr>
<tr>
<td>In the AMC Control Panel, select the H.264 tab and click Set to default H.264 decoder.</td>
<td></td>
</tr>
<tr>
<td>Check that RTSP is enabled under System Options &gt; Network &gt; TCP/IP &gt; Advanced.</td>
<td></td>
</tr>
<tr>
<td>Multicast H.264 only accessible by local clients</td>
<td>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.</td>
</tr>
<tr>
<td>No multicast H.264 displayed in the client</td>
<td>Check with your network administrator that the multicast addresses used by the Axis product are valid for your network.</td>
</tr>
<tr>
<td>Installation of additional ActiveX component restricted or prohibited</td>
<td></td>
</tr>
<tr>
<td>Poor rendering of H.264 images</td>
<td>Ensure that your graphics card is using the latest driver. The latest drivers can usually be downloaded from the manufacturer’s website.</td>
</tr>
<tr>
<td>Color saturation is different in H.264 and Motion JPEG</td>
<td>Modify the settings for your graphics adapter. Refer to the adapter’s documentation for more information.</td>
</tr>
</tbody>
</table>
# Troubleshooting

<table>
<thead>
<tr>
<th>Issue</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower frame rate than expected</td>
<td>See <em>Performance Considerations</em>, on page 63. 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. Check in the AMC Control Panel (H.264 tag) that video processing is NOT set to Decode only key frames. Lower the image resolution. The maximum frames per second is dependent on the utility frequency (60/50 Hz) of the Axis product. See <em>Technical Specifications</em>, on page 59.</td>
</tr>
<tr>
<td>Status and Network indicator LEDs are flashing red rapidly</td>
<td>Hardware failure: Contact your Axis reseller.</td>
</tr>
<tr>
<td>Video and image problems, general</td>
<td>Image unsatisfactory: Check the video stream and camera settings under Setup &gt; Video &amp; Audio &gt; Video Stream and Setup &gt; Video &amp; Audio &gt; Camera Settings.</td>
</tr>
<tr>
<td>Motion Detection triggers unexpectedly</td>
<td>Changes in luminance: Motion detection is based on changes in luminance in the image. This means that if there are sudden changes in the lighting, motion detection may trigger mistakenly. Lower the sensitivity setting to avoid problems with luminance.</td>
</tr>
<tr>
<td>No audio</td>
<td>Incorrect setup: Check the sound card in the computer. Ensure that mute is not selected and that the volume settings are correct. Check that Enable audio support is selected under Setup &gt; System Options &gt; Security &gt; Audio Support. Check that the correct Audio Input source is selected under Setup &gt; Video &amp; Audio &gt; Audio Settings.</td>
</tr>
<tr>
<td>Poor audio quality</td>
<td>Stuttering: Reduce the number of listeners and viewers. Decrease image resolution and compression. Unsynchronized audio and video using H.264: Synchronize the product’s date and time settings with an NTP server. Go to Setup &gt; System Options &gt; Date &amp; Time. Distorted audio: Check that the correct Audio Input source is selected under Setup &gt; Video &amp; Audio &gt; Audio Settings. Feedback loops: Feedback loops might appear in full-duplex mode. Try moving the microphone or the speaker, or use half-duplex mode instead.</td>
</tr>
<tr>
<td>Storage and disk management problems</td>
<td>Video cannot be recorded: Check that the SD card is not write protected (that is, read only). SD card cannot be mounted: Reformat the SD card and then click Mount.</td>
</tr>
</tbody>
</table>
# AXIS P1355–E Network Camera

## Technical Specifications

### Function/group | Item | Specifications
--- | --- | ---
**Camera** | Model | AXIS P1355–E
 | Image sensor | Progressive scan RGB CMOS 1/2.8"
 | Lens | Varifocal 2.8 – 8 mm, F1.2, P-iris, IR corrected, CS-mount
 |  | Horizontal angle of view 80° – 39°
 |  | Vertical angle of view 58° – 22°
 |  | Diagonal angle of view 103° – 44°
 |  | Remote back focus
 |  | Focus range 0.3 m to infinity
 | Day and night functionality | Automatically removable infrared-cut filter
 | Minimum illumination | Color: 0.2 lux, F1.2
 |  | B/W: 0.04 lux, F1.2
 | Shutter time | 1/33500 s to 2 s

### Video

<table>
<thead>
<tr>
<th>Video compression</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>H.264</td>
<td>MPEG-4 Part 10/AVC, Baseline and Main Profile</td>
</tr>
<tr>
<td>Motion JPEG</td>
<td></td>
</tr>
</tbody>
</table>

| Resolutions | 1920×1080 to 160×90 |
| Frame rate | |
| H.264 | 30 fps in 60Hz capture frequency |
|  | 25 fps in 50Hz capture frequency |
| Motion JPEG | 30 fps in 60Hz capture frequency |
|  | 25 fps in 50Hz capture frequency |

| Video streaming | Multiple, individually configurable streams in H.264 and Motion JPEG |
|  | Controllable frame rate and bandwidth |
|  | VBR/CBR H.264 |

| Pan/Tilt/Zoom | Digital P/TZ |
|  | Preset positions |
|  | Guard tour |

### Image settings

| Compression, color, brightness, sharpness, contrast, white balance, exposure control, exposure zones |
| Backlight compensation, fine tuning of behavior at low light, dynamic contrast |
| Mirroring of images |
| Text and image overlay |
| Privacy mask |

### Audio

| Audio streaming | Two-way, full duplex |

| Audio compression | AAC LC 8 kHz 32 kbit/s, 16 kHz 64 kbit/s |
|  | G.711 PCM 8 kHz 64 kbit/s |
|  | G.726 ADPCM 8 kHz 32 kbit/s or 24 kbit/s |
|  | Configurable bit rate |

| Audio input | 3.5 mm jack for mic/line in, max 80 mVpp for microphone/max 6.2 Vpp for line signal |
|  | Impedance: Min 1 kΩ, Mic-Power activated; Min 4 kΩ line |
|  | Tip: Signal/Bias |
|  | Ring: Bias |
|  | Sleeve: Ground |
|  | Power to external electret microphone: 1.3 V – 2.6 V (DC) |
|  | SNR: > 70dB |

| Audio output | 3.5 mm jack for line out. min 1.8 Vpp |
|  | SNR: > 70dB |
|  | Output impedance: Max 100 Ω, normal <1Ω |
# Technical Specifications

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<td>Network</td>
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<td>Password protection, IP address filtering, HTTPS encryption, IEEE 802.1X network access control, digest authentication, user access log</td>
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<tr>
<td>Supported protocols</td>
<td>IPv4/v6, HTTP, HTTPS, SSL/TLS, QoS Layer 3 DiffServ, FTP, CIFS/SMB, SMTP, Bonjour, UPnP™, SNMPv1/v2c/v3(MIB-II), DNS, DynDNS, NTP, RTSP, RTP, TCP, UDP, IGMP, RTCP, ICMP, DHCP, ARP, SOCKS</td>
<td></td>
</tr>
<tr>
<td>System Integration</td>
<td>Application Programming Interface</td>
<td>Open API for software integration, including the ONVIF specification available at <a href="http://www.onvif.org">www.onvif.org</a>, as well as VAPIX® and AXIS Camera Application Platform from Axis Communications, specifications available at <a href="http://www.axis.com">www.axis.com</a> Support for AXIS Video Hosting System (AVHS) with One-Click Camera connection Support for AXIS Camera Companion (ACC)</td>
</tr>
<tr>
<td>Intelligent video</td>
<td>Video motion detection, active tampering alarm, audio detection, Support for AXIS Camera Application Platform enabling installation of additional applications</td>
<td></td>
</tr>
<tr>
<td>Triggers</td>
<td>Intelligent video</td>
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<td>PTZ preset</td>
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<td>PIZ moving</td>
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<td>Network lost</td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Notification via email, HTTP and TCP</td>
<td></td>
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<td>External output activation</td>
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<td>Video and audio recording to edge storage</td>
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<td>Pre- and post-alarm video buffering</td>
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<td></td>
<td>Day/Night switching</td>
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<td>Status LED activation</td>
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<td></td>
<td>Playing audio clips</td>
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<tr>
<td></td>
<td>PIZ preset</td>
<td></td>
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<tr>
<td></td>
<td>Guard tour</td>
<td></td>
</tr>
<tr>
<td>Video access from web browser</td>
<td>Camera live view</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Video and audio recording to file (ASF)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Customizable HTML pages</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Windows 7, Windows Vista, Windows XP, Windows Server 2008, Windows Server 2003</td>
<td>Direct X 9c or higher For other operating systems and browsers, see <a href="http://www.axis.com/techsup">www.axis.com/techsup</a></td>
</tr>
<tr>
<td>Management and maintenance</td>
<td>AXIS Camera Management tool on CD and web-based configuration Firmware upgrades over HTTP or FTP, firmware available on <a href="http://www.axis.com">www.axis.com</a></td>
<td></td>
</tr>
<tr>
<td>Installation aids</td>
<td>Focus assistant</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pixel counter</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Remote back focus</td>
<td></td>
</tr>
</tbody>
</table>
### Function/group

<table>
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<th>Item</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
<td></td>
</tr>
</tbody>
</table>
| Casing | IP66- and NEMA 4X-rated, IK10 impact-resistant aluminum enclosure  
Color: white NCS S 1002-B |
| Processor, memory | ARTPEC-4, 256 MB RAM, 128 MB Flash  
Battery backed-up real-time clock |
| Power | PoE IEEE 802.3af max. 12.95 W or High PoE max 25.5 W |
| Connectors | RJ45 10BASE-T/100BASE-TX PoE  
I/O: 4-pin 2.50 mm terminal block, for 1 alarm input and 1 output  
RS-485/422, 2 pcs, 2 pos, full duplex, terminal block  
3.5 mm jack for mic in [max 80 mVpp] or line mono input (max 6.2 Vpp)  
3.5 mm jack for line mono output (max 2.8 Vpp) to active speaker |
| Edge storage | MicroSD/microSDHC/micro/SDXC slot supporting memory card up to 64 GB (card not included). Support for recording to network share (Network Attached Storage or file server). |
| Operating conditions | -30 °C to 50 °C (-22 °F to 122 °F) with PoE; down to -40 °C (-40 °F) with High PoE  
Humidity 10 - 100% RH (condensing) |
| Approvals | EN 55022 Class B, EN 55024, EN 50581, EN/IEC/UL 60950–1, EN/IEC/UL 60950–22, EN 61000–6-1, EN 61000-6-2, EN 50121-4, IEC 62236-4  
IEC 60529 IP66, NEMA 250 Type 4X, IEC 62262, IK10, IEC 60068–2–6, IEC 60068–2–27  
FCC Part 15 Subpart B Class B  
ICES-003 Class B  
VCCI Class B  
C-tick AS/NZS CISPR 22  
KCC KN22 Class B, KN24 |
| Dimensions (HxWxD) | 87/120 x 140/161 x 404 mm (3.4/4.7” x 5.5/6.4” x 15.9”) including sunshield |
| Weight | 3 kg (6.6 lb.) |
| Included accessories | Stand  
Wall mount bracket  
Sunshield  
Connector kit  
Installation Guide  
Installation and Management Software CD  
Windows decoder 1-user license  
Torx T20 screwdriver  
Allen key |
| Video management software (not included) | AXIS Camera Companion (included)  
AXIS Camera Station and video management software from Axis’ Application Development Partners (sold separately). For more information, see www.axis.com/products/video/software |
| Optional accessories | AXIS T90A Illuminators  
AXIS T8414 Installation Display  
AXIS T8123 High PoE Midspan 1-Port  
Mounting accessories  
Lenses |
## Technical Specifications

### Connectors

**I/O terminal connector**

4-pin terminal block for:
- Digital Input
- Digital Output
- Auxiliary power and ground (GND)

<table>
<thead>
<tr>
<th>Function</th>
<th>Pin</th>
<th>Notes</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>GND</td>
<td>1</td>
<td>Ground</td>
<td></td>
</tr>
<tr>
<td>3.3 V DC Power</td>
<td>2</td>
<td>Can be used to power auxiliary equipment.</td>
<td>Max load = 50 mA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Note: This pin can only be used as power out.</td>
<td></td>
</tr>
<tr>
<td>Digital Input</td>
<td>3</td>
<td>Connect to GND to activate, or leave floating (unconnected) to deactivate.</td>
<td>0 to +40 V DC</td>
</tr>
<tr>
<td>Digital Output</td>
<td>4</td>
<td>Internal connection to ground 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.</td>
<td>Max load = 100 mA Max voltage = +40 V DC</td>
</tr>
</tbody>
</table>

![Diagram of connector pins](image)

### Power connector

2-pin terminal block for input.

![Diagram of power connector](image)
Audio connector

3.5 mm audio connectors

<table>
<thead>
<tr>
<th>Function</th>
<th>Pin</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>RS-485/RS-422 TX (A)</td>
<td>1</td>
<td>TX pair for RS422 and 4–wire RS-485</td>
</tr>
<tr>
<td>RS-485/RS-422 TX (B)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>RS-485A alt RS-485/422 RX (A)</td>
<td>3</td>
<td>RX pair for all modes (combined RX/TX for 2–wire RS-485)</td>
</tr>
<tr>
<td>RS-485B alt RS-485/422 RX (B)</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

Performance Considerations

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

The following factors are among the most important to consider:

- High image resolution and/or lower compression levels result in images containing more data. Bandwidth affected.
- Access by large numbers of Motion JPEG and/or unicast H.264 clients. Bandwidth affected.
- Simultaneous viewing of different streams (resolution, compression) by different clients. Effect on frame rate and bandwidth.
- Accessing Motion JPEG and H.264 video streams simultaneously. Frame rate and bandwidth affected.
- Heavy usage of event settings affect the product’s CPU load. Frame rate affected.
- Heavy network utilization due to poor infrastructure. Bandwidth affected.
- Viewing on poorly performing client computers lowers perceived performance. Frame rate affected.