AXIS Panorama PTZ
Network Camera

User's Manual

About This Document

This document is intended for administrators and users of the AXIS Panorama PTZ Network Camera, and is applicable for firmware release 2.34. This document should be used as a supplement to the Installation Guide and online information available via the Web-based interface. Later versions of this document will be posted to the Axis Website, as and when required.

Safety Notices Used In This Manual

Caution! - Indicates a potential hazard that can damage the product.

Important! - Indicates a hazard that can seriously impair operation.
Do not proceed beyond any of the above notices until you have fully understood the implications.

Intellectual Property Rights

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.

Legal Considerations

Camera surveillance can be prohibited by laws that vary from country to country. Check the laws in your local region before using the AXIS Panorama PTZ for surveillance purposes.

Electromagnetic Compatibility (EMC)

This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. Shielded cables should be used to ensure compliance with EMC standards.

USA - This equipment has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart B of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his/her own expense will be required to take whatever measures may be required to correct the interference.

Europe $C\epsilon$ - This digital equipment fulfills the requirements for radiated emission according to limit B of EN55022/1994, and the requirements for immunity according to EN55024/1998 residential, commercial, and light industry.

Liability

Every care has been taken in the preparation of this manual; if you detect any inaccuracies or omissions, please inform your local Axis office. Axis Communications AB cannot be held responsible for any technical or typographical errors and reserves the right to make changes to the product and manuals without prior notice. Axis Communications AB makes no warranty of any kind with regard to the material contained within this document, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Axis Communications AB shall not be liable nor responsible for incidental or consequential damages in connection with the furnishing, performance or use of this material.

Trademark Acknowledgments

Acrobat, Adobe, Boa, Ethernet, IBM, Internet Explorer, LAN Manager, Linux, Macintosh, Microsoft, Netscape Navigator, OS/2, Scalado, UNIX, Windows, WWW are registered trademarks of the respective holders. Java and all Java-based trademarks and logos are trademarks or registered trademarks of Sun Microsystems, Inc. in the United States and other countries. Axis Communications AB is independent of Sun Microsystems Inc.

Support Services

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 firmware updates.
- Find answers to resolved problems in the FAQ database. Search by product, category, or phrases.
- Report problems to Axis support staff by logging in to your private support area.

Visit the Axis Support Web at www.axis.com/techsup/

AXIS Panorama PTZ Network Camera User's Manual
Revision 1.0
Part no: 20188
Dated: June 2003
Copyright © Axis Communications AB, 2003

Table of Contents

Overview

The AXIS Panorama PTZ Network Camera is a digital TCP/IP network camera kit that includes 2 cameras with wide-angle lenses, a complete camera stand, and all of the required networking connectivity for distributing images or live video over an intranet or the Internet.

By mounting the 2 cameras on the special stand provided, the combination of the cameras and the special software installed in them provides a lateral view of up to approximately 140 degrees. Special **Pan**, **Tilt** and **Zoom** controls are also provided, so that users can quickly and easily steer the view to any point in the panorama.

The AXIS Panorama PTZ's built-in Web server allows high-quality remote surveillance images to be viewed directly from any browser on the network, and provides full Web-based control of the various management and configuration functions.

The AXIS Panorama PTZ can be used in both indoor and outdoor environments. When used outdoors, the cameras must be housed in a suitable outdoor enclosure.

Use the camera for intruder detection, process control, industrial and public surveillance, visual security, image archiving, or any other application requiring remote monitoring.

The AXIS Panorama PTZ minimizes the need for costly and complex coaxial cabling - to press your installation overheads and provide you with an advanced yet cost-effective network imaging solution. None of the hidden accessories normally associated with digital cameras are required.

Features and Benefits

140 degrees of lateral view - The image stream from the AXIS Panorama PTZ features a wide lateral display of almost 140 degrees and up to 65 degrees of tilt. The controls in the web interface allow the image to be zoomed, tilted up and down and panned from right to left. Multiple viewers can see any part of the panorama, independently of each other.

Full coverage all the time - The full field of view is constantly being covered. Even if a user is zoomed in on a particular part of the view, images are still streamed from the whole panorama, which is useful if you are recording (see below) from one particular part of the view, but are viewing another part. This allows you to go back and view the part you weren't looking at at the time of the event.

Continuous recording - The entire panorama can be recorded continuously, or after an alarm event has occurred. Images are sent from the two cameras regardless of pan, tilt and zoom actions by users, and in a non-panorama raw format. This is an advantage if images are to be used as evidence in legal proceedings, as they are then in their original unaltered state. Note that recording/upload must be configured for each camera.

Static Camera - The AXIS Panorama PTZ is defined as a static camera, that is, the camera combination does not physically move when the panorama is viewed (there are no moving parts at all). This can be significant when using the camera in a surveillance situation where manoeverable cameras are prohibited.

Easy to Use - The AXIS Panorama PTZ requires no other special hardware or software. All you need is Microsoft Internet Explorer 4.x or above. The AXIS Panorama PTZ has complete plug-and-picture functionality - just assign an IP address and then view live images in your browser.

Simple Installation and administration - Connects directly to Ethernet or Fast Ethernet networks. Configuration and management via the product's own Web-based Administration Tools. Image control, time stamping and upload configuration are all accessible from the tools.

Outdoor Use - When installed in an appropriate outdoor housing, the AXIS Panorama PTZ can be used in outdoor applications.

Standard Image Format - The AXIS Panorama PTZ delivers high-quality pictures in standard JPEG format, one from each camera. These are then joined together by the Panorama application.

High Compression and Sensitivity - The fully configurable compression features afforded by the AXIS ARTPEC chip allow a normal quality image to be compressed to around 8 kbytes. Actual file sizes vary according to lighting conditions; although the product will work even in dark environments - right down to 1 lux.

External Device Connection - Can be used with IR-sensors, switches and alarm relays.

Security - By using the AXIS Panorama PTZ's multi-user password protection in combination with a company Internet firewall, an administrator can decide whether individuals, groups, the whole company or the whole world can access the camera.

Compression and Performance - With an adaptive frame rate dependent on the prevailing lighting conditions, the AXIS Panorama PTZ delivers Motion-JPEG images at up to 15 images per second, as well as single JPEG images that feature user-defined compression levels.

Linux Operating System - Including a Boa Web server, the Linux operating system provides a stable platform for open-source development in future releases of the product. In accordance with the *GNU General Public License*, Axis have published the kernel for this product at **http://developer.axis.com/**

AXIS Technology - Axis renowned chipset technology is built upon an open architechture streamlined to provide device connectivity independent of any file server. The AXIS Panorama PTZ is driven by a powerful AXIS ETRAX 32-bit RISC processor and includes the industry's first dedicated digital video remote monitoring compression chip - the AXIS ARTPEC-1.

Network Camera Servers Developer's Pages - Axis maintains a specialist site for network camera developers. New ideas and tools for software developers are often added. For more information, please visit: **www.axis.com**

Other functions and features - The AXIS Panorama PTZ is intended primarily as a "live view" panorama camera. The product may however contain other unsupported functions and features not covered in this manual. For further information please see the AXIS 2110 User's Manual, available from www.axis.com

Physical Description

Please read the following information to familiarize yourself with the AXIS Panorama PTZ, making particular note of where the connectors and indicators are located. This information provides a useful reference during the installation of the product.

Front Panel

Status Indicator
Used in conjunction with the Focus Assistant, this multi-colored indicator can be configured for use as a local focusing aid (for further details please see page 19). Under normal conditions however, the indicator shows the operational status of the camera, as described below:

- green - indicates a healthy unit status.
- red - the indicator will display red only if a problem with the AXIS Panorama PTZ has occurred. Refer to *Appendix B - Troubleshooting*.

Note: The Status indicator also displays orange when re-setting to the factory default settings, as described on page 18. The Status Indicator can also be made to flash whenever images are displayed in a browser. See the on-line help for more information.

Control Button
Located to the left of the lens assembly, this button is recessed within the product casing. Using a pointed object, press the button to restore the factory default settings as described in *Reinstating the Factory Default Settings,* on page 18; or to enable the Focus Assistant, as described in *Lenses and Focusing,* on page 19.

Lens Assembly
Manual iris wide-angle lens, with rotational focus control.

Serial Number
Located on the underside label of the AXIS Panorama PTZ, the serial number is identical to the unit's MAC/Ethernet address.

Important!

Although the AXIS Panorama PTZ can be used both indoors and outdoors, it is important to note that the charged coupled device (CCD) in the camera can become permanently damaged if exposed to too much direct sunlight or halogen light. It is therefore important that the Adjustment Ring is not set fully open when installing the camera in bright light conditions. The Axis warranty does not cover CCD damage caused by prolonged exposure to strong light. To use the product outdoors, it must be housed within a proper outdoor enclosure.

Rear Panel

● **Network Indicator**
After completion of the startup and self test routines, this multi-colored indicator flashes as follows:

- yellow - activity on a 10Mbps network
- green - activity on a 100Mbps network
- red - no physical connection to the network

● **Power Indicator**
Normally lit when power is applied. If not lit, or if flashing, there is a problem with the external power source.

Network Connector ●
The AXIS Panorama PTZ connects 10/100 Mbps Ethernet networks via a twisted pair category 5 cable (10baseT and 100baseTX), terminated using a standard RJ-45 connector. The AXIS Panorama PTZ detects the speed of the local network segment and varies the speed of data communication accordingly.

● **Power Supply Connector**
A single Jack socket (PS-D) for connection of AXIS Panorama PTZ power supply. The terminal block connector provides an auxiliary connection point for AC or DC power to the unit.

I/O Connector ●
Provides the physical interface to a digital output, and a single digital photo-coupled input that is used for connecting a variety of external alarm devices to the AXIS Panorama PTZ; including, IR-sensors, switches and alarm relays. For more information on using these devices, please see the AXIS 2110 User's Manual.

● **RS-232 Serial Connector**
The serial connector provides the RS-232 interface for connecting a modem or the AXIS 2191 Audio Module (these functions are not supported.)

Note: The power adapter supplied with your AXIS Panorama PTZ is country-specific. Please check that the type you are using is correct.

Assembling the AXIS Panorama PTZ

The information provided in this section will help you unpack and assemble the product correctly. Please contact your dealer if anything is missing or damaged.

Hardware Inventory

The following items are supplied with the AXIS Panorama PTZ:

Item	Description/type	Quantity
Network Camera	AXIS Panorama PTZ Network Camera	2
Power adapter	PS-D	2
Power extension cable	3.3 meters	2
Camera Stand	-	1
Mounting bracket	-	1
Printed Materials	AXIS Panorama PTZ Installation Guide	1
	AXIS Warranty	1

Note: The power supply for your AXIS Panorama PTZ is country-specific. Please check that the type you are using is correct.

The Mounting Assembly

The mounting assembly consists of a single bracket, used to join the 2 cameras together, and a single stand, on which the bracket and the 2 cameras are mounted. See below.

The cameras are mounted as shown here, one the right way up and the other upside-down. The underside of each camera has one screw hole and one guide hole, so that the bracket can only be fitted in the correct position.

Although the screw holes in the base of the stand allow the unit to be fastened to a wall or ceiling, the cameras must still be horizontal. This can be achieved by adjusting the ball and socket joint on the stand by up to 90°.
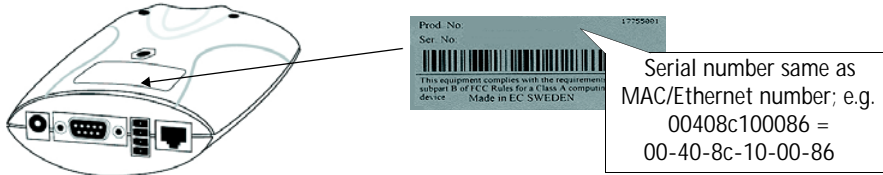
Screw hole and guide hole.

Ball and socket joint.

Important!

Please read the important information about outdoor use, on page 19.

Network Installation

The AXIS Panorama PTZ Network Camera includes 2 cameras. The installation procedure described below should be followed for each camera. 2 IP addresses are required.

❶ Note the Serial number on the underside of the unit. You need to know this to set the IP address.

Prod. No.   17755001
Ser. No.

This equipment complies with the requirement subpart B of FCC Rules for a Class A computin device   Made in EC SWEDEN

Serial number same as MAC/Ethernet number; e.g. 00408c100086 = 00-40-8c-10-00-86

❷ Assign your product with a unique IP address (do **not** use the example address) from a computer on your network, as follows:

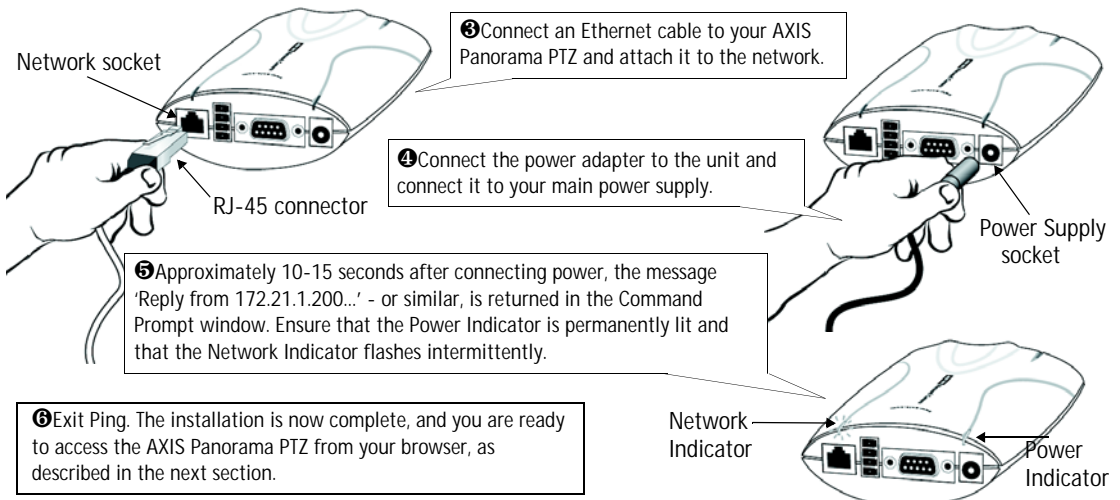Start a Command Prompt and type these commands:

Syntax:

```
arp -s <Camera IP address> <MAC address> <my PC IP address>
ping -t <Camera IP address>
```

Example:

```
arp -s 172.21.1.200 00-40-8c-10-00-86 172.21.1.193
ping -t 172.21.1.200
```

Notes: • In Windows you can find out the IP address of your workstation by running `winipcfg` (Win 95/98/ME) or `ipconfig` (Win NT/2000/XP) from a command prompt.

• Server Privileges: Although no special privileges are required for Windows 95/98/XP-Home, you do need Administrator privileges for Windows NT/2000/XP-Professional.

You will now see '`Request timed out ...`' messages repeatedly returned in the window.

Network socket

❸ Connect an Ethernet cable to your AXIS Panorama PTZ and attach it to the network.

❹ Connect the power adapter to the unit and connect it to your main power supply.

RJ-45 connector

Power Supply socket

❺ Approximately 10-15 seconds after connecting power, the message 'Reply from 172.21.1.200...' - or similar, is returned in the Command Prompt window. Ensure that the Power Indicator is permanently lit and that the Network Indicator flashes intermittently.

❻ Exit Ping. The installation is now complete, and you are ready to access the AXIS Panorama PTZ from your browser, as described in the next section.

Network Indicator

Power Indicator

Verifying and Completing the Installation From Your Browser

To access the AXIS Panorama PTZ, start your browser and enter the IP address of either camera in the location or address field, e.g. 171.21.1.200.
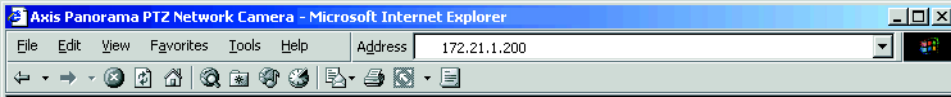
This opens the **Live View** page, which is the default application page. The page provides a link to the product's **Administration Tools**, providing access to all of the camera's settings, including those for the Panorama application, which must be configured correctly before use. Please see *Configuration,* on page 12.
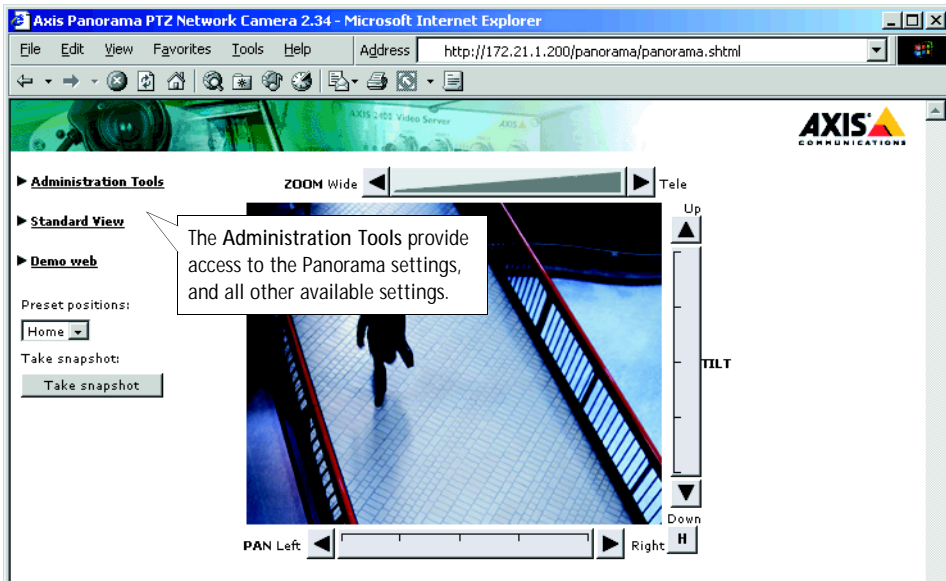
To quickly find information and help when using the camera, please refer to the **Online help**, available from the administration tool pages.

Important!

- To enable the Panorama application, you must set Microsoft Internet Explorer to allow ActiveX controls and install the Axis Panorama Viewer ActiveX component onto your computer. The application will not function without this component.
- When accessing the Admin Tools for the first time in a browser, you will not be prompted for a username or password. You will be assumed to be the Administrator and will automatically be logged on as such, with the user name root and the default password pass. This root password should, however, be changed as soon as possible, to enable the security function. Also, all Axis products are shipped with the same password as default. For more information, refer to *System Security,* on page 17.

Configuration

Having installed your AXIS Panorama PTZ and confirmed that it is accessible on the network, it is now ready for further configuration. Please note that **both** cameras must be installed and configured.

This section provides information on the minimum configuration necessary for the AXIS Panorama PTZ, help on configuring the Panorama application, as well as a general overview of the Web-based *Administration Tools*.

Minimum Configuration

The minimum configuration required for the AXIS Panorama PTZ should contain the following points:

- Configured TCP/IP network settings, allowing the product to communicate on the network
- The password for the default user *Admin* should be changed, to enable the security function
- Users should be defined and added, thus providing these with access to the camera

Although not required, you may also wish to configure the following:

- The system date and time.
- Images settings for resolution, brightness, compression, etc. Note that to maintain balance in the Panorama application, these image settings should be made in each camera.

All of these settings can be configured and/or modified at any time from the Administration Tools. Please see the product's Online Help 🛈 for more information.

Important!

- To access the Administration Tools, the product must first be installed on the network, as described in *Network Installation,* on page 10.
- Javascript must be enabled in your Web browser for the AXIS Panorama PTZ Web-based interface to work.

Configuring the Panorama Application

After completing the minimum configuration of the AXIS Panorama PTZ's 2 cameras, click **Panorama** in the Administration Tools. Note that the Panorma settings only need to be made in **one** of the two cameras.

1. Configure/check the IP addresses for the 2 cameras used by the application. The IP address for the camera currently being used for the configuration should already be shown, but the IP address for the other (attached) camera must be entered manually.

2. Select the orientation for each camera, i.e. select which camera will be the right way up and which will be upside down.

3. Set the maximum frame rate to be used, or leave as *Unlimited*.

4. Select the required image size. The available options are 320x240 and 640x480. Other image settings are made in the standard administration tools in each camera. See *Minimum Configuration* above.

Using the Panorama PTZ Tools

The most common way of changing the Panorama view is to use the **Pan**, **Tilt** and **Zoom** bars provided in the product's web page, as shown in the illustration below. The bars can either be clicked anywhere along their length, whereupon they will go directly to that position or zoom, or alternatively, the arrow heads at the ends of each bar can be used, whereupon the position or zoom is changed step-by-step.
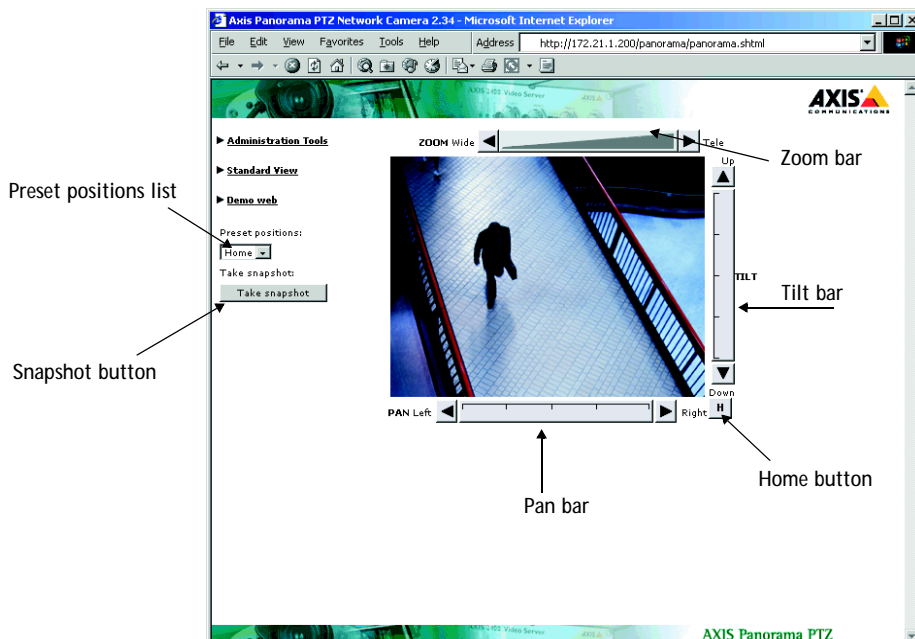
It is also possible to pan and tilt the view simply by left-clicking with the mouse in the image, whereupon the image centers on the clicked position. To zoom in or out, either use the mouse wheel, or right-click in the image and select the operation from the menu that appears. Selecting **Zoom in** or **Zoom out** will change the zoom in steps, whereas selecting **Maximize view** will zoom the image all the way out.

To go to an existing **Preset position** select it from the drop-down list to the left. The view automatically changes to that position. See the following for information on setting up preset positions.

To save a JPEG snapshot of the current view, click the button provided. This will open a dialog asking where the image should be saved. Select the location and click **Save**.

Setting up Preset Postions

A preset position is a defined and saved configuration that steers the panorama view to a pre-configured area of interest. Up to 16 preset positions can be configured.

Preset positions are configured in the Administration tools, by clicking **Panorama**>**PTZ Presets**. To set up a new preset, steer the view to the desired position, by clicking in the image or by using the Pan Tilt and Zoom bars. When at the desired position, enter a descriptive name in the field for **Current Position** and then click the **Save** button.

To set a position as the Home position (that is, the default position that is assumed whenever the Panorama is viewed), position the view as desired, check the box for **Use current position as Home** and finally, click the **Save** button. Any existing position named Home will be overwritten.

The **Preset position time**, configurable from 0.0 to 2.0 seconds, determines how quickly the view changes when selecting another preset position.

The **Click time** is similar to the Preset position time above, but describes instead how quickly the view will change when clicking in the image.
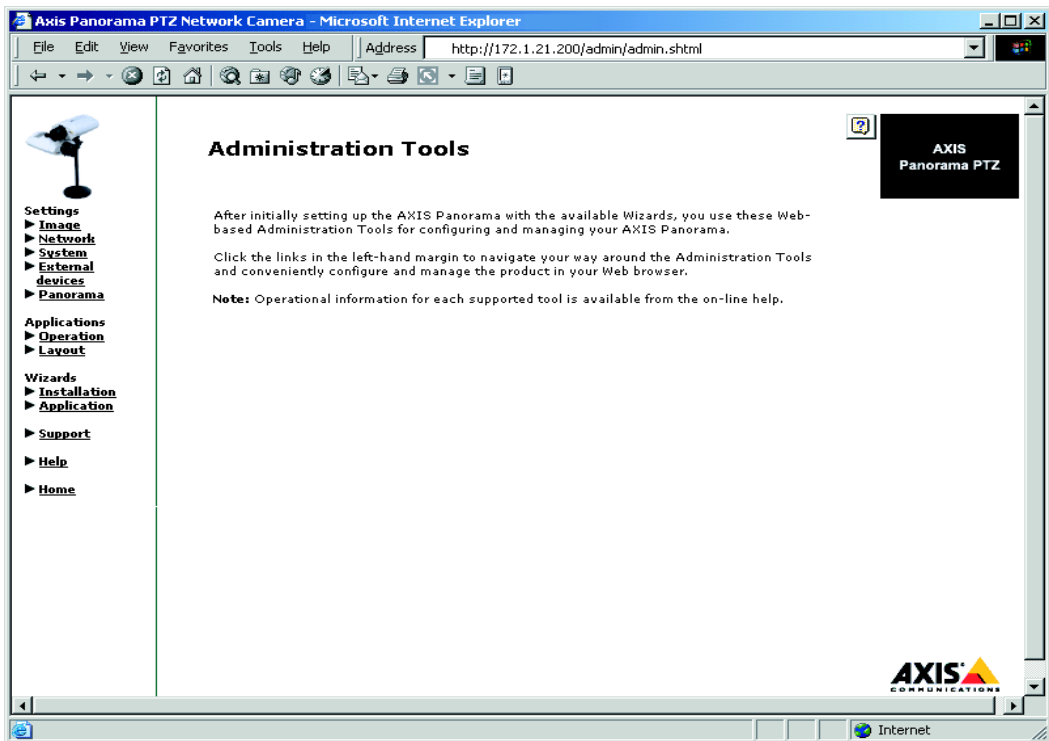
The **Administration Tools**

The Web-based **Administration Tools** are used for configuring and managing your AXIS Panorama PTZ. These tools are can be used at any time for reviewing and/or refining the configuration. The tools are accessed from the Live View page, as shown on page 11.

Important!

- When accessing the *Administration Tools* for the first time during a session, you will be assumed to be the administrator and will be logged in as such, with the username <u>root</u> and default password <u>pass</u>.
- You should change the root password as soon as possible. Until this has been done, the security features in the product be will <u>not</u> be enabled. Furthermore, all Axis products are shipped with the same password by default. For further information, refer to *System Security,* on page 17.

The **Administration Tools** are presented as links in the margin of the Administration Page. Simply click the relevant link for the parameters you wish to configure. The entire system is configured and modifed directly from these tools.

Tools Overview

The table below provides an overview of the **Administration Tools**:

Settings	Tool Description
Image	Focus the camera using the Focus Assistant, and define the image attributes for your AXIS Panorama PTZ.
Network	Configure TCP/IP and SMTP E-mail settings, and make settings for Notification of change in IP address.
System	Set the Date and Time, create and delete Users and passwords, and change the Administrator's password.
External Devices	Set the COM-Port on the AXIS Panorama PTZ to use the AXIS 2191 Audio Module. For further information, please refer to the AXIS 2110 User's Manual.
Panorama	Configure the Panorama application. See page 13.

Applications	Description
Operation	Choose to run your AXIS Panorama PTZ in Sequential or Alarm Mode; determine when and how often images are taken using the *Scheduler;* and define when the images are uploaded to an ISP, or target FTP/Web server. Note that although these options may be enabled and available, their use is not supported. For further information, please refer to the AXIS 2110 User's Manual.
Layout	Determine the Layout for the Web page in which your images will appear. Customize the page to your own design and include your own logos, links and title texts, and enable or disable specific function buttons.

Support	Description
General	Displays various useful information about how and where to get help, as well as providing tools for restarting and resetting the unit.
Help	Starts the product's on-line help

System Security

To prevent unauthorized use, the AXIS Panorama PTZ supports multi-user password protection and access is restricted to **defined users only**. The system *Administrator(s)* has unrestricted access to the camera's *Administration Tools* and can determine the registration and access rights for all *users.*

User Access Rights

Click **System** and then **Users** to perform any of the following tasks:

- edit the **administrator** (*root)* **password**
- define, add and delete **user names** and **passwords**
- assign individual access rights to a selected user, where each user is given one or all of the following levels of access:

     •**Admin**: a user granted *Admin rights* has unrestricted access to the camera's *Administration Tools* and can consequently determine the registration of all *users.*

     •**Dial-in**: provides the user with dial-in modem access to the AXIS Panorama PTZ.

     •**View**: provides the lowest level of access, which allows the user to view the images only. Adding at least one such user will disable anonymous users.

Important!

- The Administrator's default user name and password (set to *root* and *pass*) can be used for logging in to the unit for the first time, but the default password must be changed to enable the camera's security functions. All Axis products are shipped with the same password as default.
- By default, the AXIS Panorama PTZ is set for anonymous user access, which means that anybody on the network can view the video images from a browser. To restrict open access, simply register a single authorized user with viewing rights. This effectively disables the anonymous user service and restricts camera access to specified users. If the anonymous user service is satisfactory for your application, simply do not add any other users.

Reinstating the Factory Default Settings

In certain circumstances, it may be necessary to reinstate the **Factory Default** settings for your AXIS Panorama PTZ. This is performed by clicking the **Support** link in the **Administration Tools** and then selecting **Restart/Reset**, *or* by pressing the **Control Button**. Follow the instructions below to reinstate the product factory default settings using the Control button:

1. Switch off the AXIS Panorama PTZ by disconnecting the power cable.

2. Press and keep the Control Button pressed, and then reconnect the power cable.

3. Keep the Control Button pressed until the Status Indicator displays *yellow* (note that this may take up to 15 seconds), then release the button. When the Status Indicator displays *green* (which can take up to 1 minute) the AXIS Panorama PTZ will then have been reset to the original factory default settings.

Notes: •Reinstating the original default settings will cause all parameters (including the IP address) to be reset.

•Refer to *Network Installation,* on page 10, for information on how to set the camera's IP address.

Appendix A - Lenses and Focusing

The AXIS Panorama PTZ can be focused manually, or with the help of the **Focus Assistant**. The latter is useful if your AXIS Panorama PTZ is located remotely from your viewing workstation. Having positioned the camera, follow the instructions below to focus it.

Important!

> Although the AXIS Panorama PTZ is intended for both outdoor and indoor use, it is important to note that the charged coupled device (CCD) in the camera can become permanently damaged if it is exposed to excessive direct sunlight or halogen light. It is therefore important that the Adjustment Ring is not set fully open when installing the camera in bright light conditions. The Axis warranty does not cover CCD damage caused by prolonged exposure to strong light.

Manual Focusing

❶Power-on the AXIS Panorama PTZ and wait 10 seconds.

❸Start your browser and check the picture.

❷The Iris Adjustment Ring effectively closes and opens the camera lens to regulate the amount of light entering the camera. Closing the ring reduces the amount of light to produce a better depth of field and focus over a greater distance, whereas, a more open lens provides better results in low-light conditions.

Rotate the Iris Adjustment Ring to an appropriate position for your chosen installation, as follows:

- indoor scene - fully open (O)
- outdoor scene - mid position (between C and O)

Iris Adjustment Ring

Focus Ring

❹Rotate the Focus Ring to an appropriate positon - until you are satisfied with the quality of the camera image.

Status Indicator
Control Button
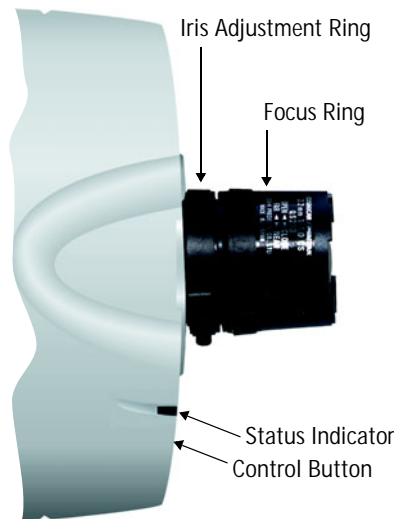
Note: The unit is supplied with the lens set in approximate focus position.

Focusing using the Focus Assistant

The **Status Indicator**, used in conjunction with the **Focus Assistant**, provides an immediate visual display that will help you achieve a good basic level of focus at the point of installation.

Focus Quality

Once set to *Focus Mode*, the **Status Indicator** displays the following colors, which represent predefined levels of focus:

Color	Level of Focus (%)	Focus Quality
Red	0 - 60	Poor
Yellow	60 - 80	Reasonable
Green	80 - 100	Good

Rotational Focus Control

The lens provided with the AXIS Panorama PTZ has rotational focus control that allows the focal length of the lens to be adjusted manually. The lens is used to establish the basic level of focus when the image is stable, that is, when there is little or no movement. Rotate the lens clockwise for close focus, or anti-clockwise for distant focus.

You will probably find that the **Status Indicator** displays green, indicating a *good* level of focus, several times during the full traverse of the lens assembly. This is because several planes of focus exist within the camera's normal field of view.

Focusing the Camera Under Stable Conditions

Before you begin:

> For the focusing algorithm to work effectively, always ensure that there is minimal movement within the camera's field of view when focusing, as described below.

With reference to the illustrations, follow the instructions below to achieve a good basic level of focus under normal stable conditions:

Important!

> Do not press the Control Button for at least 10 seconds after powering on the unit - as this will cause the product to return to the factory default settings.

1. Set the Focus Ring to its extreme far-focus position by turning it fully anti-clockwise.

2. Rotate the Iris Adjustment Ring to an appropriate position for your installation, as follows:

    - indoor scene - fully open (O)
    - outdoor scene - mid position (between C and O)

Status Indicator

Control Button

3. Press and hold the **Control Button** using a paper clip, or any other pointed object (see illustration) - until the **Status Indicator** flashes *Yellow*. This enables the Focus Assistant, sets the Status Indicator to Focus Mode, and simultaneously starts a focusing algorithm that regularly calculates the quality of focus within the camera's field of view.

4. Turn the Focus Ring slowly clockwise until the Status Indicator displays Green; that is, until a *Good* level of focus is achieved. The Status Indicator displays different colors to represent a predefined level of focus (see table below).

5. Return to your browser application and review the picture quality. Repeat step 5 <u>only</u> if you consider the focal distance as too distant - until you are satisfied with both the focal distance and focus quality.

6. To exit the Focus Assistant: press and hold the **Control button** until the Status Indicator **flashes** *Yellow*. The Status Indicator displays *Green* after releasing the button.
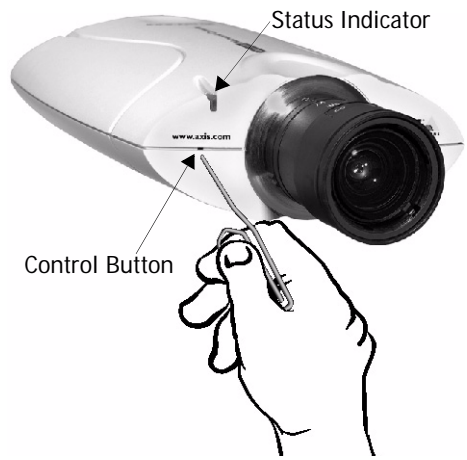
Notes: •The Focus assistant can also be enabled and disabled from the **Image-Focus** page.

•A *Good* level of focus is normally attainable throughout several planes within the camera's focusing spectrum.

•The Status Indicator displays Green to indicate a *Good* level of focus at 80% of optimum focus.

•Since optimum focusing is dependent on the camera's field of view, it is important to scan the focusing plane from the closest to furthest perspectives before attempting any fine-tuning.

Replacing the Lens

The lenses supplied with the AXIS Panorama PTZ are intended specifically for use with the Panorama application. Other compatible lenses may also be used with the cameras, but there is no guarantee that the Panorama application will function correctly. For more information on replacing lenses, please see the AXIS 2110 User's Manual.

Appendix B - Troubleshooting

This appendix provides useful information on solving problems you might have with your AXIS Panorama PTZ.

Pinging Your IP Address

By sending a packet to the specified address and waiting for a reply, the *Ping* utility can determine whether a specific IP-address is accessible. It also provides a useful method for confirming addressing conflicts on the network.

Follow the instructions below in association with *Problems, Possible Causes and Remedial Actions,* on page 23, and run the Ping utility to troubleshoot TCP/IP problems on your network:

1. Start a Command window and type `ping x.x.x.x`, where `x.x.x.x` is the IP address of the AXIS Panorama PTZ.

2. If you receive the reply `destination host unreachable`, then the AXIS Panorama PTZ is not accessible on your subnet. You must obtain a new IP address and reinstall the unit.

If this does not solve the problem, <u>disconnect</u> the AXIS Panorama PTZ from the network and run Ping again. See the table below for an interpretation of the results.

Ping Reply	Interpretation and recommendation
Reply from <IP address>: bytes = 32; time = 10 ms.....	The IP address is already in use and cannot be used again. You must obtain a new IP address.
Request timed out	This IP address is not used and is available for use with your AXIS Panorama PTZ. If you already installed the unit using this IP address, the installation may have failed. Reinstall the unit. Also check all cabling.

Problems, Possible Causes and Remedial Actions

Symptoms	Possible causes	Remedial actions
The AXIS Panorama PTZ cannot be accessed from a browser.	The IP address is already in use by another device.	Disconnect your AXIS Panorama PTZ from the network.
		Run the Ping utility (as described in *Pinging Your IP Address,* on page 22) and follow the appropriate recommendations.
		Note: The assigned IP number can be assumed valid if Ping returns "request timed out" - in which case you should set the IP address again, power on the AXIS Panorama PTZ and then try accessing it again.
	The IP address is located on a different subnet.	Run the Ping utility (as described in *Pinging Your IP Address,* on page 22). If Ping returns "Destination host unreachable" or similar, the diagnosis is probably correct.
		In Windows, check that the IP address for your AXIS Panorama PTZ is on the same subnet as your workstation. Exactly how this is done varies from one version of Windows to another. See Windows' help for more information.
		If your AXIS Panorama PTZ and your workstation are on different subnets, you will not be able to set the IP address. Contact your network administrator.
	In Windows 95, the ARP table was empty when you tried to set the IP address.	If the table is empty, re-install the product ensuring that the IP address for your own PC is also used. Type `arp -a` to view the ARP table.
		Note: The AXIS IP Installer provides a good alternative to ARP.
	Possible problem with your proxy server.	Try disabling the proxy default in your browser.
	Other networking problems.	Try replacing your network cable.
		Test the network interface of the product by connecting a local computer to the unit, using a standard *Crossover (hub-to-hub) Cable.*
		If the above actions don't solve the problem, the AXIS Panorama PTZ may be faulty. In this case, try to localize the problem by connecting the AXIS Panorama PTZ to the serial port of a local computer, using a *Null Modem Cable;* and report your findings to your local reseller.
The Power indicator is not constantly lit.	Faulty power supply.	Verify that you are using an AXIS PS-D power supply.
The Network indicator displays red.	Faulty cabling.	To verify that the cables are functional, Ping the address of a known unit on your network.
		If the cabling is OK and your network is reachable, you should receive a reply similar to this: `Reply from x.x.x.x: bytes = 32 time = 2 ms,`
The Active and Network indicators flash every 0.5 seconds.	Hardware failure.	Contact your Axis reseller.
The AXIS Panorama PTZ works locally, but not externally.	Firewall protection	Check the Internet firewall with your system administrator.
	Default routers required	Check if you need to configure the default router settings.
	The Internet site is too heavily loaded.	Configure the AXIS Panorama PTZ to upload your video images to an FTP server or an ISP.

Symptoms	Possible causes	Remedial actions
The Panorama application displays an incomplete image and the text "No image available."	The second camera has not been correctly configured.	Configure the second camera, using the Administration tools.
The two images in the Panorama application are not joined satisfactorily.	Incorrect mounting on bracket.	Check that both cameras are securely fastened on the bracket.
No image using Refresh and/or slow updating of images.	Requests for images of varying size and resolution place a greater demand on the available file space within the AXIS Panorama PTZ.	Ensure that all the clients accessing the images are using the same image resolution and compression.
A series of broad vertical white lines appears across the image.	The CCD sensor becomes overloaded when the light is too bright. This can happen e.g. with sunlight reflexes.	Although the AXIS Panorama PTZ can be used outdoors, exposure to extreme sunlight or halogen light may still cause serious damage to the CCD sensor. Reposition your AXIS Panorama PTZ in a more shaded location immediately. **Note**: damage caused to the AXIS Panorama PTZ through overexposure to direct sunlight or halogen light is not covered under the product warranty.
Bad focus.	Focus has not been correctly adjusted.	Referring to the on-line help, adjust the White Balance setting and then try resetting the camera focus again using the *Focus Assistant,* as described in *Lenses and Focusing,* on page 19.
	No adaptor fitted with your C-type lens.	If you have previously replaced the supplied CS-type lens, you may have inadvertently installed a C-type lens without first fitting the required adaptor. See also page 21.
Noisy images.	Images may be noisy if you are using the AXIS Panorama PTZ in a very low light environment.	To solve this problem, you need more light. The performance of the camera is best in the range 100 - 3.000 lux.
Poor quality images.	The display properties are incorrectly configured for your desktop.	Open the Display Properties in your desktop and configure your display to show at least 65 000 colors, i.e. at least 16-bit. **Note**: Using only 16 or 256 colors on your computer will produce dithering artifacts in the image.
No images available in your browser application.	ActiveX disabled.	In Microsoft Internet Explorer, ensure that ActiveX has not been disabled in the Internet Options menu.

Notes:
- If using a DHCP server to set the IP addresses for the two cameras, please ensure that these addresses are configured as static and not dynamic, otherwise the Panorama application will need to be reconfigured each time the IP address changes.

- If you still have a problem after reading this information, please contact your reseller, or visit the Axis Support Web at www.axis.com/techsup/

Appendix C - Other IP Setup Methods

In addition to the ARP command (described in the Installation section), you can alternatively set the IP address for your AXIS Panorama PTZ using the following methods:

Method	Operating Systems	Notes
AXIS IP Installer	Windows 95/98/ME and NT/2000	See *Using the AXIS IP Installer,* on page 26.
DHCP This method should only be used if you know which IP address the DHCP server will give the camera, or if your version of DHCP can update a DNS server, which then allows you to access the camera using a name.	Most	When using a DHCP server to set the IP addresses for the two cameras, ensure that these addresses are configured as static and not dynamic, otherwise the Panorama application will need to be reconfigured each time the IP address changes.

Notes: •Do <u>not</u> use the default or IP address featured in these examples when installing your AXIS Panorama PTZ. If in doubt, consult your network administrator to obtain an unused IP address.

•Make sure the AXIS Panorama PTZ is powered up and attached to the network.

•Server Privileges: Although no special privileges are required for Windows 95/98, you do need *Administrator* privileges for Windows NT/2000.

MAC/Ethernet Address: The AXIS Panorama PTZ is pre-configured with a unique MAC/Ethernet address based upon the serial number printed on the underside label of the unit; where the serial number typically follows the format 00-40-8c-xx-yy-zz. You must know the MAC/Ethernet address to complete the installation.

Using the AXIS IP Installer

AXIS IP Installer is a Windows program that is ideal for setting the IP addresses for multiple Axis networking products on your network. Also allowing you to access the home Web page of any Axis ThinServer device connected to your network, this freely distributed software is available for download from www.axis.com.

Installing the AXIS IP Installer:

1. Download the latest AXIS IP Installer software to your workstation and run the *Setup_IPInstaller.exe* program to start the installation.

2. The **AXIS IP Installer - Setup** dialog is displayed on the screen.

3. Follow the instructions as they appear on the screen.

4. Click **Finish** to complete the installation.

Setting the IP Address with the AXIS IP Installer:

1. Run the **AXIS IP Installer** from the **Start** menu. The following window will appear:
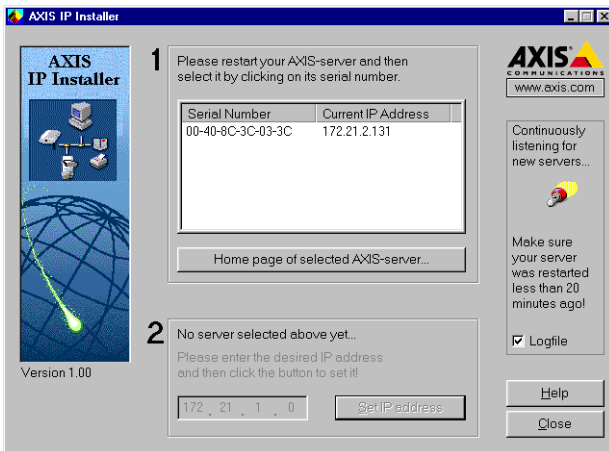
2. Restart your AXIS Panorama PTZ.

3. Select the serial number of your AXIS Panorama PTZ in the list. The serial number is identical to the unit's MAC/Ethernet address.

4. Enter the IP address. Click **Set IP address**. The IP address will now be set.

5. To access the home page of the AXIS Panorama PTZ, click **Home page of selected Axis-server...** You can now configure the AXIS Panorama PTZ according to your requirements.

6. Click **OK** to exit the program.

For more help during the installation of the IP address, click **Help** or press the **F1** key.

Appendix D - Upgrading the Firmware

The AXIS Panorama PTZ camera firmware is stored in flash memory. This memory is provided by a silicon chip that, just like any other ROM device, retains data content even after power is removed. Flash memory is unique because it allows its data to be erased and re-written. This means you can install firmware upgrades for your AXIS Panorama PTZ as they become available - without having to replace any parts. New firmware can simply be loaded into the AXIS Panorama PTZ over the network.

Obtaining Upgraded firmware

The latest version of the AXIS Panorama PTZ firmware is available free of charge from the Axis Website at www.axis.com, or from your local distributor.

Upgrading the firmware

The AXIS Panorama PTZ firmware is upgraded over the network using FTP. See the detailed instructions supplied with each new release.

Important!

- Always read the instructions provided with each new release, prior to upgrading your firmware.
- Upgrading normally takes between 30 seconds and 10 minutes, although it can take longer. After starting the process, you should always wait at least 20 minutes before power-cycling the AXIS Panorama PTZ - even if you suspect the upgrade procedure has failed.
- In controlled environments, flash memory upgrades provide a very safe method for upgrading firmware. However, flash products can become damaged if the upgrade operation is not performed correctly. Your dealer reserves the right to charge for any repair attributable to faulty upgrading by the user.

Appendix E - Technical Specifications

System Requirements - TCP/IP support on Windows 95, 98, NT, 2000 or XP. Microsoft Internet Explorer 4.x, or higher (to use the Axis ActiveX component AXIS Camera Control)

Network Connection - RJ45 twisted pair cable, or remote connection using any standard serial modem.

Networking - 10baseT Ethernet or 100baseTX Fast Ethernet, TCP/IP, HTTP, FTP, SMTP, NTP, ARP and BOOTP.

I/O Connector - 1 optical-isolated alarm input. 1 digital output (max 24 V, 100 mA) with programmable digital input/output for remote image storage via FTP or SMTP, pre/post alarm image storage.

Pan/Tilt/Zoom - Pan: up to 140°. Tilt: up to 65°. Zoom; from 0.24x to 4x.

Image Updating - Up to 15 frames/second on 10/100 Mbit networks.

Pre/Post Alarm Buffer - Up to 500 KB memory available for pre/post alarm image storage.

Modem Connector - Single 9-pin D-SUB RS-232 connector, max 115 Kbit/s, half duplex

Operating Conditions: - Temp: 40° to 105° F ($+5^o$ to $+40^o$ C), Humidity: 20-80% RHG.

Approvals - EMC: FCC Class A, $C \epsilon$ EN 55022/1994, EN55024/1998
Safety: EN 60950, UL, CSA.

Metrics (per camera): - Height: 1.6" (4.1 cm), Width: 4.1" (10.5 cm), Length: 6.9" (17.5 cm), Weight: 0.56 lb. (0.26 kg) excluding power supply.

Hardware - ARTPEC-1 compression chip; ETRAX-100, including, 32-bit RISC, 100 MIPS CPU, 8 MB RAM, 2 MB FLASH PROM.

Power - External power supply 12 V AC, 9.6 VA (PS-D, included), 9-15 V AC, min. 10 VA, or 9-15 V DC, min. 7 W.

Index

Glossary of Terms

ActiveX - A control (or set of rules) used by a browser. ActiveX controls are often downloaded and installed automatically as required.

ARP - Address Resolution Protocol. A protocol for assigning an IP address to a physical device address that is recognized in the local network. The ARP command can be used to set the IP-address for your product.

ARTPEC - Axis Real Time Picture Encoder - used for image compression.

BOOTP - A protocol that can automatically configure a network device (give it an IP address).

Bps - Bits per second. A unit for measuring speeds in networks. A LAN might run at 10Mbps or 100Mbps.

CCD - Charged Coupled Device. This is the camera component that converts the image to digital signals.

CGI - Common Gateway Interface. A set of rules (or a program) that allows a Web Server to communicate with other programs.

CS-Mount/C-Mount - Industry standards defining types of lens fittings. The CS-Mount positions the lens approx. 5mm further from the CCD than the C-Mount does.

DSL - Digital Subscriber Line. A means of transferring data via standard phone lines.

Ethernet - A widely used networking standard.

ETRAX - Axis' own microprocessor.

Firewall - A virtual barrier between a LAN (Local Area Network) and other networks, e.g. the Internet.

Frame Grabber card - Plug-in hardware for "grabbing" images

FTP - File Transfer Protocol. Used for simple transfer of files to and from an ftp-server.

HTML - Hypertext Mark-up Language. Used widely for authoring documents viewed in web browsers.

HTTP - Hypertext Transfer Protocol. The set of rules for exchanging files (text, images, sound, video, and other files) on the World Wide Web.

Intranet - A private network limited to an organisation or corporation. Usually closed to external traffic.

IP - Internet-Protocol. See TCP/IP.

IP number (address) - A unique number used by a computer on the network to allow it to be identified and found.

JPEG - A standard image format, used widely for photographs. Also known as JPG.

LAN - A local area network (LAN) is a group of computers and associated devices that typically share common resources within a limited geographical area.

Linux - A popular operating system, that is "open source" and practiclly free of charge.

Lux - A standard unit for light measurement.

NWAY - A network protocol that automatically negotiates the highest possible common transmission speed between two devices.

Null Modem Cable - A cable used for connecting a PC to a serial device, using the modem protocol for communication.

Ping - A small utility used for sending data packets to network resources to check that they are working and that the network is intact.

PPP - Point-to-Point Protocol. A method allowing one computer to connect to another, usually via a modem over a phone line.

Pre/post alarm image - The images from immediately before and after an alarm.

Protocol - A special set of rules governing how two entities will communicate. Protocols are found at many levels of communication, and there are hardware protocols and software protocols.

SMTP - A common e-mail protocol.

TCP/IP - Transmission Control Protocol/Internet Protocol. A suite of network protocols that determine how data is transmitted. TCP/IP is used on many networks, including the Internet. TCP keeps track of the individual packets of information and and IP contains the rules for how the packets are actually sent and received.

URL - Uniform Resource Locator. An "address" on the network.

V.90 - An operating standard for telephone modems.

WAN - Wide-Area-Network. Similar to a LAN, but on a larger geographical scale.

Web server - A program on a computer that delivers the resources (usually web pages) requested by the web user (the client).

Wizard - A program designed specifically to guide the user through a procedure. Typically used for installations and configurations.