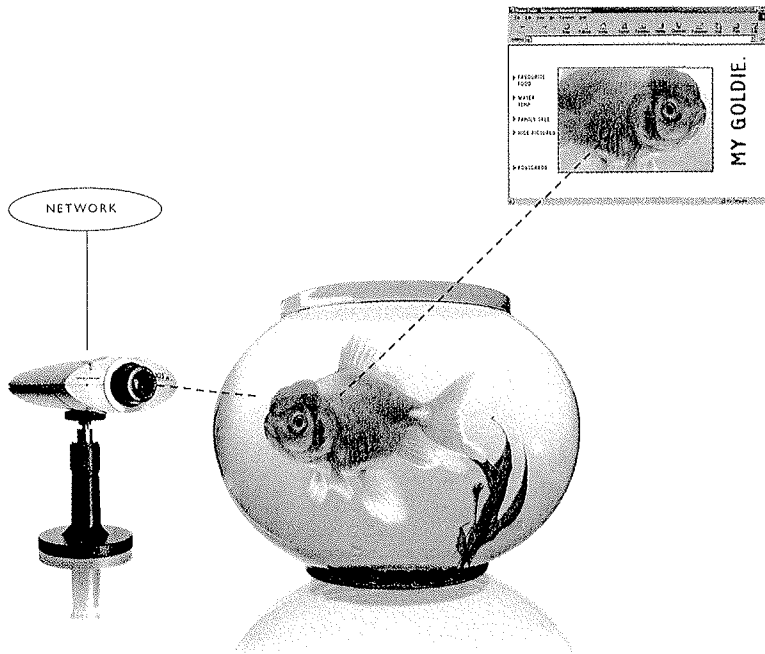


Exacq Technologies, Inc.
Exhibit 1008

38
194, 190, 30, ~~36~~
BBAP393

Live web
images unleashed.



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www.axis.com

Quick Network Installation Procedure

Follow the instructions below to quickly install the AXIS 2100 on an Ethernet network.

If you do not have a network and intend to use a modem with your AXIS 2100, please refer to the *Installing Your Camera to a Modem* section of this User's Guide.

1. Note the serial number found on the underside label of the AXIS 2100. The Ethernet address is the same as the serial number of the unit.
2. Acquire a valid and unused IP address for the AXIS 2100 from your Network Administrator.
3. Connect your AXIS 2100 to the network. and external power supply.

Assign the IP address using the **ARP** command, as described below:

Windows 95/98 & NT only - Start a DOS window and type these commands:

Syntax: `arp -s <Server IP address> <Ethernet address> <my PC IP address>`
`ping <Server IP address>`

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

UNIX only - Type these commands:

Syntax: `arp -s <IP address> <Ethernet address>`
`temp ping <IP address>`

Example: `arp -s 172.21.1.200 00:40:8c:10:00:86`
`temp ping 172.21.1.200`

00-40-8c-10-00-86

The AXIS 2100 is now automatically rebooted; whereupon, the host then returns 'Request timed out' before returning the DOS user prompt >.

To verify that the address has been set and the communication is established, ping the unit once again with the new IP address; the host then returns: 'Reply from 172.21.1.200...' or similar.

4. To access the AXIS 2100 **Home Page**, start the Web browser and enter the IP address in the location/address field:

Syntax: `http://<IP address>/`

Example: `http://172.21.1.200/`

5. With reference to the on-line help, start the **Installation Wizard** and configure your application.

Notes:

- When using ARP in Windows 95/98/NT environments, you should enter the `winipcfg` command to discover your IP number if you are using DHCP and are unsure of your current designation.
- If you are installing many units on to your network, please refer to the AXIS IP Installer information under the section *Installing Your Camera on a Network* in this User's Guide.

AXIS 2100 Network Camera User's Guide

About This Document

This document is intended for administrators and users of the AXIS 2100 Network Camera, and is applicable for software release 2.0. Although many of the operational aspects of the product are described within the on-line help, this guide does contain information for configuring, managing and using the unit within your networking environment, as well as a general overview of the product functionality. It is not necessary for the reader to have any previous networking experience to successfully install or use this product.

Readers are recommended to use this document as a supplement to the Wizards and other on-line information available via the Web-based interface. Superseding versions for this document will be posted to the Axis Website, as required.

Safety Notices

Please observe all safety markings when using this product.

Caution! - Potential hazard that can damage the product.

Important! - Potential hazard that can seriously impair operation.


Do not proceed beyond any of the above notices until you have fully understood the implications.

Legal Considerations

Camera surveillance can be prohibited by laws that vary from country to country. Check out the laws in your local region before using the AXIS 2100 for surveillance.

Electromagnetic Compatibility (EMC)

USA - 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. It 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. Shielded cables should be used with this unit to ensure compliance with the Class A limits.

Europe  - This digital equipment fulfills the requirements for radiated emission according to limit B of EN55022/1994, and the requirements for immunity according to EN50024/1998 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 which can be found on the cover of this document. 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.

Year 2000 Compliance

Axis Communications AB warrants that this product is Year 2000 compliant.

Trademark Acknowledgments

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Support Services

Should you require any technical assistance, please contact your local dealer. If your questions cannot be answered immediately, your dealer will forward your queries through the appropriate channels to ensure you a rapid response. If you are connected to Internet, you can obtain on-line manuals, technical support, software updates, application software and general corporate information from any of the locations listed below.

WWW:	http://www.axis.com/
Axis' CCTV Website	http://cctv.axis.com/
FTP:	ftp://ftp.axis.com/pub/axis/

AXIS 2100 User's Guide

Revision 1.0

Part No: 17091

Dated: November 1999

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Product Overview

The AXIS 2100 is a digital network camera running TCP/IP that includes all of the required networking connectivity for distributing monitored images over a secure intranet network, or the Internet. With its own built-in Web server, the AXIS 2100 not only allows high-quality remote surveillance images to be viewed directly from any browser application on your network, but full Web-based control all of the unit management and configuration functions as well.



Connecting directly to Ethernet or Fast Ethernet networks, the AXIS 2100 is a standalone digital camera that can also connect via an external modem to your local Internet Service Provider.

The Web-based interface features several user-sensitive Wizards that not only simplify the installation process, but also allow for a seamless and automated integration into your networking and application environments. Furthermore, its open-network structure minimizes the need for costly coax cabling to provide a cost effective intranet and Internet imaging solution for a minimal connection overhead.

Features and Benefits

Ease of Use - The AXIS 2100 does not require the use of a PC frame grabber card or interaction with any other server; the only software required is Netscape Navigator 4.x or above; alternatively, you can use Axis' ActiveX component for use with Microsoft Internet Explorer 4.x or above. It has complete plug-and-picture functionality - all you need to do is assign a valid IP address.

Cost-effective - Provides a reliable and low-cost resource for network imaging without the hidden accessories normally associated with digital cameras; such as, expensive software, management workstations, dedicated applications, video cabling or PC frame-grabber cards.

Open Standards Environment - Supporting TCP/IP networking, SMTP e-mail, HTTP and other Internet-related protocols; the AXIS 2100 can be used in mixed operating system environments, such as, Windows, UNIX, Macintosh and OS/2. It integrates easily into other WWW/Intranet applications and CGI scripts.

Simple Administration - Using a standard Web browser, you configure and manage the AXIS 2100 directly from its own Web pages. And, when a new firmware release becomes available, you can simply batch upgrade all of your Axis camera products remotely over the network using the AXIS ThinWizard.

Standard Image Format - As opposed to many inferior solutions that need to fracture image files prior to broadcast, the AXIS 2100 delivers complete high-quality pictures in a standard JPEG format; this means that the integrity of your pictures is always assured and can be viewed using any standard Web browser.

Image Updating - The on-board AXIS ETRAX 100 processor and revolutionary AXIS ARTPEC-1 Real Time Picture Encoder provides an amazing power-synergy to deliver up to 10 frames/second over 10Mbps or 100Mbps networks.

High Compression and Sensitivity - The fully programmable compression features afforded by the AXIS ARTPEC chip allows a normal quality image to be compressed down to around 8 kbytes. Actual file sizes vary according to quiescent lighting conditions; although the product works well even in dark environments - right down to 3 lux.

Standard Lens - the AXIS 2100 uses a standard CS type lens, which means that it can be replaced by any other preferred lens conforming to the same standard.

External Device Connection - Supporting an auxiliary Input/Output Connector, you can connect your AXIS 2100 to a variety of external devices; such as, IR-sensors, switches and alarm relays. In combination with the programmable alarming facilities, you can quickly develop a variety of security applications that are triggered on time or alarm-based events.

Wide Range of Applications - The AXIS 2100 offers live video over the internet networks and the Intranet, and is ideal for use with many of today's high-speed internet services. Allowing remote access directly from your Web browser, you can view live images, manage and control the AXIS 2100 at any time and anywhere. Use it for intruder detection, traffic surveillance, bank security, child protection, process control, industrial and public surveillance, visual security, image archiving, or any other application - to give you the peace of mind that only networked camera technology can provide.

ISP and Modem - The Point to Point Protocol (PPP) support allows you to use your AXIS 2100 remotely over a serial link, just as if it were located on your local network. Initially setting up the unit using a computer connected by the supplied Null Modem cable, you can quickly configure the unit for remote use using an external modem; where your video images can even be uploaded to your preferred Internet Service Provider (ISP) to allow global access to your live images from any desktop browser within the Internet community. Select any of the supported ISPs within the embedded Web-based Wizards, or choose any other preferred ISP as an imaging repository for your live images.

Security - The AXIS 2100 includes a self-contained Web server, which means that digital images can be secured like any other Internet host. Data protection is normally implemented by your Network Administrator using the unit security settings in combination with an organization's Internet firewall; the Administrator can decide whether individuals, groups, the whole company or the whole world may access your camera.

Network Camera Servers Developer's Pages - The Camera Division at Axis maintain a specialist site for network camera developers. New exciting application ideas, tools, and preprogramming scripts are constantly being added - this is an invaluable reference site for Axis' development partners and OEMs. Follow the camera links and check it out at:
<http://www.axis.com/> and <http://cctv.axis.com/>

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 would like to thank Paul Phillips, who wrote Boa; and Larry Doolittle, who is now enhancing and maintaining this free program software - published at <http://www.boa.org/>.

Physical Description

Read the following information to familiarize yourself with the AXIS 2100, 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 refer to *Adjusting the Camera Focus*, on page 32). Under normal conditions however, this indicator defines the operational status of the camera, as described below:

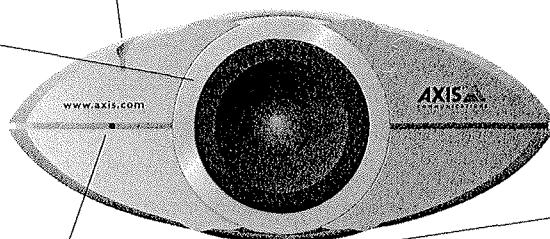
- green - the indicator flashes briefly and momentarily displays orange during the start-up and self-test routines; the indicator then displays green to indicate a healthy unit status.
- red - the indicator will display red only if a problem with the AXIS 2100 has occurred. Refer to *Appendix A - Troubleshooting*.

Note: The Status indicator also displays orange when setting the factory default settings, as described in *Reinstating the Factory Default Settings*, on page 39.

Lens Assembly

Includes a wide angle lens with rotational focus control.

The supplied lens is removable and can be replaced with any standard C/CS lens.



Serial Number

Located on the underside label of the AXIS 2100, the serial number is identical to the Ethernet address of the unit.

Control Button

Located to the left of the lens assembly; this button is recessed within the product casing. Using a suitably pointed object, you press this button to restore the factory default settings as described in *Reinstating the Factory Default Settings*, on page 39; and enabling the Focus Assistant, as described in *Adjusting the Camera Focus*, on page 32.

Caution!

The AXIS 2100 Network Camera is intended for indoor use only; prolonged exposure to direct sunlight or halogen light may damage the CCD. The Axis warranty does not cover CCD damage caused by prolonged strong light exposure.

Rear Panel

Network Connector

The AXIS 2100 is designed for 10 Mbps Ethernet and 100 Mbps Fast Ethernet networks and connects to the network via a twisted pair category 5 cable (10baseT and 100baseTX) terminated using a standard RJ-45 connector. Supporting NWay, the AXIS 2100 detects the speed of the local network segment and varies the speed of data communication accordingly, between 10 Mbps and 100 Mbps.

Network Indicator

After completion of the startup and self test routines, this multi-colored indicator flashes independently, 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 it is not lit, or it flashes, there is problem with the AXIS 2100 external power source.

Power Supply Connector

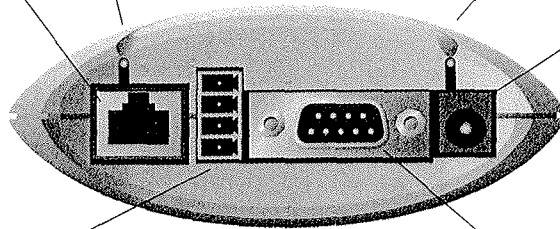
A single Jack socket (PS-D) for connection of AXIS 2100 power supply. The terminal block connector provides an auxiliary connection point for AC or DC power to the unit.

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 2100; including, IR-sensors, switches and alarm relays. In combination with the configurable alarm facilities, you can quickly develop a variety of security applications that are triggered on time - or alarm based - events. The connector can also be utilized as an alternative connection point for DC supply to the unit.

RS-232 Serial Connector

Single 9-pin D-sub connector providing the RS-232 serial interface dedicated for modem connection.



Note: The power supply supplied with your AXIS 2100 is country specific. Please check that the type of power supply you are using is correct. See page 9.

Assembling Your Camera

The information provided in this section will help you unpack and assemble your product; you are then ready to proceed with the installation and configuration of the product into your application environment, as described in the following sections of this document.

Checking the Hardware Inventory

Unpack and check all the items against the itemized list below. You should contact your dealer immediately if you find anything is missing or damaged.

Hardware	Model Variants	Part Numbers
Digital Camera	AXIS 2100	0106-001-01
Null Modem Cable	-	I6954
Mounting Assembly	-	I5104
Power Supply (PS-D)	Europe	I4233
	UK	I4234
	Australia	I4255
	USA	I4253
	Japan	I4254
PS-D Extension Cable	3.3 meter	I5187
Printed Materials	AXIS 2100 User's Guide	I7091

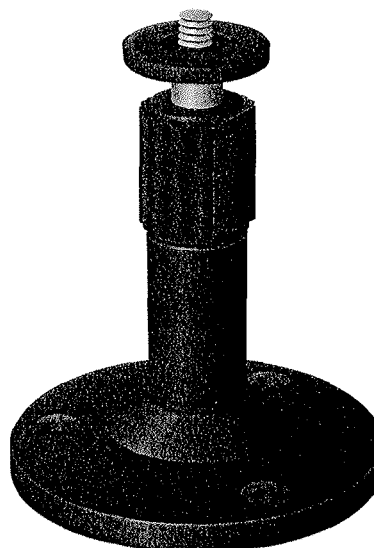
Connecting the AXIS 2100 to a Mounting Assembly

Caution!

When assembling your product, please note that the AXIS 2100 is specifically intended for indoor use only, and that the charged coupled device (CCD) within the product will become permanently damaged if the lens is exposed to too much direct sunlight, or halogen light! The Axis warranty does not cover CCD damage caused by prolonged exposure to strong light.

The mounting assembly supplied with your AXIS 2100 features a screw head that attaches to the underside of the product. Fasten the AXIS 2100 to the mounting assembly and position it appropriately for your application; three holes in the base unit allow the product to be securely fastened to any wall or ceiling.

Note: If you need to mount your camera upside-down, the AXIS 2100 can be easily configured to flip images through 180°.



Choosing Your Application

The AXIS 2100 can be used in a wide variety of applications: installing directly onto an Ethernet network or via any V.90-compatible modem, the product is completely independent and requires no additional software on your viewing desktop. Crisp live images are available directly within your preferred browser as soon as the product is installed, and your application can be further developed using the easy-to-use *Wizards*, or the Web-based *Administration Tools* resident within the product.

Not to be regarded as a comprehensive catalog of possible applications, this section describes several typical applications and includes reference information that will help prepare you for the installation and configuration of the unit.

Note: For the latest tips and tricks, check out the Axis camera pages at <http://www.axis.com/>

Networking Applications

If you have access to a local Ethernet connection at your chosen point of installation, you only need to plug the AXIS 2100 onto your LAN/WAN and set the IP Address to instantly view the images from any desktop on your network.

However, the AXIS 2100 offers more than just access to live video images; and by using the available *Wizards* to guide you through the process, you can configure your product for any number of exciting applications, including:

- Viewing images in a custom-designed Web page.
- Uploading images to a remote FTP server on a LAN/WAN network to accommodate a large viewing audience where a high volume of Web page hits is anticipated.
- Connecting an external alarm device to the AXIS 2100 and uploading pre and/or post alarm images to a target FTP server when an alarm or time-based event occurs; and optionally, sending e-mail alerts containing a single image, or a Web link to a pre/post alarm image sequence stream saved to the target FTP server.

Note: Once the AXIS 2100 is physically connected and installed onto your network, you are then able to access live video from any desktop browser on your network - without any further configuration whatsoever. Whether you are an advanced or novice user, you should use the *Wizards* - available from the product *Home Page* - to configure your preferred application. Advanced user's can optionally use the Web-based *Administration Tools* to refine their application once the basic configuration has been established using the *Wizards*.

Picture frequency for Networking Applications

When used in a TCP/IP networking environment, the AXIS 2100 delivers up to 10 images/second; where, the actual image frequency is typically limited by:

- the available network bandwidth
- your Web browser/computer
- the chosen picture size
- the quiescent lighting conditions at the point of installation.
- complexity of detail and color variation within the image

Image Compression Ratios

The file size of a JPEG-compressed image depends upon the actual content of the image. Images containing much detail will generate larger files. Image quality is controlled through the level of compression; where, high compression yields small files, while low compression maintains higher image quality at the expense of larger files. The table below contains average file sizes in kilobytes, derived from real-life tests:

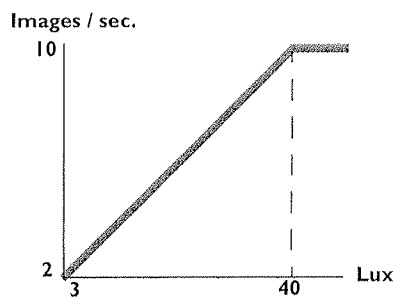
Resolution	Typical File Sizes (kbytes)			
	Lowest	Low	Medium	High
640 x 480	250	20	13	8
320 x 240	70	8	5	3

Notes: • Using any modern computer of 300 MHz or above, will avoid introducing any unnecessary imaging bottleneck when viewing the images.

Lighting Conditions

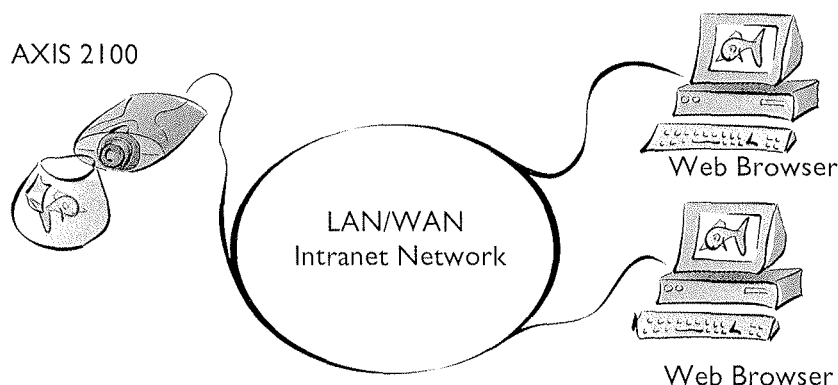
Just like an ordinary camera, the shutter time of the AXIS 2100 increases in low light conditions to guarantee optimal image quality.

The actual frame rate for your images is effected by the prevailing light conditions within your application environment; and although the AXIS 2100 will produce good quality images right down to 3 Lux, the local lighting should ideally be stable at above 40 Lux to achieve optimal image frequency. Consequently, you can expect a reduced frame rate under low light conditions in your application environment, as shown in the diagram (right).



Viewing Images in a Custom-designed Web Page

Simply install the AXIS 2100 directly your local Ethernet network and complete the *Installation Wizard* to immediately view live video images within your own custom-designed Web page. The Wizard not only helps you to define the image format and personalized characteristics of your Web page *Layout*, but even allows you to decide how accessible your product is over the intranet or Internet network - you decide in just a few simple steps:



Often used as a Web attraction for enhancing a Web site with live images, this typical application represents the most basic form of network camera configuration; it is ideally suited for *occasionally-visited* sites on both large corporate networks, and SOHO (Small-Office Home-Office) applications where a small network is installed and maintained. If you anticipate a significantly large viewing audience for your images, you should consider configuring your product to upload images to an FTP server on your network, as described in *Sequentially Uploading Images to a Remote FTP Server*, on page 13.

Installation and Configuration Overview

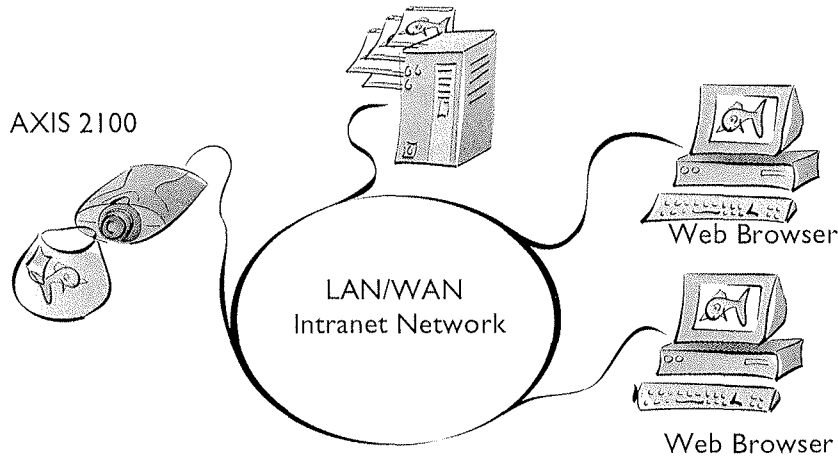
You configure your AXIS 2100 for viewing images over a network as follows:

1. Connect the AXIS 2100 to your local network. Refer to *Installing Your Camera on a Network*, on page 19.
2. Open the **Home Page** in your browser and start the **Installation Wizard**; complete the Wizard to establish the standard *Security, Date and Time, Image General Layout* and *TCP/IP Network* settings - selecting **network** as your chosen method of connection in the **Modem or Network** dialog. Refer to *Configuring Your Camera*, on page 35.
3. Your application is now complete. Having completed the Wizard, you should now verify the installation by checking that you have full access to both the images and the product Web pages in your browser.

Note: You can refine your application using the Web-based Administration Tools.

Sequentially Uploading Images to a Remote FTP Server

Ideal for *busy* Web sites on both large corporate networks, and SOHO (Small-Office Home-Office) applications where a small network is installed and maintained; this application uploads images to a designated FTP server on your network, and is perfect for applications where a significantly large viewing audience is expected.



Simply install the AXIS 2100 directly on your local Ethernet network and complete the **Installation** and **Application Wizards** to develop an *active* application that will upload images to a designated FTP server - as a *sequential* stream that is unlimited or restricted between specified time periods; you organize the times and the frequency at which images are taken and uploaded to the target FTP server.

Installation and Configuration Overview

You configure the AXIS 2100 to actively upload images to an FTP server, as follows:

1. Connect the AXIS 2100 to your local network. Refer to *Installing Your Camera on a Network*, on page 19.
2. Open the **Home Page** in your browser and start the **Installation Wizard**. Complete the Wizard to establish the standard *Security, Date and Time, Image General Layout* and *TCP/IP Network* settings - selecting **network** as your chosen method of connection in the **Modem or Network** dialog. Refer to *Configuring Your Camera*, on page 35.
3. Continue the configuration of your product using the **Application Wizard** to define the target FTP server and your preferred mode of operation - choosing **Sequential** mode to create your active application.
4. Having completed the Wizard, you should now verify the configuration by accessing the images stored on the FTP sever from your browser.

Note: You can refine your application using the Web-based Administration Tools.

Uploading Pre and/or Post Alarm Images to a Remote FTP server

The AXIS 2100 is an ideal solution for light indoor surveillance applications: by connecting your chosen external alarm devices to the I/O connector, you can quickly configure the product to upload single images or pre/post alarm image sequences to an FTP server when a time or event-based event occurs.

Using the available *Wizards*, you organize the times and frequency at which images are taken and uploaded to the target FTP server; you optionally arrange for e-mail alerts that contain single images, or Web references to your recorded image sequences stored on the target FTP server.

Installation and Configuration Overview

You configure the AXIS 2100 to upload Pre and/or Post Alarm images, as follows:

1. Connect the AXIS 2100 to your local network. Refer to *Installing Your Camera on a Network*, on page 19.
2. Open the **Home Page** in your browser and start the **Installation Wizard**. Complete the Wizard to establish the standard *Security, Date and Time, Image General Layout* and *TCP/IP Network* settings - selecting **network** as your chosen method of connection in the **Modem or Network** dialog. Refer to *Configuring Your Camera*, on page 35.
3. Continue the configuration of your product using the **Application Wizard** to define the target FTP server and define your preferred mode of operation - choosing **Alarm Mode** to upload single images, or pre/post alarm image sequences, when a defined alarm or time-based event occurs.
4. Having completed the Wizard, you should now verify the configuration by triggering the defined alarm event and then viewing the uploaded images in your browser.

Note: You can refine your application using the Web-based Administration Tools.

Modem Applications

If a local network connection is not available at the point of installation for your AXIS 2100, you can alternatively connect your AXIS 2100 to any V.90-compatible modem and quickly configure any number of exciting applications using the Wizards; including:

- Viewing images in a fully custom-designed Web page over a Dial-up modem connection.
- Sequentially uploading images to an ISP (Internet Service Provider) over a Dial-up modem connection and publishing images to the whole Internet community.
- Uploading single or pre/post alarm image sequences to your ISP over a Dial-up modem connection, when an alarm or time-based event occurs; and optionally, sending e-mail alerts containing single images or Web references to pre/post alarm images stored by your ISP.

All modem applications are primarily configured using a local computer connected to the AXIS 2100 using the supplied *Null Modem Cable*.

- Notes:**
- Once the Dial-up modem connection has been created and the AXIS 2100 is physically connected to the modem, you are able to Dial-up your AXIS 2100 in exactly the same fashion as you would do your ISP - without any further configuration whatsoever! You use the *Installation* and *Application Wizards* - recommended for advanced and novice users alike - to establish the basic parameters for your application; advanced user's can optionally use the *Administration Tools* to refine their application, after the basic configuration has been established using the available Wizards.
 - Your telephone connection charges should be a prime consideration when developing any modem configuration - especially, if you do not have free calls to your ISP.

Picture Frequency for Modem Applications

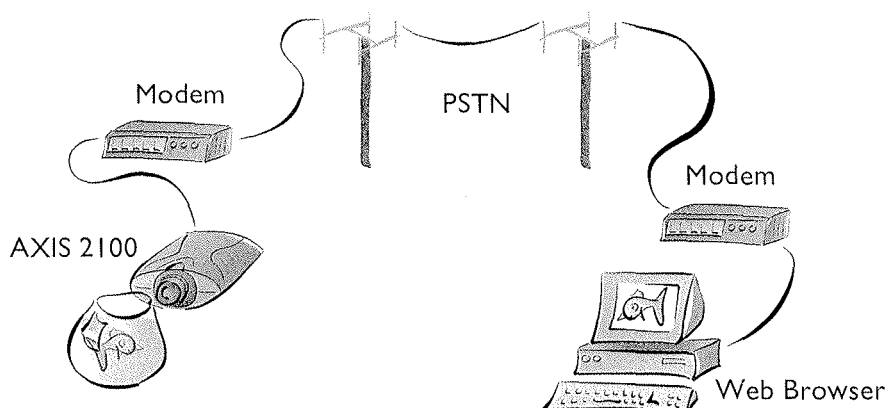
When used with a modem, the speed of your communications link will normally determine the image frequency in your browser; a standard image is normally transmitted in around 4 seconds, although an optimal imaging frequencies are achieved by buffering the video stream into internal memory before uploading the recorded images to your ISP or designated Web server. This is the ideal solution for remote applications connected to external security devices requiring an optimal image frequency during pre and post alarm events.

Proprietary ISP Dial-up Protocols

If your ISP requires you to install any special software before initiating a Dial-up connection, it is likely that your ISP is using proprietary protocols, incompatible with the standard-based AXIS 2100. In these circumstances we recommend that you ask your ISP to provide you with an alternative dial-up facility that allows for standard dial-up networking. Axis do not guarantee the compatibility of this product with any ISPs that require the use of proprietary or non-standard software as a pre-requisite for a Dial-up connection.

Remote Imaging in a Custom-designed Web Page

Using the supplied *Null Modem Cable*, you can conveniently configure the AXIS 2100 as a standalone application that is completely remote from any network. Ideal for remote surveillance, industrial control, and process monitoring applications; you can quickly configure the AXIS 2100 for a direct installation to your serial modem, suitable for a multitude of remote applications that can be viewed from anywhere - from the comfort of the computer at home, or the office.



Having established a Dial-up connection for your AXIS 2100, the product plugs directly into a serial modem to provide immediate access to live video images within your own custom-designed Web page. You access the images and the product Web pages in exactly the same fashion as you would Dial-up to your ISP.

Installation and Configuration Overview

You configure the AXIS 2100 for viewing images over a remote Dial-up modem connection as follows:

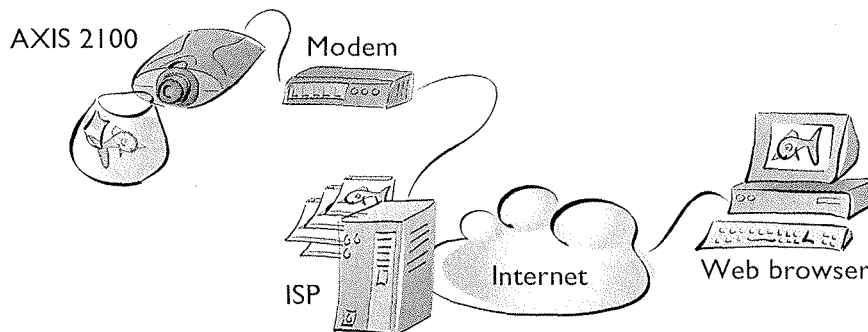
1. Connect a computer to the camera using the supplied *Null Modem Cable* and initiate a Dial-up connection to the AXIS 2100. For this and general information on the Dial-up connection, refer to *Installing Your Camera to a Modem*, on page 25.
2. Create a dedicated Dial-up Connection.
3. Refine the Dial-up parameters.
4. Initiate the Dial-up connection.
5. Referring to *Configuring Your Camera*, on page 35, open the **Home Page** in your browser and start the **Installation Wizard**. Complete the Wizard to establish the standard *Security*, *Date and Time*, *Image General Layout* and *Modem* settings - selecting **modem** as your chosen method of connection.
6. Disconnect the computer and connect your AXIS 2100 directly to your modem.
7. Your application is now complete. You should now verify the installation by remotely accessing the AXIS 2100 Web pages from your browser via the connected modem.

Notes: •By configuring the AXIS 2100 to accept incoming calls, you can at any time refine or amend the product configuration via a remote Dial-up connection - or local computer connected via the supplied Null Modem Cable.

•You can refine your application using the Web-based Administration Tools.

Uploading Images to Your Internet Service Provider

Perfect for Web attraction, remote light surveillance and process control applications; the AXIS 2100 can be quickly configured to dial-out from any remote location and transmit live images to several users, or the whole Internet community - via your preferred Internet Service Provider. You select any of the *Public ISPs* supported within the **Application Wizard**, or alternatively specify another *Public* or *Private ISP* of your choosing.



Having established the Dial-up connection for your AXIS 2100; you then continue with your configuration using the **Installation Wizard** to develop an *active* application that uploads live images to a designated ISP over normal phone lines. Your image files are transmitted as a *sequential* stream, or restricted between specified time periods; and you set the times and the frequency at which images are taken and uploaded to the ISP.

Installation and Configuration Overview

You configure the AXIS 2100 to upload images to an Internet Service Provider, as follows:

1. Connect a computer to the camera using the supplied *Null Modem Cable* and initiate a Dial-up connection to the AXIS 2100. For this and general information on the Dial-up connection, refer to *Installing Your Camera to a Modem*, on page 25.
2. Create a dedicated Dial-up connection.
3. Refine the Dial-up parameters.
4. Initiate the Dial-up connection.
5. Referring to *Configuring Your Camera*, on page 35, open the **Home Page** in your browser and start the **Installation Wizard**. Complete the Wizard to establish the standard *Security*, *Date and Time*, *Image General Layout* and *Modem* settings - selecting **modem** as your chosen method of connection.
6. Continue the configuration using the **Application Wizard** to define your preferred ISP and mode of operation - choosing **Sequential** mode to upload an image sequence that is unlimited or restricted between specified time periods, but independent of any alarm event.
7. Disconnect the computer and connect your AXIS 2100 directly to your modem.
8. Your application is now complete. You should now verify the installation by remotely accessing the images now stored with your ISP.

Notes: •By configuring the AXIS 2100 to accept incoming calls, you can at any time refine or amend the product configuration via a remote Dial-up connection - or local computer connected via the supplied Null Modem Cable.

- You can refine your application using the Web-based Administration Tools.

Uploading Pre/Post Alarm Images to Your Internet Service Provider

Perfect as a remote imaging and light surveillance tool; the AXIS 2100 can not only transmit live video streams over a standard Dial-up connection, but can also be connected with a wide variety of standard external alarm devices; it can be quickly configured for uploading single images, or pre/post alarm image sequences, to a *Public* or *Private* ISP when a time or alarm-based event occurs.

Using the available Wizards, you set the times and the frequency at which images are taken and uploaded to your ISP; you optionally arrange for e-mail alerts that contain single images, or Web references to recorded image sequences stored with your ISP.

Installation and Configuration Overview

You configure the AXIS 2100 to upload images to an Internet Service Provider in Alarm Mode, as follows:

1. Connect a computer to the camera using the supplied *Null Modem Cable* and initiate a Dial-up connection to the AXIS 2100. For this and general information on the Dial-up connection, refer to *Installing Your Camera to a Modem*, on page 25.
2. Create a dedicated Dial-up connection.
3. Refine the Dial-up parameters.
4. Initiate the Dial-up connection.
5. Referring to *Configuring Your Camera*, on page 35, open the **Home Page** in your browser and start the **Installation Wizard**. Complete the Wizard to establish the standard *Security, Date and Time, Image General Layout* and *Modem* settings - selecting **modem** as your chosen method of connection.
6. Continue the configuration using the **Application Wizard** to define your preferred ISP and mode of operation - choosing **Alarm Mode** to upload single images, or pre/post alarm image sequences, when a defined alarm or time based event occurs.
7. Disconnect the computer and connect your AXIS 2100 directly to your modem.
8. Your application is now complete. You should now verify the configuration by triggering the defined alarm event and then viewing the resultant images uploaded to your ISP.

Notes: •By configuring the AXIS 2100 to accept incoming calls, you can at any time refine or amend the product configuration via a remote Dial-up connection - or local computer connected via the supplied Null Modem Cable.

- You can refine your application using Web-based Administration Tools.

Installing Your Camera on a Network

Follow the instructions below to quickly install the AXIS 2100 onto an Ethernet network.

Important!

If you do not have access to a network connection at your point of installation, the AXIS 2100 can be installed and configured for use with a modem. For further details, please refer to *Installing Your Camera to a Modem*, on page 25.

1. Note the serial number of your AXIS 2100 for future reference during the installation procedure. This is located on the underside label of the unit.
2. Connect your AXIS 2100 to the network with twisted pair category 5 cable (10baseT or 100baseTX) terminated using a standard RJ-45 connector.
3. Connect the power supply to the AXIS 2100.
4. Check that the Power Indicator is constantly lit.

The AXIS 2100 is now successfully connected to your network.

Assigning an IP Address

Before you begin:

- Make sure the AXIS 2100 is powered up and attached to the network.
- IP Address: Acquire an unused IP address from your Network Administrator.
- Server Privileges: Although no special privileges on Windows 95/98, you will need *Administrator* privileges for Windows NT, and *Root* privileges on UNIX systems.
- Ethernet Address: The AXIS 2100 is pre-configured with a unique Ethernet Address that is based upon the serial number printed on the underside label of the unit; the serial number typically follows the format 00-40-8c-xx-yy-zz. You must know the Ethernet address to install the product.

Mapping a Host Name to the IP Address

If you are using host names, you can map a unique host name to the acquired IP address. Refer to your system manuals or Network Administrator for instructions on how to perform the name mapping on your particular system.

Notes: If the Host Name is not included in the system host table, you can still download the IP address by replacing the Host Name with the IP address - as defined in the following examples.

The AXIS 2100 is designed with high-speed Internet services foremost in mind. However, as most high speed Internet services only provide you one external IP address, there are some practical issues that should be considered when developing your application. For further details, refer to *Appendix D - High Speed Internet Services*.

Choosing an Appropriate Method

Important!

When installing your AXIS 2100, do not use the default or the IP address featured as examples within this document. Always consult your Network Administrator before assigning an IP address.

Set the IP address using an appropriate method for your operating system from the table below:

Method	Operating Systems	Refer to...
AXIS IP Installer	Windows 95/98 and NT	"Using the AXIS IP Installer" on page 23.
ARP Requires the IP address for each new device to be downloaded individually and is not appropriate for use over routers.	Windows 95/98 and NT	"Using ARP in Windows 95/98 and Windows NT" on page 20.
	UNIX, OS/2	"Using ARP in UNIX and OS/2" on page 21
BOOTP Requiring a BOOTP daemon on your system, this method operates over the entire network. A request to an active daemon initiates a search of the boot table to find an entry matching the unit's Ethernet address. The daemon downloads the IP address to the device if a match is found.	UNIX	Refer to <i>Using BOOTP in UNIX</i> , on page 22.

Tip!

For easy editing and correction of erroneous DOS commands, try making the first entry in your DOS Command Window 'doskey'. This allows you to scroll through a buffer of old commands using the 'up' and 'down' arrow keys; you can also use the F7 key to select from a list of commands used in the current session.

Using ARP in Windows 95/98 and Windows NT

Important!

When using the Windows 95/98 implementation of ARP, change the first line in the following examples to:

```
arp -s <server IP address> <Ethernet address> <w95/98 host IP address>
```

where: <w95/98 host IP address> is the IP address of your Windows 95/98 host.

Example:

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

Tip! Use the *winipcfg* command to discover your IP number if you are using DHCP and are unsure of your current designation.

To download the IP address and verify the communication, start a DOS Command window and type the following commands:

```
arp -s <server IP address> <Ethernet address>
ping <server IP address>
```

Example:

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

- Notes:**
- When you execute the PING command for the first time, you may experience a significantly longer response time than usual.
 - Should you encounter any difficulty in setting an IP address for your AXIS 2100, please refer to *Appendix A - Troubleshooting*.

The AXIS 2100 is now automatically rebooted; whereupon, the host then returns 'Request timed out' before returning the DOS user prompt >.

To verify that the address has been set and the communication is established, ping the unit once again with the new IP address; the host then returns: 'Reply from 172.21.1.200...' or similar.

Using ARP in UNIX and OS/2

To download the IP address and verify the communication, type the following commands:

```
arp -s <server IP address> <Ethernet address> temp
ping <server IP address>
```

Example:

```
arp -s 172.21.1.200 00:40:8c:10:00:86 temp
ping 172.21.1.200
```

The AXIS 2100 is now automatically rebooted; whereupon, the host then returns 'Request timed out' before returning the DOS user prompt >.

To verify that the address has been set and the communication is established, ping the unit once again with the new IP address; the host then returns: '172.21.1.200 is alive...' or similar.

- Notes:**
- When you execute the PING command for the first time, you may experience a significantly longer response time than usual.
 - Should you encounter any difficulty in setting an IP address for your AXIS 2100, please refer to *Appendix A - Troubleshooting*.

Using BOOTP in UNIX

Follow these steps to use the BOOTP method:

1. Append the following entry to your boot table. This is typically done using the file `/etc/bootptab`:

```
<host name>:ht=<hardware type>:vm=<vendor magic>:\n:ha=<hardware address>:ip=<IP address>:\n:sm=<subnet mask>:gw=<gateway field>
```

where:

ht = ether
vm = rfc1048
ha = The Ethernet address of the AXIS 2100
ip = The IP address of the AXIS 2100
sm = The subnet mask
gw = The default router address

Example:

```
mycam:ht=ether:vm=rfc1048:\n:ha=00408c100086:ip=172.21.1.200:\n:sm=255.255.255.0:gw=172.21.1.1
```

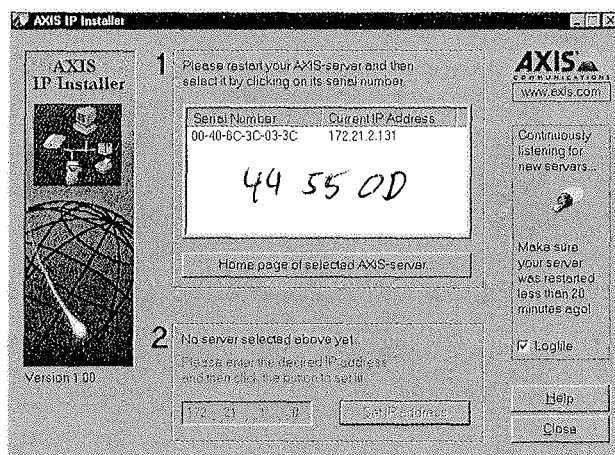
2. If necessary, update your host table and alias name databases as described required by your system.
3. If it is not already running, start the BOOTP daemon. This is typically done using the command `bootpd`.
4. Restart the AXIS 2100 to download the IP address, default router address, and subnet mask.

Using the AXIS IP Installer

The AXIS IP Installer is a Windows 95/98 & NT program is ideal for setting the IP addresses for *multiple* Axis' networking products on your network. Additionally allowing you to conveniently access the home Web page of any Axis ThinServer device connected to your network, this freely distributed software is available for download from Axis' Website at <http://www.axis.com/>.

Installing the AXIS IP Installer:

1. Download the latest AXIS IP Installer software onto your desktop 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 AXIS IP Installer:

1. Run the AXIS IP Installer from the Start menu. The AXIS IP Installer dialog is displayed on the screen.
2. Restart your camera server.
3. Select the serial number of your camera server in the list. The serial number is identical to the Ethernet address of the unit.
4. Enter the desired IP address. Click **Set IP address**. The IP address will now be set.
5. To access the home page of the camera server, click **Home page of selected Axis-server...** You can now configure the AXIS 2100 according to your requirements.
6. Click **OK** to exit the program.

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

Verifying the Installation

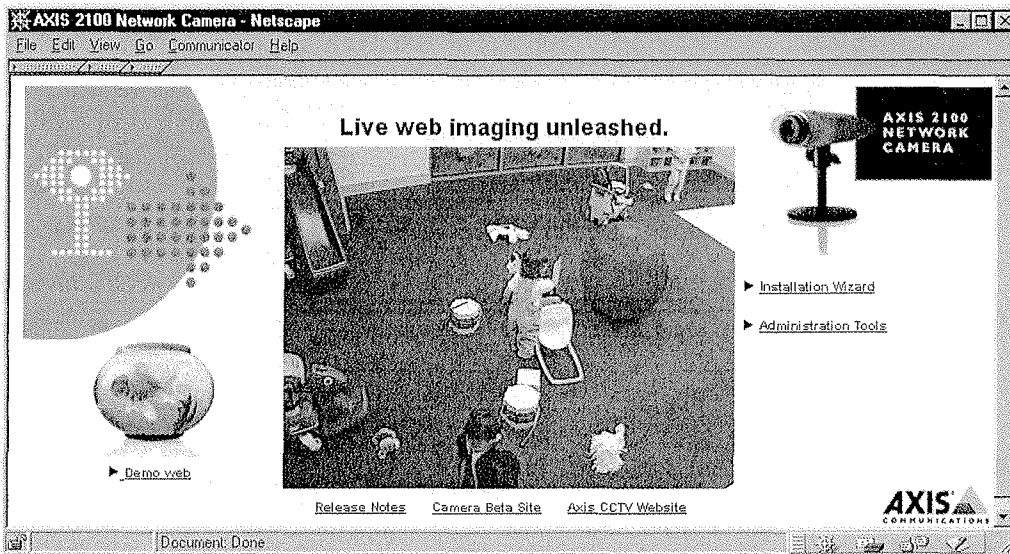
After assigning an IP address, verify the connection between the AXIS 2100 and the network:

1. Start your Web browser (see note below) and enter the name or IP address in the Location/Address field:

Example:

http://172.21.1.200/

2. The Home Page for your AXIS 2100 is now displayed:



3. Continue the setup process and configure your own application using the **Installation Wizard** or **Administration Tools**, as described in *Configuring Your Camera*, on page 35.

Important!

When accessing the Administrator Tools for the first time during a session, you are prompted for user-name and password. Log on as an Administrator using the username root and default password pass. You are recommended to change the root password, since all Axis products are shipped with the same password as default. For further information on this, refer to *System Security*, on page 38.

Installing Your Camera to a Modem

Complete the following installation procedures if you are not installing your camera to a local area network, but instead wish to connect the AXIS 2100 to a serial modem for transmitting images to an Internet Service Provider (ISP) or remote Web server, using a normal Dial-up connection.

Quick Start For Advanced Users:

Follow these abbreviated instructions only if you are experienced with Windows Dial-up Networking:

- Set up an existing session to 115.200 baud, using the physical COM port to which you have connected your AXIS 2100.
- Login with userid *root* and password *pass*; the *Phone Number* and *Modem Type* that you enter are irrelevant at login and can be remain undefined.
- Start your Dial-up Networking session, and enter any URL: the AXIS 2100 emulates a DNS server and will respond to this regardless.
- Start the Installation Wizard and Administration Tools to further configure the product, as described in *Configuring Your Camera*, on page 35.

Note: Axis regularly maintain an updated list of all supported ISPs and modems; please visit our Web-site for this, and other late information on our products at <http://www.axis.com/>

Modem Installation Summary

Before you can access your AXIS 2100 using a Web browser, you must first install a local computer to the AXIS 2100 via the supplied *Null Modem Cable*; you then proceed to create a Dial-up connection and establish some basic settings. A full summary of the defined procedures follow:

- Connect your computer to the camera using a null modem cable
- Creating a Dial-up connection
- Refining the Dial-up connection properties
- Initiating the Dial-up connection
- Verifying the modem connection using a Web browser
- Defining your basic configuration using the available *Wizards*
- Installing the modem to your AXIS 2100

Important!

The information and screen examples contained within this section are specific to Windows NT and 98; and although similar to the Dial-up implementation in Windows 95, small deviations in the dialog instructions can be expected. Refer to your system information for details on how create a Dial-up modem connection if you are using any other operating system.

Connecting Your Computer Using the Null Modem Cable

Before you begin:

Windows Dial-up Networking and TCP/IP must be correctly installed prior commencing with the modem cable connection. Carry out the following checks before proceeding with your installation:

Windows Dial-up Networking:

Double click My Computer. If the Dial-up networking icon is not visible in the Network folder, double click *My Computer* and then start the *Dial-up Networking Wizard*. More detailed information on this is provided in the Windows Help.

TCP/IP:

From the Start menu, open the Control Panel and double click the Network icon.

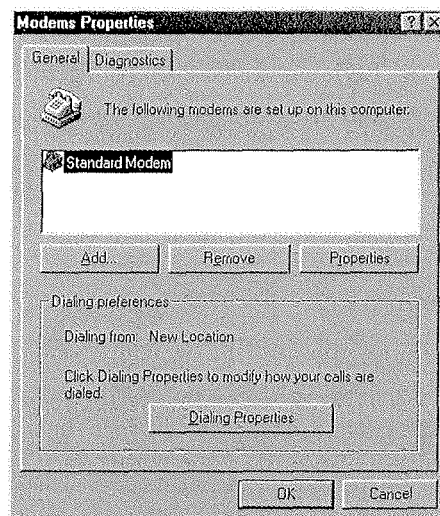
Follow the remaining instructions only if TCP/IP is not displayed as an installed network component:

- Click *Add...* and highlight *Protocol* as the *Network Component Type*. Click *Add*.
- Click *Add*, select *Microsoft TCP/IP*, and then *OK*.

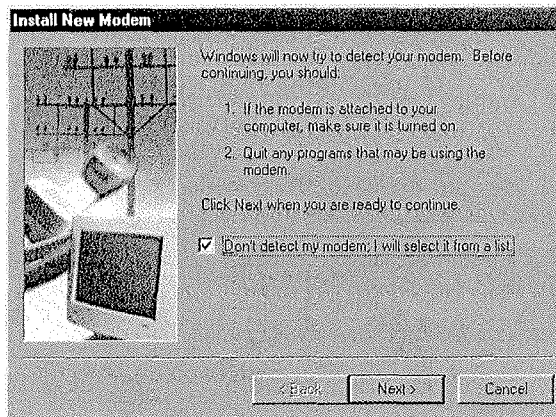
Follow the steps below and connect a computer to the AXIS 2100 for configuring an appropriate serial modem connection to your product:

Note: If you already have a serial modem connected to the serial port of your computer, and configured it as a Standard Modem (see below), you may now want utilize this connection by simply replacing this modem with your AXIS 2100. In this case, you can proceed directly to *Creating a Dial-up Networking Connection*, on page 28.

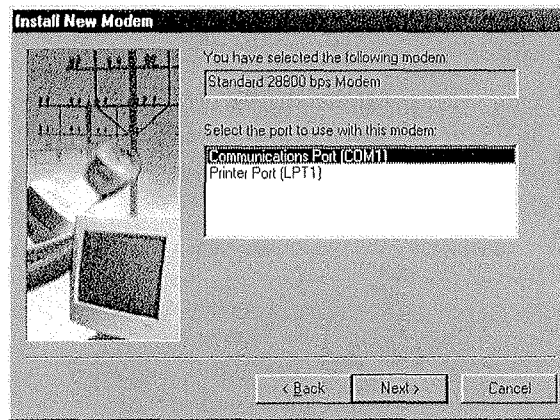
1. Connect the supplied Null modem cable between the *Modem* connector on the AXIS 2100 and the *COM* port on your computer.
2. Connect the power supply to the camera server and check that the Power indicator is constantly lit.
3. From the Start menu, open the Control Panel and double click the Network icon.
4. If a Standard Modem is already set up and displayed within the *Modem Properties* dialog (see right) you should proceed directly to the step 8. Otherwise, click *Add...* to start the *New Modem Installation* wizard.



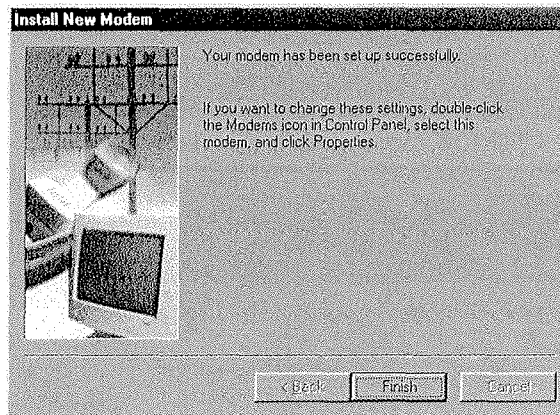
5. Check the dialog: *Don't detect my modem, I will select it from a list.* Click **Next**.
6. Select the Standard 28800 modem from the displayed list of modems. Click **Next**.



7. Select the serial port to which your AXIS 2100 is now connected via the Null Modem cable. Click **Next**.



8. A Standard 28800 modem connection is now available for the AXIS 2100. Click **Finish** to close the *Install New Modem* dialog.

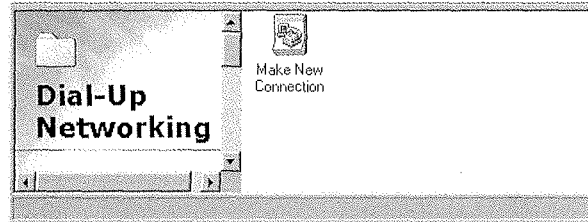


9. Click the **Properties** button to finally check that the displayed Communications Port is set correctly; that is, set to the same port as you have connected the AXIS 2100. Click **OK**.
10. Click **Close**.

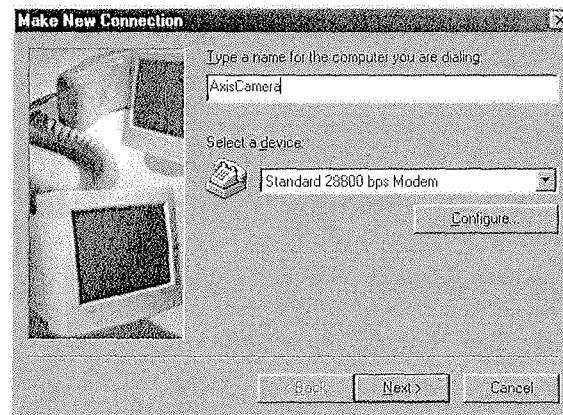
Creating a Dial-up Networking Connection

Follow the steps below to create a dedicated Dial-up networking connection to your AXIS 2100:

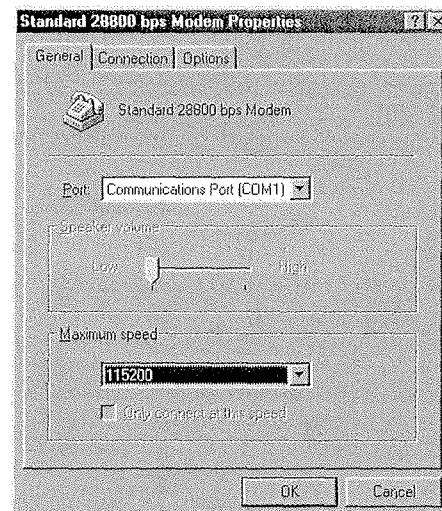
1. Double click My Computer and then double click Dial-up networking icon.
2. Double click the *Make New Connection* icon.



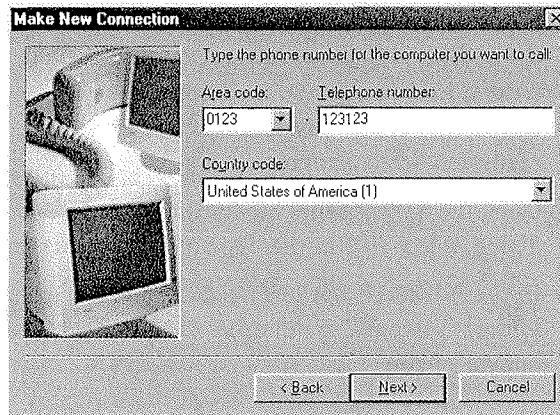
3. Provide the connection with a name (*AxisCamera* is the name used in the subsequent examples).
4. From the drop down dialog, select the Standard Modem previously created for the AXIS 2100 as the selected device. Click **Configure...**



5. Double check that the Port is set correctly and increase *Maximum Speed* to 115200: this will severely increase performance of your AXIS 2100 when accessed via Null-Modem cable.
6. Click **OK** to return to the *Make New Connection* dialog.



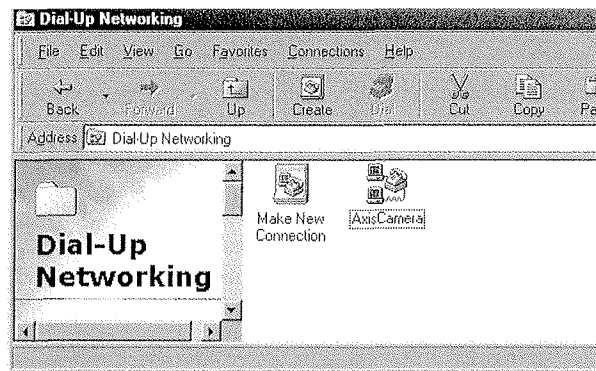
7. Click **Next**. The telephone numbers requested in the following dialog are not required for use in the logical connection to your camera. To bypass the wizard error correction, simply enter any dummy entry into the *Area code*, *Telephone number* and *Country code* fields. Click **Next**.



8. You have now successfully created your dedicated Dial Up Networking connection for your AXIS 2100. Click **Finish**.



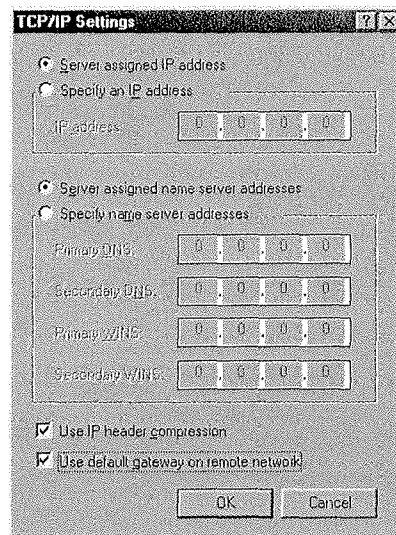
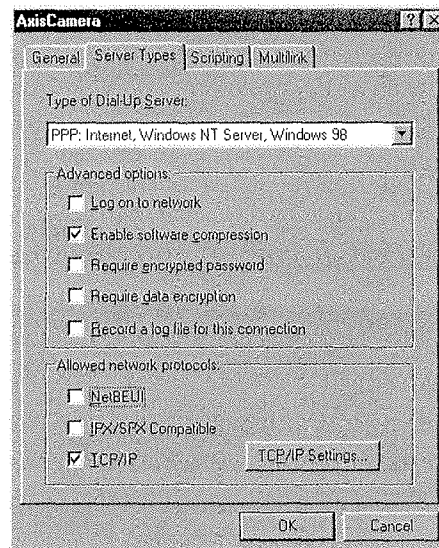
The Dial-up Network connection is now displayed and ready for use within the Dial-up Networking dialog (see right).



Refining the Dial Up Networking Properties

Having created the Dial-up connection for your AXIS 2100, you then follow the steps below to refine several of the connection properties:

1. From the Dial-up Networking dialog, right click the dedicated Dial-up connection previously created for you camera. *AxisCamera* was the connection created used in this and previous examples. Select **Properties**.
2. Click the Server Types tag. From the drop-down dialog, select *PPP* as the Type of Dial-up Server.
3. In the Advanced options field, check *Enable software compression*. All other checkboxes should remain unchecked.
4. In the *Allowed network protocols* field, check the TCP/IP checkbox. NetBEUI and IPX/SPX checkboxes should remain unchecked.
5. Click TCP/IP settings and then check the *Server assigned IP address*, and *Server assigned name server addresses* radio buttons.
6. Check *Use IP header compression* and *Use default gateway on remote network* checkboxes. Click OK.



7. Click the Scripting tag and ensure that the *Start terminal screen minimized* checkbox is checked. Click OK to exit Dial-up Networking Properties.

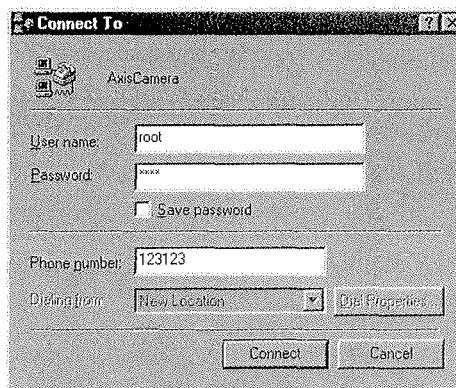
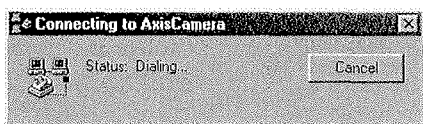
Initiating the Dial-up Connection

Before you begin:

Please ensure that the Null Modem Cable is correctly installed and that the relative connection properties are correctly configured prior to initiating a Dial-up connection. Step by step instructions on how to do this are provided on the following pages:

- *Connecting Your Computer Using the Null Modem Cable*, on page 26
- *Creating a Dial-up Networking Connection*, on page 28
- *Refining the Dial Up Networking Properties*, on page 30

1. Double click *My Computer* and then double click the *Dial-up Networking* dialog.
2. Double click the Dial-up connection icon that was previously created for your AXIS 2100. *AxisCamera* was used in this and previous examples.
3. Click **Connect** to initiate the Dial-up connection.



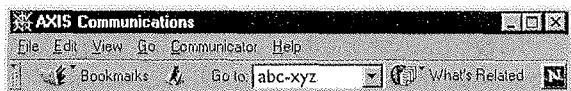
Note: You may enter any username or password when initiating a Dial-up connection for the first time.

You have now successfully opened the Dial-up connection to your Axis Lisa and are free to configure your camera as you wish using any standard Web browser.

Verifying the Modem Connection Using a Web Browser

Having initiated your Dial-up connection, as described above, you can quickly verify the integrity of the connection by accessing the AXIS 2100 using a standard Web browser; such as Netscape or Internet Explorer as follows:

1. Because the AXIS 2100 emulates a DNS server, type in any URL in the **Location/Site** field of your browser to display the AXIS 2100 Home Page, as defined below:



2. Now, configure the unit using the **Installation Wizard** or the **Administration Tools**.

Adjusting the Camera Focus

Important!

As an alternative to the focusing method described in this section, you can also adjust the focus of the product using the Administration Tools - for more information on this, please refer to your on-line help.

The AXIS 2100 features a replaceable CS-type lens that can be targeted for different applications. Supporting rotational focus control, the lens must first be focused under normal quiescent conditions to optimize the image quality for your product.

- Notes:**
- The lens rotates on a screw fitting and can be completely removed. If you do need to remove the lens, take care not to let any dust enter the lens or the camera window - as this can adversely effect the quality of your live images.
 - The unit is delivered with the lens set in approximate focus position, with focus set to infinity.

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 camera installation; this is particularly useful for remotely installed cameras, where the distance between the AXIS 2100 and your viewing workstation is often considerable.

Focus Quality

Once set to *Focus Mode*, the **Status Indicator** displays the following colors that represent a predefined level 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 2100 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 under quiescent conditions: rotated clockwise, for close focus; or anticlockwise, for distant focus.

Dependent upon the cameras location, it is likely that several planes of focus exist within the camera's normal field of view; consequently, the **Status Indicator** is likely to display green, indicating a *good* level of focus, several times throughout the full travel of the lens assembly.

Focusing the Camera Under Quiescent Conditions

Before you begin:

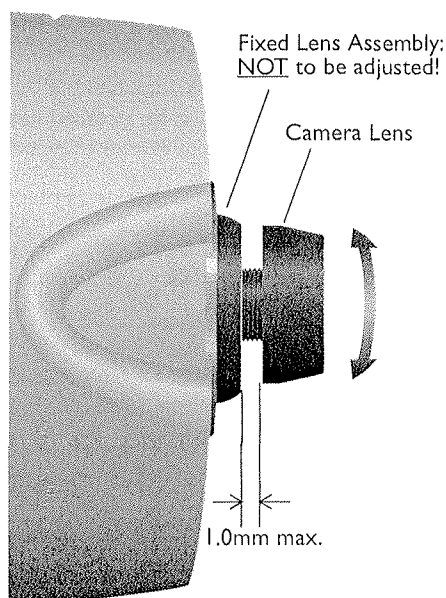
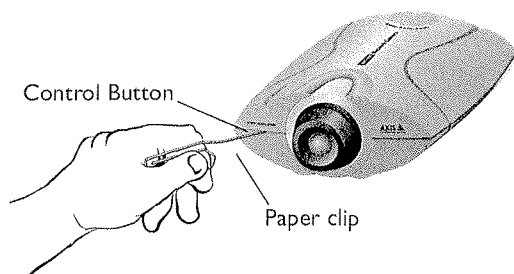
For the focusing algorithm to work effectively, always ensure that minimal movement occurs within the camera's field of view when focusing your camera, as described below.

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

Important!

Do not press the Control Button within 10 seconds of powering on the unit - as this will cause the product to return to the factory default settings.

1. Power-on the AXIS 2100 and then wait at least 10 seconds.
2. Set the AXIS 2100 to its extreme close-focus position by turning the **Camera Lens** fully clockwise (see illustration, right).
3. Press and hold the **Control Button** using a thin paper clip, or any other suitably pointed object (see illustration, below) - until the **Status Indicator** flashes *Yellow*.



The **Focus Assistant** is now enabled with the **Status Indicator** set to **Focus Mode**; the AXIS 2100 simultaneously initiates a focusing algorithm that regularly calculates the quality of focus within the camera's field of view.

4. In order for the **Focus Assistant** to access the full focusing range for your application environment, you now turn the lens six full-turns in the anticlockwise direction; unless you want to replace the lens, it should not be unscrewed more than 1.0mm apart from the **Fixed Lens Assembly** (see illustration, above-right).
5. Finally, turn the lens slowly clockwise until the **Status Indicator** displays *Green*; that is, until a *Good* level of focus is achieved.

- Notes:**
- A *Good* level of focus is normally achievable 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 upon 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.
6. Return to your browser application and review the picture quality. Repeat step 5 only if you consider the focal distance as too distant - until you are satisfied with both the focal-distance and focus-quality.
 7. To exit the **Focus Assistant**: press and hold the **Control button** until the **Status Indicator** flashes *Yellow*. The **Status Indicator** displays *Green* when the **Focus Assistant** is closed.

Replacing the Lens

Because the AXIS 2100 is designed with a CS-mount, the lens supplied with your product can be replaced with any standard C or CS lens, typically used within the surveillance industry.

Note: Although the lens supplied with your product can be directly replaced with any CS-type lens, a C-type lens must be installed with an adaptor for it to work with your AXIS 2100; this adaptor effectively moves the lens 5mm farther from the camera.

Follow the instructions below to replace the supplied lens with any C or CS type lens:

1. Unscrew the AXIS 2100 lens.
2. *C-lens only:* Attach the *new lens* to a *C-CS Adaptor*.
3. Screw the *new lens* onto the AXIS 2100. If applicable, adjust the iris according to the prevailing light conditions.
4. Referring to *Focusing the Camera Under Quiescent Conditions*, on page 33, adjust the camera focus.
5. Reload your Web browser and monitor the results from the product **Home Page**.



Configuring Your Camera


Before you begin:

Successful installation of the product is pre-requisite to configuring the unit: it is assumed that you have decided what application you wish to develop and subsequently installed your product, prior to commencing with this section. If not, please refer to *Choosing Your Application*, on page 10 and the respective sections for your installation: *Installing Your Camera on a Network*, on page 19; or *Installing Your Camera to a Modem*, on page 25.

The AXIS 2100 is configured and integrated into your application environment using the available *Wizards*, or the Web-based *Administration Tools*.

This section provides detailed information on how to use the *Installation and Application Wizards* for creating your preferred application, and a general overview of the supported *Administration Tools* used for refining the product configuration for use in your preferred application environment.

Important!

On-line help  is available from most pages within the AXIS 2100 Web interface. Containing comprehensive details on all product parameters; this information is your first point of reference when configuring and managing the unit, and is a particularly useful reference when resolving any administration queries. The help system is stored internally in the AXIS 2100.

When accessing the Administrator Tools for the first time during a session, you are prompted for username and password. Log on as an Administrator using the username `root` and default password `pass`. You are recommended to change the root password, since all Axis products are shipped with the same password as default. For further information on this, refer to *System Security*, on page 38.

Configuring Using the Wizards

Having decided the application you wish to develop and installing your AXIS 2100 accordingly, the unit is now connected directly to a local area network, or to a local PC using the supplied *Null Modem Cable*.

Before you begin:


Prior to accessing the *Installation Wizard* or *Administration Tools over a network*, you must first set the Internet address, as described in *Assigning an IP Address*, on page 19.

For speedy development of your application, the AXIS 2100 supports two easy-to-use Wizards that are recommended for both novice and advanced users alike: the *Installation Wizard* and the *Application Wizard*. Dependent upon your choice of application, you can run each of these Wizards either consecutively or independently of one another.

Installation Wizard Overview

The Installation Wizard provides a quick and easy method with which to define the *System*, *Security*, *Image* and *Layout* settings for your application - as defined in the *Administration Tools Overview*, on page 38.

Starting the Installation Wizard

1. With reference to the operational information provided in the On-line Help , double click the **Installation Wizard** from the **Home Page** and follow the Wizard to complete your configuration.
2. Click the **Finish** button to save the defined application settings to the camera.


Tip!

Having used the Installation Wizard to initially configure your application, you refer to the on-line Help and use the Administration Tools to refine the application to meet your specific needs.

Application Wizard Overview

The Application Wizard can be started within the final page of the **Installation Wizard**, or started independently from the **Administration Tools - Wizards** page; it provides a quick and easy method to define the *Operation* and *Layout* settings for your application - as defined in the *Administration Tools Overview*, on page 38.

Starting the Application Wizard

1. With reference to the operation information provided in the On-line Help , click **Continue...** within the **Application Wizard** or click the link from within the **Administration Tools - Wizards Page** to start the Wizard.
2. Click the **Finish** button to save the defined application settings to the camera.

The Administration Tools

Whether you are viewing images directly over the network, or transmitting images over a modem, you can use the Web-based **Administration Tools** for configuring and managing your AXIS 2100 at any time. Used for reviewing and refining your configuration after initially setting up the AXIS 2100 with the **Installation Wizard**, these tools are ideal for more advanced users.

Accessing the Tools

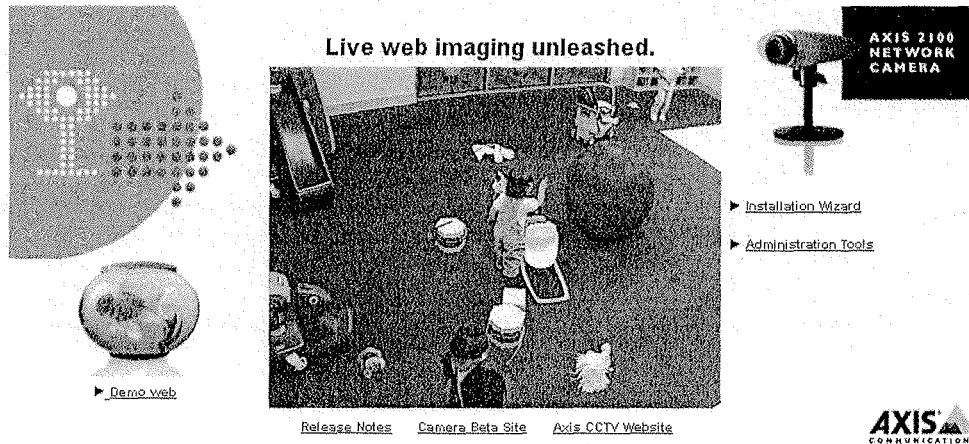
Follow the instructions below to access the **Administration Tools** using a standard Web browser:

1. Start the Web browser and enter the name or Internet address of the AXIS 2100 (or any DNS name if you are accessing the unit via the Null Modem Cable) in the location/address field.

Example

http://172.21.1.200/

2. The AXIS 2100 Home page is now displayed. Click **Administration Tools**.



Note: A prompt for a *username* and *password* is displayed when entering these pages for the first time in a Web browser session. At the prompt, log on as *root* and use the default password *pass*. It is recommended that you change the password of your AXIS 2100 as soon as possible.

3. The **Administration Tools** are now presented as links within the margin of the Administration Page. Simply click the relevant link for the parameters you want to configure. As an *Administrator*, you configure and modify the system directly from this page.



Settings
 ▶ [Image](#)
 ▶ [Network](#)
 ▶ [Modem](#)
 ▶ [System](#)
 ▶ [Security](#)

Applications
 ▶ [Operation](#)
 ▶ [Layout](#)

Wizards
 ▶ [First Time](#)
 ▶ [Application](#)

Administration Tools



Using the links displayed in the left hand margin, navigate your way around the Administration Tools to conveniently configure and manage the AXIS 2100 directly from your Web browser; on-line Help is available for each of the supported tools.



Tools Overview

The table below provides a one-stop overview of the **Administration Tools**:

Settings	Tool Description
Image	Focus the camera using the Focus Assistant and define image attributes for your AXIS 2100.
Network	Configure the TCP/IP, SMTP E-mail and FTP network settings.
Modem	Configure the communication settings for the <i>Dial-up Modem Connection</i> to your ISP or remote Web server.
System	Set the product Date and Time
Security	Choose the Administrator's username and password (default to root and pass respectively), and create or delete authorized users.
Applications	Tool Description
Application	Choose to run your AXIS 2100 in Sequential or Alarm Mode; determine when and how often images are taken using the <i>Scheduler</i> ; and define when the images are uploaded to an ISP, or target FTP/Web server.
Layout	Determine the Layout for the Web page in which your images will appear; customize the page after your own design and include your own logos, links and title texts, enable or disable specific function buttons ...and much more.
Misc	Tool Description
Wizard	A one-stop reference point for the Installation Wizard and Application Wizard.
Support	Display the product <i>Release Notes</i> , view the <i>Parameter List</i> , and/or initiate a <i>Restart</i> of the unit.
Home	Links directly to the Home Page of your application.

System Security

To prevent any unauthorized use of the AXIS 2100, the AXIS 2100 supports multi-level password protection and access is strictly restricted to defined **users only**. The system *Administrator(s)* has exclusive access to the product *Administration Tools* and can determine the registration, and access rights for all **users**.

Note: Although, the Administrator's default username and password (set to *root* and *pass* respectively) can be used for logging in to the unit for the first time, it is strongly recommended that you change the this password for your AXIS 2100 as soon as possible - since all Axis products are shipped with the same password as default.

User Access Rights

As an *Administrator*, you click the **Security** to perform any of the following tasks:

- defining or editing the **administrator (root) password**
- defining, adding and deleting **user names and passwords**
- assigning individual access rights to a selected user, where each user is awarded with one or all of the following levels of access:
 - **Admin:** a user granted with *Admin rights* has exclusive access to the product *Administration Tools* and can consequently determine the registration of all *users*.
 - **Dial-in:** provides the user with dial-in modem access to the AXIS 2100 only.
 - **View:** provides the lowest level of access that allows the user to view the images only.

Important!

By default, the AXIS 2100 supports anonymous user access, which means that anybody on the Internet/intranet has access to the video images from a Web browser.

To restrict open access, simply register a single authorized user: this effectively revokes the anonymous user service and inhibits camera access strictly to specified users. If the anonymous user service is satisfactory for your application, simply do not add any users.

Reinstating the Factory Default Settings

In certain circumstances it may become necessary to restart or reinstate the **Factory Default** settings for your AXIS 2100: this can be initiated by clicking the appropriate button within the **Administration Tools**, *or* by pressing the **Control Button** as described below:

1. Power cycle the AXIS 2100 by removing and then reconnecting the power cord.
2. Within five seconds of power cycling the unit, press and continue to hold the **Control button** depressed until the **Status Indicator** displays permanently *Yellow*.

The AXIS 2100 is now reset to factory default settings. Restart the AXIS 2100 by disconnecting and then reconnecting the power cable.

Note: The Ethernet address remains unchanged, but all other parameters including the IP address are reset. Refer to *Assigning an IP Address*, on page 19 for details on how to set the IP number.

Appendix A - Troubleshooting

This appendix provides useful information to help you to resolve any difficulty you might have with your AXIS 2100. Fault symptoms, possible causes and remedial actions are provided within a quick reference table.

PINGing Your IP Address

By sending a packet to the specified address and waiting for a reply, the *PING* (Packet Internet Groper) can determine whether a specific IP address is accessible; it also provides a particularly useful method for confirming addressing conflicts with your AXIS 2100 on the network.

Having disconnected your AXIS 2100, follow the instructions below in association with *Symptoms, Possible Causes and Remedial Actions*, on page 41, and run the PING utility to troubleshoot TCP/IP problems on your network:

1. Start a DOS window.
2. Type `ping x.x.x.x`, where `x.x.x.x` is the IP address of the AXIS 2100.
3. The subsequent replies will provide an explanation as to the cause of the problem. Replies can be interpreted as defined in the table below:

PING Reply	Interpretation and recommendation
bytes = 32 time = 2 ms.....	The IP address is already used and cannot be used again. You must obtain a new IP address.
destination host unreachable	The AXIS 2100 is not accessible within your subnet. You must obtain a new IP address.
request timed out	This IP address is not used by anyone and is available for use with your AXIS 2100.

Symptoms, Possible Causes and Remedial Actions

Symptoms	Possible causes	Remedial actions
The AXIS 2100 cannot be accessed from a Web browser.	The IP address is already used by another device.	<ol style="list-style-type: none"> 1. Disconnect your AXIS 2100 from the network. 2. Run the PING utility (as described in <i>PINGing Your IP Address</i>, on page 40) and follow the appropriate recommendations. <p>Note: The assigned IP number can be assumed valid if the PING utility returns "request timed out" - in which case you should set the IP address again, power on the AXIS 2100 and then try accessing the unit again.</p>
	The IP address is located within a different subnet.	<p>Run the PING utility (as described in <i>PINGing Your IP Address</i>, on page 40). If the utility returns "no response" or similar, the diagnosis is probably correct - you should then proceed as follows:</p> <p>In Windows 95/98 or Windows NT, check that the IP address for your AXIS 2100 is within the same subnet as your workstation:</p> <ol style="list-style-type: none"> 1. Click "Start", "Settings", "Control Panel" and "Network". 2. Specify the TCP/IP adapter and click on "Properties". In Properties, click "IP Address". 3. Check that the first 3 numbers within the IP address of your AXIS 2100 matches the first 3 of your workstation. If not, your AXIS 2100 may be on a different subnet and the IP address cannot be set from this workstation. You must set the IP address for the AXIS 2100 from a workstation on the same subnet.
	In Windows 95, the ARP table was empty when you tried to set the IP address.	<p>In Windows 95, the ARP command cannot be used if you have an empty ARP table.</p> <p>Type <code>arp -a</code> to view the ARP table. If it is empty, you must ping an existing unit on your network before you can download the IP address to the AXIS 2100, using ARP. See also the Important Note on page 20. The AXIS IP Installer provides a valuable alternative to ARP.</p>
	Possible problem with your proxy server.	Try disabling the proxy default in your browser.
	Other networking problems.	<p>Try replacing your network cable.</p> <p>Test the network interface of the product by connecting a local computer to the unit, using a standard <i>Crossover (hub-to-hub) Cable</i>.</p> <p>If the above actions do not resolve the problem, the AXIS 2100 maybe faulty. In this case, try to localize the problem by connecting the AXIS 2100 to the serial port of a local computer, using the supplied <i>Null Modem Cable</i>; and report your findings to your local distributor.</p>

Symptoms	Possible causes	Remedial actions
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.	<ol style="list-style-type: none"> To verify that the cables are functional, PING the address of a known existing unit on your network. If the cabling is OK and your network is reachable, you should receive the reply similar to this: ...bytes = 32 time = 2 ms,
The Active and Network indicators are flashing every 0.5 seconds	Hardware failure.	Contact your Axis dealer.
Your AXIS 2100 works locally, but not externally.	Firewall protection	Check the Internet firewall with your system manager.
	Default routers required	Check if you need to configure the default router settings.
	The Internet site is too heavily loaded.	Configure the AXIS 2100 to upload your video images to an FTP server or an ISP.
No image using Refresh and/or Slow updating of images.	Complex images, i.e. those containing great picture contrasts, have greater file size and thus place greater demand on the available file space within the AXIS 2100.	The memory constraints become significantly more acute when multiple clients try to access the same images; Try limiting the number of clients, or configure the AXIS 2100 to upload your video images to an FTP server or an ISP.
Cannot access the connected modem	Modem not set for RTS/CTS.	Ensure that the modem is set for RTS/CTS serial communication. Disable Local echo mode using the command <code>ATE0</code> . Save the changes in the NVRAM of the modem using the command <code>AT&W</code> .
	Local echo not disabled	
A series broad vertical white lines appear across the image.	The CCD sensor becomes overloaded when the light is too bright. This can happen e.g. with sun light reflexes.	Direct exposure to extreme sunlight or halogen light may cause serious damage to the CCD sensor. Reposition your AXIS 2100 into a more shaded location immediately. Note: damage caused to the AXIS 2100 through over exposure 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 <i>Focus Assistant</i> , as described in <i>Adjusting the Camera Focus</i> , on page 32.
	No adaptor fitted with your C-type lens.	If you have previously replaced the supplied CS-type lens, you may inadvertently have installed a C-type lens - without the required adaptor. See also page 34.

Symptoms	Possible causes	Remedial actions
Noisy images.	Video images may be noisy if you are using the AXIS 2100 in a very low light environment.	To solve this problem, you need more light. The performance of the camera is best in 100 - 3,000 lux. You may wish to consider replacing the basic lens with a more sensitive lens (Lower F-number), if the lighting conditions within the installation area can not be improved.
Bad 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.
	The camera is not focused correctly.	Referring to the on-line help, adjust the White Balance setting and then try resetting the camera focus again using the <i>Focus Assistant</i> , as described in <i>Adjusting the Camera Focus</i> , on page 32.
No images available in your browser application.	ActiveX disabled.	If you are using Microsoft Internet Explorer, ensure that ActiveX has not been disabled in the Internet Options menu.

Note: If you still have a problem after reading this information, please contact your reseller or check the FAQ on the Axis Website at <http://www.axis.com>.

Appendix B - Updating the Software

The AXIS 2100 camera software 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 that you can install software updates for your AXIS 2100 as soon as they become available - without having to replace any parts. New software can be simply loaded into the AXIS 2100 over the network.

Obtaining Updated Software

The latest version of the AXIS 2100 camera software is available free of charge from Axis or your local distributor. You can obtain this software over the Internet or via anonymous FTP.

Over the Internet

From the <http://www.axis.com/> link on the AXIS 2100 Home Page and follow the "Support and Services" and then firmware links.

Click the Flash firmware and Release Note link to download the file `axis2100.exe`. This self extracting archive file unpacks the associated data and text files upon execution. It is recommended that you save this file in your root directory.

Anonymous FTP

Log in to `ftp.axis.com` and go to the `/pub/axis/software/cam_srv/cam_2100/latest/` directory. Download the software download the file `axis2100.exe`. This self extracting archive file unpacks the associated data and text files upon execution.

Upgrading the Software



There are two methods for updating to the AXIS 2100 Flash memory:

- over the network using the AXIS ThinWizard
- over the network using FTP

Upgrading Using the AXIS ThinWizard

Before you begin:

The AXIS 2100 must be assigned an IP address before being upgraded using the AXIS ThinWizard.

AXIS ThinWizard is a tool for locating, managing and upgrading AXIS ThinServer devices, including AXIS 2100 products on your TCP/IP network. Available from Axis' Website, it enables batch upgrading of several ThinServer devices simultaneously, and is the recommended method if you need to upgrade multiple Axis camera products.

Follow the instructions below to upgrade your Axis camera products using AXIS ThinWizard:

1. Click the **Manage Network** button in the AXIS ThinWizard main menu.
2. Select a network group from the drop-down list. You can only update the servers that are included in the selected network group.
3. All AXIS servers included in the network group appear. Click the **Firmware** button to start the Upgrade Wizard.
4. Follow the instructions that are presented to you to complete the installation.

For more information about AXIS ThinWizard, refer to the Axis Website at <http://www.axis.com/>

Upgrading using FTP

Before you begin:

Always read the upgrade instructions available with each new release, prior to upgrading your software.

Having obtained the upgrade software, install it into the AXIS 2100 by following the instructions below:

1. Reset the AXIS 2100 by powering it off and then on again.
2. Start an FTP session and log in to the AXIS 2100 as `root`, using the root password. By default this is set to `pass`.
3. Set FTP to binary mode using the command `bin`.
4. Download the new camera server software to you AXIS 2100 by using the command `put 2100_xxx.bin flash`, where `xxx` is the version number for the firmware.
The product indicators flash slowly during programming

Important!

Downloading normally takes between 30 seconds and 10 minutes, although it can take longer: After commencing with the download, you should always wait at least 20 minutes before power cycling the AXIS 2400 - even if you suspect the download procedure has failed.

5. The FTP prompt is returned once the programming is complete.

Caution!

In controlled environments, flash memory upgrades provide a very safe method for updating software. However, flash products can become damaged if the updating operation is not performed correctly. Your dealer reserves the right to charge for any repair attributable to faulty upgrading by the user.

Appendix C - The Unit Connectors

This section provides a detailed overview of the two supported product connectors; namely the **Serial Connector** and **IO Connector**; it also includes a schematic diagram describing how the AXIS 2100 is connected for a typical application:

The Serial Connector

In absence of a local network connection, the RS232 serial connector provides a physical interface for connecting a modem or computer to the AXIS 2100. This means that the AXIS 2100 can operate as a standalone unit - independent of any computer network. When a local network connection is unavailable at the point of installation, you connect your PC to this connector using the supplied *Null Modem Cable* to initially configure your product.

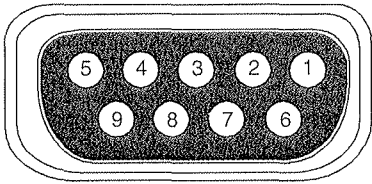
Note: Axis' Camera Division regularly maintains an updated list of all supported modems; please visit our Website for this, and other late information on our products, at <http://www.axis.com/>

The Physical Connector

A single 9 pin D-sub connector provides the physical connection for the RS232 serial interface of the AXIS 2100. This connector is dedicated for use with an external modem and is suitable for speeds up to 115kbps.

A diagram of the RS232 connector complete with pinout information is shown below.

Pin	Function
1	CD (Carrier Detect)
2	RXD (Receive Data)
3	TXD (Transmit Data)
4	DTR (Data Terminal Ready)
5	GND (Ground)
6	DSR (Data Signal Ready)
7	RTS (Return To Send)
8	CTS (Clear To Send)
9	RI (Ring Indicator)



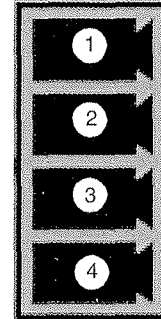
The IO Connector

A 4-pole connector is provided for auxiliary IO connections to the AXIS 2100.

Physical Connector

The IO connector provides the interface to a single digital output and a single digital input; a diagram for the connector complete with a pinout table is provided below:

Pin	Function
1	Common Ground
2	Positive Connection for DC Power Input or Output: Electrically in parallel with the derived DC power for the unit, this pin may be used as an input or output. As an input it can be used for remote applications to supply the AXIS 2100 via an external direct current source; for example, a 9-15V DC battery supply. Used as an output, it can drive the photo coupled input or other equipment; such as, an infrared sensor. The output voltage level is dependent upon the input voltage to the unit. A maximum current of 50mA can be sourced from the DC output.
3	Digital Input (photo-coupled anode): Voltages 5-24V DC will activate the input. It is possible to use pin 2 to source the input.
4	Digital Output: With a maximum load of 100mA and maximum voltage of 24VDC voltage, this output has an open-collector NPN transistor with the emitter connected to pin 1. If it is to be used with an external relay, a diode must be connected in parallel with the load for protection against any voltage transients - as detailed in the <i>Schematic Diagram</i> , on page 48. Note: Connecting AC to the transistor output will damage the unit.



Digital Input

Used for connecting external alarm devices and triggering images for specific alarm-based events, the digital input is typically connected to a motion detector - or any other external security device - for taking images on each occasion that the detector is activated.

Digital Output

The supported transistor output can drive a maximum load of 24V DC at 100mA directly; and by connecting additional relay circuitry, can drive even heavier loads.

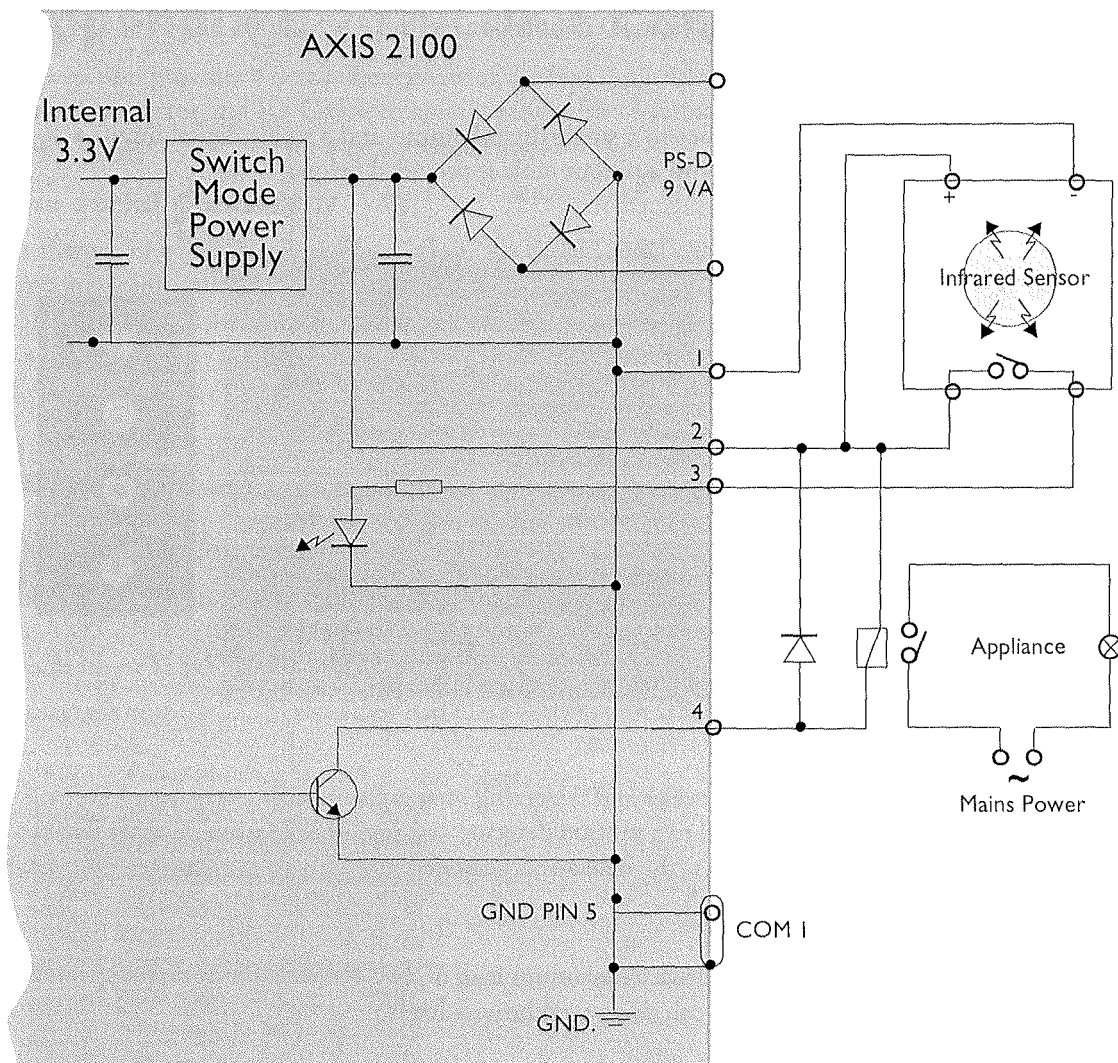
Controlling and Monitoring

You use the **Administration Tools** for controlling and monitoring the **IO Status** of both the **Digital Input** and **Digital Output**; specifically for:

- querying the status the **Digital Output** and/or driving the output high or low
- monitoring the status of the **Digital Input**

Note: IO Status must be enabled within the Layout settings for IO status to feature in the Home Page.

Schematic Diagram



Schematic diagram of the I/O and RS232 connector - displaying a possible application

Caution!

Pins 1 and 2 are connected to the derived DC power for the unit, and can be used as an external power feed for external equipment; such as an Infrared sensor. When connecting other equipment using this connector, the maximum current of 50mA must be strictly observed. Failure to do this may cause a loss of power to the unit and even damage your camera.

Appendix D - High Speed Internet Services

The AXIS 2100 is designed with high-speed Internet services foremost in mind, and you will experience the full performance of your AXIS 2100 if you are fortunate enough to have xDSL or a cable modem connection. However, as most high speed Internet services only provide you one external IP address, there are some practical issues that should be considered when developing your application:

Available IP Addresses

Ideally your ISP (Internet Service Provider) will supply you with several external static IP addresses - in which case you can assign any one of these to your AXIS 2100 to make it fully accessible over the internet. If your service provider supplies you with only one IP number - which is normally the case - this IP number is normally assigned to your PC. If your ISP is unable to provide you with an additional IP number, you still have a number of other options that you may like to consider; including:

Windows 2000 NAT-feature (Network Address Translation):

Utilize the NAT feature in Windows 2000 to allow multiple Ethernet cards in your PC; you then use one port for the internet and the other for your internal network. Using this solution, you can let your AXIS 2100 upload image streams to an external Web server, maintained and located with your preferred ISP.

Routers and Firewalls

Another ideal solution is to use one of several small routers/firewalls that are currently available on the market: this provides the necessary NAT functionality and allows complete independence for your PC, which can be switched off or rebooted without effecting the image transmission from your AXIS 2100.

WinGate Server Software:

Running on a single Windows 95/98 or NT computer, this software allows multiple users simultaneous access to the Internet through a single modem; ISDN; or high speed line, such as xDSL or cable modem connection; and effectively shares a single Internet connection with almost any type of client computer running TCP/IP.

For more advanced users, the WinGate 3.0 Standard and Pro versions allow the administrator to change the IP bindings so that external requests may be routed specifically to your AXIS 2100 - running behind the WinGate software.

Appendix E - Technical Specifications

System Requirements - The AXIS 2100 uses the standard Internet TCP/IP suite of protocols and can be used with most operating systems: Windows 95, 98, NT and 2000 as well as Linux, UNIX, Mac and several others. The only software required is Microsoft Internet Explorer 4.x, or higher (used with Axis' ActiveX component AXIS Camera Control), or Netscape 4.x or above.

Installation - Physical network connection using RJ45 twisted pair cable, or remote connection using any standard serial modem.

Management - Remote configuration and status using Web-based Administration Tools.

Features - Time stamp, text overlay and image control.

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

I/O Connector - Providing a single optical-isolated alarm input, and a single digital output (max 24V, 0.1 A) that features a programmable digital input/output for remote image storage via File Transfer Protocol (FTP) or E-mail (SMTP), pre/post alarm image storage.

Pre/Post Alarm Buffer - Up to 1.5 MByte memory available for pre/post alarm image storage.

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

Security - Multi-level user password protection.

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

Approvals - EMC: FCC Class A, **CE** :EN 55022/1987, EN50024/1998
Safety: EN 60950, UL, CSA.

Metrics - Height: 1.6" (4.1 cm), Width: 4.0" (10.2 cm), Length: 5.8" (14.7 cm), Weight: 0.55 lb. (0.25 kg) excluding psu.

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

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

Complimentary Software - AXIS IP Installer - for quick installation of multiple units, AXIS Thin Wizard - remote upgrade of multiple Axis units. AXIS Camera Control (Axis' ActiveX component software required for Microsoft Internet Explorer)

ThinServer Technology - Incorporating Axis ThinServer Technology, the AXIS 2100 comprises: "thin" versions of the most popular network operating systems, Web management tools, Axis' own ETRAX 32-bit RISC processor - based on open architecture, streamlined and optimized for device connectivity independent of any file server; and the industry's first dedicated network digital video surveillance compression chip - the AXIS ARTPEC-I.

Compression and Performance - With an adaptive frame rate dependent upon the prevailing lighting conditions, the AXIS 2100 delivers Motion-JPEG images at up to 10 images per second, as well as single JPEG images that feature user controlled compression level. See also *Picture frequency for Networking Applications*, on page 11.

All specifications are subject to change without prior notice.

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