

Network Cameras

Network cameras are digital imaging devices that can be configured to send video over a network for live viewing, recording or analysis using standard Internet-based protocols (hence the term – IP camera). A major step up from conventional analog 'closed circuit' surveillance systems (CCTVs), network cameras use digital encoding and compression techniques to transmit video safely and securely over much larger distances. Thanks to their native Internet compatibility and in-built web servers, network cameras allow you to easily monitor a space or activity from anywhere in the world using nothing more than a web browser and an administrator password.

Because of its scalability, amongst other advantages, network cameras have rapidly gained in popularity ever since Axis invented the first IP camera in 1996. Network cameras are presently available in a wide variety of configurations and form factors, and are increasingly supported by an ever-growing range of software products for video management and intelligent video analytics. With the appropriate software your surveillance system can easily be programmed to, for example, detect remarkable incidents (such as movement or noise in a restricted area) and automatically alert you by a pop-up message, triggering an alarm, or even via email.

Network cameras are available as fixed and PTZ types in standard and dome enclosures.

Megapixel

High resolution or 'Megapixel' network cameras bring about substantial (3X, at the very least) improvements in quality and resolution over analog CCTV cameras. They thus offer unmatched benefits to video surveillance systems where the extra image detail is critical to performing complex analytical tasks such as face identification, license plate recognition, and object character recognition (OCR).

Megapixel cameras can also significantly reduce the cost of ownership of a network video system by covering a wider area than a low-res camera at a satisfactory resolution. However, the choice of camera resolution ultimately depends upon a combination of factors including – the number of interest areas to be covered, the size and relative locations of these areas, bandwidth and storage constraints, and the particular role of the camera within the larger surveillance system.

Day & Night

Day & Night cameras allow the surveillance of areas where there are, over the course of a day, wide variations in the amount of light present in a scene. They are hence useful in

environments and situations that restrict the use of artificial light to compensate for low ambient light. These include low-light video surveillance, covert surveillance, and discreet applications.

Day & Night cameras function by selectively allowing the infrared light to incident on the image sensor. At lowlight or night time conditions, there is generally still some ambient infrared (IR) light that can sufficiently illuminate the scene in order to produce high-quality video. However, a camera that is sensitive to IR light proves to be highly noisy in sunlight which has a very intense IR component (the reason why all daylight cameras are fitted with a permanent IR-cut off filter). By switching the IR-cut off filter on and off in day and night mode respectively, a day/night camera is possible to obtain clear video footage in both conditions.

Auto Iris

Auto Iris lenses are necessarily used in outdoor applications to compensate for the continuous variation of light over the course of the day.

This is achieved this by automatically adjusting the aperture of the lens, based on the reading from an integrated photosensitive detector, in order to optimize image quality and also to protect the camera's sensor from being damaged by strong sunlight.

Pan-Tilt-Zoom

Pan-Tilt-Zoom (PTZ) functionality allows the camera to be maneuvered along three directions – side to side (pan), up and down (tilt), and in and out (zoom). This movement can either be preprogrammed to be automatic, or it can be controlled manually from a remote computer.

PTZ cameras are ideal for the live monitoring of moving persons or objects. They can also be operated in guard tour mode, where the camera automatically moves between preset positions.

Dome

A camera with a dome casing offers multiple benefits in terms of compactness, discreetness, and tamper-resistance.

The relative opacity of the casing makes it difficult to see either the direction in which the camera is pointing, or its movement. By preventing physical access to the camera, a dome also offers efficient protection against common types of tampering such as redirection and defocusing.

Wireless

Wireless technology allows surveillance systems to quickly and easily cover large areas that do not have any existing LAN infrastructure, as well as sites where the use of extensive Ethernet cabling is either discouraged or prohibited. Network cameras with built-in wireless support are obviously most suited for wireless network video solutions. Network cameras without built-in wireless technology can be integrated into a wireless network through the use of a network bridge.

The IEEE 802.11 is the most widely followed wireless standard for wireless local area networks (WLAN). One of its major advantages over other standards and proprietary technologies is that it is 'license-free' and hence does not add any cost to the surveillance system. Unauthorized access to the wireless video transmissions, a major security concern in such networks, is prevented by the use of data encryption technologies such as WEP and WPA/WPA2.

Power over Ethernet

Power-over-Ethernet technology allows a PoE enabled cameras and other network devices to be powered using the same Ethernet cable that is used for data communication on the network. This considerably reduces the space required for cabling and its cost.

PoE midspans and splitters are used to bundle power along with the data coming over the network and vice versa, respectively.

Web server

Some network cameras are equipped with a built-in web server. This means that they can be directly accessed over a network using a standard web browser on any PC.

Using this interface, you can view live feed from the camera, change configuration setting, and even control its movements (actual parameters vary in each camera model).

If the camera is made accessible via the Internet, you can know remotely control and monitor your camera from anywhere in the world.

Motion detection

Cameras with built-in motion detection can trigger an alarm and alert security personnel if movement is detected in the monitored area. The camera can also be programmed to start recording, or take some other action (via serial I/O ports), when an event occurs.

*Image compression

*Email Client

*Secure communication

*I/O ports

- *Two-way audio
- *Vandal Resistant
- *Tamper detection

Video Encoders

Analog CCTV cameras are gradually being phased out to make way for digital network cameras that provide tremendous improvements in video quality, and also in the scalability and effectiveness of surveillance systems.



However, security administrators who have already invested heavily in analog cameras can benefit from network video. Existing analog cameras can be integrated into a digital network using devices known as video encoders. Video encoders (alternately called video servers) digitize analog video signals and transmit them over an IP network. They essentially allow you avoid a complete overhaul of the existing surveillance system, and still take advantage of the benefits of network video:

- Remote accessibility
- High image quality
- Built-in video analytics
- Future-proof integration
- Scalability and flexibility
- Cost-effectiveness

Video Management Software

Video Management Software provides system users and administrators with functionalities for video monitoring, analysis, and recording. Although the built-in web server might be sufficient for managing a single camera, larger networks necessitate the use of dedicated and, in some cases, customized software.



Apart from viewing live feed, and its storage

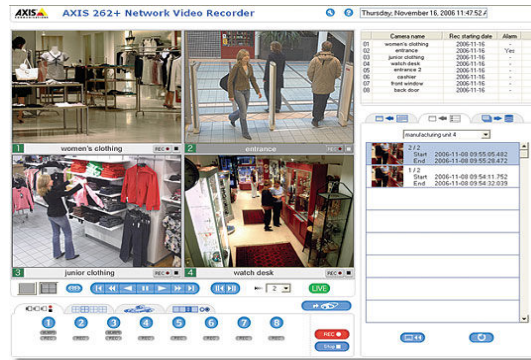
and retrieval, video management software offerings contain features such as:

- Simultaneous viewing and recording of live video from multiple cameras
- Several recording modes : continuous, scheduled, on alarm, and on motion detection
- Capacity to handle high frame rates and large amounts of data
- Multiple search functions for recorded events
- Remote access via a web browser, client software, and even PDA client
- Control of PTZ and dome cameras
- Alarm management functions (sound alarm, pop-up windows or e-mail)
- Full duplex, real-time audio support
- Video intelligence

Recording Solutions

The latest in network video recording technology allows you to fully capitalize on the many benefits of a digital video surveillance system. Like the capability to record at megapixel resolution, network video recorders (NVRs) are designed to take advantage of all the features that are built into modern network cameras.

NVRs offer significant advantages over conventional DVRs (Digital Video Recorders) which are generally PC based and rely on multiple conversions that diminish performance and image quality.



Accessories

Choosing the right accessories is often the key to a more practical and user-friendly network video solution. The following ranges of accessories for the Axis products are available from Soliton

- Camera housing
- Illuminators
- Surveillance joystick
- Power over Ethernet
- Power Accessories
- Lenses
- Mounting accessories

