e-Watch® Situational Awareness Software Product Overview

e-Watch Corporation

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e-Watch systems do not prevent crimes from being committed, but are intended to be used to monitor and investigate.

e-Watch components are electronic devices and complex commercial software products. As such, they may fail on occasion. Multiple devices with overlapping zones should be used for redundancy.

e-Watch event notification capabilities must be user programmed and activated prior to use. System reliability is dependent on the underlying network infrastructure and associated communications services that may fail on occasion. The user of the e-Watch system is advised to evaluate risk associated with network failures and operator errors. Routine auditing and preventive maintenance of the system is essential to assure optimum performance.

Event analysis and recreation is subject to system configuration, lighting conditions, environmental conditions, lens and housing cleanliness, distance to subject, operator-invoked control settings, and many other factors.

Read and follow all documentation to assure proper performance.

C O N T E N T S

PREFACE

The preface describes the purpose, audience, organization, and conventions of this guide and provides information on how to obtain related documents.

The preface covers these topics:

- Purpose
- Audience
- Organization
- Related Documentation
- Conventions
- Obtaining Documentation
- Documentation Feedback
- Obtaining Assistance

Purpose

This Product Overview provides an introduction to the e-Watch® Situational Awareness System. No prior knowledge of e-Watch products or technologies is assumed, and no special knowledge of digital networks or security systems is required.

Audience

This Product Overview is primarily addressed to prospective Resellers and End Users. It presents a practical explanation of features and capabilities to help Account Managers understand the target applications and evaluate sales opportunities.

Organization

This guide is organized as shown in the following table

Part	Description

Part 1	'Product Overview'
	Contains information on e-Watch® products with Frequently Asked Questions and setup scenarios.
Part 2	'Appendices'
	Glossary and Abbreviations.

Related Documentation

Refer to the following documents for further information about e-Watch products and software.

- URG-9110-001—SiteWatch™ Situational Awareness System Administration Guide
- URG-9111-001—e-Watch® Situational Awareness System Quick Start Guide
- URG-9119-001—Design Guide

Conventions

This document uses the following conventions:

CONVENTION	DESCRIPTION
Boldface font	Commands and keywords are in **boldface**.
Italic font	Arguments for which you supply values are in *italics*.
[ ]	Elements in square brackets are optional.
{x|y|z}	Alternate keywords are grouped in brackets and separated by vertical bars.
[x|y|z]	Optional keywords are grouped in brackets and separated by vertical bars.
String	A non-quoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.
`Screen` font	Terminal sessions and information the system displays are in `screen` font.
`Boldface screen` font	Information you must enter is in **`boldface screen`** font.

Italic screen font	Arguments for which you supply values are in *italic* screen font.
^	The symbol ^ represents the key labeled Control - for example, the key combination of ^D in a screen display means hold down the Control key while you press the D key.
-->	This pointer highlights an important line of text in an example.
<>	Non-printing characters, such as passwords, are in angle brackets.

Obtaining Documentation

The following sections provide sources for obtaining documentation from e-Watch Corporation.

World Wide Web

e-Watch documents can be found by going to the e-Watch web site www.e-watch.com

By Mail

e-Watch Corporation
7800 IH 10 West, Suite 720
San Antonio, Texas 78230
210.349.2000

support@e-watch.com

Documentation Feedback

You can submit technical comments about e-Watch documentation in the following ways:

E-mail your comments to support@e-watch.com

To submit comments by mail, write to the following address:

e-Watch Corporation
7800 IH 10 West, Suite 720
San Antonio, Texas 78230

We appreciate your comments.

Obtaining Assistance

The following sections provide sources for obtaining assistance from e-Watch Corporation.

Customer Support

For technical assistance please send requests to support@e-watch.com or your local e-Watch reseller. You may also call 210-349-2000 and ask for Customer Support.

Sales

For assistance with sales or marketing please call 210-349-2000 and ask for Sales or send requests to sales@e-watch.com.

Introduction

Overview

The e-Watch® Situational Awareness System is the next step in the evolution of enterprise-class digital surveillance systems. e-Watch provides a total picture of your facility's security in one integrated solution, and seamless access to security information for maximum safety.

e-Watch transmits full-motion video streams, high resolution still images, detected event data and other sensor and detector data using digital data transmission over both wired and wireless networks.

e-Watch was developed using standard networking and Internet technology. Both real-time and archived data may be viewed from a local ViewWatch™ station, and from authorized computers anywhere on the Internet. The archive application tracks and maintains all situational awareness information and provides high-speed random access for fast location of specific data relating to events.

Wireless monitoring is another important component of the e-Watch system. Hand-held wireless video terminals allow security officers, administrators, police officers, firefighters and other response personnel to view full motion video from all cameras on the network at geographical positions not bounded by physical wiring. These hand-held devices may be used inside or outside of the facility depending on the configuration.

Automated notification of alarm conditions and other events is provided to response personnel. Notification can be provided using dialup circuits to telephones, cellular phones, and pagers; via e-mail; or via the Internet.

Figure 1-1 depicts a typical e-Watch network. The diagram suggests that this installation is in a business environment. Sections of the diagram are labelled to help you understand how the various components of the e-Watch system can be effectively deployed. For example, a dome camera with pan/tilt/zoom capability can be connected to an e-Watch encoder and used in a large open area such as a cafeteria. e-Watch cameras can be connected to a

network power inserter using existing CAT5 cable, providing coverage without the need for a new network or power infrastructure. e-Watch wireless cameras can be used in a remote area such as a parking lot where installing network cable is not practical.

Figure 1-1 is not intended to suggest that e-Watch is limited to a business environment. By design, e-Watch is modular, scalable and flexible, and can be adapted to almost any physical environment.

The following chapters describe each of the e-Watch components, using Figure 1-1 as a reference.
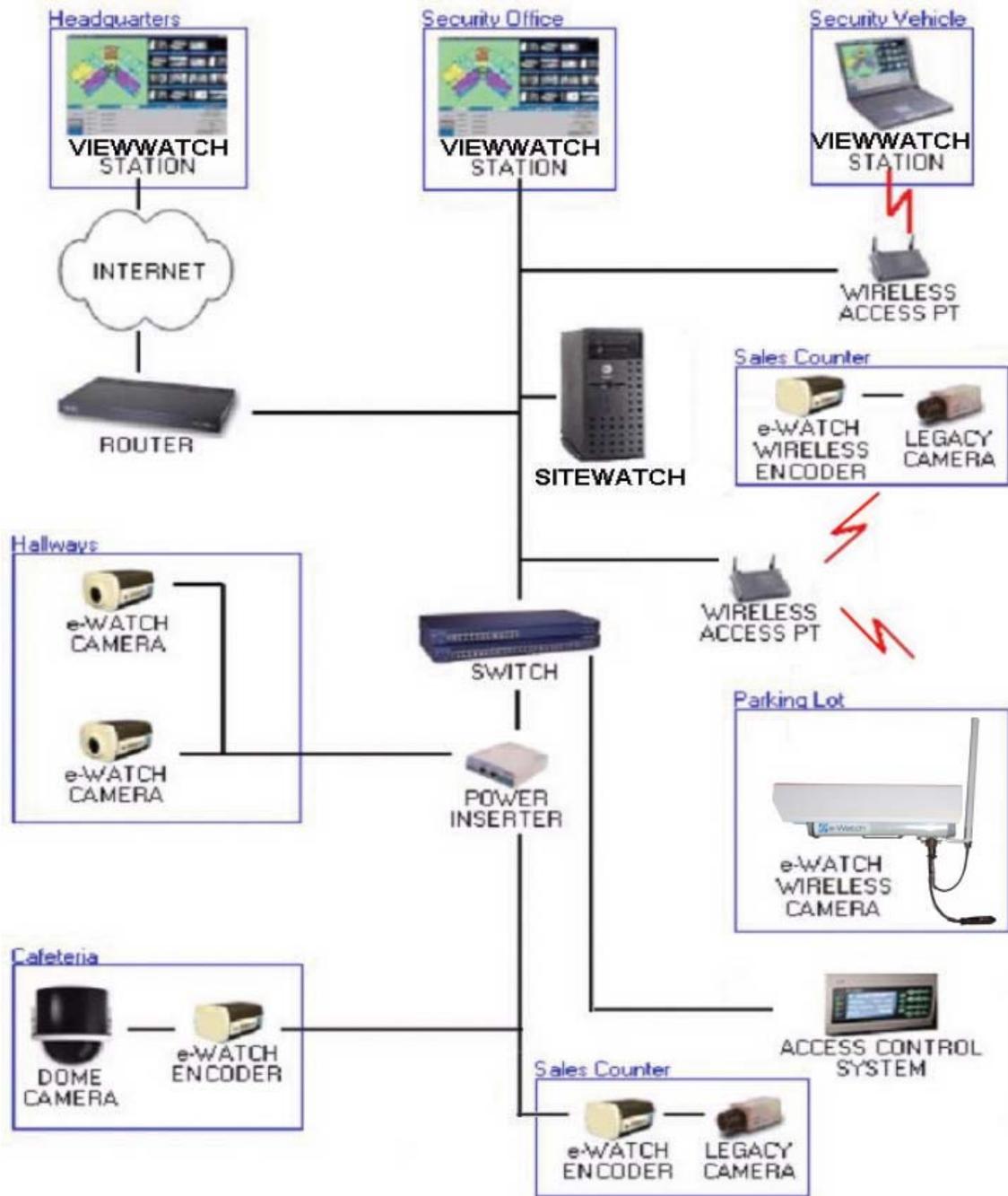
Figure 1-1 Typical e-Watch System

e-Watch® System Components

An e-Watch® Situational Awareness System consists of a combination of hardware and software that offers unparalleled flexibility and scalability in IP video surveillance. The hardware offerings include smart IP cameras with integrated optics and IP encoders that help protect your investment in legacy CCTV cameras. The software includes a number of modules that archive your choice of video streams; allow an unlimited number of users to view video, browse the archive, and control cameras; and provide management tools for your system.

e-Watch Cameras and Encoders

An IP addressable smart camera is one with the ability to capture video images and transmit them over a network. "IP addressable" means the camera has an Internet Protocol (IP) address. "Smart" means the camera has onboard processing. The network can be wired or wireless.

e-Watch cameras and encoders have an embedded processor and controllers that provide on-board Ethernet connectivity, motion detection, Joint Photographic Expert Group (JPEG) encoding, Motion Joint Photographic Expert Group (MJPEG) encoding, and dual bandwidth Motion Picture Expert Group (MPEG) encoding. Up to three video streams are produced simultaneously. e-Watch devices support multiple power supply options including in-line power delivered over the CAT5 network cable. Output may be routed to a storage server, wireless transmitters, wireless handheld monitoring stations, and wired desktop monitoring stations located anywhere on the Local Area Network (LAN), Wide Area Network (WAN) or Internet.

e-Watch cameras and encoders are the core of the e-Watch non-blocked architecture. e-Watch cameras and encoders can deliver multiple video streams of varying bandwidth and compression types simultaneously to an unlimited number of viewers without blocking any request. The devices can grant digital control over their functions to authorized users. e-Watch

systems are flexible and scalable. Systems can grow one camera at a time without major increases in infrastructure.

e-Watch cameras and encoders are built with e-Watch's Activity Gated Storage™ module. Video output from cameras does not need to be archived unless there is motion detected in the camera's field of view. The Activity Gated Storage module minimizes the amount of storage space required for image archiving by only storing images when there is activity. Activity Gated Storage can yield tremendous reductions in disk space requirements.

e-Watch offers several integrated cameras. Encoder-only models that have no internal camera are also available. Encoders can be used to integrate any CCTV camera or other National Television System Committee (NTSC) video source into an e-Watch system. e-Watch encoders make it possible to leverage an investment in existing CCTV systems. The analog cameras and coaxial wiring plant can be retained, while the legacy video multiplexers and VHS recorders are replaced by e-Watch digital equipment.

e-Watch cameras and encoders offer an unparalleled level of control. You can control the onboard processor and controllers over the network. You can change the camera's name and IP address, control the video streams, adjust the camera settings, even download new firmware, all through the same cable. You can pan, tilt and zoom the camera if it is suitably equipped. You can even control supported third-party attachments such as Pelco Spectra dome cameras. All of this control is available over the network using the ViewWatch™ interface. The following controls are available with an e-Watch Daylight or Low-Light camera attached to an e-Watch Indoor Pan/Tilt Kit:

• Device Name
• JPEG archive options
• MPEG archive options
• MJPEG archive options
• IP Configuration
• Pan
• Tilt
• Zoom
• Focus (plus auto)
• Iris (plus auto)
• Gain (plus auto)
• Shutter (plus auto)
• Aperture
• Brightness
• Contrast
• Saturation
• Hue

- JPEG stream on/off
- MPEG streams on/off
- JPEG resolution
- JPEG compression
- JPEG image rate
- MJPEG maximum bandwidth
- MJPEG optimize frame rate
- MJPEG optimize quality
- MJPEG frame rate
- Motion detection sensitivity
- Camera reset

How can e-Watch cameras and encoders deliver different bandwidths simultaneously?

e-Watch cameras and encoders have three onboard video encoders. Typically, one encoder is used to deliver high-resolution still images for archive and the other two are used to deliver both a low-bandwidth and a high-bandwidth motion video stream for real-time viewing. The low bandwidth MPEG streams may be replaced with an MJPEG stream if bandwidth is severely limited. All of the streams can be accessed by any user anywhere on the network.

Is Unicast an option?

Yes. The default is multicast. If desired, the Multicast stream can be rebroadcast, by the server, as a Unicast stream. You can also instruct to camera to transmit in Unicast. If desired, the server can intercept the Unicast and rebroadcast it in Multicast at the same time. You can have any combination of Unicast and Multicast required by your LAN/WAN.

How can e-Watch cameras and encoders deliver video to an unlimited number of viewers?

Multicast is used to transmit the motion video. Multicast is an IP technology that allows streams of data to be sent efficiently from one source to many destinations. Instead of setting up separate sessions for each destination, data packets are replicated at router hops where the paths to different destinations diverge. e-Watch uses multicast to efficiently route video streams to multiple viewers.

Do I have to use special cameras with e-Watch?

No. e-Watch cameras and encoders with integrated optics are specifically designed for e-Watch systems and provide by far the most features and functions. However, the many benefits of e-Watch can be provided as an

upgrade to an existing CCTV installation. In fact, encoders can be used to deliver network streamed video from any NTSC video source.

Can I change the IP configuration of an e-Watch camera or encoder?

Yes. You can configure cameras and encoders to use a static IP configuration. Alternatively, you can configure the devices to work with any standard Dynamic Host Configuration Protocol (DHCP) server.

How much network traffic do e-Watch cameras and encoders generate?

Typical stream bit rates are as shown below. Remember that each stream can be turned on or off as required. Also, with appropriate network hardware and software, streams can be routed only to viewers that are requesting video. There is a useful network traffic calculator in the FAQ section of the e-Watch website at www.e-watch.com/networkcalc.htm.

JPEG 350 kbps (variable based on complexity and frame rate)

Low-resolution MPEG 110 kbps

MJPEG 10-350 kbps (variable based on quality and frame rate)

High-resolution MPEG 900 kbps

SiteWatch™ Situational Awareness Software

The SiteWatch software contains everything you need to use and manage your e-Watch system. It includes all of the modules that are discussed in more detail in the following chapters - ViewWatch™, EventWatch™, DecisionWatch™, and MotionWatch™.

How is SiteWatch software licensed?

The software license is dependent on the number of cameras and encoders you attach to your e-Watch system. The server software is available with either a USB or parallel HASP key. The first camera license is included with the server software. You must add a software license for each additional camera or encoder. Each server that will run SiteWatch software needs to have its own software key.

Do I need additional software licenses for users?

No, your SiteWatch camera-based license covers an unlimited number of users. You may have both internal staff and outside personnel (such as

police officers, firefighters, and other response teams) viewing video from your e-Watch system as is necessary for you to meet your individual needs. When a crisis occurs, there is no need to be concerned about how many user licenses you have for viewing video — just add authorization to the system for as many users as you require.

What kind of server do I need?

SiteWatch software runs on a Windows® 2000 Server or Windows® 2003 Server. Minimum server hardware recommendations can be found on the e-Watch website at www.e-watch.com/Specifications.htm.

What kind of workstation do I need?

The ViewWatch™ module, used to view video and control cameras, runs on Windows® 2000 or XP workstations with Microsoft® Internet Explorer 6.0. Minimum workstation hardware recommendations can be found on the e-Watch website at www.e-watch.com/Specifications.htm.

What types of connections are available on e-Watch cameras and encoders?

CAT 5, wireless (802.11b) and single or multi-mode fiber.

What are my choices for powering the cameras?

Power over Ethernet using a mid-span device and 12V DC.

Real Time Monitoring - ViewWatch™ Module

ViewWatch is an Internet-enabled application that provides the interface for viewing the MPEG or MJPEG video streams produced by e-Watch cameras and encoders. The interface screen is divided into three main sections. The upper left portion of the window displays a facility map. The upper right portion of the screen is the video window. The lower portion of the screen contains software and camera controls. ViewWatch can be operated in Live Mode to view real time video, or in Browse Mode to view archived video.
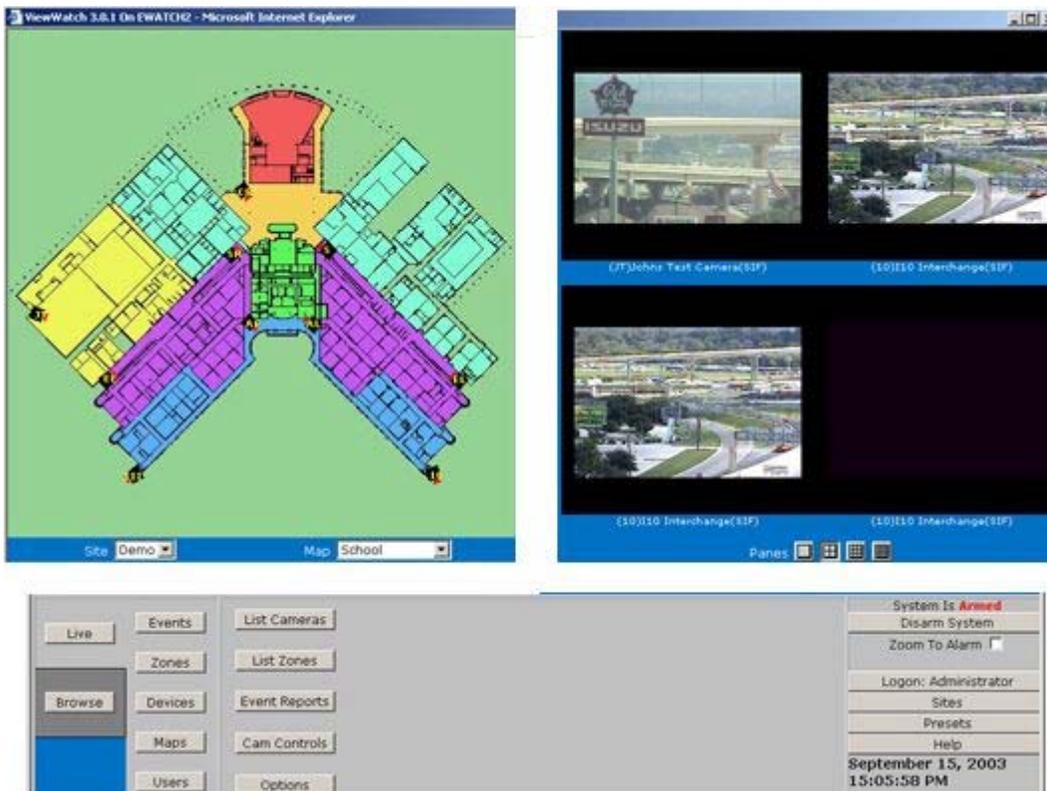

Figure 3-1. Main Screen

Icons representing cameras or other security devices are displayed on the facility map. Maps may be configured in layers to provide easy, clickthrough access to a campus, then a building, then a floor. Familiar mouse controls are used to view the video from any camera on the map. Just drag a camera and drop it into the video window. It's that easy! Video from multiple sites and maps can be displayed simultaneously. Pulldown lists of the available sites, and the available maps for each site, are conveniently located below the facility map.

The video window can display a single video stream at full size, or can be subdivided into 4, 9 or 16 panes. The name of the camera and the type of video stream that is producing the video is displayed below each pane. Visual notification is provided in the video window when a camera is in an alarm condition.

The bottom portion of the screen contains controls for operating all of the software features. You can switch between Live Mode and Browse Mode, perform setup tasks, run reports, arm and disarm the system, and operate the camera controls. You can even review and respond to events detected by third-party security systems. ViewWatch provides access to a total security solution in one integrated package.

ViewWatch is an Internet-enabled application. That is, the interface is started using a web browser, Microsoft Internet Explorer, and components are downloaded to the ViewWatch application as needed. No software installation is required. Authorized users can log on to ViewWatch using a computer anywhere on the Internet.

Cameras can be grouped into zones. A zone is a list of cameras and a cycle rate. When you play a zone in the video window, the video cycles through all the cameras in the zone at the specified rate.

ViewWatch lets you save an unlimited number of presets. A preset remembers all of the software settings, including the sites and maps, cameras, and video window configuration. You can quickly recall a saved preset from a dropdown list.

If 16 simultaneous video panes is not enough for your application, any number of secondary monitors can be added onto the main ViewWatch monitor. The secondary monitors have no controls of their own, but are controlled directly from the primary main ViewWatch monitor. Like the main video window, the secondary monitors can be subdivided into 1, 4, 9, or 16 simultaneous video panes.

How is the ViewWatch module installed?

No installation is necessary. ViewWatch is written in HTML and JavaScript. The interface is started using Microsoft Internet Explorer, and components are downloaded as needed.

Where can I use ViewWatch to monitor my facility?

Because ViewWatch is Internet-enabled, it can be accessed by authorized persons using any computer with adequate bandwidth on your LAN, WAN or the Internet.

How many viewers can I have running at the same time?

There is no practical limit to the number of viewers on the LAN that use the cameras' multicast output. ViewWatch users on the Internet may not be able to receive the multicast, so they instead receive a unicast stream. The number of such remote stations that can run at the same time is limited only by the bandwidth of your Internet connection.

Can I use ViewWatch over a modem connection?

Yes. You will need at least a Digital Subscriber Line (DSL) to view MPEG video. Lower bandwidth connections can be used to view MJPEG video at frame rates that vary based on the available bandwidth.

What is the size of the MPEG video?

The low-resolution MPEG is 176x112 pixels, the high-resolution MPEG is 352x240 pixels, the MJPEG is 176 x 112 pixels, and JPEG is 704 x 480 pixels.

How do I prepare the facility maps for use with ViewWatch?

Map files can be in JPEG, GIF or BMP (bitmap) format. Scanners work well for making map files.

Which browser can I use?

ViewWatch requires Microsoft Internet Explorer Version 6.0. Netscape Navigator is not currently supported.

C H A P T E R   4

Camera Controls

ViewWatch provides convenient controls for operating the cameras and encoders connected to the system. The controls that are available depend, of course, on the capabilities and features of the camera. ViewWatch automatically detects the type of camera and presents the appropriate set of controls.

With all e-Watch cameras and encoders, including entry-level models, you can control the video encoder chipset. This provides controls for:

- Contrast
- Brightness
- Color Saturation
- Color Hue

e-Watch cameras feature an integrated camera with additional controls for:

- Zoom
- Focus
- Iris
- Gain
- Shutter
- Aperture
- Backlight compensation

Any of the e-Watch cameras can be connected to an external indoor pan/tilt mechanism. The pan/tilt mechanism is connected to the camera, which allows the pan/tilt mechanism to be operated from ViewWatch. This provides control over:

- Horizontal pan
- Vertical tilt

The day/night models can be switched from day mode (color) to night mode (B/W with the ability to see in the near infrared).

e-Watch encoder models can also be connected to an external video device such as a dome or pendant camera. Pelco Spectra cameras can be can be connected to the encoder, controlled from ViewWatch. Available controls depend on the type of external device. Typical dome camera controls include:

- Pan
- Tilt
- Zoom
- Set/Clear/Goto preset
- Record/run pattern
- Adjust zoom and focus speed
- Overlay text on video

Which dome or pendant cameras are supported?

The currently supported dome and pendant cameras are the Pelco Spectra II and Spectra III.

Can I use a joystick to control the pan, tilt, and zoom on cameras?

Yes, for the Spectra cameras.

Alarms And Notifications - DecisionWatch™ Module

The DecisionWatch™ module provides automated notification of response personnel when alarm conditions or other events occur. Notification can be provided by "popup" messages and audible alarms on ViewWatch™ stations on a wired or wireless network. Notification can also be provided using dial up circuits to telephones, cellular phones, and pagers; via e-mail; or via the Internet.

Alarms can be based on motion detection. Third-party systems can be integrated into e-Watch using the optional GateWatch™ Third-Party Integration Software. With GateWatch, alarms can be based on events detected by the third-party system.

When cameras detect an alarm condition, their icons on the ViewWatch station map blink red, and the video window is highlighted by a red border. These visual cues to alarm locations can assist in tracking the progress of an event within the facility.

Multiple alarm profiles can be defined within the DecisionWatch module. Alarm profiles determine when detected events are reports as alarms. For example, suppose you have a camera installed in a bank lobby. You could have DecisionWatch issue a motion-detected alarm only when the bank is closed.

If you routinely monitor many cameras, the unique DecisionWatch Zoom-To-Alarm feature can eliminate the need to rearrange cameras in response to an alarm. Zoom-To-Alarm can determine where the alarm occurred and automatically display the camera's video on the ViewWatch screen.

Can alarm notifications be suppressed?

Yes, alarm notification can be suppressed to inhibit further "popup" alerts while responding to an alarm. The visual cues to alarm conditions are still displayed on the facility map.

How can Zoom-To-Alarm respond to a third-party system event?

Icons representing third-party detection devices can be placed on your facility map, along with your cameras. By analyzing the facility map and the positions of the cameras and devices, DecisionWatch can determine which cameras are in the vicinity of a third-party device. When Zoom-To-Alarm is active and an event is detected by the device, DecisionWatch can automatically display the video from the four cameras closest to the device.

Data Archive And Retrieval - EventWatch™ Module

Any or all three streams from an e-Watch® camera or encoder — high-resolution JPEG images, MJPEG, high-resolution MPEG video and low-resolution MPEG video — can be archived on the SiteWatch™ Server. Which streams are archived can be set on a per-camera basis. The archived images can be retrieved from any viewer on demand. EventWatch provides a number sophisticated tools to minimize the time required to identify and reconstruct an event.

Unlike other systems, replaying archived video does not interfere with the archiving process. Real time data continues to be archived during retrieval and playback sessions. An unlimited number of retrieval and playback sessions can be requested from different ViewWatch users simultaneously.

Activity Gated Storage is an innovative e-Watch technology to minimize the required amount of storage space. Cameras and encoders are capable of detecting motion in the field of view. Motion metadata is sent to the server along with the still images and or video streams. The streams are archived only as long as motion is detected. Storage is not wasted archiving video when there is no activity in the camera's field of view.

The motion metadata created by Activity Gated Storage is also key to Image Playback and Region Of Interest (ROI) Playback.

Image Playback is an efficient way to search for and identify an event. Archived video can be played back in "normal time", meaning that the video appears just as it appeared when viewed in Live Mode. With Image Playback, only those portions of archived video that contain motion are played. Many hours of archived video can be reviewed in a matter of minutes using Image Playback.

ROI Playback is a further refinement of Image Playback. A Region Of Interest can be drawn directly onto the video image. With ROI Playback, only those portions of archived video that contain motion within the Region Of Interest are played. In many cases, ROI Playback can greatly reduce the amount of time and effort required to pinpoint an event.

ViewWatch also provides a "digital shuttle" that is controlled using your mouse. You can use the shuttle to immediately position a replay to any point in time, and to rapidly scan through the retrieved images. The shuttle makes it easy to zero in on an event.

As in Live Mode, the video window can display a single video stream at full size, or can be subdivided into 4, 9 or 16 panes. The archived video from as many as 16 cameras can be played back simultaneously. Video playback in multiple video panes is automatically synchronized.

Video data can be stored on the SiteWatch server's local disk, or on a Storage Area Network or other network storage device. AIT magnetic tape drives are also supported.

What is the size of the archived JPEG images?

The archived JPEG images are 704x480 pixels.

What is the JPEG compression?

The JPEG images can be compressed to save storage space or uncompressed to maximize image quality. The degree of compression can be set on a per-camera basis. The factory default compression is approximately 10:1, which yields significant storage savings and very high quality images.

How is the MPEG video stored?

The motion video is stored in 1-minute segments on a designated drive by the SiteWatch server.

What is the Activity Gated Storage™ Module?

Activity Gated Storage is an innovative e-Watch technology to minimize the amount of required storage space. Storage is not wasted archiving during periods of time when there is no motion in the camera's field of view. The system only archives the selected video streams when the camera detects motion.

What if parts of the camera's field of view always have motion?

You can define a Motion Detect Mask to exclude selected areas of the camera's field of view, such as a busy street. Activity Gated Storage™ and motion alarms will not be activated by motion in masked areas.

How much storage space will I need?

That depends on how many cameras you have and which streams you are archiving. Because e-Watch uses Activity Gated Storage, it also depends

on how much motion occurs in the cameras' field of view. There is a useful storage calculator in the FAQ section of the e-Watch website at www.e-watch.com/storagecalc.htm.

Can I archive video data to a network storage device?

Yes. You can archive to a Storage Area Network or any other network storage device which can be referenced by a Universal Naming Convention (UNC) name.

What is Image Playback?

Image Playback refers to the ability of ViewWatch to play back only those portions of archived video that contain motion, thus significantly reducing the time required to identify and reconstruct an event.

What is ROI Playback?

ROI stands for Region Of Interest. ROI Playback refers to the ability of ViewWatch to play back only those portions of archived video that contain motion in a defined Region Of Interest, thus further reducing the time required to identify and reconstruct an event.

How many cameras can I play back simultaneously?

Up to 16 cameras can be reviewed simultaneously in synchronized playback.

Reporting

You can create reports on motion events detected by e-Watch cameras and encoders from the ViewWatch interface. A timeframe and a list of cameras is selected to be included in the report. You can "drill down" in the report to view report details.

Events included in the report are linked to the SiteWatch™ archive. With a single mouse click you can load the video record of the event into ViewWatch and review the event.

Reports can be predefined and scheduled for automatic execution. For example, define a report that includes the cameras inside your store after business hours. Schedule the report to run each morning at seven o'clock, and it will be ready for you to review when you arrive in the morning, showing any activity detected by the cameras overnight.

With the optional GateWatch™ module, you can also run reports of events detected by integrated third-party systems. GateWatch reports include all of the data sent to SiteWatch from the third-party system. You can sort and filter by any of the data items in the report.

GateWatch reports are also linked to the SiteWatch™ archive. You can quickly load the video record of an event into ViewWatch directly from a GateWatch report.

The System Log Report includes alerts and operator acknowledgements, errors, and other system-level events.

Can reports be printed?

Yes, the reports are displayed using your browser as a normal HTML page. You can use your browser's print function to print the report.

Can reports be created on any ViewWatch station?

Yes, authorized users can create reports on any ViewWatch station, wired or wireless.

Wireless Access - WatchLink™ Module

Legacy CCTV monitoring stations require a physical connection to the rest of the system. Access to surveillance camera video, event data and biographical databases from remote positions is not supported by a fixed cable infrastructure. WatchLink™ wireless networks enable security, administrative and crisis response personnel to access surveillance data from a handheld unit with an RF radio, while walking down a hallway or standing outside a building. WatchLink architecture also facilitates connecting cameras in remote locations where installing network cable is impractical, such as a parking lot.

The wireless Ethernet (802.11b) network infrastructure consists of 11Mb Access Points and Bridges, 11Mb Network Interface Cards (NICs) and various types of antennae. A properly equipped hand-held device "talks" to one or more Access Points, attached to one or more antennae, via an RF connection. The Access Points are connected to the Ethernet via a CAT5 cable.

Wireless users can operate hundreds of feet from the nearest Access Point, subject to the facility's design, line-of-sight and type of obstacles, and type of antennae.

What kind of device is used for wireless monitoring?

Any portable PC that satisfies the hardware and software requirements can be used. The device must run Windows 2000 or XP. Windows CE and PocketPC are not supported.

Is there a wireless connection for the cameras?

Yes, e-Watch cameras and encoders are available in wireless models with an external antenna connector.

Third-Party Integration - GateWatch™ Software

Third-party systems can be interfaced with e-Watch using the optional GateWatch Third-Party Integration Software. Interfaced third-party systems can be as diverse as access control, alarm, fire, environmental control and process control systems.

GateWatch allows events detected by the third-party system to be integrated into the e-Watch® Situational Awareness System total security picture. Events detected by third-party devices can trigger e-Watch alarms. Reports showing third-party events can be created and viewed by ViewWatch users. GateWatch reports are linked to the SiteWatch archive. You can quickly load the video record of an event into ViewWatch directly from a GateWatch report.

The basic interface method intercepts RS-232 output from the third-party system. Because most systems have RS-232 output (e.g. for a printer), this method can be used to interface most systems. An RS-232 interface can be set up using dialogs supplied with the GateWatch module. e-Watch also offers engineering services for developing advanced interfaces where they are needed.

Which third-party systems can be interfaced with e-Watch?

Any system with a fixed-format RS-232 output can be interfaced using the basic interface method.

Can I automatically view video when an intrusion event occurs?

Yes. Set up a GateWatch interface to your access control system, then activate the ViewWatch Zoom-To-Alarm feature. When an intrusion event occurs, ViewWatch will immediately switch to live video from the cameras in the vicinity of the access control device.

MultiServer Module

e-Watch® cameras connect to a specific SiteWatch™ server. The SiteWatch™ server archives video from all connected cameras and mediates communication between the cameras and ViewWatch™ stations. The SiteWatch™ server also supports the system database and maintains the site data, map data, camera data, etc. Many installations require only a single SiteWatch™ server. Other installations require more than one server to support very large numbers of cameras, or require servers at more than one location. The optional MultiServer Module provides seamless access to sites, maps, cameras and alarms no matter where these data are stored.

How Does MultiServer Work?

When the MultiServer Module is registered, dropdown lists of connected servers are automatically added to the ViewWatch™ interface. For example, when you wish to select a site or a camera, you may select from a list of sites or cameras from any connected server.

How Is Real Time Video Routed Between Servers?

The MultiServer Module does not require that multicast video be routed between the servers. Instead, the video is routed between the servers as a unicast stream. That way, the servers can be on different network segments. The Multiserver Module can even use the Internet to connect SiteWatch™ servers. The unicast stream is maintained only as long as it is required; that is, only as long as at least one ViewWatch™ station on the receiving end is viewing the stream. When all ViewWatch™ stations on the receiving end are no longer viewing the stream, it is closed.

Can I View Archived Video From Another Server?

Yes. In Browse Mode you can request archived images from any camera. If necessary, the archived images are forwarded from the server where they are stored.

Can I Build Maps That Have Cameras From Multiple Servers?

Yes. The Maps dialog lists camera, sites, and GateWatch™ devices from all connected servers. You can mix and match these items on a single map.

Can I Control Cameras On Other Servers?

Yes. The camera controls work the same way no matter which server the camera is connected to. The control commands are forwarded between servers as needed, and utimately sent to the appropriate camera.

Can I Receive Alarms From Other Servers?

Yes. Alarms and other event messages are routed between all connected servers.

Cam I Run Reports From Other Servers?

Yes. The Report Setup screens have dropdown lists that include all connected servers, and allow running all of the ViewWatch™ reports from any server.

Network Considerations

It may be possible to install e-Watch on your existing network. You will want to do an evaluation first to be sure that it will support e-Watch. You may need to consult your network vendor to evaluate your network in the following areas:

Does your network support multicast?

In order to use multicast on your network it will have to support multicast IP traffic as opposed to just unicast. Certain types of network topologies do not work well with the multicast protocol and require special hardware and/ or software configurations. In some cases these network topologies cannot support multicast at all.

Note: e-Watch Corporation offers a utility that is useful in determining network suitability.

Do you own multicast compliant routers and switches?

If your network topology supports the use of multicast, you will also need switches and routers that are multicast compliant. Standard switches, hubs, and routers will allow the use of multicast, however, at the expense of network performance and reliability. Compliant routers are the central communication points for multicast traffic. On these routers, multicast is managed by special hardware and services which allow multicast traffic to co-exist in a unicast environment without adversely affecting the normal network traffic. Using non-compliant equipment will generally result in poor system performance and even, in some cases, limited or total network outages.

Does your network support IGMP Version1 or Version 2?

Multicast traffic is much easier to control when the switches and routers used are both multicast compliant and use Internet Group Management Protocol (IGMP) version 2. IGMP version 1 will also work but will have certain limitations.

Does your router support CGMP?

If you own Cisco switches and routers, you should check to see if they support the Cisco Gateway Multicast Protocol (CGMP). CGMP is a hybrid version of the IGMP protocol. This protocol allows CGMP compliant routers and switches to send multicast to specific requesting clients without flooding multicast to non-members (network users not requesting any multicast).

Is the network bandwidth 100 Mbps or greater?

Our multicast data streams are typically too large for a 10 Mb network to sustain without adversely affecting system performance. We recommend installing our equipment in networks with at least 100 Mbps bandwidth.

What type of network topologies does your network support?

The type of network topology on your network becomes even more important when multiple network topologies are used together. Special considerations must be taken to evaluate network equipment and the physical network itself because some setting and configuration changes may be required.

Do you use multiple VLANs (Ethernet) or ELANs (ATM) on your network?

If your network is set up to run virtual physical networking schemes such as a VLANs and/or ELANs, you may have to upgrade your equipment to meet the load requirements to use multicast.

Do you have a place where you want to locate a multicast camera or encoder a distance of greater than 330 ft from the Ethernet switch?

e-Watch cameras and encoders are designed to be used on Ethernet networks; therefore, the normal 100 meter network drop limitation applies. If a repeater is added to the drop, the maximum cable length can be extended greatly. Repeaters range in distances from a maximum of six hundred feet to many thousands at an added expense. You can also use fiber with media converters.

Are all of switches and routers located in controlled access locations?

If our cameras are used as part or all of your security system, you should keep all network equipment in controlled access areas. This will minimize the risk of security system outages due to tampering.

Is all of your network equipment on uninterruptible power?

If e-Watch cameras or encoders are being used with your security system, uninterruptible power should be applied on all network equipment associated with it. If a power outage occurs, some or all of the e-Watch® security equipment may be offline. UPS is recomemended to provide 24/7 optimal security. An advantage to using power over Ethernet is that you can provide the UPS at the power inserter to maintain a supply of power to the cameras.

Are you going to use wireless hubs and clients to access your video data?

The WatchLink™ wireless viewing architecture requires the use of wireless hubs and wireless clients connected to your existing network. Changes to the Address Resolution Protocol (ARP) table update intervals and other special considerations may be necessary to make the wireless client operate properly.

Glossary

Activity Gated Storage™ Module

A method of reducing overall archive storage requirements by only storing video when the camera or encoder detects activity with its field of view.

Alarm

An event that the system will detect, e.g., motion. Alarms can be defined for different cameras at different times, enabling alerts to be sent when a motion alarm is detected. Each defined alarm can be set to On or Off. If an alarm is detected but that alarm's status is Off, no alert will be sent.

Alert

An alert is a response to an alarm. Alerts may be in the form of a ViewWatch popup, pager call, e-mail, or voice call that contains a description of the event.

Authorization Level

Authorization levels at which the system grants privileges and access to users by the use of a User ID and Password. The three levels are: Administrator, Investigator, and User.

Browse Mode

When in Browse Mode, the system displays a variety of controls for reviewing archived still images or MPEG video clips. Archived video for a specific date and time can be recalled and played back on the video window.

Cam Controls

A series of controls that enable the user to control and adjust camera parameters such as zoom, pan, tilt, focus, hue, saturation, brightness, contrast, etc.

Control Window

One of three areas of the ViewWatch screen, the other two being the Video Window and the Map Window. The Control Window, located across the bottom of the screen, contains all buttons for configuring and using the system.

E-Mail Message

An alert generated in response to an alarm. E-mail messages are defined by entering the name of the recipient and the recipient's e-mail address. When an alarm is detected, the system will send an e-mail message that includes a description of the event alarm.

Event Report

A report generated to reflect activity from cameras or other security devices. A camera report displays the camera name and average number of motion events, represented by a line of colored dots. Time periods with no events are represented by a black dot, while blue and red dots represent time periods of few and many events, respectively. By clicking on a dot, the user can recall and playback the motion events during the specified time period.

Events

Event settings determine what kind of events the system will detect and what actions it will take in response to a detected event. Detected events are called alarms. System responses are called alerts. When motion, or another event is detected, the system will execute an alarm and send an alert to interested personnel. The system must be armed for alerts to be sent.

GateWatch™ Third-Party Integration Software

GateWatch is an additional software package that allows the e-Watch system to interface with third-party access control and alarm systems, such as access keypads, smoke alarms, or perimeter security implements. It allows third-party devices to be added to maps and monitored in ways similar to e-Watch cameras.

List Cameras

A screen accessed by a button on the Control Window that displays a list of cameras for a specific site.

List Zones

A screen accessed by a button on the Control Window that displays a list of zones for a specific site.

Map Window

One of three areas of the ViewWatch screen, the other two being the Video Window and the Control Window. The Map window, located in the upper left of the screen, is used to set up and display facility maps. The maps contain icons representing cameras or other security devices. The user is able to "drag and drop" cameras from the map to video panes to monitor the cameras' video.

Motion Detect Mask

An area defined in a camera's field of view that excludes the masked area from motion detection. Motion in that masked area does not activate Activity Gated Storage™ or motion alarms.

MultiServer

MultiServer is an additional software package that allows the e-Watch system to provide seamless access to sites, maps, cameras and alarms from any SiteWatch™ server no matter where these data are stored.

Pager Call

An alert generated in response to an alarm. Pager calls are defined by entering the name of the pager's owner and a dial string. When an alarm is detected, the system will dial the pager number.

Popup Alert

An alert that pops up on the ViewWatch screen in response to a defined Alarm, containing a description of the event and sounding of an audible alarm. The audible alarm may be manually disabled.

Presets

A preset is a collection of all of the system's application settings, which include: sites, maps, video screen formats, video streams displayed, and primary or secondary monitor selected. The Presets window enables the user to save the current application settings as a named preset. When a preset is loaded, existing application settings are discarded and replaced by the settings in the preset.

Primary Monitor

A PC running Windows 98/2000 and Windows Internet Explorer, connected to a network, and configured with SiteWatch system software, used as an e-Watch Situational Awareness System or Monitoring system. The Primary Monitor controls all aspects of the e-Watch system.

Profile

A profile is a setting of days and times during which alerts are to be sent in response to alarms. This feature allows alerts to be sent or suppressed according to a predefined schedule. The system can be armed or disarmed through the Profiles Screen. If the system is disarmed, alarms will be detected but no alerts will be sent.

Region Of Interest

An area drawn on the Video Window which defines a Region of Interest (ROI). When ROI is enabled, only video containing motion in the ROI will be played back.

Secondary Monitors

Additional monitors to supplement the Primary Monitor, used only for viewing video from selected cameras. Secondary monitors don't have a mouse or user interface, and are controlled from the Primary Monitor.

SiteWatch™ Situational Awareness Software

The software used to manage and use your e-Watch system. This package includes the SiteWatch server, ViewWatch module, MotionWatch module, EventWatch module and DecisionWatch module.

Video Window

One of three areas of the ViewWatch screen, the other two being the Map Window and the Control Window. The Video Window, located in the upper right of the screen, is used to display streaming video from the system's cameras. The Video Window can be configured to display one, four, nine, or sixteen video panes.

ViewWatch™ module

The software used to view video.

Voice Call

An alert generated in response to an alarm. When an alarm is detected, the system will dial a predefined telephone number and play a prerecorded message to notify the recipient of an alarm.

Zones

A predefined collection of cameras. The video streams from the cameras are displayed one at a time on a rotating basis at a predetermined rate.

Acronyms and Abbreviations

APER	**Aperture**
AUX	**Auxiliary**
CAM	**Camera**
CGMP	**Cisco Group Management Protocol**
CONTR	**Contrast**
DSL	**Digital Subscriber Line**
ID	**Identification**
IGMP	**Internet Group Management Protocol**
IP	**Internet Protocol**
JPEG	**Joint Photographic Expert Group**
LAN	**Local Area Network**
MPEG	**Motion Picture Expert Group**
PC	**Personal Computer**
P/T/Z	**Pan/Tilt/Zoom**
QSIF	**Quarter Standard Interchange Format**
ROI	**Region of Interest**
SAT	**Saturation**
SHUT	**Shutter**
SIF	**Standard Interchange Format**
VGA	**Video Graphics Array/Adapter**
VLAN	**Virtual Local Area Network**
VPN	**Virtual Private Network**
WAN	**Wide Area Network**

I N D E X

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