4CH MJPEG VS2403
VIDEO SERVER
User's Manual

Product name:	Video Server (VS2403)
Release Date:	2008/01/29
Manual Revision:	1.3
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Before You Use

It is important to carefully examine the contents with the Chapter <u>Package Contents</u> after opening the package. If there is anything missing, contact your reseller. Read the Chapter <u>Physical Description</u> before assembling and operating the device and peripherals. Understanding the physical description can prevent damage caused by abnormal usage and reduce most problems during installation.

Basically Video Server is a network device and should be easy to use for those who already have basic network knowledge. If there is a system error and it does not recover easily due to erroneous configuration, read the <u>System recovery</u> section in Appendix <u>Troubleshooting</u> to restore factory default settings and perform installation again.

Video Server has been designed for various environments and can be used to build various applications for general security or demonstration purposes. For standard applications, find the appropriate section in the Chapter <u>How to Use</u> for your application and follow the steps to setup the system. To make best use of Video Server, read Chapter <u>Advanced Functions</u> to get creative ideas and review Chapter <u>System Configuration</u> for detailed explanations of system configurations. To those professional developers, the Appendix <u>URL Commands of Video Server</u> will be a very helpful reference to develop a Web-based application.

Surveillance devices may be prohibited by law in your country. Though Video Server is not only a high performance surveillance system but also a networked video server, ensure that the operations of such devices are legal before installing this unit for surveillance.

Those paragraphs preceding with ⚠ must be fully understood and cautioned. Ignoring the warnings may result in serious hazards.

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Table of Contents

Package Contents

If any of the following items are missing, please contact your reseller.

☑ Video Server VS2403

☑ Power adapter

☑ Two I/O terminal connectors

☑ Camera control cable

☑ Mounting kit

☑ Software CD
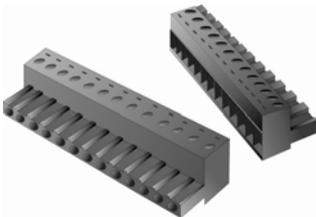
☑ Quick installation guide
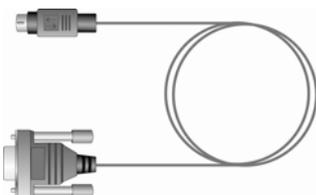
☑ Warranty card

Features and Benefits

Video Server is a high-performance networking video multiplexer. With powerful VLIW DSP core and fully optimized algorithm, it can compress and transmit the high quality real-time video through standard TCP/IP inter-network. In addition to meet the basic needs of video feed, many advanced features are added to help building applications of surveillance or web attraction. The state-of-art design well compromises among stable, robust, simple-to-use and flexibility.

☆ Real-time motion-JPEG compression

Four video inputs can be efficiently compressed into packets of JPEG images without delay. Optimal compression engine makes the equivalently excellent image with much smaller size. There is no more sacrifice in remote monitoring and storage. Five levels of compression ratio and four sizes of image resolutions are easy to meet your requirement.

☆ Robust system operation

Industrial real-time operating system prevents from malicious hackers and virus that threat Windows or Linux systems. The on-board watchdog eternally monitors the system operations for dead-proof.

☆ Easy Web access via standard browser

You don't have to install any software to access Video Server. The embedded Web server makes users can access Video Server anywhere over Internet with any popular Web browser. As long as you are connected to network, you can cast your eyes on your precious property.

☆ Password protection of system access

Password level protection is provided by the system to prevent from malicious intruders from network. Once the password of administrator is entered, any user will need password authentication to access Video Server. Each user can have individual access right to view video or control external devices.

☆ Accessible list for specific client

Administrator can use accessible list to filter the clients by IP address. It can let the video stream be showed in the approvable clients.

☆ Privacy mask

Each video channel supports five privacy mask windows. By setting the privacy windows, no one can see the protected areas. It is flexible for setting the camera.

☆ Built-in motion detection

No more external sensors are required. Each video channel can be setup to detect any motion with customized settings. By tuning the object size and sensitivity, it is more reliable to fit into your environment. With this built-in facility, you can easily setup a security system in your home or office.

☆ Weekly schedule for automatic surveillance

The user-defined time period will repeat weekly to check any security settings and accordingly sending notification or drive external devices. It is easy to install in SOHO, retail shop and home as a security system.

☆ Flexible I/O control for external devices

There are four opto-isolated sensor inputs and four relay outputs to control external devices. System integrators can easily replace the current analog systems to build an advanced security system.

☆ Bundled powerful surveillance software

To extend the capabilities of Video Server, a powerful surveillance program is included in the package and totally free to use. Users can easily utilize the existing PC to be a digital video recorder. Schedule or one-click recording keep every important moment in your local hard disk; reliable motion detection and instant warning make you sharp for every conditions. Quick and simple search and playback let you easily find the moment you want to inspect more carefully and output to AVI files for another copy.

☆ Remote system upgrade

To achieve the promise we made to support our valuable customers in life-time, the most up-to-date firmware is always put on our web site to add new functions or solve known bugs. A free upgrade wizard is included to facilitate the job.

☆ Developer's technical support

The high-performance Video Server can be integrated into many applications under perfect control of budget. The complete programming interface and standard JPEG format can ease and speed developers' task. More creative ideas can be found on our Web site.

Physical Description

Front Panel
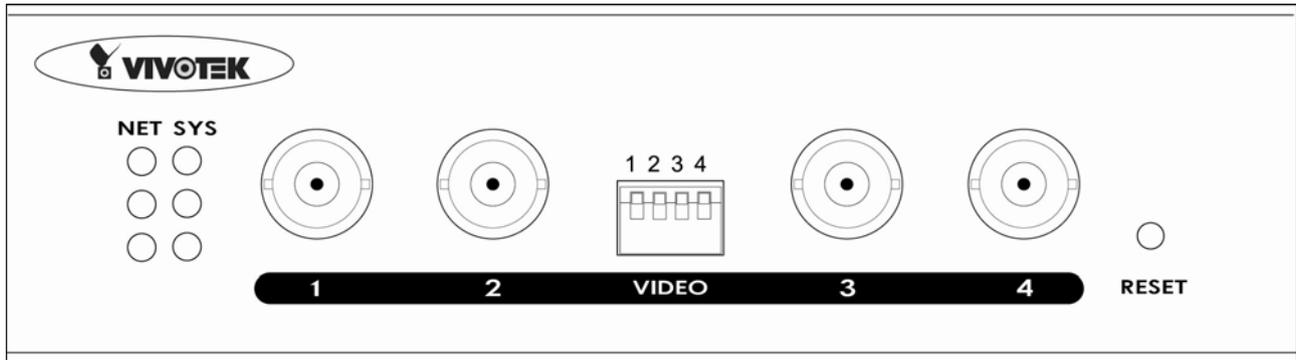
Status LED's

	NET	SYS	
Tx/Rx	🔴	🔴	Power
Link 10/100	🟢	🟢	LED1 (Heartbeat)
Full duplex	🟢	🟢	LED2 (Status)

Each time Video Server starts up, it will perform power-on-self-test, abbreviated as POST, to examine every hardware module. As soon as the administrator plugs in the power connector both LED's under the power LED will flash one by one until the diagnosis is done. If the result is good, both status LED's will turn off for a while and then follows the pattern below. If any module fails, refer to the Appendix A for the error pattern and follow the trouble-shooting procedures. If the system still cannot operate normally, please contact your reseller for technical service.

Item	LED status	Description
Power-On-Self-Test	LED1 and LED2 blink alternately by 150ms	During the test
	LED1 blinks one time and LED2 blinks 3 times	TM1302 test fail
	LED1 blinks one time and LED2 blinks 4 times	RTL8100BL test fail
Network	LED1 off, LED2 off	Network fail
	LED1 blink every 0.5 second, LED2 off	Network normal, Heartbeat
Camera control	LED2 blink every 1 second	Get the control message

BNC video inputs

Video Server allows up to four cameras attached at the same time. To ensure video modulation type being detected correctly, cameras should be attached sequentially from "VIDEO1" to "VIDEO4" and powered on before Video Server is powered on.

DIP switches "1" to "4"

There are four DIP switches numbered from "1" to "4" in the front panel regarding of each video input. They are used to enable the 75-ohm resistance of video impedance. They should be kept ON if the video input is terminated in the Video Server or left in high impedance for looping.

Auxiliary button "RESET"

There is a button located at the left of "VIDEO4" in the front panel. Refer to the Appendix Troubleshooting for the detailed usage of system recovery.

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Rear Panel
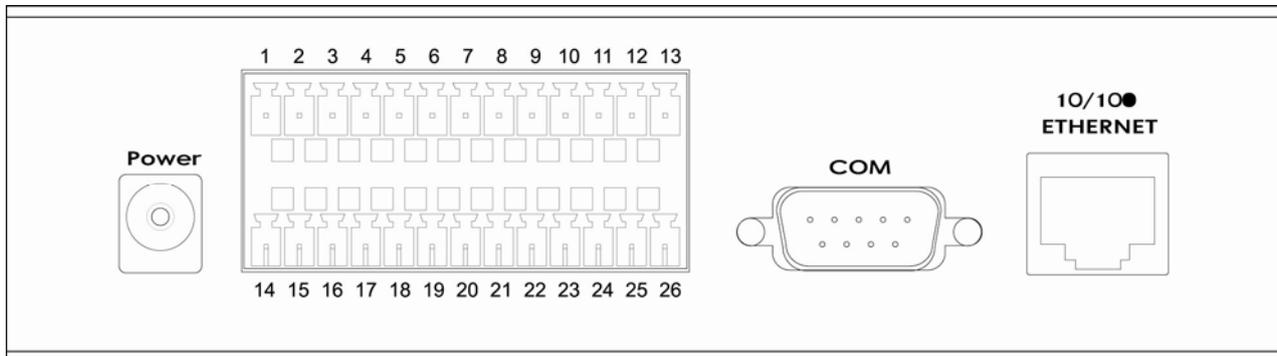
Ethernet 10/100 socket

Connect to an Ethernet network with a UTP category 5 cable of length shorter than 100 meters according to the standard.

COM port

This RS232 serial port is dedicated to control the PTZ cameras attached to COM port.

General I/O terminal block

Video Server provides a very flexible general I/O interface to combine with the user's security devices such as sensors, alarms, lighting or door locks. Two green connectors are included in the package to connect the external devices. The general I/O terminal block has 26 pins for device control. These pins can be divided into three categories based on their functions, including power source, RS485 and digital inputs and outputs.

No.	Pin description	Regulation
1	DC power output(-)	Max. 500mA at 12V DC
2	DC power output(+)	Max. 500mA at 12V DC
3	Relay output 1 – Normal Open	Max. 1A, 24V DC or 0.5A, 125V AC
4	Relay output 1 – Common	Short with NC at initial state
5	Relay output 1 – Normal Close	Max. 1A, 24V DC or 0.5A, 125V AC
6	Relay output 2 – Normal Open	Max. 1A, 24V DC or 0.5A, 125V AC
7	Relay output 2 – Common	Short with NC at initial state
8	Relay output 2 – Normal Close	Max. 1A, 24V DC or 0.5A, 125V AC

9	Opto-isolated sensor input 1(+)	Max. 50mA, 12V DC
10	Opto-isolated sensor input 1(-)	Ground
11	Opto-isolated sensor input 2(+)	Max. 50mA, 12V DC
12	Opto-isolated sensor input 2(-)	Ground
13	RS485 A	D+, non-inverting
14	External power input	Min. 1.5A, 12~15V AC or DC
15	External power input	Min. 1.5A, 12~15V AC or DC
16	Relay output 3 – Normal Open	Max. 1A, 24V DC or 0.5A, 125V AC
17	Relay output 3 – Common	Short with NC at initial state
18	Relay output 3 – Normal Close	Max. 1A, 24V DC or 0.5A, 125V AC
19	Relay output 4 – Normal Open	Max. 1A, 24V DC or 0.5A, 125V AC
20	Relay output 4 – Common	Short with NC at initial state
21	Relay output 4 – Normal Close	Max. 1A, 24V DC or 0.5A, 125V AC
22	Opto-isolated sensor input 3(+)	Max. 50mA, 12V DC
23	Opto-isolated sensor input 3(-)	Ground
24	Opto-isolated sensor input 4(+)	Max. 50mA, 12V DC
25	Opto-isolated sensor input 4(-)	Ground
26	RS485 B	D-, inverting

Power source

Pair of pin 14, 15 of AC or DC input is a replacement with the power adapter in case the range cannot meet the requirement. The voltage of the power source can be AC or DC and should fall in the range between 12V and 15V. Polarity does not matter. The DC output through Pin 1, 2 is fed from power adapter of Video Server or pin 14 and pin 15 if an external power source is attached. The current of external devices is limited to less than 500mA.

⚠️The power adapter of Video Server and the external power supply are prohibited to exist together. Only one source can feed power to Video Server. Improper usage will result in serious damage.

RS485 interface

The PTZ control commands can be directed through pin 13 and pin 26 to control the PTZ cameras. If the distance from the controlled device is too far to allow accurate function, an external power source may be used to amplify the RS485 signal.

Digital I/O control

Video Server provides four pairs of digital inputs and four sets of relay switches. Pin 9 to

pin 12 and pin 22 to pin 25 can be connected to external sensors and the state of voltage will be monitored according to the programmed conditions on the configuration page or the external script file. Four relay switches can be used to turn on or off external devices. When the system starts up, COMMON of both relay switches will be short with NC. A simple diagram of example is shown below.
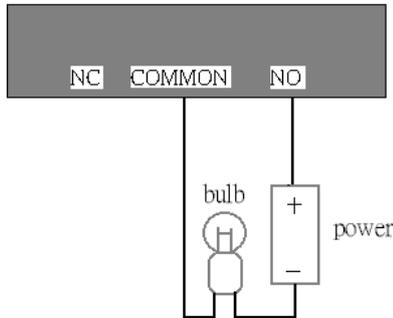
If DI1 in configuration is set as rising to drive DO1 to high that denotes COMMON of DO1 short with NO, then the bulb will light when DI1 signal changes from 0V to 12V.

Power adapter

Plug the power jack of the included power adapter to Video Server. Connecting the power adapter should be the last operation while physically installing Video Server. Administrators may feed an external power source through pin 14 and pin 15 of the general I/O terminal block to replace the power adapter.

⚠️The power adapter of Video Server and the external power supply are prohibited to exist together. Only one source can feed power to Video Server. Improper usage will result in serious damage.

How to Install

To easily fit into various environments, Video Server automatically detects the attached interfaces and configures itself to the best condition. Therefore users need not care whether the connected cameras are either NTSC or PAL, and whether the Ethernet speed is 10Mbps or 100 Mbps.

Video Server can support four cameras but only one modulation type at the same time. If more than one camera is connected, the modulation type of "Video1" will be chosen as the first priority.

In the following content, "**user**" refers to those who can access Video Server and "**administrator**" means the supervisor who has the root password to configure Video Server in addition to general access. Administrators should carefully read this manual, especially during installation.

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Ethernet Environment

Hardware installation

Before installing multiple Video Server's at the well-chosen locations, the administrator should memorize the serial numbers on the packages respectively for future use.

Cable connection
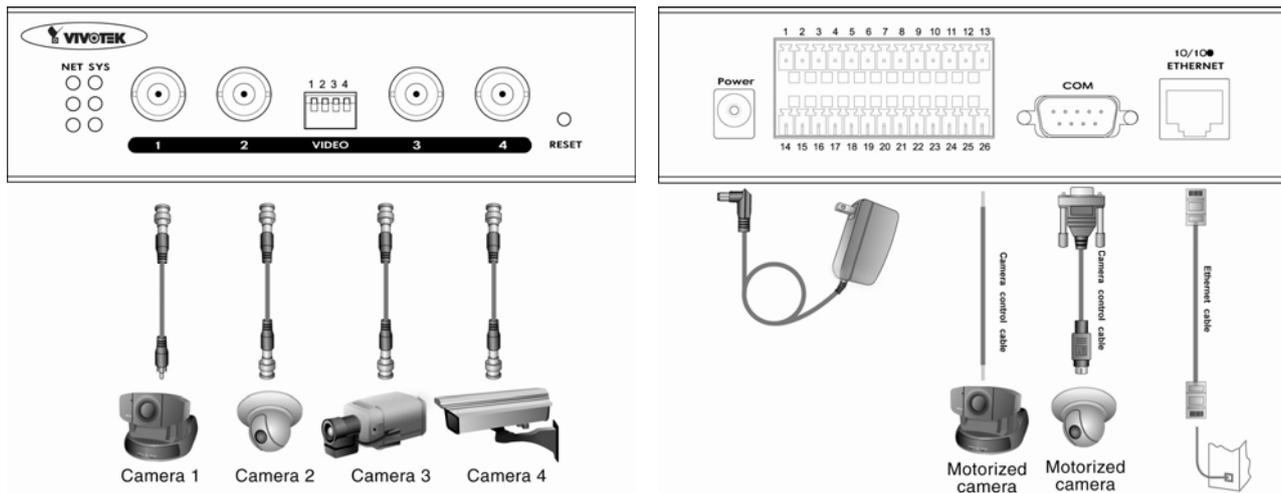
Shut down all the peripheral devices prior to connection. The video BNC, Ethernet cable and power adapter are essential for basic viewing function. If the attached cameras belong to the same motorized model, they can be concatenated to single COM port and will be differed by camera ID set on the cameras. Refer to the related configuration section for detailed description.

Power on

Make sure all cables are correctly and firmly connected. Before turning on Video Server, remember to run Installation Wizard on PC or notebook in the same network first. As long as the "**Reset the IP address at next boot**" option in network Web page is enabled, the Installation Wizard is needed to install Video Server. Turn on cameras, sensors, alarm devices, and then attach power adaptor of Video Server to the electric power socket. After the POST (power-on self test) is complete and the result is successful, Video Server is ready for software configuration as described in this manual. At this stage, network speed and video modulation type are automatically detected.

Software installation

Easy way with installer program

In order to configure Video Server's remotely, administrators should keep the serial numbers of the new Video Server's for identification. After successfully mounting Video Server's in the proper position, run the Installation Wizard on the PC in the same network to locate the newly mounted Video Servers. After searching, Video Servers will be located by the Installation Wizard. There may be several entries shown in the window. The Administrator may differentiate the Video Servers with the serial number.
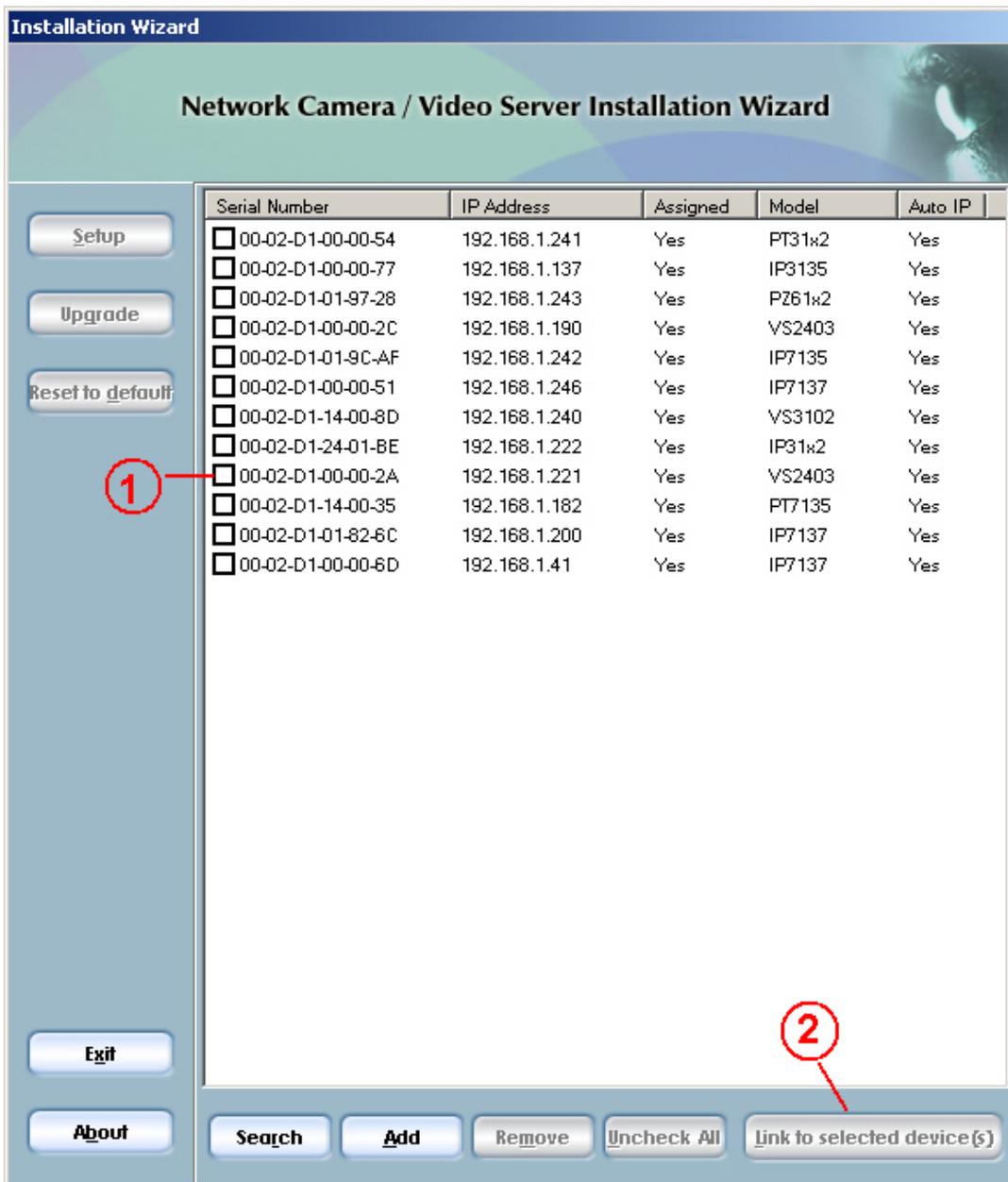
After the POST is done, Video Server will try to configure itself by detecting the network

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environment. If there is DHCP service over the network, the Installation Wizard will catch the given information, then display the serial number and given IP address for each Video Server as the figure above. If there is no DHCP server, the Video Server will try to find a free IP address (this takes from 15 second to 3 minutes, depending on the LAN status). The method of finding IP address is seeking from 192.168.0.99, to 192.168.0.254. If any of the address inside this range is free, the Video Server will be assigned to this IP address, and its subnet mask would be 255.255.255.0. If none of the addresses is free, the Video Server will try the range from 192.168.0.2 to 192.168.0.98. After an IP address is assigned to the Video Server, the "Activity" status LED blinks.

To connect the Video Server, follow the steps.

①Click the check box of the Video Server in the Installation Wizard.

②Click "Link to selected device(s)", the default Web browser will pop out and connect the main page of Video Server.

For more detailed usage of the Installation Wizard, please refer to the user's manual of the Installation Wizard.

Once the installation is complete, administrators should follow the <u>First access to Video Server</u> section for necessary checks and configurations.

First access to Video Server

Set password of administrator

The administrator must change the root password immediately after the initial installation to ensure security. The root password should be well memorized since there is no way to retrieve or recover it. After changing the password, the browser will display an authentication window to ask for the new password.

Manage user privilege

For complete protection from illegal usage, Video Server provides three privileges and always needs user name and password before access. The lowest level is DEMO mode whose services are subject to administrator's permission. The standard level is the USER mode that consists of twenty user profiles. Each user is able to access Video Server under the given privilege, except for system configuration. The twenty user profiles are also maintained by the administrator. The highest level is ROOT mode that only opens to administrators for initial setup, system configuration, user administration and software upgrade. The user name of the administrator is internally assigned to "**root**".

Complete the network settings

Although Video Server already can be accessed after software installation in local area network, administrators should complete the network settings in the configuration page. The complete network configurations including subnet mask as well as the IP address of default gateway and DNS are provided by your network administrator or Internet service provider. Once the wrong network settings make Video Server fail to work, refer to Appendix A to restore factory default settings.

By default Video Server will need administrator's installation every time it reboots. If the network settings are sure to work all the time, fix the network settings in network configuration Web page.

Details about configurations are described in the relative category of the Chapter Definitions of Configuration.

How to Use

Open your familiar web browser and connect to Video Server just like a general web site and the video will present on demand. Make sure the web address of the target Video

Server is accurate.

Authentication

After opening the Web browser and typing in the URL of Video Server, if the root password is set, a dialogue window will pop out to request a username and password. The primary users will be allowed to enter as soon as the administrator finishes adding user profiles. Upon successful authentication, the main page will be displayed.

In the figure, the foreground is the login window and the background shows the message when authentication fails. The user may check the option to save the password for future convenience.

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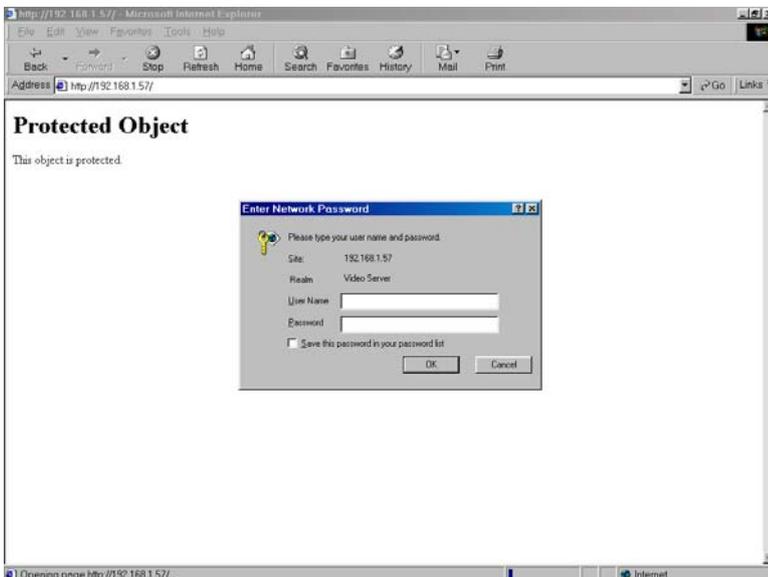
Installing Plug-in

If it is initial access to Video Server via the Web browser supporting server push, the motioned pictures will display directly. If the Web browser is Internet Explorer in Windows, users will be asked to install a new plug-in that is provided by Video Server. This plug-in has been registered for certificate and is used to display motioned pictures in the Internet Explorer. Users may click on "Yes" to install the plug-in. If the web browser does not allow the user to install, check the security option to lower security levels or contact network supervisors.

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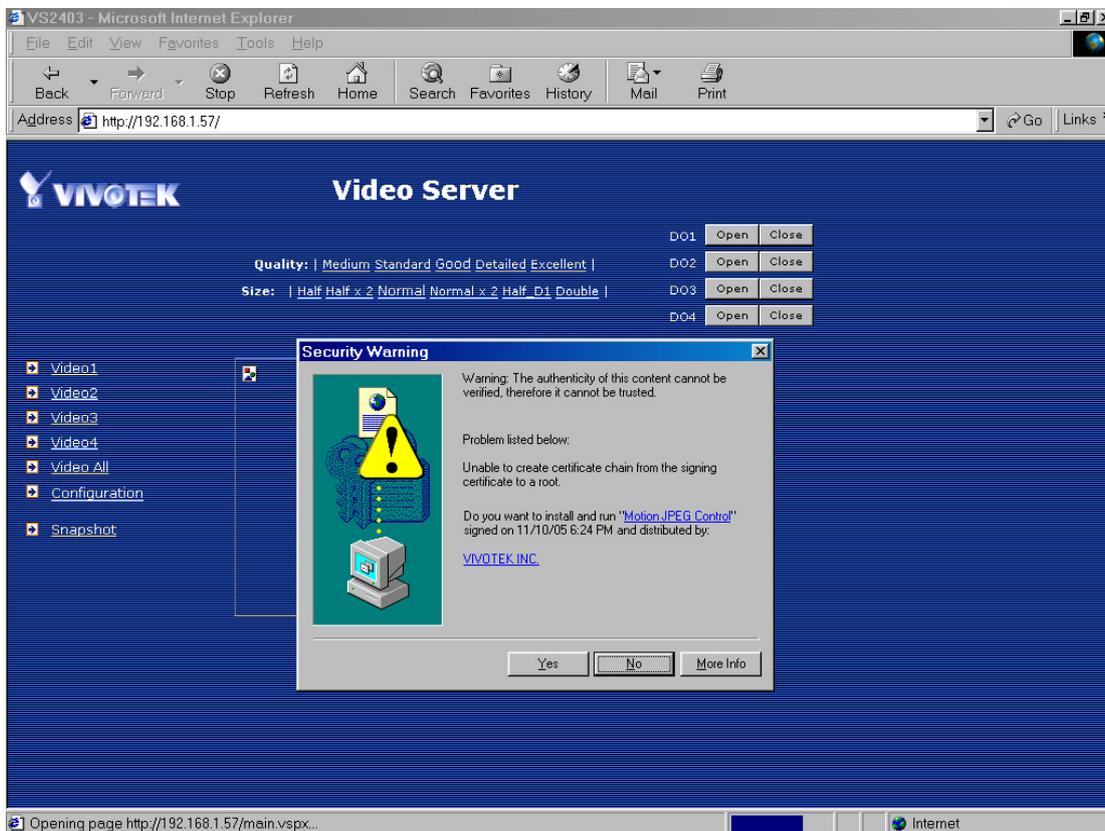
Main Page

Basic functions are displayed in main entrance page of Video Server. The first figure below is graphic mode that has better visual effect and the second one is text mode that will shorten download time. The main page may look different depending on the PTZ driver or the privilege of the user.
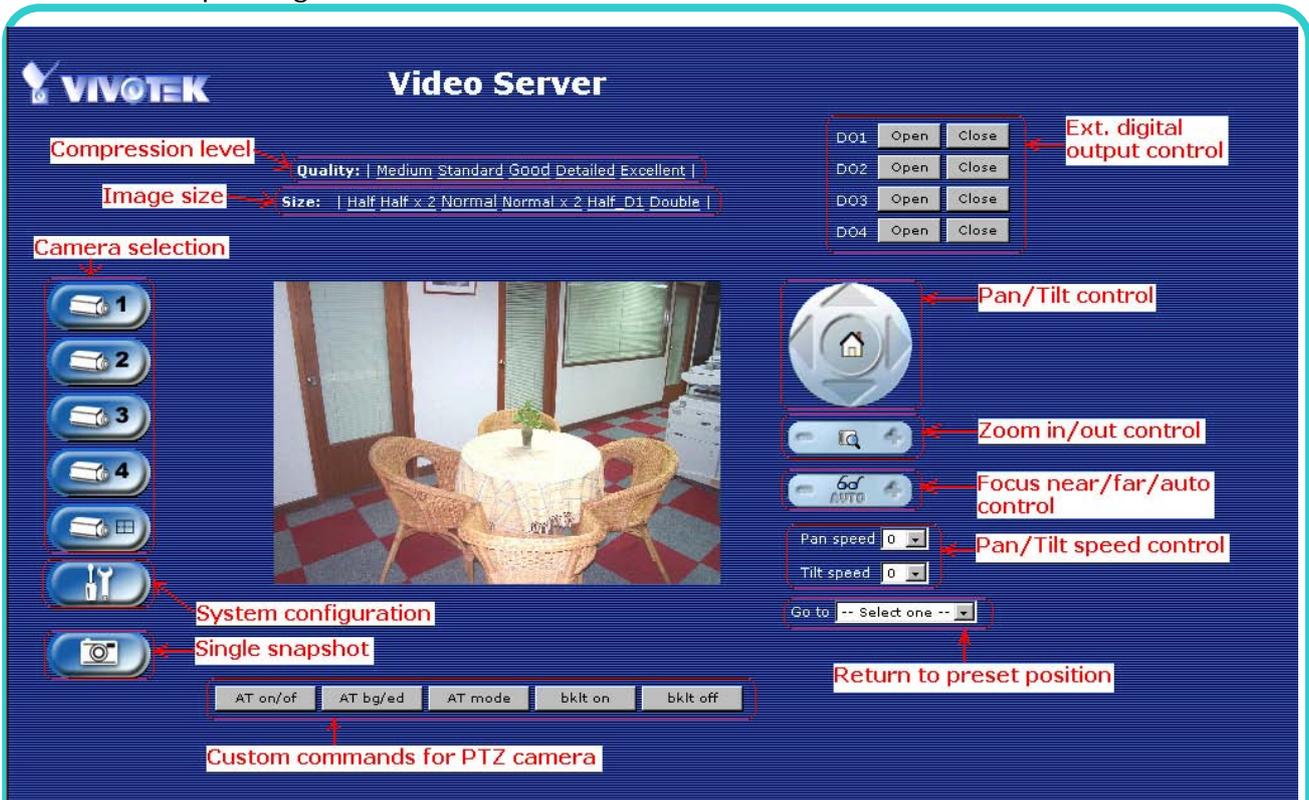
Graphic mode

Text mode is default

Text mode

Video input selection

Switch the video source among up to four cameras connected to Video Server. When clicking on the quad display button, a special quad display of all video inputs is available for simultaneous monitoring. The picture refresh rate of quad display is slower than the single input because it takes time to capture the valid image after changing the video source. The actually appearing buttons depend on the system settings.

Video quality selection

It allows users to adjust the video quality for speed or smoothness. The performance is also subject to the network bandwidth and the number of users. Five options are available to be chosen from "**Medium**" to "**Excellent**". "**Medium**" quality means the picture has the quickest refresh rate but the worst image quality and "**Excellent**" quality means the picture has the slowest refresh rate but the best image quality.

Video size selection

It allows users to adjust the image size with consideration of bandwidth and image resolution. Six options are available including "**Half**", "**Half×2**", "**Normal**", "**Normal×2**", "**Half D1**" and "**Double**". "**Half×2**" consumes the same bandwidth as "**Half**" but has the same size with "**Normal**". Of course the visual effect is worse than "**Normal**". "**Normal×2**" compared to "**Double**" is similar to the case. "**Half×2**" is especially suits in the low bandwidth environment. To fit into the small image area, timestamp will be skipped in "**Half**" and "**Half×2**" modes.

While in the quad display mode, "**Half**" means the image is composed of half size image of each channel; "**Normal**" means the image is composed of normal size image of each channel.

System configuration

There is a button or text link under video buttons for system configuration that only appears in administrators' main page.

External digital output control

There may be two remote control buttons for each digital output on the main page. If there are external devices attached to digital outputs, administrators or permitted users

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can click on "Open" to short "Common" and "Normal Open" pins of the digital output or click on "Close" to short "Common" and "Normal Close" pins of the digital output. To know more about the digital outputs for external devices, refer to the rear panel introduction of the Chapter Physical Description.

Motorized camera control

If there is any serial device like motorized camera attached and correctly setup to either COM port, the control panel will appear on permitted users' main page. The effective buttons will change color when users move the cursor over. Users can control the motorized camera in pan and tilt direction as well as zoom and focus. The home button can return the camera to the center position if the camera supports this command. Besides the near and far control in focus, an "AUTO" button is provided for setting auto focus mode. To move the motorized camera more precisely, speed control of pan and tilt allows users to fine tune the aiming position. Users also can directly click on any point in the image to force the motorized camera to focus on it. Users can pull down the list of preset locations to choose any one to move the camera to the preset location that is pre-defined by administrators. The detailed configurations are described in the related section in the Chapter Definitions of Configuration.

Custom camera commands

There are at most five buttons of custom commands for users to control the attached motorized cameras in addition to the default pan, tilt, zoom and focus control. The custom commands mean that administrators can setup some special commands like activating or deactivating the wiper of dome according to the user's manual of the attached motorized device.

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System Configuration

Introduction

The system configuration can be easily done remotely on Internet Explorer through the Web interface. Administrators may type directly the URL of system configuration, "*http://<IP address of Video Server>/setup/config.html*", to directly enter the configuration page. If administrators also want to set certain options through the URL, read the relative section in the Chapter <u>Advanced Usage</u> for reference. Video Server also supports FTP to modify the system configuration file, CONFIG.INI, for technical usage. The details are described in the Chapter <u>Advanced Usage</u>.

Since it is a networking video server, administrators should well configure "**Security**", "**Network**" and "**Video**" at least. To support external serial port devices, configure "**Camera Control**" and then "**Camera Setting**" in "**Video**". To utilize the built-in features of security and web attraction, configure "**Application**". Besides these features, administrators can adjust the system date and time in "**System**", or have different homepage layout by configuring "**Homepage layout**". Video Server also provides some system maintenance like "**View log file**", "**View parameters**" and "**Factory default**".

Definitions of Configuration

System parameters

Change host name

The "**Host name**" is used for the homepage title of main page and displays as the title over the video window on the main page. The maximum string length is 40 characters or 20 characters in double-byte-character-systems like Chinese or Japanese.

Adjust date and time

There are three ways to adjust system date and time. The easiest is to make Video Server "**Sync with computer time**". The second "**Manual**" is to set the date and time manually by entering new values. Notice the format in the related field while typing. The third "**Automatic**" is to make Video Server automatically synchronize with timeservers over the Internet every month. It may fail if the assigned **NTP server** cannot be reached or Video Server is within a local network. Leaving the NTP server blank will let Video Server connect to default time servers. Domain name or IP address format is acceptable as long as DNS server is available. Do not forget setting the "**Time zone**" offset for local settings. Refer to the Appendix G for the time zone of your region. It only affects the hour in NTP method.

Once the settings are changed, click on "Save" to validate changes.

Security privilege

Change root password

To change the administrator's password, type the new password in both text boxes identically. What is typed will be displayed as asterisks for security purposes. The maximum password is 16 characters. After pressing "Save", the web browser will ask administrators for the new password for access.

Add new users

To add a new user, type the new user's name and password, check respective privilege, and then press "Add" to insert the entry. There are a total of twenty user accounts. Each user can have independent access right of each video channel, external I/O access and camera control.

Edit user's privilege

If the permitted rights of some user have to be changed, pull down the user list to find the user name and press "Edit". A new window will pop out for administrators to change password and choose different privilege.

Delete existing users

To delete a user, pull down the user list to find the user name to be deleted and press "Delete". A message window will pop up for confirmation.

Enable snapshot mode for more users

The maximum users that can view Video Server at the same time are twenty. Administrators can check "**Allow more guests with snapshot mode**" to enable the snapshot mode for more users. Then the users over twenty will have the main page with snapshot mode instead of normal motion picture. It is practical for web attraction. In such case, configure the "**Snapshot interval**" to achieve better performance. The bigger interval between snapshots, the more users can have snapshot mode work.

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Network settings

Fix the IP address

Video Server will get IP address automatically whenever it starts unless "**Reset the IP address at next boot**" is disabled. Administrators can disable this option for fixing the IP address.

Basic network settings

Administrators may need to modify the network settings to fit into existing networks. The subnet mask in some broadband service may differ from the default value 255.255.255.0 and service providers may assign more specific network settings. Administrators should change the configuration to what given by the service provider. The configuration may include "**IP address**", "**Subnet mask**", "**Default router**", "**Primary DNS server**" and "**Secondary DNS server**". After changing network settings, be sure to leave "**Reset the IP address at next boot**" blank to skip next installation when the system restarts. Otherwise those network settings will be erased at the next start.

PPPoE

In PPPoE network interface, username and password are needed for this service. Administrators can get the account from an ISP and set it in the local network. Before setting the PPPoE account, Administrators must set the SMTP or FTP, let the start up log can send out via SMTP or FTP. After configuring the PPPoE setting, put the Video Server in the PPPoE network and power on the server. Administrators can get the IP address from the start up log.

Changing port number of servers

For security or network integration, administrators also can hide the server from the general HTTP port by changing "**HTTP port**" to other than default 80. "**Local FTP server port**" can also be changed to other than default 21. Administrators should have enough network knowledge to change the default port.

After everything is set, click on "Save". A warning message will pop out for confirmation. After clicking on "Ok", Video Server will automatically restart. If "**Reset the IP address at next boot**" is kept checked, perform software installation again. Otherwise Video Server will boot up according to the new configuration automatically.

⚠️Any change made to this page will make the system restart to validate. Make sure every field is correctly typed before clicking on "Save". If Video Server fails to response due to erratic settings, perform the restore procedures and run software installation.

DDNS & UPnP

Enable DDNS

Administrators can get the account from the DDNS providers and set the configuration for accessing the Video Server over Internet. The configuration includes "**Provider**", "**Host name**", "**Username/E-mail**" and "**Password/Key**".

Enable UPnP

This turns on or off the UPnP function. When UPnP is turned off, the camera cannot be found through network neighbors in MS Windows XP. If the UPnP network component is installed in Windows XP, the hostname of the Video Server will be shown with bracketed IP address in the Network neighbors. Ex: Video Server (xxx.xxx.xxx.96). That is: The hostname of the Video Server is "*Video Server*", and the IP address of the Video Server is *xxx.xxx.xxx.96,* depends on the last value of the IP address assigned to the Video Server.

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Mail & FTP

E-mail settings

Video Server not only plays the role of server, it will also actively connect to servers outside to send out messages or snapshots. When Video Server starts, it will send out a system log via e-mail as long as the settings are correct rather than upload it via FTP. Video Server will send out a connection log whenever it dials out to an ISP or dialup server outside. If the administrator has setup some applications in either event mode or sequential mode, Video Server will send out snapshots once conditions are met. To activate e-mail function, enter correct settings of "**1st SMTP (mail) server**" and "**1st Recipient email address**". "**2nd SMTP (mail) server**" and "**2nd Recipient email address**" are provided for backup connection when the primary one fails. "**Sender email address**" is whom the mail will return when the SMTP server rejects upon any failure. Some ISP may reject the mail if the address is invalid.

FTP settings

To send the log files described in the above paragraph via FTP, the SMTP server should be erased. Administrators must enter correct "**1st FTP Server**", "**1st FTP user name**" and "**1st FTP password**". "**1st FTP remote folder**" is the relative sub-folder in the remote FTP server. If the port of the remote FTP server is changed other than 21, set the real port to "**1st FTP server port**". If the local network is protected by a firewall to prevent from initiating FTP connection from the remote FTP server, you may be able to connect to the FTP server but unable to put any file due to data channel connection failure. Check "**1st FTP passive mode**" for passive transfer solution. Another set of "**2nd**" server settings is also provided for backup connection.

In either e-mail or FTP, the primary server information should be entered first. If the primary server is not set, the related FTP or email will be cancelled. Note that it may take time to connect to the secondary server after the first one fails and it may affect some applications when conditions happen too often.

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Access list

Allow list

Video Server can use allow list to limit which clients can access the video stream. Administrators can add ten IP address ranges to forbid these clients.

Deny list

Video Server also supports deny list, the maximum elements of it is ten. The deny list has the higher priority. If a client is in deny list and access list, it will be not allowed to access video stream.

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Video, camera mapping and motion detection

Enable video channels

Only when the video source is "**Enable**", the related link will be displayed in the main page. There are four buttons for "Image setting", "Camera setting", "Motion detection" and "Privacy mask" regarding to each video channel. The details are described in later paragraphs. The video "Modulation" can be automatically detected by the system or manually selected by administrators. Administrators can choose any video channel to be "Default video source" shown in the main page when users connect at the first time.

Adjust image settings

"**Time stamp**" and "**Text on image**" will be enclosed in image for reference. The timestamp is captured from date and time of Video Server that is maintained by an on-board real-time clock. "**Color**" setting is independent of the connected camera and "**B/W**" option can speed up the encoder a little. "**Default quality**" option here will be the default quality when users first connect to Video Server. "**Default size**" option here will be the default size of video window when users first connect to Video Server. To customize for different camera, administrators can adjust "**Brightness**", "**Contrast**", "**Hue**" and "**Saturation**" for video compensation of each channel. While adjusting, administrators can click on "Apply" to check prior to "Save" the setting in memory. If the adjustment is not good, administrators can click on "Restore" to restore the original settings without change. To facilitate the settings of four video channels, administrators can click on "Save all" then every setting in this channel will copy to other channels. Note that the "Text on image" may need to change for each channel. After configuration done, click on "Close" to close this window. If parameters are changed without saving, they will be used until the next system startup.

Configure attached motorized camera

In addition to configuring PTZ camera driver in Camera Control page, administrators have to define the relationship between video channel and camera. If there is any PTZ camera attached, administrators should select the "**Camera type**" as "**PTZ camera**", set the attached interface and the ID of the PTZ camera. The ID is specific to the camera and necessary for multiple camera control. Refer to the manual of camera for ID settings. After clicking on "Save", the preset function will appear in the lower half of window. There are up to twenty positions can be memorized. Administrators can move the camera and then enter the position name and save. The old "**Preset position**" can also be pulled down to delete.

The camera control will be activated only when both the attached "Camera Control" and "Camera Setting" are correctly configured. The camera ID may be relative to some DIP switch on the PTZ camera. Administrators may need to read the manual of the PTZ camera for specific information.

Configure motion detection

Each channel can have its own settings of motion detection independently. The settings including "**Percentage**" and "**Sensitivity**" allow administrators fine tune to fit into the environment. The "**Percentage**" decides the space ratio of motioned objects over the monitored screen. The "**Sensitivity**" sets the measurable difference between two sequential images that would indicate motion. The larger percentage and lower sensitivity will make Video Server ignore small variations in images. While the motion amplitude of some object in the monitored screen is over the settings, a red rectangle window will appear.

Motion detection is provided as reference because it is very environment-dependent. Especially working by the very sensitive settings, some triggered events may be considered as false alarms though there is tiny difference happening indeed. It can be affected by florescent light flashing, shadow shifting, and so on.

Configure privacy mask

Each channel can have five privacy mask areas. These areas are rectangle and black to hide the privacy object from the monitoring of camera.

Motion detection in the privacy mask can not be detected. Be carefully to use the privacy mask.

Set video modulation

There are basically two types of video modulation; one is NTSC and the other is PAL. Administrators can select "AUTO" to make Video Server automatically detect the correct type.

Select default video source

Administrators can choose video channel 1 to 4 or quad screen to be the default video source on the homepage when users connect to Video Server.

Bandwidth utilization limit

Each Video Server can be limited in bandwidth utilization by administrators according to

its priority and importance of location. "**Bandwidth limit**" is most useful to balance network utilization when multiple Video Servers are installed in the same network. It is more effective than changing image quality only and achieves better performance with adequate image size and quality.

Camera Control

Choose serial interface

There are two types of serial interfaces supported by Camera Control. Administrators must set the correct "**Interface mode**" between RS232 and RS485 according to the attached device.

Choose device driver

If the attached device is PTZ driver, administrators should select the appropriate PTZ model. Refer to our Web site for newly supported PTZ drivers. If the attached PTZ camera is not in the support list, administrators can select "**Custom Camera**" to enter the proprietary commands for pan, tilt, zoom and focus control. If it is not a PTZ camera but another serial device like video multiplexer, administrators can select the "**Generic CGI command**" to control the device via CGI commands. See the <u>URL of External Device Control</u> section in the Chapter <u>Advanced Function</u> for details.

Port settings

After select the driver type, the correct port settings must be chosen depends on the camera type. Refer to the Appendix <u>Settings for Supported PTZ Cameras</u> for default settings of supported PTZ camera including baud rate, data bits, stop bit and parity bit.

Custom commands

Video Server provides five more custom commands other than general pan, tilt, zoom and preset functions. Administrators can click on "Custom commands" and refer to the instruction manual of the attached device to setup frequently used functions. The "**Command**" should be entered in ASCII format; Video Server will translate it into binary code and send it out through the serial port. For instance, a text string of "8101ABCDEF" will be translated into five bytes of hexadecimal 81, 01, AB, CD and EF. The maximal length of a command string is 60 which is equivalent to 30 hexadecimal bytes. "**Display string**" is for text on command buttons and should be less than 8 characters. If the "**Custom Camera**" is selected, there will be more commands for PTZF regarding to the custom camera.

Homepage layout

There are two homepage display modes. One is "**Image mode**" that uses graphics for links; the other is "**Text mode**" that mostly uses text for links.

Image mode

Administrators may easily give Video Server a different presence of homepage. The "**logo graph**" for the system logo at the upper-left corner can be hidden; or the default image from the system memory can be used; or an external resource can be used by assigning a URL. The "**Background graph**" is similar. Default images of the system can be customized but limited by memory size. Images from external resources can be larger and more beautiful but will need more time to load. If the background is skipped, the background color will fill the browser window. Administrators also can give the system logo a "**Logo link**" to connect to another web site while clicked. The "**Font color**" and "**Background color**" can be chosen from sixteen colors as you like. See the Customize graphics in homepage section in the Chapter Advanced Functions for how to replace the default images of log, background and buttons of video switch.

Text mode

The "**video string**" for video links can be modified with maximum 16 characters. That will make users more easily know where the cameras installed like "*Main Entrance*", "*Warehouse*" instead of "*video1*", "*video2*". The camera control panel is also replaced by text buttons.

Application constitution

Administrators can use combinations of options on the application page to perform many useful security applications. Video Server provides two application modes; one is performed according to the settings on the web page, the other is performed according to the external command script.

Weekly schedule

A useful weekly schedule is provided for daily security application. Administrators can select weekdays from Monday to Friday with the daily schedule from 9:00 am to 6:00 pm that no one is at home to perform any event checking. If the security system needs to be installed in office that no one is there during the nights or weekend, administrators just set the time period as above, then check "**All the time except for the above schedule**" for opposite operations.

External command script

Administrators can write a script named **SCRIPT.TXT** to perfectly match the additional software according to the <u>Command Script for Complex Applications</u> section in the Chapter <u>Advanced Functions</u>. After uploading this script to Video Server via FTP, check the option "**Enable the external script file to exclude the following settings**". Otherwise Video Server will operate according to the settings below.

Event operation

Video Server provides general options for two basic applications, **event operation** for security and **sequential operation** for web attraction. In event operation, administrators have to setup some conditions to check and some actions to happen consequently. The conditions include motion detection on any video channel and the status of any digital inputs. While checking motion in video, administrators should click on the monitored video channel to configure the appropriate parameters. In the newly opened window, **percentage** of object size over whole window and **sensitivity** can be fine tuned to fit into the environment. If any motion is over the settings, a red rectangle window will appear to indicate the motion window. If there are any sensors attached to the digital inputs, administrators can set the state to fire alarm. There are four states of "**High**", "**Low**", "**Rising**" and "**Falling**" plus "**Disable**". The edge trigger like "Rising" or "Falling" is generally used to detect the emerging signal from the external sensor. Once any event happens, administrators can select "**DO action**" and/or send snapshots that are taken right at the moment. There is also a "**Delay second(s) after event**" option to drive some device attached to the digital outputs several seconds after the event happens. If administrators want to receive some snapshots to check the event, select

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the snapshot channels and check "**Send snapshot while trigger condition(s) match**". Video Server will take a maximum of seven snapshots of pre-event, the moment of event, and post-event for selected video channels. The snapshot number of pre-event can be set in "**Send pre-event image(s) when event occurs**". The snapshot number and the snapshot interval of the post-event also can be set in "**Take snapshot(s) with seconds interval after the event**". The maximum of seven pre- and post-event snapshots of each channel can also be downloaded via FTP or HTTP URL. Refer to the Download Event-triggered Snapshots section for details.

Sequential operation

With this feature, Video Server can upload snapshots periodically to external server as a live video source. The interval can be set from tenth second to several hours. The external server must be setup correctly in the Network configuration page.

Sending method

Either event mode or sequential mode can select one method between **email** and **FTP**. The companied external server must be setup correctly in advance. If email is chosen, the snapshots of selected video channels will be attached in the emails. If FTP is chosen, administrators can choose to add date and time in the file name of snapshots. If the snapshots are used as the live video source, the date and time suffix can be eliminated to update the same source file.

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View log file

There is some useful information in the system log including current system configuration and activity history with timestamp for tracking.

View parameters

The whole system parameters will be categorized listed for administrators to check. The content is the same as CONFIG.INI.

Factory default

It is used to restore the factory default settings. This means any changes made before will be lost and the system will be reset to the initial status as shipping out of the factory. After confirmation, the system will restart and require the software installation to setup the network.

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Advanced Functions

Capture Up-to-date Still Images

Get snapshot via URL

Administrator and users can use the specific URL to capture the current still image.

Video channel	URL
Video 1	http://<IP of Video Server>/cgi-bin/video1.jpg[?<param>=<value>]
Video 2	http://<IP of Video Server>/cgi-bin/video2.jpg[?<param>=<value>]
Video 3	http://<IP of Video Server>/cgi-bin/video3.jpg[?<param>=<value>]
Video 4	http://<IP of Video Server>/cgi-bin/video4.jpg[?<param>=<value>]
Quad of all	http://<IP of Video Server>/cgi-bin/videoall.jpg[?<param>=<value>]

Additional parameters:

param	value	Description
quality	1	Medium
	2	Standard
	3	Good
	4	Detailed
	5	Excellent
size	1	Half
	2	Normal
	3	Double
	6	Half D1

Get snapshot via FTP

Administrator and users can log-in the FTP daemon of Video Server to download the refreshed JPEG image. The user name and password are as same as what in web access. The zero file size in file directory means it is captured by request.

Video channel	File name
Video 1	video1.jpg
Video 2	video2.jpg
Video 3	video3.jpg
Video 4	video4.jpg
Quad of all	videoall.jpg

Get Continuous Images

Select video source and quality and size

/cgi-bin/video.jpg[?<param>=<value>]

param	value	Description
cam	1	Video 1
	2	Video 2
	3	Video 3
	4	Video 4
quality	1	Medium
	2	Standard
	3	Good
	4	Detailed
	5	Excellent
size	1	Half
	2	Normal
	3	Double
	4	Half x 2
	5	Normal x 2
	6	Half D1

Display all video

/cgi-bin/quad.jpg[?<param>=<value>]

param	value	Description
quality	1	Medium
	2	Standard
	3	Good
	4	Detailed
	5	Excellent
size	1	Half
	2	Standard (fast)
	4	Half x 2

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Download Event-triggered Snapshots

There are twelve video image files for four video channels of three stages: pre-alarm, the moment when triggered and post-alarm. Only the snapshots captured by the last event are preserved. Administrator and users can use FTP or URL to get the saved snapshots. They can also be browsed from the application page in system configuration.

Get triggered snapshots via URL

/cgi-bin/imagebuf.cgi? [?<param>=<value>]

param	value	Description
cam	1	Video 1
	2	Video 2
	3	Video 3
	4	Video 4
bufcnt	-7	snapshot before event (oldest)
	-6	snapshot before event
	-5	snapshot before event
	-4	snapshot before event
	-3	snapshot before event
	-2	snapshot before event
	-1	snapshot before event
	0	snapshot upon event
	1	snapshot after event
	2	snapshot after event
	3	snapshot after event
	4	snapshot after event
	5	snapshot after event
	6	snapshot after event
	7	snapshot after event (latest)

Get triggered snapshots via FTP

Channel name	Folder name
Video 1	snapshot1
Video 2	snapshot2
Video 3	snapshot3
Video 4	snapshot4

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File name	value	Description
pre07.jpg	-7	snapshot before event (oldest)
pre06.jpg	-6	snapshot before event
pre05.jpg	-5	snapshot before event
pre04.jpg	-4	snapshot before event
pre03.jpg	-3	snapshot before event
pre02.jpg	-2	snapshot before event
pre01.jpg	-1	snapshot before event
trg.jpg	0	snapshot upon event
pos01.jpg	1	snapshot after event
pos02.jpg	2	snapshot after event
pos03.jpg	3	snapshot after event
pos04.jpg	4	snapshot after event
pos05.jpg	5	snapshot after event
pos06.jpg	6	snapshot after event
pos07.jpg	7	snapshot after event (latest)

Uploading Snapshots Periodically

Upload snapshots to external FTP server

In sequential mode, Video Server will send out snapshots according to interval and period settings. If snapshot files are intended for quick updates, it is better to skip date and time suffix. The file name will then be video1.jpg, video2.jpg, video3.jpg and video4.jpg for four channels. If the snapshots are used for occasional monitoring, suffix with date and time can help administrators classify them easily.

Send snapshots to external SMTP (email) server

Comparing to the FTP method, email will induce more delay. But the email can notify users for prompt action.

Customize Graphics in Homepage

While in text mode, there is a small icon named BTN_TEXT.GIF preceding with each link that can be changed by administrators. While in image mode, the default method will use the image stored in Flash memory. The followings are the referenced file name of each stored images. Administrators may customize preferred image and put to the specific name via FTP. Administrators can download the original images before upload for backup.

Object	File name
Logo	logo.gif
Background	back.gif
Link icon	btn_text.gif
Camera 1 button	btn_cam1.gif
Camera 2 button	btn_cam2.gif
Camera 3 button	btn_cam3.gif
Camera 4 button	btn_cam4.gif
Camera All button	btn_cama.gif
Configuration	btn_conf.gif

Usage via FTP is illustrated as below.
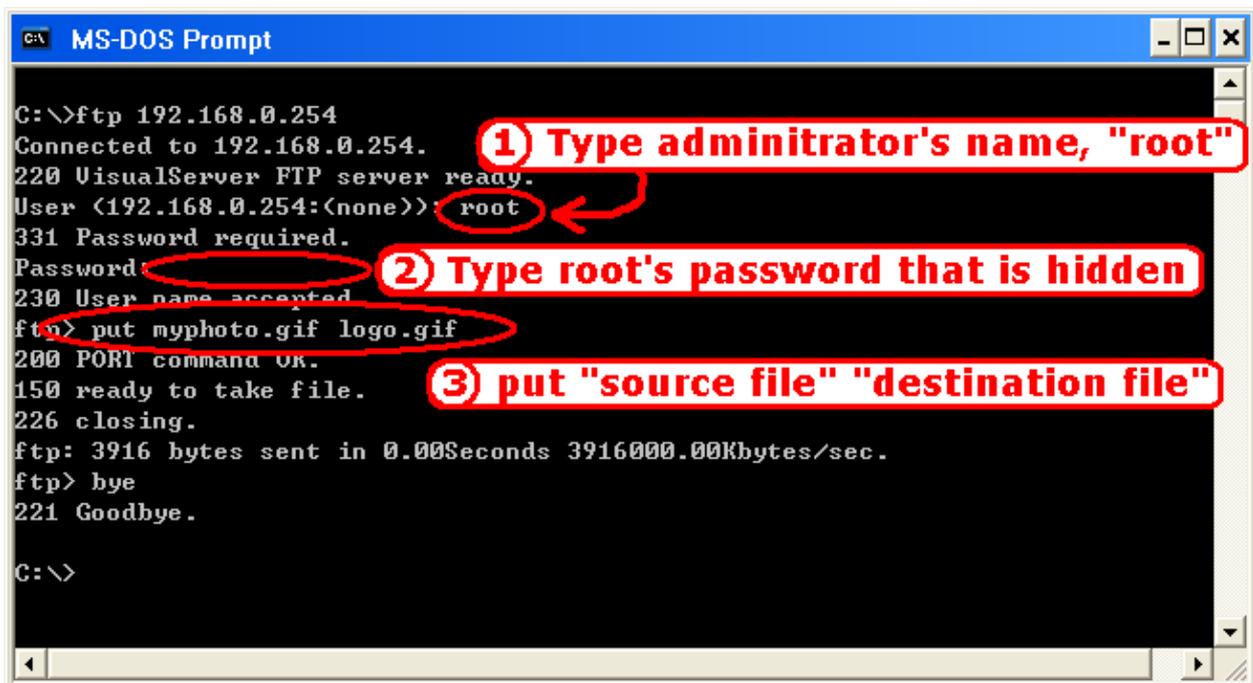
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Command Script for Complex Applications

Besides the application wizard, Video Server provides a more professional command script for advanced applications. The command script will be executed exclusively with the settings in Application page of system configuration except for the weekly schedule. To build the advanced application, follow the steps below.

1. Use any text editor to edit the appropriate command script according to the command format. The script size cannot exceed 500 bytes.

2. Save the script as a file named "SCRIPT.TXT".

3. Use FTP with administrator's privilege to upload the script file.

4. Enter the Application page in system configuration to define the time period in weekly schedule. If it is supposed to run any time, keep the original settings but check the option "All the time except for the above schedule".

5. Check the option "Enable the external script file to exclude the following settings" to activate the command script.

Command format
[Event]["Operator"Event]……=[Action][+Action]……;
Event
["Digital Input Number""Digital Input State"]
["M" "Channel Number…"]
["Channel Number""Video Input State"]
Operator
"+":   (OR)
"*":   (AND)
Action
[("Delay Time")"Digital Output Number""Digital Output State"]
["V""Channel Number""P""Preset Location Number"]
["W"{"IP":"Port"}{"Message"}]
["U""Method"]
["S""Channel Number…"]
["N"{"filename"}];

Parameter explanation
Item between brackets means optional but at least one item should exist.
"Digital input number":   1 ~ 4

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"Digital input state":	H (high), L (low), / (low to high), \ (high to low)
"M":	motion detection event.
"Channel Number":	A, B, C, D for channel 1, 2, 3, 4
"Video input state":	/ (signal from loss to presence), \ (signal from presence to loss), X (as long as signal loss)
"Delay time":	seconds of delay for the following actions after events happen
"Digital output number":	1 ~ 2
"Digital output state":	C (NC), O (NO)
"V":	set video channel to go to preset location
"P":	set preset location number to go to preset location
"W":	send warning to server
"IP":	server IP
"Port":	server port
"Message":	texts to be sent to the server
"U":	upload snapshots
"Method":	'F' is by FTP, 'M' is by e-mail
"S":	take snapshot on channels
"N":	define the format of the filename
";":	end of line

The filename format is,

%c	channel number
%a	image characterization (pre, trg, pos)
%y	year
%M	month
%d	day
%h	hour
%m	minute
%s	second

Practical examples

Command line	Description
MAB=1C;	When any motion is detected on channel 1 or 2, "Normal Close" of relay output 1 will short with "Common".
1H*2\=(5)1O;	When DI1 high companied with DI2 transient from high to low, "Normal Open" of relay output 1 will short with COMMON in 5 seconds.
B\+C\+D\=W{192.168.0.1:6000}{no signal!};	If there is no signal on channel 2 or 3 or 4, a message "no signal!" will be sent to port 6000 of 192.168.0.1 once.
2H=VAP15;	When sensor input 2 is high, drive the camera mapped to video 1 to go to preset location 15.
MCD=UF+SABCD+N{video%c%a@%y%M%d%h%m%s};	If any motion is detected on channel 3 or 4, upload snapshots taken on channel 1, 2, 3 and 4. If an event triggered at 19:05:30 2002/10/15, the snapshot files will be named as, video1pre@20021015190530.jpg, video2pre@20021015190530.jpg video3pre@20021015190530.jpg, video4pre@20021015190530.jpg video1trg@20021015190530.jpg, video2trg@20021015190530.jpg video3trg@20021015190530.jpg, video4trg@20021015190530.jpg video1pos@20021015190531.jpg, video2pos@20021015190531.jpg video3pos@20021015190531.jpg, video4pos@20021015190531.jpg

The script file is limited to maximum 500 characters and 12 lines. The actual performance will depend on the complexity of the command script. Administrators should reduce the redundant check as possible. Overload conditional check and heavy actions may retard the system operation.

URL for External Device Control

Query status of digital inputs

/cgi-bin/getdi.cgi?[di1][&di2][&di3][&di4]

If no parameter is specified, all the status of digital input will be returned.

Drive digital outputs

/cgi-bin/setdo.cgi?do<number>=<state>

<number>:   **1**, **2, 3, 4** for DO1, DO2, DO3 and DO4

<state>:   **C**, **O** denoting Normal Close or Normal Open respectively.

Move motorized camera in PTZ direction

/cgi-bin/control.cgi?<param>=<value>

param	value	Description
cam	1	Video 1
	2	Video 2
	3	Video 3
	4	Video 4
move	up	Tilt up
	down	Tilt down
	left	Pan left
	right	Pan right
	home	Return to home position
zoom	wide	Zoom in
	tele	Zoom out
focus	near	Focus near
	far	Focus far
	auto	Automatic focus
panspeed	-5 ~ 5	
tiltspeed	-5 ~ 5	

Recall camera position

/cgi-bin/recall.cgi?cam=<n>&recall=<position>

<n>:   video channel from 1 to 4

<position>:   the text string of a location that is preset in system configuration.

Refer to Camera preset configuration URL for preset function.

Transparent Remote Serial Driver

Video Server provides a highly customized control support to third-party serial interface devices aside from PTZ cameras. That means in addition to setting up a custom camera with PTZF commands, users may utilize this mode and introduce a customized homepage to transmit arbitrary user-defined commands from user-side to Video Server. The third-party device connected to the serial port of Video Server will receive the same command sent by the originator. The user only needs to attach the command in ASCII format after the special URL. Video Server will parse the commands and translate into binary code to send out.

Send command to device attached to COM1

/cgi-bin/senddata.cgi?com=1&data=123456,ABCDEF&flush=yes&wait=1000&read=6

This hyperlink will inform Video Server to send out binary format commands to COM1 with "0x12, 0x34, 0x56" followed by "0xAB, 0xCD, 0xEF". Each comma separates the commands by 200 milliseconds. "flush=yes" means the receive data buffer of COM port must be cleared before read. Then read 6 bytes after waiting for 1000 milliseconds. The read data can be up to 128 bytes and will return as ASCII coded hexadecimal value, e.g., 0x41, 0x42, 0x43 read from COM port will show in returned homepage as 414243 instead of ABC.

Send command to device attached to COM2

/cgi-bin/senddata.cgi?com=2&data=123456,,,ABCDEF

This hyperlink will inform Video Server to send out binary format command to COM2 with "0x12, 0x34, 0x56" followed by "0xAB, 0xCD, 0xEF" after 600 milliseconds of three comma.

URL of System Maintenance

Download System Log via FTP

Besides viewing the system log from the web page, administrators can download the system log file, SYSTEM.LOG, via FTP. To log into the FTP daemon, enter "root" as the user name and the same administrator's password used in Web access.

Restart System via URL

/cgi-bin/admin/setparam.cgi?system_reset=1

Restart Video Server without warning.

Restore Factory Default Settings via URL

/cgi-bin/admin/setparam.cgi?system_restore=1

Video Server will automatically restart after restoring factory default configurations.

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Configure System via FTP

Administrators can use FTP to configure Video Server much quicker than Web page especially for multiple targets. To configure system via FTP, first download the parameter file, CONFIG.INI, to customize each field according to the environment and then upload back to validate the new settings. To log into the FTP daemon, enter "root" as the user name and the same password used when connecting to the Web server.

The file is composed of categories. The category name in brackets should be in lower case. The item name in angle braces should be in lower case. The number zero entry in <user name> and <user password> is for administrators, i.e. "root".

A sample CONFIG.INI is attached below. *The italic text* following each line describes the characteristic of the field and **the bold italic characters** are the options of the field.

The following table is an example, all parameters is listed in <u>General format of command URL</u>.

;VS2403 Initial Configuration File
[system]
<hostname>
Video Server
<ledoff>
<timezone>
8
<date>
2005/04/01
<time>
16:28:59
<ntp>
<updateinterval>
0
<serialnumber>
0002D10093E3
<firmwareversion>

VS2403-VVTK-0100a

<supportscriptversion>

0100a

<scriptversion>

0100a

<language>

en

<webpageversion>

VS2403-VVTK-0100a

<ptzenabled>

0

<viewmode>

0

[security]

<usercount>

1

<username>

(0)root

(1)

(2)

(3)

(4)

(5)

(6)

(7)

(8)

(9)

(10)

(11)

(12)

(13)

(14)

(15)

(16)

(17)

(18)

(19)	
(20)	
<userattr>	
(0)video1|video2|video3|video4|camctrl|dido|conf	
(1)	
(2)	
(3)	
(4)	
(5)	
(6)	
(7)	
(8)	
(9)	
(10)	
(11)	
(12)	
(13)	
(14)	
(15)	
(16)	
(17)	
(18)	
(19)	
(20)	

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Telnet Commands

Video Server has a Telnet daemon for only administrators to access some seldom used functions. Using any general terminal program to connect to Video Server will prompt the user for a password. Username is not requested here since only administrators can access the Telnet daemon. The password is as same as that used in web access. After logging in, type "*help*" for the command list. If "*debug*" or "*dinote*" is not executed, Telnet will disconnect automatically after being idle for 1 minute.

System core debugging

General activities are recorded into SYSTEM.LOG continuously, but information about abnormal status is not. To look deep into the core debugging information, administrators may type the "*debug*" command. This will cause Video Server to start dumping the detailed debugging information while the system is running. This is useful to examine if any error has occurred when the system operates abnormally. Video Server will continue to dump new messages unless the connection is broken. If Telnet is not connected, any messages will be stored until administrators re-login.

Monitor changed status of digital inputs

Typing "*dinote*" will make Video Server send the current status of all digital inputs. After that Video Server will continuously monitor DI status and send messages only when the state has changed. For example, after typing "*dinote*" the terminal will display

di1=l

di2=l

di3=l

di4=l

and if DI2 changes to H, terminal will display only

di2=h

Stop information dumping

Typing "*stop*" will cease dumping debug information and the digital input status.

Query status of digital inputs

Typing "*diquery*" will display the status of all digital inputs once.

Set digital outputs

To set digital output 1 to connect NO with COMMON, type "*do1=o*".

To set digital output 1 to connect NC with COMMON, type "*do1=c*".

To set digital output 2 to connect NO with COMMON, type "*do2=o*".

To set digital output 2 to connect NC with COMMON, type "*do2=c*".

Restore factory default settings

Typing "*clear*" will make Video Server restore factory settings but not restart. To validate new settings, type "reset" to make the system restart.

Reset system

Typing "*reset*" will make Video Server perform a software reset.

Appendix

A. Troubleshooting

A.1 Power-On-Self-Test

After the power has been turned on, Video Server will perform a self-diagnostic to detect any possible hardware defects. If the power indicator is dim at the beginning, the system fails to proceed further without power. While the POST is proceeding, the status LED indicators will keep blinking interchanged until finished or any fatal error happens. If either status LED indicator is dim at the beginning, the LED may be broken.

Any possible fatal error has a special pattern shown in the following table. LED1 is the one below power indicator and LED2 is the lowest one.

LED pattern after POST	Failed function	Troubleshooting
LED1 off, LED2 off	Ethernet network	1. Check the LINK LED of the attached port on the Ethernet switch or hub. If it is dim, the Ethernet cable may be loose or cross-over. 2. If the cable is OK, the Ethernet controller is broken. Ask your reseller for technical service.
LED1 blinks one time and LED2 blinks 4 times	Ethernet network	The Ethernet controller is broken. Ask your reseller for technical service.
LED1 blinks one time and LED2 blinks 3 times	System	The PCI interface cannot work. Ask your reseller for technical service.

A.2 System recovery

Video Server provides an auxiliary button located on the left of the front panel for system recovery by hardware. The buttons can be used to perform either level of system recovery. "Reset" will force the system restart at any point; "Restore" will restore the default settings from factory and then force the system restart to work at the initial state. Consequently "restore" is generally used to completely recover the system from serious fault in configuration.

RESET

Click on the "RESET" button once. The system will perform the system diagnosis and the software installation may be necessary if the IP address is not fixed. This procedure is as same as removing the power and attaching it again.

RESTORE

When the system seems to respond or operate slowly after changing some settings and administrators hardly enter the configuration to change back the original settings, administrators can perform the "restore" procedure. It is as same as the "factory default" link on the configuration page. To restore the factory default settings, press the "RESET" button firmly. The system diagnosis will start right away and the "status" LEDs will be turn on after system diagnosis. After the "status" LEDs are off, Administrators can release the "RESET" button now and perform the installation for the initialized system.

⚠ To reduce the system failure caused by operation error, always read the related sections in this user's manual to prevent from unexpected error caused by wild-guess configuration.

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B. Frequently Asked Questions

Q Why can't I connect the Video Server after reboot?

A The Installation Wizard can find Video Servers in the same LAN. If Administrator fixed the IP address and it is not belong to the same LAN with PC or Administrator set PPPoE, the Video Server can not be found by Installation Wizard. Please locate the Video Server in the right network environment or restore the default settings.

Q What if I forget my password?

A Every access to Video Server needs authentication. If you are not a permitted user, you may view the images or control the camera as long as the demo account is opened. If you are one of the managed users, you have to ask the administrators for the password. If you are the administrator, there is no way to recover the root password. The only way to regain access to Video Server is to restore the factory settings and reinstall it.

Q Why can I not watch video from Video Server after it is authenticated?

A There are many possible scenarios regarding this problem,

1. If you have just installed Video Server and are unable to watch the video, check if the video input is enabled and the video modulation in Configuration page.

2. If Video Server is well installed and you are accessing Video Server for the first time using Internet Explorer, adjust the security level of Internet Explorer to allow installation of the plug-in.

3. If the problem still exists after adjusting, the current users may be over the system allows.

4. If the top-left corner of the vision window shows "No Signal", Please attach a camera to the corresponding BNC connector.

Q How can I use a name instead of the IP address to connect Video Server?

A To allow users to connect to Video Server through an easily memorized name, the administrators must first configure the name server in his network. Here is an example: the administrator installs the Video Server with a reserved IP address and assigns it with a name in the domain name service, then users can connect to Video Server by typing a name instead of IP address. If there is DHCP service in the network, the IP address must be excluded in the DHCP service to prevent from IP conflict.

Q What is the plug-in for?

A The plug-in provided by Video Server is used to display motion pictures on Internet Explorer that does not support server push technology. If your system does not allow installation of any plug-in software, the security level of web browser may need to be lowered. It is recommended that you consult your network supervisor in your office regarding the adjustment of the security level.

Q Why is the timestamp different from the system time of my PC or notebook?
A The timestamp is based on the system time of Video Server. It is maintained by a real-time clock inside and automatically synchronizes with the time server if Video Server is connected to the Internet and the function is enabled. Differences of several hours may result from the time zone setting.

Q How many users are allowed to watch Video Server at the same time?
A To achieve the best effect, Video Server will allow twenty users to connect at the same time. Excess users can get an auto-refreshed still image in homepage instead. It is recommended to build another web server to host a large quantity of users by retrieving images from Video Server periodically.

Q How fast is the video rate of Video Server?
A The JPEG codec can process 30 frames per second internally. However the total performance is subject to many coefficients as follows,
1. network throughput,
2. bandwidth share,
3. number of users,
4. number of video inputs are accessed at one time,
5. the complicated objects in view results in larger image file,
6. the level of your PC or notebook which is responsible of displaying images.
In general, the transfer rate in general local network environment can achieve over 200 kilobytes per second and approximately 10 to 20 pictures of normal environment per second. The general frame size is illustrated in the follow table for reference.

Quality setting	Size of each frame	Bandwidth demand for 30fps
Medium	6.51 kbyte	1562 kbps
Standard	6.69 kbyte	1606 kbps
Good	9.29 kbyte	2230 kbps
Detailed	14.28 kbyte	3427 kbps
Excellent	24.24 kbyte	5818 kbps

Q How can I keep Video Server as private as possible?

A Video Server is designed for surveillance purpose and has many flexible interfaces. The user authentication and special confirmation in installation can keep Video Server from unauthorized access. You may also change the HTTP port to non-public number. You can check system log to examine any abnormal activities and trace the origins.

Q I have a PTZ camera that is not on the supported list. How can I control it?
A Video Server provides a custom camera command interface to control the cameras not supported. The details are described in the manual. Be sure the COM port settings are applied to the camera specification. The camera control cable included is shown in the package content. Prepare your own cable if necessary. The general PTZ command is composed of one start command and one stop command. When editing both commands in the edit box of the configuration page, use comma(s) to separate commands. Each comma represents 200 milliseconds. If the user has some serial control device other than the PTZ camera, the special URL is provided to send the desired commands. For quick access, integrate the URL to another homepage on your own web server.

Q If I set Video Server to send e-mails of images whenever the conditions are met, will my e-mail account overflow?
A It is recommended to use transient state rather than steady state. For instance, use 'Rising' and 'Falling' rather than 'High' and 'Low' to let the condition be triggered only when state is changed.

Q I try to connect my cameras with Video Server but the image is not good.
A Video Server only support one modulation type at one time, check your cameras attached to the Video Server. Let the cameras are all NTSC or PAL and set the correct modulation type in the video settings.

Q The image is not clear enough. Is anything broken?
A The lens can be fine adjusted by rotating the outer ring. Please rotate it clockwise or counter-clockwise to focus near or far.

C. Upgrade System Firmware

Customers can frequently check the appropriate product folder on our web site to download the latest firmware. Only administrators can upgrade the system firmware of Video Server.

Easy way via Installation Wizard

Run the Upgrade Wizard included in the product CDROM and proceed by the prompts. Refer to the user's guide of Installation Wizard for details.

When Video Server starts writing firmware, both status LED indicators will stay on until system restarts. It takes about 30 to 40 seconds. User must keep the power stable during the update process. After the system restarts, Video Server may need installation depending on whether the "Reset network at next boot" option is enabled or not. After Video Server boots up, reload the web page in the browser.

⚠ If power fails during the software upgrade, the program in the memory of Video Server may be destroyed permanently. If Video Server cannot restart properly, ask the dealer for technical service.

D. URL Commands of Video Server

For some customers who already have their own web site or web control application, Video Server can be easily integrated through convenient URL. This section lists the commands in URL format corresponding to the basic functions of Video Server. Some RFC standards related to HTML may be a good reference for implementation of the customized homepage.

Page URL

The configuration page has a frame layout including option list frame and an option page frame. Referenced URL except for the configuration page directs to option page frame only. Some pages, like image quality setting and preset setting, are opened in new windows for preview.

These URLs can be accessed only by administrators.

Homepage name	Referenced URL
configuration page	/setup/config.html
system option	/setup/system.vspx
security option	/setup/security.vspx
network option	/setup/network.vspx
DDNS and UPnP option	/setup/ddnsupnp.vspx
mail and FTP option	/setup/mailftp.vspx
access list option	/setup/accesslist.vspx
video option	/setup/video.vspx
image quality option	/setup/imageset.vspx
camera setting option	/setup/camerasetting.vspx
motion detection setting	/setup/motion.vspx
privacy mask setting	/setup/privatemak.vspx
camera control option	/setup/serial.vspx
custom command setting for RS485	/setup/cuscom.vspx
custom command setting for RS232	/setup/cuscom2.vspx
homepage layout option	/setup/layout.vspx
application option	/setup/app.vspx
system log	/setup/logfile.vspx
system parameters	/setup/parafile.vspx

set factory default	/setup/factory.html
view snapshots	/snapshot.vspx

System resource URL

There are some images used on the homepage when the homepage layout is in image mode. Administrators may use the following links to show the images saved in Video Server on another page. To change the logo or the background images referenced by the URL, refer to the <u>homepage layout</u> section in configuration.

Resource name	Referenced URL
system logo image	/logo.gif
background image	/back.gif
button image for camera 1	/btn_cam1.gif
button image for camera 2	/btn_cam2.gif
button image for camera 3	/btn_cam3.gif
button image for camera 4	/btn_cam4.gif
button image for quad screen	/btn_cama.gif
button image for configuration	/btn_conf.gif
icon image for link indicator	/btn_text.gif

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General CGI URL syntax and parameters

CGI parameters are written in lower-case and as one word without any underscores or other separators. When the CGI request includes internal server parameters, the internal parameters must be written exactly as they are named in the server or video server. The CGIs are organized in function related directories under the cgi-bin directory. The file extension of the CGI is required.

Syntax:

http://*<servername>*/cgi-bin/*<subdir>*[/*<subdir>*…]/*<cgi>*.*<ext>*
[?<parameter>=<value>[&<parameter>=<value>…]]

Get server parameter values

Note: This request require administrator access
Method: GET/POST

Syntax:

http://*<servername>*/cgi-bin/admin/getparam.cgi?[*<parameter>*]
[&<parameter>…]

where the *<parameter>* should be *<group>*[_*<name>*] or *<group>*[.*<name>*] If you do not specify the any parameters, all the parameters on the server will be returned. If you specify only *<group>*, the parameters of related group will be returned.

When query parameter values, the current parameter value are returned.
Successful control requests returns paramter pairs as follows.
Return:

HTTP/1.0 200 OK\r\n
Content-Type: text/html\r\n
Context-Length: <length>\r\n
\r\n
<parameter pair>

where <parameter pair> is

=<value>\r\n

<length> is the actual length of content.

Example: request IP address and it's response

Request:

http://192.168.0.123/cgi-bin/admin/getparam.cgi?network_ipaddress

Response:

Set server parameter values

Note: This request require administrator access

Method: GET/POST

Syntax:

http://*<servername>*/cgi-bin/admin/setparam.cgi?
[nosync=*<value>*&] *<parameter>*=*<value>*
[&<parameter>=<value>...][&return=<return page>]

parameter	value	description
nosync	0, 1	Specifies that there should be no sync (write) of the corresponding configuration file on flash. If parameter is omitted, a sync write will occur. *(note: this parameter must be put at begin of parameter list)*
<group>_<name>.	value to assigned	Assign *<value>* to the parameter *<group>_<name>..*
return	*<return page>*	Redirect to the page *<return page>* after the parameter is assigned*.* The *<return page>* can be a full URL path or relative path according the the current path. If you omit this parameter, it will redirect to an empty page. (note: The return page can be a general HTML file(.htm, .html) or a Vivotek server script executable (.vspx) file. It can not be a CGI command. It can not have any extra parameters. This parameter must be put at end of parameter list)

Return:

```
HTTP/1.0 200 OK\r\n
Content-Type: text/html\r\n
Context-Length: <length>\r\n
\r\n
```
<parameter pair>

where <parameter pair> is

=<value>\r\n

[<parameter pair>]

Only the parameters that you set and readable will be returned.

Example: Set the IP address of server to 192.168.0.123

Request:

http://myserver/cgi-bin/admin/setparam.cgi?Network_IPAddress=192.168.0.123

Response:

HTTP/1.0 200 OK\r\n

Content-Type: text/html\r\n

Context-Length: 33\r\n

\r\n

network.ipaddress=192.168.0.123\r\n

Available parameters on the server

NOTE: The bold characters in table are the default value of each parameter.

Group: **System**

NAME	VALUE	DESCRIPTION
hostname (r/w)	<text string shorter than 40 characters>	host name of server **<<Wireless>Video Server<with Pan/Tilt/<Zoom>>>**
ledoff (r/w)	**0**	Do not turn off the led indicator
	1	Turn off the led indicator
date (r/w)	**<yyyy/mm/dd>**	year, month and date separated by slash.
	<keep>	keep date unchanged
	<auto>	Using NTP to sync date/time automatically
time (r/w)	**<hh:mm:ss>**	hour, minute and second separated by colon.
	<keep>	keep date unchanged

	<auto>	Using NTP to sync date/time automatically
ntp (r/w)	<domain name or IP address>	NTP server **<skip to invoke default server>**
timezone (r/w)	-12 ~ 12	time zone, 8 means GMT +8:00 **<8>**
updateinterval (r/w)	0 ~ 2592000	0 to Disable automatic time adjustment, otherwise, it means the seconds between NTP automatic update interval. **<0>**
serialnumber (r)	<mac address>	12 characters mac address without hyphen connected
firmwareversion (r)	<text string shorter than 39 characters>	The version of firmware, including model, company, and version number
restore (w)	0	Restore the system parameters to default value.
	Positive integer	Restore the system parameters to default value and restart the server after <value> seconds.
reset (w)	0 ~ 65535	Restart the server after <value> seconds.
	-1	Not restart the server.
do<1~4> (w)	<state>	H – NC connected with COMMON
		L – NO connected with COMMON
di<1~4> (r)	<state>	H – NC connected with COMMON
		L – NO connected with COMMON
supportscriptversion (r)	<text string shorter than 10 characters>	The version of supported script/webpage
scriptversion	<text string shorter than 10 characters >	The maximum version of currently installed script/webpage
language	<text string shorter than 16 characters>	The webpage language
webpageversion	<text string shorter than 39 characters>	The version of webpage
enableir(r/w)	0	Turn on the IR control
	1	Turn off the IR control

NAME	VALUE	DESCRIPTION
ptzenabled (r)	32-bit integer	Indicate the operations of server supported

Group: **Security**

NAME	VALUE	DESCRIPTION
username_<1~ 20> (r/w)	<text string shorter than 16 characters>	change user name. ***<blank>***
userpass_<0~2 0> (r/w)	<text string shorter than 14 characters>	change user's password. The UserPass_0 is root's password. ***<blank>***
userattr_<1~2 0> (r/w)	[dido][|talk][|listen][|c amctrl][|conf]	change user's privilege. The privilege can be the combination of dido – Permit I/O access talk – Permit to talk to server listen – Permit to listen from server camctrl – Permit to do server control conf – Permit to change server's configuration ***<blank>***
usercount (r)	1 ~ 21	The current account number on the server including root.**<1>**

Group: **Network**

NAME	VALUE	DESCRIPTION
resetip (r/w)(restart)	**1**	enable to get ipaddress, subnet, router, dns1, dns2 from DHCP server at next reboot
	0	Using preset ipaddress, subnet, router, dns1, dns2
ipaddress (r/w) (restart)	<IP address>	IP address of server **<192.168.0.99>**
subnet (r/w) (restart)	<IP address>	subnet mask **<255.255.255.0>**
router (r/w) (restart)	<IP address>	default gateway ***<blank>***
dns1 (r/w) (restart)	<IP address>	primary DNS server ***<blank>***
dns2	<IP address>	secondary DNS server

(r/w) (restart)		*<blank>*
httpport (r/w) (restart)	<positive number less than 65535>	HTTP port **<80>**
networktype (r/w) (restart)	**0** 1	LAN PPPoE
pppoeuser (r/w) (restart)	<text string shorter than 63 characters>	User name of PPPoE
pppoepass (r/w) (restart)	<text string shorter than 63 characters>	Password of PPPoE
smtp1 (r/w)	<domain name or IP address, string shorter than 40 characters>	primary SMTP server *<blank>*
mailto1 (r/w)	<string shorter than 80 characters>	mail recipient address *<blank>*
mailuser1 (r/w)	<text string shorter than 63 characters>	User name of primary smtp server *<blank>*
mailpass1 (r/w)	<text string shorter than 15 characters>	Password of primary smtp server *<blank>*
smtp2 (r/w)	<domain name or IP address, string shorter than 40 characters>	secondary SMTP server *<blank>*
mailto2 (r/w)	<text string shorter than 80 characters>	mail recipient address *<blank>*
mailuser2 (r/w)	<text string shorter than 63 characters>	User name of secondary smtp server *<blank>*
mailpass2 (r/w)	<text string shorter than 15 characters>	Password of secondary smtp server *<blank>*
returnemail (r/w)	<text string shorter than 80 characters>	return email address *<blank>*
localftpport (r/w)	<positive number less than 65535>	FTP port **<21>**
ftp1 (r/w)	<domain name or IP address, string shorter than 40 characters >	primary FTP server *<blank>*
ftpport1 (r/w)	<positive number less than 65535>	primary FTP port **<21>**
ftpuser1 (r/w)	<text string shorter than 63 characters>	user name for primary FTP server *<blank>*

ftppass1 (r/w)	<text string shorter than 15 characters>	password for primary FTP server <blank>
ftpfolder1 (r/w)	<text string shorter than 40 characters>	upload folder in primary FTP server <blank>
ftppasvmode1 (r/w)	1	Enable passive mode of primary FTP server
	0	Disable passive mode of primary FTP server
ftp2 (r/w)	<domain name or IP address, string shorter than 40 characters >	secondary FTP server
ftpport2 (r/w)	<positive number less than 65535>	secondary FTP port <21>
ftpuser2 (r/w)	<text string shorter than 63 characters>	user name for secondary FTP server <blank>
ftppass2 (r/w)	<text string shorter than 15 characters>	password for secondary FTP server <blank>
ftpfolder2 (r/w)	<text string shorter than 40 characters>	upload folder in secondary FTP server <blank>
ftppasvmode2 (r/w)	1	Enable passive mode of primary FTP server
	0	Disable passive mode of primary FTP server

Group: **DDNS**

NAME	VALUE	DESCRIPTION
enable (r/w)	0, 1	Enable or disable the dynamic dns. <0>
provider (r/w)	1 ~ 4	dyndns.org (dynamic) dyndns.org (custom) tzo.com dhs.org <1>
hostname (r/w)	Text string shorter than 127 characters.	Your dynamic hostname. <blank>
usernameemail (r/w)	Text string shorter than 63 characters.	Your user or email to login ddns service provider <blank>
passwordkey (r/w)	Text string shorter than 20 characters.	Your password or key to login ddns service provider <blank>

update (w)	0, 1	Update the above ddns settings to take effect

Group: **UPNP**

NAME	VALUE	DESCRIPTION
enable (r/w)	0, 1	Enable or disable the UPNP service. **<1>**

Group: **IPFilter**

NAME	VALUE	DESCRIPTION
allowstart_<0~9> (r/w)	1.0.0.0 ~ 255.255.255.255	Allowed starting RTSP connection IP address **<1.0.0.0>**
allowend_<0~9> (r/w)	1.0.0.0 ~ 255.255.255.255	Allowed ending RTSP connection IP address **<255.255.255.255>**
denystart_<0~9> (r/w)	1.0.0.0 ~ 255.255.255.255	Denied starting RTSP connection IP address *<blank>*
denyend_<0~9> (r/w)	1.0.0.0 ~ 255.255.255.255	Denied ending RTSP connection IP address *<blank>*

Group: **Video**

NAME	VALUE	DESCRIPTION
enable (r/w)	0, 1	Enable or disable the channel. <**1**>
text (r/w)	<text string shorter than 14 characters>	enclosed caption *<blank>*
Codectype (r)	1	MJPEG
defaultsource (r/w)	**0**	Video 1
	1	Video 2
	2	Video 3
	3	Video 4
	4	Video all
Size (r/w)	1	half
	2	half x 2
	3	normal
	4	normal x 2
	5	double
	6	half D1

color	0	monochrome
(r/w)	**1**	color
quant	1	lowest quality of video
(r/w)	2	lower quality of video
	3	normal quality of video
	4	higher quality of video
	5	highest quality of video
bitrate	64000	set bit rate to 64K bps
(r/w)	128000	set bit rate to 128K bps
	256000	set bit rate to 256K bps
	384000	set bit rate to 384K bps
	512000	set bit rate to 512K bps
	768000	set bit rate to 768K bps
	1000000	set bit rate to 1000K bps
	1200000	set bit rate to 1200K bps
maxframe	1	set maximum frame rate to 1 fps
(r/w)	2	set maximum frame rate to 2 fps
	3	set maximum frame rate to 3 fps
	5	set maximum frame rate to 5 fps
	10	set maximum frame rate to 10 fps
	15	set maximum frame rate to 15 fps
	20	set maximum frame rate to 20 fps
	25	set maximum frame rate to 25 fps
	30 (for NTSC only)	set maximum frame rate to 30 fps
modulation	0	NTSC
(r/w)	1	PAL
	2	AUTO
actualmodulation	0	NTSC
(r)	1	PAL
flip	1	flip image
(r/w)	**0**	normal image
mirror	1	mirror image
(r/w)	**0**	normal image
imprinttimestam	1	Overlay time stamp on video
p	**0**	Do not overlay time stamp on video
(r/w)		

Group: **Image**

NAME	VALUE	DESCRIPTION
brightness (r/w)	<-5 ~ 5>	Adjust brightness of image according to mode settings. **<0>**
saturation (r/w)	<-5 ~ 5>	Adjust saturation of image according to mode settings. **<0>**
contrast (r/w)	<-5 ~ 5>	Adjust contrast of image according to mode settings. **<0>**
hue (r/w)	<-5 ~ 5>	Adjust hue of image according to mode settings. **<0>**
mode (w)	Preview	Apply the parameter of image but not save
	Restore	Restore the last saved image parameters
	Save	Directly save the adjust image parameters

Group: **Motion1~4**

NAME	VALUE	DESCRIPTION
enabled (r/w)	**0**	disable motion detection
	1	enable motion detection
winenabled_<1~3> (r/w)	**0**	disable motion window
	1	enable motion window
winname_<1~3> (r/w)	<text string shorter than 14 characters >	name of motion window **<blank>**
winleft_<1~3> (r/w)	0 ~ 352 for CCD 0 ~ 320 for CMOS	Left coordinate of window position. **<0>**
wintop_<1~3> (r/w)	0 ~ 288 for PAL 0 ~ 240 for NTSC & CMOS	Top coordinate of window position. **<0>**
winwidth_<1~3> (r/w)	0 ~ 352 for CCD 0 ~ 320 for CMOS	Width of motion detection window. **<0>**
winheight_<1~3> (r/w)	0 ~ 288 for PAL 0 ~ 240 for NTSC & CMOS	Height of motion detection window. **<0>**
winobjsize_<1~3> (r/w)	0 ~ 100	Percent of motion detection window **<0>**
winsensitivity_<1~3 > (r/w)	0 ~ 100	Sensitivity of motion detection window **<0>**

update	1	Update the above motion detection
(w)		settings to take effect

Group: **Mask1~4**

NAME	VALUE	DESCRIPTION
enabled	**0**	disable privacy mask
(r/w)	1	enable privacy mask
winenabled_<1~3>	**0**	disable privacy mask window
(r/w)	1	enable privacy mask window
winname_<1~3> (r/w)	<text string shorter than 14 characters >	name of privacy mask window *<blank>*
winleft_<1~3> (r/w)	0 ~ 352 for CCD 0 ~ 320 for CMOS	Left coordinate of window position. **<0>**
wintop_<1~3> (r/w)	0 ~ 288 for PAL 0 ~ 240 for NTSC & CMOS	Top coordinate of window position. **<0>**
winwidth_<1~3> (r/w)	0 ~ 352 for CCD 0 ~ 320 for CMOS	Width of privacy mask window. **<0>**
winheight_<1~3> (r/w)	0 ~ 288 for PAL 0 ~ 240 for NTSC & CMOS	Height of privacy mask window. **<0>**
update (w)	1	Update the above privacy mask settings to take effect

Group: **CAMCTRL1~4**

NAME	VALUE	DESCRIPTION
panspeed	-5 ~ 5	Pan speed
(r/w)		**<0>**
tiltspeed	-5 ~ 5	Tilt speed
(r/w)		**<0>**
autospeed	-5 ~ 5	Auto pan speed
(r/w)		**<0>**
axisx	-104 ~ 104	X coordinate of server position
(r)		**<0>**
axisy	-15 ~ 28	Y coordinate of server position
(r)		**<0>**
dwelling	0 ~ 9999	Time to dwelling when patrol
(r/w)		**<1>**

presetname_<0~9> (r/w)	Text string shorter than 40 characters.	The name of preset location **<blank>**
presetpan_<0~9> (r/w)	-104 ~ 104	The pan coordinate of preset location. **<0>**
presettilt_<0~9> (r/w)	-15 ~ 28	The tilt coordinate of preset location. **<0>**
patrolname_<0~19> (r/w)	Text string shorter than 40 characters.	The name of patrol location **<blank>**

Group: **Layout**

NAME	VALUE	DESCRIPTION
layouttype	1	Image mode
	2	Text mode
fontcolor	0~15	Font color <**1**>
backgroundcolor	0~15	Link color <**0>**
logotype	1	Blank
	2	Default
	3	URL
backgroundtype	1	Blank
	2	Default
	3	URL
logosource	Text string shorter than 80 characters.	The location of logo graph
backgroundsource	Text string shorter than 80 characters.	The location of background graph
logolink	Text string shorter than 80 characters.	The web site link for logo
videolinkname	Text string shorter than 16 characters.	The name of video link

Group: **App**

NAME	VALUE	DESCRIPTION
scriptname (r/w)	<text string shorter than 255 characters>	File name of script **<script.vssx>**
enablescript (r/w)	0	Disable script
	1	Enable script

Group: **Feature**

NAME	VALUE	DESCRIPTION
event	0	
(r/w)	1	support motion detection/dido/video loss information in video bitstream

E. Settings of Supported PTZ Cameras

Since the COM port settings can be adjusted to other than the default settings, check the correct default settings for the attached camera.

Camera model	Baud rate	Data bits	Stop bit	Parity bit
Sony VISCA	9600	8	1	None
Canon VC-C1	9600	8	2	None
Canon VC-C3	9600	8	2	None
Canon VC-C4	9600	8	1	None
Pelco D protocol	2400	8	1	None
DynaDome/SmartDOME	9600	8	1	None
Ernitec	9600	8	1	None
Lilin	9600	8	1	None

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F. Camera Control Cable

The included cable can be used to control motorized cameras of desktop types from Sony and Canon. The pin assignment is illustrated in the following chart. To control cameras of another brand, check the user's manual of the motorized camera if the pin assignment of the control cable is appropriate.
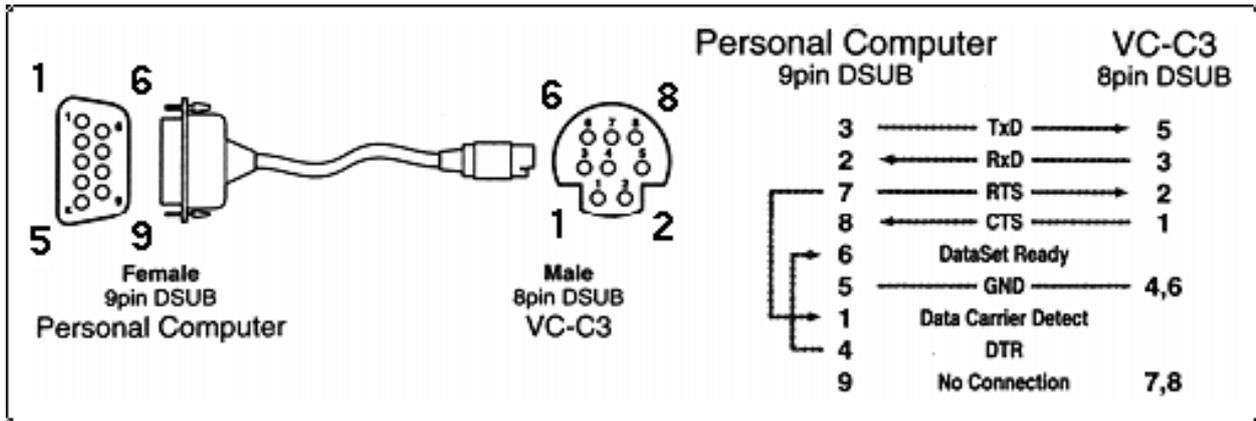
G. Time Zone Table

While setting the time zone in automatic date/time synchronization, find the hour offset in the followings for your region. GMT stands for Greenwich Mean Time, which is the global time that all time zones are measured from.

(GMT–12:00)   International Date Line West
(GMT-11:00)   Midway Island, Samoa
(GMT-10:00)   Hawaii
(GMT-09:00)   Alaska
(GMT-08:00)   Pacific Time (US & Canada), Tijuana
(GMT-07:00)   Arizona
(GMT-07:00)   Chihuahua, La Paz, Mazatlan
(GMT-07:00)   Mountain Time (US & Canada)
(GMT-06:00)   Central America
(GMT-06:00)   Central Time (US & Canada)
(GMT-06:00)   Guadalajara, Mexico City, Monterrey
(GMT-06:00)   Saskatchewan
(GMT-05:00)   Bogota, Lima, Quito
(GMT-05:00)   Eastern Time (US & Canada)
(GMT-05:00)   Indiana (East)
(GMT-04:00)   Atlantic Time (Canada)
(GMT-04:00)   Caracas, La Paz
(GMT-04:00)   Santiago
(GMT-03:30)   Newfoundland
(GMT-03:00)   Brasilia
(GMT-03:00)   Buenos Aires, Georgetown
(GMT-03:00)   Greenland
(GMT-02:00)   Mid-Atlantic
(GMT-01:00)   Azores
(GMT-01:00)   Cape Verde Is.
(GMT)   Casablanca, Monrovia
(GMT)   Greenwich Mean Time: Dublin, Edinburgh, Lisbon, London
(GMT+01:00)   Amsterdam, Berlin, Bern, Stockholm, Vienna
(GMT+01:00)   Belgrade, Bratislava, Budapest, Ljubljana, Prague
(GMT+01:00)   Brussels, Copenhagen, Madrid, Paris
(GMT+01:00)   Sarajevo, Skopje, Warsaw, Zagreb

(GMT+01:00)	West Central Africa
(GMT+02:00)	Athens, Istanbul, Minsk
(GMT+02:00)	Bucharest
(GMT+02:00)	Cairo
(GMT+02:00)	Harare, Pretoria
(GMT+02:00)	Helsinki, Kyiv, Riga, Sofia, Tallinn, Vilnius
(GMT+02:00)	Jerusalem
(GMT+03:00)	Baghdad
(GMT+03:00)	Kuwait, Riyadh
(GMT+03:00)	Moscow, St. Petersburg, Volgograd
(GMT+03:00)	Nairobi
(GMT+03:30)	Tehran
(GMT+04:00)	Abu Dhabi, Muscat
(GMT+04:00)	Baku, Tbilisi, Yerevan
(GMT+04:30)	Kabul
(GMT+05:00)	Ekaterinburg
(GMT+05:00)	Islamabad, Karachi, Tashkent
(GMT+05:30)	Chennai, Kolkata, Mumbai, New Delhi
(GMT+05:45)	Kathmandu
(GMT+06:00)	Almaty, Novosibirsk
(GMT+06:00)	Astana, Dhaka
(GMT+06:00)	Sri Jayawardenepura
(GMT+06:30)	Rangoon
(GMT+07:00)	Bangkok, Hanoi, Jakarta
(GMT+07:00)	Krasnoyarsk
(GMT+08:00)	Beijing, Chongqing, Hongkong, Urumqi
(GMT+08:00)	Taipei
(GMT+08:00)	Irkutsk, Ulaan Bataar
(GMT+08:00)	Kuala Lumpur, Singapore
(GMT+08:00)	Perth
(GMT+09:00)	Osaka, Sapporo, Tokyo
(GMT+09:00)	Seoul
(GMT+09:00)	Yakutsk
(GMT+09:30)	Adelaide
(GMT+09:30)	Darwin
(GMT+10:00)	Brisbane
(GMT+10:00)	Canberra, Melbourne, Sydney
(GMT+10:00)	Guam, Port Moresby

(GMT+10:00)	Hobart
(GMT+10:00)	Vladivostok
(GMT+11:00)	Magadan, Solomon Is., New Caledonia
(GMT+12:00)	Auckland, Wellington
(GMT+12:00)	Fiji, Kamchatka, Marshall Is..
(GMT+13:00)	Nuku'alofa

H. Technical Specifications

System
CPU: Trimedia PNX1302
RAM: 32MB SDRAM
ROM: 4MB FLASH ROM

Networking
Adjustable bandwidth limit

Protocol
TCP/IP, HTTP, SMTP, FTP, Telnet, NTP, DNS, DDNS, DHCP, UPnP and PPPoE

Physical
10BaseT Ethernet or 100BaseT Fast Ethernet auto negotiation

Video
Algorithm Supported
MJPEG

Video Inputs and Outputs
4 BNC video inputs with 75Ω terminal switch
NTSC/PAL auto-sensing

Features
Adjustable image size and quality
B/W or color control
Quad screen display
Timestamp and text overlay
Privacy mask
Three configurable motion detection windows

Resolution
NTSC
Up to 30 frames at 176x112
Up to 30 frames at 352X240
Up to 10 frames at 704X480
PAL
Up to 25 frames at 176x144
Up to 25 frames at 352X288
Up to 10 frames at 704X576
Up to 15 frames for Quad

Serial Port
COM
9 pin D-SUB RS232 (PTZ camera control) max.115.2Kbps
COM2
RS485 (PTZ camera control)

General I/O
4 sensor inputs (max. 12VDC 50mA)
4 relay outputs (max. 24VDC 1A, 125VAC 0.5A)

LED Indicator
System power and status indicators
Network link and speed indicators

Dimension
160mm(L) * 146mm(W) * 40mm(H)

Weight
Net. 820g.

Power
Consumption: near 8W
Universal switching power supply included
Input: 100-240VAC, 50/60Hz, 0.4A
Output: 12VDC, 1.5A
External power supply
12VDC, min. 15W

Operating Environment
Temperature: 0-50℃/32-122℉
Humidity: 95%RH

Security
Administrator and user group protected
Password authentication

PAN/TILT/ZOOM
Multiple PTZ camera control through RS232 or RS485
Currently supported devices and protocols, Sony VISCA protocol, Canon VC-C1, VC-C3, VC-C4, Dynacolor SmartDOME, Pelco D-protocol, Lilin Speeddome, Ernitec Speeddome
CGI command serial driver is supported

Alarm Features
4-channel motion detection with object size and sensitivity
Daily repeat timing schedule
Pre/post alarm
Automatic transfer of stored images via email or FTP with event-triggered actions

Viewing System Requirement
Operating System
Microsoft Windows, Linux, Unix and Mac OS
Browser
Internet Explorer 5.x or above,
Netscape Navigator 4.x or above

Bundled Free Software
Surveillance software to record and replay pictures on PC hard disk

Electromagnetic Compatibility (EMC)

This device compiles with FCC Rules Part 15. Operation is subject to the following two conditions.

- This device may not cause harmful interference, and

- This device must accept any interference received, including interference that may cause undesired operation.

USA - This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a partial installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.

-- Increase the seperation between the equipment and receiver.

-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-- Consult the dealer or an experienced radio/TV technician for help.

Shielded interface cables must be used in order to comply with emission limits.

Europe $C\!\epsilon$ - This digital equipment fulfills the requirement for radiated emission according to limit B of EN55022/1998, and the requirement for immunity according to EN50082-1/1992.

Liability

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