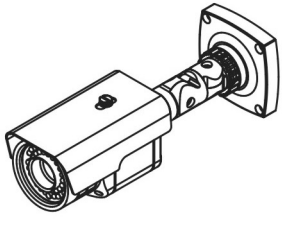
NETWORK CAMERA

USER'S MANUAL



WARNING

RISK OF ELECTRIC SHOCK
DO NOT OPEN

WARNING: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

COMPLIANCE NOTICE OF FCC:

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS A DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES. THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS. OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE, IN WHICH CASE USERS WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT THEIR OWN EXPENSE.

WARNING: CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

THIS CLASS OF DIGITAL APPARATUS MEETS ALL REQUIREMENTS OF THE CANADIAN INTERFERENCE-CAUSING EQUIPMENT REGULATIONS.

The information in this manual is believed to be accurate as of the date of publication. We are not responsible for any problems resulting from the use thereof. The information contained herein is subject to change without notice. Revisions or new editions to this publication may be issued to incorporate such changes.

The software included in this product contains some Open Sources. You may obtain the complete corresponding source code from us. See the Open Source Guide on the software CD (OpenSourceGuide\OpenSourceGuide.pdf) or as a printed document included along with the User's Manual.

WEEE (*Waste Electrical & Electronic Equipment*)

Correct Disposal of This Product

(Applicable in the European Union and other European countries with separate collection systems)

This marking shown on the product or its literature, indicates that it should not be disposed with other household wastes at the end of its working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take this item for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract. This product should not be mixed with other commercial wastes for disposal.

Important Safeguards

1. Read Instructions
All the safety and operating instructions should be read before the appliance is operated.

2. Retain Instructions
The safety and operating instructions should be retained for future reference.

3. Cleaning
Unplug this equipment from the wall outlet before cleaning it. Do not use liquid aerosol cleaners. Use a damp soft cloth for cleaning.

4. Attachments
Never add any attachments and/or equipment without the approval of the manufacturer as such additions may result in the risk of fire, electric shock or other personal injury.

5. Water and/or Moisture
Do not use this equipment near water or in contact with water.

6. Placing and Accessories
Do not place this equipment on an wall or ceiling that is not strong enough to sustain the camera. The equipment may fall, causing serious injury to a child or adult, and serious damage to the equipment. Wall or shelf mounting should follow the manufacturer's instructions, and should use a mounting kit approved by the manufacturer.

This equipment and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the equipment and cart combination to overturn.

Do not place this equipment in an enclosed space. Sufficient ventilation is required to prevent an increase in ambient temperature which can cause malfunction or the risk of fire.

7. Power Sources
This equipment should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power, please consult your equipment dealer or local power company.

8. Power Cord
Operator or installer must remove power and TNT connections before handling the equipment.

9. Lightning
For added protection for this equipment during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the equipment due to lightning and power-line surges.

10. Overloading
Do not overload wall outlets and extension cords as this can result in the risk of fire or electric shock.

11. Objects and Liquids
Never push objects of any kind through openings of this equipment as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the equipment.

12. Servicing
Do not attempt to service this equipment yourself. Refer all servicing to qualified service personnel.

13. Damage requiring Service
Unplug this equipment from the wall outlet and refer servicing to qualified service personnel under the following conditions:

A. When the power-supply cord or the plug has been damaged.
B. If liquid is spilled, or objects have hit the equipment.
C. If the equipment has been exposed to rain or water.
D. If the equipment does not operate normally by following the operating instructions, adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the equipment to its normal operation.
E. If the equipment has been dropped, or the cabinet damaged.
F. When the equipment exhibits a distinct change in performance — this indicates a need for service.

14. Replacement Parts
When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.

15. Safety Check
Upon completion of any service or repairs to this equipment, ask the service technician to perform safety checks to determine that the equipment is in proper operating condition.

16. Field Installation
This installation should be made by a qualified service person and should conform to all local codes.

17. Correct Batteries
Warning: Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

18. Tmra
A manufacturer's maximum recommended ambient temperature (Tmra) for the equipment must be specified so that the customer and installer may determine a suitable maximum operating environment for the equipment.

Table of Contents

Chapter 1 — Introduction 1

1.1 In This Manual 1
1.2 Features 1
1.3 Typical Applications 2
Remote Monitoring 2
Remote Recording 2
Webcasting 3

Chapter 2 — Installation 4

2.1 Package Contents 4
2.2 Illustrated Parts List 4
Cable Assembly 5
Factory Reset 5
2.3 Mounting 6

Chapter 3 — Remote Setup 7

3.1 Quick Setup 8
3.2 System 8
General 8
Date/Time 9
User/Group 10
3.3 Network 11
IP Address 12
DVRNS 13
Port 14
Bandwidth Control 16
Security 17
IEEE 802.1X 18
3.4 Video 18
Streaming 19
Webcasting 20
MAT 21
3.5 Audio 22
Audio Input / Output 22
3.6 Event Action 23
Email 23
Remote Callback 24
FTP Upload 25
Audio Alarm 26
3.7 Event 27
Motion Detection 27

Audio Detection 29
Video Blind 30
System Event 31

Chapter 4 — Camera Module Setup 32

4.1 Lens 32
4.2 Exposure 33
4.3 White Balance 34
4.4 Day / Night 34
4.5 3 DNR 35
4.6 Special 36
4.7 Adjust 37
4.8 Reset 37
4.9 Exit 38

Chapter 5 — WebGuard 39

Appendix 43

Map of Screens (Remote Setup) 43
Troubleshooting 44
Specifications 44

Index 46

Chapter 1 — Introduction

1.1 In This Manual

This manual is intended for users of the network camera and includes instructions for using and managing the camera on the network.

1.2 Features

This network camera compresses live video and transmits the video over Ethernet connections. The camera can be accessed, configured and managed by using the INIT (Integrated Network Installation Tool) program. It has a built-in web server, WebGuard, allowing you to monitor live video remotely using a web browser. The remote programs provided with the camera also allow remote management, monitoring and recording. This camera offers the following features:

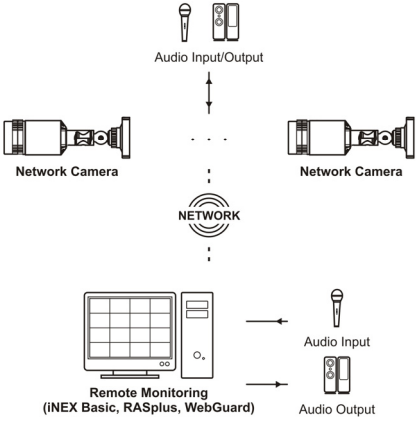
- Dual stream for both live monitoring and recording or for live monitoring only
- H.264 and M-JPEG compression algorithm
- Four levels of video compression
- Two-way audio communication
- Pre- and post-event buffering and video stream buffering to enhance reliability of network recording
- Remote monitoring via web browser or remote software
- Automatic HTML code generation for webcasting on a user's website
- Up to 10 simultaneous connections to the camera for remote monitoring
- Enhanced security using IP address filtering, HTTPS, SSL and IEEE 802.1X functions and password protected multiple user levels
- Network bandwidth limit and MAT functions to use network bandwidth efficiently
- Convenient network connection using the UPnP (Universal Plug and Play) function and built-in mDNS (Multicast DNS) protocol
- Support of the ONVIF protocol (Core specification version 1.02)
- Convenient firmware upgrades via the network connection
- Firmware duplication and autorecovery functions to enhance system stability
- Management of multiple cameras via Ethernet connections
- Event detection functions: motion, audio, video blind

NOTES:

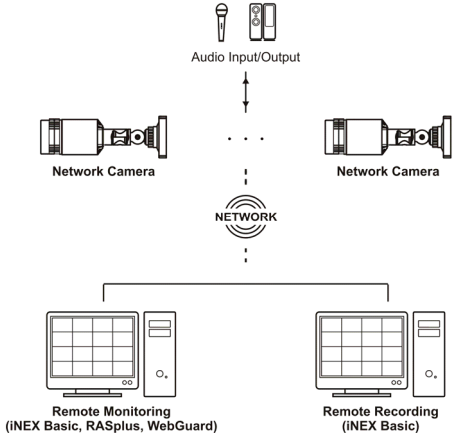
- Remote monitoring and recording through dual stream are available by using the RASplus and iNEX Basic programs provided with the camera.
- In this manual, a "remote system" refers to a PC that the remote program (RASplus, iNEX Basic or WebGuard) is running.

1.3 Typical Applications

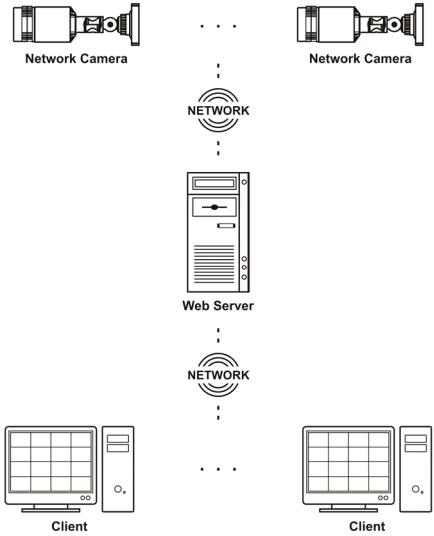
Remote Monitoring



Remote Recording



Webcasting

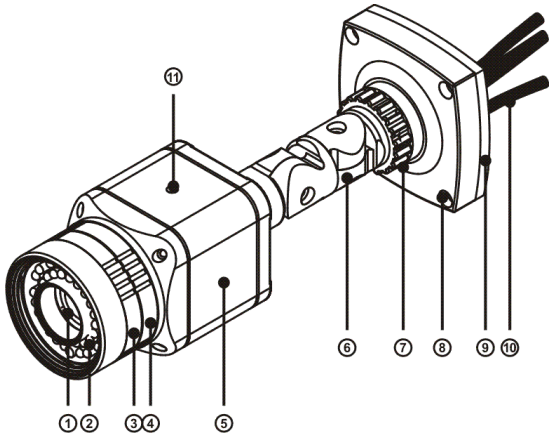

Network Camera
Network Camera
NETWORK
Web Server
NETWORK
Client
Client

Chapter 2 — Installation

2.1 Package Contents

- Network Camera
- Installation CD (INIT, RASplus and iNEX Basic software, iNEX Basic User's Manual)
- User's Manuals (Camera, INIT, RASplus)
- Camera Sun Shield
- Mounting Bracket and Screws

2.2 Illustrated Parts List



① Lens: Zoom lens is installed.

② IR LED: The sensor in the upper middle detects low illumination and the IR LEDs are lit at night or under low lighting conditions.

③ Zoom Lever: Adjust the zoom by turning the lever clockwise or counterclockwise. Once it is set, twist the setscrew clockwise to lock it.

④ Focus Lever: Adjust the focus by turning the lever clockwise or counterclockwise. Once it is set, twist the setscrew clockwise to lock it.

⑤ Body: The cables are connected through the stand.

⑥ Stand: Allows you to adjust the camera direction. Loose the setscrews and move the camera to the desired direction.

⑦ Rotate Screw: Allows you to adjust the rotation angle of the lens. Twist the screw counterclockwise and move the camera body clockwise or counterclockwise to adjust the rotation angle. Once it is set, twist the screw clockwise to lock it.

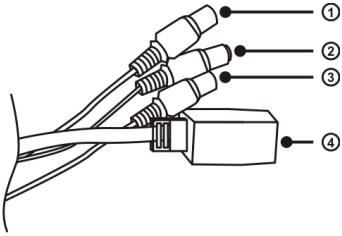
⑧ Bottom Cover: Allows you to mount the camera to the wall or ceiling using the mounting bracket provided with the camera.

⑨ Mounting Bracket: Allows you to mount the camera to the wall or ceiling.

⑩ Cable Assembly: See below.

⑪ Sun Shield Screw Hole: Allows you to screw the sun shield to the camera.

Cable Assembly



① Power In (black cable): Connect to the power adapter (12 VDC).

② Audio In (white cable): Connect to an audio source (Line-in).

③ Audio Out (red cable): Connect to an amplifier (Line-out). The camera does not have amplified audio output, so you will need a speaker with an amplifier.

④ Network Port: Connect a Cat5 cable with an RJ-45 connector. You can change the settings, manage the camera, upgrade the software or monitor video remotely via the network connection. Refer to the INIT User's Manual for details about network connection setup.

NOTE: Camera and audio surveillance may be prohibited by laws that vary by region. Check the laws in your area before using this product for surveillance purposes.

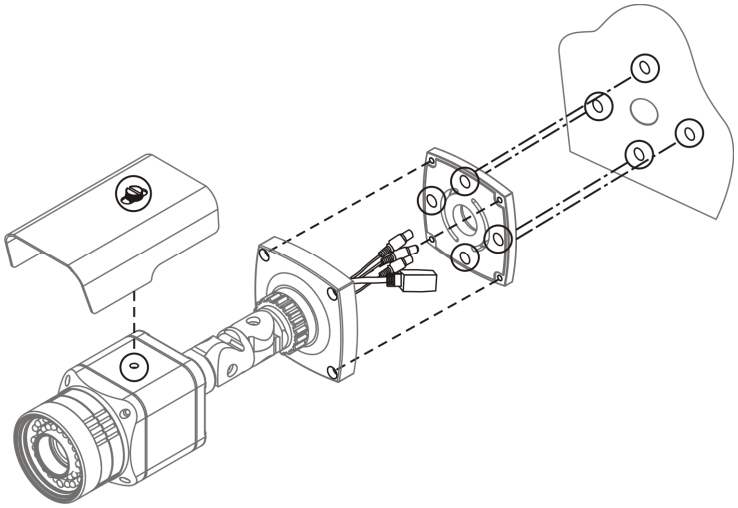
CAUTION: The network connector is not designed to be connected directly with cable or wire intended for outdoor use.

WARNING: ROUTE POWER CORDS SO THAT THEY ARE NOT A TRIPPING HAZARD. MAKE CERTAIN THE POWER CORD WILL NOT BE PINCHED OR ABRADED BY FURNITURE. DO NOT INSTALL POWER CORDS UNDER RUGS OR CARPET. USE THE POWER CORD THAT HAS A GROUNDING PIN. IF YOUR POWER OUTLET DOES NOT HAVE A GROUNDING PIN RECEPTACLE, DO NOT MODIFY THE PLUG. DO NOT OVERLOAD THE CIRCUIT BY PLUGGING TOO MANY DEVICES INTO ONE CIRCUIT.

Factory Reset

This will only be performed remotely on the rare occasions that you want to return all except camera module settings to the original factory settings. Refer to the INIT User's Manual for details on remote factory resetting.

2.3 Mounting



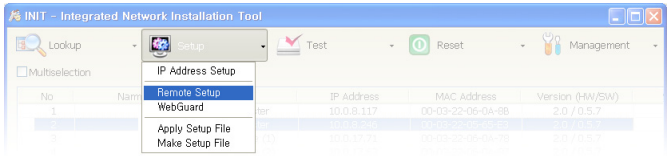
1. Screw the camera sun shield to the camera using screws provided with the camera.
2. Screw the mounting bracket to the wall or ceiling by using screws provided with the camera.
3. Screw the bottom cover to the mounting bracket by using screws provided with the camera.
4. Connect external devices, network and power adapter.
5. Apply power.

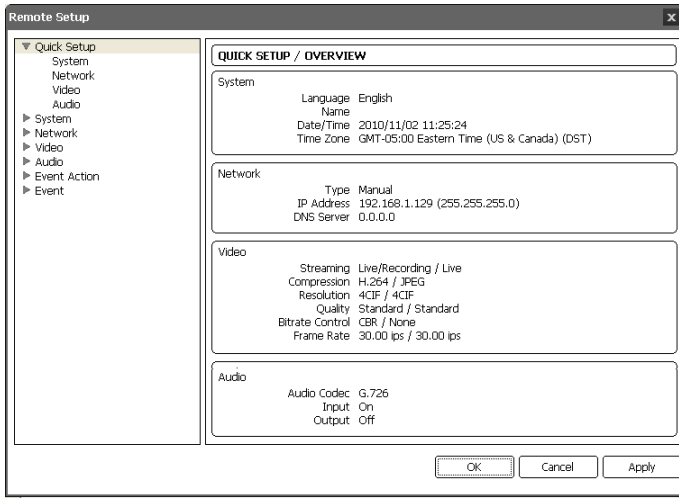
WARNING: You might need to reinforce the wall or ceiling. If the wall or ceiling is not strong enough to support the camera, the camera might fall damaging the camera or causing injuries.

Chapter 3 — Remote Setup

Remote Setup allows you to change all settings of a camera. Run the INIT program, select a camera and click the Setup icon on the Main screen. Select Remote Setup from the Setup menu and the Remote Setup screen appears. You can also display the Remote Setup screen by selecting a camera, clicking the right mouse button and selecting Remote Setup on the Main screen.

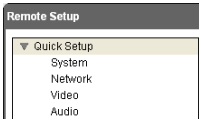
NOTE: You can also change the settings by using remote programs.





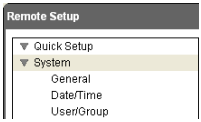
Clicking a menu on the left side of the Remote Setup screen displays the current settings for that menu on the right side of the screen. Clicking a submenu under each menu allows you to change the settings. Clicking the OK button closes the Remote Setup screen and applies the changes.

3.1 Quick Setup



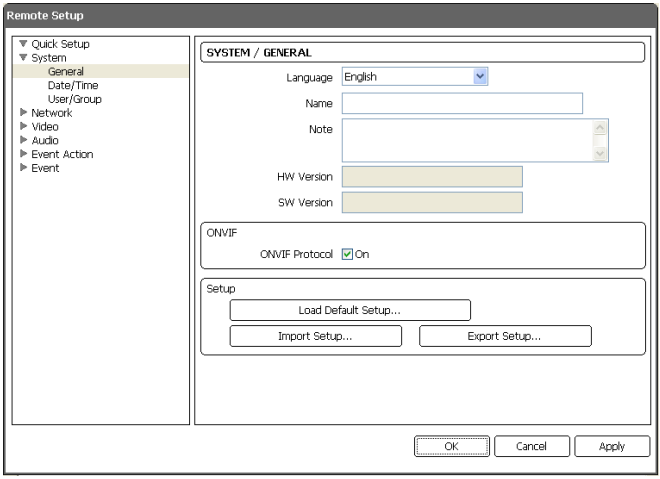
The Quick Setup allows you to change a camera's basic system, network, video and audio settings.

3.2 System



You can change a camera's system information, import or export all settings, and add users or groups.

General



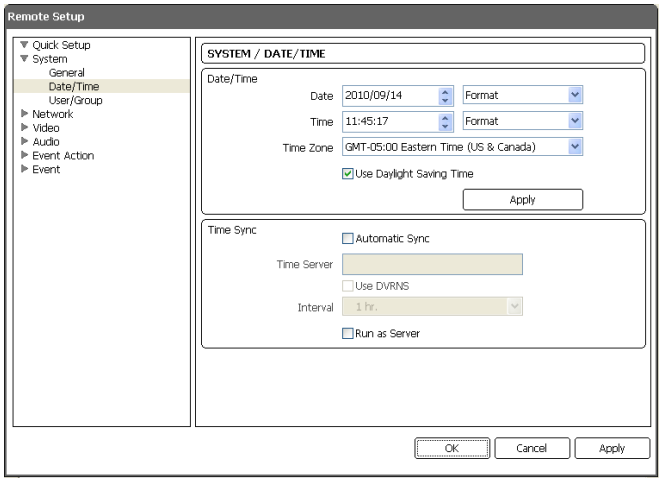
- Language: Choose the language to be used during remote setup.
- Name: Enter the camera name (up to 31 characters including spaces).
- Note: Enter additional information about the camera.
- HW Version, SW Version: These fields display the camera's hardware and software versions.

- ONVIF Protocol: Check the box to enable the ONVIF protocol. The ONVIF protocol is available only for users belonging to user groups of the ONVIF protocol (The default user ID is admin with no password).
- Setup:
  - Load Default Setup…: Click to return all except date/time and camera module settings to the original factory settings. You can select whether or not network settings will be included when the setup is applied. Refer to the Network setup for details of the network settings.
  - Import Setup…: Click to apply the settings saved as a .dat file format to the camera. A setup screen appears allowing you to select the setup file. You can select whether or not to include network settings (except DVRNS setting) when the setup is applied. Refer to the Network setup for details of the network settings.
  - Export Setup…: Click to save the current camera settings as a .dat file format. A setup screen appears allowing you to name the setup file.

NOTES:

- The *Load Default Setup* and *Import Setup* functions are permitted only to the users in the *Administrator* group.
- Do NOT check the *Include Network Setup* box when the network settings of the setup file are used in another camera. Otherwise, the connection to the camera might not be made properly.
- If the IP address, admin port number or SSL settings are changed during *Setup*, Remote Setup closes after saving the changes.

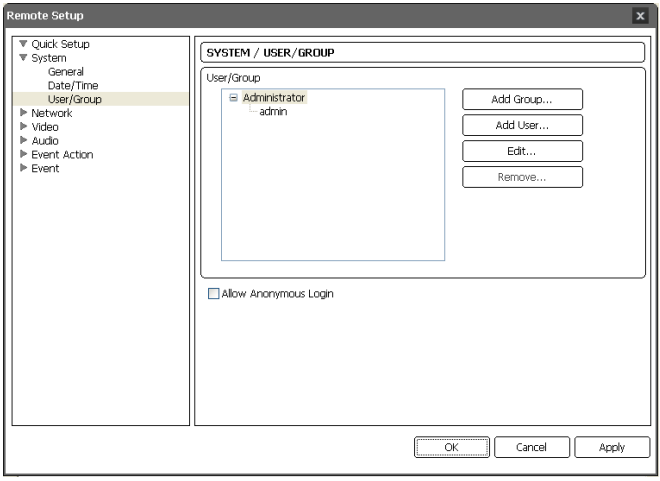
Date/Time



- Date/Time: Change the system date/time, date/time format and time zone. Turn daylight-saving time on or off by checking the box. Clicking the Apply button applies the changes immediately.
- Time Sync
  - Automatic Sync: Check the box to automatically synchronize the time with a time server. Enter the IP address or the domain name of the time server and set the time interval for synchronization. If the time server uses the DVRNS function, selecting the Use DVRNS box allows you to enter the name instead of the IP address or the domain name of the time server.
  - Run as Server: Check the box to run the camera as a time server.

NOTE: If you want to use a domain name instead of the IP address of the time server, the DNS server must be set up properly when setting *Network – IP Address*. If you want to use a name instead of the IP address or the domain name of the time server, the DVRNS function must be set up properly when setting *Network – DVRNS*.

User/Group

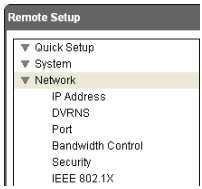


- User/Group: Click the buttons to change the settings for a group or a user allowed controlling the camera remotely.
  - Add Group: Click to add a group. Enter the group name and set authority levels for the group to control the camera remotely.
  - Add User: Click to add a user. Enter the user name and select the group that the user will belong to. Enter the password to be assigned to the user.
  - Edit: Select a group and click the button to change authority levels assigned to the group, or select a user and click the button to change the user's password.
  - Remove: Select a group or user and click the button to delete the group or user.

- Allow Anonymous Login: Check the box to use the webcasting feature. Refer to the Video – Webcasting setup for details.

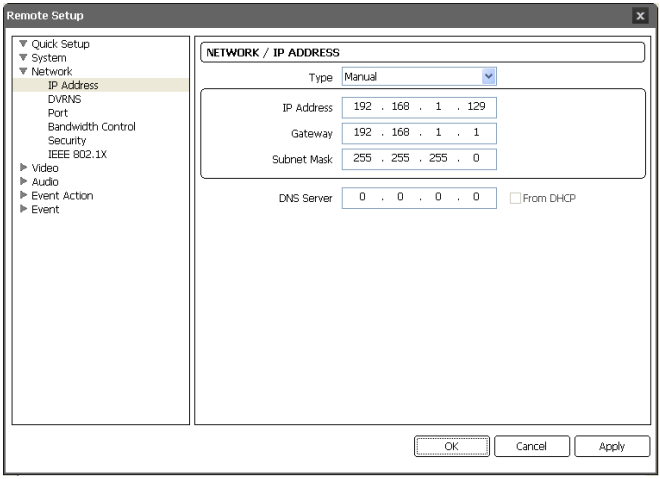
NOTES:
- Only users belonging to the *Administrator* group can make *User/Group* changes.
- When connecting to the camera by using ONVIF protocol, the camera does not use this setting but uses the ONVIF protocol's setting (The default user ID is *admin* with no password when connecting to the camera by using ONVIF protocol).
- There is no default password for the *admin* user in the *Administrator* group.
- The default group (*Administrator*) cannot be edited or deleted.
- The authority levels that can be assigned are:
  - *Upgrade*: The user can upgrade the software.
  - *Setup*: The user can set up the system.
  - *Color Control*: The user can control brightness, contrast, hue and saturation for cameras.
  - *System Check*: The user can view and check the remote system status.

3.3 Network



You can change the network settings, set up the DVRNS and security functions and control the network bandwidth.

IP Address

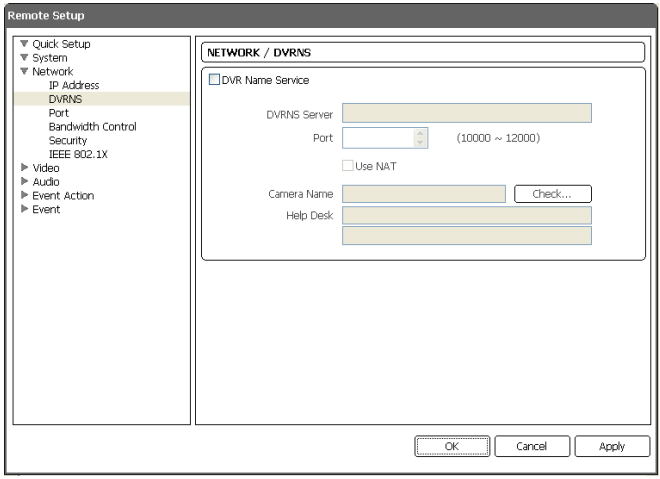


- Type: Select the type of network configuration. Remote Setup closes after saving the changes.
  - Manual: Select when the camera is using a static IP address for network connection, and set up LAN parameters manually.
  - DHCP: Select when the camera is networked via DHCP (Dynamic Host Configuration Protocol). Click the OK button, and a temporary IP address is automatically assigned to the camera. The camera periodically will be issued a new IP address automatically.
  - ADSL: Select when the camera is networked via ADSL. Enter the ID and password for ADSL connection, and click the OK button. A temporary IP address is automatically assigned to the camera. The camera periodically will be issued a new IP address automatically.
- DNS Server: Enter the IP address of the DNS server. If you set up the DNS server, the domain name of the server can be used instead of the IP address during the DVRNS, time or SMTP server setup. Ask your Internet service provider for the IP Address of the DNS Server. When the camera is networked via DHCP, selecting From DHCP automatically assigns the IP address of the DNS server. The assigned IP address is displayed the next time it is connected.

NOTES:

- Ask your network provider for details about the network connection type and connection information for the camera or the IP address of the DNS server.
- If the camera is configured for a DHCP or ADSL network, it is best to use the DVRNS function because the camera IP address might change frequently.

DVRNS



Check the DVR Name Service box to use the DVRNS function.

- DVRNS Server: Enter the IP address or domain name of the DVRNS server.
- Port: Set up the port number of the DVRNS server.
- Use NAT: Check the box when the camera uses a NAT (Network Address Translation) device for network connection.
- Camera Name: Enter the camera name to be registered on the DVRNS server. Check whether or not the name is available by clicking the Check button.
- Help Desk: Choosing the OK button registers the camera on the DVRNS server. Proper DVRNS settings will display the help desk information of the DVRNS server.

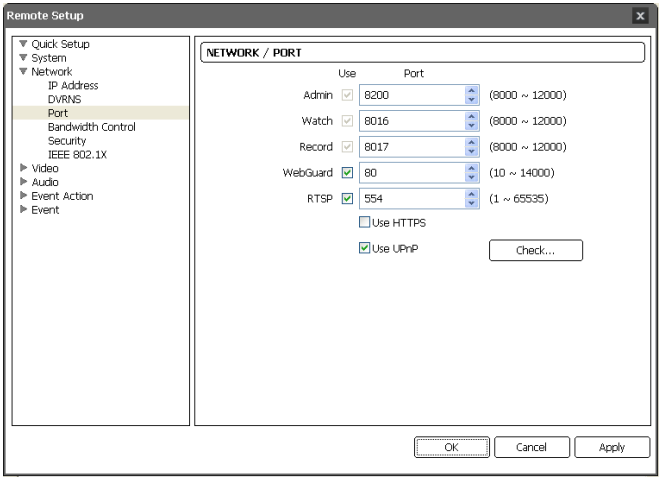
NOTES:

- The DVRNS (DVR Name Service) function allows the camera to use dynamic IP addresses for remote connection. When using this function, you can access the camera remotely by using the camera name instead of its IP address. For the DVRNS function to work properly, the camera should be registered on the DVRNS server, and the DVRNS server settings in the INIT program for the camera should match the settings registered on the DVRNS server. Any changes on the DVRNS server might cause improper operation.
- When LAN settings are changed, set up the DVRNS settings after saving your LAN changes by clicking the *OK* button.
- You will need to get the IP address or domain name of the DVRNS server from your network administrator. You can use the domain name instead of IP address if you set up the DNS server during the IP Address setup.

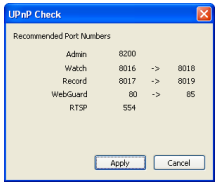
NOTES:

- When using a NAT (Network Address Translation) device, refer to the NAT manufacturer's instructions for the proper network settings.
- The camera name you entered in the *DVR Name* field should be checked by clicking the *Check* button, otherwise the DVRNS changes will not be saved. When entering no name or a name already registered on the DVRNS server, an error message displays. If a camera name includes the #, \, or % characters, connections to the camera using a WebGuard program might fail.

Port



- Use, Port: Check the box to enable and enter the port number. Admin, Watch and Record ports are set to use by default and you cannot change it. Checking the WebGuard or RTSP box allows you to connect to the camera by using the WebGuard program or media players, such as VLC Player, supporting RTSP (Real-Time Streaming Protocol) service. Remote Setup closes after saving the changes (Admin port number only).
- Use HTTPS: Check the box to enhance the security of WebGuard pages by using the HTTPS protocol when running the WebGuard program.
- Use UPnP: Check the box to connect to the camera without manually setting up port forwarding on the NAT device when the camera uses a NAT (Network Address Translation) device for network connection. The UPnP function must also be enabled in the NAT device for this function to work. Refer to the NAT device User's Manual for details on enabling the UPnP function in the NAT device. Clicking the Check button checks the current port settings. A success message is displayed if all the current port numbers are available, and recommended port numbers are displayed if any of the current port numbers are not available.



Clicking the Apply button applies the recommended port numbers.

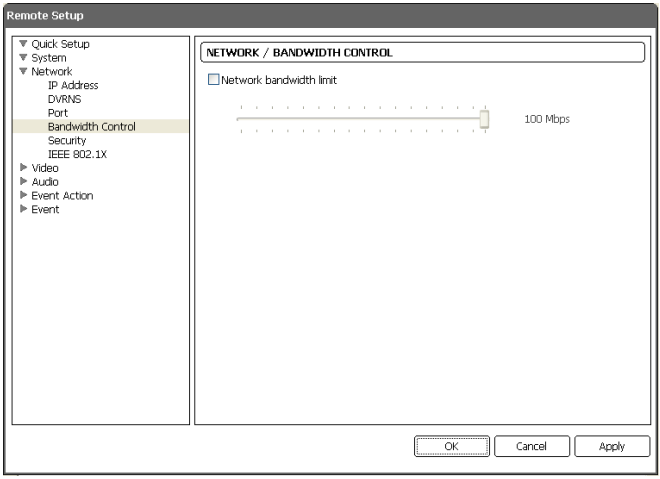
NOTES:

- Do NOT use the same port number for more than one function. If you do, the camera cannot be connected with the remote programs.
- You can access the camera and monitor live video images using media players, such as VLC Player, supporting RTSP service. You should open all ports for UDP protocol or an RTSP port for TCP protocol if the camera uses a NAT (Network Address Translation) device for network connection or if the firewall is enabled. This function might not be supported, depending on the type of media player, and some media players might not play video properly depending on network conditions or compression or resolution of images for streaming. You can access video as follows:
  - Access from a PC: Start the media player and enter "*rtsp://*ID:Password@IP address*:* RTSP port number*/track ID=*'stream number*"*
  - Access from mobile devices: Start web browser on the mobile device and enter "*http://*IP address:WebGuard port number/" (*https* instead of *http* if the *Use HTTPS* box is checked). For this connection to work, the WebGuard and RTSP port numbers must be set up properly.

CAUTIONS:

- **When changing the port settings, you must change the port settings on remote programs too.**
- **When using the HTTPS protocol, the ONVIF protocol might not work.**

Bandwidth Control

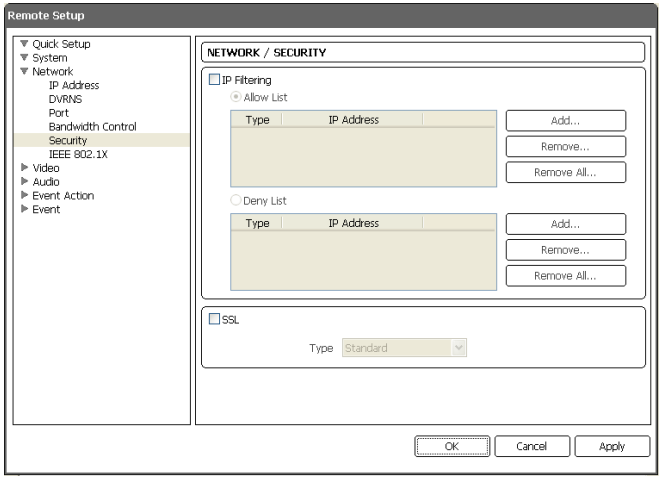


You can control the network bandwidth by limiting the network bandwidth of the camera depending on the network traffic.

Check the Network bandwidth limit box and set the desired maximum bandwidth. When the network is busy with traffic, the camera cannot use more than the maximum bandwidth.

NOTE: When limiting the network bandwidth, the frame rate might decrease to lower than the frame rate set during the *3.4 Video – Streaming* setup.

Security

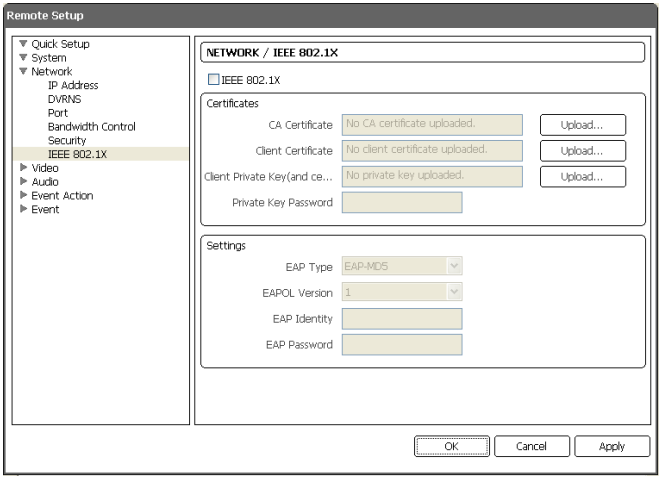


- IP Filtering: Check the box to use the IP filtering function. You can allow or block connections to the camera by designating IP addresses.
  - Add: Click the button to add IP addresses to the Allow List or Deny List to allow or block connection to the camera. Selecting the Host option allows you to add one IP address at a time. Selecting the Group option allows you to add continuous IP address numbers in one action by designating a range of IP addresses to add.
  - Remove, Remove All: Click the button to remove the selected IP address or all IP addresses from Allow List or Deny List.
- SSL: Check the box to use the SSL function. You can enhance the security of outgoing data from the camera by using the SSL (Secure Sockets Layer) protocol. When using the SSL function, the camera cannot be connected with a program or a system that does not support the SSL function. Remote Setup closes after saving the changes.

NOTES:

- If you want to use the time synchronization, DVRNS and Email sending functions, the connection of the IP addresses of the time server, DVRNS server and the SMTP server must be allowed when you set up the IP filtering function. Any connection to the camera from the IP address in *Deny List* will NOT be allowed.
- Using the SSL function might cause congestion in the system receiving data from the camera depending on the security level.
- This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (*http://www.openssl.org/*).

IEEE 802.1X

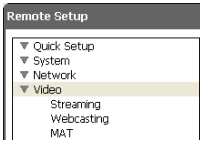


Check the IEEE 802.1X box to use the IEEE 802.1X network connection authentication function.

- Certificates: Uploads a certificate or private key for network connection depending on the authentication type. Entering a private key password might be required depending on the authentication type.
- Settings: Sets up EAP (Extensible Authentication Protocol).
  - EAP Type: Select the type of authentication to be used for network connection authentication. The authentication type must be identical to the authentication type that the authentication server uses.
  - EAPOL Version: Select the EAP version.
  - EAP Identity, EAP Password: Enter the ID and password for the authentication.

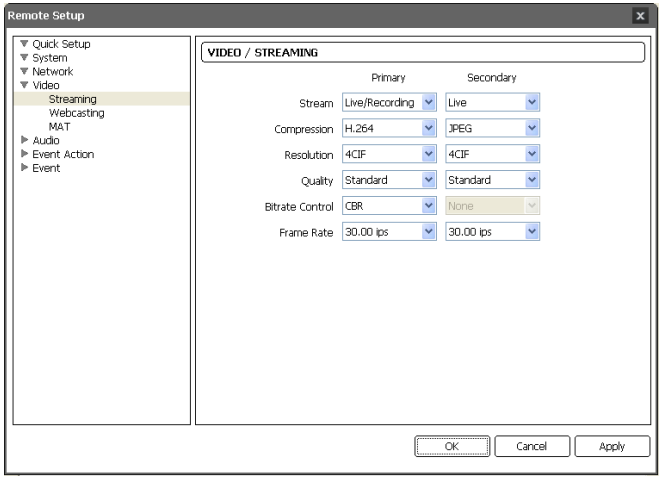
NOTE: For the IEEE 802.1X network connection authentication function to work properly, the authentication server and AP should support the IEEE 802.1X authentication.

3.4 Video



You can set up features for streaming, webcasting and MAT.

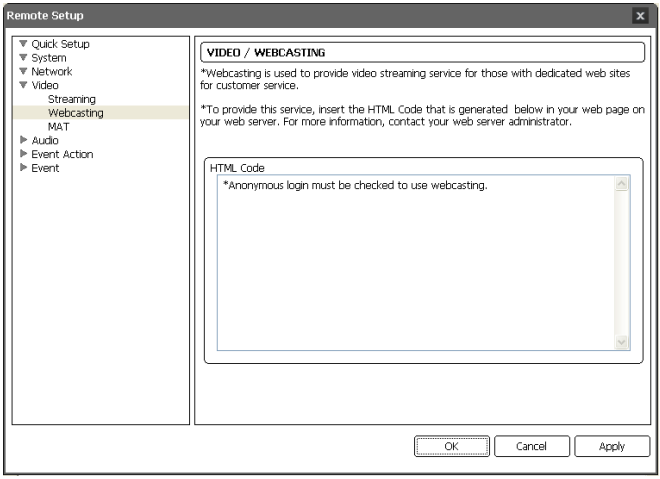
Streaming



- Primary, Secondary: The camera supports dual stream video. The secondary stream setting is dependent on the primary stream setting. When in the dual stream mode, the resolution and quality settings of the secondary stream will be used during event actions (FTP upload and image attachment to Emails).
- Stream: Select the stream usage.
  - Live/Recording: Allows simultaneous live monitoring and recording. This is supported only in one of the streams.
  - Live: Allows live monitoring only.
- Compression: Set up the compression of images for streaming. The primary stream supports only H.264 compression and the secondary stream supports only M-JPEG compression.
- Resolution: Set the resolution of images for streaming. A maximum of 4CIF resolution is supported, and the resolution of the secondary stream cannot exceed that of the primary stream.
- Quality: Set up the quality of images for streaming.
- Bitrate Control: Set up the bitrate control mode for H.264 compression.
  - CBR (Constant Bitrate): Maintains the current bitrate regardless of the amount of motion.
  - VBR (Variable Bitrate): Adjusts the bitrate dynamically based on the amount of motion. The less motion there is, the less network congestion and the less storage consumption. The quality may not be as good when compared to the CBR mode.
- Frame Rate: Set the frame rate of images for streaming. The frame rate of the secondary stream cannot exceed that of the primary stream.

NOTES: Simultaneous connections to the camera might cause the frame rate to decrease due to the network bandwidth overload.

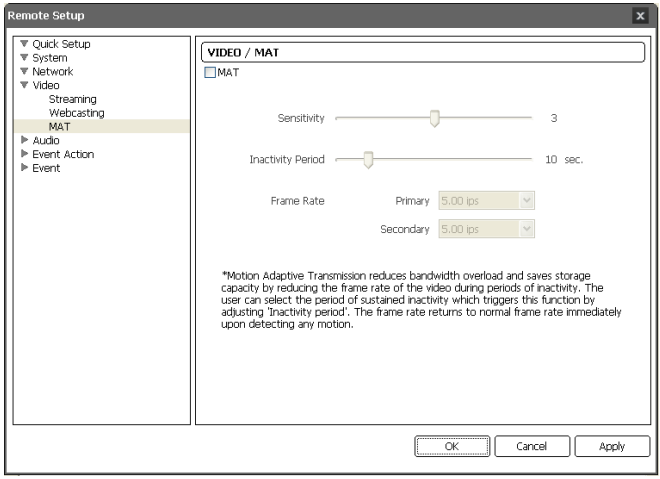
Webcasting



The camera can stream live video from the camera to a website. Copy the HTML Code displayed on the screen and paste it in your web page code.

NOTE: To use the webcasting service, you must check the *Allow Anonymous Login* option during *3.2 System – User/Group* setup.

MAT

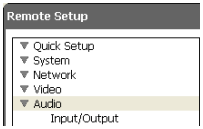


Check the MAT box to use the MAT (Motion Adaptive Transmission) function for video streaming and recording.

- Sensitivity: Set the motion sensitivity. The higher the number is, the more sensitive it is.
- Inactivity Period: Set the inactivity period. The camera will transmit or record images in Frame Rate set below until any change is detected after the inactivity period when no motion is detected during the preset inactivity period.
- Frame Rate: Select the frame rate to be applied when no motion is detected. The frame rate of the secondary stream cannot exceed that of the primary stream, and the frame rates supported for the secondary stream change depending on the frame rate of the primary stream. The selected frame rate will be applied until any motion is detected after the inactivity period and will return to the normal frame rate set during the Stream setup immediately upon detecting any motion.

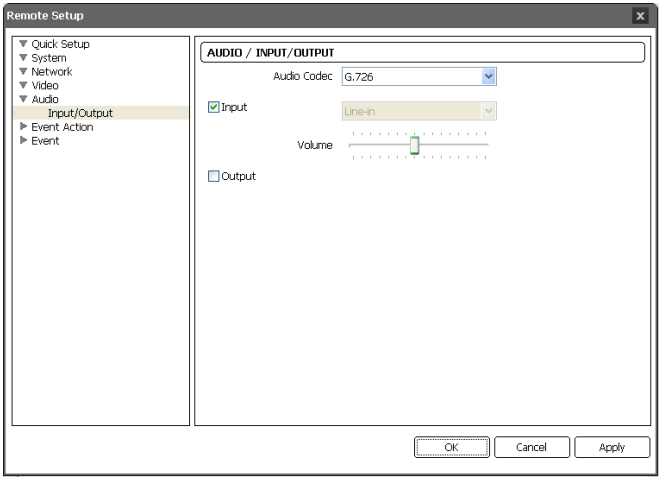
NOTE: The MAT (Motion Adaptive Transmission) function allows you to reduce bandwidth overload and to save storage capacity by reducing the frame rate when no motion is detected. The camera considers that no motion is detected when no change is detected between two consecutive images based on the sensitivity setting.

3.5 Audio



You can set up audio in and out.

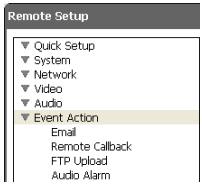
Audio Input / Output



- Audio CODEC: Select an audio codec.
- Input: Check the box to enable audio in and select the proper audio-in device. You can also adjust the volume.
- Output: Check the box to enable audio out.

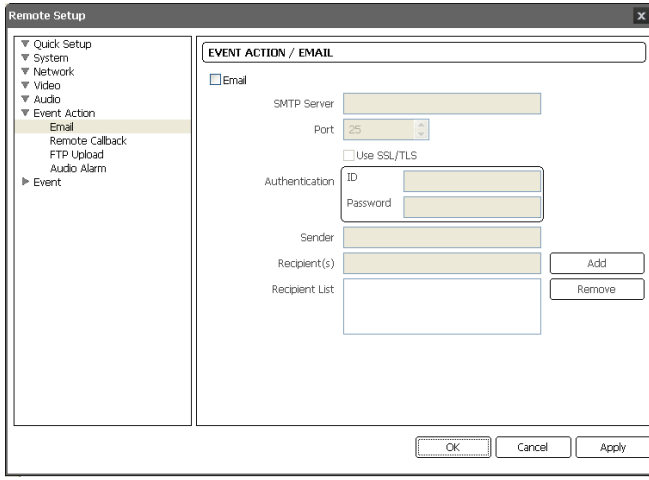
NOTE: The camera does not have amplified audio output, so you need to use a speaker with an amplifier.

3.6 Event Action



You can set up event actions to be taken when the camera detects events.

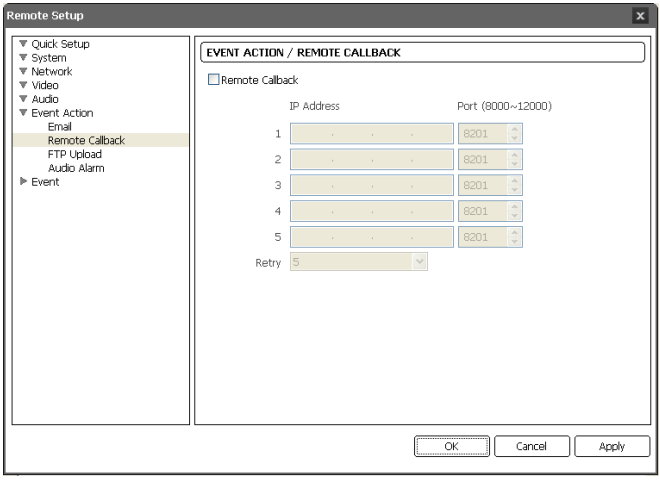
Email



Check the Email box to send an email.

- SMTP Server, Port: Enter the IP address or domain name and port number of the SMTP server attained from your network administrator. You can use the domain name instead of the IP address if you set up the DNS server when setting up the network. Select Use SSL/TLS if the SMTP server requires SSL (Secure Sockets Layer) authentication.
- Authentication: Enter the ID and password if the SMTP server requires user authentication.
- Sender, Recipient: Enter the sender's and recipients' (max. 10) email addresses. An email address must include the "@" character to be a valid address.

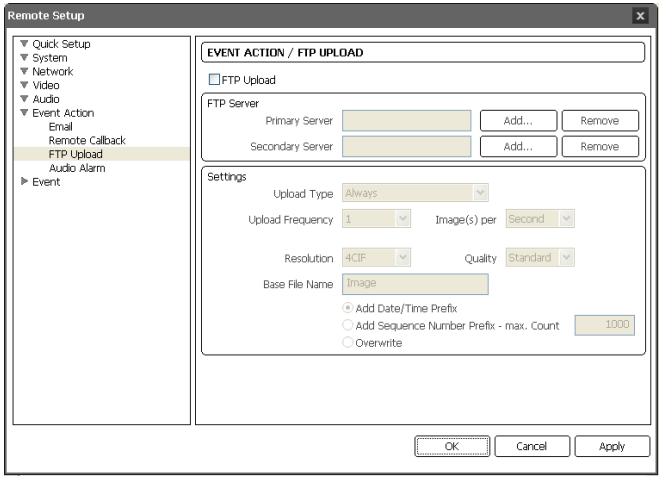
Remote Callback



Check the Remote Callback box to send a callback message to remote systems (Not supported for the WebGuard program).

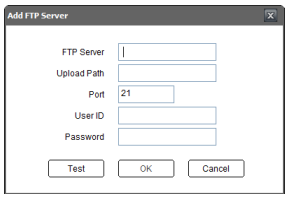
- IP Address, Port: Enter the IP addresses and port numbers of the remote systems to send a message.
- Retry: Select the number of times to try sending a message if it fails to send.

FTP Upload



Check the FTP Upload box to upload event detected images in JPEG file format to an ftp server.

- FTP Server: Click the Add button to register an ftp server. Clicking the Remove button deletes the registered ftp server. When an event is detected, the event detected images will be uploaded in JPEG file format to the ftp server registered as a primary server. If images fail to be uploaded to the primary server, they are uploaded to the secondary server until uploading to the secondary server fails.



  - FTP Server: Enter the IP address (or domain name) of the ftp server.
  - Upload Path: Enter the folder path to upload files. Special characters (\ # * | : " < > ?) cannot be used in the folder path.
  - Port: Enter the port number of the ftp server.
  - User ID, Password: Enter the user ID and password for the connection to the ftp server.

  Click the Test button to check the connection to the ftp server with the information set above. When the test succeeds, click the OK button.

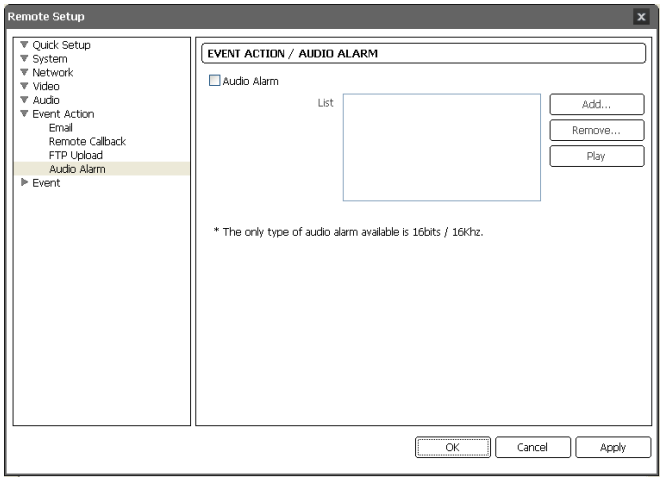
- Settings: Set up the image and upload settings for ftp upload.
  - Upload Type: Select the upload type. When the upload type is set to Always, images will be uploaded to the ftp server according to the settings below regardless of the event detection. When the upload type is set to Event, images will be uploaded to the ftp server according to the settings below when events are detected.

- Upload Frequency: Displays only when the upload type is set to Always. Set up the upload rate, and the preset number of images will be uploaded to the ftp server during the preset time.
- Upload 1 image per: Displays only when the upload type is set to Event. Set up the upload rate. Selecting Upload for allows you to set how long after an event is detected that event detected images will be uploaded and at what upload rate. Selecting Upload while event status is active uploads event detected images at the upload rate while an event is detected.
- Resolution, Quality: Select the resolution and quality of the images to be uploaded to the ftp server. The resolution cannot exceed that of the primary stream.
- Base File Name: Enter the common file name of the images to be uploaded to the ftp server and select the option to distinguish each image file. Special characters (\ / # * | : " < > ?) cannot be used in the file name. Selecting Add Date/Time Prefix adds the event detection date and time to each image file name. Selecting Add Sequence Number Prefix – max. Count adds the sequence number according to the event detection order to each image file name. Selecting Overwrite overwrites the previous image file. The event type is added to the image file name automatically.

NOTES:

- When in the dual stream mode, the resolution and quality settings of the secondary stream will be used.
- Consider the performance of the FTP server when setting up the upload rate during the *Upload Frequency* or *Upload 1 image per* setting. The FTP upload might fail if the upload rate exceeds the performance of the FTP server.

Audio Alarm

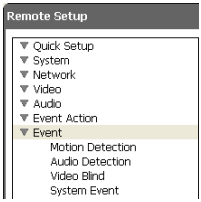


Check the Audio Alarm box to sound by playing back an audio file.

- List: Displays the audio file to be played back. You can add or delete an audio file (.wav) (16 bits/16 KHz encoded file only) by clicking the Add or Remove button. Selecting an audio file in the list and clicking the Play or Stop button allows you to test the sound by playing back the selected audio file.

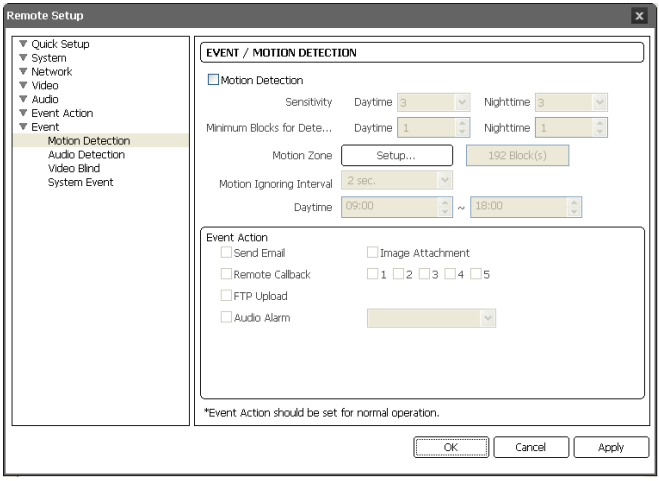
NOTE: Audio files cannot exceed a total of 6MB.

3.7 Event



You can set up event detection function.

Motion Detection

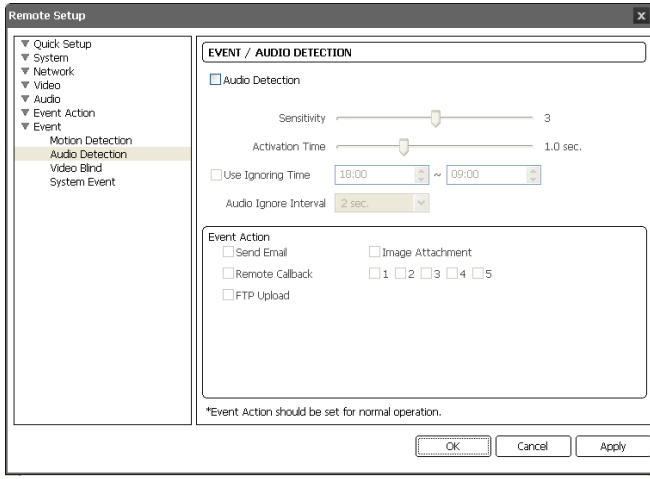


Check the Motion Detection box to set up a motion detection event. When the camera detects a motion in a configured motion detection zone, it considers the motion as an event.

- Sensitivity: Set the motion sensitivity for daytime and nighttime independently. The higher the number is, the more sensitive it is.
- Minimum Blocks for Detection: Adjust the minimum number of detection blocks that must be activated in order to be considered as a motion event for daytime and nighttime independently.
- Motion Zone: Click the Setup… button and a motion detection zone setup screen appears. Define the area (max. four) of the image that you want to set up a motion detection zone by using the motion detection zone icons.
  - (Select) or (Clear): Click to select or clear a block for motion detection. You can select or clear the several blocks of an area using the mouse dragging.
  - or (One or All block): Click to select or clear one or all blocks at a time.
  - (Area): Click to select or clear several blocks of an area.
- Motion Ignoring Interval: Select the motion ignoring dwell time from the drop-down list. The camera will not send notifications of motion events occurring during the preset interval after a motion is detected. You can control excessive remote notifications of motion detection events by adjusting the motion ignoring dwell intervals.
- Daytime: Set up the daytime range. The camera will consider the remaining time range as the nighttime.
- Event Action: Check the box for each action the camera is to take when it detects a motion detection event.
  - Send Email: Check the box to send an email. Selecting Image Attachment attaches an event detected image file (.JPG) to the email.
  - Remote Callback: Check the box and select the remote systems to send a message (Not supported for the WebGuard program).
  - FTP Upload: Check the box to upload images to an ftp server.
  - Audio Alarm: Check the box and select the audio file (.wav) to sound.

NOTE: You must properly configure the settings related to each event action when setting them up to enable event actions. Refer to the *Event Action* setup.

Audio Detection

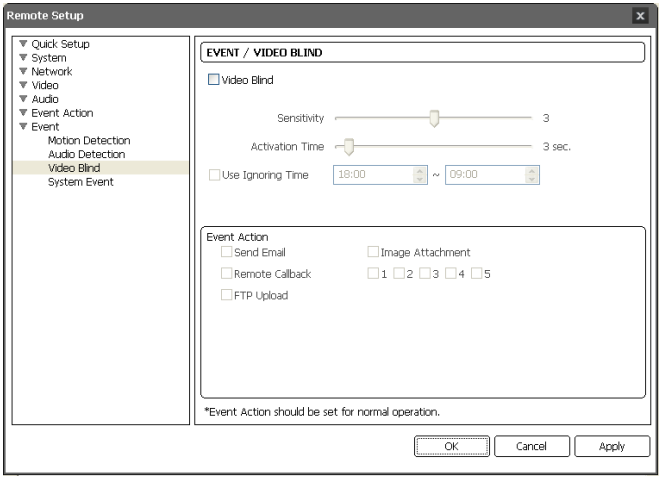


Check the Audio Detection box to set up an audio detection event. When the camera detects audio during the preset activation time, it considers it as an event.

- Sensitivity: Set the audio sensitivity. The higher the number is, the more sensitive it is.
- Activation Time: Adjust the duration that audio should last to be considered as an audio-in event. The camera will not consider any audio as an audio-in event if it lasts less than the preset time.
- Use Ignoring Time: Set up the event ignoring time. The camera will not consider audio that occurs during the preset time span as an event.
- Audio Ignoring Interval: Select the audio ignoring dwell time from the drop-down list. The camera will not send notifications of audio events occurring during the preset interval after an audio is detected. You can control excessive event logging and remote notifications of audio detection events by adjusting the audio ignoring dwell intervals.
- Event Action: Check the box for each action the camera is to take when it detects an audio-in event.
  - Send Email: Check the box to send an email. Selecting Image Attachment attaches an event detected image file (.JPG) to the email.
  - Remote Callback: Check the box and select the remote systems to send a message (Not supported for the WebGuard program).
  - FTP Upload**:** Check the box to upload images to the ftp server.

NOTE: You must properly configure the settings related to each event action when setting them up to enable event actions. Refer to the *Event Action* setup.

Video Blind



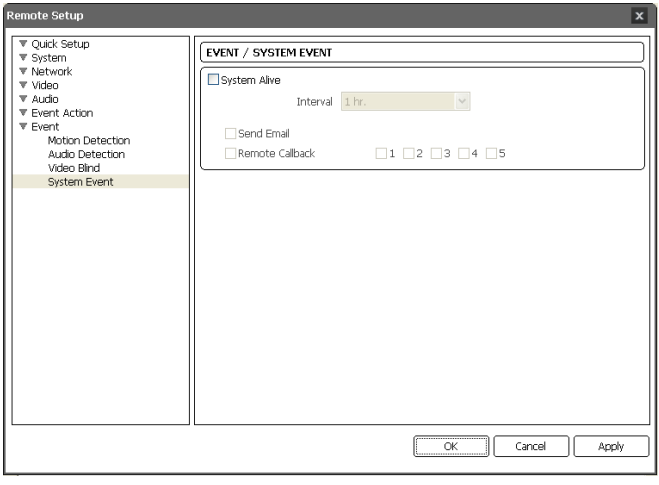
Check the Video Blind box to set up a video blind event. When the camera detects that more than 70% of a camera is blinded by anything, it considers the video blind as an event.

- Sensitivity: Adjust the sensitivity for the video blind. The higher the number is, the more sensitive it is.
- Activation Time: Adjust the duration that a video blind should last to be considered a video blind event. The camera will not consider any video blind as a video blind event if it is shorter than the preset time.
- Use Ignoring Time: Set up the event ignoring time. The camera will not consider video blind that occurs during the preset time span as an event.
- Event Action: Check the box for each action the camera will take whenever it detects a video blind event.
  - Send Email: Check the box to send an email. Selecting Image Attachment attaches an event detected image file (.JPG) to the email.
  - Remote Callback: Check the box and select the remote systems to send a message (Not supported for the WebGuard program).
  - FTP Upload: Check the box to upload images to the ftp server.

NOTES:

- Video blind events might NOT be detected for a camera with a very noisy image especially when set for low Sensitivity values.
- You must properly configure the settings related to each event action when setting them up to enable event actions. Refer to the *Event Action* setup.

System Event



Check the System Event box to set up a system event. The camera checks and reports the system status.

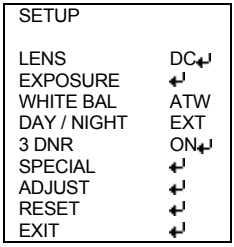
- System Alive: Check the box to check the system operation, and select the check interval.
  - Send Email: Check the box to send an email when the system is operating.
  - Remote Callback: Check the box and select the remote systems to send a message when the system is operating (Not supported for the WebGuard program).

NOTE: You must properly configure the *Email* and *Remote Callback* settings to send an email or a message. Refer to the *Event Action* setup.

Chapter 4 — Camera Module Setup

Device Menu allows you to change camera module settings by using remote programs (RASplus or iNEX Basic). Run a remote program and enter the PTZ mode. Click the Advanced Menu icon.

Enter the Device Menu by clicking the Device Menu button and selecting On. The SETUP MENU is overlapped on the screen.



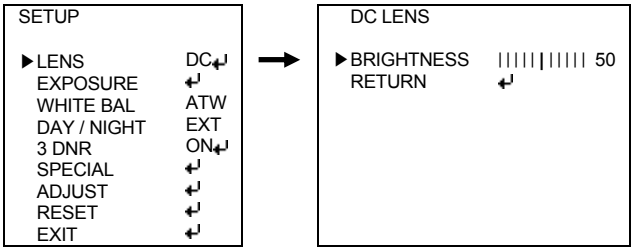
The following icons in the PTZ control toolbar will be used while setting up each function of the Device Menu.

- ● : Displays the SETUP or moves to the subordinate menu. Clicking the icon and selecting EXIT exits the menu.
- ▲, ▼ : Moves to other menus during the menu setup.
- ◀, ▶ : Changes the setting value during the menu setup.
- EXIT: Saves the current settings and moves to the previous menu.

NOTE: "↵" indicates that the menu has subordinate menus and "– – –" indicates that the setting is not available currently.

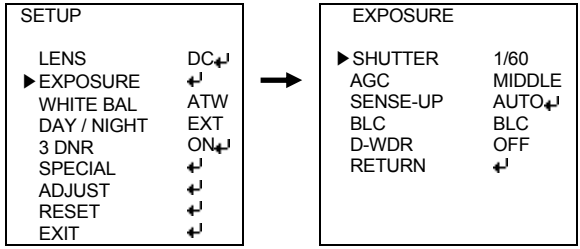
4.1 Lens

It is set to DC, and you can adjust the brightness of the image.



4.2 Exposure

The menu sets up exposure settings.

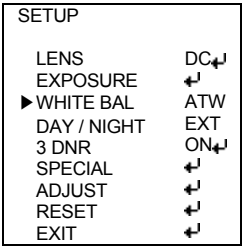


- SHUTTER: Sets the shutter speed (1/60 or 1/50 to 1/10,000).
  - FLK (Flicker): Sets flicker mode to reduce video flicker caused by the frequency differences between the camera and the lighting of where the camera is installed. When this enabled, the SENSE-UP function does not work.
- AGC (Auto Gain Control): Sets the gain value. The higher the value is (LOW < MIDDLE < HIGH), the brighter the images are but the more the noise there is.
  - OFF: Disables the AGC function. When the AGC function is disabled, the SENSE-UP mode does not function.
  - LOW, MIDDLE, HIGH: Sets the gain to LOW (28dB), MIDDLE (32dB) or HIGH (36dB).
- SENSE-UP: Detects the degree of darkness at night or under low lighting conditions and adjusts the brightness of images. When the AGC function is disabled, the SENSE-UP mode does not function.
  - OFF: Disables the SENSE-UP function.
  - AUTO: Enables the SENSE-UP function automatically at night or under low lighting conditions. It allows you to change the SENSE-UP value (x2 to x258), and the brightness of images is adjusted depending on the SENSE-UP value. This function does not work when the AGC function is released or the SHUTTER – FLK function is enabled.
- BLC (Backlight Compensation): Provides images clearly even under backlight circumstances.
  - OFF: Disables the BLC function.
  - BLC (Backlight Compensation): Sets a BLC area in the screen to provide images in that area clearly when images are very dark or bright for backlight.
  - HSBLC (High Suppress Backlight Compensation): Sets a HSBLC area in the backlight area to provide images except the backlight area clearly when very dark and very bright areas exist simultaneously in the screen for backlight under low lighting conditions. The backlight area within the HSBLC area is displayed in black. For example, when car headlights block a license plate at night, setting a HSBLC area in the headlight allows you to recognize the license plate by blocking the headlight.
- D-WDR (Digital WDR): Allows you to adjust the backlight compensation depending on the circumstances of indoor or outdoor with the built-in digital WDR. It does not require to set any specific area in the screen and provides images of both the background and object overall clearly.
  - OFF: Disables the D-WDR function.
  - INDOOR: Sets when the camera is installed in indoor circumstances.

- OUTDOOR: Sets when the camera is installed in outdoor circumstances.

4.3 White Balance

The menu sets up white balance settings.

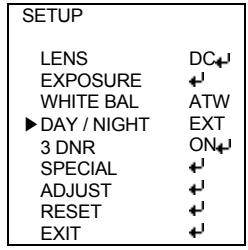


- ATW (Auto Tracking White Balance): The system monitors the color temperature of images continuously and sets the proper white balance automatically depending on the color temperature. The operating color temperature range is from 1,800°K to 10,500°K (e.g. fluorescent lamp or outdoors).
- AWB: The system identifies the light source of where the camera is installed and sets the proper white balance for the conditions automatically. The operating color temperature range is from 3,000°K to 7,000°K. It is recommended that you do not set to this mode under the condition that the color temperature is continuously changing.
- AWC – SET: Allows you to set the proper white balance for the current lighting on the basis of the white color in the current image. Click the ● icon while the camera is focused onto white paper. If the installation environment or lighting changes, this setting must be adjusted.
- MANUAL: Allows you to adjust the white balance fine. Click the ● icon and adjust the Red and Blue gain.

NOTE: The white balance may not work properly under the following condition.
- When the color temperature around the object is too high (e.g. clear sky, sunset)
- When it is dark around the object
- When the camera points directly at fluorescent lamp or the camera is installed in circumstances that the lighting changes too frequently or quickly, the operation may be unstable.

4.4 Day / Night

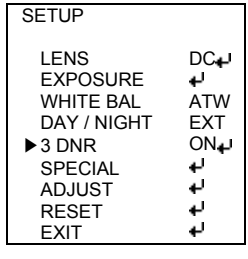
The menu sets up color mode or black and white mode.



- COLOR: Displays images in color.
- BW (Black and White): Displays images in black and white, and it makes images clearer in low light conditions. The White Balance function does not work when in the BW mode. The color signal can be kept or removed depending on the BURST setting even when in BW mode.
- AUTO: Sets the COLOR or BW mode automatically based on the illumination. Clicking the ● icon allows you to adjust the delay (DELAY), starting brightness (S-LEVEL) or ending brightness (E-LEVEL) based on the illumination of where the camera is installed
- EXT (External): The camera sensor identifies the illumination and sets the proper mode between the COLOR or BW mode automatically based on the illumination.

4.5 3 DNR

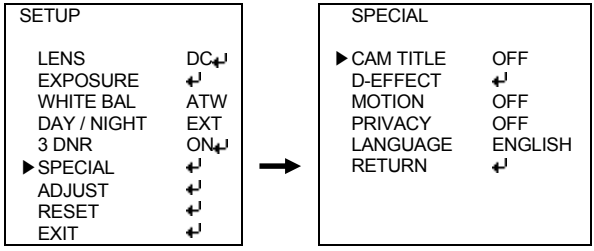
The menu sets up the 3 DNR function to reduce the level of background noise in low light conditions.



- OFF: Disables the 3 DNR function.
- ON: Enables the 3 DNR function. Click the ● icon and set the proper vale from 0 to 100. The higher the value is, the less the noise there is but it may cause motion blur.

4.6 Special

The menu sets up additional functions.

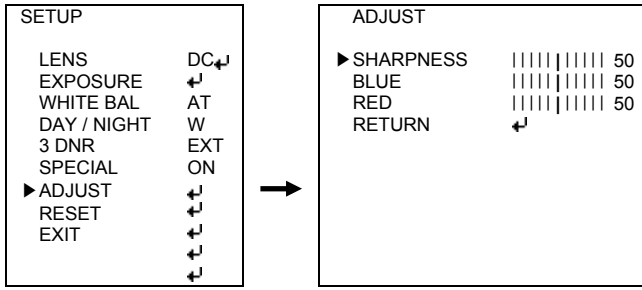


- CAM TITLE: Setting to ON allows you to set a camera name (max. 15 characters). Selecting a number or alphabet and clicking the ● icon enters the selected character. Placing a cursor in the space in front of "0" and clicking the ● icon deletes the entered character one by one.
  - CLR (Clear): Deletes the entered characters all.
  - POS (Position): Sets the position for the name to be displayed. Clicking the ● icon enters the position setting mode.
  - END: Completes the entering.
- D-EFFECT: Allows you to give effects to the images.
  - FREEZE: Freezes the image.
  - MIRROR: Flips images horizontally (MIRROR) or vertically (V-FLIP).
  - D-ZOOM (Digital Zoom): Zooms in images digitally (x1 to x30). The higher the value is, the lower the resolution is.
  - GAMMA: Adjusts the gamma value (0.05 to 1.00). The higher the value is, the stronger the color is but it may cause the images to be dim.
- MOTION (Motion Detection): Sets the motion detection function to the preset areas on the screen. The maximum of four areas are supported, and the motion detection function is set up independently for each area. The areas are overlapped over the screen in gray color during the setting.
  - AREA SELECT: Selects an area to set up.
  - AREA DISPLAY: Enables the motion detection function.
  - LEFT/RIGHT, WIDTH, TOP/BOTTOM, HEIGHT: Changes the size and position of the area.
  - SENSITIVITY: Sets the motion detection sensitivity. The higher the value is, the more sensitive it is.
  - MOTION VIEW: Displays MOTION DETECTION on the screen when a motion is detected in the area.
- PRIVACY: Restricts monitoring of specific areas for privacy reasons. The maximum of 8 areas are supported, and the privacy function is set up independently for each area. The privacy areas are displayed in the preset color during monitoring.
  - AREA SELECT: Selects an area to set up.
  - AREA DISPLAY: Enables the privacy function.

- LEFT/RIGHT, WIDTH, TOP/BOTTOM, HEIGHT: Changes the size and position of the area.
- COLOR: Sets the color (max. 16) in which the area is displayed on the screen.

4.7 Adjust

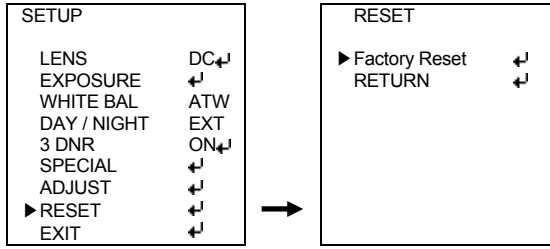
The menu sets up the brightness or sharpness of images on the screen.



- SHARPNESS: Sets the sharpness of images. The higher the value is, the sharper the images appear.
- BLUE, RED: Adjusts the Red and Blue gain.

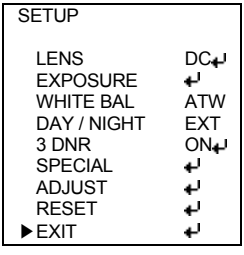
4.8 Reset

The menu will only be used on the rare occasions that you want to return all the settings of the camera module to the original factory settings.



4.9 Exit

The menu saves all the settings and closes the SETUP menu.



Chapter 5 — WebGuard

You can monitor live video images from the camera on the web browser by using the WebGuard program.

Computer system requirements for using WebGuard are:

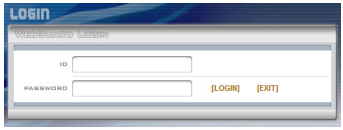
- Operating System: Microsoft® Windows® XP x86 (32 Bit) (Service Pack 3), Microsoft® Windows® Vista x86 (32 Bit) (Service Pack 1) or Microsoft® Windows® 7 x86 (32 Bit)
- CPU: Intel Pentium III (Celeron) 600MHz or faster (Core 2 Duo E4600 recommended)
- RAM: 128MB or more (2GB recommended)
- VGA: 8MB or more (128MB recommended) (1024x768, 24bpp or higher)
- Internet Explorer: Version 6.0 or later

Start Internet Explorer on your local PC. You can run the WebGuard program by entering the following information in the address field.

- "http://IP address:port number" (The camera IP address and the WebGuard port number set during the port setup)
- Or, "http://DVRNS server address/camera name" (The DVRNS server address and the camera name registered on the DVRNS server)

NOTES:

- Enter *https* instead of *http* if you have checked the *Use HTTPS* box during the WebGuard port number setup. Click *Continue to this website (not recommended)* when the security certificate warning page is displayed. When the WebGuard login page is not displayed, check Internet option settings as follows:
  - Go to *Tools*, then *Internet Options*, and then the *Security* tab → Click the *Custom level…* button → Set the setting of *Reset custom settings* to *Medium-high (default)* or *Medium*.
  - Go to *Tools*, then *Internet Options*, and then the *Advanced* tab → Check the *Use TLS 1.0* box under the *Security* option.
- You do not need to enter the WebGuard port number if the WebGuard port number is set to *80* (*443* when entering *https*) when running the WebGuard program by entering the IP address and port number.

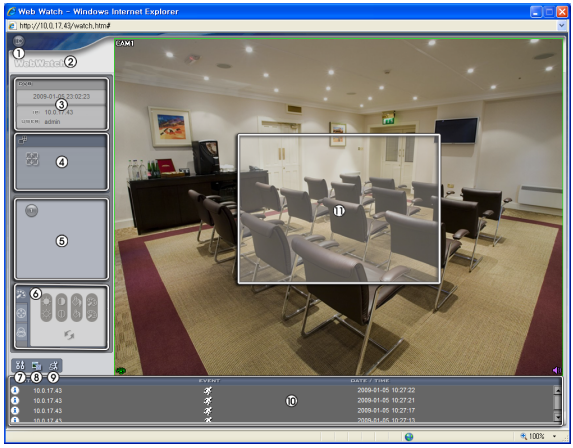


Enter your ID and PASSWORD and click the [LOGIN] button.

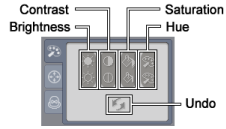
NOTE: WebGuard only works with Microsoft Internet Explorer and will NOT work with other web browsers.

NOTES:

- There might be a problem with the bottom of the WebGuard page being cropped caused by the address or status bars in Microsoft Internet Explorer 7.0. In this situation, it is recommended that websites open windows without address or status bars by changing Internet setting. (Go to *Tools*, and *Internet Options*, and then the *Security* tab → Click the Custom level… button → Select *Enable* for the *Allow websites to open windows without address or status bars* option.)
- When running WebGuard in the Microsoft® Windows® Vista or later operating system, it is recommended that you start Internet Explorer with elevated administrator permissions. Click the right mouse button on the Internet Explorer icon and select the *Run as administrator* option from the context menu. Otherwise, some functions of WebGuard might be limited.
- There might be a problem with screen display or screen update caused by low image transmission speed when using the Microsoft® Windows® Vista or later operating system. In this situation, it is recommended that you disable the Auto Tuning capability of your computer. Run the *Command Prompt* with elevated administrator permissions (Go to the *Start* Menu, and *Accessories*, and then *Command Prompt* → Click the right mouse button and select the *Run as administrator* option). Then enter "netsh int tcp set global autotuninglevel=disable" and press the enter key. Restart your computer to apply the changes. If you want to enable the Auto Tuning capability again, enter "netsh int tcp set global autotuninglevel=normal" after running the Command Prompt with elevated administrator permissions. Restart your computer to apply the changes.
- When running the updated WebGuard for the first time, Internet Explorer might occasionally load the information from the previous version. In this case, delete the temporary Internet files by selecting *Tools* → *Internet Options* → *General* tab, and then run WebGuard again.
- You will need to get the appropriate IP address for the camera you want to connect to and the WebGuard port number from your network administrator.



① Log Out: Click to log out of the WebGuard program.
② Version: Position the mouse pointer on the WebWatch logo to see the WebGuard program version.
③ Information: The Information window displays the login information of WebGuard.
④ Full Display: Clicking the button displays the video in full screen. Pressing the Esc button on a keyboard returns to the previous screen.
⑤ Camera Button: The button displays the camera number.
⑥ Image Adjustment: Click to adjust the brightness, contrast, saturation and hue of monitored image.



⑦ Setup: Click to set up the image drawing mode and OSD display. You can adjust the display speed by changing the image drawing mode, and select OSD information to be displayed on the screen.
⑧ Save Image: Click to save the current image as a bitmap or JPEG file format.
⑨ Remote Setup: Click to change the settings of the camera by using the Remote Setup screen.
⑩ Event Status Window: The event status window at the bottom displays a list of events that were detected in the camera.

Motion Detection Video Blind Audio Detection

⑪ Screen Popup Menu: Clicking the right mouse button on the screen displays the screen popup menu.

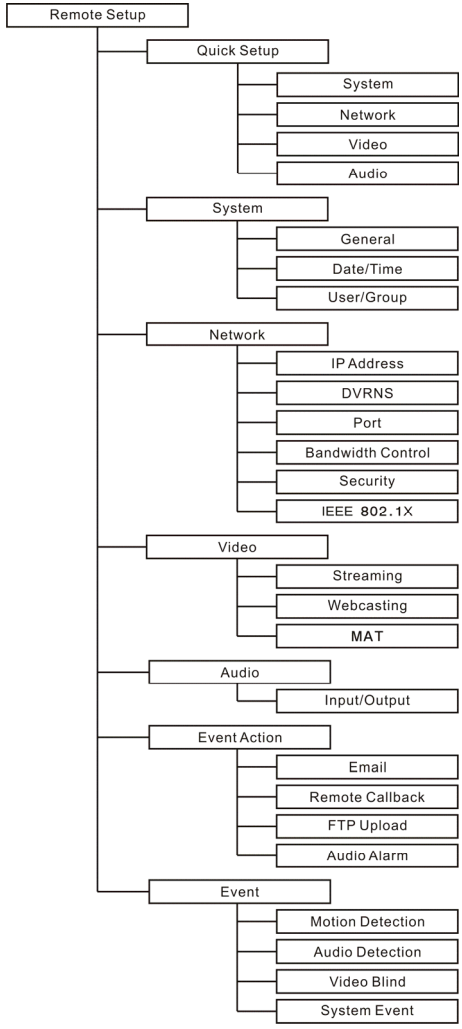
- Change Camera Title: Select to change the camera title.
- Enable Audio: Select the menu and click the button to monitor live audio from the site which the camera is installed through the attached speaker.
- Aspect Ratio: Select to change the image aspect ratio displayed on the screen and the option menu appears. Selecting Fit to Screen displays images by fitting them to the screen size. Selecting Original Ratio displays images by fitting them to the screen size while maintaining their original ratio. Selecting Half Size (x0.5) to Quadruple Size (x4) displays the images at the selected image size.
- Trim The Black (noise) Edges: Trims the black line (noise) displayed at the edge of the image.
- Multistream: Select to choose the desired stream if the camera is in dual stream mode.
- Deinterlacing: Select to enhance image display quality of interlaced video on the screen by eliminating horizontal scan lines or noise in areas with motion.
- Anti-Aliasing Screen: Select to enhance image display quality by eliminating stair stepping (aliasing) effects in the enlarged image.

NOTES:

- The image adjustment for the monitoring screen works only in the pause mode.
- A camera name change in the Web Watch mode does not affect the camera name set up on the camera. Leaving the Camera Title blank causes the camera name set up on the camera to display.
- *Aspect Ratio – Half Size (x0.5)* to *Aspect Ratio* to *Quadruple Size (x4)* in the Screen Popup Menu will be enabled when the selected camera screen can display images in those sizes.

Appendix

Map of Screens (Remote Setup)



Troubleshooting

Problem	Possible Solution
No Power	• Check power cord connections. • Confirm that there is power at the outlet.
No Live Video	• Confirm that the camera has power. • Check network connections on your PC and a camera.
Live video is not clear.	• Check if there is dust or dirt on the lens and clean the lens with a clean cotton cloth or brush. • Check that the focus is set correctly. • Check that the lighting and adjust the camera position or angle if bright light is shining directly into the lens.
Video color appears incorrect.	Check that the white balance setting during the camera module setup.
Video flickers.	Check to see if the camera points directly at the sun or a fluorescent light and adjust the camera's direction.
Connection to the INIT program is not available because of wrong ID and password.	Ask your dealer or distributor.
The WebGuard program is not available.	If you cannot launch the login page of the WebGuard program, check Microsoft Internet Explorer's version. WebGuard might not run properly in versions earlier than 6.0.

Specifications

LENS	
Lens Type	Varifocal zoom lens
Focal Length	F1.2, f=3.5 mm to 16.0 mm
Angle View	94.0° (Wide) to 25.0° (Tele)
Lens Iris Control	DC auto iris
CAMERA	
Image Sensor	1/3" Sony Super HAD II CCD
Minimum Illumination	IR LED Off: 0.1 Lux, IR LED On: 0.00006 Lux
Scanning Mode	Interlaced scan
SNR	52 dB
Electronic Shutter	Auto

Specifications are subject to change without notice.

VIDEO	
Compression Algorithm	H.264, M-JPEG (Four levels)
Compression Resolution	CIF, 4CIF
Bitrate Control	H.264 – CBR / VBR (up to 6 Mbps)
Maximum Frame Rate (images per second)	30 ips + 30 ips @ 4CIF
Dual Stream	Live monitoring & Recording, Live monitoring
AUDIO	
Compression Algorithm	G.726 (16KHz), G.711 μ – Law (8KHz)
INPUTS/OUTPUTS	
Audio Input	1 line in
Audio Output	1 line out
Network Connectivity	10/100 Mbps Ethernet
CONNECTORS	
Audio In/Out	Φ 3.5 audio jack
Ethernet Port	RJ-45
GENERAL	
Dimensions (W x H x D)	3.0" x 10.8" x 3.0" (76mm x 273mm x 76mm)
Shipping Dimensions (W x H x D)	14.0" x 5.2" x8.5" (355mm x 132mm x 217mm)
Unit Weight	1.9 lbs. (860g)
Shipping Weight	4 lbs. (1.8kg)
Operating Temperature	-4°F to 122°F (-20°C to 50°C)
Operating Humidity	0% to 90%
Power Supply	12 VDC
Power Consumption	Max. 24W
Approval	FCC, CE, IP66

Specifications are subject to change without notice.

Index

A

Admin/Watch/Record Port.....14

B

Bitrate Control 19

C

Camera Name 8, 13
Compression.....19

D

Date/Time.....10
DVR Name Service 13
DVRNS Server.....13

F

Frame Rate.....19

I

IP Filtering.....17

M

MAT 21

N

Network Bandwidth Limit 16

O

ONVIF Protocol 9

Q

Quality 19

R

Resolution 19
RTSP Port 14

S

SSL 17
Stream 19

T

Time Sync 10

U

Use HTTPS.....14
Use UPnP 14
User/Group.....10

W

WebGuard Port 14