

IP CAMERA Megapixel Network Camera

USER MANUAL



Before installing and using the camera, please read this manual carefully.
Be sure to keep it handy for later reference.

About This Document

This manual is intended for administrators and users of the IP CAMERA. It includes instructions for using and managing the Network Camera on your network. Previous experience of networking will be of use when installing and using this product. Some knowledge of UNIX or Linux-based systems would also be beneficial, for developing shell scripts and applications. Later versions of this document will be posted to the NV Website, as required. See also the product's online help, available via the Web-based interface.

Safety Notices Used In This Manual

Caution! – Indicates a potential hazard that can damage the product.

Important! – Indicates a potential hazard that can seriously impair operation.

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

Legal Considerations

Camera and audio surveillance can be prohibited by laws that vary from country to country. Check the laws in your local region before using the product for surveillance purposes.

Electromagnetic Compatibility

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 particular 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: Re-orient or relocate the receiving antenna. Increase the separation between the equipment and receiver. Connect the equipment to an outlet on a different circuit to the receiver. Consult your dealer or an experienced radio/TV technician for help. Shielded (STP) network cables must be used with this unit to ensure compliance with EMC standards.

USA

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of 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 the user will be required to correct the interference at his or her own expense.

WARNING

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Europe

This digital equipment fulfills the requirements for radiated emission according to Class A of EN55022/2006, and the requirements for immunity according to EN55024/1998 residential, commercial, and light industry.

Liability

Every care has been taken in the preparation of this manual; please inform your local NV office of any inaccuracies or omissions. NV Co., Ltd. cannot be held responsible for any technical or typographical errors and reserves the right to make changes to the product and manuals without prior notice. NV Co., Ltd. makes no warranty of any kind with regard to the material contained within this document, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. NV Co., Ltd. shall not be liable nor responsible for incidental or consequential damages in connection with the furnishing, performance or use of this material.

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Support Services

Should you require any technical assistance, please contact your NV reseller. If your questions cannot be answered immediately, your reseller will forward your queries through.

- Download user documentation and firmware updates.
- Find answers to resolved problems in the FAQ database. Search by product, category, or phrases.
- Report problems to MV support staff by logging in to your private support area.

NOTICES

**This device complies with Part 15 of FCC Rules.
Operation is subject to the following two conditions;**

1. This device may not cause harmful interference.
2. This device may receive interference that can cause affect the operation of this equipment.

Note -

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 the user will be required to correct the interference at his own expense."

Caution -

Alteration or modifications carried out without appropriate authorization may invalidate the user's right to operate the equipment.

CAUTION

1. A regulated DC12V 300mA power supply is recommended to ensure the best picture quality and stable operation. An unregulated power supply can cause damage to the camera. Using an unregulated power supply will void the product warranty.
2. It is recommended that the camera is used with a monitor that has a CCTV quality 75 video impedance level. If your monitor is switched to high impedance then please adjust accordingly.
3. Do not attempt to disassemble the camera to gain access to the internal components. Refer servicing to your dealer.
4. Never face the camera towards the sun or any bright or reflective light, which may cause smear on the picture and possible damage to the CCD.
5. Do not remove the serial sticker for the warranty service.



**Correct Disposal of This Product
(Waste Electrical & Electronic Equipment)**

(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 to safely recycle the item.
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.

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



This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instruction in the literature accompanying the appliance.

FOR YOUR SAFETY

- 1) All warnings and instructions in this manual should be followed.
- 2) Save this manual for future reference.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water.
- 6) Clean only with a dry cloth.
- 7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9) To help prevent electric shock, plug the equipment and peripheral power cables into properly polarized or grounded electrical outlets. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. These cables are equipped with the wide blade or the third prong to ensure proper grounding. Do not use adapter plugs or remove the grounding prong from a cable. If the provided plug does not fit your outlet, consult an electrician.
- 10) Ensure that nothing rests on your equipment's cables and that the cables are not located where they can be stepped on, tripped over, or pinched.
- 11) Only use attachments or accessories as specified by the manufacturer.
- 12) Only use the equipment with the cart, stand, tripod, bracket, or table that is specified by the manufacturer or sold with the apparatus. When a cart is used, use caution to prevent the cart from tipping over and to avoid injury.



- 13) Do not connect or disconnect during lightning storms due to risk of electric shock.
- 14) If any of the following conditions occur, unplug the equipment from the electrical outlet and replace the part or contact your trained service provider:
 - The power cable, extension cable, or plug is damaged.
 - An object has fallen into the equipment.
 - The equipment has been exposed to water.
 - The equipment has been dropped or damaged.
 - The equipment does not operate correctly when you follow the operating instructions.

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OVERVIEW

Features

Thank you for purchasing a network surveillance product. IP MINI BULLET, is a high-performance, Megapixel Network Camera which offers the perfect solution for integrating network-based video surveillance system.



Key Features

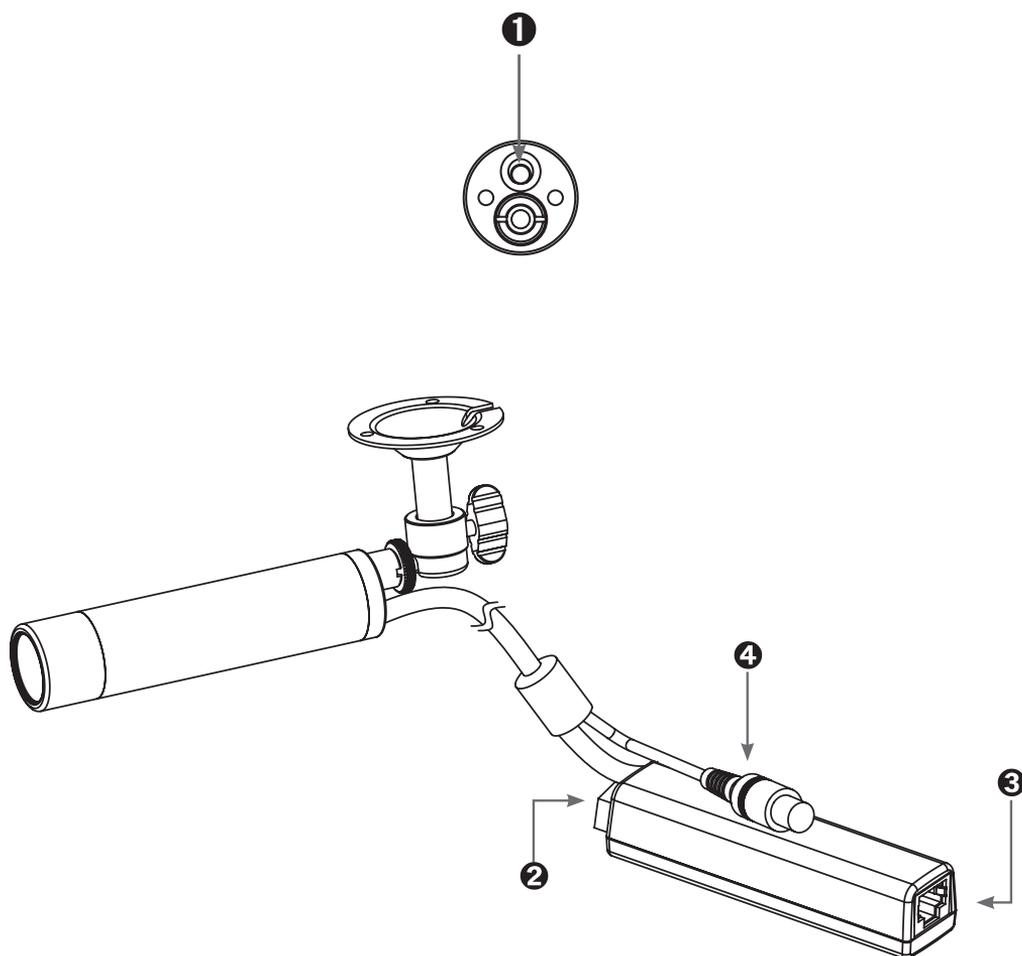
- Onvif Profile S
- 2.43 MP, 1/2.8" Progressive Scan CMOS
- 4 Channel Streaming (H.264 & MJPEG) at different frame rate and bandwidth
- 30fps@1080p(1920x1080)
- D-WDR, 3DNR, DSS, BLC, AGC
- 12VDC / Power over Ethernet (IEEE 802.3af)
- Built-in Micro-SD/SDHC card slot for recording video streams (Max. 32 GB)
- Multi-area motion detection
- Powerful event management
- IP67 (Waterproof Type)

System requirements for a PC

- Core 2 Duo or higher, or equivalent AMD®
- 2 GB RAM or higher
- graphics card 256 MB RAM
- CD-ROM drive (for using User's Manual and software)
- Microsoft® Windows® XP, 2000, 2003 Server, Vista, Window 7,8
- Window 8 is supported only in Desktop mode
- DirectX® 9.0 or later
- Microsoft® Internet Explorer® 7.x or later(32bit)
- Adobe® Reader® (for reading User's Manual in CD-ROM)

OVERVIEW

Description and function



- 1. Reset Button
- 2. Power Input (12VDC)
- 3. Network Connector
- 4. Sevice Video Connector

Resets the product to the factory default settings.

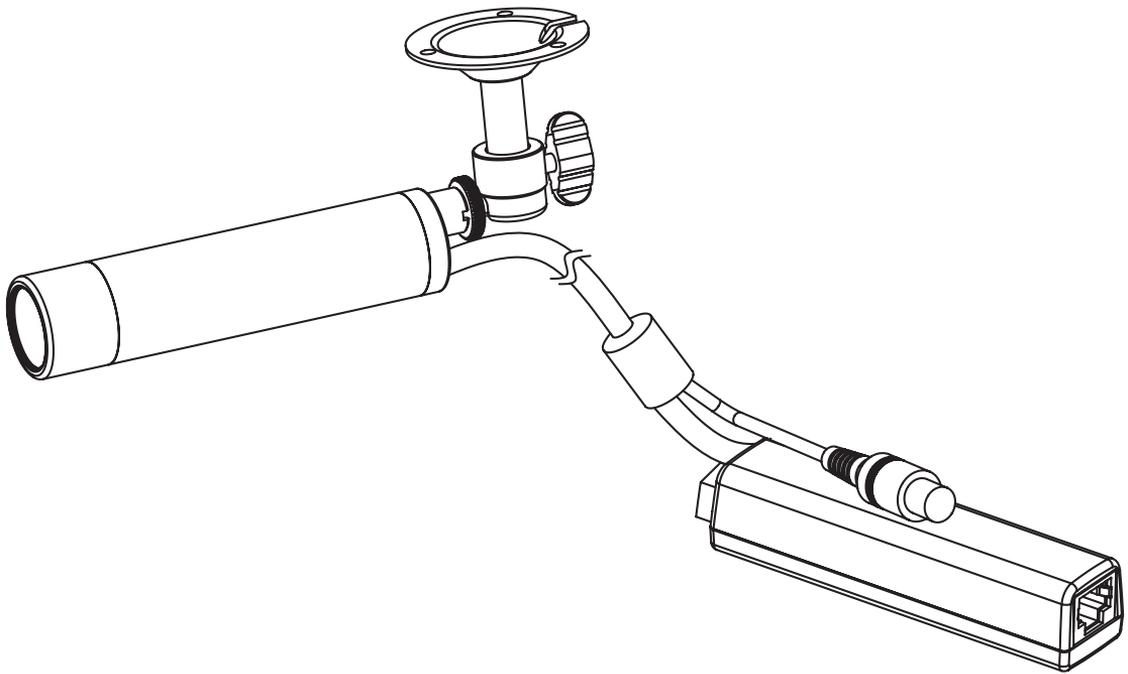
Connect 12VDC power.

The network camera connects to the network via a standard network cable. PoE is supported.

Extra video output for convenient installing.

OVERVIEW

Installation

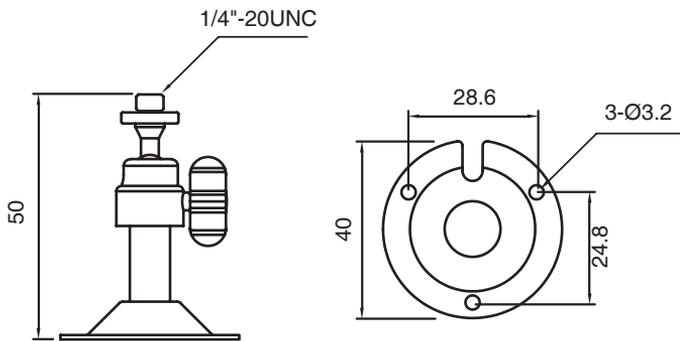
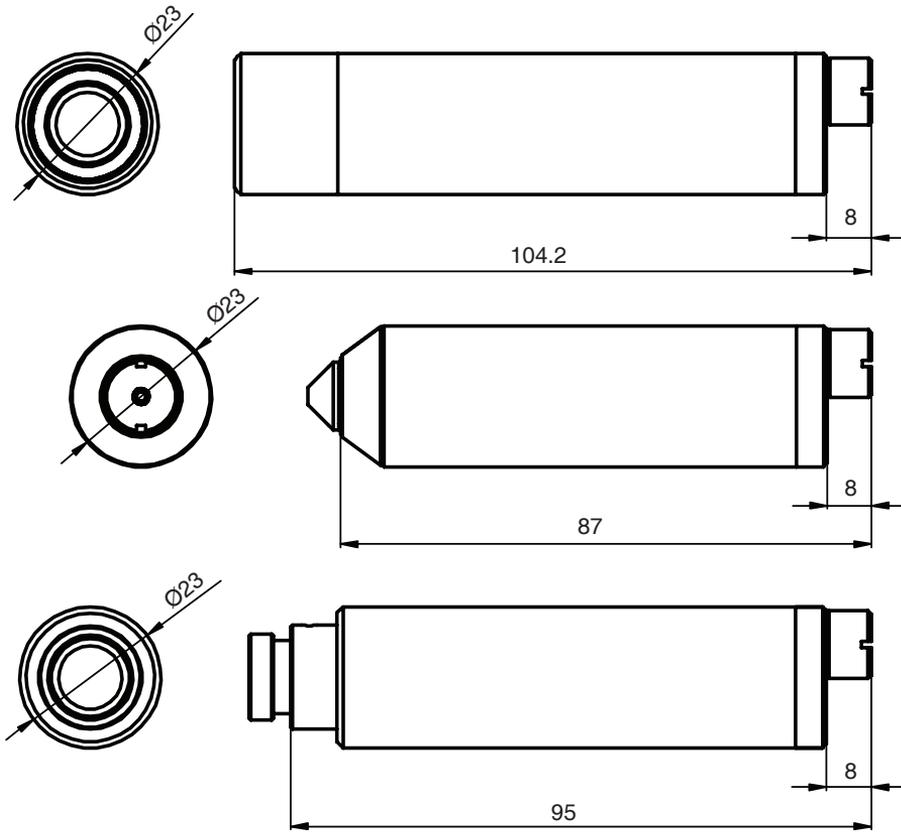


1. Connect the camera to the network using a UTP cable (CAT. 5). Power can be supplied via the network cable (PoE).
2. Connect 12VDC to the power terminal. This is not necessary if the network camera is connected to a PoE hub or midspan.
3. Check that the status LED indicates the correct conditions (Status LED On).
4. Connect the analog monitor to the service video connector for adjusting focus.

OVERVIEW

Dimensions

Unit: mm



USING THE NETWORK CAMERA

The Network Camera can be used with either Internet Explorer or Central Monitoring System (CMS) in Microsoft Windows operating systems.

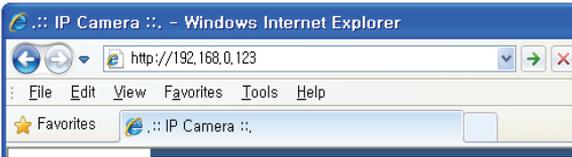
Note: For information on installing the Network Camera, please refer to the Installation Guide.

Accessing the Network Camera

1. Start your browser.

* When you run or install ActiveX, open the Internet Explorer browser as Administrator on Windows Vista, 7, 8 (supported only in the Desktop mode).
Users without administrator rights cannot install ActiveX controls. Unless Internet Explorer is opened as administrator, the camera functions of Live Web Viewer cannot work (screen capture, etc.)

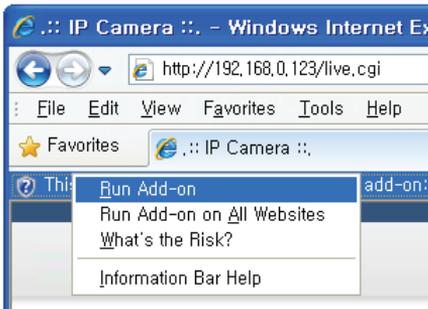
2. Enter the IP address or host name of the Network Camera in the Address field.



3. If you are accessing the Network Camera for the first time, you will see the warning message as shown below.



4. Click the warning message and select "Run Add-on" or "Install ActiveX Control..." etc.



5. Click "Install" to install the Web Viewer.



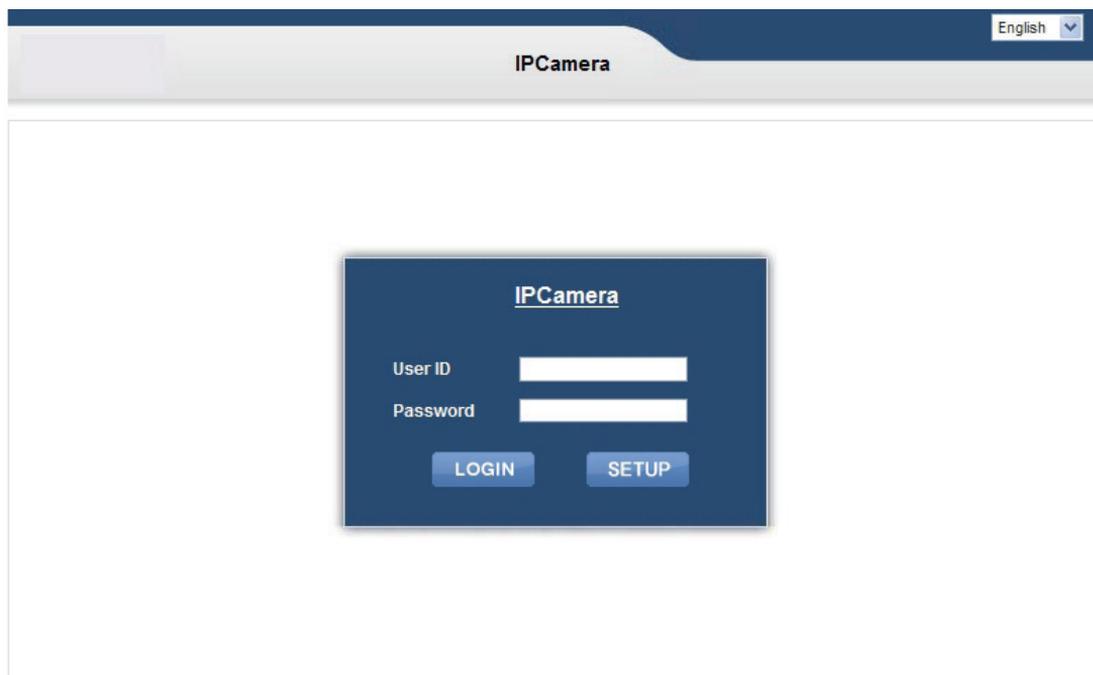
USING THE NETWORK CAMERA

6. If the Windows Security Alert pop-up window appears, click the “Unblock” Button.



7. After installing the ActiveX Control, a Login page will be displayed. Enter the user ID and password.

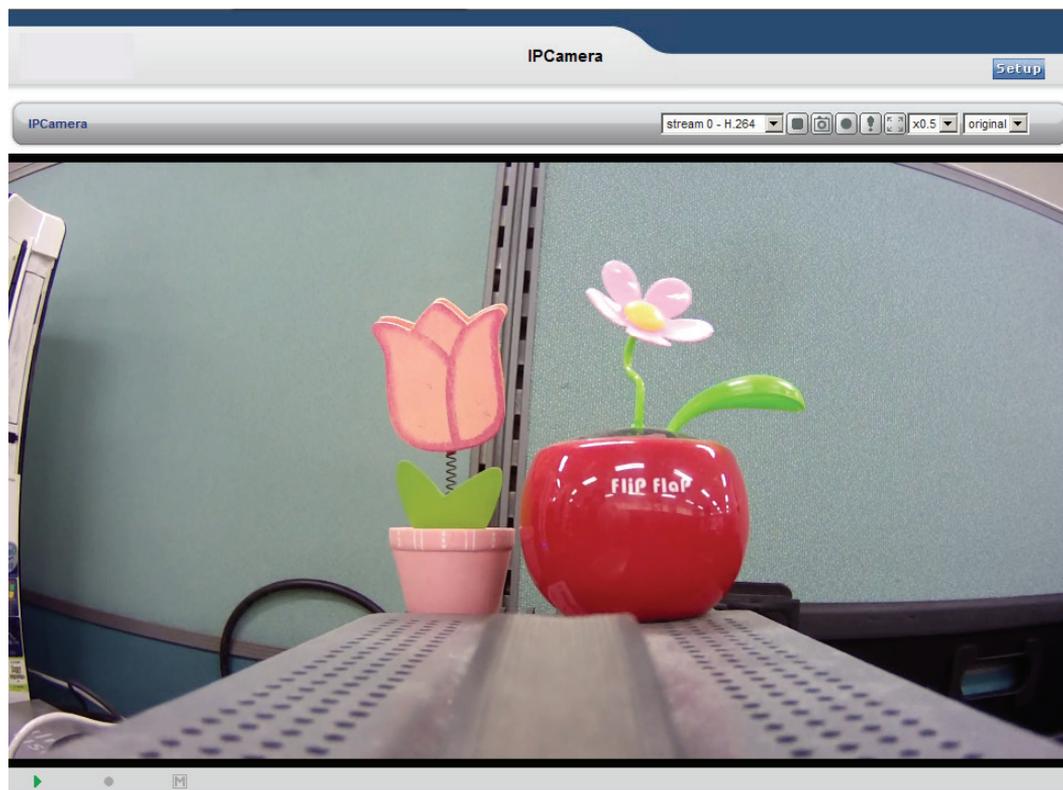
Note: Default User ID and Password is [ID: admin, Password: admin]



Type the user ID and password to connect to the camera.
LOGIN: Move to the Live Viewer after log in.
SETUP: Move to the Setup screen after log in.

USING THE NETWORK CAMERA

8. The video image will be displayed in your browser.

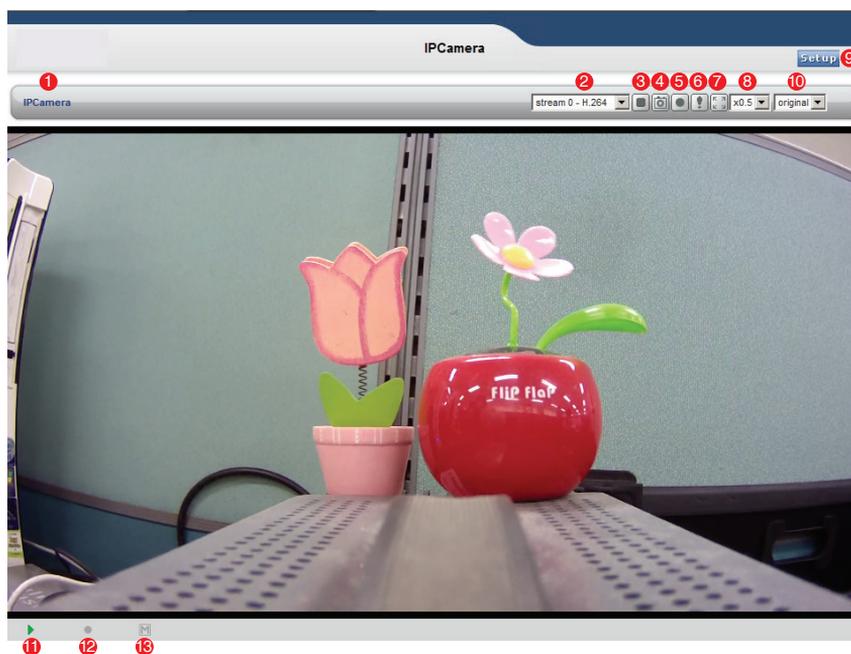


Important: To view streaming video in Microsoft Internet Explorer, you must set your browser to allow the Web Viewer to be installed on your computer. This ActiveX component will be installed when you access the camera for the first time.

USING THE NETWORK CAMERA

Live View page

If the Network Camera has been customized on **Setup>Advanced>Live View Layout**, the buttons and other items shown below may or may not be displayed on the Live View page. The following diagram provides an overview of each available button.



1. Host Name – Displays the host name.
2. Video Format – The Video Format drop-down list allows the video format to change instantly on the Live View page.
3. Play/Stop – The Play/Stop button starts and stops the media stream.
4. Snapshot – The Snapshot button takes a snapshot of the live image.
The target directory for saving snapshots are .../My document//Snapshots
5. Record – The Record button is used to record the current video stream to the local hard drive.
The target directory for saving video clip are .../My document//Video
Note: Video recording will be terminated automatically after 5 minutes.
6. Manual Trigger – The Manual Trigger button triggers an event directly from the Live View page. Click this button to manually start the events instantly.
7. Full Screen - Switch the current video to the maximum size of the monitor.
8. Viewer Magnification – The magnification drop-down list allows the video screen to amplify or shrink in live view mode. (0.5x, 1x, 1.5x, 2x)
9. Setup – Click the button to configure Network Camera. Please refer to Configuring Network Camera.
10. Ratio – Resizing the aspect ratio to 16:9 or 4:3 is only possible with the H.264 video format.
11. Video Indicator – - Streaming / - Stopped.
12. Record Indicator – - Recording / - Stopped.
13. Motion Indicator – - detected / - Undetected.

CONFIGURING THE NETWORK CAMERA

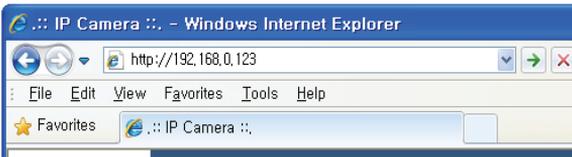
This section describes how to configure the Network Camera and is intended for:

- Administrators, who have unrestricted access to the entire Setup menu.
 - Operators, who have access to the Video & Image, Audio(Optional), and Event Configuration settings.
- The Network Camera is configured from the Setup menu in a standard web browser.

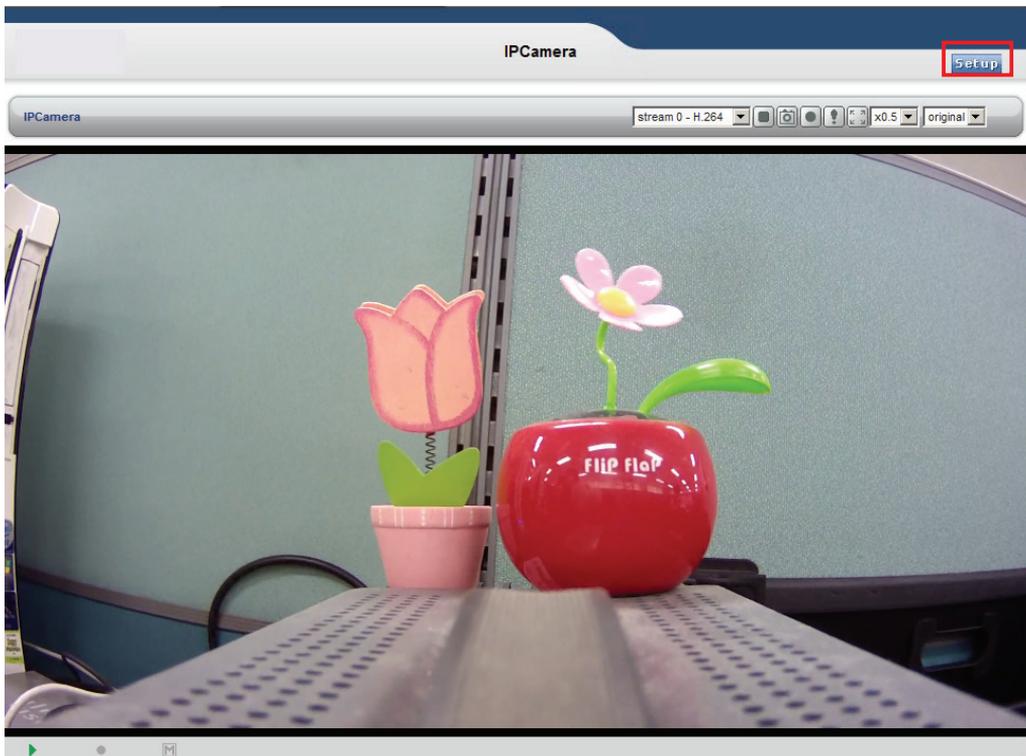
Accessing the Setup menu

Follow the instructions below to access the Setup menu from a browser.

1. Start the browser and enter the IP address or host name of the Network Camera in the location / address field.



2. The Live View page is now being displayed. Click Setup to display the Setup menu.



CONFIGURING THE NETWORK CAMERA

Basic > Network

This section describes the basic network settings and SMTP notification. If the SMTP notification feature is enabled, user can receive an IP change notification by e-mail when the IP address is changed by the DHCP server.

NETWORK ?

Network Services 1

Static
 DHCP

Network Configuration 2

IP address
 Subnet mask
 Default gateway

SMTP Notification(Email) For IP Address Change 3

Enable
 Send to
 Subject

1. Network Services

A. Static – Assigns a static IP address manually.

B. DHCP – Assigns a dynamic IP address automatically from the DHCP server on your network.

Important: DHCP should be enabled only if you are using the SMTP notification for the IP address change, or if your DHCP server can update a DNS server, which allows you to access the Network Camera by the host name. If DHCP is enabled and you cannot access the unit, then you may have to reset the unit to the factory default and redo the installation again.

2. Network Configuration

A. IP Address – Specify a unique IP address for your Network Camera.

B. Subnet mask – Specify the mask of the Network Camera located subnet.

C. Default gateway – Specify the IP address of the default gateway (router) used for connecting devices to the network.

D. Test – Test the IP Address which entered is already occupied or not.

3. SMTP Notification(E-mail) for IP Address Change

A. Send to – Enter the e-mail address of receiver.

B. Subject – Enter the e-mail subject as desired.

Important: Before using the SMTP Notification for IP address change, SMTP server has to be set on Advanced > SMTP.

Note: DHCP is a protocol for automatic IP address assignment on a network. IP address assignment via DHCP may lead to a situation where the IP address changes and you lose connection with the Network Camera. Enable the SMTP Notification of IP address change to receive a notification from the Network Camera when the IP address changes.

CONFIGURING THE NETWORK CAMERA

Basic > Users

This section describes the administrator and user account settings. Each user can be configured to different authority levels.

USERS ?

Admin Account 1

Admin ID

Password

Confirm Password

User Account 2

Add User

User ID	Password	Confirm Password
<input style="width: 80%;" type="text"/>	<input style="width: 80%;" type="password"/>	<input style="width: 80%;" type="password"/>
Alarm In/Out	Stop/ Snapshot/ Rec	Trigger
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="button" value="Add"/>		

User List

User ID	Alarm In/Out	Stop/ Snapshot/ Rec	Trigger	Modify / Remove

Free Pass 3

Enable free login without ID and Password required

1. Admin Account

- A. Admin ID – Enter the administrator ID.
 - B. Admin Password – Enter the administrator password.
- Important:** Factory default value is ID: admin, Password: admin.

2. User Account

- A. Add User – Add a user account. Enter the user ID and Password. Each user can be configured to a different level of authority for Speaker, Stop / Snapshot / Rec. Trigger.
- B. User List – Displays list of authorized user for the network camera. Click the modify button to modify the authority. Click the remove button to erase the user account.

3. Free Pass

Free Pass means that anybody on the network can access the Network Camera and its images (but not the Setup tools) from a browser without login in to the unit. To enable the feature, check the box to Enable Free Pass.

Important: If this feature is enabled, all users can access the Live View page without a login process. If the Network Camera is installed at an area needing privacy, this feature must be disabled.

CONFIGURING THE NETWORK CAMERA

Basic > Video

This section the basic settings for video

Important: These setting values will affect the original video and images.

The screenshot shows the 'VIDEO' configuration interface. It features a 'VIDEO STREAM' tab and three sub-sections for Stream0, Stream1, Stream2, and Stream3. Each stream has a 'Type' dropdown, 'Resolution' dropdown, and 'Encode FPS' dropdown. Stream0 also includes an 'Iframe interval' slider, a 'Bitrate Control' dropdown (set to CBR), and an 'Average Bitrate' slider. Stream1 includes a 'Quality' dropdown. Stream2 and Stream3 have expand/collapse buttons. At the bottom, there are 'Save', 'Cancel', and 'Initialization' buttons.

1. VIDEO STREAM

A. Type - Select the video stream type to use for the H.264 and MJPEG image.

B. Resolution - Select the resolution to use for the H.264 and MJPEG image.

C. Encode FPS - This feature is used to limit the frame rate. The frame rate can be set by selecting values from the drop down list.

D. I-frame interval - I-frame interval of each GOP (Group of Pictures).

E. Bitrate Control

1) Variable bit rate (VBR) - Set the Network Camera to produce the variable bit rate H.264 video.

2) Constant bit rate (CBR) - Set the Network Camera to produce the constant bit rate H.264 video.

F. Average Bitrate - The average amount of data transferred per second.

* Valid value ranges 256 Kbps - 4000 Kbps for 320x240 resolution, 1000 Kbps - 8000 Kbps will be allowed on bigger resolution.

G. Quality - Changing the image quality affects the amount of bandwidth required. High value improves image quality, but uses more bandwidth.

CONFIGURING THE NETWORK CAMERA

Basic > Video

VIDEO

VIDEO STREAM | VIDEO | OSD

Video

Video Format: NTSC Mirror: Normal

Maximum video stream time

Unlimited

Limited to: [1..60] seconds per session

Save Cancel initialization

2. VIDEO

- A. Mirror - Provides 4 mode (Normal, ROTATE 90, ROTATE 270, Hor/Ver of image)
- B. Maximum video stream time - This feature is used to limit the length of time that the streaming is displayed. Set unlimited or set the maximum time in seconds, minutes or hours. When the set time has expired, a new stream can be started by refreshing the page in the browser.
- C. Maximum Frame rate - This feature is used to limit the frame rate. The frame rate can be set by selecting values from the drop down list.

Note: The maximum video stream time does not apply to clients connected via CMS (Central Monitoring System) software.

VIDEO

VIDEO STREAM | VIDEO | OSD

Text Overlay Setting

Include date Include text: Place text/date at: top

Save Cancel initialization

3. Text Overlay Settings

- A. Include date - Includes date and time in the video image as configured.
- B. Include text - Enter your own text in the field to overlay text in the video image.
- C. Place text/date/time at - Select top or bottom position to display text, date, time.

CONFIGURING THE NETWORK CAMERA

Basic > Date & Time

This section describes about the date and time settings.

DATE & TIME ?

Current Server Time 1

Date <input type="text" value="2004/01/10"/>	Time <input type="text" value="22:48:07"/>
---	---

New Server Time 2

Time mode

Set manually

Date <input type="text" value="2004/01/10"/>	Time <input type="text" value="22:48:04"/>
<input type="radio"/> Synchronise with NTP server	Interval <input type="text" value="1"/> hours
NTP server: pool.ntp.org	Time zone <input type="text" value="GMT+09:00 Seoul"/>
<input type="radio"/> Synchronize with PC	Date <input type="text" value="2015/06/10"/>
Date <input type="text" value="2015/06/10"/>	Time <input type="text" value="17:14:02"/>

Daylight Saving Time 3

Automatically adjust for daylight saving changes

Start Day <input type="text" value="January"/>	Day <input type="text" value="1"/>	End Day <input type="text" value="January"/>	Day <input type="text" value="1"/>
---	---	---	---

Date & Time Format 4

Specify date format <input type="text" value="yyyy/mm/dd"/>
Specify time format <input type="text" value="24h"/>

1. Current Server Time

- A. Date – Displays current date of Network Camera.
- B. Time – Displays current time of Network Camera.

2. New Server Time

- A. Set manually – Using this option allows you to enter the time and date manually.
- B. Synchronize with NTP server – The Network Camera will sync the time with a NTP server.
The NTP server's IP address or host name is specified in the Setup>Advanced Network>NTP Setting
- C. Synchronize with PC – sync the time with a local computer.

3. Daylight Saving Time

- A. Enable this feature to adjust automatically to the daylight savings time.
- B. Set the start and end date.

4. Date & Time Format

This format will be used when displaying the date and time as overlay in the video image.

CONFIGURING THE NETWORK CAMERA

Advanced > Camera Setting

This section describes the advanced settings of the camera.

The screenshot displays the 'CAMERA SETTING' window, organized into five numbered sections:

- 1. Basic Settings:** Includes 'Lens Type' (Fixed Lens), 'Day Night Mode' (Auto), 'Day Night Control' (slider), 'Day Night Delay Time' (5), 'Anti Flicker' (60Hz), and '3D DNR' (32).
- 2. Exposure Settings:** Includes 'Exposure Mode' (Auto/Manual), 'Slow Shutter mode' (Off), 'Exposure Value' (130), 'D-WDR' (Auto), and 'Back Light Compensation' (Set).
- 3. Image Adjustment:** Includes sliders for 'Saturation' (64), 'Brightness' (130), 'Contrast' (64), 'Sharpness' (9), and 'Hue' (15).
- 4. White Balance Setting:** Includes 'White Balance Control' (Auto).
- 5. Live View Image Setting:** Includes a 'View live image after setting' checkbox and a 'View' button.

At the bottom of the window are 'Save', 'Cancel', and 'Initialization' buttons.

1. Basic Settings

A. Lens Type – The camera lens type.

B. Day and Night Mode – The day and night mode can be selected from the drop down list.

Auto – The camera will automatically switch between IR cut filter On and Off, according to the current lighting conditions.

Color – The IP camera will always stay in color mode.

Black and White – This camera will be able to “see” infrared light, e.g. at night., thus making the image clearer.

C. Day Night Control – Adjust day and night lux level.

D. Day Night Delay Time – Adjust day and night delay time.

E. Anti Flicker - Eliminates the flickering caused due to the fluorescent light sources. The Anti Flicker options can be adjusted to 60Hz or 50Hz.

F. 3D DNR – The digital noise reduction can help depress noise under low light situation but also blur some of the image detail. So it is better to set this value higher under low light situation, and set it lower under good light condition.

2. Exposure Setting

A. Exposure Mode – The camera's exposure mode can be set to auto or manual by selecting Auto / Manual.

Auto – The IP camera will adjust the exposure automatically.

Manual – The exposure in the ip camera can be controlled manually by Max gain and shutter speed.

B. Slow shutter mode – Enable user to set up the DSS level off, on.

C. Exposure Value – Adjust the exposure target.

D. D-WDR – The brightness of single image is compensated using the gamma curve.

E. BLC - Backlight compensation makes the subject appear clearer when the image background is too bright, or the subject is too dark.

CONFIGURING THE NETWORK CAMERA

Advanced > Camera Setting

3. Image Adjustment

- A. Saturation – Select an appropriate level by entering a value in the range between 0-255.
Lower values mean less color saturation and the value 255 gives maximum color saturation.
- B. Brightness – The image brightness can be adjusted in the range between 0-255, where a higher value produces a brighter image.
- C. Contrast – The image contrast can be adjusted in the range between 0-128, where a higher value produces a high contrasted image.
- D. Sharpness – The image sharpness can be adjusted by selecting values, where a higher value produces a sharper image.
- E. Hue – The image hue can be adjusted in the range between 0-30 where a higher value produces a sharper image.

4. White Balance Setting

- A. White Balance – The image quality can be modified by selecting one of the white balance modes.

5. Live View Image Setting

- A. View live image after setting – Open the additional secondary window to help camera setting.

CONFIGURING THE NETWORK CAMERA

Advanced > Event Server

This section describes configuring the event server used in the event action section.

EVENT SERVER
?

Select Server
1

FTP
▼

Server FTP
2

FTP Server Name

IP Address

Upload Path

User Name

Port No

Password

Add
Reset

Event Server List
3

Server Name	IP Address	Port No	Upload Path	User Name	Modify / Remove

Save
Cancel
initialization

1. Select Server

A. Select the server type to configure. Configuration is only available for FTP servers.

2. Server FTP

- FTP Server Name – Enter the any descriptive name.

- IP Address – Enter the server's IP address or host name.

Important: DNS server must be specified in the Setup>Advanced>Advanced network if you are using a host name.

- Port No. – Enter the port number used by the FTP server. The default is 21.

- Upload Path – Specify the path to the directory where the uploaded images will be stored.

Note that a directory must be created in the FTP server before using this feature.

- User Name – Enter the User ID.

- Password – Enter the Password.

3. Event Server List

- Display all of the configured servers. Click modify button to modify setting values.

Click remove button to erase the event server.

Note: A total of 3 event servers can be configured.

CONFIGURING THE NETWORK CAMERA

Advanced > Event Actions

This section describes how to configure the Network Camera for event handling. Various actions can be configured to run when certain types of event occur.

EVENT ACTIONS ?

1 Trigger/Action Type

Event Name	<input type="text"/>	Use	<input checked="" type="radio"/> Enable <input type="radio"/> Disable	Select Upload Type	
Trigger Type	<input type="text" value="Motion Detection"/>	Action Type	<input type="text" value="Upload Image"/>	<input type="text" value="FTP"/>	

2

FTP Selection

Select FTP Server

Image Upload Setting

Image frequency	<input type="text" value="1"/> fps	Image Name	<input type="text"/>
Pre-trigger buffer	<input type="text" value="0"/> seconds	Select the suffix	<input checked="" type="checkbox"/> Trigger Type <input checked="" type="checkbox"/> Date/Time
Post-trigger buffer	<input type="text" value="0"/> seconds		<input checked="" type="checkbox"/> IP Address

Schedule to respond on Trigger

Schedule Always Sun Mon Tue Wed Thu Fri Sat

Start Time End Time

3 Event List

Event	Use	Trigger Type	Action Type	Select	Configuration
<input type="button" value="Modify"/> <input type="button" value="Copy"/> <input type="button" value="Remove"/>					
<input type="button" value="Save"/> <input type="button" value="Cancel"/> <input type="button" value="initialization"/>					

1. Trigger / Action Type

Defines the trigger type or action type.

2. Action Configuration

Configures parameters of event action describing how and when the Network Camera is going to perform the certain actions.

3. Event List

Displays all of the configured actions. Click the modify button to modify the setting values. Click the remove button to erase the event action.

CONFIGURING THE NETWORK CAMERA

Prepare to configure event action

Event Servers are used for receiving uploaded image files and/or notification messages. To set up an Event server for your Network Camera, go to **Setup > Advanced > Event Server** or **Setup > Advanced > SMTP** and enter the required information according to the selected server type.

Note: When High image resolution and/or lower compression levels is used for uploading images to FTP server, SMTP server, individual images may be missing.

If this occurs, Lower image resolution and/or lower compression levels must be used for seamless uploading.

Server Type	Purpose	Information required
FTP Server	Receives uploaded images	<ul style="list-style-type: none"> - Descriptive name of your choice - User Name and Password (to FTP server) - Upload path - Port number
E-mail (SMTP)	Receives uploaded images Receives notification messages	<ul style="list-style-type: none"> - Descriptive name of your choice - User Name and Password (to SMTP server)

Variation of event action configuration

Trigger Type	Action Type	Upload Type	Consequence
Motion detection	Upload image	FTP	Upload images to FTP server
		E-mail	Upload images via E-mail.
		SD CARD	Save images or videos to SD card.
	E-mail notification	Send a notification message	
Manual Trigger	Upload image	FTP	Upload images to FTP server
		E-mail	Upload images via E-mail.
		SD CARD	Save images or videos to SD card.
	E-mail notification	Send a notification message	
Network Fail	Upload image	SD CARD	Save images or videos to SD card.
SD Card Scheduling	Upload image	SD CARD	Save videos to SD card.
Reboot	E-mail notification		Send a notification message

CONFIGURING THE NETWORK CAMERA

Action configuration for [Motion Detection + Upload Image + FTP]

EVENT ACTIONS

Trigger/Action Type

1 Event Name Use Enable Disable 2

3 Trigger Type Action Type 4

Select Upload Type 5

FTP Selection

Select FTP Server 6

Image Upload Setting

Image frequency 7 fps 10 Image Name

Pre-trigger buffe 8 seconds

Post-trigger buff 9 seconds

Select the suffix 11 Trigger Type Date/Time
 IP Address

Schedule to respond on Trigger

Schedule 12 Always Sun Mon Tue Wed Thu Fri Sat

Start Time 13 End Time 14

15

Event List

Event	Use	Trigger Type	Action Type	Select	Configuration
<input type="button" value="Modify"/> <input type="button" value="Copy"/> <input type="button" value="Remove"/>					

16

1. Enter a descriptive event name.
2. Select the enable
3. Select the trigger type to motion detection.
4. Select the action type to upload image.
5. Select the upload type to FTP.
6. Select the FTP server that will receive uploaded image files.
7. Select the image frequency. (frame per second)
8. Select the pre-trigger buffer.
9. Select the post-trigger buffer.
10. Enter a descriptive image name.
11. Select the suffix of image name.
12. Select the schedule by a day of the week.
13. Enter the start time in a 24hour format.
14. Enter the end time in a 24hour format.
15. Click the Add button to add configuration on the event list.
16. Click the Save button to save configuration.

Note: Pre-trigger buffer - A pre-trigger buffer contains images/video from the time immediately preceding the trigger. These are stored internally in the camera. This buffer can be very useful when checking to see what caused the trigger.

Post-trigger buffer - This function is the counterpart to the pre-trigger buffer described above and contains images/video from the time immediately after the trigger.

Important: Image frequency and Pre-trigger buffer can be changed depending on the settings of JPEG frame rate.

Configuring the Network Camera

Action configuration for [Motion Detection + Upload Image + E-mail]

The screenshot shows the 'EVENT ACTIONS' configuration interface. It is divided into several sections:

- Trigger/Action Type:** Contains fields for Event Name (1), Use (radio buttons for Enable/Disable, 2), Trigger Type (Motion Detection, 3), Action Type (Upload Image, 4), and Select Upload Type (E-mail, 5).
- E-MAIL Selection:** Contains fields for Send To (E-mail) (6), Subject (7), Message (8), and Images per email (9).
- Image Upload Setting:** Contains fields for Image frequency (10), Pre-trigger buffer (11), Post-trigger buffer (12), Image Name (13), and a 'Select the suffix' section with checkboxes for Trigger Type, Date/Time, and IP Address (14).
- Schedule to respond on Trigger:** Contains a 'Schedule' section with radio buttons for Always, Sun, Mon, Tue, Wed, Thu, Fri, Sat (15), and 'Start Time' (16) and 'End Time' (17) fields. It also has 'Add' (18) and 'Reset' buttons.
- Event List:** A table with columns: Event, Use, Trigger Type, Action Type, Select, and Configuration. Below the table are 'Modify', 'Copy', and 'Remove' buttons. At the bottom are 'Save' (19), 'Cancel', and 'Initialization' buttons.

1. Enter a descriptive event name.
2. Select the enable.
3. Select the trigger type to **motion detection**.
4. Select the action type to upload image.
5. Select the upload type to E-mail.
6. Enter the E-mail address which receives image files.
7. Enter a descriptive subject.
8. Enter a descriptive message.
9. Select the number of images.
10. Select the image frequency. (frame per second)
11. Select the pre-trigger buffer.
12. Select the post-trigger buffer.
13. Enter a descriptive image name.
14. Select the suffix of image name.
15. Select the schedule by a day of the week.
16. Enter the start time in a 24hour format.
17. Enter the end time in a 24hour format.
18. Click the Add button to add configuration on the event list.
19. Click the Save button to save configuration.

Note: Pre-trigger buffer - A pre-trigger buffer contains images/video from the time immediately preceding the trigger. These are stored internally in the camera. This buffer can be very useful when checking to see what caused the trigger.

Post-trigger buffer - This function is the counterpart to the pre-trigger buffer described above and contains images/video from the time immediately after the trigger.

Important: Image frequency and Pre-trigger buffer can be changed depending on the settings of JPEG frame rate.

CONFIGURING THE NETWORK CAMERA

Action configuration for [Motion Detection + Upload Image + SD Card]

EVENT ACTIONS
?

Trigger/Action Type

Event Name <input style="width: 80%;" type="text"/>	Use <input checked="" type="radio"/> Enable <input type="radio"/> Disable	Select Upload Type
Trigger Type Motion Detection	Action Type Upload Image	SD CARD

SD CARD Selection

Select File Format JPEG	Rec Stream Stream 1
--	--

Image Upload Setting

Image frequency 1 fps	Image Name <input style="width: 80%;" type="text"/>
Pre-trigger buffer 0 seconds	Select the suffix <input checked="" type="checkbox"/> Trigger Type <input checked="" type="checkbox"/> Date/Time
Post-trigger buffer 0 seconds	

Schedule to respond on Trigger

Schedule <input checked="" type="checkbox"/> Always <input type="checkbox"/> Sun <input type="checkbox"/> Mon <input type="checkbox"/> Tue <input type="checkbox"/> Wed <input type="checkbox"/> Thu <input type="checkbox"/> Fri <input type="checkbox"/> Sat	
Start Time <input style="width: 80%;" type="text"/>	End Time <input style="width: 80%;" type="text"/>

Event List

Event	Use	Trigger Type	Action Type	Select	Configuration
<div style="display: flex; justify-content: center; gap: 10px;"> <input type="button" value="Modify"/> <input type="button" value="Copy"/> <input type="button" value="Remove"/> </div>					

CONFIGURING THE NETWORK CAMERA

1. Enter a descriptive event name.
2. Select the enable.
3. Select the trigger type to motion detection.
4. Select the action type to upload image.
5. Select the upload type to SD Card.
6. Select the recording file format.
7. Rec. Stream - The stream which stored to SD CARD.
**Note: Only H.264 stream can be selected when File Format is AVI.
Only MJPEG stream can be selected when File Format is JPEG.**
8. Select the image frequency.(frame per second)
Note: When select the AVI file format image frequency will be disabled.
9. Select the pre-trigger buffer.
10. Select the post-trigger buffer.
11. Enter a descriptive image name.
12. Select the suffix of image name.
13. Select the schedule by a day of the week.
14. Enter the start time in a 24hour format.
15. Enter the end time in a 24hour format.
16. Click the Add button to add configuration on the event list.
17. Click the Save button to save configuration.

Note:

Pre-trigger buffer - A pre-trigger buffer contains images / video from the immediately preceding the trigger.

These are stored internally in the camera. This buffer can be very useful when checking to see what caused the trigger.

Post-trigger buffer - This function is the counterpart to the pre-trigger buffer described above and contains image / video from the time immediately after the trigger.

Important: Image frequency and pre-trigger buffer can be changed depending on the settings of JPEG frame rate.

CONFIGURING THE NETWORK CAMERA

Action configuration for [Motion Detection + E-mail Notification]

EVENT ACTIONS ?

Trigger/Action Type

Event Name

Trigger Type

Use Enable Disable

Action Type

E-mail Notification

Send To (E-mail)

Subject

Message

Schedule to respond on Trigger

Schedule Always Sun Mon Tue Wed Thu Fri Sat

Start Time End Time

Event List

Event	Use	Trigger Type	Action Type	Select	Configuration

1. Enter a descriptive event name.
2. Select the enable.
3. Select the trigger type to motion detection.
4. Select the action type to e-mail notification.
5. Enter the e-mail address which receives notification.
6. Enter a descriptive subject.
7. Enter a descriptive message.
8. Select the schedule by a day of the week.
9. Enter the start time in a 24 hour format.
10. Enter the end time in a 24 hour format.
11. Click the Add button to add configuration on the event list.
12. Click the Save button to save configuration.

CONFIGURING THE NETWORK CAMERA

Action configuration for [Manual Trigger + Upload Image + FTP]

1. Enter a descriptive event name.
2. Select the enable.
3. Select the trigger type to manual trigger.
4. Select the action type to upload image.
5. Select the upload type to FTP.
6. Select the FTP server that receives uploaded image files.
7. Select the image frequency. (frame per second)
8. Select the pre-trigger buffer.
9. Select the post-trigger buffer.
10. Enter a descriptive image name.
11. Select the suffix of image name.
12. Select the schedule by a day of the week.
13. Enter the start time in a 24hour format.
14. Enter the end time in a 24hour format.
15. Click the Add button to add configuration on the event list.
16. Click the Save button to save configuration.

Note: Pre-trigger buffer - A pre-trigger buffer contains images/video from the time immediately preceding the trigger. These are stored internally in the camera. This buffer can be very useful when checking to see what caused the trigger.

Post-trigger buffer - This function is the counterpart to the pre-trigger buffer described above and contains images/video from the time immediately after the trigger.

Important: Image frequency and pre-trigger buffer can be changed depending on the settings of JPEG frame rate.

CONFIGURING THE NETWORK CAMERA

Action configuration for [Manual Trigger + Upload Image + E-mail]

EVENT ACTIONS

Trigger/Action Type

Event Name

Use Enable Disable

Trigger Type

Action Type

Select Upload Type

E-MAIL Selection

Send To (E-mail)

Subject

Message

Images per email

Image Upload Setting

Image frequency fps

Image Name

Pre-trigger buffer seconds

Post-trigger buffer seconds

Select the suffix Trigger Type Date/Time IP Address

Schedule to respond on Trigger

Schedule Always Sun Mon Tue Wed Thu Fri Sat

Start Time

End Time

Event List

Event	Use	Trigger Type	Action Type	Select	Configuration
<input type="button" value="Modify"/> <input type="button" value="Copy"/> <input type="button" value="Remove"/>					

1. Enter a descriptive event name.
2. Select the enable.
3. Select the trigger type to manual trigger.
4. Select the action type to upload image.
5. Select the upload type to E-mail.
6. Enter the e-mail address which receives image files.
7. Enter a descriptive subject.
8. Enter a descriptive message.
9. Select the number of images.
10. Select the image frequency. (frame per second)
11. Select pre-trigger buffer.
12. Select post-trigger buffer.
13. Enter a descriptive image name.
14. Select the suffix of image name.
15. Select the schedule by a day of the week.
16. Enter the start time in a 24hour format.
17. Enter the end time in a 24hour format.
18. Click the Add button to add configuration on the event list.
19. Click the Save button to save configuration.

Note: Pre-trigger buffer - A pre-trigger buffer contains images/video from the time immediately preceding the trigger. These are stored internally in the camera. This buffer can be very useful when checking to see what caused the trigger.

Post-trigger buffer - This function is the counterpart to the pre-trigger buffer described above and contains images/video from the time immediately after the trigger.

Important: Image frequency and pre-trigger buffer can be changed depending on the settings of JPEG frame rate.

CONFIGURING THE NETWORK CAMERA

Action configuration for [Manual Trigger + Upload Image + SD Card]

EVENT ACTIONS

Trigger/Action Type

Event Name

Use Enable Disable

Trigger Type

Action Type

Select Upload Type

SD CARD Selection

Select File Format

Rec Stream

Image Upload Setting

Image frequency fps

Pre-trigger buffer seconds

Post-trigger buffer seconds

Image Name

Select the suffix Trigger Type Date/Time
 IP Address

Schedule to respond on Trigger

Schedule Always Sun Mon Tue Wed Thu Fri Sat

Start Time

End Time

Event List

Event	Use	Trigger Type	Action Type	Select	Configuration
<input type="button" value="Modify"/> <input type="button" value="Copy"/> <input type="button" value="Remove"/>					
<input type="button" value="Save"/> <input type="button" value="Cancel"/> <input type="button" value="Initialization"/>					

1. Enter a descriptive event name.
2. Select the enable.
3. Select the trigger type to Manual Trigger.
4. Select the action typ to upload image.
5. Select the upload type to SD Card.
6. Select the recording file format.
7. Rec. Stream - The stream which stored to SD Card.
 Note: Only H.264 stream can be selected when File Format is AVI.
 Only MJPEG stream can be selected when File Format is JPEG.
8. Select the image frequency. (frame per second)
 Note: When selet the AVI file format image frequency will be disabled.
9. Select the pre-trigger buffer.
10. Select the post-trigger buffer.
11. Enter a descriptive image name.
12. Select the suffix of image name.
13. Select the schedule by a day of the week.
14. Enter the start time in a 24hour format.
15. Enter the end time in a 24hour format.
16. Click the Add button to add configuration on the event list.
17. Click the Save button to save configuration.

Note: Pre-trigger buffer - A pre-trigger buffer contains images/video from the time immediately preceding the trigger. These are stored internally in the camera. This buffer can be very useful when checking to see what caused the trigger.

Post-trigger buffer - This function is the counterpart to the pre-trigger buffer described above and contains images/video from the time immediately after the trigger.

Important: Image frequency and pre-trigger buffer can be changed depending on the settings of JPEG frame rate.

CONFIGURING THE NETWORK CAMERA

Action configuration for [Manual Trigger + E-mail Notification]

EVENT ACTIONS ?

Trigger/Action Type

Event Name Use Enable Disable

Trigger Type Action Type

E-mail Notification

Send To (E-mail) Subject

Message

Schedule to respond on Trigger

Schedule Always Sun Mon Tue Wed Thu Fri Sat

Start Time End Time

Event List

Event	Use	Trigger Type	Action Type	Select	Configuration
<input type="button" value="Modify"/> <input type="button" value="Copy"/> <input type="button" value="Remove"/>					

1. Enter a descriptive event name.
2. Select the enable.
3. Select the trigger type to manual trigger.
4. Select the action type to e-mail notification.
5. Enter the e-mail address which receives notification.
6. Enter a descriptive subject.
7. Enter a descriptive message.
8. Select the schedule by a day of the week.
9. Enter the start time in a 24 hour format.
10. Enter the end time in a 24 hour format.
11. Click the Add button to add configuration on the event list.
12. Click the Save button to save configuration.

CONFIGURING THE NETWORK CAMERA

Action configuration for [Network Fail + Upload Image + SD Card]

EVENT ACTIONS ?

Trigger/Action Type

Event Name Use Enable Disable

Trigger Type Action Type Select Upload Type

SD CARD Selection

Select File Format Rec Stream

Image Upload Setting

Image frequency fps Image Name

Pre-trigger buffer seconds Select the suffix Trigger Type Date/Time

Post-trigger buffer seconds IP Address

Schedule to respond on Trigger

Schedule Always Sun Mon Tue Wed Thu Fri Sat

Start Time End Time

Event List

Event	Use	Trigger Type	Action Type	Select	Configuration

1. Enter a descriptive event name.
2. Select the enable.
3. Select the trigger type to network fail.
4. Select the action type to upload image.
5. Select the upload type to SD Card.
6. Select the recording file format.
7. Rec Stream - The stream which stored to SD Card.
 Note: Only H.264 stream can be selected when File Format is AVI.
 Only MJPEG stream can be selected when File Format is JPEG.
8. Select the image frequency. (frame per second)
 Note: When the AVI file format is selected, the image frequency will be disabled.
9. Select the pre - trigger buffer.
10. Select the post - trigger buffer.
11. Enter a descriptive image name.
12. Select the suffix of image name.
13. Select the schedule by a day of the week.
14. Enter the start time in a 24hour format.
15. Enter the end time in a 24hour format.
16. Click the Add button to add configuration on the event list.
17. Click the Save button to save configuration.

Note: **Pre-trigger buffer** - A pre-trigger buffer contains images / video from the immediately preceding the trigger.

These are stored internally in the camera. This buffer can be very useful when checking to see what caused the trigger.

Post-trigger buffer - This function is the counterpart to the pre-trigger buffer described above and contains image / video from the time immediately after the trigger.

Important: Image frequency and pre-trigger buffer can be changed depending on the settings of JPEG frame rate.

CONFIGURING THE NETWORK CAMERA

Action configuration for [SD Card Scheduling]

Note: The avi file is continuously saved as 1 minute files.

EVENT ACTIONS ?

Trigger/Action Type

Event Name: Use: Enable Disable

Trigger Type: 1 2

AVI file Upload Setting

AVI File Name: 3 Select the suffix: Trigger Type Date/Time IP Address 5

Rec Stream: 4

SD CARD Scheduling List Setup

Index: 6 Use: 7

Schedule to respond on Trigger

Schedule: Always Sun Mon Tue Wed Thu Fri Sat 8

Start Time: 9 End Time: 10

11

Event List

Event	Use	Trigger Type	Action Type	Select	Configuration
<input type="button" value="Modify"/> <input type="button" value="Copy"/> <input type="button" value="Remove"/>					

12

1. Select the trigger type to sd card scheduling.
2. Select the enable.
3. Enter the avi name.
4. Rec Stream - The stream which stored to SD Card.
5. Select the suffix of the image name.
6. Select the SD Card scheduling list setup index.
7. Select use.
8. Select the schedule by a day of the week.
9. Enter the start time in a 24hour format.
10. Enter the end time in a 24hour format.
11. Click the Add button to add configuration on the event list.
12. Click the Save button to save configuration.

CONFIGURING THE NETWORK CAMERA

Action configuration for [Reboot]

EVENT ACTIONS ?

Trigger/Action Type

Event Name Use Enable Disable

Trigger Type Action Type

E-mail Notification

Send To (E-mail) Subject

Message

Schedule to respond on Trigger

Schedule Always Sun Mon Tue Wed Thu Fri Sat

Start Time End Time

Event List

Event	Use	Trigger Type	Action Type	Select	Configuration
<input type="button" value="Modify"/> <input type="button" value="Copy"/> <input type="button" value="Remove"/>					

1. Enter a descriptive event name.
2. Select the enable.
3. Select the trigger type to reboot.
Note: Action type is pre-selected to e-mail notification.
4. Enter the e-mail address which receives notification.
5. Enter a descriptive subject.
6. Enter a descriptive message.
7. Select the schedule by a day of the week.
8. Enter the start time in a 24 hour format.
9. Enter the end time in a 24 hour format.
10. Click the Add button to add configuration on the event list.
11. Click the Save button to save configuration.

CONFIGURING THE NETWORK CAMERA

Advanced > Motion Settings

MOTION DETECTION
?

1 Motion Detection Area



2 Motion Detection Setting

Motion Detection Setup

Window Name	Threshold	Sensitivity	Idle Time	
<input type="text"/>	20 % (Default) ▼	50 % (Default) ▼	1 sec (Default) ▼	Add

Motion Detection List

Window Name	Threshold	Sensitivity	Idle Time	Modify / Remove
motion1	20%	50%	1	Modify / Remove

1. Motion Detection Area

A. This screen displays the live video image and users can configure the motion detection field as desired on the screen.

2. Motion Detection Setting

A. Motion Detection Setup – Creates Motion Detection field. Enter the name of the Motion Detection field, threshold, sensitivity and idle time. Click the add button to create the new field.

B. Motion Detection List – Display all of the Motion Detection fields. Click the modify button to modify setting values. Click the remove button to erase the Motion Detection field.

Note: A total of 5 motion fields can be configured.

CONFIGURING THE NETWORK CAMERA

Configuration of motion detection

MOTION DETECTION

Motion Detection Area

Motion Detection Setting

Motion Detection Setup

Window Name	Threshold	Sensitivity	Idle Time	
1	2 20 %(Default)	3 50 %(Default)	4 sec(Default)	5 Add

Motion Detection List

Window Name	Threshold	Sensitivity	Idle Time	Modify / Remove
motion1	20%	50%	1	Modify / Remove

9 Save Cancel initialization

1. Enter a descriptive window name.
2. Select the Threshold Value.
 Note: Higher level – Only very large objects trigger motion detection.
 Lower level – Even small objects trigger motion detection.
 (Default values: 20%)
3. Select Sensitivity.
 Note: Higher level – Higher sensitivity for object movement.
 Lower level – Lower sensitivity for object movement.
 (Default values: 50%)
4. Select Idle Time.
 Note: Set the idle time to avoid continued event triggering by motion detection. Event will not be triggered again during this period of time.
5. Click the add button to create a new Motion Detection window.
6. Display the name of Motion Detection window.
7. Click the center of the window and drag to the desired position.
8. Drag the bottom right-hand corner to adjust the window size.
9. Click the save button to save configuration.

Examples:

- A. Avoid triggering on small objects in the video image by setting the Object Size level to high.
- B. To reduce the number of triggers when there are a lot of movements during a short period of time, select a high Idle Time level.
- C. To only detect flashing light, low Sensitivity should be selected. In other cases, a high Sensitivity level is recommended.

CONFIGURING THE NETWORK CAMERA

Advanced > SMTP

This section describes how to configure the SMTP server.

The screenshot shows the SMTP configuration interface. At the top, there is a header 'SMTP' with a help icon on the right. Below the header, a red circle with the number '1' points to the 'SMTP Server' section. The form contains the following fields and controls:

- Server Name**: A text input field.
- Use the following type of encrypted connection**: A dropdown menu with 'None' selected.
- Server Port**: A text input field.
- User Name**: A text input field.
- Password**: A text input field.

At the bottom of the form, there are three buttons: 'Save', 'Cancel', and 'initialization'.

1. SMTP Server

A. Server Name – Enter the SMTP server's Network address or host name.

Important: A DNS server must be specified in the Setup>Advanced>Advanced network if you are using a host name.

B. Use the following type of encrypted connection: Select the SSL option.

C. User Name – Enter the user account which is registered with the SMTP server.

D. Password – Enter the user password.

Note: If your mail server does not require authentication, you don't need to enter the user name and password.

CONFIGURING THE NETWORK CAMERA

Advanced > Advanced Network

This section describes the advanced network settings.

The screenshot shows the 'ADVANCED NETWORK' configuration interface. It is divided into ten numbered sections:

- Host Name Setting:** Host Name: iPCamera
- DNS Setting:** Primary DNS: 0.0.0.0, Secondary DNS: 0.0.0.0
- NTP Setting:** NTP IP Address: pool.ntp.org
- HTTP:** HTTP Port: 80
- HTTPS:** HTTPS Port: 443
- RTSP:** RTSP port: 554
- Onvif Security:** Enable Onvif Security
- UPNP:** Enable UPNP
- DDNS Service:** Enable, Host Name: .optinet.co.kr
- DDNS Service Status:** Registered Host Name, DDNS Service Status

At the bottom of the page are 'Save' and 'Cancel' buttons.

1. Host Name Setting

- A. Host Name – The Network Camera can be accessed using a host name instead of an IP address. The host name is usually the same as the assigned DNS name. It is always the first part of a fully qualified domain name and is always one word, with no period.

2. DNS Setting

- A. Primary DNS - Enter the IP address of the primary DNS server. This server provides the translation of host names to the IP addresses on your network.
- B. Secondary DNS - Specify the IP address of the secondary DNS server.
This will be used if the primary DNS server is unavailable.

Note: When setting up the Network Camera to use DHCP servers for obtaining network settings, the Network Camera will automatically look up and use the DNS server settings as provided by DHCP.

CONFIGURING THE NETWORK CAMERA

3. NTP Setting

A. NTP IP Address – Enter the NTP server's IP address or host name.

Important: The DNS server must be specified if you are using a host name.

4. HTTP

A. HTTP Port – Enter the HTTP port the Network Camera will use. The default port is 80. Alternatively, any port in the range 1024-65535 may be used, but check first with your system administrator before changing the default setting.

5. HTTPS

A. HTTPS Port – Enter the HTTPS port the Network Camera will use. The default port is 443. Alternatively, any port in the range 1024-65535 may be used, but check first with your system administrator before changing the default setting.

6. RTSP

A. RTSP Port – Enter the RTSP port number the Network Camera will use. The default port is 554.

7. Onvif Security

Onvif message certification check.

8. UPNP

A. Enable UPNP - Check this box to enable UPNP.

9. DDNS Service

A. Enable – Check this box to enable DDNS service.

B. Host Name – Enter the host name which you want to use for DDNS service.

10. DDNS Service Status

A. Displays the DDNS service's status in your IP product.

CONFIGURING THE NETWORK CAMERA

Advanced > HTTPS

This section describes the HTTPS settings. HTTPS provides encryption and secure identification of the server over an insecure network.

1. Create

- A. Country – Enter a 2 letter code name of the country where the certificate will be used.
- B. State or province – Enter the name of the local administrative region where the certificate will be used.
- C. Locality – Enter any other geographical information of the place where the certificate will be used.
- D. Organization – Enter the name of the organization to which the entity identified in the 'Common Name' belongs to.
- E. Organizational Unit – Enter the name of the organizational unit or a department to which the entity identified in the 'Common Name' belongs to.
- F. Common Name – Enter the name of a person or an entity that the certificate identifies with.
- G. Validity – Enter the number of days for which the certificate is valid, used in the case of self-signed certificate only.
- H. Create self-signed certificate – Clicking this button after filling all the above details creates a self-signed certificate.
- I. Create certificate request – Clicking this button after filling all the above details except for Validity (validity is used only for a self signed certificate) creates a certificate request which is in the form of PEM formatted data.
- J. Created Certificate Request – Shows the details of the certificate request currently present in the server.
 - Remove – Removes an already existing certificate.
 - View – Shows the PEM formatted certificate request.
- K. Installed Certificate – Shows the details of the self signed certificate.
 - Remove – Removes an already existing certificate.

2. Install signed certificate

- A. Certificate – The certificate is installed by browsing to the location of the certificate and then clicking Install.

Note: Only one certificate can be installed at a time. To install a new certificate any existing certificate should be removed first.

CONFIGURING THE NETWORK CAMERA

Advanced > RTP

This section describes the RTP settings. The RTP settings manage the IP addresses and port numbers to use for video streams.

RTP ?

Port Range 1

Start Port	<input style="width: 80%;" type="text" value="6970"/>	[1024..65535]
End Port	<input style="width: 80%;" type="text" value="65535"/>	[1025..65535]

Multicast 2

IP Address	<input style="width: 100%;" type="text" value="224.10.10.10"/>	
Port	<input style="width: 80%;" type="text" value="7970"/>	[0, 1024, .., 65532; even values only]
Time to live	<input style="width: 80%;" type="text" value="1"/>	[1..255]

1. Port Range

A. The RTP port range defines the range of ports that the video streams will automatically use. Limit the range of ports permitted for RTP unicast or multicast by entering the Start port and End port in the provided fields with the value between 1024 and 65535.

2. Multicast

- A. IP Address – Enter the IP address that the Network Camera will use for multicast. Multicast IP address has to be specified in the range 224.xxx.xxx.xxx-239.xxx.xxx.xxx.
- B. Port – Enter the multicast port the Network Camera will use for multicast. The multicast port can be adjusted in the range 1024-65534 but it has to be even values. If the multicast port is 0, the Network Camera will assign the multicast port automatically.
- C. Time to Live – If IP packets (i.e. data) fail to get delivered to their destination within a reasonable length of time (which could be for various reasons), this setting will tell network routers when to discard the packet.
The value is usually measured in 'hops', i.e. the number of network routers that can be passed before the packet arrives at its destination or drops in the middle.

CONFIGURING THE NETWORK CAMERA

Advanced > Mask

This section describes how to configure privacy mask.

1 Privacy Mask Area

2 Privacy Mask Setting

Setup Mask

Window Name	Use	Setting
<input type="text"/>	<input type="checkbox"/>	<input type="button" value="Add"/>

Mask List

Window Name	Use	Modify / Remove
<input type="text"/>	<input type="checkbox"/>	<input type="button" value="Modify"/>

1. Privacy Mask Area

A. This screen displays the live video image and user can configure a Privacy Mask window as desired on the screen.

2. Privacy Mask Setting

A. Setup Mask – Creates Privacy Mask window. Enter the name of the Privacy Mask window, enable the check box for use then click the add button to create a new window.

B. Mask List – Display all of the Privacy Mask windows. Click the modify button to modify setting values.

Click the remove button to erase the Privacy Mask window.

Note: A total of 5 Privacy Mask window can be configured.

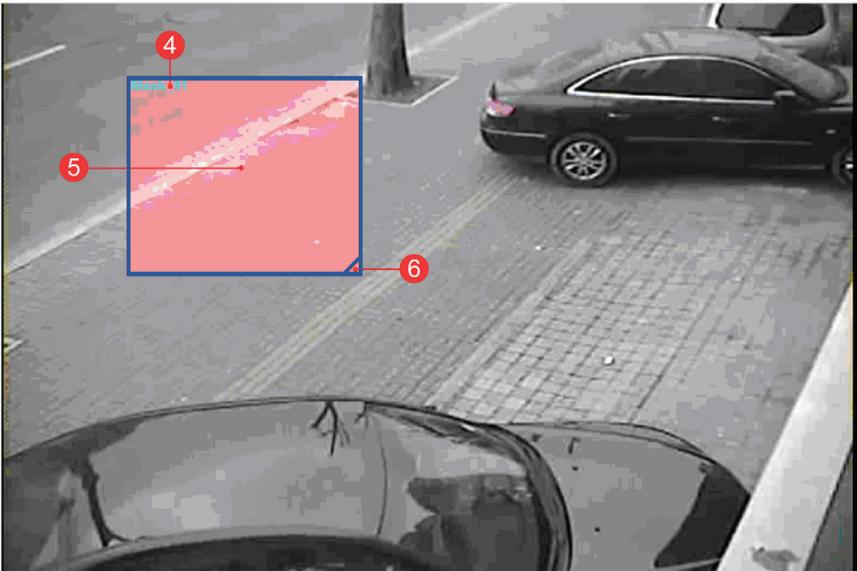
CONFIGURING THE NETWORK CAMERA

Configuration of privacy mask

Create a Privacy Mask window with the following steps as shown below.

MASK ?

Privacy Mask Area



Privacy Mask Setting

Setup Mask

Window Name	Use	Modify / Remove
1 <input style="width: 80%;" type="text"/>	2 <input type="checkbox"/>	3 <input type="button" value="Add"/>

Mask List

Window Name	Use	Modify / Remove
Mask_01	Y	<input type="button" value="Modify"/> / <input type="button" value="Remove"/>

7

1. Enter a descriptive window name.
2. Check the check box for use.
3. Click the add button to create the new Privacy Mask window.
4. Displays the name of Privacy Mask window.
5. Click the center of the window and drag to the desired position.
6. Drag the bottom right-hand corner to adjust the window size.
7. Click the save button to save the configuration.

CONFIGURING THE NETWORK CAMERA

Advanced > Live View Layout

This section describes the settings of the live view layout.

LIVE VIEW LAYOUT ?

1 Display Control in the Live view

- Display Snapshot button and Recording button
- Display Manual Trigger button

2 User Defined Web Links

<input type="checkbox"/> Display Custom Link1	Name <input type="text"/>	URL <input type="text" value="http://"/>
<input type="checkbox"/> Display Custom Link2	Name <input type="text"/>	URL <input type="text" value="http://"/>
<input type="checkbox"/> Display Custom Link3	Name <input type="text"/>	URL <input type="text" value="http://"/>
<input type="checkbox"/> Display Custom Link4	Name <input type="text"/>	URL <input type="text" value="http://"/>
<input type="checkbox"/> Display Custom Link5	Name <input type="text"/>	URL <input type="text" value="http://"/>

Save

Cancel

1. Display Control in the Live View

- The live view page can be customized as desired. To enable the control buttons, check the preferred check box.
- In case of Manual alarm button, users can select pulse or active/inactive mode.

2. User Defined Web Links

- Displays the web link specified by the user in the live view page.

CONFIGURING THE NETWORK CAMERA

Advanced > IP Address Filter

This section describes how to deny access to the Network Camera from a specific IP address.

IP ADDRESS FILTER ?

Security Function 1

Enable IP address filter
 Deny
 Allow

IP Filter 2

Add IP Filter

Starting IP Address	Ending IP Address	
<input style="width: 95%;" type="text"/>	<input style="width: 95%;" type="text"/>	<input type="button" value="Add"/>

IP Filter List

Starting IP Address	Ending IP Address	Modify / Remove

1. Security Function: Deny

A. Enable IP address filter – Checking this option will allow the user to either deny or allow access to the ip address in the list, which can be controlled by clicking on Deny or Allow option.

2. IP Filter

- A. Add IP Filter – Enter the IP address that you want to reject. The IP address can be entered by range.
 B. IP Filter List – Displays all of the denied IP address. Click the modify button to modify setting values. Click the remove button to erase the IP address.

CONFIGURING THE NETWORK CAMERA

Advanced > SD CARD

This section describes how to manage SD Cards and search for recorded files.

The screenshot shows the 'SD CARD' configuration page. It is divided into four numbered sections:

- 1. Information:** Shows 'Capacity : 0 MB' and 'Usage : 0 %'.
- 2. Command:** Contains 'Format' (Format to SD CARD) and 'Unmount' (Unmount to SD CARD) buttons.
- 3. Setting:** Includes 'Overwrite' (radio buttons for Enable and Disable, with Disable selected), 'FTP Upload' (radio buttons for Enable and Disable, with Disable selected), and a 'Select FTP Server' dropdown menu (Server 1).
- 4. Search Recording Files:** Includes checkboxes for 'Trigger type' (All, SD Scheduling, Motion Detection, Sensor In, Manual Trigger, Network Fail) and 'Day of Week' (All, Sun, Mon, Tue, Wed, Thu, Fri, Sat). It also has radio buttons for 'Date' (All, a Week, a Month, a Year, Specify) and input fields for 'Start Date' (2014-11-13), 'Start Time' (00:00:00), 'End Date' (2014-11-13), and 'End Time' (23:59:59).

1. Information

- A. Capacity - If shows the total capacity of the SD Card.
- B. Usage - If shows a usage percentage of the SD Card.

Note: When the overwrite setting is configured to disable, image can't be saved if the available storage size is less than 8 megabytes.

2. Command

- A. Format - Click the Format button to initialize the SD Card.
- B. Unmount - Click the Unmount button before removing the SD Card from the Network Camera.

Caution: This feature will erase all recorded files permanently.
Caution: User must follow this procedure prior to removing the SD Card in order to prevent damage to the recorded files.

3. Setting

- A. Overwrite - In the event of reaching memory capacity, recorded files will be erased chronically in order to records new events.
- B. FTP Upload - Recorded files in SD card feeds via FTP.

4. Search Recording Files

You can search through the recorded files.
 Also the recorded files can be downloaded or deleted

Note: We recommend the VLC Media Player for playing recorded files.
 (<http://www.videolan.org/vlc/>)

CONFIGURING THE NETWORK CAMERA

Maintenance > Initialize & Upgrade

This section describes how to reset the Network Camera and upgrade the firmware.

The screenshot shows the 'INITIALIZE AND UPGRADE' page in the Network Camera web interface. On the left, there is a navigation menu with 'SETUP', 'MAINTENANCE', and 'SUPPORT'. Under 'MAINTENANCE', 'Initialize & Upgrade' is selected. The main content area is titled 'INITIALIZE AND UPGRADE' and is divided into three sections:

- 1 Initialize:** Contains three buttons: 'Reboot' (Reboot the IP camera), 'Restore' (Resets all parameters, except the IP parameters, to the original factory settings), and 'Factory Default' (Resets all parameters to the original factory settings).
- 2 Backup, Restore:** Contains a 'Backup' button (Save all parameters to a backup file). Below it, there is a text input field for 'Specify the backup file to use:', a 'Browse...' button, and an 'Restore' button.
- 3 Upgrade:** Contains a text input field for 'Specify the firmware to upgrade:', a 'Browse...' button, and an 'Upgrade' button.

1. Initialize

- Reboot – Reboot the Network Camera.
- Restore – Reset all setting values, except network setting values.
- Factory Default – Reset all setting values to the original factory settings.

Important: The Default button should be used with caution. Pressing this will return all settings to the factory default values, which also means that the IP address will need to be set again to make the unit accessible.

2. Backup, Restore

- Backup – Click the backup button to make a backup of all of the setting values in the Network Camera.
- Restore – If it is necessary to restore the camera to previous backed up settings, click the browse button to locate the saved backup file and then click the restore button.

3. Upgrade

Upgrade – To upgrade the firmware for the Network Camera, click the browse button to find the firmware file and then click the upgrade button.

CONFIGURING THE NETWORK CAMERA

Maintenance > Logs

This section describes the system logs.

The screenshot shows the 'LOGS' section of the Network Camera web interface. The left sidebar has 'MAINTENANCE' selected, with a red circle and '1' next to it. The main area shows 'System Logs' with a table of log entries and navigation buttons.

Number	Date and Time	Events
1	1970-01-20 16:19:28	admin login
2	1970-01-20 16:19:35	ALARM_EVENT_ALARMIN_TRIG
3	1970-01-20 16:19:45	ALARM_EVENT_ALARMIN_TRIG
4	1970-01-20 16:19:53	ALARM_EVENT_ALARMIN_TRIG
5	1970-01-20 16:20:04	ALARM_EVENT_ALARMIN_TRIG
6	1970-01-20 16:20:12	ALARM_EVENT_ALARMIN_TRIG
7	1970-01-20 16:20:29	ALARM_EVENT_ALARMIN_TRIG
8	1970-01-20 16:20:55	admin login
9	1970-01-20 16:21:15	admin login
10	1970-01-20 16:21:22	admin login
11	1970-01-20 16:21:27	admin login
12	1970-01-20 16:21:50	admin login
13	1970-01-20 16:21:55	admin login

1. System Logs

The Network Camera records when a particular event occurs in the log record.

- A. First Page – Go to the first page of the log record.
- B. Previous Page – Go to the previous page of the log record.
- C. Next Page – Go to the next page of the log record.
- D. Remove Logs – Remove all of the log record.

CONFIGURING THE NETWORK CAMERA

Support > System / Help

This section describes the system information and help menu.

SYSTEM ?

System Information

Model Number	IPCamera (SDCARD)
IP Address	192.168.0.123 - Static
Firmware Version	IPCamera.1.1.9 (2015-06-19 10:50:08)
Serial Number	
Mac Address	00-15-dd-06-22-30

HELP

Guide For Troubleshooting

Guide Please use the troubleshooting guide when you have problems.

Server Information for Repair

Information Display the latest data of the software activity of the camera

1. System Information

Displays the system information of the Network Camera.

2. Guide for Troubleshooting

If you suspect a problem is being caused by incorrect configuration or some other minor problem, consult the troubleshooting guide.

3. Server Information for Repair

It would be helpful when you contacting your support channel with this report.

PRODUCT SPECIFICATIONS

ITEM		DESCRIPTION
Image Device		1/2.8" SONY 2.43M Progressive Scan CMOS
Lens		f=3.7mm (3MP) / f=4.3mm (3MP) / f=6mm (3MP) / f=8mm (1.3MP) / f=4.3mmP4 (1.3MP)
Day/Night		Electronic D/N
Minimum Illumination		0.2 Lux (F2.0, DSS Off) / 0.05 Lux (DSS On)
Shutter Speed		1/25 s - 1/8,000 s
IR LED		-
IR Distance		-
Video	Video Codec	H.264 Main Profile Motion JPEG
	Resolutions (H.264/MJPEG)	H.264: Max. (1920x1080)@30fps H.264: Min. (320x240)@5fps MJPEG: Max. (1920x1080)@30fps MJPEG: Min. (320x240)@5fps
	Video Streaming	4 Channel Stream at different frame rate and bandwidth
	Image Settings	Brightness, Contrast, Saturation, Sharpness, White Balance, Exposure Control, Rotation of Images, Text and Image Overlay, Privacy Masking (5 Zones), BLC, AGC, D-WDR, 3D DNR, DSS (Slow Shutter mode)
Audio / Micro-SD	Audio Codec	-
	Audio I/O	-
	Micro-SD/SDHC	Max. 32 GB (Built-in Card Slot)
Network	Security	Multiple user access levels with password protection, HTTPS (SSL) IP address filtering: Deny, Allow
	Supported Protocols	IPv4, HTTP, HTTPS, TCP, RTSP, RTP, UDP, IGMP, RTCP, SMTP, FTP, ICMP, DHCP, ARP, DNS, DDNS, UPnP
System Integration	API	Onvif Profile S Open API for software integration, including API, SDK
	Intelligent Video	Video motion detection (5 Zones)
	Alarm Triggers	Intelligent video, Network Fail, SD card scheduling, Reboot, Manual Triggers
	Alarm Events	JPEG image upload via FTP & Email (SSL), Notification via E-mail, Recording AVI or JPEG using Micro-SD
Web Viewer		Video format change Stream play / stop Snapshot Instant recording (Max 5. minutes) Manual Trigger Screen magnification Full screen
General	Processors and Memory	CPU : ARM 1136-S RAM : 256 MB Flash : 256 MB Real-time clock with backup battery
	Power	PoE Class 3 (IEEE 802.3af), 12VDC Max. 220 mA
	Interfaces	RJ-45 for Ethernet 10baseT/100baseTX with PoE Power Input: 12VDC BNC for Service Video Micro-SD card socket, Status LED
	Operating Conditions	Temperature: - 10°C ~ +50°C (14°F ~ 122°) Humidity Max. 80% RH (non-condensing)
	Storage Conditions	Temperature: - 20°C ~ +60°C (-4°F ~ 140°) Humidity Max. 90% RH (non-condensing)
	Conformity	CE, FCC
	IP Rating	IP67 (Waterproof Type)
	Dimension	Ø23 (Ø0.91") x 101.2 (3.98")
	Weight	Approx. 118 g (0.26 lbs)
	Accessories	Installation Guide, Manual CD, Mounting Bracket

TROUBLESHOOTING

This section describes the symptoms, possible causes and corrective actions.

Symptoms		Remedial Actions
Problems with IP address setting	The Network Camera is located on a different subnet.	If the Network Camera and your computer are located on different subnets, you will not be able to set the IP address. Contact your network administrator for obtaining an IP address on the same subnet as the computer that you are performing installation from.
	The IP address is being used by another device.	Contact your network administrator. You must obtain a new IP address and reinstall the Network Camera.
The Network Camera cannot be accessed from a web browser.	Cannot log in	Check if the user ID and password is correct. The ID and password are case sensitive.
	IP address has been changed by DHCP	Reconfigure the IP address using the IP Installer. If a dynamic IP address via DHCP is required, enable the DHCP and configure the SMTP Notification (Email) For IP Address Change from the Setup>Basic>Network settings.
	Other networking problems	Check the network cable by connecting it to another network device, then Ping the device from your computer.
The Network Camera cannot be accessed externally	Firewall protection	Check the Internet firewall with your network administrator.
	Default gateway required	Check if you need to configure the default gateway settings.
The Network Camera does not turn on	DC power supply	Check the power.
	PoE power supply	Check the Ethernet (CAT 5) cable that is connected to a PoE compatible power supply unit. Some power supply unit may not provide power when the total power supply limitation is exceeded. Check the Operating Instructions of the PoE power supply unit for maximum power output.
No image displayed in the web viewer	ActiveX	To run the View Program in Microsoft Internet Explorer, configure your Web browser to allow the ActiveX controls. Also, make sure that Web Viewer component is installed on your PC.
Video image problems	Missing images in uploads	This can occur when trying to use a larger image buffer than is actually available. Try lowering the frame rate or the upload period.
	Slow performance	Slow performance may be caused by e.g. heavy network traffic, multiple users accessing the Network Camera, low performance computer, using features such as Motion Detection, Event action.
	Image is not clear	Adjust the focus of the camera. Check the target bit late (H.264) or image quality (JPEG) is not configured too low.
	Video is stopped	Check if the network cable of the Network Camera is correctly connected. In case user uses switches or routers, check whether these network equipments are working properly.
	Blank Screen	Check the power source of the connected camera.
	Video is often broken	Lower the target bit late (H.264) or image quality (JPEG)
Motion Detection	Function is not working	Check if the Motion Detection is enabled. Check the sensitivity level Check the setting of the Motion Detection area.

GLOSSARY

This section provides glossary for understanding the Network Camera.

A.	
ActiveX:	A control (or set of rules) used by a browser. ActiveX controls are often downloaded and installed automatically as required.
API:	Application Programming Interface. The API can be used for integrating products into other applications.
ARP:	Address Resolution Protocol. Used to associate an IP address to a hardware MAC address. A request is broadcasted on the local network to find out what the MAC address is for the IP address.
Aspect ratio:	A ratio of width to height in images. A common aspect ratio used for television screens and computer monitors is 4:3. High-definition television (HDTV) uses an aspect ratio of 16:9.
B.	
BOOTP :	A protocol that can automatically configure a network device (give it an IP address).
C.	
CGI:	Common Gateway Interface. A set of rules (or a program) that allows a Web Server to communicate with other programs.
Client/Server:	Describes the network relationship between two computer programs, in which one, the client makes a service request from another - the server.
D.	
DC-iris:	The iris, a mechanism that automatically regulates the amount of light allowed entering to CCD, is electrically controlled by the camera
dB (Decibels):	A unit to measure sound level changes. A 3dB change is the smallest level change we can hear. A gain of 0dB will leave the signal level unchanged.
De-interlacing:	De-interlacing is the process of converting a stream of interlaced frames to a stream of progressive frames.
A-DSL :	Digital Subscriber Line. A means of transferring data via standard phone line.
E.	
Ethernet:	A widely used networking standard.
F.	
Firewall:	A virtual barrier between a LAN (Local Area Network) and other networks, e.g. the internet.
FTP:	File Transfer Protocol. Used for the simple transfer of files to and from an FTP server.
Full-duplex:	Transmission of data, e.g. audio(Optional), in two directions simultaneously.
G.	
G.711:	G.711 is the international standard for encoding telephone audio(Optional) on 64 Kbps channel. It is a pulse code modulation (PCM) scheme operating at 8 kHz sample rate.
G.726:	Frequently used speech-compression algorithm in telecommunications due to its high perceived speech quality and low resource requirements.
H.	
Half-duplex:	A half-duplex link communicates in one direction at a time only, just like a walkie-talkie. Two way communications is possible, but not simultaneously.
HTTP:	Hypertext Transfer Protocol. The set of rules for exchanging files (text, images, sound, video, and other files) on the World Wide Web.
HTTP-S (HTTPS)	An extension to the HTTP protocol to support the transmitting data securely over the World Wide Web.

GLOSSARY

I.	
Intranet:	A private network limited to an organization or corporation. Usually closed to external traffic.
IP:	Internet Protocol.
IP address:	A unique set of numbers used by a computer on the network to allow it to be identified and found.
J.	
JPEG:	A standard image format, used widely for photographs. Also known as JPG
L.	
LAN:	A local area network (LAN) is a group of computers and associated devices that typically share common resources within a limited geographical area.
Linux:	A popular operating system that is "open source" and practically free of charge.
Lux:	A standard unit for light measurement.
M.	
Mbit/s:	Megabits per second. A unit for measuring speeds in networks. A LAN might run at 10 or 100 Mbit/s
MPEG4:	A video compression standard that makes good use of bandwidth. It can provide DVD-quality video streams at less than 1 Mbit/s.
Multicast:	A bandwidth-conserving technology that reduces bandwidth usage by simultaneously delivering a single stream of information to multiple network recipients.
P.	
Ping:	A small utility used for sending data packets to network resources to check that they are working and that the network is intact.
Pre / post alarm image:	The images from immediately before and after an alarm.
Protocol:	A special set of rules governing how two entities will communicate. Protocols are found at many levels of communication, and there are hardware protocols and software protocols.
R.	
Router:	A device that determines the next network point to which a packet should be forwarded on its way to its final destination. A router is often included as part of a network switch.
RTP:	Real Time Transfer Protocol. A transfer protocol designed for the delivery of live content, e.g. MPEG4.
RTSP:	Real Time Streaming Protocol is a network control(e.g. play, stop, etc) protocol used in multimedia, and a starting point for negotiating transports such as RTP, multicast and unicast. RTSP can be considered a "remote control" for controlling the media stream delivered by a media server. RTSP servers typically use RTP as the protocol for the actual transport of audio(Optional) / video data.
S.	
SMTP:	Simple Mail Transfer Protocol is the protocol used to send e-mail across the Internet. SMTP authentication is a way of allowing people outside of a domain to use an SMTP server when sending e-mail.
SNMP:	Simple Network Management Protocol. An application layer protocol that facilitates the exchange of management information between network devices. It is part of the TCP/IP (Transmission Control Protocol/Internet Protocol) protocol suite.
Subnet Mask:	An IP address consists of two components: the network address and the host address. "Subnetting" enables a network administrator to further divide the host part of the address into two or more subnets. The subnet mask identifies the subnet to which an IP address belongs.
Switch:	Whilst a simple hub transmits all data to all devices connected to it, a switch only transmits the data to the device it is specifically intended for.

GLOSSARY

T.**TCP / IP:**

Transmission Control Protocol/Internet Protocol. A suite of network protocols that determine how data is transmitted. TCP/IP is used on many networks, including the Internet. TCP keeps track of the individual packets of information and IP contains the rules for how the packets are actually sent and received.

U.

UDP: The User Datagram Protocol is a communication protocol that offers a limited amount of service when messages are exchanged between computers in a network that uses the IP. UDP is an alternative to the TCP and, together with IP, is also known as UDP/IP.

Unicast: Communication between a single sender and a single receiver over a network. A new connection is established for each new user.

URL: Uniform Resource Locator. An "address" on the network.

V.

Varifocal: A varifocal lens provides a various range of focal length, as opposed to a lens with a fixed focal length, which only provides one.

W.

WAN: Wide Area Network. Similar to a LAN, but on a larger geographical scale.

Web server: A program on a computer that delivers the resources requested by the web use
