# 2-MegaPixel FullHD WDR IP DOME CAMERA SERIES

DN-16081

DN-16082

# User Manual
# DN-16081 • DN-16082

# IMPORTANT SAFEGUARD

All lead-free products offered by the company comply with the requirements of the European law on the Restriction of Hazardous Substances (RoHS) directive, which means our manufacture processes and products are strictly “lead-free” and without the hazardous substances cited in the directive.

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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.

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

(1) This device mat not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

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We are pleased to provide our modifications to the Linux Kernel, as well as a few new commands, and some tools to get you into the code. The codes are provided on the FTP site, and please download them from the following site or you can refer to your distributor:

http://download.dvrtw.com.tw/GPL/IPCAM/A-Seriers/linux.tar.gz

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# 1. OVERVIEW

## 1.1 Product Features

- 2 Megapixel solution with FullHD quality, allowing users to notice minor details more easily
- 3-axis mechanism for flexible ceiling and wall-mount installation
- POE (Power-over-Ethernet) support to eliminate the use of power cables and reduce installation costs
- ONVIF standard supported to simplify system integration
- External alarm I/O device connection
- (For selected models only) WDR to increase image recognizability in overexposure and dark areas
- MicroSD card support for video storage
- (For selected models only) Vandal-resistant case to withstand attempts to open or damage the camera
- Remote Surveillance
  -- Fully compatibility on iPhone & iPad, and Internet Explorer® on Windows® operating system

## 1.2 Package Content

| | | |
|---|---|---|
| □ IP camera | □ Screws & Wall Plugs | □ Quick Setup |

## 1.3 Product Overview

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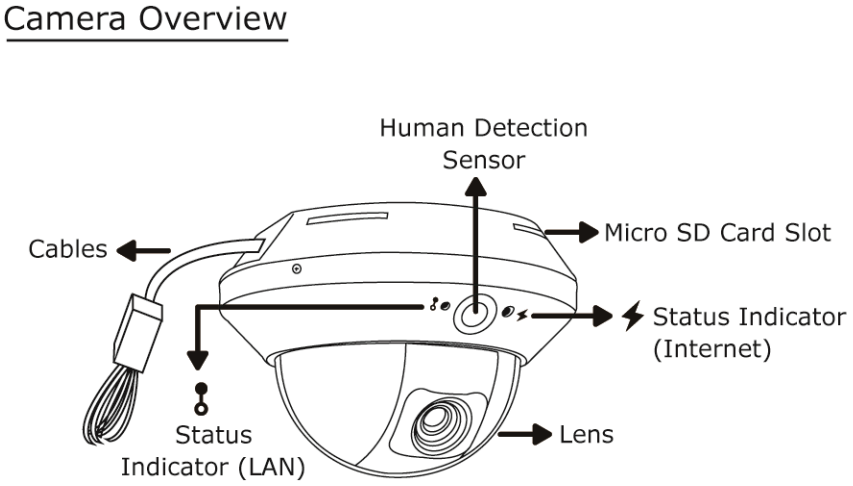
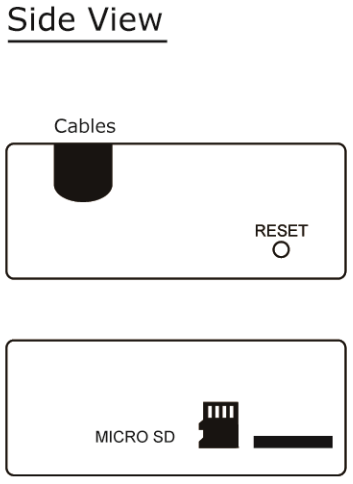
Camera Overview




Side View

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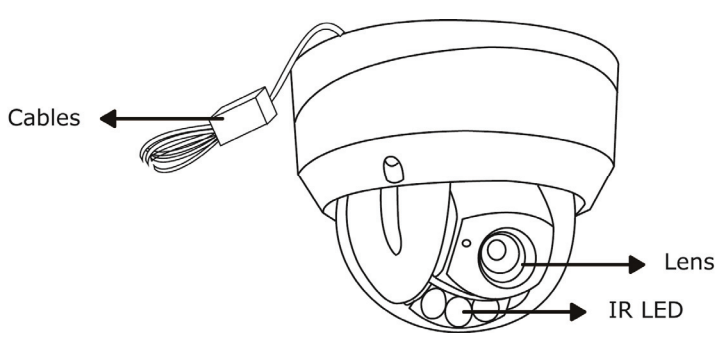


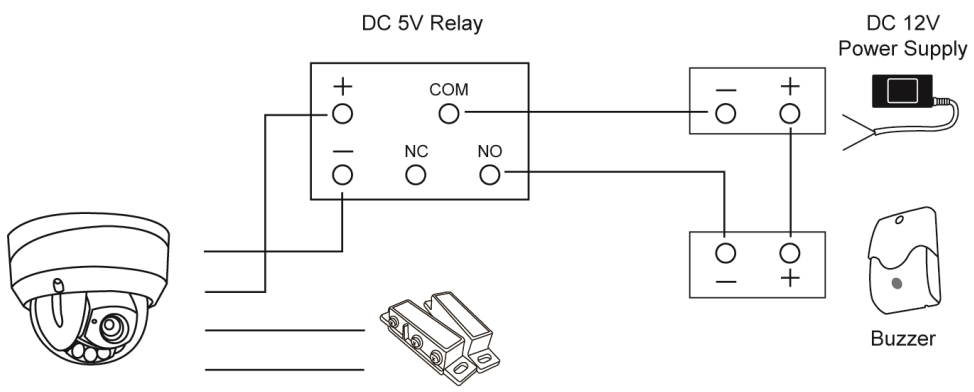
## 1.4 Connectors

| | |
|---|---|
| Ethernet: | Connect a RJ45 network cable. |
| DC IN: | Connect the regulated power supply, DC 5V or 12V depending on the model you have. |
| RESET: | With the power connected, press to reset all parameters, including the IP address to factory default settings.<br>The camera will reboot after default reset. Please do not disconnect your camera during the reset process. |
| Alarm in / Alarm out: | For external alarm device connection, please refer to “1.5 External Alarm Connection” at page 2. |
| Line in (Blue) /<br>Line out (Green) | Support speaker and microphone connection. |

## 1.5 External Alarm Connection

This camera supports external I/O device connection for easy connection.

Below shows you how to connect an external device to this camera.




## 1.6 Status Indicator (For selected models only)

| ICON | LAN connection status | Internet connection status |
|---|---|---|
| System Status | | |
| During powering on | Always on | Always on |
| Reset default | Blinking (on 250 ms, off 250 ms)<br>●○●○●○●○●○ | Always off |
| Upgrade | Blinking (on 250 ms, off 250 ms)<br>●○●○●○●○●○ | Blinking (on 250 ms, off 250 ms)<br>●○●○●○●○●○ |
| Connection Status | | |
| LAN connected | Always on | -- |
| LAN disconnected | Blinking (on 100 ms, off 500 ms)<br>●○○●○○●○○ | -- |
| Internet connected | -- | Always on |
| Internet disconnected | -- | Blinking (on 100 ms, off 500 ms)<br>●○○●○○●○○ |
| 3G Connection Error on<br>iPhone / iPad / Android Mobile Device | | |
| 3G Connection Setting<br>Uncompleted | --<br>-- | Blinking<br>(on 5 sec, off 0.5 sec, on 0.5 sec, off 0.5 sec, on 5 sec)<br>●●●●○●○●●●● |

** LED blinking frequency - ● LED on / ○ LED off*

## 1.7 Insert a Micro SD card (For selected models only)

For local video recording, a micro SD card slot can be found on the camera. The camera doesn't support hot-swapping. Please insert or remove the micro SD card with power disconnected. Please follow the directions in the below graphic to insert Micro SD card properly:

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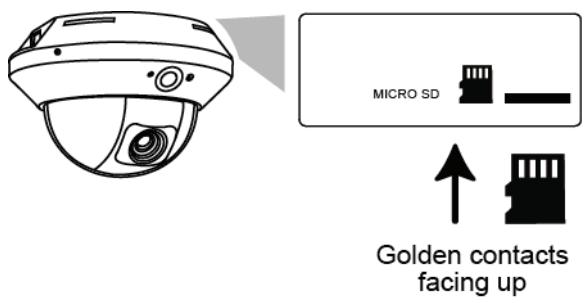


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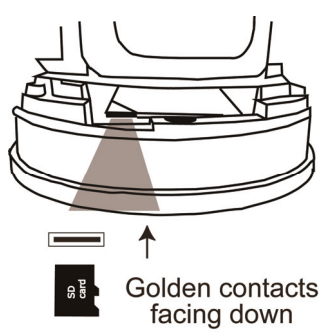



**Note:** Before inserting a micro SD card, make sure you've copied all important data saved in the card (if any) to other storage media, or all data will be removed after inserting it to the camera.

Note: For the compatible list of the micro SD card, please refer to "APPENDIX 7 MICRO SD CARD COMPATIBLE LIST" at page 35.

# 2. CAMERA ACCESS WITH INTERNET EXPLORER

This network camera can be accessed via Microsoft® Internet Explorer® and iPhone / iPad / Android mobile devices with our self-developed program “EagleEyes” installed depending on different using situations.

**Note:** For details about accessing network cameras via iPhone / iPad / Android mobile devices, please refer to http://www.eagleeyescctv.com.

Before using the camera, make sure you have configured the network settings, and the network connection is fine.

For network configurations, please refer to:

- “ADVANCED NETWORK SETUP” downloadable from www.surveillance-download.com/user/m521.swf if your network environment is not wireless.

## 2.1 Camera Login

Step1: Open your web browser, and key in http://*ipaddress*:*portnum* in the URL address box.

For example, for the IP address 60.121.46.236 and port No. 888, please key in ”http://60.121.46.236:888” into the URL address box, and press “Enter”.

Step2: In the login page, key in the user name and password, and enter the security code from the image below if any. Then, click “LOGIN”.

Step3: The wizard is then started.

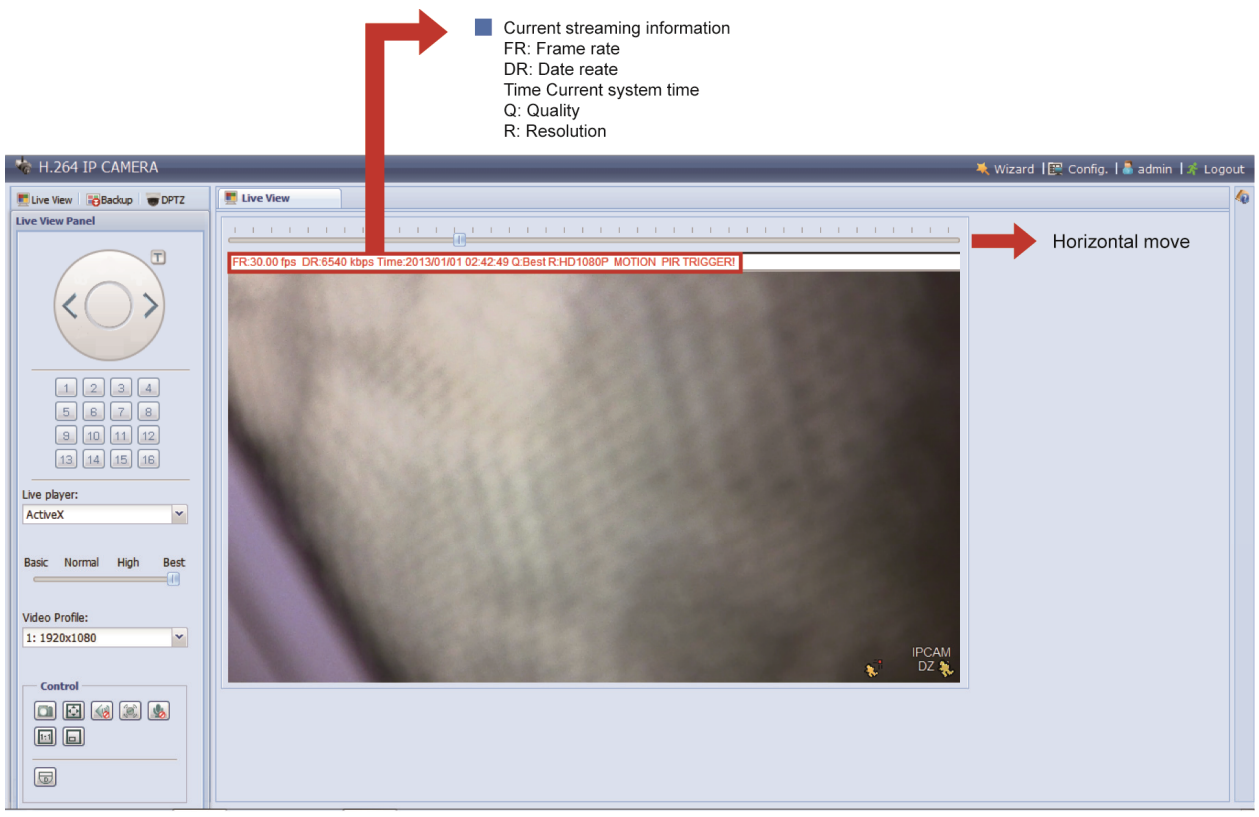
- To skip the wizard and directly access the camera live view, click “Close”.
- To directly access the camera live view without starting the wizard for the login next time, check “Do not start wizard at login”.

**Note:** If you’re prompted to install “VLC player”, “Software” or “H264 Streaming Viewer”, please agree to proceed the installation. Or, you might not be able to see the live view properly.

Step4: When the login is successful, the live view is shown.

## 2.2 Control Panel Overview

**Note:** The buttons available depend on the model number used and the user level used to log in.

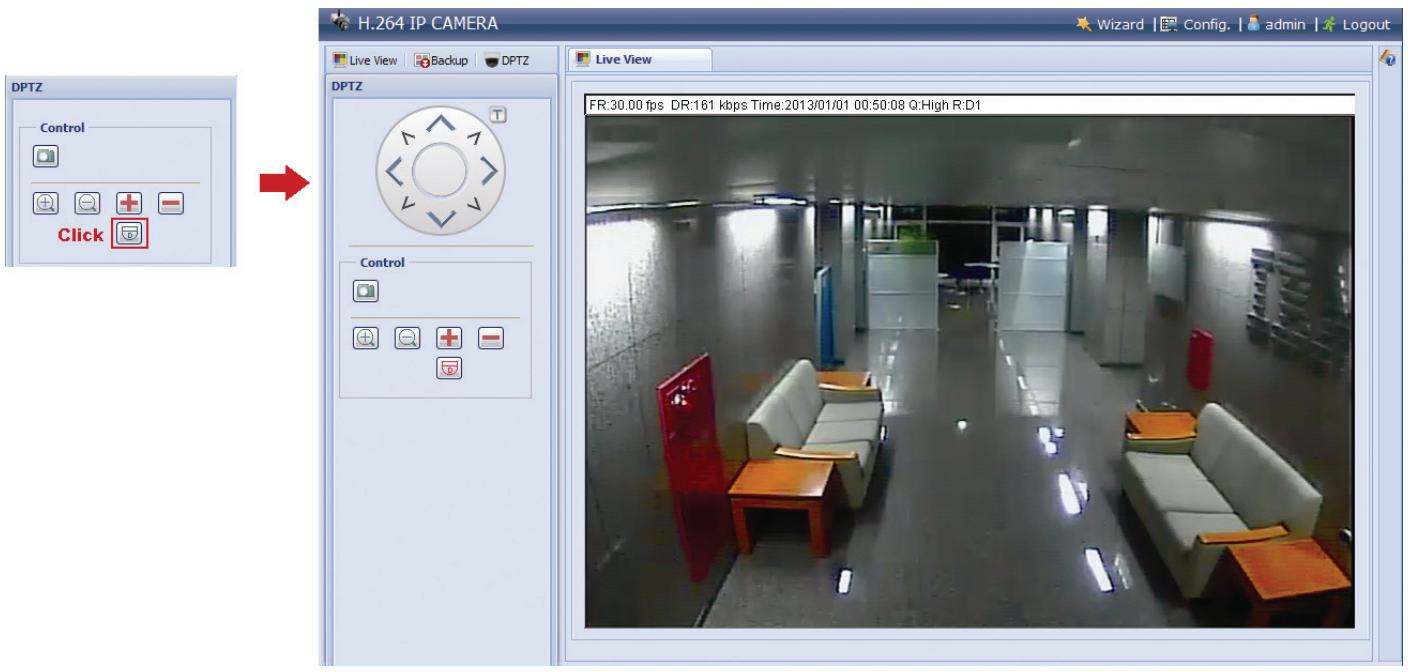


| Function | Icon | User Level | Description |
|---|---|---|---|
| Live | | Supervisor / Power User / Normal User / Guest | Switch to the live view page. |
| Backup | | Supervisor / Power User | Enter the event record list for video playback.<br>For details, please refer to “2.4 Event Record Search & Playback’ at page 7. |
| DPTZ | | Supervisor / Power User / Normal User | Switch to the DPTZ configuration page.<br>For details, please refer to “2.3 Digital PTZ (DPTZ) Operations” at page 6. |
| Config. | | Supervisor | Switch to the system configuration page, and the functions available for “Supervisor” and “Power User” are different.<br>For details, please refer to “3.1 System configuration menu” at page 8. |
| Arrow keys panel | -- | Supervisor / Power User / Normal User | Click to move the camera lens up / up-left / down / up-right / left / down-right / right / down-left. |
| Turbo* | | Supervisor / Power User / Normal User | Speed up one mouse-click from 1 to 10.<br>Note: When this function is enabled, the supported buttons will turn to red.<br>Ex: If the value of the turbo step is set to 5, one mouse-click will function as 5 mouse-clicks when you click the arrow keys.<br>To use this function, you need to set it in “General” ➔ “General”. |
| Preset points* | -- | Supervisor / Power User / Normal User | Click the numbering of the preset point you want to move the PTZ camera to the selected preset point.<br>To set preset points, please refer to “3.3.2 Preset (For selected models only)” at page 15. |
| Live player* | -- | Supervisor / Power User / Normal User / Guest | Select the image player from the drop-down list:<br>■ ActiveX<br>■ QuickTime<br>QuickTime is Apple Inc.’s multimedia software. You need to have QuickTime installed in your operating system before selecting “QuickTime”. When it is selected, you will be promoted to enter the user name and password to access the camera.<br>■ VLC |
| Media Type* | -- | Supervisor / Power User / Normal User / Guest | Select the image player from the drop-down list:<br>■ H.264 / MPEG-4 / Motion JPEG<br>■ QuickTime<br>QuickTime is Apple Inc.’s multimedia software. You need to have QuickTime installed in your operating system before selecting “QuickTime”. When it is selected, you will be promoted to enter the user name and password to access the camera.<br>■ VLC |
| Quality | -- | Supervisor / Power User / Normal User | Click & drag the slider to select the video quality:<br>Basic / Normal / High / Best. |
| Video Profile* | -- | Supervisor / Power User / Normal User | Select the image resolution from the drop list:<br>■ 1920 x 1080 ■ 1280 x 720<br>■ 720 x 480 ■ 352 x 240 |

## 2.3 Digital PTZ (DPTZ) Operations

This camera has PTZ capability, i.e. digital PTZ (hereafter called “DPTZ”), for wide area monitoring.

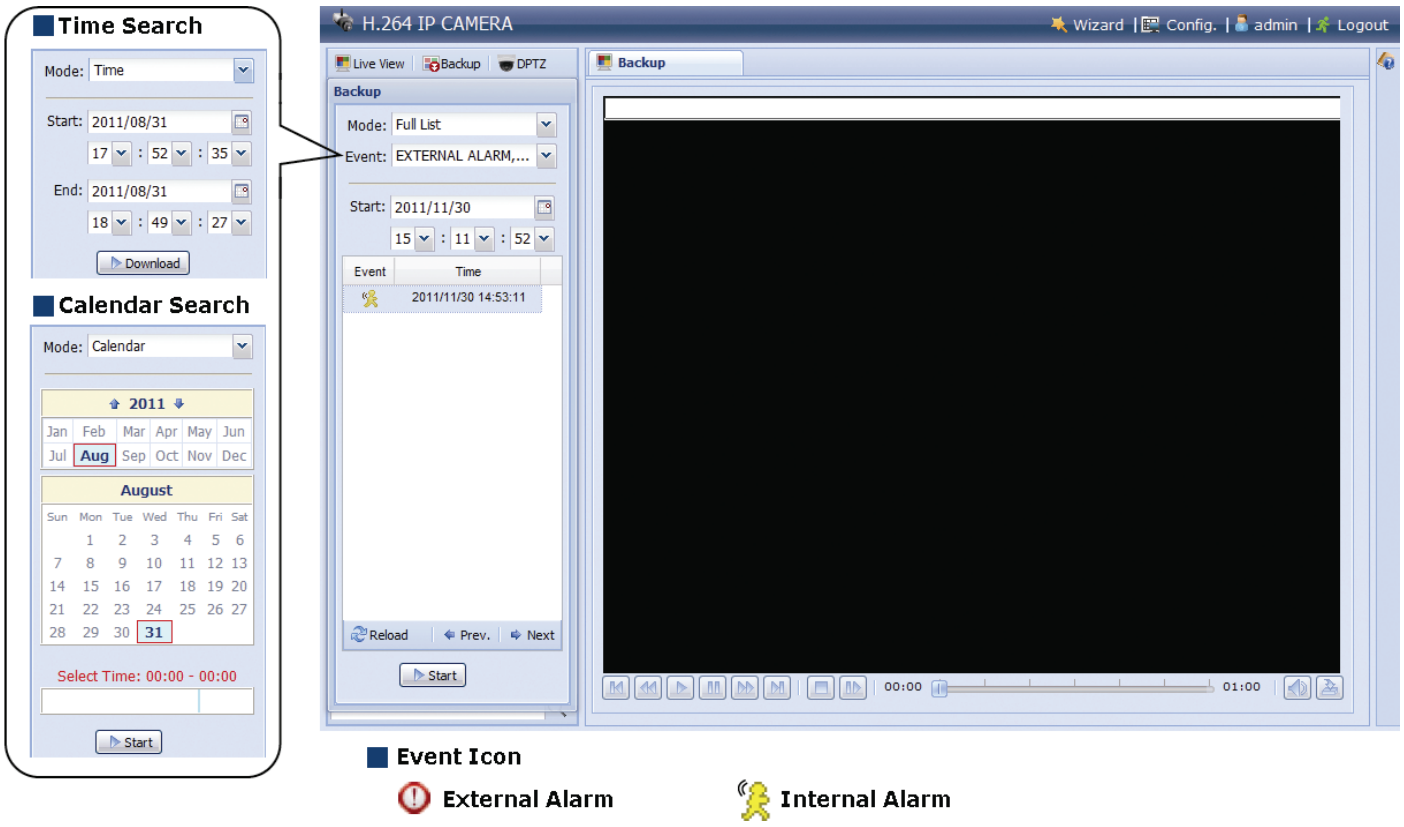
STEP1: Click “DPTZ” to show the DPTZ control panel.




| FUNCTION | ICON | DESCRIPTION |
|---|---|---|
| Moving panel | -- | When is selected, the moving control panel will be shown to move the picture after zoom-in is performed. |
| Take snapshots | | Click to take a snapshot of the current view on a new window. Right click on the picture and re-save it to the location you want. |
| Zoom in / out | / | Click once to enlarge the picture by 1X, and click once to restore the zoom ratio by 1X. |
| Max. zoom in / out | / | Click once to enlarge the picture to the max zoom ratio by 16X, and click once to restore the picture ratio to 1X. |

## 2.4 Event Record Search & Playback

**Note:** To save more recorded data, it's recommended to use this camera with the compatible NVR.




| | | |
|---|---|---|
| / | Previous / Next Hour | Click to jump to the next / previous time interval in an hour, for example, 11:00 ~ 12:00 or 14:00 ~ 15:00, and start playing the earliest event video clip recorded during this whole hour. |
| | Fast Forward | Increase the speed for fast forward. Click to get 2X, 4X, 8X & 16X speed forward eventually. |
| | Fast Rewind | Increase the speed for fast rewind. Click to get 2X, 4X, 8X & 16X speed rewind eventually. |
| | Play | Click to play the current video clip. |
| | Pause | Click to pause the video playback. |
| | Stop | Click to stop the video playback. |
| | Step | In the pause mode, click to get one frame forward. |
| | Audio | Click to mute the playback if necessary, and click again to restore.<br>*This function is available only when a speaker is connected during recording.* |
| | Download | Click to download the current video clip to the specified path in your PC.<br>*The downloaded video can only be opened by our own video player. Please go to "General" → "Maintenance" to download the video player, or get the player from the CD supplied with the sales package.* |

# 3. CAMERA CONFIGURATIONS

Users can further configure this network camera by accessing via Internet Explorer.

## 3.1 System configuration menu

Click “Config.” to enter the configuration page.

The functions are categorized into six menus: Network, Camera, Record Timer, Storage, Trigger and General.

- For details about “Network”, please refer to “3.2 Network” at page 8.
- For details about “Camera”, please refer to “3.3 Camera” at page 13.
- For details about “Record”, please refer to “3.4 Record” at page 18.
- For details about “Storage”, please refer to “3.5 Storage”’ at page 19.
- For details about “Trigger”, please refer to “3.6 Trigger” at page 20.
- For details about “General”, please refer to “3.7 General” at page 21.

| Main Menu | Sub-Menu | Reference |
|---|---|---|
| Network | Network | Configure network settings. |
| | QoS | Limit the data flow for live streaming. |
| | DDNS | Enter DDNS information when the network type is PPPOE or DHCP. |
| | SNTP | Synchronize your camera time with the networked computer systems. |
| | FTP | Enter the FTP information for event notifications when “FTP” is chosen in “Trigger” → “Trigger”. |
| | Mail | Enter Email information for event notifications when “Email” is chosen in “Trigger” → “Trigger”. |
| | SMS | Enter text messaging information for SMS notifications when “SMS” is chosen in “Trigger” → “Trigger”. |
| | Filter | Choose to permit or block the IP address(es) which can access this camera. |
| | UPnP | **Suitable for Windows-based operating system.*<br>Allow this camera to be detected among devices within the same network area for easy and quick usage. |
| | Bonjour | **Suitable for Apple Mac-based operating system.*<br>Allow this camera to be detected among devices within the same network area for easy and quick usage. |
| | RTP | Set the parameters for video data transmission when you’re using multimedia other than web browsers and Video Viewer for remote access. |
| Camera | Camera | 1. Rename the camera.<br>2. Change the place where the camera name is shown on the screen. |
| | Preset* | Set the preset points for the DPTZ function. |
| | Video | Adjust video-related settings in different video format. |
| | Color | Adjust the color performance. |
| | Audio* | Adjust the audio volume of the microphone and speaker. |
| | Advanced | Adjust the camera parameters if necessary. |
| Record | Record | Configure the record function. |
| | Record Timer | Schedule external alarm recording. |
| Storage | Memory | Check the current storage capacity and clear all recorded data when needed. |
| Trigger | Trigger | 1. Enable / disable motion, alarm and PIR detection.<br>2. Set the motion detection area.<br>3. Configure how the camera reacts for any event. |
| General | General | 1. Select the language of the web browser.<br>2. Check the MAC address of the camera.<br>3. Lock camera access after the specified time.<br>4. Enable or disable LED status indication. |
| | Time | Set daylight saving time and the current time. |
| | Server Log | Check the system event logs. |
| | Online | Check the current online user(s). |
| | Account | 1. Create a new user account with different access privilege.<br>2. Modify or delete an existing user account. |
| | Google Maps | Allow you to know where the network camera is. |
| | Maintenance | 1. Check the current firmware version and upgrade your camera.<br>2. Copy system configurations.<br>3. Reboot the camera.<br>4. Download the video player to play the recorded data. |

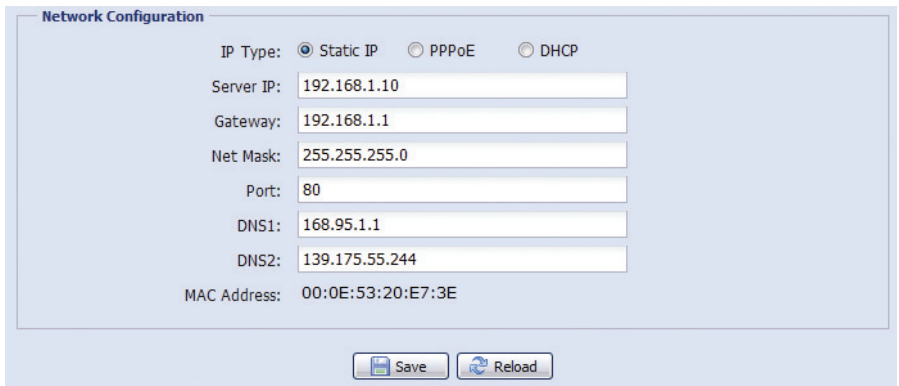
*Selected models only

## 3.2 Network

### 3.2.1 Network

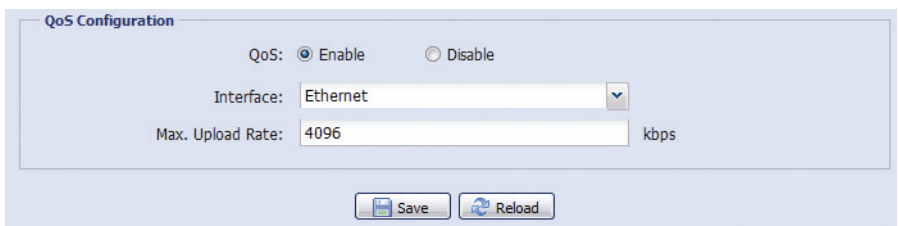
You can set the network configuration of the network camera depending on your network type.

For details, please refer to “Advanced Network Setup” from www.surveillance-download.com/user/m521.swf.




### 3.2.2 QoS

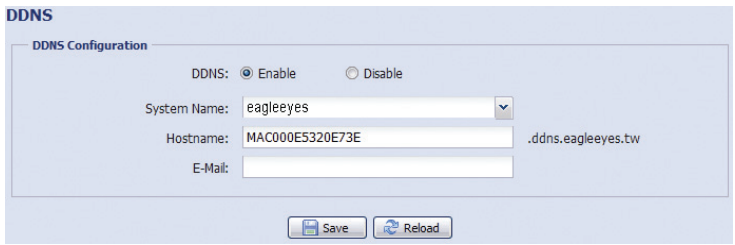
QoS, Quality of Service, is the ability to control the data flow for real-time streaming. This function is important if your network bandwidth is insufficient and you have other devices to share the network bandwidth.
Check “QoS Enable”, and set the max. upload rate from 256 to 10240 kbps.




### 3.2.3 DDNS

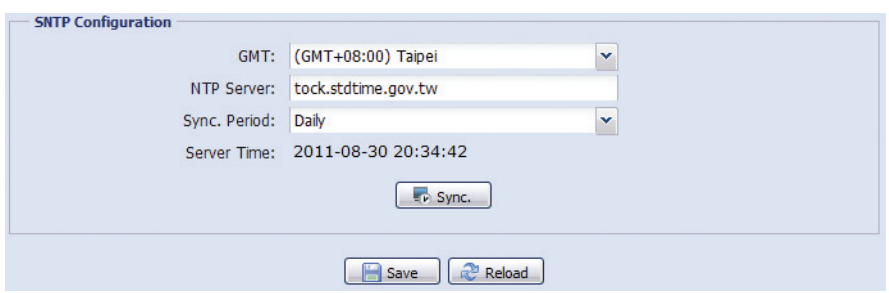
Select “On” when the selected network type in “Network” is “PPPOE” or “DHCP”.

For details, please refer to “Advanced Network Setup” from www.surveillance-download.com/user/m521.swf.




### 3.2.4 SNTP

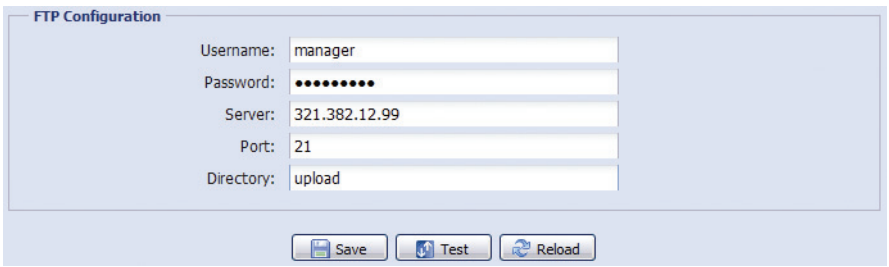
SNTP (Simple Network Time Protocol) is used to synchronize your camera time with the networked computer systems.




| Function | Description |
|---|---|
| GMT | Once users choose the time zone, the network camera will adjust the local area time of the system automatically. |
| NTP Server | Simply use the default SNTP server (For example, tock.stdtime.gov.tw) or change to another server with which users are familiar. |
| Sync. Period | Select “Daily” to synchronize the camera time with the network time every day or “None” to turn off this function. |
| Sync | Click and the network camera will synchronize the time with the network time. |

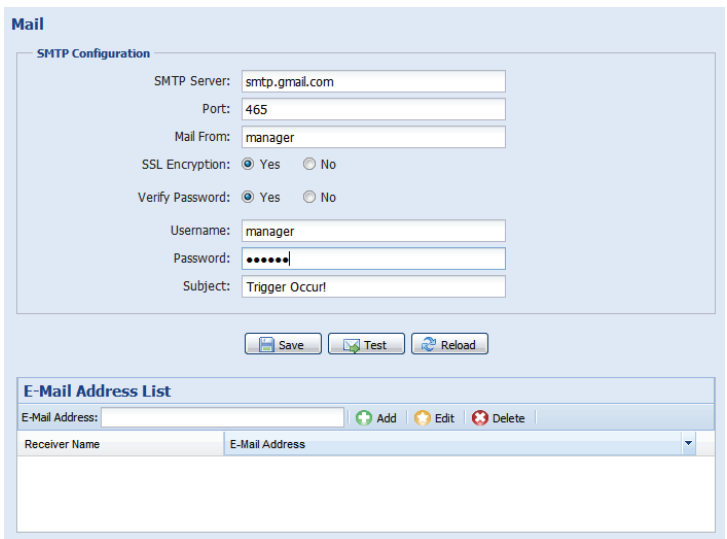
### 3.2.5 FTP

Enter the detailed FTP information and click “Save” to confirm. The information you set here will be applied when “FTP” is selected in “Trigger” → “Trigger”.




### 3.2.6 MAIL

Enter the detailed e-mail information and click “Save” to confirm. The information you set here will be applied when “Email” is selected in “Trigger” → “Trigger”.

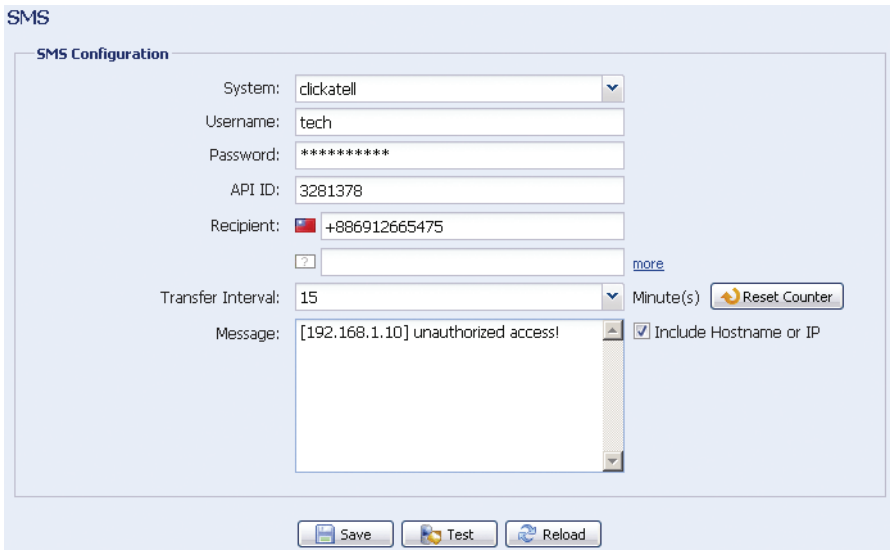



| Function | Description |
|---|---|
| SMTP Server | Enter the SMTP server address provided from your e-mail system supplier. |
| Port | Enter the port number provided from your e-mail system supplier. If this column is left blank, the e-mail server will use port 25 to send e-mails. |
| Mail From | Enter the name of the sender. |
| SSL Encryption | Select “Yes” if your e-mail server is using SSL encryption to protect your e-mail content from unauthorized access. |
| Verify Password | Some mail servers are required to verify the password. Please enter the “user name” and “password”. |
| Subject | Enter the subject of the notifying email you want to see when the camera is triggered. |
| E-Mail Address List | Add the e-mail address(s) of the assigned recipient(s). |
| Test | When all information is entered, click “Test Mail” to try if the receipt. |

### 3.2.7 SMS

**Note:** Before using this function, you need to apply an account and get an API ID from the mobile messaging company, such as Clickatell and EVERY8D.For details, please refer to “APPENDIX 4 API ID APPLICATION FOR SMS MESSAGING” at page 31.

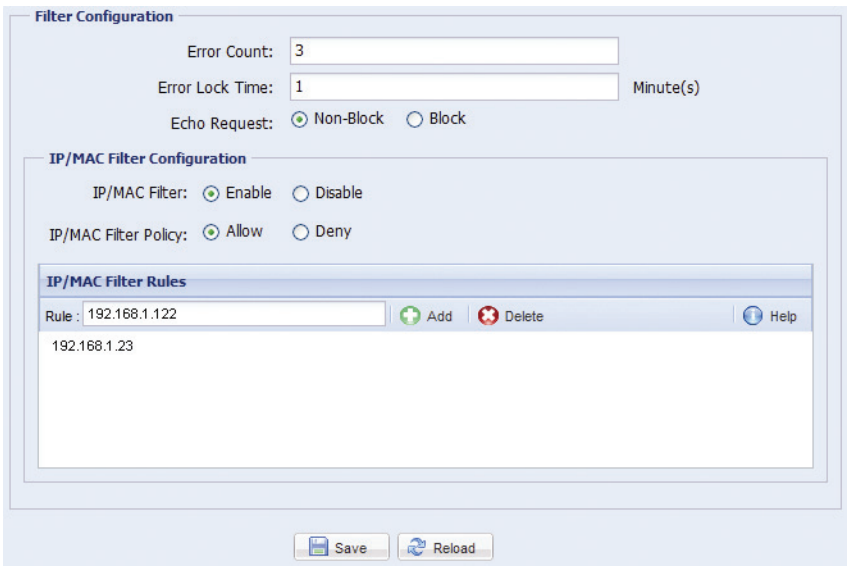
Enter the detailed information needed for text messaging, and click “Save” to confirm. The information you set here will be applied when “SMS” is selected in “General” → "Trigger".




| Function | Description |
|---|---|
| System | The text messaging service provider is Clickatell. |
| User name / Password | Enter the account user name and password you created in Clickatell. |
| API ID | Enter the API ID you applied from Clickatell. |
| Recipient | Click “Add” to enter the phone number, including the country code, to receive the text message. Five sets of phone numbers are allowed. |
| Transfer Interval | Set the interval time in minutes between two-message sending.<br>The options are 0, 15, 30 & 60. |
| Reset Counter | Click to restart the text messaging, and the SMS will be sent after the specified time interval since you click this button. |
| Message | Enter the text content (up to 70 characters) you want to send with the text message. |
| Test | To know whether your SMS setting is correct, click this button to immediately send a SMS to your phone.<br>Note: This testing is not free and you will be charged for SMS sending base on your local rate. |

## 3.2.8 Filter

Choose to permit or block the IP address(es) which can access this camera, and click “Save” to confirm.



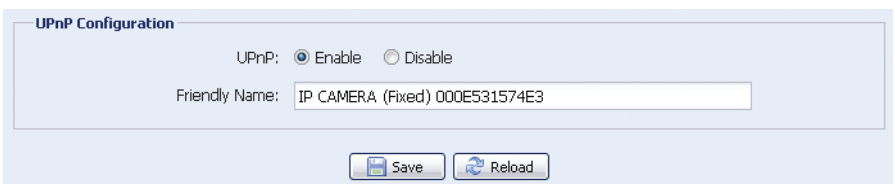

| Function | Description |
|---|---|
| ■ **Filter Configuration** | |
| Error Count | Set the maximum count for login failure. When the maximum count is reached, the IP address trying to access the network camera will be locked. |
| Error Lock Time | Set the lock time in minutes when the maximum count of error login for an IP address is reached. |
| Echo Request | Select “Non-Block” to allow other users to use the ping command to detect the IP address of your network camera, or “Block” to deny the ping command request. |
| ■ **IP/MAC Filter Configuration** | |
| IP/MAC Filter | Choose to enable or disable the filter function. |
| IP/MAC Filter Policy | If “Enable” is selected, choose whether you want to permit (Allow) or block (Deny) the IP address list below. |
| ■ **IP/MAC Filter Rules** | |
| Rule | • To add an item to the IP address list, key in the IP address in “Rule”, and click “Add”.<br>• To remove an existing item in the IP address list, click the item you want to remove, and click “Delete”. |

## 3.2.9 UPnP / Bonjour

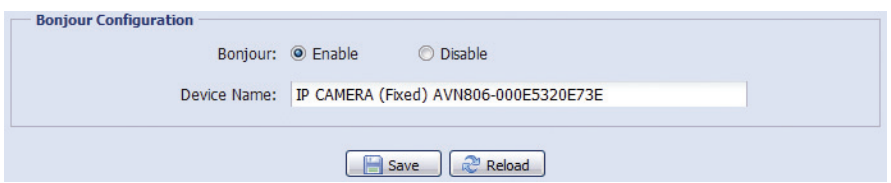
“UPnP” stands for “Universal Plug and Play”, which allows devices to connect seamlessly in the home and corporate environments and simplify installation of computer components, and is only suitable for Microsoft Windows-based operating system.

“Bonjour” functions the same as “UPnP”, but it’s only suitable for Apple Mac-based operating system.

➢ **UPnP**




➢ **Bonjour**




Check “Enable” to allow the network camera to be detected among devices within the same network area, and set the identification name of the camera in “Friendly name”.

When this function is activated, the other PC within the same domain as this camera will be able to search this camera in:

➢ “Network Neighbor” with the identification name set in “Friendly name” for Windows-based PC, or

➢ “” (finder) or “Bookmark” with the identification name set in “Device Name” for Mac-based PC.

Double-click it to quickly open the web browser for camera access.

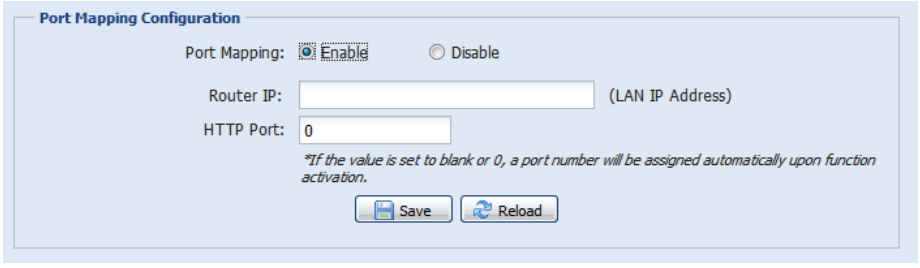
**Port Mapping (Available only in UPnP)**

This function can eliminate the need to additionally access the router for port forwarding.

For details, please refer to “Advanced Network Setup” from www.surveillance-download.com/user/m521.swf

**Note:** Before using this function, make sure your router supports UPnP, and this function is enabled. If not, please access your router additionally for port forwarding.

When “Port Mapping” is set to “Enable”, the system will automatically assign an IP address or port number for you if no IP address or port number is entered.



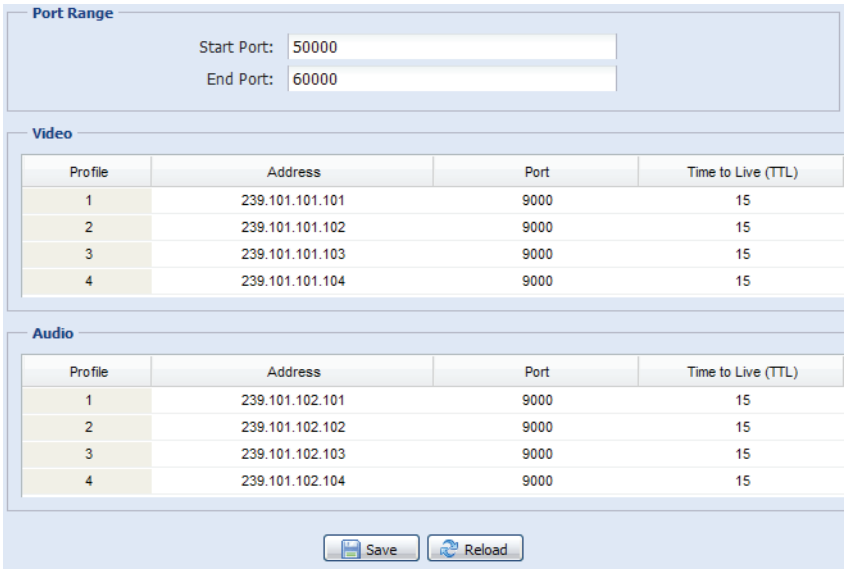

Note: When the configurations are saved successfully, you’ll see a message indicating the IP address and port number assigned to this network camera.

## 3.2.10 RTP

The Real-time Transport Protocol (RTP) is an Internet protocol standard to manage the real-time transmission of multimedia, such as VLC player.

The media player you want to use for remote access must support RTP transmission for this function to work normally.

**Note:** When you’re about to end the remote access, please press the stop button on your media player first, and then close the program. This is to ensure the server receives the stop command, and also help to protect the server from redundant data transmission.

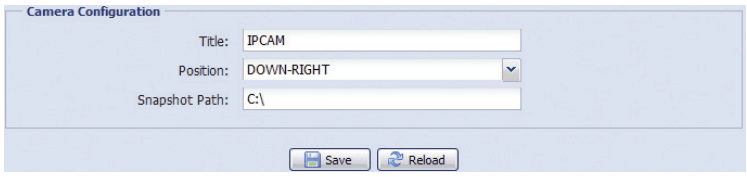


| Function | Description |
|---|---|
| ■ **Port Range**<br>The port range used by RTP is limited, and preserving 100 ports between the start port and end port is necessary. | |
| Start Port | The range of the start port is 1024 ~ 65434. |
| End Port | The range of the end port is 1124 ~ 65534. |
| ■ **Video** | |
| Address and port for video transmission | Set a specific address and port for multicast of profile 1 ~ 4.<br>The range of the address is limited between 224.0.0.1 ~ 239.255.255.255.<br>The port for multicast must be an even number. |
| ■ **Audio** | |
| Address and port for audio transmission | Set a specific address and port for multicast of audio.<br>The range of the address is limited between 224.0.0.1 ~ 239.255.255.255.<br>The port for multicast must be an even number. |

## 3.3 Camera

### 3.3.1 Camera

Rename the camera, and change the place where the camera name is shown on the screen, UP-LEFT / UP-RIGHT / DOWN-LEFT / DOWN-RIGHT. "Snapshot Path" is used to specify the path to save snapshot files.




### 3.3.2 Preset (For selected models only)

**Note:** Before using this function, make sure the DPTZ function is enabled.

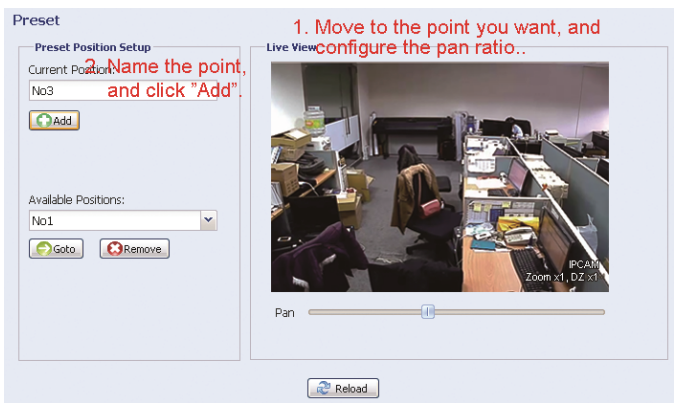
You can set new preset points (up to 16) or check existing points here.

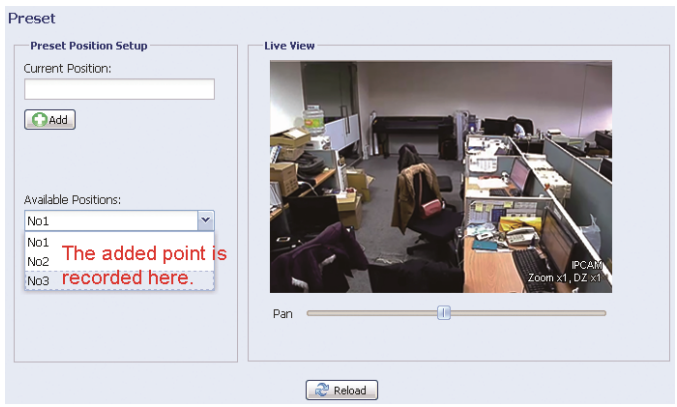
**How to set a new preset point**

Step1: Click DPTZ icon.

Step2: Click to where you want to see, and you'll get a 5x zoom-in image. To slightly zoom out, draw a square from the bottom right to top left, and you'll get a 3x image. Draw the square again and you'll return to the original size.

Step3: In "Current Position", give a name to this point, and click "Add".




**How to check an existing preset point**

In "Available Positions", select the name of the point you want to check from the drop-down list, and click "Goto". You will see the camera view on the right side moving to the point it's recorded.

**How to delete an existing preset point**

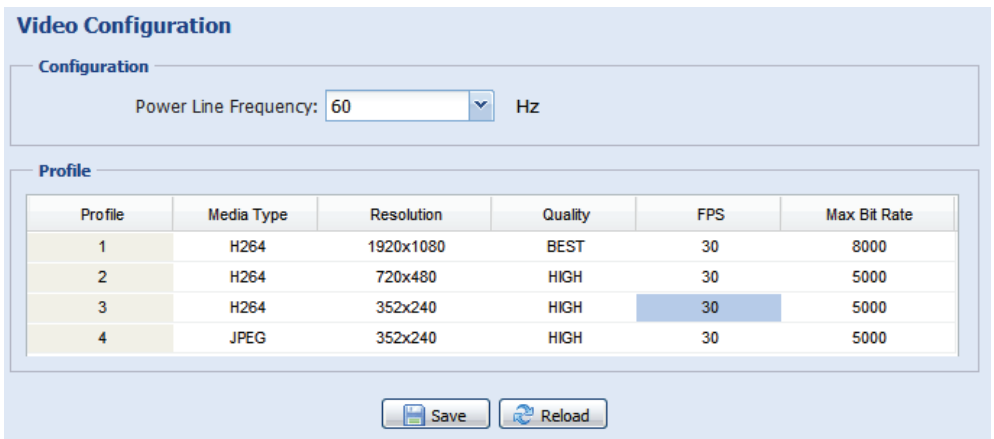
In "Available Positions", select the name of the point you want to check from the drop-down list, and click "Remove".

### 3.3.3 Video

Adjust video-related settings in different video format.

- “Quality” is related to image clearness.
- “FPS” is related to the fluency of the video. The more the FPS, the more fluent the video.
- “Max Bit Rate” is the maximum limitation of data transmission in the selected image format and resolution.

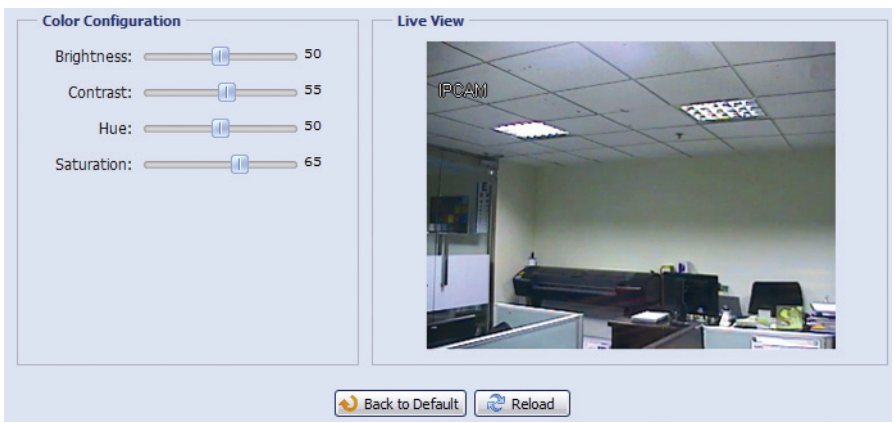
**Note:** QQVGA is for mobile surveillance only.



### 3.3.3 Color

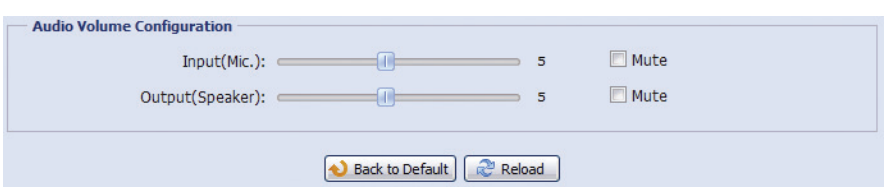
Adjust the color performance from Brightness, Contract, Hue and Saturation. Click and drag the slider to preview the color change on the right side of ths page and adjust the image color.

To restore the default values, click “Back to Default”




### 3.3.4 Audio (For selected models only)

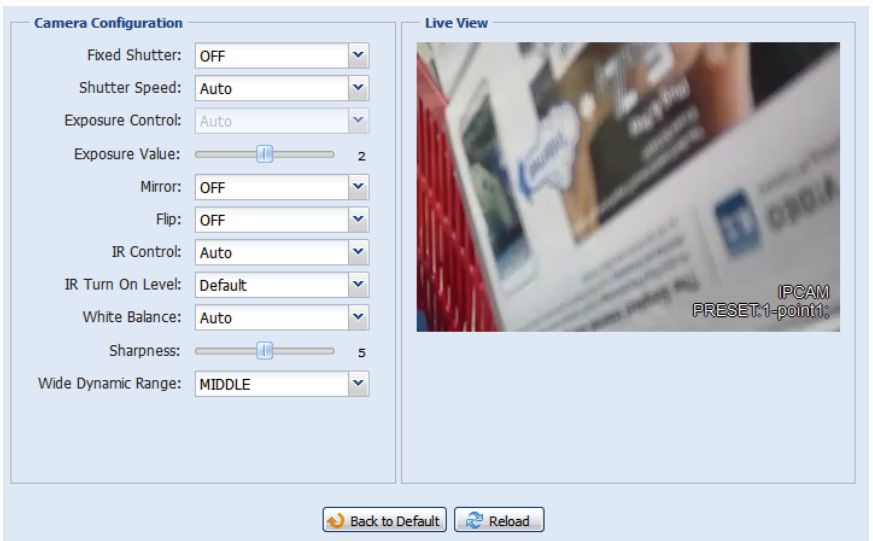
Drag the slider to adjust the volume of the microphone and speaker.




### 3.3.5 Advanced

Adjust the camera parameters if necessary.

**Note:** The functions available depend on the model number used.




| Item | Description |
|---|---|
| Fixed Shutter | Shutter Speed is a function that can adjust the duration of the electronic shutter to produce optimum image quality. Select the shutter speed suitable for your environment. |
| Shutter Speed | Select the shutter speed suitable for your environment.<br>A slower shutter speed in dark conditions will help to produce a brighter image, but will produce fewer frames per second, which may cause images to get blurry during motion.<br>● When “Auto” is selected, the iris mode is “AES”.<br>● When a certain speed is selected, the iris mode is switched to “AI”, and the image brightness is available to adjust from “IRIS”. |
| Exposure Control | This function is used to synchronize the shutter time to the fluorescent light to suppress image flickering. |
| Exposure Value | Drag the slider to adjust the exposure level from 0 ~ 4. |
| Mirror | Select “ON” to rotate the images horizontally based on your installation situation when necessary. |
| Flip | Select “ON” to rotate the image 180° when necessary. |
| IR Control | Select “Auto” to automatically enable IR LEDs at night or in the dark environment, “On” to always enable IR LEDs, or “OFF” to disable this function. |
| IR Enhanced | Select “On” to enhance IR LEDs performance. |

| Item | Description |
|---|---|
| IR Turn On Level | Select the level for IR light to activate. |
| White Balance | Process the current image to retain color balance over a color temperature range.<br>The options are: Auto, 2500K, 3200K, 4200K, 5800K, 9500K. |
| Sharpness | Sharpness enhances the clarity of image detail by adjusting the aperture and sharpening the edges in the pictures.<br>Hold and drag the slider to adjust the level of sharpness from 0 ~ 100. The higher the value, the sharper the image. |
| Wide Dynamic Range* | Wide Dynamic Range (WDR) is used when users need to increase image recognizability in overexposure and dark areas.<br>The options are: LOW / MIDDLE / HIGH / OFF |

# 3.4 Record

## 3.4.1 Record

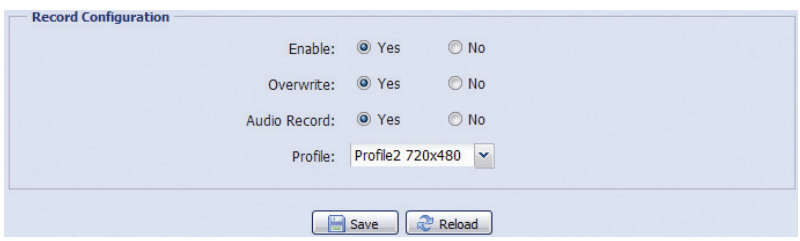
In “Record Configuration”, you can:

- Enable or disable the alarm record function. When “Enable” is set to “No”, the alarm record function is disabled even if you enable it in other configuration pages.
- Select if the data should be overwritten when the memory storage is full.
- Enable or disable the audio record function.

**Note:** Audio recording is available for selected models only.

- Select the video resolution for event recording.

**Note:** The higher resolution you choose, the more accuracy and higher image quality the recording will be, but the faster the memory storage is consumed and become full

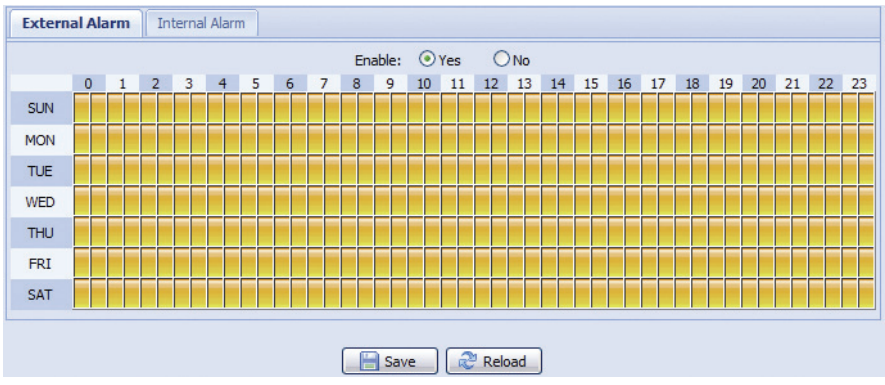



## 3.4.2 Record Timer

To schedule alarm recording, enable it, and select the day and time for recording.

Internal alarm is available for selected models only.

**Note:** The timer must be enabled for the record function to work properly.



## 3.5 Storage

### 3.5.1 Memory

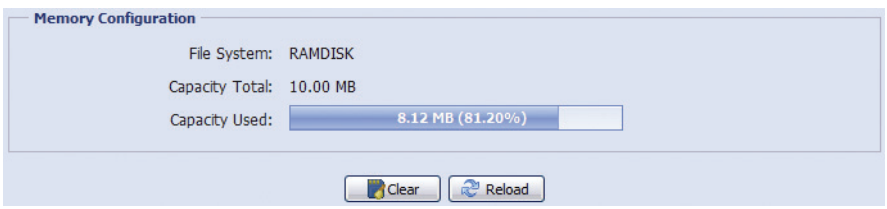
In “Memory”, you can check the remaining capacity for recording, or clear all recorded data saved if needed.

**Note:** The recorded data will be removed also when you reset or reboot this camera.

**Note:** To know how and where to insert a micro SD card, please refer to “1.7 Insert a Micro SD card (For selected models only)” at page 3. To know the compatible list of micro SD cards, please refer to “APPENDIX 7 MICRO SD CARD COMPATIBLE LIST” at page 35.

**Note:** To save more recorded data, it’s recommended to use this camera with the compatible NVR.

**Note:** To know the total recording time per recording resolution, please refer to “APPENDIX 6 RECORDING TIME TABLE” at page 34.

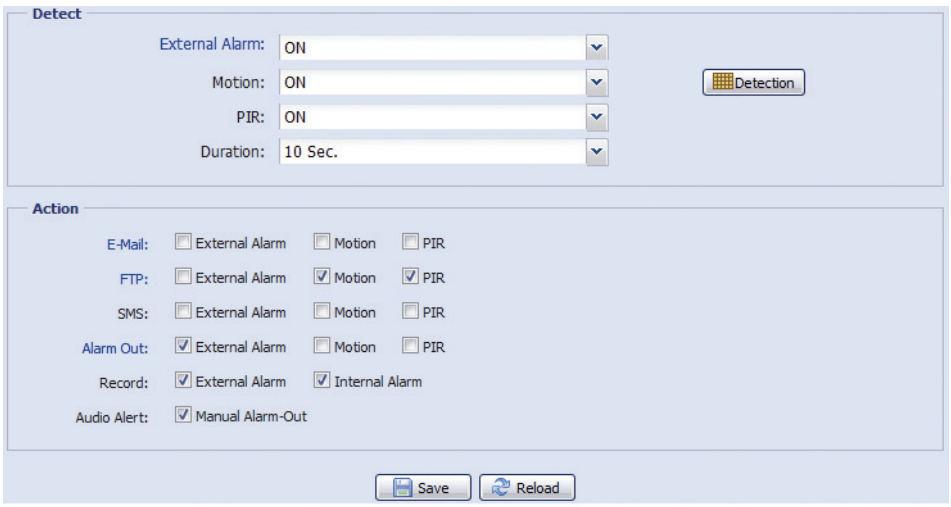



The total capacity for recording may vary depending on different models. Please check the actual display of your model.

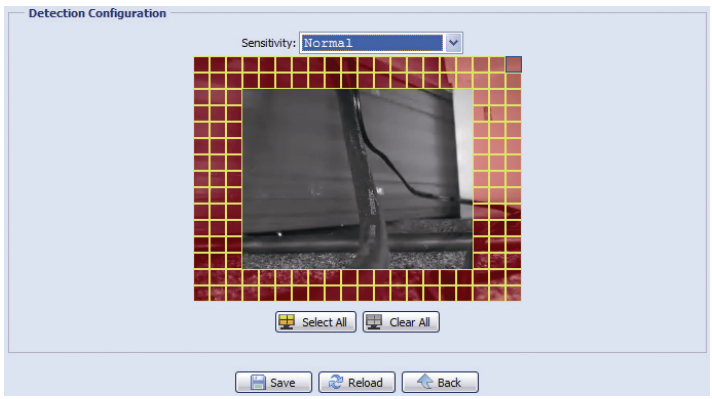
# 3.6 Trigger

## 3.6.1 Trigger

You can configure how this camera reacts when there's an alarm, a motion or a PIR event.




◆ Detect

| Item | Description |
|---|---|
| External Alarm | Enable or disable detection from external alarm-in device, and click the title "External Alarm" (in blue) to set "N.O." or "N.C." depending on the configuration of your alarm-in device. |
| Motion | Enable or disable motion detection.<br>*Motion detection is not supported when the stream format is Motion JPEG.* |
| | When "Enable" is selected, click "Detection" to enter the motion detection area setting page as follows:<br>  <br>**Sensitivity:**<br>Set the detection sensitivity from the drop-down list: High, Normal or Low.<br>**Area Setting:**<br>Set the motion detection area by selecting the area grids with your mouse. Pink grids represent the area that is not being detected while the transparent grids are the area under detection. You can set multiple areas under detection.<br>Click "Clear All" to set the whole area undetected.<br>Click "Select All" to set the whole area under detection. |
| PIR* | Enable (ON) or disable (OFF) PIR detection. |
| Duration | Set the duration time for trigger recording (5 / 10 / 20 / 40 seconds). |



*Selected models only

◆ Action

Here defines how the camera delivers alerts to you for any event.

| Item | Description |
|---|---|
| E-Mail | Select the event type you want to receive E-mail notifications when it occurs.<br>Then, click the title “E-Mail” (in blue) to configure the media type (H264 / JPEG / MPEG4), file format (AVC / AVI), and record time (1 ~ 5 seconds) for the event video clip.<br>The camera will send the captured video clip to the E-mail address(s) you assigned in “Network” → “Mail” once the selected event type occurs. |
| FTP | Select the event type you want to receive FTP notifications when it occurs.<br>Then, click the title “FTP” (in blue) to configure the media type (H264 / JPEG / MPEG4), file format (AVC / AVI), and record time (1 ~ 5 seconds) for the event video clip.<br>The camera will upload the captured video clip to the FTP site you assigned in “Network” → “FTP” once the selected event type occurs. |
| SMS* | Select the event type you want to receive a text message when it occurs.<br>The camera will send a text message to the mobile phone number you assigned in “Network” → “SMS” once the selected event type occurs. |
| Alarm Out | Select the event type you want to trigger the alarm-out device to work when it occurs.<br>Then, click the title “Alarm Out” (in blue) to configure the trigger rule (LOW / HIGH). |
| Record | Select the event type you want to enable event recording when it occurs. |
| Audio Alert | Select the event type you want to enable audio alert when it occurs. |

*Selected models only

# 3.7 General

## 3.7.1 General

To change the language of UI interface, select from the drop-down list in “Language”.

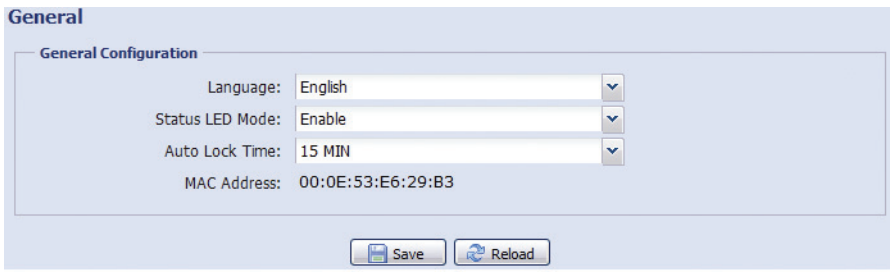
To allow the status LED indicators to show the status as indicated in “1.6 Status Indicator (For selected models only)” at page 2, select “Enable” in “Status LED Mode”; to hide the status, select “OFF”; to only show the error status, select “Temporary Disable”.

**Note:** LED indication is available for selected models only.

**Note:** The status LED mode will be restored to “Enable” after camera reboot when “Temporary OFF” is selected.

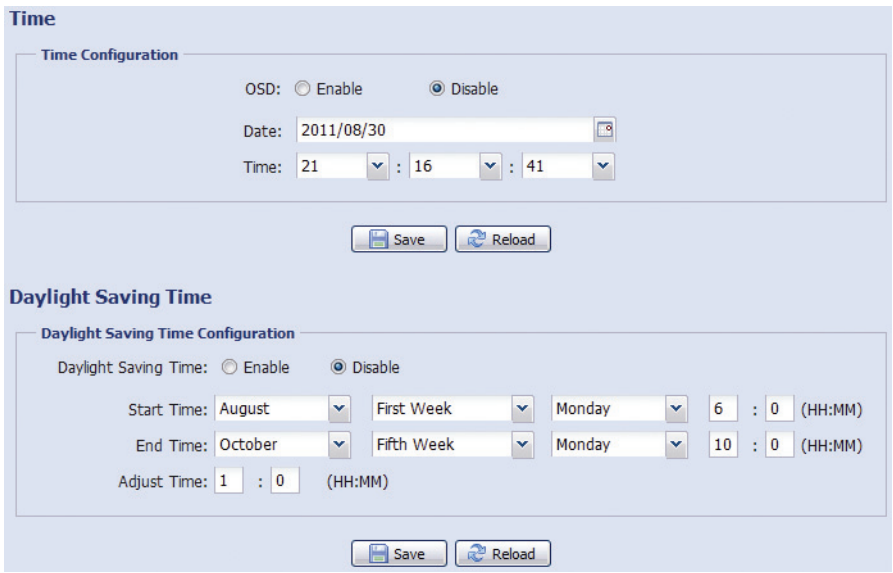
To lock camera access when it’s not used after the specified time, select “5 MIN”, “15 MIN” or “30 MIN” from the drop-down list of “Auto Lock Time”, or select “NEVER” to disable this function.

**Note:** When the camera access is locked after the specified time, to resume camera access, please enter the password.



## 3.7.2 Time

Set daylight saving time and the current time, and click “Save” to confirm.

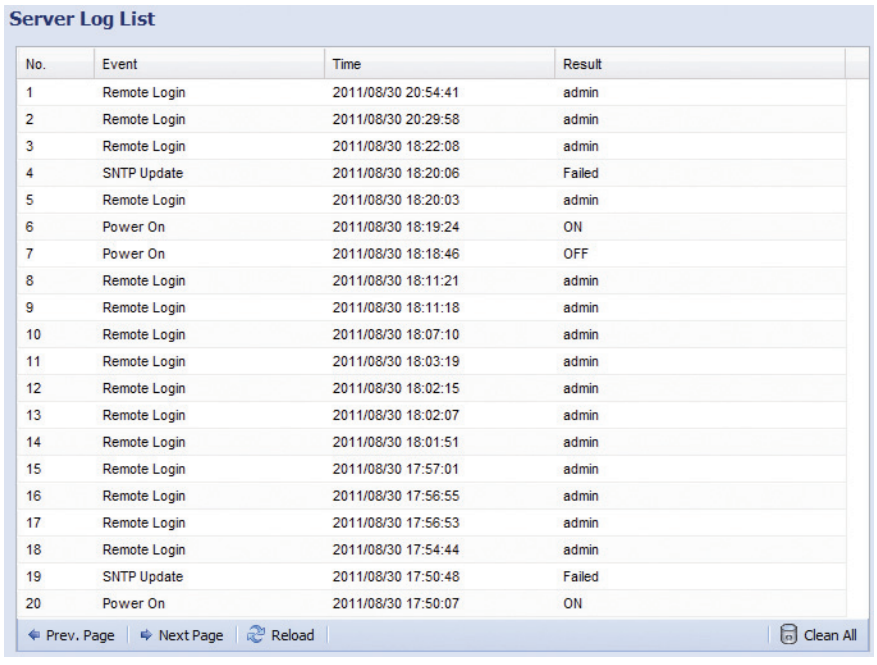



| Function | Description |
|---|---|
| ■ **Time Configuration** | |
| Date | Set the current date. |
| Time | Set the current time. |
| ■ **Daylight Saving Time Configuration** | |
| Daylight Saving Time | Specify whether to use daylight saving time (Enable / Disable). |
| | If this function is enabled, set the time period (Start Time / End Time), and adjust the daylight saving time in hours (Adjust Time). |

## 3.7.3 Server Log

To quickly search the system logs you want by event type, click “Prev. Page” or “Next Page” to find the logs you want, or check the event type(s) and click “Reload” to start searching.

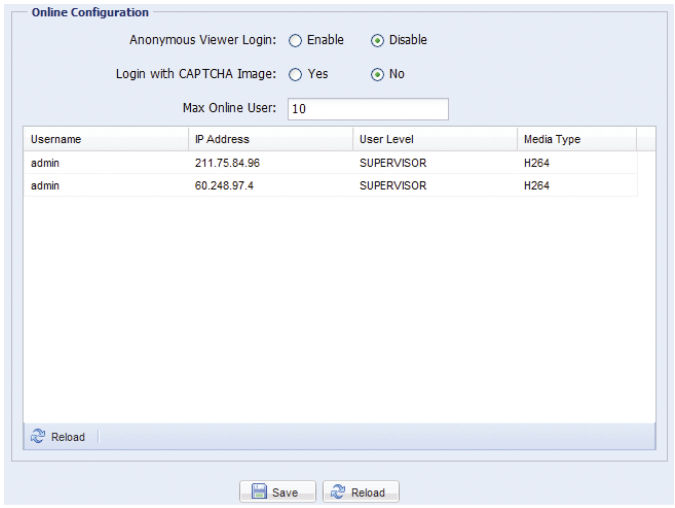
To clear all system event logs, click “Clear All”.



### 3.7.4 Online

You can check the current online user(s) with respective online information. To refresh the list, click “Reload”.

- To allow anonymous login, select “Enable” in “Anonymous Viewer Login”.
- To disable image code verification at login, select “No” in “Login with CAPTCHA Image”.

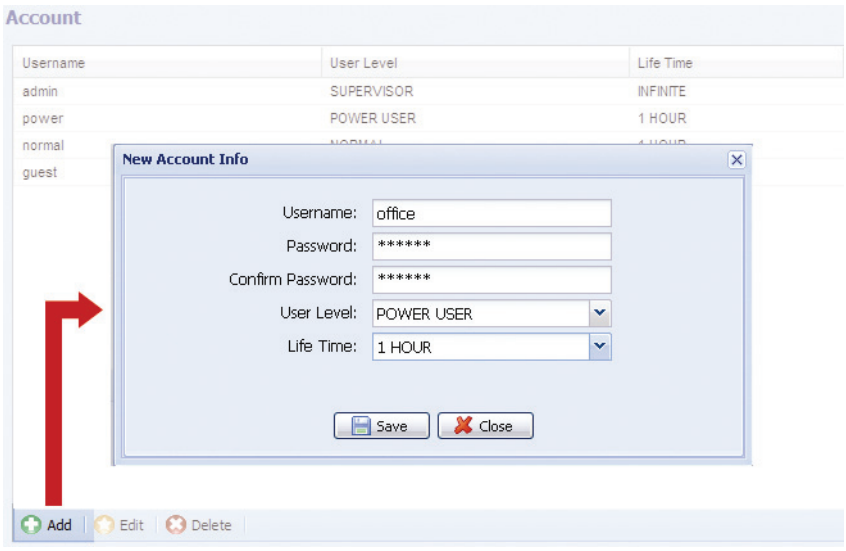



### 3.7.5 Account

You can create a new account with different user access privilege, or delete or modify an existing account setting.

## How to create a new account

Step1: Click “New”, and fill in the following columns.




| Column | Description |
|---|---|
| User Name | Set a user name that will be used for camera access. The user name allows up to 16 alphanumeric characters. |
| Password | Set the password that will be used for remote login. The password allows up to 16 alphanumeric characters. |
| Confirm Password | Enter the password again to confirm. |
| User Level | Set the security level of an account to give the permission to control different functions. There are four user levels: SUPERVISOR, POWER USER, NORMAL USER and GUEST. |
| Life Time | Select how long this account is allowed to stay online (1 MIN / 5 MIN / 10 MIN / 1 HOUR / 1 DAY / INFINITE) |

Step2: Then, click “Save” to save your setting and create a new account.

## How to modify or delete an existing account

Step1: Select the account you want to modify or delete.

Step2: To modify the account, click “Edit” to change the settings, and click “Save”.
To remove the account, click “Delete”.

**Note:** It’s not allowed to remove an account when there’s only one account in the account list.

### 3.7.6 Google Maps

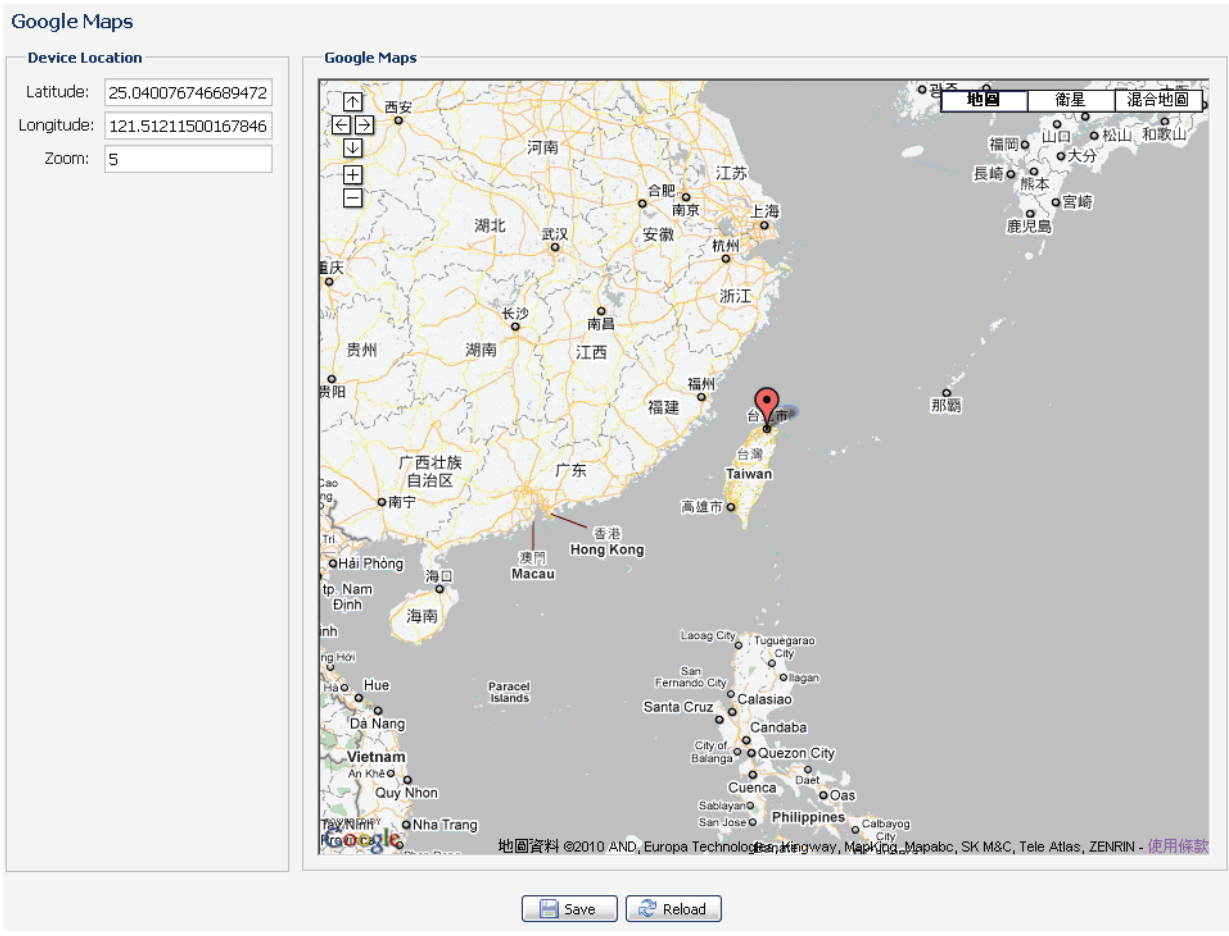
This function is used to let you know where the network camera is.

The system will prompt you to apply a Goole Maps Key if your access is denied. Please follow the instructions below when you're denied:

Step1: Click "Sign up for a Google Maps key" to enter the application page.

Step2: Check the terms and conditions, and enter the IP address of the network camera. Then, click "Generate API Key".

Step3: Copy the generated API key, and click "Update Google Maps Key" on the web browser to paste it.




### 3.7.7 Maintenance

## Firmware Upgrade

This function is used when users need to upgrade the camera for function scalability.

---

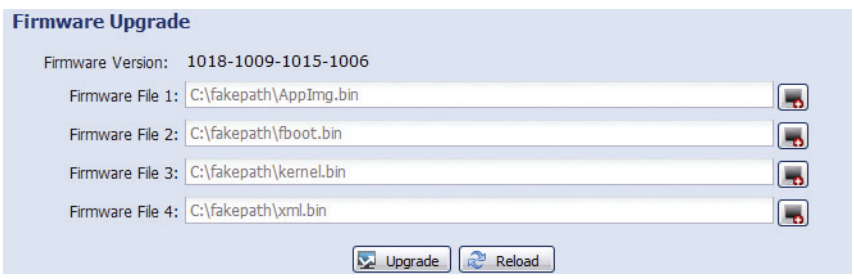
**Note:** Before using this function, make sure you have the correct upgrade files provided by your installer or distributor.

---

**Note:** The event videos saved in the camera will be removed after firmware upgrade. Make sure you've copied important events to your PC before firmware upgrade.

---

Step1: Select " " to browse to where you save the upgrade files, and select them one by one until all files are selected (up to four files).



Step2: Select “Upgrade” to start system upgrading.

**Note:** You’ll be prompted to keep current configurations. It’s recommended to keep them, or all configurations will be restored to default values after upgrade.

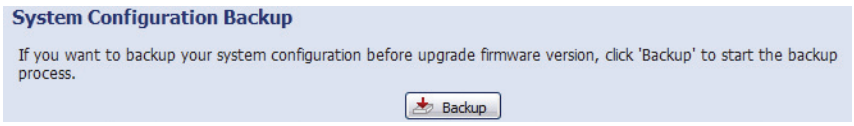
**Note:** It takes a few minutes to finish the upgrade process. Do not disconnect the power during firmware upgrade, or the upgrade may be failed. The camera will reboot after the upgrade.

## System Configuration Backup

This function is used to copy your system configuration to a “System.bin” file.

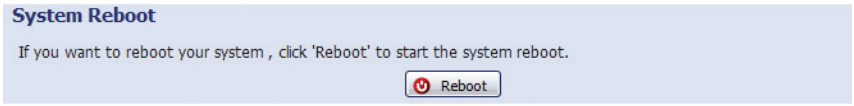
You may import the same system configuration to another camera, or restore your system configuration when the camera is reset to default values.

Select “System.bin” in “Firmware Upgrade”, and select “Upgrade” to import the system configuration.



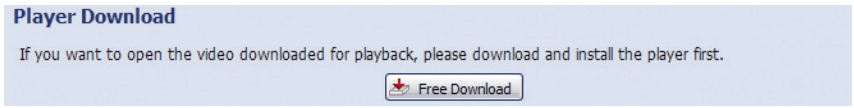

## System Reboot

Select “Reboot” to restart your camera if needed.




## Player Download

To see the event video clips downloaded to your PC, you need to first install our own video player in your PC. Select “Free Download” to download the video player, and double click the file to install it.



# APPENDIX 1 PRODUCT SPECIFICATIONS

| | DN-16081 |
|---|---|
| ▓ Network | |
| Network Compression | H.264 / MJPEG |
| Multiple Video Streaming (Encode Modes, IPS, Resolution) | 4 (H.264, MJPEG) |
| LAN Port | YES |
| LAN Speed | 10/100 Based-T Ethernet |
| Supported Protocols | DDNS, PPPoE, DHCP, NTP, SNTP, TCP/IP, ICMP, SMTP, FTP, HTTP, RTP, RTSP, RTCP, IPv4, Bonjour, UPnP, DNS,UDP,IGMP, QoS |
| Frame Rate | 30 / 25fps |
| Number of Online Users | 10 |
| Security | (1) Multiple user access levels with password<br>(2) IP address filtering<br>(3) Digest authentication |
| Remote Access | (1) Internet Explorer on Windows operating system<br>(2) EagleEyes on iOS & Android devices |
| ONVIF Compatible | YES |
| ▓ Camera | |
| Image Sensor | 1/2.9" HD CMOS image sensor |
| Video Resolution | 1080P to CIF |
| Min Illumination | 0.1 Lux / F1.5, 0 Lux (LED ON) |
| Shutter Speed | 1/10,000 ~ 1/7.5 (Slow shutter) |
| S/N Ratio | More than 48dB (AGC off) |
| Lens | f3.8mm / F1.5 |
| Viewing Angle | 83.2° (Diagonal) / 73.2° (Horizontal) / 42.8° (Vertical) |
| IR LED | 1 unit (15 meters) |
| IR Shift | YES |
| PIR Sensor | Detection Range 76° wide angle with up to 5m long distance at 2.5m height (under 30℃) |
| White Balance | ATW |
| AGC | Auto |
| IRIS Mode | AES |
| POE | YES (IEEE 802.3af) |
| External Alarm I/O | YES (1 in 1 out) |
| Micro SD Card Slot | YES |
| Smart Light Control | YES |
| WDR | YES |
| Power Source (±10%) | 12V / 1A |
| Current Consumption (±10%) | 400mA |
| Operating Temperature | 0℃~40℃ |
| ▓ Others | |
| Mobile Surveillance | iPad / iPhone / Android mobile device |
| RTC (real-time clock) | YES |
| Motion Detection | YES |
| Digital Pan / Tilt / Zoom | YES |
| 3 Axis | YES |
| Event Notification | FTP / Email / SMS |
| Minimum Web Browsing Requirements | • Intel core i3 or higher, or equivalent AMD<br>• 2GB RAM<br>• AGP graphics card, Direct Draw, 32MB RAM<br>• Windows 7, Windows Vista & Windows XP, DirectX 9.0 or later<br>• Internet Explorer 7.x or later |

* The specifications are subject to change without notice. ** Dimensional tolerance: ± 5mm

| | DN-16082 |
|---|---|
| **Network** | |
| Network Compression | H.264 / MJPEG |
| Multiple Video Streaming (Encode Modes, IPS, Resolution) | 4 (H.264, MJPEG) |
| LAN Port | YES |
| LAN Speed | 10/100 Based-T Ethernet |
| Supported Protocols | DDNS, PPPoE, DHCP, NTP, SNTP, TCP/IP, ICMP, SMTP, FTP, HTTP, RTP, RTSP, RTCP,IPv4, Bonjour, UPnP, DNS,UDP,IGMP, QoS |
| Frame Rate | 30 / 25fps |
| Number of Online Users | 10 |
| Security | (1) Multiple user access levels with password<br>(2) IP address filtering<br>(3) Digest authentication |
| Remote Access | (1) Internet Explorer on Windows operating system<br>(2) EagleEyes on iOS & Android devices |
| ONVIF Compatible | YES |
| **Camera** | |
| Image Sensor | 1/2.9" CMOS image sensor |
| Video Resolution | 1080P to CIF |
| Min Illumination | 0.1 Lux / F1.4, 0 Lux (LED ON) |
| Shutter Speed | 1/10,000 ~ 1/7.5 (Slow shutter) |
| S/N Ratio | More than 48dB (AGC off) |
| Lens | f2.8 ~ 12mm / F1.4 ~ F2.8 |
| Viewing Angle | Wide: 97.4° (Horizontal) / 58.1° (Vertical) / 111.7° (Diagonal) Tele: 27.1° (Horizontal) / 15.2° (Vertical) / ° (Diagonal) |
| IR LED | 3 units<br>(Default: up to 30 meters;<br>IR Enhanced Mode: up to 50 meters) |
| IR Shift | YES |
| White Balance | ATW |
| AGC | Auto |
| IRIS Mode | AES |
| POE | YES (IEEE 802.3af) |
| External Alarm I/O | YES (1 in 1 out) |
| Micro SD Card Slot | YES |
| Vandal Resistance | IK10 |
| Weather-proof | IP66 |
| WDR | YES |
| Smart Light Control | YES |
| Power Source (±10%) | 12V / 1.5A |
| Current Consumption (±10%) | 849mA |
| Operating Temperature | -20℃~40℃ |
| **Others** | |
| Mobile Surveillance | iPad / iPhone / Android mobile device |
| RTC (real-time clock) | YES |
| Motion Detection | YES |
| Digital Pan / Tilt / Zoom | YES |
| Event Notification | FTP / Email / SMS |
| Minimum Web Browsing Requirements | • Intel core i3 or higher, or equivalent AMD<br>• 2GB RAM<br>• AGP graphics card, Direct Draw, 32MB RAM<br>• Windows 7, Windows Vista & Windows XP, DirectX 9.0 or later<br>• Internet Explorer 7.x or later |

* The specifications are subject to change without notice.

** Dimensional tolerance: ± 5mm

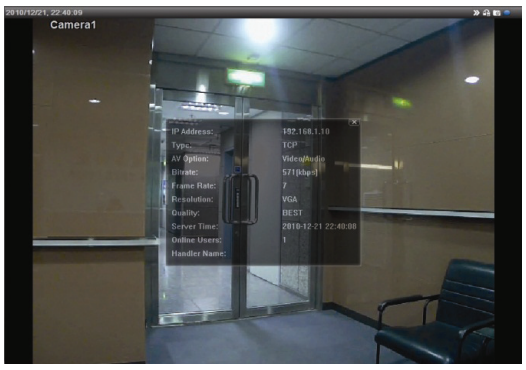
# APPENDIX 2 BIT RATE TABLE FOR REFERENCE

The data below is for reference only.

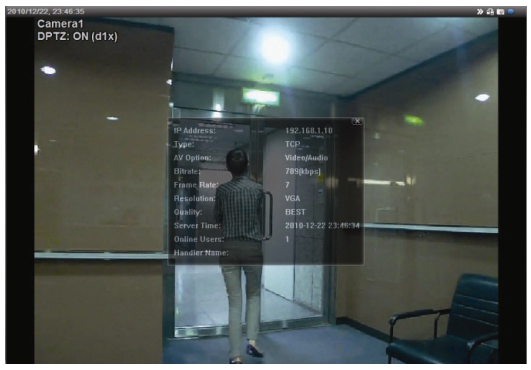
The bit rates listed here may vary depending on the resolution, image quality & frame rate you choose, the complexity of your monitoring area, and how often the moving objects show in your monitoring area.

**Testing Environment**

- Place: Office Entrance
- Network translation: H.264
- Camera type: Megapixel camera




*Static: No one coming in and out*




*Dynamic: One or two people coming in and out*

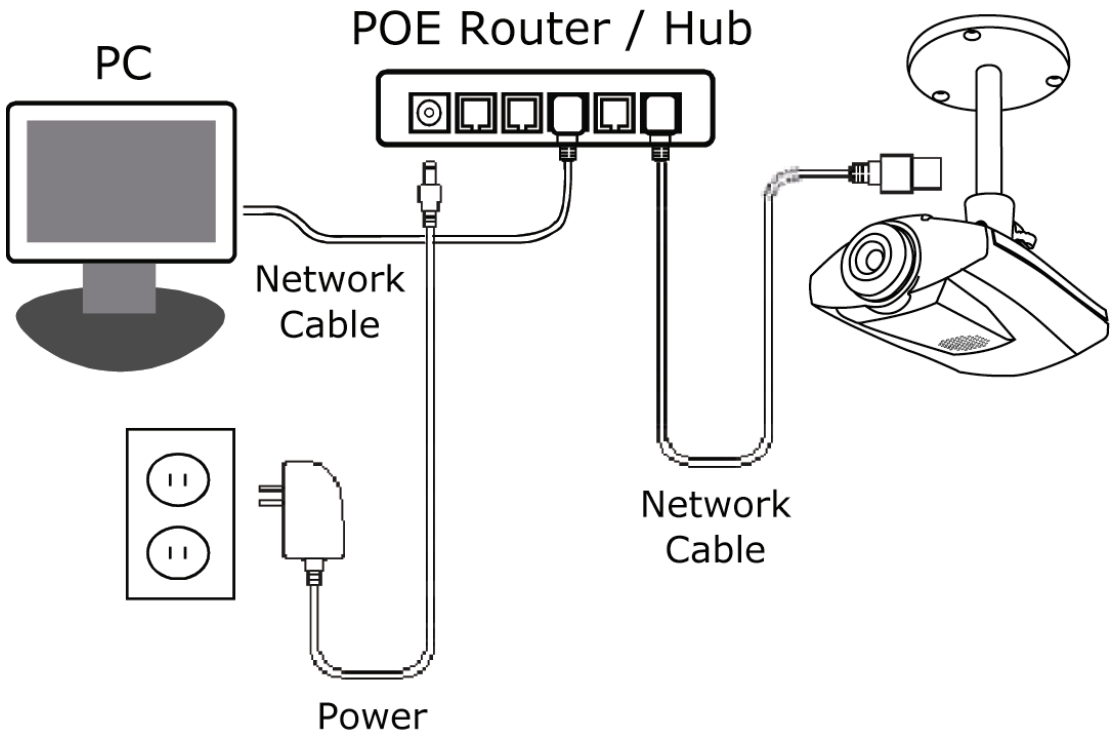
| Resolution | Quality | Frame Rate | (Dynamic) kbps | (Static) kbps |
|---|---|---|---|---|
| SXGA | Best | FULL | 3253 | 3216 |
| | High | | 2375 | 2160 |
| | Normal | | 1571 | 1266 |
| | Basic | | 1465 | 873 |
| VGA | Best | | 2010 | 1261 |
| | High | | 1042 | 1034 |
| | Normal | | 685 | 572 |
| | Basic | | 457 | 350 |
| QVGA | Best | | 646 | 366 |
| | High | | 482 | 350 |
| | Normal | | 302 | 286 |
| | Basic | | 168 | 161 |
| SXGA | Best | 1/4 | 1163 | 1076 |
| | High | | 989 | 715 |
| | Normal | | 855 | 534 |
| | Basic | | 719 | 443 |
| VGA | Best | | 789 | 571 |
| | High | | 451 | 447 |
| | Normal | | 349 | 237 |
| | Basic | | 217 | 165 |
| QVGA | Best | | 269 | 147 |
| | High | | 182 | 131 |
| | Normal | | 164 | 113 |
| | Basic | | 97 | 71 |

| Resolution | Quality | Frame Rate | (Dynamic) kbps | (Static) kbps |
|---|---|---|---|---|
| SXGA | Best | 1/15 | 581 | 374 |
| | High | | 405 | 342 |
| | Normal | | 487 | 248 |
| | Basic | | 337 | 141 |
| VGA | Best | | 358 | 79 |
| | High | | 201 | 63 |
| | Normal | | 180 | 28 |
| | Basic | | 92 | 15 |
| QVGA | Best | | 111 | 84 |
| | High | | 99 | 68 |
| | Normal | | 97 | 54 |
| | Basic | | 58 | 42 |

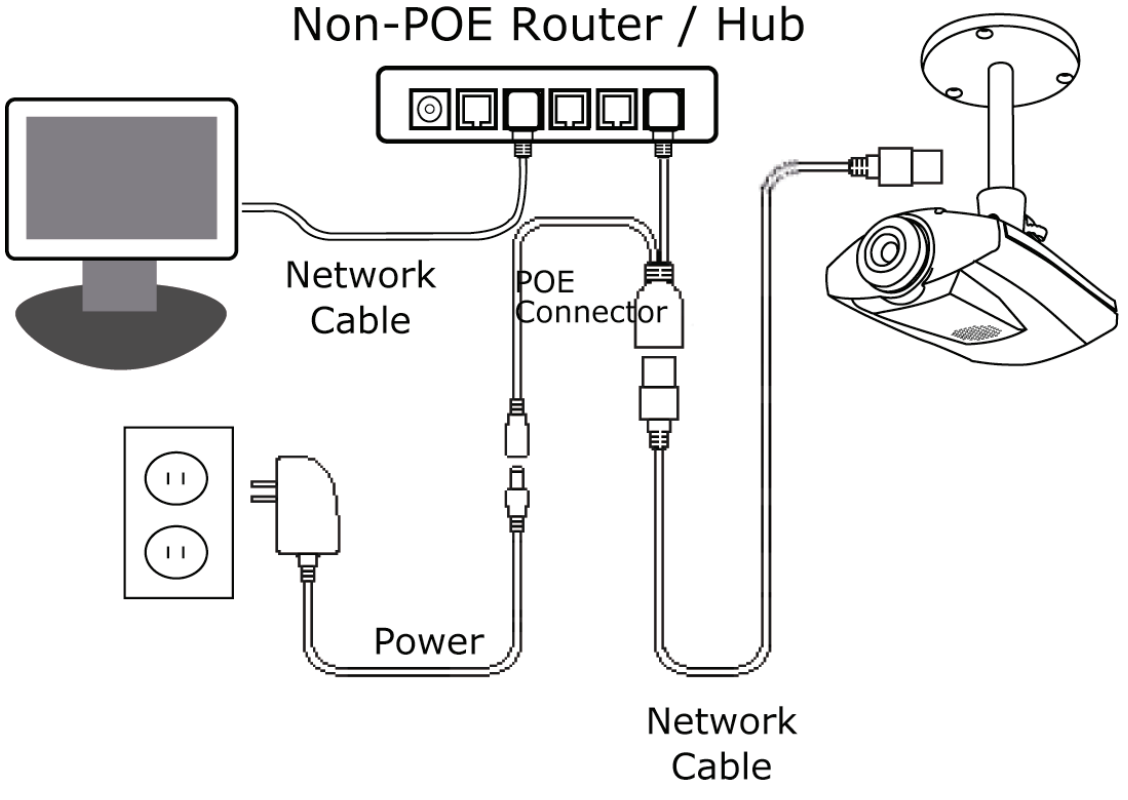
# APPENDIX 3 POE CONNECTION

This device supports PoE (Power-over-Ethernet), developed by the IEEE802.3af task force, and power can be supplied over the same network (Ethernet) cable as the one used to connect to Internet. No power cable is needed. Below shows two examples of POE application for reference.

- When your router / hub supports POE connection




- When your router / hub doesn't support POE connection (An optional POE connected required)



# APPENDIX 4 API ID APPLICATION FOR SMS MESSAGING

To allow the camera automatically sending a text message when an event happens, you need to apply an API ID from a mobile messaging company first, such as Clickatell or EVERY8D.

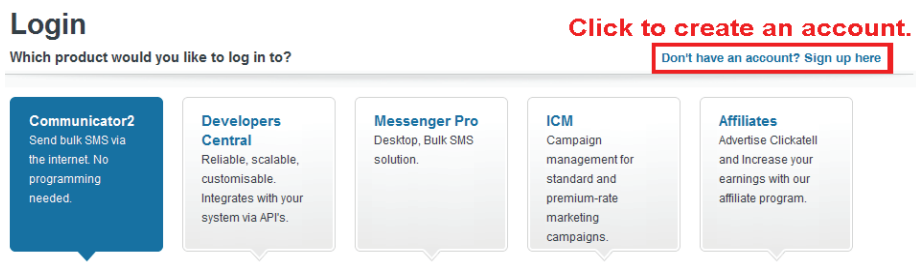
Below shows an example of how to get an API ID from Clickatell.

**Note:** The SMS messaging may not be totally free. Please check the charge policy of the messaging service you use.

**Note:** The instructions below are for reference only and may vary when Clickatell's official website is updated.

Please follow the steps below for application.

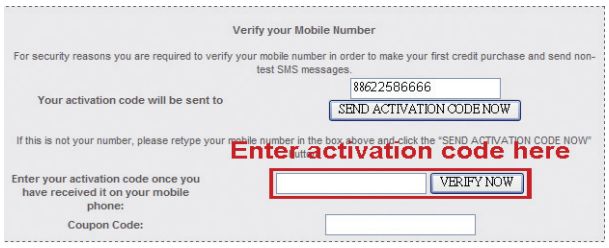
Step1: Go to http://www.clickatell.com/login.php. Sign up an account first.



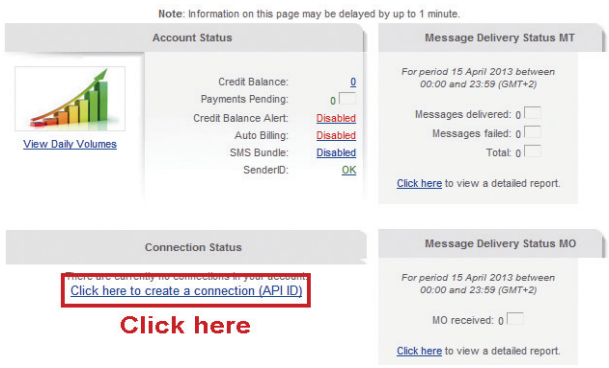

Step2: Select "Developers Central", select the location where you want to use this service, and fill in your information to create an account.

Step3: When the account is created, the system will automatically send an Email to your specified Email address with the user name, password, and client ID used to log into the service.

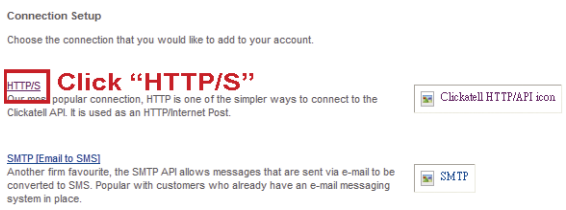
Step4: Click the link within the email to log in, and you will be prompted to validate your mobile phone number. Select "SEND ACTIVATION CODE". The system will send an activation code to that number for verification. Check if you receive a text message from Clickatell, and enter the activation code.




Step4: In your account, find “Connection Status” and create a connection (API ID).



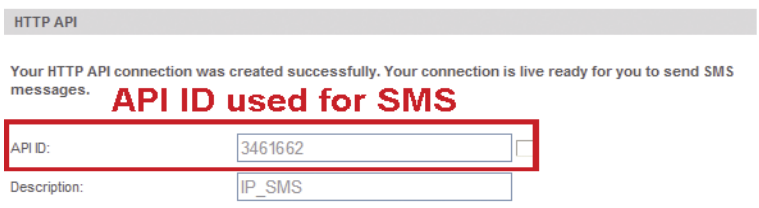

Step5: Select “HTTP/S”.




Give a meaning name for this connection, and click “Submit and Get API ID”.

Step5: An API ID will be generated as follows.

**Note:** Note down the API ID for SMS notification setting later.



# APPENDIX 5 Q&A

For more details about EagleEyes Q&A, please visit our official website: www.eagleeyescctv.com.

| Question | Answer |
|---|---|
| I can connect to this camera in my house or office where it's installed with wireless network.<br>But when I leave my house or office, I can't connect to it from my mobile phone (with 3G network), or other PC (connected to Internet). Why? | You didn't configure this camera to Internet, but only in LAN.<br>Please follow the steps in the advanced network setup guide downloadable from www.surveillance-download.com/user/m521.swf to complete network configurations, or it's recommended for you to check with your local installer or reseller for this service because it's usually hard for a person who doesn't have network knowledge to set network configurations. |
| My live images are not fluent. Why? | Image fluency could be affected by the local network upload bandwidth, router efficiency, client network download bandwidth, complexity of live view, and more.<br>(Recommended) To have the best image fluency, select QVGA; to have the best image quality, select "HD1080P" or "SXVGA" based on the model you have; to have normal image fluency and quality, select "VGA". |
| The live video keeps flickering. Why? | Please try adjusting the power line frequency to "60 Hz" or "50 Hz" for the camera.<br>For iPhone users, access the camera, and select " " on the top right corner to enter IPCAM Configuration page. Then, go to "Advance Setup" → "Camera" to change setting.<br>For access from Internet Explorer, log into the camera, and select "Config." → "Camera" → "Video". |

# APPENDIX 6 RECORDING TIME TABLE

Below shows the estimated total recording time for each recording resolution.

The recording time per resolution is the average value collected from the both alarm trigger conditions indicated in “Testing Environment”, and is for reference only.

The time may vary depending on the resolution, image quality & frame rate you choose, the complexity of your monitoring area, and how often the moving objects show in your monitoring area.

**Testing Environment**

- Place: Office
- Monitoring area: 1.5 meters away from the camera
- Alarm trigger conditions:
  (1) One person walks by the monitoring area and leaves immediately.
  (2) Two persons walk by the monitoring area. One goes away immediately, and the other one stays a while and goes away.

| **Recording Resolution** | SXGA | VGA | QVGA |
|---|---|---|---|
| **Recording time (second)** | 25 | 115 | 211 |

# APPENDIX 7 MICRO SD CARD COMPATIBLE LIST

| Manufacturer | Capacity | Class | Manufacturer | Capacity | Class |
|---|---|---|---|---|---|
| ADATA | 2GB | -- | Transcend | 2GB | -- |
| | 4GB | Class 6 | | 4GB | Class 2 |
| Apacer | 2GB | -- | | 4GB | Class 4 |
| | 4GB | Class 4 | | 4GB | Class 6 |
| SanDisk | 2GB | -- | | 8GB | Class 6 |
| | 4GB | Class 4 | | 16GB | Class 10 |
| | 8GB | Class 4 | Kingston | 2GB | -- |
| | 16GB | Class 4 | | 4GB | Class 4 |
| | 32GB | Class 4 | | 8GB | Class 4 |
| Verico | 2GB | -- | | 32GB | Class 4 |
| | 4GB | Class 4 | TOSHIBA | 16GB | Class 4 |
| | 16GB | Class 10 | TOPRAM | 32GB | Class 10 |

ASSMANN Electronic GmbH
Auf dem Schüffel 3 D-58513 Lüdenscheid, Germany

Hinweis: Bei falscher Installation und unsachgemäßem Gebrauch im Wohnbereich kann das Gerät Störungen bei Rundfunkgeräten und anderen elektronischen Geräten verursachen. Ein sachgemäßer Gebrauch liegt vor, wenn das Gerät, soweit durchführbar, mit geschirmten Anschlusskabeln betrieben wird (bei Netzwerkprodukten zusätzlich geschirmter Kabel der Kategorie 5e und höher). Das Gerät wurde getestet und liegt innerhalb der Grenzen für Computerzubehör der Klasse A gemäß den Anforderungen nach EN 55022. Warnung: Dieses Produkt entspricht der Prüfklasse A –es kann im Wohnbereich Funkstörungen verursachen; in diesem Fall kann vom Betreiber verlangt werden, angemessene Maßnahmen durchzuführen und dafür aufzukommen. Konformitätserklärung: Das Gerät erfüllt die EMV-Anforderungen nach EN 55022 Klasse A für ITE und EN 55024. Geräte mit externer oder eingebauter Spannungsversorgung erfüllen weiterhin die Anforderungen nach EN 61000-3-2 und EN 61000-3-3. Damit sind die grundlegenden Schutzanforderungen der EMV-Richtlinie 2004/108/EC erfüllt. Die CE-Konformität wurde nachgewiesen. Die entsprechenden Erklärungen sind beim Hersteller hinterlegt.