NETWORK CAMERA

User's Manual

Ver.F0626

Table of Contents

1. OVERVIEW

This camera is a megapixel motorized network camera module with a built-in web based viewer accessible by multiple browsers.

This camera supports dual compression formats and triple streaming simultaneously. The two standard compression formats include H.264 and MJPEG. The triple streams can be configured to a variety of resolutions, bit rates and frame rates.

1.1. Key Features

1. Motorized Zoom Lens (Optional)

- 3.5x Zoom (2.8~12mm)
- Field of View: H(103°-30.8°), V(74.4°-23.3°), D(138°-40°)
- Focus Mode: One-Push, Manual (TBD)

2. Sony Exmor™ CMOS 2MP/3MP Sensor

- 1/2.8 inch RGB Bayer
- RGB Raw / S-LVDS

3. Sony Xarina™ Image Signal Processor

- Digital WDR,Defog
- 2D/3D Noise Reduction
- Tampering, LDC, Corridor

4. Sony Xarina™ H.264 Encoding, MJPEG Encoding

- Up to 1920x1080@30fps / 2048x1536@30fps
- Triple Streaming
- TCP/IP, UDP, HTTP, RTP, RTSP, IPv4/v6...

5. Built-In Web Browser

- Active X
- Support IE/Chrome/Safari

6. ONVIF Compliant

- Profile S
- Support ONVIF Compatible 3rd Party VMS or NVR

1.2. System Requirements

1. Operating System

- Windows Vista (32 bit) Ultimate, Business Edition

• Windows 7, 8 (32/64 bit) Ultimate, Professional Edition

2. Processor

• Intel Core 2 Duo 2.4 GHz or higher
• Intel Core i7 2.8 GHz or higher

3. Memory

• 2 GB or more

4. Resolution

• 1280X1024 pixels or higher (32 bit color)

5. Web Browser

• Microsoft Internet Explorer Ver. 9.0, 10.0 or Higher
• Safari Ver. 4.0 (Plug-in free viewer only)
• Google Chrome Ver. 4.0 (Plug-in free viewer only)

1.3. Accessing the IP camera

1. Open Web browser

2. Type IP address

• Enter the camera's IP address in the Internet Explorer® address bar.
• The default IP address is ***192.168.0.10(Defult DHCP function On)***

• The default User ID and Password is ***admin / 11111111***

1.4. Packing List

This product is composed with following parts.

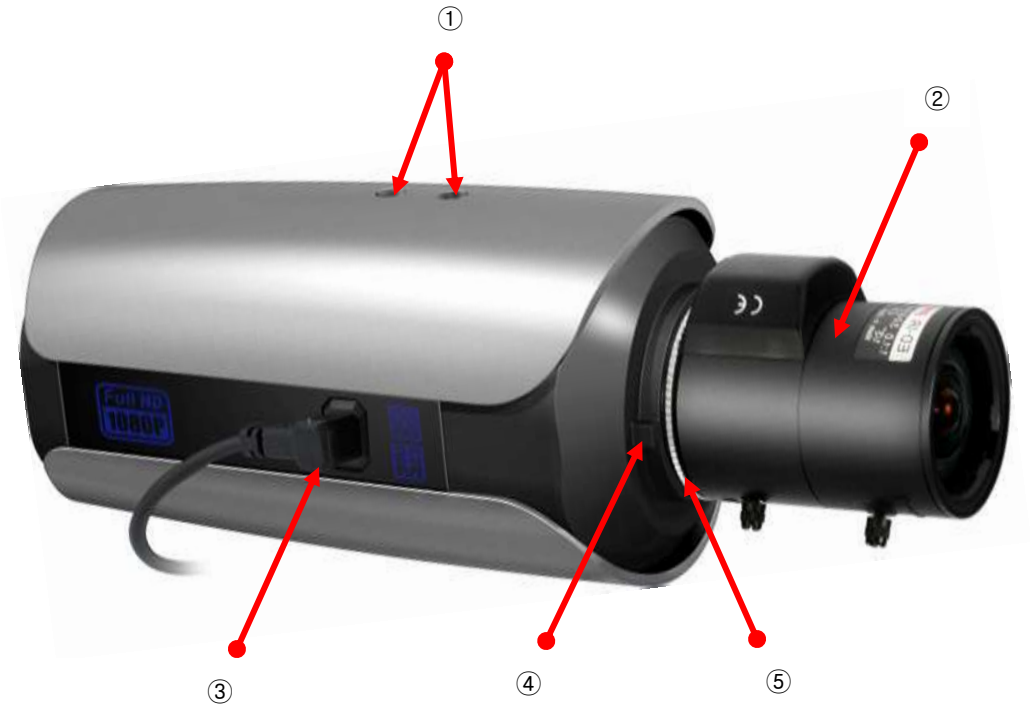
Name	Q'ty	Appearance			
		Box type	**Vandal Dome Type**	**Dome Type**	**Bullet Type**
Camera	1ea				
L-Wrench	1ea				
C-Mount Adaptor	1ea				
Screw	4ea				
Screw set & ABS Opener	1pack				
CD (User's Manual, viewer S/W and etc.)	1ea				
Audio Jack	1ea				
Insulation Pads	1ea				

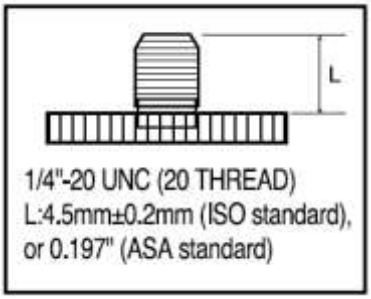
Please make sure all the listed items are included in the package. For any missing items, please contact your local distributor.

1.5. Name and Function of each part

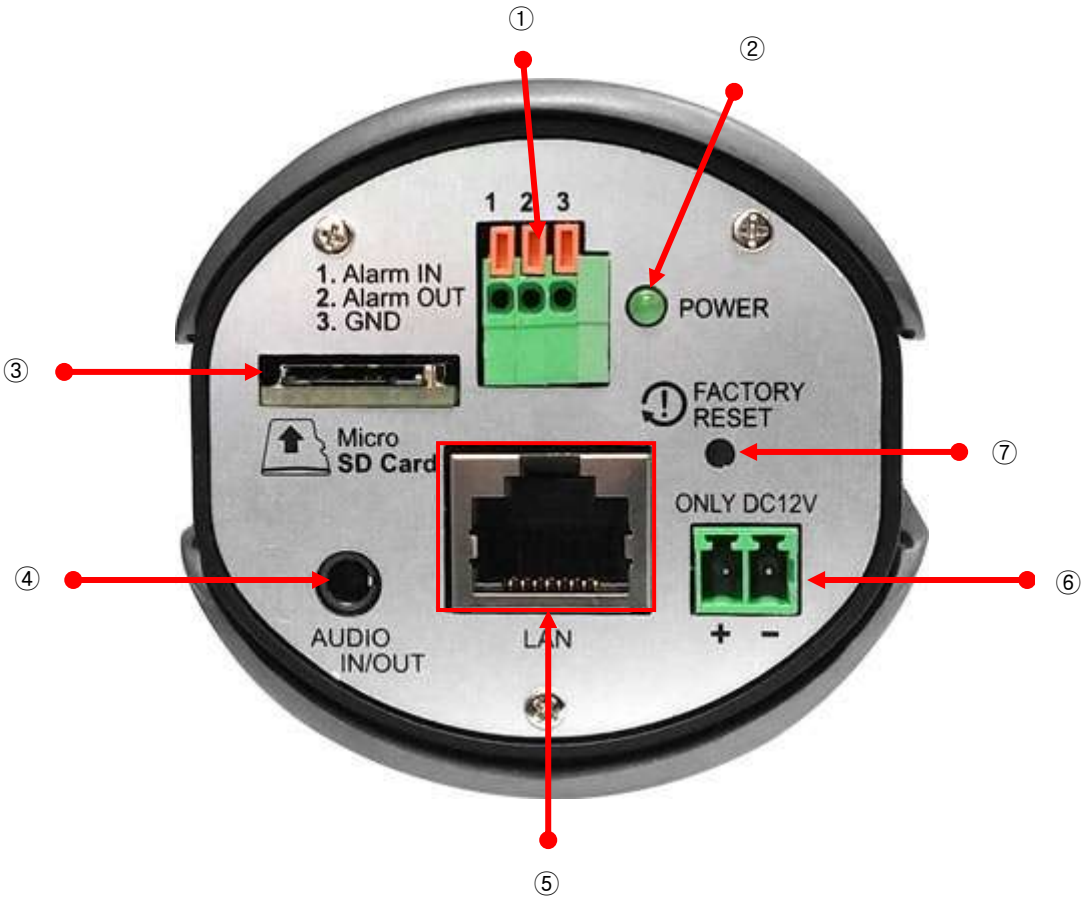
1.5.1. Boxtype Camera

■ Front Side



No.	Name	Functions.
①	Mounting hole	Mount can be put at the top or bottom. • Mounting Screw Size 
②	Lens	A lens mounted on the camera(* optional)
③	Auto Iris Lens Connector	Auto Iris lens connector port.
④	Back Focus Fixing screws	Back Focus.can be adjusted by screw using L-wrench
⑤	CS mount lens adapter	Replace the lens adaptor when using CS mount lens.

■ Back side



No.	Name	Functions
①	ALARM	ALARM IN/OUT(Output is the digital output, circuit should be connected to outside)
②	Status Indicators	power status
③	Micro SD Card Slot	Insert the Micro SD card into this slot.(Min 2GB~Max 64GB support) Use streaming No 2,3 Only . SD-CARD CLASS supports up to Class 10 support, SDHC / SDXC up to UHS-I SDR40 mode. (MLC Type)
④	Audio jacks	Use AUDIO IN/OUT with supplied Audio jack.
⑤	Network Connector	The terminal connected to the network
⑥	Power connector	DC 12V 1.5A (PoE Option)
⑦	Factory Reset Button	1. Press the button. 2. Turn on the power 3. Release the button after 5 seconds. 4. is automatically reset.

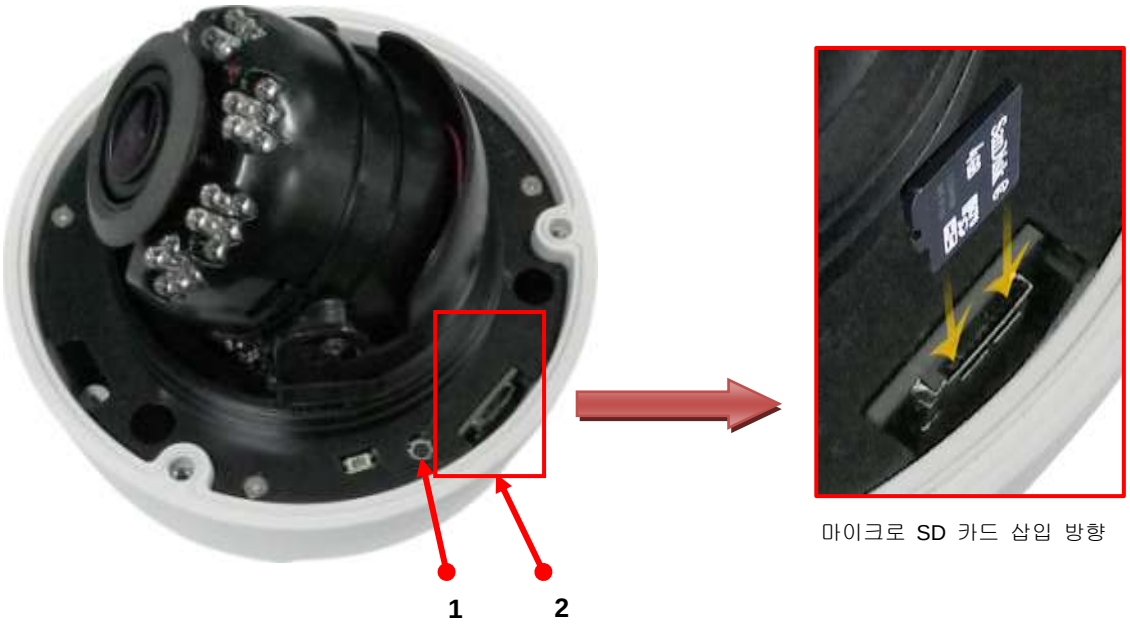
1.5.2. Vandal Dome Camera

■ External Part

IR Vandal Dome Camera

Vandal Dome Camera

■ Internal Part



마이크로 SD 카드 삽입 방향

No.	Name	Functions
1	Factory Reset Button	1. Press the button. 2. Turn on the power 3. Release the button after 5 seconds. 4. is automatically reset.
2	Micro SD Card Slot	Insert the Micro SD card into this slot.(Min 2GB~Max 64GB support) Use streaming No 2,3 Only . SD-CARD CLASS supports up to Class 10 support, SDHC / SDXC up to UHS-I SDR40 mode. (MLC Type)

※ Bullet type of cable specifications are the same as the camera.

1.5.3. Dome Camera

■ External Part

IR Dome Camera

Dome Camera

■ Internal Part

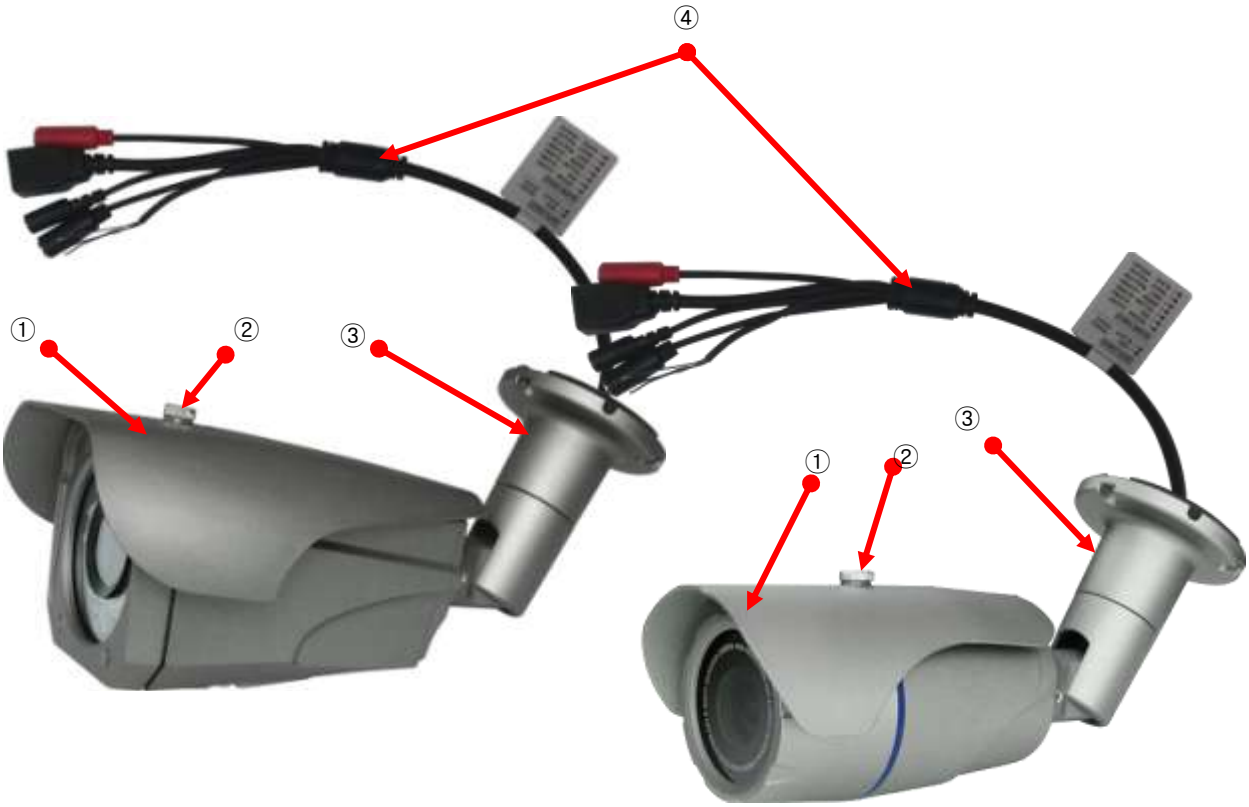
Factory Reset Button:
1. Press the button.
2. Turn on the power
3. Release the button after 5 seconds.
4. is automatically reset.

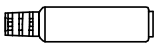
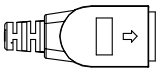
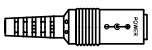
Micro SD Card Slot : Insert the Micro SD card into this slot.(Min 2GB~Max 64GB support) Use streaming No 2,3 Only .
SD-CARD CLASS supports up to Class 10 support, SDHC / SDXC up to UHS-I SDR40 mode. (MLC Type)

※ Bullet type of cable specifications are the same as the camera.

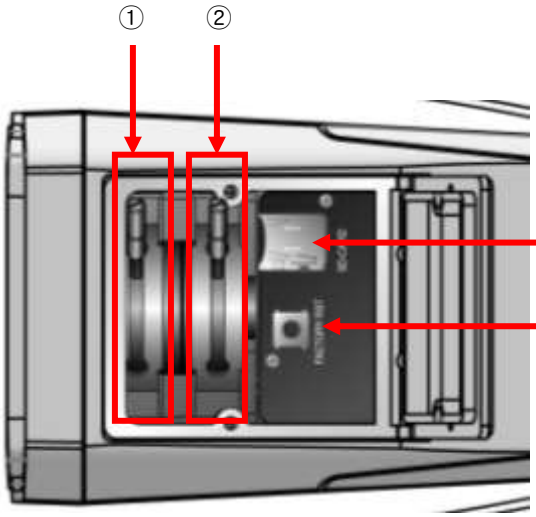
1.5.4. Bullet Type Camera

■ External Part

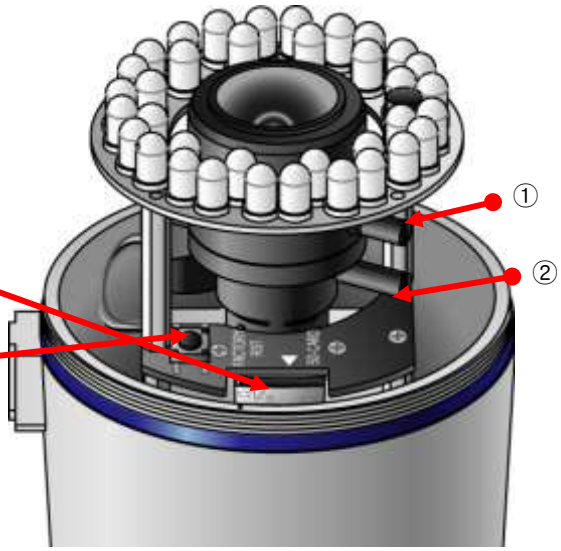


NO.	Name	Functions	
①	Sun-Shield	To block out the direct sunlight and foreign objects.	
②	Sunshield-Set Screw	To fix Sunshield to Camera.	
③	Set Bracket	To fix camera to the wall or other structures.	
④	Cable		Audio Out(Red), for speaker connection
			Audio In(Black), for microphone connection
			LAN
			Power(DC12V 1.5A) 
			Orange: GND Blue: Alarm In Green: Alarm Out (Output is digital mode and need to connect circuit to the outside.)

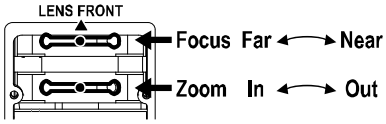
■ Internal Part



54 IR Camera



36 IR Camera

NO	Name	Function	
①	Focus Control Lever		Control the lens of this unit only by moving right & left, not by locking or unlocking the lever.
②	Zoom Control Lever		
③	SD Card Insertion Slot	Insert the Micro SD card into this slot.(Min 2GB~Max 64GB support) Use streaming No 2,3 Only . SD-CARD CLASS supports up to Class 10 support, SDHC / SDXC up to UHS-I SDR40 mode. (MLC Type)	
④	Factory Reset Button	1. Press the button. 2. Turn on the power 3. Release the button after 5 seconds. 4. is automatically reset.	

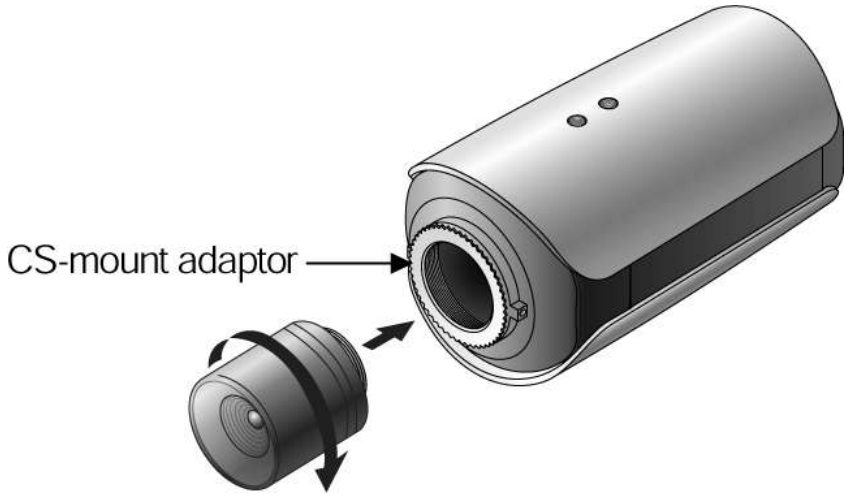
2. Hardware Installation

2.1. Boxtype Camera Installation

■ Lens mount

- When using a CS-Mount lens:

CS mount adaptor is a factory default, when using CS lens, fit it right-clockwise.



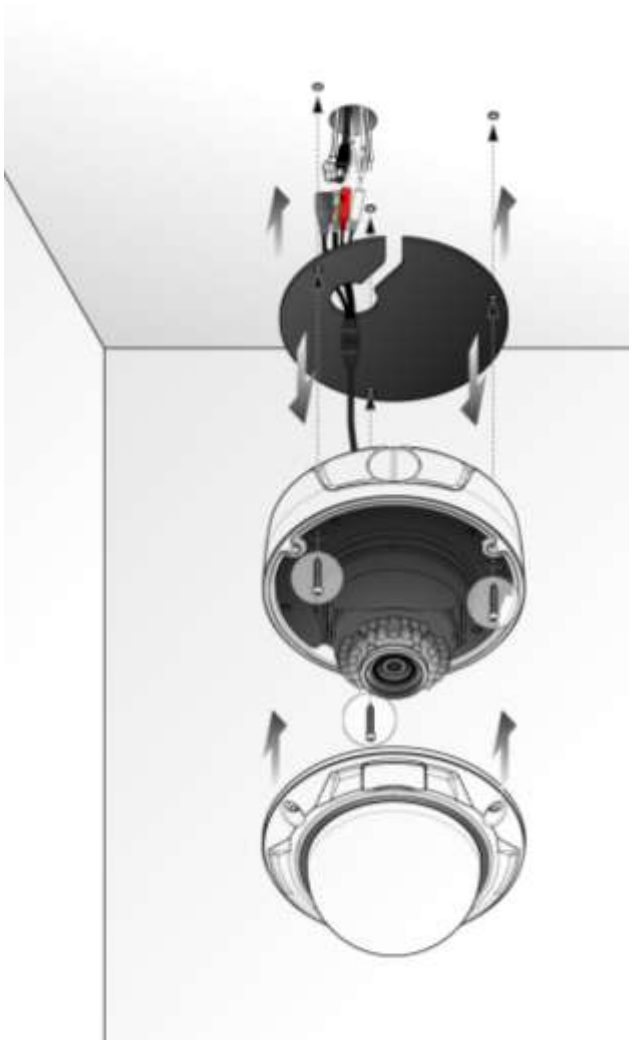
- When using a C-Mount lens:

Put the C-lens above CS mount adaptor after clockwise inserting CS mount.

☞ *lens need to be purchased separately and make sure you are using the mega lens.*

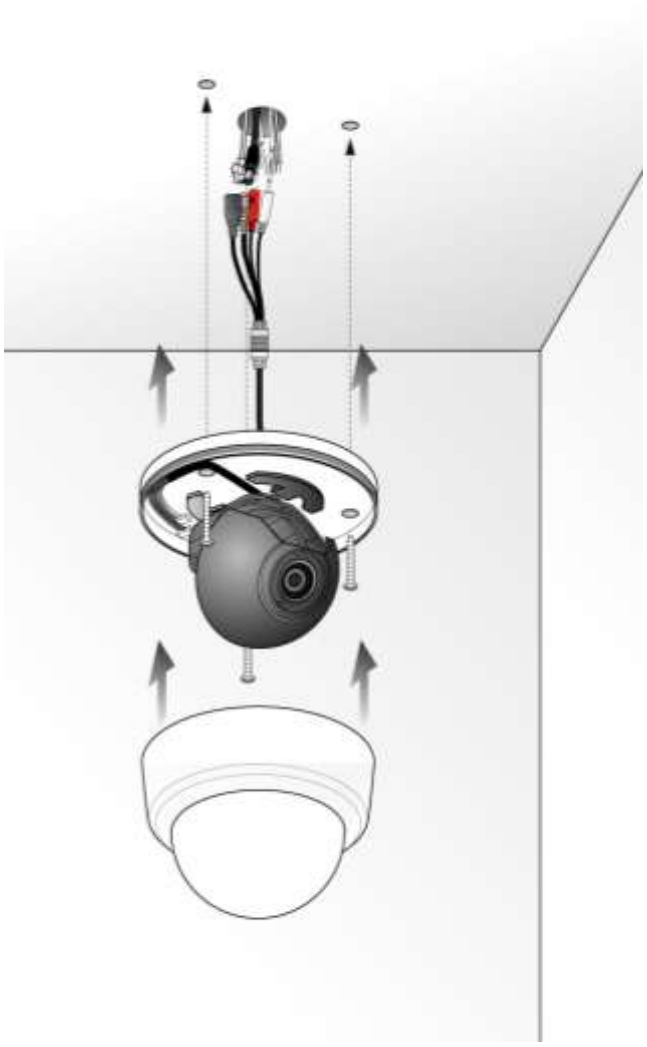
2.2. Dome type camera Installation

■ Vandal Dome Camera



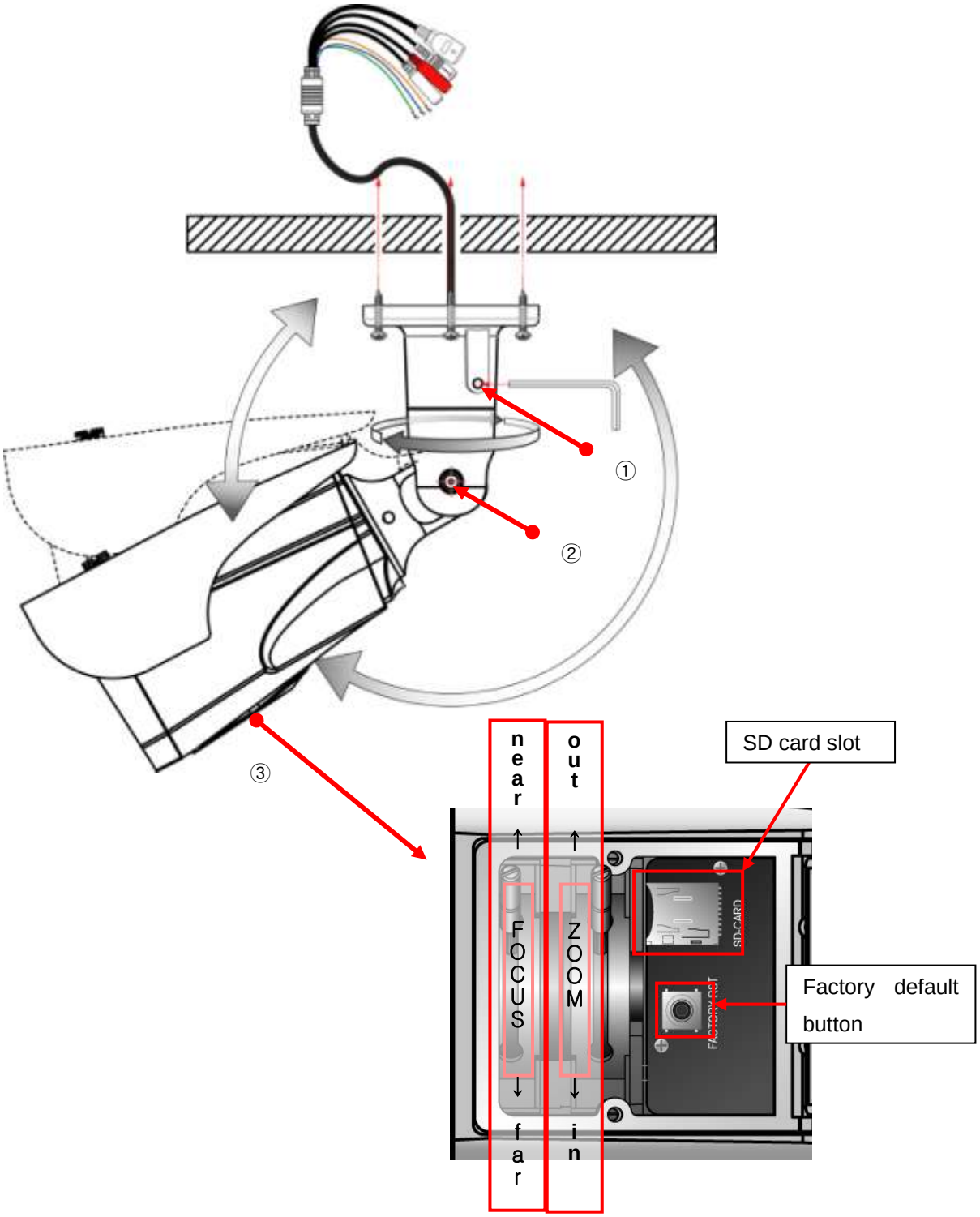
1. Place the pad on the ceiling or wall insulation, drill a hole after drawing the piercing site.
2. Unscrew the three bolts on the Bubble Cover with L- wrench
3. Putting an insulated pad to the camera housing, then fasten the wiring in the ceiling screws
4. Set the camera angle using three axes, zoom and focus adjustment, SD card, etc., and then close again mounted Bubble Cover.

■ Dome Camera



1. Remove Camera Case with ABS Opener as shown on the right.
2. To pierce the ceiling or wall to match the location of the three holes in the Dome Base.
3. After the wiring was fixed with screws to secure it to the ceiling.
4. Using 3-axis camera angle setting, zoom and focus adjustments, such as an SD Card, and then close again Bubble Cover.

2.3. Bullet Type Camera Installation

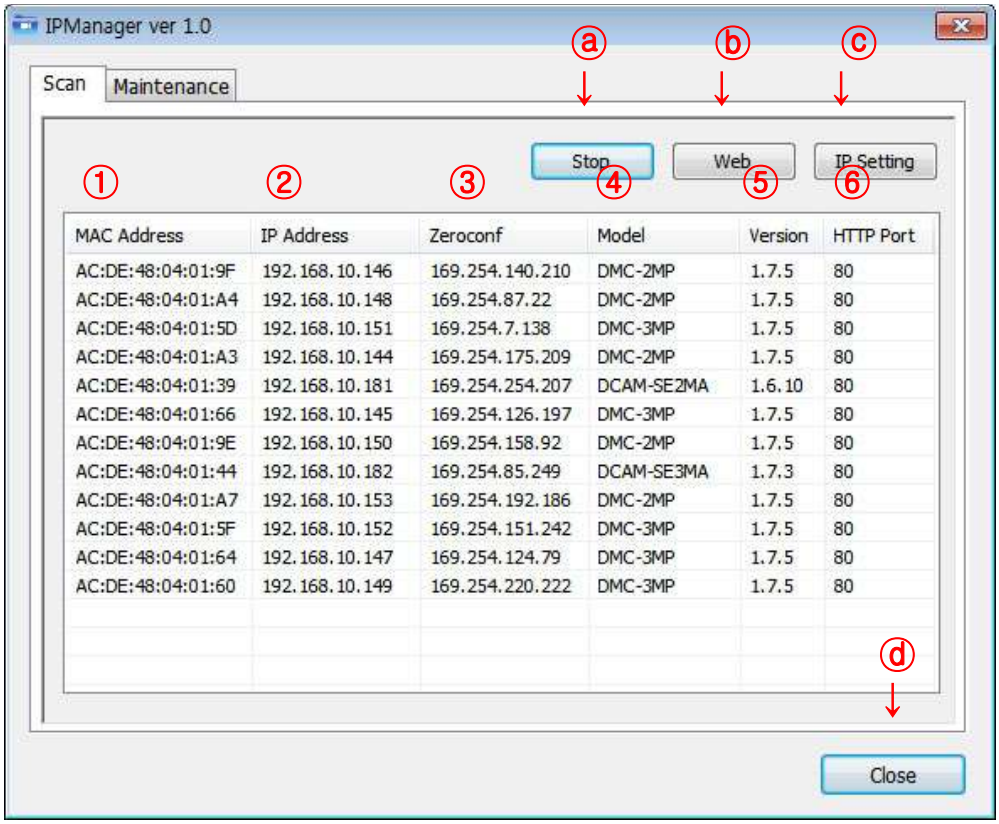


1. Where a camera is installed through holes in the bracket to fix the camera using Supplied screws, tapping screws.
2. Connect the each cables properly.
3. Supplied hex wrench to loosen in ① to fix pan direction and ② to fix tiltdirection
4. Open the bottom cover zoom and focusing and insert SD card.

3. IP Manager Usage

3.1. IP Manager Getting Start

Run the IPManager.exe.

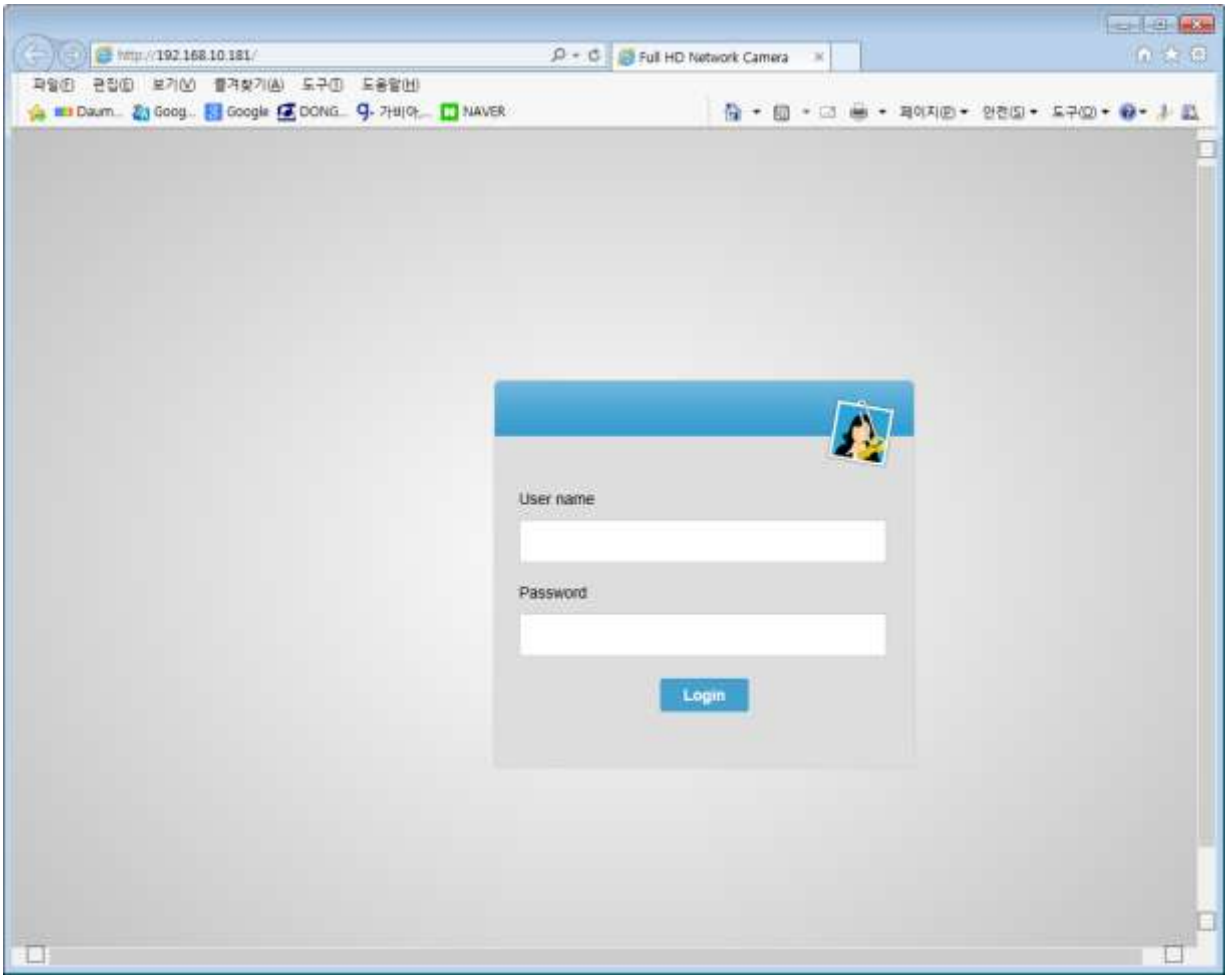


Designation	Function
ⓐ Stop(Start)	Product Navigation stop or restart.
ⓑ Web	When you select a product and click this button to access the homepage of this product..
ⓒ IP Setting	When you select a product and click this button to reset the IP address of the product. (Available when I double-click on each product.)
ⓓ Close	Shut down the IP Manager.
① MAC Address	IP camera MAC Address
② IP Address	The IP address of the camera.
③ Zeroconf	Zeroconf IP Address: Zero configuration networking (zeoconf) is a set of techniques that automatically creates a usable Internet Protocol (IP) network without manual operator intervention or special configuration servers. Zero configuration networking allows devices such as computers and printers to connect to a network automatically. Without zeroconf, a network administrator must set up services, such as Dynamic Host Configuration Protocol(DHCP) and Domain Name System(DNS), or configure each computer's network settings manually, which may be

	difficult and time-consuming.
④ Model	The model name of the connected camera.
⑤ Version	The firmware version of the product.
⑥ HTTP Port	Port is connected to the home page.

3.2. Access to homepage

Select the product, and "ⓑ Web" by clicking the button to display the web page as shown below.



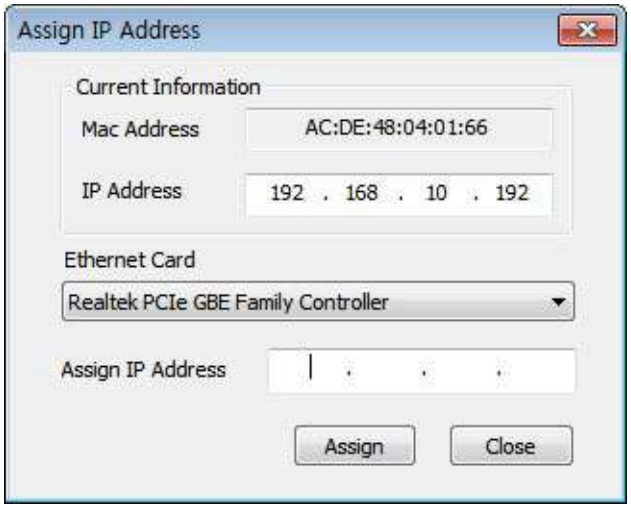
ID and password, default values are as follows:

ID	***Admin***
Password	***11111111***

3.3. Resetting the IP address

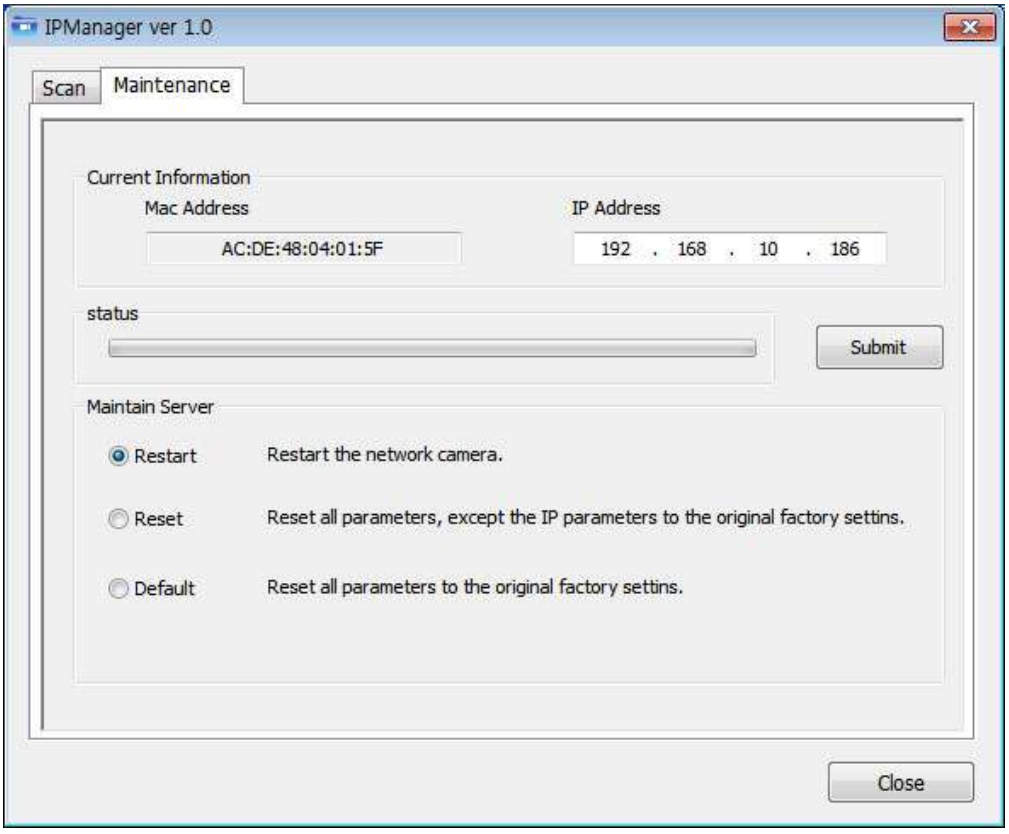
Select the product, and "ⓒ IP Setting" by clicking a button or double-click the product or the IP address setting screen will pop up.

Enter the IP address in the Assign IP Address field and click the "Assign" button.



3.4. Maintenance

Click on the "Scan" tab and click on the product from the "Maintenance" tab, you can restart or reset the camera settings.



- Restart: Restart the network camera.
- Reset: Reset all parameters, except the IP parameters to the original factory setting.
- Default: Reset all parameters to the orignal factory setting.

Maintain Server entry in the Restart, Reset, and then select the desired command of Default, click the "Submit" button.

4. Setup

4.1. Live

1

Live View: Displays live video.	**Playback**: Image Playback.
Setup: Enters setup menu.	**Logout**: Exit current login and/or Enter new login.

2

Item	Description
Stream	Specify the viewable video stream source to display in live view page.
Screen Ratio	Specify the viewable video size to display in live view page.
Event Action	Used to start or stop the event out manually according to event settings.
PTZ Control	Used to zoom or focus in the automatic, one-push and manual mode. • **Manual mode:** Adjusts the focus position by manual and when zoom is changed. • **One Push mode:** When One Push AF command is sent, camera becomes Auto Focus mode to adjust focus position for a while. After it stops, it becomes to manual mode. • **Zoom:** Adjusts camera image zoom in/out ratio manually. • **Focus:** Adjusts camera image focus manually. (Each time you press one thing each step works.)

3

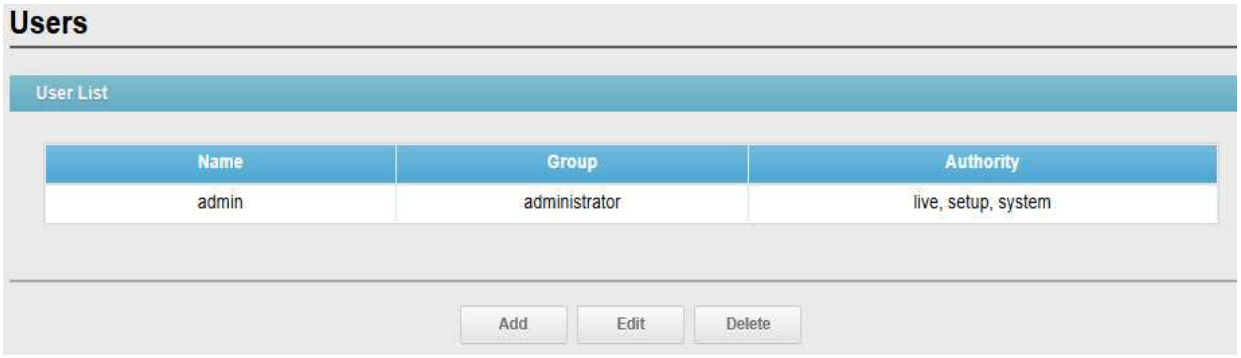
Item		Description
	**Pause**	Freeze the current windows.
	**Play**	Play the paused windows.
	**Snapshot**	Take a picture of the video image currently on display. Supports the origin image size view, print, and save feature.
	**Zoom**	Supports a digital zoom in live video image.
	**Full screen**	Expand the current windows into maximum monitor size.
	**Volume**	Set the audio volume.
	**Microphone**	Enable or Disable the microphone.
	**Information**	Shows the current major setting status.

4.2. Quick Setup

4.2.1. Information

The Information shows the camera basic information such as Model name, MAC address, IP address, Zeroconf IP address, and Firmware version.

4.2.2. Users



User List: User accounts can be added or modified or removed. The authority depends upon user group automatically and shows the permission status to access the menus. The default user name / password are ***admin / 11111111***

Name: Shows the name which registered to access the camera.

Group: Shows the assigned permission given to users.

Authority: Shows the permission status to access the menus.

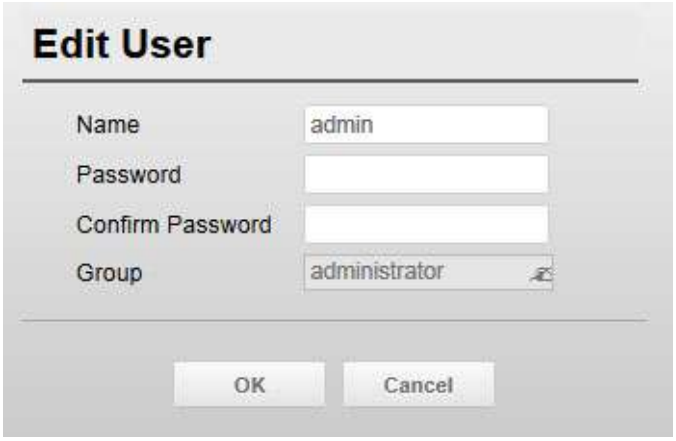
• Click the Add, Edit, or Delete button for managing user account.

4.2.3. Users-Add

To add a new user:

1. Click the Add tab, and then new pop-up window appears.
2. Click in the User name box and type a new user name (1 to 14 alphanumeric characters).
   • User names are not case sensitive.
3. Click in the Password box and type a password (1 to 8 alphanumeric characters).
   • Passwords are case sensitive.
4. Click in the Confirm password box and retype a password.
5. Click in the User group box and select one of the groups you wish to assign to the user.
6. Click the OK button to save the settings and add a new user.

4.2.4. Users-Edit



To edit a user:

1. Select one of the User Name in the User List you want to modify.
2. Click the Edit tab, and then new pop-up window appears.
3. Click in the Password box and type a password (1 to 8 alphanumeric characters).
   • Passwords are case sensitive.
4. Click in the Confirm password box and retype a password.
5. Click in the User group box and select one of the groups you wish to assign to the user.
6. Click the OK button to save the settings and modify a user.

NOTE

The user name can’t be modified.

To delete a user:

1. Select one of the User Name in the User List you want to remove.
2. Click the Delete tab. A dialog box appears with confirmation message.
3. Click the OK button. The user profile is removed from the User List profile.

NOTE

The admin user name can’t be modified.

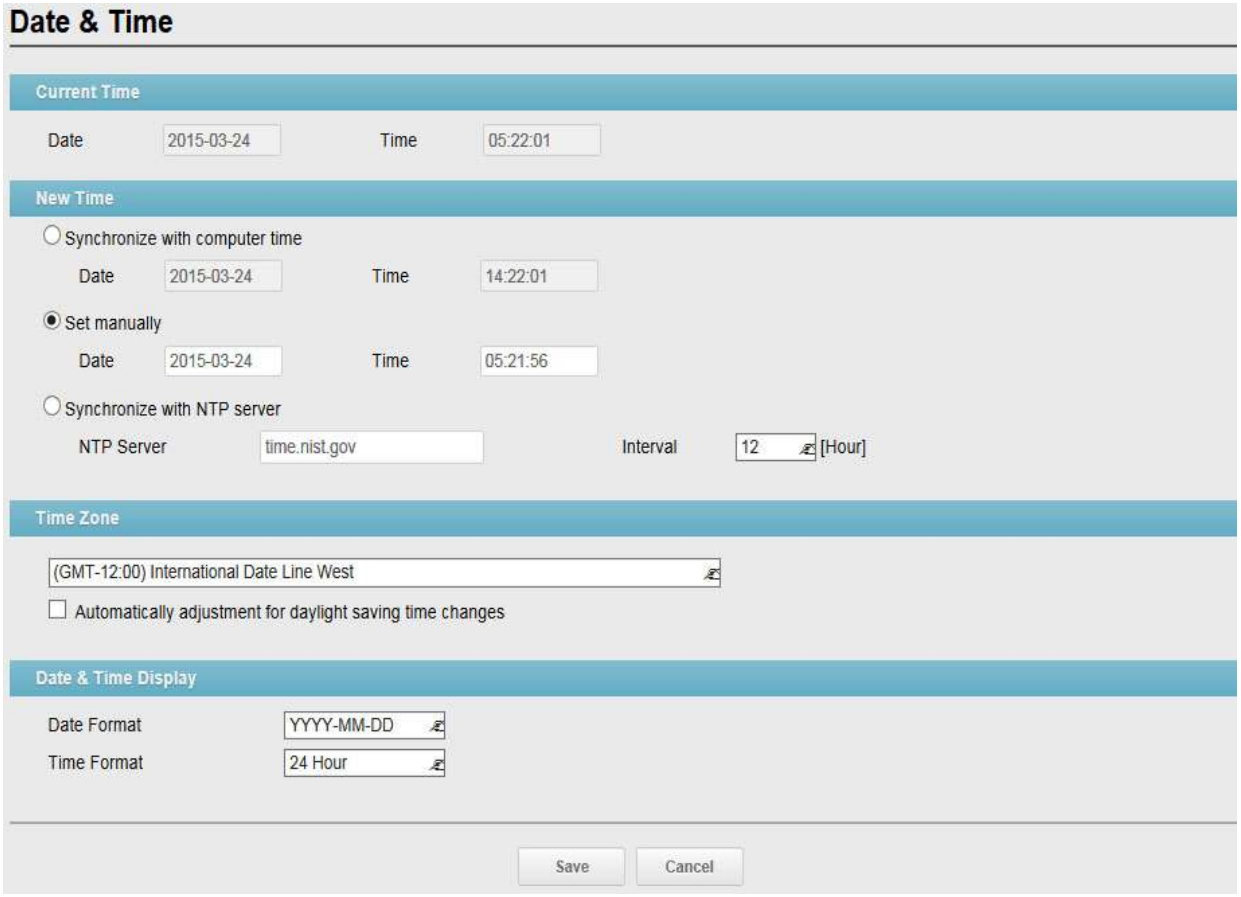
4.2.5. Network

■ IP Address:

The DHCP (Dynamic Host Configuration Protocol) server has a feature that automatically assigns an IP address to the device if there is a device on the network.

Obtain IP address via DHCP: Select the choice box if you want to assign the IP address from DHCP server automatically, and then the remaining setting are read-only text.
Use the following IP address: Select the choice box if you want to assign the IP address manually.
IP address: The address of the camera connected to the network. Specify a unique IP address for this network camera.
Subnet mask: The address that determines the IP network that the camera is connected to (relative to its address). Specify the mask for the subnet the network camera is located on.
Gateway: The Gateway that accesses other networks. Specify the IP address of the default router (Gateway) used for connecting devices attached to different networks and network segments.

4.2.6. Date & Time



■ **Current Time:** Shows the current date and time.

Date: The default setting is 1970-01-01.
Time: The default setting is 00:00:00.

■ **New Time:** Select one of the server time.

Synchronize with computer time: Sets the time according to the clock on your computer.
Set manually: Using this option allows you to manually enter the date and time.
Synchronize with NTP Server: This option will obtain the correct time from an NTP server every 60 minutes. The NTP server's IP address or host name is specified in the time server.

■ **Time Zone:** Select the time zone where your camera is located.

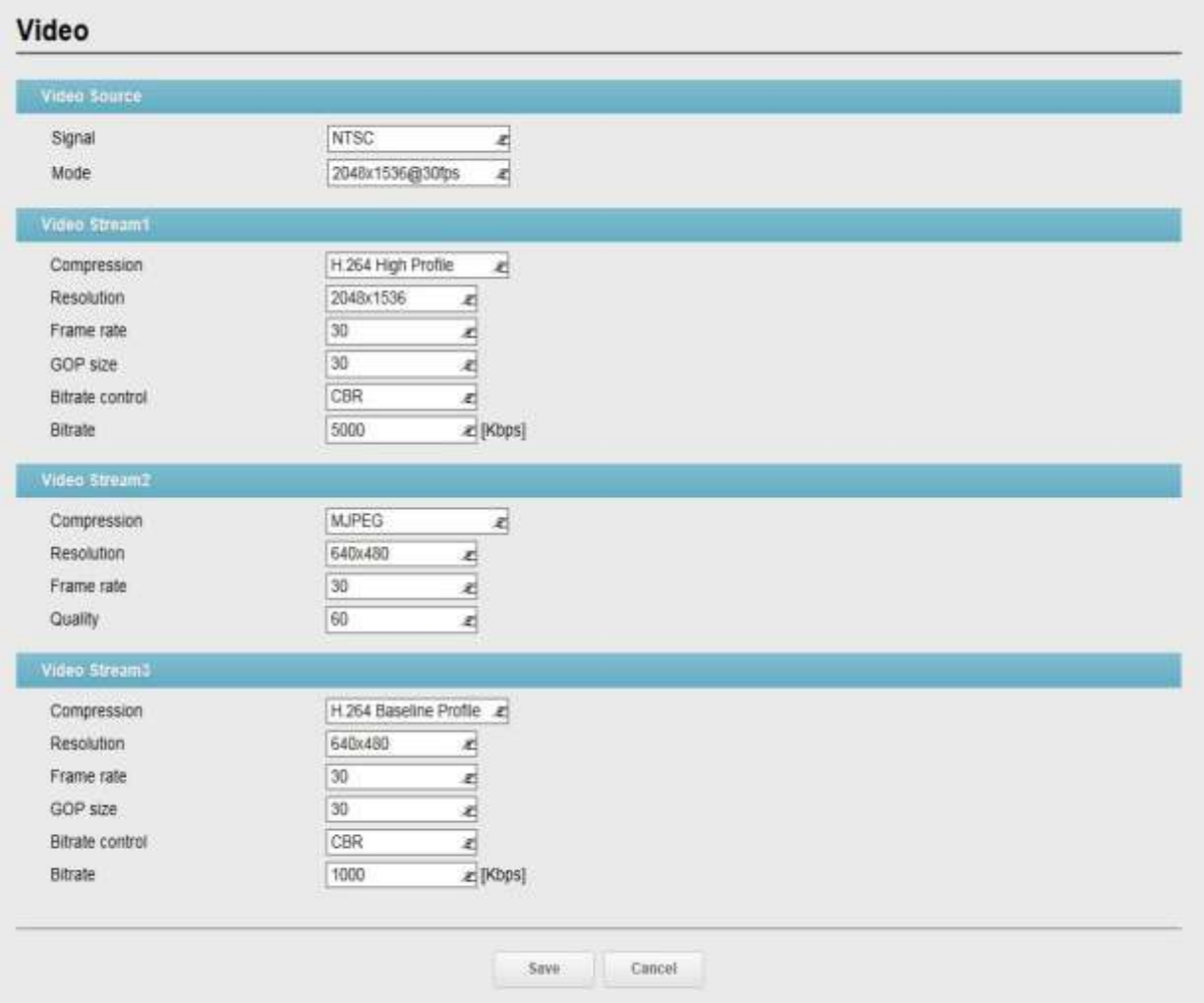
Click the "Automatically adjust for daylight saving changes" checkbox to automatically update the time changes caused by daylight saving.
Time zone: The default setting is GMT.

■ **Date & Time Display:** Select one of the Date and Time format.

Date Format: The default setting is YYYY-MM-DD.
Time Format: The default setting is 24 hours.

4.3. Video & Audio

4.3.1. Video



■ Video Source:

Specify the system performance. Depending on video source mode, each stream configuration will be affected and the streaming will be adjusted under system performance automatically.

Signal: Selects the video standard.
Mode: The default mode is 1920x1080@30fps (NTSC) or 25fps (PAL) at 2MP mode, and 2048x1536@30fps (NTSC) or 25fps (PAL) at 3MP mode.

■ Video Stream1: Configures the H.264 setting value for stream1.

Compression: Selects the stream profile that is to be used for transmissions.
Resolution: Specified as the number of pixel-columns (width) by the number of pixel-rows (height). The Resolution can be adjusted in the range from 320x240 to 1920x1080 / 2048x1536.
Frame rate: Indicates the number of fps (frame per second) available for the video stream configuration.
GOP size: Describes the composition of the video stream. This GOP (Group of Picture) setting configures the number of partial frames that occur between full frames in the video stream. For example, in a scene where a door opens and a person walks through, only the movements of the door and the person are stored by the video encoder. The stationary background that occurs in the previous partial

frames is not encoded because no changes occurred in that part of the scene; the stationary background is only encoded in the full frames. Partial frames improve video compression rates by reducing the size of the video. As the GOP increases, the number of partial frames increases between full frames. This setting is only available with H.264 compression standards. The higher value saves considerably on bandwidth but may have an adverse effect on image quality. Higher values are only recommended on networks with high reliability. Please consult with your network administrator before changing.

Bitrate control: The bit rate can be set as VBR (Variable Bit Rate) or CBR (Constant Bit Rate).

- VBR: Automatically adjusts the bit rate according to the image complexity, using up bandwidth for increased activity in the image, and less for lower activity in the monitored area.
- CBR: Allows you to set a fixed target bit rate that consumes a predictable amount of bandwidth. As the bit rate would usually need to increase for increased image activity, but in this case the frame rate and image quality are affected negatively.

Bitrate: Indicates the quality of the video stream (rendered in kilobits per second). The higher value means the higher video quality and bandwidth required.

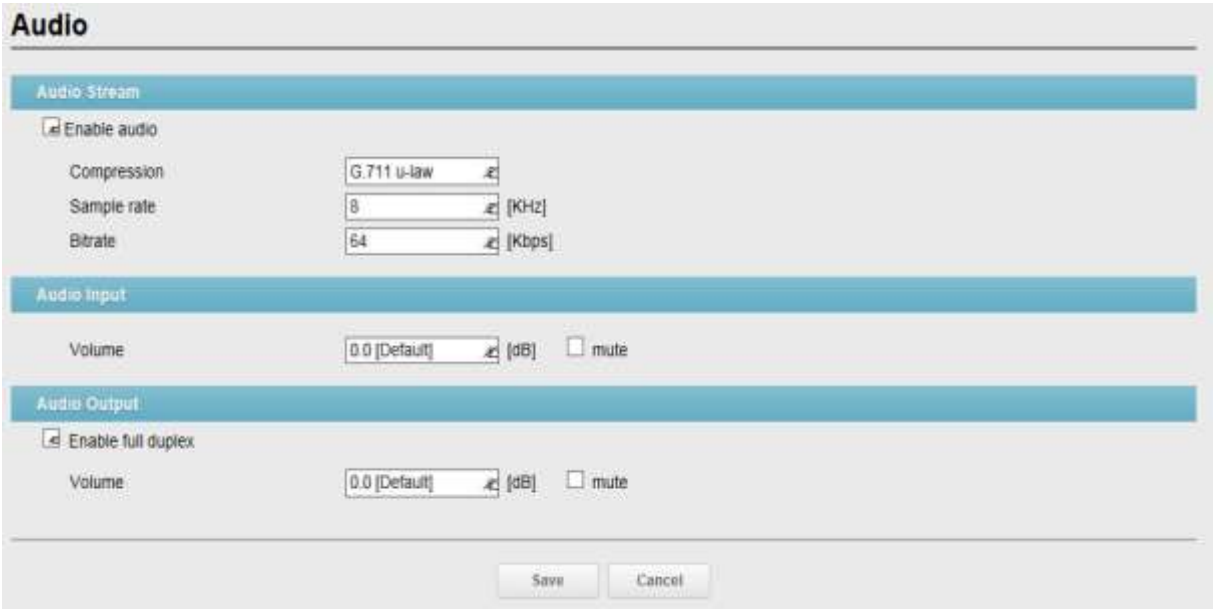
■ **Video Stream2:** Configures the MJPEG or H.264 setting value for stream2.

Compression: The default setting is MJPEG.
Resolution: Specified as the number of pixel-columns (width) by the number of pixel-rows (height).
Frame rate: Indicates the number of fps (frame per second) available for the video stream configuration.
Quality: Automatically adjusts the compression rate to guarantee the image.

■ **Video Stream3:** Configures the H.264 setting value for stream3.

Compression: Selects the stream profile that is to be used for transmissions.
Resolution: Specified as the number of pixel-columns (width) by the number of pixel-rows (height).
Frame rate: Indicates the number of fps (frame per second) available for the video stream configuration.
Bitrate control: The bit rate can be set as VBR (Variable Bit Rate) or CBR (Constant Bit Rate).
Bitrate: Indicates the quality of the video stream (rendered in kilobits per second). The higher value means the higher video quality and bandwidth required.

4.3.2. Audio



■ Audio Stream:

Click the Enable audio checkbox to enable audio. This page describes how to configure the basic audio settings for the camera. This camera supports the audio full duplex that can be transmits and receives audio in both directions at a time.
Compression type: G.711 is the international standard for encoding wired-telephone audio on 64kBit/s channel. It is a PCM (Pulse Code Modulation) scheme operating at 8 kHz sample rate. The default setting is G.711 μ-law.
Sample rate: Indicates the number of times per second the sound is sampled. The default setting is 8 kHz.

NOTE

G.711, also known as Pulse Code Modulation (PCM), is a very commonly used waveform codec. G.711 uses a sampling rate of 8,000 samples per second, with the tolerance on that rate 50 parts per million (ppm). Non-uniform quantization (logarithmic) with 8 bits is used to represent each sample, resulting in a 64 kbit/s bit rate. There are two slightly different versions; μ-law, which is used primarily in North America, and A-law, which is in use in most other countries outside North America. G.711 μ-law tends to give more resolution to higher range signals while G.711 A-law provides more quantization levels at lower signal levels.

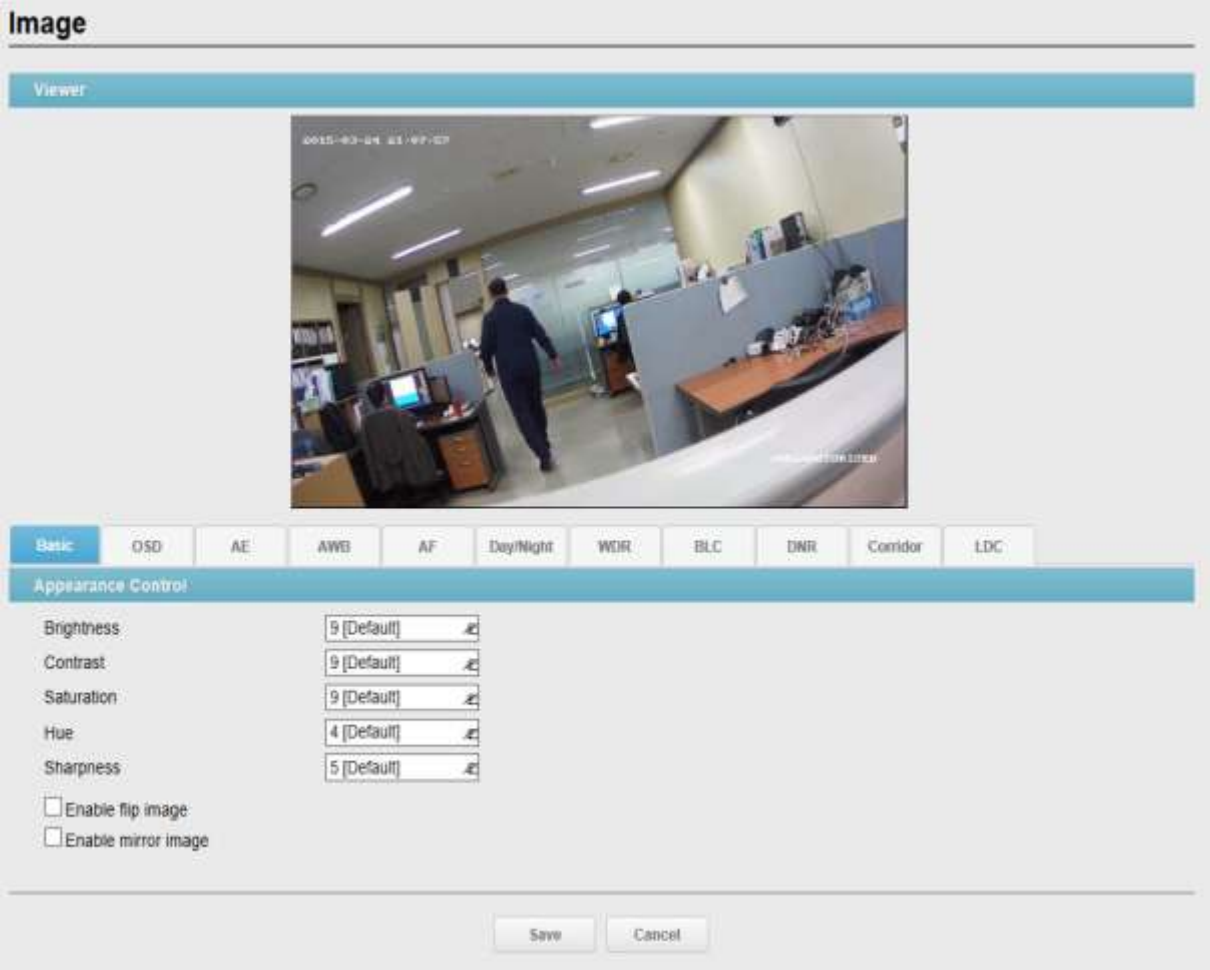
■ Audio Input: Adjusts the audio volume especially from the Mike.

Input volume: The Input volume can be adjusted in the range from -12.00 to 12.00 dB. The default setting is 0 dB. Click the Mute box if you do not want the audio input.

■ Audio Output: Adjusts the audio volume especially to the Speaker.

Enable full duplex: Enable audio out.
Output volume: The Output volume can be adjusted in the range from 9 to -24 dB. The default setting is 0 dB. Click the Mute box if you do not want the audio output.

4.3.3. Image-Basic

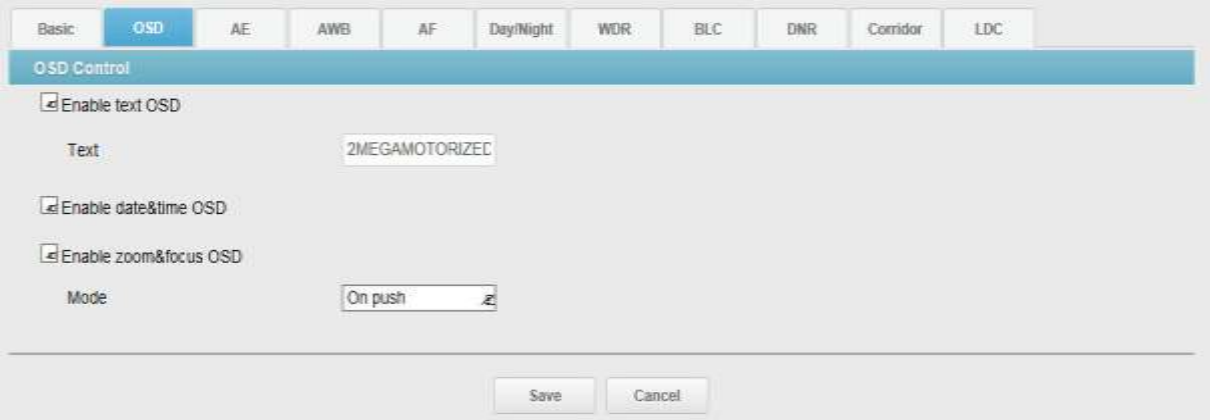


■ Appearance Control:

The image appearance allows you to adjust the camera setting parameters and change the camera orientation. All of parameters are recommended to be modifying for good image quality suitable for installation place.

Brightness: Controls the brightness of detail in a scene.
Contrast: Controls the contrast of detail in a scene.
Saturation: Controls the saturation of detail in a scene.
Hue: Controls the hue of detail in a scene.
Sharpness: Controls the sharpness of detail in a scene.
Enable flip image: Rotate the camera image 180 degrees vertically.
Enable mirror image: Rotate the camera image 180 degrees horizontally. Reflect duplication of camera image.

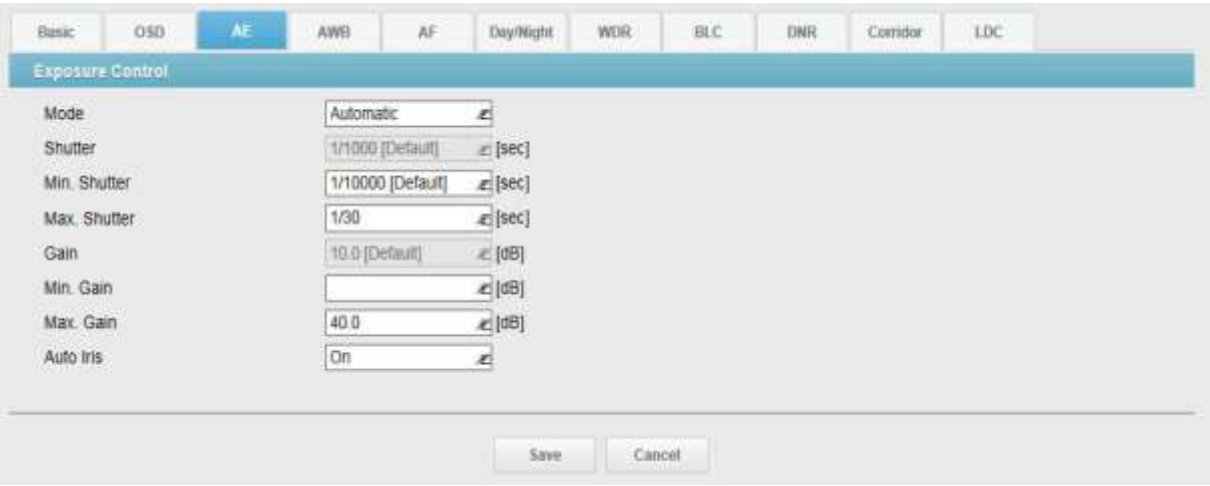
4.3.4. Image-OSD



■ OSD Control

The On Screen Display (OSD) displays camera status information on the video stream.
Enable text OSD: Display user favorite text such as camera name.
Enable day&time OSD: Display current camera's day and time information.
Enable zoom&focus OSD: Display current focus mode.

4.3.5. Image-AE



■ Exposure Control:

Configure the exposure control to suit the image quality requirements in relation to lighting considerations. This camera features automatic and manual exposure control mode.
The shutter and gain settings affect the amount of motion blur and noise in the image. To adapt to different lighting, available storage space and bandwidth, it is often necessary to prioritize either low motion blur or low noise. This camera allows using different prioritization in normal light and in low light. Shutter speed is related to the amount of time the shutter is opened and is measured in seconds (s). A slow shutter speed allows more light to reach the sensor and can help produce a brighter image in low light situations. On the other hand, a slow shutter speed can cause moving objects to appear blurry.

Mode: The automatic mode supports the automatic exposure function for automatically adjusting the sensor's gain, shutter time and diaphragm so that the images achieve the appropriate brightness. The manual mode supports the manual exposure control function for manually adjusting the gain and shutter time.

Priority: This function is used for controlling the exposure time and gain to adjust the luminance. Under the dark conditions, this camera automatically expands the frame rate and enters the long exposure mode in this normal AE mode.
Shutter: Used to for controlling the gain while keeping the shutter time fixed to adjust the luminance.
Min. Shutter: Adjust the Min. Shutter speed in the range 1/500~1/135,000 sec
Max. Shutter: Adjust the Max. Shutter speed in the range 1/10~1/10,000 sec
Gain: Gain is the amount of amplification applied to the image. A high gain may provide a better image in low light situations but will increase the amount of image noise. The gain can be adjusted in the range 1.2~54 dB.
Min. Gain: Adjust the Min. Gain in the range 1.2~54 dB
Max. Gain: Adjust the Max. Gain in the range 1.2~54 dB
Auto Iris: This function is used for controlling the shutter time, gain and diaphragm of the mechanical iris lens to adjust the luminance. In this mode, it is also possible to adjust the luminance using the gain and iris diaphragm while keeping the exposure time fixed.

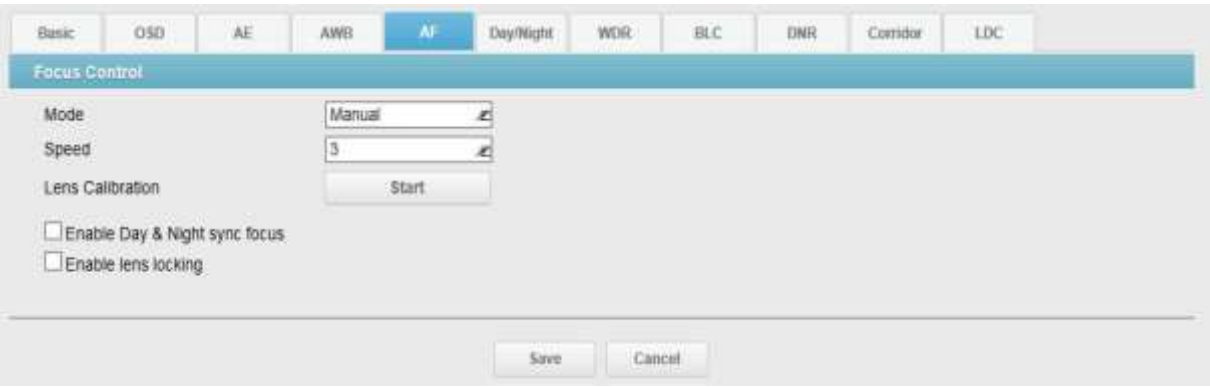
4.3.6. Image-AWB

■ White Balance Control:

White balance control is used to make colors in the image appear the same regardless of the color temperature of the light source. This camera can be set to automatically identify the light source and compensate for its color. Alternatively, select the type of light source from the drop-down list.

Mode: Configure the options for White Balance. The default setting is ATW-Indoor.
Cb Gain: Adjusts the picture output in the blue range. The White balance B gain can be adjusted in the range 1~256, where a higher value produces a higher blue image. The default setting is 20.
Cr Gain: Adjusts the picture output in the red range. The White balance R gain can be adjusted in the range 1~256, where a higher value produces a higher red image. The default setting is 20.

4.3.7. Image-AF *(This is an optional feature)*



■ Focus Control:

Focus control is used to make finer image quality under manually or automatically.

Mode: Configure the options for focusing mode. Only Manual mode support.
Speed: Adjusts the focus speed. The default setting is 3. The higher value means more high speed than lower value.
Lens Calibration: In case of the first assembling time to this module or after camera installation in the field, it needs to take a lens calibration process. Make sure that lens calibration is a mandatory before actual use.
Enable Day & Night sync focus: Possible to take a focus every time when day/night mode is changed.
Enable lens locking: Possible to keep the current lens focus status.

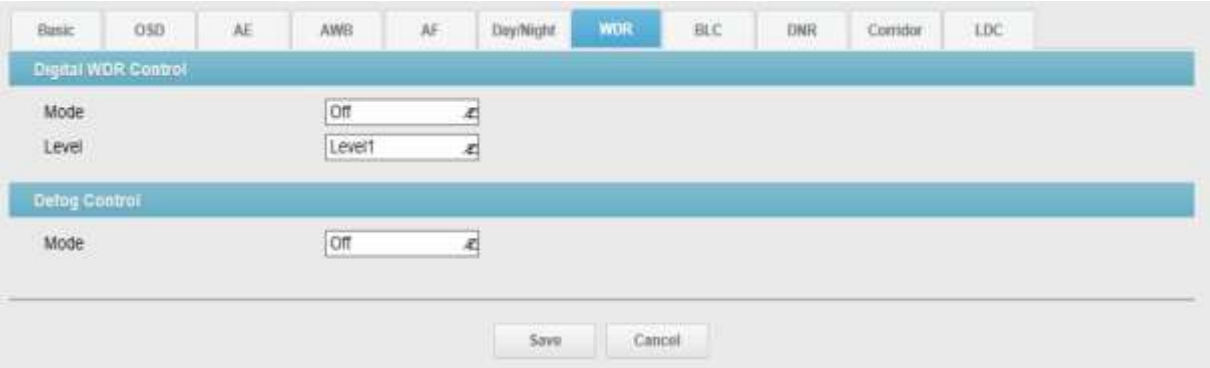
4.3.8. Image-Day/Night

■ Day & Night Control:

The IR cut filter prevents infrared (IR) light from reaching the image sensor. In poor lighting conditions, for example at night, or when using an IR lamp, set the mode to Night. This increases light sensitivity and allows the product to “see” infrared light. The image is shown in black and white when the mode is Night. If using Automatic Exposure control, set the mode to Automatic to automatically switch between Day and Night according to the lighting conditions.

Mode: Configure one of modes to transit an IR-cut filter. The default setting is External.
Switching Time: Configure the switching time of an IR-cut filter transition for the specified dwell time from the point of transition detection.
Threshold: Set the threshold level of IR-cut filter for installation environment.
Make sure that the "Threshold [Night->Day]" value must be greater than the value of "Threshold [Day->Night]" enough to prohibit the D/N hunting.

4.3.9. Image-WDR



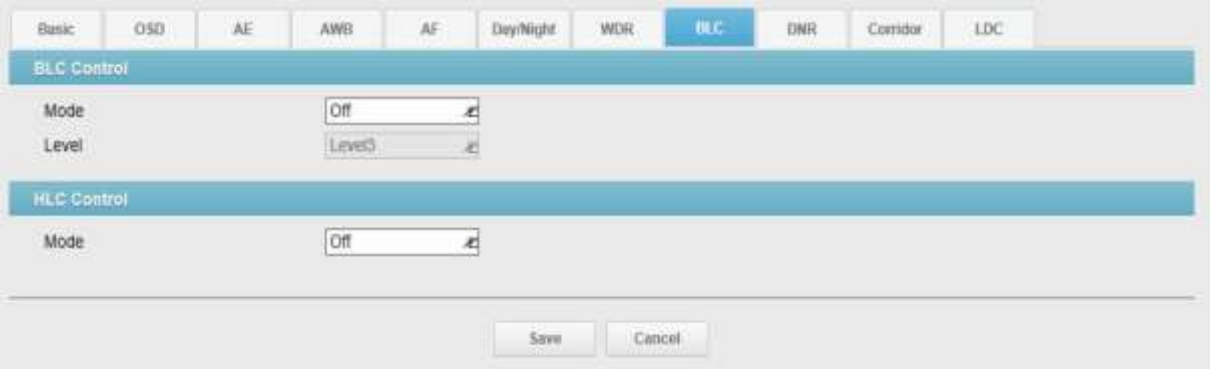
■ Digital WDR Control:

Digital WDR is controlled by slope and contrast gain on the tone curve as tracking level grade brightness.

■ Defog Control:

Detects foggy condition automatically, also provides high contrast picture. It's possible more higher-visibility image automatically for foggy situation by intelligent image analysis

4.3.10. Image-BLC



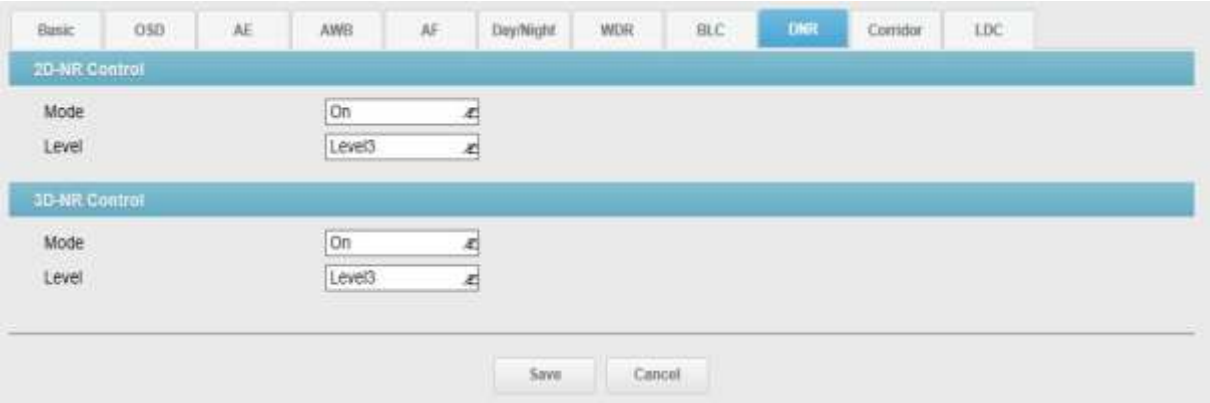
■ BLC Control:

Back Light Compensation.
Set the Mode and Level to enable the backlight compensation function.

■ HLC Control:

High Light Compensation.
Set the Mode to enable the high light compensation function.
It masks high luminance in black because of Y level exceeding threshold, then adjusts brightness in dark side to clear except masked in black.

4.3.11. Image-DNR



■ 2D-NR / 3D-NR Control:

The noise reduction (NR) function eliminates image noise in order to improve the image quality of the cameras. They consist of the 2D-NR function which eliminates noise for a single frame while monitoring the correlation of the pixels, and links with 3D-NR to suppress noise.

The 3D-NR function which reduces noise using the frame memory while factoring in the correlation between multiple frames.
Mode: The default setting is off.
Level: Configure one of Level 1, Level2, Level3 and Level4.

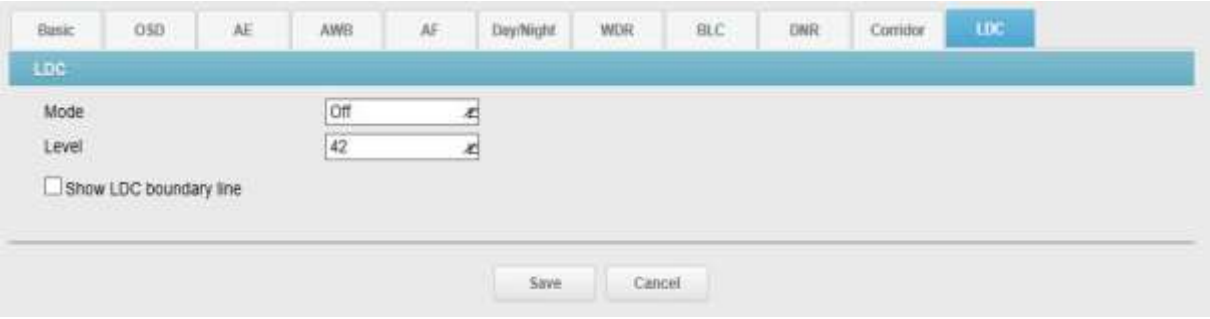
4.3.12. Image-Corridor

■ Corridor Control:

The corridor format allows you to get a vertically oriented video stream from the camera. The video is adapted perfectly to the monitored area, maximizing image quality while eliminating bandwidth and storage waste. The Corridor Format is even more useful for modern HDTV network cameras that deliver a 16:9 aspect ratio since the resulting image will have a 9:16 aspect ratio – just the right thing for narrow corridors, hallways or aisles.
To set the Corridor format

1. Check the Enable corridor checking box.
2. Rotate the camera position compare to normal positioning.
3. Select the Rotation degrees.

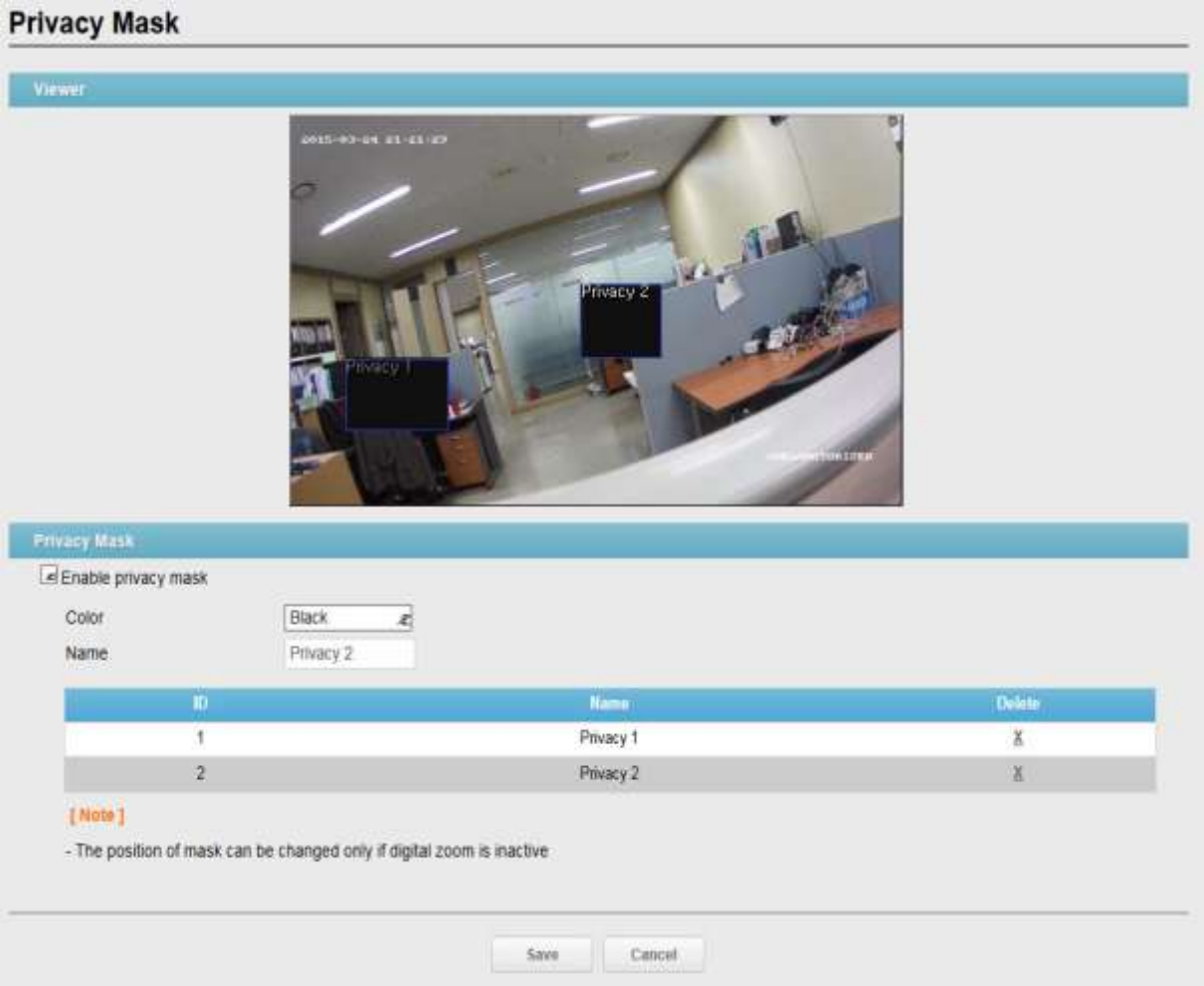
4.3.13. Image-LDC



■ LDC:

Simple-Lens Distortion Correction
It transforms the picture captured by wide angle lens to natural.
This Simple-LDC can correct distortion of vertical direction only, not correct horizontal direction.
Although vertical direction becomes straight, horizontal direction is remained distortion curve.

4.3.14. Privacy Mask



■ Privacy Mask:

A privacy mask is an area of solid color that prohibits users from viewing parts of the monitored area. The Privacy Mask List shows all the masks that are currently configured in this product and indicates if they are enabled.

You can add a new mask, re-size the mask with the mouse, and give the mask a name. The color of privacy mask will be set automatically after Save.

To set the privacy mask

1. Check the Enable privacy mask checking box.
2. Click your mouse right button on the screen and then specify the area.
3. Enter the name and then click Save.
4. If you want to delete an mask area in the list, click the ⓧ icon

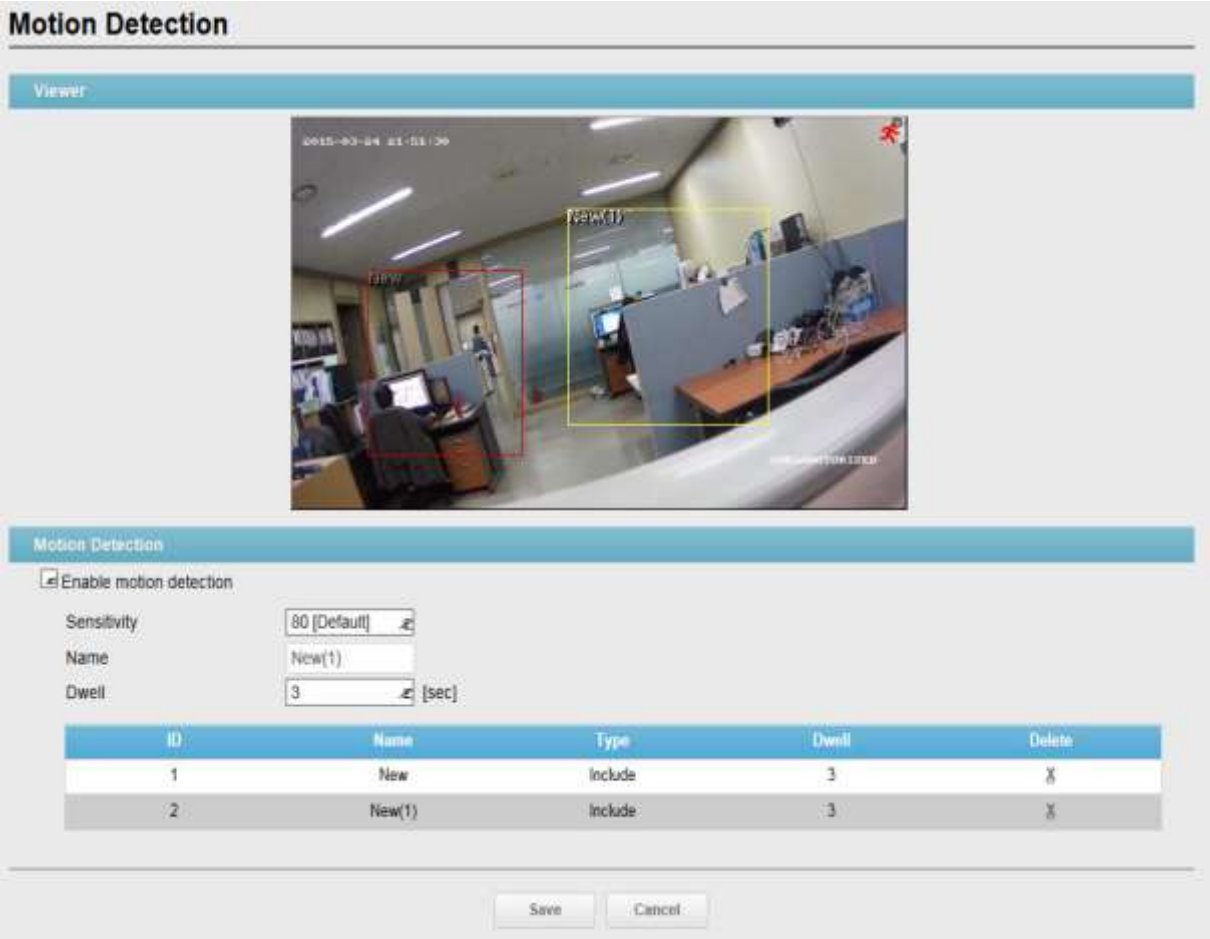
4.3.15. Digital Zoom

■ Digital Zoom:

Adjusts zoom ratio.
The digital zoom ratio can be set from x1 to x16.

4.4. Events

4.4.1. Motion Detection



■ Motion Detection:

Motion detection is used to generate an alarm whenever movement occurs (or stops) in the viewer. A total of 8 Motion and/or Mask windows can be created and configured.

Sensitivity: Configure the sensitivity for the motion detection.
Once motion detection windows are configured, this camera can be configured to perform actions when motion is detected.
Possible actions include uploading images, alarm out and E-mailing.

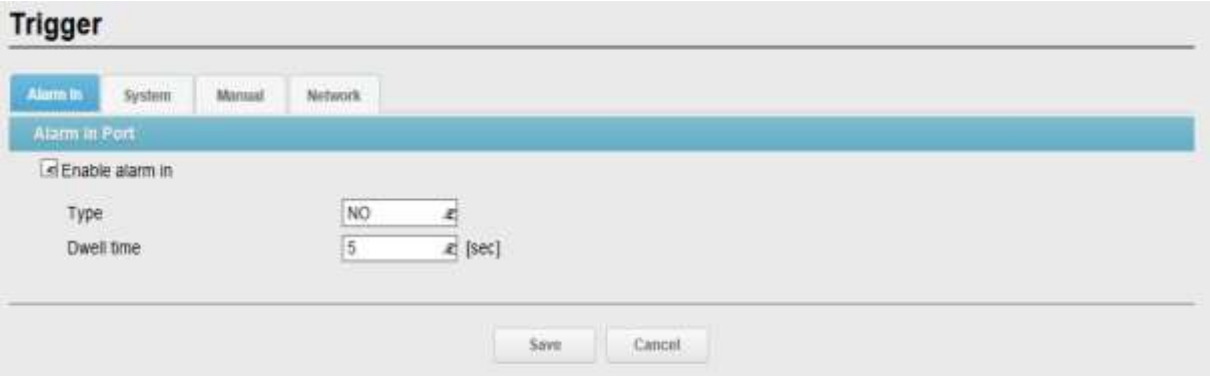
To create a motion or mask window, follow steps:

1. Click the right button of mouse to see the mouse menu.
2. Select New Motion (or Mask) Window in the mouse menu.
3. Click and drag mouse to designate a motion area.
   - Include windows — define areas where motion should be detected.
   - Exclude windows — define areas within an Include window that should be ignored
   - Threshold: Configure the threshold for the motion detection.
   - Dwell Time: Configure the hold time an event lasts for the specified hold time from the point of detection of a motion.

To exclude parts of the include window, select the Configure excluded window and position the exclude window within the include window.

To delete an include window or exclude window, select the window in the list of windows and click Delete X marking.

4.4.2. Trigger-Alarm In



■ **Alarm In:** Click the Enable alarm in checkbox to enable the Alarm In port.

Type: The default setting is NO.

- **NO:** Normally Open

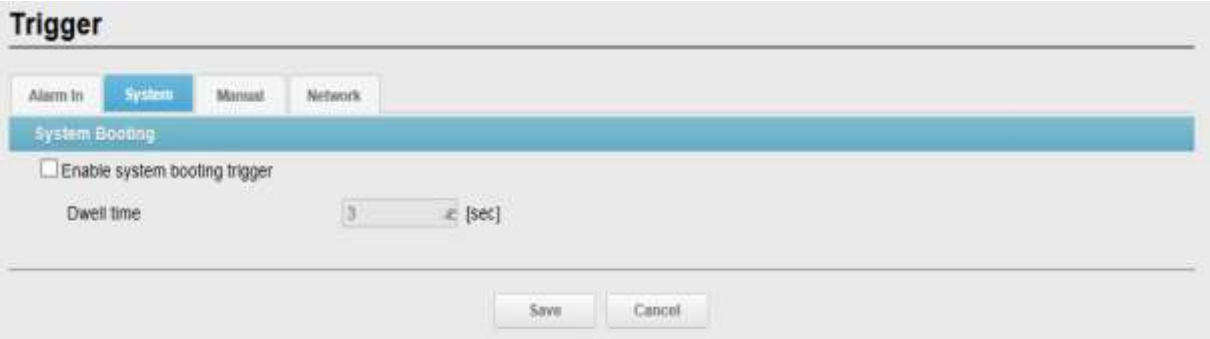
As an example, if the Normal state for a pushbutton connected to an input is Open circuit, this means that as long as the button is not pushed (and the Current state remains as Open circuit), the state will be inactive.

- **NC:** Normally Close

When the button is pushed, the circuit is grounded, the input's state changes to Grounded circuit and the input will no longer be in its normal state - it will have become active.
An input on the camera has an Open circuit when disconnected or when there is a voltage.
Dwell time: The default setting is 3 seconds.

> **NOTE**
>
> Dwell time means how long time the alarm input signal hold on as an input signaling source.

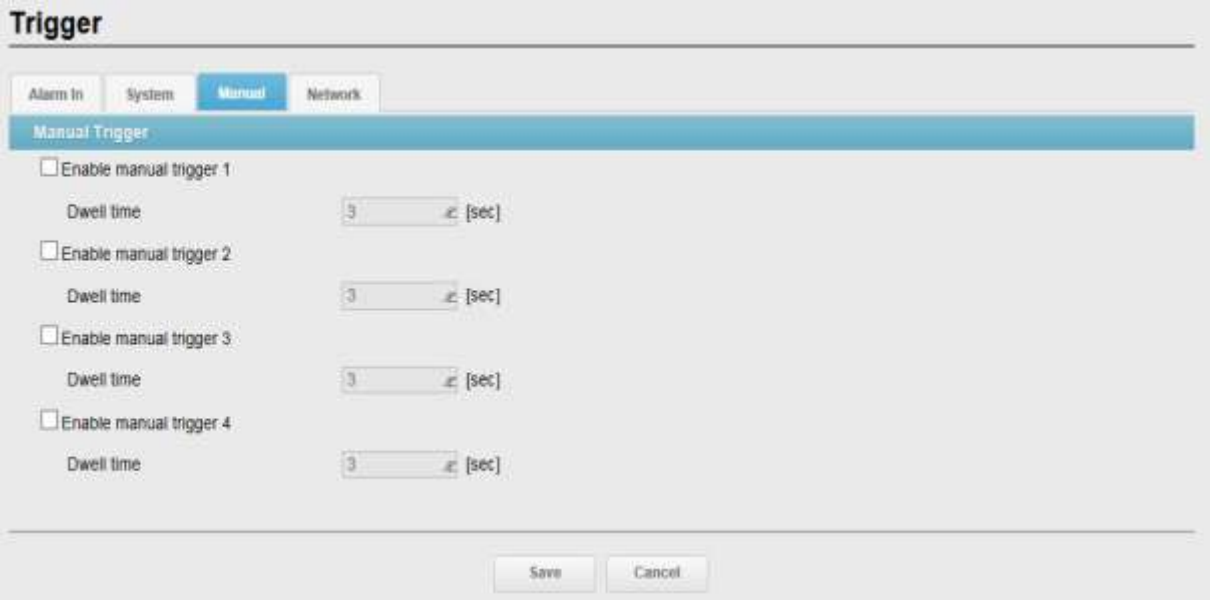
4.4.3. Trigger-System



■ **System Booting:**

This is used to trigger the event every time the Network Camera is started.
Dwell time: The default setting is 3 seconds.

4.4.4. Trigger-Manual



■ Manual Trigger:

The Manual Trigger features an alarm out signaling, JPEG file transfer to FTP server, and sends email to SMTP server whenever operator clicks Manual Trigger button in the Live View window.

NOTE

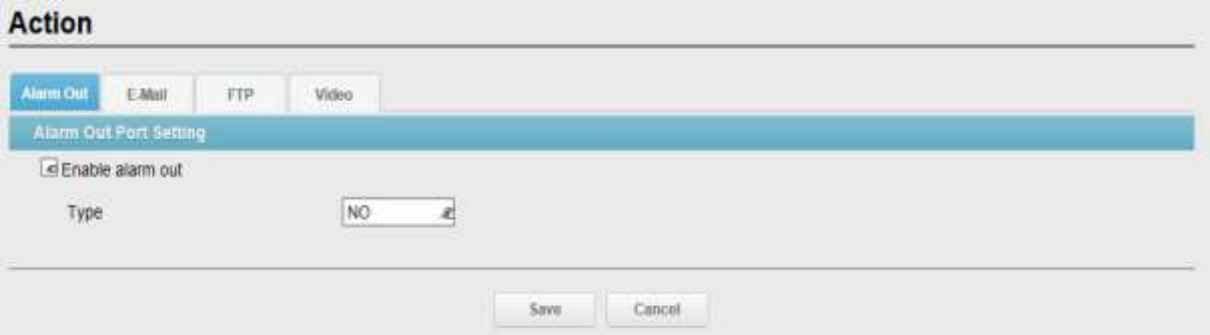
Dwell time means how long time the alarm output signal hold on as an output signaling source.

4.4.5. Trigger-Network

■ Network Loss:

This is used to trigger the event every time the network connection fails.
Click the checkbox to activate the Network Loss event.
Dwell time: The default setting is 3 seconds.

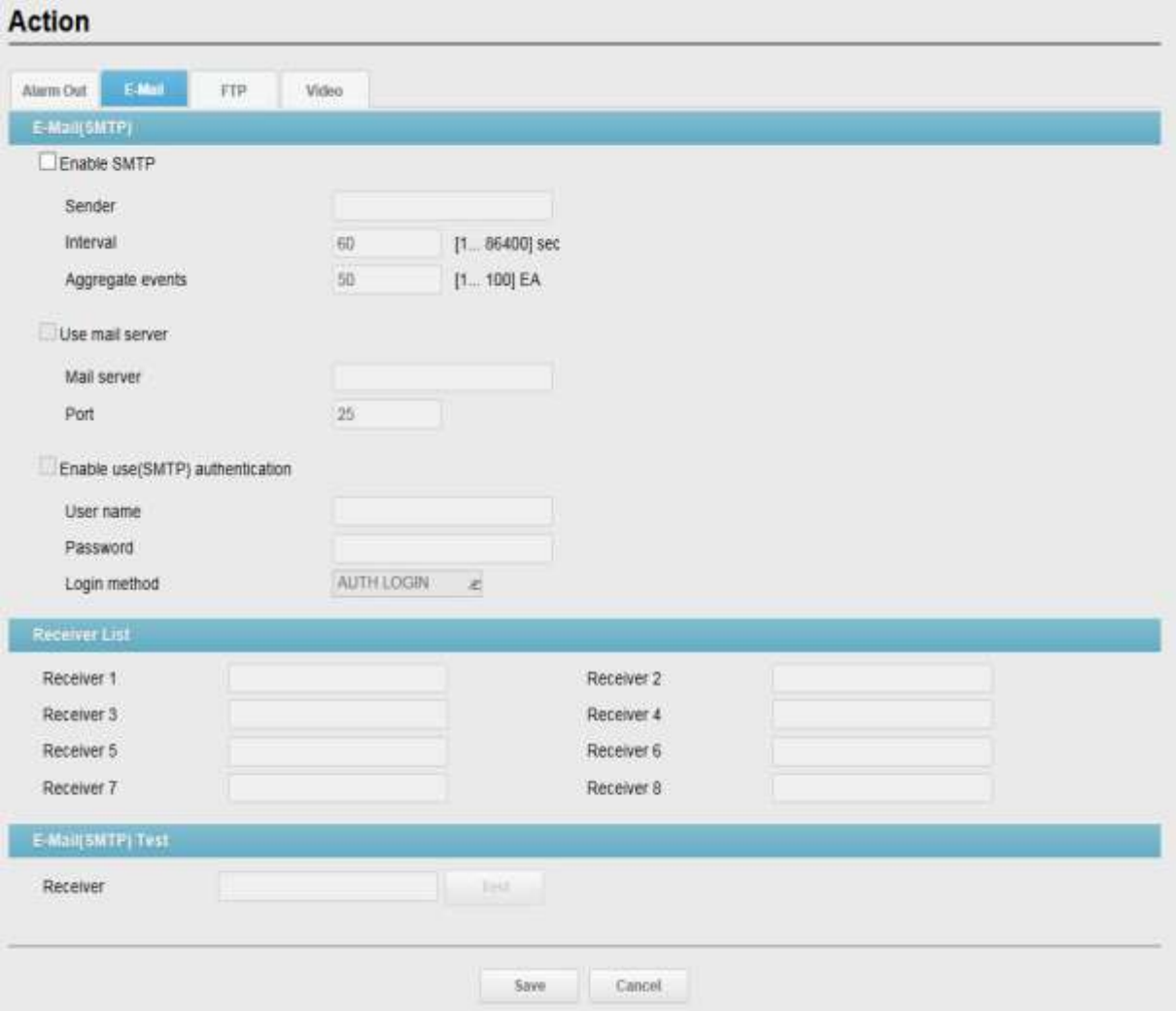
4.4.6. Action-Alarm Out



■ **Alarm Out Port Setting:**

This page allows you to configure the alarm output supported by the camera. Port can be given as Normally Open or Normally Close state, and its Normal state can be configured.
Type: The default setting is NO.

4.4.7. Action-E-Mail



■ **E-Mail(SMTP):**

Use the Simple Mail Transfer Protocol (SMTP) server to send an email notification when an event server is activated. The camera can be configured to send event and email messages via SMTP.
If your mail server requires authentication, click the Use (SMTP) authentication checkbox for use authentication to log in to this server.
Sender: Click in the Sender box and enter the Email address as the sender.
Interval: Enter the Email sending time interval after event occurred.
Aggregate events: Enter the number of events for Email sending. If the event numbers are reached the setting value, Email sending is available.
Use Email server: Click the Use Email server checkbox and provide the following information for Email server.
Mail Server: Enter the host names or IP addresses for your mail servers in the fields provided.

NOTE

If a host name is used, a valid DNS server must be specified in the Network-Basic settings.

Port: Enter the SMTP server port number for the SMTP Server. The Port number can be adjusted in the range 1-65535. The default setting is 25.

NOTE

- If your mail server requires authentication, click the Use (SMTP) authentication checkbox for use authentication to log in to this server.
- Please consult with your network administrator, if you want to change the port number.

Use (SMTP) authentication: If your mail server requires authentication, click the Use (SMTP) authentication checkbox for use authentication to log in to this server.
User name: Enter the User name as provided by your network administrator.
Password: Enter the Password as provided by your network administrator.
Login method: Select one for SMTP authentication method allowed.

NOTE

- If a PLAIN or LOGIN mechanism is negotiated, the camera sends user name and password to the SMTP server.
- The LOGIN mechanism is supported by Microsoft, as well as by some other clients. Most other clients support the PLAIN authentication mechanism.
- Since the vast majority of Email clients support *only* PLAIN or LOGIN, mail server administrators will probably want to consider using STARTTLS to provide an encryption "tunnel" between the client and server, to protect the user name and password.

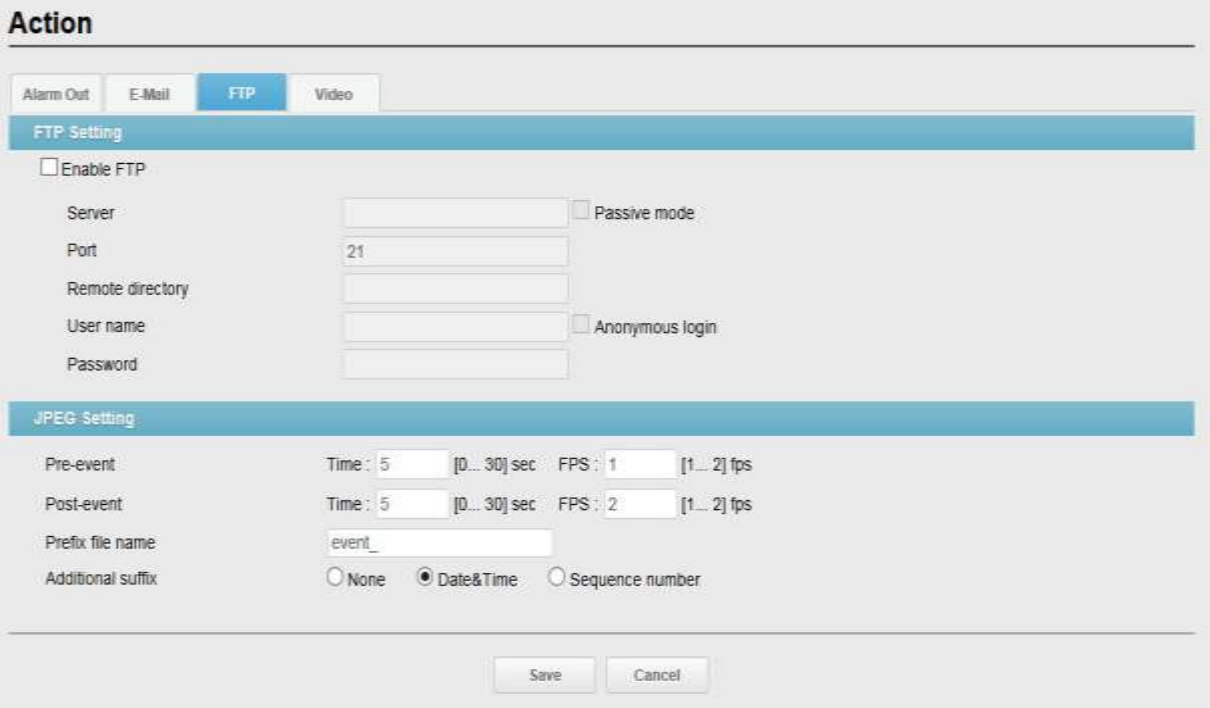
■ Receiver List:

Enter the recipient’s email address as the receivers.
Receiver1~8: Enter the recipient’s email address as the receiver to test.

■ E-Mail(SMTP) Test:

Enter the recipient's email address and click the Test button to test that the mail servers are functioning and that the email address is valid. When the setup is complete, the connection can be tested by clicking the Test button.
Receiver: Enter the recipient’s email address as the receiver to test.

4.4.8. Action-FTP



■ FTP Setting:

FTP notification will save a file on the specified FTP server. Click the Enable FTP checkbox and provide the following information for FTP notification.

Server: Enter the IP address or host name of the target FTP server.

- **Passive Mode:** Under normal circumstances the network camera simply requests the target FTP server to open the data connection. Checking this box issues a PASV command to the FTP server and establishes a passive FTP connection; whereby the network camera actively initiates both the FTP control and data connections to the target server. This is normally desirable if there is a firewall between the network camera and the target FTP server.

Port: Enter the port number used by the FTP server. The Port number can be adjusted in the range 1-65535. The default setting is 21.

Remote directory: Specify the path to the directory where the uploaded images will be stored. If this directory does not already exist on the FTP server, there will be an error message when uploading.

User name: Enter the User name as provided by your network administrator.

- **Anonymous login:** Click the Anonymous login checkbox to permit anyone to access FTP server.

Password: Enter the Password as provided by your network administrator.

> **NOTE**
>
> If you permit to login FTP server by anyone without password, click the Anonymous login checkbox.

■ JPEG Setting: Configure the JPEG to send the FTP server.

Pre-event: Defines how many JPEG file will be made during 0-3 (1~2FPS)seconds before the event is generated.

Post-event: Defines how many JPEG file will be made during 0-3 (1~2FPS)seconds after the event is generated.

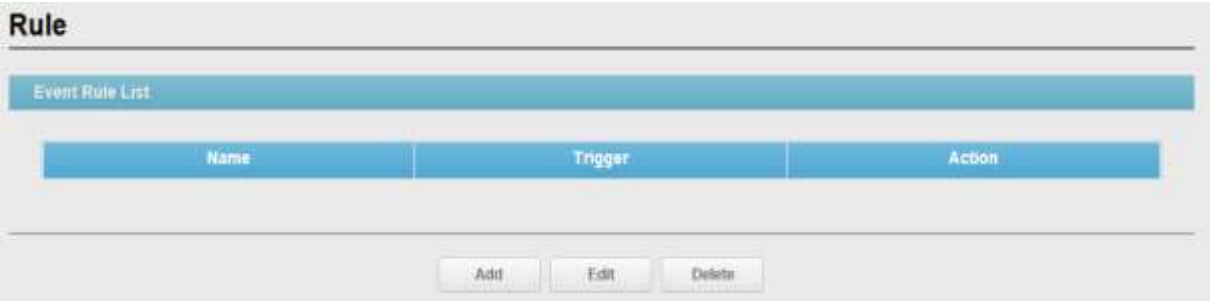
Prefix file name: Click in the Prefix file name box and type a name for JPEG image file (1 to 32 alphanumeric characters).
Additional suffix: Provide additional information for JPEG image file.

4.4.9. Action-Video

■ Video Boost Setting:

When this camera detects an event according to event rule setting, this camera will boost the streaming performance dependent on each video stream setting.

4.4.10. Rule



This page shows current configuration status when event is activated.
The common event actions will upload images to a specified destination or send an email or active an output port.

■ Event Rule List:

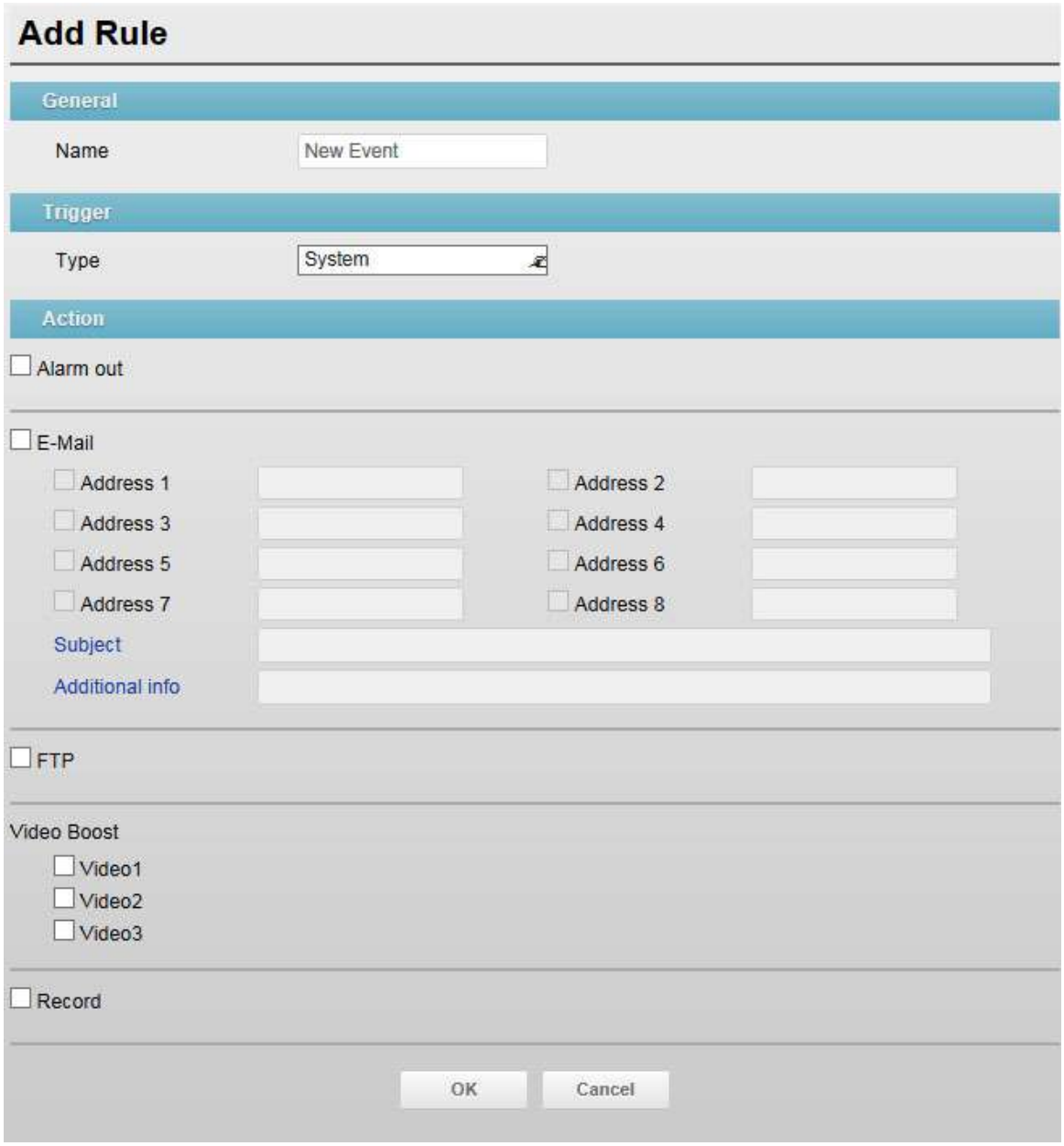
An event type is a set of parameters describing how the camera will perform certain actions. Event type may be set up as Triggered according to requirements.
Name: Shows the descriptive name provided by the user.
Trigger: Shows the source of event type as Alarm-In-1, Alarm-In-2, and VMD configured by the user.
Action: Shows the destination of event output as SMTP server, FTP server, Alarm-out port, Audio alert and SD record.

NOTE

To add new event, click the Add button. This button opens new dialog window, which are used to make all the necessary settings for the new event map.

Add: To add a new event map list, select it and click the Add button.
Edit: To modify an existing event map list, select it and click the Modify button.
Delete: To delete an event map list, select it and click the Delete button.

4.4.11. Rule-Add



Event Rule-Add page provides how to configure the event action if there is event triggering such as Alarm-In and Manual trigger.

■ **General:** Enter the user favorite event name.

Name: Click in the Name box and type a user favorite event name (1 to 31 alphanumeric characters).

■ **Trigger:** Shows the Event source type to be configured.

Type: Selects the Event source type.

■ **Action:** The Event Out provides that the camera will perform certain actions.

Active output: Click the Active output port checkbox to enable the Alarm out port.
E-mail: Click the Email checkbox to enable the emailing below each email address.
• **To email address:** Click the each email addresses checkbox.

NOTE

If you want to additional message when emailing, click in the Subject / Additional Info box and type a description for the text you are creating (0 to 255 alphanumeric characters).

FTP: Click the FTP checkbox to enable the image uploading to FTP server using JPEG image.

Video Boost: Click the Video Boost checkbox to enable the video boost streaming.

Record: Click the Record checkbox to enable the image recording to SD Card.

4.5. Record

4.5.1. Record

■ **Record Setting:**

When the network camera detects an event, it can record the video stream in the Micro SD Memory (not supplied) or NAS (Network Attached Device) as a storage device. Check the box to enable the service.
Click the checkbox to overwrite the storage device.

- Stream source: Set the recording stream source
- Frame rate: Set the recording frame rate
- Bitrate: Set the recording bitrate
- Pre event recording: Set the pre-event recording time
- Post event recording: Set the post-event recording time

4.5.2. Storage

■ **Storage Setting:** First select the storage device type to be recorded.

- SD: Secure Digital card
- CIFS: Common Internet File System, a file format for a NAS device.
- NFS: Network File System, a file format for a NAS device.
- Address: Enter IP address for NAS device.
- Remote directory: Enter directory or folder location to be recorded in the NAS device.
- Capacity: Enter the capacity of storage to be used. It must be less than the total storage capacity.
- User: Enter user ID. The network camera will ask for these whenever you access NAS device.
- Password: Enter user password. The network camera will ask for these whenever you access NAS device.
- Format: Click the Format button to format SD card.
- Remove: Remove or eject the storage device safely.
- Check: Check the validity of user ID/Password for CIFS or NFS.

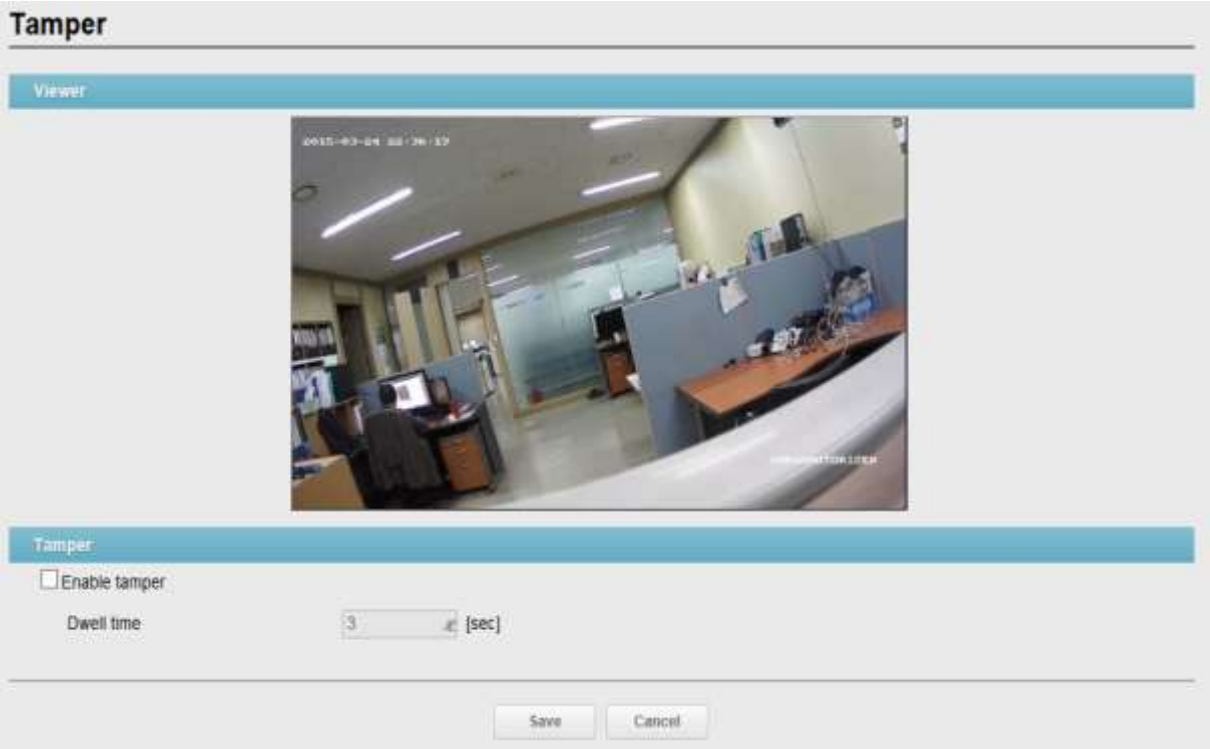
■ **Storage Information:** Show current SD card information.

NOTE

- Common Internet File System (CIFS) is a remote file access protocol that forms the basis for Windows file sharing, network printing, and various other network services. CIFS requires a large number of request/response transactions and its performance degrades significantly over high-latency WAN links such as the Internet.
- Network File System (NFS) is a network file system protocol, allowing a user on a client computer to access files over a network in a manner similar to how local storage is accessed. NFS, like many other protocols, builds on the Open Network Computing Remote Procedure Call (ONC RPC) system.

4.6. Video Analytic

4.6.1. Tamper



■ Tamper:

Camera Tampering can generate an alarm whenever the camera is repositioned or severely defocused. To send an alarm, for example an email, an event map must be set up.
Dwell time: The default setting is 3 seconds.

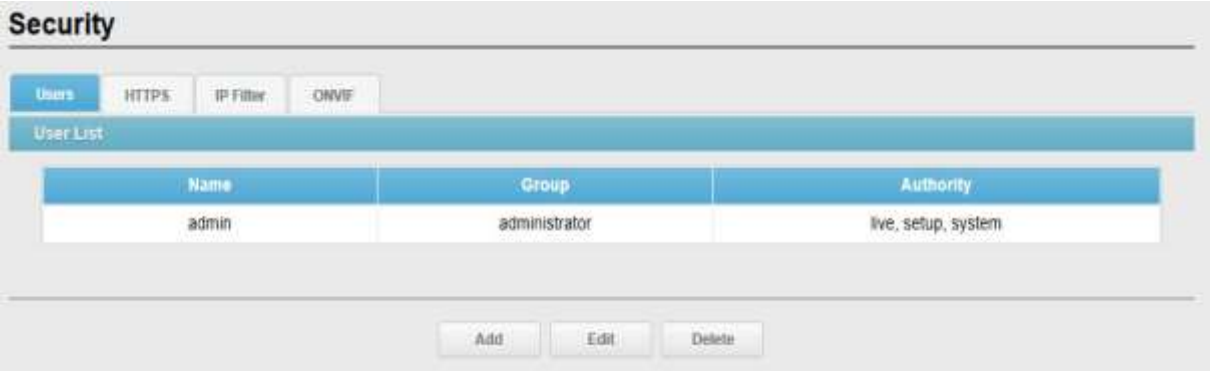
> **NOTE**
>
> The Dwell time that must elapse before an alarm is generated. This can help prevent false alarms for known conditions that affect the image.

To configure the camera to send an alarm when tampering occurs:

1. Go to Event Map > Add.
2. Select Event In Type.
3. Set Event Out for notification of an image changing if the lens is repositioned or rendered severely out of focus.

4.7. System

4.7.1. Security-Users



■ Users List:

User accounts can be added or modified or removed. The authority depends upon user group automatically and shows the permission status to access the menus. The default user name / password are ***admin / 11111111.***

Name: Shows the name which registered to access the camera.

Group: Shows the assigned permission given to users.

Authority: Shows the permission status to access the menus.

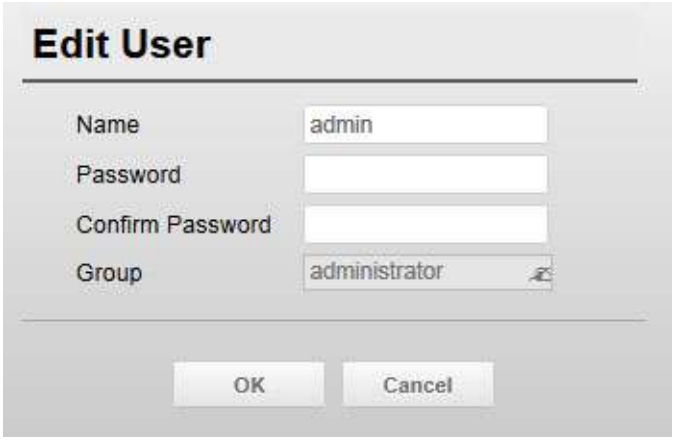
- Click the Add, Edit, or Delete button for managing user account.

4.7.2. Users-Add

To add a new user:

1. Click the Add tab, and then new pop-up window appears.
2. Click in the User name box and type a new user name (1 to 14 alphanumeric characters).
   - User names are not case sensitive.
3. Click in the Password box and type a password (1 to 8 alphanumeric characters).
   - Passwords are case sensitive.
4. Click in the Confirm password box and retype a password.
5. Click in the User group box and select one of the groups you wish to assign to the user.
6. Click the OK button to save the settings and add a new user.

4.7.3. Users-Edit



To edit a user:

1. Select one of the User Name in the User List you want to modify.
2. Click the Edit tab, and then new pop-up window appears.
3. Click in the Password box and type a password (1 to 8 alphanumeric characters).
   • Passwords are case sensitive.
4. Click in the Confirm password box and retype a password.
5. Click in the User group box and select one of the groups you wish to assign to the user.
6. Click the OK button to save the settings and modify a user.

NOTE

The user name can't be modified.

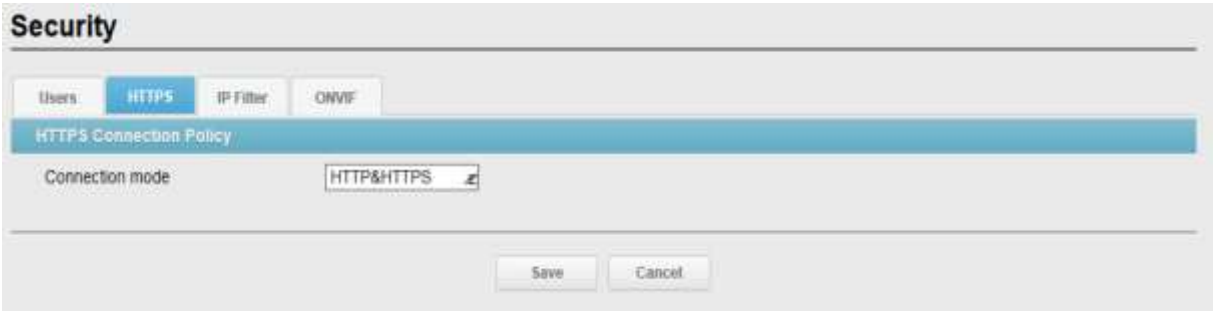
To delete a user:

1. Select one of the User Name in the User List you want to remove.
2. Click the Delete tab. A dialog box appears with confirmation message.
3. Click the OK button. The user profile is removed from the User List profile.

NOTE

The admin user name can't be modified.

4.7.4. Security-HTTPS



■ HTTPS Connection Policy:

Provides the connection policy when user access to the camera using web browser.

Connection mode: The default setting is HTTP&HTTPS.

- **HTTP**: The sensitive data will be transfer without encrypted during transmission. Supports a URL that only starts with "HTTP:"
- **HTTPS**: HTTPS (Hypertext Transfer Protocol over SSL) is a protocol used to provide the encrypted transmission. Supports a URL that only starts with "HTTPS: "
- **HTTP&HTTPS**: Supports both HTTP and HTTPS simultaneously. You can access the camera using a standard “HTTP:” URL, but sensitive data is not encrypted during transmission. To ensure that sensitive data is encrypted, you must use a secure "HTTPS: " URL.

NOTE

- To ensure security on the internet, all web browsers provide several security levels that can be adjusted for site that use SSL (Secure Socket Layer) technology to transfer data. SSL encrypts communications, making it difficult for unauthorized users to intercept and view user names and passwords.
- SSL requires signed certificates to determine if the web browser accessing the camera has a required authentication. This camera can generate a self-signed certificate using Open SSL.
- If you select the HTTP connection policy to HTTP, you cannot access the camera using a URL beginning with “HTTPS:”
- Self-signed certificates are valid for 10 years.

4.7.5. Security-IP Filter

■ IP Filter Setting:

Provides the IP filtering elements such as On/Off, Priority, Policy and IP Ranges. The default setting is disabling.

Enable IP filtering: Click the Enable IP filtering checkbox to enable the IP address filtering function. This dialog allows you to add new allowed/denied IP addresses. These can be added whole ranges (subnets) of IP address can be added directly.

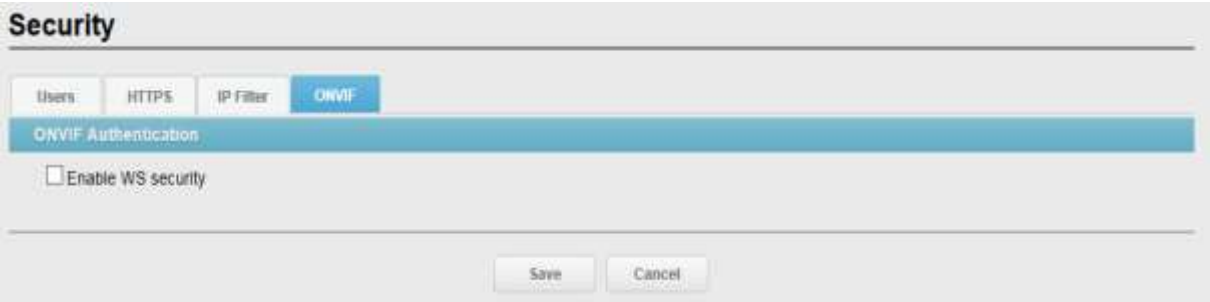
On/Off: Click the checkbox to active the settings (Priority, Policy, and IP ranges).
Priority: The number means a priority if there are duplicated IP address each IP ranges.
Policy: Determines the filtering attribute of the IP address selected.
Start IP: Enters the start IP address to ALLOW/ DENY in the IP range selected.
End IP: Enters the end IP address to ALLOW/ DENY in the IP range selected.

NOTE

To add a subnet of network addresses, these must be added in CIDR (Classless Inter-Domain Routing) notation. For example: entering 192.168.1.0/24 will add all the addresses in the range 192.168.1.1 to 192.168.1.254. Please contact with your network administrator for more detail.

- If you are accessing the network camera via a proxy server, the IP address for the proxy server must be added as an allowed address.

4.7.6. Security-ONVIF

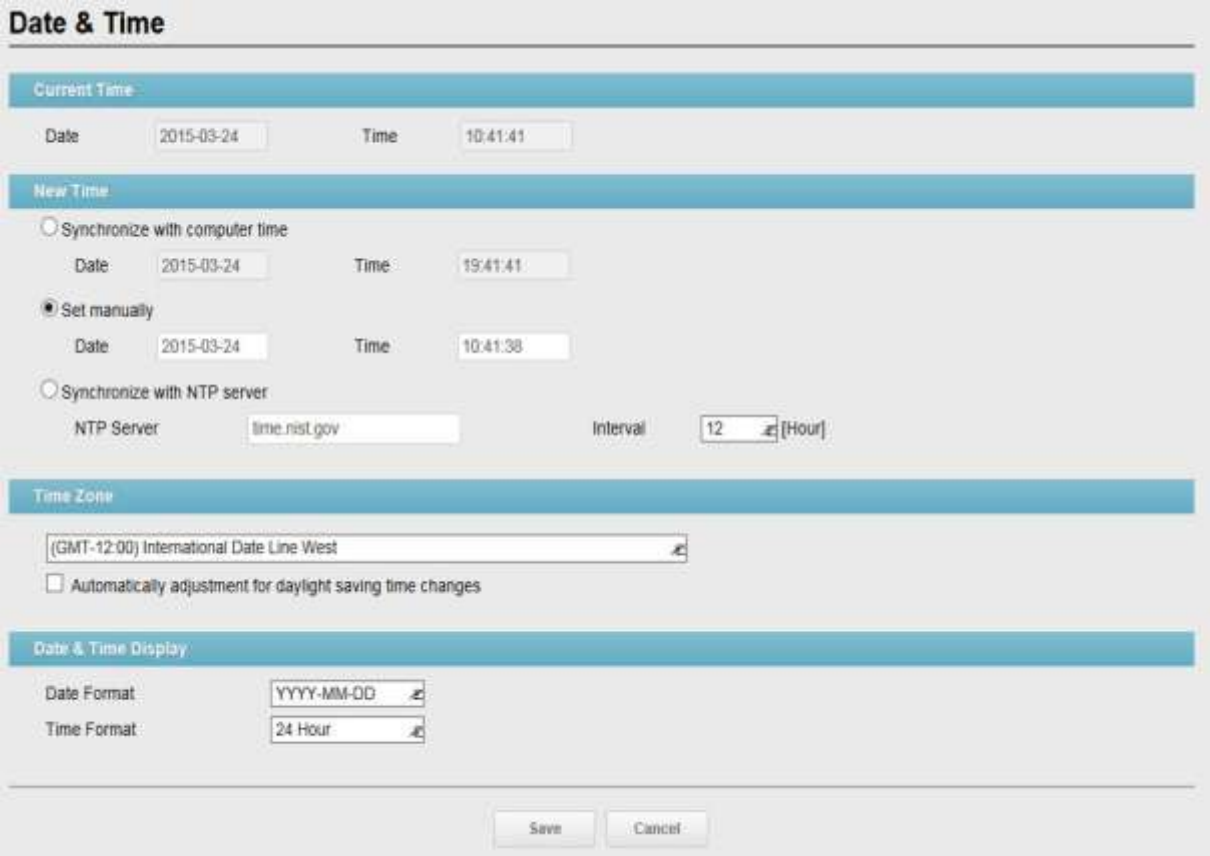


■ ONVIF Authentication:

This camera supports an authentication processes (Web Service security protocol) using user ID/Password to connect an ONVIF devices.

Enable WS security: It defines a standard command set that can be used to provide Web Services message integrity and confidentiality. If you want to use this, click the check box. The default setting is off. It means this camera tries to connect with other ONVIF devices without user ID/Password.

4.7.7. Day & Time



■ **Current Time:** Shows the current date and time.

Date: The default setting is 1970-01-01.
Time: The default setting is 00:00:00.

■ **New Time:** Select one of the server time.

Synchronize with computer time: Sets the time according to the clock on your computer.
Set manually: Using this option allows you to manually enter the date and time.
Synchronize with NTP Server: This option will obtain the correct time from an NTP server every 60 minutes. The NTP server's IP address or host name is specified in the time server.

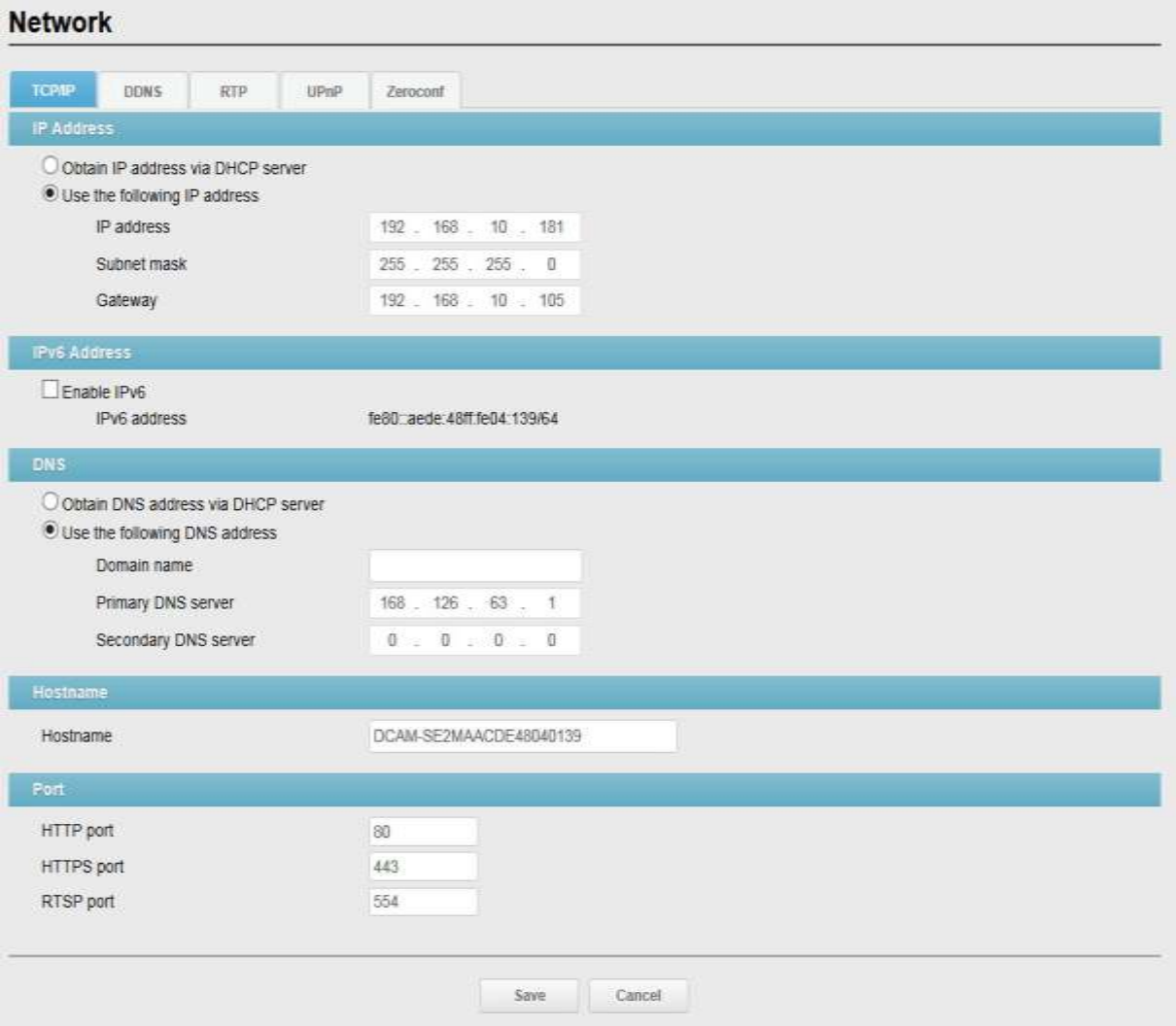
■ **Time Zone:** Select the time zone where your camera is located.

Click the "Automatically adjustment for daylight saving changes" checkbox to automatically update the time changes caused by daylight saving.
Time zone: The default setting is GMT.

■ **Date & Time Display:** Select one of the Date and Time format.

Date Format: The default setting is YYYY-MM-DD.
Time Format: The default setting is 24 hours.

4.7.8. Network-TCP/IP



■ IP Address:

The DHCP (Dynamic Host Configuration Protocol) server has a feature that automatically assigns an IP address to the device if there is a device on the network.
Obtain IP address via DHCP server: Select the choice box if you want to assign the IP address from DHCP server automatically, and then the remaining setting are read-only text.
Use the following IP address: Select the choice box if you want to assign the IP address manually.
IP address: The address of the camera connected to the network. Specify a unique IP address for this network camera.
Subnet mask: The address that determines the IP network that the camera is connected to (relative to its address). Specify the mask for the subnet the network camera is located on.
Gateway: The gateway that accesses other networks. Specify the IP address of the default router (Gateway) used for connecting devices attached to different networks and network segments.

■ IPv6 Address:

Check this box to enable IPv6 address configuration. Other settings for IPv6 are configured in the network router.

■ DNS:

DNS (Domain Name Service) provides the translation of host names to IP addresses on your network.
Obtain DNS server via DHCP server: Select the choice box if you want to use the DNS server settings provided by the DHCP server automatically, and then the remaining setting are read-only text.
Use the following DNS server address: Select the choice box if you want to use the desired DNS server manually.
Domain name: Enter the domain to search for the host name used by the network camera.
Primary DNS server: Enter the IP address of the primary DNS server.
Secondary DNS server: Enter the IP address of the secondary DNS server.

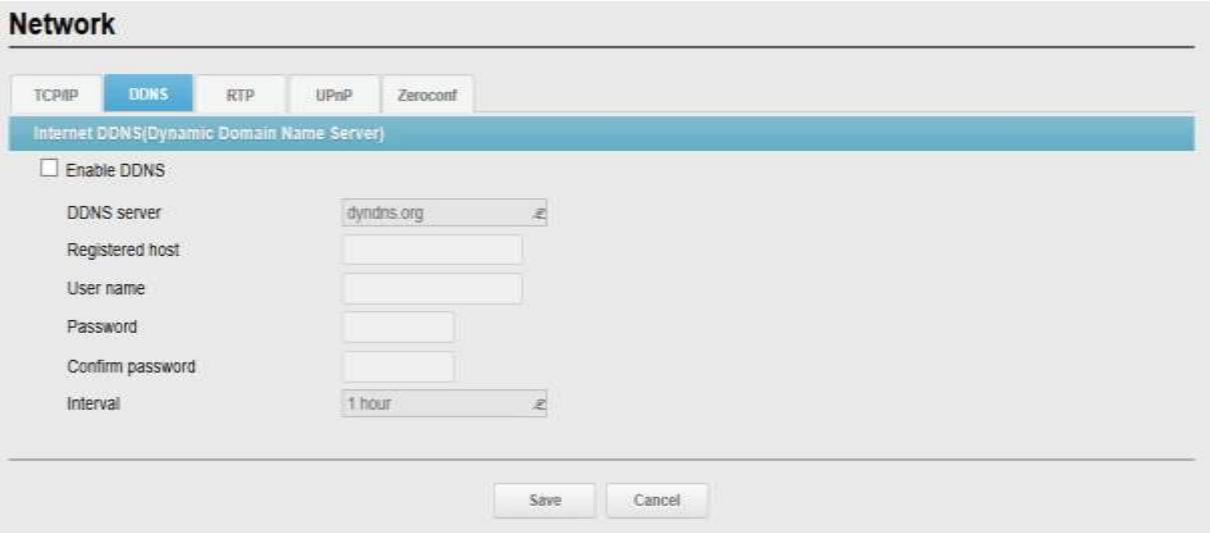
■ Hostname:

This 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.

■ Port:

Allows the user to access the camera using web browser encrypted communication.
HTTP port: The default HTTP (Hypertext Transfer Protocol) port number is 80 and can be changed to any port within the range 1024-65535.
HTTPS port: The default port number is 443 and can be changed to any port within the range 1024-65535.
RTSP port: RTSP (Real Time Streaming Protocol) allows a connecting client to start a video stream. The default setting is 7070 and can be changed to any port within the range 1024-65535.

4.7.9. Network-DDNS



The DDNS (Dynamic DNS) service can provide the camera with its own URL (web address), which can then be used to access it over the Internet. Use the DDNS service to assign a host name for easy access to your network camera.

NOTE

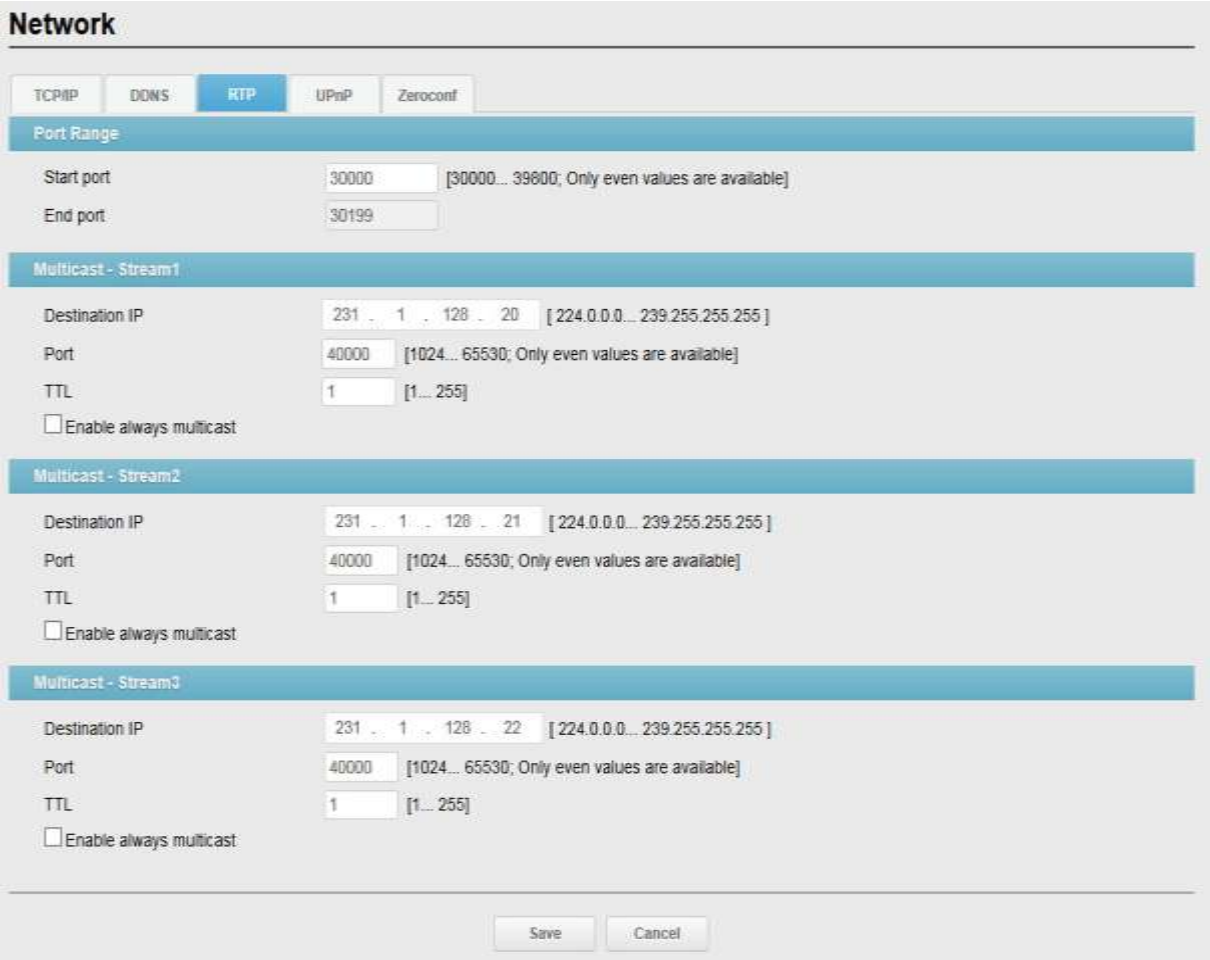
- If the camera has not previously been registered at the Dynamic DNS Service, you need the registration process first.
- If the camera is already registered at the Dynamic DNS Service and its IP address changes, the DNS service must be updated with this new IP address.
- These regular updates will always occur at the set interval, with no regard to whether automatic updates have been configured or not.

■ Internet DDNS (Dynamic Domain Naming Service):

Provides user with host name to access the camera.

Enable DDNS: Click the Enable DDNS checkbox to active DDNS service.
DDNS server: Enter the DDNS server name. The default DDNS server is security-device.name
Registered host: Enter the registered host name.
User name: Enter the registered user name to be used for accessing the DDNS server.
Password: Enter user password to be used for accessing the DDNS server.
Confirm password: Enter user password again to confirm.
Interval: Set the interval at which to regularly update the Dynamic DNS service.
The default setting is 1 hour.

4.7.10. Network-RTP



■ Port Range:

The RTP Port range defines the range of ports from which the video/audio ports are automatically selected. This feature is useful if the camera is connected to a NAT router with manually configured port mapping.

NOTE

Limit the range of ports permitted for RTP unicast/multicast by entering the Start port and End port in the provided fields.

Start port: The Start port can be entered in the range 1024-65532. The default setting is 5008.
End port: The End port can be entered in the range 1024-65532. The default setting is 50999.

NOTE

The video/audio ports entered here must be even values.

■ Multicast-Stream1~3:

Only IP addresses within certain ranges can be used for multicasting. The camera has been pre-configured with addresses from these ranges, and does not normally need to be reconfigured. If an address does need to be changed, please contact your network administrator.

Destination IP: Click in the destination IP box and type IP address.

NOTE

- Multicast addresses are allocated according to these IANA policies.
- The default setting IP address is ***231.1.128.20***

RTP port: The RTP port can be entered in the range 1024-65532. The default setting is 5000.

NOTE

The RTP port entered here must be even values.

TTL: The TTL can be entered in the range 1-255. The default setting is 1.

NOTE

- TTL (Time To Live) If IP packets (i.e. data) fail to be delivered to their destination within a reasonable length of time (which could be for various reasons), this setting tells 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 is dropped.

4.7.11. Network-UPnP

UPnP is enabled by default, and the network camera then is automatically detected by operating systems and clients that support this protocol.

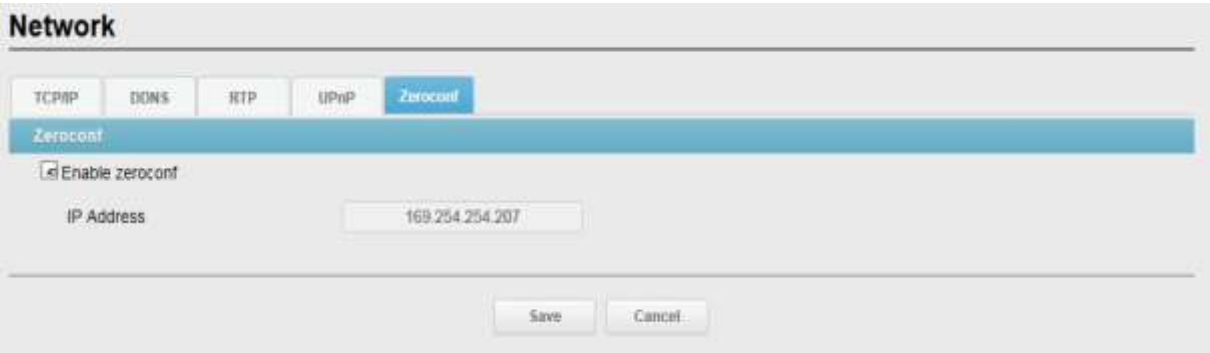
■ **UPnP (Universal Plug & Play):**

Click the Enable UPnP checkbox to disable the UPnP. The default setting is enabling.
Friendly name: Click in the Friendly name box and type a description for the text you are creating (1 to 32 alphanumeric characters). If your computer is also enabled, the camera is automatically detected and a new icon is added to “Model Name-MAC address”.

NOTE

UPnP must also be enabled on your Windows computer. To do this, open the Control Panel from the Start Menu and select Add/Rename programs. Select Add/Remove Windows Components and open the Networking Services section. Click Details and then select UPnP as the service to add.

4.7.12. Network-Zeroconf

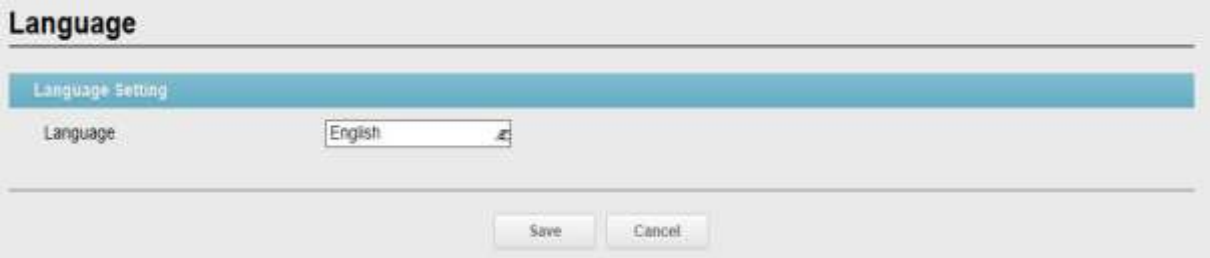


Zero configuration networking (zeroconf) is a set of techniques that automatically creates a usable Internet Protocol (IP) network without manual operator intervention or special configuration servers. Zero configuration networking allows devices such as computers and printers to connect to a network automatically. Without zeroconf, a network administrator must set up services, such as Dynamic Host Configuration Protocol(DHCP) and Domain Name System(DNS), or configure each computer’s network settings manually, which may be difficult and time-consuming.

■ **Zeroconf:** The default setting is enabling.

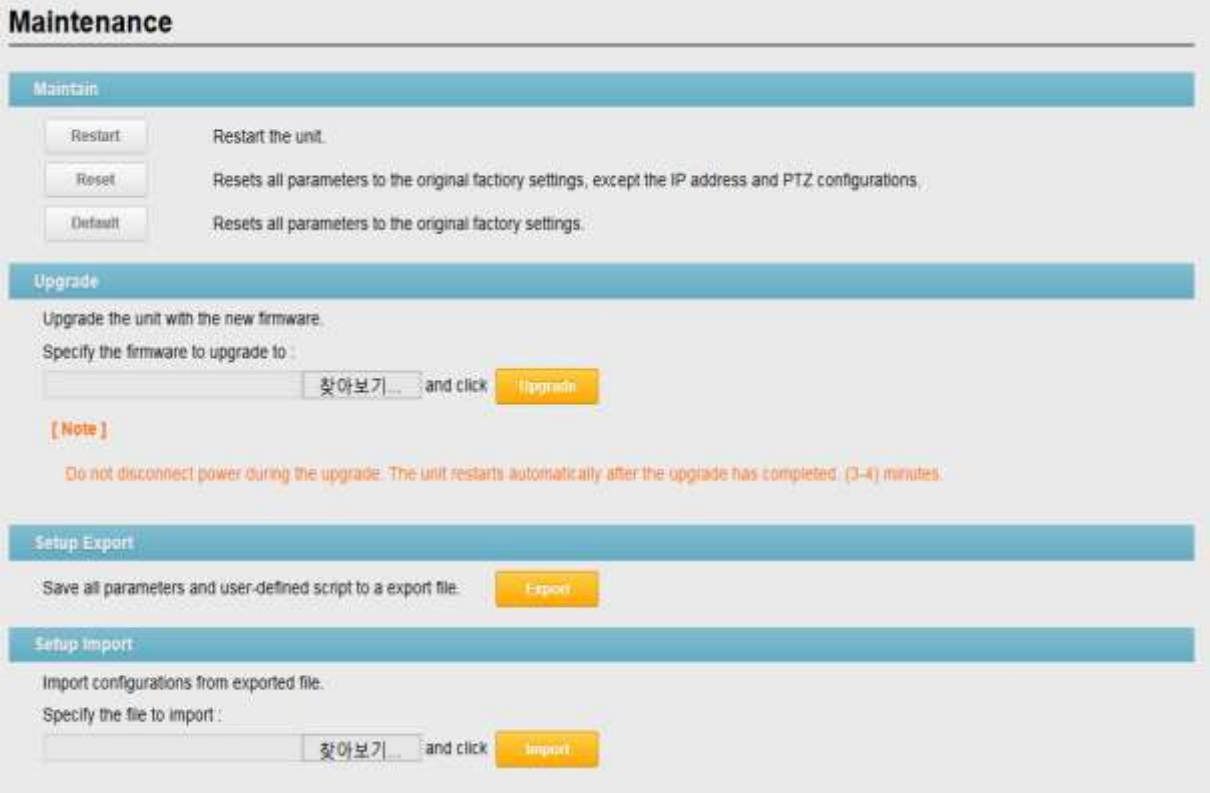
IP Address: The default zeroconf ip is 169.254.xxx.xxx

4.7.13. Language



■ **Language Setting:** the default setting is English.

4.7.14. Maintenance



■ **Maintain:**

Provides software reset of the camera when troubleshooting.

Restart: The camera is restarted without changing any of the setting. Use this method if the unit is not behaving as expected.
Reset: The unit is restarted and most current settings are reset to factory default values, but the following settings does not reset.

- The boot protocol (DHCP or static)
- The static IP address
- The default router
- The subnet mask
- The system time

Default: The Default button should be used with caution. Pressing this returns the camera's settings to the factory default values including the IP address.

■ Upgrade:

Provides the latest firmware into this camera. When you upgrade the firmware with a file, your camera receives the latest available functionality and unparalleled reliability.
Upgrades the new firmware as following steps;

1. Click Browse button.
2. Browse to the desired firmware file on your computer.
3. Click Upgrade button.

NOTE

Do not disconnect power to the unit during the upgrade. The unit restarts automatically after the upgrade has completed. (2~3 minutes).

■ Setup Export:

Save all parameters and user-defined scripts to a backup file. Click the Backup button to take a backup of all the parameters, and any user-defined script.

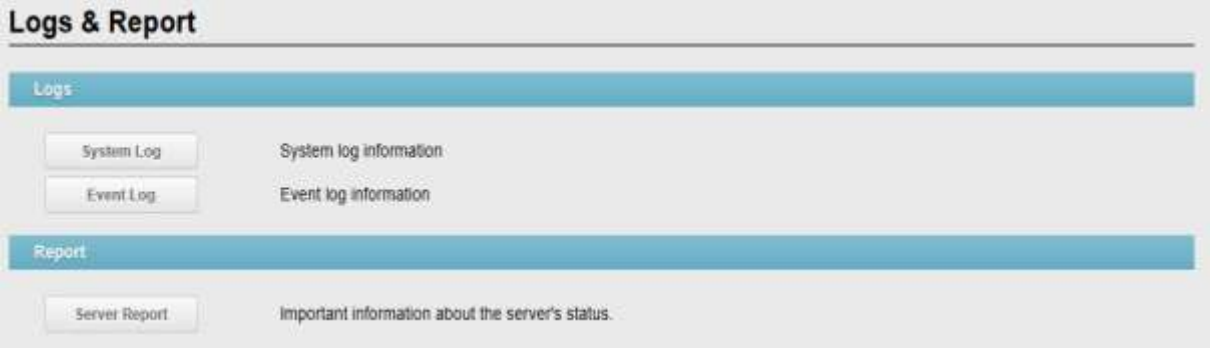
■ Setup Import:

Use a saved backup file to return the unit to a previous configuration. Click the Browse button to locate the saved backup file and then click the Restore button.

NOTE

Setup Export and Import function can only be used on the same unit with running the same firmware. This feature is not intended for the configuration of multiple units or for firmware upgrades.

4.7.15. Logs & Report



■ Log & Report:

The log files records event in the unit since the last system restart and can be a useful diagnostic tool when troubleshooting. The Report contains important information about the system.

System Log: Provides the system log information.
Event Log: Provides the events log information.
Server Report: Provides the information about the server status and should be included when requesting report. Information be found here includes the camera's firmware version, MAC address, system information, IP address and network connections.

5. Specifications

5.1. 2MP

IMAGE	
Image Sensor	Sony 1/2.8” 2.43Megapixel RGB Bayer Array CMOS Sensor
Number of Effective Pixels	1920(H) x 1080(V) approx. 2.07M pixels (Full-HD mode)
Min. Illumination	0.01Lux(F1.2, 50IRE)
Scanning Mode	Progressive Scan
S/N Ratio	54dB
CAMERA	
Wide Dynamic Range	Digital WDR (ATR-EX)
Day and Night Mode	Automatic, Day, Night
Noise Reduction	2D-NR, 3D-NR
Auto Exposure Mode	Automatic (Priority: Frame rate/Low noise), Manual
Shutter Speed Control	Automatic: Min. 1/135,000 sec ~ Max. 1/60 sec Manual: Min. 1/10,000 sec ~ Max. 1/10 sec
Gain Control	Automatic: Min. 1.2dB ~ Max. 54dB Manual: Min. 1.2dB ~ Max. 54dB, Default 1.2dB
Auto White Balance Mode	ATW-Indoor/Outdoor, Shade, Clear sky, Fluorescent light, Light bulb, Flame, Manual
Auto Focus (Optional)	*One Push, Manual, (Automatic)*
Optical Zoom (Optional)	*Motorized 4.2x*
Optical Zoom Speed (Optional)	*1~6 Steps*
Digital Zoom	16x
OSD	On/Off
Back Light Compensation	On/Off
High Light Compensation	On/Off
Image Effect	Mirror, Flip
Privacy Mask	Max.8 Area Selection
Tamper	On/Off
Video Motion Detection	Max.4 Area Selection
Corridor Format	90°/270°
Defog	On/Off
Lens Distortion Compensation	On/Off
NETWORK	
Video Compression	H.264(High, Main, Base line profile), MJPEG
Video Resolution	1920x1080(Full-HD), 1280x1024(SXGA), 1280x720(HD), 704x480(4CIF/NT), 704x576(4CIF/PAL), 640x480(VGA), 352x288(CIF), 320x240(QVGA)
Video Frame Rate	Up to 30fps@1920x1080p
Video Streaming	Simultaneously H.264 and MJPEG (Triple Streaming) Independent Frame Rate and Bandwidth Control, VBR/CBR Mode
Audio Streaming	Two way(G.711)
FTP Uploading	MJPEG Still Image
Event In	Onboot/Trigger/Network Loss/Tampering/**Motion**
Event Out Notification	E-mail, FTP
Login Authority	Administrator, Operator, Guest
Event Buffering	FTP : Pre/Post Event Time: 0~30sec, FPS: 1~2 fps
Manual Trigger	Still Image Capture

Security	Multi User Authority, IP Filtering, HTTPS
Network Time Sync	Synchronize Computer/NTP Server, Manual
Software Reset	Restart, Reset, Factory Default
Auto Recovery	Backup, Restore
Remote Upgrade	Using Web Browser
Protocols	TCP/IP, UDP, IPv4/v6, HTTP, HTTPS, FTP, UPnP, RTP, RTSP, RTCP, DHCP, ARP, Zeroconf
Client Software	Built-In Web, ONVIF Compatible 3rd Party VMS
Max. User Connection	10 Users
SDK Support	API, ONVIF Profile S Compliant
EXTERNAL IN/OUT	
Ethernet Tx/Rx	RJ-45(10/100Base-T)
IR_LED Control	IR_LED Control On/Off
Day & Night Control	IR_Cut_Filter Exchange
Iris Control	DC-Iris, Fixed
Alarm Control	Alarm-In 1/Alarm-Out 1
SD Card	SDHC/SDXC
Audio	Line-In/Line-Out

5.2. 3MP

IMAGE	
Image Sensor	Sony 1/2.8” 3.2Megapixel RGB Bayer Array CMOS Sensor
Number of Effective Pixels	2048(H) x 1536(V) approx. 3.15M pixels
Min. Illumination	0.01Lux(F1.2, 50IRE)
Scanning Mode	Progressive Scan
S/N Ratio	54dB
CAMERA	
Wide Dynamic Range	Digital WDR (ATR-EX)
Day and Night Mode	Automatic, Day, Night
Noise Reduction	2D-NR, 3D-NR
Auto Exposure Mode	Automatic (Priority: Frame rate/Low noise), Manual
Shutter Speed Control	Automatic: Min. 1/135,000 sec ~ Max. 1/60 sec Manual: Min. 1/10,000 sec ~ Max. 1/10 sec
Gain Control	Automatic: Min. 1.2dB ~ Max. 54dB Manual: Min. 1.2dB ~ Max. 54dB, Default 1.2dB
Auto White Balance Mode	ATW-Indoor/Outdoor, Shade, Clear sky, Fluorescent light, Light bulb, Flame, Manual
Auto Focus (Optional)	*One Push, Manual*
Optical Zoom (Optional)	*Motorized 4.2x*
Optical Zoom Speed (Optional)	*1~6 Steps*
Digital Zoom	16x
OSD	On/Off
Back Light Compensation	On/Off
High Light Compensation	On/Off
Image Effect	Mirror, Flip
Privacy Mask	Max.8 Area Selection
Tamper	On/Off
Video Motion Detection	Max.4 Area Selection
Corridor Format	90°/270°
Defog	On/Off
Lens Distortion Compensation	On/Off
NETWORK	
Video Compression	H.264(High, Main, Base line profile), MJPEG
Video Resolution	2048x1536(QXGA), 1920x1080(Full-HD), 1280x1024(SXGA), 1280x720(HD), 704x480(4CIF/NT), 704x576(4CIF/PAL), 640x480(VGA), 352x288(CIF), 320x240(QVGA)
Video Frame Rate	Up to 30fps@2048x1536p
Video Streaming	Simultaneously H.264 and MJPEG (Triple Streaming) Independent Frame Rate and Bandwidth Control, VBR/CBR Mode
Audio Streaming	Two way(G.711)
FTP Uploading	MJPEG Still Image
Event In	Onboot/Trigger/Network Loss/Tampering/**Motion**
Event Out Notification	E-mail, FTP
Login Authority	Administrator, Operator, Guest
Event Buffering	FTP : Pre/Post Event Time: 0~30sec, FPS: 1~2 fps
Manual Trigger	Still Image Capture
Security	Multi User Authority, IP Filtering, HTTPS
Network Time Sync	Synchronize Computer/NTP Server, Manual
Software Reset	Restart, Reset, Factory Default
Auto Recovery	Backup, Restore
Remote Upgrade	Using Web Browser
Protocols	TCP/IP, UDP, IPv4/v6, HTTP, HTTPS, FTP, UpnP, RTP, RTSP, RTCP,

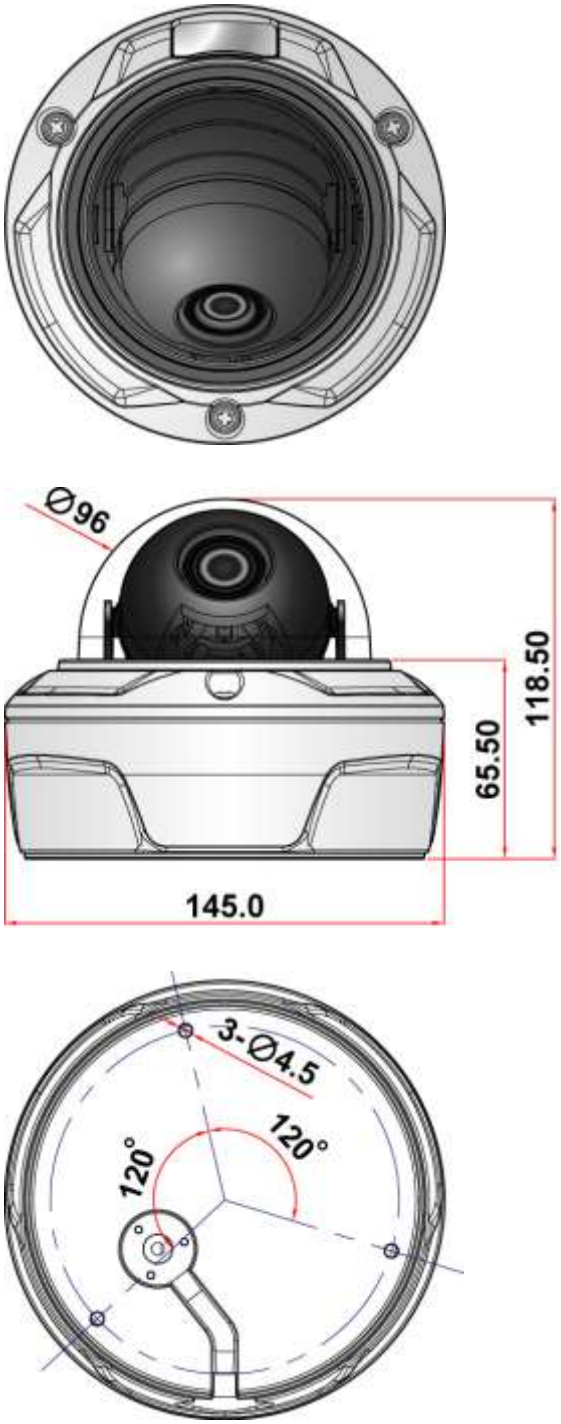
	DHCP, ARP, Zeroconf
Client Software	Built-In Web, ONVIF Compatible 3rd Party VMS
Max. User Connection	10 Users
SDK Support	API, ONVIF Profile S Compliant
EXTERNAL IN/OUT	
Ethernet Tx/Rx	RJ-45(10/100Base-T)
IR_LED Control	IR_LED Control On/Off
Day & Night Control	IR_Cut_Filter Exchange
Iris Control	DC-Iris, Fixed
Alarm Control	Alarm-In 1/Alarm-Out 1
SD Card	SDHC/SDXC
Audio	Line-In/Line-Out

6. Dimension

6.1. Box type Camera

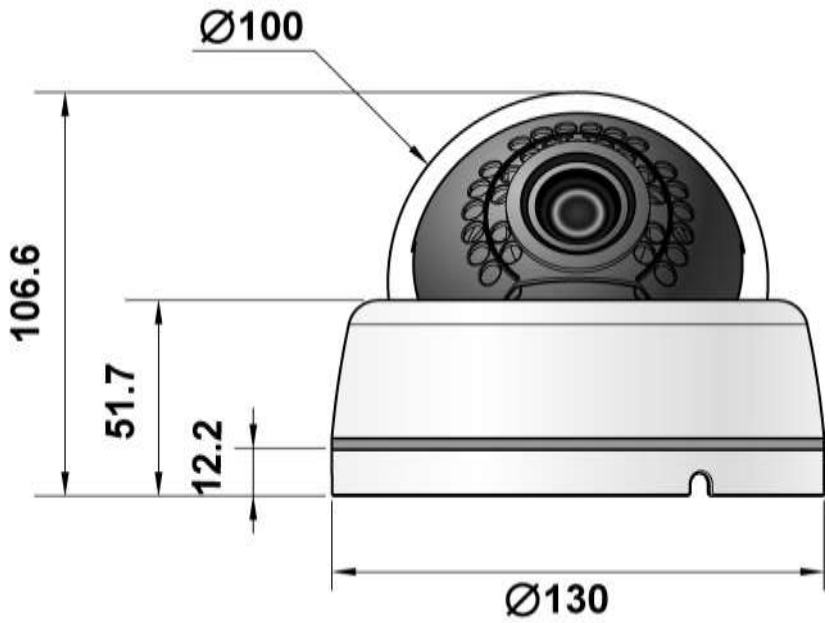
Unit: mm

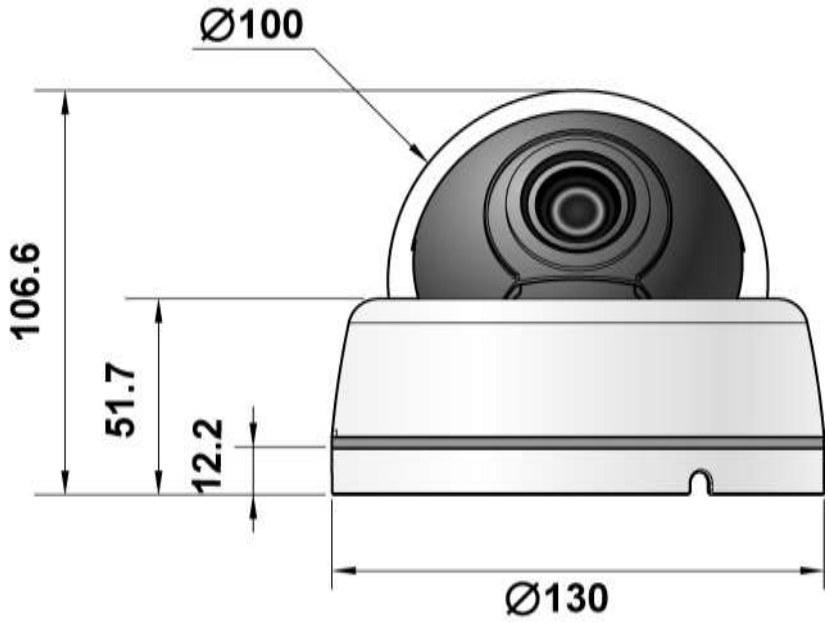
6.2. Vandal Dome Camera



Unit: mm

6.3. Dome Camera

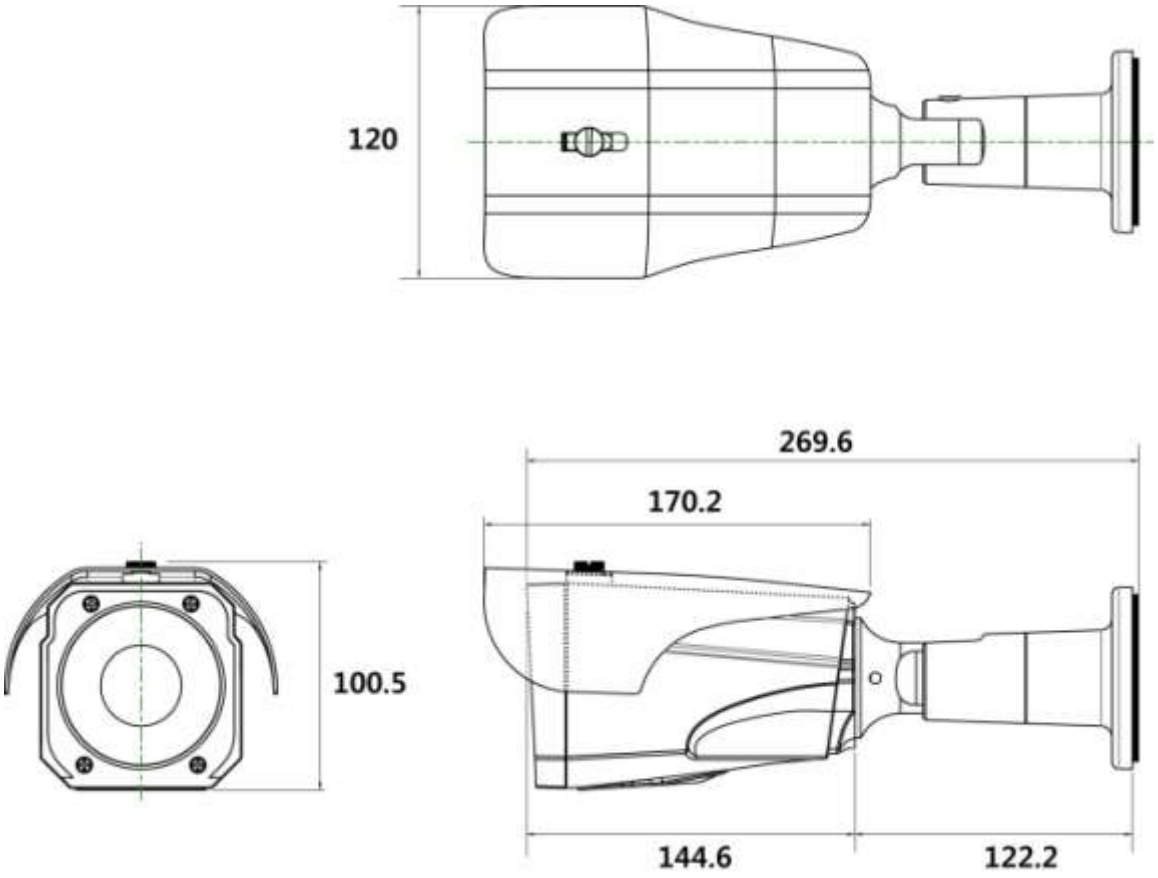




Unit: mm

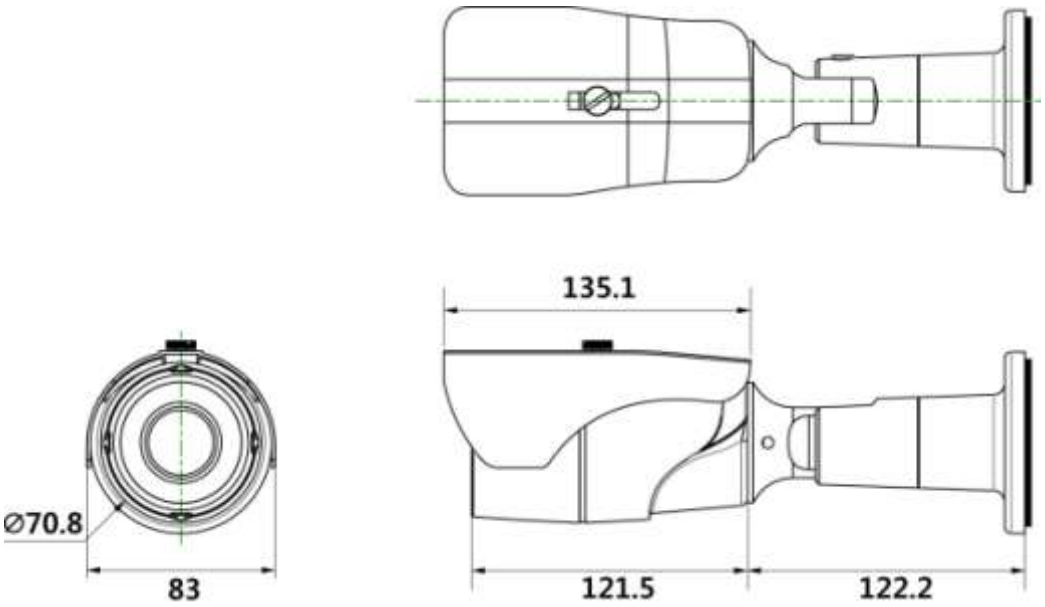
6.4. Bullet type Camera

- 54 IR LED Camera



Unit: mm

- 36 IR LED Camera



Unit: mm

7. Troubleshooting

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

7.1. Upgrading the Firmware

Firmware is software that determines the functionality of the network camera. One of your first actions when troubleshooting a problem should be to check the current firmware. The latest version may contain a correction that fixes your particular problem. The current firmware version in your camera is displayed on the Basic Configuration or About. For the latest firmware of the camera, please contact with your product administrator.
Detailed instructions on how to perform the upgrade process are provided with each new release. See also the Maintenancen / Upgrade for more information.

7.2. General Troubleshooting

The following list covers some of the problems that may be encountered and suggests how to remedy them:

Symptom	Possible Causes or Corrective Actions
The camera cannot be accessed by some clients.	If using a proxy server, try disabling the proxy setting in your browser. Check all cabling and connectors.
The camera works locally, but not externally.	Check if there are firewall settings that need to be adjusted. Check if there are router settings that need to be configured.
Poor or intermittent network connection.	If using a network switch, check that the port on that device uses the same setting for the network connection type (speed/duplex).
The camera cannot be accessed via a host name.	Check that the host name and DNS server settings are correct.
Not possible to log in.	When HTTPS is enabled, ensure that the correct protocol (HTTP or HTTPS) is used. When attempting to log in, you may need to manually type in http or https in the browser's address bar.
No image using Refresh and/or slow updating of images.	If images are very complex, try limiting the number of clients accessing the camera.
Images only shown in black & white.	Check the Video & Image setting.
Blurred images.	Refocus the camera.
Poor image quality.	Increased lighting can often improve image quality. Check that there is sufficient lighting at the monitored location. Check all image and lighting settings.

Rolling dark bands or flickering in image.	Try adjusting the Exposure Control setting under AE and AWB part.
H.264 not displayed in the client.	Check that the correct network interface is selected in the Video & Image/Stream.
Multicast H.264 not displayed in the client.	Check with your network administrator that the multicast addresses used by the camera are valid for your network. Check that the Enable multicast checkbox are enabled in the System/Network/RTP tab. Checks with your network administrator to see if there is a firewall preventing viewing.
Multicast H.264 only accessible by local clients.	Check if your router supports multicasting, or if the router settings between the client and the server need to be configured. The TTL value may need to be increased.
Color saturation is different in H.264 and Motion JPEG.	Modify the settings for your graphics adapter. Please see the adapter's documentation for more information.
Poor audio quality.	Too many users/clients connected to the camera may affect the sound quality adversely. Try limiting the number of clients allowed to connect.
Distorted audio.	Check that the correct Audio Input source is selected. Select Microphone for a connected external microphone. Select Line for a connected line in source.

NOTE

If you cannot find the help you require, please see the User's Manual, or contact with your network administrator.