EN

User Manual

1/3” Network Camera, 2MP, 1920x1080, Day&Night, AFZ, WDR, 5.1-51mm, Infrared, Outdoor

IPB-72A0010M0A

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Safety instructions

General safety instructions

- Before switching on and operating the system, first read this safety advice and the operating instructions.
- Keep the operating instructions in a safe place for later use.
- Installation, commissioning and maintenance of the system may only be carried out by authorised individuals and in accordance with the installation instructions - ensuring that all applicable standards and guidelines are followed.
- Protect the devices from water penetration and humidity, since these can cause lasting damage.
- Should moisture nevertheless enter the system, under no circumstance switch on the devices under these conditions, instead send them for examination to an authorised specialist workshop.
- The system must never be used outside of the technical specifications, since this can destroy it.
- The device must be protected from excesses of heat, dust, humidity and vibration.
- When separating the system from the voltage supply, only ever use the plug to pull out the cable. Never pull directly on the cable itself.
- Lay the connecting cables carefully and check that they are not mechanically stressed, kinked or damaged and that no humidity can penetrate into them.
- In the event of a malfunction, please inform your supplier.
- Maintenance and repairs may only be carried out by authorised specialist personnel.
- The system must be isolated from the power supply before opening the housing.
- The device may only be opened by qualified service personnel. Unauthorised access invalidates any warranty claim.
- Connection cables should always be exchanged through Videor E. Hartig GmbH.
- Use only original spare parts and accessories from Videor E. Hartig GmbH.
- The housing should only be cleaned using a mild domestic cleaning agent. Never use solvents or petrol as these can permanently damage the surface.
- During installation, it is essential to ensure that the seals provided are correctly installed and that they are not displaced during installation. Damaged seals must not be installed and will invalidate any warranty.
- The installer is responsible for the maintenance of the enclosure as per the technical data, e.g. by sealing the cable outlets with silicone.
- Wire end ferrules should be used when shortening the flexible connection cables.
- The devices may only be operated in the temperature range indicated in the data sheet and within the defined air humidity range.

Product - Specific Safety Instructions

- The camera may never be pointed directly at the Sun with the aperture open (this will destroy the sensor).
- It is unavoidable that during manufacture and to a certain extent during later use, humidity will be present in the ambient air within the device's housing. In the event of large temperature fluctuations, this humidity may condense inside the housing.
- To avoid this condensation inside the very tightly sealed housing, the manufacturer has inserted silica gel sachets in the housing of the various camera types.
- It is however a physical given, that these silica gel bags will reach saturation after a certain amount of time. They should therefore be replaced with new silica gel sachets.
- During installation, it is essential to ensure that the seals provided are correctly installed and that they are not displaced during installation. Damaged seals must not be installed and will invalidate any warranty.
- A multipolar, easily accessible isolation device should be installed in the proximity of the IR Spotlight, in order to disconnect the device from the power supply for service work.
- The earth connection must be made according to the low impedance requirement of DIN VDE 0100.
- Subsequent painting of the equipment surface can impair the function.
- Any warranty claim is invalidated by subsequent painting.
- A safety margin of > 1m from the spotlight must be maintained when viewing directly into the IR Spotlight in a darkened environment.
- Do not look directly at invisible LED radiation using optical instruments (e.g. a reading glass, magnifying glass or microscope), since this can endanger the eyes, LED Class 1M.
- Operation of the IR spotlight with a defective cover or during repair is prohibited.

Class A device note

This is a Class A device. This device can cause malfunctions in the living area; in such an event, the operator may need to take appropriate measures to compensate for these.

WEEE (Waste Electronical & Electronic Equipment)

Correct Disposal of This Product (Applicable in the European Union and other European countries with separate collection systems).

This marking shown on the product or its literature, indicates that it should not be disposed with other household wastes at the end of its working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources. Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take this item for environmentally safe recycling. Business users should contact their supplier and check the terms and conditions of the purchase contract. This product should not be mixed with other commercial wastes for disposal.

Graphical symbols

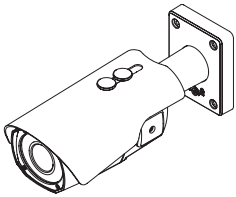
Please pay attention to the safety instructions, and carefully read through this instruction guide before initial operation.

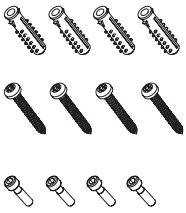
Important points of warning are marked with a caution symbol.

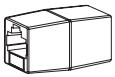
Important points of advice are marked with a notice symbol.

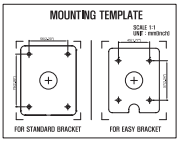
Parts supplied

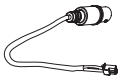
- Network Camera
- Operating Instruction
- Mounting Template
- Cable Signal Sticker
- Plastic Anchor: 6 x 30mm (4x)
- Mounting Screw: 4 x 30mm (4x)
- Assembly Screw: 4 x 15mm (4x)
- Torque Wrench: 3mm (1x)
- Coupler for RJ45 Cable (1x)
- Video Sub-out Cable (1x)
- Wiring Connector: (1x)
- Easy Bracket

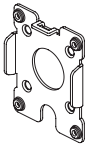




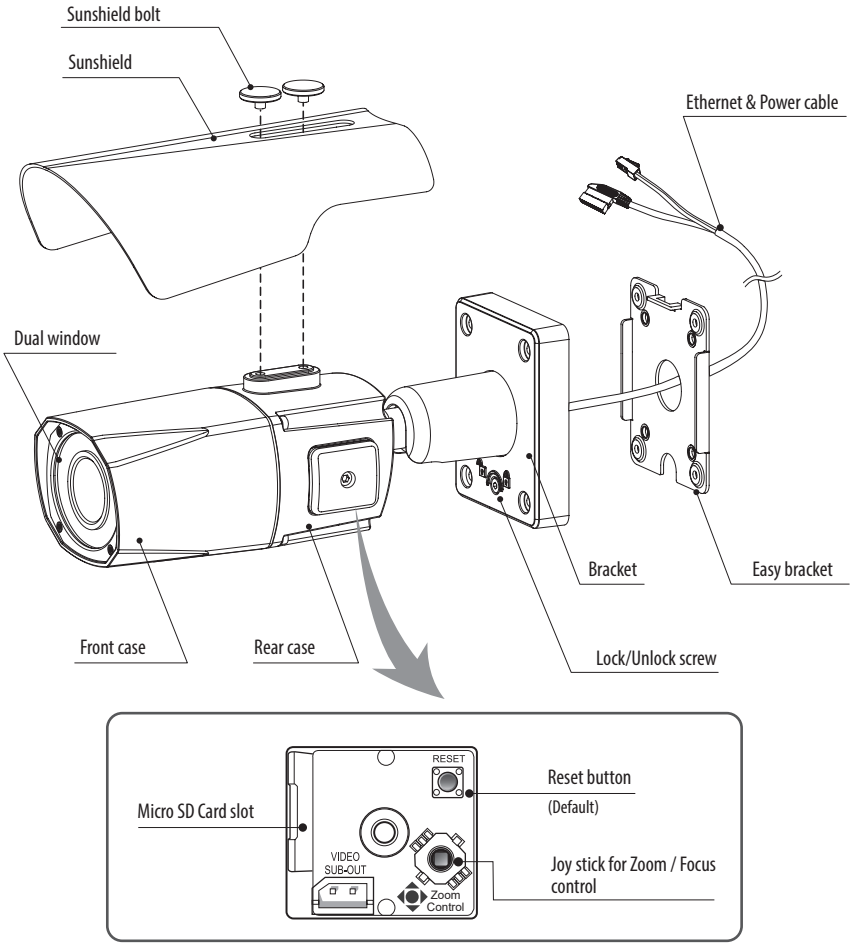








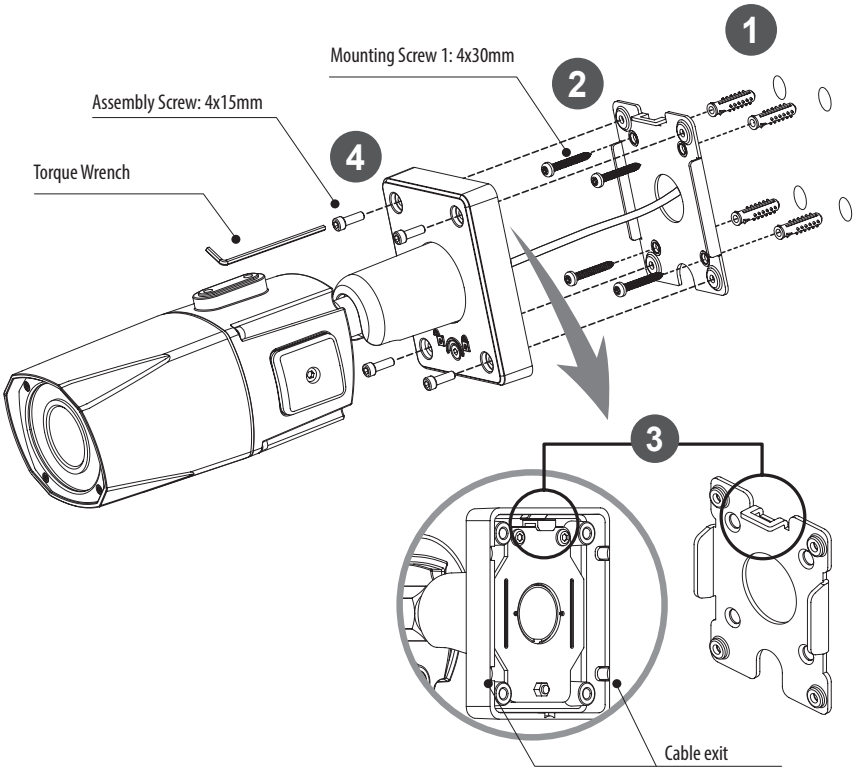
Part names


Sunshield bolt
Sunshield
Ethernet & Power cable
Dual window
Bracket
Easy bracket
Front case
Rear case
Lock/Unlock screw
RESET
Reset button
(Default)
Micro SD Card slot
VIDEO
SUB-OUT
Joy stick for Zoom / Focus
control
Zoom
Control

Installation instructions

CAUTION: The camera's base should be attached to a structural object, such as concrete, hard wood, wall stud or ceiling rafter that supports the weight of the camera. If necessary use appropriate mounting material (e.g. anchors) instead of the material enclosed with the camera.

1. Locate the mounting template at the installation position and drill the ceiling or wall if needed. [i] The easy bracket can not be installed on the ceiling.
2. Place the easy bracket on pre-drilled position and fix it through using mounting screws(4x30mm). Skip this step when an easy bracket is not installed.
3. Route the ethernet and power cable to the connecting place. Hook up the camera bracket with the easy bracket as illustrated below.
4. Fix the camera bracket through using assembly screws (4x15mm).
5. Set the camera's viewing angle.
6. Put the sunshield to the camera unit and tighten the sunshield-bolts.



CAUTION:

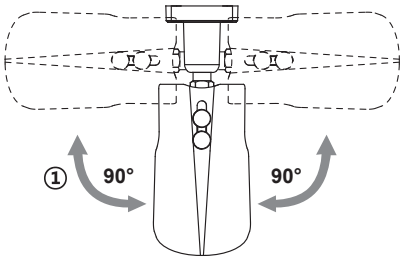
Extreme care should be taken NOT to scratch the window in front of lens.
Care should be taken the cable is NOT to be damaged, kinked or exposed in the hazardous area.
Do not expose the camera directly to a strong light source such as the sun or spot light.

Pan & Tilt adjustments

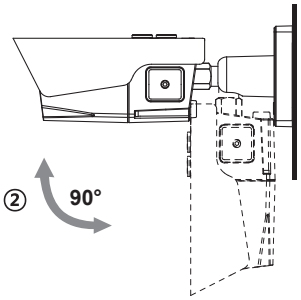
- Unlock the screw on the camera bracket through using the torque wrench supplied
- Set the camera's viewing angle then lock the screw on the bracket.

Adjustment of viewing angle with a bracket

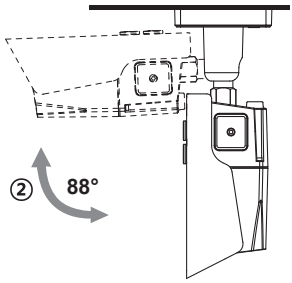
1. Pan limit: Pan is limited to +/- 90°.



2. Tilt limit: Tilt is limited to 0°(2°) min ~ 90° max. for wall(ceiling) installation respectively with reference to the wall(ceiling) when the inclination of camera module is 0°, that is, the image is aligned horizontally.

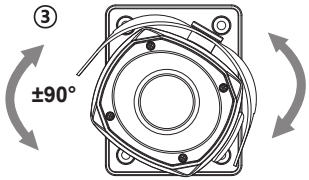


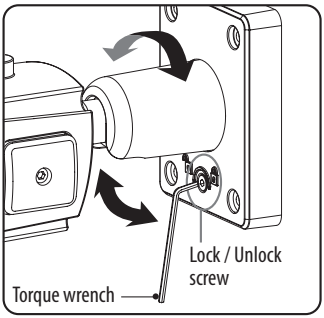
on the wall



on the ceiling

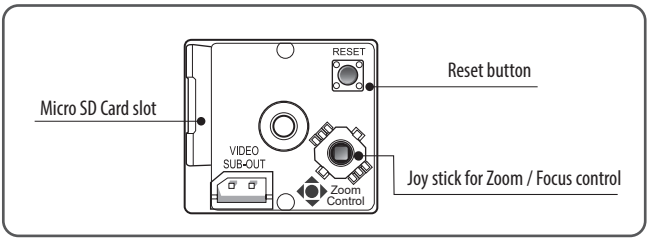
3. Inclination limit (Horizontal image alignment): Inclination limited to +/-90° max.





Description of the ZOOM&FOCUS adjustment by joystick

1. ▲ : Zoom In
2. ▼ : Zoom Out
3. ◄ : Focus Near
4. ► : Focus Far

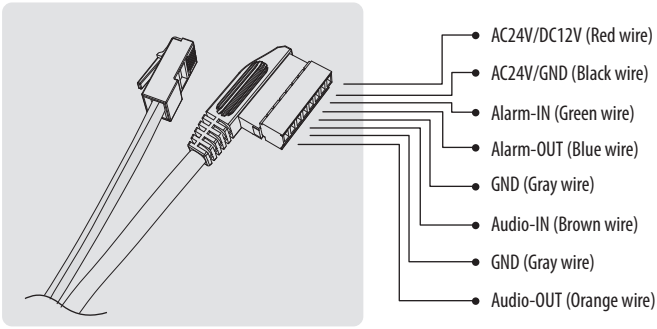


Power supply connections

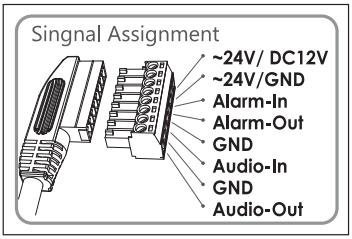
Make sure the power is removed before the installation. Camera can work with either 24VAC or 12VDC, dual voltage power and PoE (IEEE Std. 802.3af). Primary and secondary grounds are completely isolated to avoid the possible ground loop problems.

1. Plug the network cable into RJ-45 Ethernet Port. If PoE is the unique power, there will be no need to connect Power terminal.
2. When DC12V or AC24V Local power is necessary, connect the low voltage (DC12V or AC24V) first, then plug the AC adapter to AC outlets to avoid an improper reset from power jitter and a damage from the surge voltage when no load.

i When PoE and local dual power are connected at the same time, local power has priority.



Attach the Signal Assignment Sticker in a visible spot for wiring reference.



General Description

- Full HD, 2Mega Pixel, NETWORK CAMERA, 1920x1080(30/25p)
- ONVIF Conformance, Zero Configuration
- Cross Web Browsing (IE, Edge, Safari, Firefox, Chrome)
- Adaptive web resizing depending on layout & resolution of display device by RESPONSIVE WEB
- Increased usability for all PC, tablet and mobile
- Simultaneously H.264 & MJPEG (Triple streaming)
- 2 Way Audio & Alarm input/output
- ONVIF Event Mapping
- Slot for Micro SD memory card
- HTML5 playback
- Built-in f=5.1~51mm, F1.6~F1.8 Day&Night zoom lens (Optical 10x Auto focus zoom / Digital 16x zoom)
- Dual Filter Switcher
- Real time True WDR (Wide Dynamic Range) , 30/25fps
- Improved noise figure with the enhanced 3DNR
- Preset Zoom, Home Position setting
- DIS(Digital Image Stabilization), VCA(Video Contents Analysis) function
- Motion Detection, Privacy Mask, Defog, BLC/HLC, D-Zoom, Sharpness, Mirror/Flip, Flickerless, Brightness, Saturation, Lens Initialize, Tamper, VerticalView(90°/270°)
- Enhanced Sensitivity by DSS technology (Slow Shutter)
- Circuit protection against faulty connection in power polarity
- Isolated power supply against ground loop problem
- Video sub-out port for easy installation
- PoE(IEEE Std. 802.3af) & AC24V/DC12V
- Built-in Fan & Optimized Cooling system
- Built-in 4pcs High power SMD LED
- LED Auto/Off control by WEB
- Dual Window
- One touch 3-Axis locking bracket, Easy Installation Pad
- IP67 Protection

Specification

ITEM	IPB-72A0010M0A
Imaging Sensor	Panasonic 1/3" Progressive Scan CMOS Sensor
Effective Pixels	1,956(H) x 1,266(V)
Min.Illumination	0.5 Lux (Color), 0.1 Lux (BW) / 0.002 Lux (Color, DSS), 0.001 Lux (BW, DSS)
Sync. System	Internal
Video Output	Ethernet thru RJ45
Video Sub-out	NTSC/PAL standard, 1Vpp @75Ω terminated
S/N Ratio	More than 50dB (AGC OFF)
Lens	f=5.1~51mm F1.6~F1.8, D/N zoom lens (Optical 10x, Digital 16x)
LED	Built-in 4pcs x 855nm High power LED
Day & Night	True D/N by ICR, Auto / Day / Night / Ext-in
Focus	Auto / Manual (Zoom Push)
Focus Distance	0.5m~
White Balance	Auto / ATW / Manual
WDR	True WDR by dual scan images in two frames at 30/25fps
DNR	3D-NR
Special Features	PRESET ZOOM, HOME POSITION, IR-LED Control
Functions	Privacy Mask, Motion Detection, Tamper, Defog, D-Zoom, HLC/ BLC, Mirror/Flip, Lens Initialize, Brightness, Saturation, Sharpness, Flickerless, DSS(Slow Shutter), VCA, VerticalView, DIS
Installation Temp.	-20ºC ~ +50 ºC (Humidity : 30%RH ~ 80%RH)
Operating Temp.	-50ºC ~ +50 ºC (Humidity : 30%RH ~ 80%RH)
External Dimension	108mm(W) x 100mm(H) x 267mm(L)_with Bracket / About 1.35kg
Housing	IP67, Aluminum Cast, Dual window, Fan & optimized Cooling system, One touch 3-Axis locking bracket, Easy Installation Pad
Power Source	PoE(IEEE Std. 802.3af), AC24V~15VA/DC12V=880mA, 10.5W Circuit protection against faulty connection in power polarity. Isolated power supply against ground loop problem.
NETWORK SPECIFICATION	
Video Compression	H.264(High, Main, Base line profile) MJPEG
Video Resolution	1920x1080, 1600x900, 1280x720, 960x540, 640x360, 320x180
Video Frame Rate	Up to 30/25fps@1920x1080p
Video Streaming	Simultaneously H.264 and MJPEG (Triple Streaming) Independent Frame Rate and Bandwidth Control, CVBR/CBR Mode
FTP Uploading	MJPEG Still Image

Specification

Login Authority	Administrator, Operator, Guest
Security	Multi User Authority, IP Filtering, HTTPS, Video Stream, Export/Import
Network Time Sync.	Synchronize Computer/NTP Server, Manual
Software Reset	Restart, Reset, Factory Default
Auto Recovery	Backup, Restore
Remote Upgrade	Using Web Browser
Protocol	TCP/IP, UDP, IPv4/v6, HTTP, HTTPS, FTP, UPnP, RTP, RTSP, RTCP, DHCP, ARP, Zeroconf, Bonjour
Client Software	Built-In Web, ONVIF Compatible 3rd Party VMS
SD memory card	Slot for Micro SD memory card
Audio & Alarm	2way Audio & Alarm input / output

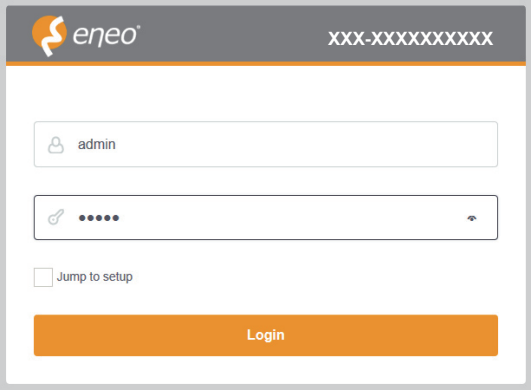
(*) Design and specifications are subject to change for product improvements without prior notice.

Quick Network Setup

1. After the camera is connected to the network, start ***'eneo Site Manager'*** tool (downloadable from www.eneo-security.com).
2. You will get a list of cameras connected to the local network. Highlight your camera in the list and open a context menu with a click of the right mouse button.
3. Select the „Set IP Address [dhcp / static]" option to open a window for setting the cameras IP properties. When you are done click the „OK" button to update the camera settings.
4. By default the camera is set to DHCP. If there is no DHCP server present in the net work the camera will fall back to a default IP address after a while. In this scenario please only add one camera at a time to the network to avoid conflicts due to identical IP addresses.
   The network camera's default IP address is: **192.168.1.10**.
5. Right clicking the device name in the eneo Site Manager will bring up the context menu. Use the ***'Open Device Web Site'*** option to access the camera.
6. The web viewer login page will open up in your default web browser.
   In case of Microsoft Internet Explorer install Active-X named VIDEOR E. Hartig GmbH according to the instruction at the bottom of the browser.
7. Use the default user name and password to log in.

Default user name: admin

Default password: admin



Further information

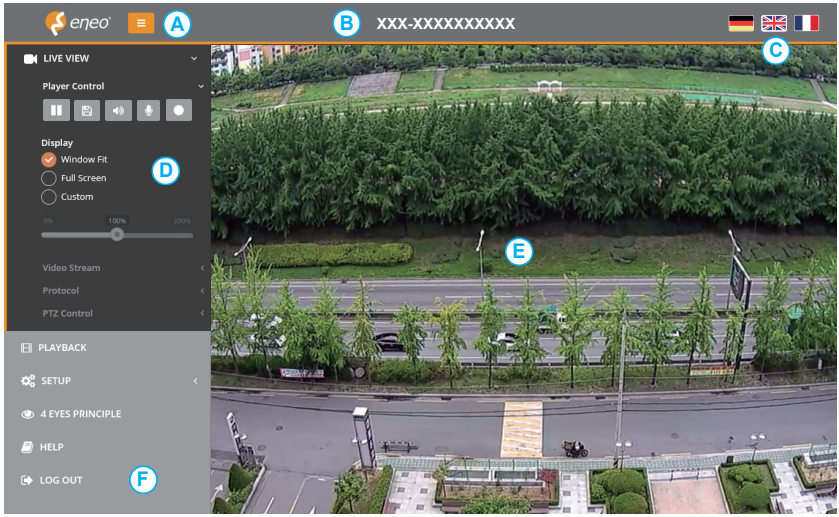
Make sure to always upgrade to the latest firmware version available from the eneo web site at www.eneo-security.com to receive the latest functionality for your product.

The manual, and other software tools are available on the eneo website at www.eneo-security.com.

Information on compatible video management software solutions can be found in the category ***Software*** at www.eneo-security.com.

Full Menu Setup

Web viewer description



(A) Menu button : Click the button to show or hide the setup menu bar.
(B) Model name : Show a camera model name connected.
(C) Select Language : Set the web viewer language English, Deutsch or French.
(D) Main setup menu bar : Set the camera or network functions.
(E) Camera monitoring window: Display the currently connected camera view or function.
(F) Log out and exit the web viewer

Full Menu Setup

Setup Menu Table

Category	Menu	Configuration		
LIVE VIEW	Player Control	Pause, Snapshot, Speaker, Microphone, Record		
	Display	Window Fit, Full Screen, Custom		
	Video Stream	Stream1, Stream2, Stream3		
	Protocol	HTTPS, HTTP, TCP, UDP		
	PTZ Contol	Zoom, Focus, Push AF		
PLAYBACK	Event Search, Timeline Search, Timeline Bar			
SETUP	Information	General, System Information, Open source Information		
	Video & Image	Source		
		Stream1/2/3, Snapshot		
		Image	Basic	Brightness, Saturation, Sharpness, Gamma, Enable flip image, Enable mirror image
			OSD	Enable text OSD, Enable date&time OSD, Enable zoom&focus OSD
			AE	Mode, Shutter, Iris, AGC, Slow shutter, Auto flicker-less
			AWB	Mode, Cb Gain, Cr Gain
			AF	Mode, Lens Initialize
			Day&Night	Mode, IR LED Control, Switching time, Threshold, Gap, Smart IR
			WDR	WDR(Mode, Level), Defog (Mode, Level)
			BLC	BLC (Mode), HLC (Mode, Level)
			DNR	3DNR(Mode, Level)
			VerticalView	Mode, Rotation
		Privacy Mask	Color, Name	
		Digital Zoom	Enable	
		DIS	Mode, Range, Filter, Auto Center	
	Audio		Compression, Sample rate, Bitrate, Input Volume, Output Volume, Audio auto activation on ONVIF access	
	Record	Record	Overwrite when storage is full, Continuous record setting	
		Schedule		
		Recycling	Recycling Time Setting	
		Storage	Format, Remove, Storage Information	

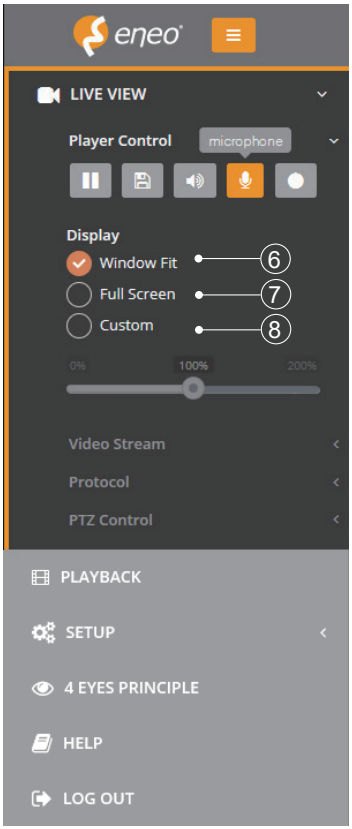
Full Menu Setup

SETUP	PTZ	Preset	Preset, Home
	Event	Triggers	Motion, VCA, Tamper, Alarm In, System, Manual, Network, Timer, Day/Night
		Actions	Record, Alarm Out, E-Mail, FTP, Video Boost, PTZ Preset, Notification Server
		Rules	Event Processing, ONVIF Mapping
	System	Security	User, HTTPS, IP Filter, ONVIF, Video Stream, Export/Import
		Date & Time	Current Time, New Time, Time Zone, Date & Time Display
		Network	TCP/IP, DDNS, RTP, UPnP, Zeroconf, Bonjour
		Language	English, German , French, Polish, Finnish, Korean
		Maintenance	Maintain(Restart, Reset, Default), Upgrade, Setup Export, Setup Import
		Logs & Report	Logs (Database Capacity, Search Condition, Log List), Logs Server , Report
4 EYES PRINCIPLE	Approval #1/2		
HELP			
LOG OUT			

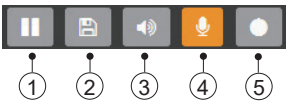
Full Menu Setup

1. LIVE VIEW

Enter the live view menu on the Web Viewer.



■ Player Control & Display



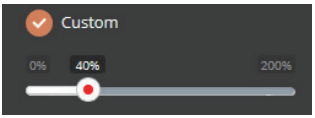
① Pause : Pauses the live view.

② Snapshot : Captures the image in .jpg format with the current stream resolution.

③ Speaker : Enables Audio to be output to the audio out port.

④ Microphone : Enables Audio to be input from the audio input port.

⑤ Record : Records the live video in H.264 format into the equipped storage memory like SD, SDHC & SDXC with the selected video stream at the RECORD menu.



⑥ Window Fit : Resizes the live view display to fit along with the display window size.

⑦ Full Screen: Resizes the live view display to fit to the monitor resolution. ESC key returns to the previous view.

⑧ Custom : Selects the live view display scale, 0%~200%, by the control bar.
100% is original size.

■ Video Stream

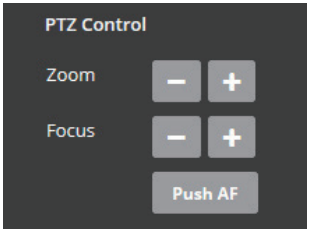
Selects the video source stream to display the live view only.

■ Protocol

Selects the network protocol out of HTTPS, HTTP, TCP or UDP.

■ PTZ Control

Used to adjust zoom/focus manually or one-push focus automatically.



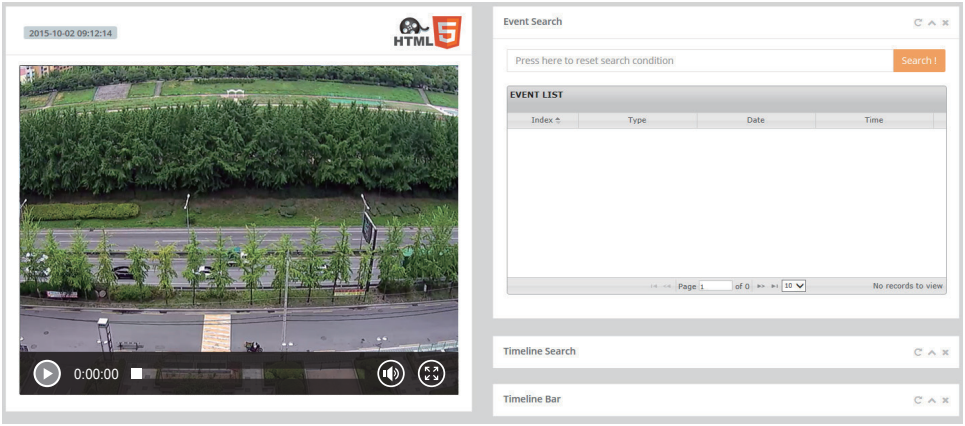
- ZOOM : Controls the lens optical zoom in/out for WIDE & TELE.
- FOCUS : Adjusts the lens focus manually for NEAR & FAR.
- PUSH AF : Gets the lens to focus at the push of a button.

CAUTION

- Do not adjust zoom/focus in low light conditions or night mode. It might cause erroneous focusing.

Full Menu Setup

2. PLAYBACK



■ Event Search

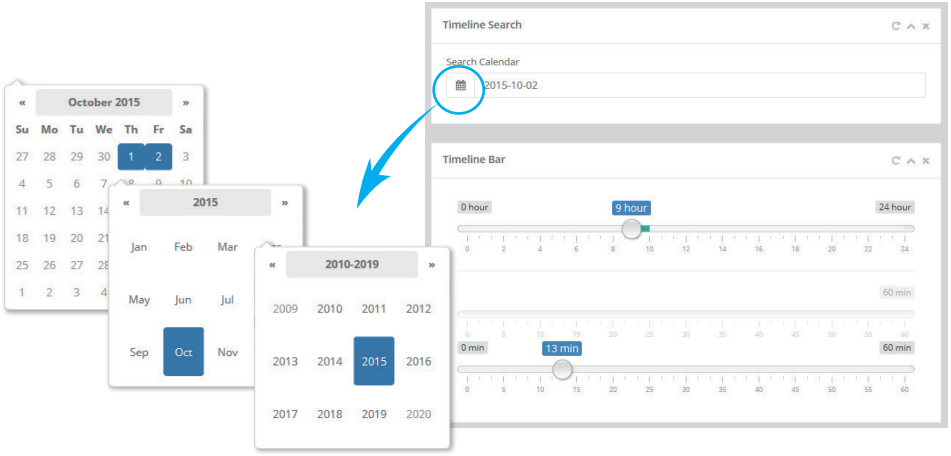
Playback display using the event list.

- Press the input bar to pop up EVENT DATE & TIME window and select the event TYPE.
- Click SEARCH button to show up EVENT LIST.
- Select the recorded event and click the play button at the bottom-left corner of the playback window.

■ Timeline Search

Playback display by Date & Time for continuous and event recording.

- Select the date in the SEARCH CALENDAR and then the hour & minute at TIMELINE BAR.

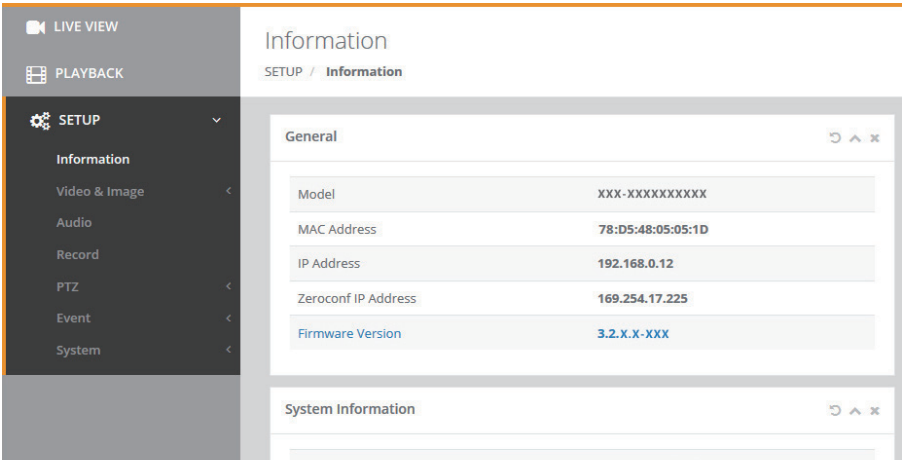


3. SETUP

Enter the setup menu on the Web Viewer.

3-1. Information

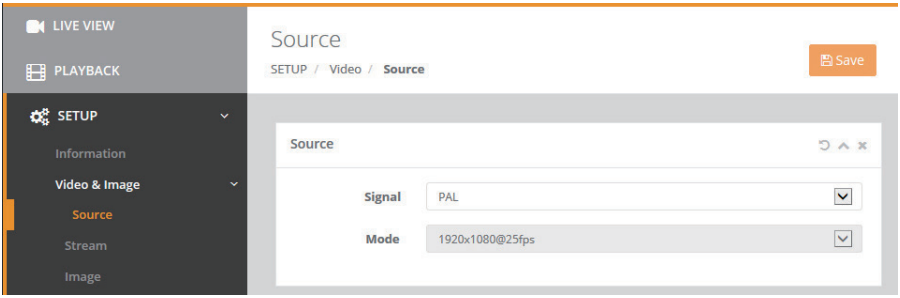
Shows the overall information about the system such as Model name, MAC address, IP address, Zeroconf, IP address, Firmware version, Server time, Running time, CPU usage, Inbound/Outbound Bandwidth and Open source list.



3-2. Video & Image

3-2-1. Source

- SIGNAL : Set NTSC/PAL mode depending on TV system. Generally set to NTSC in 60Hz area and PAL in 50Hz area for the electrical power system of your country. Changes will restart the camera.



Full Menu Setup

3-2-2. Stream

- ***Stream1, 2, 3***

> COMPRESSION : Video compression codecs are available with H.264 profiles for all streams and additional MJPEG for stream3 only.

> RESOLUTION : Each stream can have its individual resolution selected from its list.

> FRAME RATE : Each stream can have its individual frame rate in fps selected from its list.

> GOP SIZE: GOP (Group of Picture) defines the number of Intra-coded pictures (I frame) & Predictive-coded pictures(P frame) in H.264. I frame is a complete image while P frame is the predictive image data which can lower the image data dramatically between frames. GOP SIZE stands for the number of P frames between I frames. Too small GOP SIZE (too frequent I frames) can degrade the picture quality because the codec compresses the data strongly to maintain the bitrate. On the contrary, a little bigger GOP SIZE can improve the picture quality with the better quality for P frames if the network is in good condition. Too big GOP SIZE can make the longer black out or the broken image if the network quality is not good enough.

> BITRATE CONTROL : Selects how to manage the bitrate.

- CVBR (Constrained Variable Bit Rate):
  Provides the higher image quality with the optimal variable bitrate for the scene which has more moving elements in the image. It is not recommended when network is in heavy duty.
- CBR (Constant Bitrate) :
  Tends to keep the bitrate steady at the assigned bitrate within a very small variation. It is useful when the network is in very heavy use.

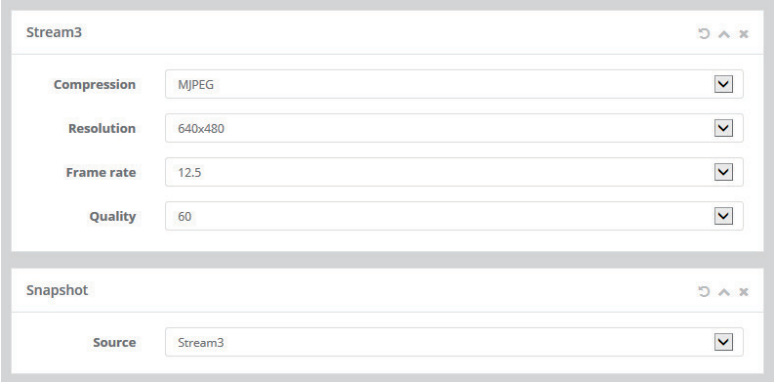
> BITRATE : Indicates the transmission speed through the network and defines the overall picture quality along with the image resolution, frame rate, GOP size and the compression codec for H.264. A high value provides the higher image quality but the total sum of bitrates for the streams has to be considered in calculating the network duty.

- ***Snapshot***

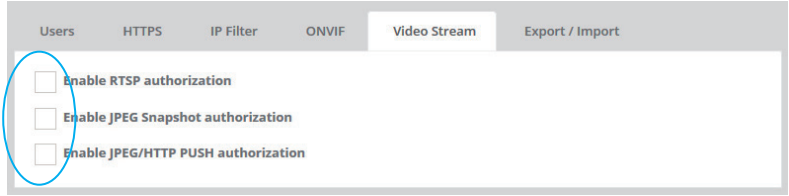
  Capture the video from the camera and create JPEG image files to acquire the image information such as number recognition software.

> Type http://ip address/cgi-bin/snapshot.jpg in the address bar and press ENTER.
> Check the setting for capture image resolution:
WEB Viewer→ Log in→ Main Menu→ Setting→ Video&Image→ Video Stream→ Stream3→ Compression: MJPEG (Resolution: 1280x720),
Snapshot→ Source : Stream3

※ To maximize the resolution of the captured image, set the Snapshot→ Source to ‘Stream1’.

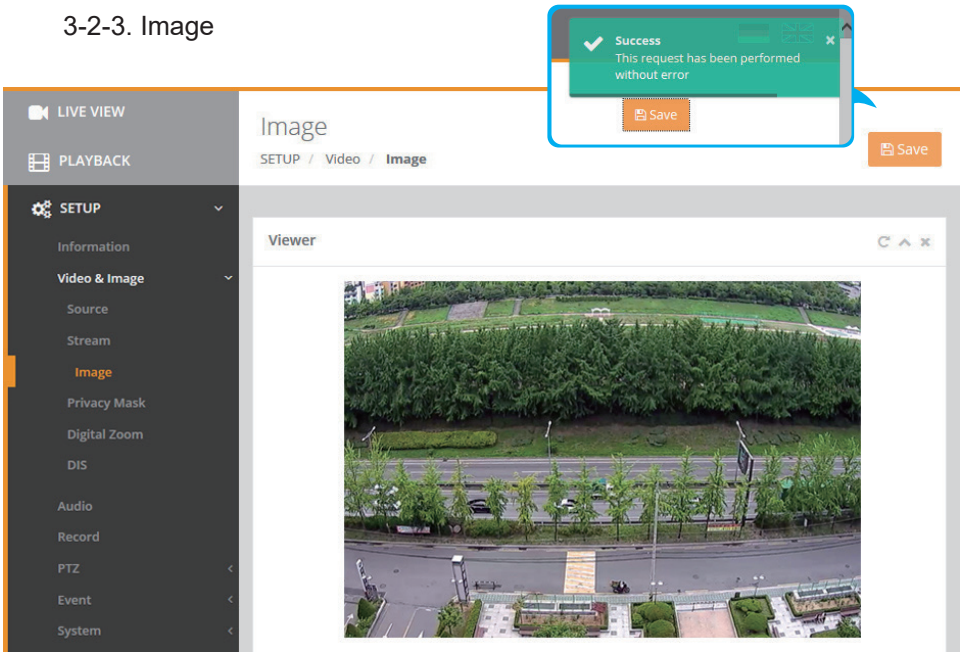


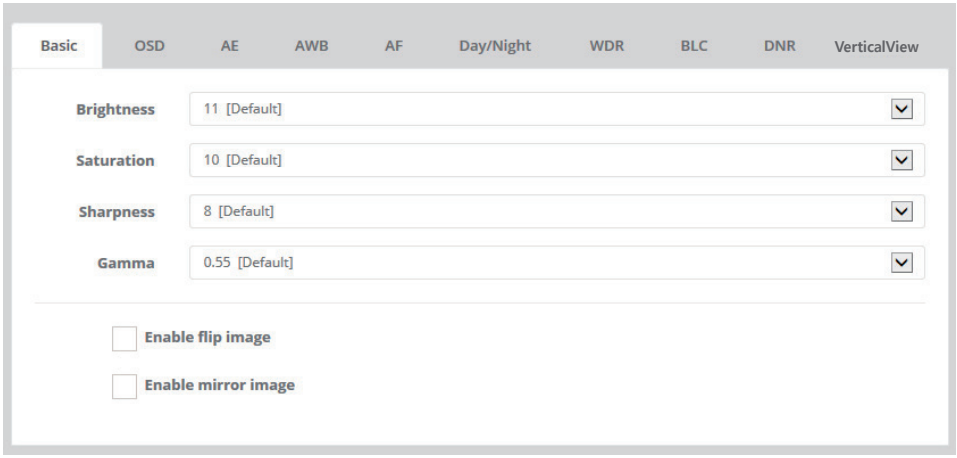
※ If the error massage ‘401 Unauthorized’ pops-up:
WEB Viewer→ Log in→ Main Menu→ Setting→ System→ Security→ Video Stream to disable the check boxes.



Full Menu Setup

3-2-3. Image





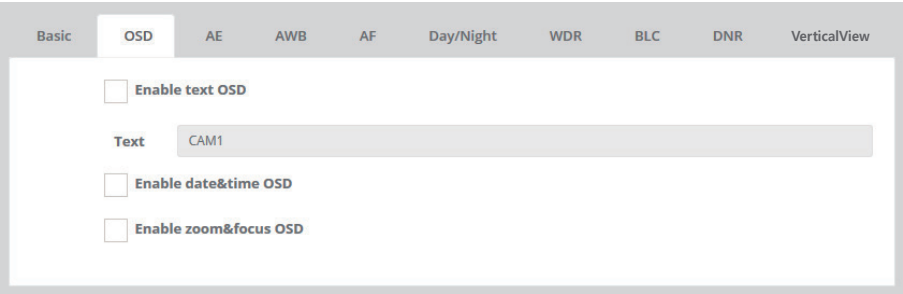
Full Menu Setup

• *Basic*

> BRIGHTNESS: Adjusts the overall brightness of the scene. Increasing the value increases the brightness.
> SATURATION: Adjusts the color richness of the scene. Increasing the value increases the color richness.
> SHARPNESS: Adjusts the sharpness of the scene. Increasing the value increases the sharpness.
> GAMMA: Adjusts the video gamma. Increasing the gamma increases the contrast of the scene.
> ENABLE FLIP IMAGE : Flips the image on horizontal axis (up and down).
> EABLE MIRROR IMAGE : Mirrors the image on vertical axis (left and right).

• *OSD*

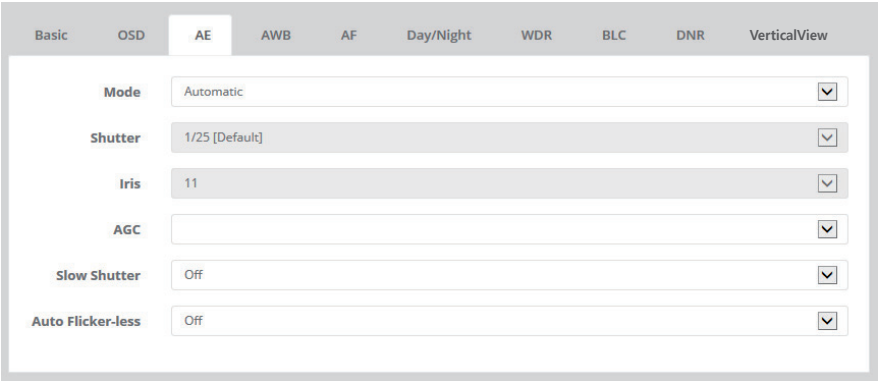
> ENABLE TEXT OSD : Enables display of the Text typed in the TEXT field (displays bottom-right).
> ENABLE DATE&TIME OSD : Enables display of the Date & Time (displays top-left).
> ENABLE ZOOM&FOCUS OSD : Enables display of the Zoom Ratio & Focusing Mode. (displays bottom-right).



• *AE*

> MODE : Selects how to control the exposure, AUTOMATIC, MANUAL, SHUTTER PRIORITY or IRIS PRIORITY.
- AUTOMATIC : Camera controls the exposure by the combination of the iris and the shutter.
- MANUAL : Allows the user to set the exposure for the specific use in the unchanged illuminance.
- SHUTTER PRIORITY : Camera controls the exposure by the combination of the fixed shutter selected and the auto iris.
- IRIS PRIORITY : Camera controls the exposure by the combination of the automatic shutter and the selected iris level.

Full Menu Setup



> SHUTTER : (Available only in MANUAL or SHUTTER PRIORITY mode)
Sets the shutter to a fixed value.

> IRIS : (Available only in MANUAL or IRIS PRIORITY mode) Sets the iris level.
Increasing the IRIS value opens the lens iris more but may lose the sharpness a little.
Too low value in IRIS may cause the erroneous focusing.

> AGC: (Available only in MANUAL mode) Sets the maximum gain automatically reachable at low light scene if DAY/NIGHT mode is set to other than AUTOMATIC.
Some models can select ON or OFF.

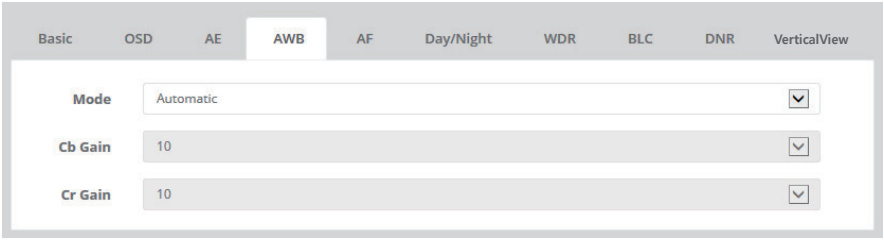
> SLOW SHUTTER : Extends the shutter time over the maximum shutter at multiple times of value in SLOW SHUTTER. Increasing the values increases brightness but also increases blurriness.

> AUTO FLICKERLESS : Automatically detects and fixes the flickering image under fluorescent lighting caused by the mismatch between NTSC/PAL and 50Hz/60Hz electric power frequency.

• *AWB*

> MODE : Provides White Balance presets. ATW-INDOOR, ATW-OUTDOOR or ATW / AUTOMATIC is recommended for most applications.

> Cb GAIN / Cr GAIN : (Available only in MANUAL AWB mode)
Adjusts the white balance by Cb/Cr color components to the specific lighting which has a fixed color temperature. Not recommended for regular scenes.



Full Menu Setup

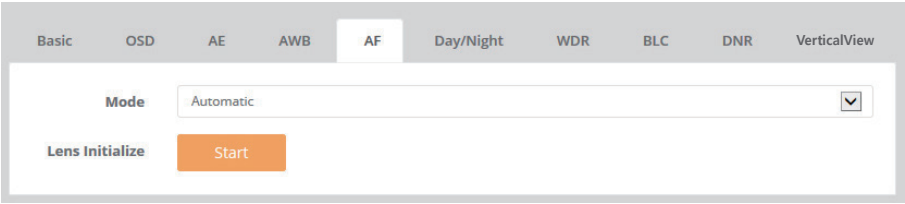
• *AF*

> MODE : Selects how to control the focus of the built-in Motor driven V/F lens or AF lens.
- MANUAL : Focusing works during zoom operation only and stops thereafter.
- AUTOMATIC : Focusing works steadily for sharp focusing on the object.

> LENS INITIALIZE: Pressing START button initializes and renews the lens data.
Lens initialization would be necessary should you not be able to focus the lens after a zoom operation due to shock during transportation or the installation of the camera.

To perform Lens Initialization :

- A fixed object with sharp edges should be at least 3 meters away in front of the camera and should be stationary i.e. not moving. A plain wall is not suitable to intialize on.
- The camera must be placed firmly, without shock or vibration, during the initialization.
- Scene light level must be bright enough. Do not try the initialization at night or in low-light.



• *Day & Night*

> MODE : Selects how to control the day/night feature.
- DAY : Disables the switching day/night filter and fixes it to DAY only.
- NIGHT : Disables the switching day/night filter and fixes it to NIGHT only.
- AUTOMATIC : Allows the day/night filter to switch via the amount of the incoming light through the lens only. Cameras without the built-in IR LED must select AUTOMATIC.
- EXTERNAL : Allows the day/night filter to switch via the built-in light sensor only, like a photo sensor. Cameras with the built-in IR LED must select EXTERNAL.

> IR LED CONTROL :
If IR LED is set to OFF, IR LED will be turned OFF but DAY / NIGHT is still determined by the built-in light photo sensor.

> SWITCHING TIME : Delays switching the day/night filter to prevent from an undesirable transition.

> THRESHOLD : (Available in AUTOMATIC mode)
Sets the threshold level for day->night switching. Decrease the value to switch at low luminance.

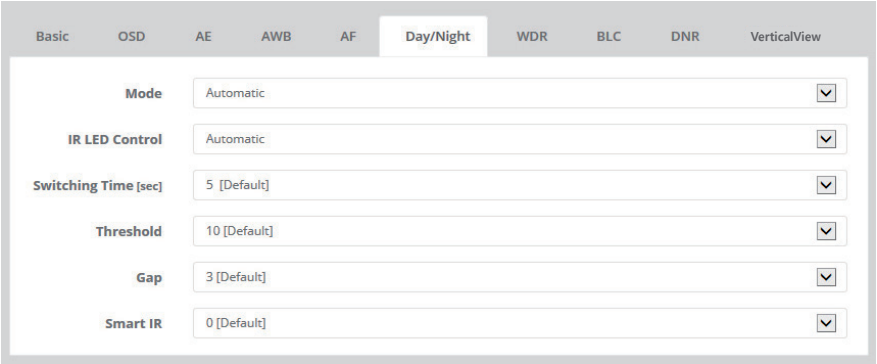
> GAP : Sets the gap level switching from/to DAY(color) or NIGHT(B/W).

Full Menu Setup

[CAUTION]

- The GAP should be greater than 3. Otherwise, an undesirable transition may occur.
- Too high a value in THRESHOLD can cause cameras at installed in low-light areas to stay in night mode permanently i.e. even during daytime.

> SMART IR : Helps reduce the highlight saturation at the center of the image caused by strong IR LED illumination. Corners may appear darker instead.



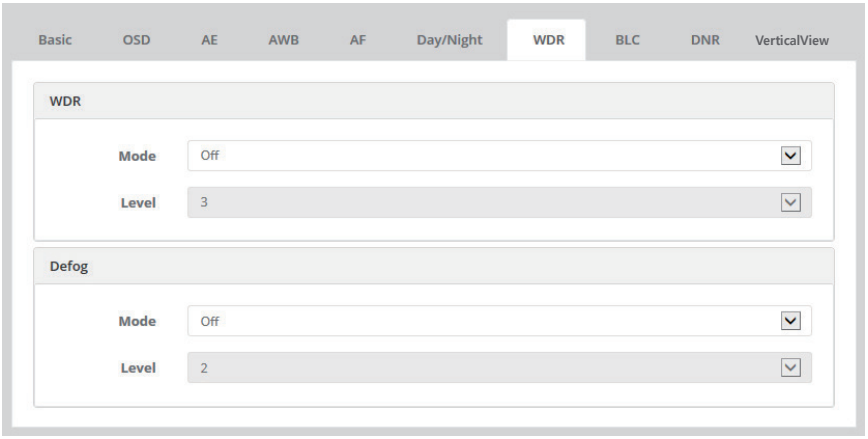
- ***WDR***

> WDR (Wide Dynamic Range) :

- MODE : ON enhances the dynamic range by the dual scan technology with long & short shutters.
- LEVEL : Determines the strength of the dynamic range. Higher values increase brightness.

> DEFOG

- MODE : ON enhances the image contrast automatically against fog.
- LEVEL : Determines the strength of the image contrast.



Full Menu Setup

• *BLC*

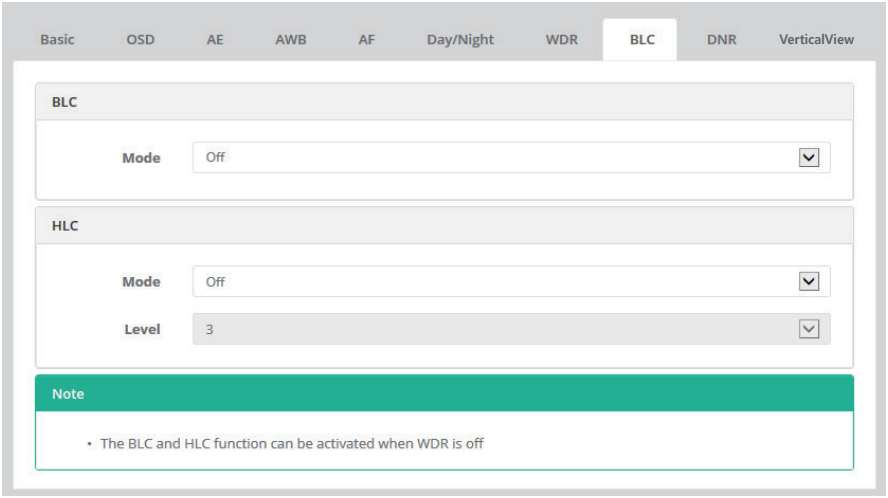
> BLC (Back Light Compensation) :

• MODE : ON enhances the visibility of the back-lit object.

> HLC (High Light Compensation) :

• MODE : ON cuts out the highlight area with black mask and excludes it from compensation.

• LEVEL : Determines the strength of the black mask. High value gets darker.

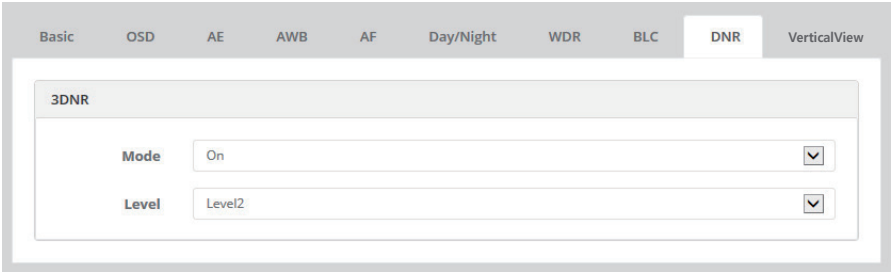


• *DNR* (Dynamic Digital Noise Reduction)

> 3DNR :

• MODE: ON reduces the noise by cancelling the spatial & temporal components in 3 dimensional a way.

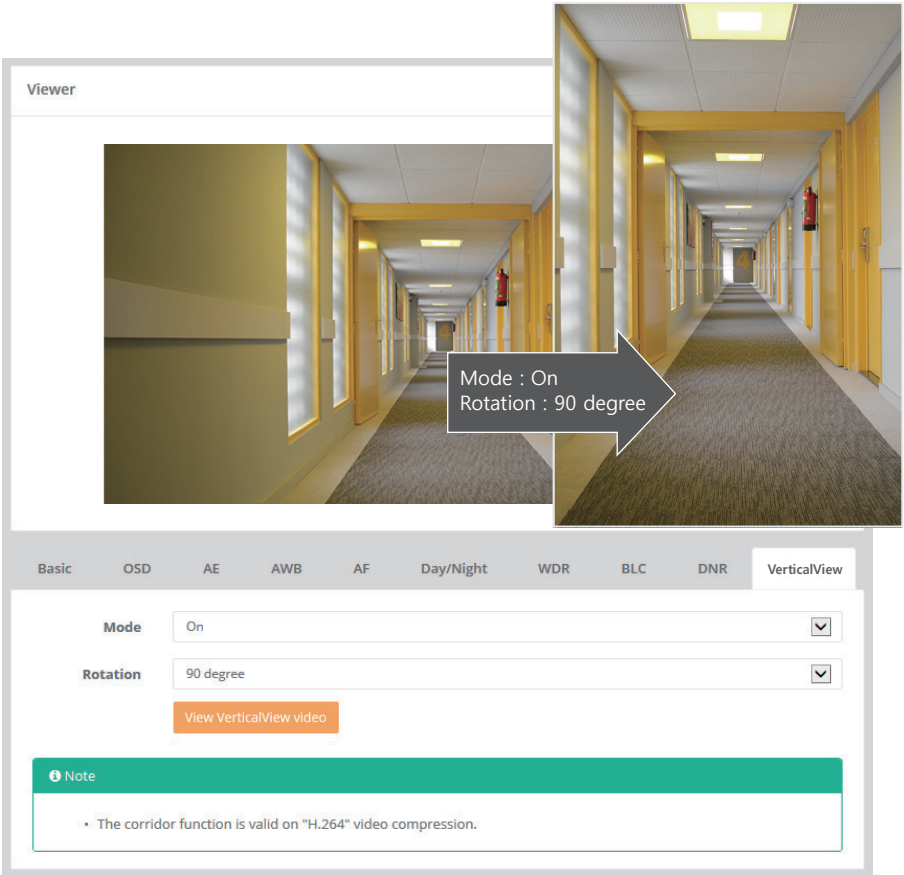
• LEVEL: Determines the strength of the noise reduction. Higher values reduce more noise but can also lead to a ghosting effect.



Full Menu Setup

- ***VerticalView***

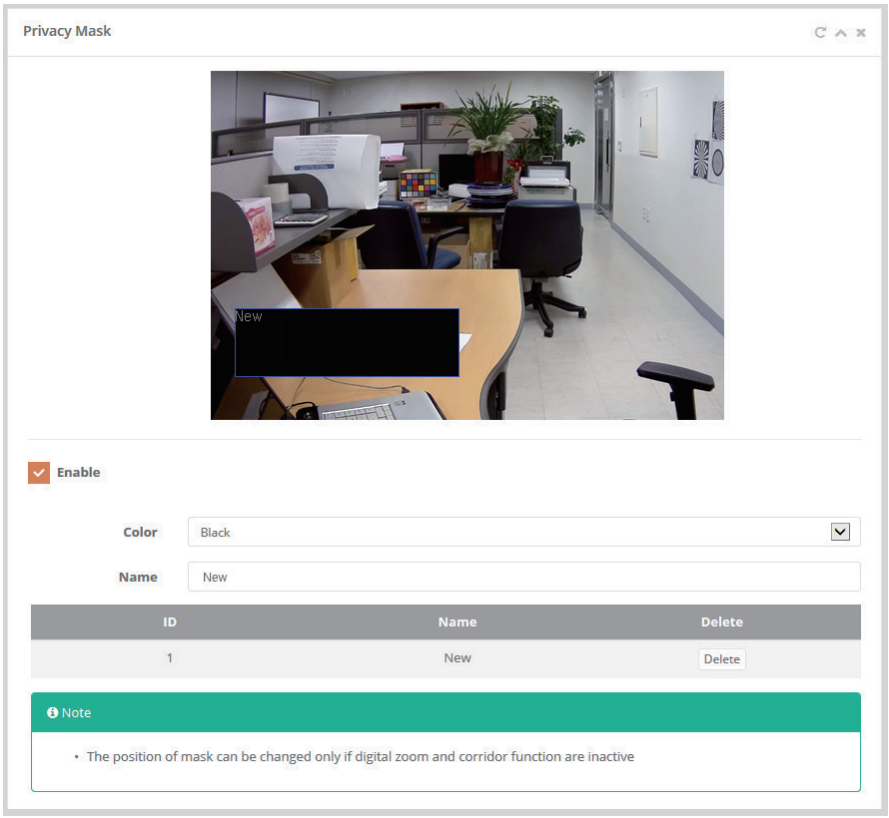
> MODE : ON displays the video in vertical view format, 16:9->9:16 for narrow streets, corridors or hallways.
> ROTATION : Determines the orientation to rotate.



3-2-4. Privacy Mask

Mark ENABLE checkbox to activate the privacy masks.

> COLOR : Select the color to mask at each privacy area.
> NAME : Input the individual name for each privacy mask.



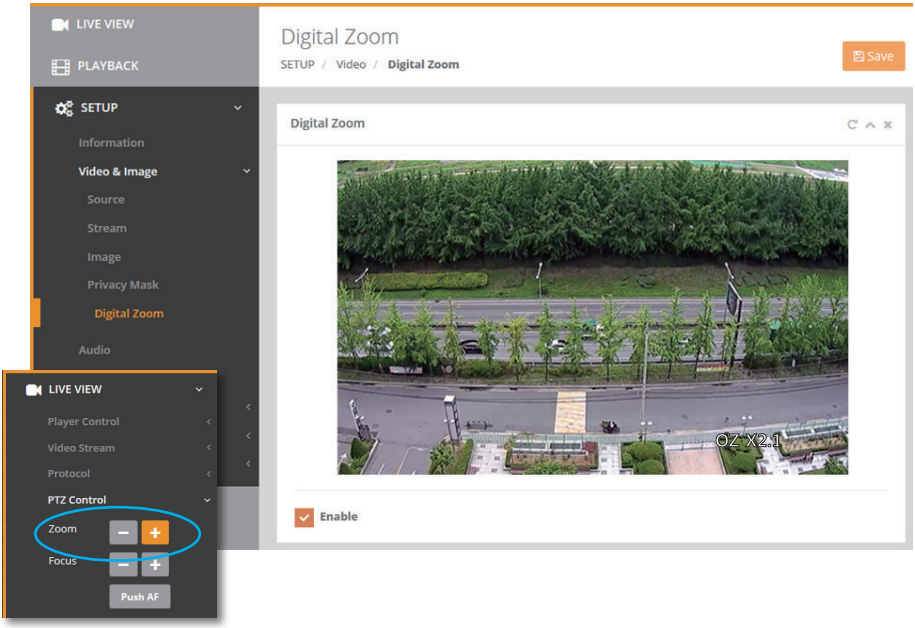
To set the privacy mask (up to 8 privacy areas) :

1) Mark ENABLE checkbox.
2) In the video window, place the mouse cursor anywhere and click the right mouse button. A mini pop up appears.
   Select CREATE MASK AREA / DELETE MASK AREA.
3) In the video window, place the mouse cursor where you would like to create a mask. Click the left-mouse button to create (or delete) a mask. The mask window can be moved or resized with the mouse.
4) Enter the name in the list and then click SAVE.

Full Menu Setup

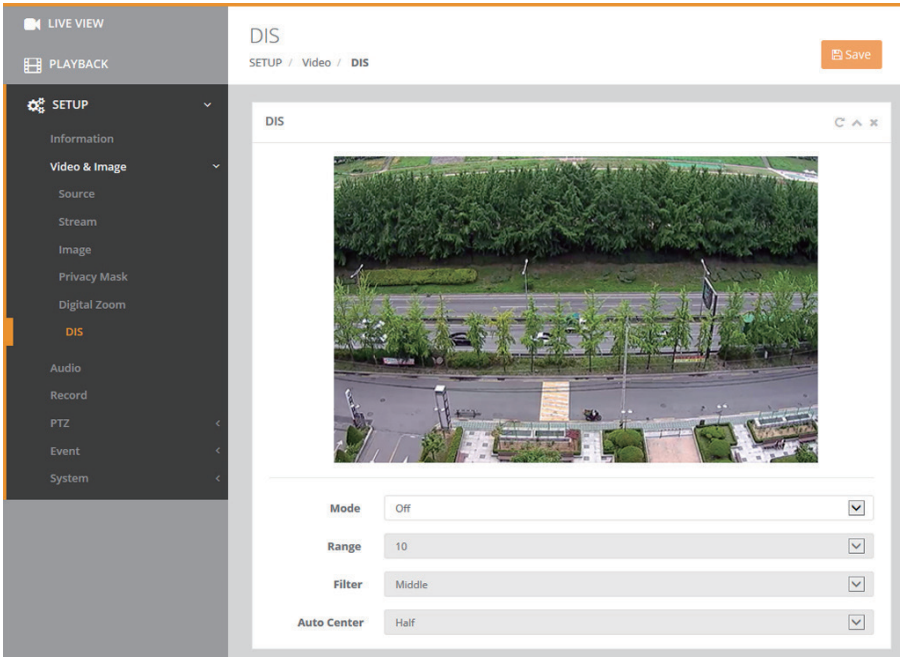
3-2-5. Digital Zoom

> Mark ENABLE checkbox to activate the digital zoom.
> LEVEL selects the fixed digital zoom ratio. X1.0 is not digital zoomed.

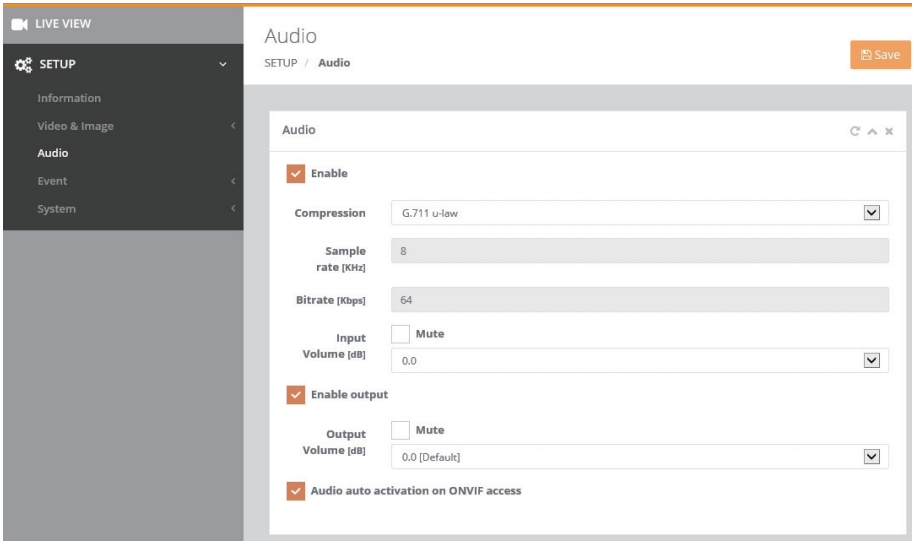


3-2-6. DIS (Digital Image Stabilization)

> MODE : ON enables DIS function.
> RANGE : Sets the image compensation range. Higher values attempt to stabilize the image against big displacement but the field of view is narrowed.
> FILTER : Sets the sensitivity to initiate DIS function.
> AUTO CENTER : Sets how to align video at center after finishing the stabilization.

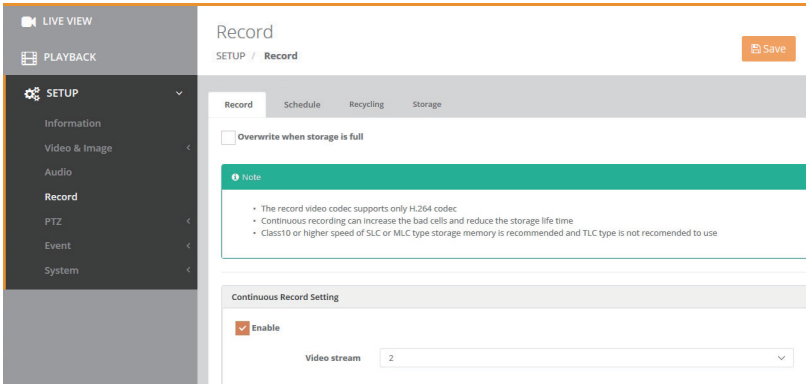


3-3. Audio



> Mark ENABLE checkbox to activate the audio. Supports full duplex audio.
> COMPRESSION : Selects audio compression codec. μ-law is used primarily in North America and a-law used 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.
> SAMPLE RATE : Fixed at 8KHz by G.711.
> BITRATE : Fixed at 64Kbps by G.711,the international standard for encoding wired-telephone audio.
> Mark INPUT MUTE checkbox to mute the input from audio-in.
> INPUT VOLUME : Adjusts the volume by the input signal level. -0.5dB reduces the volume about -6%, 0.0dB bypasses the signal without adjusting the volume and 3.0dB increases the volume about +41%.
> Mark ENABLE OUTPUT checkbox to activate the audio. Supports full duplex audio.
> Mark OUTPUT MUTE checkbox to mute the output to audio-out.
> OUTPUT VOLUME : Adjusts the volume by the output signal level. -0.5dB reduces the volume about -6%, 0.0dB bypasses the signal without adjusting the volume and 3.0dB increases the volume about +41%.
> Audio auto activation on ONVIF access If the checkbox is marked, Audio auto activation after reset or rebooting the camera is compatible to ONVIF.

3-4. Record



3-4-1. Record

> Mark OVERWRITE WHEN STORAGE IS FULL checkbox to allow the storage to be overwritten.

> CONTINUOUS RECORD SETTING : Mark ENABLE checkbox to activate the continuous recording into the storage.

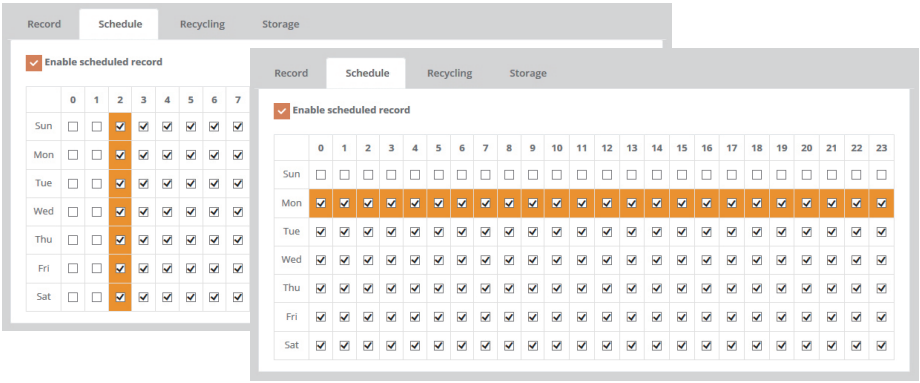
> VIDEO STREAM : Selects the stream to be recorded into the storage.

[NOTE] SD, SDHC or SDXC memory can be used as a storage device.
Refer to manual for the suitable memory size from standard SD or micro SD.

3-4-2. Schedule

> Mark ENABLE SCHEDULED RECORD checkbox to activate the scheduled recording into the storage.

> Mark each box in time and day matrix when to be recorded.
It can be selected a time zone or day of the week.



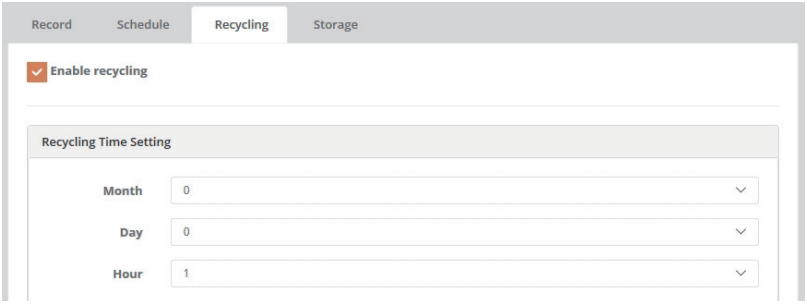
Full Menu Setup

3-4-3. Recycling

> Mark ENABLE RECYCLING checkbox to delete recorded video data in storage when certain time is passed. For example, if Recycling Time is set to 2 Months 1Day 0Hour, all the video data that passed 2 Months 1Day 0Hour will be deleted.

> Recycling Time Setting : Set the storage period of recorded video data

- Month : Set the Month of storage period from 0 to 12 Months.
- Day : Set the Day of storage period from 0 to 30 days.
- Hour : Set the Hour of storage period from 0 to 23 hours.



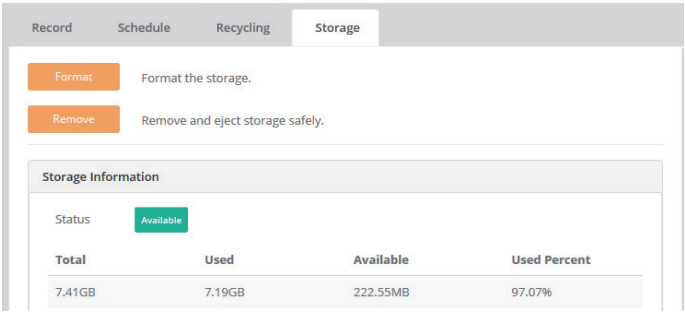
3-4-4. Storage

> FORMAT : Formats the storage. Backup the data before formatting the storage if necessary.

> REMOVE : Helps removing the storage safely.

[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.



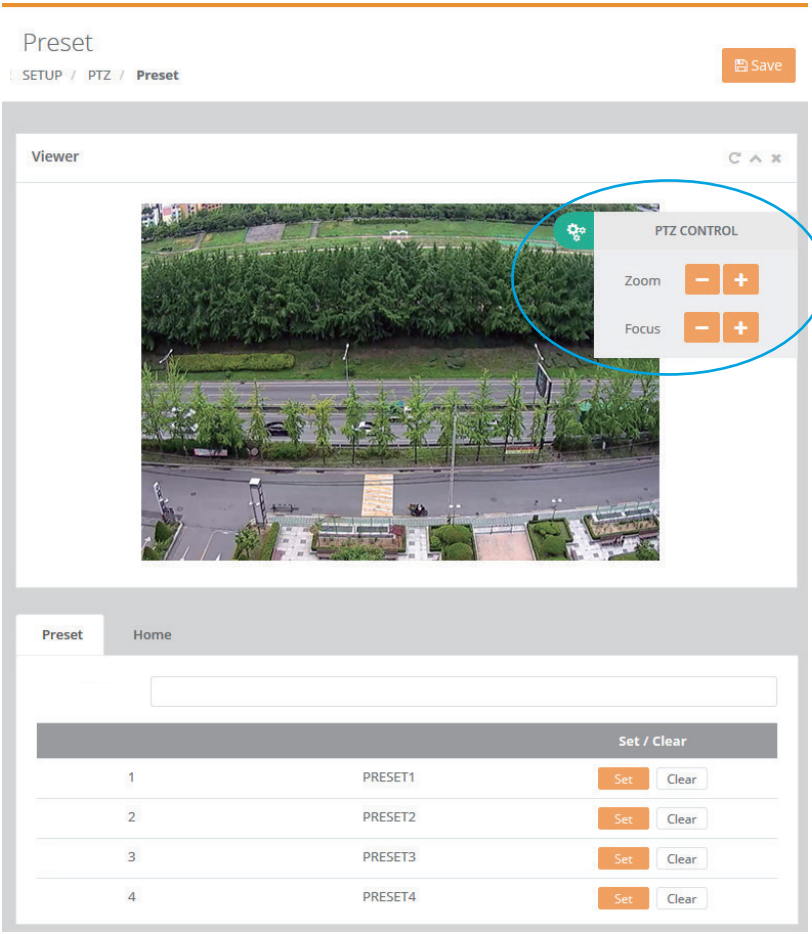
3-5. PTZ

3-5-1. Preset

- ***Preset :***

> PRESET : Presets the zoom positions up to 4(or 8) presets.
Click the green rotating icon on the top-right of the video viewer and the PTZ CONTROL mini menu will appear. To hide it, click the icon again.
Adjust Zoom using + & - buttons in PTZ CONTROL menu and click SET at the desired preset number and repeat this step up to 4(or 8) preset settings.

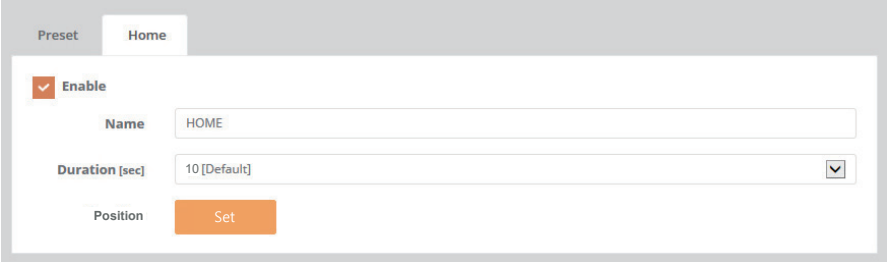
> CLEAR : Delete the preset.



Full Menu Setup

- ***Home :***

Returns the camera automatically to the predefined home position after completing any zoom operations. Camera recovers its home position after power on.



> Mark ENABLE checkbox to use HOME preset.
Click the green rotating icon on the top-right of the video viewer and the PTZ CONTROL mini menu will appear. To hide it, click the icon again.
Adjust Zoom using + & - buttons in PTZ CONTROL menu and click SET to set the home position.

> NAME : Set the name of home position.

> DURATION : Defines the time taken to return to the home position after finishing the zoom.

> POSITION : Click SET button to set the home position.

3-6. Event

3-6-1. Triggers

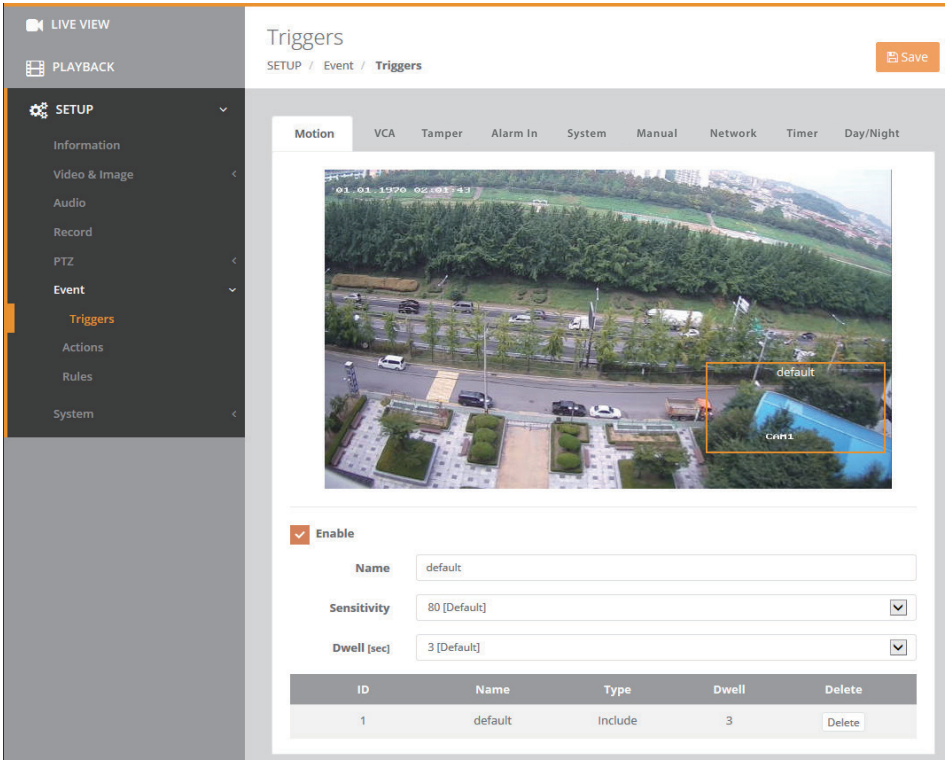
EVENT TRIGGERS menu defines and sets the parameters for the various event sources.

[Important NOTE]

Once the event is generated, the camera can record the video into the storage, output the alarm signal, email the event, send the video clip to FTP, boost the video frame rate, move to PTZ preset or send the event to the notification server. These post processes require the settings at SETUP>EVENT>ACTIONS first and then SETUP>EVENT>RULES.

- ***Motion :***

> Mark ENABLE checkbox to create & activate up to 4 motion areas.
> NAME : Input the individual name for each motion detection area.
> SENSITIVITY: Sets the motion detection sensitivity for all areas. Higher values increase sensitivity
> DWELL : Sets the time for the motion event once detected.



Full Menu Setup

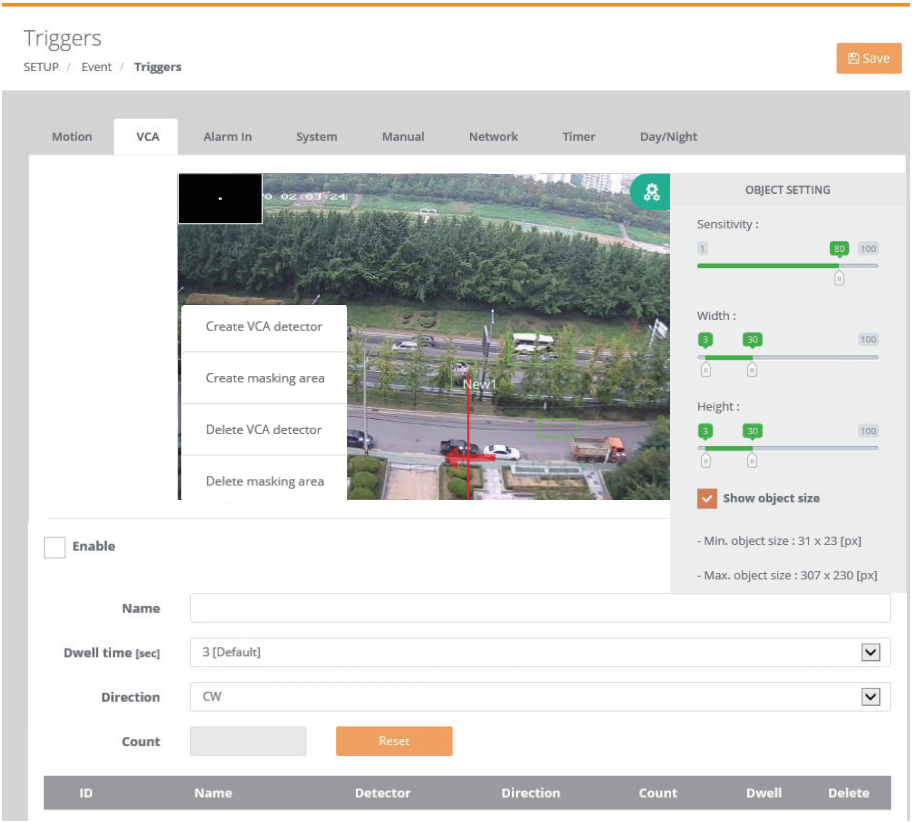
To set the motion detection area (up to 4 include-types and 4 exclude-types) :

1) Mark ENABLE checkbox.
2) In the video window, place the mouse cursor where you would like to make a detection window and click&drag the right button. The following window is then generated.
   • INCLUDE-Type : defines areas where motion should be detected.
   • EXCLUDE-Type : defines areas within a window that should be ignored.
3) Enter a name and then click SAVE.

[NOTE]

Motion detection and VCA cannot be used simultaneously. If either one is enabled, the other one is disabled automatically.

- ***VCA*** (Video Contents Analysis)



Full Menu Setup

> Mark ENABLE checkbox to create & activate up to 3 VCAs.
> NAME : Input the individual name for each VCA.

To set the VCA detection area (up to total 3 VCAs including Line Cross, Field intrusion & Appear/Disappear) :

1) Mark ENABLE checkbox.
2) Click the mouse right button on the video viewer and a popup menu appears.
   - CREATE VCA DETECTOR : Select to create the VCA type, up to 3 VCAs.
   - CREATE MASKING AREA : Select to create the masking area which will exclude the detection.
   - DELETE VCA DETECTOR : Deletes the existing VCA window. VCAs can be deleted at the list too.
   - DELETE MASKING AREA : Deletes the existing VCA mask window.
3) Enter a name and then click SAVE.

[NOTE] Motion detection and VCA cannot be used simultaneously.
If either one is enabled, the other one is disabled automatically.

> OBJECT SETTING:

Click the green rotating icon on the top-right of the video window and OBJECT SETTING menu will appear. To hide it, click the icon again.
Mark SHOW OBJECT SIZE checkbox and a black rectangle at the top-left corner of the video window will appear. The black rectangle is the reference size which shows the minimum (white box) & maximum (black box) detecting size of the object. To adjust the minimum (or maximum) object size to be detected, adjust the left (right) ends of the slide bars, WIDTH & HEIGHT, by moving them with clicking and holding the left mouse button. Objects can be detected only for the object size set between minimum and maximum, that is, an object which is smaller than minimum or greater than maximum can't be detected. Too small value in MINIMUM or too big value in MAXIMUM for the object size might increase the erroneous detections.

- WIDTH : Sets the minimum/maximum sizes in width of the objects to be detected.
- HEIGHT : Sets the minimum/maximum size in height of the objects to be detected.
- SHOW OBJECT SIZE : Shows the reference size of detection object.

Full Menu Setup

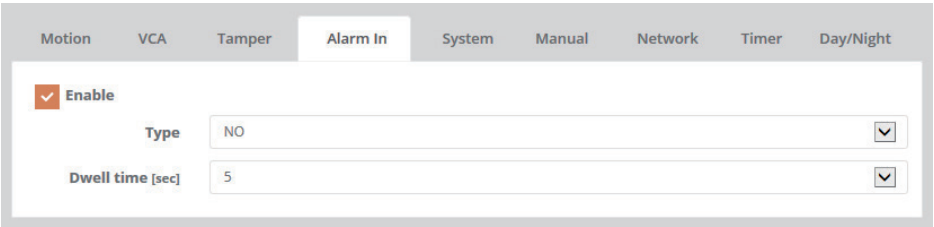
• *Tamper*

The camera can detect severe changes in the image caused by actions such as repositioning the camera or painting over of the lens and generates an alarm to alert.

> Mark ENABLE checkbox to activate the tamper alarm.
> DWELL TIME : Sets the time for the tamper alarm once detected.

• *Alarm In*

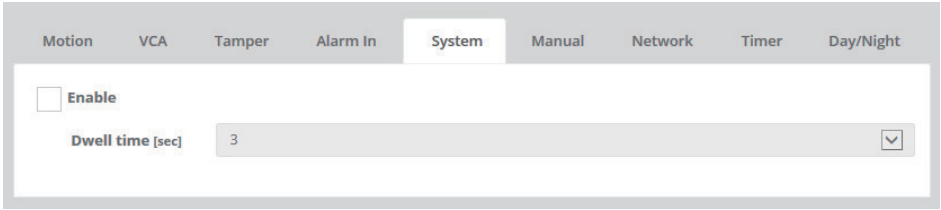
> Mark ENABLE checkbox to input the alarm signal from the alarm-in port.
> TYPE : Lets the camera know the type of alarm contacts, NO=Normally Open & NC=Normally Close.
> DWELL TIME : Sets the time for the alarm once detected by the alarm-in.



• *System*

Used to trigger the event when the camera gets rebooted.

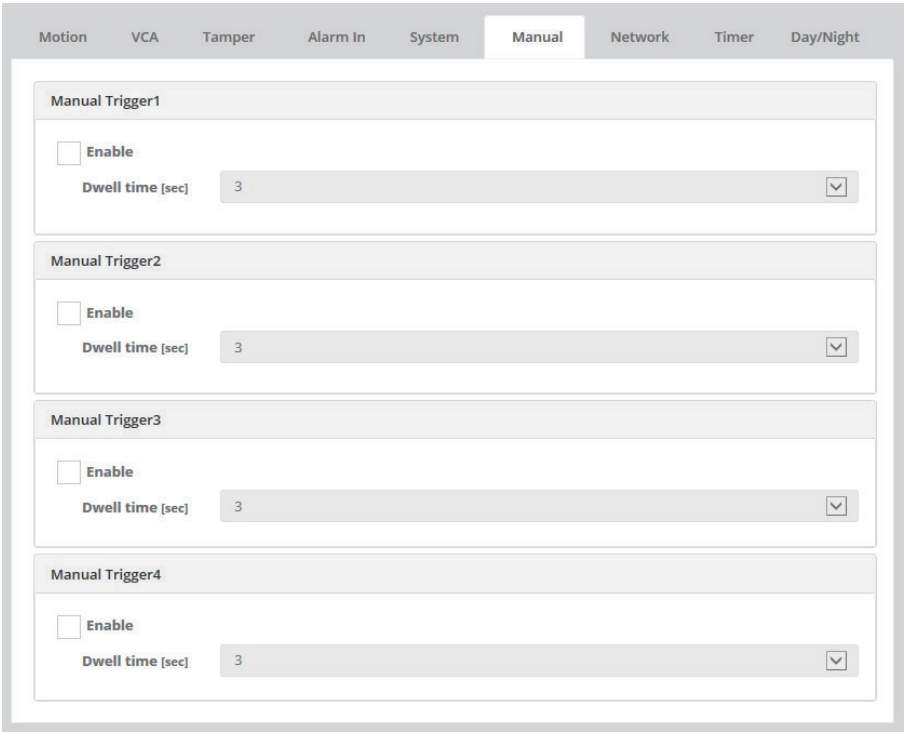
> Mark ENABLE checkbox to activate the system event.
> DWELL TIME : Sets the time for the alarm once the system event is detected.



• *Manual*

Enables to user to set the event trigger optionally.

> Mark ENABLE checkbox to enable the manual trigger icons on the live view menu.
> DWELL TIME : Sets the time for the event once triggered by the manual trigger on the live view menu.

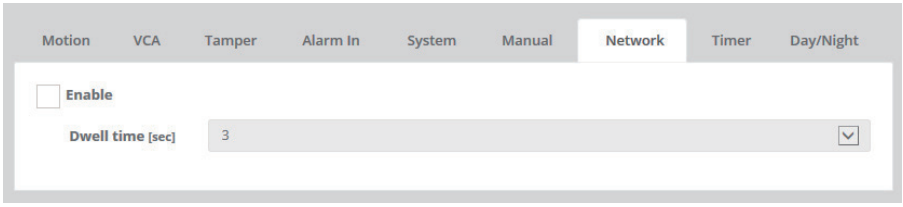


- ***Network***

Used to trigger the event when the network connection fails.

> Mark ENABLE checkbox to activate the network event.

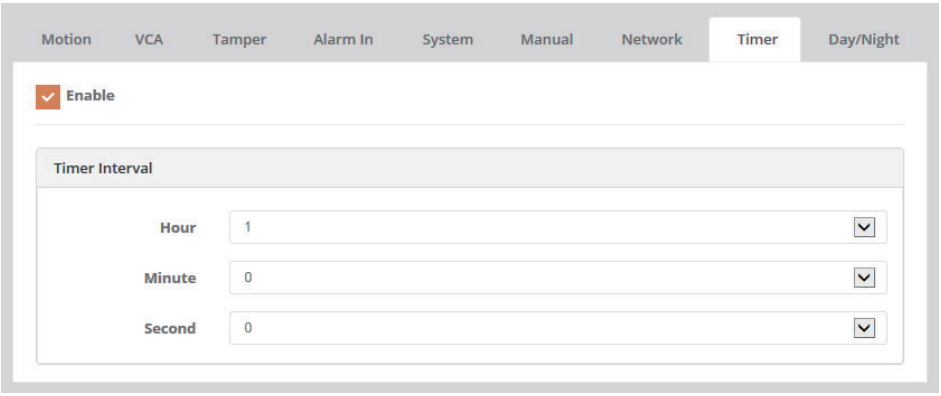
> DWELL TIME : Sets the time for the event once triggered by the network connection event.



Full Menu Setup

• *Timer*

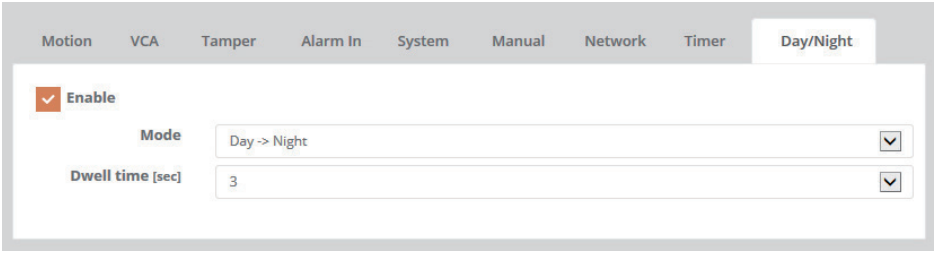
Mark ENABLE checkbox to trigger the event as defined Timer Interval.
(Hour/Minute/Second)



• *Day / Night*

Mark ENABLE checkbox to trigger the event when Day/Night is switched.

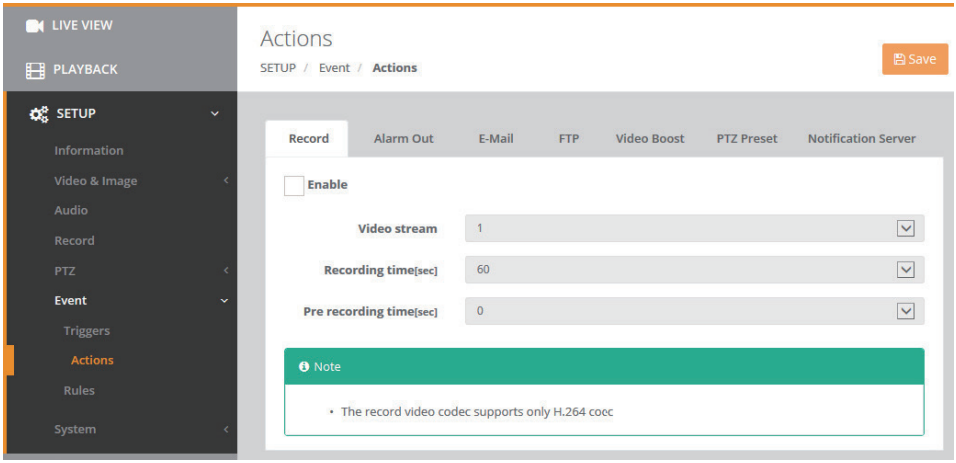
> MODE : Select the mode, Day->Night or Night->Day.
> DWELL TIME : Sets the interval duration for the alarm event.



Full Menu Setup

3-6-2. Actions

EVENT ACTIONS menu defines and sets the parameters for how to treat the various event sources.

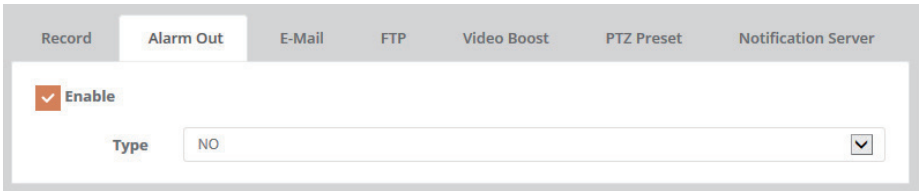


- ***Record***

> Mark ENABLE checkbox to enable recording into the built-in storage when the event occurs.
> VIDEO STREAM : Selects the stream to be recorded when the event occurs.
> RECORDING TIME : Sets the length of time to record after the event.
> PRERECORDING TIME : Sets the length of time to record before the event.

- ***Alarm Out***

> Mark ENABLE checkbox to output the alarm signal to the alarm-out port.
> TYPE : Selects the type of alarm contacts, NO=Normally Open & NC=Normally Closed. Alarm-out port is not an actual relay contact but outputs 0V for Low level & 3.3V for High level with the current driving capacity of 50mA max.



Full Menu Setup

• *E-mail*

The camera can send email messages generated by the events via SMTP (Simple Mail Transfer Protocol).

> Mark ENABLE checkbox to enable emailing.

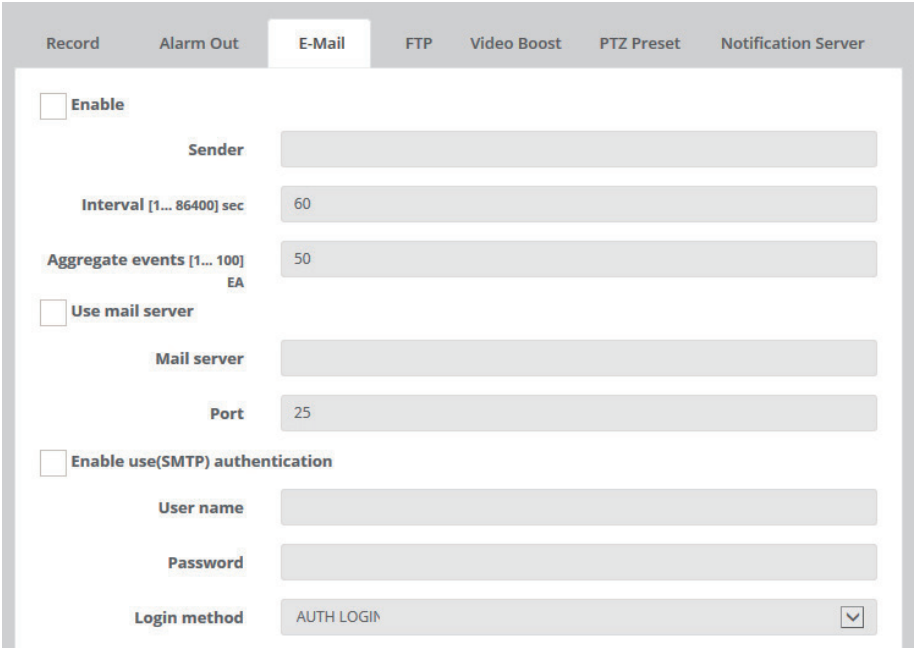
- SENDER : Enter the email address as the sender. Any virtual email address like sample@sample.com can be used if the recipient can recognize it from the camera.
- INTERVAL : Sets the interval for emailing after the events occur.
- AGGREGATE EVENTS : Sets the number of events which will be sent in an email.

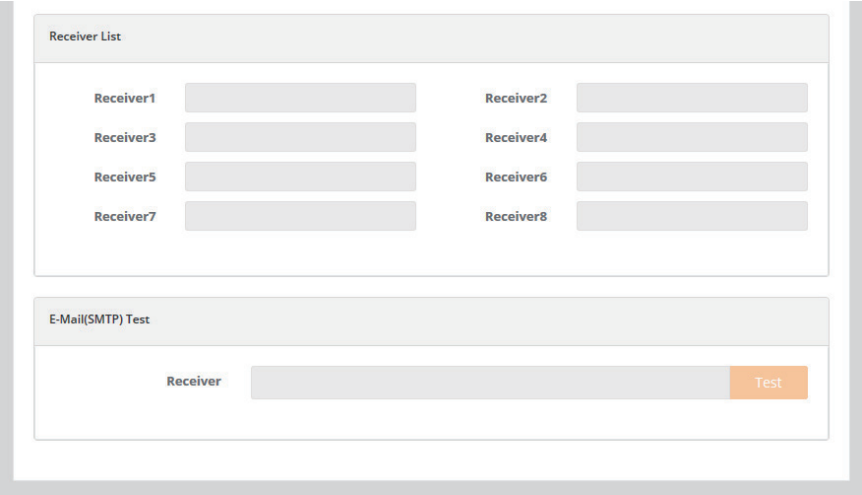
> Mark USE MAIL SERVER checkbox to set the mailing server.

- MAIL SERVER : Enter the host name or IP addresses for the mail servers. If a host name is used, a valid DNS server must be specified in the Network-Basic settings.
- PORT : Enter the port number of the mail server.

> Mark ENABLE USE(SMTP) AUTHENTICATION checkbox if the mail server requires authentication.

- USER NAME : Enter the user name as provided by the network administrator.
- PASSWORD : Enter the password as provided by the network administrator.
- LOGIN METHOD : Select one for SMTP authentication method allowed.





[NOTE]

If a PLAIN or LOGIN mechanism is negotiated, the camera sends the user name and password to the SMTP server. The LOGIN mechanism is supported by Microsoft, as well as 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 addresses as the receivers.

> E-MAIL(SMTP) TEST : Enter the recipient's email address in RECEIVER and click the TEST button to test if the mail servers are functioning and the email address is valid.

• *FTP*

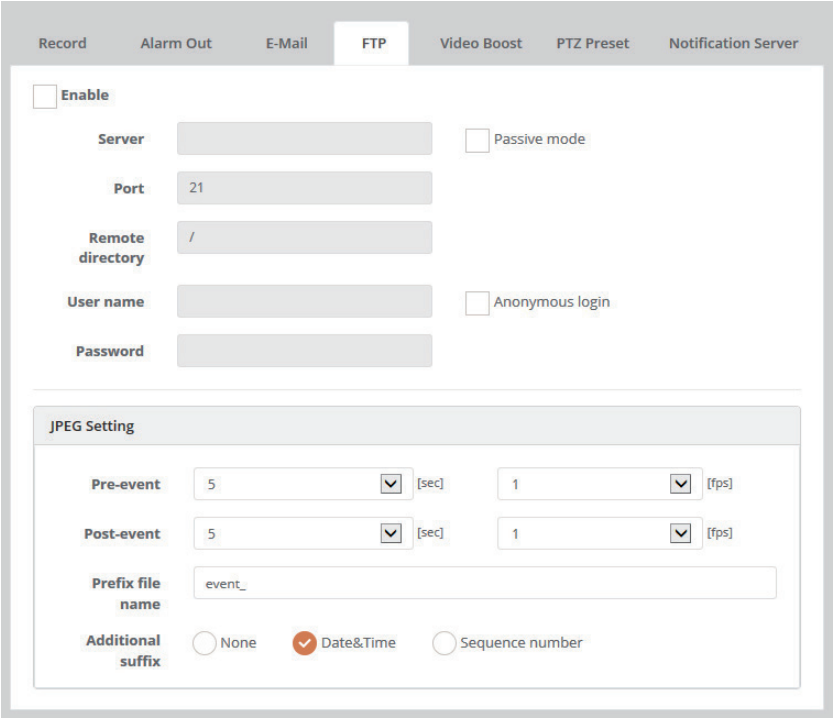
FTP notification will save files on the specified FTP server.

> Mark ENABLE checkbox to set the FTP server.

- SERVER : Enter the IP address or host name of the specific 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.

Full Menu Setup

- 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 doesn't already exist on the FTP server, an error message shows up when uploading.
- USER NAME: Enter the user name provided by the network administrator.
- ANONYMOUS LOGIN: Mark ANONYMOUS LOGIN checkbox if anyone is permitted to access the FTP server.
- PASSWORD: Enter the password provided by the network administrator.



> JPEG SETTING : Configures JPEG for the FTP server.

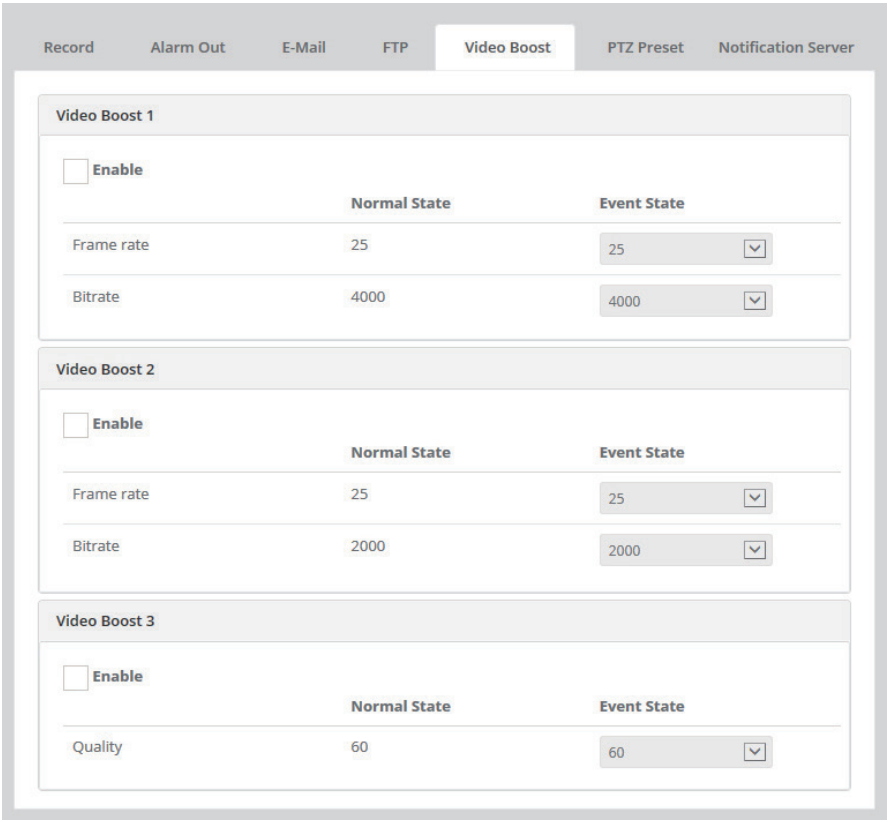
- PRE-EVENT : Sets the time & the frame rate for JPEG images to be sent to FTP before the event.
- POST-EVENT : Sets the time & the frame rate for JPEG images to be sent to FTP after the event.
- PREFIX FILE NAME : Input the prefix for JPEG image file names to be sent to FTP.
- ADDITIONAL SUFFIX : Selects the suffix for JPEG image file names to be added after the file name. Selecting NONE will overwrite the previous file and thus DATE &TIME is most preferable.

Full Menu Setup

- ***Video Boost***

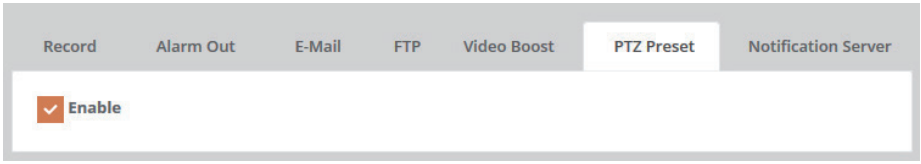
Sets the frame rate and bitrate for H.264 stream and the quality for JPEG stream at EVENT STATE when the event occurs.

[NOTE] Video boost is disabled during SD recording.



- ***PTZ Preset:***

Mark ENABLE checkbox to enable the PTZ preset to work as defined at SETUP> EVENT>RULES>PTZ when an event occurs.



Full Menu Setup

• *Notification Server*

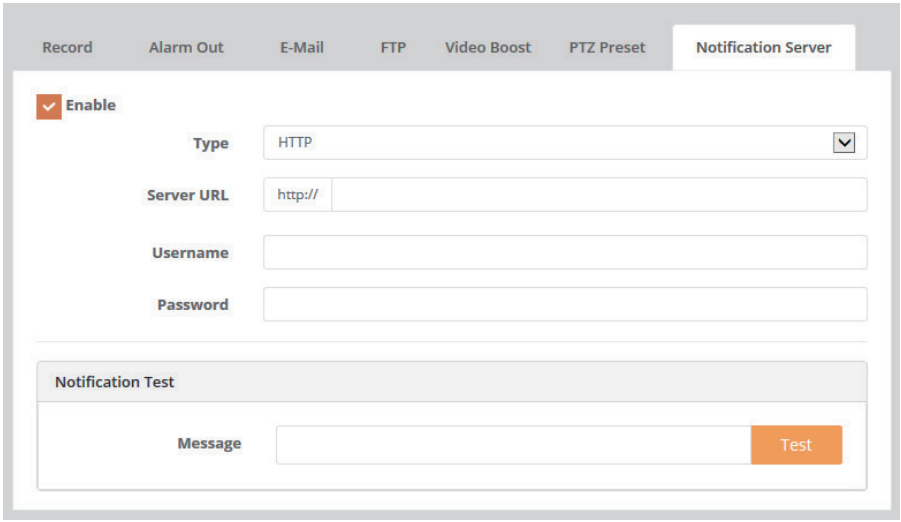
> Mark ENABLE checkbox to notify the event to the notification server when it occurs.

- TYPE : Selects the network protocol to connect the notification server.
- SERVER URL : Input the server URL of the notification sever. To enable the audio when the event occurs, copy the URL at SETUP>AUDIO and paste it on the server URL like http://x.x.x.x/setup/audio/audio.php
- USERNAME : Enter the username (default : admin)
- PASSWORD : Enter the password (default : admin)

> NOTIFICATION TEST: Input the test message and click TEST button.

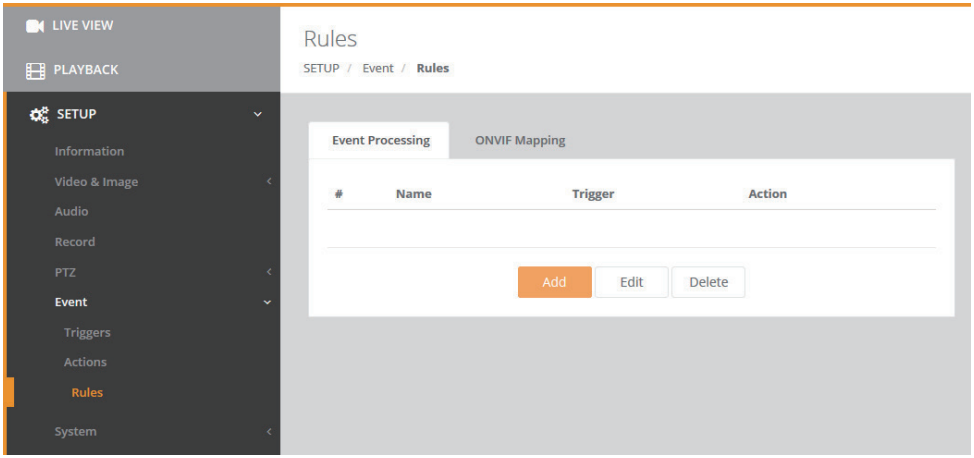
[NOTE]

There could be several event actions like FTP, e-mail etc. For detailed URL per event actions, refer to API documents. In case Notification server is set as event rule, the same URL from Notification Test should be entered in RULE>ADD>NOTIFICATION SERVER.



3-6-3. Rules

EVENT RULES menu defines and sets the parameters for what to do for the various event sources.



- ***Event Processing***

Event process lists have to be generated and can be edited for what to do when the event occurs. List shows the rule name, trigger source and type of action for each event process. To edit or delete the rule in the list, click the listed line and then click EDIT or DELETE button.

ADDing & EDITing RULES

> NAME : Input the rule name which is descriptive to the rule.

EVENT TRIGGER

> TYPE : Select the type of the event source.

> AND : Mark ENABLE checkbox to trigger the event when two TYPES of event occur within the defined dwell time of the individual events.

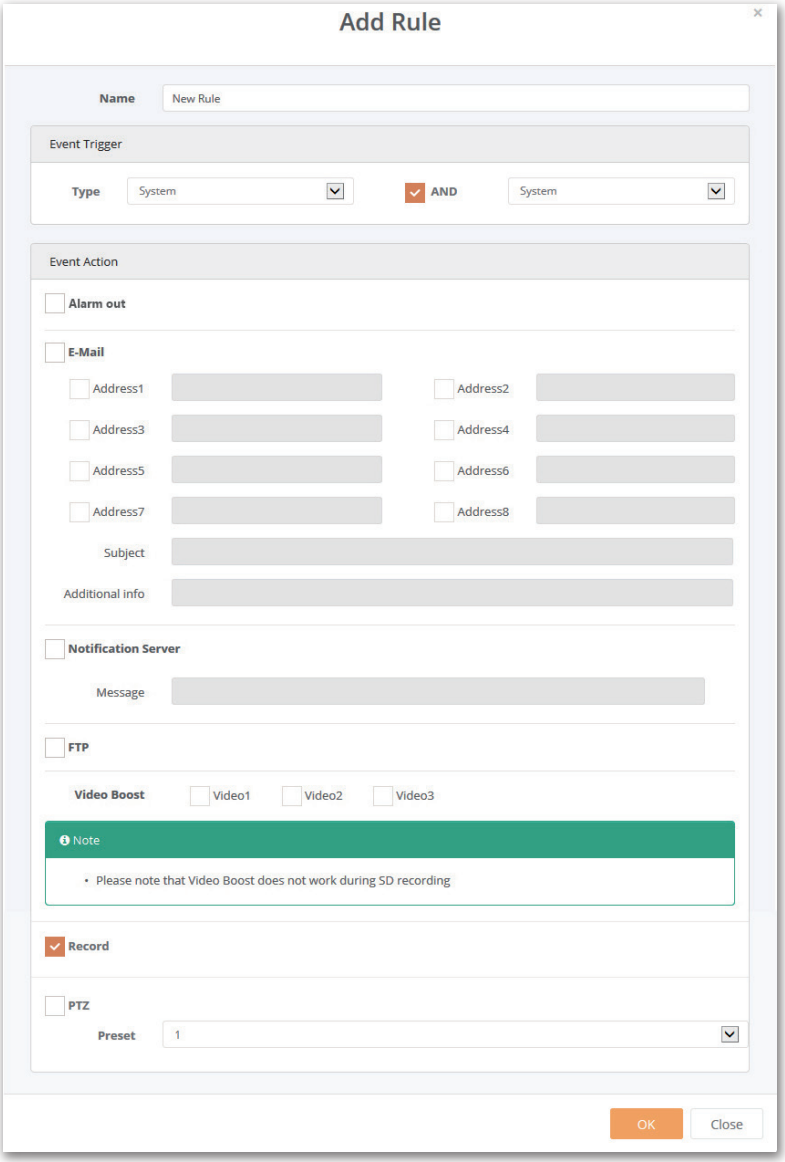
EVENT ACTION

> ALARM OUT : Mark the checkbox to activate the alarm-out port, if available, as set in SETUP>EVENT> ACTIONS>ALARM OUT when the selected event occurs.

> E-MAIL :

- Input the email addresses to be emailed.
- Mark the checkbox for the email addresses to be emailed as set in SETUP>EVENT> ACTIONS>E-MAIL when the selected event occurs
- SUBJECT of email is a required field and ADDITIONAL INFO is optional to input.

Full Menu Setup



> NOTIFICATION SERVER: Mark the checkbox to use the notification server as set in SETUP>EVENT> ACTIONS> NOTIFICATION SERVER when the selected event occurs.

• MESSAGE : Input the message to be sent to the notification server.

> FTP : Mark the checkbox to use FTP as set in SETUP>EVENT>ACTIONS>FTP when the selected event occurs.

> VIDEO BOOST : Select the video stream to be boosted up.

[NOTE] Video boost is disabled if RECORD is enabled.

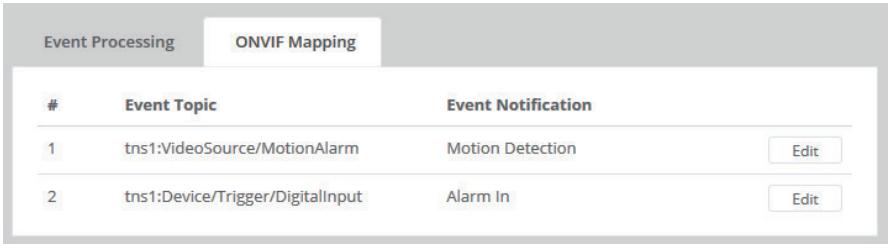
> RECORD : Mark the checkbox to record the image into the built-in storage, if available, as set in SETUP>EVENT>ACTIONS>RECORD when the selected event occurs.

> PTZ : Mark the checkbox and select PRESET number to activate PTZ, if available, as set in SETUP>PTZ>PRESET and enabled PTZ PRESET in SETUP>EVENT>ACTIONS> PTZ PRESET when the selected event occurs.

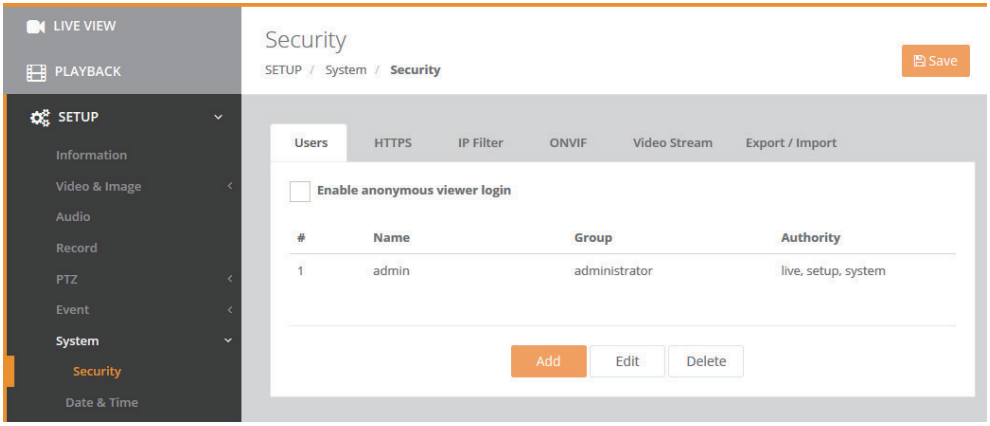
• *ONVIF Mapping*

Onvif mapping is provided to map the various events generated by this camera, but not defined by Onvif, to assign them to Onvif events for the Onvif compatible VMSes or NVRs. Two mappings for Motion and Alarm In are provided to be mapped and can be used by editing them.

For example, any of the selected items in tns1:VideoSource/MotionAlarm will notify the Onvif compatible VMSes or NVRs as Motion Alarm. In the same way, any of the selected items in tns1: Device/Trigger/Digital Input will notify the Onvif compatible VMSes or NVRs as Alarm IN.



3-7. System

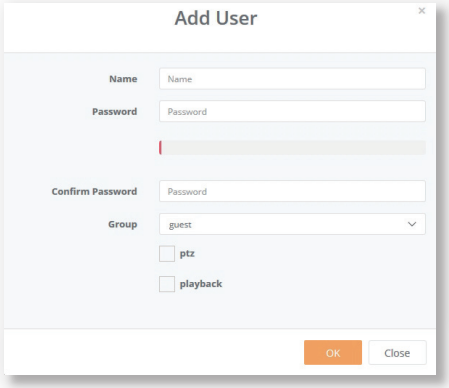


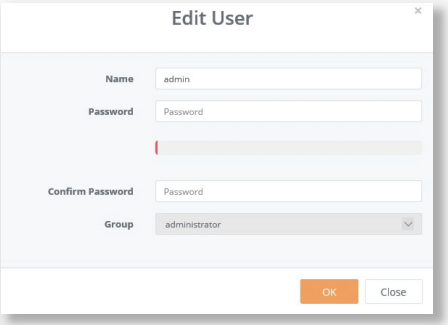
3-7-1. Security

- ***Users***

Manages the user accounts by names, groups and authorities.

> USERS : Can be added, edited or deleted.

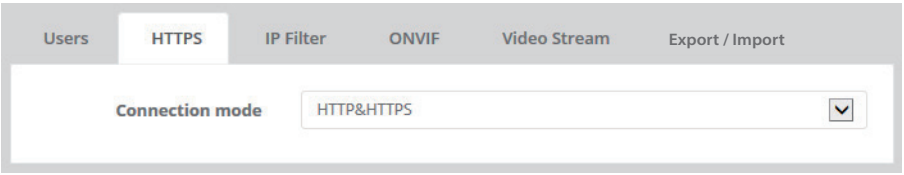




Full Menu Setup

• *HTTPS*

Selects the CONNECTION MODE.



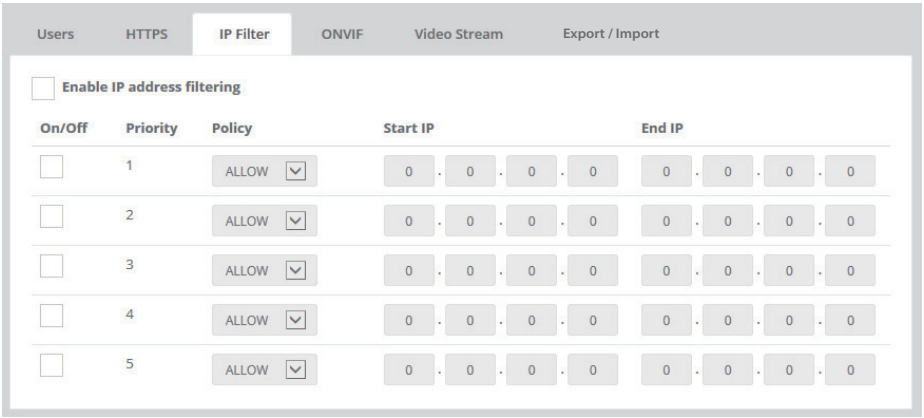
> HTTP : Transfers data without encryption. Supports a URL that only starts with "HTTP: "
> HTTPS : Transfer data with encryption by Hypertext Transfer Protocol over SSL protocol. Supports a URL that only starts with "HTTPS: "
> HTTP&HTTPS : Supports both HTTP and HTTPS protocols.

[NOTE]

To ensure security on the internet, all web browsers provide several security levels that can be adjusted for sites 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 the required authentication. This camera can generate a self-signed certificate using Open SSL.

• *IP Filter*

> Mark ENABLE IP ADRESS FILTERING to filter the IP addresses.
> Mark ON/OFF for the IP address range to use IP filtering.
> Select ALLOW or DENY to permit or filter out the IP address range.
> Input the IP address ranges with START IP and END IP.



Full Menu Setup

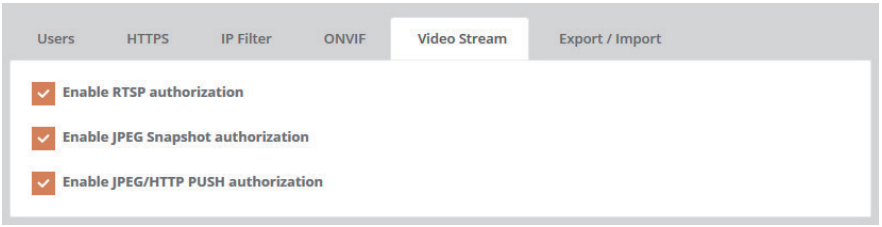
[NOTE] To add a subnet of network addresses, these must be added in CIDR (Classless Inter-Domain Routing) notation. For example: entering 192.168.1.0/24 will add all the addresses in the range 192.168.1.1 to 192.168.1.254. Contact your network administrator for more detail. If the network camera is accessed via a proxy server, the IP address for the proxy server must be added as an allowed address.

• *ONVIF*

> Mark ENABLE WS SECURITY to provide the ONVIF compliance.

• *Video Stream*

> ENABLE RTSP AUTHORIZATION : If marked, the authorization is required when the stream 1/2/3 is accessed using RTSP.
> ENABLE JPEG SNAPSHOT AUTHORIZATION : If marked, the authorization is required when the Jpeg snapshot image is requested.
> ENABLE JPEG/HTTP PUSH AUTHORIZATION : If marked, the authorization is required when the Jpeg/HTTP PUSH image is requested.

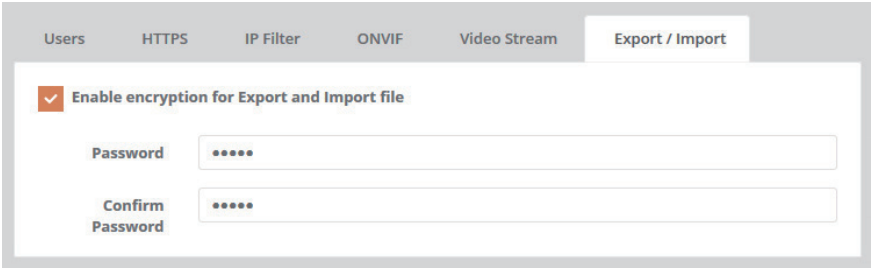


• *Export / Import*

> Mark ENABLE ENCRIPTION FOR EXPORT AND IMPORT FILE :
System configuration file, which is exported at SETUP>SYSTEM>MAINTENANCE> SETUP EXPORT, is encrypted with the password herein.

[NOTE] THIS PASSWORD MUST BE USED when System configuration file is imported by other cameras if the file was exported with the password.

> If the checkbox is not marked, system configuration file is exported without encryption.



3-7-2. Date & Time

- ***Current Time***

Shows the current date and time. Clicking SAVE tap updates and saves the date and time with the selected time in NEW TIME.

- ***New Time***

Select one of the following server times.

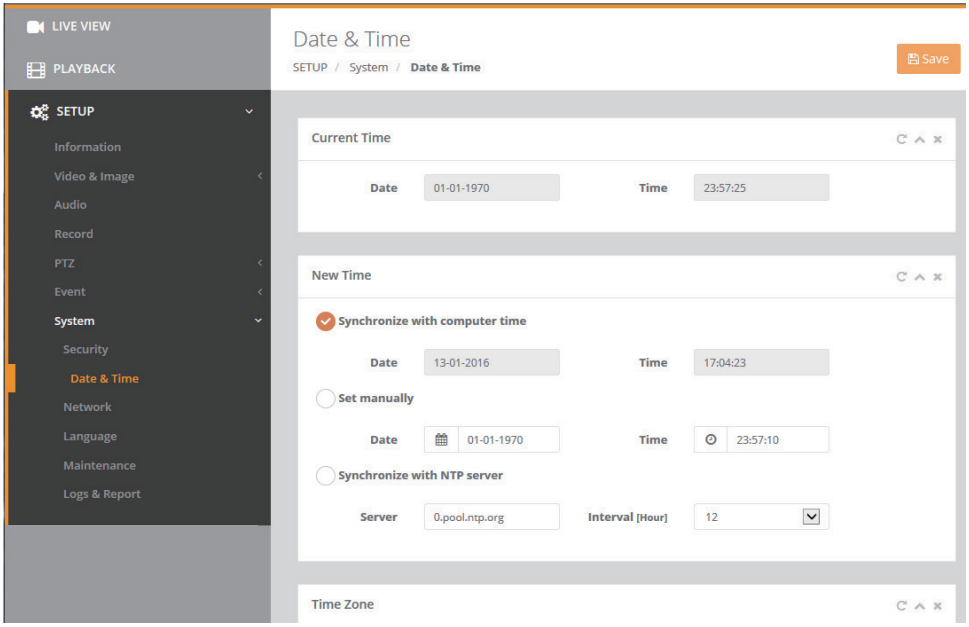
> SYNCHRONIZE WITH COMPUTER TIME : Obtains the time from the computer.
> SET MANUALLY : Sets the date and time manually.
> SYNCHRONIZE WITH NTP SERVER : Obtains the time from the assigned NTP server at every hour in INTERVAL. The NTP server's IP address or host name has to be specified in the time server.

- ***Time Zone***

Select the time zone to be referenced to the NTP server where the camera is installed. Mark AUTOMATICALLY ADJUST FOR DAYLIGHT SAVING CHANGES check box to update the time automatically with daylight savings.

- ***Date & Time Display***

Select the date & time formats to be displayed.



Full Menu Setup

3-7-3. Network

- ***TCP/IP***

> IPv4 ADDRESS :

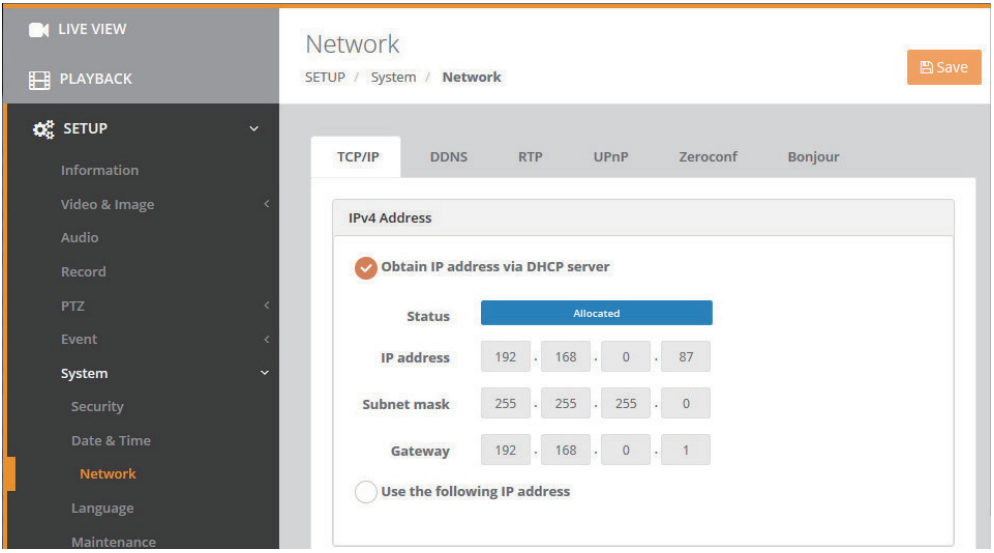
- OBTAIN IP ADRESS VIA DHCP : Gets the IP address assigned by the DHCP (Dynamic Host Configuration Protocol) server.
- STATUS : 'Allocated' shows that the IP address is obtained from the DHCP.
- IP ADDRESS, SUBNET MASK, GATEWAY : Displays the current IP address which is obtained from the DHCP.
- USE THE FOLLOWING ADDRESS : Requires the input of a static IP address manually.

> IPv6 ADDRESS : Mark ENABLE check box to use IPv6 address and click SAVE button, then new IPv6 address will be obtained.

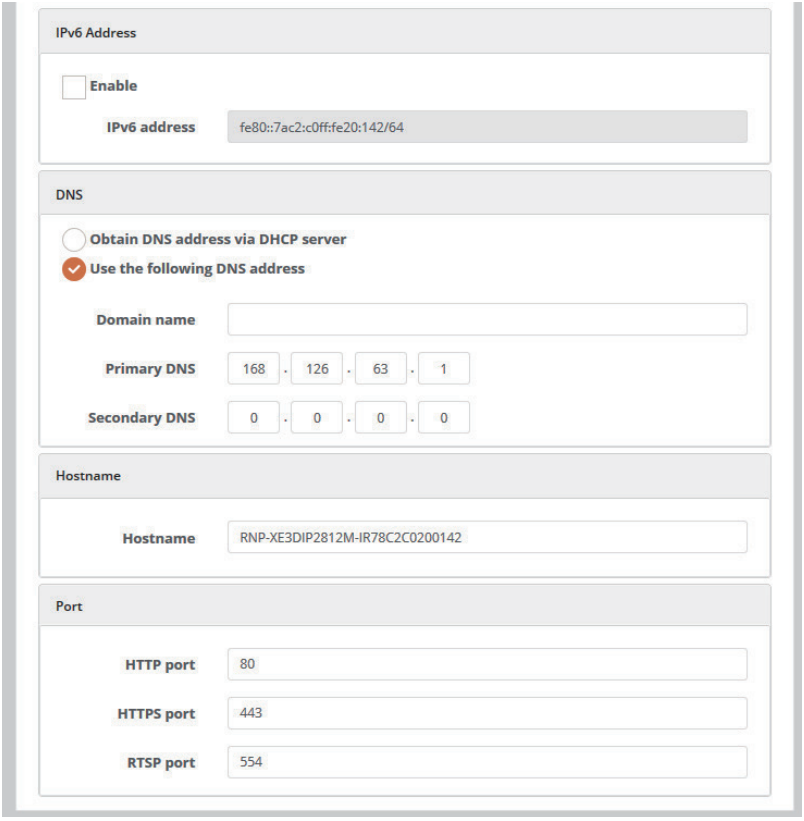
> DNS :

- OBTAIN DNS ADDRESS VIA DHCP SERVER : Obtains the DNS address automatically assigned by DHCP server.
- USE THE FOLLOWING DNS ADDRESS : Requires manual input as per below.
  - DOMAIN NAME : Enter the domain for the host name
  - 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.



Full Menu Setup



> PORT :

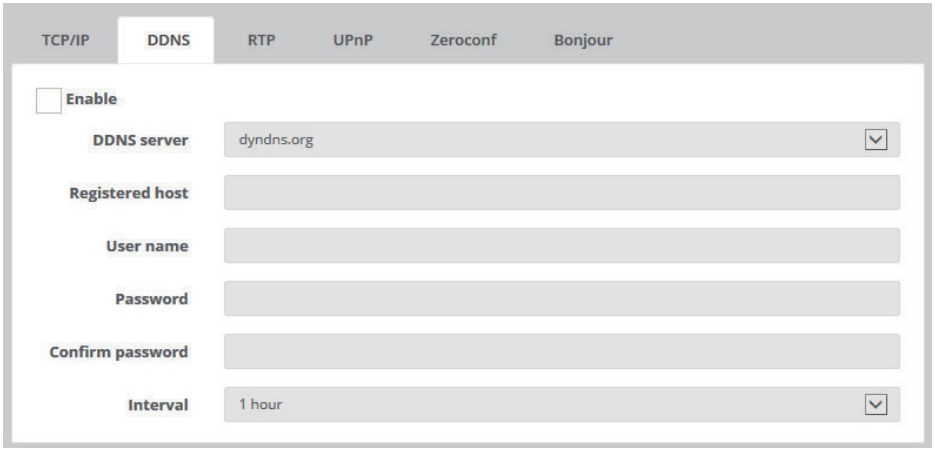
- HTTP PORT : Use a port number in the range 1024-65535. Default is 80.
- HTTPS PORT : Use a port number in the range 1024-65535. Default is 443.
- RTSP PORT : Use a port number in the range 1024-65535. Default is 554.

Full Menu Setup

- ***DDNS*** (Dynamic Domain Naming Service)

> Mark ENABLE checkbox to use DDNS.
> DDNS server : Select the DDNS server to use.
> Input REGISTERED HOST name, USER NAME, PASSWORD and INTERVAL.

[NOTE]
If the camera has not been registered to the DDNS host previously, the registration is required. If the camera is already registered but its IP address changes, the DDNS must be updated with this new IP address. It will update at a regular interval.



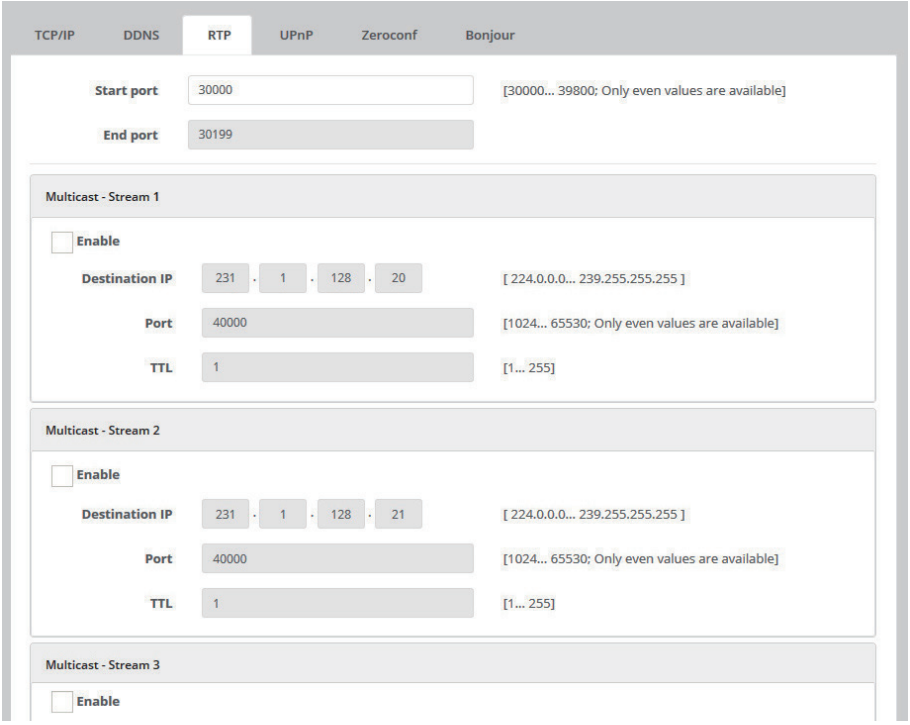
Full Menu Setup

- ***RTP***

> START PORT & END PORT : RTP port range defines the range of the ports from which ports of the video/audio are automatically selected. This feature is useful if the camera is connected to a NAT router with manually configured port mapping. Limit the range of the ports permitted for RTP unicast/multicast by entering START PORT and END PORT.

> MULTICAST - STREAM1, 2, 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 needs to be changed, please contact the network administrator.

- Mark ENABLE checkbox to use the multicast for each stream.
- DESTINATION IP: Type IP address in the range. Multicast addresses are allocated according to these IANA policies.
- PORT : Use the port number in the range 1024-65532. Default is 4000.
- TTL : When IP packets or data fails to be delivered to the destination within TTL (Time To Live), this setting tells the network router 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.



Full Menu Setup

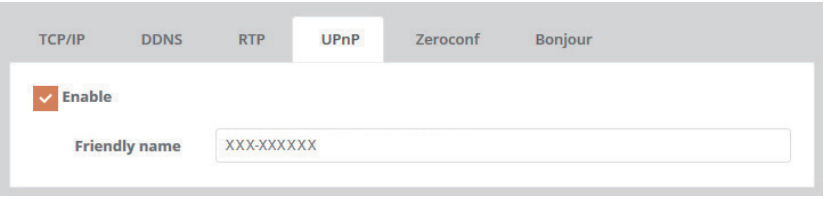
• *UPnP*

UPnP is enabled by default so that the network camera can be automatically detected by operating systems and clients that support this protocol.

> FRIENDLY NAME : Enter the name up to 32 alphanumeric characters like Model Name-MAC address.

[NOTE]

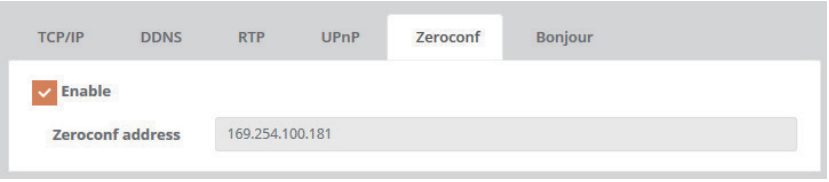
UPnP must also be enabled on your Windows computer. To do this, open the Control Panel from the Start Menu and select Add/Rename programs. Select Add / Remove Windows Components and open the Networking Services section. Click Details and then select UPnP as the service to add.



• *Zeroconf*

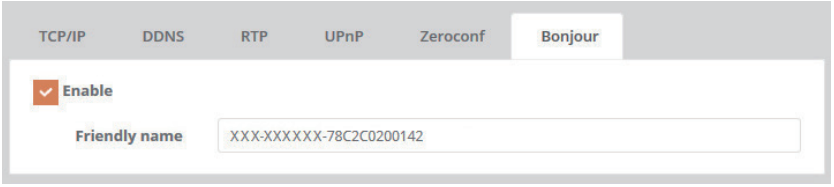
ZeroConf (Zero configuration) networking enables the network to establish automatically with the automatic assignment of numeric network addresses (zeroconf IP addresses) without requiring manual operator intervention or special configuration servers when the DHCP server is not available in the network.

> Mark ENABLE to use ZeroConf networking.
> ZeroConf ADDRESS : 169.254.xxx.xxx as default.



• *Bonjour*

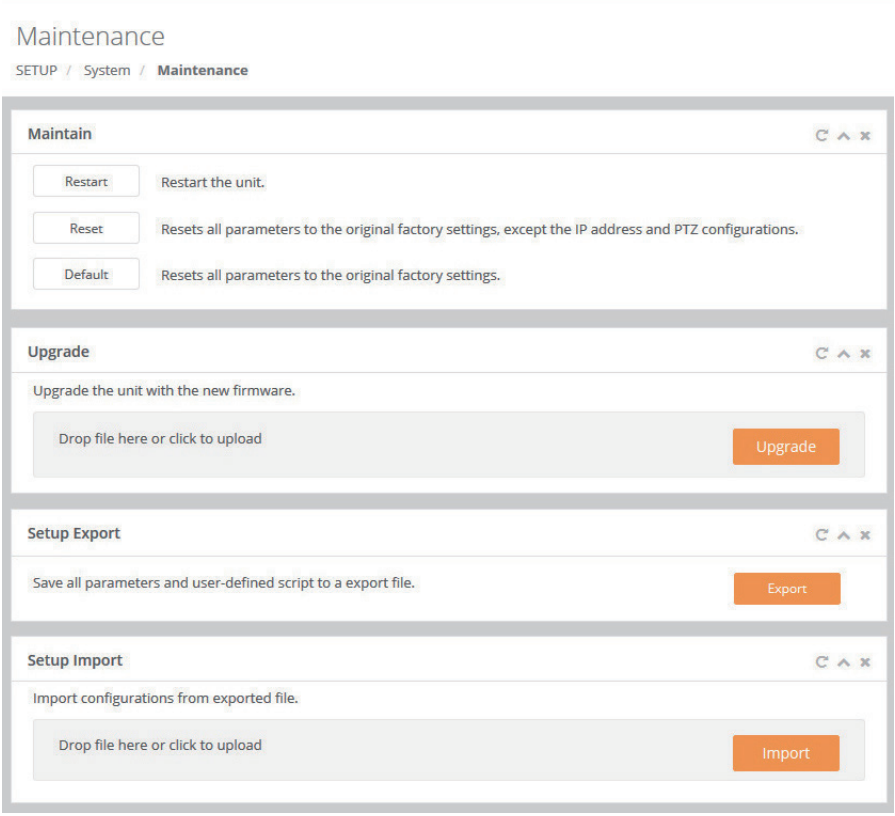
Bonjour is Apple's implementation of zero-configuration networking (zeroconf), a group of technologies that includes service discovery, address assignment, and hostname resolution.



3-7-4. Language

Six languages are available to select from English, Deutsch (German), Français (French), Polski (Polish), Suomi (Finnish), and 한국어 (Korean).

3-7-5. Maintenance



- ***Maintain***

> RESTART : Restarts the camera without changing any settings.
> RESET : Restarts and loads the factory settings but does not change IP address and PTZ settings.
> DEFAULT : Loads and saves the factory defaults for all parameters including IP address and PTZ settings.

[CAUTION]
Do not disconnect the power or network cable during RESET or DEFAULT operations.

Full Menu Setup

• *Upgrade*

Bring the firmware file to the drop box or click the drop box to browse for the firmware file, and then click the UPGRADE button.

[CAUTION] Do not disconnect the power or network cable during firmware UPGRADE.

• *Setup Export*

Current configurations for the camera can be saved as a file by clicking the EXPORT button.

• *Setup Import*

The exported configuration file from a reference camera or a backup configuration can be imported and configured/reloaded onto other cameras.

[NOTE]

- SETUP EXPORT/SETUP IMPORT can only be used on the same camera models with the same firmware. This feature is not intended for the configuration of multiple units or for firmware upgrades.
- When the encrypted System configuration file with the password is imported, type the password at SETUP>SYSTEM>SECURITY>EXPORT/IMPORT with the SAME password which was used in exporting the system configuration file from the reference camera. Otherwise, 'INVALID FILE' error appears.

3-7-6. Logs & Report

• *Logs*

The log file records the story into the unit since the system restarts.

> DATABASE CAPACITY: Shows the useable system memory space for Log file.
> SEARCH CONDITION: Allows you to search the log as per the type. E.g. System, Access, Event and Media, Start-End date and Start-End time.
> LOG LIST: Shows the logs as per the search.

• *Logs Server*

Mark ENABLE checkbox to receive log data from camera to server.

> TLS Encryption: Mark checkbox to encrypt the communication data.
> Type: Selects the network protocol to connect the server.
> Format: Selects the log protocol.
> Server address: Inputs the server address.
> Server port: Inputs the server port.

• *Report*

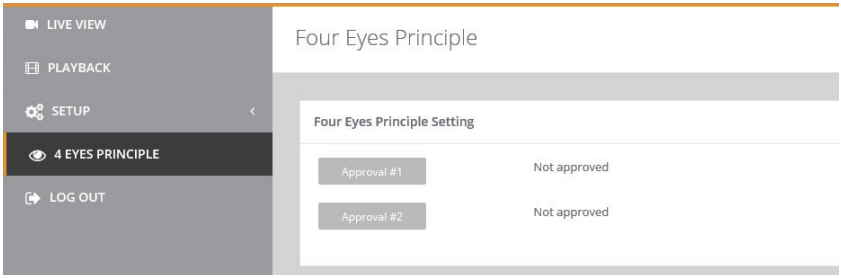
Provides overall information about the server status.

4. Help

Help the menu function.
Click and pop-up the page about current menu description.

5. 4 EYES PRINCIPLE

> Four Eyes Principle Setting : Two individual administrators(user authority) should approve to playback recorded data on Micro SD card for data security.
One administrator should click Approval #1 and the other administrator should click Approval #2.



Troubleshooting

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

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.

General Troubleshooting

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

Symptom	Guide
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.

Troubleshooting

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.

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