MEGApix Flex 20MP user-configurable multi-sensor vandal dome IP camera with vari-focal lens pre-loaded with IVA

DWC-PVX20WATX

User's Manual Ver. 08/26

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

Safety Information

Read this first

Read through this Installation Guide carefully before installing the product. Keep the Installation Guide for future reference. See the complete user manual for more information on the proper installation, use and care of the product.

These instructions are intended to ensure that users can use the product correctly to avoid danger or property loss. The precaution measure is divided into “Warnings” and “Cautions”:

Warnings: Serious injury or death may occur if any of the warnings are neglected.

Cautions: Injury or equipment damage may occur if any of the cautions are neglected.

CAUTION

RISK OF ELECTRIC SHOCK.
DO NOT OPEN.

CAUTION :

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

Warning

This symbol indicates that dangerous voltage consisting of a risk of electric shock is present within this unit.

Precaution

This exclamation point symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature included with the appliance.

WARNING

1. In the use of the product, you must be strict compliance with the electrical safety regulations of the nation and region. When the product is mounted on a wall or ceiling, the device shall be firmly fixed.
2. Be sure to use only the standard adapter specified in the specification sheet. Using any other adapter could cause fire, electrical shock, or damage to the product.
3. Make sure the power supply voltage is correct before using the camera.
4. Incorrectly connecting the power supply or replacing the battery may cause an explosion, fire, electric shock, or damage to the product.
5. Do not connect multiple cameras to a single adapter. Exceeding the capacity may cause excessive heat generation or fire.
6. Securely plug the power cord into the power source. An insecure connection may cause a fire.
7. When installing the camera, fasten it securely and firmly. A falling camera may cause personal injury.
8. Do not install in a location subject to elevated temperature, low temperature, or high humidity. Doing so may cause fire or electric shock.
9. Do not place conductive objects (e.g. screwdrivers, coins, metal items, etc.) or containers filled with water on top of the camera. Doing so may cause personal injury due to fire, electric shock, or falling objects.
10. Do not install the unit in humid, dusty, or sooty locations. Doing so may cause fire or electric shock.
11. Do not install near any heat sources such as radiators, heat registers, or other products (including amplifiers) that produce heat.
12. Keep out of direct sunlight and heat radiation sources. It may cause a fire.
13. If any unusual smells or smoke come from the unit, stop using the product at once. Immediately disconnect the power source and contact the service center. Continued use in such a condition may cause fire or electric shock.
14. If this product does not operate normally, contact the nearest service center. Never disassemble or change this product in any way.
15. When cleaning the product, do not spray water directly onto parts of the product. Doing so may cause fire or electric shock.

Important Safety Instructions

Precaution

1. Use proper safety gear when installing and wiring the product.
2. Do not drop objects on the product or apply strong shock to it. Keep away from a location subject to excessive vibration or magnetic interference.
3. Do not use this product near water.
4. The product shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the product.
5. Avoid aiming the camera directly towards extremely bright objects such as the sun, as this may damage the image sensor.
6. The Main plug is used as a disconnect device and shall stay readily operable at any time.
7. Remove the power adapter from the outlet when then there is lightning. Neglecting to do so may cause fire or damage to the product.
8. Do not block any ventilation openings. Install following the manufacturer's instructions.
9. A polarized or grounding-type plug is recommended for this product. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. If the provided plug does not fit into your outlet, consult an electrician for replacement.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the product.
11. If any laser equipment is used near the product, make sure the surface of the sensor is not exposed to the laser beam as that may damage the sensor module.
12. If you want to move the already installed product, be sure to turn off the power and then move or reinstall it.
13. Proper configuration of all passwords and other security settings is the responsibility of the installer and/or end-user.
14. If cleaning is necessary, please use a clean cloth to wipe it gently. If the device will not be used for a long time, please cover the lens cap to protect the device from dirt.
15. Do not touch the camera's lens or sensor module with your fingers. If cleaning is necessary, please use a clean cloth to wipe it gently. If the device will not be used for a long time, please cover the lens cap to protect the device from dirt.
16. Use only attachments/accessories specified by the manufacturer.
17. Always use hardware (e.g. screws, anchors, bolts, locking nuts, etc.) compatible with the mounting surface and of sufficient length and construction to ensure a secure mount.
18. Use only with cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the product.
19. Unplug this product when a cart is used. Use caution when moving the cart/product combination to avoid injury from tip-over.
20. Refer all servicing to qualified service personnel. Servicing is needed when the product has been damaged in any way, such as a power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the product, the product has been exposed to rain or moisture, does not operate normally, or has been dropped.

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Legal considerations

Video surveillance can be regulated by laws that vary by region. Check the laws in your local region before using this product for surveillance purposes.

Liability

Regarding the preparation of this document, Digital Watchdog cannot be held responsible for any technical or typographical errors and reserves the right to make changes to the product and manuals without notice.

Digital Watchdog makes no warranty of any kind regarding the written material contained within this document. Digital Watchdog shall not be held liable nor responsible for any incidental or consequential damages in connection with the furnishing, performance, or use of this documented material. This product is only to be used for its intended purpose.

Equipment modifications

This equipment must be installed and used in strict accordance with the instructions given in the user documentation. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to use the equipment.

Important Information

Trademark acknowledgments
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Regulatory Information
USA

This device complies with part 15 of the FCC Rules, subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
This equipment has been tested and found to comply with the limits for a Class B digital device, according to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used following the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help

Canada
This digital apparatus complies with CAN ICES-3 (Class B). The product shall be connected using a shielded network cable (STP) that is properly grounded. Cet appareil numérique est conforme à la norme CAN NMB-3 (classe B). Le produit doit être connecté à l'aide d'un câble réseau blindé (STP) qui est correctement mis à la terre.

Safety
This product is intended to be supplied with powers by a UL Listed Power Supply Unit marked "Class 2" or "LPS" or "PS2" and rated 12 Vdc, 2.3A or PoE (802.3bt) 0.64A min.
The wired LAN hub providing power over the Ethernet (PoE) in accordance with IEEE 802.3bt shall be a UL Listed device with the output evaluated as a Limited Power Source as defined in UL60950-1 or PS2 as defined in UL62368-1.
Unit is intended for installation in a Network Environment 0 as defined in IEC TR 62102. As such, associated Ethernet wiring shall be limited to inside the building.

Disposal and recycling
Digital Watchdog cares for the environment at all product manufacturing stages and is taking measures to provide customers with more environmentally friendly products. When this product has reached the end of its useful life, dispose of it according to local laws and regulations. For information about your nearest designated collection point, contact your local authority responsible for waste disposal. Following local legislation, penalties may be applicable for incorrect disposal of this waste.

Warranty information
For information about Digital Watchdog's product warranty and related information, go to https://digital-watchdog.com/page/rma-landing-page/.
Regular part replacement: a few parts (e.g. electrolytic capacitor) of the equipment shall be replaced regularly according to their average enduring time. The average time varies because of differences between the operating environment and using history, so regular checking is recommended for all the users. Please contact your dealer for more details.

Support
Contact your Digital Watchdog installer or reseller for any questions, help and troubleshooting. If your questions cannot be answered at once, your installer will forward your questions to ensure a rapid response. If you are connected to the Internet, you can:

- Download user documentation and software updates from Digital Watchdog's website.
- Find answers to resolved problems in the FAQ database
- Visit Digital Watchdog's Support at https://digital-watchdog.com/DW-Tech-Support/.

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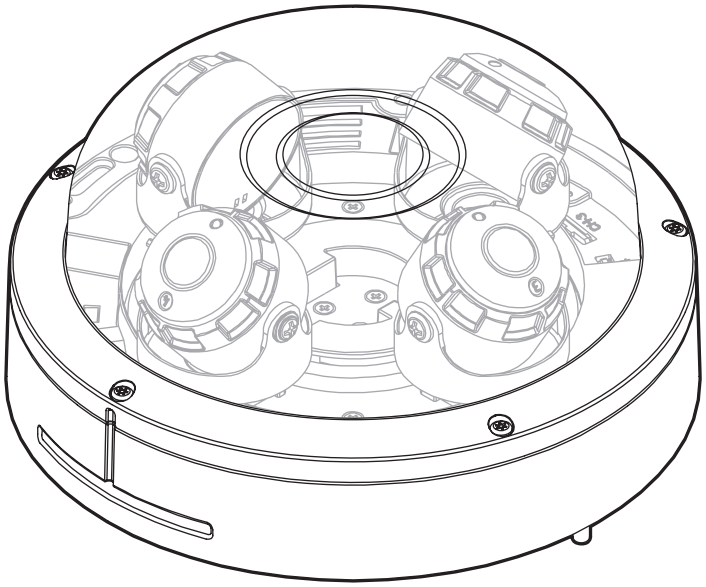
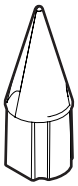
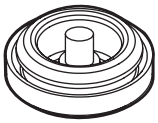
Introduction -
Product & Accessories



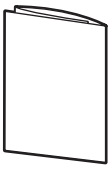
Camera



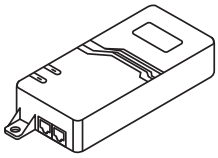
RJ-45 Installation Tool



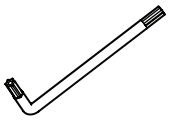
Grommet



Quick Setup and Download Guide



PoE Injector

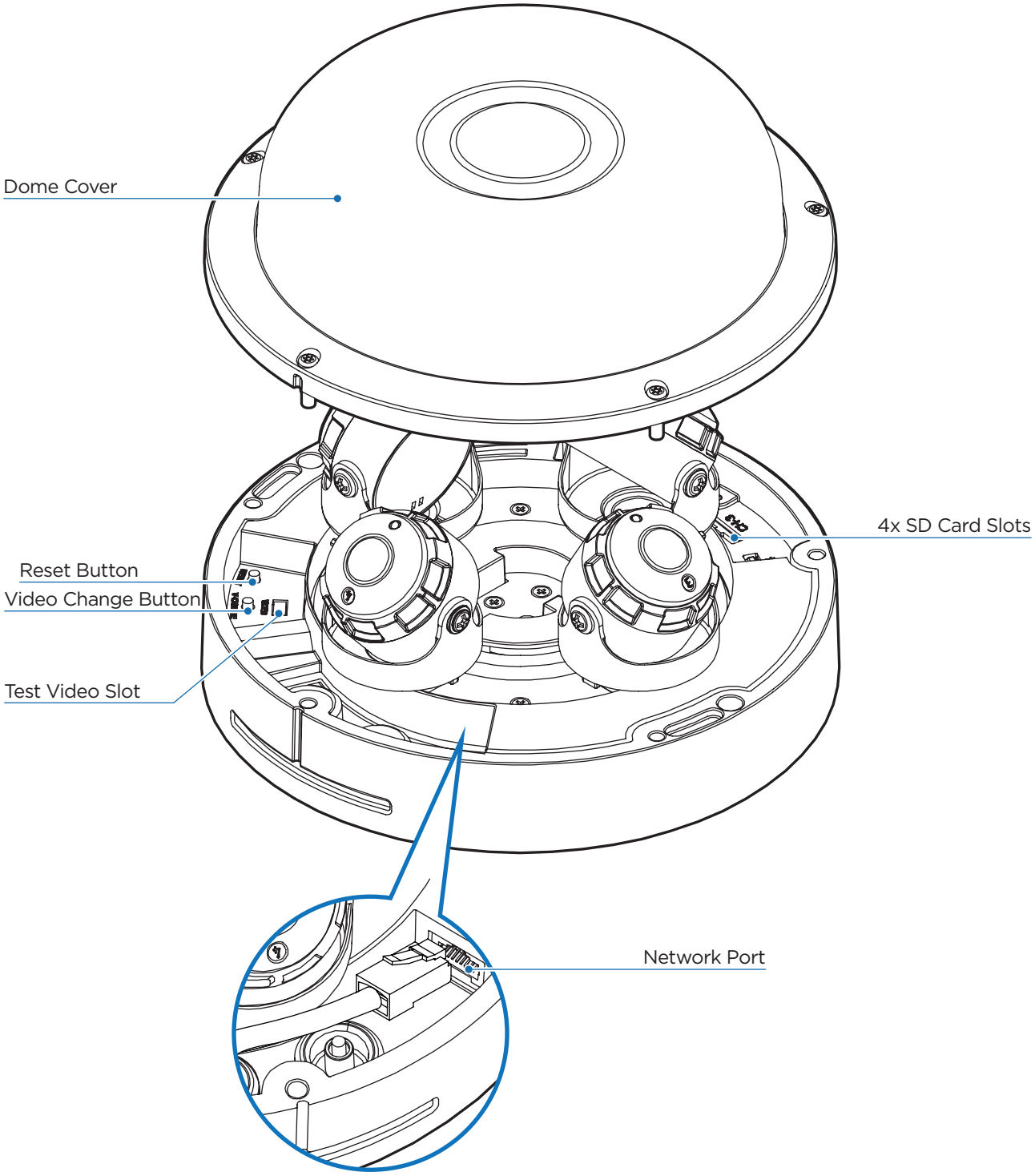


Star Wrench

Moisture Absorber and Installation Guide (Recommended)

Test Monitor Cable

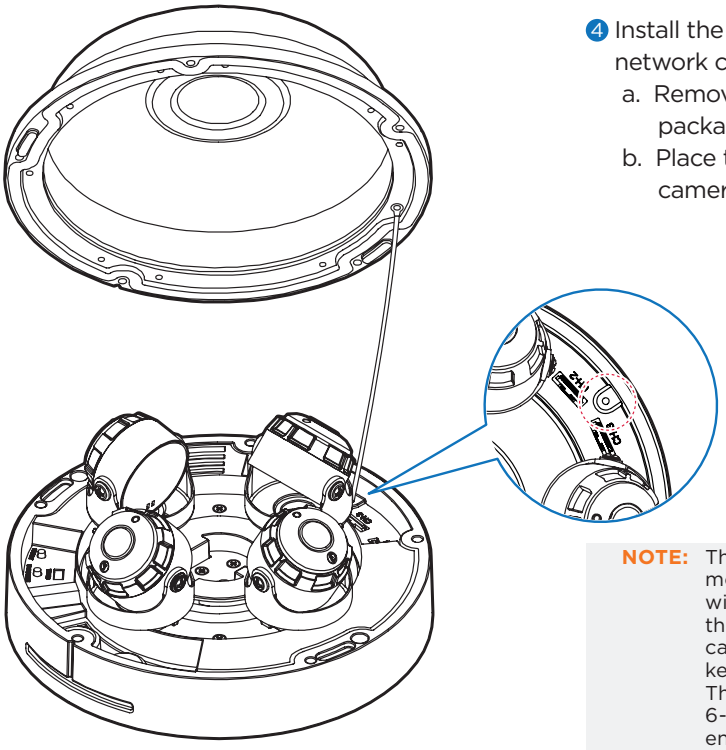
Introduction -
Part Name



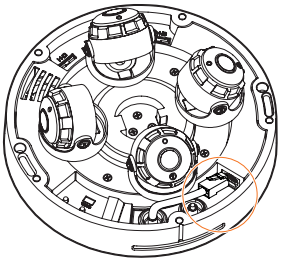
Installation -
Disassemble the camera

Before installing your camera, please read the following cautions.

1. The mounting surface must be able to bear up to five times the overall weight of your camera.
2. Avoid allowing cables to become pinched or abraded during installation. If the plastic wire jacket of the electrical line is damaged, it could result in an electrical short or fire.
3. For the installation process, remove the dome cover from the camera by loosening the screws along the outer edge of the dome. Connect the camera's dome to the camera base using the safety wire. Hook the other end of the safety wire to the screw at the base of the camera. Keep the inner and outer protective films on the dome during the installation to make sure that no dust or smudges are left on the dome.

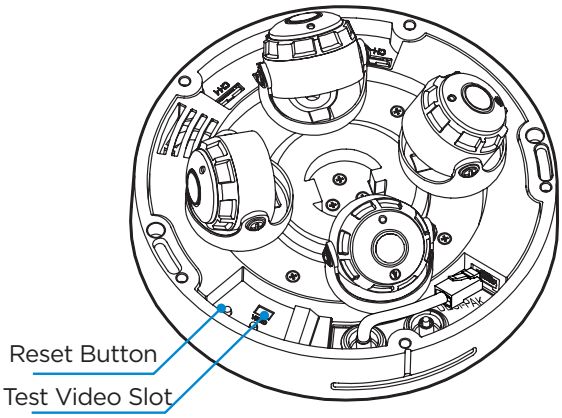


4. Install the moisture absorber under the camera's network cable connector.
   a. Remove the moisture absorber from the packaging.
   b. Place the moisture absorber on the base of the camera, according to the diagram below.



NOTE: The camera will generate enough heat to dry moisture during operation. In most cases, it will not need the moisture absorber for more than the first day. In cases where the camera can experience a moisture issue, users must keep the moisture absorber in the camera. The moisture absorber has an approximately 6-month life cycle, varying depending on the environment.

WARNING: It is highly recommended that you install the moisture absorber when mounting the camera. The moisture absorber prevents moisture from accumulating inside of the camera's housing. Trapped moisture may cause image performance issues and damage the camera.



Test Video Slot

Connect the Test Monitor Cable to the Test Video Slot. CAM1 will display by default. Press the Video Change Button to cycle between the four (4) sensors (CAM1, CAM2, CAM3, and CAM4.)

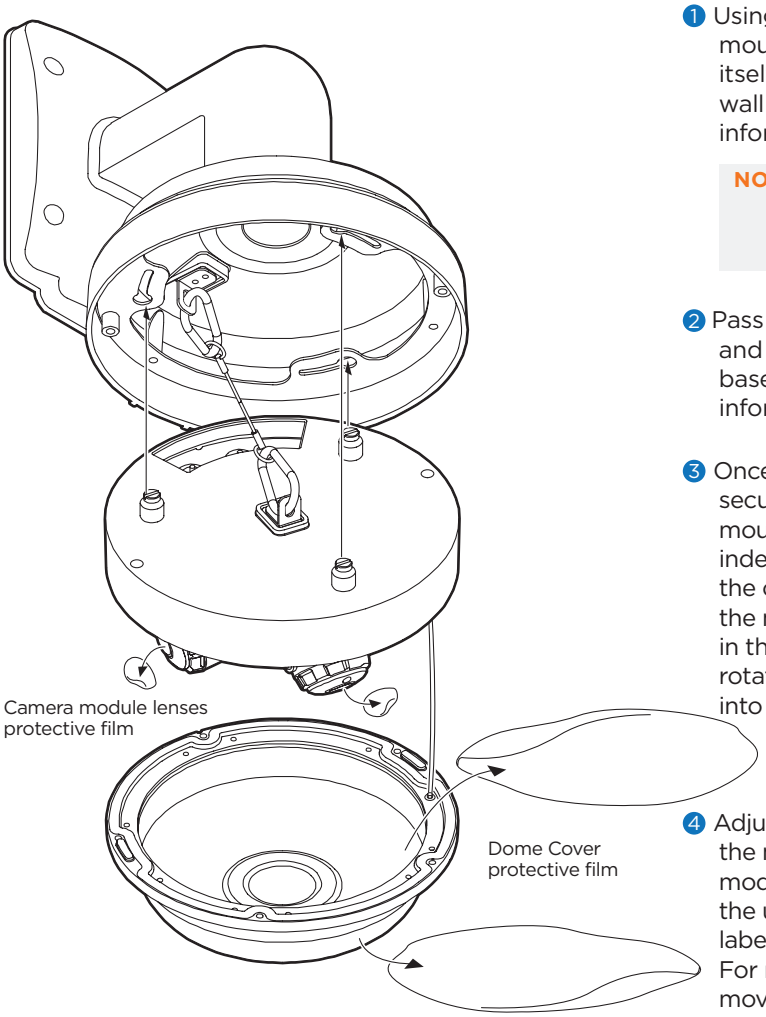
Reset Button

Press and hold the reset button for 5 seconds to reset the camera to its factory default settings.

Warning:

Resetting the camera will erase all setting data. Make a note of the camera's settings before resetting the camera for further installation.

Installation - Installation

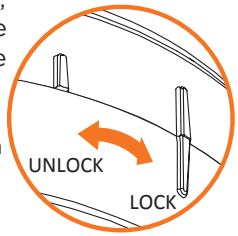


1. Using the mounting template sheet for the mounting accessory, or the mounting accessory itself, mark and drill the necessary holes in the wall or ceiling. See the accessory's QSG for more information.

   NOTE: A wall mount, ceiling mount, junction box, or in-ceiling flush mount are sold separately and are required to complete the camera's installation.

2. Pass the wires through the mounting accessory and make all the necessary connections at the base of the camera. See "Cabling" for more information.

3. Once all cables are connected, secure the camera base to the mounting accessory. Align the indented lines on the side of the camera with the lines on the mounting bracket as seen in the image on the right. rotate the camera and lock it into position with the bracket.



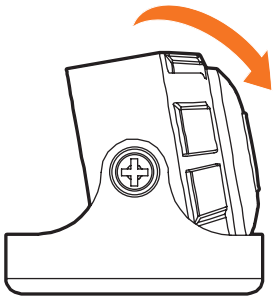
4. Adjust the position of the camera modules on the magnetic surface as needed. The camera modules can be moved between 1~5 positions for the ultimate coverage and view. Each camera is labeled with numbers 1~4 for the module's order. For maximum scene coverage, options include moving the lens modules around the magnetic surface and/or fitting one lens module into the center position. See the next page for more information.

5. Adjust the camera modules' angle and direction. Each lens module can be rotated 350° and tilted at a maximum angle of 80°.
   - Remove the protective film attached to the four camera module lenses.

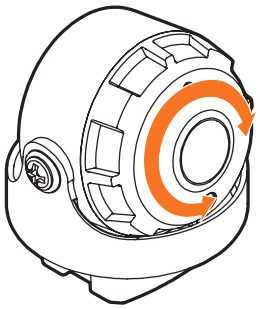
6. Remove the dome cover protective films from both inside and outside of the dome cover. Secure the dome cover to the camera's base using the included star wrench to complete the installation.

ACCESSORIES REQUIRED TO INSTALL THE CAMERA (SOLD SEPARATELY)			
Wall mount bracket: DWC-PV20WMW	Ceiling mount bracket: DWC-PV20CMW	Flush mount: DWC-PV20FMW	Junction box: DWC-PV20JUNCW
Parapet bracket and tilting adapter (each sold separately): DWC- PZPARAM, DWC-PV20ADPW			

Installation -
Adjusting the camera angle



Tilting 80˚



Rotation 350˚

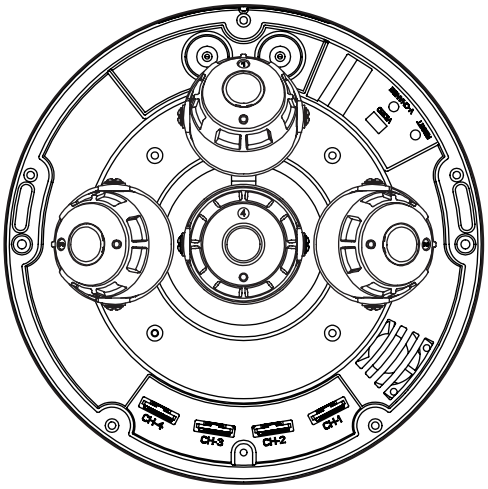
❶ **Adjusting the lens modules:**
Adjust the direction of each lens module while the camera is fixed on the ceiling.
- Rotation angle is 350° total.
- Tilt angle is 80° total.

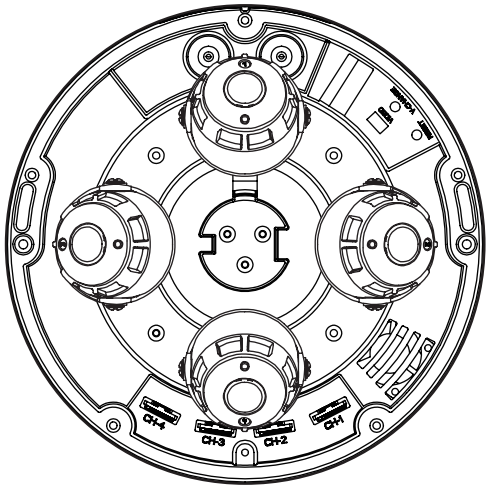
❷ **Adjusting the monitoring field of view:**
- Once the lens modules are attached to the magnetic board, adjust the pan and tilting angles based on the direction you need to monitor.
- Adjust the rotation and horizontal angle of each lens module so that the image does not appear inverted.

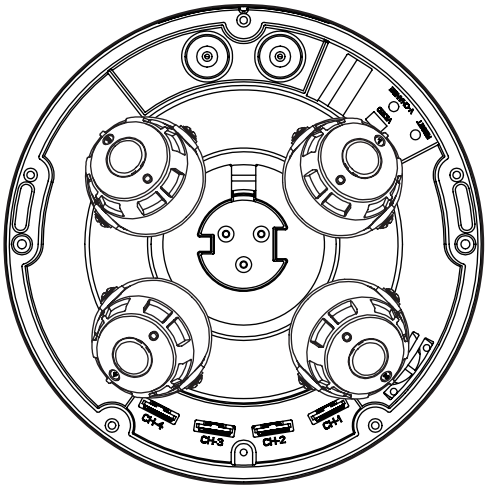
Avoid allowing the lens module cables to become tangled. The lens module is magnetic and may damage the cable.

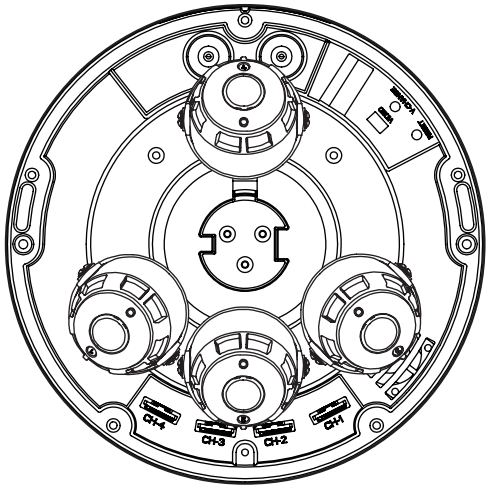
❸ **Common lens module arrangements:**

NOTE: Only lens modules #3 and #4 can be seated in the center (5th) position. Trying to place lens modules #1 or #2 in the center may result in risk of pulling out or damaging the wire connection for the lens module.

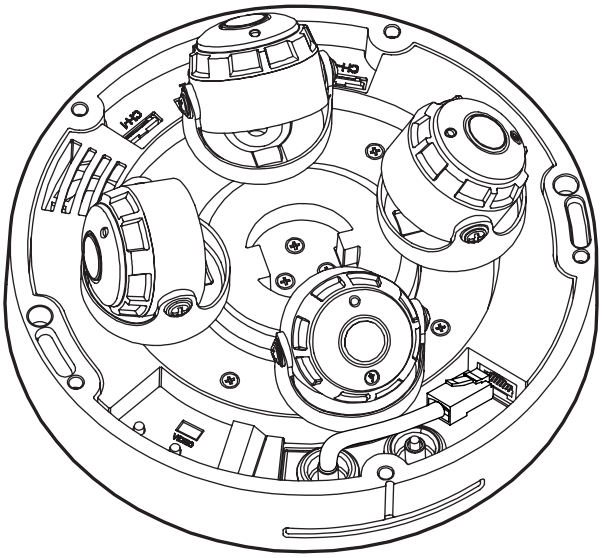


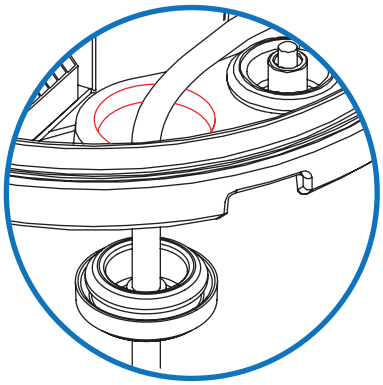


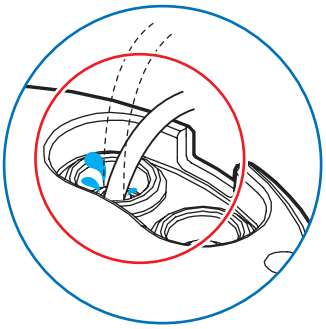




Installation - Cabling



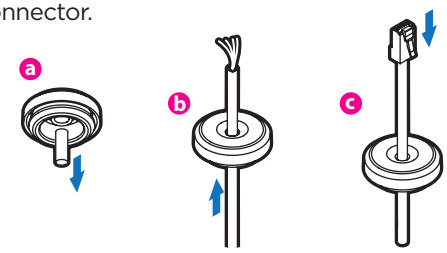




1. Network cable - to connect an RJ45 cable to the camera:

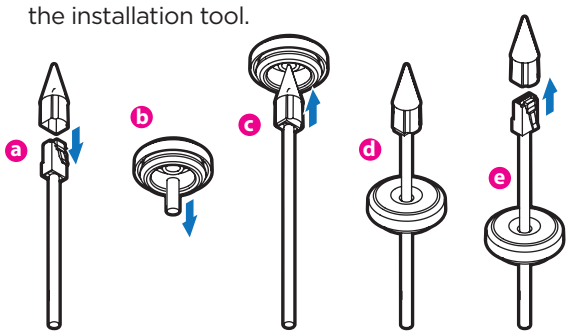
Option A (recommended):

a. Remove the grommet plug.
b. Pass the network cable through the grommet at the base of the camera.
c. Once the cables are through, add the RJ45 connector.



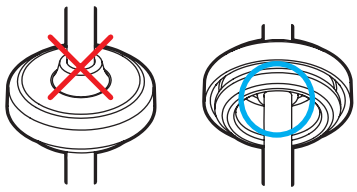
Option B:

a. Attach the included RJ45 installation tool to the network cable.
b. Remove the grommet plug.
c. Pass the network cable's connector through the grommet. Pay attention to the direction of the grommet connection when connecting the cables.
d. Once the cable's connector is through, remove the installation tool.



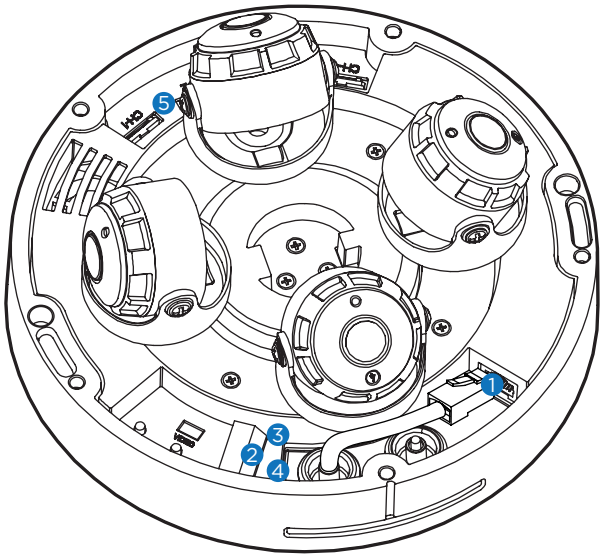
Once the network cable is passed through the grommet:

a. Insert the grommet into the bottom case of the camera.
   NOTE: Bending the cable may cause water leakage.
b. Connect the RJ45 to the camera's network input at the base of the camera.



- Bending the cable can cause water leakage.
- Use a cable with a diameter of ø0.19" ~ ø0.31" (ø5.0 ~ ø8.0mm).

Installation - Cabling



+	-	+	-	+	-	IN	COM	OUT
DC12V		DI		DO		AUDIO		
2		3				4		

1 Network Connection
See page 11 for connection options.

2 Power
A PoE injector is included with the camera. Please check the correct rated power.

Power requirements	Power consumption
DC12V, PoE IEEE 802.3bt PoE+ class 5 (High power PoE injector included)	DC12V: max 28W PoE: max 31W

3 Sensor/alarm input (DI)
The sensor/alarm input device's cable should connect to + and - of the Terminal Block.

Alarm out/relay out (DO)
Connects to the alarm lights, siren, or lamps and the sensor types are normal open and normal close.

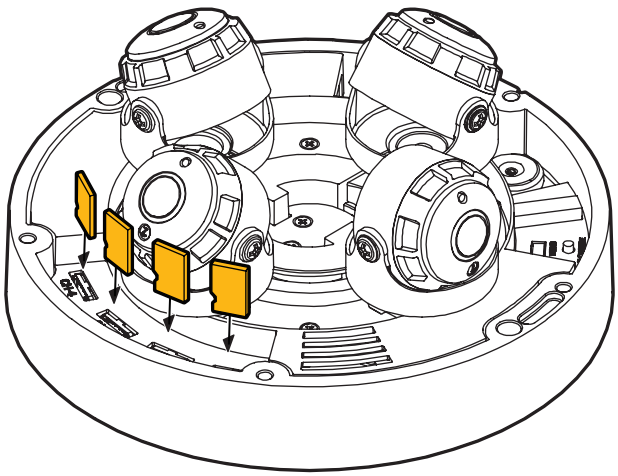
4 Audio in
Connect an external microphone directly to the 'AUDIO IN' port of the camera or connect directly to the 'line out' port of the external microphone's amplifier.
※ If the microphone will be connected directly to the camera's AUDIO IN port, then a microphone with an embedded amplifier (such as a condenser mic.) will need to be used.

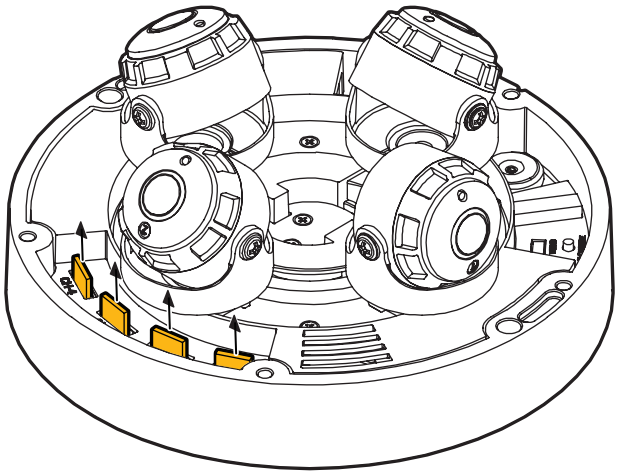
Audio out
Connect the 'audio out' port of the camera to the 'line in' port of the speaker.
※ If a speaker without an amplifier is connected to the camera's AUDIO OUT port, audio-out may not work properly. Using a speaker with an amplifier is recommended.
※ Audio Out supports only RTSP Back channel function.

5 SD card slot
See page 13.

Installation -
Managing the SD Memory Cards

The camera supports up to four (4) individual SD cards.





The memory card is an external data storage device that has been developed to offer an entirely new way to record and share video, audio, and text data using digital devices.

※ Recommended SD card specification (not included)

- Type: Micro SD (SD/SDHC/SDXC)
- Capacity: Up to 1 TB / FAT32 format.
- Class: UHS-I U3 Class 10

※ New micro SD card over 64GB must be formatted on the first use.

※ File System Options
- exFAT: Recommended for better file stability and compatibility with large files.
- FAT/vFAT: Another option available, but it may offer lower file stability compared to exFAT.
- Note: Using exFAT is recommended to maintain file reliability and integrity.

1 Insert an SD card in the arrow direction

Insert the SD card in the arrow direction.

※ Do not force the SD memory card into the camera. If the card is being inserted incorrectly, this may cause damage to the SD memory card and the camera.

※ Use tweezers when inserting or removing the SD card.

2 Removing an SD Memory Card

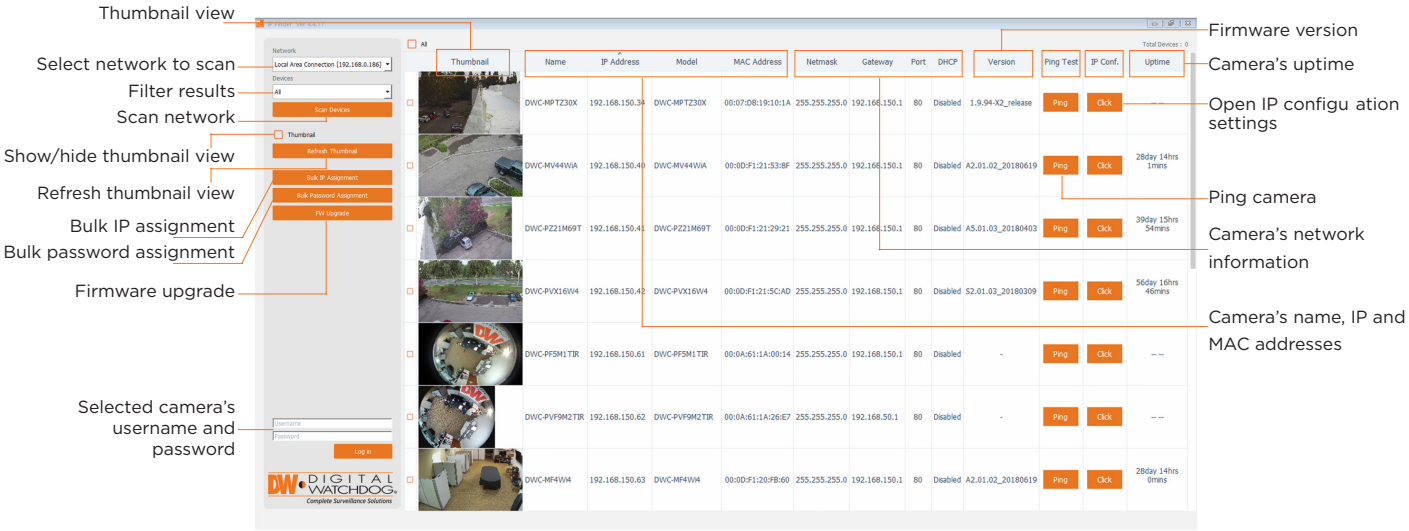
Gently press down on the exposed end of the memory card as shown in the diagram to eject the memory card from the slot.

※ Pressing too hard on the SD memory card can cause the card to shoot out uncontrollably when released.

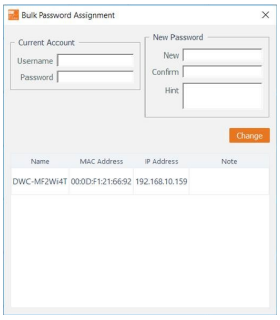
※ Removing the SD memory card before disabling the recording function may cause damage to the data stored in the card.

NOTE: Each SD card is assigned to a specific lens module and can be configured within the camera's web interface. See 'Record Setup – Storage Configuration' (Pg. 58) for more information.

Network Setup - DW IP Finder™



1. To install the DW IP Finder, go to: http://www.digital-watchdog.com
2. Enter "DW IP Finder" on the search box at the top of the page.
3. Go to the "Software" tab on the DW IP Finder page to download the installation file.
4. Follow the installation to install the DW IP Finder. Open the DW IP Finder and click 'Scan Devices'. It will scan the selected network for all supported devices and list the results in the table. During the scan, the DW® logo will turn gray.



5. When connecting to the camera for the first time, a password must be set. To set up a password for your camera:

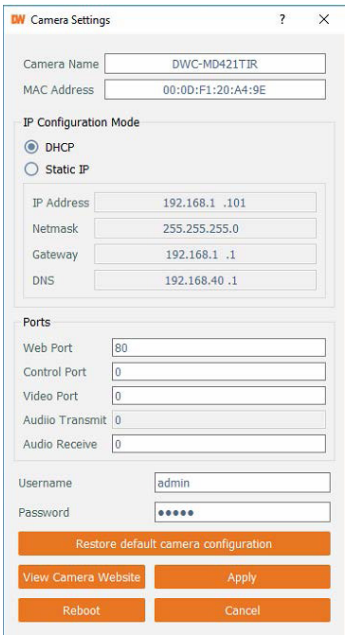
   a. Check the box next to the camera in the IP Finder's search results. You can select multiple cameras.

   b. Click "Bulk Password Assign" on the left.

   c. Enter admin/admin for the current username and password. Enter a new username and password to the right.

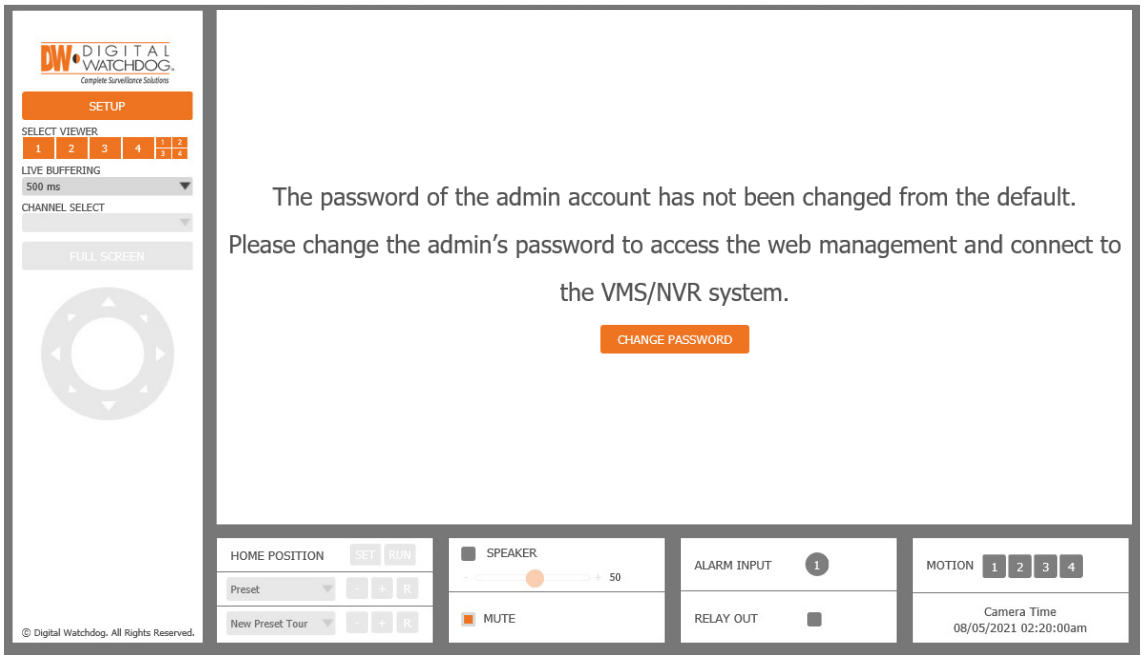
   Passwords must have a minimum of 8 characters with at least 4 combinations of uppercase letters, lowercase letters, numbers and special characters. Passwords cannot contain the user ID.

   d. Click "change" to apply all changes.

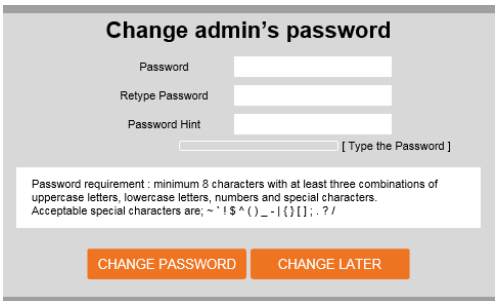


6. Select a camera from the list by double-clicking on the camera's image or clicking on the 'Click' button under the IP Conf. column. The pop-up window will show the camera's current network settings, allowing admin users to adjust the settings as needed.
7. To access the camera's web page, click on the 'View Camera Website' from the IP Config window.
8. To save changes made to the camera's setting, enter the username and password of the camera's admin account and click 'Apply'.

Web Viewer Screen -
Basic Screen (Default)



Password change is required at the initial connection in a factory reset state. The web client cannot be fully utilized until a new password has been assigned.

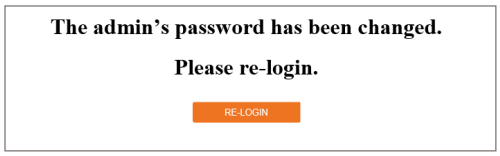


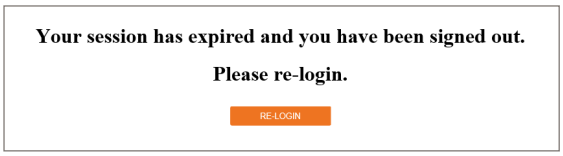
❶ You cannot see the image, and the setup button is disabled.

❷ Create a new password, then click the CHANGE PASSWORD button. Password requirement: minimum 8-characters, using a combination of at least three (3) uppercase letters, lowercase letters, numbers, and special characters. Special characters are ~ ` ! @ ^ ( ) _ - { } [ ] ; . ? /

❸ After changing the password, log in again by pressing the RE-LOGIN button.

- Internet Explorer: After three failed attempts or the cancel button is clicked, you will experience a login fail.
- Other Browsers: After the Cancel button is clicked, you will experience a login failure.

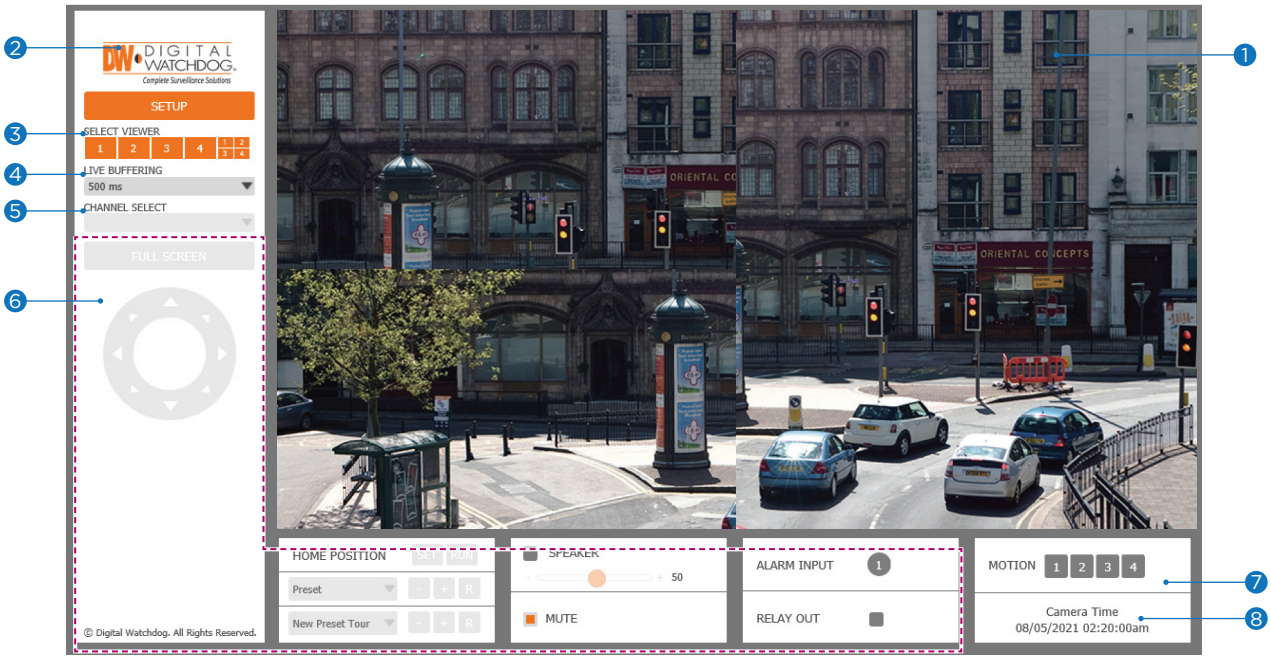




Password Hint Page

- If you need help remembering the password for your user, input the username in the username field and press the hint button. If you added a hint for your password when setting it up, it will appear then.

Web Viewer Screen -
Basic Screen



❶ **Live video display**. This is the region for the live video stream from the camera.

❷ **Setup popup button**. Click to open the Setup page to setup details of the IP camera like Video, Network, Events, System, etc. See the section 'Setup'.

❸ **Select Viewer**. Click to open the live video display for separate lens modules or in a grid layout.

❹ **Live Buffering**. When the image is distorted due to a bad network connection, the stored image frames will display live images, depending on the set buffer time.
- ※ Users will see the delayed images based on the set delay time.

❺ **Channel Select**. Select a stream produced from the camera between Stream 1 ~ 3 to display it on the live view screen.
- ※ Refer the 'Setup > Video & Audio > Video' to setup the Video Stream.
- ※ To activate the channel select button, select Viewer 1 ~ Viewer 4.

❻ Below "Menu" options are available based on the camera model.

PTZ Control - Not supported.

Preset - Not supported.

Speaker Control - Enable or disable the audio stream from the camera. The volume controls adjust the speaker in the computer.

Alarm Input - If the alarm is triggered, the color of the input number will change from gray to red.

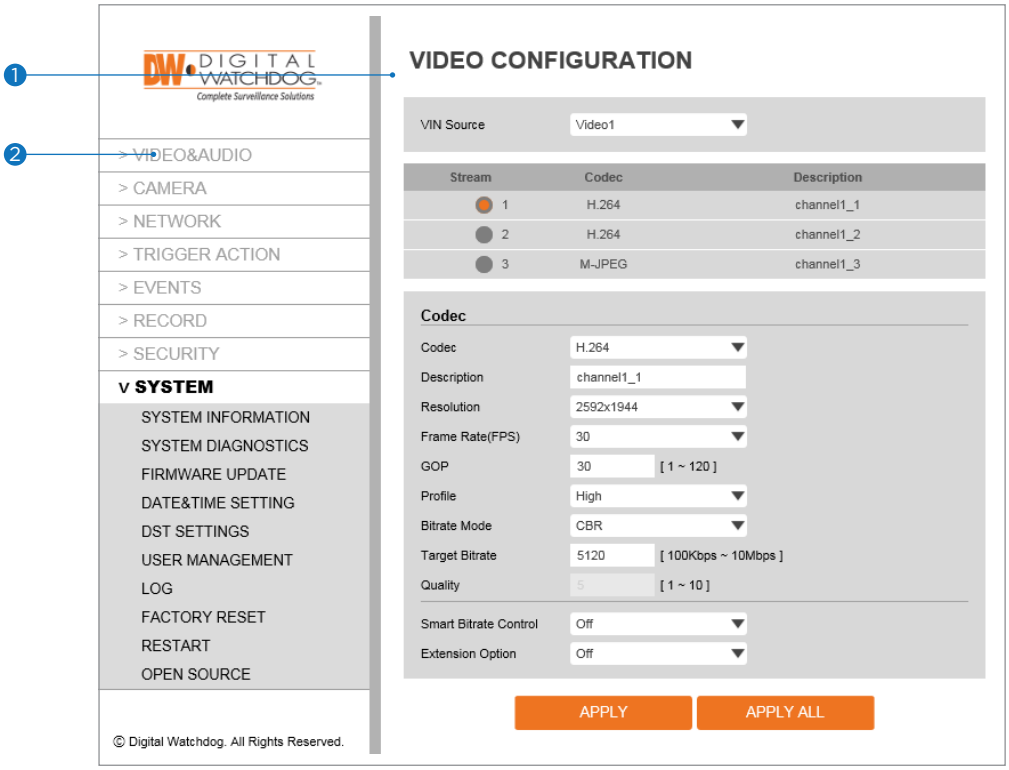
Relay Out - Activate the camera's relay out or manually reset it using the relay check box.

❼ **Motion**. Shows the motion event status.
- ※ When motion is detected, the Event Alert Icon (1) will appear in red.

❽ **Camera Time**. Display the camera time.

※ The web viewer is optimized with Internet Explorer 10 (or above) and Mozilla Firefox.
- ※ If VLC is not installed or the VLC plugin is not supported (Chrome), 'Live Buffering' and 'Channel Select' (subjects 3 and 4 in the diagram) will display as 'Live Viewer'. If so, select HTML5 (MJPEG) from the Live Viewer menu to view the video.

Setup - Video & Audio Setup
Video Configuration

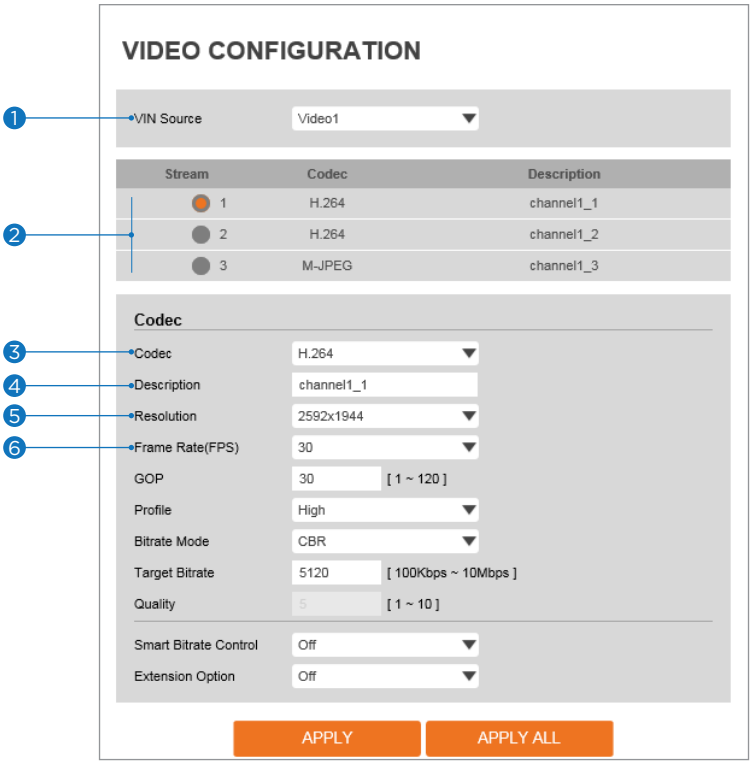


1 **Detail Page -** Select an item from the left navigation menu to view setup options on the main screen.

2 **Setup Constitution**

Video&Audio
[VIDEO, OSD, ROI, PRIVACY MASK]
Camera
[IMAGE ADJUSTMENT, EXPOSURE, DAY&NIGHT, BACKLIGHT, WHITE BALANCE, IMAGE, VIDEO]
Network
[STATUS, NETWORK SETTING, AUTO IP, ONVIF, UPNP, DDNS, FTP, SMTP, SNMP, HTTP ACTION, RTSP]
Trigger Action
[ACTION RULES, IMAGE TRANSFER, RELAY OUT]
Events
[EVENT RULES, MOTION DETECTION, TEMPERATURE, ALARM]
Record
[MANAGEMENT, CONFIGURATION, RECORD LIST, VIDEO, STORAGE]
Security
[IP ADDRESS FILTER, RTSP AUTHENTICATION, IEEE 802.1x, HTTPS, CERTIFICATES, AUTO LOCK]
System
[INFORMATION, DIAGNOSTICS, CONFIGURATION BACKUP, FIRMWARE UPDATE, DATE&TIME, DST, USER MANAGEMENT, LOG, FACTORY RESET, RESTART, OPEN SOURCE, PLUG-IN]

Setup - Video & Audio Setup
Video Configuration



❶ **VIN Source -** Each of the camera's sensors must be set up separately. Select between Video 1 ~ Video 4 for each of the camera's sensors. The settings below will apply to that sensor only.
※ Click 'Apply' to save the settings before changing to another video source.

❷ **Live Video Channel Setup -** The video can be configured to various settings with a combination of codec and resolution. The camera performance should be considered when setting multiple channels, as the performance of the camera will be affected.
※ H.265 (HEVC) codec with a higher bitrate may cause unstable live streaming or reload the webpage.

❸ **Codec -** Choose the video codec. Depending on the selected codec, the subcategories may vary.

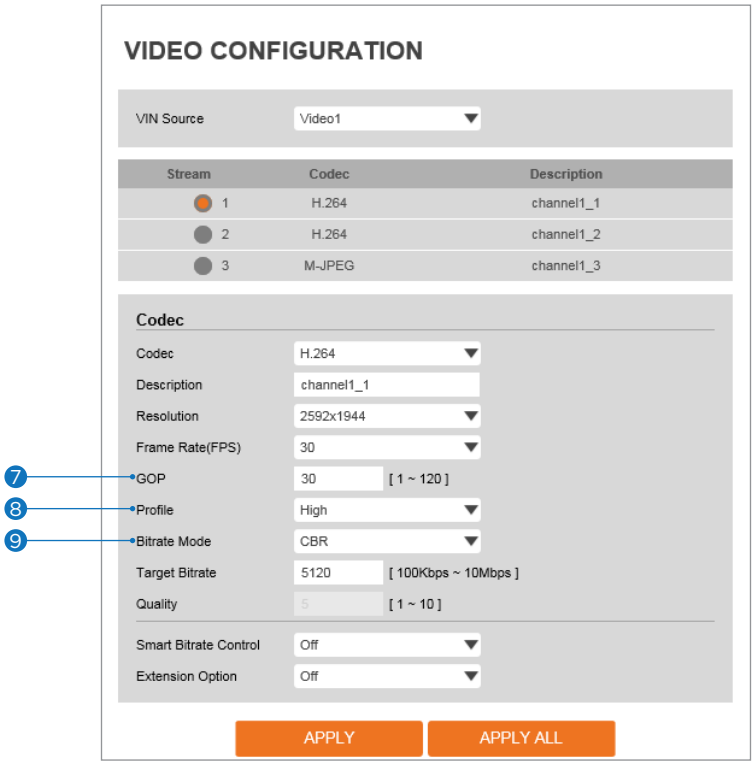
❹ **Description -** Enter additional description for the selected channel. There is a limit maximum of 30 alphanumeric characters, including spaces.

❺ **Resolution -** Select video resolution.
※ Available Frame Rate may vary even if the same codecs are in use.

QFHD	2560x1440 (4M)	1080p/i	720p/i	SVGA	768x432 (0.3M)	4CIF	VGA	640x360 (0.2M)	CIF
3840x2160	2560x1440	1920x1080	1280x720	800x600	768x432	704x576 704x480	640x480	640x360	352x288 352x240

❻ **Frame Rate -** Select the maximum Frame Rate.
※ Available Frame Rate may vary even if the same codecs are in use.

Video Configuration



6 **GOP (Group of Pictures) Size -** Set the number of frames (P-frame) which contain only changed information based on the basic frame (I-frame). For videos with lots of movement, set the GOP value higher to capture more P-frames. In this case, the video resolution will be lower but 'File size' and 'Bit-rate' can decrease.

※ **GOP (Group of Pictures) Size -**
'I-frame', also known as 'key-frame', refers to the complete image data for a specific video frame. 'P-frame' refers to the changes in the image in comparison to the previous video frame. The GOP consists of one I-frame and several P-frames. For improved video quality, use a lower number of P-frames.

7 **Profile -** The profile defines the subset of bitstream features in H.264, H.265 (HEVC) stream, including color reproduction and additional video compression.

※ H.264: Main, High / H.265 (HEVC): Main

Main - An intermediate profile with a medium compression ratio. Supports I-frames, P-frames and B-frames.

High - A complex profile with a high compression ratio. Supports I-frames, P-frames and B-frames.

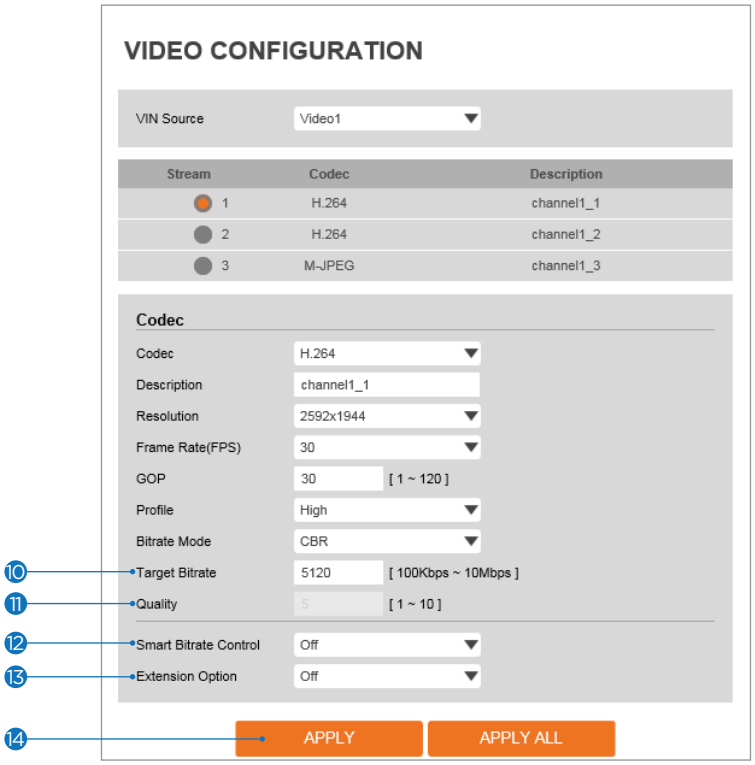
8 **Bitrate Mode -** Select the bit rate control scheme of video compression from CBR (Constant Bit Rate) or VBR (Variable Bit Rate).

CBR - To guarantee the designated constant bit rate, the quality of the video is controlled in this mode. Therefore, the quality of the video is likely to be varying when network traffic is changing.

VBR - To guarantee the designated quality, the bit rate of the video stream is changed in this mode. Therefore, the frame rate of the video is likely to be varying when network traffic is changing.

※ This category will not appear if you select the codec.

Video Configuration



⑩ **Target Bitrate -** Set the target bitrate when Bitrate Control is set to CBR.

⑪ **Quality -** Set the target quality for video when Bitrate control is set to VBR.

⑫ **Smart Bitrate Control**

Off - Smart Bitrate Control is disabled.

CVBR (Framerate priority) - Enable this option when users do not want any frame drop and no lower bitrate. This feature may have limitations when the Target bitrate is set very low, and the motion area is big or the scene is very noisy.

CVBR (Quality priority) - Enable this option when the Target bitrate is set very low, and the motion area is big. LBR will try to drop frames and lower the final fps to improve the quality of the output frames.

CBR - This mode is similar to traditional security IPCAM and is not designed for LBR. It is used for comparison to the other bitrate options.

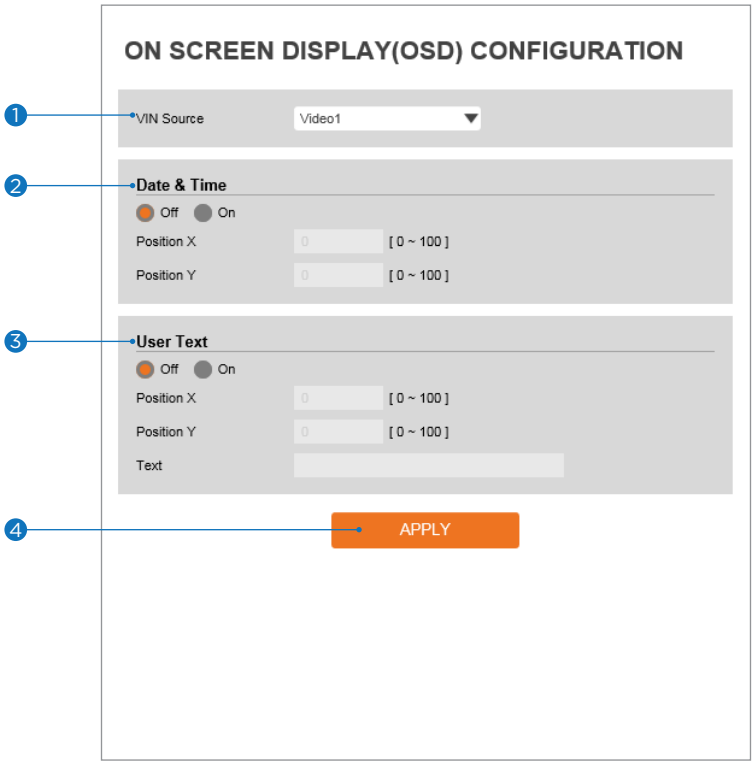
⑬ **Extension Option**

Off - Extension option is disabled.

SVC-T On - The H.264, H.265 (HEVC) SVC (Scalable Video Coding) is a video compression algorithm that enables effective and efficient transmission of video files over low bandwidth networks.

⑭ Click 'Apply' to save all settings.

Setup - Video & Audio Setup
OSD Configuration



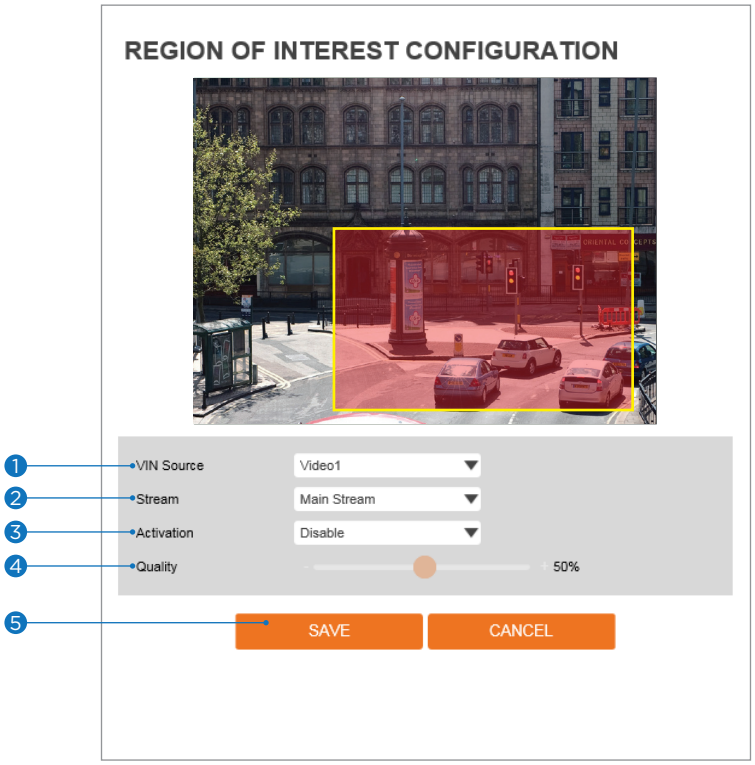
1 **VIN Source -** Each of the camera's sensors must be set up separately. Select between Video 1 ~ Video 4 for each of the camera's sensors. The settings below will apply to that sensor only.
※ Click 'Apply' to save the settings before changing to another video source.

2 **Date / Time -** Display the current time over the live image from the camera.

3 **User Text -** Display TEXT set up by users. Text can be a maximum of 30 characters.

4 Click 'Apply' to save all settings.

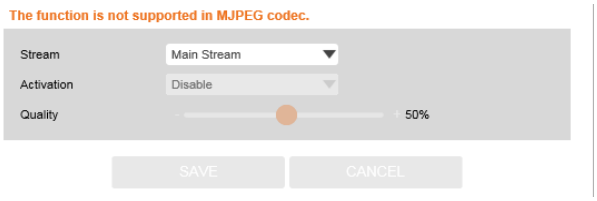
Region of Interest Configuration



The region of interest function gives a much more efficient picture quality for the target area to improve movement picture quality using the same bandwidth.

❶ **VIN Source -** Each of the camera's sensors must be set up separately. Select between Video 1 ~ Video 4 for each of the camera's sensors. The settings below will apply to that sensor only.
- Click 'Save' to save the settings before changing to another video source.

❷ **Stream -** Select the Stream.
- Currently supports only H.264, H.265 (HEVC).
- This function is not supported in MJPEG codec.

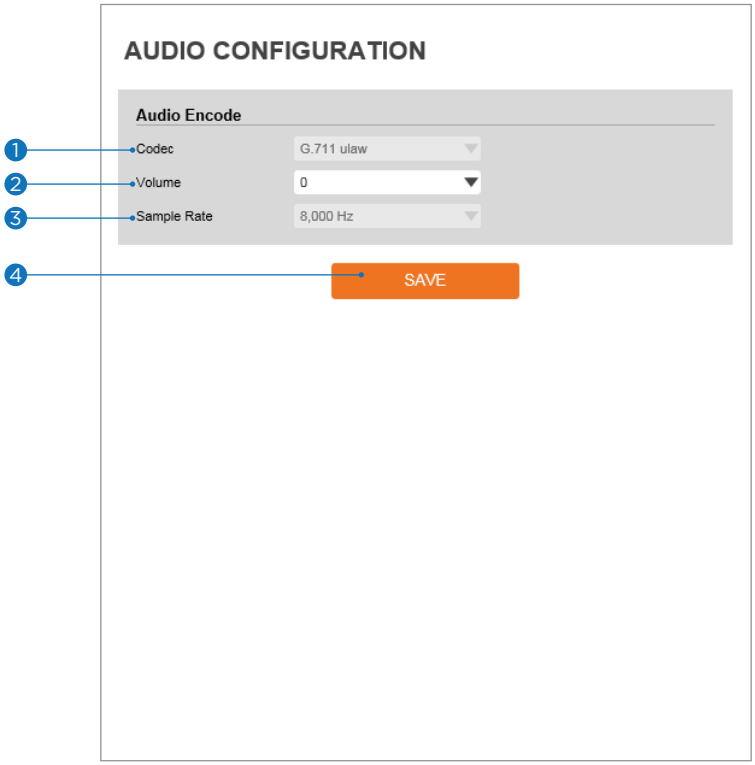


❸ **Activation -** Enable or disable the region of interest.

❹ **Quality -** Set the quality of the set area.

❺ Click 'Save' to save the current settings.
- Click 'Cancel' to return to the previous setting.

Audio Configuration



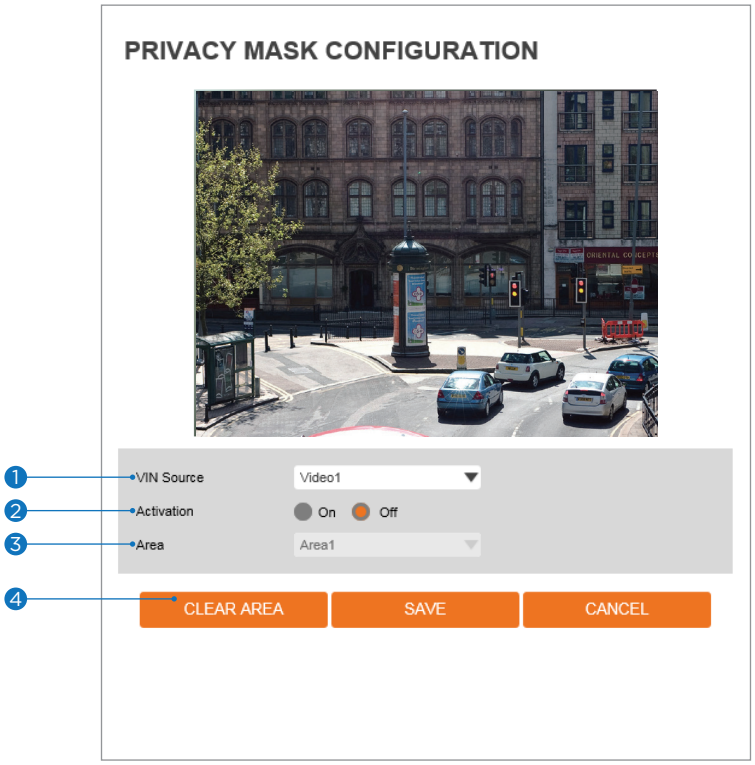
1 **Codec -** Select the Audio Codec.
Currently, the camera supports only codec G.711.

2 **Volume -** Select the Audio Volume from 0 to 10. To use camera audio, a value greater than 0 must be applied for the Volume setting.

3 **Sample Rate -** Select the Audio sample rate.
Currently, it supports only 8000 Hz.

4 Click 'Save' to save the current settings.

Privacy Mask Configuration



Use this function to mask areas that you want to hide on the screen to protect user privacy.

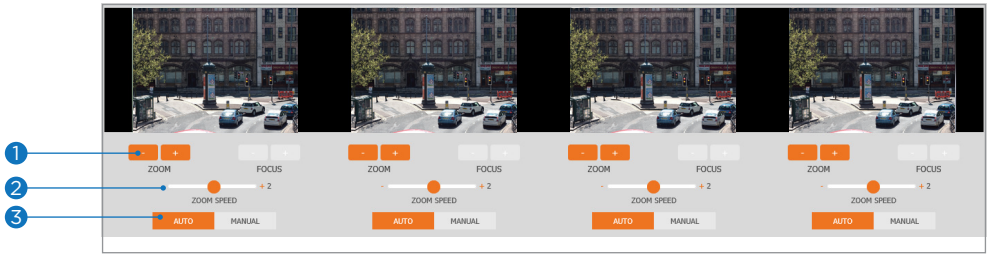
❶ **VIN Source -** Each of the camera's sensors must be set up separately. Select between Video 1 ~ Video 4 for each of the camera's sensors. The settings below will apply to that sensor only.
- Click 'Save' to save the settings before changing to another video source.

❷ **Activation -** Enable or disable the privacy masks function.

❸ **Area -** Select from Area1 ~ Area16 and set the privacy area by drawing the mask area on the camera's preview window.

❹ Click 'Save' to save the current settings.
- Click 'Cancel' to return to the previous setting.
- Click 'Clear Area' to delete the selected Area1~Area16.

Setup - Camera Setup
MFZ Configuration

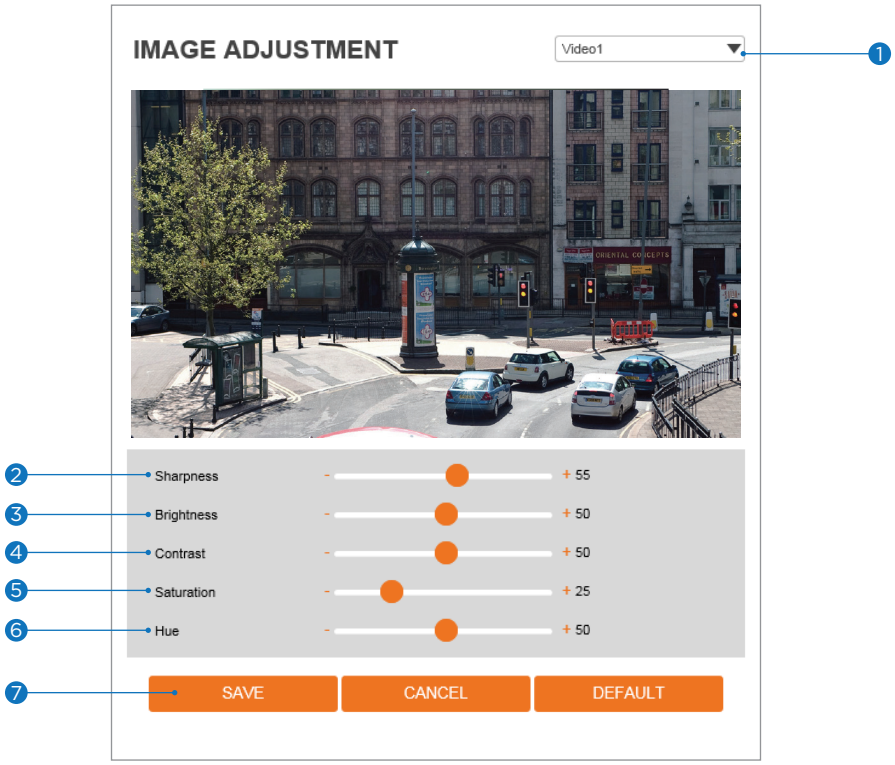


1 **Zoom and Focus -** Zoom OUT (-) or zoom IN (+) and focus OUT (-) or focus IN (+) each camera module.
Focus button (-) / (+) is activate in manual mode.

2 **Zoom Speed -** Set the zoom and focus speed from 1~3.

3 **Auto and Manual -** Toggle between the Auto and Manual buttons to switch settings mode.
Auto mode - Auto focus is activated once the zoom (-) / (+) action is completed. Auto focus is activated once and the focus button (-) / (+) is disabled.
Manual mode - Manually adjust the focus position. Focus button (-) / (+) is active.

Camera Image Adjustment



1 **VIN Source -** Each of the camera's sensors must be set up separately. Select between Video 1 ~ Video 4 for each of the camera's sensors. The settings below will apply to that sensor only.
- Click 'Save' to save the settings before changing to another video source.

2 **Sharpness -** Adjust the sharpness of the image as needed.

3 **Brightness -** Adjust the brightness of the image as needed.

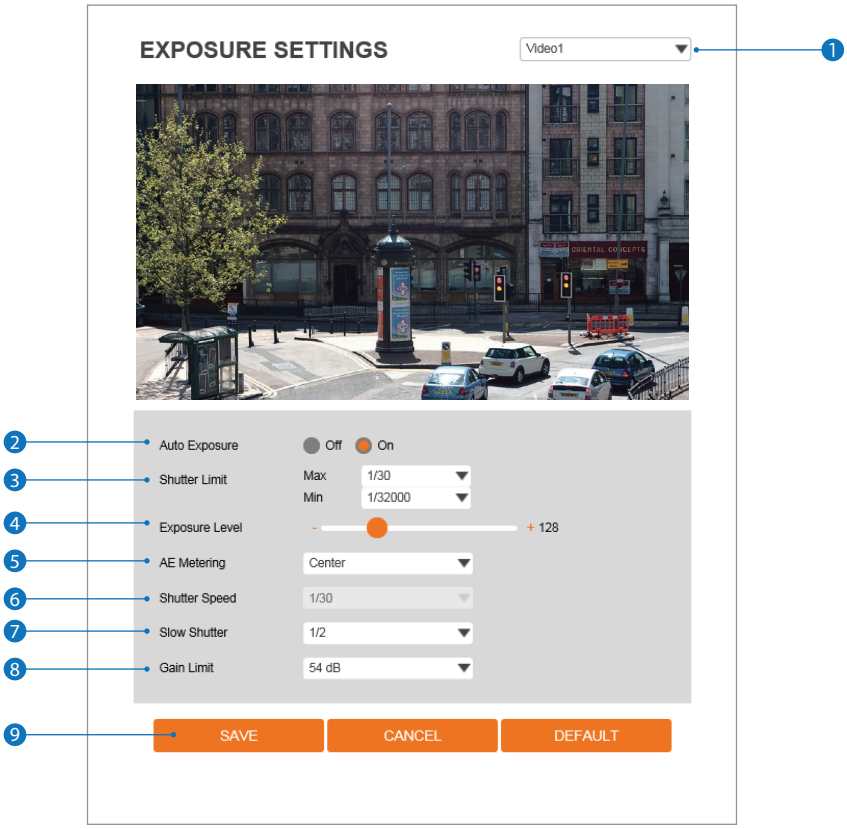
4 **Contrast -** Adjust the contrast of the colors in the image as needed.

5 **Saturation -** Adjust the saturation of colors in the image as needed.

6 **Hue -** Adjust the hue of the image as needed.

7 Click 'Save' to save the current settings.
- Click 'Cancel' to return to the previous setting.
- Click 'Default' to settings to the factory defaults.

Camera Exposure Settings



1 **VIN Source -** Each of the camera's sensors must be set up separately. Select between Video 1 ~ Video 4 for each of the camera's sensors. The settings below will apply to that sensor only.
- Click 'Save' to save the settings before changing to another video source.

2 **Auto Exposure -** Automatically sets the aperture or shutter speed, based on the external lighting conditions for the camera.

3 **Shutter Limit -** Set the maximum and minimum exposure time.

4 **Exposure Level -** The higher the exposure value is, the brighter the image will appear.

5 **AE metering -** AE metering mode refers to how the camera determines the exposure.

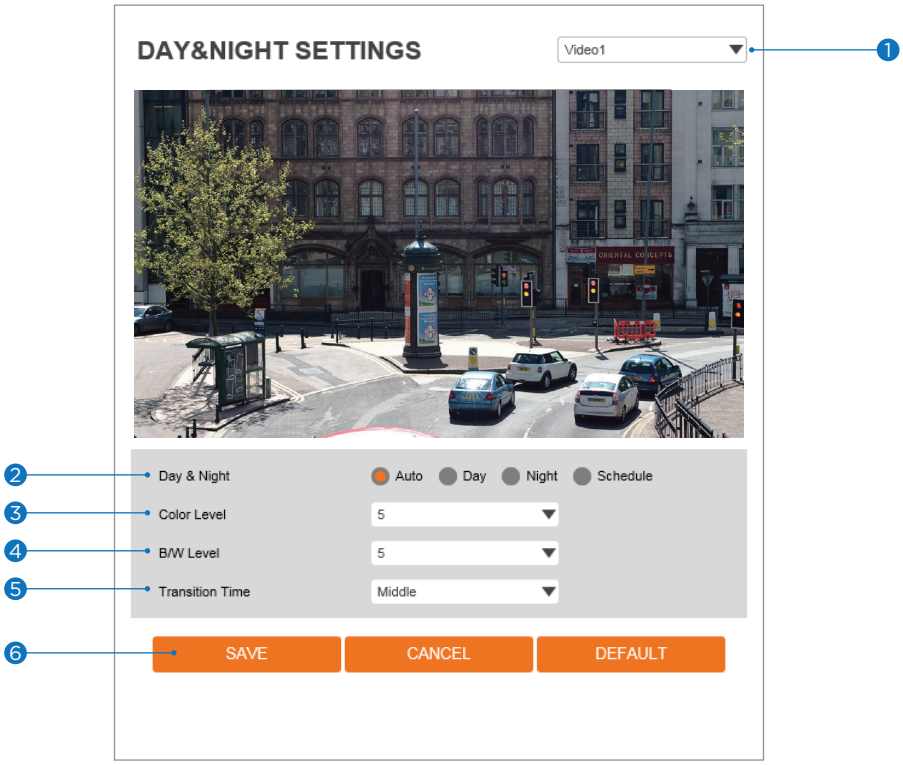
6 **Shutter Speed -** The faster the shutter speed is, the moving objects can be photographed without a ghost effect. If there is no sufficient lighting, the picture can appear dark.

7 **Slow Shutter Level -** Adjust the amount of light hitting the sensor, determining when the video sensor sends out its batch of data for processing.

8 **Gain Limit -** The smaller number, the darker image.

9 Click 'Save' to save the current settings.
- Click 'Cancel' to return to the previous setting.
- Click 'Default' to settings to the factory defaults.

Camera Day & Night Settings



1 **VIN Source -** Each of the camera's sensors must be set up separately. Select between Video 1 ~ Video 4 for each of the camera's sensors. The settings below will apply to that sensor only.
- Click 'Save' to save the settings before changing to another video source.

2 **Day & Night**
- **Auto:** The IR cut filter is added or removed automatically based on the lighting conditions.
- **Day:** The IR cut filter is applied to the image sensor, producing color images. Sensitivity will be reduced in dark conditions, but the camera will be able to obtain better color reproduction.
- **Night:** The IR cut filter is removed from the image sensor, producing B/W images. Sensitivity will be enhanced in dark lighting.
- **Schedule:** Switch between day and night modes according to a set schedule.

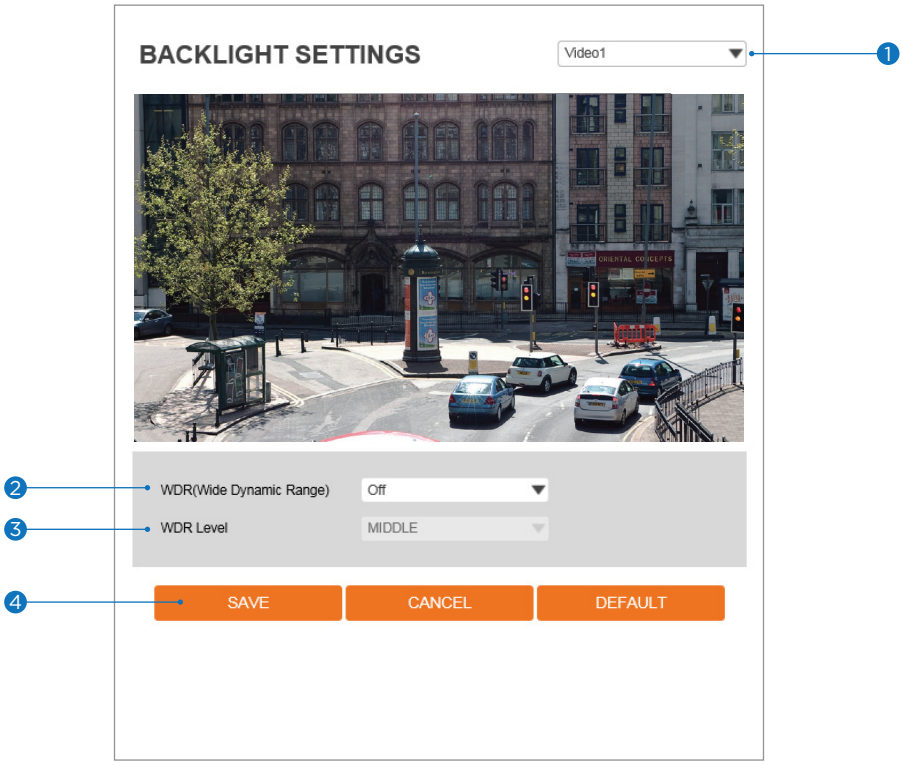
3 **Color Level -** The lighting level in which the camera will change from night mode into day mode when Day & Night mode is set to 'Auto'.

4 **B/W Level -** The lighting level in which the camera will change from day mode into night mode when Day & Night mode is 'Auto'.

5 **Transition Time -** Set the time color and B/W level must be met before the camera switches between day and night modes.

6 Click 'Save' to save the current settings.
- Click 'Cancel' to return to the previous setting.
- Click 'Default' to settings to the factory defaults.

Camera Backlight Settings



This is a feature used for problematic light conditions where the contrast from light to dark areas is very high.

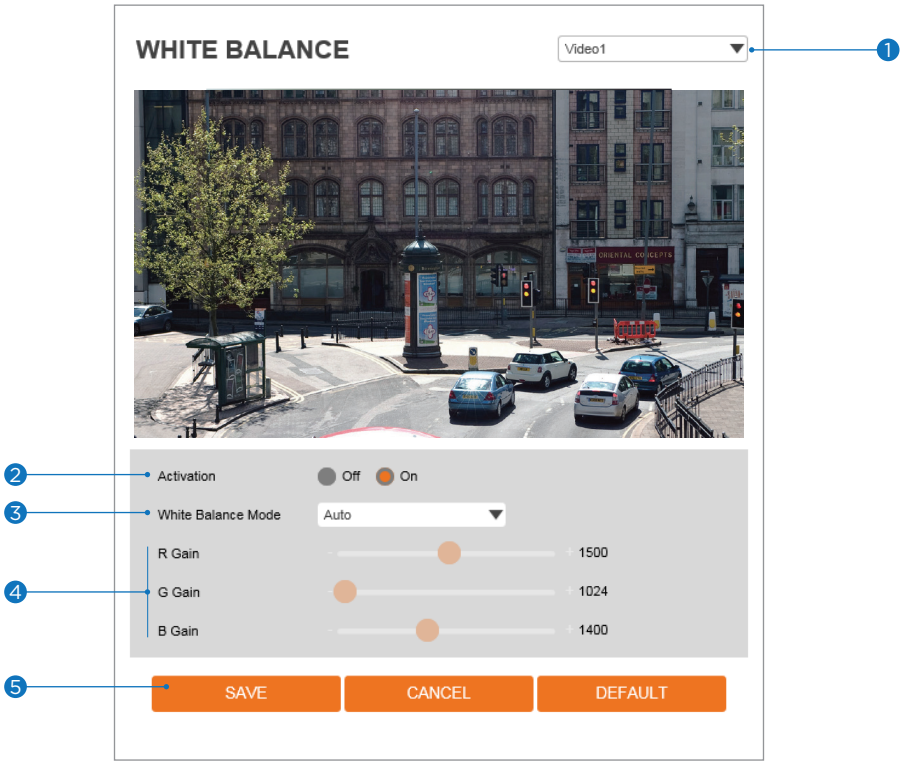
1 **VIN Source -** Each of the camera's sensors must be set up separately. Select between Video 1 ~ Video 4 for each of the camera's sensors. The settings below will apply to that sensor only.
- Click 'Save' to save the settings before changing to another video source.

2 **WDR (Wide Dynamic Range) -** Enable or disable the WDR function for the camera.

3 **WDR Level -** When enabled, set the WDR level from low, middle and high. The default level is 'middle'.

3 Click 'Save' to save the current settings.
- Click 'Cancel' to return to the previous setting.
- Click 'Default' to settings to the factory defaults.

Camera White Balance



1 **VIN Source -** Each of the camera's sensors must be set up separately. Select between Video 1 ~ Video 4 for each of the camera's sensors. The settings below will apply to that sensor only.
- Click 'Save' to save the settings before changing to another video source.

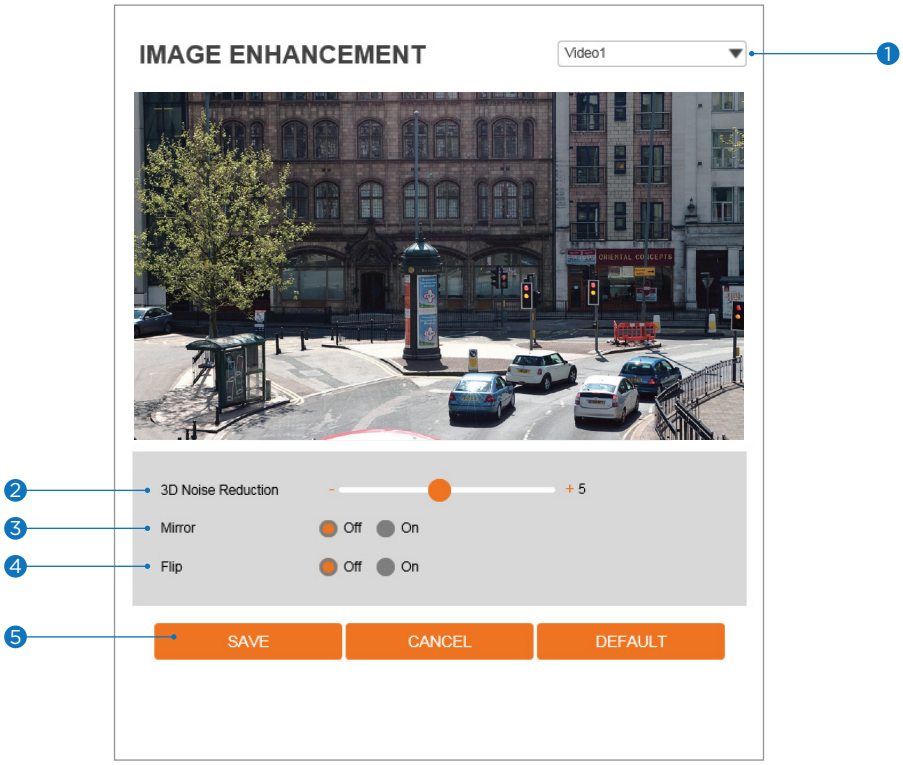
2 **Activation -** Enable or disable the white light settings.

3 **White Balance Mode -** When enabled, select the White Balance mode from the drop-down menu options based on the lighting conditions.
Auto - the camera will automatically determine the best white balance settings for a clear image
Manual - the user may manually assign the R/G/B Gain values for the camera
NOTE: The camera White Balance settings may be adjusted to control the color balance of the camera image.

4 **RGB Gain -** The R/G/B gain values can be adjusted when the white balance mode is set to 'Manual'.

5 Click 'Save' to save the current settings.
- Click 'Cancel' to return to the previous setting.
- Click 'Default' to settings to the factory defaults.

Camera Image Enhancement



❶ **VIN Source -** Each of the camera's sensors must be set up separately. Select between Video 1 ~ Video 4 for each of the camera's sensors. The settings below will apply to that sensor only.
- Click 'Save' to save the settings before changing to another video source.

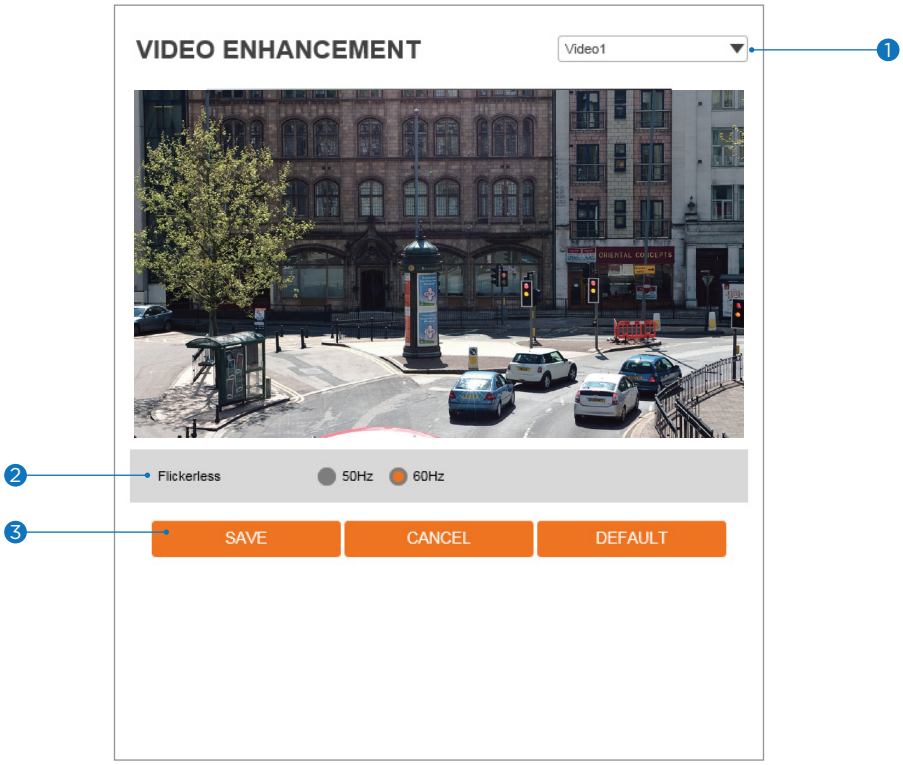
❷ **3D Noise Reduction -** Reduce digital noise (image graininess) in the image while retaining good video quality in low light conditions. The default value is 5.

❸ **Mirror -** When activated, reverses the video image horizontally.

❹ **Flip -** When activated, reverses the video image vertically.

❺ Click 'Save' to save the current settings.
- Click 'Cancel' to return to the previous setting.
- Click 'Default' to settings to the factory defaults.

Setup - Camera Setup
Video Enhancement

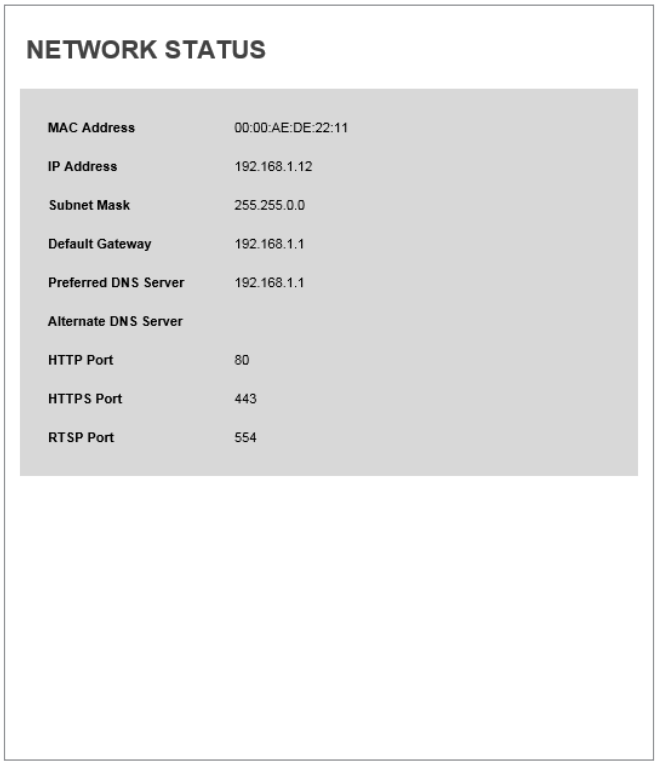


1 **VIN Source -** Each of the camera's sensors must be set up separately. Select between Video 1 ~ Video 4 for each of the camera's sensors. The settings below will apply to that sensor only.
- Click 'Save' to save the settings before changing to another video source.

2 **Flicker -** When the camera suffers any flickering issues, adjust the settings to improve the image quality.
60Hz - NTSC (North America, Japan, etc.)
50Hz - PAL (UK, Europe, etc.)
NOTE: Adjust the Flickerless setting of the camera frequency to improve camera images that appear flickering or 'wavy', which may be caused by NTSC/PAL differences or fluorescent lighting.

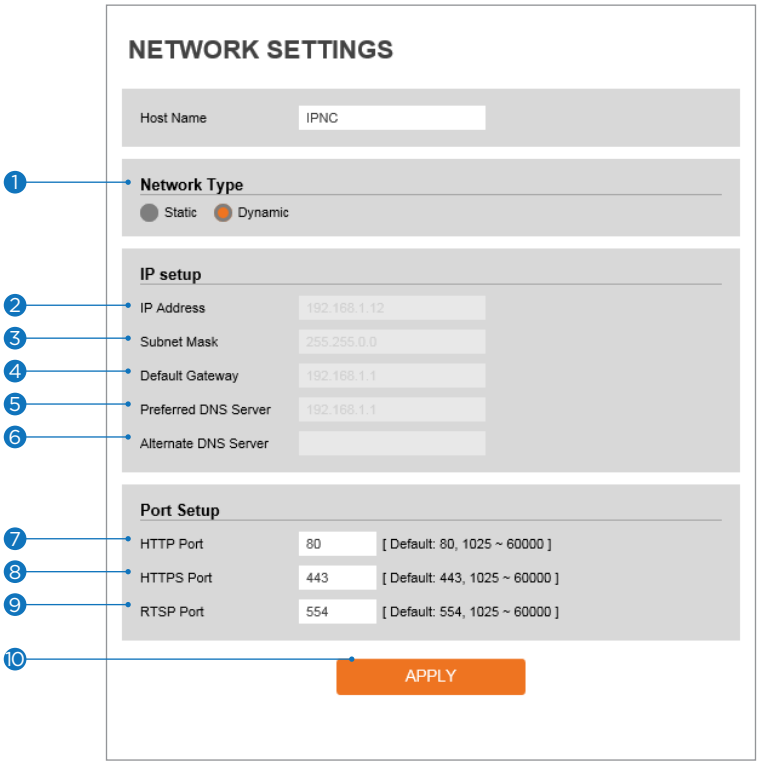
3 Click 'Save' to save the current settings.
- Click 'Cancel' to return to the previous setting.
- Click 'Default' to settings to the factory defaults.

Network Status



This menu shows the current network settings for the camera. To edit any settings, select the "Network Settings" submenu.

Network Settings



❶ **Network Type -** Define the network IP address type. Select Static Mode for a fixed IP or Dynamic Mode for a dynamic IP address.
If you select Static Mode, enter the camera's IP Address, Subnet Mask, Gateway, DNS Server and all ports.
If you select Dynamic Mode, the IP address will be assigned automatically by the DHCP network requirements.
If you click 'Apply', the system will reboot and you will have to reconnect the camera using the new IP address.

❷ **IP Address -** A unique string of numbers, divided into four octets (ranging from 0-255), is used to identify the device over a network.

❸ **Subnet Mask -** Determines the range of IP address options within the network.

❹ **Default Gateway -** IP address of the forwarding host within the network; the IP address of the router that is most commonly used.

❺ **Preferred DNS Server -** Address of the decentralized system used to translate alphabetic names into IP addresses.

❻ **Alternate DNS Server -** Secondary address of the decentralized system used to translate alphabetic names into IP addresses.

❼ **HTTP Port -** The HTTP port can be set to the default 80 port or any value between 1025 to 60000.

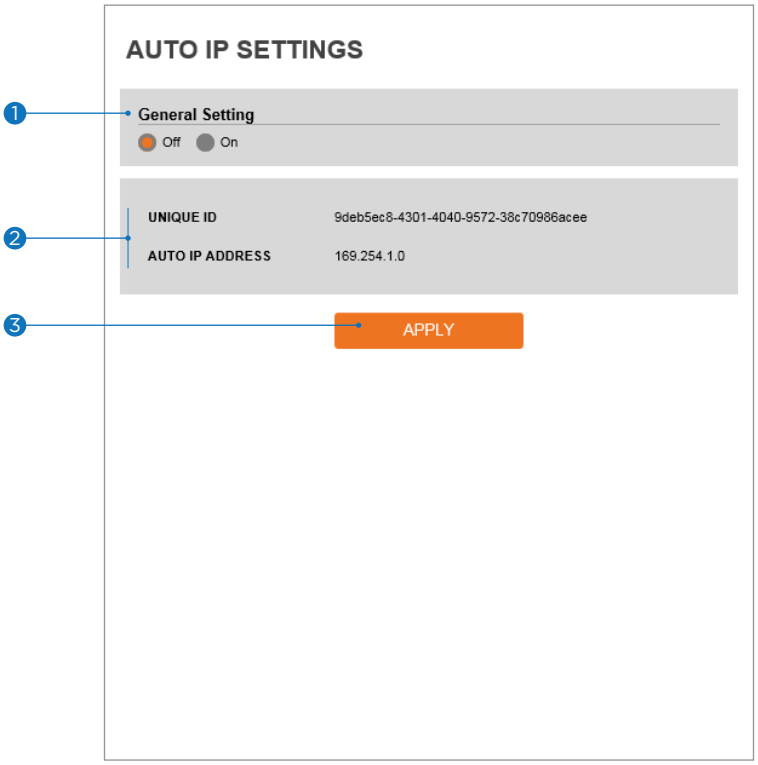
❽ **HTTPS Port -** The HTTPS port can be set to the default 443 port or any value between 1025 to 60000.

❾ **RTSP Port -** The RTSP port can be set to the default 554 port or any value between 1025 to 60000.

❿ Click 'Apply' to save all settings.

※ If the network type is dynamic, the IP address is changed in the following cases. In these cases, the IP address needs to be searched again, and the camera needs to be reconnected:
- When the camera's power is switched off and on.
- After firmware update, or when the camera is reset to its default settings and reboot.

Auto IP Settings

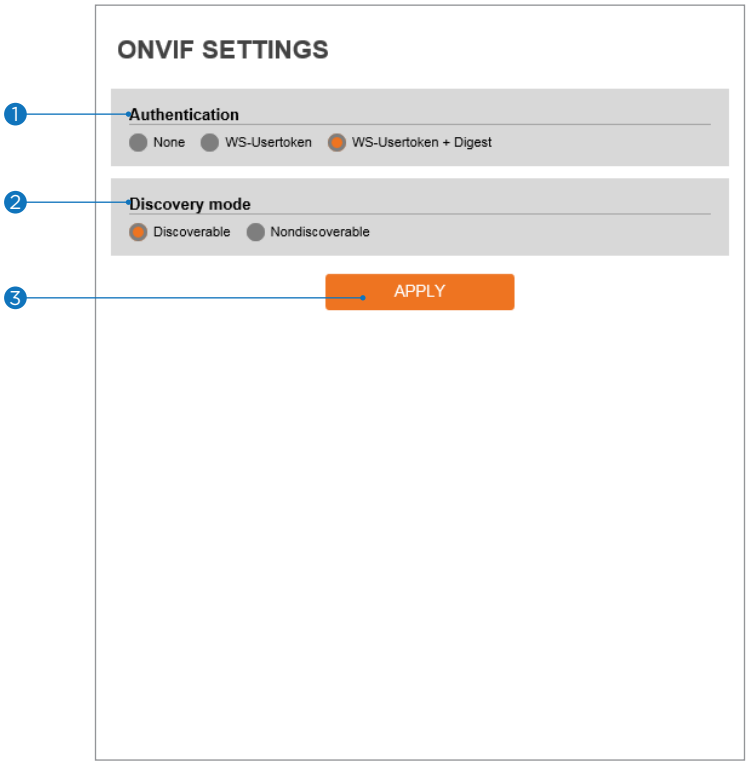


1 **General Setting -** Enable or disable the Auto IP Settings.

2 **Auto IP Settings Information -** Display the camera's Unique ID and Auto IP address. The camera can resort to using its Auto IP Address if a DHCP (dynamic) or a static IP address cannot be provided.

3 Click 'Apply' to save all settings.

ONVIF Settings

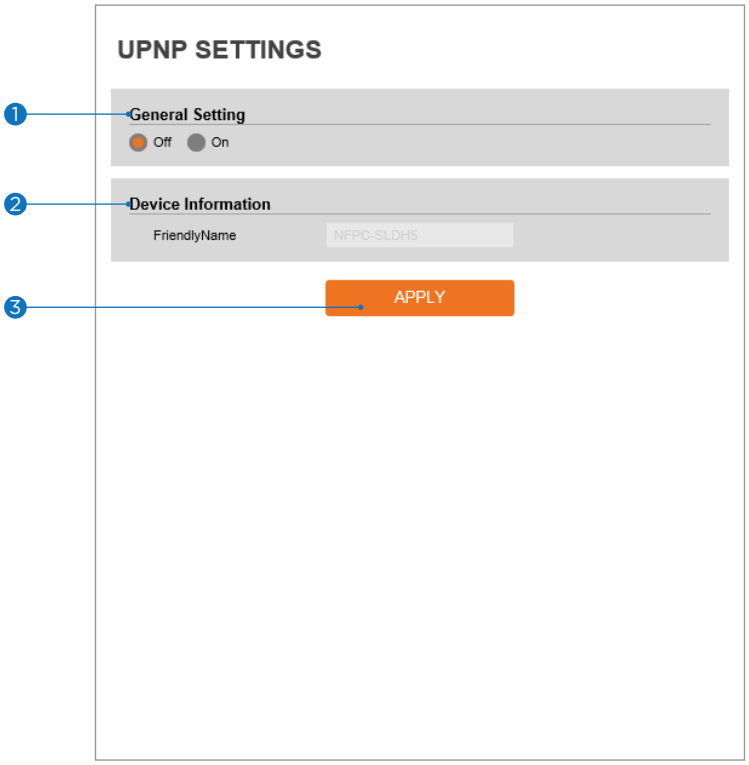


1 **Authentication**
ONVIF authentication allows the camera to be automatically and securely discovered on local networks by ONVIF-compliant devices.
None: Allow access to the camera without ONVIF authentication.
WS - Usertoken: Allow access to the camera with WS-User Token of ONVIF authentication.
WS - Usertoken + Digest: Allow access to the camera with WS-User Token and Digest of ONVIF authentication.

2 **Discovery Mode -** Enable or disable discovery mode.

3 Click 'Apply' to save all settings.

UPNP Settings

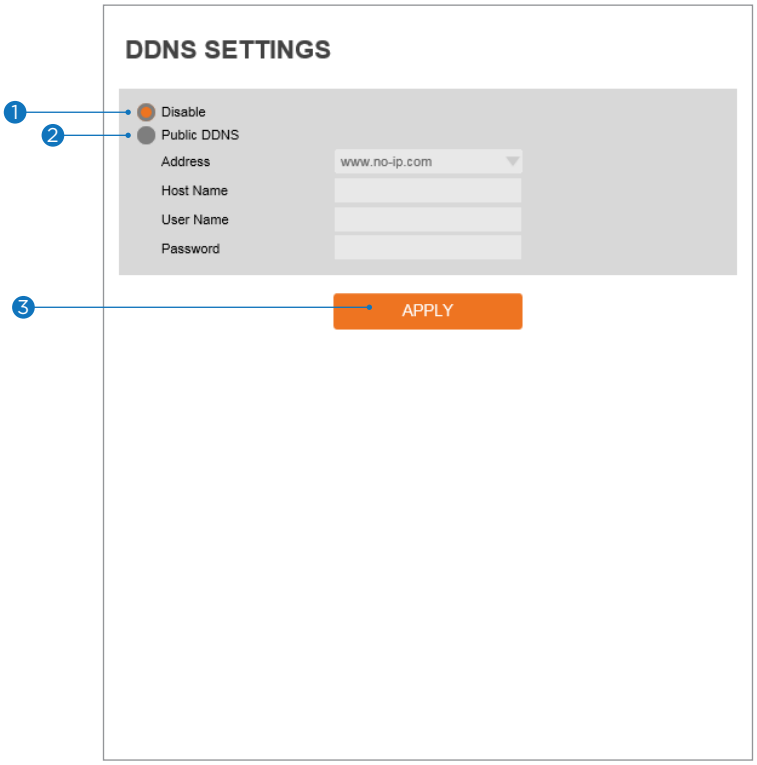


1. **General Setting -** Enable or disable the UPNP function.
   Universal Plug and Play (UPnP) allows the camera to automatically set port access rules for itself for communication with other compliant network devices.

2. **Friendly Name -** Define the friendly name. Support a maximum of 30 characters and special characters.
   - Do not use: / ~ ! $ ( ) { } [ ] ; ,
   - Acceptable special characters include; @ . _ -

3. Click 'Apply' to save all settings.

DDNS Settings



1 **DDNS Disable -** When disabled, the camera will not use DDNS addressing.

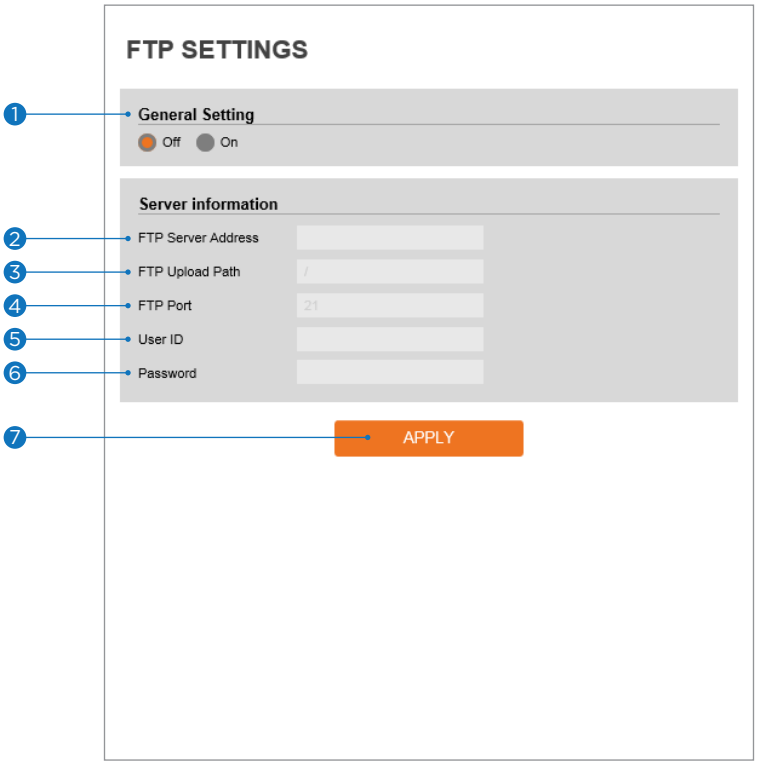
2 **Public DDNS -** To use public DDNS service, select a site address listed on the list. After filling out the Host Name of the site the setup is completed by entering the username and password registered on that DDNS site.

DDNS Provider	Site Address
DynDNS	www.dyndns.com
No-IP	www.no-ip.com

※ If you setup DDNS properly, the IP address of your camera will be updated automatically whenever the IP address is changed or the system is rebooted.
※ If IP updating to the DDNS site is failed, the camera will keep retrying in 1min. interval.

3 Click 'Apply' to save all settings.

FTP Settings



To transfer/save the image to the relevant sites through FTP, then FTP needs to be setup.

1 **General Setting -** Enable or disable the FTP function.

2 **FTP Server Address -** Define FTP Server IP Address. If the IP Address form is incorrect, a message box will be shown to try again.

3 **FTP Upload Path -** Define a path in FTP server to store video. For the path name, English Alphabet, numbers and special characters (/ ~ !@ $ ^ ( ) _ - { } [ ] ; ,) can be used.

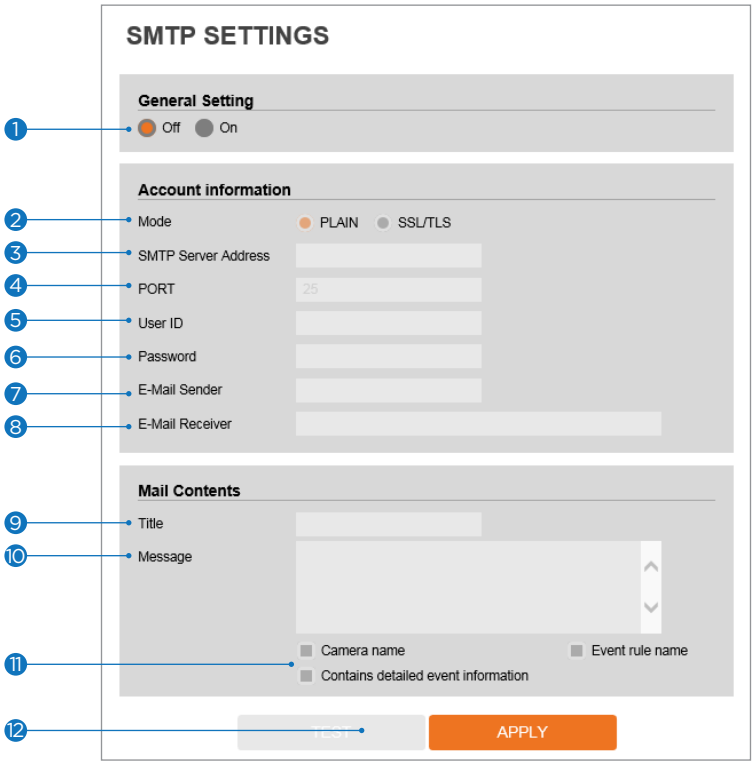
4 **FTP Port -** Define the FTP Server Port. If the port is not appropriate, it is impossible to access to FTP Server.

5 **User ID -** Define User ID to access the FTP Server. Fill out the correct User ID registered in the FTP Server.

6 **Password -** Define Password to access the FTP Server. Fill out the correct Password registered in the FTP Server.

7 Click 'Apply' to save all settings.
※ Refer to the above image for example.

Setup - Network Setup
SMTP Settings



To send/save the image to the relevant sites by Email, SMTP needs to be setup.

❶ **General Setting -** Enable or disable the SMTP function.

❷ **Mode -** Select the security mode of SMTP from Plain or SSL / TLS. After checking the account setup of your SMTP Server, you may select one.

❸ **SMTP Server Address -** Define the SMTP Server Address. If the IP Address form is incorrect, a message box will be shown to try again.

❹ **Port -** Define the Port used in the Plain or SSL / TLS security mode in the above.

❺ **User ID -** Define the User ID to access the SMTP Server. Fill out the correct User ID registered in the SMTP Server.

❻ **Password -** Define the Password to access the SMTP Server. Fill out the correct Password registered in the SMTP Server.

❼ **E-Mail Sender -** Define the e-mail address of the E-Mail Sender. It will be displayed as the sender when the camera sends an E-mail.

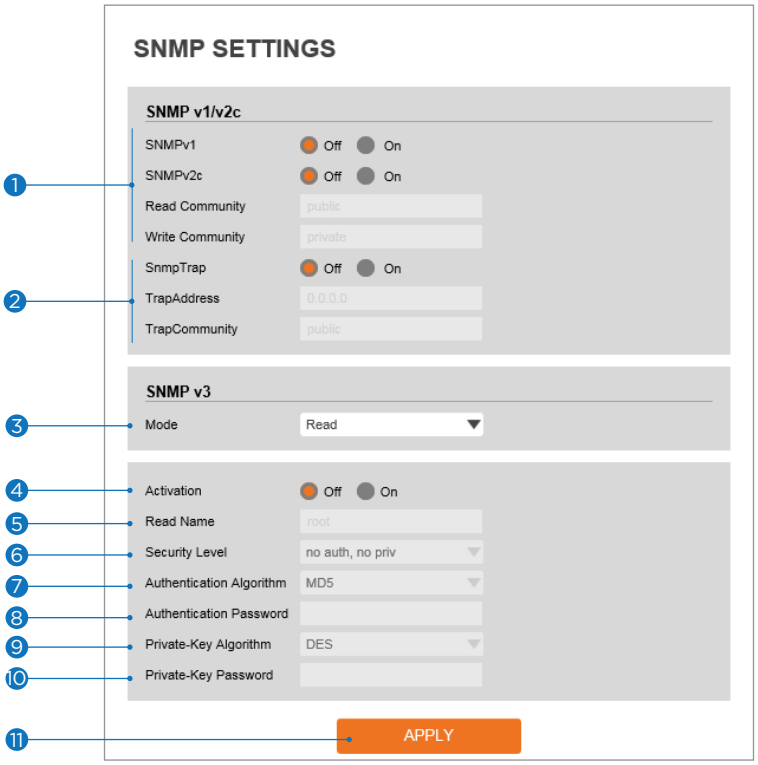
❽ **E-Mail Receiver -** Define the e-mail address of the E-Mail Receiver. It will be displayed as the Receiver when the camera sends an E-mail.

❾ **Title -** Define the title of the E-Mail when the camera sends an E-mail.
※ The title of the Email is limited to 40 characters including the spaces.

❿ **Message -** Define the contents of the E-Mail when the camera sends an E-mail. The message of the E-mail is limited to 40 characters including the spaces.

⓫ Click 'TEST' to send a test message 'APPLY' to save all settings.

SNMP Settings



For use with administrative computers (managers) to monitor devices on a computer network, Simple Network Management Protocol (SNMP) settings can be applied to the camera.

1 **SNMPv1/SNMPv2 -** Select the SNMPv1/SNMPv2 option and type the names of Read and Write communities.

SNMP trap can be used to check periodically for operational thresholds or failures that are defined in the MIB.

2 **SNMP Trap -** Enable or disable the SNMP trap.

SNMPv3 contains cryptographic security, a higher security level, which allows you to set the Authentication password and the Encryption password.

3 **Mode -** Select either Read or Read/Write mode.

4 **Activation -** Select mode to enable or disable.

5 **Read/Write name -** Define Read name and Write name.

6 **Security Level -** Select one of no auth, no priv/auth, priv.

7 **Authentication Algorithm -** Select MD5 or SHA as the authentication method.

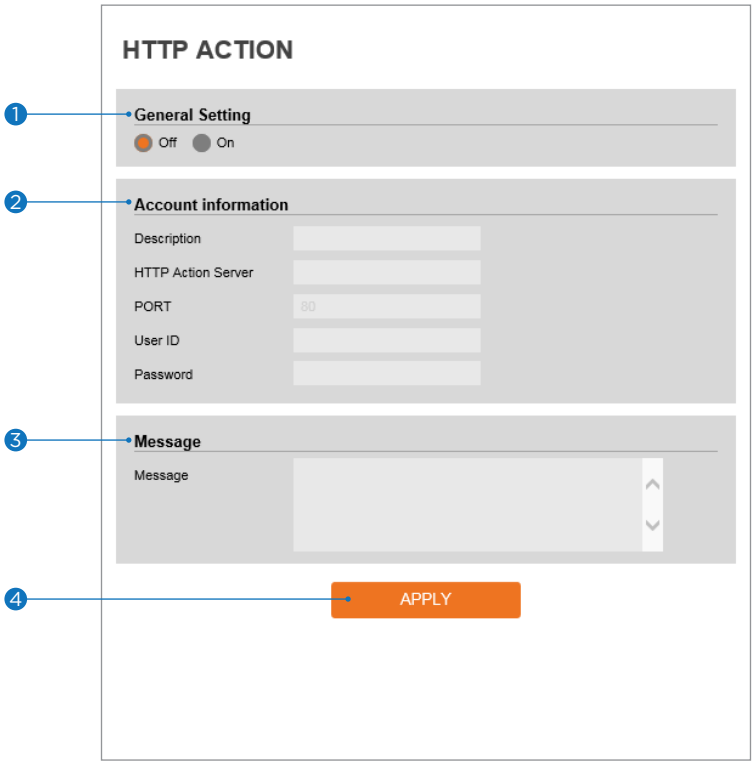
8 **Authentication Password -** The Authentication Password is encryption for authentication and is between 8 to 30 digits long.

9 **Private-Key Algorithm -** Select DES or AES as the encryption algorithm.

10 **Private-Key Password -** The information protection password is a private encryption at least 8 digits and up to 30 digits long.

11 Click 'Apply' to save all settings.

HTTP Action



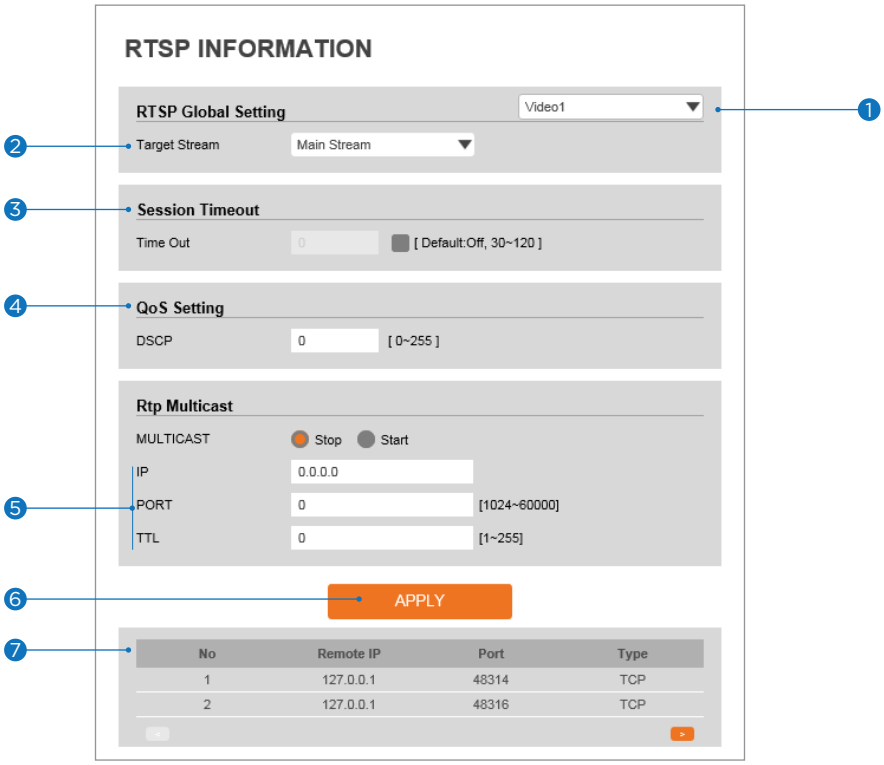
1 **General Setting -** Enable or disable the camera to send out an HTTP action when an event occurs. When enabled, the camera can notify a monitoring software using HTTP protocol.

2 **Account information -** Set the RTSP time out.
Description: Enter a short description to be
HTTP Action Server: Enter the HTTP address of the receiving server. This is the server that will receive the HTTP action notification from the camera.
PORT: Enter the port number for the receiving server.
User ID: Enter the user ID information for the receiving server.
Password: Enter the password information for the receiving server.

3 **Message -** Enter the default message that will be included with the alert.

4 Click 'Apply' to make the above setting effective.
※ Click this button when completing the setup of each channel.

Setup - Network Setup
RTSP Information



❶ **VIN Source -** Each of the camera's sensors must be set up separately. Select between Video 1 ~ Video 4 for each of the camera's sensors. The settings below will apply to that sensor only.
- Click 'Apply' to save the settings before changing to another video source.

❷ **Target Stream -** Select the stream you want to set.

❸ **Time out -** Set the RTSP time out.
- The session is disconnected after the specified time-out.

❹ **QoS Setting -** Set the quality of service to ensure data transfer performance.

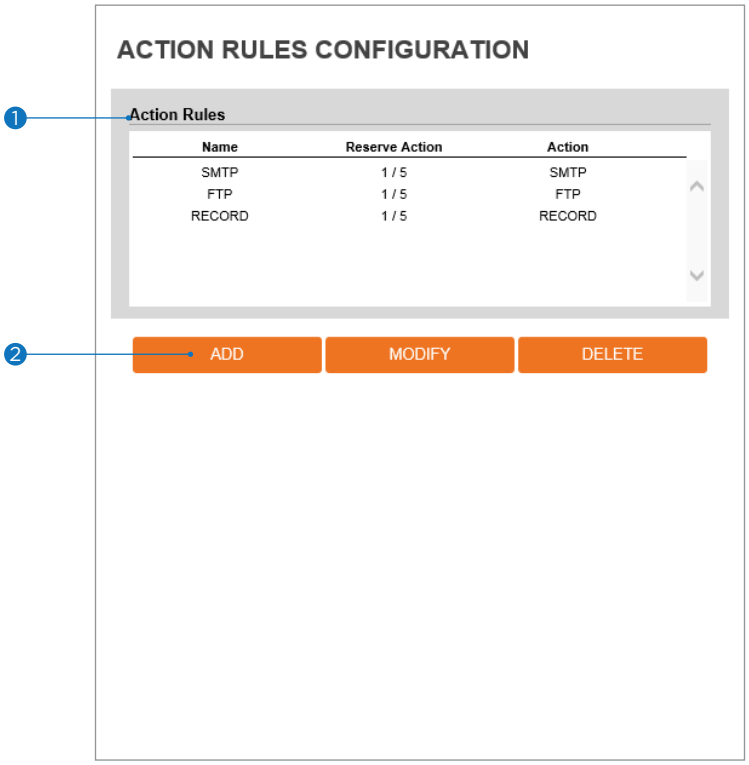
❺ **RTP Multicast -** Check RTP Multicast Start/Stop. To activate RTP Multicast.
1. Click the "On" button.
2. Enter accessible RTP Multicast IP, the port for video stream control and RTP packet TTL.
3. Click the "Apply" button.

- It is possible to set each RTP Multicast for CH1~3.

❻ Click 'Apply' to save all settings.
- Click this button when completed setup each channel.

❼ It shows RTSP Connection information.

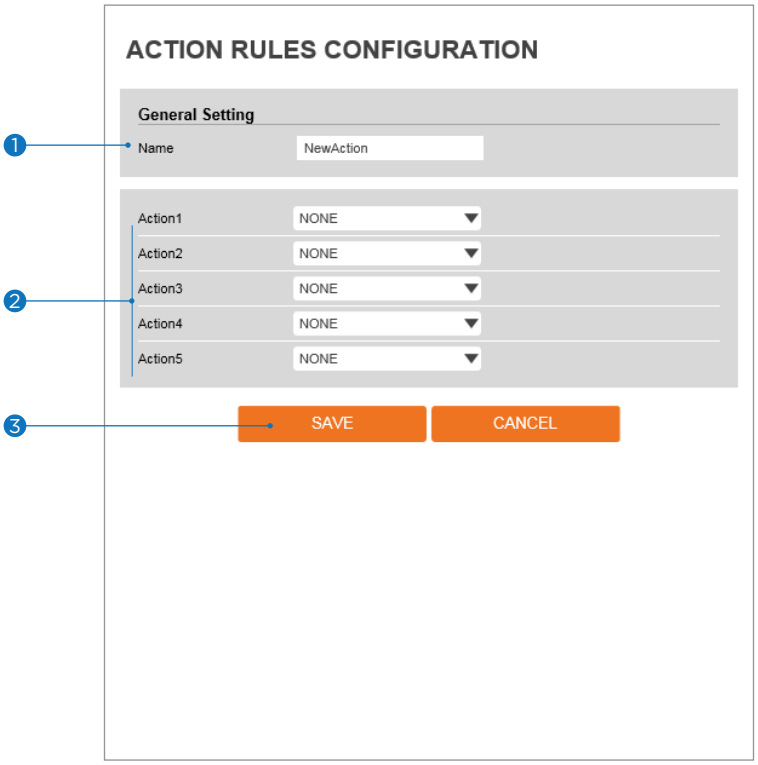
Action Rules Configuration



1 **Action rules List -** It indicates the custom action rule information added to the Action rules list.

2 Click 'Add' to add custom action rules.
- Click 'Modify' to modify selected items from the action rules list.
- Click 'Delete' to delete selected items from the action rules list.

Setup - Trigger Action Setup
Action Rules Add / Modify

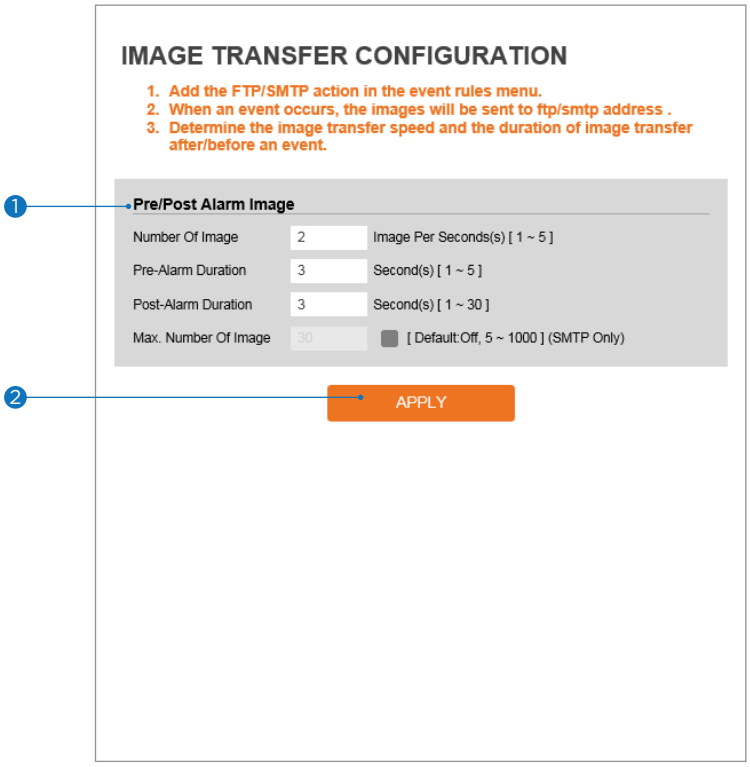


1 **Name -** Define the name of the action rules.
Input text cannot exceed the limit (3~15 characters).

2 **Action1 ~ Action5 -** Select the action to take If the event occurs.

3 Click 'Save' to save all settings.
Click 'Cancel' to return to the previous menu.

Image Transfer Configuration

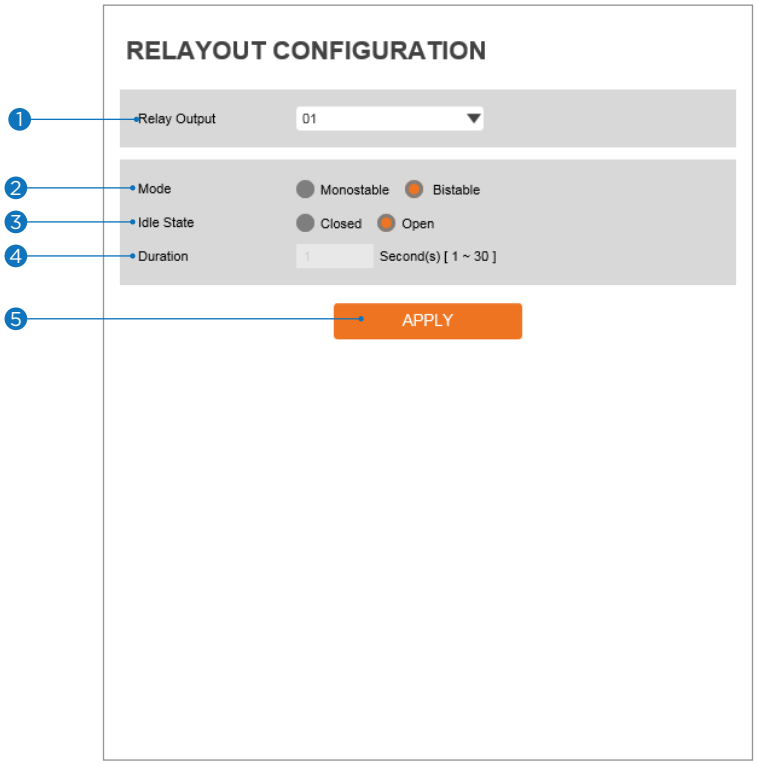


❶ **Pre/Post Alarm Image -** Image Transfer due to event is configured by setting the image transfer rate and Pre/Post alarm duration.

	Descriptions
Number of Images	Define the number of images transferred per second.
Pre-alarm Duration	Define the duration of image transfer before an event.
Post-alarm Duration	Define the duration of image transfer after an event.

❷ Click 'Apply' to save all settings.

Setup - Trigger Action Setup
Relayout Configuration



❶ **Relay Output -** Select the Relay output.
The number of relay outputs available depends on the camera model.

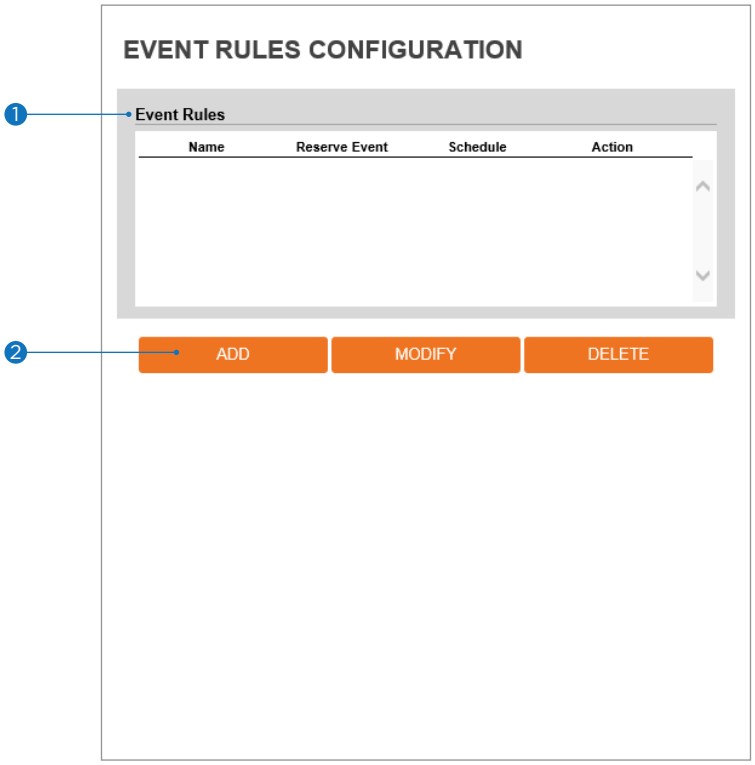
❷ **Mode -** Select the monostable/bistable for relay mode.

❸ **Idle State -** Select whether the contact is normally opened or is closed.

❹ **Duration -** Relay out is operated during the setting time.
In monostable mode, this function must be set up.

❺ Click 'Apply' to save all changes.

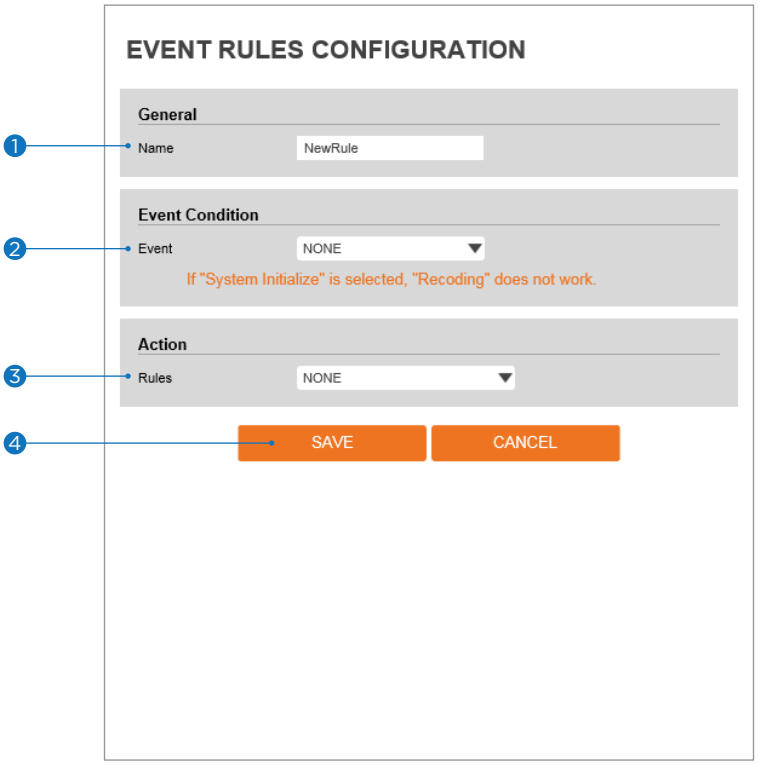
Event Rules Configuration



1 **Event Rules List -** It indicates the custom Event Rule information added to the Event Rules list.

2 Click 'Add' to add custom event rules.
- Click 'Modify' to modify selected items from the event rules list.
- Click 'Delete' to delete selected items from the event rules list.

Event Rules Configuration



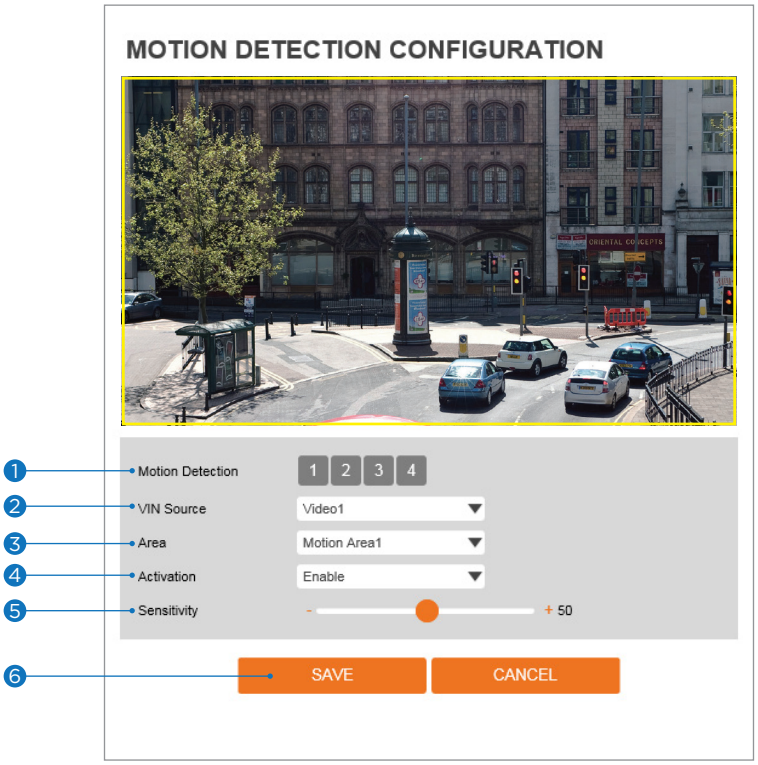
1 **Name -** Enter a name for the new event rule.

2 **Event -** Select the event to trigger the rule. Select from motion detection, network disconnection, illegal login detected, temperature critical, sensor detection, or system initialize.
- Click 'Cancel' to return to the previous setting.
- You need at least one event.

3 **Rules -** Select the action to take when the event rule has been activated/triggered. Select from sending notifications to an SMTP server, an FTPO server, or start recording. Note that "record" action is not available if system initialize is selected as the event. Action rules can be created in the 'Action Rules Configuration' menu.

4 Click 'Save' to save the current settings.
- Click 'Cancel' to return to the previous setting.

Motion Detection Configuration



1 **Motion Detection -** Shows the Motion event status.
- The event alert icon (1) will appear, indicating motion in the highlighted sensor.

2 **VIN Source -** Each of the camera's sensors must be set up separately. Select between Video 1 ~ Video 4 for each of the camera's sensors. The settings below will apply to that sensor only.
- Click 'Apply' to save the settings before changing to another video source.

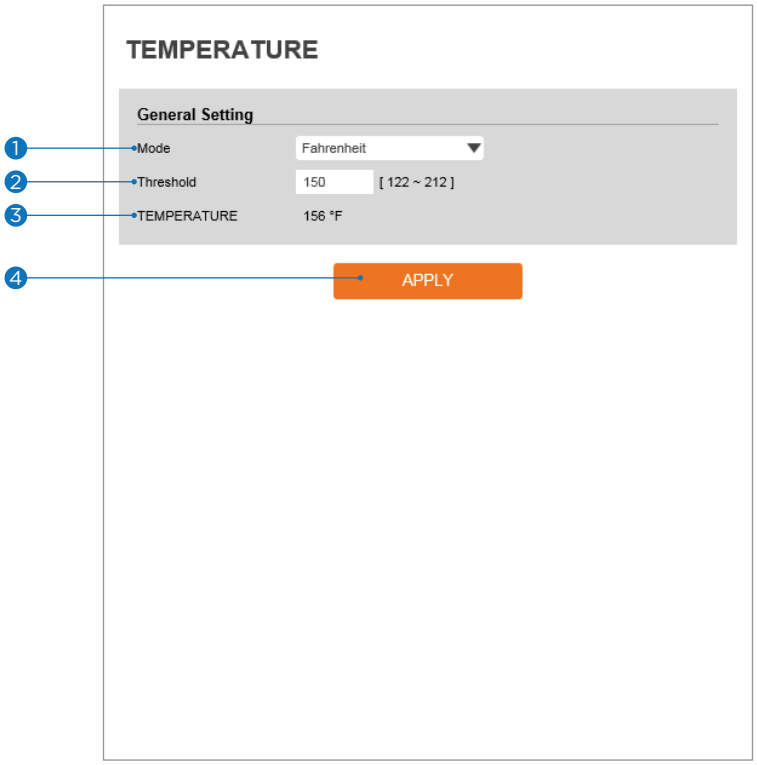
3 **Area -** Set the motion detected area. Click in the display window to draw the motion area.
- You can setup up to four areas.

4 **Activation -** Enable or Disable motion detection function.

5 **Sensitivity -** Define the sensitivity of motion detection.
If a high value is selected, it will detect very small motion while it becomes relatively insensitive when a low value is selected.

6 Click 'Save' to save all settings.
- Click 'Cancel' to return to the previous setting.

Setup - Event Setup
Temperature



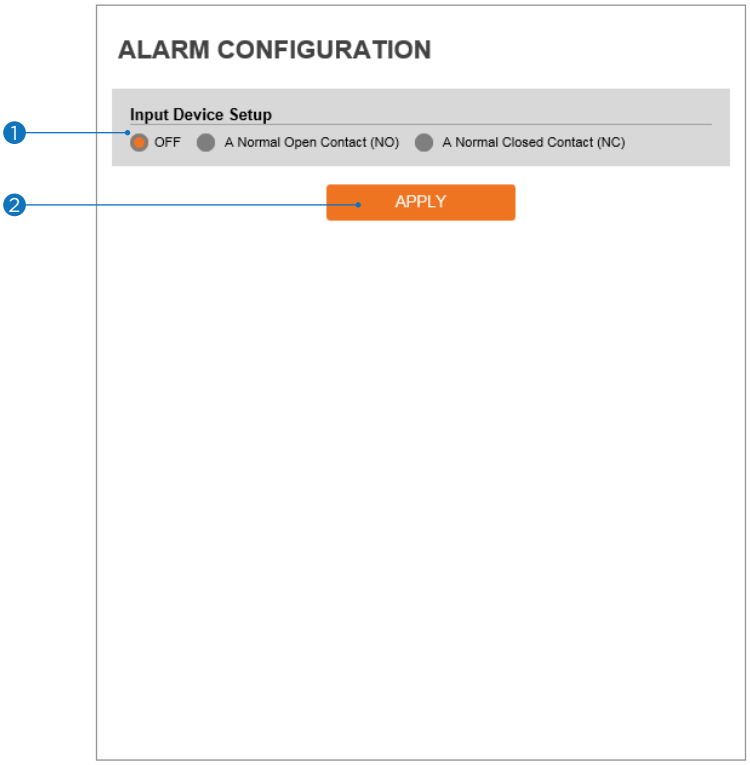
1 **Mode -** Select Fahrenheit or Celsius.

2 **Threshold -** Define the temperature at which the event trigger occurs.

3 **Temperature -** It indicates the current temperature of the IP camera.

4 Click 'Apply' to save all settings.

Alarm Configuration

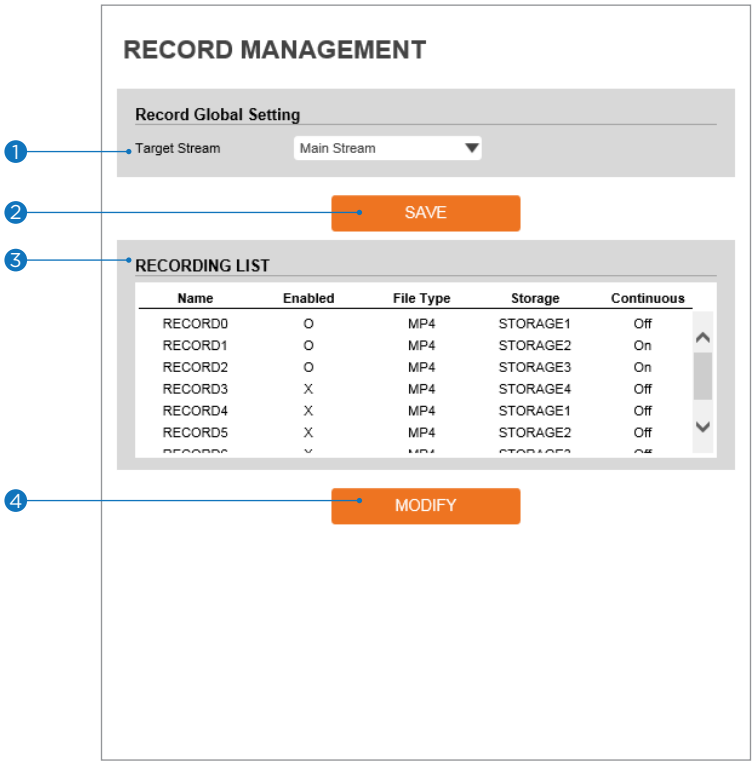


1 **Input Device Setup -** Select input device type from OFF / N.O. / N.C.

	Operation
OFF	Ignore this input sensor.
NO	The contact is normally open and closed when activated.
NC	The contact is normally closed and open when activated.

2 Click 'Apply' to save all changes.

Record Management



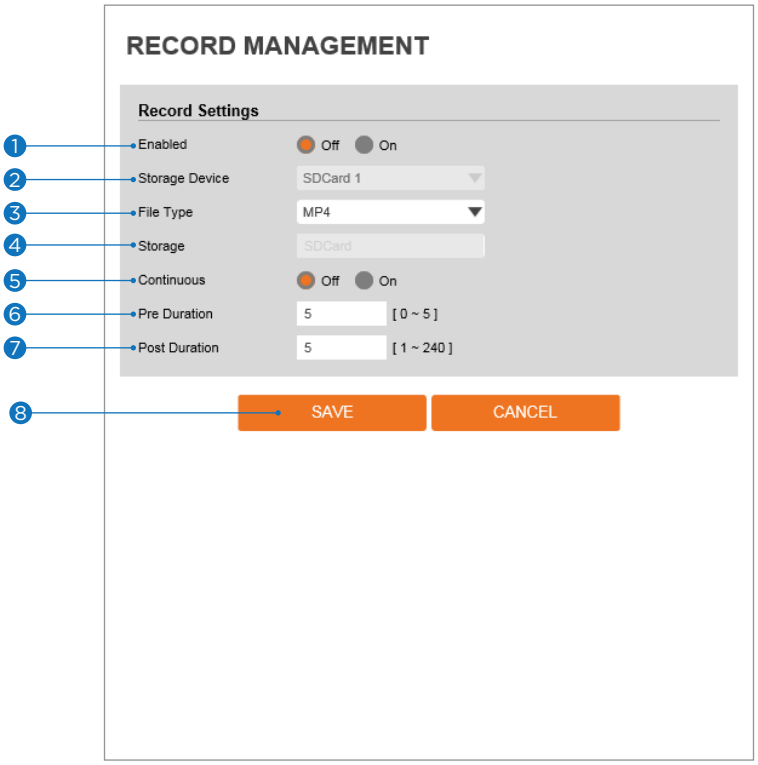
1 **Target Stream -** Select the channel you want to record video. An SD card is required for each lens module to locally record.

2 Click 'Save' to save the current settings.

3 **Recording List -** Display the information about the recording settings.

4 Click 'Modify' to modify the selected item in the recording list.

Record Configuration



1 **Enabled -** Enable or disable this function.

2 **Storage Device -** This option shows the SD card currently mounted on the camera. The camera supports up to four (4) SD cards, each assigned to one lens module. When recording, each SD card will record video only from the lens module assigned to it.

3 **File Type -** Select the recording file type.
※ Currently, the camera supports MP4 file type.

4 **Storage -** Select the storage type. SD Card (Disabled) selection is not allowed.

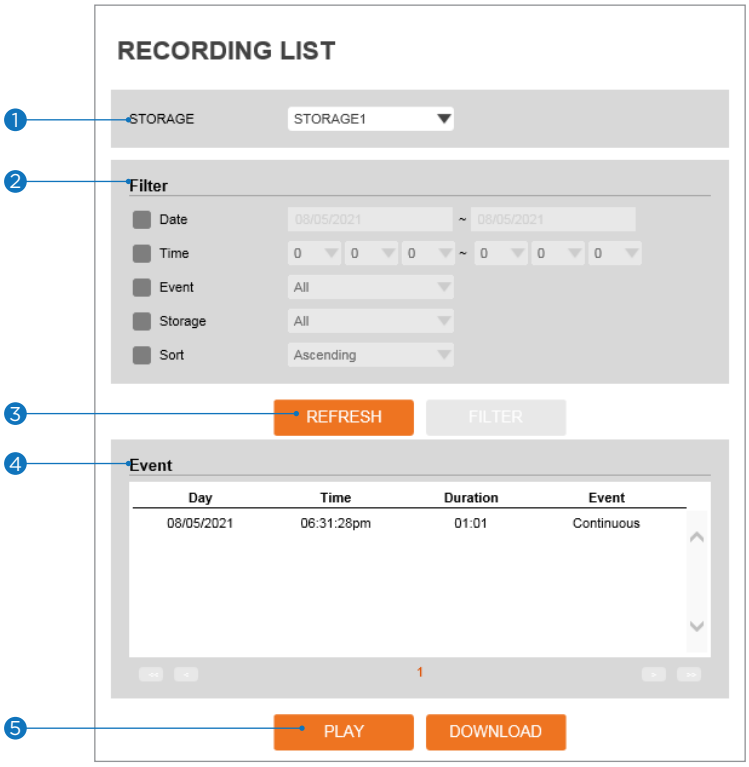
5 **Continuous -** If continuous mode is enabled, the camera will start recording automatically.

6 **Pre Duration -** Define the duration of recording before an event.

7 **Post Duration -** Define the duration of image transfer after an event.

8 Click 'Save' to save the current settings.
※ Click 'Cancel' to return to the previous setting.

Recording List



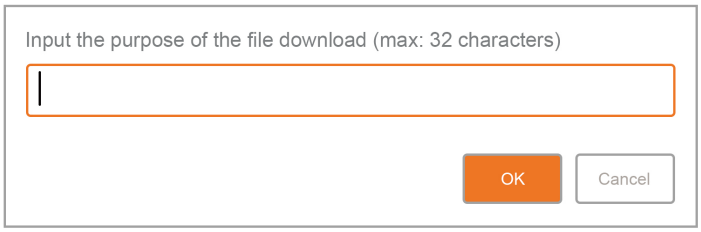
1. **Storage -** Select the Storage from the available options. The camera supports up to four (4) SD cards, each assigned to one lens module. When recording, each SD card will record video only from the lens module assigned to it.

2. **Filter -** Select the date/time, event, sort, or storage format to filter the recorded video results.

3. Click the 'Refresh' button to refresh the search results as needed.
   - Click 'Filter' to view the filtered recorded video.

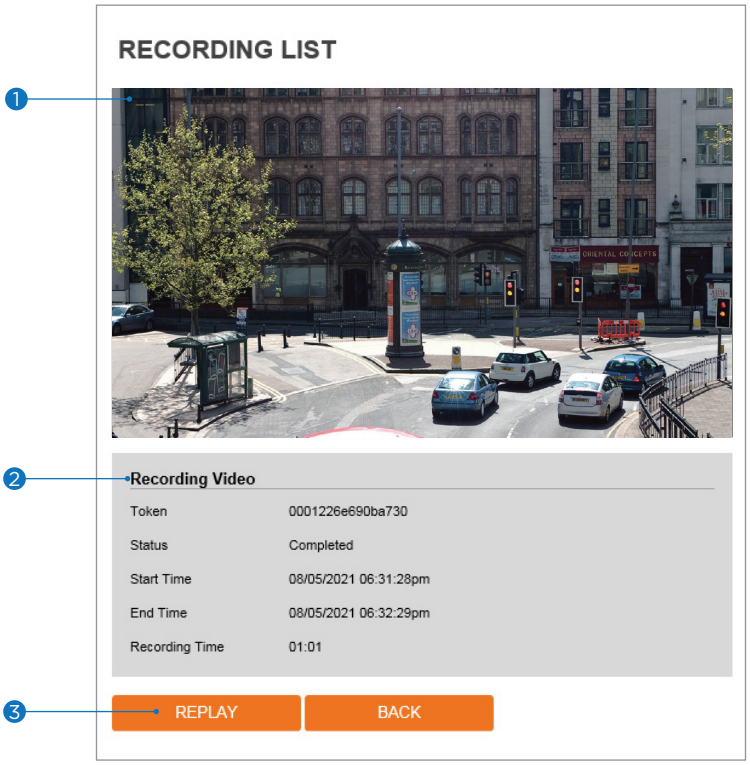
4. **Recording List -** Display the information of the recorded video. Select the recorded event to play or download the recorded video.

5. Click 'Play' to view the selected item in the list of the recorded video results.
   - Click 'Download' to download the selected item.
   - When you click 'Download', the following window appears.
   - When downloading, please fill up the purpose of the file download. The field is limited to 30 characters. (This information will be shown on the Log page with the download time).



- When playing back recorded MP4 files with H.265 (HEVC) codec, the video may not play due to a performance issue of the VLC plug-in.

Recording Video

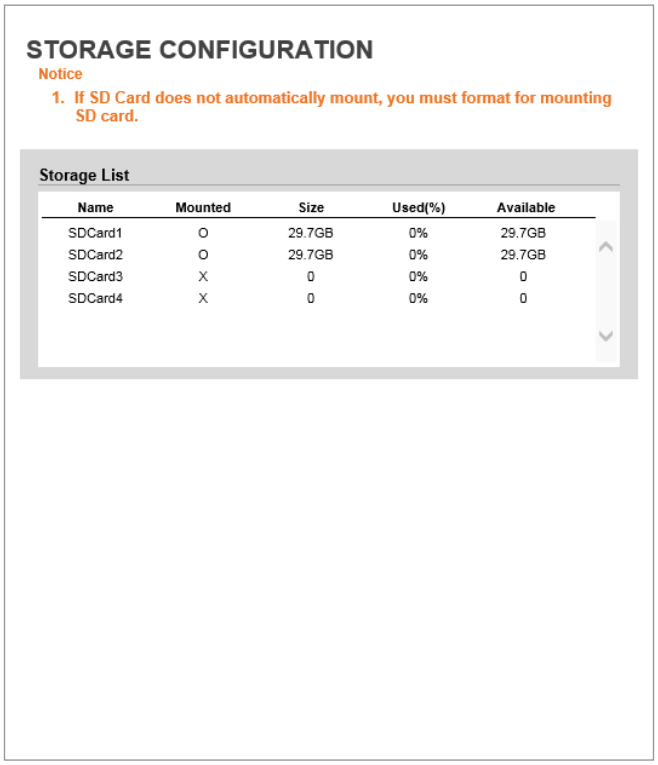


1 **Recording Video Viewer -** Play the recorded video.

2 **Recording Video Information -** Display information about the recorded video.

3 Click 'Replay' to view the recorded video again.
- Click 'Back' to return to the previous menu.

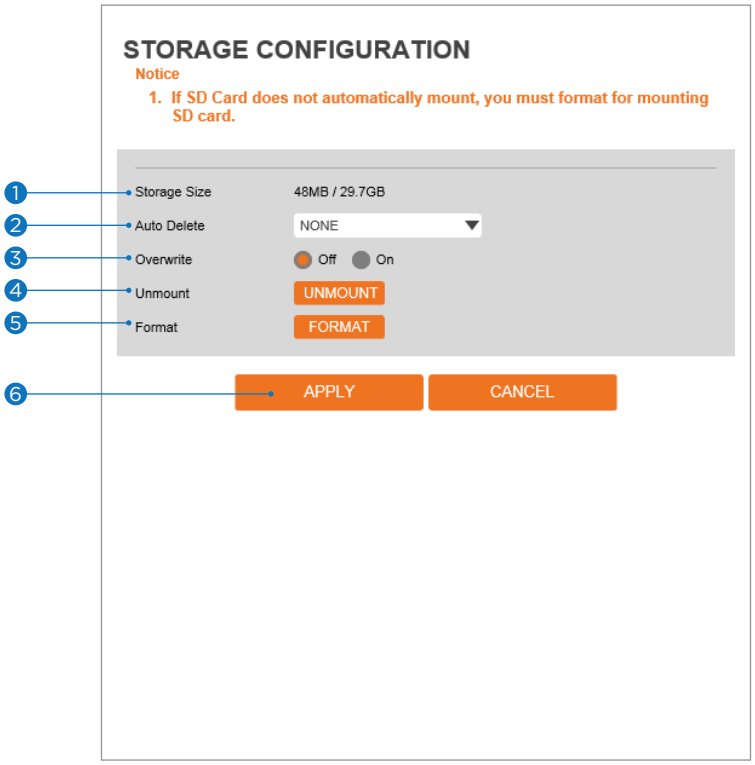
Storage Configuration



Display the SD card information mounted on the device.

※ Each item in the list represents one of the four (4) SD cards the camera supports, showing the mounting status, size, percentage used and available storage.

Storage Configuration



❶ **Storage Size -** Total capacity of SD card and the remainder of it are displayed.

❷ **Auto Delete -** Select the period for auto delete. The data stored before the set period will be deleted automatically.
※ Delete all stored images older than the selected time.

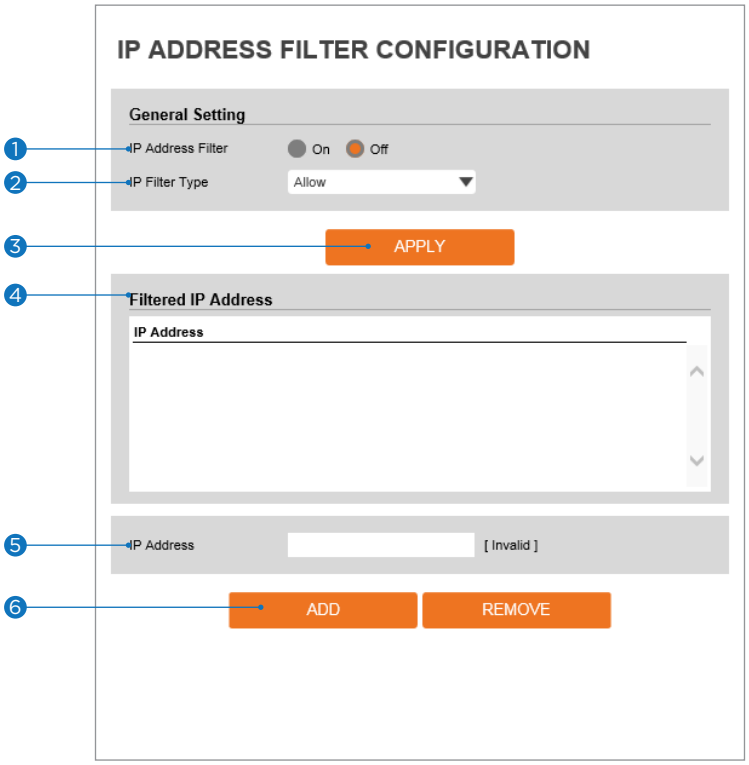
❸ **Overwrite -** If ON is selected, once the SD card has less than 8MB of storage available, new data will start to overwrite the oldest data. If OFF is selected, once the SD card has less than 8MB available, the camera will stop recording to the SD card.

❹ **Unmount -** Remove the SD card from the device.

❺ **Format -** Delete all contents stored on the SD card.

❻ Click 'Apply' to save all settings.
※ Click 'Cancel' to return to the previous setting.

IP Address Filter Configuration



1 **IP Address Filter -** Enable or disable this function.

2 **IP Filter Type -** Select whether to allow or deny network data packets with the specified IP address.

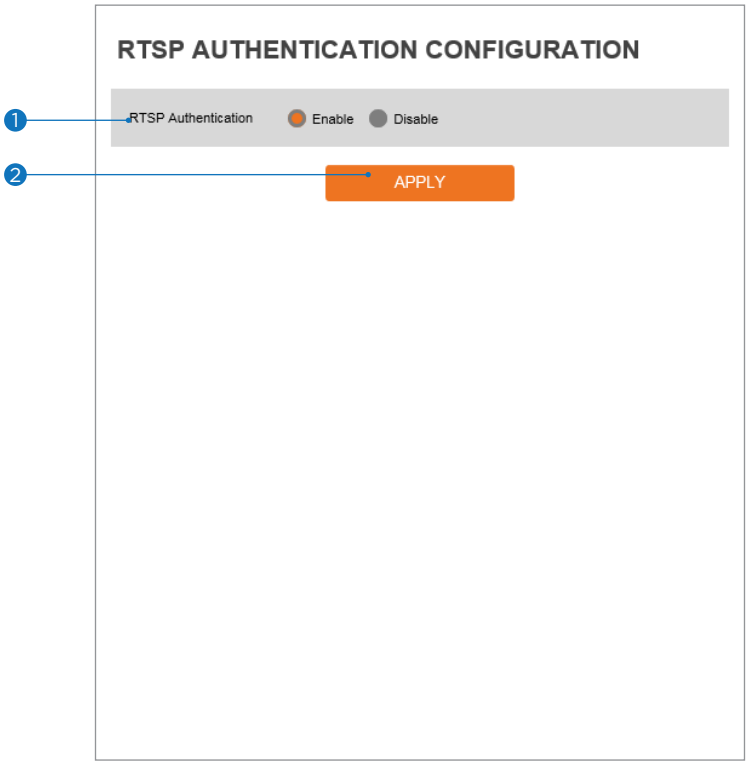
3 Click 'Apply' to save all settings.

4 **Filter IP Address -** Display the filtered IP address.

5 **IP Address -** Define the IP address you want to apply the IP filter.

6 Click 'Add' to add the IP address to the list.
※ Click 'Remove' to remove the IP address selected in the list.

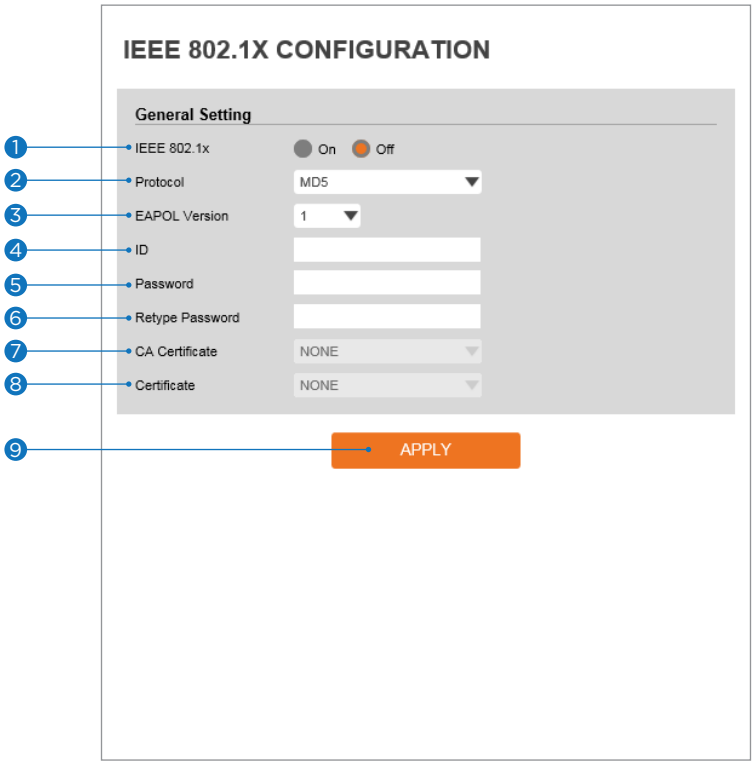
RTSP Authentication Configuration



1 **RTSP Authentication -** Enable or disable the RTSP authentication.

2 Click 'Apply' to save all settings.

Setup - Security Setup
IEEE 802.1X Configuration



The feature is needed when connecting the camera to the network protected by the IEEE 802.1X.

1. **IEEE 802.1x -** Enable or disable the IEEE 802.1x feature.

2. **Protocol**
   - MD5: It provides one-way password-based network authentication of the client.
   - PEAP: It is similar to TTLS in that it does not require a certificate on the client-side.
   - TTLS/MD5: It does not require a certificate on the client-side.
   - TLS: It relies on client-side and server-side certificates to perform authentication.

3. **EAPOL Version -** Select the EAPOL Version.

4. **ID -** Type the ID to identify the client in the IEEE 802.1X authentication server.

5. **Password -** Type the Password to identify the client in the IEEE 802.1X authentication server.

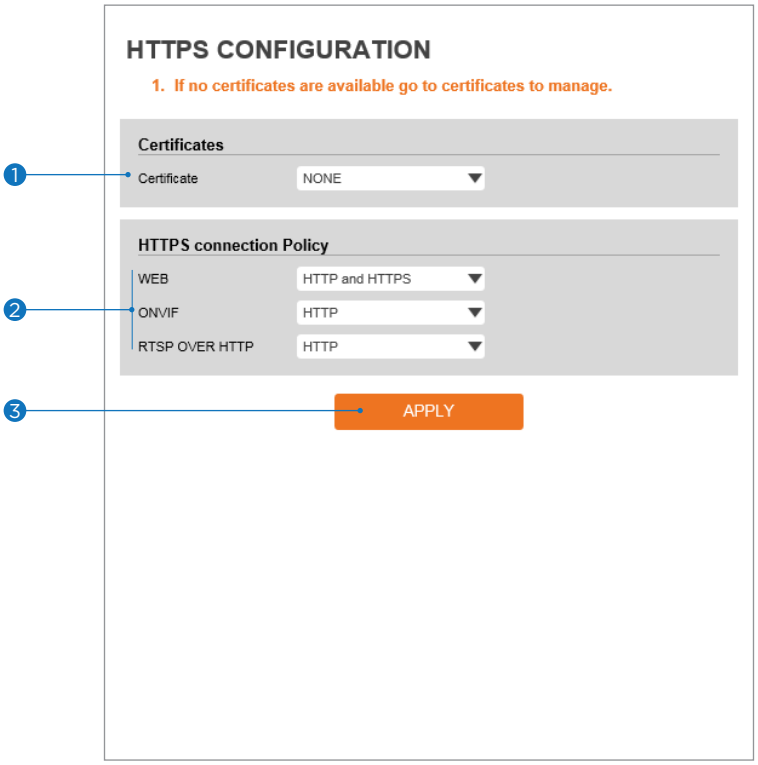
6. **Verify -** Verify Password.

7. **CA Certificate -** Select the CA certificate required for TLS, TTLS and PEAP authentication.

8. **Certificate -** Select the client certificate required for TLS authentication

9. Click 'Apply' to save all settings.

HTTPS Configuration



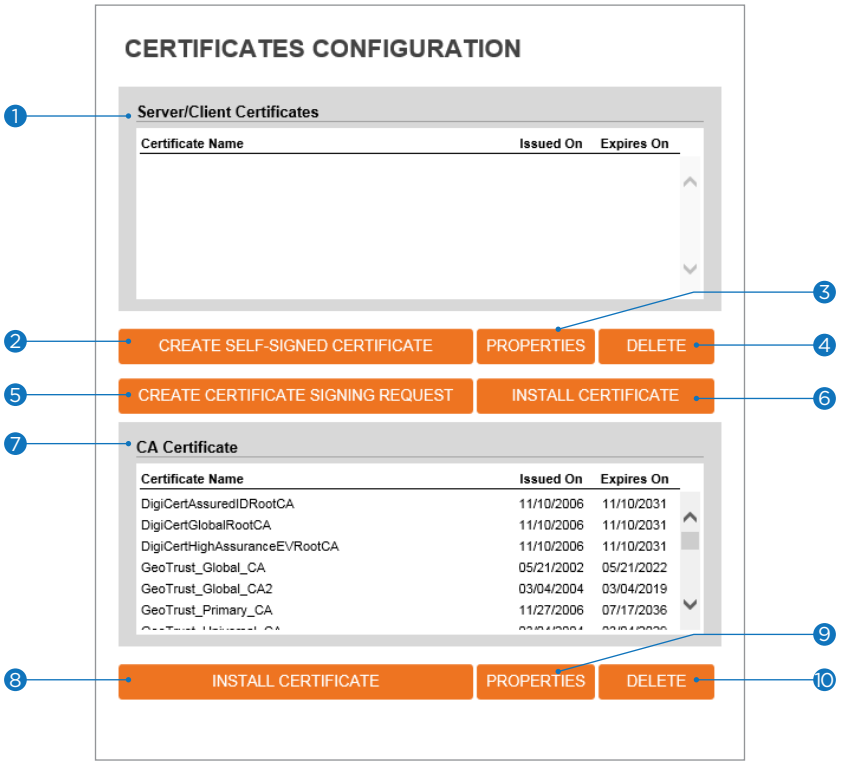
HTTPS encrypts session data over SSL or TLS protocols instead of using plain text in socket communications.

1. **Certificate -** Select an installed certificate.
   - If you cannot select a certificate, please install the certificate from the Security->Certificates menu.

2. **HTTPS connection Policy -** Select one of “HTTP”, “HTTPS”, “HTTP and HTTPS” depending on the connected web, ONVIF, RTSP over HTTP.
   - WEB: “HTTP” “HTTPS” “HTTP and HTTPS”
   - ONVIF, RTSP OVER HTTP: “HTTP” “HTTPS” “HTTP and HTTPS”

3. Click ‘Apply’ to save all settings.
   - When HTTPS mode is chosen, input https://<IP Address> to connect to the camera.

Setup - Security Setup
Certificates Configuration



1 **Server/Client Certificates -** Shows the installed certificates.

2 **Create Self-Signed Certificate -** A self-signed SSL certificate is an identity certificate signed by its creator. But they are considered to be less trustworthy.

3 **Properties -** Shows information about the selected certificate.

4 **Delete -** Delete the selected certificate.

5 **Create a Certificate signing request -** This is the encoded data that contains the necessary information for issuing the certificate.
※ They must be filled in when creating the CSR (Certificate Signing Request).

6 **Install Certificate -** Install Certification

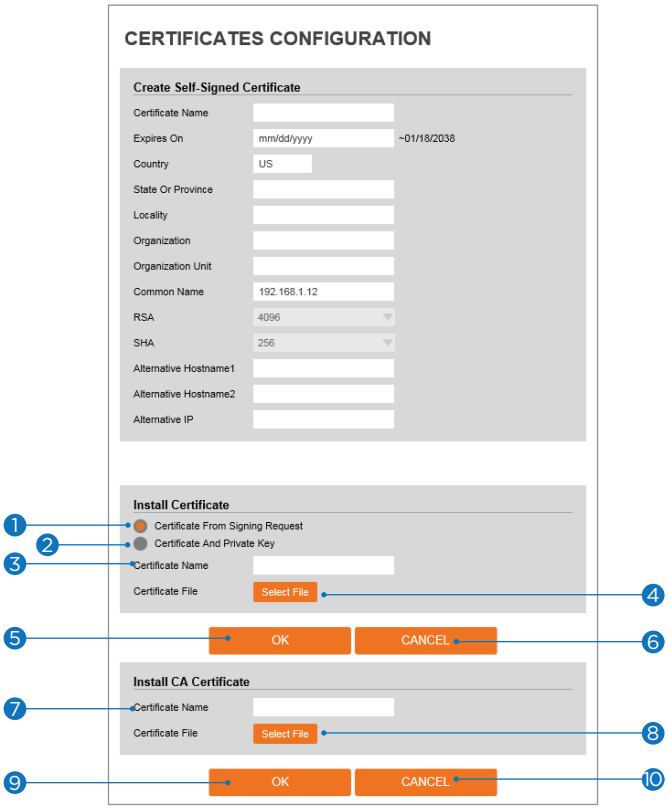
7 **CA Certificate -** Shows the installed CA certificates.

8 **Install CA Certificate -** Install Certification, see the detail page.

9 **Properties -** Shows information about the selected certificate.

10 **Delete -** Delete the selected CA certificate.

Setup - Security Setup
Certificates Configuration



Detail for Install Certification.

1 **Certificate From Signing Request -** Select to install a signed certificate returned from the CA.

2 **Certificate And Private Key -** Select to install Certificate And Private Key to install a certificate and private key.

3 **Certificate Name -** Enter a unique name to identify a certificate.

4 **Select File -** Choose the certification file.

5 **OK -** Request installing a certificate.

6 **Cancel -** Cancel install certificate and then back to certificates configuration.

Detail for Install CA Certification.

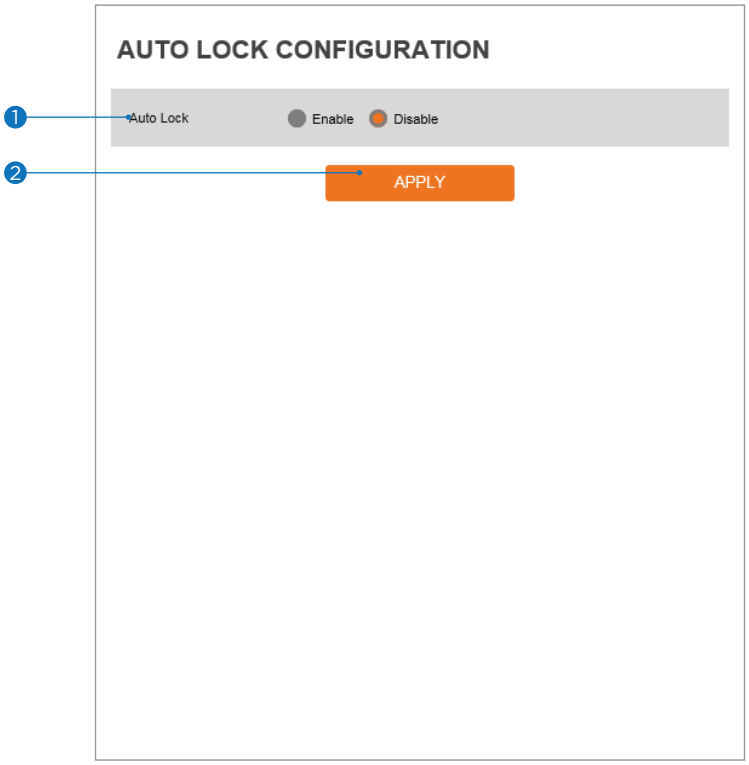
7 **Certificate Name -** Enter a unique name to identify the CA certificate.

8 **Select File -** Choose a CA certification file

9 **OK -** Request installing a CA certificate.

10 **Cancel -** Cancel installing a CA certificate and then back to certificates configuration.

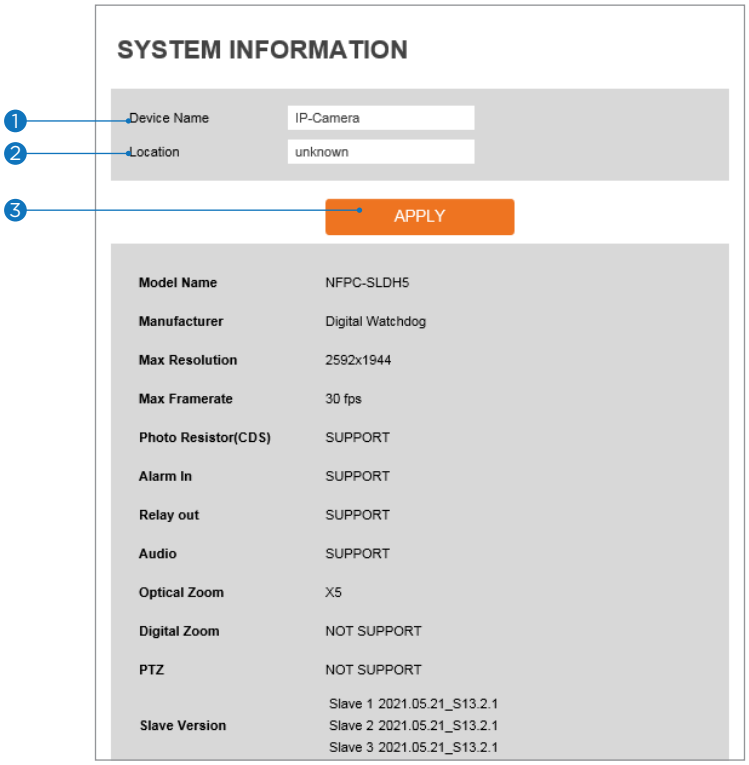
Auto-Lock Configuration



1 **Auto Lock -** Enable or disable the function. When enabled, the system will lock itself for five (5) minutes after three (3) failed login attempts.

2 Click 'Apply' to save all settings.

System Information



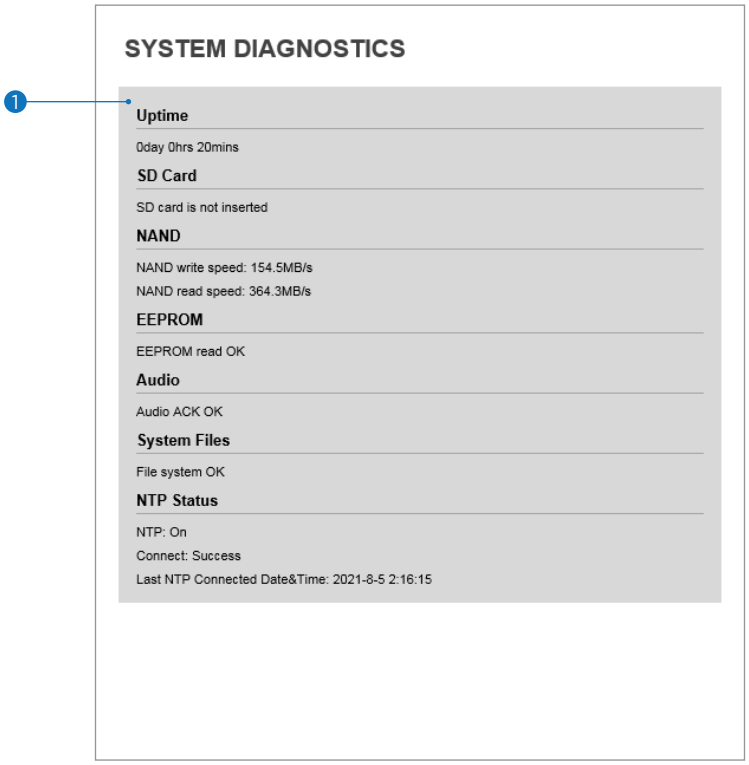
System Capability information.

1 **Device Name -** Enter the device's name.

2 **Location -** Enter the device's location.

3 Click 'Apply' to save all settings.

System Diagnostics

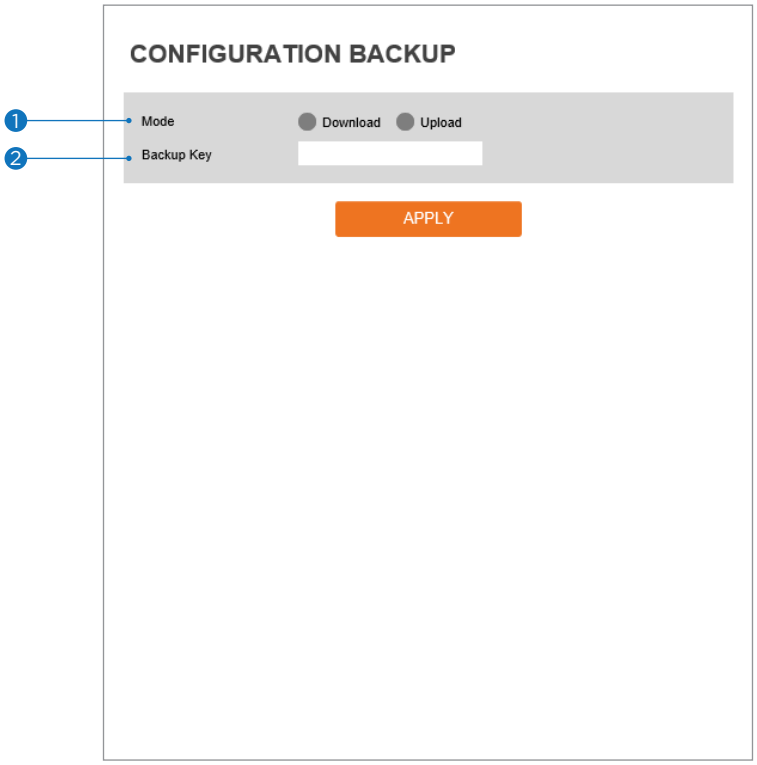


Shows basic hardware functions after inspection.

1 Shows Uptime, SD card, NAND, EEPROM, Audio chip, Important file system and NTP Status.

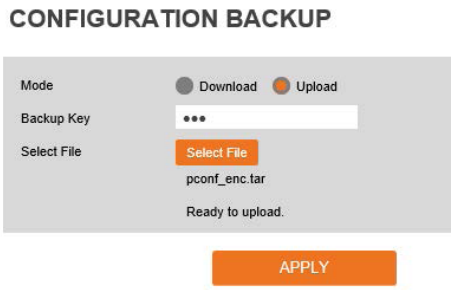
Warning:
If the camera is abnormally terminated, a download button will appear on the diagnostics page to download a file that allows you to check the error information you can.

Setup - System Setup
Configuration Backup



Use this page to import or export the camera settings.

1 Select to download or upload camera settings.
- The following settings are NOT included in the backup files: Network (except RTSP information), System > user management, PTZ settings (on PTZ models).
- Download: save the camera's current settings. Check the box next to 'Download', enter a backup key and click APPLY. The backup key can be of any value. Remember the backup key, it will be required when uploading the file.
- Upload: upload configuration settings from another camera. Check the box next to 'Upload'. Enter the backup key for the configuration backup. Click 'Select File' to locate the configuration backup file and select it on your computer. The file name and upload status will appear. Click 'Apply' to start the upload. A popup window will appear when the configuration upload is complete.

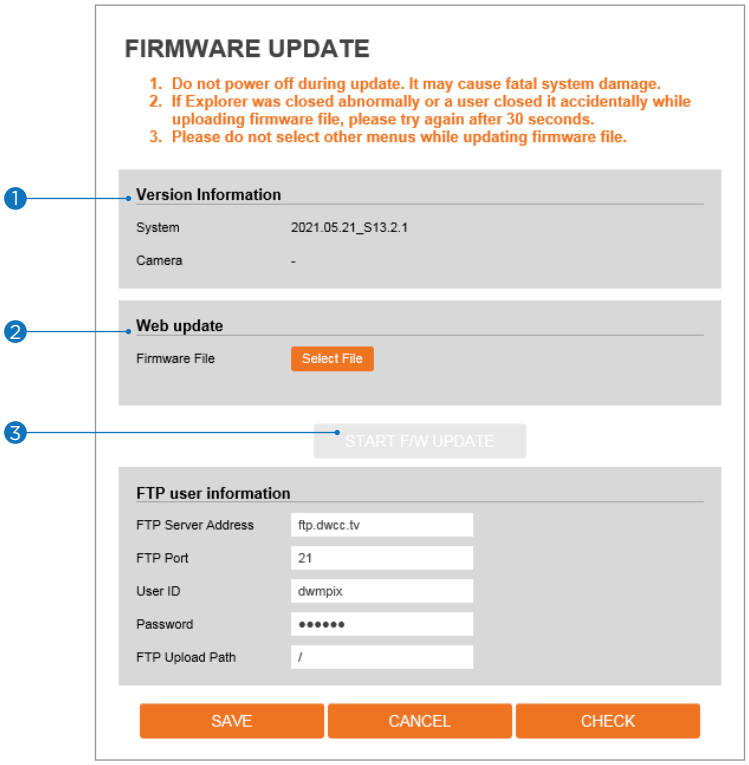


NOTE:
The configuration backup download is available when accessing the camera directly from the web browser. If accessing the camera from the DW Spectrum IPVMS client, this feature is disabled.

Warning:
If the camera connection is terminated abnormally terminated, a download button will appear on the diagnostics page to download and check the error information.

2 If needed, enter a backup key to identify your backup file.

Setup - System Setup
Firmware Update



❶ **Version Information -** It shows the current Firmware Version in the system.

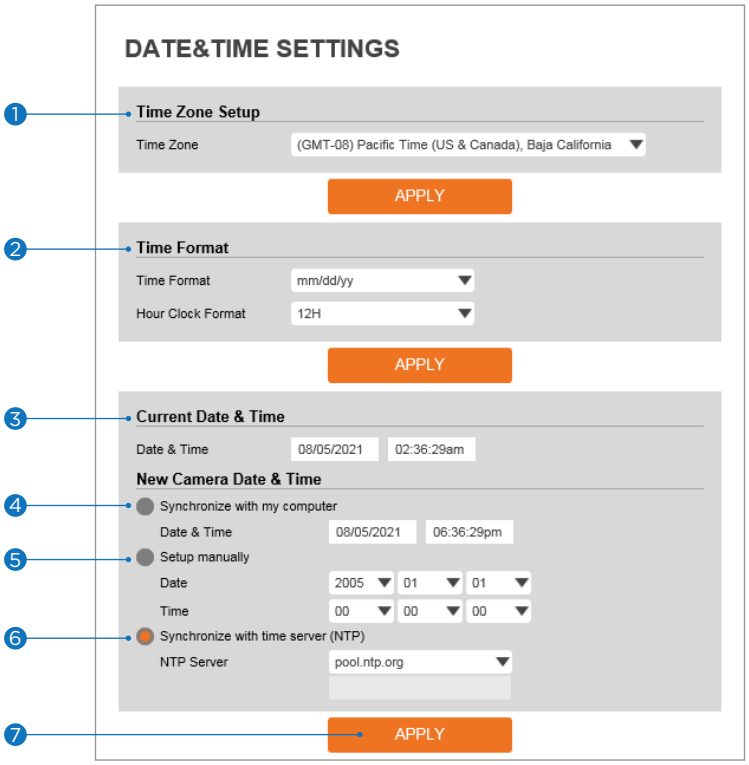
❷ **Web Update -** Select the Firmware file on your computer by clicking the [Select file] button.

❸ **Start F/W Update -** Click this button to start the update. Progress of uploading will be displayed using Progress Bar. If you assign the wrong file name, an error message will be shown.

Warning:

1. Do not turn off the power to the camera during the firmware update. Interrupting the update may cause the system to become unstable. Once the update is completed, the system will reboot automatically.
2. Make sure to check the 'Notice' shown on the screen.
   If the firmware update is completed successfully, the camera will reboot and show the login window.

Setup - System Setup
Date & Time Settings



❶ **TimeZone Setup -** Choose the time zone for the camera. It will be activated after clicking the 'Apply' button.
※ Before setting below 'New Camera Date and Time', set the correct time zone first.

❷ **Time Format -** Select the time format yy-mm-dd or mm/dd/yy.

❸ **Current Date and Time -** Current date and time setting in the Camera.

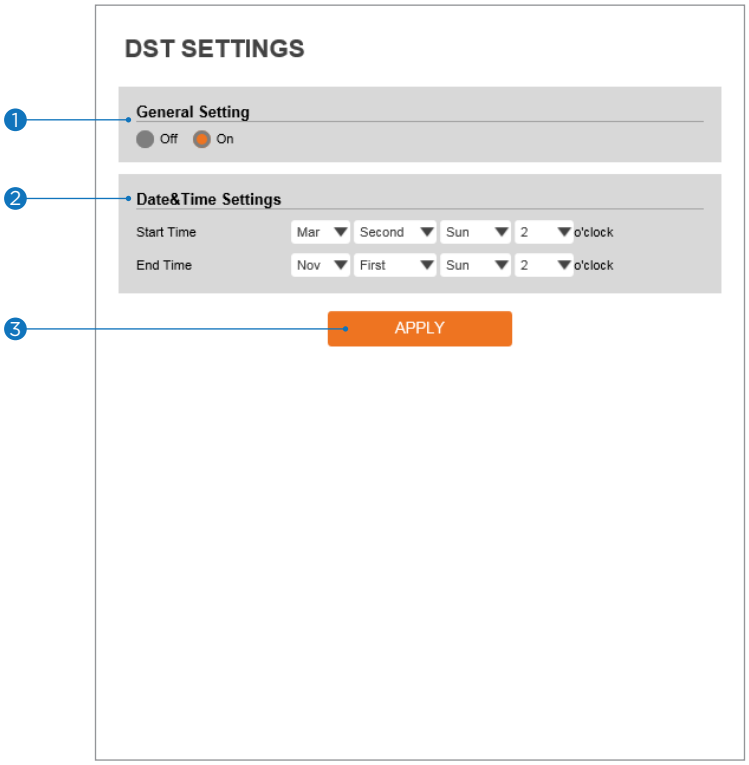
❹ **Synchronize with my computer -** Set the date/time using those of the PC currently connected.

❺ **Setup manually -** Set the date/time by typing manually.

❻ **Synchronize with time sever Time Zone (NTP) -** Choose the time server available to connect to the current camera. Date and Time will be updated automatically every hour when connected.

❼ Click 'Apply' to save all settings.

DST Settings



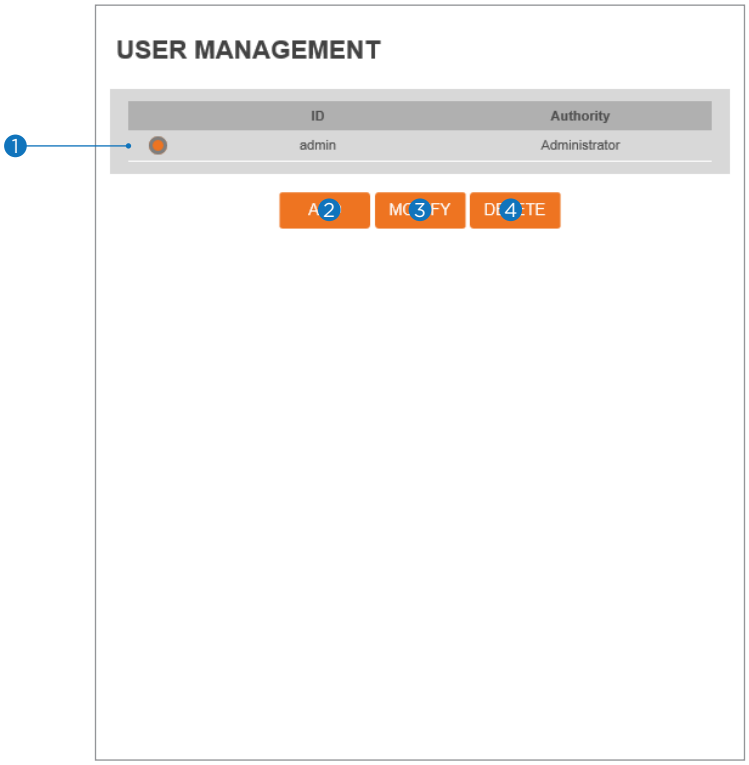
Daylight Saving Time (DST) is the practice of setting the clocks forward one hour from standard time during the summer months and back again in the fall to make better use of natural daylight.

1 **General Setting -** Enable or disable the DST function.

2 **Date and Time Settings -** Set the start time and end time that the DST applies.

3 Click 'Apply' to save all settings.

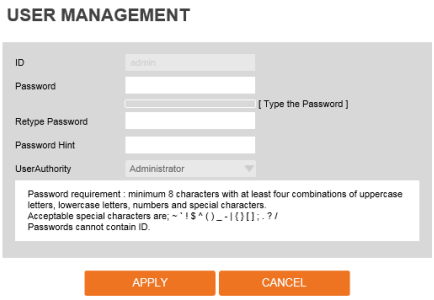
Setup - System Setup
Users Management



❶ **Users -** List all the user accounts for authentication.

❷ **Add -** Register a new user.

ID	Enter a new user ID except for Admin.
Password	Enter a password for the new user
Verify	Enter the user password again for verification.
User Authority	Select the user type from 'Operator' or 'Viewer'. Viewer: Can view video from the camera. Operator: Can view video from the camera and access most of the camaera functions except for the 'Setup' menu.



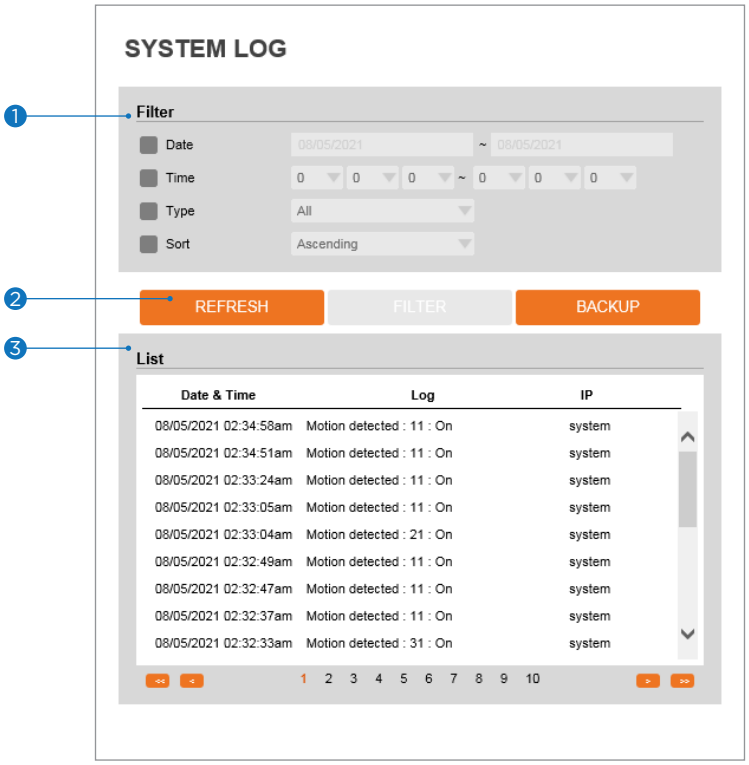
※ The ID and Password are limited to 8 characters with at least two combinations of uppercase letters, lowercase letters, numbers and special characters.
Acceptable special characters are: ~ ' ! $ ^ ( ) _ - { } [ ] ; . ? /

Click 'Save' to save all settings.
※ Click 'Cancel' to return to the previous menu.

❸ **Modify -** Modify the information of the user accounts registered. For the admin account, only the password can be modified.

❹ **Delete -** Delete the selected user account. The admin account cannot be deleted.

System Log

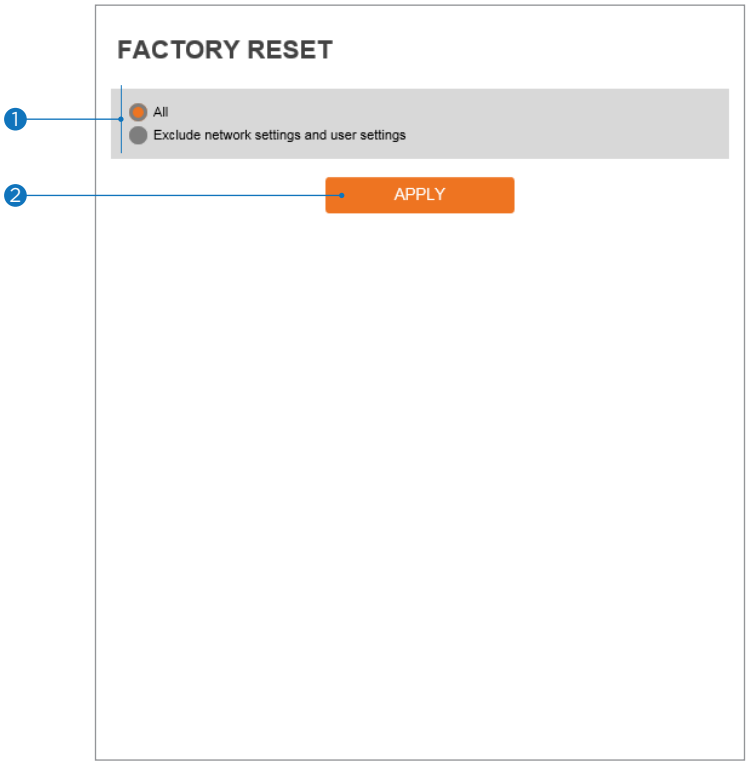


1 **Filter -** Select a date, time, sort, or type of log to filter the log.

2 Click the 'Refresh' button to refresh the log list.
- Click 'Filter' to view the filtered log.
- Click 'Backup' to back up the filtered log.

3 **System Log List -** The filtered log is displayed.

Factory Reset



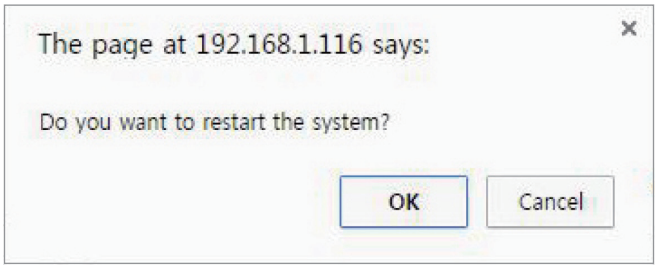
1 **Reset to the factory defaults -** Return the setup to the factory default.

All - Reset all camera settings to their factory default.

Except Network Settings and User Settings - Reset all camera settings to factory default except for the Network and User settings.

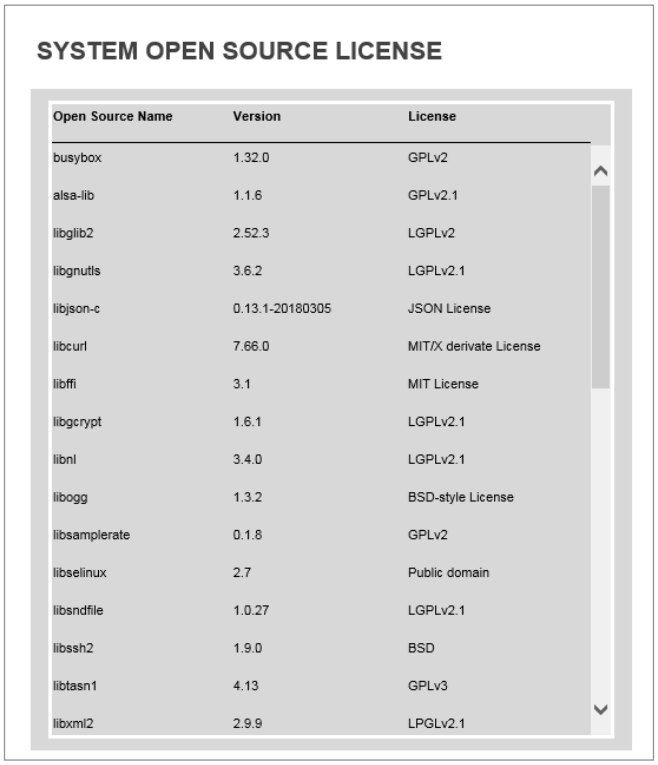
2 Click 'Apply' to save all settings.

Restart



If you click the 'RESTART' menu, a message box will be shown to confirm. Click the 'OK' button to restart.

System Open Source License

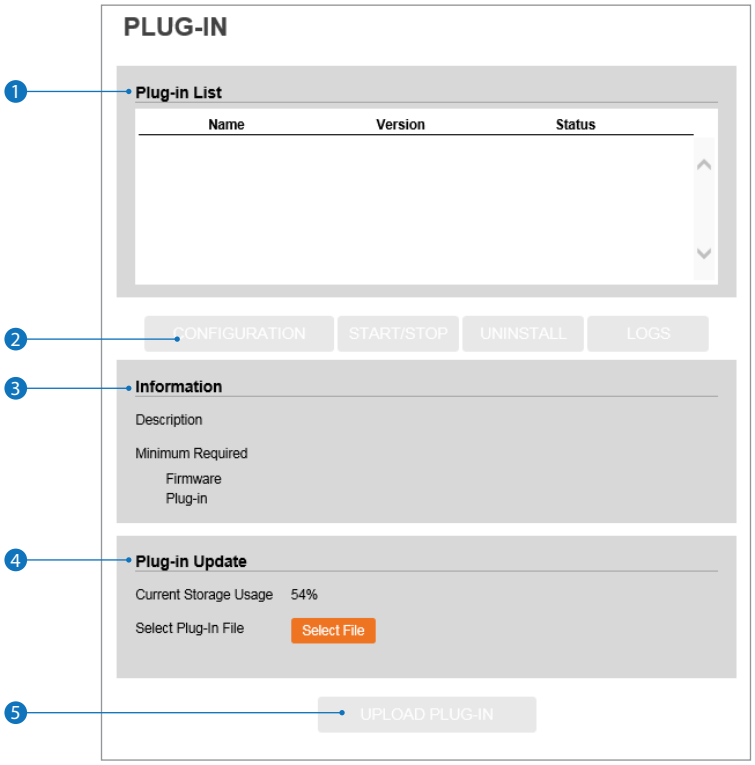


SYSTEM OPEN SOURCE LICENSE

Open Source Name	Version	License
busybox	1.32.0	GPLv2
alsa-lib	1.1.6	GPLv2.1
libglib2	2.52.3	LGPLv2
libgnutls	3.6.2	LGPLv2.1
libjson-c	0.13.1-20180305	JSON License
libcurl	7.66.0	MIT/X derivate License
libffi	3.1	MIT License
libgcrypt	1.6.1	LGPLv2.1
libnl	3.4.0	LGPLv2.1
libogg	1.3.2	BSD-style License
libsamplerate	0.1.8	GPLv2
libselinux	2.7	Public domain
libsndfile	1.0.27	LGPLv2.1
libssh2	1.9.0	BSD
libtasn1	4.13	GPLv3
libxml2	2.9.9	LPGLv2.1

This menu shows a list of all the System Open Source License information in the camera, including Open Source Name, Version, License, etc.

Plug-In



1 **Plug-in List -** View all plug-ins currently installed on the camera.

2 **Configuration -** Show the settings for the selected plug-in from the list.

Start/Stop - Start/stop the selected plug-in from the list.

Uninstall - Remove the selected plug-in from the list.

Logs - Download the log file for the selected plug-in from the list.

3 **Information -** View additional information for the plug-in selected from the list.

4 **Plug-in Update -** Once a plug-in is selected from the list, press the 'select file' button to upload a new plug-in file located on your drive.

※ Note the available local storage on the camera before updating a plug-in. You may need to remove some plug-ins to have enough storage for a new plug-in.

5 **Upload Plug-In -** Once a new plug-in file is selected, click the 'UPLOAD PLUG-IN' button to start the update. The Progress Bar will indicate the uploading progress.

※ See the MEGApix® IVA™ user manual for more information on the analytics plug-ins, settings and activation.

Network Setup -
Quick Start of Network Connection

Follow the steps below to complete the initial network setup.

- Do not power on the IP camera until instructed.
- Temporarily disable any proxy servers configured in Internet Explorer.
- If connecting the IP camera directly to a modem, power down and reset the modem. Leave the modem powered down until the camera's configuration is complete and the IP Camera has been connected to the modem.

1. Connect the IP camera to the configured network.

2. Open the DW IP Finder on a PC on the same network as the camera and search for the camera.

- If you have a DHCP server, it will automatically set the camera's IP address and network settings.
- If you do not have a DHCP server, the camera's IP address is set by default to 192.168.1.80 after one minute In this case, the PC's IP address must be changed to match the camera's IP address settings to be able to access the camera.

3. If multiple cameras are added at the same time, each camera can be identified by its mac address.

4. Click on the camera's IP address and connect to the web page.

5. Default ID/password are both: admin.

6. Familiarize yourself with the viewer interface.

7. Install VLC to display live video.

8. The camera's IP address settings can be set to 'STATIC' from the DW IP Finder or the camera's web viewer by going to Setup -> Network -> Network Settings.

9. If the IP camera is connected to a network with a router, you must have port forwarding configured on your router to access the camera from outside the network.

10. After configuring port forwarding on your router (if necessary), access your IP camera by opening Internet Explorer and typing the IP address and web port assigned to the IP camera.

- Example: http://192.168.0.200:8888
- If your web port is 80, you do not need to specify the port in the address bar to access to your IP camera.

11. Access your IP Camera via the Internet (from a different network from the one your camera is):

If you use a static IP address assigned by your ISP:

1. Open Internet Explorer.
2. Type the address of the IP camera.
3. If you use a router, enter the router's static IP and the web port number of the IP camera.

If you have a dynamic address provided by your ISP

1. Open Internet Explorer and go to your DDNS website.
2. Register the IP camera.
3. Reboot the IP camera.
4. Give the DDNS server 10 minutes to locate your IP camera's IP information.
5. Click the refresh button in Internet Explorer.
6. After your camera is connected, select your camera.

Network Setup -
DDNS Registration

If you have a DYNAMIC IP service from your Internet Service Provider (ISP), you cannot tell the current IP address of the IP Camera.
To solve this problem, you must register with our DDNS service.

First, you must check if you are using dynamic addressing. If so, register your IP Video Server on our DDNS website before you configure, setup, or install the IP Camera.

Even though your IP is not dynamic, you will benefit by registering your device with a DDNS service. In this case, just remember ' hostname.dyndns.com/gate1' instead of a complicated series of numbers like http://201.23.4.76:8078.

For more details, contact our Support Center.

※ To use a public DDNS called 'DynDNS' or 'no-IP', refer to the detailed information on how to use the service. (Visit: http://www.dyndns.com or http://www.no-ip.com)

Network Setup -
Guide to the Network Environment

Please configure the IP Camera at the installation site. You must determine your network scenario to configure the IP Camera with the proper TCP/IP settings.
This tutorial will guide you through the process. Before actually configuring the IP Camera, determine the settings to be applied. Record those settings to be used to configure your IP Camera for reference.

When configuring your IP Camera, treat the IP Camera as another PC on your network. You will assign it to several addresses and other TCP/IP properties to match your current network.

This step-by-step tutorial will teach what IP addresses and network configurations should be assigned based on the network scenario.

1. Before you begin, locate any information and settings received from your Internet Service Provider (ISP). You may need to refer to these IP addresses at a later time during the configuration.

Current TCP/IP Settings	
IP Address	
Subnet Mask	
Default Gateway	
Primary DNS Server	
Secondary DNS Server (Option)	

Static ☐ Dynamic ☐

> ⓘ If you were not given any IP addresses or the ISP was responsible for the setup and installation of your Internet connection, go to step 2.
> ⓘ If you are not using a router on your network, your 'Current TCP/IP Settings' (from the previous section) and 'Assigned IP Addresses from My ISP' will be exactly the same.

2. You must determine whether the IP address is STATIC or DYNAMIC. Contact your ISP to get a STATIC IP address for the camera.

3. Configure your IP Camera's TCP/IP settings for network connectivity by selecting Setup from the main interface and selecting TCP/IP located on the left of the setup screen.

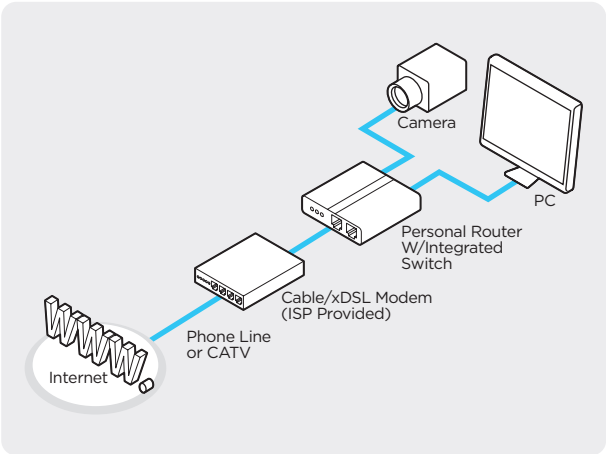
4. If prompted for ID and password, use 'admin' for both entries. The default web port number is 80. If port 80 is blocked by the ISP, use a value between 1025 ~ 60000. If TCP port 80 is blocked, contact your ISP.

5. The following descriptions are several basic network scenarios. Determine which scenario describes your network. If your network does not match one of the scenarios below and you are unsure how to setup your IP camera, contact your network administrator.

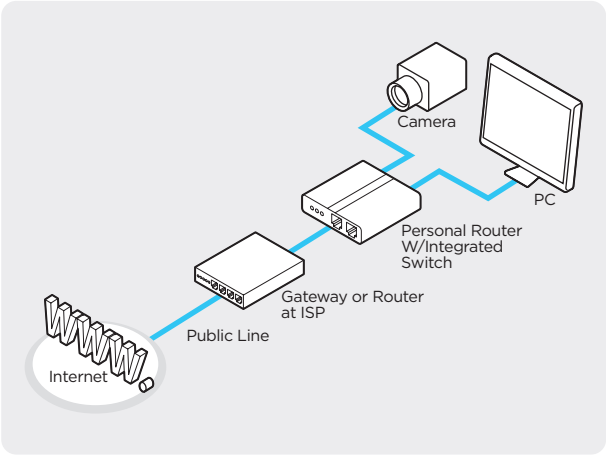
> ⓘ You cannot control the rectangular gray areas and only the ISP has access to the devices.

Network Setup -
Setup Case A, B

Case A:
Dynamic IP + Personal Router [Most SOHO]



Case B:
Static(Fixed) IP + Personal Router [Efficient]



Configure your IP Camera's TCP/IP properties:

1. Network Type: STATIC (even though you have Dynamic IP from your ISP, use STATIC on the IP camera).

2. Internet Address: A private IP address such as 192.168.0.200 (example)

   - You need to assign an IP address to the IP Camera just as you do with PC.
   - The IP address you assign must be unique to your network and match your network as well.
     For information on how to choose a unique IP and match your network, read the FAQ.
   - The IP address you assign must be a private IP.
     For information on how to choose a private IP please, read the FAQ.

3. Subnet Mask: 255.255.255.0 (example)

   - You must use the same subnet mask as the one you noted under 'Current TCP/IP Settings'.

4. Default Gateway: 192.168.0.1 (example)

   - This IP address must be the IP address of your router. (private or LAN side)
   - Use the same Default Gateway you noted under 'Current TCP/IP Settings'.

5. Preferred DNS Server: Use the 1st DNS Server from 'Assigned IP Address from My ISP'.

   - If you did not receive any IP addresses from your ISP, contact the ISP and acquire the IP address of their DNS server.

6. DDNS Server: Use the DDNS server.

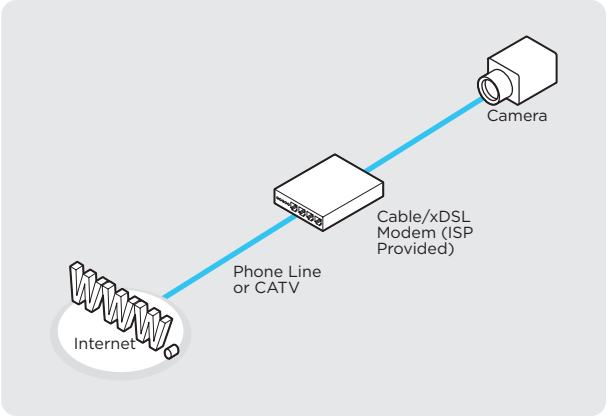
   - This is the same site you will register later to accommodate dynamic IP from your ISP.

7. Web Port: 8888

   - Do not use the default port 80 as this number must be changed.
   - Select a number between 1025 ~ 60000.

Network Setup -
Setup Case C, D

Case C:
Static(Fixed) IP
[Dedicated line directly to the IP Camera]



Configure your IP Camera's TCP/IP properties:

1 Network Type: STATIC

2 Internet Address: A static IP address received from your ISP such as 24.107.88.125 (example)

> You need to assign an IP address to the IP Camera just as you do with PC.

3 Subnet Mask: Subnet mask assigned from your ISP such as 255.255.255.240 (example)

4 Default Gateway: 24.107.88.113 (example)

> Use the assigned default gateway from your ISP.

5 Preferred DNS Server: Use the 1st DNS Server from 'Assigned IP Address from My ISP'

> If you have not received any IP addresses from your ISP, contact them to acquire the IP address of their DNS server.

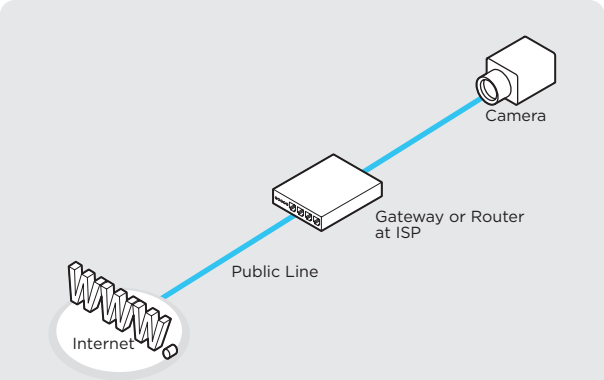
6 DDNS Server: Use the DDNS server

> This is the same site you will register later to utilize our DDNS service.

7 Web Port: 80

> Select a number between 1025 ~ 60000.

Case D:
Dynamic IP + DSL/Cable Modem
[Connected directly to the IP Camera]



> To connect the IP Camera directly to a modem, power down and reset the modem. Leave the modem powered down until the IP camera's setup is completed and the IP camera has been connected to the modem. Then power on the modem, followed by the IP camera.

Configure your IP Camera's TCP/IP properties:

1 Network Type: DYNAMIC

2 DDNS Server: Use the DDNS server

> This is the same site you will register later to accommodate dynamic IP from your ISP.

3 Web Port: 80

> Select a number between 1025 ~ 60000.

Network Setup - Port Forwarding

After entering the correct TCP/IP settings, you are ready for 'Port Forwarding' (Cases A, B).

1. Use the table below to note your camera's TCP/IP settings for future reference. You may need this information to access your IP Camera and to configure 'port forwarding'.

IP camera TCP/IP settings	
IP address	
Subnet mask	
Default gateway	
Preferred DNS server	
DDNS server	
Web port	

2. After clicking 'Apply', the system will prompt for a reboot. Please allow the system 50 seconds to reboot and accept the changes. After 50 seconds, close the configuration screen. The view will display 'Trying to Reconnect'.
   If the ACTIVE light on the IP Camera has gone off and is now back on again flashing, the IP Camera has rebooted. After the system reboots completely, remove the power supply from the unit and close Internet Explorer.

3. Return your PC/Laptop TCP/IP properties to their original settings.

4. Before installing the IP camera, you must perform port forwarding on your router (Cases A, B).
   You will need to forward 1 port:
   - Web Port: All the ports will be forwarded to the IP address you assigned to the IP Camera.
     In the example above, you would forward:
   - 8888 > 192.168.0.200

NOTE: DW Support does not offer port forwarding service assistance. The customer must contact the router manufacturer or their ISP if networking assistance is needed for port forwarding on the local router.

Network Setup - Starting IP Camera

After forwarding correctly the Web Port, through your router (if applicable), install the IP Camera in a proper location.

1. Locate the serial number located on the label attached to the bottom of the IP camera, you will need this for DDNS registration.

2. Connect the IP Camera to your router or cable/ DSL modem (per your network scenario) via a Cat5/5e UTP Ethernet network cable.

3. Supply power to the IP camera.

4. After 1 minute, verify the IP camera indicators:
   - LINK: Flickering/Solid

5. After configuring port forwarding on your computer (if necessary), access your IP camera on your local network by opening Internet Explorer and specifying the IP address and web port assigned to the IP camera.

> Examples: http://192.168.0.200:8888 or http://24.106.88.123
>
> If you left your web port as 80, you do not need to specify the port in the address bar to access the IP camera.

6. Access your IP camera via the Internet :

If you use cases B or C:

1. Open Internet Explorer.
2. Type the address of the IP camera.
3. If you use a router, enter the router's static IP and the web port number of the IP camera.

If you use cases A or D:

1. Open Internet Explorer and go to your DDNS website.
2. Register the IP camera.
3. Reboot the IP camera.
4. Give the DDNS server 10 minutes to locate your IP camera's IP information.
5. Click the refresh button in Internet Explorer.
6. After your camera is connected, select your camera.

> The difference between B and C is that B needs to set the port forwarding.
>
> Since the type of DDNS differs from the service type, refer to the related service site.

Appendix
FAQ

1. **My POWER light is not on?**
   Power is not being supplied to the unit. Please use the power supply shipped with the unit and verify that a power source is active from the attached power outlet used to connect the adapter. You can test this by plugging in any other electrical device and verifying its operation. After using the power supply shipped with the product, check the power source and reinsert the power connector into the IP Camera, please call our Support Center. The power supply may be defective.

2. **My ACTIVE light is not flashing?**
   Verify the power supply to the unit. Power off the unit and back on again, wait 1 minute, if the ACTIVE light still does not begin to flash, you will have to set the unit to its factory default (THIS WILL DELETE ANY CONFIGURATION AND SET THE UNIT TO THE FACTORY DEFAULTS). Power on the unit and insert the end of a paper clip into the small recessed opening on the back of the unit. Use the clip to press the button located within that opening.

3. **My LINK light is not flashing or solid?**
   Verify the cable connection. 99% of the time the cable's connection to the unit is causing this problem. Try using a different network cable or crossover cable (for PC connection only). Try reinserting the cable, if this still doesn't solve the problem call our Support Center.

4. **I can access the video server on my LAN, but not from the Internet.**
   Verify that your router (if applicable) has port forwarding properly configured. If accessing from our DDNS service, verify the correct serial number. Firewall issues may prevent user access.

5. **How do I open an MS-DOS or Command Prompt?**
   Start > (All) Programs > Accessories > Command Prompt

6. **How do I find out my IP address information if my settings were automatically detected?**
   1) Open a Command Prompt
   2) At the prompt type - "ipconfig / all" (without the quotes)
   3) Near the end of the information supplied, should be your current IP address, subnet mask, default gateway and DNS servers

7. **I can't connect!!**
   In the case of a connection failure.
   Modem Reboot > Modem Reboot Finished > Router Reboot > Router Reboot Finished > IP Camera Reboot > IP Camera Reboot Finish > Verify DDNS and IP Camera connection, if applicable.

8. **How do I "PING" an IP address?**
   1) Open an MS-DOS (or Command) prompt
   2) At the prompt type - "ping xxx.xxx.xxx.xxx" (without the quotes and replace the "x" s with an IP address)
   3) Press Enter

9. **I'm accessing my video server remotely over the Internet and the video stream is choppy, is this normal?**
   Yes. The frames per second received remotely are determined by your bandwidth capabilities both at your site where the IP Camera is installed and your remote location. The lower of the two sites will determine how fast your video stream is received. It is recommended to have at least a 256Kb/sec upstream connection from the site where the IP Camera is installed. Lower speeds will operate properly but provide poor remote performance. The Faster the Internet connection at both ends, the faster the video stream.

10. **How do I enable or check VLC on my browser**

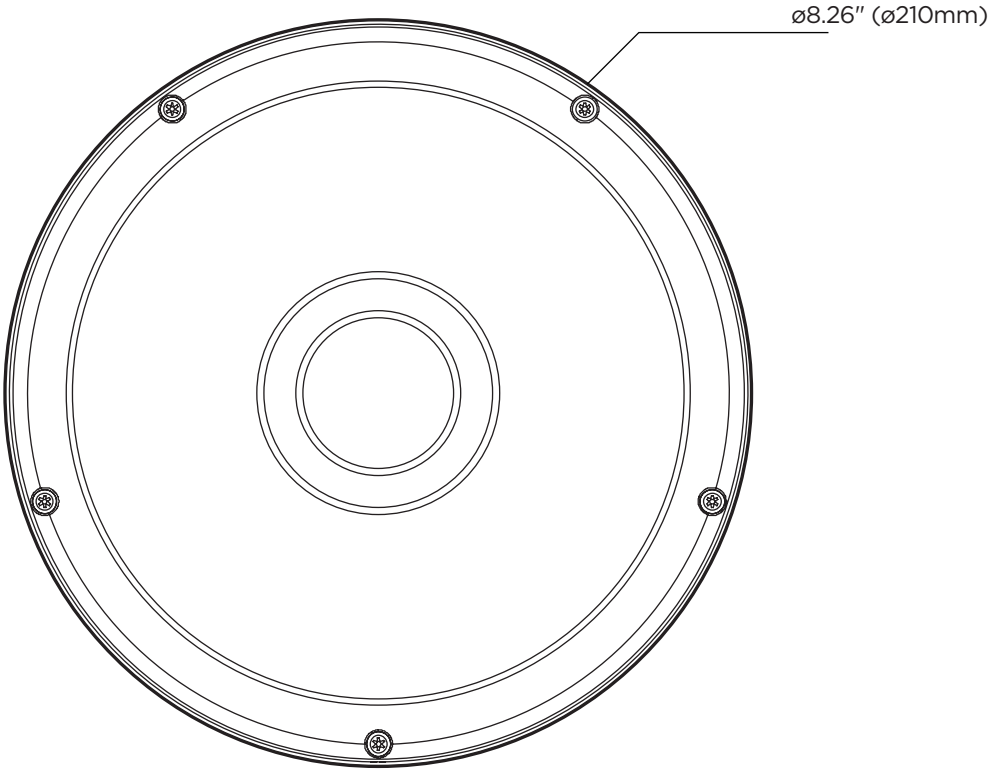
    Internet Explorer
    Open Internet Explorer > Tools on the menu bar > Internet Options > Security Tab > Custom Level > Scroll down and verify that you are prompted or have enabled plug-ins to be downloaded and executed. > click OK > restart browser.

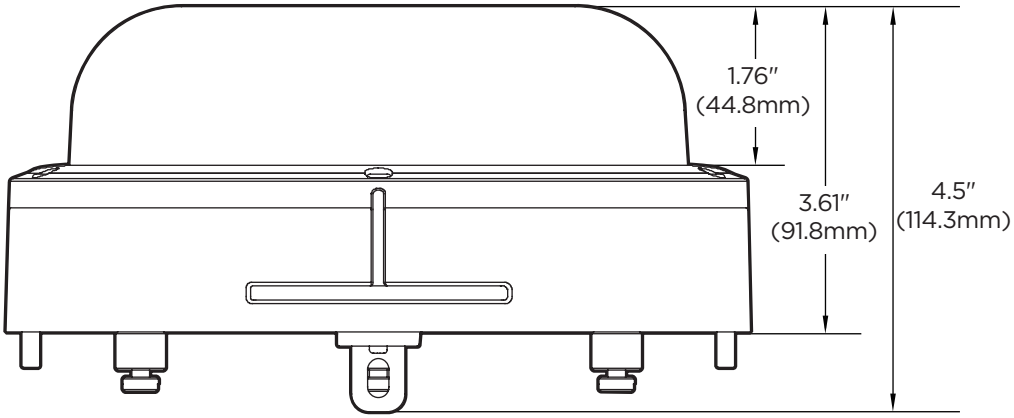
    Chrome
    Open Chrome > Chrome menu settings > Advanced settings > Individual information - content settings > Run automatically

11. **How do I reset the unit to factory defaults?**
    Refer to the previous functions page and find the reset button. Power ON the unit and use a paper clip to push the reset button within that opening. You should then see the ACTIVE light turn off and after a few seconds, the ACTIVE light will begin to flash, signifying a successful reboot. If the ACTIVE light does not turn off after depressing the reset button, please try holding the button in for a few seconds and releasing it. YOU WILL LOSE ALL DATA THAT HAD BEEN ENTERED PREVIOUSLY AND THE IP CAMERA WILL BE SET TO ITS FACTORY RESET.

Specifications - Dimension

Unit: inches (mm)





Appendix -
Product Specifications

IMAGE	
Image sensor	4x 1/2.8" 5.14MP CMOS
Total pixels	4x 2592(H) x 1944(V)
Minimum scene illumination	0.05 lux (color)/
Test video output	Local video output CVBS 1.0V p-p (75Ω), 4:3 aspect ratio
S/N ratio	50dB
Maximum resolution	20MP (4x 2592x1944)
LENS	
Focal length	4x 2.8 ~ 8.0mm, F1.6
Lens type	Vari-focal lens with motorized zoom and auto-focus
Field of view (HFoV/VFoV)	4x 51° ~ 93° HFoV/ 4x 39°~68° VFoV
I/O	
Audio in/out and compression	1 (1.0Vms, 3K ohm) input/1 output, G.711
Alarm in/out	1 input/1 output
OPERATIONAL	
Intelligent Video Analytics	Intrusion, line crossing, counting line, loitering, enter, exit, tamper, object removed, tailgating, direction, stopped, appear, disappear, object left, logical rules.*
	NOTE: object removed, tailgating, direction, stopped, appear, disappear, object left, and logical rules are available via IVA+ plugin update. For existing cameras, contact your DW sales representative for a complimentary update.
Shutter speed	1/15 ~ 1/32000
Slow Shutter	1/2, 1/3, 1/5, 1/6, 1/7.5, 1/10
Auto gain control	Auto
Day / night	Auto, day (color), night (B/W)
3D digital noise reduction	Smart DNR 3D-DNR
Wide dynamic range (WDR)	True WDR, 120dB
White balance	Auto
Mirror and flip	Yes
Privacy zone	16 programmable privacy masks
Alarm notifications	Email notifications, FTP, alarm output, SD card recording
Memory slot	Micro SD/SDHC/SDXC class 10 card (not included)
NETWORK	
LAN	RJ45 (10/100Base-T)
Video compression type	H.265, H.264, MJPEG
Resolution	4x H.265, H.264: 2592x1944, 2560x1440, 1920x1080, 704x576, 704x480, 640x480, 640x360, 352x288, 352x240.
	4x MJPEG: 1920x1080, 1280x720, 800x600, 768x432, 704x576, 704x480, 640x480, 640x360, 352x288, 352x240.
Frame rate	Up to 30fps at all resolutions
Video bitrate	100Kbps ~ 10Mbps, multi-rate for preview and recording
Bitrate control	Multistreaming CBR/VBR at H.265 (controllable frame rate and bandwidth)
Streaming capability	Dual-stream at different rates and resolutions
IP	IPv4
Protocol	TCP/IP, UDP, AutoIP, RTP (UDP/TCP), RTSP, NTP, HTTP, HTTPS, SSL, DNS, DDNS, DHCP, FTP, SMTP, ICMP, SNMPv1/ v2/v3 (MIB-2), ONVIF
Security	HTTPS (TLS), IP filtering, 802.1x, digest authentication (ID/PW)
ONVIF conformance	Yes
Web viewer	OS: Windows, Mac OS, Linux
	Browser: Internet Explorer, Google Chrome, Mozilla Firefox, Safari
Video management software	DW Spectrum
ENVIRONMENTAL	
Operating temperature	-4°F ~ 122°F (-20°C ~ 50°C)
Operating humidity	10–90% RH, (non–condensing)
IP/IK rating	IP67-rated / IK10 impact resistant
Other certifications	FCC, CE, ROHS, UL Listed, NDAA- and TAA-compliant
ELECTRICAL	
Power requirement	DC12V, PoE IEEE 802.3bt PoE+ class 5 (PoE injector included)
Power consumption	DC12V: max 28W, PoE: max 31W
MECHANICAL	
Material	Aluminum vandal housing, polycarbonate dome
Dimensions	8.26" x 3.61" Inch (210 x 91.8 mm)
Weight	4.18 lbs (1.9 kg)
Warranty	5 years warranty

Warranty Information

Go to https://digital-watchdog.com/page/rma-landing-page/ to learn more about Digital Watchdog's warranty and RMA.

To obtain warranty or out-of-warranty service, please contact a technical support representative at 1+ (866) 446-3595, Monday through Friday from 9:00 AM to 8:00 PM EST.

A purchase receipt or other proof of the original purchase date is required before warranty service is rendered. This warranty only covers failures due to defects in materials and workmanship that arise during normal use. This warranty does not cover damages that occur in shipment or failures which are caused by products not supplied by the Warrantor or failures which result from accident, misuse, abuse, neglect, mishandling, misapplication, alteration, modification, faulty installation, set up adjustments, improper antenna, inadequate signal pickup, maladjustments of consumer controls, improper operation, power line surge, improper voltage supply, lightning damage, rental use of the product or service by anyone other than an authorized repair facility or damage that is attributable to acts of God.

Limits and Exclusions

There are no express warranties except as listed above. The Warrantor will not be liable for incidental or consequential damages (including, without limitation, damage to recording media) resulting from using these products or arising out of any breach of the warranty. All express and implied warranties, including the warranties of merchantability and fitness for a particular purpose, are limited to the applicable warranty period set forth above.

Some states do not allow the exclusion or limitation of incidental or consequential damages or limitations on how long an implied warranty lasts, so the above exclusions or limitations may not apply to you. This warranty gives you specific legal rights; you may also have other rights from state to state.

If the problem is not handled to your satisfaction, then write to the following address:
Digital Watchdog, Inc.
ATTN: RMA Department
16220 Bloomfield Ave
Cerritos, CA 90703

Service calls which do not involve defective materials or workmanship as determined by the Warrantor, in its sole discretion, are not covered. Cost of such service calls are the responsibility of the purchaser.

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French Canadian: + 1-904-999-1309
Technical Support Hours: Monday-Friday 9 a.m. to 8 p.m. Eastern Time