

MEGApix PANO 21MP 180° View IP Camera

DWC-PZ21M69TW - white-color housing



User's Manual Ver. 08/25

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 accompanying the appliance.

WARNING

1. In the use of the product, you must be in 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.

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 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.

Important Safety Instructions

1. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the product.
2. 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.
3. If you want to move the already installed product, be sure to turn off the power and then move or reinstall it.
4. Proper configuration of all passwords and other security settings is the responsibility of the installer and/or end-user.
5. 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.
6. 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.
7. Use only attachments/accessories specified by the manufacturer.
8. 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.
9. Use only with cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the product.
10. Unplug this product when a cart is used. Use caution when moving the cart/product combination to avoid injury from tip-over.
11. 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.

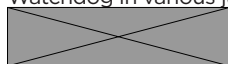
Digital Watchdog makes no warranty of any kind regarding the written material contained within this document. Digital Watchdog shall not be held liable nor responsible for any incidental or consequential damages in connection with the furnishing, performance, or use of this documented material. This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

Trademark acknowledgments

Digital Watchdog, DW, DW Spectrum, MEGApix and Star-Light are registered trademarks or trademark applications of Digital Watchdog in various jurisdictions.



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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

Important Information

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 by a UL Listed Power Supply Unit marked "Class 4" or "LPS" or "PS2" and rated 12 Vdc, 1800 mA min.
- The wired LAN hub providing power over the Ethernet (PoE) in accordance with IEEE 802-3at 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.
- The caution phrase include battery only applicable for the products for battery used models.
- Do not install and use the wrong type of battery.
- Do not leave the battery in a mechanically crush or cut it because it can explode.
- Do not leave the battery in a high temperature environment.
- Do not leave the battery in a low-pressure environment.
- Ce produit est destiné à être alimenté par un bloc d'alimentation homologué UL, marqué "Class 4" ou "LPS" ou "PS2" et d'une tension nominale de 12 Vdc, 1800 mA min.
- Le concentrateur LAN câblé fournissant une alimentation par Ethernet (PoE) conformément à la norme IEEE 802-3at doit être un dispositif homologué UL dont la sortie est évaluée comme une source d'alimentation limitée telle que définie dans la norme UL60950-1 ou PS2 telle que définie dans la norme UL62368-1

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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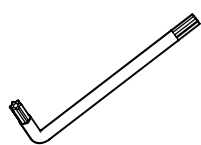
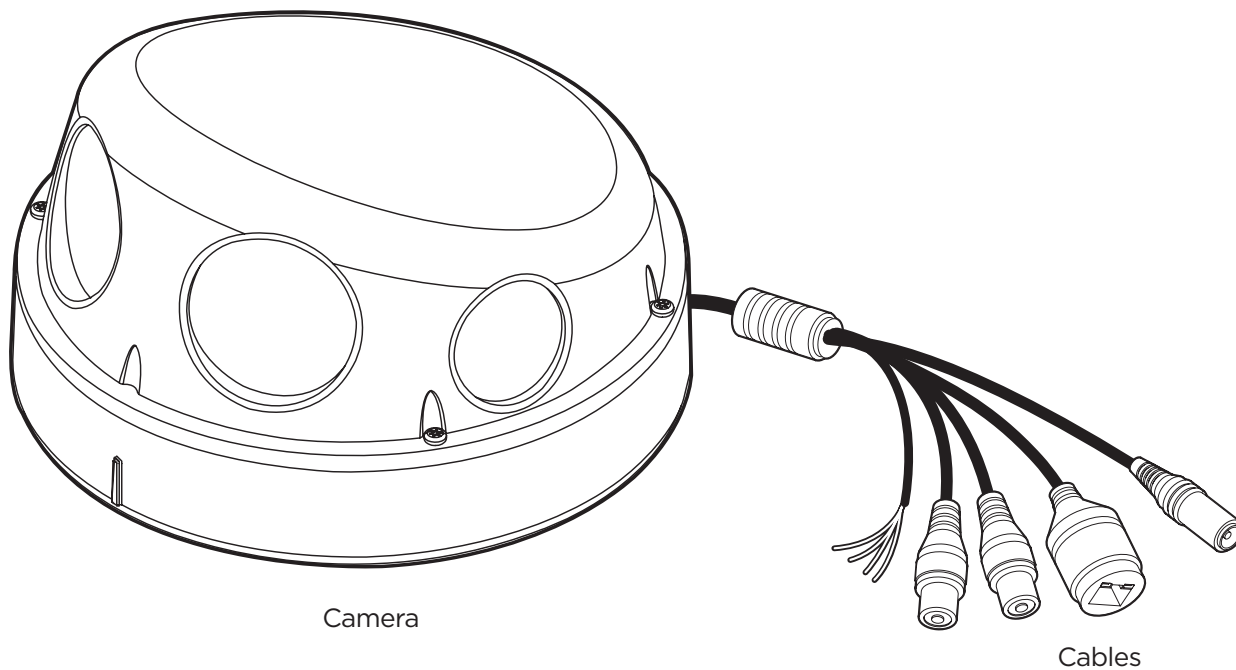
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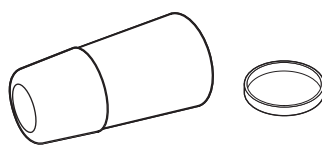
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Introduction - Product & Accessories



Torx Wrench



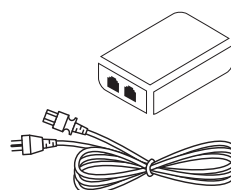
Waterproof cap & Gasket



Quick Manual

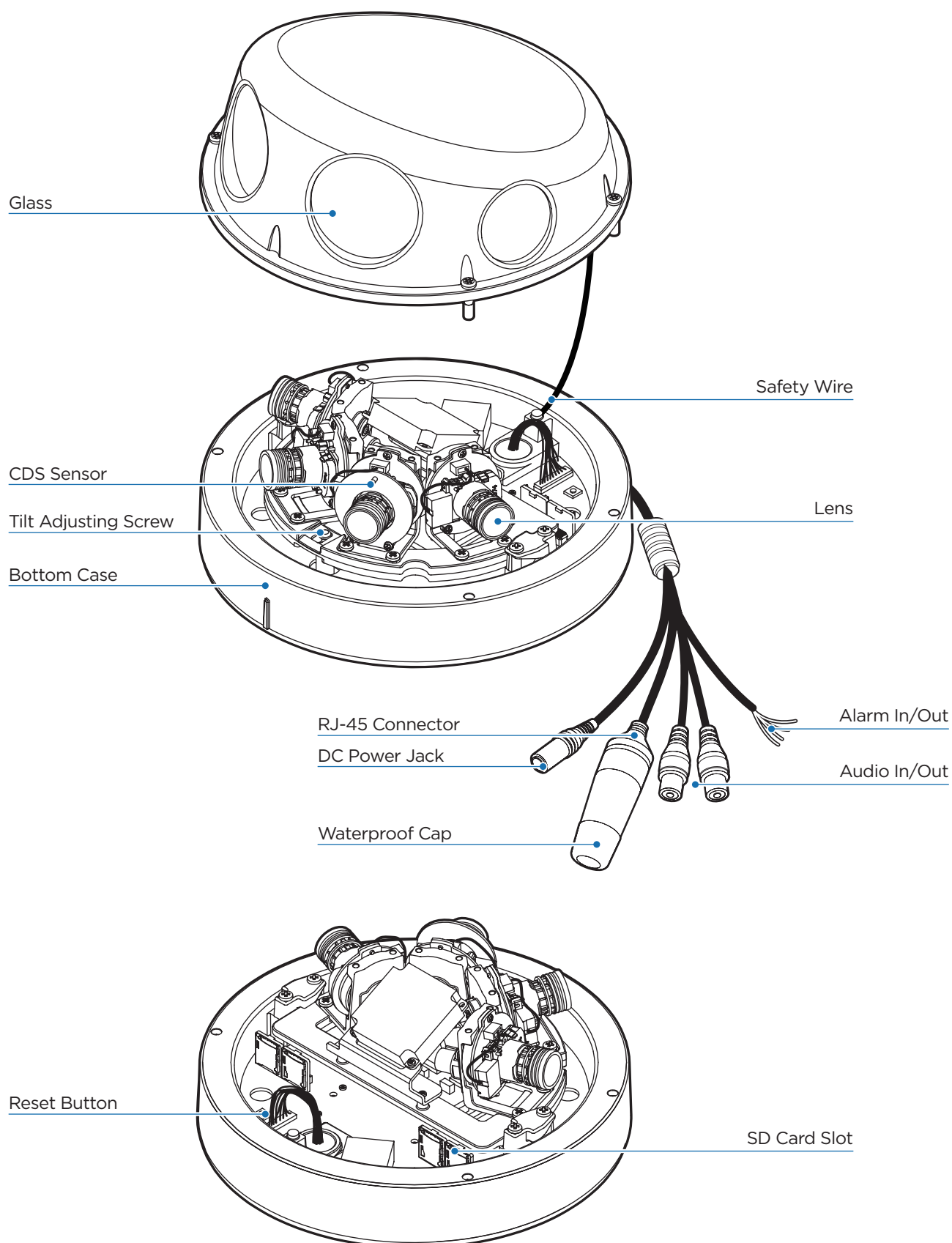


Moisture Absorber - 2pcs
& Absorber Guide



PoE Injector and Power Cable

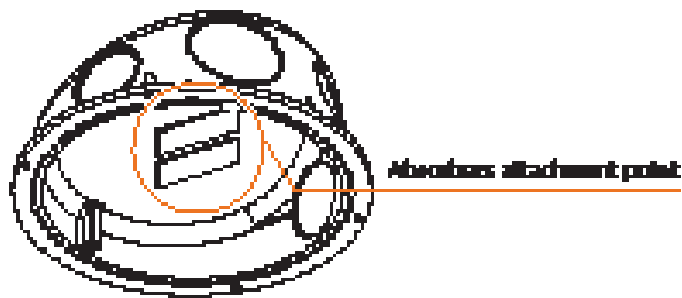
Introduction - Part Name



Installation -

Disassemble the camera

1. CAUTION: These servicing instructions are for use by qualified service personnel only. To reduce the risk of electric shock do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.
2. Install the moisture packet at the top of the camera's cover.
 - a. Remove the moisture absorber from the packaging.
 - b. Cut the card and folder along the dotted line.
 - c. Place the moisture absorber at the top of the camera's cover, according to the diagram below.



NOTE: The camera will generate enough heat to dry moisture during operation. In cases where the camera can experience a moisture issue, keep the moisture absorber in the camera for up to 6 months.

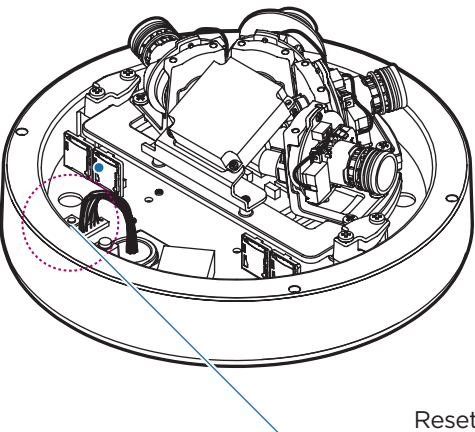
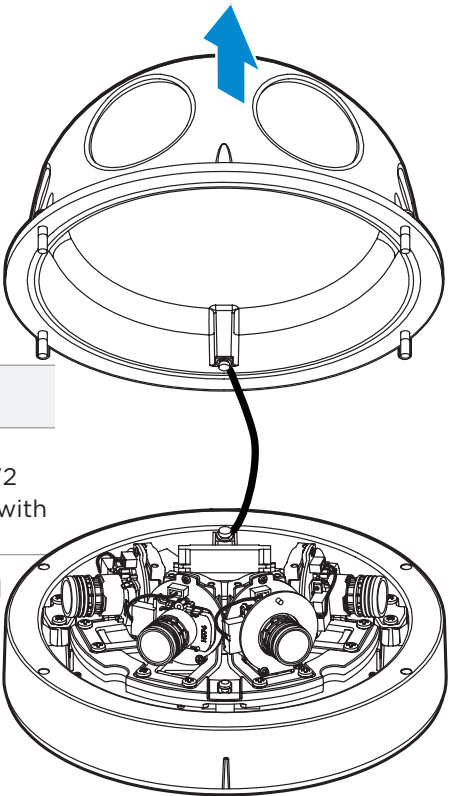
WARNING: The moisture absorber is highly recommended as it prevents moisture buildup inside the camera's housing, which may cause image performance issues and damage the camera.

3. For the installation process, remove the camera's cover.
4. IMPORTANT! The camera requires a mounting accessory, sold separately.

ACCESSORIES REQUIRED TO INSTALL THE CAMERA (SOLD SEPARATELY)

Wall mount bracket: DWC-PZWMW	Ceiling mount bracket: DWC-PZCMW	Parapet mount: DWC-PZPARAMW2 (must be purchased with DWC-PZADPW)
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5. Using the mounting template sheet or the camera itself, mark and drill the necessary holes in the wall or ceiling.



⚠️ Reset to the Factory Default

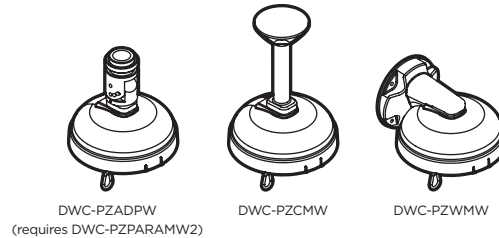
Press the reset button for 5 seconds to return the setup to the factory default.

⚠️ Warning:

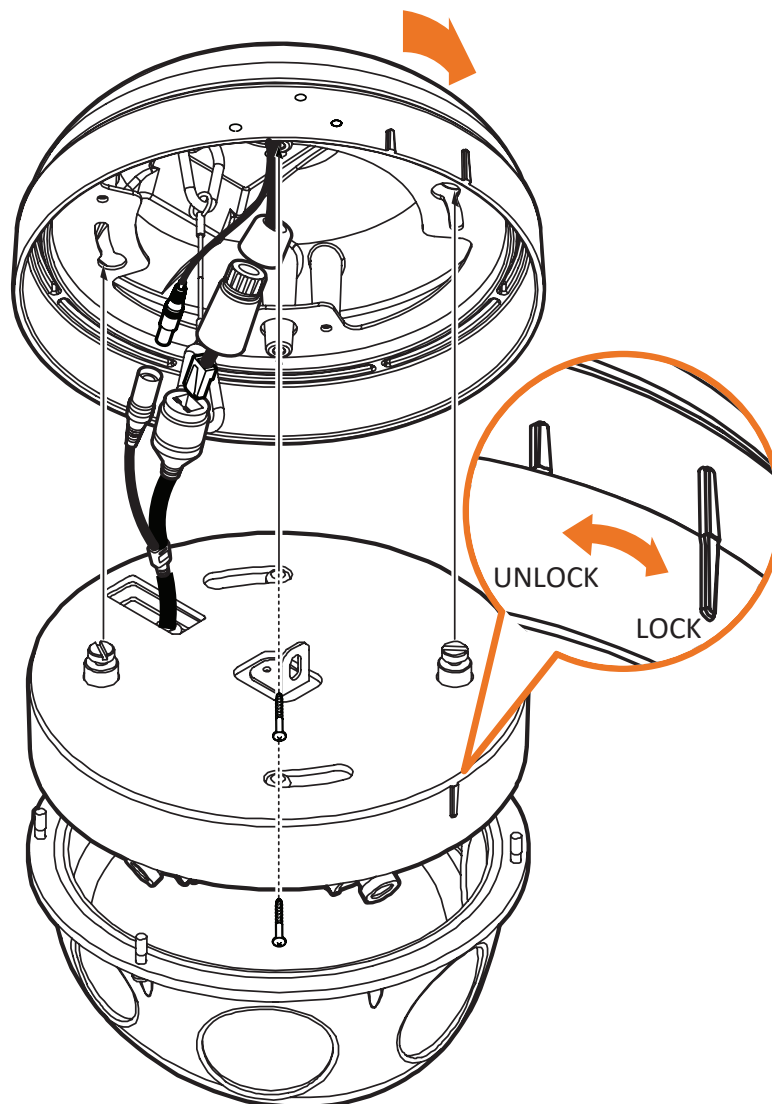
If you press the 'Reset' button, you will lose all setting data. If needed, please, make a note for further installation.

Installation - Installation

1. The camera requires a mounting accessory, sold separately.



2. Install the mounting accessory. Follow the instructions included with the mounting accessory.
3. Secure the camera to the mounting bracket using the included screws. Make sure to align the wedge on the side of the camera with the one on the mounting bracket. Rotate the camera clockwise to lock into position.
4. The camera's four (4) individual sensors can be rotated and tilted to adjust the camera's views. The lens module's max tilt is 18° and rotation is 53° .
5. Assemble the dome cover over the camera body and detach the protective film to complete the installation. Softly wipe the dome/lens cover with lens tissue or a microfiber cloth with ethanol to remove any dust or smudges left from the installation process.



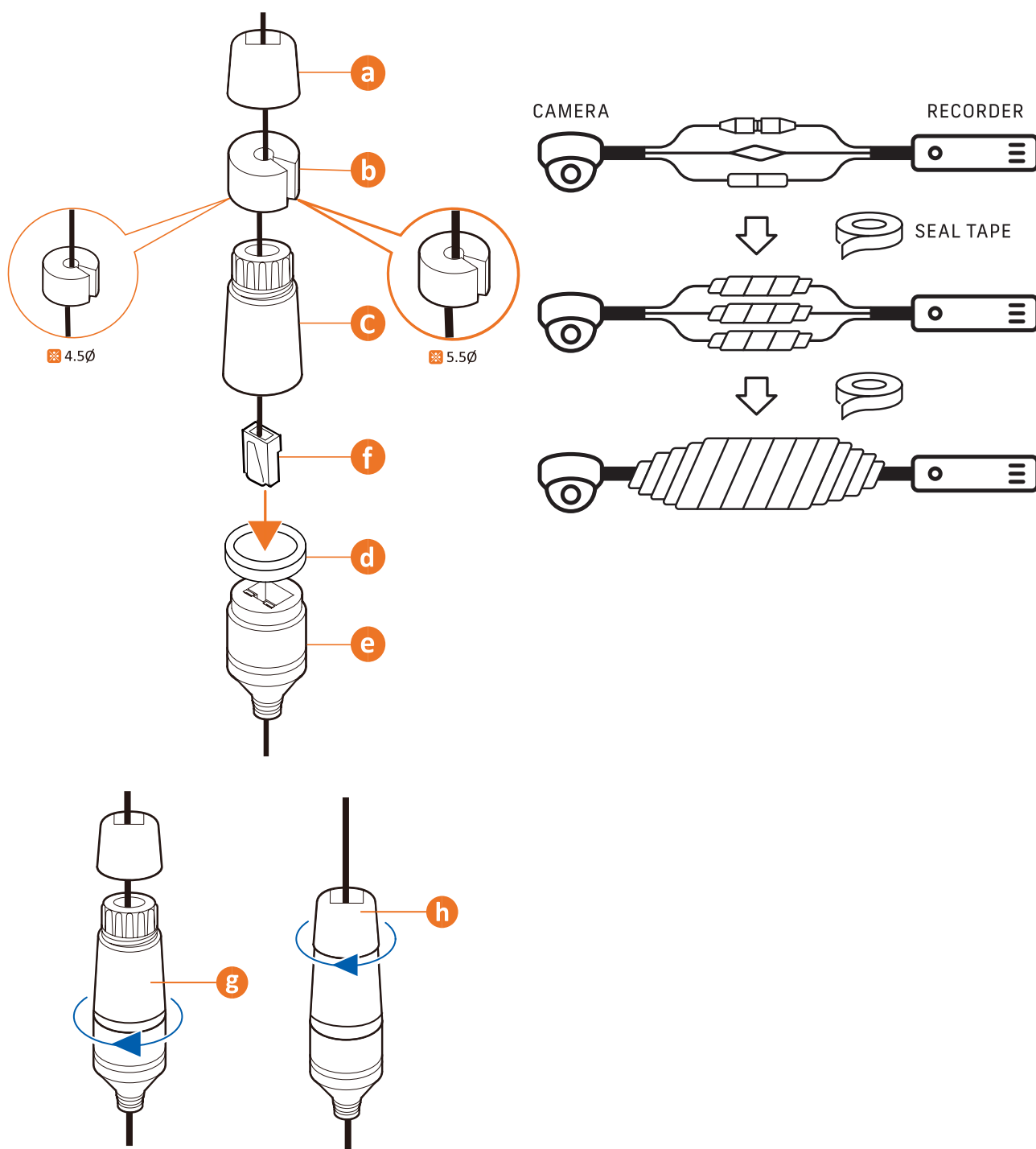
Installation - Installation

Waterproof cap installation:

The waterproof cap set comes with two rubber rings. Use the rubber ring best sized for your network cable's diameter.

NOTE: Cables with $\varnothing 4.5\text{mm}$ to $\varnothing 5.5\text{mm}$ thickness should use the black rubber ring. Cables over $\varnothing 5.5\text{mm}$ in thickness should use the white rubber ring.

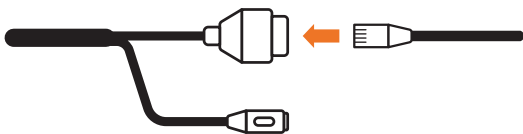
NOTE: To ensure moisture seal, make sure the o-ring **d** is in place between **c** and **e**. In extreme environments use of an outdoor rated sealer is recommended.



Installation - Cabling

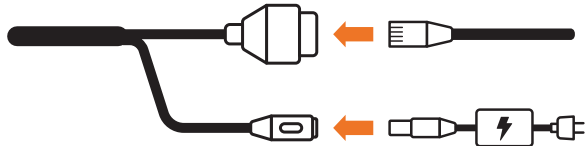
Pass the wires through and make all necessary connections.

Use a PoE Injector (required. Sold separately) to connect data and power to the camera using a single Ethernet cable.



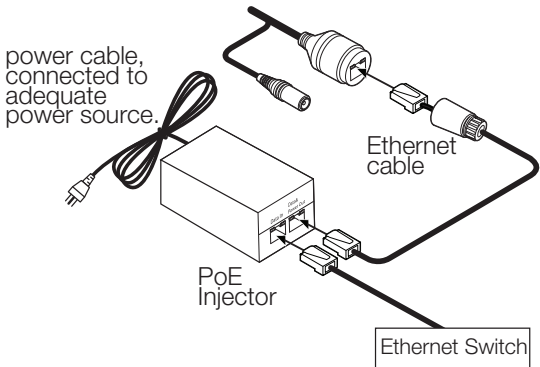
OR

Use a non-PoE Switch to connect data using an Ethernet cable and use a power adapter to power the camera.

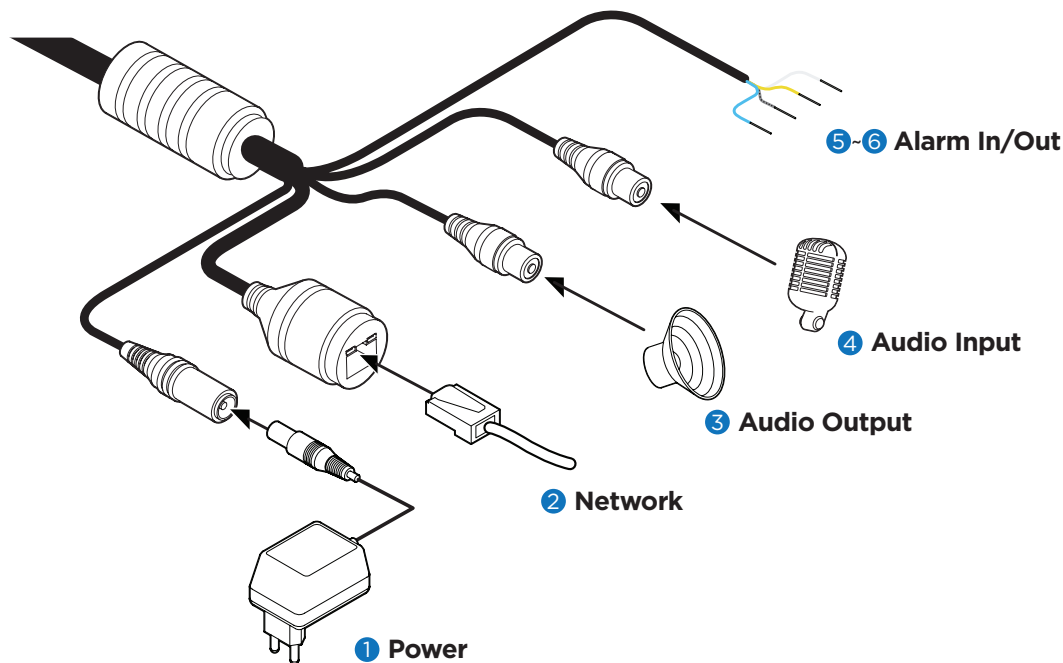


Power requirements	Power consumption
DC12V, PoE IEEE 802.3at PoE+ class 4 (High power PoE injector included)	DC12V : 21.5W PoE IEEE802.3at Class4: 23.2W

NOTE: When using the PoE+ injector, do not connect the PoE injector to a PoE/PoE+ switch or PoE/PoE+ enabled port of PoE/PoE+ switch.



Installation - Cabling



1. Power

Use the PoE injector included with the camera for data and power to the camera.

Power requirements	Power consumption
DC12V, PoE IEEE 802.3at PoE+ class 4 (High power PoE injector included)	DC12V : 21.5W PoE IEEE802.3at Class4: 23.2W

2. Network Connection

See page 11 for connection options.

3. Audio out

Connect the 'audio out' port of the camera to the 'line in' port of the speaker.

⚠ If a speaker is connected to the audio output without an amplifier, it will not work properly. A speaker with an amplifier or a separate amplifier is needed.

4. Audio in

Connect the 'audio in' port of the camera to the microphone directly or the 'line out' port of the amplifier connected with a microphone.

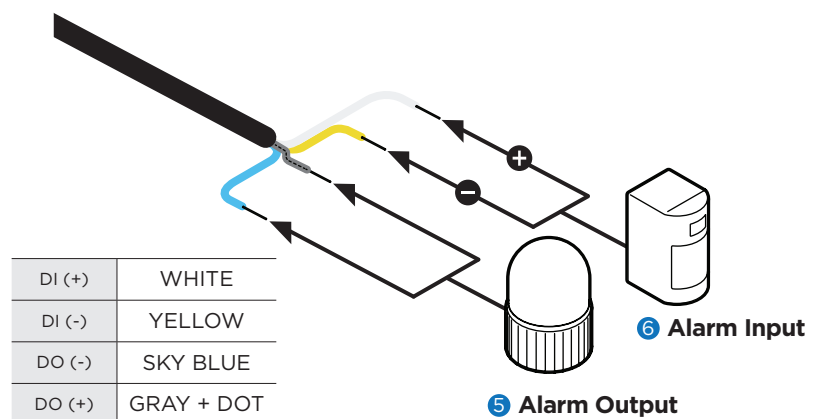
⚠ If the microphone is connected directly, the microphone with the embedded amplifier, such as a condenser microphone, needs to be used.

5. Alarm out/relay out (DO)

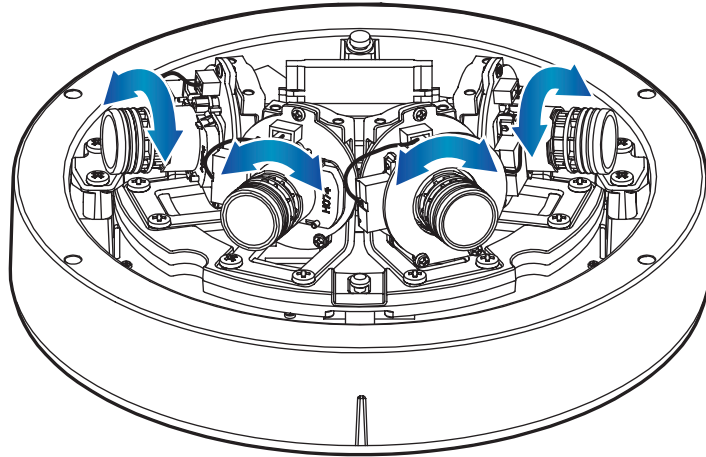
Connects to the alarm lights, siren or lamps and the sensor types are normal open and normal close.

6. Sensor/alarm input (DI)

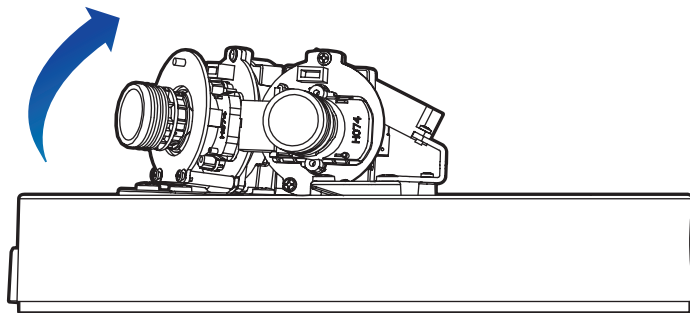
The sensor/alarm input device's cable should connect to the + and - of the Terminal Block.



Installation - Adjusting the Camera Angle

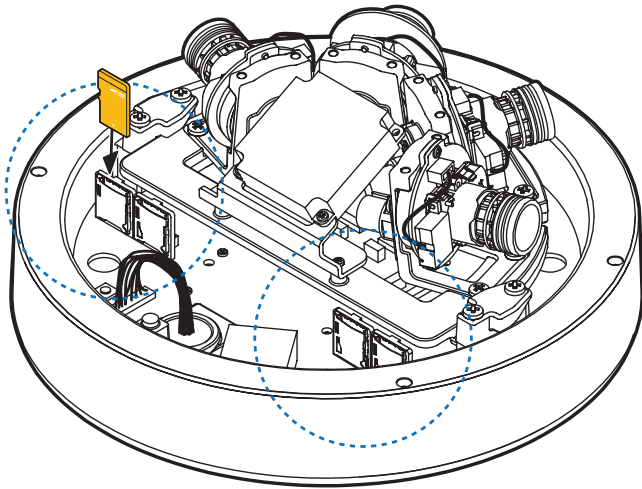


Rotating 53°

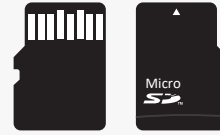


Tilting 18°

Installation - Inserting/Removing the SD Memory Card

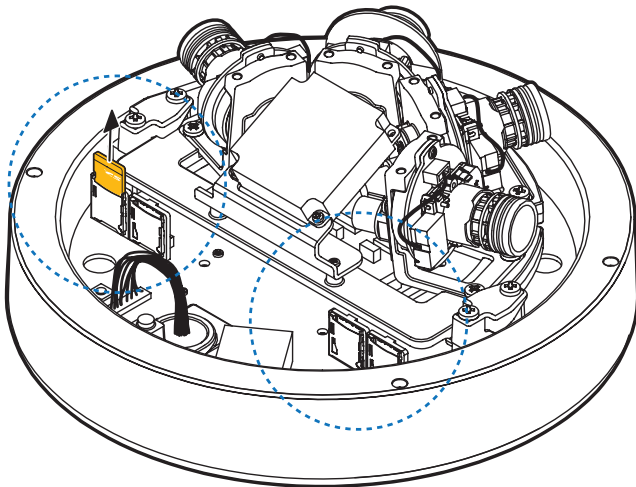


The memory card is an external data storage device that has been developed to offer an entirely new way to record and share video, audio, and text data using digital devices.



❏ **Recommended SD card specification
(not included)**

- Type: Micro SD (SD/SDHC/SDXC)
- Manufacturer: SanDisk, Samsung, Transcend, Micron
- Capacity: Up to 1 TB / FAT32 format only.
- Class: UHS-I U3 Class 10
- ❏ New micro SD card over 64GB must be formatted on the first use.



1. Open the camera's control panel on the side of the camera using the star wrench included with the camera.
2. Locate the SD card slot.
3. Insert class 10 SD/SDHC/SDXC card into the SD card slot by pressing the SD card until it clicks.
4. Press the card inward until it clicks to release from the card slot, then remove the card.

NOTE: Maximum SD Card size supported: Up to 1TB micro SD / FAT32.
When inserting the SD card into the card slot, the SD card's contacts should be facing upward, as shown in the diagram.

Network Setup - DW IP Finder™

The screenshot shows the DW IP Finder software interface. On the left, there is a sidebar with several buttons: 'Select network to scan', 'Filter device type to scan', 'Scan devices', 'Show/hide thumbnail view', 'Refresh thumbnail view', 'Bulk IP assignment', and 'Firmware upgrade'. The main area displays a table of discovered devices. Annotations point to various parts of the interface: 'Thumbnail view' points to the left sidebar; 'Firmware version' points to the 'Version' column in the table; 'Camera's uptime' points to the 'Uptime' column; 'Open device configuration settings' points to the 'Click' button in the table; 'Device's information' points to the 'Name' column; 'Bulk IP assignment' points to the 'Bulk IP Assignment' button; and 'Firmware upgrade' points to the 'Firmware Upgrade' button.

Thumbnail	Name	IP Address	Model	MAC Address	Netmask	Gateway	Port	DHCP	Version	Ping Test	IP Conf.	Uptime
	DWC-HP1230X	192.168.150.34	DWC-HP1230X	00:07:0B:19:10:1A	255.255.255.0	192.168.150.1	80	Disabled	1.9.94.X2_release	Ping	Click	28day 14hrs 1mins
	DWC-MV4400A	192.168.150.40	DWC-MV4400A	00:00:F1:21:53:8F	255.255.255.0	192.168.150.1	80	Disabled	A2.01.02_20180619	Ping	Click	28day 13hrs 54mins
	DWC-PZ21M99T	192.168.150.41	DWC-PZ21M99T	00:00:F1:21:29:21	255.255.255.0	192.168.150.1	80	Disabled	A5.01.03_20180403	Ping	Click	28day 13hrs 54mins
	DWC-PV310W4	192.168.150.42	DWC-PV310W4	00:00:F1:21:5C:AD	255.255.255.0	192.168.150.1	80	Disabled	S2.01.03_20180309	Ping	Click	28day 13hrs 46mins
	DWC-PFSM1TIR	192.168.150.61	DWC-PFSM1TIR	00:0A:61:1A:00:14	255.255.255.0	192.168.150.1	80	Disabled	-	Ping	Click	---
	DWC-PV9M2TIR	192.168.150.62	DWC-PV9M2TIR	00:0A:61:1A:26:E7	255.255.255.0	192.168.150.1	80	Disabled	-	Ping	Click	---
	DWC-MF400H	192.168.150.63	DWC-MF400H	00:0D:F1:20:F8:60	255.255.255.0	192.168.150.1	80	Disabled	A2.01.02_20180619	Ping	Click	28day 14hrs 0mins

- Go to : <http://www.digital-watchdog.com> and search for 'IP Finder' on the quick search bar at the top of the page.
- The latest IP Finder software will appear in the search results. Click on the link to download the file to your computer.
- The software will scan your network for all supported cameras and display the results in the tabel. Allow up to 5 seconds for the IP Installer to find the camera on the network.
- You can press the 'Refresh List' to search the network again, or filter the search results by entering a value in the filter box.
- Check the box next to 'Display Camera Thumbnail' to view a JPEG image of the camera's view next to the camera name on supported models.

- The default network type of camera is DHCP mode.
- If you have a DHCP server, it will automatically set the Camera IP.
- Contact your network administrator for more information.

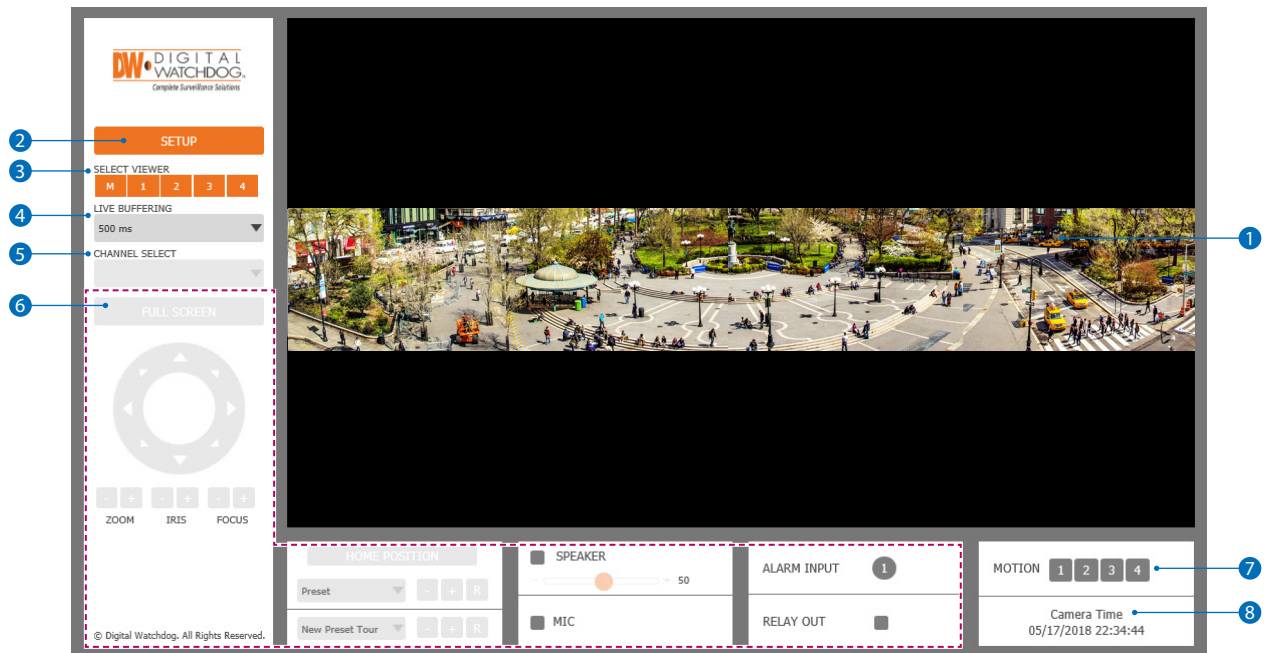
- To save the changes made to the camera's settings, input ID and PW of the camera for authentication.
- If the camera needs to be rebooted after the settings were changed, press the 'Reboot' button. The camera will power cycle and will appear back in the search results once the reboot is complete.

The screenshot shows the DW Camera Settings window. It contains fields for Camera Name (DWC-MD421TIR), MAC Address (00:0D:F1:20:A4:9E), IP Configuration Mode (DHCP selected), IP Address (192.168.1 .101), Netmask (255.255.255.0), Gateway (192.168.1 .1), DNS (192.168.40 .1), Ports (Web Port 80, Control Port 0, Video Port 0, Audio Transmit 0, Audio Receive 0), Username (admin), and Password (*****). There are buttons for 'Restore default camera configuration', 'View Camera Website', 'Apply', 'Reboot', and 'Cancel'.

- Default ID / PW : admin / admin
- For security purposes, it is highly recommended to change your password after initial setup.

- Click 'Save' to save changed values.
- To update the camera's firmware from the DW IP Finder™, click on the firmware tab, upload the firmware file and select the camera to update. You can update multiple cameras at the same time.

Web Viewer Screen - Basic Screen



※ Web viewer is optimized with explorer10 or above version and Firefox.

※ If VLC is not installed or VLC plugin is not supported (Chrome), Live buffering and Channel select menu on 3, 4 will be changed to Live Viewer menu, and then if HTML5(MJPEG) is selected on Live Viewer menu, then you can check the video.

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

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

3 Select Viewer. Click it to open from Viewer M to Viewer 4 separately and Viewer at once.

3 When the image goes unsmoothly because of bad network connection, it stored image during setup time and shows the image on the live view screen.

※ User will see the delayed images as much as setup time.

4 Channel Select button. Select a stream produced from the camera between Stream 1 ~ 3 to display it in the live view screen.

※ Refer the 'Setup > Video & Audio > Video' to setup the Video Stream.

If you select Viewer M to Viewer 4, Channel select button is activated.

5 Below "Menu" is supported in accordance with models.

PTZ Control - This camera model does not support the zoom and focus.

Preset - Does not support.

Speaker Control - Enable/Disable Audio stream received from the camera and Volume control of the speaker in the Computer.

Mic Input - Does not support.

Alarm Input - If the alarm is triggered, the color of corresponding input number will be changed to bright orange from dark gray.

Relay Out - Using these Checkbox, you can read status of Relay Out and also set or reset it manually.

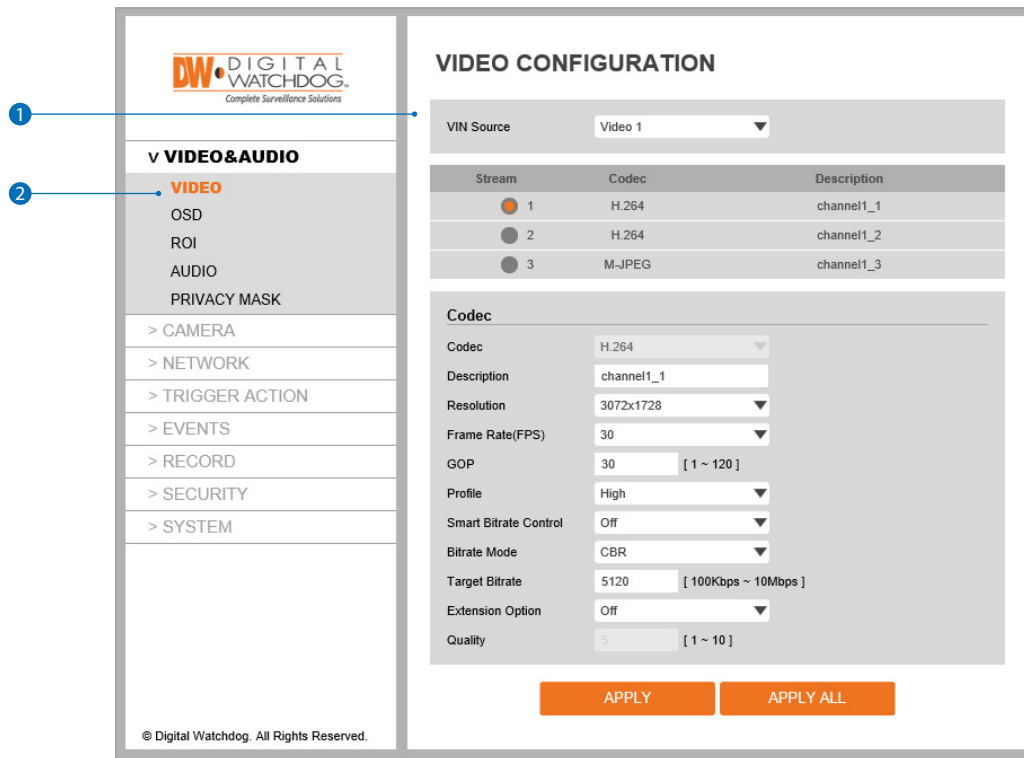
6 **Motion** - It shows the Motion event status.

※ Event Alert Icon (1) appears if 'Motion Detection' is activated.

7 **Camera Time** - Display the camera time.

Setup - Video & Audio Setup

Video Configuration



1 **Detail Page** - When you select an item from the menu, you can set the details for the selected item.

2 Setup Constitution

Video&Audio

[VIDEO, OSD, ROI, AUDIO, PRIVACY MASK]

Camera

[ALIGNMENT, IMAGE ADJUSTMENT, EXPOSURE, DAY&NIGHT, BACKLIGHT, WHITE BALANCE, IMAGE, VIDEO]

Network

[STATUS, NETWORK SETTING, AUTO IP, ONVIF, UPNP, DDNS, FTP, SMTP, SNMP, RTSP INFORMATION]

Trigger Action

[ACTION RULES, IMAGE TRANSFER, RELAY OUT]

Events

[EVENT RULES, MOTION, TEMPERATURE, ALARM]

Record

[MANAGEMENT, RECORD LIST, STORAGE]

Security

[IP ADDRESS FILTER, RTSP AUTHENTICATION, IEEE 802.1x, HTTPS, CERTIFICATES, SERVICE]

System

[INFORMATION, FIRMWARE UPDATE, DATE&TIME, DST, USER MANAGEMENT, LOG, FACTORY RESET, RESTART, OPEN SOURCE]

Setup - Video & Audio Setup

Video Configuration

The screenshot shows the 'VIDEO CONFIGURATION' window. Callout 1 points to the 'VIN Source' dropdown menu set to 'Video 1'. Callout 2 points to a table of video streams. Callout 3 points to the 'Codec' dropdown menu set to 'H.264'. Callout 4 points to the 'Description' text field containing 'channel1_1'. Callout 5 points to the 'Resolution' dropdown menu set to '3072x1728'. Callout 6 points to the 'Frame Rate(FPS)' dropdown menu set to '30'.

Stream	Codec	Description
1	H.264	channel1_1
2	H.264	channel1_2
3	M-JPEG	channel1_3

Codec

Codec: H.264
 Description: channel1_1
 Resolution: 3072x1728
 Frame Rate(FPS): 30
 GOP: 30 [1 ~ 120]
 Profile: High
 Smart Bitrate Control: Off
 Bitrate Mode: CBR
 Target Bitrate: 5120 [100Kbps ~ 10Mbps]
 Extension Option: Off
 Quality: 5 [1 ~ 10]

Buttons: APPLY, APPLY ALL

1 **VIN Source** - Select the Video 1 ~ Video 4 and set the video setup.

Click 'apply' to set the other video setting.

2 **Live Video Channel Setup** - The video can be configured to variety settings with a combination of codec and resolution.
 The camera performance has to be considered when setting multiple channels. This effects on the performance of the camera.

3 **Codec** - Choose the video codec. According to the selected codec, the subcategories can be changed automatically.

4 **Description** - Input the additional description about the selected channel. Max. 30 alphabets are allowed(Including space).
 For the description, English Alphabets, numbers and special characters (- _ @ .) can be used.

5 **Resolution** - Select the video resolution.

Available resolution can be depends on the codec setup between the channels.

<Resolution of Video Format>

	5.3M	3M	0.2M	0.1M	0.1M	720p/i	4CIF	CIF
NTSC	3072 x 1728	2304 x 1296	640 x 360	512 x 288	384 x 216	1280 x 720	704 x 576 704 x 480	352 x 288 352 x 240
PAL	3072 x 1728	2304 x 1296	640 x 360	512 x 288	384 x 216	1280 x 720	704 x 576 704 x 480	352 x 288 352 x 240

6 **Frame Rate** - Select the maximum Frame Rate.

Available Frame Rate can be different although same codecs were set up.

Setup - Video & Audio Setup

Video Configuration

VIDEO CONFIGURATION

VIN Source: Video 1

Stream	Codec	Description
1	H.264	channel1_1
2	H.264	channel1_2
3	M-JPEG	channel1_3

Codec

Codec: H.264

Description: channel1_1

Resolution: 3072x1728

Frame Rate(FPS): 30

7 GOP: 30 [1 ~ 120]

8 Profile: High

9 Smart Bitrate Control: Off

Bitrate Mode: CBR

Target Bitrate: 5120 [100Kbps ~ 10Mbps]

Extension Option: Off

Quality: 5 [1 ~ 10]

APPLY APPLY ALL

- 7 **GOP(Group of Pictures) Size** - Set up the number of frames (P-frame) which contain only changed information based on basic frame (I-frame). Regarding videos with lots of movement, if you set GOP size bigger, only the number of P-frames is bigger. As a result, video resolution will be low but 'File size' and 'Bit-rate can be decreased.

⚙️ **GOP(Group of Pictures) Size is..**

I-frame and P-frame can be created for MPEG4 and H.264 video compression. I-frame(=key-frame) means the whole image data for one specific scene of video. P-frame is image data which has been changed information compared to I-frame GOP is made up of one I-frame and corresponding several P-frames. To improve video quality, set the number of P-frames smaller and to decrease image size, set the number of P-frames bigger.

- 8 **Profile** - The profile defines the subset of bit stream features in an H.264 stream, including color reproduction and additional video compression.

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

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

Baseline - A simple profile with a low compression ratio. The baseline profile supports I-frames and P-frames.

- 9 **Smart Bitrate Control**

Off - You can not use the Smart Bitrate Control function.

CVBR (Framerate priority) - This Mode is for cameras which do not want absolute any frame drop, but still want to get lower bitrate. It has limitation when the Target bitrate is set to be very low, but actual motion is big or scene is very noisy.

CVBR (Quality priority) - When the Target bitrate is set to very low, and motion is big, then LBR will try to drop frames, and make the final fps to be lower, so that it can save its and make the output frames to have better quality.

CBR - This Mode is a CBR alike mode which is close to traditional security IPCAM, and it's not designed for LBR, It's provided as an option in LBR library just to help comparison.

Setup - Video & Audio Setup

Video Configuration

VIDEO CONFIGURATION

VIN Source: Video 1

Stream	Codec	Description
1	H.264	channel1_1
2	H.264	channel1_2
3	M-JPEG	channel1_3

Codec

Codec: H.264

Description: channel1_1

Resolution: 3072x1728

Frame Rate(FPS): 30

GOP: 30 [1 ~ 120]

Profile: High

Smart Bitrate Control: Off

Bitrate Mode: CBR

Target Bitrate: 5120 [100Kbps ~ 10Mbps]

Extension Option: Off

Quality: 5 [1 ~ 10]

APPLY APPLY ALL

- 10 **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 video are controlled in this mode.
Therefore, the quality of video is likely to be varying when network traffic is changing.

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

⚠ This category won't be appear if you select the codec.

- 11 **Target Bitrate** - If Bitrate Control is set to be CBR, you can set the Target Bitrate.

- 12 **Extension Option**

Off - You can not use the Extension Option.

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

- 13 **Quality** - For VBR control mode, The Target Quality of video can be setup.

- 14 Click 'Apply' to make above setting effective.

⚠ Click 'Apply All' to make all the setting.

Setup - Video & Audio Setup

OSD Configuration

The screenshot shows the 'ON SCREEN DISPLAY(OSD) CONFIGURATION' window. It contains three main sections: 'VIN Source', 'Date & Time', and 'User Text'. Each section has an 'Off' and 'On' radio button, and 'Position X' and 'Position Y' input fields with a range of [0 ~ 100]. The 'VIN Source' section has a dropdown menu currently set to 'Video 1'. The 'User Text' section has a 'Text' input field. An 'APPLY' button is located at the bottom right. Four numbered callouts point to specific elements: 1 points to the 'VIN Source' dropdown, 2 points to the 'Date & Time' section, 3 points to the 'User Text' section, and 4 points to the 'APPLY' button.

ON SCREEN DISPLAY(OSD) CONFIGURATION

1 VIN Source Video 1

2 Date & Time
Off On
Position X 0 [0 ~ 100]
Position Y 0 [0 ~ 100]

3 User Text
Off On
Position X 0 [0 ~ 100]
Position Y 0 [0 ~ 100]
Text

4 APPLY

- 1 **VIN Source** - Select the Video 1 ~ Video 4 and Set the video setup.
⚙️ Click 'apply' to set the other video setting.
- 2 **Date / Time** - Display the current time.
- 3 **User Text** - Output the TEXT entered by the user. Support a maximum of 30 characters.
- 4 Click 'Apply' to make above setting effective.

Setup - Video & Audio Setup

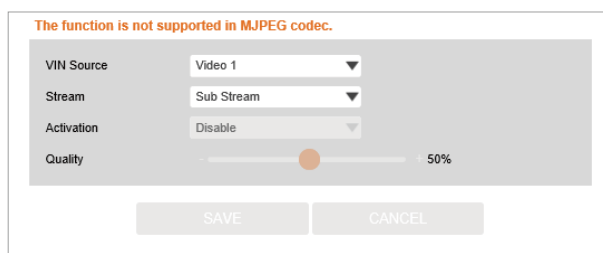
Region of Interest Configuration



Region of interest function gives much more efficiency picture quality for indicated area to improve picture qualities of movement scene at the same bandwidth.

- 1 **VIN Source** - Select the Video 1 ~ Video 4 and Set the video setup.
 - Click 'save' to set the other video setting.

- 2 **Stream** - Select the Stream.
 - Currently it supports only H.264.
 - The function is not supported in MJPEG codec.



- 3 **Activation** - The Region of interest can be enable or disable.
- 4 **Quality** - Set the quality of the set area.
- 5 Click 'Save' to save the current settings.
 - Click 'Cancel' to return to the previous setting.

Setup - Video & Audio Setup

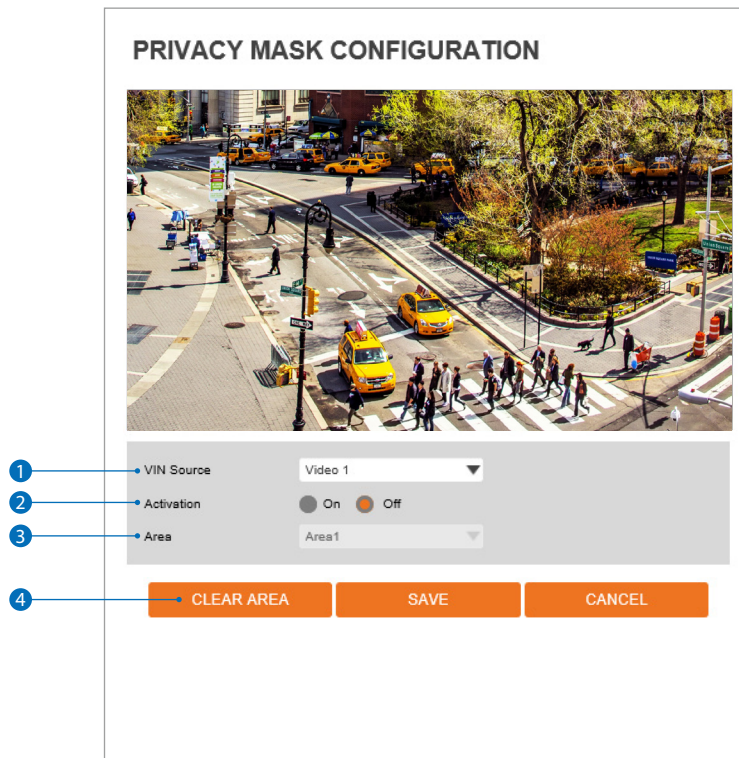
Audio Configuration

The screenshot shows a web interface titled "AUDIO CONFIGURATION". Inside, there is a section labeled "Audio Encode" with three dropdown menus: "Codec" (set to "G.711 ulaw"), "Volume" (set to "0"), and "Sample Rate" (set to "8,000 Hz"). Below these is an orange "SAVE" button. Four numbered blue circles with arrows point to each of these elements: 1 points to the Codec dropdown, 2 points to the Volume dropdown, 3 points to the Sample Rate dropdown, and 4 points to the SAVE button.

- 1 **Codec** - Select the Audio Codec.
⚙️ Currently it supports only codec G.711.
- 2 **Volume** - Select the Audio Volume from 0 to 10.
- 3 **Sample Rate** - Select the Audio Sample Rate.
⚙️ Currently it supports only 8000 Hz.
- 4 Click 'Save' to make above setting effective.

Setup - Video & Audio Setup

Privacy Mask Configuration

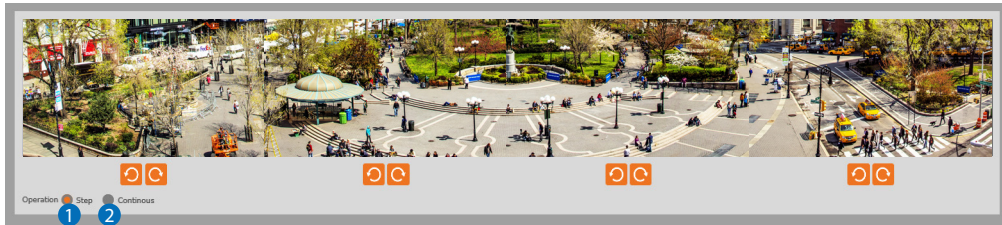


Use this function to mask areas that you want to hide on screen to protect privacy.

- 1 **VIN Source** - Select the Video 1 ~ Video 4 and Set the video setup.
 - Click 'save' to set the other video setting.
- 2 **Activation** - The Privacy mask function can be enable or disable.
- 3 **Area** - Select the Area1 ~ Area16 and Set the privacy area.
- 4 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

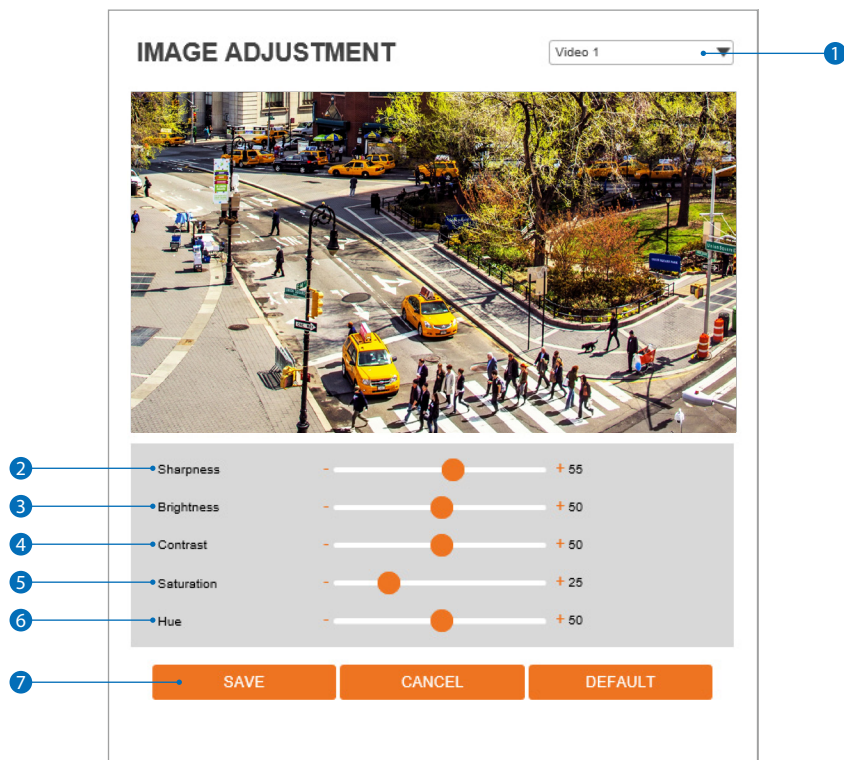
Alignment Configuration



- ① **Step Mode** - Rotate once each time you press the button in the direction of the arrow.
- ② **Continuous Mode** - Press and hold the button and continue to rotate in the direction of the arrow.

Setup - Camera Setup

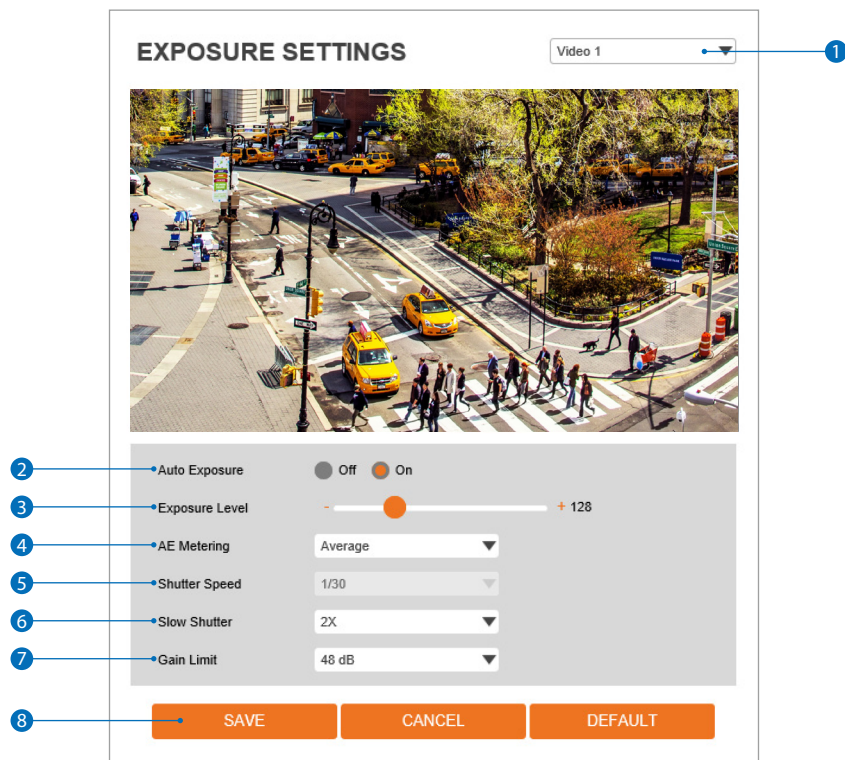
Camera Image Adjustment



- 1 **VIN Source** - Select the Video 1 ~ Video 4 and Set the video setup.
 - Click 'save' to set the other video setting.
- 2 **Sharpness** - Using this control, sharpness of image can be adjusted to meet your preference.
- 3 **Brightness** - Using this control, brightness of image can be adjusted to meet your preference.
- 4 **Contrast** - Using this control, contrast of image can be adjusted to meet your preference.
- 5 **Saturation** - Using this control, Saturation of image can be adjusted to meet your preference.
- 6 **Hue** - Using this control, Hue of image can be adjusted to meet your preference.
- 7 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

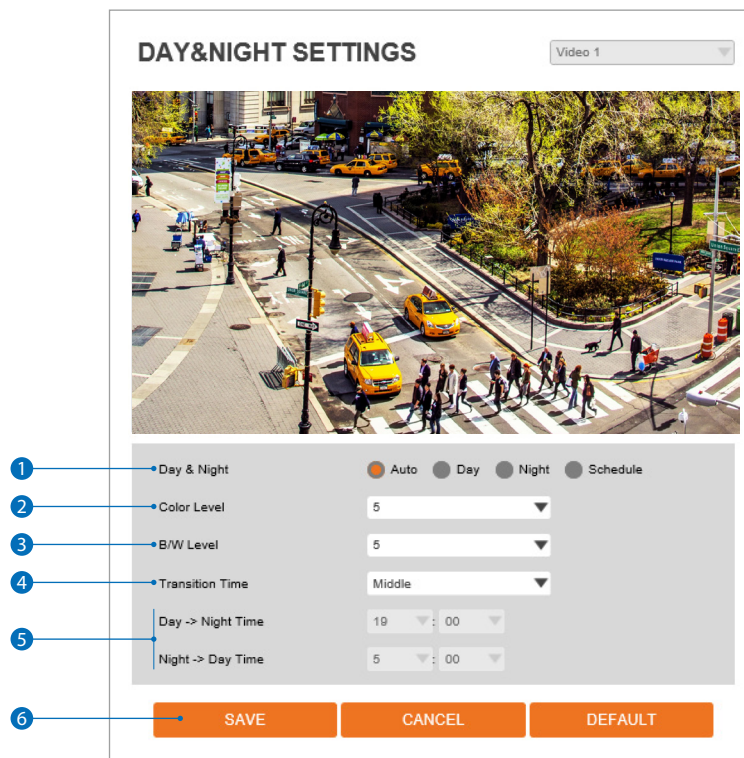
Camera Exposure Settings



- 1 **VIN Source** - Select the Video 1 ~ Video 4 and Set the video setup.
⚙️ Click 'save' to set the other video setting.
- 2 **Auto Exposure** - Automatic exposure(AE) automatically sets the aperture or shutter speed, based on the external lighting conditions for the photo.
- 3 **Exposure Level** - If this value is increases, the image becomes brighter.
- 4 **AE metering** - AE metering mode refers to the way in which a camera determines the exposure.
- 5 **Shutter Speed** - If this speed is faster, the moving object can be photographed without the ghost effect.
However, picture can be dark if there is no sufficient lighting.
- 6 **Slow Shutter Level** - Slow shutter Level lets you adjust the amount of light striking the sensor, and essentially determines when the video sensor sends out its batch of data for processing.
- 7 **Gain Limit** - The smaller number makes the darker image.
- 8 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

Camera Day & Night Settings



1 Day & Night

- **Auto:** In this mode, the IR cut filter is removed automatically depending on the light condition around.
- **Day:** In this mode, the IR cut filter is applied to the image sensor all the time.
Thus, the sensitivity will be reduced in the dark light condition but the better color reproduction performance are obtained.
- **Night:** In this mode, the IR cut filter on the image sensor is removed all the time.
The sensitivity will be enhanced in the dark light condition but the image is black and white.
- **Schedule:** In this mode, Day / Night mode is converted accordance with the scheduled time.

2 **Color Level** - It is a level to change Night mode into Day mode when Day & Night mode is Auto.

3 **B / W Level** - It is a level to change Day mode into Night mode when Day & Night mode is Auto.

4 **Transition Time** - If it is set to Auto, to determine the rate at which Day / Night is converted.

5 If it is set to schedule mode, Set the time that Day / Night is converted.

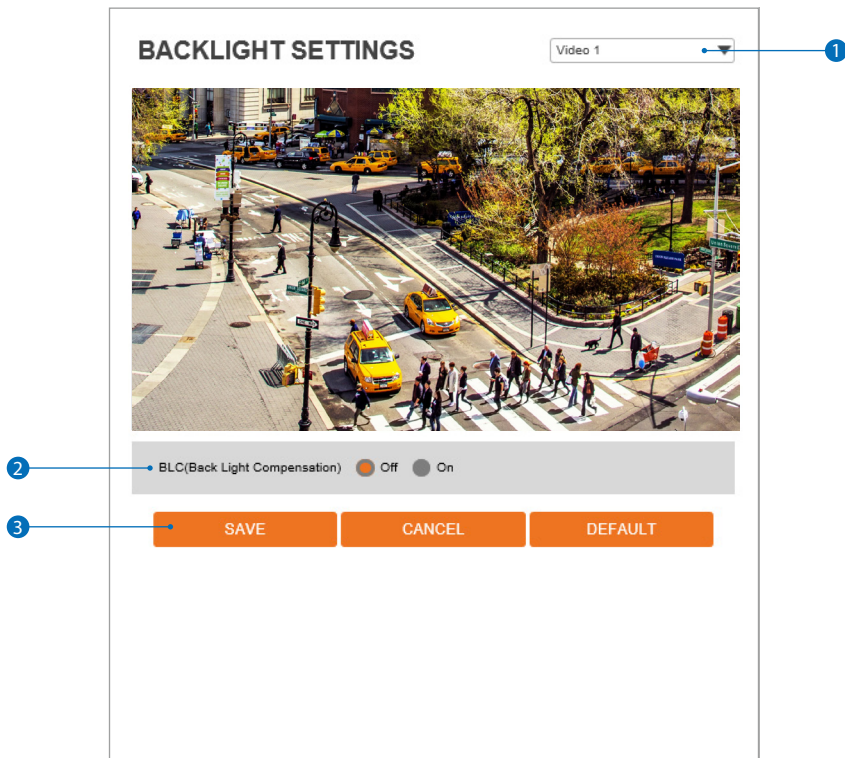
6 Click 'Save' to save the current settings.

⌘ Click 'Cancel' to return to the previous setting.

⌘ Click 'Default' to settings to the factory defaults.

Setup - Camera Setup

Camera Backlight Settings

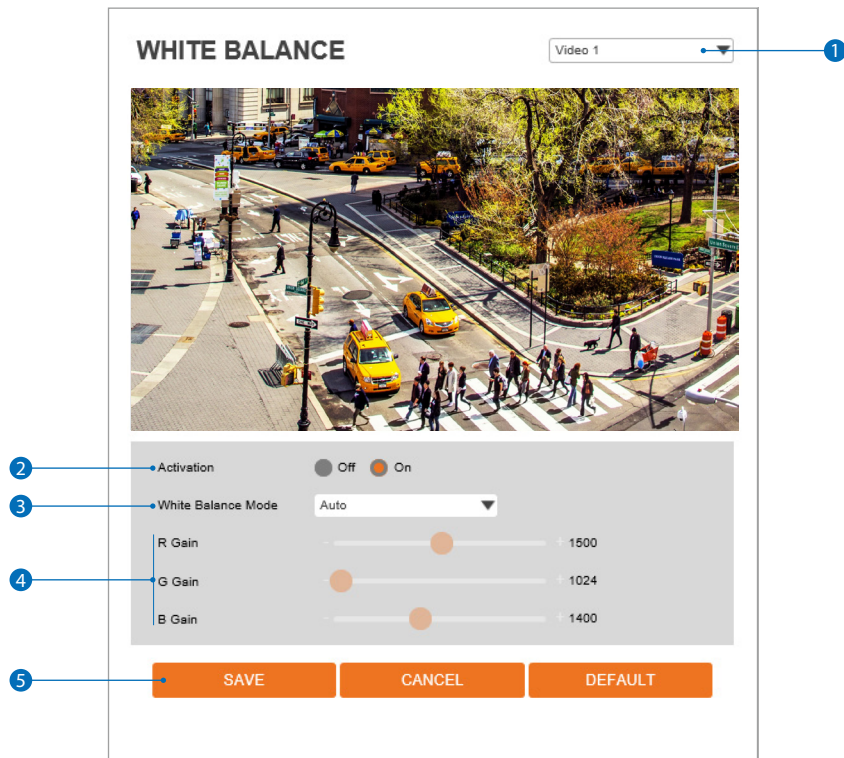


This is a feature used for problematic light conditions where the contrast from light to dark areas is very high.

- 1 **VIN Source** - Select the Video 1 ~ Video 4 and Set the video setup.
 - Click 'save' to set the other video setting.
- 2 **BLC (Back Light Compensation)** - The BLC function can be enable or disable.
- 3 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

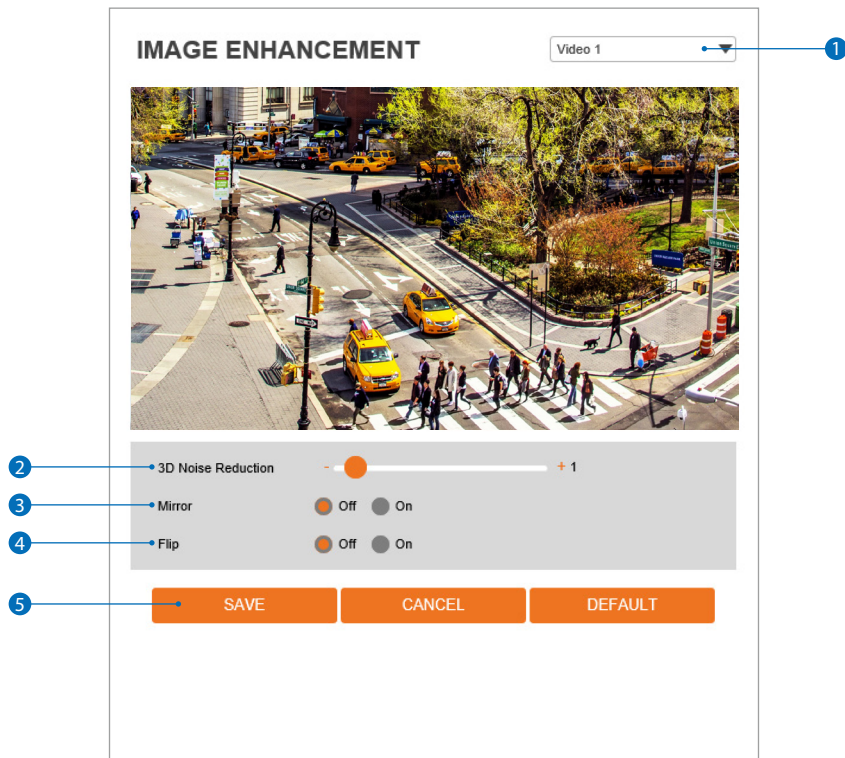
Camera White Balance



- ① **VIN Source** - Select the Video 1 ~ Video 4 and Set the video setup.
 - ⊞ Click 'save' to set the other video setting.
- ② **Activation** - White Balance can be enable or disable.
- ③ **White Balance Mode** - Select White Balance depending on the lighting conditions.
- ④ **RGB Gain** - The R/G/B gain can be set only 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.

Setup - Camera Setup

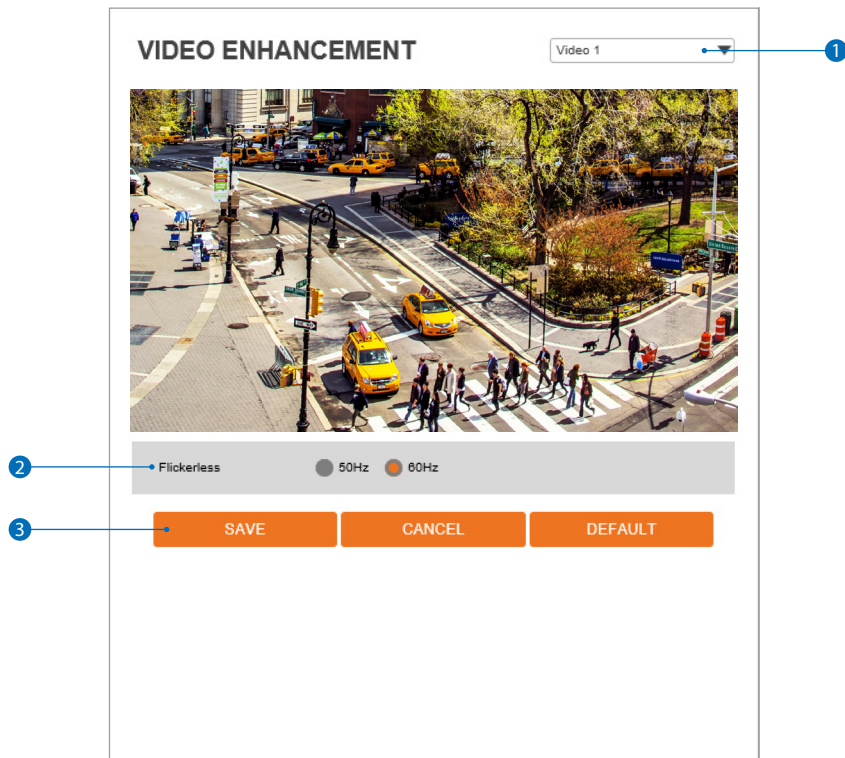
Camera Image Enhancement



- 1 **VIN Source** - Select the Video 1 ~ Video 4 and Set the video setup.
 - Click 'save' to set the other video setting.
- 2 **3D Noise Reduction** - 3DNR function enables to suppress noise and retain good video quality in low light conditions.
- 3 **Mirror** - Reverse the video from side to side.
- 4 **Flip** - Reverse the video from up to down.
- 5 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** - Select the Video 1 ~ Video 4 and Set the video setup.

⚙️ Click 'save' to set the other video setting.

② **Flicker** - This function Enable to enhance the flicker situation.

③ Click 'Save' to save the current settings.

⚙️ Click 'Cancel' to return to the previous setting.

⚙️ Click 'Default' to settings to the factory defaults.

Setup - Network Setup

Network Status

NETWORK STATUS	
MAC Address	00:0D:F1:FF:22:33
IP Address	192.168.1.37
Subnet Mask	255.255.0.0
Default Gateway	192.168.1.1
Preferred DNS Server	210.220.163.82
Alternate DNS Server	219.250.38.130
HTTP Port	80
HTTPS Port	443
RTSP Port	554

This menu will show you all the information of Network setting in the camera. However, you cannot change those here.

Setup - Network Setup

Network Settings

The screenshot shows the 'NETWORK SETTINGS' configuration page. It is divided into three main sections: 'Network Type', 'IP setup', and 'Port Setup'. The 'Network Type' section has two radio buttons: 'Static' (selected) and 'Dynamic'. The 'IP setup' section contains five input fields: 'IP Address' (192.168.1.37), 'Subnet Mask' (255.255.0.0), 'Default Gateway' (192.168.1.1), 'Preferred DNS Server' (210.220.163.82), and 'Alternate DNS Server' (219.250.36.130). The 'Port Setup' section contains three input fields: 'HTTP Port' (80), 'HTTPS Port' (443), and 'RTSP Port' (554). Each port field has a default range in brackets: [Default: 80, 1025 ~ 60000], [Default: 443, 1025 ~ 60000], and [Default: 554, 1025 ~ 60000]. At the bottom right is an orange 'APPLY' button. Numbered callouts 1 through 10 point to the following elements: 1. Network Type section, 2. IP Address field, 3. Subnet Mask field, 4. Default Gateway field, 5. Preferred DNS Server field, 6. Alternate DNS Server field, 7. HTTP Port field, 8. HTTPS Port field, 9. RTSP Port field, and 10. APPLY button.

- ❶ **Network Type** - Define network IP address type from the Static Mode for the fixed IP or the Dynamic Mode by the dynamic IP address.

If you select the Static Mode, you must fill out IP Address, Subnet Mask, Gateway, DNS Server and all ports.

If you select the Dynamic Mode, the IP address will be allocated automatically by DHCP equipment.

If you click the Apply button to update changes, the system will be re-booted.

In this case, you have to reconnect the camera using new IP address.

- ❷ **IP Address** - Define the IP address. The address is consisted of four numbers separated by dots and the range of each number is from 0 to 255.

- ❸ **Subnet Mask** - Define the Subnet Mask. Format is same as the IP address.

- ❹ **Default Gateway** - Default the Gateway IP Address. Format is same as the IP address.

- ❺ **Preferred DNS Server** - Define the DNS server IP address. Format is same as the IP address.

- ❻ **Alternate DNS Server** - Define the Secondary DNS server IP address. Format is same as the IP address.

- ❼ **HTTP Port** - The HTTP port can be set to 80 which default or in between 1025 to 60000.

- ❽ **HTTPS Port** - The HTTPS port can be set to 443 which default or in between 1025 to 60000.

- ❾ **RTSP Port** - The RTSP port can be set to 554 which default or in between 1025 to 60000.

- ❿ Click 'Apply' to make above setting effective.

- ⚠ If the network type is dynamic, the IP address is changed in below cases.

Therefore, the IP address needs to be searched again, and the camera needs to be reconnected in these cases.

- When the camera power is on / off.

- After Firmware update, Default set and reboot.

Setup - Network Setup

Auto IP Settings

The screenshot shows a web interface for 'AUTO IP SETTINGS'. It contains a 'General Setting' section with 'Off' and 'On' radio buttons. Below this is a table with two rows: 'UNIQUE ID' with the value '53bdae6b-82c9-4a6d-ab18-7b878cc7dc18' and 'AUTO IP ADDRESS' with the value '169.254.1.0'. At the bottom is an orange 'APPLY' button. Three numbered callouts point to these elements: 1 points to the 'General Setting' header, 2 points to the 'UNIQUE ID' row, and 3 points to the 'APPLY' button.

AUTO IP SETTINGS	
General Setting	
☒ Off ☐ On	
UNIQUE ID	53bdae6b-82c9-4a6d-ab18-7b878cc7dc18
AUTO IP ADDRESS	169.254.1.0
APPLY	

- ❶ **General Setting** - Auto IP Settings function can be enable or disable.
- ❷ **Auto IP Settings Information** - It displays the unique id or Auto IP address.
- ❸ Click 'Apply' to make above setting effective.

Setup - Network Setup

ONVIF Settings

The image shows a web interface for ONVIF settings. It has a title 'ONVIF SETTINGS' at the top. Below the title, there are two main sections: 'Authentication' and 'Discovery mode'. The 'Authentication' section has three radio buttons: 'None', 'WS-Usertoken', and 'WS-Usertoken + Digest'. The 'Discovery mode' section has two radio buttons: 'Discoverable' and 'Nondiscoverable'. At the bottom right of the settings area is an orange button labeled 'APPLY'. Three numbered blue circles with arrows point to these elements: 1 points to the 'Authentication' section, 2 points to the 'Discovery mode' section, and 3 points to the 'APPLY' button.

1 Authentication

None: Allows to access without ONVIF authentication.

WS - Usertoken: Allows to access with WS-User Token of ONVIF authentication.

WS - Usertoken + Digest: Allows to access with WS-User Token and Digest of ONVIF authentication.

2 Discovery Mode - The discovery function can be enable or disable.

3 Click 'Apply' to make above setting effective.

Setup - Network Setup

UPNP Settings

The image shows a web interface for UPNP settings. It has a title 'UPNP SETTINGS' at the top. Below the title are two main sections: 'General Setting' and 'Device Information'. The 'General Setting' section contains two radio buttons, 'Off' (selected) and 'On'. The 'Device Information' section contains a text input field labeled 'FriendlyName' with the value 'N8PC-SLAH5'. At the bottom right of the form is an orange button labeled 'APPLY'. Three numbered blue circles with arrows point to these elements: 1 points to 'General Setting', 2 points to 'Device Information', and 3 points to the 'APPLY' button.

- 1 **General Setting** - UPNP function can be enable or disable.
- 2 **Friendly Name** - Define the friendly name. Support a maximum of 30 characters and special character (/ ~ ! \$ ^ () { } [] ; ,) can not be used. (' @ ' , ' . ' _ ' - ' ') can be used.
- 3 Click 'Apply' to make above setting effective.

Setup - Network Setup

DDNS Settings

The screenshot shows the 'DDNS SETTINGS' configuration page. It features two radio buttons at the top: 'Disable' (indicated by callout 1) and 'Public DDNS' (indicated by callout 2). Below these are input fields for 'Address' (with a dropdown menu showing 'www.no-ip.com'), 'Host Name', 'User Name', and 'Password'. An orange 'APPLY' button (indicated by callout 3) is located at the bottom right of the form area.

❶ **DDNS Disable** - If it is selected, DDNS service does not work.

❷ **Public DDNS** - To use public DDNS service, select a site address listed in the list. After filling out the Host Name of the site, the setup is completed by entering User Name and Password registered in 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 IP address is changed or system is rebooted.

⚠ If IP updating to DDNS site is failed, camera will keep retrying in 1min. interval.

❸ Click 'Apply' to make above setting effective.

Setup - Network Setup

FTP Settings

The screenshot shows the 'FTP SETTINGS' interface. It has two main sections: 'General Setting' and 'Server information'. The 'General Setting' section has a toggle switch for 'Off' and 'On'. The 'Server information' section has input fields for 'FTP Server Address', 'FTP Upload Path' (with a '/' pre-filled), 'FTP Port' (with '21' pre-filled), 'User ID', and 'Password'. An 'APPLY' button is at the bottom right. Numbered callouts point to: 1. General Setting toggle, 2. FTP Server Address field, 3. FTP Upload Path field, 4. FTP Port field, 5. User ID field, 6. Password field, and 7. APPLY button.

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

- 1 **General Setting** - FTP function can be enable or disable.
- 2 **FTP Server Address** - Define FTP Server IP Address. If 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 Alphabets, numbers and special characters (/ ~ ! @ \$ ^ () _ - { } [] ; ,) can be used.
- 4 **FTP Port** - Define the FTP Server Port. If Port is not appropriate, it is impossible to access to FTP Server.
- 5 **User ID** - Define User ID to access to the FTP Server. Fill out the correct User ID registered in the FTP Server.
- 6 **Password** - Define Password to access to the FTP Server. Fill out the correct Password registered in the FTP Server.
- 7 Click 'Apply' to make above setting effective.
☒ Refer the above screen image for the example.

Setup - Network Setup

SMTP Settings

The screenshot shows the 'SMTP SETTINGS' configuration page. It is divided into three main sections: 'General Setting', 'Account information', and 'Mail Contents'.
1. 'General Setting' has a toggle switch for 'Off' and 'On'.
2. 'Account information' includes a 'Mode' selector for 'PLAIN' and 'SSL/TLS'.
3. Below 'Mode' are input fields for 'SMTP Server Address', 'PORT' (with '25' as a default), 'User ID', 'Password', 'E-Mail Sender', and 'E-Mail Receiver'.
4. 'Mail Contents' includes a 'Title' field and a larger 'Message' text area with a vertical scrollbar.
5. At the bottom right is an orange 'APPLY' button.

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

- 1 **General Setting** - SMTP function can be enable or disable.
- 2 **Mode** - Select Security mode of SMTP from Plain or SSL / TLS. After checking account setup of your SMTP Server, you may select one.
- 3 **SMTP Server Address** - Define the SMTP Server Address. If the IP Address form is incorrect, a Message box will be shown to try again.
- 4 **Port** - Define the Port used in the Plain or SSL / TLS security mode in the above.
- 5 **User ID** - Define the User ID to access to SMTP Server. Fill out the correct User ID registered in the SMTP Server.
- 6 **Password** - Define the Password to access to SMTP Server. Fill out the correct Password registered in the SMTP Server.
- 7 **E-Mail Sender** - Define the e-mail address of E-Mail Sender. It will be displayed as the sender when the camera sends an E-mail.
- 8 **E-Mail Receiver** - Define the e-mail address of E-Mail Receiver. It will be displayed as the Receiver when the camera sends an E-mail.
- 9 **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.
- 10 **Message** - Define the contents of E-Mail when camera sends an E-mail. The message of the Email is limited to 40 characters including the spaces.
- 11 Click 'Apply' to make above setting effective.

Setup - Network Setup

SNMP Settings

The image shows a web-based configuration interface for SNMP settings. It is divided into two main sections: 'SNMP v1/v2c' and 'SNMP v3'. The 'SNMP v1/v2c' section includes fields for 'SNMPv1' and 'SNMPv2c' (each with 'Off' and 'On' radio buttons), 'Read Community' (text field with 'public'), 'Write Community' (text field with 'private'), 'SnmpTrap' (radio buttons), 'TrapAddress' (text field with '0.0.0.0'), and 'TrapCommunity' (text field with 'public'). The 'SNMP v3' section includes a 'Mode' dropdown (set to 'Read'), an 'Activation' section with radio buttons, a 'Read Name' text field (set to 'root'), a 'Security Level' dropdown (set to 'no auth, no priv'), an 'Authentication Algorithm' dropdown (set to 'MD5'), an 'Authentication Password' text field, a 'Private-Key Algorithm' dropdown (set to 'DES'), and a 'Private-Key Password' text field. At the bottom right is an orange 'APPLY' button. Numbered callouts 1 through 11 point to specific elements: 1 points to the 'SNMPv1' radio button; 2 points to the 'SnmpTrap' radio buttons; 3 points to the 'Mode' dropdown; 4 points to the 'Activation' radio buttons; 5 points to the 'Read Name' text field; 6 points to the 'Security Level' dropdown; 7 points to the 'Authentication Algorithm' dropdown; 8 points to the 'Authentication Password' text field; 9 points to the 'Private-Key Algorithm' dropdown; 10 points to the 'Private-Key Password' text field; and 11 points to the 'APPLY' button.

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

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

2 **SNMP Trap** - SNMP trap can be enable or disable.

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

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

4 **Activation** - It can be enable or disable selected mode.

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

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

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

8 **Authentication Password** - The Authentication Password is an encryption for authentication and they are at least 8 digits and up to 30 digits allowed.

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

10 **Private-Key Password** - Information protection password is a private encryption and they are at least 8 digits and up to 30 digits allowed.

11 Click 'Apply' to make above setting effective.

Setup - Network Setup

RTSP Information

The screenshot shows the 'RTSP INFORMATION' configuration page. It is divided into three main sections: 'RTSP Global Setting', 'Session Timeout', and 'Rtp Multicast'. Below these is an 'APPLY' button and a table showing RTSP connection information.

RTSP Global Setting

- 1 VIN Source: Video 1
- 2 Target Stream: Main Stream

Session Timeout

- 3 Time Out: 0 [Default: Off, 30~120]

Rtp Multicast

MULTICAST: ☒ Off ☐ On

4 IP: 0.0.0.0

PORT: 0 [1024~80000]

TTL: 0 [0~255]

5 APPLY

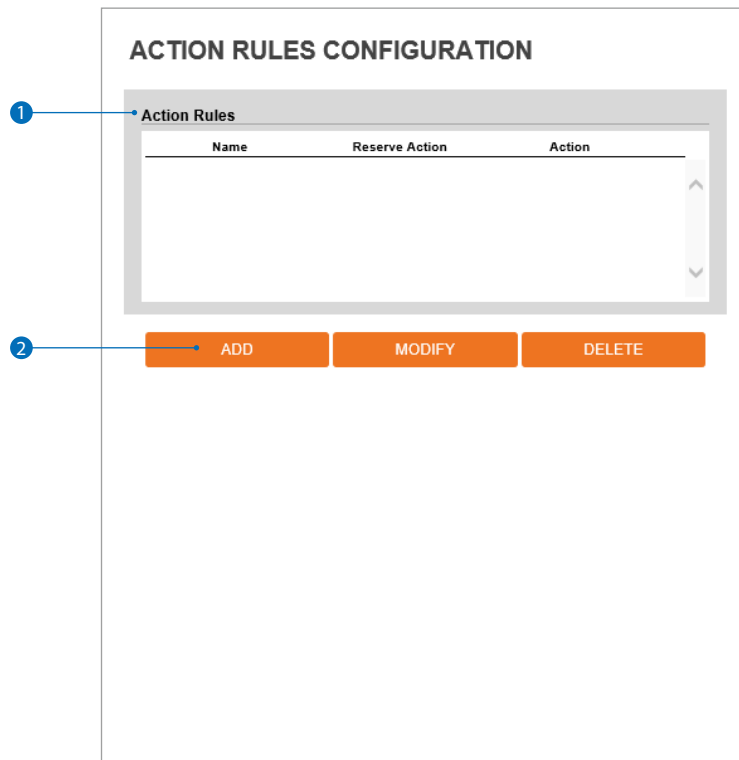
6

No	Remote IP	Port	Type
1	192.168.1.95	56845	TCP
2	192.168.1.95	56846	TCP
3	192.168.1.95	56847	TCP
4	192.168.1.95	56848	TCP

- 1 **VIN Source** - Select the Video 1 ~ Video 4 and Set the video setup.
⚙️ Click 'apply' to set the other video setting.
- 2 **Target Stream** - Select the stream you want to set.
- 3 **Time out** - Set the RTSP time out.
⚙️ The session is disconnected after the specified time out.
- 4 **RTP Multicast** - Check RTP Multicast On/Off. To activate RTP Multicast.
 1. Click "On" button.
 2. Enter accessible RTP Multicast IP, port for video stream control, RTP packet TTL.
 3. Click "Apply" button.⚙️ It is possible to set each RTP Multicast for CH1~3.
- 5 Click 'Apply' to make above setting effective.
⚙️ Click this button when completed setup each channels.
- 6 It shows RTSP Connection information.

Setup - Trigger Action Setup

Action Rules Configuration



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

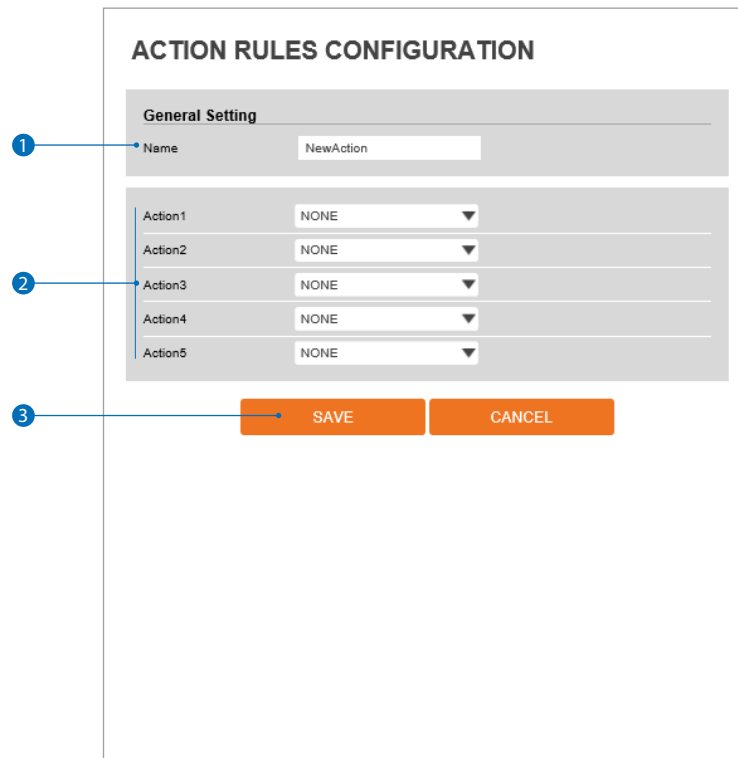
❷ Click 'Add' to add custom action rules.

⚙ Click 'Modify' to modify selected item from the action rules list.

⚙ Click 'Delete' to delete selected item from the action rules list.

Setup - Trigger Action Setup

Action Rules Add / Modify



ACTION RULES CONFIGURATION

General Setting

1 Name

2 Action1

Action2

Action3

Action4

Action5

3

- 1 **Name** - Define name of action rules.
⚠ Input text cannot be exceed limited (3~15).
- 2 **Action1 ~ Action5** - Select the action to take If the event occurs.
- 3 Click 'Save' to save the current settings.
⚠ Click 'Cancel' to return to the previous menu.

Setup - Trigger Action Setup

Image Transfer Configuration

IMAGE TRANSFER CONFIGURATION

1. Add the FTP/SMTP action in the event rules menu.
2. When an event occurs, the images will be sent to ftp/smtp address .
3. Determine the image transfer speed and the duration of image transfer after/before an event.

1

Pre/Post Alarm Image

Number Of Image

2

Image Per Seconds(s) [1 ~ 5]

Pre-Alarm Duration

3

Second(s) [1 ~ 5]

Post-Alarm Duration

3

Second(s) [1 ~ 30]

2

APPLY

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

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

- 2 Click 'Apply' to make above setting effective.

Setup - Trigger Action Setup

Relayout Configuration

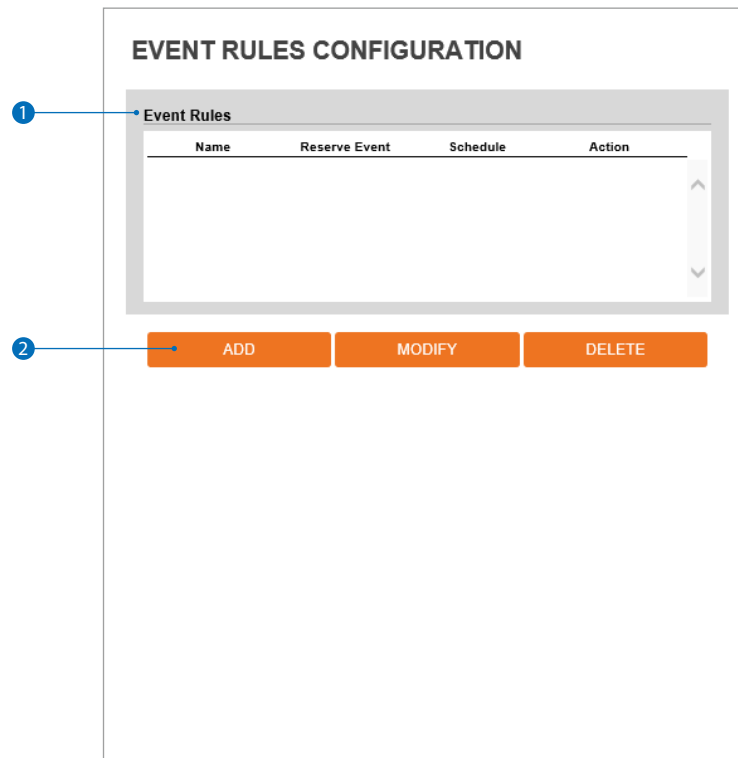
The screenshot shows a 'RELAYOUT CONFIGURATION' dialog box. It contains the following fields and controls:

- Relay Output:** A dropdown menu showing '01'. A blue circle with the number '1' points to this field.
- Mode:** Two radio buttons: 'Monostable' (selected) and 'Bistable'. A blue circle with the number '2' points to this section.
- Idle State:** Two radio buttons: 'Closed' (selected) and 'Open'. A blue circle with the number '3' points to this section.
- Duration:** A text input field showing '0' and a label 'Second(s) [0 ~ 30]'. A blue circle with the number '4' points to this field.
- APPLY:** An orange button at the bottom right. A blue circle with the number '5' points to this button.

- ❶ **Relay Output** - Select the Relay output.
⚠ The number of relay outputs 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.
⚠ If bistable mode is selected, this function is activation.
- ❺ Click 'Apply' to make above setting effective.

Setup - Event Setup

Event Rules Configuration



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

2 Click 'Add' to add custom event rules.

⌘ Click 'Modify' to modify selected item from the event rules list.

⌘ Click 'Delete' to delete selected item from the event rules list.

Setup - Event Setup

Event Rules Configuration

The screenshot shows a web form titled "EVENT RULES CONFIGURATION". It is divided into three main sections: "General", "Event Condition", and "Action".

- General:** Contains a text input field labeled "Name" with the placeholder text "NewRule". A blue circle with the number "1" points to this field.
- Event Condition:** Contains a dropdown menu labeled "Event" with the selected value "NONE". A blue circle with the number "2" points to this dropdown.
- Action:** Contains a dropdown menu labeled "Rules" with the selected value "NONE". A blue circle with the number "3" points to this dropdown.
- Buttons:** At the bottom of the form are two orange buttons: "SAVE" and "CANCEL". A blue circle with the number "4" points to the "SAVE" button.

- 1 **Name** - Define the Event rule name.
- 2 **Event** - Select the event among motion detection, network disconnection, temperature critical, sensor detection.
⚙️ Click 'Cancel' to return to the previous setting.
You need a event one more.
- 3 **Rules** - Select the action rule defined in the Trigger Action-Action rule menu.
- 4 Click 'Save' to save the current settings.
⚙️ Click 'Cancel' to return to the previous setting.

Setup - Event Setup

Motion Detection Configuration



- 1 **Motion Detection** - It shows the Motion event status.
🔔 Event Alert Icon(🔔) appears if 'Motion Detection' is activated.
- 2 **VIN Source** - Select the Video 1 ~ Video 4 and Set the video setup.
🔧 Click 'save' to set the other video setting.
- 3 **Area** - Set the motion detected area.
🔧 You can set up to four areas.
- 4 **Activation** - Enable or Disable motion detection function.
- 5 **Sensitivity** - Define the sensitivity of motion detection.
If High value is selected, it will detect very small motion while it becomes relatively insensitive when Low value is selected.
- 6 Click 'Save' to save the current settings.
🔧 Click 'Cancel' to return to the previous setting.

Setup - Event Setup

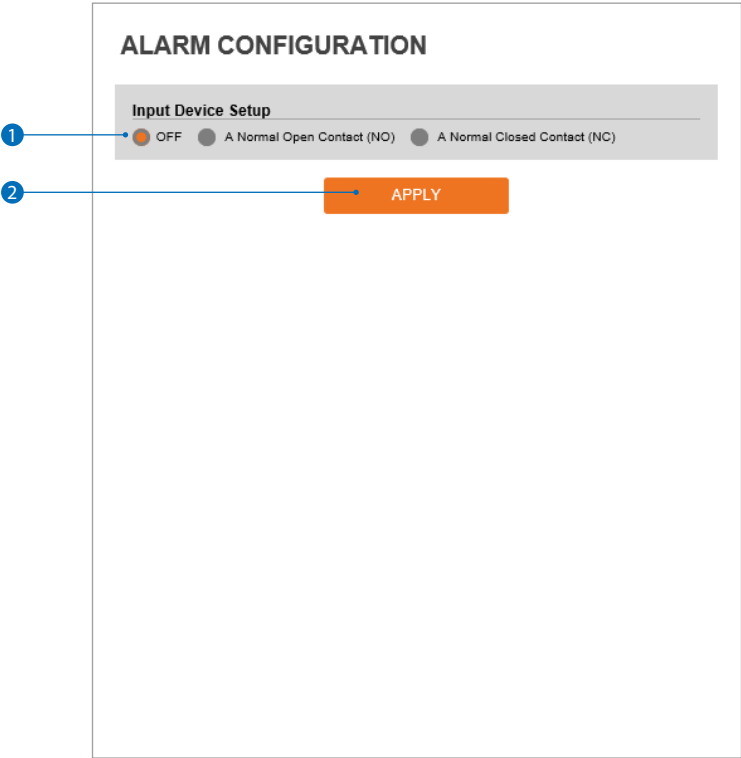
Temperature

The screenshot shows a web interface titled "TEMPERATURE" with a "General Setting" section. It contains three input fields: "Mode" (a dropdown menu set to "Fahrenheit"), "Threshold" (a text box with "150" and a range "[122 ~ 212]"), and "Temperature" (a text box with "135 °F"). An orange "APPLY" button is located below these fields. Four numbered blue circles with arrows point to each of these elements: 1 points to the Mode dropdown, 2 points to the Threshold text box, 3 points to the Temperature text box, and 4 points to the APPLY button.

- ① **Mode** - Select the either Fahrenheit and Celsius.
- ② **Threshold** - Define the temperature at which the event trigger is occurred.
- ③ **Temperature** - It indicates the current temperature of the IP camera.
- ④ Click 'Apply' to make above setting effective.

Setup - Event Setup

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 make above setting effective.

Setup - Record Setup

Record Management

The screenshot shows the 'RECORD MANAGEMENT' interface. It has two main sections: 'Record Global Setting' and 'RECORDING LIST'. The 'Record Global Setting' section contains a 'Target Stream' dropdown menu currently set to 'NONE' and an orange 'SAVE' button. The 'RECORDING LIST' section contains a table with columns: Name, Enabled, File Type, Storage, and Continuous. The table lists several records (RECORD0 to RECORD5). Below the table is an orange 'MODIFY' button. Four numbered blue circles with arrows point to specific elements: 1 points to the 'Target Stream' dropdown, 2 points to the 'SAVE' button, 3 points to the 'RECORDING LIST' table, and 4 points to the 'MODIFY' button.

RECORD MANAGEMENT

Record Global Setting

Target Stream: NONE

SAVE

RECORDING LIST

Name	Enabled	File Type	Storage	Continuous
RECORD0	X	TS	STORAGE1	Off
RECORD1	X	TS	STORAGE2	Off
RECORD2	X	TS	STORAGE3	Off
RECORD3	X	TS	STORAGE4	Off
RECORD4	X	TS	STORAGE1	Off
RECORD5	X	TS	STORAGE2	Off

MODIFY

- 1 **Target Stream** - Select the channel you want to record video.
- 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.

Setup - Record Setup

Record Configuration

The screenshot shows a 'RECORD MANAGEMENT' dialog box with a 'Record Settings' section. The settings are as follows:

- 1. **Enabled**: Radio buttons for 'Off' (selected) and 'On'.
- 2. **Storage Device**: A dropdown menu showing 'SDCard 1'.
- 3. **File Type**: A dropdown menu showing 'TS'.
- 4. **Storage**: A dropdown menu showing 'SDCard'.
- 5. **Continuous**: Radio buttons for 'Off' (selected) and 'On'.
- 6. **Pre Duration**: A text input field with '5' and a range '[0 ~ 5]'.
- 7. **Post Duration**: A text input field with '5' and a range '[1 ~ 240]'.
- 8. **Buttons**: 'SAVE' and 'CANCEL' buttons.

- 1 **Enabled** - The Recording function can be enable or disable.
- 2 **Storage Device** - Can not be selected and shows the saved SD Card.
- 3 **File Type** - Select the recording file type.
⚠ Currently only supports TS Type.
- 4 **Storage** - Select the storage type. SD Card(Disabled) selection is not allowed.
- 5 **Continuous** - If continuous mode is turned on, Start the continuous recording without any other setting.
- 6 **Pre Duration** - Define duration of recording before an event.
- 7 **Post Duration** - Define duration of image transfer after an event.
- 8 Click 'Save' to save the current settings.
⚠ Click 'Cancel' to return to the previous setting.

Setup - Record Setup

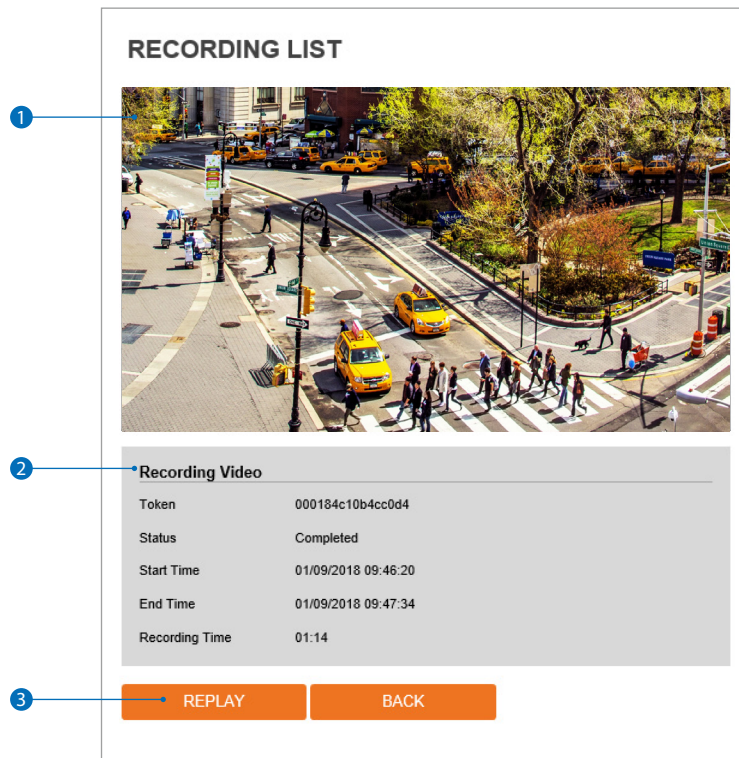
Recording List

The screenshot shows a web interface titled "RECORDING LIST". It features a "STORAGE" dropdown menu set to "STORAGE1". Below this is a "Filter" section with checkboxes for "Date", "Time", "Event", "Storage", and "Sort". The "Date" filter is set to "05/18/2018". The "Time" filter is set to "0:00:59". The "Event" filter is set to "All". The "Storage" filter is set to "All". The "Sort" filter is set to "Ascending". To the right of the filters are "REFRESH" and "FILTER" buttons. Below the filters is a table titled "Event" with columns "Day", "Time", "Duration", and "Event". The table is currently empty. At the bottom of the interface are "PLAY", "REMOVE", and "DOWNLOAD" buttons. Numbered callouts 1 through 5 point to the "STORAGE" dropdown, the "Filter" section, the "REFRESH" button, the "Event" table, and the "PLAY" button, respectively.

- 1 **Storage** - Select the Storage.
- 2 **Filter** - Select the date / time, event, sort or storage format to filter the recorded video.
 - Click the 'Refresh' button to refresh the records list.
 - Click 'Filter' to view the filtered recorded video.
- 4 **Recording List** - Display the information to the recording video.
- 5 Click 'Play' to view the selected item in list of recorded video.
 - Click 'Remove' to delete the selected item in list of recorded video.
 - Click 'Download' to download the selected item in list of recorded video.

Setup - Record Setup

Recording Video



- 1 **Recording Video Viewer** - Play the recorded video.
- 2 **Recording Video Information** - Display the information about the recorded video.
- 3 Click 'Replay' to view the recorded video again.
Click 'Back' to return to the previous menu.

Setup - Record Setup

Storage Configuration

STORAGE CONFIGURATION

Notice

1. If SD Card does not automatically mount, you must format for mounting SD card.

Storage List

Name	Mounted	Size	Used(%)	Available
SDCard1	X	0	0%	0
SDCard2	X	0	0%	0
SDCard3	X	0	0%	0
SDCard4	X	0	0%	0

Display the SD card information mounted from device.

 When you select the item in Storage list, You can set the functions related to the SD card.

Setup - Record Setup

Storage Configuration

The screenshot shows a 'STORAGE CONFIGURATION' dialog box. At the top, there is a 'Notice' section with orange text: '1. If SD Card does not automatically mount, you must format for mounting SD card.' Below this is a configuration area with several settings: 'Storage Size' showing '0 / 0', 'Auto Delete' with a dropdown menu set to 'NONE', 'Overwrite' with radio buttons for 'Off' (selected) and 'On', 'Unmount' with an orange 'UNMOUNT' button, and 'Format' with an orange 'FORMAT' button. At the bottom of the dialog are two orange buttons: 'APPLY' and 'CANCEL'. Numbered callouts (1-6) point to these elements: 1 points to 'Storage Size', 2 to 'Auto Delete', 3 to 'Overwrite', 4 to 'Unmount', 5 to 'Format', and 6 to the 'APPLY' button.

- 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 image data stored before period will be deleted automatically.
 - ⚙ Delete all stored image older than selected time.
- ❸ **Overwrite** - If it is set ON and remained space of SD card reach to less than 8MB, new data will start to be overwritten on the oldest data. However, if it is set OFF and remained space of SD card reach to less than 8MB, image recording will be stopped.
- ❹ **Unmount** - remove the SD card from the device.
- ❺ **Format** - Delete the all contents that stored in SD card.
- ❻ Click 'Apply' to make above setting effective.
 - ⚙ Click 'Cancel' to return to the previous setting.

Setup - Security Setup

IP Address Filter Configuration

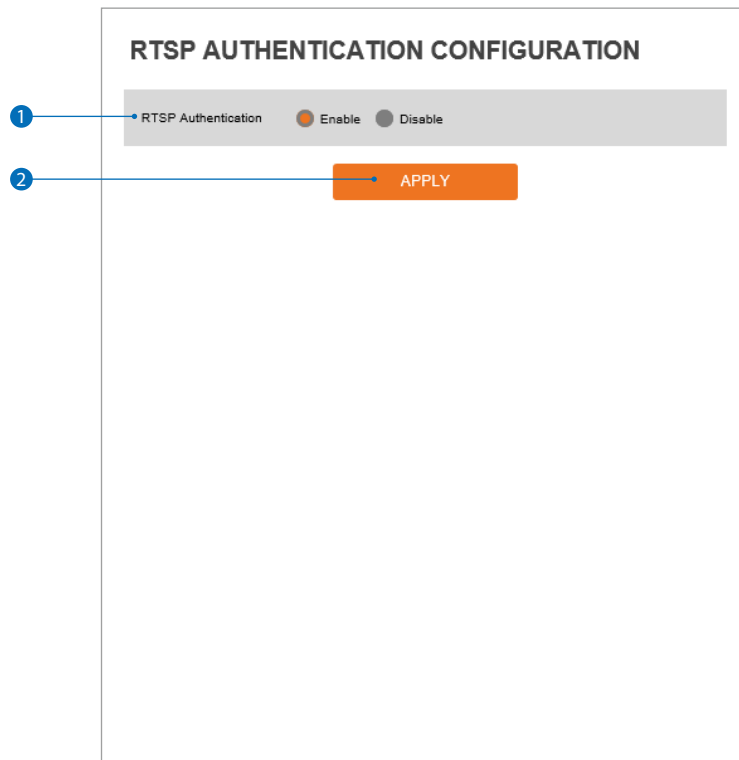
The image shows a web-based configuration interface titled "IP ADDRESS FILTER CONFIGURATION". It is divided into two main sections: "General Setting" and "Filtered IP Address".

- General Setting:** Contains a toggle for "IP Address Filter" (labeled 1) with "On" and "Off" options. Below it is a dropdown menu for "IP Filter Type" (labeled 2) currently set to "Allow". An orange "APPLY" button (labeled 3) is positioned below these settings.
- Filtered IP Address:** A section containing a large, empty list box for displaying filtered IP addresses (labeled 4).
- Input and Action:** Below the list box is an input field for "IP Address" (labeled 5) with a placeholder "[Invalid]". At the bottom are three orange buttons: "ADD" (labeled 6), "REMOVE", and "REMOVE ALL".

- ❶ **IP Address Filter** - IP filter function can be enable or disable.
- ❷ **IP Filter Type** - Select the recording IP filter type.
- ❸ Click 'Apply' to make above setting effective.
- ❹ **Filter IP Address** - Display the filtered IP address.
- ❺ **IP Address** - Define the IP address you want to apply the IP filter.
- ❻ Click 'Add' to add the ip address to the list.
 - ⊠ Click 'Remove' to remove the ip address selected in the list.
 - ⊠ Click 'Remove All' to remove all ip in the list.

Setup - Security Setup

RTSP Authentication Configuration



- ① **RTSP Authentication** - RTSP Authentication can be enable or disable.
- ② Click 'Apply' to make above setting effective.

Setup - Security Setup

IEEE 802.1X Configuration

The screenshot shows the 'IEEE 802.1X CONFIGURATION' page with a 'General Setting' section. The settings are as follows:

Field	Value
IEEE 802.1x	On (radio button selected)
Protocol	MD5
EAPOL Version	1
ID	
Password	
Verify	
CA Certificate	NONE
Certificate	NONE

An orange 'APPLY' button is located at the bottom right of the configuration area.

Numbered callouts (1-9) point to the following elements:

- IEEE 802.1x toggle
- Protocol dropdown
- EAPOL Version dropdown
- ID text input
- Password text input
- Verify text input
- CA Certificate dropdown
- Certificate dropdown
- APPLY button

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

- 1 IEEE 802.1x - The IEEE 802.1x feature can be enable or disable.
- 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 make above setting effective.

Setup - Security Setup

HTTPS Configuration

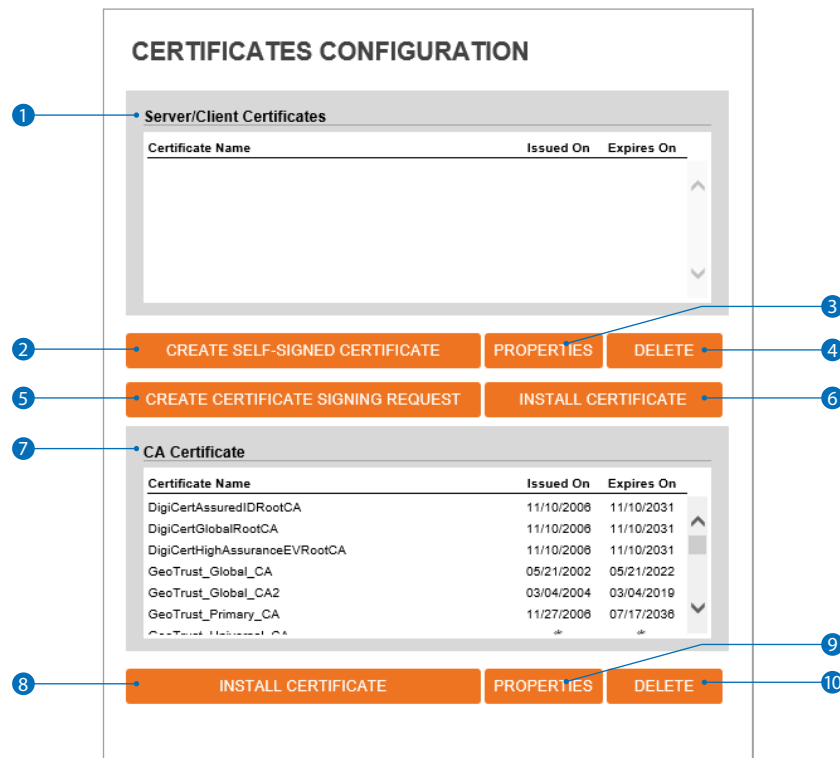
The screenshot shows the 'HTTPS CONFIGURATION' window. At the top, a note states: '1. If no certificates are available go to certificates to manage.' Below this is the 'Certificates' section with a 'Certificate' dropdown menu currently set to 'NONE'. A blue circle with the number '1' points to this dropdown. The next section is 'HTTPS connection Policy', which contains three rows: 'Administrator', 'Operator', and 'Viewer'. Each row has a dropdown menu set to 'HTTP and HTTPS'. A blue circle with the number '2' points to the 'Operator' dropdown. At the bottom of the configuration area is an orange 'APPLY' button. A blue circle with the number '3' points to this button.

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 can not 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 user authority.
- 3 Click 'Apply' to make above setting effective.
 - ⚙ When HTTPS mode is chosen, input `https://<IP Address>` to connect to the camera.

Setup - Security Setup

Certificates Configuration



- 1 **Server/Client Certificates** - It show the installed certificates.
- 2 **Create Self-Signed Certificate** - A self-signed SSL certificate is an identity certificate signed by its own 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 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** - It show 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

The image shows a 'CERTIFICATES CONFIGURATION' dialog box with three main sections: 'Create Self-Signed Certificate', 'Install Certificate', and 'Install CA Certificate'. The 'Create Self-Signed Certificate' section has fields for Certificate Name, Expires On (mm/dd/yyyy), Country, State Or Province, Locality, Organization, Organization Unit, Common Name, RSA, and SHA. The 'Install Certificate' section has radio buttons for 'Certificate From Signing Request' and 'Certificate And Private Key', a 'Certificate Name' field, a 'Certificate File' field with a 'Select File' button, and 'OK' and 'CANCEL' buttons. The 'Install CA Certificate' section has a 'Certificate Name' field, a 'Certificate File' field with a 'Select File' button, and 'OK' and 'CANCEL' buttons. Numbered callouts 1-10 point to specific elements: 1 points to the 'Certificate From Signing Request' radio button, 2 points to the 'Certificate And Private Key' radio button, 3 points to the 'Certificate Name' field in the 'Install Certificate' section, 4 points to the 'Select File' button in the 'Install Certificate' section, 5 points to the 'OK' button in the 'Install Certificate' section, 6 points to the 'CANCEL' button in the 'Install Certificate' section, 7 points to the 'Certificate Name' field in the 'Install CA Certificate' section, 8 points to the 'Select File' button in the 'Install CA Certificate' section, 9 points to the 'OK' button in the 'Install CA Certificate' section, and 10 points to the 'CANCEL' button in the 'Install CA Certificate' section.

Detail for Install Certification.

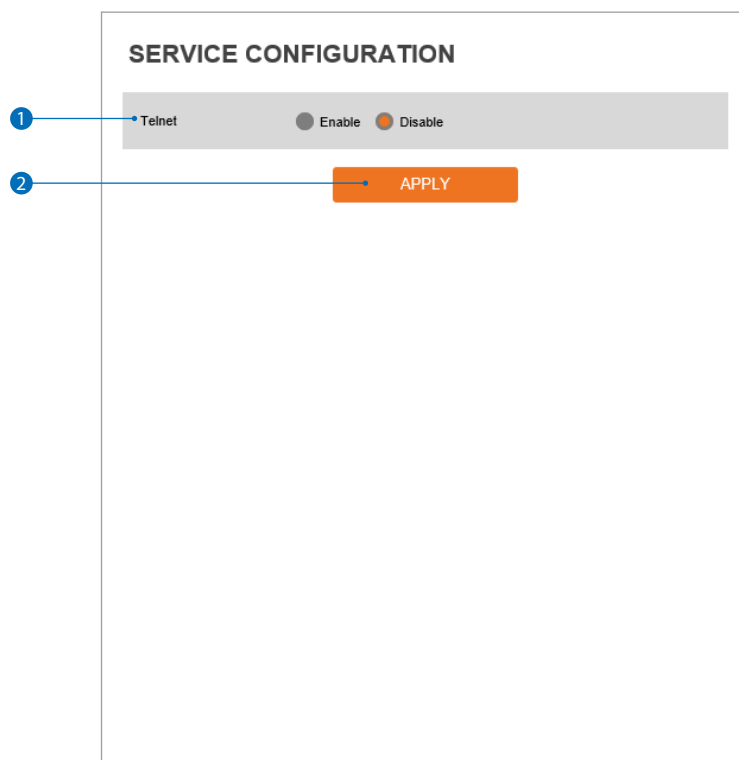
- 1 **Certificate From Signing Request** - Select to install signed certificate returned from the CA.
- 2 **Certificate And Private Key** - Select to install Certificate And Private Key to install a certificate and private key.
- 3 **Certificate Name** - Enter a unique name to identify certificate.
- 4 **Select File** - Choose certification file.
- 5 **OK** - Request installing 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 CA certificate.
- 8 **Select File** - Choose CA certification file
- 9 **OK** - Request installing CA certificate.
- 10 **Cancel** - Cancel install CA certificate and then back to certificates configuration.

Setup - Security Setup

Service Configuration



- 1 **Telnet** - The Telnet function can be enable or disable.
- 2 Click 'Apply' to make above setting effective.

Setup - System Setup

System Information

SYSTEM INFORMATION

1 Device Name IP-Camera

2 APPLY

Model Name	N8PC-SLAH5
Manufacturer	IPNC
Max Resolution	3072 x 1728
Max Framerate	30 fps
Photo Resistor(CDS)	NOT SUPPORT
Alarm In	SUPPORT
Relay out	SUPPORT
Audio	SUPPORT
Optical Zoom	NOT SUPPORT
Digital Zoom	NOT SUPPORT
PTZ	NOT SUPPORT

System Capability information.

- 1 **Device Name** - You can define the device name.
- 2 Click 'Apply' to make above setting effective.

Setup - System Setup

Firmware Update

The screenshot shows a web interface titled "FIRMWARE UPDATE". At the top, there are three orange warning messages: "1. Do not power off during update. It may cause fatal system damage.", "2. If Explorer was closed abnormally or a user closed accidentally while uploading firmware file, please try again after 30 seconds.", and "3. Please do not select other menus while updating firmware file." Below the warnings, there are three main sections. Section 1, "Version Information", shows "System" as "2018.09.06_P2.1.3" and "Camera" as "-". Section 2, "Web update", has a "Firmware File" label and an orange "Select File" button. Section 3, "START FW UPDATE", has a grey button labeled "START FW UPDATE". Below these sections is the "FTP user information" form with fields for "FTP Server Address" (ftp.dwcc.tv), "FTP Port" (21), "User ID" (dwmpix), "Password" (masked with dots), and "FTP Upload Path" (/). At the bottom are three orange buttons: "SAVE", "CANCEL", and "CHECK". Three blue callout lines with numbers 1, 2, and 3 point to the "Version Information", "Web update", and "START FW UPDATE" sections respectively.

FIRMWARE UPDATE

1. Do not power off during update. It may cause fatal system damage.
2. If Explorer was closed abnormally or a user closed accidentally while uploading firmware file, please try again after 30 seconds.
3. Please do not select other menus while updating firmware file.

1 • Version Information

System	2018.09.06_P2.1.3
Camera	-

2 • Web update

Firmware File

3 •

FTP user information

FTP Server Address	ftp.dwcc.tv
FTP Port	21
User ID	dwmpix
Password	*****
FTP Upload Path	/

1 Version Information - It shows the current Firmware Version in the system.

2 Web Update - Select the Firmware file in your computer by clicking [Select file] button.

3 Start F / W Update - Click this button to start 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 of camera during the Firmware update. Otherwise, the system can be stuck to be unstable.
If updating is finished, the system will be rebooted automatically.
2. Please make sure to check the 'Notice' shown on screen.
If firmware update is completed, the camera will reboot automatically and 'Setup window' will be closed.

Setup - System Setup

Firmware Update

FIRMWARE UPDATE

1. Do not power off during update. It may cause fatal system damage.
2. If Explorer was closed abnormally or a user closed accidentally while uploading firmware file, please try again after 30 seconds.
3. Please do not select other menus while updating firmware file.

Version Information

System	2018.09.06_P2.1.3
Camera	-

Web update

Firmware File

FTP user information

FTP Server Address	ftp.dwcc.tv
FTP Port	21
User ID	dwmpix
Password	*****
FTP Upload Path	/

Callouts: 4 points to FTP Server Address, 5 points to FTP Port, 6 points to User ID, 7 points to Password, 8 points to FTP Upload Path, 9 points to the SAVE button.

- ④ **FTP Server Address** - Define FTP Server IP Address. If IP Address form is incorrect, a Message box will be shown to try again.
- ⑤ **FTP Port** - Define the FTP Server Port. If Port is not appropriate, it is impossible to access to FTP Server.
- ⑥ **User ID** - Define User ID to access to the FTP Server. Fill out the correct User ID registered in the FTP Server.
- ⑦ **Password** - Define Password to access to the FTP Server. Fill out the correct Password registered in the FTP Server.
- ⑧ **FTP Upload Path** - Define a path in FTP server to store video. For the path name, English Alphabets, numbers and special characters (/ ~ ! @ \$ ^ () _ - { } [] ; ,) can be used.
- ⑨ Click 'Save' to make above setting effective.

SAVE	Save FTP information
CANCEL	Click 'Cancel' to return to the previous setting.
CHECK	Check the F/W file and if the file exist, 'F/W Update' button will appear and click it to update for F/W.

Setup - System Setup

Date & Time Settings

The screenshot shows the 'DATE&TIME SETTINGS' window. It is divided into three main sections: 'TimeZone Setup', 'Time Format', and 'Current Date & Time'. The 'TimeZone Setup' section has a dropdown menu for 'TimeZone' set to '(GMT-08) Pacific Time (US & Canada), Baja California' and an 'APPLY' button. The 'Time Format' section has a dropdown menu for 'Time Format' set to 'mm/dd/yy' and an 'APPLY' button. The 'Current Date & Time' section shows the current date and time as '05/17/2018' and '22:51:22'. Below this is the 'New Camera Date & Time' section, which has three radio button options: 'Synchronize with my computer' (selected), 'Setup manually', and 'Synchronize with time server (NTP)'. The 'Synchronize with my computer' option shows a date and time of '05/18/2018' and '14:51:22'. The 'Setup manually' option shows date and time pickers for '2005', '01', '01' and '00', '00', '00'. The 'Synchronize with time server (NTP)' option shows an 'NTP Server' dropdown set to 'pool.ntp.org'. There is an 'APPLY' button at the bottom of the window. Numbered callouts 1 through 7 point to the following elements: 1. TimeZone Setup section, 2. Time Format section, 3. Current Date & Time section, 4. Synchronize with my computer radio button, 5. Setup manually radio button, 6. Synchronize with time server (NTP) radio button, and 7. The bottom APPLY button.

- 1 **TimeZone Setup** - Choose TimeZone for camera. It will be activated after clicking 'Apply' button.
⚠ Prior to setting below 'New Camera Date & Time', set correct Timezone first.
- 2 **Time Format** - Select the time format yy-mm-dd or mm/dd/yy.
- 3 **Current Date & Time** - Shows the current date and time setting in the Camera.
- 4 **Synchronize with my computer** - Set the date / time using those of PC currently connected.
- 5 **Setup manually** - Set the date / time by typing manually.
- 6 **Synchronize with time sever Time Zone (NTP)** - Choose time server available to connect to current camera.
Date & Time will be updated automatically every hour when connected.
- 7 Click 'Apply' to make above setting effective.

Setup - System Setup

DST Settings

The screenshot shows the 'DST SETTINGS' interface. It has two main sections: 'General Setting' and 'Date&Time Settings'. The 'General Setting' section has a toggle switch for 'Off' and 'On'. The 'Date&Time Settings' section has two rows of dropdown menus for 'Start Time' and 'End Time'. The 'Start Time' row is set to 'Mar', 'Second', 'Sun', '2', 'o'clock'. The 'End Time' row is set to 'Nov', 'First', 'Sun', '2', 'o'clock'. Below these sections is an orange 'APPLY' button. Three numbered callouts point to these elements: 1 points to the 'General Setting' header, 2 points to the 'Date&Time Settings' header, and 3 points to the 'APPLY' button.

DST SETTINGS

1 • **General Setting**
☐ Off ☒ On

2 • **Date&Time Settings**
Start Time Mar ▼ Second ▼ Sun ▼ 2 ▼ o'clock
End Time Nov ▼ First ▼ Sun ▼ 2 ▼ o'clock

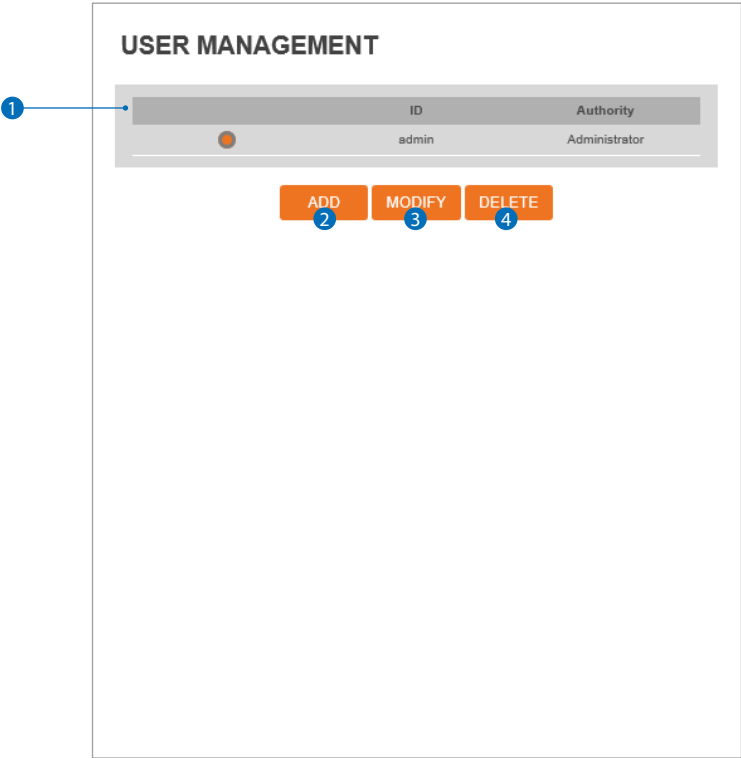
3 • **APPLY**

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, in order to make better use of natural daylight.

- 1 **General Setting** - DST function can be enable or disable.
- 2 **Date&Time Settings** - Set the Start time and end time that the DST apply.
- 3 Click 'Apply' to make above setting effective.

Setup - System Setup

Users Management



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

2 **Add** - Register a new user.

ID

Password

Verify

UserAuthority

Operator

APPLYCANCEL

ID	Enter a new user ID except Admin since it exists.
Password	Enter the user Password.
Verify	Enter the user Password again for verification.
User Authority	Select Operator or Viewer. Viewer : Only monitoring is allowed. Operator : Most of the functions are allowed except 'Setup'.

⚠ The ID and Password are limited to 10 characters.

Click 'Apply' to make above setting effective.

⚠ Click 'Cancel' to return to the previous menu.

3 **Modify** - Modify the information of the user accounts registered. For admin account, only Password function can be modified.

4 **Delete** - Delete the selected user account. Admin account cannot be deleted.

Setup - System Setup

System Log

The screenshot shows the 'SYSTEM LOG' interface. It includes a 'Filter' section with checkboxes for Date, Time, Type, and Sort, each with corresponding input fields. Below the filter section are 'REFRESH' and 'FILTER' buttons. At the bottom is a 'List' section containing a table of log entries. Numbered callouts point to the Filter section (1), the REFRESH button (2), and the List section (3).

SYSTEM LOG

Filter

- ☐ Date: 05/18/2018 ~ 05/18/2018
- ☐ Time: 0 0 0 ~ 0 0 0
- ☐ Type: All
- ☐ Sort: Ascending

REFRESH **FILTER**

List

Date & Time	Log	IP
05/17/2018 22:51:29	Motion detected : 3 : On	system
05/17/2018 22:51:28	Motion detected : 4 : On	system
05/17/2018 22:51:24	Motion detected : 4 : Off	system
05/17/2018 22:51:23	Motion detected : 3 : Off	system
05/17/2018 22:51:07	Motion detected : 3 : On	system
05/17/2018 22:51:05	Motion detected : 4 : On	system
05/17/2018 22:50:40	Motion detected : 4 : Off	system
05/17/2018 22:50:35	Motion detected : 4 : On	system
05/17/2018 22:49:08	Motion detected : 3 : Off	system

1 2 3 4 5 6 7 8 9 10

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

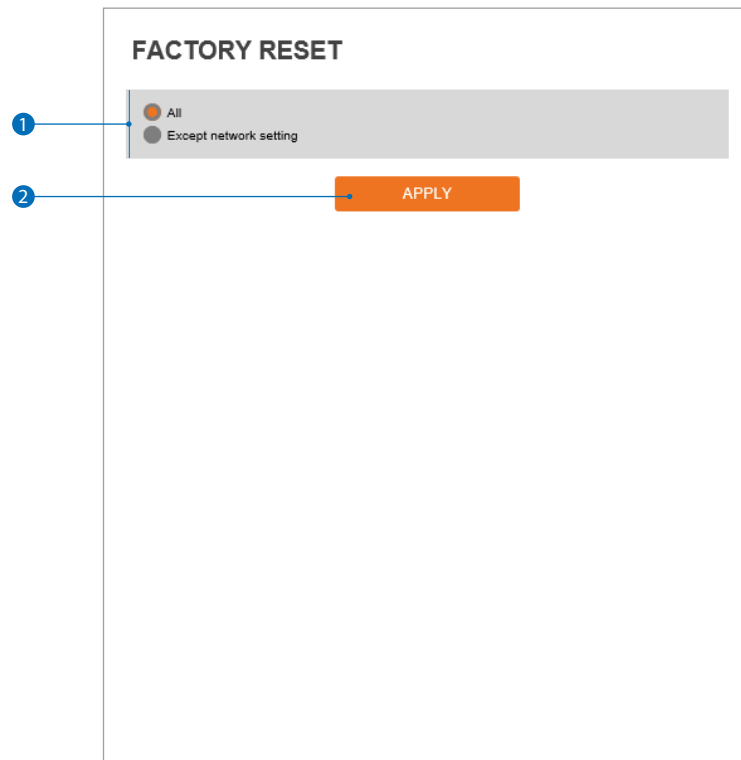
② Click the 'Refresh' button to refresh the log list.

☒ Click 'Filter' to view the filtered log.

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

Setup - System Setup

Factory Reset



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

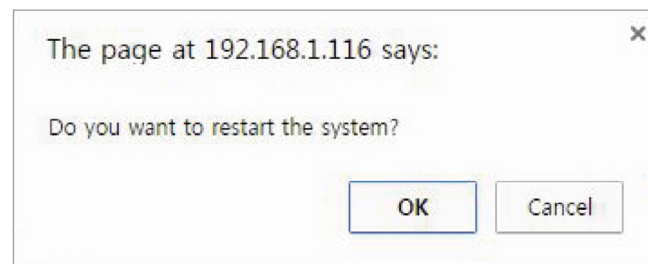
All - Reset all Settings to the factory defaults.

Except Network Settings - Except Network related settings , reset all others to the factory default.

- ② Click 'Apply' to make above setting effective.

Setup - System Setup

Restart



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

Setup - System Setup

System Open Source License

SYSTEM OPEN SOURCE LICENSE		
Open Source Name	Version	License
busybox	1.24.1	GPLv2
alsa-lib	1.1.2	GPLv2.1
libglib2	2.47.1	LGPLv2
libgnutls	3.4.11	LGPLv2.1
libjson-c	0.11-20140402	JSON License
libcurl	7.50.1	MIT/X derivate License
libffi	3.1	MIT License
libgcrypt	1.6.1	LGPLv2.1
libnl	3.2.24	LGPLv2.1
libogg	1.3.1	BSD-style License
libsamplerate	0.1.8	GPLv2
libselinux	2.3	Public domain
libsndfile	1.0.25	LGPLv2.1
libssh2	1.6.0	BSD
libtasn1	4.8	GPLv3

This menu will show you all the list of System Open Source License in the camera. Open Source Name / Version / License.

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 verify its operation. After using the power supply shipped with the product, checking the power source, and reinserting 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 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. YOU WILL LOSE ALL DATA THAT HAD BEEN ENTERED PREVIOUSLY AND THE IP CAMERA WILL BE SET TO ITS FACTORY RESETS.

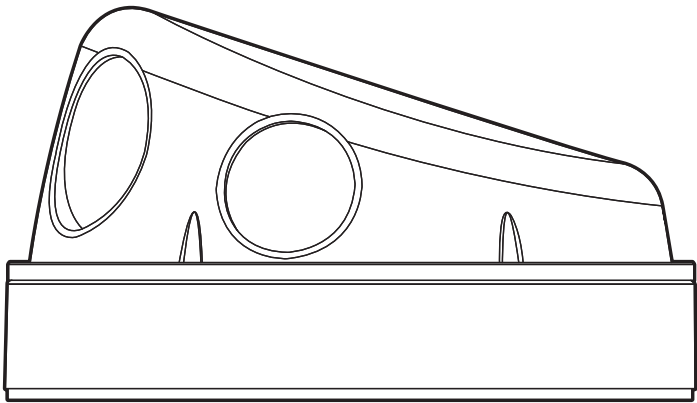
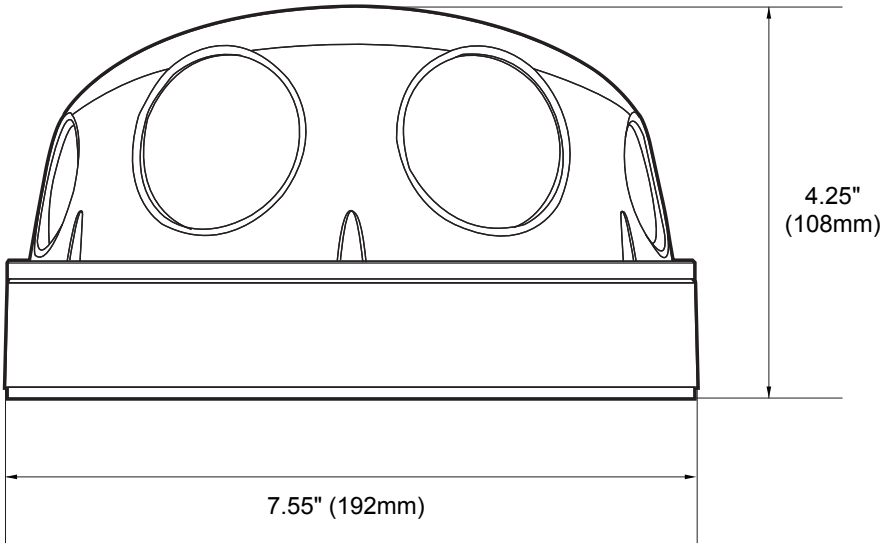
Specification

SPECIFICATION

IMAGE	
Image sensor	4x 1/1.8" CMOS
Total pixels	3096(H) X 2080(V)
Minimum scene illumination	0.16 lux (color)
S/N ratio	50dB
Maximum resolution	21MP(4x5.3MP)
LENS	
Focal length	4x 8.0mm, F1.6
Lens type	Fixed lens
Field of view (FoV)	Over 180°
I/O	
Audio in / out	1(1.0Vrms, 3K ohm)/1
Alarm in / out	1/1
Audio compression	G.711
OPERATIONAL	
Shutter mode	Auto, Manual, Anti-Flicker, Slow Shutter
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)
Smart DNR™ 3D digital noise reduction	3D DNR
White balance	Auto
Mirror and flip	Yes
Backlight compensation (BLC)	Yes
Privacy zones	16 programmable privacy masks
Alarm notifications	Notifications via e-mail notifications, FTP, alarm output, SD card recording
Memory slot	Micro SD/SDHC/SDXC class 10 card (card not included)
NETWORK	
LAN	1000Base-T(1Gbps)
Video compression type	H.264, MJPEG
Resolution	H.264: 3072x1728/1080p/720p/640x360/512x288/384x216 MJPEG: 384x216 / 352x288 / 352x240
Frame rate	Up to 30fps at all resolutions
Video bitrate	100Kbps ~ 10Mbps, multi-rate for preview and recording
Bitrate control	Multi streaming CBR/VBR at H.264 (controllable frame rate and bandwidth)
Streaming capability	3072x1728p30 + 640x360p7 with H.264 and MJPEG (up to 16 streaming)
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(SSL), IP filtering, 802.1x, digest authentication(ID/PW)
ONVIF conformance	Yes
Web viewer	OS: Windows® 7, Windows® 8, Windows® 10 Browser: IE, Chrome, Firefox
Video management software	DW Spectrum® IPVMS
ENVIRONMENTAL	
Operating temperature	-40°F ~ 122°F (-40°C ~ 50°C)
Operating humidity	Less than 80% (non-condensing)
IP rating	IP66 certified weather and tamper resistant
Other certifications	FCC, CE, RoHS
ELECTRICAL	
Power requirement	DC12V, PoE IEEE 802.3at PoE+ class 4 (High power PoE injector included)
Power consumption	DC12V: 21.5W PoE IEEE802.3at Class4: 23.2W
MECHANICAL	
Material	Aluminum vandal housing, polycarbonate dome
Dimensions	7.55" x 4.25" (192 x 108mm)
Weight	4.4 lbs (2kg)

Specifications - Dimension

Unit: inch (mm)



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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