USER MANUAL

Compressor™

Analog to IP Video Encoder

DW-ENC4K16

Default Admin Login Information
When logging into the encoder for the first time, you must set up a new password.

※ The picture might differ according to the specification and model.

Before operating the system, please read this User Manual and retain it for future reference.

Rev: 02/25

Notes

- Please read this user manual carefully to ensure you can use the device correctly and safely.
- There may be several technically incorrect places or printing errors in this manual. The updates will be added to the new version of this manual. The contents of this manual are subject to change without notice.
- This device should be operated only from the type of power source indicated on the marking label. The voltage of the power must be verified before using it. Kindly remove the cables from the power source if the device is not to be used for a long period of time.
- Do not install this device near heat sources such as radiators, heat registers, stoves or other devices that produce heat.
- Do not install this device near water. Clean only with a dry cloth.
- Do not block any ventilation openings, and ensure proper ventilation around the machine.
- Do not power off the device at normal recording conditions.
- This machine is for indoor use only. Do not expose the machine to rain or a moist environment. If any solid or liquid gets inside the machine's case, please turn off the device immediately and have it checked by a qualified technician.
- Do not try to repair the device yourself without technical aid or approval.
- In this manual, the trademarks, product names, service names, company names, and products our company does not own are the properties of their respective owners.
- It is recommended that personal data stored in the device be backed up and cleared before the device is returned to us for repair or replacement, except for data that is essential for repair or replacement purposes. The device will be restored to the default factory settings, and all personal data will be cleared after repair or replacement. Our company ensures that the customer's data is not made available to third parties if the device is exchanged.
- This manual is suitable for many models. For reference purposes, all examples and pictures used in the manual are from one of the models.
- The local language versions of this manual will be provided to users in the corresponding regions and countries.

Disclaimer

- Regarding the product with internet access, the use of the product shall be wholly at your own risk. Our company shall be responsible for abnormal operation, privacy leakage or other damages resulting from cyber-attacks, hacker attacks, virus inspection, or other internet security risks; however, our company will provide timely technical support if necessary.
- Surveillance laws vary from country to country. Check all laws in your local region before using this product for surveillance purposes. We shall not take responsibility for any consequences resulting from illegal operations. In the event of any conflicts between this manual and the applicable law, the latter prevails.
- The storage of personal data depends on the capacity of the storage devices the users use, and all data stored in the device shall be handled by themselves. Our company shall not be responsible for the loss of data.

Cybersecurity Recommendations

- Use a strong password. At least 8 characters or a combination of characters, numbers, and upper- and lower-case letters should be used in your password.
- Set the password expiration time and regularly change the passwords of your devices to ensure that only authorized users can access the system (the recommended time is 90 days).
- The system will automatically check the latest firmware version once a day. Once the latest version is checked, you'd better update it to ensure the system is current with the latest security patches and fixes.
- It is recommended that the service default ports (like HTTP-80, HTTPS-443, etc.) be changed to reduce the risk of outsiders accessing them.
- It is recommended that your router's firewall be set. But note that some important ports cannot be closed (like HTTP port, HTTPS port, Data Port).
- Exposing the device to the public network is not recommended. When it is necessary to be exposed to the public network, please set the external hardware firewall and the corresponding firewall policy.
- It is not recommended to use the v1 and v2 functions of SNMP.
- To enhance the security of WEB client access, please create a TLS certificate to enable HTTPS.
- Use the black- and allowlist to filter the IP address. This will prevent everyone except those specified IP addresses from accessing the system.
- If you add multiple users, please limit the functions of guest accounts.
- If you enable UPnP, it will automatically try to forward ports in your router or modem. It is very convenient for users, but this will increase the risk of data leakage when the system automatically forwards ports. Disabling UPnP is recommended when the

function is not used in real applications.

- Check the log. If you want to know whether your device has been accessed by unauthorized users or not, you can check the log. The system log will show you which IP addresses were used to log in to your system and what was accessed.

Regulatory Information

FCC Information

1. **FCC compliance:** The products have been tested and found to be in compliance with the council FCC rules and regulations Part 15 Subpart B. These limits are designed to provide reasonable protection against harmful interference. This equipment generates uses and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. The user will be required to correct the interface at his own expense in case harmful interference occurs.

2. FCC conditions: Operation of this product is subject to the following two conditions: (1) this device may not cause harmful interface, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CE Information

CE The products have been manufactured to comply with the following directives.

EMC Directive 2014/30/EU

RoHS

The products have been designed and manufactured per Directive EU RoHS Directive 2011/65/EU and its amendment Directive EU 2015/863 on the restriction of certain hazardous substances in electrical and electronic equipment.

2012/19/EU (WEEE directive): The Directive on waste electrical and electronic equipment (WEEE Directive). To improve the environmental management of WEEE, improving the collection, treatment and recycling of electronics at the end of their life is essential. Therefore, the product marked with this symbol must be disposed of responsibly.

Directive 94/62/EC: The Directive aims to manage packaging and packaging waste and promote environmental protection. The packaging and packaging waste of the product in this manual refers to must be disposed of at designated collection points for proper recycling and environmental protection.

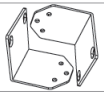
REACH (EC1907/2006): REACH concerns the Registration, Evaluation, Authorization and Restriction of Chemicals, which aims to ensure a high level of protection of human health and the environment through better and earlier identification of the intrinsic properties of chemical substances. The product in this manual refers to conforms to the rules and regulations of REACH. For more information on REACH, please refer to DG GROWTH or ECHA websites.

Table of Contents

1 Introduction

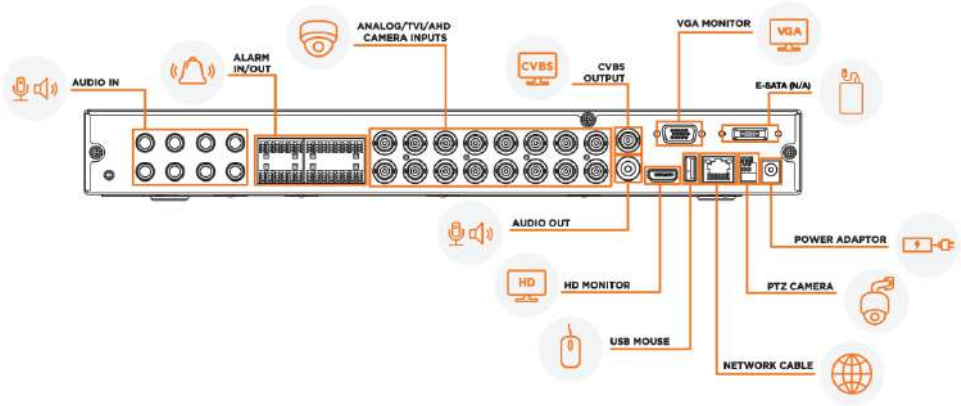
1.1 What's in the Box

Make sure that you have the following items supplied with your encoder. If any items are missing or damaged, notify your vendor immediately. Keep the packing utilities for moving or storage purposes afterward.

WHAT'S IN THE BOX					
Quick Setup and Download Guides		1 set	Power Cable		1 set
19" Rack Mount Ears and Mounting Screws (DW-G419RE)		1 set	USB Mouse		1

1.2 Connections

Follow the diagram below to connect all necessary external devices to your encoder. Please note that the number of ports available may differ based on the model. See the product's specifications at the end of this manual for more information.



- **Video Connections**

  Video Output: The encoder supports VGA and True HD video output for local display. You can connect to a monitor (not included) through these video output interfaces simultaneously or independently.

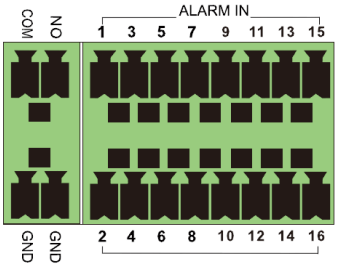
- **Audio Connections**

  Audio Input: Connect to microphone, pickup, etc. (RCA)
  Audio Output: Connect to headphones, sound box or other audio output

devices. (RCA)

- **Alarm Connections**

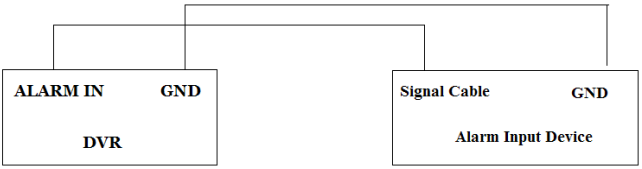
  Some models may support this function. Take 16 CH alarm inputs and 1 CH alarm output, for example.



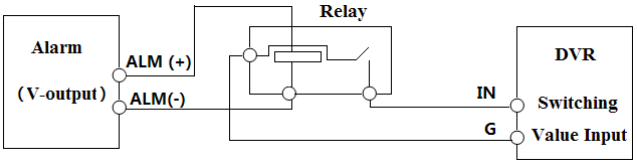
- **Alarm Input:**

  Alarm IN 1~16 are 16 CH alarm input interfaces. There are no type requirements for sensors. NO type and NC type are both available.

  The way to connect the sensor and the device is as shown below:



  The alarm input is an open/closed relay. If the input is not an open/closed relay, please refer to the following connection diagram:

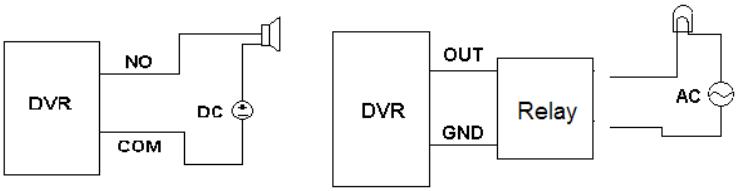


- **Alarm Output:**

  To connect an alarm output device:

  Pull out the green terminal blocks and loosen the screws in the alarm-out port. Then, the signal wires of the alarm output devices are inserted into the ports of NO and COM separately. Finally, tighten the screws. If the external alarm output devices need a power supply, you can connect the power supply as

per the following figures.



- **RS485 Connection**

The RS485 interface is used to connect a keyboard.

Disconnect the pluggable block from the RS485 terminal block and loosen the fixed screws from the pluggable block. Insert signal cables into A and B ports separately (A is TX+; B is TX-) and tighten the fixed screws. Next, connect the pluggable block back into the terminal block.

**NOTE: The pluggable block of some models may not be connected into the terminal block, and you shall obtain it from the accessories.

2 Basic Operation Guide

2.1 Startup and Shutdown

Please make sure all external devices are connected properly before powering the unit. Proper startup and shutdown are crucial to extending the life of your device.

2.1.1 Startup

1. Connect the output display device to the encoder's VGA/true HD interface.
2. Connect the mouse and power. The device will boot, and the power LED will turn blue.
3. A WIZARD window will pop up (you should select the display language the first time you use the encoder). Refer to the Startup Wizard (Section 3.1) portion of this guide for details.

2.1.2 Shutdown

You can power off the device by using a mouse.

By mouse:

1. Click *Start→Shutdown* to pop up the Shutdown window. Select "Shutdown" in the window and click the "OK" button. The unit will power off after verifying the username and password.
2. Disconnect the power from the unit.

2.2 Mouse Control

- **Mouse control in Live Display interface**

  In the live display & playback interface, double-click on any camera window to show the window in single-screen mode; double-click the window again to restore it to the previous size.

- **Mouse control in text input**

  Move the mouse to the text-input box, then click the box. The input keyboard will pop up automatically.

**NOTE: Mouse is the default tool for controlling all operations except for when using a joystick keyboard.

2.3 Text-input Instruction

The system includes two input boxes. Refer to the above pictures. The left box is the number input box, and the right box is an alphanumeric digital keyboard input box, providing input of numbers, letters, and punctuation characters. The introductions of keys on the input boxes are shown below.

Button	Meaning	Button	Meaning
⌫	Backspace key	#?!	Switch key of punctuation character.
DEL	Delete Key	↵	Enter key
⇧	Switch the key between the upper and lower letters.	␣	Space key
EN	Switch key of language.		

2.4 Common Button Operation

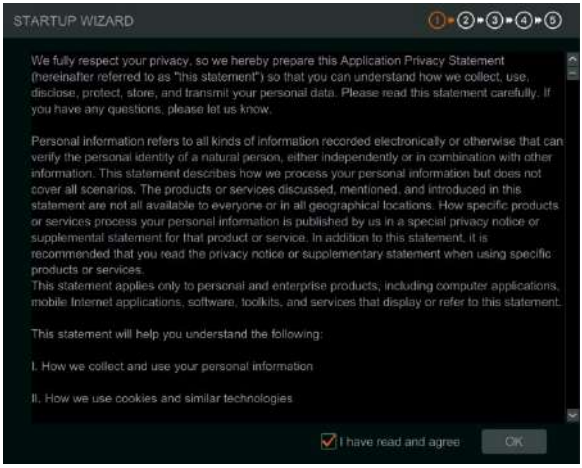
Button	Meaning
⌄	Click to show the menu list.
↓ ↑	Click to change the sequence of the list.
✕	Click to close the current interface.

3 Wizard & Main Interface

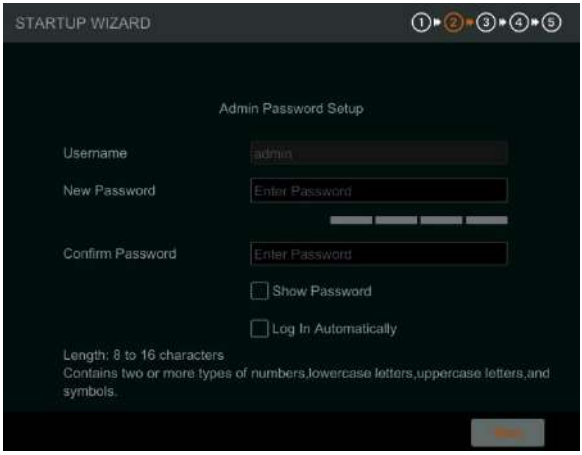
3.1 Startup Wizard

You can quickly configure the encoder using the wizard setup. When you start the encoder, you will be prompted to configure the system using the startup wizard.

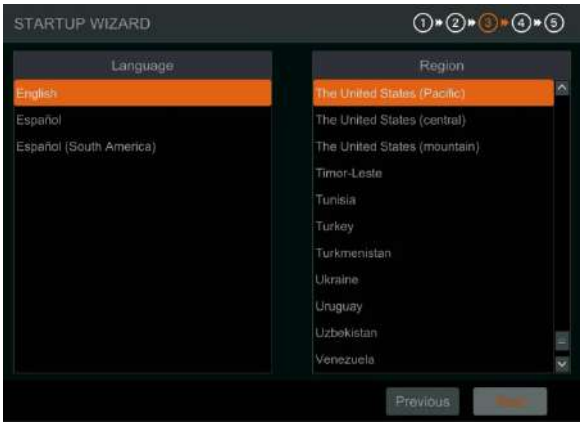
1. Read the privacy statement and check "I have read and agree." then click "OK" to continue.



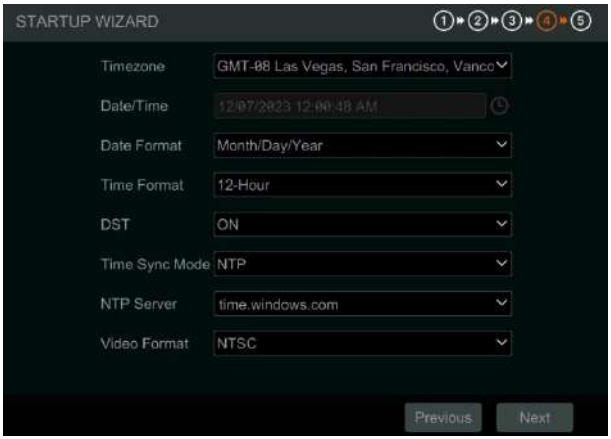
2. Set the administrator password. Passwords must be between 8~16 characters and must contain a combination of at least two or more numbers, letters, or symbols. The default username of the system is "admin" and cannot be changed.



3. Choose the language and region for the system.

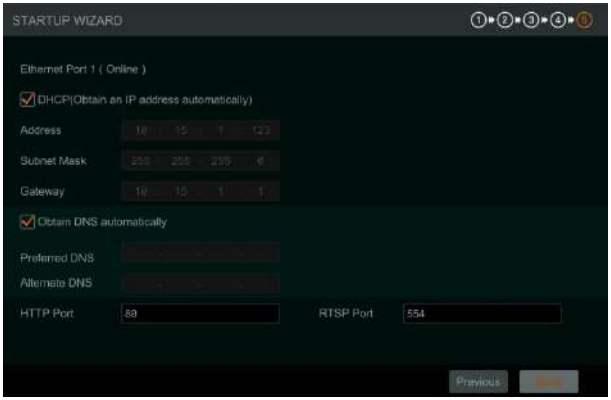


4. Date and Time Configuration. The date and time of the system need to be set up. Set the time zone, date/time, date and time format. The DST will be enabled by default if the time zone selected uses DST. Click "Next" to continue.

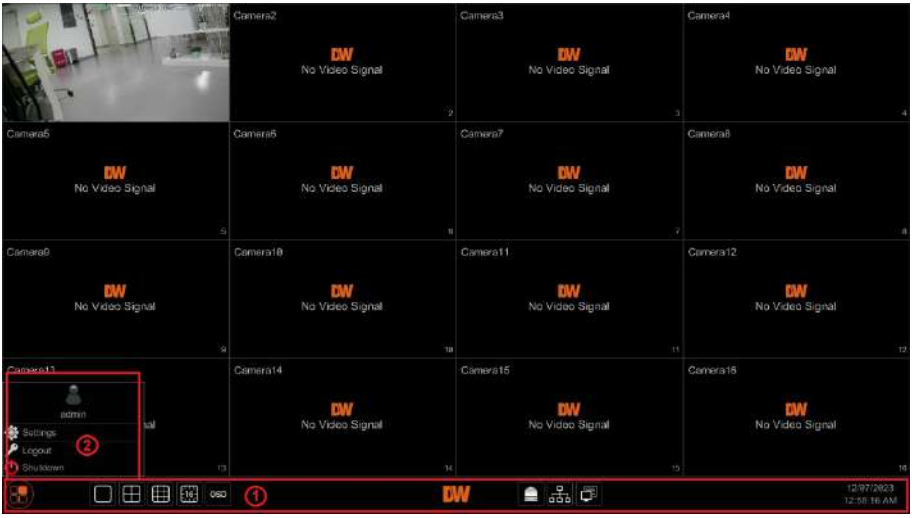


5. Network Settings. Check "Obtain an IP address automatically" and "Obtain DNS automatically" to have an IP address and DNS automatically assigned from the local router. The router must be within the same LAN, and the DHCP function should also be enabled. Alternatively, you may manually enter network information.

Enter the HTTP and RTSP ports (see Section 9.1.2 Port Configuration for more details).



3.2 Main Interface

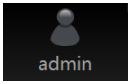
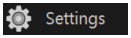


The buttons in area ① are described in the table below.

Icon / Button	Description
	Start button. Click to display area ② pop up.
	Screen mode button. Select the number of camera channels to display within the main viewing area.

Icon / Button	Description
	Click to enable the OSD (on-screen display) overlay; click again to disable OSD.
	Alarm status button. Click to view the alarm status.
	Network status button. Click to view the network status.
	Information button. Click to view system information, including basic information, camera, alarm, network, and user status.

Description of area ②:

Icon / Button	Description
	Shows the current user that is logged in.
	Click to pop up the setup panel.
	Click to log out of the system.
	Click and then select "Logout," "Reboot," or "Shutdown" in the popup window.

4 Camera Management

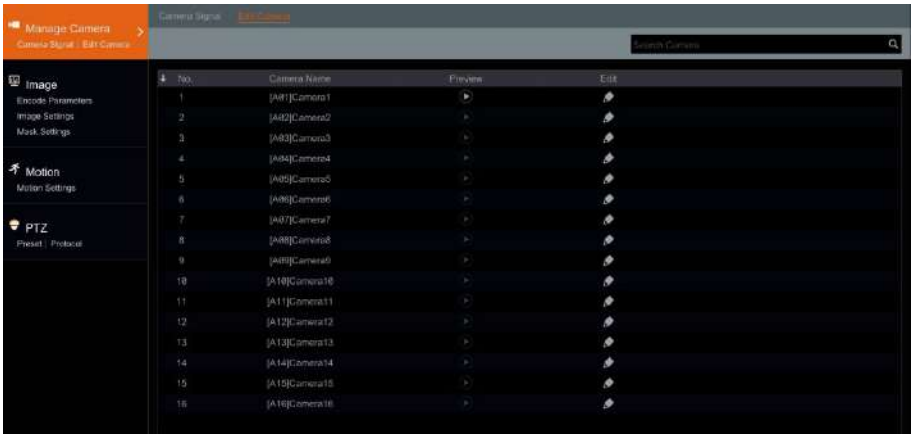
4.1 Camera Signal

Click *Start→ Settings→ Camera→ Manage Camera→ Camera Signal* to navigate to the Camera Signal interface as shown below.

The encoder device supports hybrid access to HD-TVI, HD-Analog, HD-CVI and CVBS high-definition cameras. Select the correct video signal type for each camera. For example, if the encoder is connected to an HD-TVI high-definition camera, you should select HD-TVI in the following interface to display the camera image normally. Selecting an incompatible video signal for a camera will result in an unstable or no image display. The default selection of the camera signal is Auto. If you select Auto, the camera image will be shown normally regardless of the camera type.

4.2 Edit Camera

Click "Edit Camera" in the setup panel to go to the Manage Camera interface, as shown below.

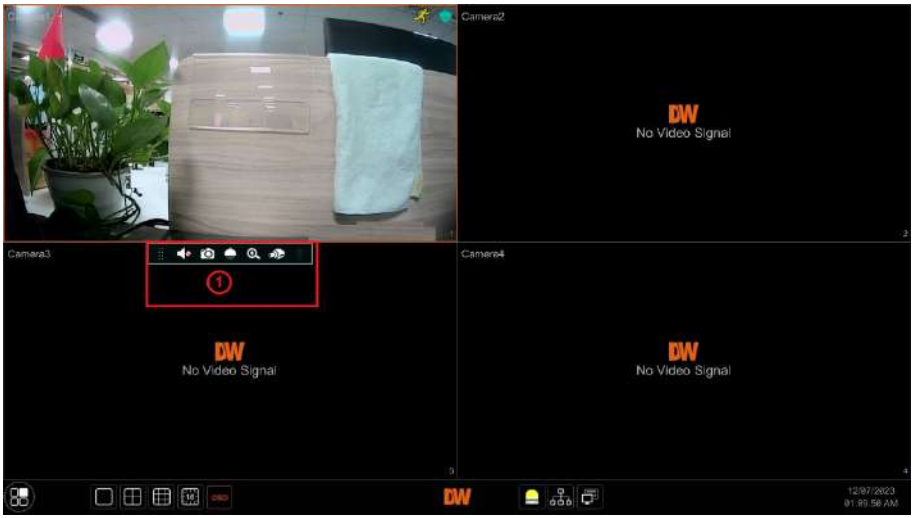


Click  to view the camera's live image in the popup window. Click  to edit the camera name.

5 Live View Introduction

5.1 Live View Interface Introduction

The connected analog camera will be added automatically in the live view interface. To move a camera to a different viewing window, drag one camera from one preview window to another for camera window exchange.



Click the preview window to show the toolbar as shown in area ①; right-click the preview window to show the menu list. The toolbar and menu list are described in the table below.

Icon/Button	Menu List	Description
	--	Move tool. Click and drag to move the toolbar.
	Enable Audio	Click to enable audio. You can listen to the camera audio by enabling audio.
	Snap	Click to pop up the snap window. Click "Save" in the window to save the image. Click "Export" to export the image.
	PTZ Control	Click to go to the PTZ control interface.
	Zoom In	Click to go to the single-channel amplification interface. Move the scroll wheel up to zoom in.
	--	Click to go to the image adjustment interface and adjust the appearance of image brightness, contrast, etc.

To view a camera channel in a 1x1, full-screen display, double-click on the channel in the viewing display.

The single-channel amplification interface is shown below.

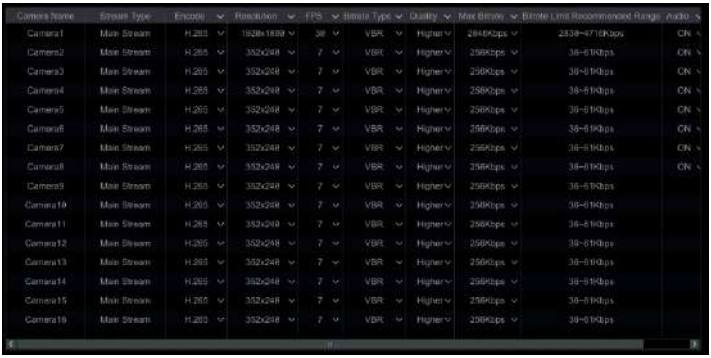
5.2 Image Configuration

5.2.1 Encoder Parameters

Click *Start→ Settings→ Camera→ Image→ Encoder Parameters* to navigate to the following interface.

Set each camera's compression encoder setting, GOP, resolution, FPS, bitrate type, quality, max bitrate, and audio, then click "OK" to save the settings. Please adjust the parameters according to the actual camera's requirements.

Go to *Settings→ Network→ Stream Settings* to set the sub-stream parameters.



- **Encode**: determines the video encoding/compression format of each camera.
- **Resolution**: determines the general clarity of the video; the higher the resolution, the clearer the image will appear.
- **FPS**: determines the number of frames per second that will appear during streaming; the higher the frame rate is, the smoother the video will appear.
- **Bitrate Type**: CBR and VBR are optional. CBR means that no matter how much change is seen in the video scene, the compression bitrate will be kept constant. VBR means that the compression bitrate will be adjusted according to scene changes. For example, for scenes that do not have much movement, the bitrate will be kept at a lower value. This will help to optimize the network bandwidth.
- **Quality**: When VBR is selected, you need to choose image quality. The higher your image quality, the more bitrate will be required.
- **GOP:** setting for "group of pictures"; determines the number of frames that appear during video streaming. Setting the GOP setting to the same value as FPS settings is recommended.

5.2.2 Image Settings

Click *Start→ Settings→ Camera→ Image→ Image Settings* to go to the Image Settings interface. Select the camera, then set the brightness, contrast, saturation, and hue settings to adjust how the camera video will appear through the encoder.

Click the "Advanced" button or  in the camera list on the right side of the interface to pop up the "Image Adjust" interface to set the relevant settings.

You can click the "Default" button to restore the image settings to the encoder's factory settings.


Camera
Camera1
Brightness
128
Contrast
128
Saturation
128
Hue
128
Advanced
Default
Camera Name
Brightness
Contrast
Saturation
Hue
Advanced
Camera1
Camera2
Camera3
Camera4
Camera5
Camera6
Camera7
Camera8
Camera9
Camera10
Camera11
Camera12
Camera13
Camera14
Camera15
Camera16

5.2.3 Mask Settings

Some areas of the image can be masked for privacy. Up to four mask areas can be set for each camera. Click *Start→ Settings→ Camera→ Image→ Mask Settings*. Select the camera and enable the mask.

Click the "Draw" button, then use the mouse to set the mask area in the preview image area.

Click the "Delete" button to delete mask areas.

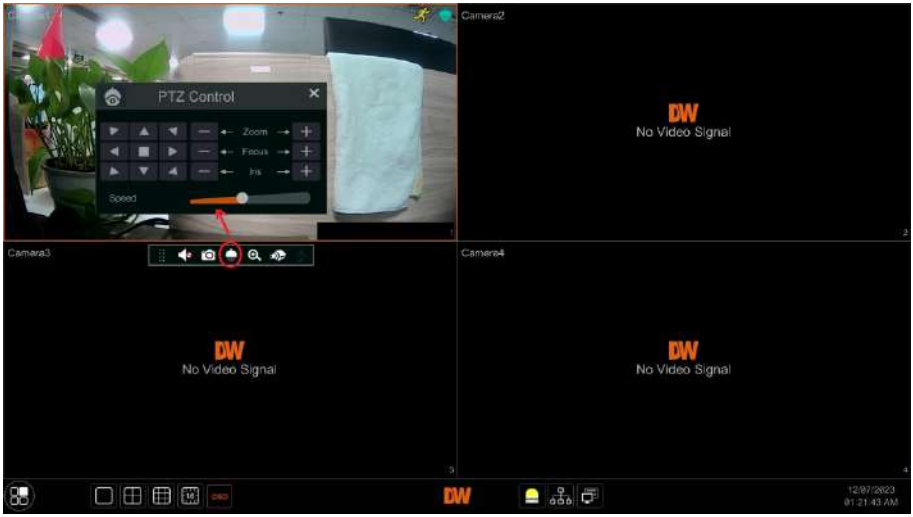
Click "Apply" to save the settings.

6 PTZ

6.1 PTZ Control Interface Introduction

You can use a virtual controller within the encoder's interface to control IP dome or PTZ cameras.

Click the PTZ Control icon on the toolbar at the bottom of the live preview window to go to the PTZ Control interface, as shown below.

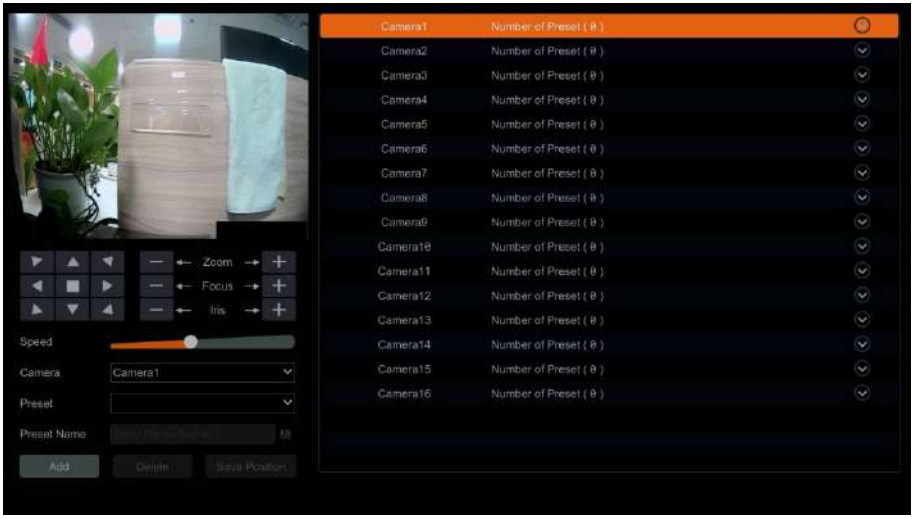


The camera's direction, zoom, focus, iris and movement speed can be controlled in the small PTZ control window.

6.2 Preset Setting

Users can pre-program presets to have PTZ cameras move to predetermined points.

Click *Start→ Settings→ Camera→ PTZ→ Preset* to go to the Preset interface as shown below.



- **Adding Presets**

  Select the camera, then click the "Add" button to add a new preset. Alternatively, click in the camera list on the right side of the interface to display the preset information of the dome, then click to add a preset. The operations of the "Add Preset" window are like that of the PTZ control interface.

- **Editing presets**

  Select the camera and preset. You can enter the new name of the preset, then click the save button to save the new preset name. Adjust the rotation move speed, position, zoom, focus and iris of the preset, then click "Save Position" to save the preset.

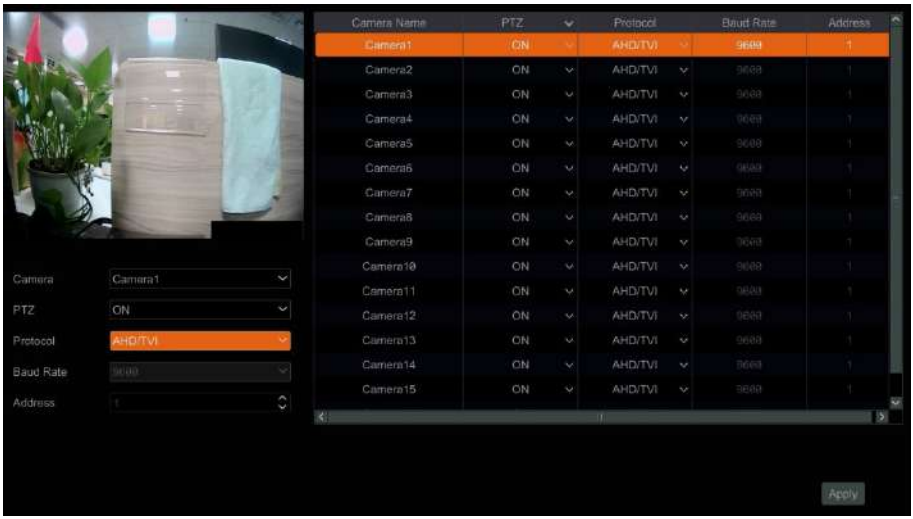
- **Deleting presets**

  Select the camera and preset, then click "Delete" to delete the selected preset.

6.3 PTZ Protocol Setting

The correct protocol must be assigned to control PTZ cameras.

Click *Start→ Settings→ Camera→ PTZ→ Protocol* to go to the PTZ Protocol Settings interface as shown below. You can turn the PTZ function ON or OFF and set the interface's control protocol, baud rate, and camera address.



To adjust the PTZ protocol settings, select a camera and enable the PTZ function.

Set the protocol, baud rate, and camera address according to the camera setting requirements.

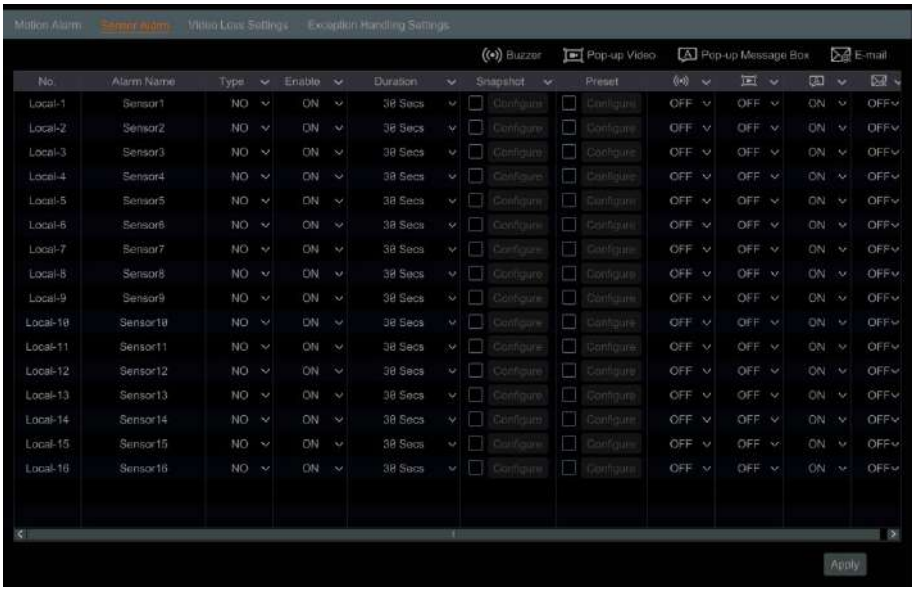
- **Protocol**: The default communication protocol of the encoder is HD-Analog/HD-TVI, which ranges from PELCO-C, PELCO-D, and PELCO-P. The protocol setting within the camera must match the protocol set in the encoder's settings.
- **Address**: The address of the PTZ device/camera must be unique. You cannot have multiple PTZ cameras assigned to the same address within the PTZ Protocol Settings. This is so that the encoder can discern between its connected devices when sending outgoing PTZ commands.
- **Baud Rate**: Baud rate of the PTZ device. Range from: 110, 300, 600, 1200, 2400, 4800, 9600, 19200, 34800, 57600, 115200, 230400, 460800 921600. The baud rate setting within the camera should match the baud rate set in the encoder's settings.

7 Event Management

7.1 Sensor Alarm

To complete all the sensor alarm settings, enable the sensor alarm and set up the alarm handling of each camera.

1. Click *Start→ Settings→ Event→ Sensor Alarm* to go to the following interface.



2. Select the alarm type (NO or NC) according to the sensor's trigger type.
   - NO = Normally Open circuit
   - NC = Normally Closed circuit
3. Enable the sensor alarm of each camera.
4. Check the "Snapshot" and "Preset" and turn ON or OFF "Buzzer," "Popup Video," "Popup Message Box," and "E-mail" sensor options as needed.
5. Click "Apply" to save the settings.

The configuration steps of the alarm mentioned above are as follows:

- **Duration** refers to the interval time between adjacent motion detections. For instance, if the duration time is set to 10 seconds, once the system detects motion, it will activate the alarm and not detect any other motion (specific to the camera) for 10 seconds. If another motion event is detected during this period, it will be considered a continuation of the previous trigger; otherwise,

it will be considered a new motion event.

- **Snapshot**: when enabled, the "Trigger Snapshot" window will pop up automatically. Configure the trigger camera in the window. When the sensor alarm is triggered, the selected cameras will automatically take a still image.
- **Preset**: when enabled, the "Trigger Preset" window will pop up automatically. Configure the trigger preset of each camera (see Section 6.2 Preset Setting for details).
- **Buzzer**: if enabled, the system will emit an audible buzz when the sensor alarm is triggered. To set the delay time of the buzzer (see Section 7.5.3 Buzzer for details).
- **Popup Video**: if enabled, the system will pop up a corresponding video when the sensor alarm is triggered. To set the duration time of the video (see Section 7.5.2 Display for details).
- **Popup Message Box**: if enabled, the system will pop up a corresponding alarm message box when the sensor alarm is triggered. To set the duration time of the message box, please see Section 7.5.2 Display for details.
- **E-mail**: if enabled, the system will send an e-mail when the sensor alarm is triggered. Before you enable the e-mail, please configure the recipient's e-mail address first (see Section 9.1.4 E-mail Configuration for details).

7.2 Motion Alarm

Motion Alarm: when a moving object appears in the motion detection area, a motion alarm will be triggered. It is recommended that the motion settings of each camera channel be enabled first. Then, the alarm handling settings are set to complete the entire configuration of the motion alarm.

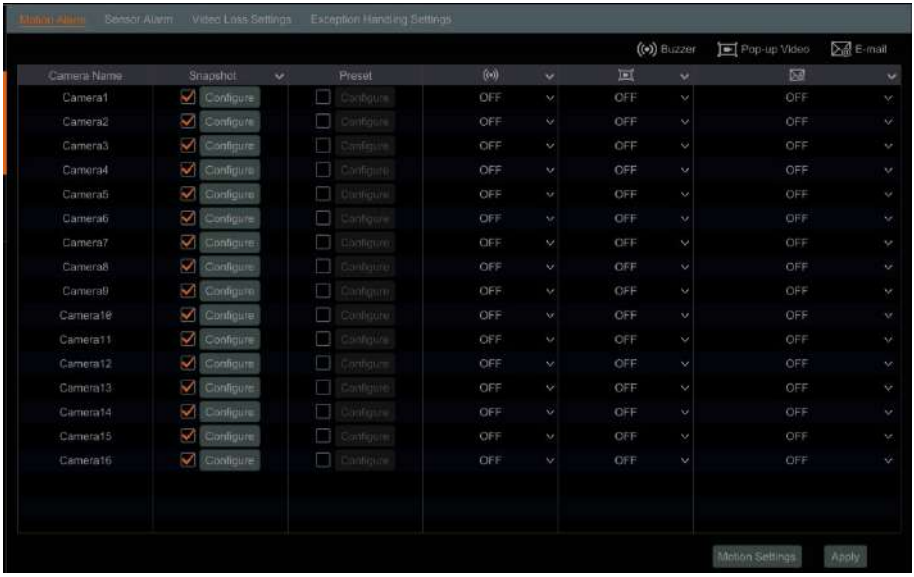
7.2.1 Motion Configuration

1. Click *Start→ Settings→ Camera→ Motion* to go to the following interface.

2. Select the camera and enable the motion setting, then set the camera sensitivity and duration settings.
   - **Sensitivity**: the higher the value is, the more sensitive it is to detecting motion. You should adjust the value according to the practical conditions since the sensitivity is influenced by color and time (day or night).
   - **Duration** refers to the interval time between the adjacent motion detections. For instance, if the duration time is set to 10 seconds, once the system detects motion, any other motion (specific to the camera) will not be detected within those 10 seconds. If another motion event is detected during this period, it will be considered continuous movement.
3. Click-and-drag within the camera preview image to set the motion area. Highlighted regions are the designated areas of the camera's POV that will watch for motion. Click "All" to set the camera image as the motion area. Click "Reverse" to swap the motion areas and the non-detection areas. Click "Clear" to clear all motion areas.
4. Click "Apply" to save the settings. Click "Processing Mode" to go to the alarm handling configuration interface of the motion alarm.

7.2.2 Motion Alarm Handling Configuration

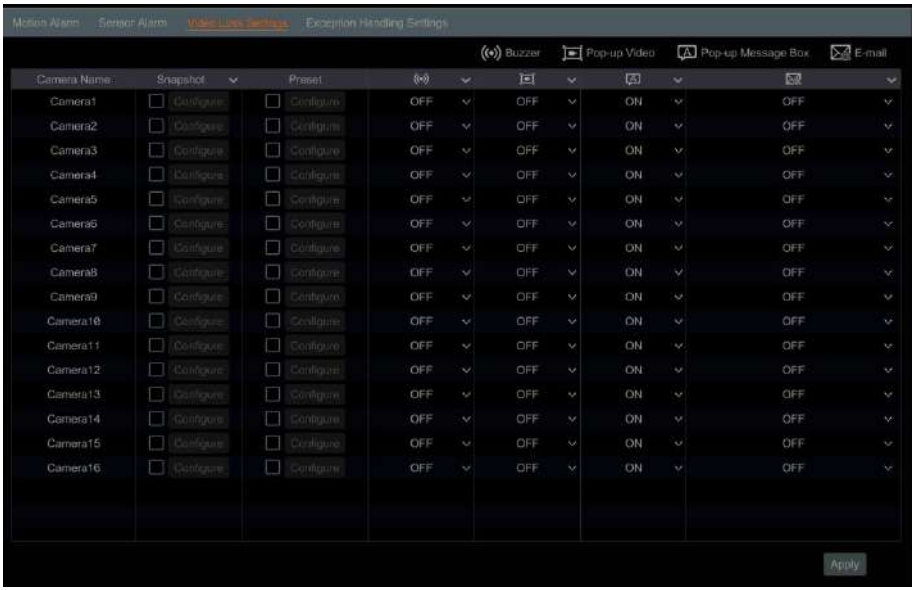
1. Click *Start→ Settings→ Event→ Motion Alarm*.



2. Enable "Snapshot," "Preset," "Buzzer," "Popup Video," and "E-mail" ON or OFF, according to your needs.
   - **Snapshot**: when enabled, the "Trigger Snapshot" window will pop up automatically. Configure the trigger camera in the window. When the motion alarm is triggered, the selected cameras will automatically take a still image.
   - **Preset**: when enabled, the "Trigger Preset" window will pop up automatically. Configure the trigger preset of each camera (see Section 6.2 Preset Setting for details).
   - **Buzzer**: if enabled, the system will emit an audible buzz when the motion alarm is triggered. To set the delay time of the buzzer (see Section 7.5.3 Buzzer for details).
   - **Popup Video**: if enabled, the system will pop up a corresponding video when the motion alarm is triggered. To set the duration time of the video (see Section 7.5.2 Display for details).
   - **E-mail**: if enabled, the system will send an e-mail when the motion alarm is triggered. Before you enable the e-mail, please configure the recipient's e-mail address first (see Section 9.1.4 E-mail Configuration for details).
3. Click "Apply" to save the settings. You can click "Motion Settings" to the motion configuration interface.

7.3 Video Loss Settings

1. Click *Start→ Settings→ Event→ Video Loss Settings*.



2. Enable "Snapshot," "Preset," "Buzzer," "Popup Video," "Popup Message Box," and "E-mail" ON or OFF, according to your needs.
   - **Snapshot**: when enabled, the "Trigger Snapshot" window will pop up automatically. Configure the trigger camera in the window. The selected cameras automatically take a still image when video loss is detected.
   - **Buzzer**: If enabled, the system will emit an audible buzz when detecting video loss. To set the delay time of the buzzer (see Section 7.5.3 Buzzer for details).
   - **Popup Video**: if enabled, the system will pop up a corresponding video when video loss is detected. To set the duration time of the video (see Section 7.5.2 Display for details).
   - **Popup Message Box**: if enabled, the system will pop up a corresponding alarm message box when video loss is detected. To set the duration time of the message box, please see Section 7.5.2 Display for details.
   - **E-mail**: if enabled, the system will send an e-mail when the sensor alarm is triggered. Before you enable the e-mail, please configure the recipient's e-mail address first (see Section 9.1.4 E-mail Configuration for details).
3. Click "Apply" to save the settings.

7.4 Exception Handling Settings

Configure notifications for system events unrelated to external device alarms.

1. Click *Start→ Settings→ Event→ Exception Handling Settings*.
2. Enable "Buzzer," "Popup Message Box," and "E-mail" ON or OFF, according to your needs. The exception handling settings are similar to the sensor alarm's (see Section 7.1 Sensor Alarm).
   - **IP Address Conflict:** an alert will occur for the system if an IP address conflict is detected.
   - **Network Disconnection:** an alert will occur if the system loses connection with the local network.
3. Click "Apply" to save the settings.

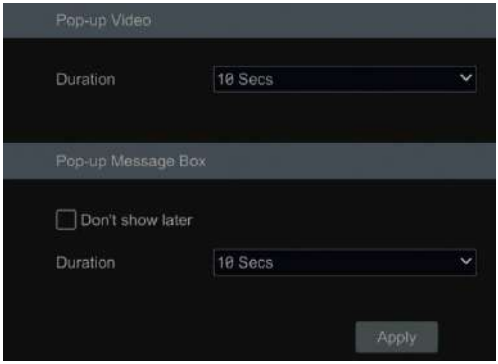
7.5 Alarm Event Notification

7.5.1 E-mail

Click *Start→ Settings→ Event→ Event Notification→E-mail* to go to the e-mail configuration interface. Set the outgoing e-mail address information of the e-mail notification recipients for event alarms (see Section 9.1.4 E-mail Configuration).

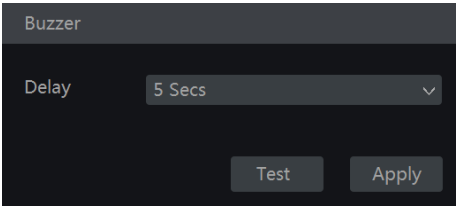
7.5.2 Display

Click *Start→ Settings→ Event→ Event Notification→ Display* to go to the display configuration interface. Set the duration time of the popup video and the popup message box. Click "Apply" to save the settings.



7.5.3 Buzzer

Click *Start→ Settings→ Event→ Event Notification→ Buzzer* to go to the buzzer configuration interface. Set the delay time of the buzzer, then click "Apply" to save the setting. You can click "Test" to test the buzzer.



7.6 View Alarm Status

Click *Start→ Settings→ Alarm→ Alarm Status* or click on the toolbar at the bottom of the live view interface to view the alarm status.

Click the "Clear" button to stop the buzzer when the buzzer alarm occurs. Click to view the detailed information.

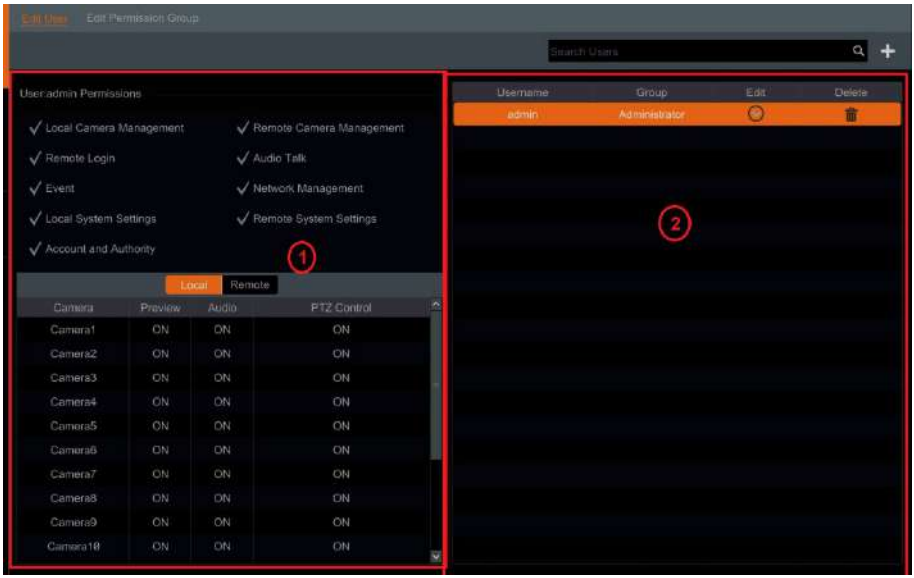
If the exception information is more than one page, you can enter the page number in the box and then click to jump to the specified page. Click / to view the exception alarm information on the previous/next page.

8 Account & Permission Management

8.1 Account Management

Add and edit user profiles and set user permissions.

Click *Start→ Settings→ Account and Authority→ Account→ Edit User*.



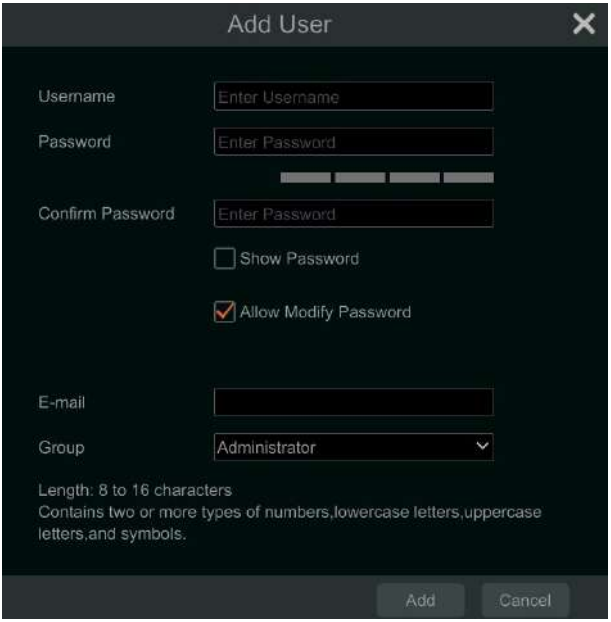
Area ① displays the user permissions settings. Area ② displays the user list. Click on the user in the list to display its user permissions in area ①.

There are three default permission groups ("Administrator," "Advanced," and "Common") available when adding accounts. You can manually add a new permission group (see Section 8.3.1 Add Permission Group for details).

Only the ***admin*** and users with the "Account and Authority" permission can manage the system's accounts. Group "Administrator" owns all the permissions displayed in area ① except "Account and Authority," and its permissions cannot be changed, while the permissions of "Advanced" and "Common" can be changed.

8.1.1 Add User

1. Click *Start→ Settings→ Account and Authority→ Account→ Add User* or click + beside the search box to pop up the *Add User* window as shown below.

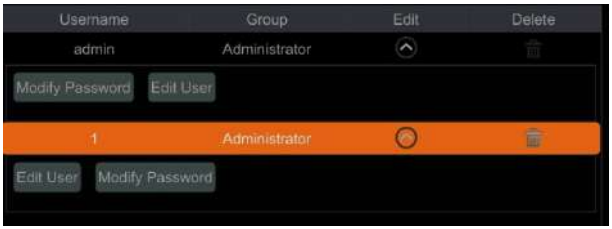


2. Set the username, password, user group, and e-mail address. Click "Add" to add the user.
3. If the password security level is changed, follow the password tips in the interface to set the password. To set the password security level, click Account and *Authority→ Password Security*.

8.1.2 Edit User

Click *Start→ Settings→ Account and Authority→ Account→ Edit User*, then click  in the user list or double click on the user to edit the user information.

Click  to delete the user (the user ***admin*** cannot be deleted).



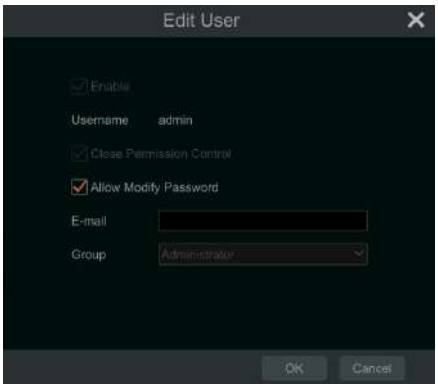
- **Modify Password**

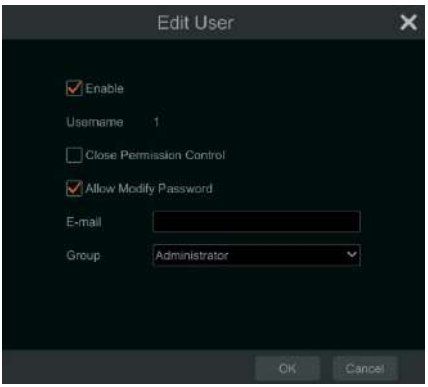
  Click "Modify Password" to pop up a window. Enter the current password, then set a new password. Click "OK" to save the settings.

- **Edit User**

  Click "Edit User" to pop up the window as shown below. The ***admin*** is always enabled by default, its permission control can never be closed, and the permission group cannot be changed by default.

  You can deactivate or activate any other user profiles (if disabled, the user profile cannot be used). If the "Permission Control" setting is closed, the user will have all the admin user's permissions. Set permission group as needed (see Section 8.3.1 Add Permission Group for details). Click "OK" to save the settings.





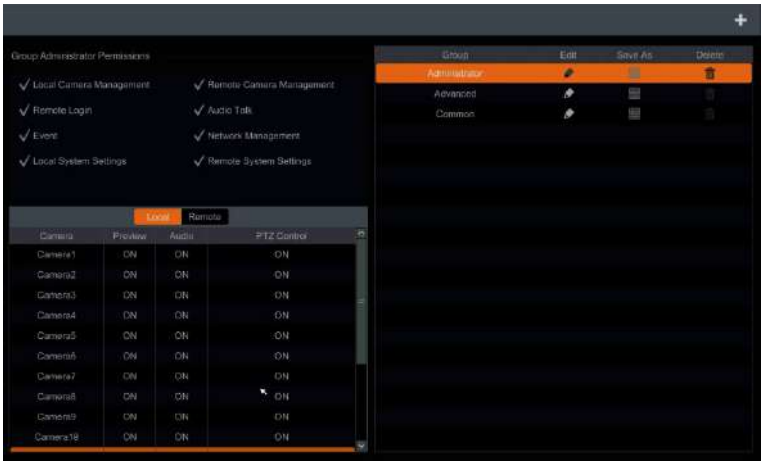
8.2 User Login & Logout

- **Login**: Click *Start→ Login* or directly click the preview interface), select a username, and enter the password in the popup window. Click the "Login" button to log in to the system.
- **Logout**: Click *Start→ Logout*) or Start(Shutdown) to pop up the "Shutdown" window. Select "Logout" in the window, then click "OK" to log out of the system.

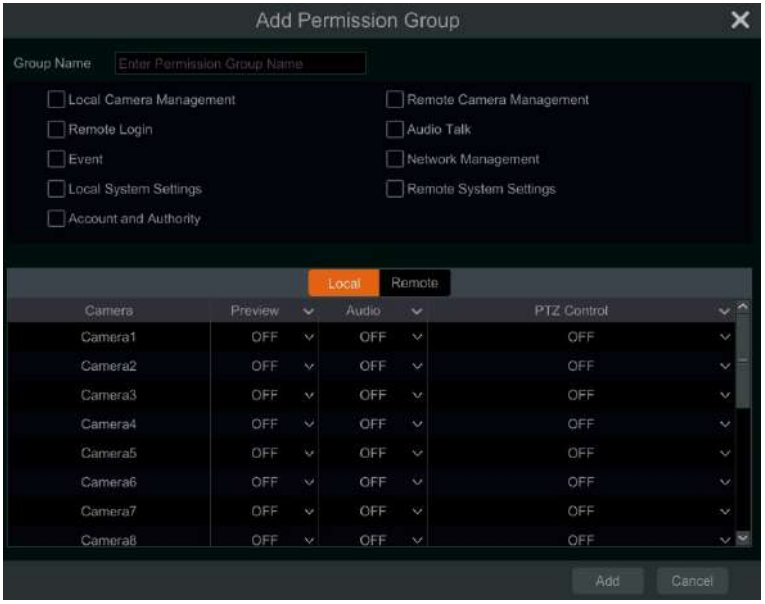
8.3 Permission Management

8.3.1 Add Permission Group

Click *Start→ Settings→ Account and Authority→ Account→ Edit Permission Group*.



Click + to add a permission group. Set the group name, check the permissions as required, and set the "Local" and "Remote" permissions. Click "Add" to save the settings.

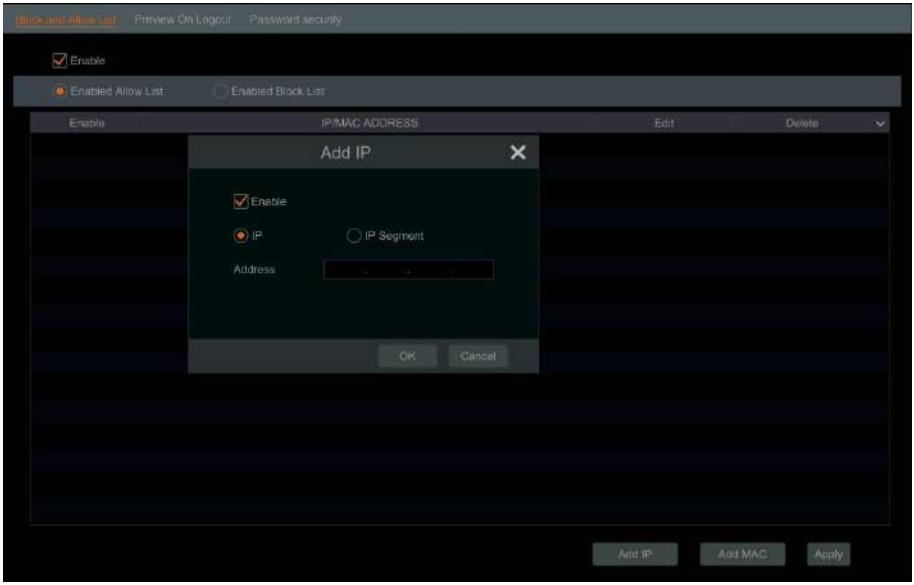


8.3.2 Edit Permission Group

Go to the "Edit Permission Group" interface, then click  in the group list to edit the permission group. The operations of the "Edit Permission Group" are similar to that of the "Add Permission Group" setup (see Section 8.3.1 Add Permission Group for details). Click  to save the group settings. Click  to delete the permission group. The three default permission groups ("Administrator," "Advanced," and "Common") cannot be deleted.

8.4 Block and Allow Lists

1. Click *Start→ Settings→ Account, and Authority→ Security* to go to the following interface.

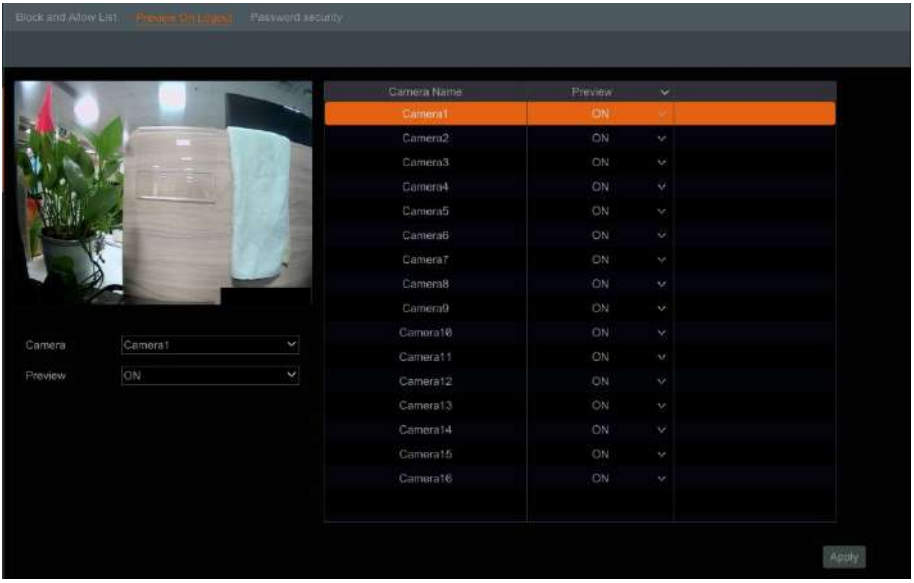


2. Check "Enable," then choose "Enable Allow List" or "Enable Block List." The PC client whose IP address is on the allow list can access the encoder remotely, while the client in the block list cannot.
3. Click "Add IP" or "Add MAC" to add a P/IP segment/MAC, then check "Enable" in the popup window. Enter the IP/IP segment/MAC, then click "OK." In the above interface, click  to edit IP/IP segment/MAC, and click  to delete it. Click "Apply" to save the settings.

8.5 Preview On Logout

Click *Start→ Settings→ Account and Authority→ Security→ Preview On Logout*.

Select a camera, then set the Preview Permission on Logout setting ON or OFF as required. If a camera's preview permission on logout is "ON," you can view the live image when the system logs out.



8.6 Password Security

Click *Start→ Settings→ Account and Authority→ Security→ Password Security*.

In this interface, you can set the level and expiration time of the user passwords.
Level: 3 levels— Medium, Strong, or Stronger.
Expiration Time: 4 options --Never expire, 30 days, 90 days or 180.

8.7 View Online User

Click *Start→ Settings→ Account Authority→ User Status* to view the online user information. You can view the online username, login type, IP address and login time. Click  to pop up a window showing the preview occupied channel number.

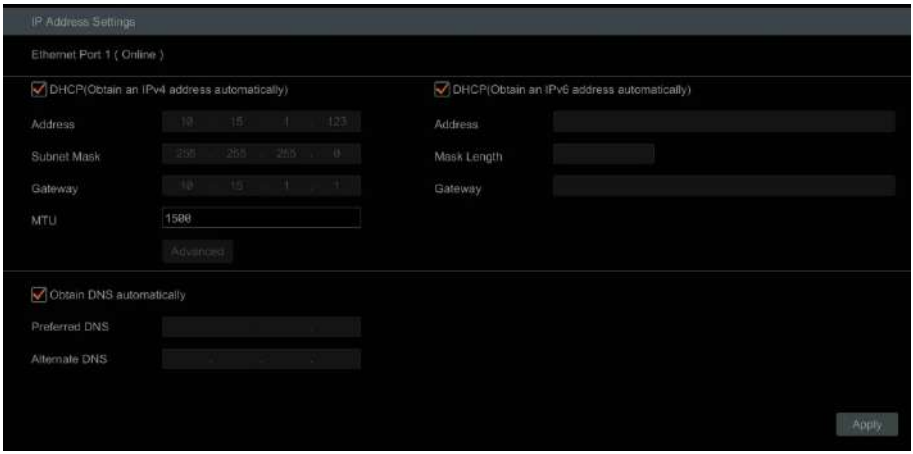
9 Device Management

9.1 Network Configuration

9.1.1 TCP/IP Configuration

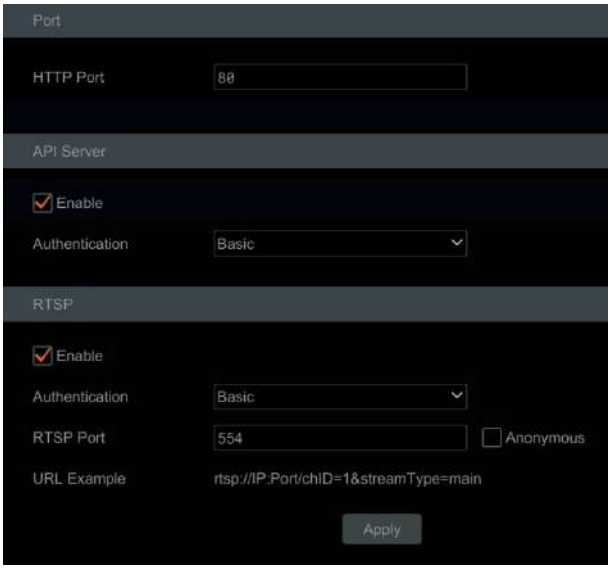
Click *Start→ Settings→Network→ TCP/IP*. Check "Obtain an IPv4 address automatically", "Obtain an IPv6 address automatically," and "Obtain DNS automatically" to have the system acquire network addresses automatically. Alternatively, manually enter the network addresses.

Modify the MTU (Maximum Transmission Unit) value according to the network condition for higher network transmission efficiency. Click "Apply" to save the settings.



9.1.2 Port Configuration

Click *Start→ Settings→ Network→ Port*. Enter the HTTP port of the encoder and click "Apply" to save the settings. You can also enable and set the RTSP port (check "Anonymous" as required).



- **HTTP Port**: the default HTTP port of the encoder is 80, but it can be changed as needed. The port is mainly used for web client access. To access the encoder through a web browser, enter the IP address and HTTP port in the web browser's address bar—for example, http://192.168.11.61:81.

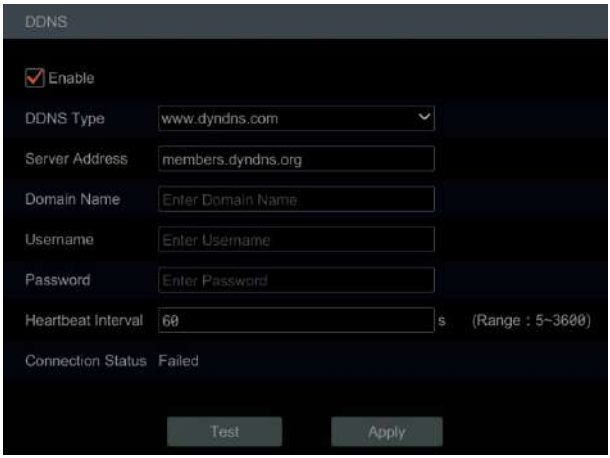
****NOTE:** The encoder's HTTP port and server port should be mapped (port forwarded) on the local router before the encoder can be accessed via WAN.

- **Authentication**: Basic authentication and digest authentication are optional. "Basic authentication" will send credentials using clear text, while "Digest Authentication" will send credentials using MD5 hashing while connecting via a web browser.
- **RTSP Port**: RTSP (real-time stream protocol) can be used to control the sending of real-time data. You can view live images synchronously by using a media player (like VLC player) that supports RTSP.
- The default RTSP port is 554.
    - Main Stream: rtsp://IP address:554/chID=1&streamType=main
    - Sub-stream: rtsp://IP address:554/chID=1&streamType=sub;
    - "chID" indicates the encoder's channel ID. For example, "chID=1 is for channel 1 of the encoder.
- **URL Example**: Enable RTSP and "Anonymous." Enter the listed example into a media player's network address bar to view the RTSP stream.

9.1.3 DDNS Configuration

The DDNS controls the dynamic IP address through a domain name. You can access the encoder easily if the DDNS setting is enabled and configured.

Click *Start→ Settings→ Network→ DDNS*.



Check "Enable" and select the DDNS type.

Enter the server address, domain name, username and password according to the selected DDNS type, then click "Test" to test the effectiveness of the input information.

Click "Apply" to save the settings.

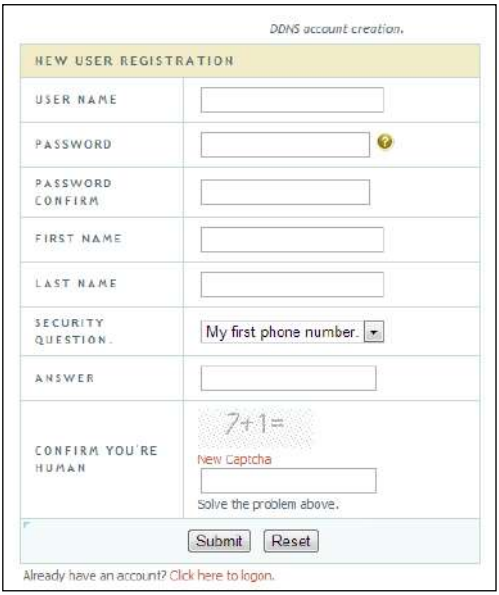
**NOTE: The "Heartbeat Interval" setting can only be configured if the DDNS type is "dyndns."

You will have to enter the server address and domain name if some DDNS types are selected. Go to the relative DNS website to register a domain name and enter the registered domain information into the encoder.

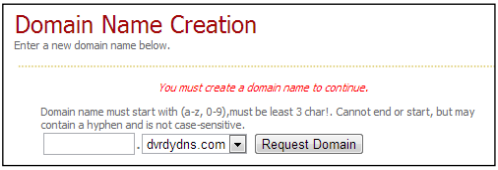
For example, if the domain name is registered to *www.Encoderdydns.com*:

1. Use a web browser to visit the DNS website (for example, *www.Encoderdydns.com*).

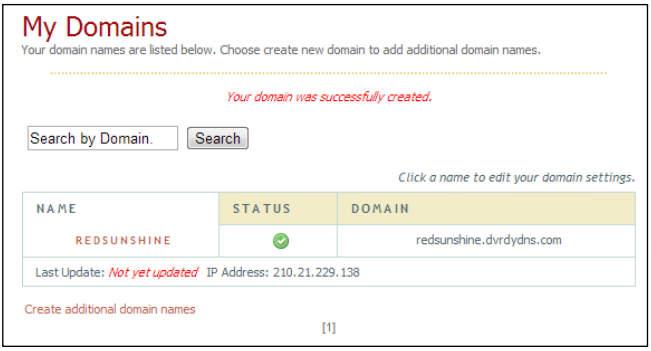
2. Click "Registration". Set the DDNS account information (username, password and so on), then click Submit to save the account.



3. Create a domain name, then click Request Domain.



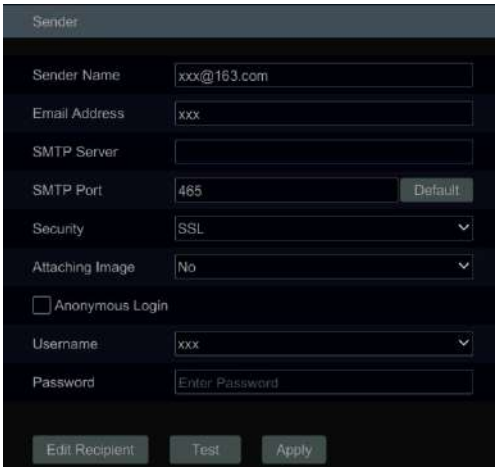
4. After you successfully request your domain name, you will see your domain name information in the list.



5. After acquiring the domain information from the DNS service's website, go to the encoder and navigate *Start→ Settings→ Network→ DDNS*) to the DDNS setting menu. Enable DDNS and select the "www.Encoderdydns.com" DDNS type. Enter the registered username, password, and domain name, then click "Apply".
6. Map the router's IP address and HTTP port (you can skip this step if the UPnP function is enabled).
7. Once the DDNS has been established with the encoder, you can enter the registered domain name and HTTP port. For example, http://www.xxx.Encoderdydns.com:81 in the address bar, then press the Enter key to go to the web client.

9.1.4 E-mail Configuration

To have the encoder send notifications, an outgoing e-mail must be established. Configure the outgoing e-mail by navigating to *Start→ Settings→ Network→ E-mail*.



1. Configure the following settings:
   - **Sender Name:** enter the outgoing e-mail address used for the setup.
   - **E-mail Address:** re-enter the outgoing e-mail address used for the setup.
   - **SMTP Server:** enter the SMTP server that is providing the e-mail service. For example, if using a Gmail account, the SMTP server would be "*smtp.gmail.com*."
   - **SMTP Port:** enter the service port of the SMTP server. For example, if using a Gmail account, the SMTP port would be "587". You can click the *Default* button to reset the port to the default value.
   - **Security:** select the type of security authentication used for the SMTP server. For example, if using a Gmail account, the service uses SSL and StartTLS.
   - **Attaching Image:** select whether to include an image attachment when sending e-mail notifications.
   - **Anonymous Login:** you do not need to enter a username and password if this setting is enabled.
   - **Username:** enter the username used to log into the outgoing e-mail service or e-mail address. The username list will be updated automatically according to the entered e-mail address.
   - **Password:** enter the password used to log into the outgoing e-mail

service.

2. After configuring the *Sender* settings, click "Apply" to save the settings.
3. Click "Test" to pop up a window. Enter the e-mail address of the test recipient in the window, then click the "OK" button. The sender's e-mail address will be used to send an e-mail to the recipient. If the e-mail is sent successfully, it indicates that the sender's e-mail address is configured correctly.

To configure the list of recipients receiving the e-mail notifications, click "Edit Recipient" to go to the following interface.

1. Click "Add" and enter the recipient's e-mail address.
2. Click  to delete the recipient in the list.
3. Click "Apply" to save the settings.
4. Click "Edit Sender" to the sender's e-mail configuration interface.

9.1.5 UPnP Configuration

By UPnP, you can access the encoder through the web client using WAN via an external router without port mapping.

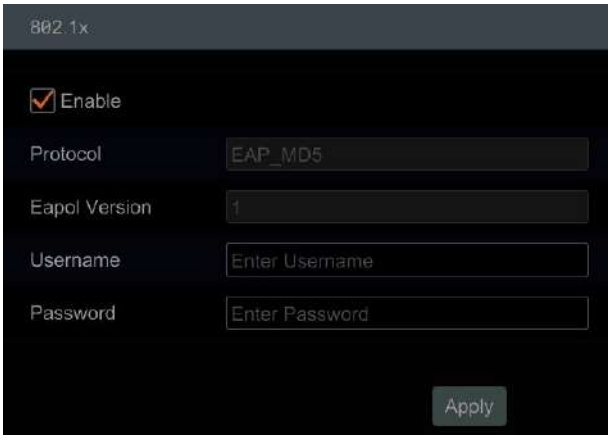
1. Click *Start→ Settings→ Network→ UPnP* to go to the following interface.
2. Make sure the router supports the UPnP function and the UPnP is enabled in the router.
3. Set the encoder's IP address, subnet mask, gateway, etc., corresponding to the router.
4. Check "Enable" in the interface below, then click "Apply."

Click "Refresh" to refresh the UPnP status. If the UPnP status were still "Invalid UPnP" after refreshing it many times, the port number would be wrong. Please change the mapping type to "Manual," then click  to modify the port until the UPnP status turns to "Valid UPnP." Refer to the following picture. You can view the encoder's external IP address. Enter the external IP address plus port in the address bar to

access the encoder, such as http://183.17.254.19:81.

9.1.6 802.1X

If enabled, the encoder data can be protected. When the encoder is connected to the network protected by the IEEE 802.1X, user authentication is needed.



The encoder must be connected to a switch supporting the 802.1x protocol to use this function. The switch can be considered an authentication system that identifies the device in a local network. If the encoder connected to the switch's network interface has passed the switch's authentication, it can be accessed via the local network.

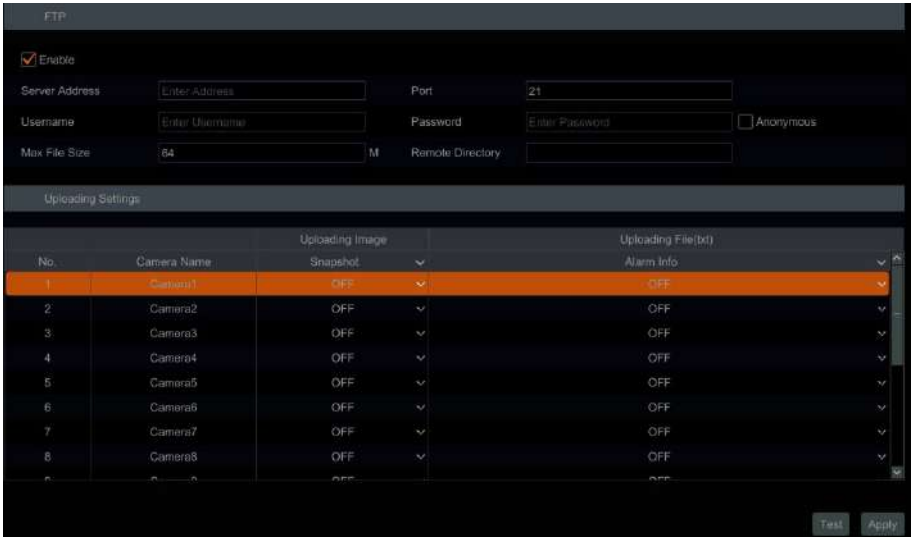
- **Protocol:** Use the default settings.
- **EAPOL Version:** Use the default settings.
- **Username and Password:** The username and password must be the same as the username and password applied for and registered in the authentication server.

9.1.7 FTP Configuration

To configure the file transfer protocol (FTP) settings of the encoder, click *Start→ Settings→ Network→ FTP* to go to the interface for FTP configuration.

Check "Enable" and enter the server's name, port, username and password, max file size and remote directory.

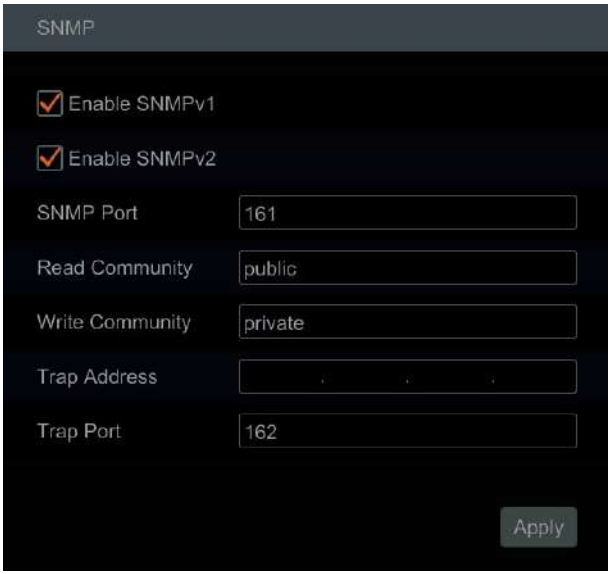
After that, you can choose the images and alarm information to upload as needed in this interface.



9.1.8 SNMP

Before setting the SNMP, please download the SNMP software to receive and manage device information via the SNMP port. The device can send the alarm event and exception message to the monitoring center by setting the trap address.

1. Click *Start→ Settings→ Network→ SNMP* to go to the interface for SNMP configuration.



2. Check SNMPv1 or SNMPv2 to enable this function.
3. Set the port of the SNMP.
4. Set the trap address and the trap port.
5. Click "Apply" to save the settings.
   Trap Address: The IP address of the SNMP host.
   Trap Port: The port of the SNMP host.

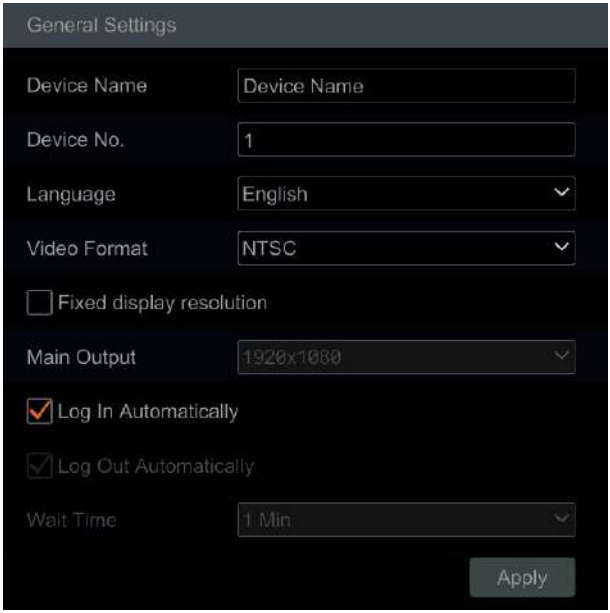
9.1.9 View Network Status

Click *Start→ Settings→ Network→ Network Status* to view the encoder's network status, or click on the toolbar at the bottom of the live view interface to view the network status conveniently.

9.2 Basic Configuration

9.2.1 Common Configuration

Click *Start→ Settings→ System→ Basic→ General Settings*.



Set the device name, device No., language, video format and main output resolution. "Log In Automatically" and "Log Out Automatically" (if checked, you can set the wait time). Click "Apply" to save the settings.

- **Device Name**: The name of the device. It may be displayed on the client end or CMS to help the user recognize the device remotely.
- **Video Format**: Two modes: PAL and NTSC. Select the video format according to the camera.

9.2.2 Date and Time Configuration

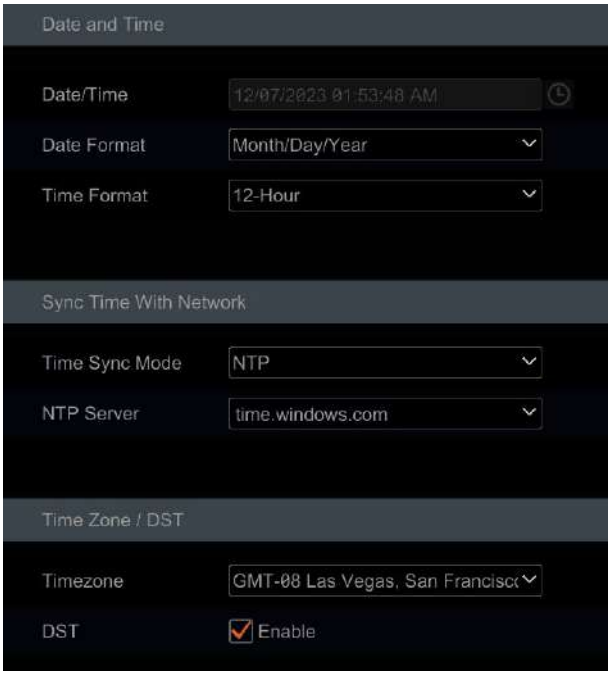
Click *Start→ Settings→ System→ Basic→ Date and Time*.

Set the system time, date format, time format and time zone of the encoder.

The default time zone is GMT-08. If the selected time zone includes DST, the DST of the time zone will be checked by default. Click "Apply" to save the settings.

You can manually set the system time or synchronize the system time with the network through NTP.

- **Manual**: select "Manual" in the "Time Sync Mode" option, then click after the "System Time" option to set the system time.
- **NTP**: select "NTP" in the "Synchronous" option, then choose the NTP server.


Date and Time
Date/Time
12/07/2023 01:53:48 AM
Date Format
Month/Day/Year
Time Format
12-Hour
Sync Time With Network
Time Sync Mode
NTP
NTP Server
time.windows.com
Time Zone / DST
Timezone
GMT-08 Las Vegas, San Francisc
DST
Enable

9.3 Factory Default

Click *Start→ Settings→ System→ Maintenance→ Factory Default*. Choose the function as needed.

**NOTE: Resetting to the factory default settings will not change the time zone.

9.4 Device Software Upgrade

You can click *Start→ Settings→ System→ Information→ Basic* to view MCU, kernel version, firmware version etc. Before upgrading, upgrade the file from your dealer.

The upgrade steps are as follows:

1. Copy the upgrade software onto a USB storage device.
2. Insert the USB storage device into the encoder's USB interface.
3. Click *Start→ Settings→ System→ Maintenance→ Upgrade* to go to the "Upgrade" interface. Select the USB device using the "Device Name" option and navigate to the upgrade software. Select the upgrade software, then click "Upgrade."
4. The system may automatically restart during upgrading. Please wait for the upgrade, and do not power off the encoder during this process.

**NOTE: The USB mobile device's file system used for upgrading, backing up and restoring should be in FAT32 format.

9.5 Backup and Restore

You can back up the encoder's configuration file by exporting the configuration file to other storage devices. You can also import the configuration file to other encoders that are the same model to save time.

To use the Backup and Recover functions, insert the USB storage device into the USB interface of the encoder, then click *Start→ Settings→ System→ Maintenance→ Backup and Restore* to go to the interface.

- **Backup**

Select the USB device in the "Device Name" option and go to the path where you want to store the configuration backup file. Click the "Backup" and the "OK" buttons in the popup window.

- **Recover**

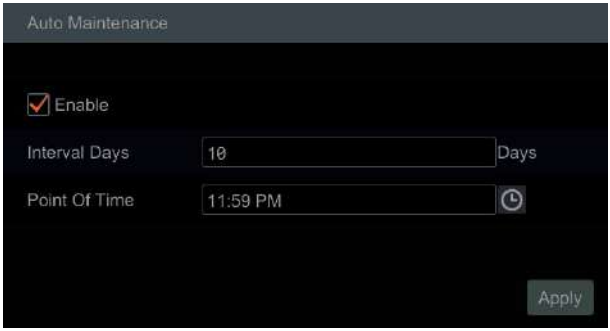
  Select the USB device using the "Device Name" option and find the configuration backup file. Click the "Recover" and the "OK" buttons in the popup window.

9.6 Restart Automatically

You can set the automatic restart time for the encoder to restart automatically as part of regular maintenance.

Click *Start→ Settings→ System→ Maintenance→ Auto Maintenance*.

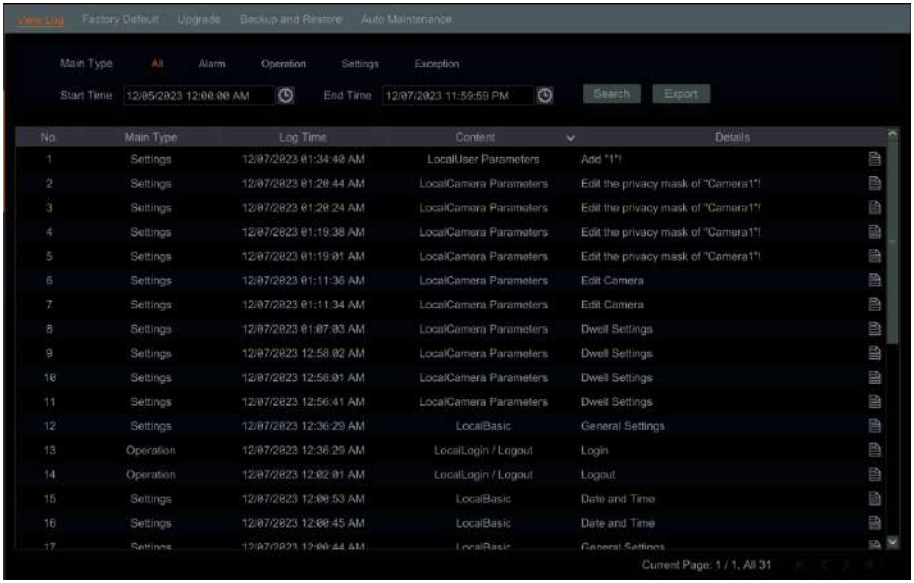
Enable auto maintenance, set the number of interval days and point of time for how frequently and when to restart, and then click "Apply" to save the settings. The encoder will restart automatically every few days.



9.7 View Log

Administrators can view and export system logs from the *View Log* menu.

Click *Start→ Settings→ System→ Maintenance→ View Log* to go to the log view interface. Select the log main type, click  to set the start and end times, then click the "Search" button. The searched log files will be displayed in the list.



Choose the log file in the list, then click the "Export" button to export the log file. Click on the "Content" title bar to create a menu list. You can select the contents in the menu list to filter what will show in the log list.

9.8 View System Information

Click *Start→ Settings→ System→ Information* then click the corresponding menu to view the "Basic," "Camera Status," and "Alarm Status" information of the system.

10 Remote Surveillance

10.1 Web LAN Access

1. Click *Start→ Settings→ Network→ TCP/IP* to go to the "TCP/IP" interface. Set the IP address, subnet mask, gateway, preferred DNS and alternate DNS of the encoder.
2. Open a web browser on your computer and enter the IP address of the encoder in the address bar to go to the login interface, as shown below. You can change the display language on the top right corner of the login interface. Enter the username and password of the encoder in the interface, then click "Login" to go to the live view interface.

Notes: 1. Please ensure the encoder and the computer are in the same local network segment. For example, supposing that the IP address of the computer is 192.168.1.41, the IP address of the encoder shall be set to 192.168.1.XXX.

2. If the HTTP port of the encoder is not 80, but other number instead, you need to enter the IP address plus port number in the address bar of the web browser when accessing the encoder over network. For example, the HTTP port is 81. You should enter http://192.168.1.42:81 in the address bar of the web browser.

10.2 Web WAN Access

- **Router Access**
  1. Click *Start→ Settings→ Network→ TCP/IP* to go to the "TCP/IP" interface. Set the IP address, subnet mask, gateway, preferred DNS and alternate DNS of the encoder.
  2. Set the HTTP port (it is suggested that the HTTP port be modified because the default HTTP port 80 might already be in use) and enable the UPnP

function in both the encoder and the router. If the UPnP function is not available in the router, you need to manually forward the LAN IP address, HTTP port and server port of the encoder in the router. Port mapping settings may vary in routers, so please refer to the router's user manual for details.

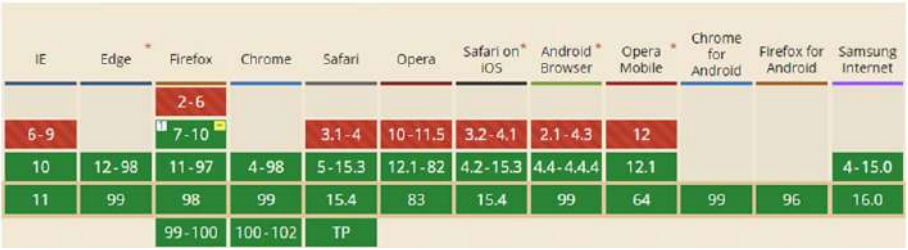
3. Get the encoder's WAN IP address from the router. Open a web browser on your computer, and enter the WAN IP address and HTTP port (ex. http://116.30.18.215:100) in the address bar to go to the login interface. Enter the username and password of the encoder in the interface, then click "Login" to go to the live view interface.

**NOTE: If the WAN IP address is a dynamic IP address, it is necessary for you to use the domain name to access the encoder. Click Start→Settings→Network→DDNS to set DDNS (see 13.1.4 DDNS Configuration for details). By using DDNS function you can use the domain name plus HTTP port like http://sunshine.Encoderdydns.com:100 to access the encoder via internet.

10.3 Web Remote Control

The encoder supports web client access with or without a plugin.

The supported browsers (green color) for remote access with the plugin are as follows. The red color versions are not supported.



When you access the encoder through the web browser for the first time, the browser will need to download and install the relative components for normal preview and playback.

If permission for the configuration modification is needed after the plugin runs, please allow it, or the interface cannot be displayed normally; if the relevant ports of the plugin (port 11563; port 12863; port 13863) are occupied, the system will tell you which program has occupied the port. Please stop the occupied program.

The supported browsers (green color) for remote access without the plugin are as follows. The red color versions are not supported.

Please refer to the tips in the remote interfaces for details. The buttons and icons on the top right corner of the remote interface are introduced as follows.

- **Admin**: the current login username.
- **Logout**: click to log out and return to the login interface.
- **Modify Password**: click to change the password of the current login user. Enter the current password, then set a new password in the popup window. Click "OK" to save the new password.

10.3.1 Remote Preview

Click "Live Display" in the remote interface to view the viewing interface.

Plugin Free Live View

Only a 4-screen display can be supported for the web client when not using a plugin. However, the web client functions are the same.

Plugin Required Live View

The live viewing interface consists of the four areas in the following picture.

- **Start Preview**

Select a window in the viewing area, then click on the online camera on the left panel to view the camera in the window. You can click  in the toolbar to preview all the cameras.

- **Left Panel Introduction**

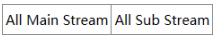
Click  on the left panel to hide the panel and click  to display the panel. You can view all the added cameras and groups on the left panel.

 : Click to view the camera list.

 : Click to view customized display mode.

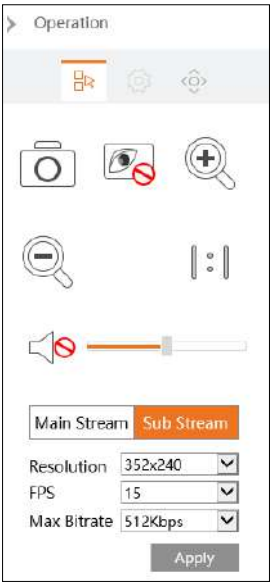
Enter the camera name in the search box, then click  to search the camera. Click  to refresh the camera list.

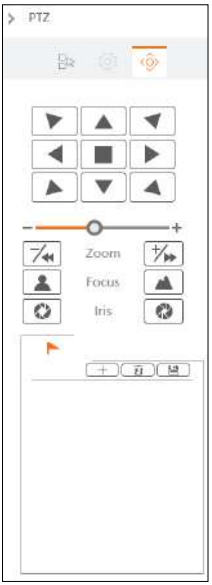
- **Tool Bar Introduction**

Button	Meaning
	Screen mode button.
	Click to disable OSD. Click it again to enable OSD.
	Click to show the full screen. Right-click on the full screen to exit the full screen.
	Click "All Main Stream" or "All Sub Stream" to set the cameras' stream.
	Click to preview all the cameras.
	Click to close all the preview cameras.
	Click to enable talk with the encoder.

- **Right Panel Introduction**

Click  on the right panel to go to the "PTZ" panel. Click  to go to the "Operation" panel.





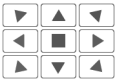
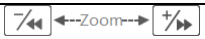
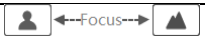
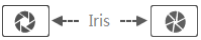
Click on the camera window in the preview area, then click Main Stream to set the camera's live preview stream to the mainstream in manual record mode.

Click Sub-stream to set the camera's live preview stream to sub-stream. In the stream tab, set the resolution, FPS and bitrate, then click "Apply" to save the settings.

- **Operation Panel Introduction**

Button	Meaning
	Click to snap.
	Click to zoom in on the camera image, then drag the mouse on the image to view the hidden area.
	Click to zoom out the image of the camera.
	Click to close the preview camera.
	Click to enable audio, then drag the slider bar to adjust the volume. You can listen to the camera audio by enabling audio.

- PTZ Panel Introduction

Button	Meaning
	Click ▲ / ▶ / ◀ / ▼ / ◀ / ▶ / ◀ / ▶ to rotate the dome; click ■ to stop spinning the camera.
	Drag the slider to adjust the rotating speed of the dome.
	Click ▶▶ / ◀◀ to zoom in/out camera image.
	Click ▲ / 👤 to increase/ decrease the focal length.
	Click ◉ / ◉ to increase/decrease the iris of the dome.

10.3.2 Remote Configuration

Click "Function Panel" in the remote interface to configure the camera, event, network, account authority, and encoder system. All these settings are like that of the local encoder settings. See the encoder configurations for details.

11 Specifications

VIDEO		
Video input	**Signal technology**	HD over Coax® technology with HD-Analog, HD-TVI, HD-CVI and CVBS up to 960H
	Signal type	HD-TVI/HD-Analog/HD-CVI:4K at 15fps, 5MPat 20fps 4MP, 2.1MP/1080p,960H,D1 at 30fps
	CH#	16CH BNC input
Video output	**Outputs**	True HD, VGA, BNC (1.0Vp-p; 75Ω)
	Resolutions	True HD: 3840 × 2160, 1920 × 1080, 1280 × 1024 VGA: 1920 × 1080, 1280 × 1024 BNC: CVBS, 960H
Display mode (local)		1, 4, 9, 16, Split
Compression		H.265, H.264
PERFORMANCE		
Interface	**Audio in/out**	8 RCA input / 1 RCA output (600Ω)
	Audio codec	G.711(U/A)
	Alarm input	16 alarm inputs
	Alarm output	4 alarm outputs
	Serial (RS485, USB, UTC)	1 RS485 port for PTZ support
		1x USB 3.0, 1x USB 2.0
		PTZ control via Coax (HD-Analog / HD-TVI)
Features	**Motion detection**	Yes
	Privacy masks	Yes (up to 4 masks per channel)
	Alarm management	Locally and via DW Spectrum® IPVMS. Motion detection, sensor and alarm activation, video loss, system start and user login.
	Notifications	Notifications via e-mail, local popup display, alarm output, buzzer, push text, FTP, Snapshot, PTZ preset activation
	Security	HTTP, multi-user authority
NETWORK		
Network connection		1x RJ45 10/100/1000 Base-T
Streaming	**Transmission speed live**	4K: 8fps 5MP: 12fps 4MP: 15fps Up to 2.1MP/1080p: 30fps
	Max. throughput	96Mbps
	Bitrate mode	CBR, VBR
	Max Bitrate	32Kbps - 5Mbps
	Protocols	TCP/IP, DHCP, DNS, DDNS, UPnP, HTTP, NTP, SMTP, RTSP, SNMP, FTP
Access	**Web viewer**	Microsoft Edge®, Google Chrome®, Mozilla Firefox®, Safari®
	software	DW Spectrum®
GENERAL		

Operating temperature		14°F - 122°F (-10°C ~ 50°C)
Operating humidity		10-90% (non-condensing)
Other certifications		CE, FCC, NDAA
Electrical	**Power requirement**	12V DC, 4A
	Power consumption	Max 30W, 2.5A
Dimensions		14.96" x 10.55" x 1.77" (380 × 268 × 45mm)
Warranty		2 years

* Specifications are subject to change without notice.

12 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, from 9:00 AM to 8:00 PM EST, Monday through Friday.

A purchase receipt or other proof of the original purchase date is needed 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 that are caused by products not supplied by the Warrantor or failures that result from accident, misuse, abuse, neglect, mishandling, misapplication, alteration, modification, faulty installation, setup 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.

13 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 that vary 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 that do not involve defective materials or workmanship as determined by the Warrantor, in its sole discretion, are not covered. The cost of such service calls is the responsibility of the purchaser.