GRUNDIG

User Guide

GU-TI-AP4603E

GU-TI-AP4603T

GU-TI-AP4607E

GU-TI-AP4607T

www.grundig-security.com

Content

Introduction

Thank you for purchasing a Grundig product. Before installing or connecting the product, please read first the following documents which you can find in printed form in the product package:

- Legal Disclaimer

- Safety Instructions

- Installation Manual and/or Quick Guide for the respective product model

Further information about the product like Data Sheets, CE Documents, etc. can also be found on our Web page www.grundig-security.com.

This User Guide is a manual for IP Cameras. Please see in the table of **Model Overview** the applicable models. Please read this User Guide carefully and retain it for future use.

Model Overview

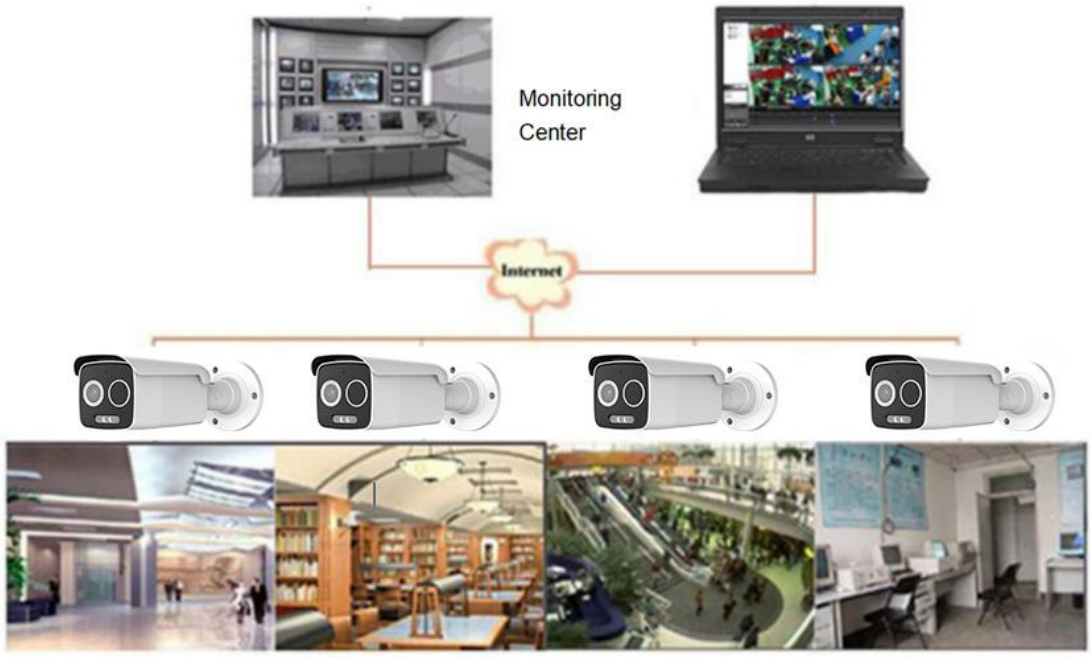
This User Guide is for the following products:

- GU-TI-AP4603E
- GU-TI-AP4603T
- GU-TI-AP4607E
- GU-TI-AP4607T

1. Overview

1.1 Range of Application

The network cameras with powerful image processing capacity may be applied at various public places such as mall, supermarket, school, factory and workshop, as well as in environments requiring HD video image such as bank and traffic control system, as shown below:



1.2 Product Description

An IP thermal camera is a network-based imaging device that captures and transmits thermal (infrared) images over an IP network. Unlike visible-light cameras, it detects infrared radiation emitted by objects, enabling accurate temperature measurement and imaging in complete darkness or challenging environmental conditions.

1.3 Operating environment

System: Windows XP/Windows 7/ Windows 8/ Windows 10/ Windows 11/MacOS 10 or later.
CPU: Intel I3 or later
Memory: 2 GB or higher
Video memory: 1 GB or higher
Display: 1024×768 or higher
Browsers: IE10 and above, Chrome 57 and above, Firefox 52 and above, Edge 41 and above, and Safari 12 and above.

2. Device Connection

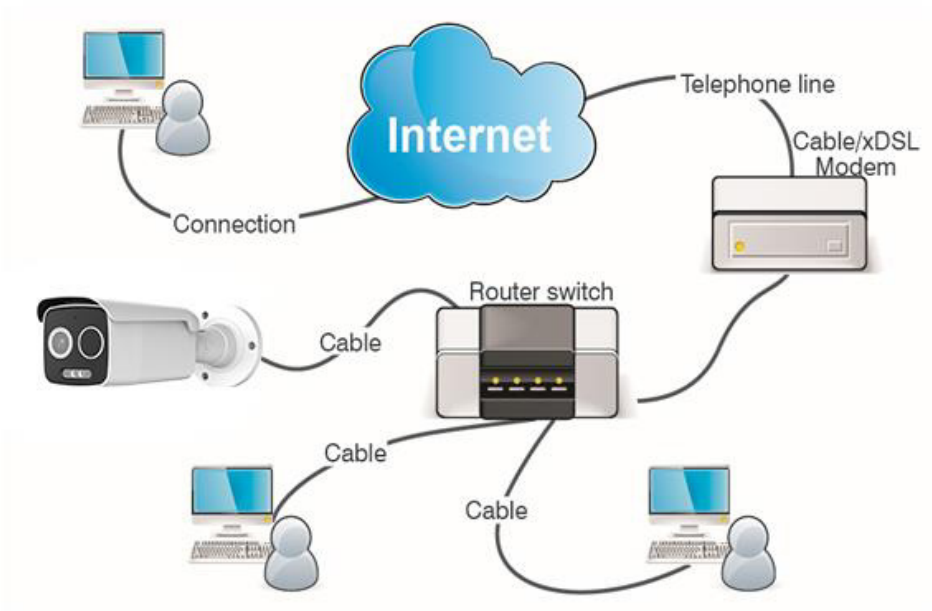
IP camera can be connected in two ways:

2.1 Connection to a PC

Connect IP camera to PC via straight-through network cable, with power input connected to DC 12V adaptor, and set the IP addresses of the PC and IP camera in the same network segment. If the network is functioning properly, the IP camera will communicate with the PC within one minute when switching on.

2.2 Connection to router/Switch

This is typically used to connect an IP camera to the Internet, where the camera and PC are connected to the LAN port of a router/switch and the camera's gateway is set to the router's IP address.



3. Setting the IP Address via Device Config Tool

Step 1. Run Device Config Tool and click Search to get the information of the IPCs in this LAN as shown in Figure 3.1, and locate your desired IPC based the P2P or MAC address of the camera.

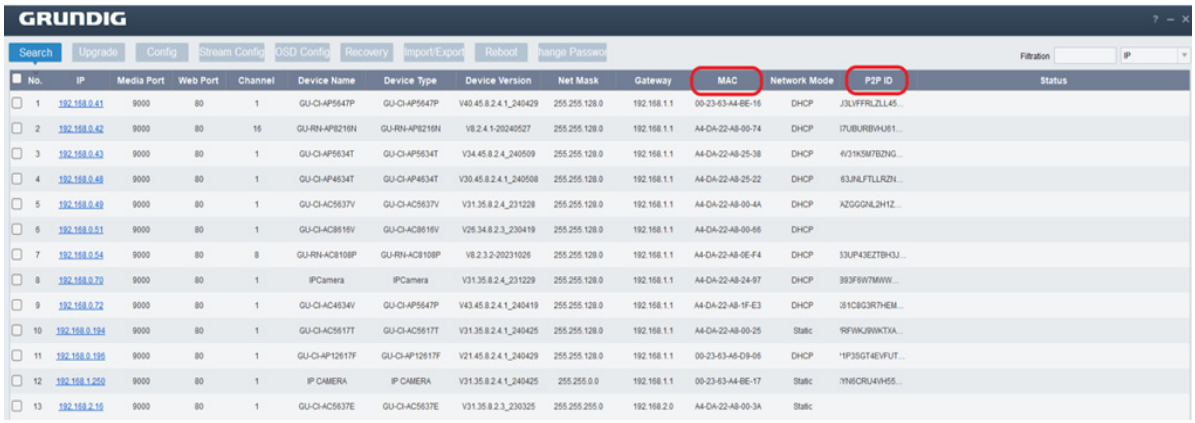


Figure 3.1

Note: The camera default support DHCP to assign IP address, the default account is admin and the default password is admin.

If the current network supports DHCP to distribute network, change Network Mode to DHCP to obtain IP.

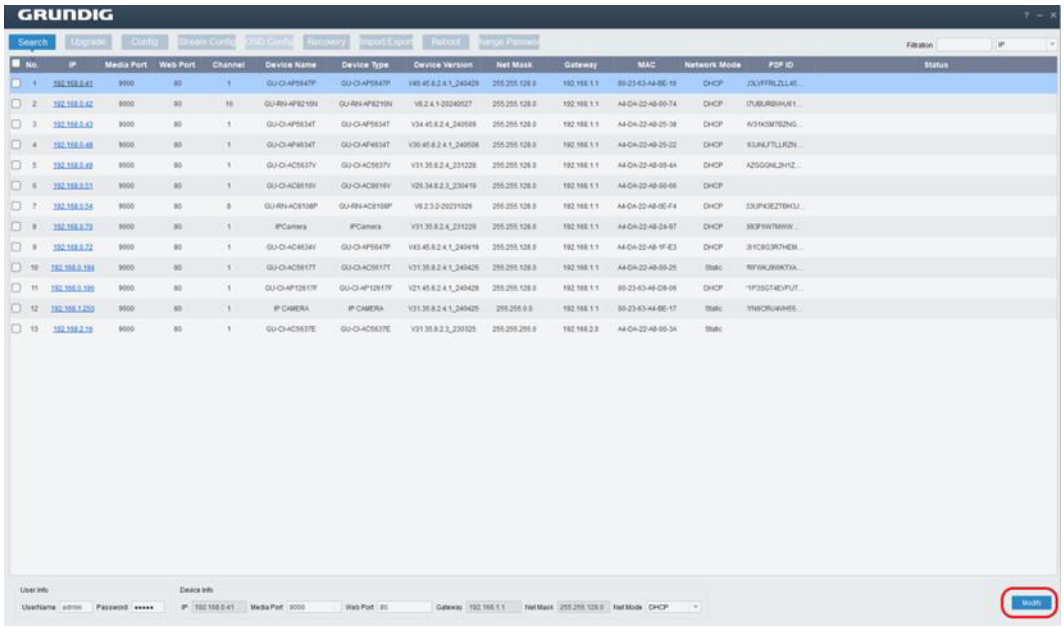


Figure 3.2

4. Web Log in

4.1 Access to IPC Web port

Use Device Config Tool to search the IPC of the current network. Click on the searched IP and log in to the camera with IE browser as shown in Figure 4.1.1.

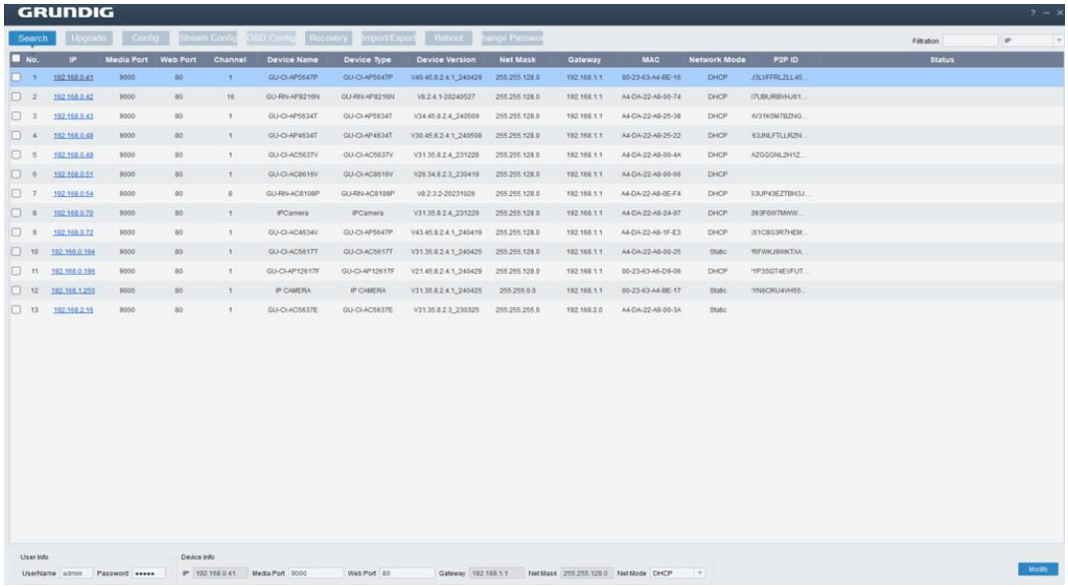


Figure 4.1.1

You can also directly open the IE browser and enter HTTP://ip:web port. Take device shown in Figure 4.1.1 as an example, the IP of the current device to be accessed is 192.168.0.41, the web port is 80, and the combined URL is http:// 192.168.0.41:80.

Note: In actual use scenario, the http access method will default to port 80.

4.2 Initial login

When accessing the camera's web for the first time, you need to set a password for the camera to complete the activation operation, as shown in the interface in Figure 4.2.1, which requires setting a more complex password. Hover the mouse over the password input box to query the password requirements:
The password should be 8 - 16 characters, including letters, numbers or special characters.
The password and username cannot be set the same.

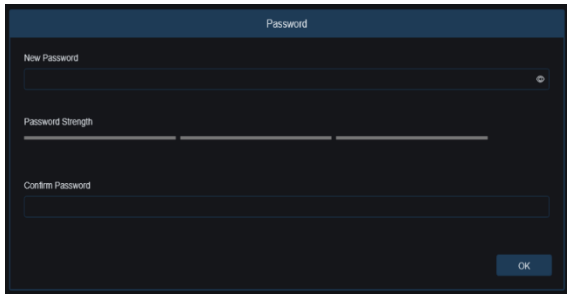


Figure 4.2.1

Set a new password and click OK to save your change. The web interface will display the screen as shown in Figure 4.2.2. Users can open the corresponding password retrieval method by checking the box, or cancel the setting directly without checking the box, and do not enable the password retrieval function.

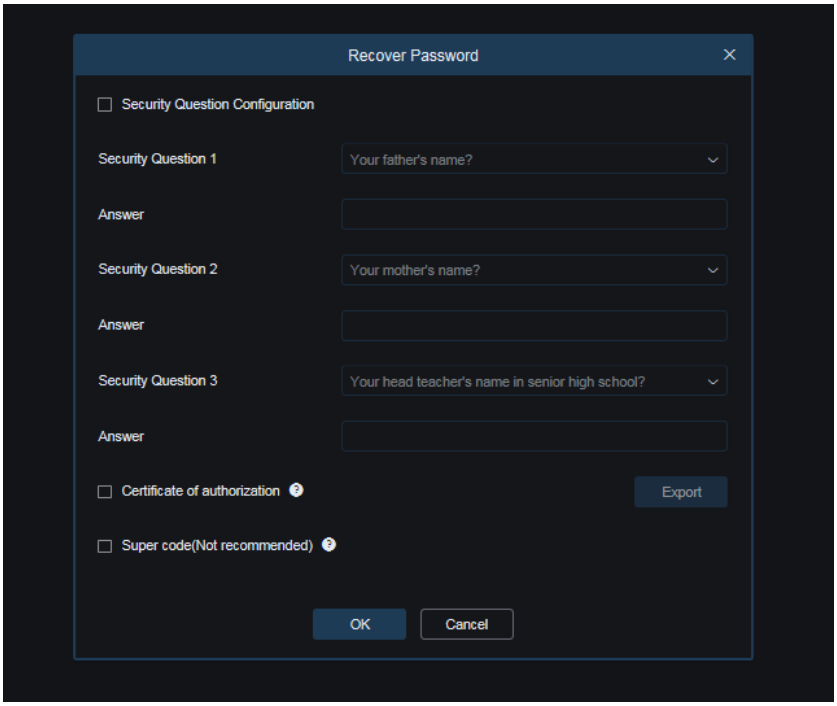


Figure 4.2.2

①**Security Question Configuration:** to modify the user password by question verification, check the Security Question Configuration, select three questions among 15 questions, and set the answers at a maximum length of 64 characters to retrieve your password.
②**Certificate of authorization:** to modify the user password by using a certificate, check the Certificate of authorization, and click Export to download the certificate.txt file.
③**Super code (Not recommended):** This method is to calculate a super code allowing to changing the user password by using camera's MAC address and the camera system time. You are not advised to enable this function as the MAC address of the camera is broadcast over the network, and the system time of the camera can be directly obtained when you log in from the web client and use Super code to change the user password.

Note: Keep your verification information properly when the password retrieval function is enabled.

4.3 General login

To access the camera web interface, the login interface will be entered as shown in Figure 4.3.1. Enter the corresponding account password, then click login, you can access the camera's operating interface. At the same time, you can select the desired language when log in.

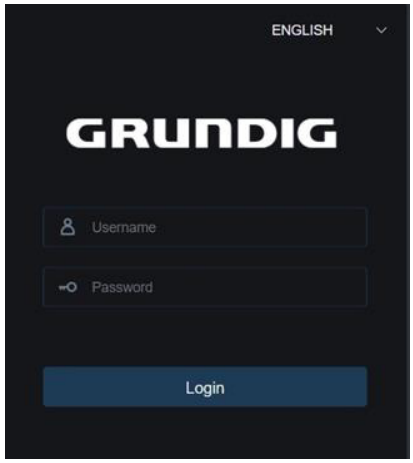


Figure 4.3.1

4.4 Retrieval password

When you forget the login information, you can click Recover Password on the login interface to enter the password retrieval interface. According to the first login settings, it supports three modes: security question verification, key file, and super password.

4.4.1 Security Question Verification

Reset the main user password through the security question and open the password retrieval interface. As shown in Figure 4.4.1, the default interface is to retrieve the password through the problem verification. Fill in the corresponding answer in the security question, you can directly modify the password of the current main user.

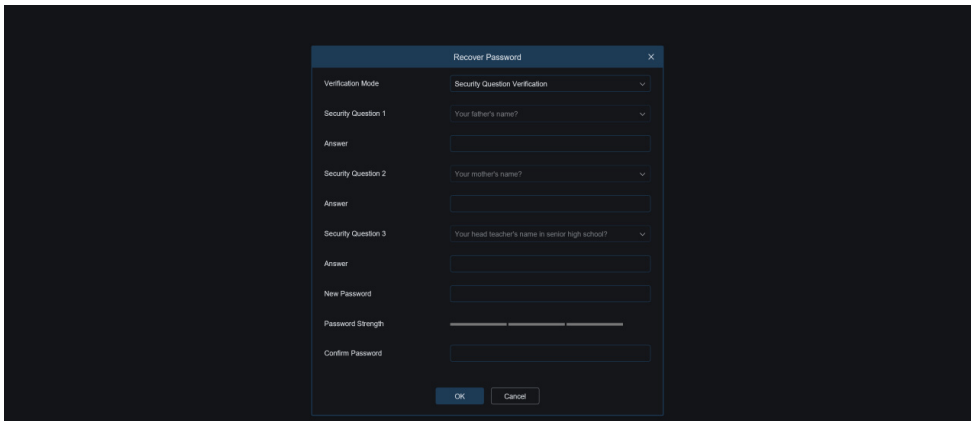


Figure 4.4.1

4.4.2 Certificate of Authorization

When set up the password authentication questions in initial login, you can turn on the key search and modify password function and prompt to download the key file certificate.txt. Open the password retrieval interface, switch to the Certificate of authorization mode, and the interface is converted as shown in Figure 4.4.2. Click Import to select the key file certificate.txt. After the Import is successful, enter the new password to modify the main user's password.

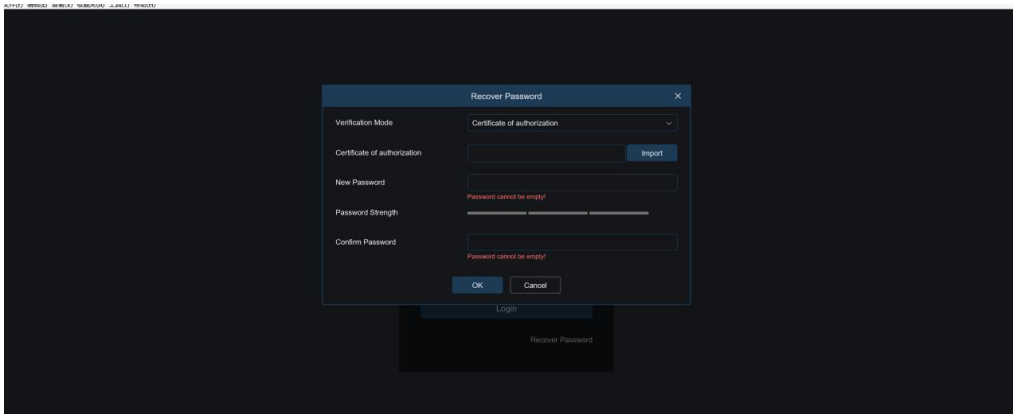


Figure 4.4.2

4.4.3 Super Password

Click Recover Password in the login screen to open the Recovery Password screen, switch to Super Code mode and the screen transforms as shown in Figure 4.4.3. Fill in the correct verification code to change the master user's password (the verification code is calculated from the camera's Mac address and the time of the Super Code prompt and according to certain rules).

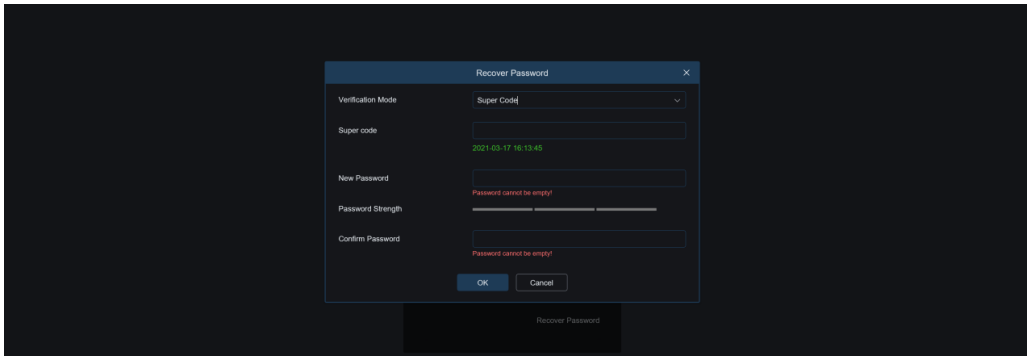


Figure 4.4.3

4.5 Password Expired

Using the same password for a long time poses a great security risk. For this reason, the program will record the system time of the last password modification. If the system time of current login is 90 days later than the system time of the last password modification, the user will be reminded to change the password.
When user decides to change the password, the interface jumps to Figure 4.5.1.
According to the interface prompts, user can set a new password by verification with old password.

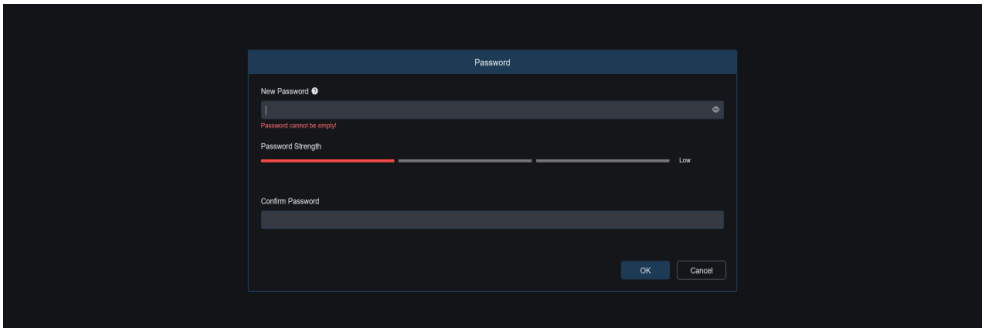


Figure 4.5.1

5. Plug-in Installation

Use IE browser to log in, you need to install the plug-in to preview the image normally.
When the prompt in Figure 5.1.1 appears, please download and install the plug-in according to the prompt.

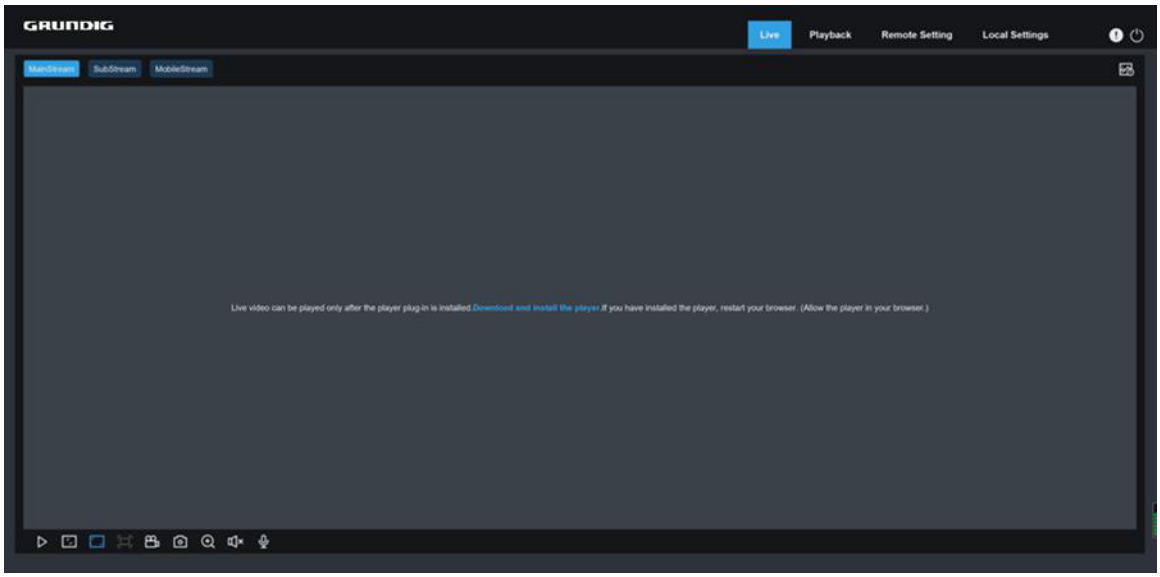


Figure 5.1.1

Note: Programs without plug-ins are supported. When using Safari 12 and above, Chrome57 and above, Firefox 52 and above, Edge 41 and other browsers for web access, the plug-in installation steps can be ignored.

6. Preview

6.1 Live

After the login is successful, the web terminal enters the login preview interface, which is shown in the following figure.
Note: The functions of different products are different, please refer to the actual situation.

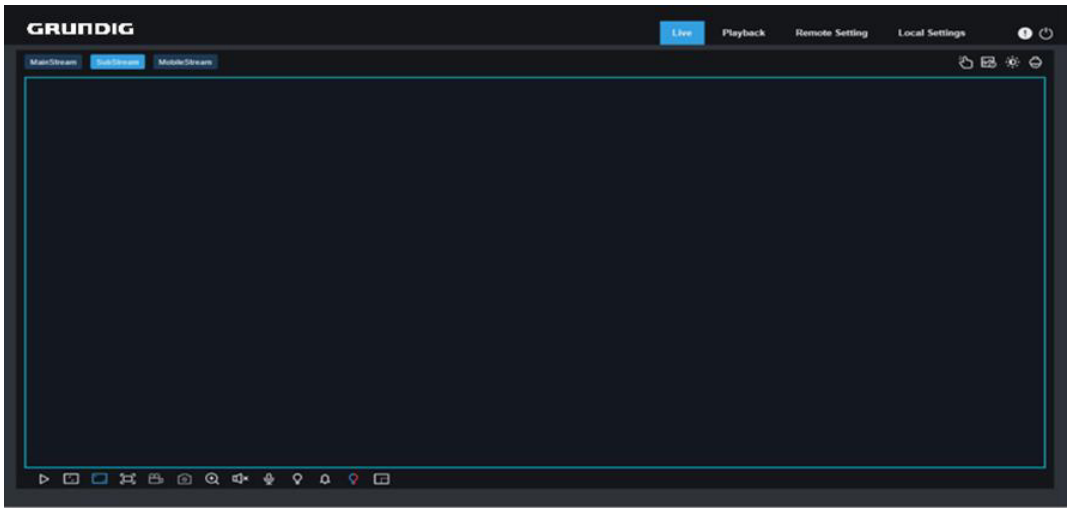


Figure 6.1 Live View

Channel List: The left channel list can be hidden or expanded. The two channels of the device are shown here, the CH1 is the optical channel and CH2 is the thermal channel.

Stop/Play： Close or open the live view of the corresponding channel.

Bitrate： Select the corresponding channel to live view at a different stream.

Stream switching menu: You can switch the picture quality of the current live view at the upper left corner:

Main stream: The image is clearer, but the stream bandwidth is large, which requires higher performance on the PC-side interface.

Sub stream: Bandwidth and requirements for the PC are moderate, but the image will be worse than the main stream.

Mobile stream: Lowest requirements on bandwidth and PC performance, and lowest image quality.

Main switching bar: Switch the function interface of the web. The web terminal has 4 menus: Live, Playback, Remote Setting, and Local Settings.

Info: Display the currently logged-in user, web version and plug-in version.

AI alarm： Open the alarm push baron the right, and push the corresponding picture when performing functions such as face alarm, human and vehicle detection.

Color： Adjust the current image settings, such as image saturation, sharpness, etc. Select the thermal channel, the Color setting page will switch from the optical setting page to the thermal setting page. You can adjust the image settings of the thermal channel live view screen, including brightness, contrast, and thermal color palette mode. Independent of the image settings of the optical channel.

Exit： Log out.

Recording & alarm status: Displays the alarm and recording status of the camera. For details, see Section 6.2.

Divide Screen: Choose different live view split-screen modes, either single split-screen or two-split screen.

In single split-screen mode, you can jump to the corresponding channel preview by using the arrow in the lower right corner or the input box.

Play: Open live view for all channels.

Stop: Close live view for all channels.

Original Proportions: Display the current live view in its original proportion.

Stretch: Display the current live view in a way that stretches the display area.

Full Screen： Display the live view in full screen. You can double-click the screen to enable or disable the function, and press Esc to exit the full screen mode.

Record: Record the current preview stream function. The recording button in the channel list is for manual recording of the corresponding channel. The recording button in the lower menu bar is used to manually record all channels being previewed.

Capture: Manually record the stream in preview. The capture button in the channel list is for manual capture of the corresponding channel. The capture button in the menu bar below is for manual capture of all channels being previewed.

Digital Zoom: Zoom in a certain area of the display.

Audio: Turn on/off or adjust the audio in live view.

Voice Intercom: Communicate with the camera.

Light: Manually turn on/off the white light.

Siren： Manually turn on/off the siren.

Warning Light： Manually turn on/off the white light.

Pixel Counter: Select an area to check its pixel size in the stream.

Add Tag: Click to add tags.

Pop-up information: The current alarm is displayed at the lower right corner. The prompt message displays the specific channel.

6.2 Recording status

The recording status is a simple reminder from the web to the current alarm of the camera, which can show whether the recording is normal. There can be multiple alarms at the same time. For specific instructions, please refer to the following introduction.

No icon: The SD card of camera is normal, but no video is being recorded.

R The camera is performing general recording.

Note: When the camera performs alarm recording, the mark will disappear, but general recording will continue.

H The SD card is in an abnormal state, please check the SD card.

M The camera is in motion alarm, and motion alarm recording is performing.

M The camera is in motion alarm, and motion alarm recording is performing.

I The camera is in IO alarm, but IO alarm recording is not enabled.

I The camera is in IO alarm, and IO alarm recording is performing.

PIR The camera is in PIR alarm, but PIR alarm recording is not enabled.

PIR The camera is in PIR alarm, and PIR alarm recording is performing.

S The camera is in smart alarm, but the smart alarm recording is not performed.

Note: Intelligent alarms include Face alarm, Human &Vehicle alarm, etc.

S •The camera is in smart alarm and smart alarm recording is performing.

7. Playback

The camera not only needs to allow us to see the real-time image, but also needs to save the image information so that it can be retrieved and viewed when needed.

7.1 General Playback

The playback function is mainly composed of General video search and AI search functions. The following figure shows the video search.

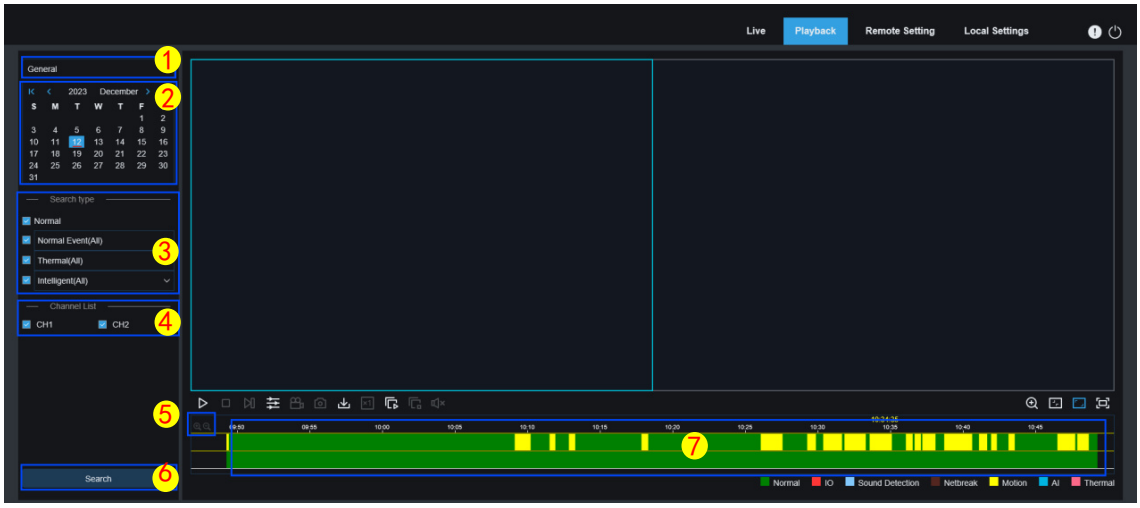


Figure 7.1.1

1. Search Mode: Switch search functions, as shown in the figure above. General is selected by default to search for general recording files. You can switch to AI image search by referring to the following part in this section.
2. Search date: Set the date to search for recording files. Click Search. You will be prompted with the dates with available recording files.
3. Search type: Display the search types supported by the camera. You can search for only part of recording files as required.
4. Channel list: Select the channel to be searched.
5. Playback progress bar zoom in/out: the progress bar shows 24 hours of progress by default, through the function of zoom in/out of the progress bar, you can jump to the corresponding playback position more accurately for more customers. You can also use this function by mouse wheel.

Pause/Play: Pause/play streams.

Stop: Stop streams.

Forward by One Frame: Play one frame with one click.

Synchronous playback: Click to control both channels at the same time for synchronous playback. Without clicking, you can control two channels separately for asynchronous playback.

Record: Manually record the stream in preview.

Capture: Manually capture the image of the current stream.

Download: Download the searched recording file.

Speed: Supports playing at a speed of 1/8, 1/4, 1/2, 1, X2, X4, X8 and X16

Play All: During asynchronous playback, video playback of all channels begins.

Stop All: During asynchronous playback, stops playback of all channels of videos.

Audio: Turn on/off or adjust stream sound.

Add Default Tag: Add the default label, make a video playback start time marker at the current time of the current channel, and click it to add.

Add Tag: To add a custom label, click Add label to bring up a custom window where you can name the label.

Digital Zoom: Zoom in a certain area of the stream.

Original Proportions: Displays the current live view in its original proportion.

Stretch: Displays the current live view in a way that stretches the display area.

Full Screen： Displays the playback stream in full screen. You can double-click the screen to enable or disable the function, and press Esc to exit the full screen mode.

6. Search: Search and display the videos in the SD card according to the search settings.

7. Playback progress bar: The lower display time bar shows the current playback progress bar in different color according to the search results, as well as the playback progress.

7.2 Picture Search

When the camera turns on the automatic capture function, you can search and play pictures on this interface.

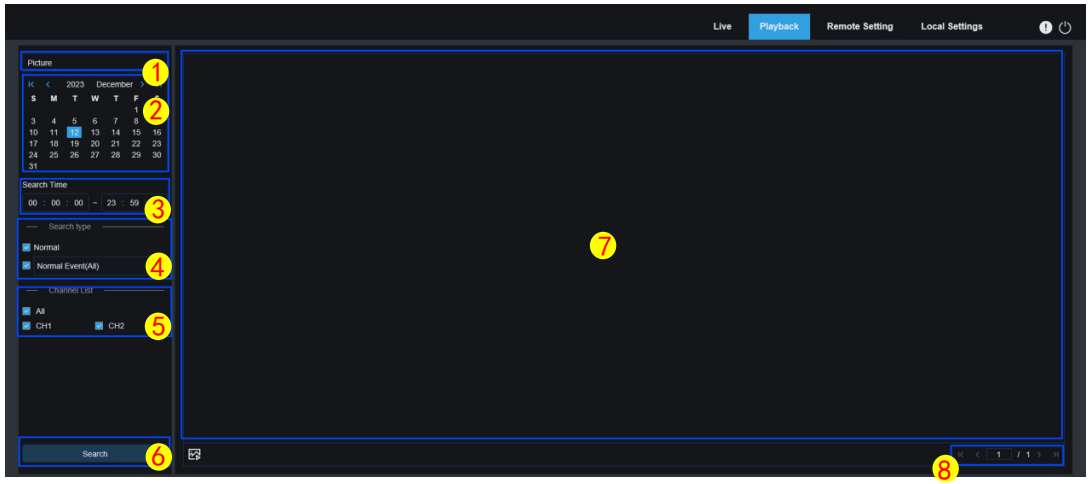


Figure 7.2.1

1. Search Mode: Switch the current search function. The current search mode is picture.

2. Search Date: Set the date to search for pictures. By clicking Search, you will be prompted with the dates for which recording files are available.

3. Search time: Set the time to search for pictures, allowing users to search for pictures in a specific period of time.

4. Search type: Select the picture capture type you want to search for, or check "All Type" to select all pictures.

5. Channel list: Select the channel to be searched.

6. Search: Click Search to start searching images.

7. Search results display area: Display the images searched by the user. When you double-click on an image, a playback video of the time period before and after the image is played.
8. Search results Flip: Scroll through search results at the lower right corner.

7.3 Playback by Tag

This screen allows you to view all previously added tags and edit, play back, or delete them.

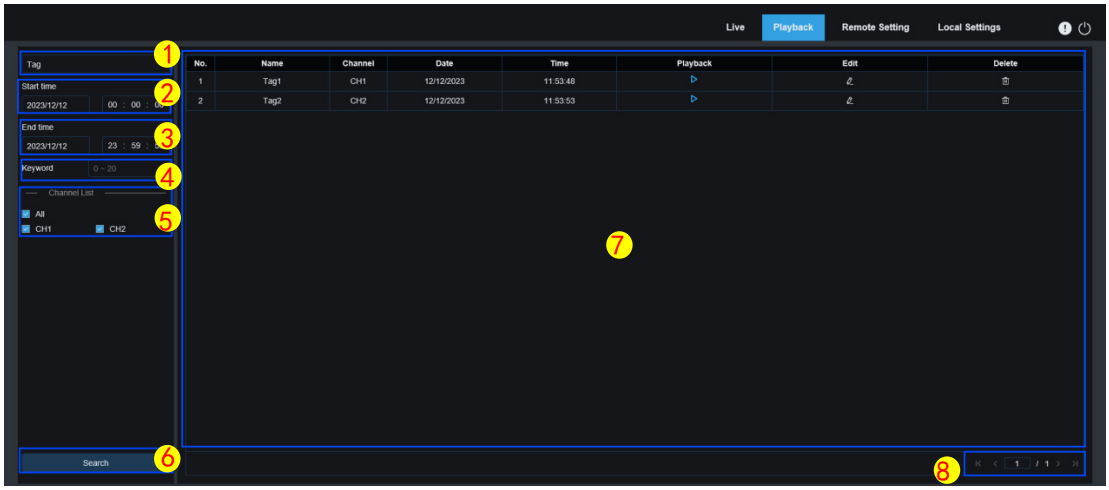


Figure 7.3.1

1. Mode switching: Switch the current search function. The current Search Mode is Tag.
2. Start time: Set the start time to search for tags.
3. End time: Set the end time to search for tags.
4. Keyword: Search for tags with keywords.
5. Channel list: Select the channel to be searched.
6. Search: Click Search to start searching.
7. Search Result Display Area: Display the desired search results.
Click the button to play back events, click the button to change event name, click the Save button to display the Modify Success prompt dialog box, and click the button to delete this event.
8. Search Result Flip: scroll through search results at the lower right corner.

7.4 Smart

You can query Smart playback by logging in with a plug-in-free browser. As shown below:

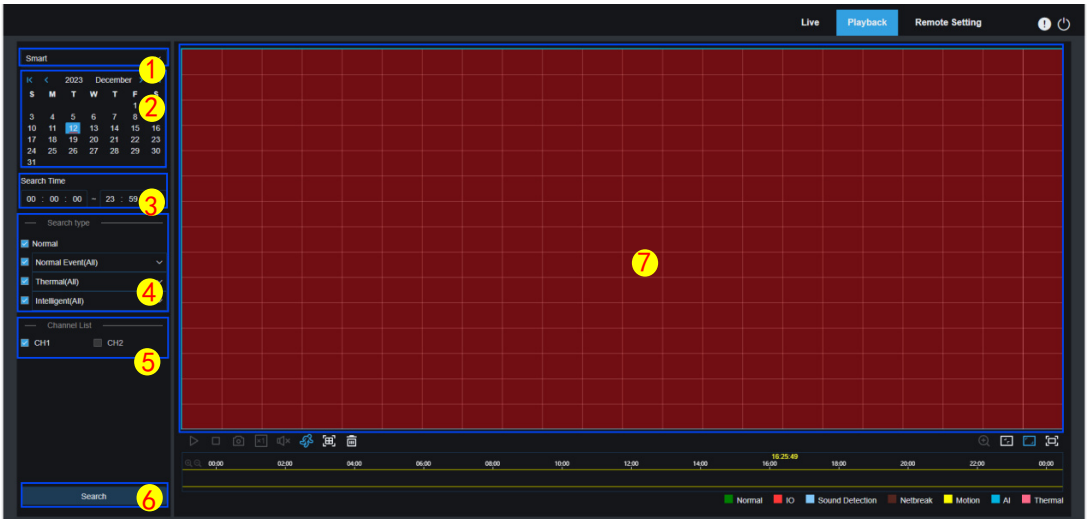


Figure 7.4.1

This function can identify whether an alarm is triggered by human in daily life. If it is, the alarm will be shown in blue in the playback time bar on the bottom.

1. Search Mode: Switch the current search function. The current Search Mode is Smart.

2. Date: Set the date to search for smart events. By clicking Search, you will be prompted with the dates for which recording files are available.

3. Search time: Set the time for searching for events to facilitate querying.

4. Search type: Display the search types supported by the camera. You can search for only part of recording files as required.

5. Channel list: Select the channel to be searched.

6. Search: Click Search to start searching.

7. Search results display area: Display the desired search results.

Pause/Play: Pause/play streams.

Stop: Stop streams.

Capture: Manually capture the image of the current stream.

Speed: Manually capture the image of the current stream.

Audio: Turn on/off or adjust stream sound.

Add Default Tag: Add default tags. Mark the video playback start time at the current time in the current channel and click this icon to add tags.

Add Tag: Add custom tags. When you click this icon to add a tag, a custom window appears and you can specify a name for this tag.

Smart: Click this icon to enter the Smart area setting screen.

All: Click on **All** will set the full screen as the Smart detection area.

Delete: Click on **Delete All** will clear the entire area.

Digital Zoom: Zoom in a certain area of the stream.

Original Proportions: Display the current live view in its original proportion.

Stretch: Display the current live view in a way that stretches the display area.

Full Screen： Display the playback stream in full screen. You can double-click the screen to enable or disable the function, and press Esc to exit the full screen mode.

7.5 AI

7.5.1 Pedestrian &Vehicle Search and Playback

The camera can distinguish between Pedestrian and Vehicle, and record them according to what you need to obtain required records. The interface is shown in the figure below.

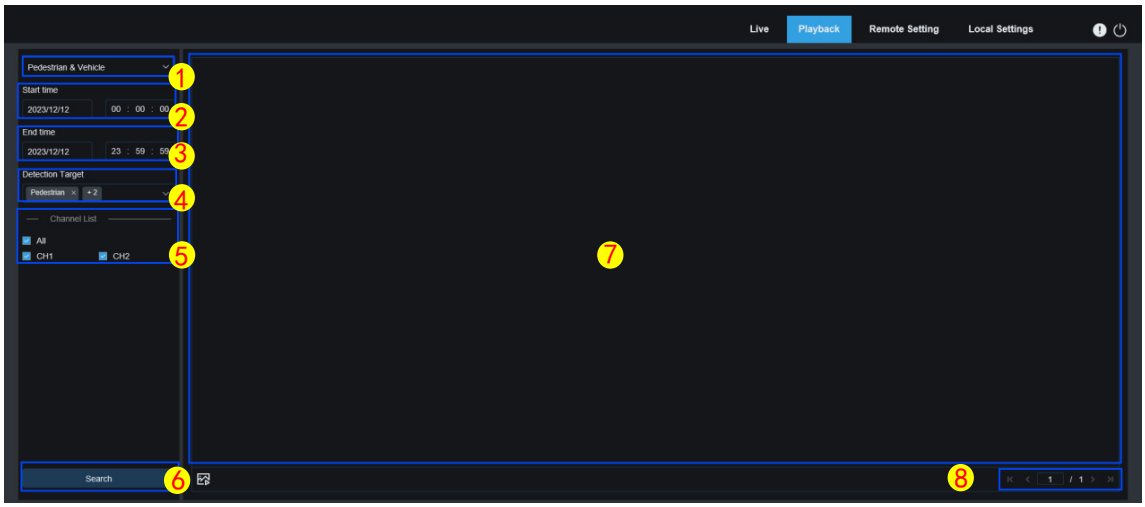


Figure 7.5.1

1. Switch mode: Switch the current search function. The current Search Mode is Pedestrian& Vehicle.
2. Start time: Set the start time to search for Pedestrian& Vehicle images.
3. End time: Set the end time to search for Pedestrian& Vehicle images.
4. Detection Type: Select Pedestrian or Vehicle images as needed, or select both.
5. Channel list: Select the channel to be searched.
6. Search: Search for Pedestrian &Vehicle capture on search settings.
7. Search results display area: Display the desired search results. Double-click on a picture will play the video after and before the picture.
8. Search results Flip: Scroll through search results at the lower right corner.

7.5.2 Line Crossing

With the development of technology, Line Crossing is compatible with the old way of alarming targets that cross the warning line. But also provide the Pedestrian & Vehicle detection function that only detects human or vehicle objects and record image or video information for easy retrieval and viewing. The screen is shown in the figure below.

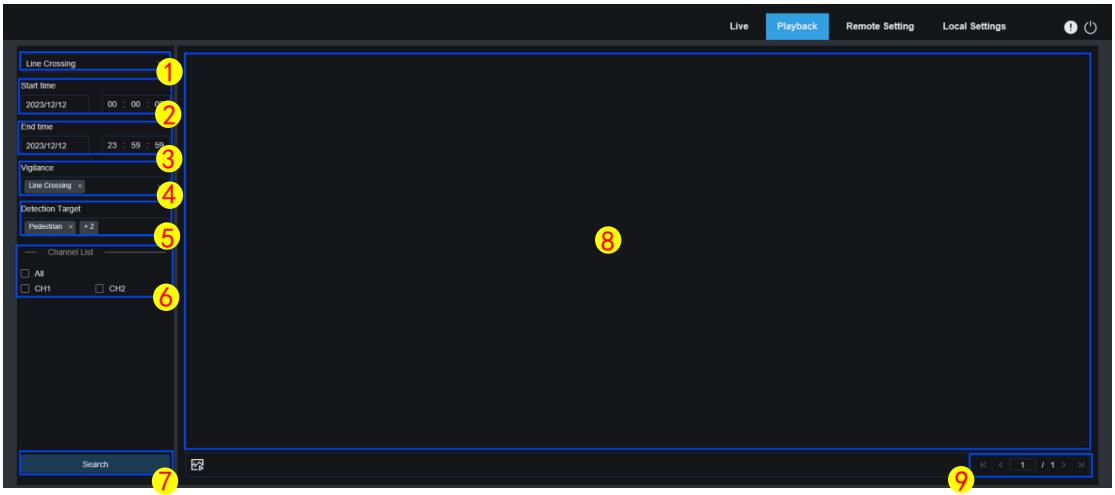


Figure 7.5.2.1

1. Switch search mode: Switch the current search function, the current search mode is Line Crossing.
2. Start time: Set the start time to search for Line Crossing images.
3. End time: Set the end time to search for Line Crossing images.
4. Vigilance: Set the snapshot method that triggers the alarm as Line Crossing.
5. Detection Target: If necessary, you can set the person or car you want to search for, and you can also search at the same time.
6. Channel list: Select the channel to be searched.
7. Search: Search for Line Crossing images according to search settings.
8. Search results display area: Display the desired search results. Double-click on a picture will play the video after and before the picture.
9. Search results Flip: Scroll through search results at the lower right corner.

7.5.3 Intrusion

Intrusion function can detect the detection target whether there is an object into the set area, according to the judgement result to link alarm, and also provide the Pedestrian & Vehicle detection function that only detects human or vehicle objects and record image or video information for easy retrieval and viewing. The screen is shown in the figure below

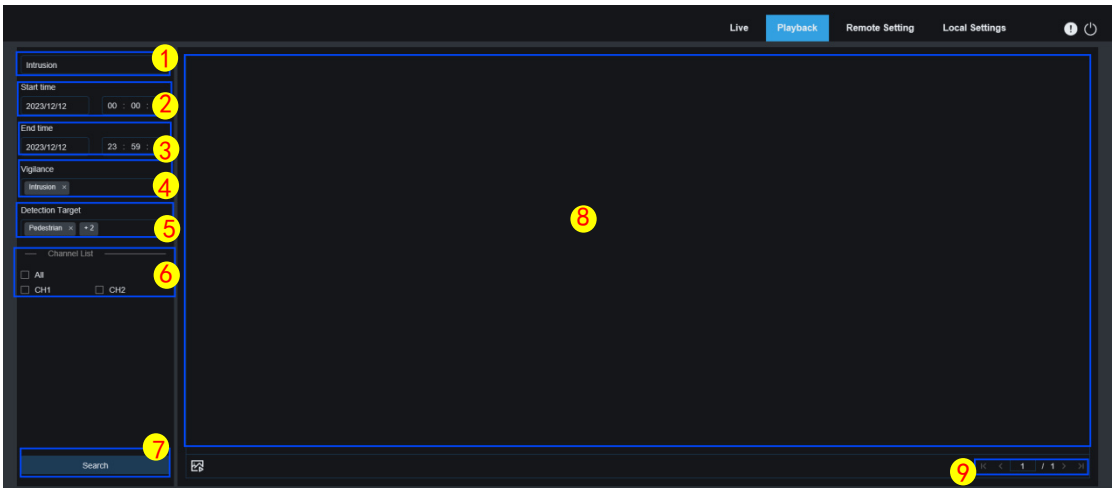


Figure 7.5.3.1

1. Switch search mode: Switch the current search function, the current search mode is Intrusion
2. Start time: Set the start time to search for Intrusion images.

3. End time: Set the end time to search for Intrusion images.
4. Vigilance: Set the snapshot method that triggers the alarm as Intrusion
5. Detection Target: If necessary, you can set the person or car you want to search for, and you can also search at the same time.
6. Channel list: Select the channel to be searched.
7. Search: Used to search for Intrusion images according to search settings.
8. Search results display area: Display the desired search results. Double-click on a picture will play the video after and before the picture.
9. Search results Flip: Scroll through search results at the lower right corner.

7.5.4 Region Entrance

Region Entrance function can detect the detection target whether there is an object into the set area, according to the judgement result linkage alarm but also provide the Pedestrian & Vehicle detection function that only detects human or vehicle objects and record image or video information for easy retrieval and viewing. The screen is shown in the figure below:

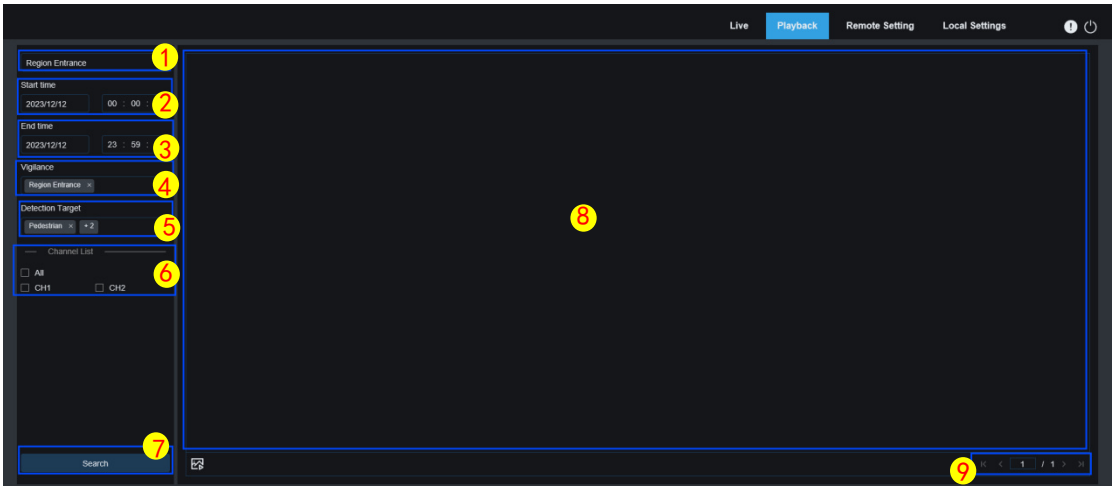


Figure 7.5.4.1

1. Switch mode: Switch the current search function, the current search mode is Region Entrance.
2. Start time: Set the start time to search for Region Entrance images.
3. End time: Set the end time to search for Region Entrance images.
4. Vigilance: Set the snapshot method that triggers the alarm as Region Entrance
5. Detection Target: If necessary, you can set the person or car you want to search for, and you can also search at the same time.
6. Channel list: Select the channel to be searched.
7. Search: Search for Region Entrance images according to search settings.
8. Search results display area: Display the desired search results. Double-click on a picture will play the video after and before the picture.
9. Search results Flip: Scroll through search results at the lower right corner.

7.5.5 Region Exiting

Region Exiting function can detect the detection target whether there is an object into the set area, according to the judgement result to link alarm but also provide the Pedestrian & Vehicle detection function that only detects human or vehicle objects and record image or video information for easy retrieval and viewing. The screen is shown in the figure below:

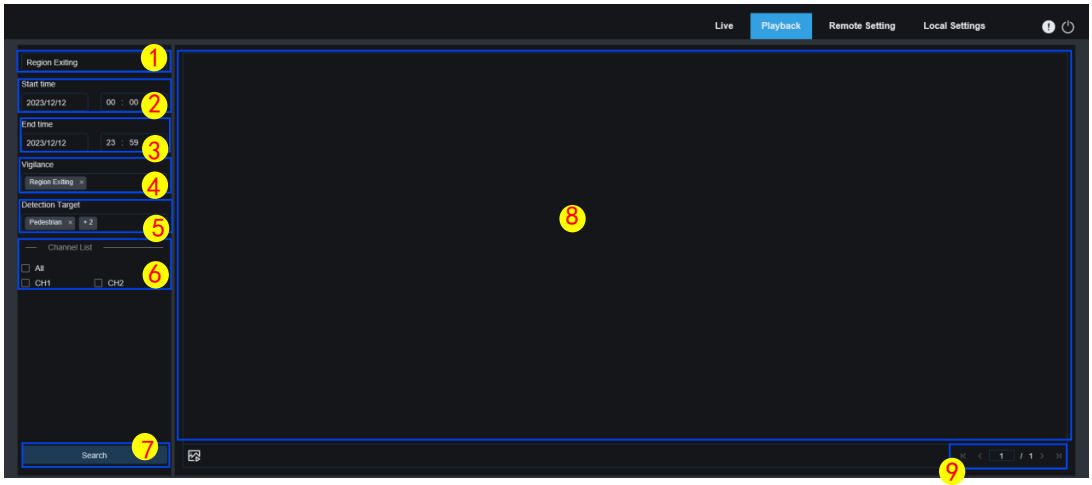


Figure 7.5.5.1

1. Switch mode: Switch the current search function, the current search mode is Region Exiting.
2. Start time: Set the start time to search for Region Exiting images.
3. End time: Set the end time to search for Region Exiting images.
4. Vigilance: Set the snapshot method that triggers the alarm as Region Exiting
5. Detection Target: If necessary, you can set the person or car you want to search for, and you can also search at the same time.
6. Channel list: Select the channel to be searched.
7. Search: Search for Region Exiting images according to search settings.
8. Search results display area: Displays the desired search results. Double-click on a picture will play the video after and before the picture.
9. Search results Flip: Scroll through search results at the lower right corner.

8. Remote setting

8.1 Live view

On the Live view, you can set channel name, device time, Cross Counting, as well as statistical data and image covering. The view is shown in the figure below.

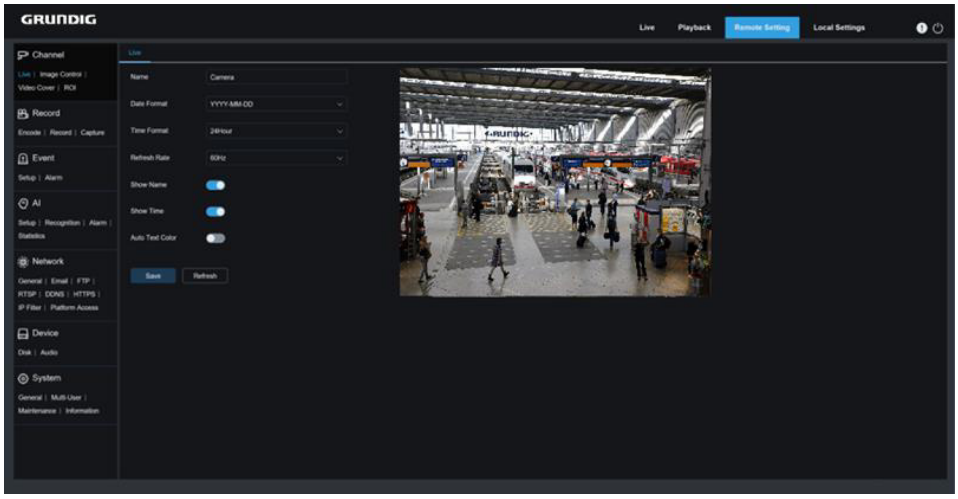


Figure 8.1.1

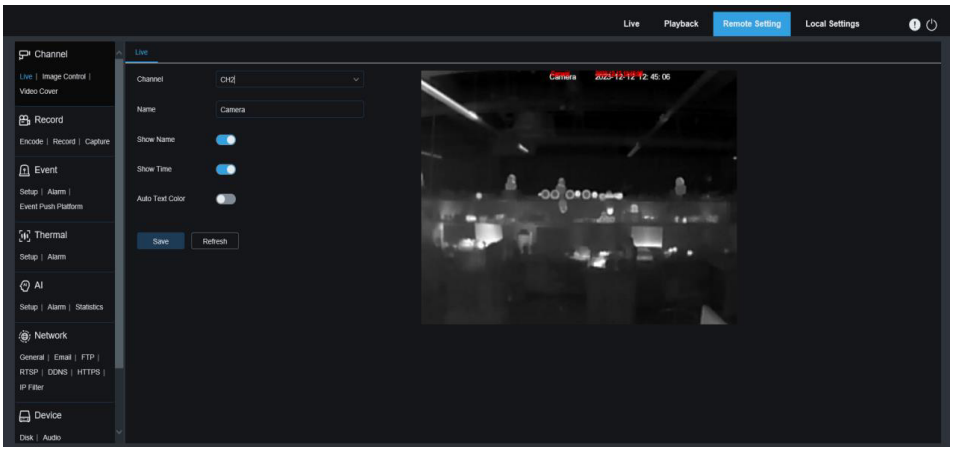


Figure 8.1.2

Channel: Select different channels to switch the live view setting page of the corresponding channel.
Date Format: Set the date format of the camera displayed on the OSD, including MM/DD/YYYY, YYYY-MM-DD, and DD/MM/YYYY.
Time Format: Set the hour format of the camera on the OSD, including 12-Hour and 24-Hour.
Time Format: Set the hour format of the camera on the OSD, including 12-Hour and 24-Hour.
Refresh Rate： Set the refresh frequency of the camera, there are two options, 60Hz and 50Hz, corresponding to N and P system.
Show Name: Set whether to display channel name on images.
Show Time: Set where to display channel time on images.
Auto Text Color: Camera time and channel name OSD color adaptive display, OSD characters according to the image background
Black and white conversion of colors to avoid unclear display.
Display channel name position: Set the position where the channel name is displayed by dragging its position on the image.

Show time location: Set the position where the channel time is displayed by dragging its position on the image.
Display alarm statistics location: Set the display position of channel alarm statistics by dragging the position of channel alarm statistics on the image. This setting will only be displayed when the function that supports alarm statistics display is turned on.
Save: Save current changes
Refresh: Re-obtain the current interface parameters.

8.2 Image control

Image control is to directly control and modify graphics parameters, such as color to black mode, wide dynamic, backlight supplement, etc. The interface is shown as below.

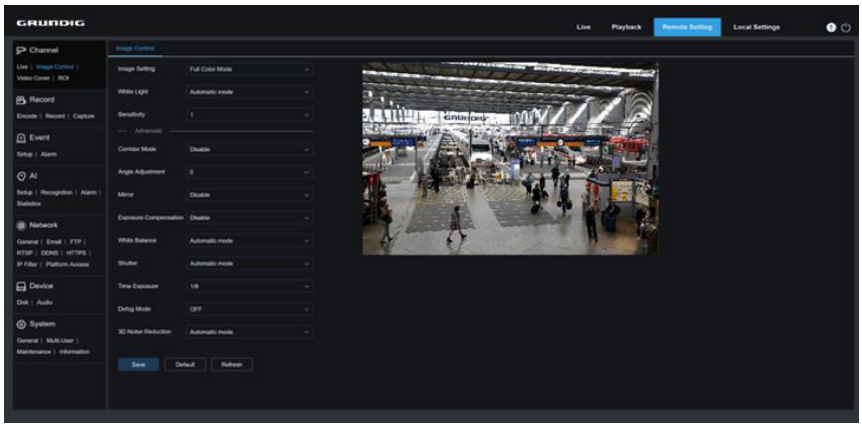


Figure 8.2.1

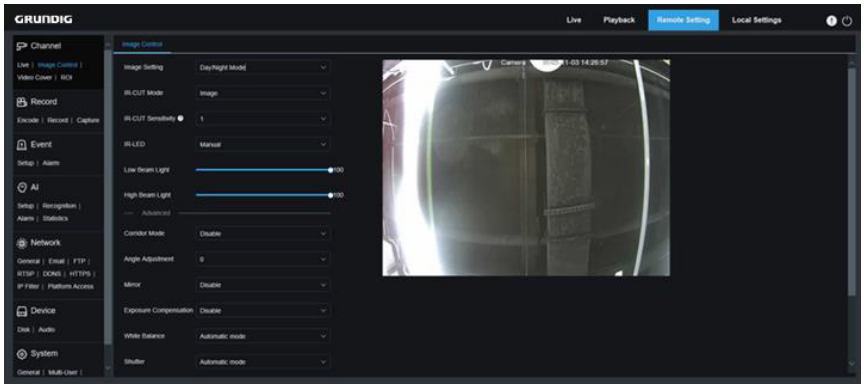


Figure 8.2.2

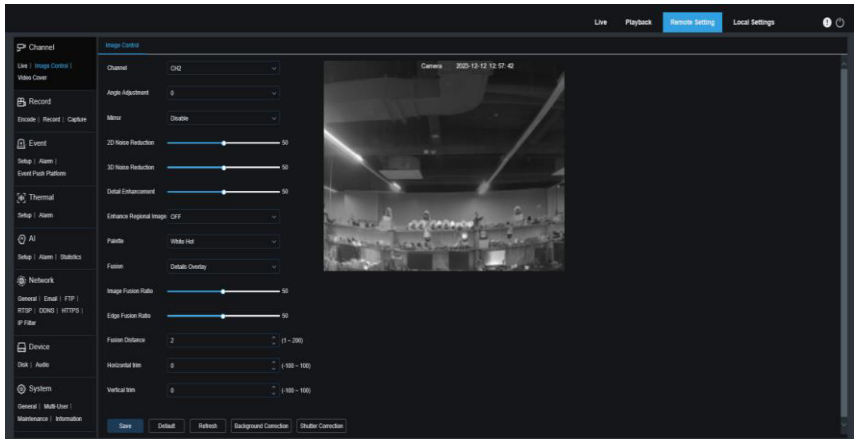


Figure 8.2.3

Channel: Select different channels to switch the image control setting page of the corresponding channel.

Image Setting: Set camera mode. There are three mode options.

Full Color Mode: The camera works in Full Color Mode.

Day/Night Mode: The camera works in Day/Night Mode.

Schedule: The camera works in schedule mode. The Full Color Mode and Day/Night Mode will be switched as scheduled.

White Light: Set the fill-in light for the white light in Full Color Mode. There are four mode options.

Automatic mode: The camera automatically adjusts the intensity of the fill-in light according to ambient illumination.

Manual: Manual mode, fill-in light with the set brightness of the white light.

Schedule: In schedule mode, the white light is automatically switched on and off for fill-in as scheduled.

OFF: Turn off the white light.

Sensitivity: Sensitivity 0-3. The degree to which the camera is sensitive to ambient light. The higher the value is, the higher the sensitivity is.

Light Distance: Ranging from 0 to 100 and used to adjust the brightness of the fill-in light. The higher the value is, the higher the brightness is.

IR-CUT Mode: Set the day/night switching mode of the camera in Day/Night Mode. There are four mode options.

Day: Force color mode without switching between black and white.

Night: Force black and white mode, no color switching.

Image: Control the mode of color to black and black to color by image.

Schedule: Switch between black and white and color by scheduled settings. To turn on this function, you need to set the start and end time of entering night vision.

IR-LED: Used to set the fill-in light effect of the IR light at night vision. There are three mode options.

Smart IR: Used to intelligently control the fill-in light intensity of the IR light according to focal length and overexposure condition.

Manual: Manual Mode in which the fill-in light is applied in the form of the set brightness of the IR light.

OFF: No fill-in light is applied for any light.

Low Beam Light: Here, you can manually adjust the brightness of the IR light (0 to100, of which 0 indicates that the IR light is off and 100 indicates the highest brightness).

Angle Adjustment: Image rotation setting. The camera is reverse to the presetting in some usage scenarios. For example, the camera is designed to be hung upside down, but in practice it is used flat. You can set this value to adjust the image. Optical channel CH1 and thermal channel CH2 are sync.

Mirror: Set the mirror mode to adjust the picture effect. There are four mode options. Optical channel CH1 and thermal channel CH2 are sync.

Disable: Disable the mirror mode.

Vertical: Set the mirror mode in the vertical direction to interact the image on the picture up and down.

Horizontal: Set the Mirror Mode in the horizontal direction to interact the image on the picture left and right.

All: Enable Vertical and Horizontal at the same time. The effect is similar to that of 180° rotation, but the implementation principle is different.

Exposure Compensation： There are 4 modes to set the performance of the program under backlight:

DWDR: In wide dynamic mode, according to the set DWDR Level value, the overall picture is in a balanced state, and both bright and dark areas can be seen clearly.

HLC: Highlight compensation in which the objects in the highlighted area are clearer in the picture. (Applicable for some models).

BLC: Backlight compensation in which the objects in the dark area are clearer.

Disable: Image will not be optimized with backlight on.

White Balance: White balance is a measure of the accuracy of white produced by mixing red, green, and blue. There are two mode options.

Automatic mode: Allows you to adjust the white light using default parameters.

Manual: Allows you to actively set the synthetic gained white light of red, green, and blue.

Shutter: Used to set the shutter exposure time. There are two mode options.

Automatic mode: The program automatically selects a proper exposure time according to the Time Exposure setting.

Manual: Directly use the Time Exposure setting.

Note: Deselect the flicker less option of the exposure time in shutter manual mode, and select the option in shutter auto mode. If you switch the shutter to manual mode, the exposure time is switched automatically to 1/100 or 1/120.

Time Exposure: Set the exposure time of the camera and use this parameter in combination with Shutter. When the exposure time is too long, there may be overexposure. When the exposure time is too short, the picture may be dark.

3D Noise Reduction: Reduce image noise by setting this parameter to obtain a clearer picture. There are three mode options.

Automatic mode: The camera will automatically select the noise reduction effect according to algorithms.

OFF: Disable the noise reduction function.

Manual: Allows you to manually set the noise reduction coefficient to reduce image noise.

Save: Save parameter changes to an image.

Default: Restore image parameters to default settings.

Refresh: Used to refresh image parameters.

2D Noise Reduction: Reduce the noise in the thermal channel screen according to the manually set noise reduction parameters, the larger the parameter value, the more obvious the noise reduction effect and the clearer the image screen.

3D Noise Reduction: Reduce the noise in the thermal channel according to the manually set noise reduction parameters, the larger the parameter value, the more obvious the noise reduction effect and the clearer the image.

Detail Enhancement: According to the manually set parameters, the details in the thermal channel are enhanced. The larger the parameter value, the more obvious the enhancement effect and the clearer the image.

Enhance Regional Image： Select the area option or customize an area to enhance the image effect of the corresponding area in the thermal channel screen to make the screen brighter.

Palette: Set the color pseudo-color mode of the thermal channel to express the difference in temperature through different colors.

Fusion: You can choose whether to merge and superimpose the image of the optical channel into the image of the thermal channel.

Normal: The optical channel image and the thermal channel image are not integrated and are displayed independently.

Details Overlay: The image of the optical channel is fused and superimposed into the image of the thermal channel, so that the image of the thermal channel shows more details of the optical image.

Image Fusion Ratio: The image fusion rate is the ratio of the optical channel screen to the thermal imaging channel screen. The larger the value of the parameter, the larger the ratio of the optical channel screen, and the closer the fused image effect is to that of the optical channel. On the contrary, the smaller the value of the parameter, the closer the fused image effect is to the image effect of the thermal imaging channel before fusion.

Edge Fusion Ratio: The larger the parameter value, the clearer the objects in the fused image will be. Otherwise, it becomes blurrier.

Fusion Distance: The distance between the optical channel image and the thermal channel image.

Horizontal trim: Adjust the horizontal position of the optical channel image relative to the thermal channel image in the fusion image.
Vertical trim: Vertical adjustment: adjust the vertical position of the optical channel image relative to the thermal channel image in the fusion image.
Background Correction： Background correction to optimize the thermal channel image effect. Set a barrier with uniform temperature in front of the lens, such as uniform foam or cardboard, to completely block the thermal lens. The device will optimize the image based on the uniform barrier.
Shutter Correction： Manual correction to optimize the thermal channel image effect.

8.3 Privacy Zone

In practical scenes, if areas that can be monitored by the camera are not suitable for monitoring and recording, you can use this function to occlude these areas. The screen is shown in the figure below.

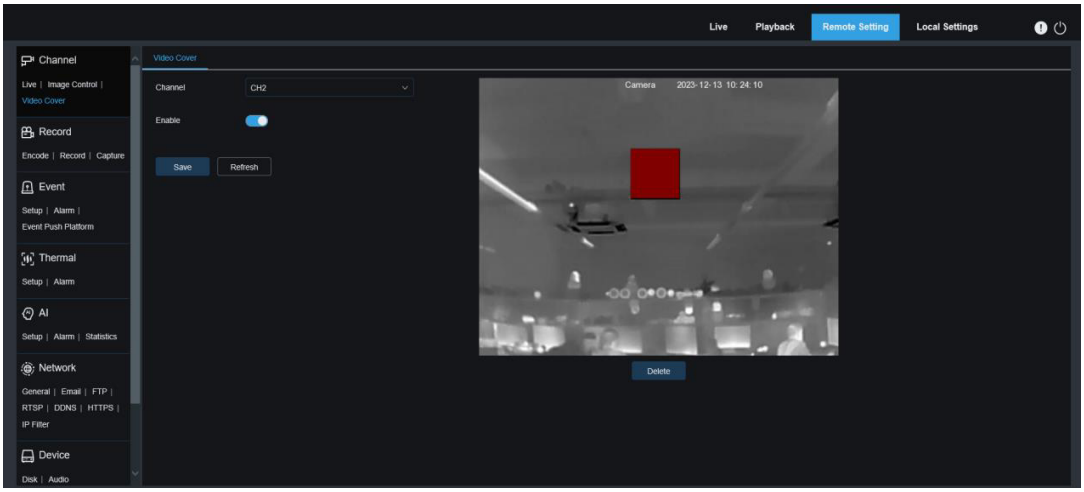


Figure 8.3.1

Channel: Select different channels for parameter setting.
Enable: Enable the Privacy Zone function.
Tampering Area Setting: Set the areas to be tampered in the monitoring screen. The tampered blocks are red while setting and will turn to black after they take effect. You can set four tampering blocks.
Delete: Delete selected tampering blocks.

8.4 Record

This menu allows you to configure the preview parameters and recording parameters.

8.4.1 Encode

This menu allows you to configure the image quality for video recording or network transmission. In general, "Main Stream" defines the quality parameters of recorded videos that will be stored in the HDD, "Sub Stream" defines the quality parameters of live videos that are remotely accessed from for example the web client and CMS, and "Mobile Stream" (can be turned off) defines the quality parameters of live views that are remotely accessed and viewed from mobile devices. Thermal channel CH2 does not support mobile streams.

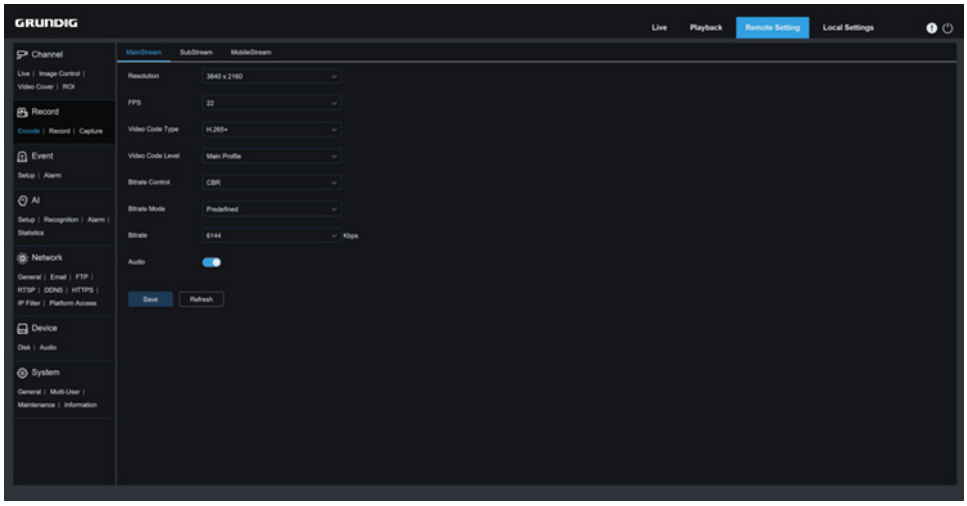


Figure 8.4.1.1

Channel: Select different channels for parameter settings.
Resolution: Define the resolution of a recording image.
FPS: This parameter defines the frame rate of recording in your IPC.
Video Code Type: Channel decoding types. The options include H.264, H.265, H.264+, H.265+, and MJPEG (MJPEG only exists in sub stream mode).
Video Code Level: Video quality levels. The options include Bestline, Main Profile, and High Profile (for H.265, only Main Profile is available. This option is not available under MJPEG type).
Bitrate Control: Select a bit rate level. For a simple scenario such as a plastered wall, a constant bit rate is preferred. For a complicated scenario such as a busy street, a variable bit rate is preferred.
Bitrate Mode: Manually set a bitrate, select the "Custom" Mode. To select a preset bit rate, select the "Preset" Mode.
Bitrate: The data transmission speed that IPC uses to record. Video with higher bitrate will have better quality.
I Frame Interval: Set an I-frame interval. This option is only available in the IPC.
Audio: Select this option if you want to record both audio and video and connect your microphone to IPC or use a camera with audio capability.

8.4.2 Record

8.4.2.1 Record

This menu allows you to set recording parameters.

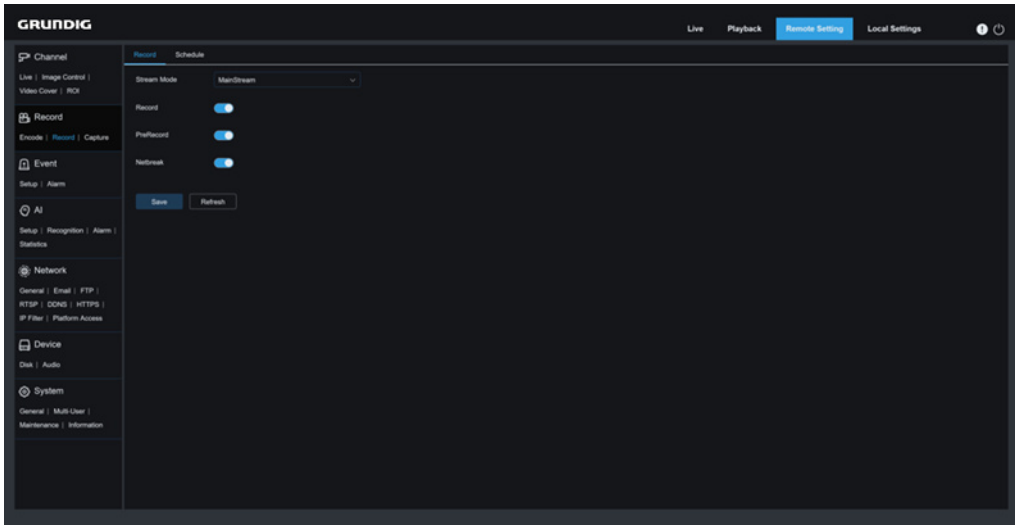


Figure 8.4.1.1.1

Channel: Select different channels for parameter settings.
Stream Mode: Select a Recording Mode, that is, video stream to be saved in the memory card. The main stream is selected by default.
Record: Select this option to start recording.
PreRecord: If this option is enabled, the IPC will start recording a few seconds before an alarm event occurs. This option is recommended if your main recording type is based on motion detection or I/O alarm.
Netbreak: If this option is selected, recording continues even when the network is disconnected or network failure occurs.

8.4.2.2 Recording Schedule

This menu allows you to specify when the IPC will start recording. You can set up recording schedules for different channels. Recording takes place only during the selected time period. You can drag the cursor to mark the area.

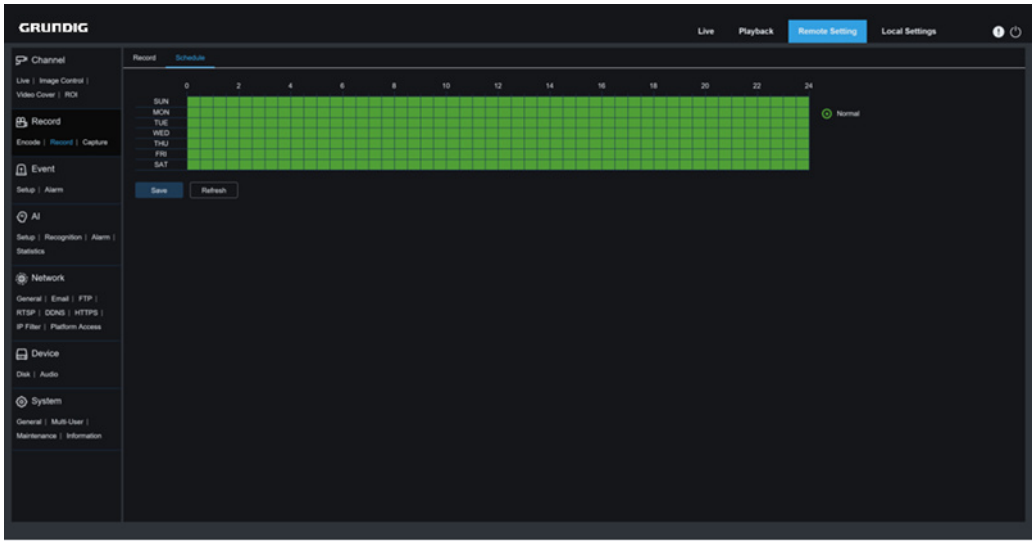


Figure 8.4.2.2.1

8.4.3 Capture

8.4.3.1 Capture

This menu allows users to configure parameters related to the automatic capture function.

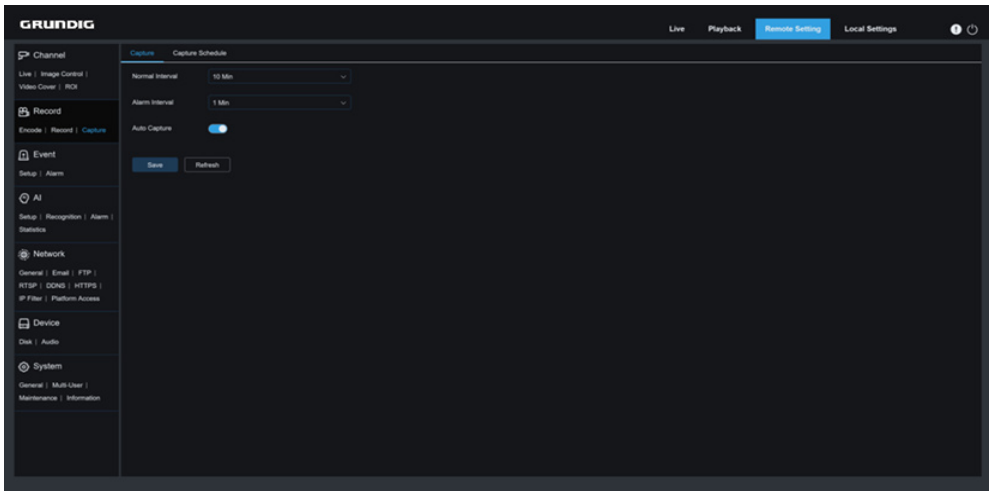


Figure 8.4.3.1.1

Channel: Select different channels.
Normal Interval: Specify the capture interval in normal recording.
Alarm Interval: Specify the capture interval when motion detection, I/O alarm, or PIR is triggered.
Auto Capture: Automatic capture.

8.4.3.2 Capture schedule

This menu allows you to specify when the IPC capture images. You can set a capture plan in the capture schedule. The capture is performed only within the selected time period. You can drag your cursor to mark areas.

Figure 8.4.3.2.1

Channel: Select different channels.
Normal: When the area is marked green, the channel performs normal capture on the area in the corresponding time period.
Motion: When the area is marked yellow, the channel performs motion capture on the area in the corresponding time period.
IO: When the area is marked red, the channel performs I/O alarm capture on the area in the corresponding time period.

8.5 Event

8.5.1 Setup

8.5.1.1 Motion detection

This menu allows you to configure motion detection parameters. When motion is detected, a series of alarms will be triggered, such as sending an email alarm with attached images from the camera (if this option is enabled) and a push notification via the app.

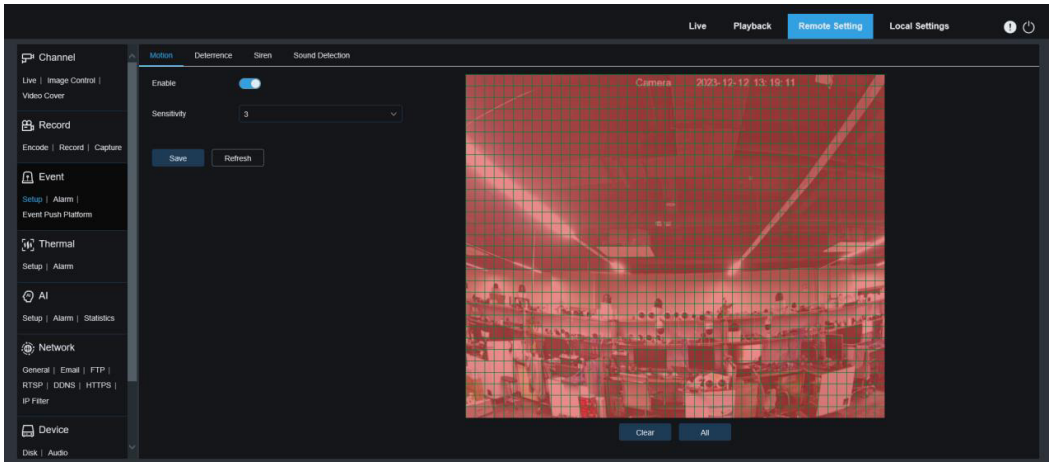


Figure 8.5.1.1.1

You can drag the left mouse button to delimit the detection area in the right window. An alarm will be triggered only when motion is detected in this area.
Enable: Enable or disable motion detection.
Sensitivity: Set the sensitivity of motion detection. The higher the value, the higher the sensitivity.

8.5.1.2 Deterrence

This menu allows you to configure white light deterrence parameters when the camera supports white light and the image control is set to Day/Night Mode. When the alarm linking to deterrence is triggered, the white light will be automatically turned on for deterrence purpose. as shown in the figure below:

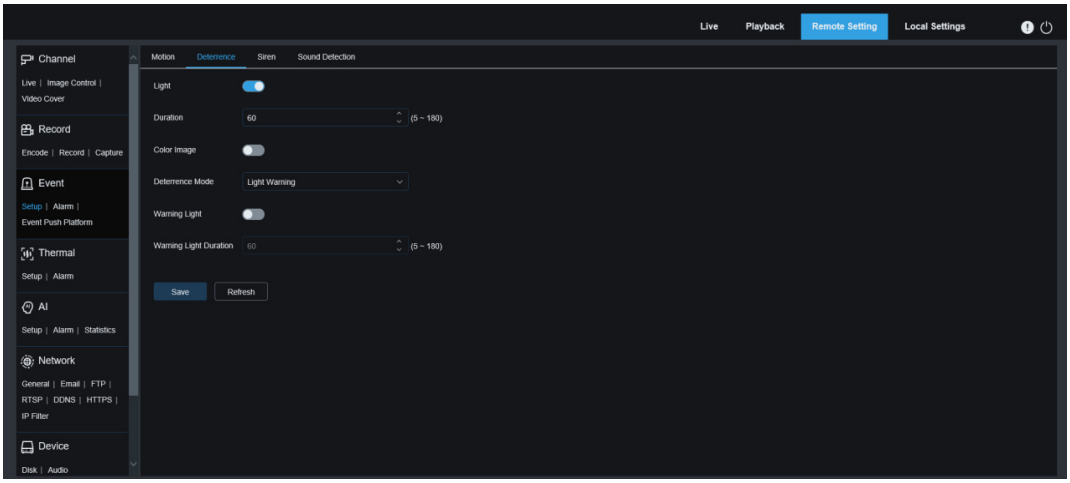


Figure 8.5.1.2.1

Note: When the camera supports white light and image control is set to Full Color Mode, the white light parameters such as Light become unavailable; when image control is set to Day/Night Mode, all parameters on this screen are available.

Light: White light deterrence switch.

Duration: Set the duration of white light deterrence.

Color Image: Switch the image to color mode when the white light deterrence is triggered. If this option is enabled, if you switch to the night vision mode in Day/Night Mode, when an alarm is triggered and white light deterrence is performed, the image will switch to the color mode and not switch back to the night vision mode until the end of white light deterrence.

Deterrence Mode: White light Deterrence Mode. There are two mode options:

Light Warning: The white light is steady on during deterrence.

Light Strobe: The white light blinks at a set frequency during deterrence.

Warning Light: Turn on or turn off warning light.

Warning Light Duration: Set the warning light duration.

8.5.1.3 Siren Deterrence

When the camera supports siren, you can set siren deterrence parameters on this screen. When an alarm linking to deterrence is triggered, the siren is automatically turned on for deterrence purpose, as shown in the following figure.

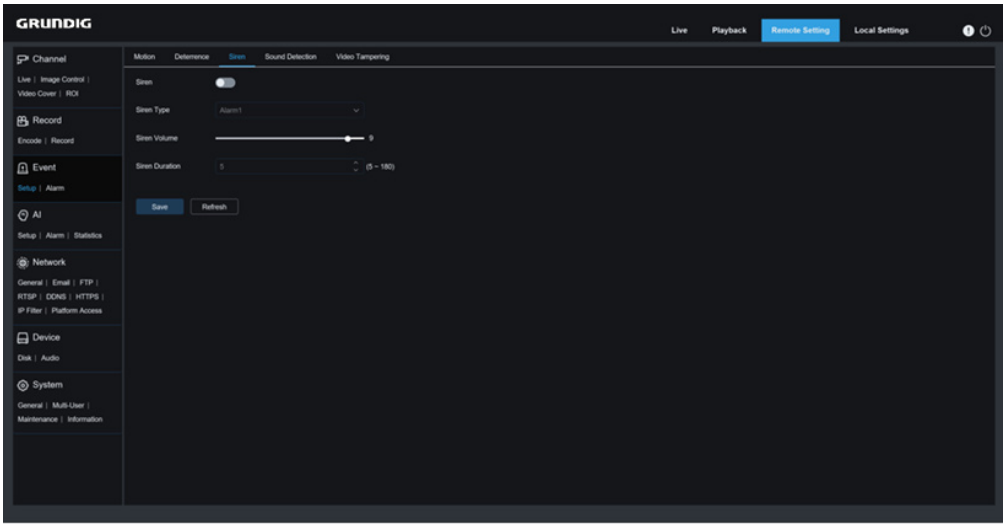


Figure 8.5.1.3.1

Siren: Turn on/off the siren.

Siren Type: Set the siren file type.

By default, there are two files for users to configure. You can customize and import three siren audio files (the audio file format can be **.wav** and **.pcm**, and the file size is not larger than 256 K).

Siren Level: Set the siren level.

Siren Duration: Set the siren duration.

8.5.1.4 Sound Detection

Used to set the response to sound detection. An alarm will be triggered when the camera detects that the connected sound has changed and the requirement of alarm detection is met.

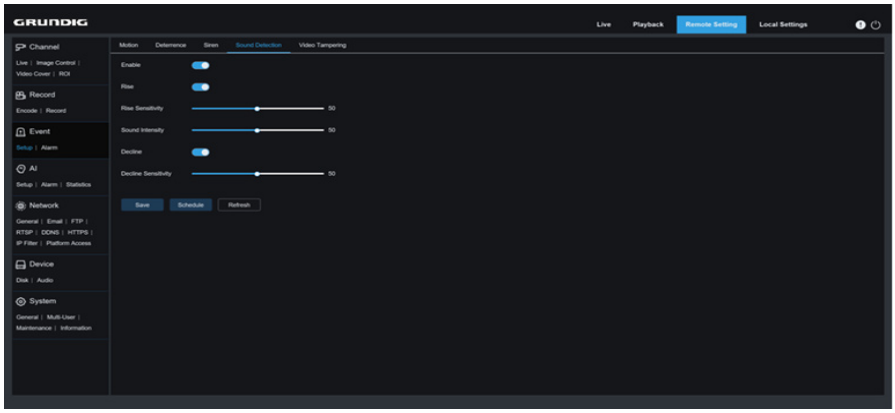


Figure 8.5.1.4.1

Enable: Enable or disable sound detection.
Rise: Volume rise switch. When this option is turned on, an alarm will be triggered only when the volume rises steeply.
Rise Sensitivity: Rise sensitivity. The higher the value, the easier it is to trigger an alarm.
Sound Intensity: Send sound intensity. This setting is the sound threshold. The larger the threshold, the louder the sound is required to trigger a rise alarm, and vice versa.
Decline: Volume decline switch. When this option is turned on, an alarm will be triggered only when the volume declines steeply.
Decline Sensitivity: Decline sensitivity. The higher the value, the easier it is to trigger an alarm.
Schedule: Used to set a sound detection schedule. A sound alarm will be triggered only within the planned time.

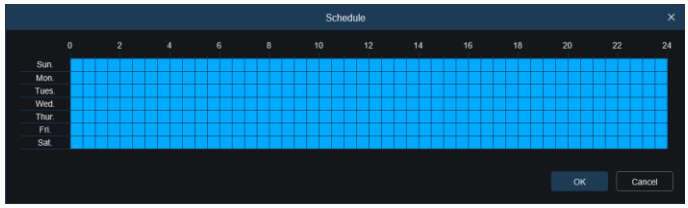


Figure 8.5.1.4.2

8.5.2 Alarm

This menu allows you to set the actions to be performed when an alarm is triggered.

8.5.2.1 Motion Detection

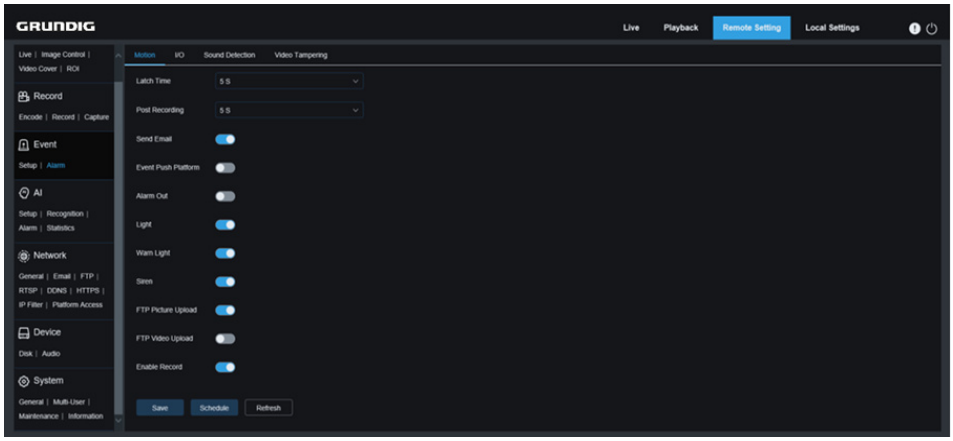


Figure 8.5.2.1.1

Latch Time: Set the duration for triggering an external alarm when motion is detected.
Post Recording: Set the duration of continuous recording after an event occurs. The options include 5s, 10s, 20s, and 30s. The default duration is 5s, but the maximum duration can be set to 30s.
Send Email: You can have the device automatically send you an email when it detects motion.
Event push Platform: If this option is set to ON, this type of information will be pushed to the client when an alarm is triggered.
Alarm Out: Latch Time setting enable switch. If the device does not support the IO output function, it will not be displayed.
Light: If this option is set to ON, the white light will be turned on for deterrence when an alarm is triggered.
Warn Light: If this option is set to ON, the warning light will be turned on for deterrence when an alarm is triggered.
Siren: If this option is set to ON, the siren will be turned on for deterrence when an alarm is triggered.
FTP Picture Upload: After triggering the alarm, according to the selected channel upload alarm images to FTP server.
Record Channel: According to the selected channel when an alarm is triggered, this type of video will be recorded.
Schedule: Set the scheduled time when an alarm acts. A series of alarm actions are triggered only within the scheduled time.

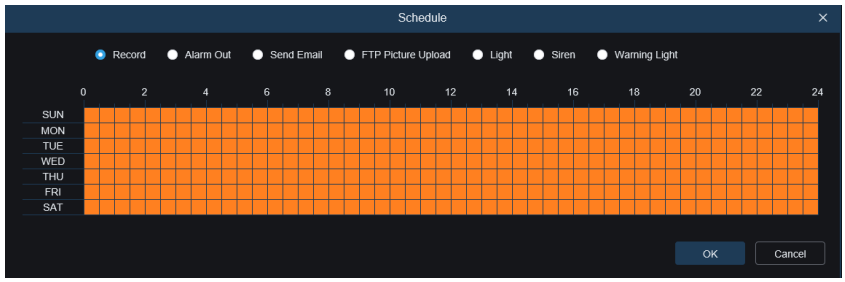


Figure 8.5.2.1.2

8.5.2.2 I/O Alarm

This function is available only when your device supports I/O sensors and is connected to an external I/O alarm device.

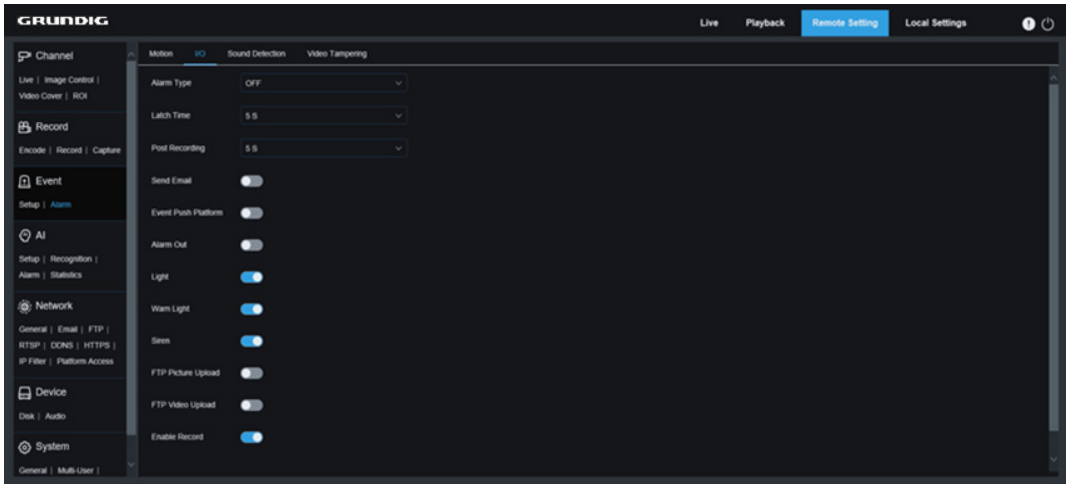


Figure 8.5.2.2.1

Latch Time: Set the duration for triggering an external alarm when motion is detected.
Post Recording: You can set the duration of continuous recording after an event occurs. The options include 5s, 10s, 20s, and 30s. The default duration is 5s, but the maximum duration can be set to 30s.
Send Email: You can have the device automatically send you an email when it detects motion.
Event push Platform: If this option is set to ON, this type of information will be pushed to the client when an alarm is triggered.
Alarm Out: Latch Time setting enable switch. If the device does not support the IO output function, it will not be displayed.
Light: If this option is set to ON, the white light will be turned on for deterrence when an alarm is triggered.
Warn Light: If this option is set to ON, the warning light will be turned on for deterrence when an alarm is triggered.
Siren: If this option is set to ON, the siren will be turned on for deterrence when an alarm is triggered.
FTP Picture Upload: After triggering the alarm, according to the selected channel upload alarm images to FTP server.
Record Channel: According to the selected channel When an alarm is triggered, this type of video will be recorded.
Schedule: Set the scheduled time when an alarm acts. A series of alarm actions are triggered only within the scheduled time.

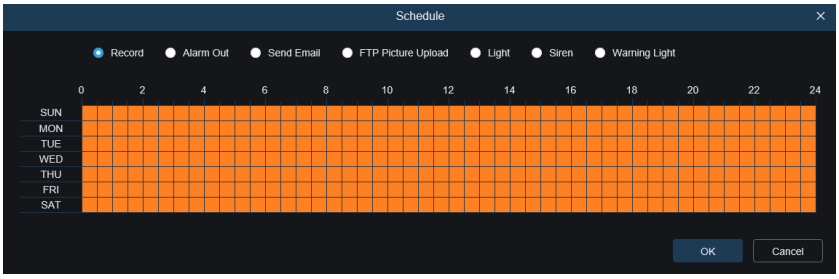


Figure 8.5.2.2.3

8.5.2.3 Sound Alarm

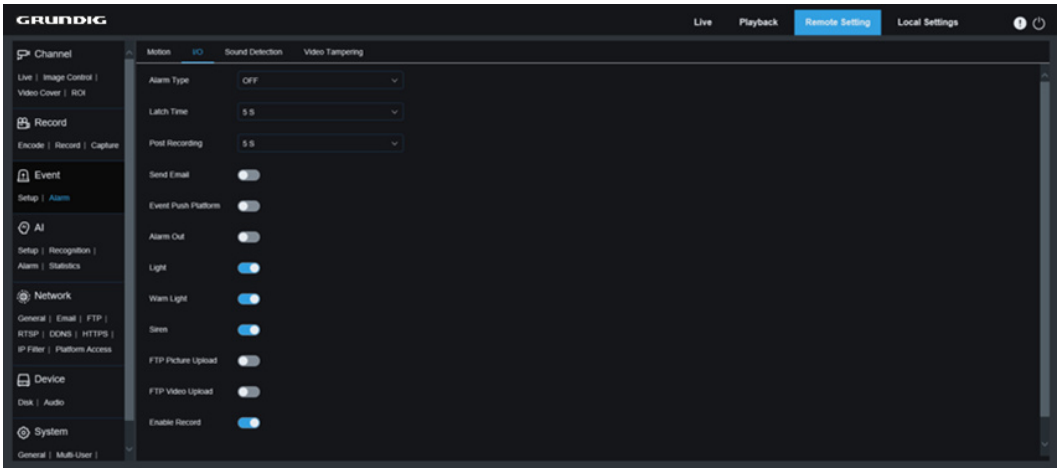


Figure 8.5.2.3.1

Latch Time: Set the duration for triggering an external alarm when a sound detection is triggered.
Post Recording: Set the duration of continuous recording after an event occurs. The options include 5s, 10s, 20s, and 30s. The default duration is 5s, but the maximum duration can be set to 30s.

Send Email: You can have the device automatically send you an email when it detects a sound alarm.
Event push Platform: If this option is set to ON, this type of information will be pushed to the client when an alarm is triggered.
Alarm Out: Optional. If your device supports connection to an external alarm device, you can turn on this switch to activate the external alarm device.
FTP Picture Upload: After triggering the alarm, according to the selected channel upload alarm images to FTP server.
Record Channel: According to the selected channel when an alarm is triggered, this type of video will be recorded.
Schedule: Set the scheduled time when an alarm acts. A series of alarm actions are triggered only within the scheduled time.

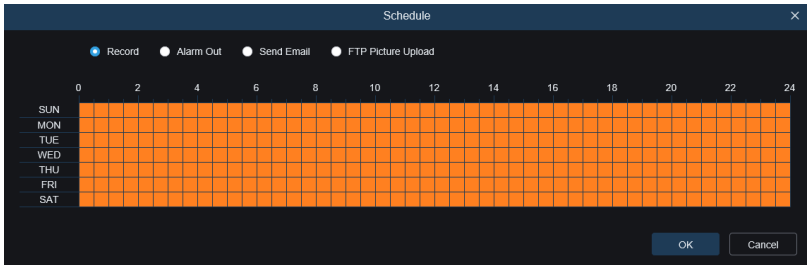


Figure 8.5.2.3.2

8.5.3 Event Push Function Settings

Event push can be implemented in two modes: HTTP push mode and UDP push mode. HTTP push mode provides POST method and GET method. UDP push mode provides unicast, multicast, and broadcast methods. (Note: Only some models support the event push function.)

8.5.3.1 HTTP push

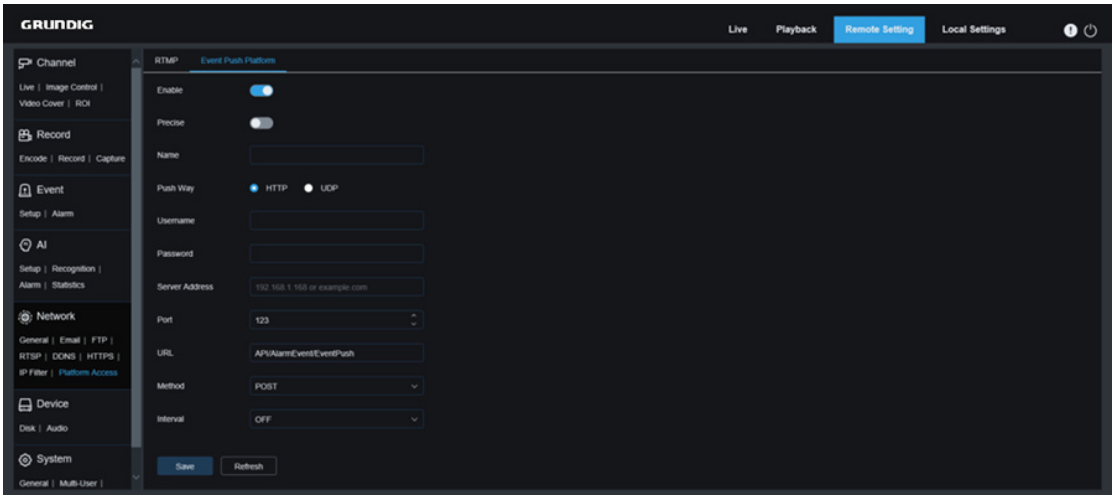


Figure 8.5.3.1

Enable: Enable or disable the event push function.
Precise: Start or shut down. Push start and end times after events are triggered after startup.
Name: Set the channel name.
Push Way: Set the push mode. Both HTTP push mode and UDP push mode are supported. You can select **HTTP** or **UDP** as required.
Username: Set the username. It can be set to NULL if there is not any.

Password: Set the password. It can be set to NULL if there is not any.
Server Address: Set the server address.
Port: Set the server port. (Port number range: 1–65535.)
URL: Set the server API. It can be set to NULL if there is not any.
Method: Set the HTTP push method. Both POST and GET methods are supported. Only the HTTP-POST method supports image push. Other methods push notifications only. The alarm type of image push is the same as that in the alarm column of live view on the Web interface.
Interval: Set the keep-alive interval. The keep-alive mechanism ensures that a notification is periodically pushed to the client in accordance with the preset time while normal alarm push is not affected. There is no keep-alive mechanism in UDP mode.

8.5.3.2 UDP push

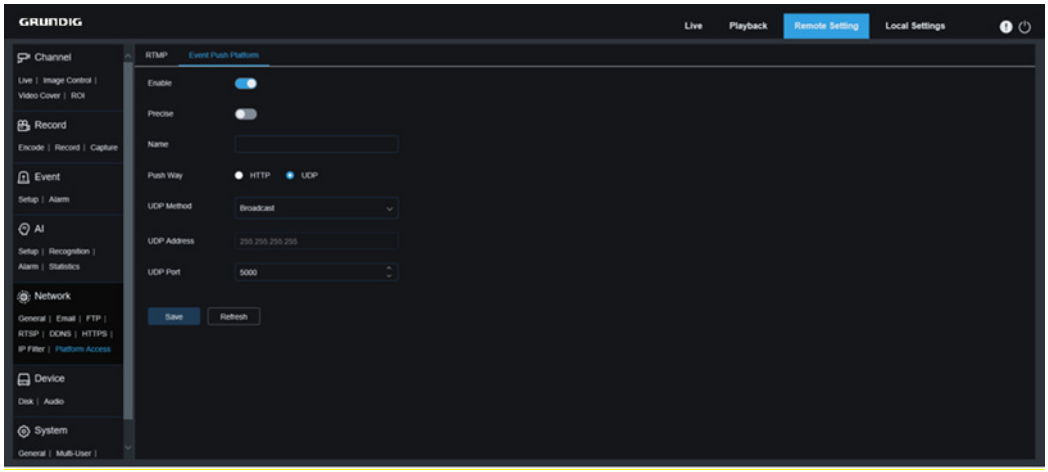


Figure 8.5.3.2.1

Enable: Enable or disable the event push function.
Precise: Start or shut down. Push start and end times after events are triggered after startup.
Name: Set the channel name.
Push Way: Set the push mode. Both HTTP push mode and UDP push mode are supported. You can select **HTTP** or **UDP** as required.
UDP Method: Set the UDP push method. There are three options: **Unicast**, **Multicast**, and **Broadcast**.

Unicast: Enter the IP address and port number of the client UDP server for receiving push notifications. The notifications can be received by this address only.
Multicast: Multiple clients in the same network segment of which the UDP servers use the same UDP address and port number can receive notifications. Other UDP addresses cannot receive notifications.

Broadcast: All UDP servers in the same network segment can receive notifications.
UDP Address: Set the UDP server address.
UDP Port: Set the UDP server port. (Port number range: 1–65535)

8.6 Thermal

8.6.1 Fire detection

In order to reduce fire safety hazards, fire point detection functions are set up in areas where fire safety hazards may exist.

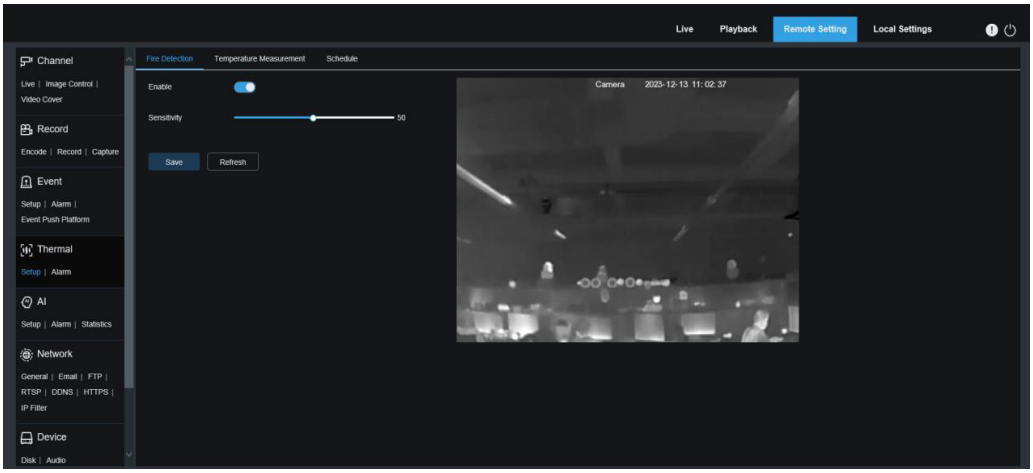


Figure 8.6.1.1

Enable: Enable or disable fire detection.
Sensitivity: Set the sensitivity of fire detection. The lower the sensitivity, the higher the temperature that needs to trigger the fire point detection alarm. The higher the sensitivity, the lower the temperature that triggers the fire detection alarm.

8.6.2 Temperature measurement

It is used for real-time temperature monitoring of monitoring places. When the temperature exceeds the alarm threshold, the alarm is triggered to perform linkage.

8.6.2.1 Temperature measurement parameter setting

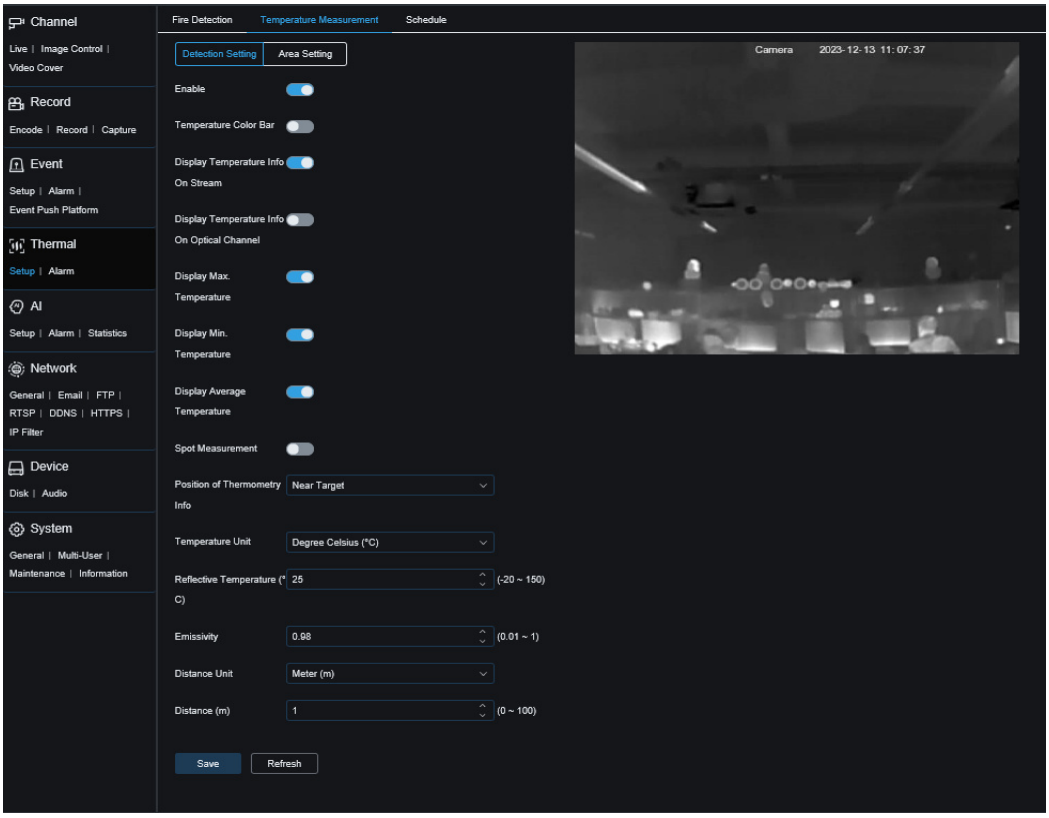


Figure 8.6.2.1.1

Enable: Enables or disables the temperature measurement function.
Temperature Color Bar: When enabled, a color bar representing the different temperatures will be displayed on the right side of the thermal channel live view screen, with the maximum and minimum temperatures shown.
Display Temperature Info On Stream: Displays temperature information on the stream. When enabled, the temperature measurement area and the monitored temperature are displayed in the thermal channel live view screen.
Display Temperature Info On Optical Channel: Display temperature information on the optical channel. When enabled, the temperature measurement area and the monitored temperature are displayed simultaneously on the optical channel live view screen.
Display Max. Temperature: Display the maximum temperature. When turned on, the maximum temperature will be displayed in the preview screen, and the switch for displaying temperature information needs to be turned on first.
Display Min. Temperature: Displays the minimum temperature. When turned on, the minimum temperature will be displayed in the preview screen, you need to turn on the switch of displaying temperature information first.
Display Average Temperature: Displays the average temperature. When turned on, the average temperature will be displayed in the live view screen, and you need to turn on the switch for displaying temperature information first.
Note: If the temperature measurement area is ruled by a point, only the average temperature of the point will be displayed, and the maximum and minimum temperatures will not be displayed.
Spot Measurement: Single point temperature measurement. Once switched on, in the preview screen of the thermal channel, click on any area with the left mouse button to perform a single point measurement**.**
Position of Thermometry Info: Position of thermometry info. You can set the position of the temperature information in the preview screen.

Near Target: Temperature information is displayed next to the rules of each monitoring area.
Top Left: Temperature information is displayed in the top left corner of the preview screen.

Temperature Unit： Temperature Units. Set the units in which temperature information is displayed, including Celsius, Fahrenheit, and Kelvin temperature units.
Reflective Temperature： Set the ambient temperature of the camera.

Note: Reflected temperature refers to the ambient temperature reflected by the surface of the object being measured. When thermal radiation is reflected on the surface of an object, it will be affected by the ambient temperature. The reflected temperature is the temperature of the reflected thermal radiation.
（The role of reflected temperature is to help the thermal camera accurately measure the temperature of an object's surface. In thermal radiation measurement, the infrared radiation received by the camera includes both radiations emitted from the object itself and reflected radiation from the environment. By measuring the ambient temperature, it is possible to distinguish between the thermal radiation emitted by the object and the thermal radiation reflected from the environment, and thus accurately calculate the surface temperature of the object.

Emissivity: Set the appropriate emissivity according to the type of temperature target being measured. (See Appendix A for the emissivity of common substances).

Note: Emissivity is the ability of the surface of the object being measured to emit infrared radiation. Its role is to affect the accuracy of the thermal camera to measure the surface temperature of the object. Different emissivity result in different degrees of reflection and absorption of infrared radiation by the object, which can lead to deviations in the measurement results**.**

Distance Unit: Includes both meter and inch options.

Distance: Indicates the straight-line distance between the temperature target to be measured and the device, which should be set according to the actual situation.

8.6.2.2 Temperature measurement area setting

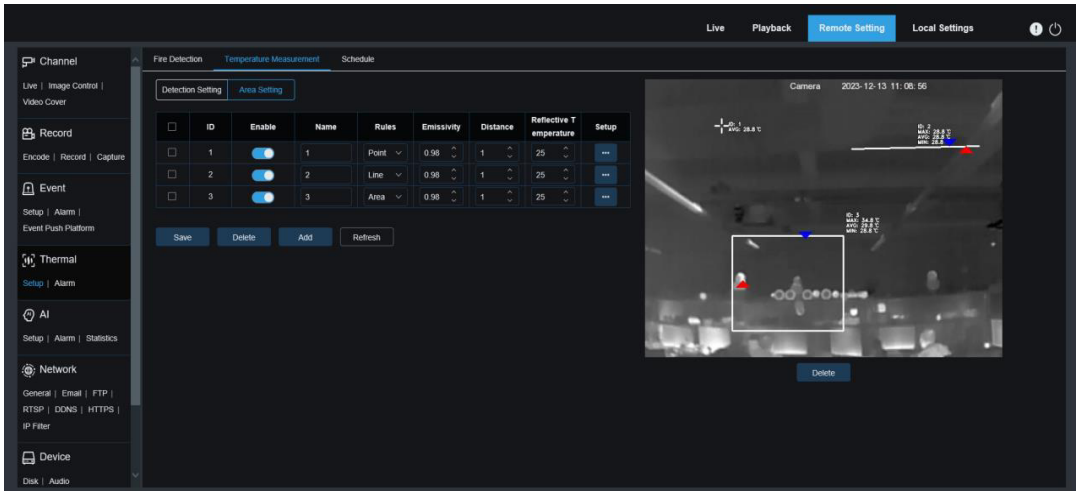


Figure 8.6.2.2.1

Set temperature measurement area:

1. Click Add to add temperature rules, the maximum number of temperature rules is 20.
2. Select a temperature rule and enable it by Enable.
3. Customize the name of the rule in the Name column.
4. Select temperature rules, including point, line and area, you can draw the rules and determine the temperature measurement location on the right side of the configuration screen, tick the rule and click Delete to delete the drawn temperature rules at the bottom of the configuration screen.

Spot Temperature Measurement: Click anywhere in the configuration screen on the right to indicate temperature measurement of the selected spot. The preview screen will show the rule and average temperature information for the point.

Line Temperature Measurement: Click anywhere in the right configuration screen, hold down the mouse and drag it to another location to draw a temperature measurement rule line, which indicates that the temperature measurement will be performed for the position on the line segment. Click the tick box of the rule line to adjust the length, angle and position of the rule line. The preview screen displays the rule and temperature information for that temperature measurement line segment.

Regional temperature measurement: Click anywhere on the configuration screen on the right, hold down the mouse and drag it to another location to draw a quadrilateral temperature measurement rule area, indicating that the temperature of the area will be measured. Click the check box of the rule area to adjust the size and position of the rule area. The rules and temperature information of the temperature measurement area will be displayed in the preview screen.

5. Set the appropriate emissivity according to the type of temperature target being measured.
6. Set the straight-line distance between the temperature target and the device.
7. Set the ambient temperature of the camera.
8. Click  to enter the alarm rule setting page and set the alarm rules corresponding to each temperature measurement rule.

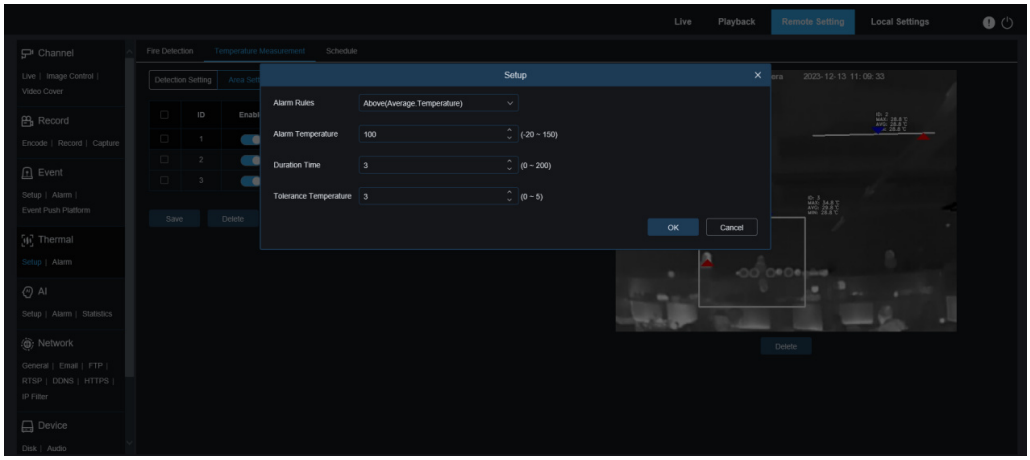


Figure 8.6.2.2.2

Alarm Rules: Alarm rules. There are the following alarm rules, including Above
(Max.Temperature): The maximum temperature is greater than.
Below (Max. Temperature): The maximum temperature is less than.
Above (Min. Temperature): The minimum temperature is greater than.
Below (Min. Temperature): The minimum temperature is less than.
Above (Average Temperature): The average temperature is greater than.
Below (Average Temperature): The average temperature is less than.
Above (Temperature Difference): The difference between high and low temperatur-e is greater than.
Below (Temperature Difference): The difference between high and low temperature is less than.
The alarm rules for point temperature measurement rules are only Above **(Average Temperature):** The average temperature is greater than and Below **(Average Temperature):** The average temperature is less than.
Alarm Temperature: Set the temperature threshold for alarm.
Duration Time: Indicates the time during which the temperature of the measured object continues to exceed the temperature threshold. If this time is exceeded, the alarm will be triggered.
Tolerance Temperature: Tolerance temperature to prevent temperature fluctuations affecting the alarm effect.
EG: The alarm rule selects the average temperature to be greater than the alarm temperature is set to 40°C, and the duration is set to 3s, the tolerance temperature is set to 3℃. When the average temperature of the area monitored by this temperature measurement rule is greater than 40°C and the duration exceeds 3 seconds, an alarm is triggered. When the average temperature of the monitored area is less than or equal to 37°C, the alarm is canceled.
9. Check the temperature measurement rule and click **Delete** to delete it.

8.6.3 Thermal alarm schedule

When the thermal Alarm Schedule function is turned on, the device performs the thermal fire point detection or temperature measurement alarm function according to the time period set in the schedule.

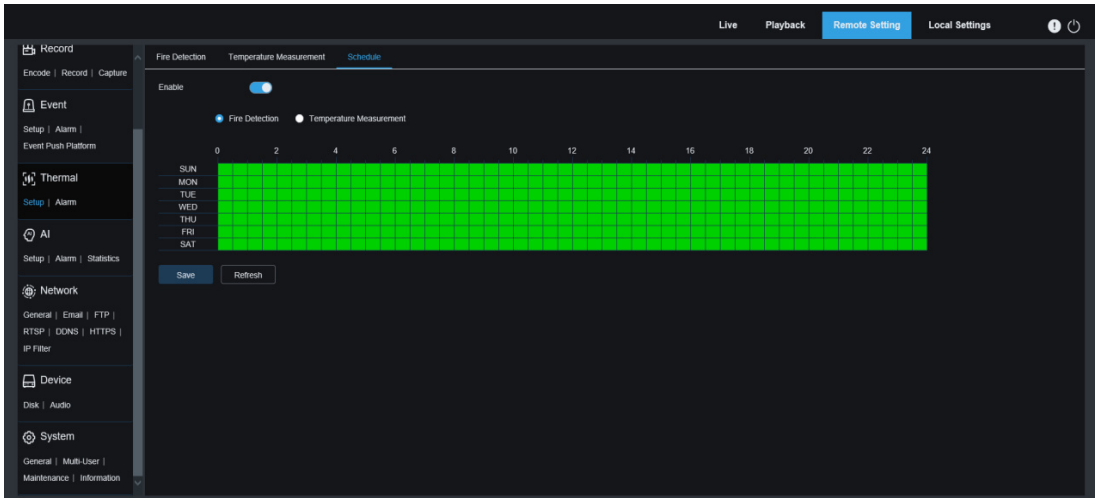


Figure 8.6.3.1

8.6.4 Thermal alarm

Set the thermal fire point detection or temperature measurement function, and the linkage actions to be executed after the alarm is triggered.

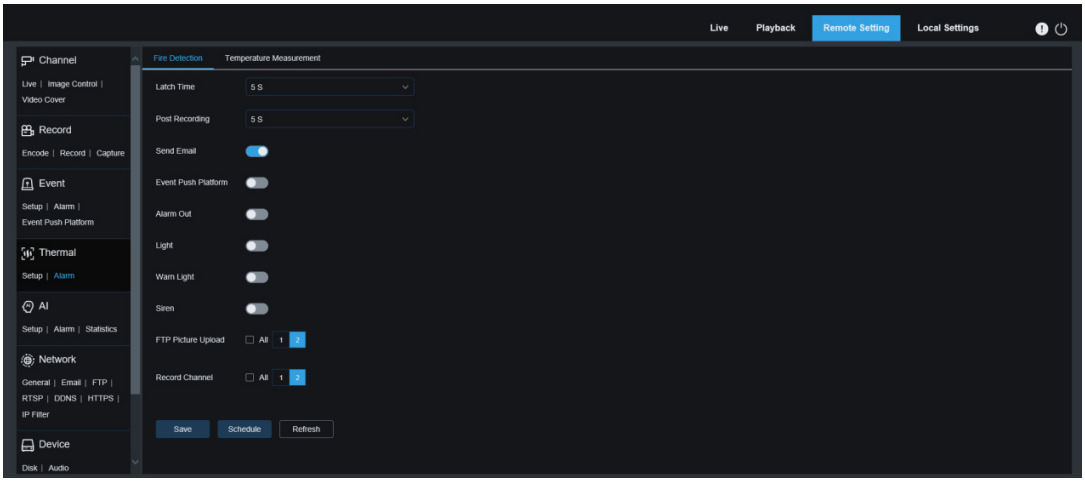


Figure 8.6.4.1

Latch Time: Used to set the duration for triggering an external alarm when motion is detected. Note: The camera needs to support IO output function, and the working time is controlled by the corresponding schedule.
Post Recording: You can set the duration of continuous recording after an event occurs. The options include 5s, 10s, 20s, and 30s. The default duration is 5s, but the maximum duration can be set to 30s.
Send Email: You can have the device automatically send you an email when it detects motion.
Event push Platform: If this option is set to ON, this type of information will be pushed to the client when an alarm is triggered.
Alarm Out: Latch Time setting enable switch. If the device does not support the IO output function, it will not be displayed.
Light: If this option is set to ON, the white light will be turned on for deterrence when an alarm is triggered.
Warn Light: If this option is set to ON, the warning light will be turned on for deterrence when an alarm is triggered.
Siren: If this option is set to ON, the siren will be turned on for deterrence when an alarm is triggered.

FTP Picture Upload: After triggering the alarm, according to the selected channel upload alarm images to FTP server.
Record Channel: According to the selected channel when an alarm is triggered, this type of video will be recorded.
Schedule: Set the scheduled time when an alarm acts. A series of alarm actions are triggered only within the scheduled time.

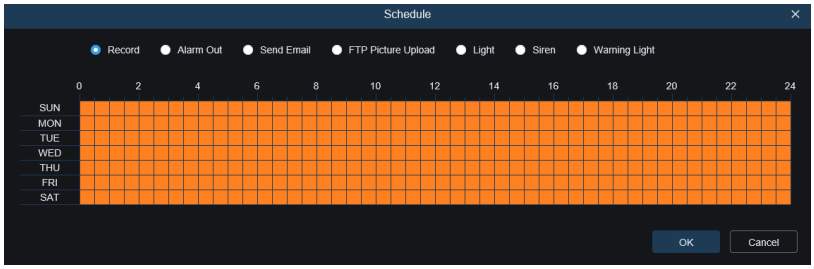


Figure 8.6.4.2

8.7 AI

8.7.1 AI Setup

Enabling the function consumes the computing power of the camera. Due to the limited performance of the camera, Rare Sound and other functions can be enabled at the same time. Line Crossing and Intrusion, Region Entrance, Region Exiting functions can be enabled at the same time. Object Detection, Face Detection, Pedestrian & Vehicle, Object Detection, Face Detection, Pedestrian & Vehicle, Cross Counting, Crowd Density, Queue Length, Heat Map cannot be enabled at the same time.

8.7.1.1 Face Detection

The face detection function detects the face target through the camera, obtains a snapshot that meets the requirements, and then calculates the facial feature data of the snapshot through the face model algorithm, and then compares it with the face database to issue an alarm. You need to turn on the face detection function firstly.

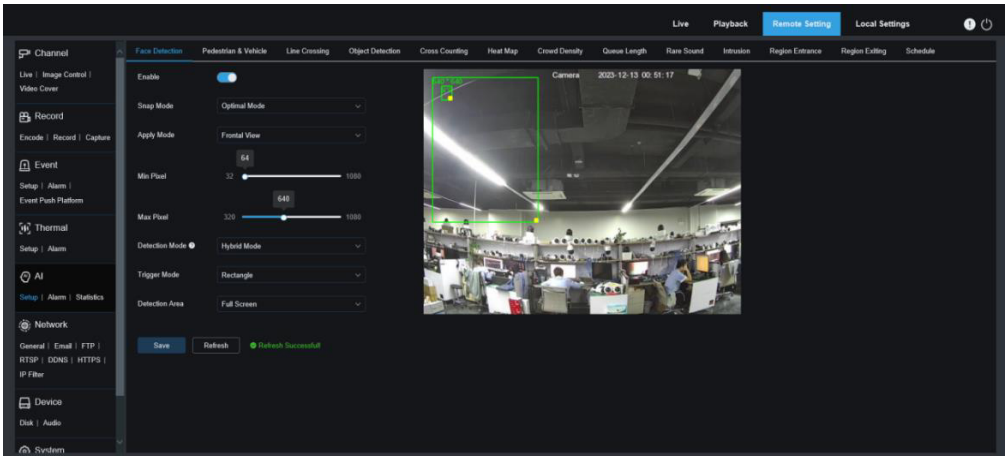


Figure 8.7.1.1.1

Enable: Enable or disable face detection.
Snap Mode: Set the snap mode. You can receive push notifications in live view or connect an NVR to check the image effect. The program supports three Snap Modes.
Optimal Mode: The camera only pushes an image that it considers best from detecting an object until the object disappears.

Real Time Mode: When detecting an object, the camera immediately pushes an image, and then pushes the best image when the object disappears.
Interval Mode: Set the snap number and the snap and push interval as required. The options for Snap Num include 1, 2, 3, and unlimited. The Snap Frequency ranges from 1s to 255s. For example, when the snap frequency is set to 5s, an image is pushed at 5s, 10s and 15s when the object is detected.
Apply Mode: Screen the captured images. That is, only the captured images that meet angle setting will be pushed. There are three mode options.
Frontal View: Only the frontal view of an object is pushed.
Multi Angle: Choose to push images containing only side faces.
Customize: Customize the angle of an object for which images can be pushed. If this function is enabled, Roll Range, Pitch Range, Yaw Range, and Picture Quality options, as well as Frontal Default and Multi Default buttons will be available.
Roll Range: Set the roll range of the captured face image in the 3D model. When the angle does not meet the setting limit, face detection can be carried out but the image will not be pushed.
Pitch Range: Set the pitch range of the captured face image in the 3D model. When the angle does not meet the setting limit, face detection can be carried out but the image will not be pushed.
Yaw Range: Set the yaw angle of the captured face image in the 3D model. When the angle does not meet the setting limit, face detection can be carried out but the image will not be pushed.
Picture Quality: High quality images are good for filtering out detected non-face images.
Min Pixel: Set the minimum recognition pixel box, the face has to be larger than the set pixels to be recognised.
Max Pixel: Set the maximum recognition pixel box, the face has to be smaller than the set pixels to be recognised.
Detection Mode: Used to filter the performance of detected objects in the camera. There are two mode options.

Hybrid Mode: Allow you do face detection for all objects in the view.
Motion Mode: Allow you to filter out motionless faces, such as portraits and statues in the scene.

Trigger Mode: Detection rule line type setting, there are 2 kinds.
Rectangle: only detect the face target inside the set area.
Line: The face target is tracked only when it crosses the detection line according to the setting.
Detection Area: This setting item is available by default when using the detection area to identify targets, and there are 2 modes.

Full Screen: Detect all areas that can be monitored by the camera.
User-defined: Only detect the area selected using the custom detection frame.
Rule Type: This setting item is only available when using the over-line detection mode. There are two detection trigger modes: A→B and B→A.

Rule Line Setting Area: Set, modify, and display edited rule lines.

8.7.1.2 Pedestrian & Vehicle

Pedestrian detection and vehicle detection function, used to recognize pedestrian or vehicles in the view, generate an alarm, and record capture images, according function settings.

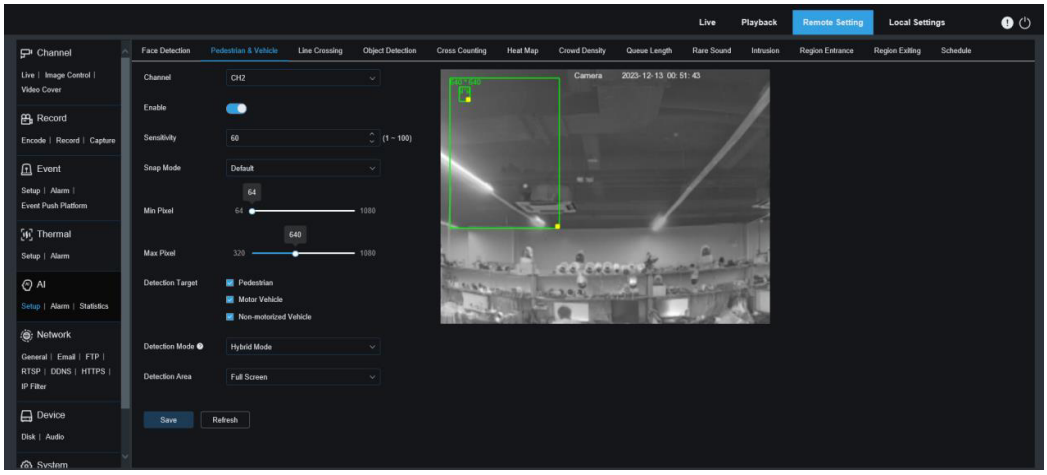


Figure 8.7.1.2.1

Channel: Select different channels for parameter settings.
Enable: Enable or disable the human &Vehicle detection.
Sensitivity: The higher the detection sensitivity, the better you can detect a human or vehicle target, but the false alarms will be higher.
Snap Mode: Set the snap mode. You can receive push notifications in live view or connect an NVR to check the image effect. The program supports three Snap Modes.
Default: The camera pushes only one pedestrian or vehicle image from detecting an object until the object disappears.
Real Time Mode: When detecting an object, the camera immediately pushes one image, and then pushes another image when the object disappears.
Interval Mode: According to the set push interval time, push pictures for a set number of times.
When using Interval Mode as the capture mode, there are Snap Num and Snap Frequency settings:
Snap Num: According to the interval set by Snap Frequency, push pictures 1, 2, 3 or unlimited times to the same target that the camera thinks is the same.
Snap Frequency: Images will be pushed based on the set time upon appearance of an object or since the last push.
Min pixel: Set the minimum recognition pixel frame, the **pedestrian and vehicle** must be larger than the set pixel in order to be recognized.
Max Pixel: Set the maximum pixel frame, the **pedestrian and vehicle** must be smaller than the set pixel to be recognized.
Detection Target: The options include pedestrian, motor vehicle, non-motorized vehicle, and all.
Detection Mode: Filter object behaviors in the detection area. There are two mode options.
Hybrid Mode: Allow to detect all pedestrians or vehicles in the view.
Motion Mode: Allow to filter out motionless pedestrians or vehicles.
Detection Area: Detection area setting. There are two mode options:
Full Screen: All areas that can be monitored by the camera are detected.
User-defined: Only areas selected using the custom detection box are detected.
Rule Line Setting Area: Set, modify, and display edited rule lines.

8.7.1.3 Line Crossing

The line crossing detection function can detect people and vehicles that cross the set virtual line. When a specific target passes the preset detection line, an alarm signal is generated.

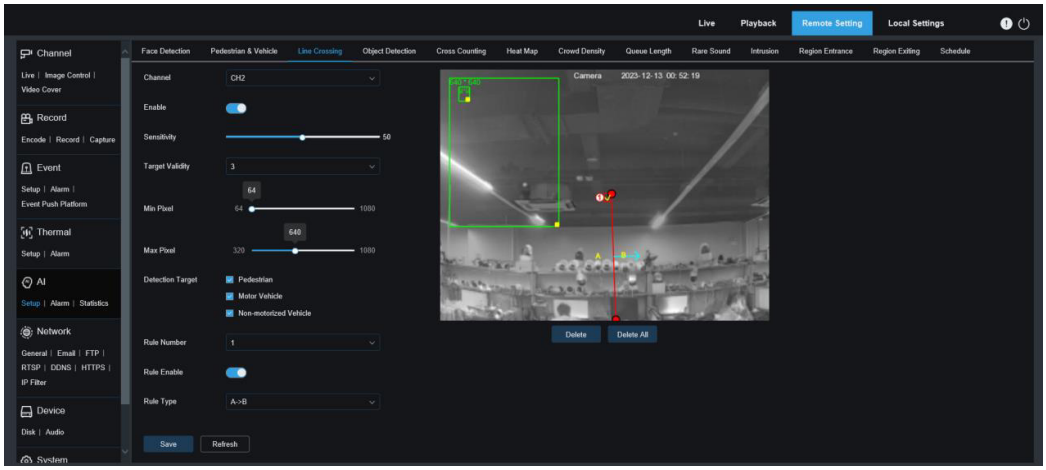
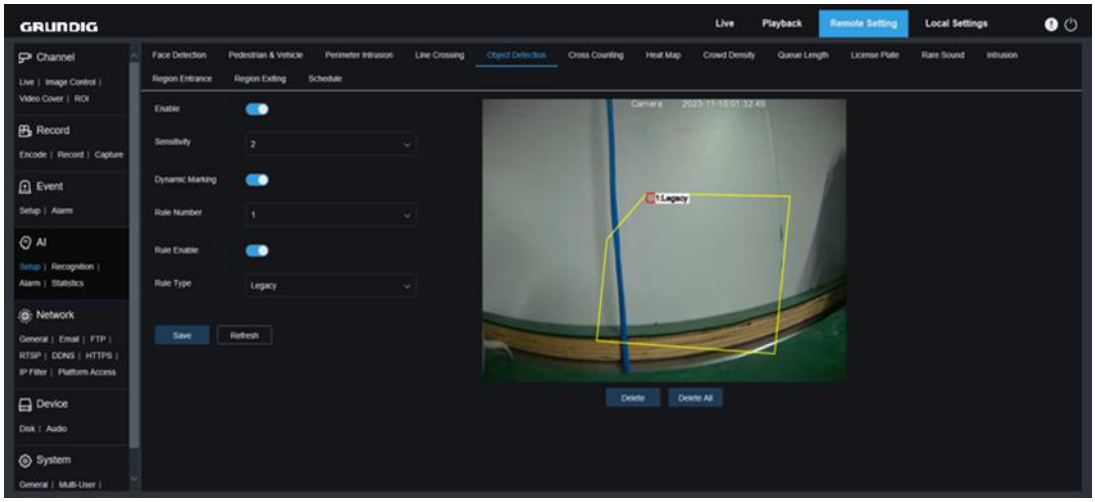


Figure 8.7.1.3.1

Channel: Select different channels for parameter setting
Enable: Enable or disable the line-crossing detection alarm function.
Sensitivity: The sensitivity is related to the proportion of the detection target entering the area. The larger the sensitivity setting for crossing the line, the easier it is to trigger an alarm. For example, if set to 100%, an alarm will be triggered as soon as the detection target touches the boundary of the set area. If set to 50%, the alarm will be triggered only after 50% of the detected targets have passed the set area boundary.
Target Validity: target confidence, indicating the similarity between the target and the set detection type. The alarm will be triggered only when the set similarity is reached or exceeded. The higher the setting level, the higher the similarity requirement, the more obvious the required target characteristics, and the higher the alarm accuracy. The level can be set from 1 to 4, with 1 being the highest confidence level. The detection target similarity requirements corresponding to each level are: 1%~80%, 2%~60%, 3%~40% and 4%~20%.
Min Pixel: Set the minimum recognition pixel box, the target has to be larger than the set pixels to be recognized.
Max Pixel: Sets the maximum recognized pixel box, the target has to be smaller than the set pixels to be recognized.
Detection Target: Filter the behavior of the target in camera;
Pedestrian: Only detect pedestrian crossing the line.
Motor Vehicle: Only detect vehicle crossing the line.
Non-motorized Vehicle: Only detect non-motorized Vehicle crossing the line.
Rule Number: Rule line number selection supports setting of 4 detection rule lines.
Rule Enable: Rule Line Enable Switch, each rule line has a separate enable switch associated with the currently selected Rule Number.
Rule Type: Rules triggered by rule lines include three line-crossing rules:
A→B, **B→A** and **A←→B**. The settings are related to the currently selected Rule Number.
Rule line setting area: Set, modify and display edited rule lines.
Delete: Delete the rule line selected in the rule line setting area
Delete All： Delete all rule lines.

8.7.1.4 Object Detection

Detection of objects left behind and lost, an alarm will be generated when objects are found to be left behind or items are lost in the supervision scene.



Figurev8.7.1.4.1

Enable: Enable Object Detection alarm function switch.
Sensitivity: Filter small interference target settings, the higher the sensitivity, the smaller the detectable objects.
Rule Number: Rule line number selection, Object Detection function supports setting 4 detection rule lines.
Rule Enable: Rule line enable switch, each rule line has an independent enable 8.7.1.6 switch, which is associated with the currently selected Rule Number.
Rule Type: For rules triggered by rule lines, the detection area is set to generate an alarm when items are left or lost. There are three rules: Legacy, Lost and Lost & Legacy. The settings are related to the currently selected Rule Number.
Rule line setting area: Set, modify, and display edited rule lines.
Delete: Delete the rule line selected in the rule line setting area
Delete All： Delete all of rule lines.

8.7.1.5 Cross Counting

Camera can record the specific objects crossing line in monitoring area by Cross-Counting function. Set the crossing line, there are two areas (A and B) on two sides of line.
When the rule is **A→B**. It means object crosses the line from area A to area B. The count in increases by one. When the object enters from area B and crosses the line to area A, the count out increases by one. The alarm will only be triggered when the count in minus the count out is greater than or equal to the set Alarm Number count. The interface is as shown in the figure below.

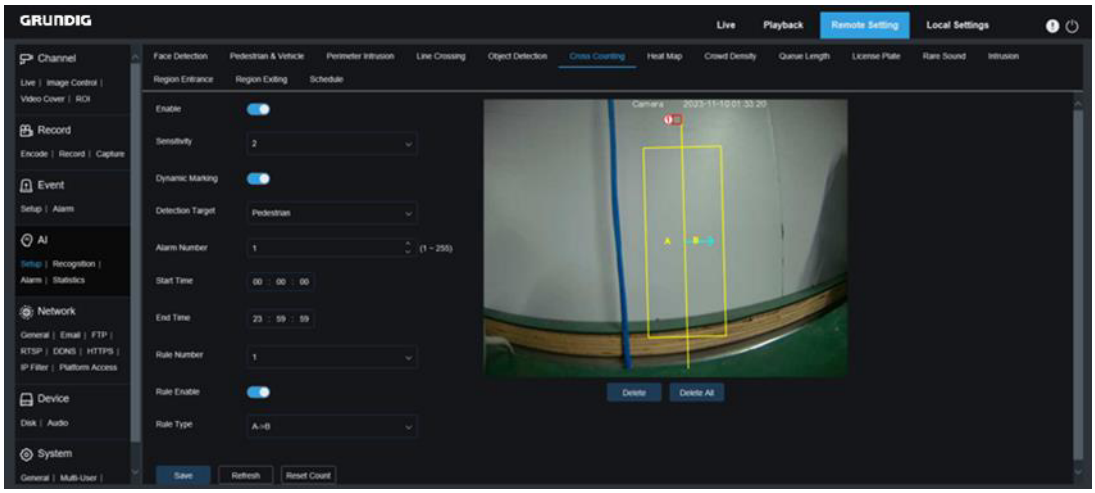


Figure 8.7.1.5.1

Enable: Enable the **Cross Counting** statistics function.
Sensitivity: Filter small interference target settings. The higher the sensitivity is, the moving object can be detected easily. It can also be used to detect distant targets in the scene.
Detection Target: Set the detection type of **Cross counting** line and recognition target. There are 3 modes. Switching to save will clear the current count.
Motion: Detect all objects, including people, vehicles, cartons and other objects.
Pedestrian: Only detect pedestrian targets.
Motor Vehicle: Only detect vehicle targets.
Non-motorized Vehicle: Only detect non-motorized Vehicle targets.
Alarm Number: Set the condition of alarm. The camera will trigger cross counting alarm when the count is updated and the in count minus the out count is greater or equal to the current setting.
Start Time: Set the line crossing detection function start time.
Stop Time: Set the line crossing detection function stop time.
Rule Number: Rule line number. Only one detection rule line is supported for cross counting.
Rule Enable: Turn on or off the current rule line.
Rule Type: Setup for rule. There are two directions of count in and count out including **A→B** and **B→A**. For example, **A→B** means objects enter from area A and leave from area B, count in will increase. When objects enter from area B and leave from area A, count out will increase.
Reset Count: Clear the currently displayed count.
Line-crossing Setting Area: Set the rule line for cross counting detection in this area.
Count Area: Display cross counting statistics. For details, refer to Adjusting Display Location in **chapter 8.1**.

8.7.1.6 Heat Map

The Heat Map (Heat Map) statistics function uses a logic similar to motion to judge whether there is a change in transmission in each area of the monitoring area, and save and upload the change at 10-minute intervals. Through a large number of statistics, user can view the change in each area in the scene. This function only supports data logging, not alarm.

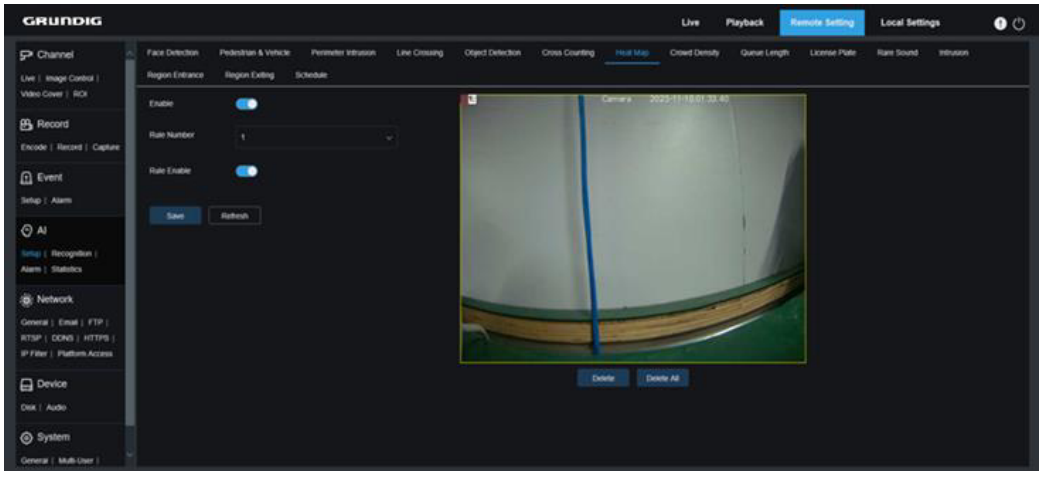


Figure 8.7.1.6.1

Enable: Enable and disable the Heat Map function.
Rule Number: Rule line number. Only one detection rule line is supported for Heat Map.
Rule Enable: Enable and disable the current rule line.
Monitoring Area Setting: Set the preferred area. All areas are selected by default.

8.7.1.7 Crowd Density

Crowd detection function, the way of identifying the human head through the human figure recognition function, recognizes the number of people in the monitoring area. The alarm will be triggered when the number of people exceeds the preset value.

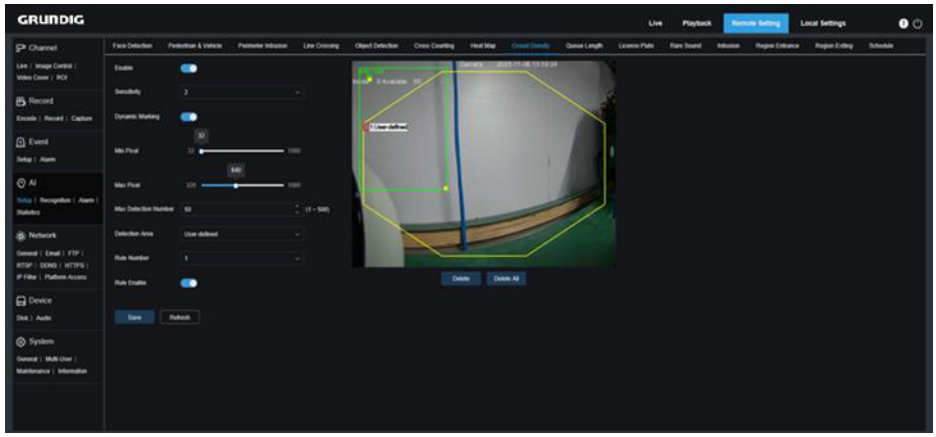


Figure 8.7.1.7.1

Enable: Enable and disable Crowd Density.
Sensitivity: Filter small disturbing objects. The higher the sensitivity is, the moving Object can be detected easily.
Dynamic Marking: Display the detection box and used to turn on or off the detection rule line.
Min Pixel: Based on the 1080p resolution, filter out objects with heads smaller than the setting in the view.
Max Pixel: Based on the 1080p resolution, filter out objects with heads larger than the setting in the view.
Max Detection Number: Maximum number of heads that can be detected in the detection area. An alarm will be triggered when this value is exceeded.
Detection Area: Set the area where the crowd detection function will be applied. There are two modes.
Full Screen: In this mode, all areas covered by the camera will be detected.
User-defined: Allows you to customize detection areas.
Rule Number: Rule line number. This number is displayed when you set a custom detection area. One detection rule line is supported.
Rule Enable: Currently numbered rule line enable switch, shown when setting up a custom detection area.
Detection Area Setting: This setting is available when you set a custom detection area. An octagonal detection area needs to be set.
Count Display Area: Display the number of people in the current monitored area. For adjustment of display location. You can refer to **chapter 8.1**.

8.7.1.8 Queue Length

Queue detection function. Set the people number in the queue and wait time. Alarm will be triggered when the queue is too long or the wait time is too long.

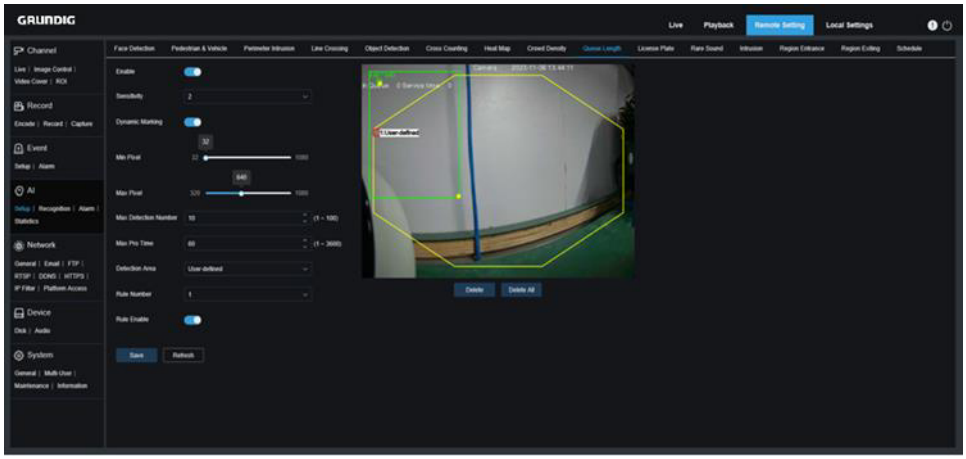


Figure 8.7.1.8.1

Enable: Enable and disable Queue Length function.
Sensitivity: Filter small disturbing objects. The higher the sensitivity is, the moving object can be detected easily.

Min Pixel: Based on the 1080p resolution, filter out objects with heads smaller than the setting in the view.

Max Pixel: Based on the 1080p resolution, filter out objects with heads larger than the setting in the view.

Max Detection Number: Maximum number of heads that can be detected in the detection area. An alarm will be triggered when this value is exceeded.
Max Pro Time: The maximum duration allowed for people to stay in the detection area. An alarm will be triggered when the set duration is exceeded and no one leaves the detection area. (This duration starts from the time when the last person leaves the detection area. If no one leaves within the set duration, the processing will be considered as timeout and an alarm will be triggered.)
Note: The counting is restarted only when target leaves the detection area. It the target suddenly disappears in the area and it will be ignored. It is only counted when the target is detected in the area.
Detection Area: Set the area where the queue detection function will be applied. There are two modes.

Full Screen: In this mode, all areas covered by the camera will be detected.

User-defined: Customize detection areas.

Rule Number: Rule line number. This number is displayed when you set a custom detection area. One detection rule line is supported.
Rule Switch: Enable and disable the current rule line. This switch is displayed when you set a custom detection area.
Detection Area Setting: This setting is available when you set a custom detection area. An octagonal detection area needs to be set.
Count Display Area: Display the number of people in the current monitored area and queue time. For adjustment of display location, please refer to **chapter 8.1**.

8.7.1.9 Rare Sound

For sound anomaly detection, different detection types can be set according to the needs of the application scenario, such as children crying, gunshots, dog barking and etc. When the camera detects the set sound, it will trigger.

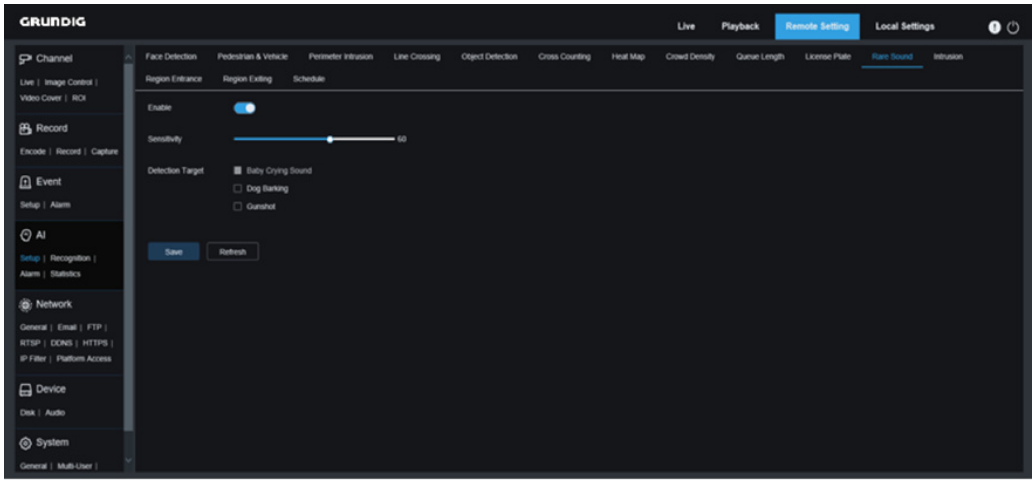


Figure 8.7.1.9.1

Enable: Enable **Rare Sound** function.
Sensitivity: Sensitivity from lever 1~100, lever 1 is the minimum, lever 100 is the maximum.
Detection Type: Detection type
Baby Crying Sound: detect baby crying
Dog Barking: detect dog barking
Gunshot: detect gunshots

8.7.1.10 Intrusion

The intrusion detection function can detect whether an object enters the set area in the preview and triggers an alarm based on the judgment result.

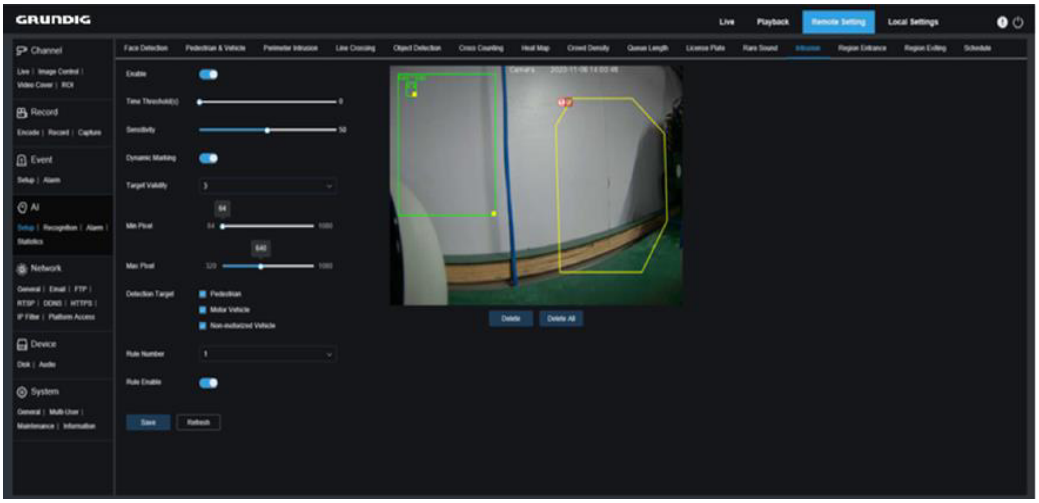


Figure 8.7.1.10.1

Channel: Select different channels.
Enable: Enable intrusion detection switch.
Time Threshold(s): The time threshold indicates that an alarm will be generated after the target enters the warning area and stays for this period of time. For example, the alarm will be triggered immediately after 5 seconds after the target invades the area if set to 5. The maximum duration can be set to 10 seconds.
Sensitivity: The sensitivity is related to the proportion of the detection target entering the area. The larger the sensitivity setting for crossing the line, the easier it is to trigger an alarm. For example, if set to 100%, an alarm will be triggered as soon as the detection target touches the boundary of the set area. If set to 50%, the alarm will be triggered only after 50% of the detected targets have passed the set area boundary.

Target Validity: target confidence, indicating the similarity between the target and the set detection type. The alarm will be triggered only when the set similarity is reached or exceeded. The higher the setting level, the higher the similarity requirement, the more obvious the required target characteristics, and the higher the alarm accuracy. The level can be set from 1 to 4, with 1 being the highest confidence level. The detection target similarity requirements corresponding to each level are: 1%~80%, 2%~60%, 3%~40% and 4%~20%.
Min pixel: The object has to be larger than the set minimum pixel in order to be recognized.
Max pixel: The object must be smaller than the set maximum pixel to be recognized.
Detection Target: There are three types of test targets:

Pedestrian: Only detect Pedestrian targets.
Motor Vehicle: Only detect motor vehicle targets.
Non-motorized Vehicle: Only detect non-motorized Vehicle targets.

Rule Number: Rule line number selection, Intrusion The function supports setting 4 detection rule lines.
Rule Enable: Rule line enable switch, every rule line has an independent enable switch, which is associated with the currently selected Rule Number.

8.7.1.11 Region Entrance

The Region Entrance function can detect whether an object enters the set warning area, and triggers an alarm based on the judgment result.

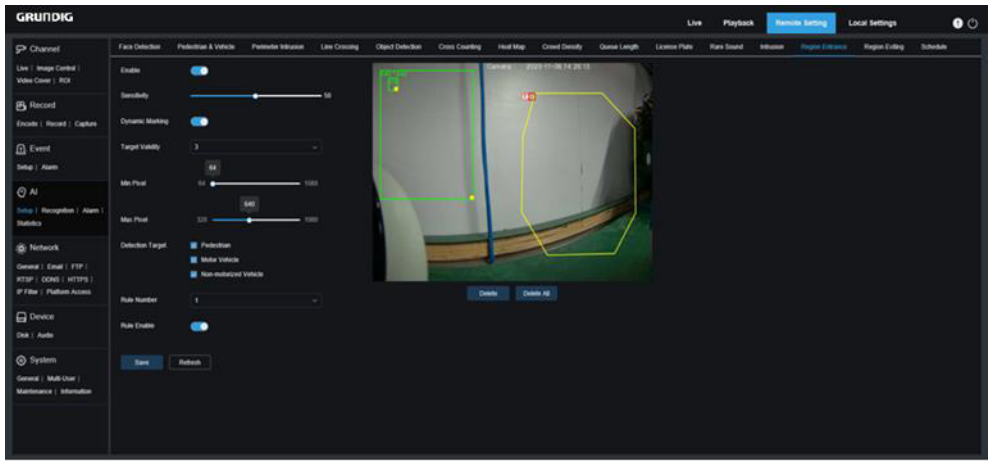


Figure 8.7.1.11.1

Channel: Select different channels.
Enable: Enable entry zone detection switch.
Sensitivity: The sensitivity is related to the proportion of the detection target entering the area. The larger the sensitivity setting for crossing the line, the easier it is to trigger an alarm. For example, if set to 100%, an alarm will be triggered as soon as the detection target touches the boundary of the set area. If set to 50%, the alarm will be triggered only after 50% of the detected targets have passed the set area boundary.
Target Validity: target confidence, indicating the similarity between the target and the set detection type. The alarm will be triggered only when the set similarity is reached or exceeded. The higher the setting level, the higher the similarity requirement, the more obvious the required target characteristics, and the higher the alarm accuracy. The level can be set from 1 to 4, with 1 being the highest confidence level. The detection target similarity requirements corresponding to each level are: 1%~80%, 2%~60%, 3%~40% and 4%~20%.

Min pixel: The object has to be larger than the set minimum pixel in order to be recognized.
Max pixel: The object must be smaller than the set maximum pixel to be recognized.
Detection Target: There are three types of test targets:
Pedestrian: Only detect pedestrian targets.
Motor Vehicle: Only detect motor vehicle targets.
Non-motorized Vehicle: Only detect non-motor vehicle targets.
Rule Number: Rule line number selection, Region Entrance. The function supports setting 4 detection rule lines.
Rule Enable: Rule line enable switch, every rule each line has an independent enable switch, which is associated with the currently selected Rule Number.

8.7.1.12 Region Exiting

The Region Exiting function can detect whether an object leaves the set warning area and triggers an alarm based on the judgment result.

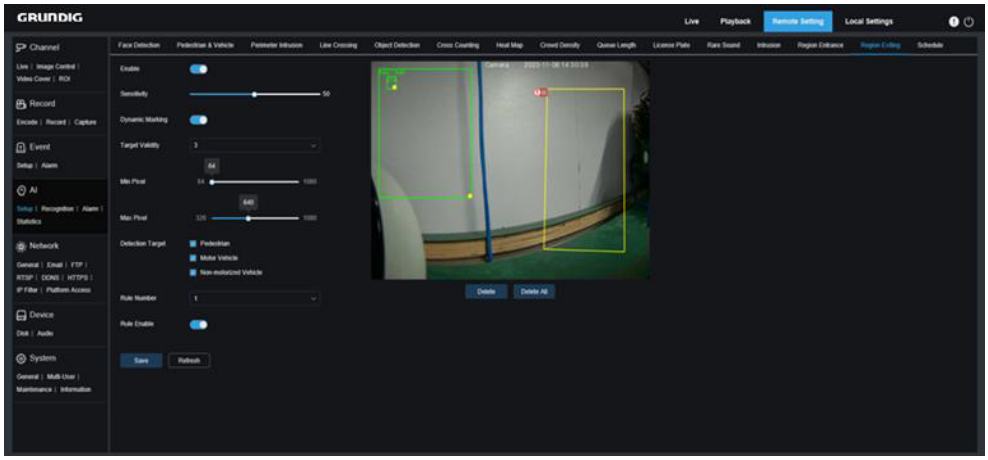


Figure 8.7.1.12.1

Channel: Select different channels.
Enable: Enable exit area detection switch.
Sensitivity: The sensitivity is related to the proportion of the detection target entering the area. The larger the sensitivity setting for crossing the line, the easier it is to trigger an alarm. For example, if set to 100%, an alarm will be triggered as soon as the detection target touches the boundary of the set area. If set to 50%, the alarm will be triggered only after 50% of the detected targets have passed the set area boundary.
Target Validity: target confidence, indicating the similarity between the target and the set detection type. The alarm will be triggered only when the set similarity is reached or exceeded. The higher the setting level, the higher the similarity requirement, the more obvious the required target characteristics, and the higher the alarm accuracy. The level can be set from 1 to 4, with 1 being the highest confidence level. The detection target similarity requirements corresponding to each level are: 1%~80%, 2%~60%, 3%~40% and 4%~20%.
Min pixel: The object has to be larger than the set minimum pixel in order to be recognized.
Max pixel: The object must be smaller than the set maximum pixel to be recognized.
Detection Target: There are three types of test targets:
Pedestrian: Only detect pedestrian targets.
Motor Vehicle: Only detect motor vehicle targets.
Non-motorized Vehicle: Only detect non-motor vehicle targets.
Rule Number: Rule line number selection of Region Exiting function. The function supports setting 4 detection rule lines.
Rule Enable: Rule line enable switch, every rule line has an independent enable switch, which is associated with the currently selected Rule Number.

8.7.1.13 AI Schedule

AI schedule function, enabling this function to set the plan for opening and closing each AI function. If it is selected, it is on. If it is not selected, it is off. And if it is gray, it cannot be set.

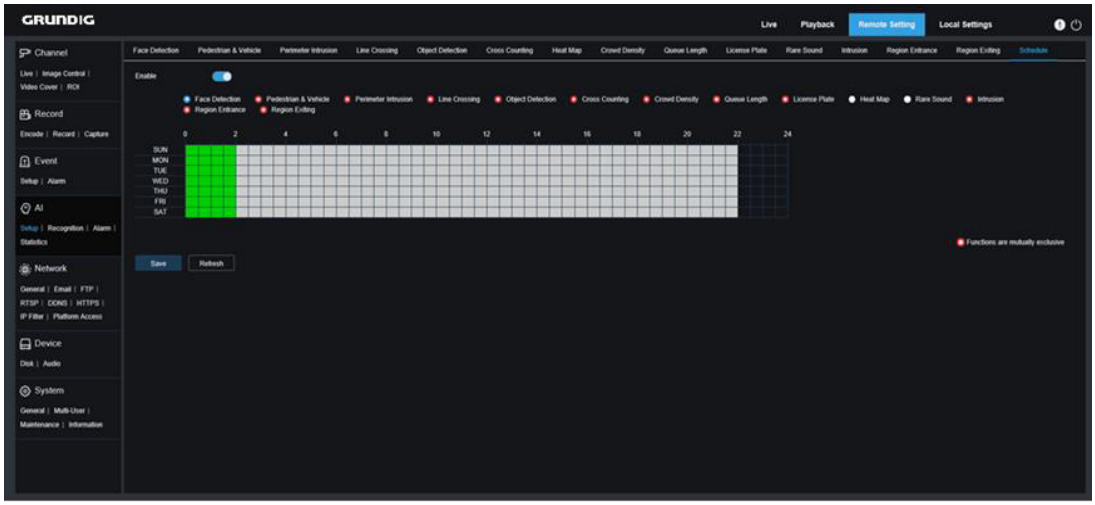


Figure 8.7.1.13.1

Channel: Select different channels for parameter settings.
Enable: Enable and disable the AI schedule.
Functions are mutually exclusive: Functions that are mutually exclusive to the selected functions.

Note:

- Functions that are mutually exclusive cannot be set at the same time. That is, two mutually exclusive AI functions cannot be enabled at the same time. There will be restrictions on this UI.
- After the AI schedule is enabled, all AI function switches for the channel can no longer be manually enabled or disabled and are controlled by the schedule. However, parameters such as sensitivity can be edited.

8.7.2 AI Alarm

The alarm can be realized by camera's AI function. It can be divided into 3 categories according to the implementation mode, including Face Detection, Pedestrian & Vehicle, Line Crossing, Object Detection, Cross Counting, Crowd Density, Queue Length, Rare Sound, Intrusion, Region Entrance, Region Exiting, if the camera detects an alarm event, an alarm response will be generated directly.

8.7.2.1 Face Detection、Pedestrian & Vehicle、Line Crossing、Object Detection、Cross Counting、Crowd Density、Queue Length、Rare Sound、Intrusion、Region Entrance、Region Exiting

When the camera detects an alarm event, it directly generates the corresponding alarm function.

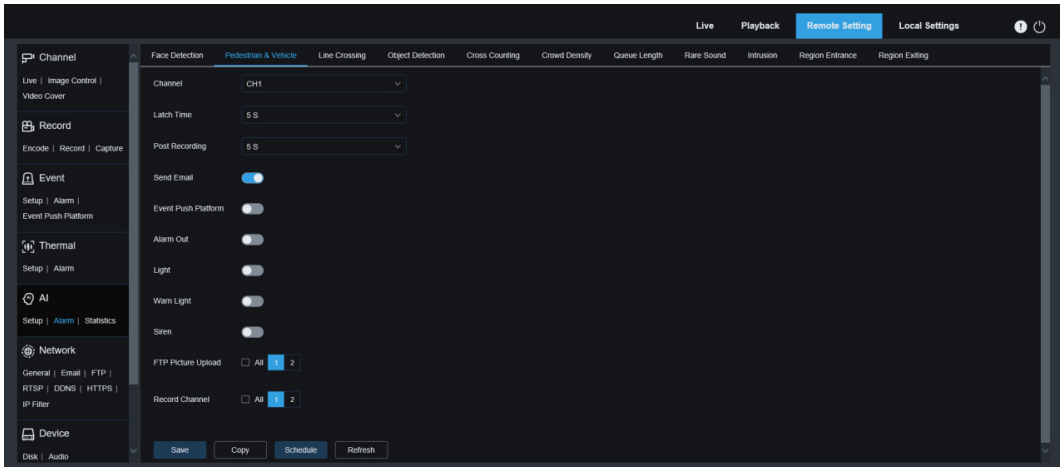


Figure 8.7.2.1.1

Channel: Select different channels for parameter settings.
Latch Time: Set the duration for triggering an external alarm when motion is detected.

Note: The camera needs to support IO output function, and the working time is controlled by the corresponding schedule.

Post Recording: Set the duration of continuous recording after an event occurs.
Send Email: You can have the device automatically send you an email when it detects motion.
Event push Platform: If this option is set to ON, this type of information will be pushed to the client when an alarm is triggered.
Copy: The current channel parameter copy to another aisle.
Alarm Out: Latch Time setting enable switch. If the device does not support the IO output function, it will not be displayed.

Light: If this option is set to ON, the white light will be turned on for deterrence when an alarm is triggered.

Warn Light: If this option is set to ON, the warning light will be turned on for deterrence when an alarm is triggered.

Siren: If this option is set to ON, the siren will be turned on for deterrence when an alarm is triggered.

FTP Picture Upload: Select the channel for picture uploading to the FTP server, and the camera sends the picture to the associated FTP server when the alarm is triggered continuously, and sends it in 10S cycles until the alarm is no longer triggered.

Note: At the same time by the schedule to control the effective time, you need to associate the FTP server first.

Record Channel: According to the selected channel when an alarm is triggered, this type of video will be recorded.
Schedule: Set the scheduled time when an alarm acts. A series of alarm actions are triggered only within the scheduled time.

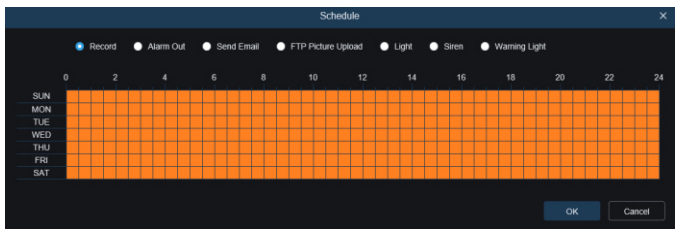


Figure 8.7.2.1.2

8.7.3 Statistics

AI-enabled statistical analysis function.

8.7.3.1 Pedestrian& Vehicle

Pedestrian& Vehicle shape data statistics, the interface is shown in the figure below.

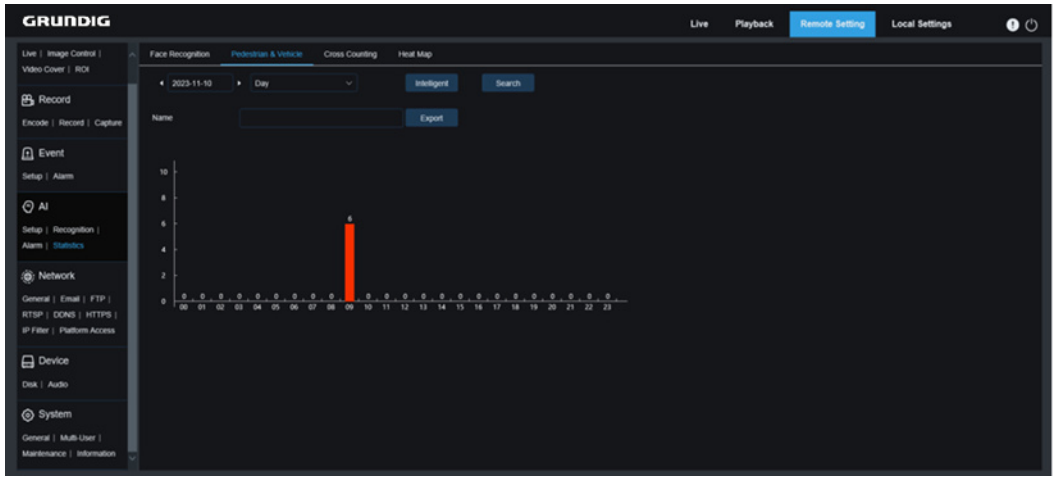


Figure 8.7.3.1.1

Time: Set the reference time for the Search Mode.
Search mode: Set Day, Week, Month, Quarter, and Year as time range for data retrieval.
Channel: Select different channels to search.
Intelligent: Search based on the tag type when obtaining the screenshot, there are Pedestrian, Motor Vehicle, Non-motorized Vehicle 3 types of screenshots.
Search: Allow you to re-initiate data retrieval according to the current search settings.
Export: You need to give a name to an exported file. Export current search results to an Excel file.
Display area: Display search results in a graph below.

8.7.3.2 Cross Counting Statistics

Cross counting statistics. The screen is shown in the figure below.

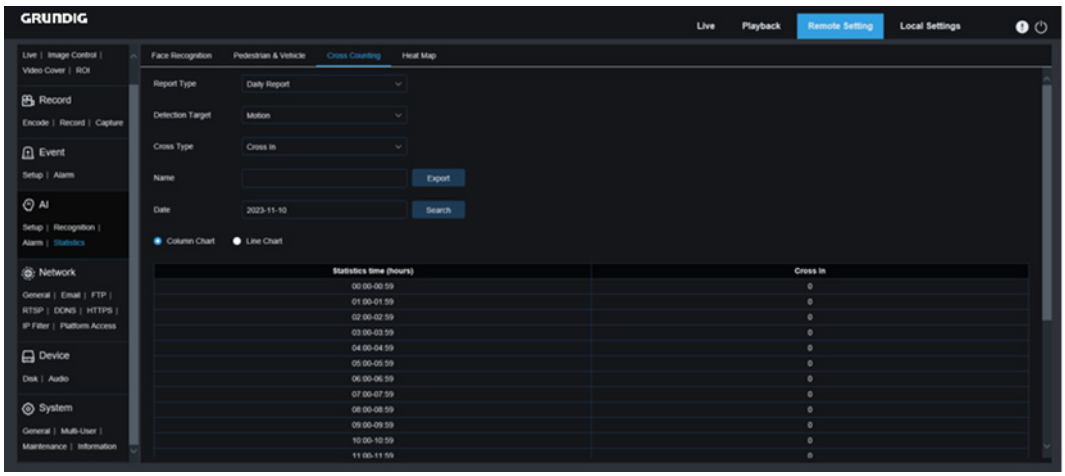


Figure 8.7.3.2.1

Report Type: The option includes Daily report, Weekly report, Monthly report, and Annual report.
Detection Type: Set your desired alarm model. For example, you cannot retrieve motion-triggered data if alarm models other than motion model are selected. There are Four model options including Pedestrian, Motor Vehicle, Non-motorized Vehicle corresponding to their function settings.

Cross Type: Search for data according to cross counting statistics. There are two mode options, including Cross In and Cross Out.
Export: Need to add the export file name, and export the search data by Excel file.
System time: The reference time of the selected Report Type.
Mode: Choose to display the data as a bar graph or a line graph.
Display Area: Display the current search results in the form of graph.
Search: Search the data again according to the search settings.

8.7.3.3 Heat Map Statistics

The heat map report allows you to visualize the distribution of people in two dimensions: temporal or spatial.

- **Space heat map:** People activity degree in different areas in the view. Red indicates the densest area, meaning the highest activity degree, and blue indicates the lowest dense area.
- **Time heat map:** People activity degree in different times in the view. The Y-axis value is the index calculated based on the number of people and the duration of stay. The higher the value is, the higher the activity degree will be. It does not represent the number of people.

The smart camera must be equipped with a memory card with free space in which heat map information will be stored. The screen is shown in the figure below.

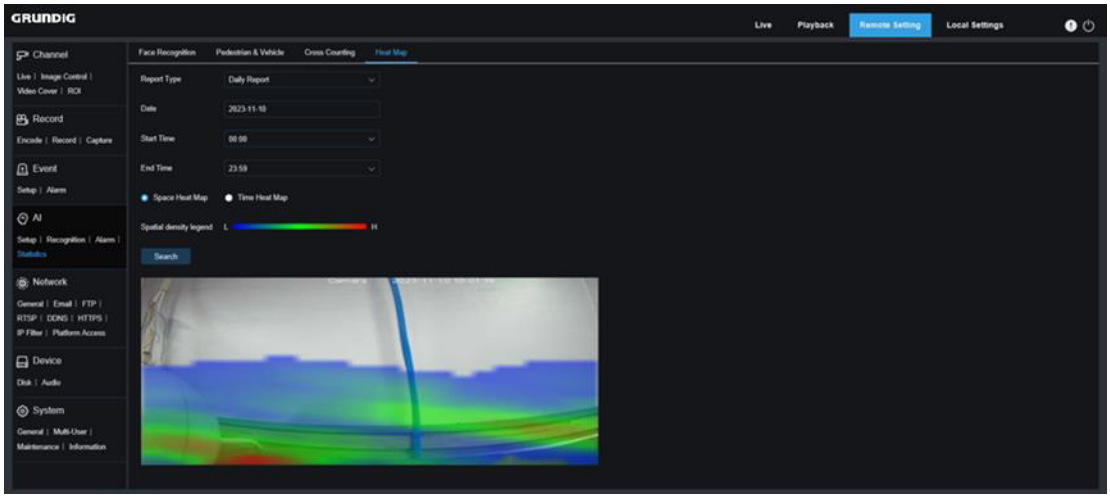


Figure 8.7.3.2.2

Report Type: The options include Daily report, Weekly report, Monthly report, and Annual report.
Date: The date that the data search refers to.
Start Hour: Only display when the Daily report is set. Set the specific hour when the search starts.
End Hour: Only displayed when the Daily report is set. Set the specific hour when the search ends.
Mode: Set the display way of the data when searching, there are two ways: graph and table.
Display Area: Display the frequency of changes in the monitoring area in the form of graphs, and display the frequency of changes in the monitoring areas in different time periods in the form of tables.
Search: Search data according to the settings.

8.8 Network setting

This menu allows you to configure network parameters, such as, PPPoE, DHCP, and SNMP, of which DHCP is the most common. In most cases, the network type is DHCP unless the static IP address is set manually. If you need an authenticated username and password to connect to the network, select PPPoE.

8.8.1 General

8.8.1.1 General

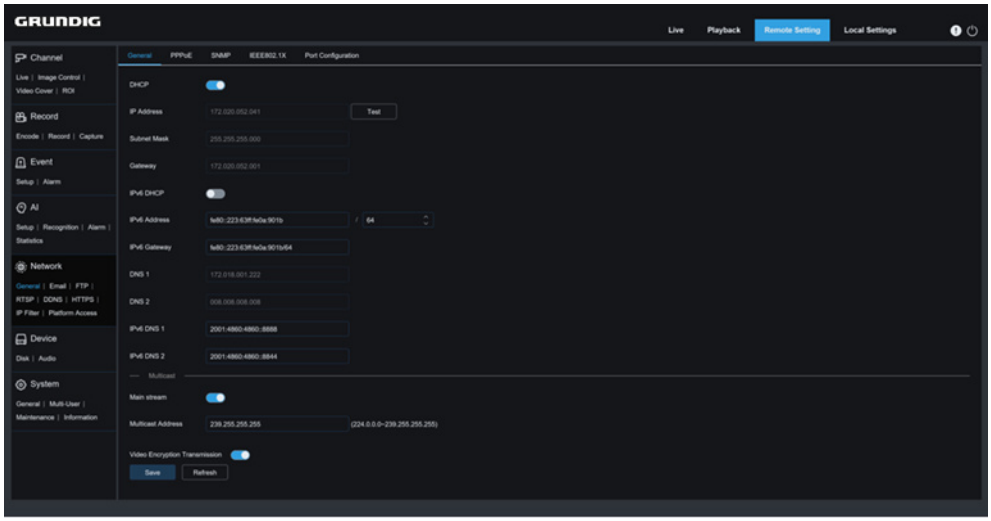


Figure 8.8.1.1.1

If connecting to a router that allows the use of DHCP, check the DHCP box. The router will automatically assign all network parameters to the camera unless you manually set the following parameters for the network:

IP Address: IP address is the identification of IPC in the network. It consists of four groups of numbers between 0 and 255, separated by periods. For example, "192.168.001.100".

Subnet Mask: It is a network parameter that defines the range of IP addresses that can be used in the network. If the IP address is like the street where you live, then the subnet mask is like a community. The subnet address also consists of four sets of numbers, separated by periods. For example "255.255.000.000".

Gateway: This address allows IPC to access the network. The format of the gateway address is the same as the IP address. For example, "192.168.001.001".

IPv6 Address: The IPv6 address is the identifier of IPC on the network. It consists of eight numbers between 0 and FFFF, separated by colons, for example, "ABCD:EF01:2345:6789:ABCD:EF01:2345:6789".

DNS1/DNS2: DNS1 is the primary DNS server, and DNS2 is the backup DNS server. It is usually sufficient to enter the DNS1 server address.

Main Stream: After checking, you can use the main stream for multicast.

Muticast Address: Set the multicast address. A third-party player can request the camera to send a multicast media stream through the RTSP protocol.

Video Encryption Transmission: audio/video encryption transmission.

If the IPC is capable of warning you of repeated IP addresses in the same network segment, when IP addresses are repeatedly used, the following message will pop up when you click the 

icon:

Figure 8.8.1.1.2

8.8.1.2 PPPoE

This is an advanced protocol that allows IPC to connect more directly to the network through a DSL modem.

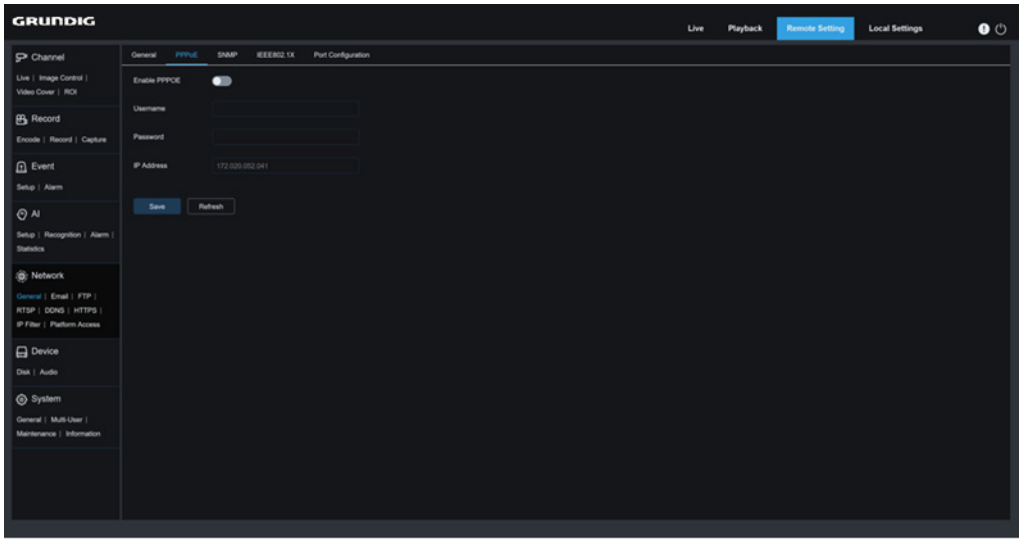


Figure 8.8.1.2.1

Turn on the "Enable PPPoE" box and then enter the username and password of PPPoE.
Click the "Apply" to save data. The system will restart to take PPPoE settings into effect.

8.8.1.3 SNMP

Simple Network Management Protocol (SNMP), a standard application layer protocol, is specifically designed to manage network nodes (like servers, workstations, routers, switches, and HUBS, etc.) in an IP network.

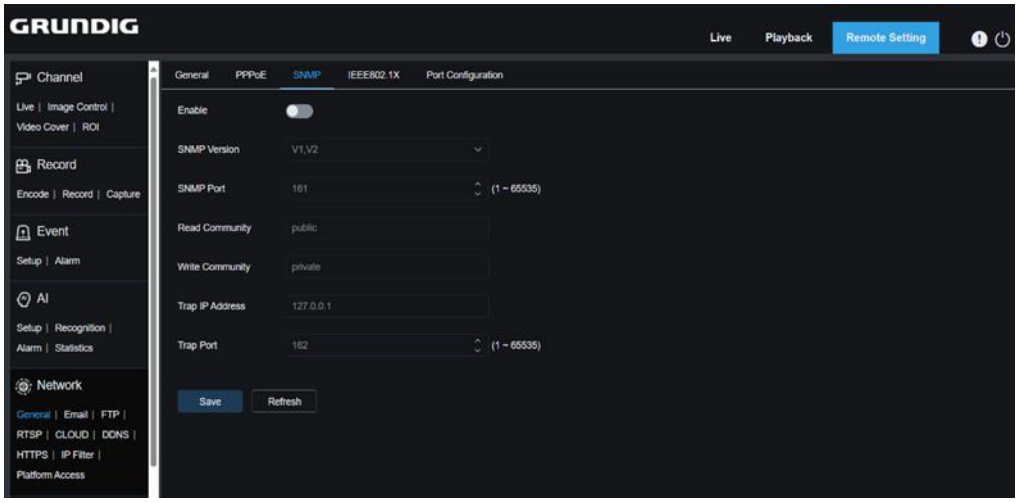


Figure 8.8.1.3.1

Enable: Enable or disable SNMP.
SNMP Version: Set the version of the SNMP server. V1, V2, V1, V2 and V3 are optional.
SNMP Port: Set the port of the SNMP server.
Read Community: Set the Read Community value of the SNMP server.
Write Community: Set the Write Community value of the SNMP server.
Trap IP Address: Set the Trap IP address of the SNMP server.
Trap Port: Set the Trap port of the SNMP server.

8.8.1.4 Port configuration

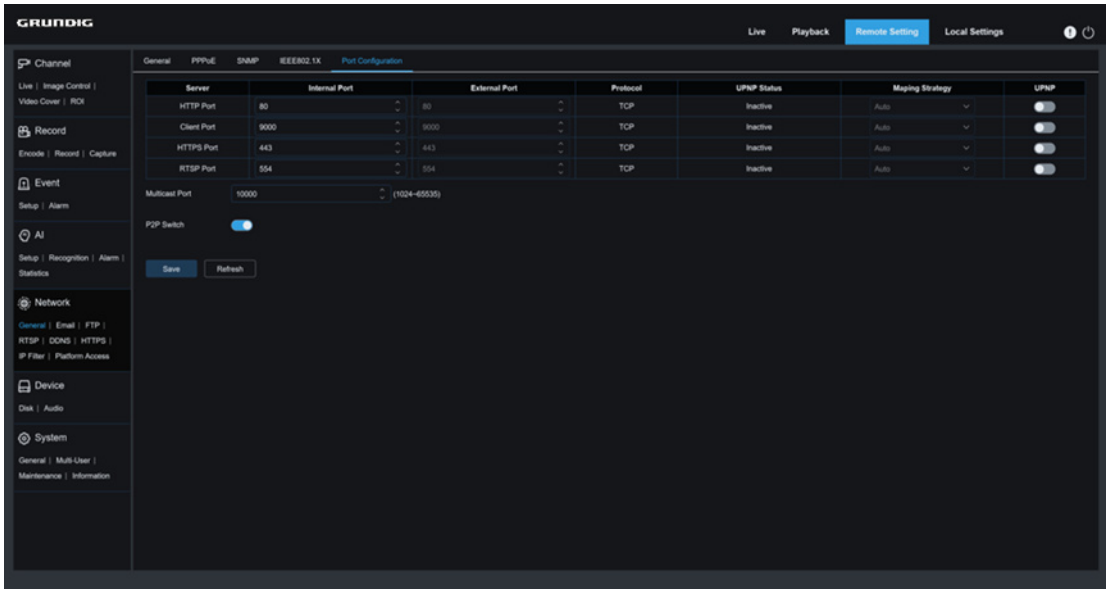


Figure 8.8.1.4.1

Web Port: This is the port you use to remotely log in to the IPC (for example, using a web client). If port 80 is already used by other applications, change the port number.
Client Port: This is the port through which the IPC will send messages (for example, using a mobile application). If default port 9000 is already used by other applications, change the port number.
RTSP Port: The default port number is 554. If it is already used by other applications, change the **port number.**
HTTPS: It is an HTTP channel for security. On the basis of HTTP, the security of the transmission process is guaranteed through transmission encryption and identity authentication.
UPNP: If you want to use Web Client to log in to the device remotely, you need to complete port forwarding on the router. If your router supports UPNP, please enable this option. In this case, you do not need to manually configure port forwarding on the router. If your router does not support UPNP, please manually complete port forwarding on the router.
Multicast port: Multicast port can be set.
P2P Switch: P2P switch, P2P will not take effect after it is turned off.

8.8.2 Email setting

This menu allows you to configure email settings. If you want to receive notifications via Email when an alarm is triggered or the hard drive is full, please complete these settings.

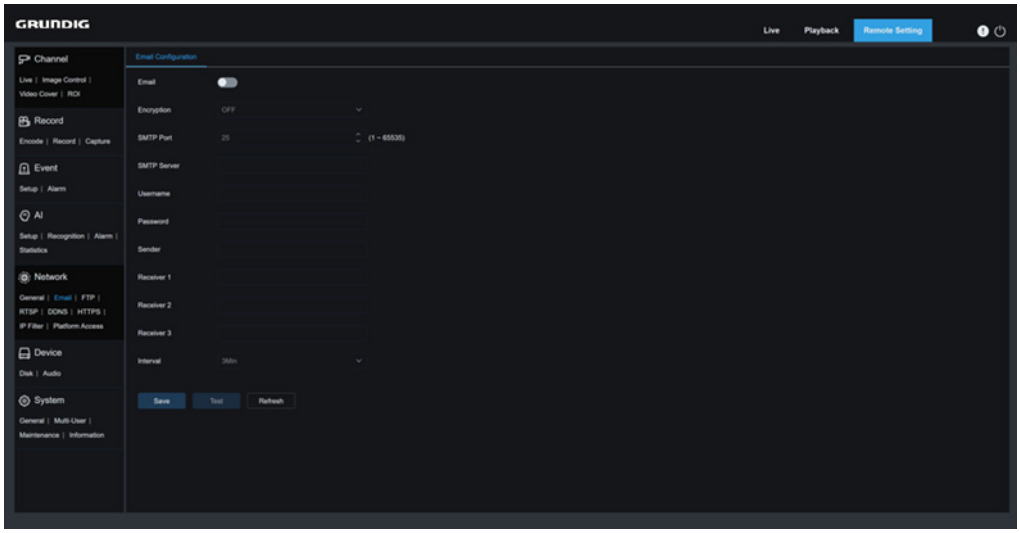


Figure 8.8.2.1

Email: Enable and disable email.
Encryption: Enable this option if your email server requires SSL or TLS authentication. Set it to Automatic if you are not sure.
SMTP Port: Set the SMTP port number of the email server.
SMTP Server: Set the SMTP server address.
User Name: Set your email address.
Password: Set your email password.
Receiver 1~3: Set the email address from which you want to receive event notifications from the IPC.
Interval: Set the interval between notification emails on the IPC.
To ensure that all settings are correct, click "**Test Email**". The system will send an email to your inbox. If you receive a test email, the configuration parameters are correct.

8.8.3 FTP server setting

Through this menu, you can enable the FTP server to view pictures and videos uploaded from I PC to FTP.

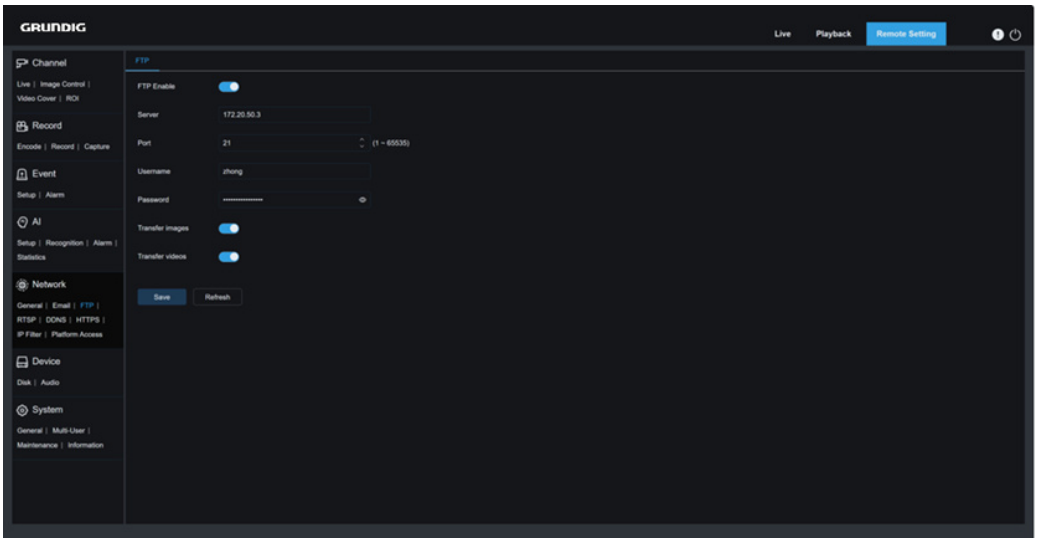


Figure 8.8.3.1

FTP Enable: Click this icon to enable the FTP feature.
Server: Set the IP address or domain name of your FTP server.
Port: Set the port number of your FTP server.
Username/ Password: Set the username and password of your FTP server.
Transfer images: When this option is turned on, alarm images will be uploaded to the FTP server. Otherwise, only alarm texts will be uploaded.
Transfer Videos: When this option is turned on, alarm videos will be uploaded to the FTP server.

8.8.4 RTSP setting

Real Time Streaming Protocol (RTSP), RFC2326, is an application layer protocol in the TCP/IP protocol architecture. This protocol defines how one-to-many applications can efficiently transfer multimedia data over IP networks. You can view real-time images using a video player.

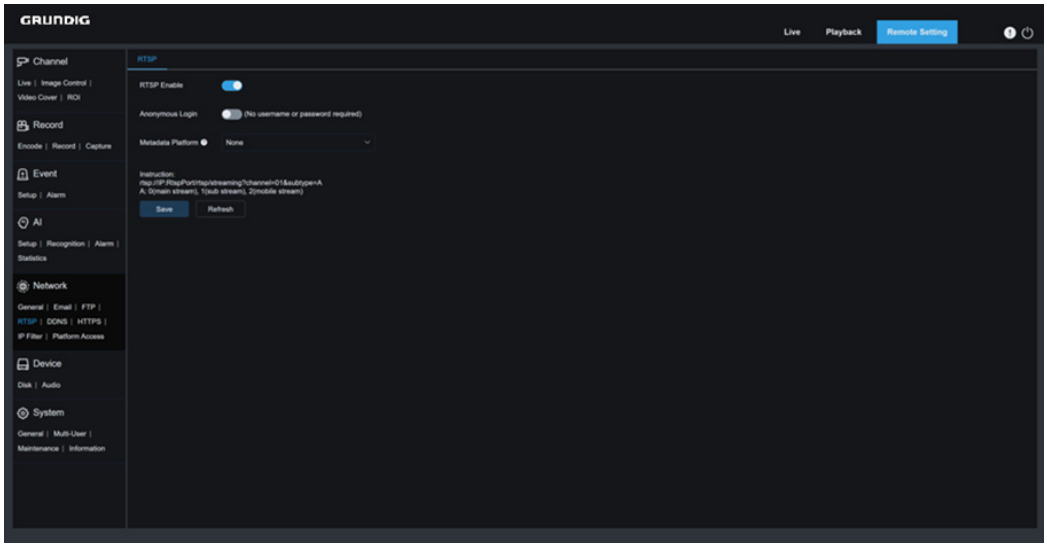


Figure 8.8.4.1

RTSP Enable: Turn on or off the RTSP. This protocol is available only when it is turned on.
Anonymous Login: Allows you to log in as a anonymous user. Authentication is not required for using this protocol if this option is turned on.

8.8.5 Dynamic Domain Name Setting

This menu allows you to configure DDNS settings. DDNS provides a static address to simplify remote connection to the IPC. To use DDNS, you first need to sign up an account on the webpage of the DDNS service provider.

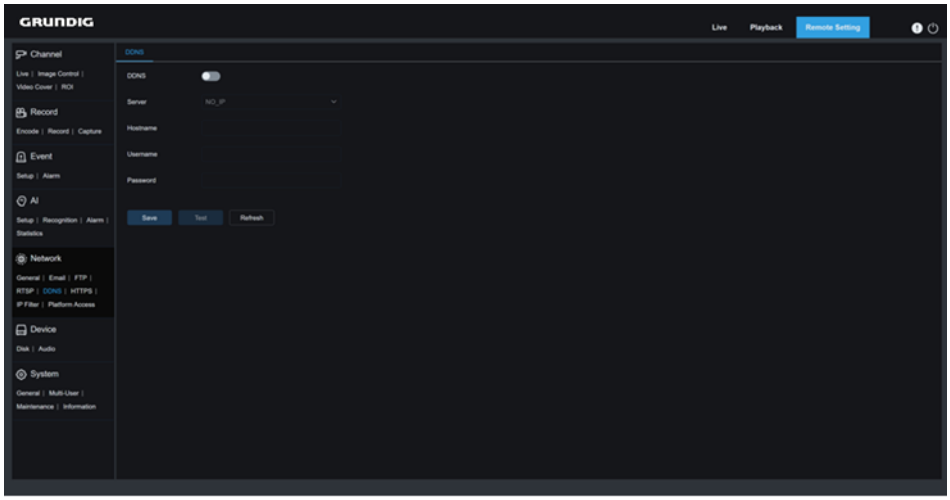


Figure 8.8.5.1

DDNS: Turn on or off DDNS.
Server: Set your preferred DDNS server (DDNS_3322, DYNDNS, NO_IP, or even CHANGEIP, DNSEXIT).
Host name: Set the domain name you created on the web page of the DDNS service provider. This is the address you type in the URL bar when you want to connect remotely to the IPC from your PC.
User/Password: Set the username and password obtained when you create an account on the web page of the DDNS service provider.

Filling up all parameters and then click "**Test DDNS**" to test DDNS settings. If the test result is "Unreachable or DNS error", check whether the network works normally or the DDNS information is correct.

8.8.6 HTTPS

This menu allows you to set HTTPS. You can connect your device over HTTPS.

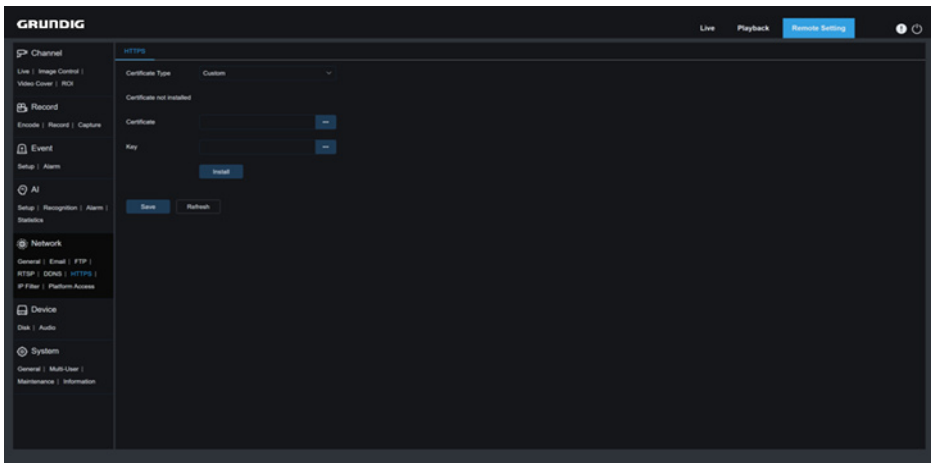


Figure 8.8.6.1

Certificate Type: There are two options, including default and custom. The Custom option allows you to connect devices using your own certificate.
Certificate: Select a custom certificate when the Custom option is selected.
Key: Select a custom key file when the Custom option is selected.

8.8.7 IP Filter

The IP filter can be used to set the allow list and block list of devices to be connected.

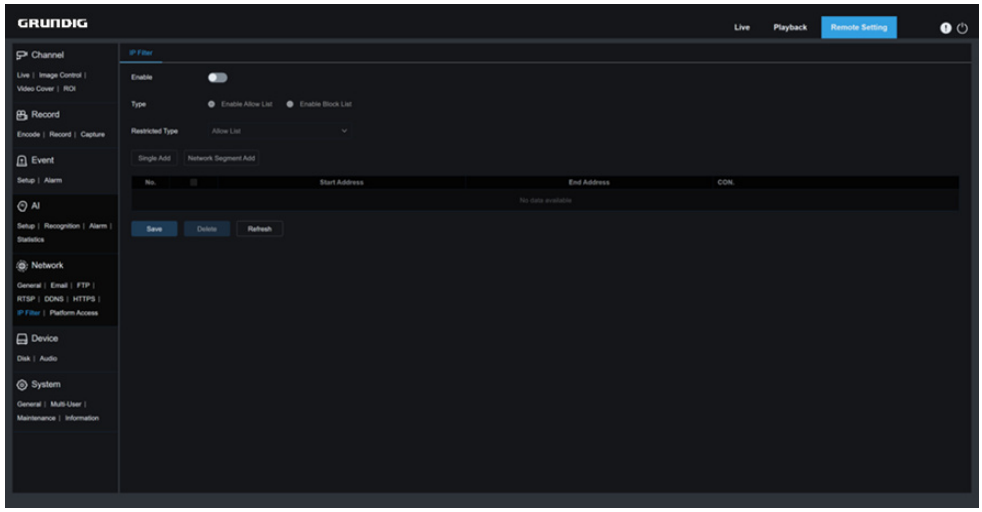


Figure 8.8.7.1

Enable: Turn on or off the IP filter. You can choose to enable the block list or allow list if this option is turned on.
Restricted Type: Select the list to be set (block list or allow list).
Start Address: Set the start address.
End Address: Set the end address.
Delete: Added User IP will be removed from black/whitelist.

8.9 Device Management

8.9.1 Disk management

This menu allows you to check and configure the internal TF card. Formatting is only required for the first access or when replacing a new TF card.

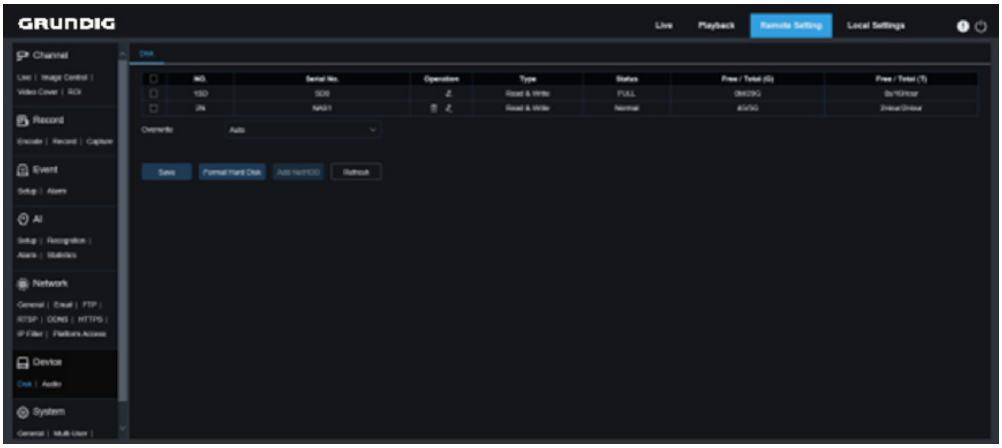


Figure 8.9.1.1

Format Hard Disk: Select the TF card to be formatted, and then click Format Hard Disk.
To start formatting, you need to enter your username and password, and then click OK.

Overwrite: When TF card is full, use this option to overwrite the old records on the TF card. Select Auto, when the TF card is full, the initial data will be automatically overwritten. If you do not want any old videos to be overwritten, please select OFF. If this function is disabled, please check the TF card status regularly to ensure that the TF card is not full.

8.9.2 Audio

This menu can set the volume of the camera.

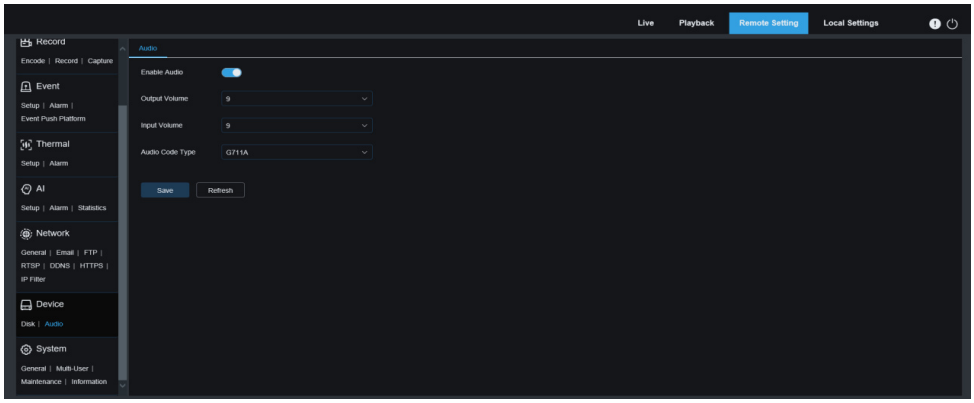


Figure 8.9.2.1

Enable Audio: Enable and disable audio.
Output Volume: Set the volume of output audio.
Input Volume: Set the volume of input audio.
Audio Code Type: Set the audio decoding type. G711A and G711U are supported.

8.10 System

It used to change system information, such as date, time and region, password and permissions, etc.

8.10.1 General

8.10.1.1 Date and time

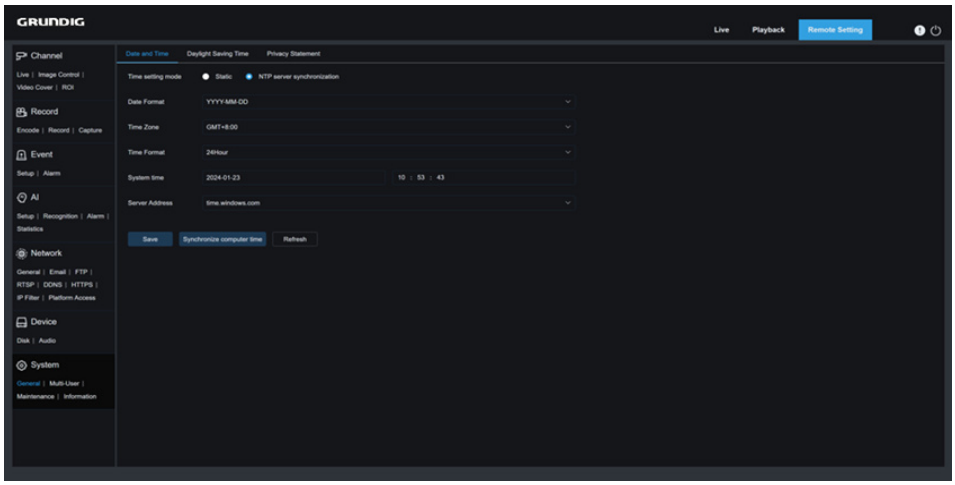


Figure 8.10.1.1.1

Time settings mode: Time mode, there are static and NTP synchronization optional. Static time needs to be set by yourself, while NTP synchronization will perform time calibration via network.
Date Format: Set the date format.
Time Zone: Set the time zone associated with your region or city.
Time Format: Set your preferred time format.
System Time: Click the box to change the date and time.
Synchronize computer time: Synchronize the time to the computer time.
You cannot set the time manually if NTP server synchronization is selected.
Sever Address: Set the automatic time synchronization website.

8.10.1.2 Daylight Saving Time (DST)

This function allows you to choose to increase DST in a specific time zone or region.

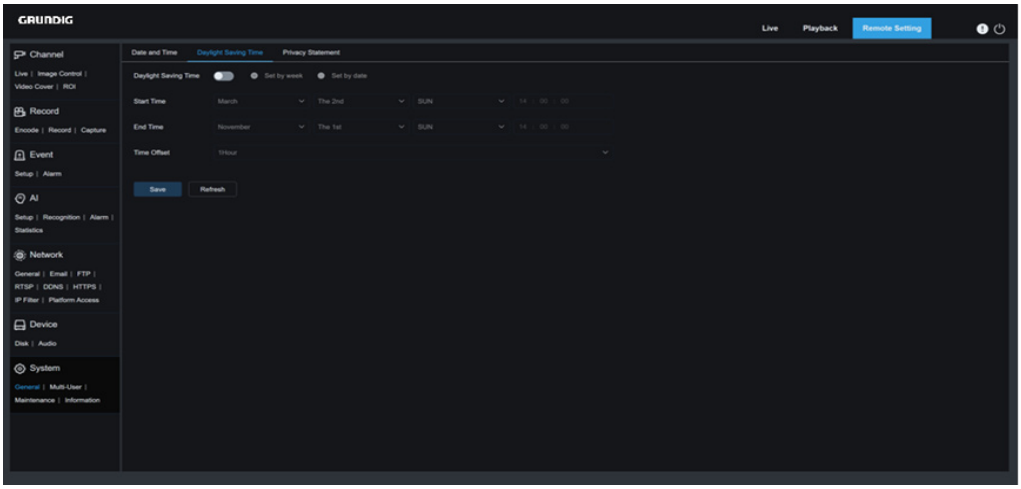


Figure 8.10.1.2.1

Daylight Saving Time: If your time zone uses DST, please enable this option.
Set by week: Select the month, specific week and time for DST to start and end. For example, at 2 AM on the first Sunday of a month.
Set by date: Select the start and end date and time of DST.
Start Time / End Time: Set the start time and end time of DST.
Time Offset: Select the time that DST increases in your time zone. This is the difference between Coordinated Universal Time (UTC) and local time.

8.10.2 Multi-user management

This menu allows you to configure username, password, and permissions.
The system supports user types as follows:
ADMIN - System Administrator: The administrator can fully configure the system and can change administrator and user passwords as well as enable/disable password protection.
USER - Ordinary User: The user only has access to preview, search, playback and other functions.
You can set up multiple users with different system access permission.

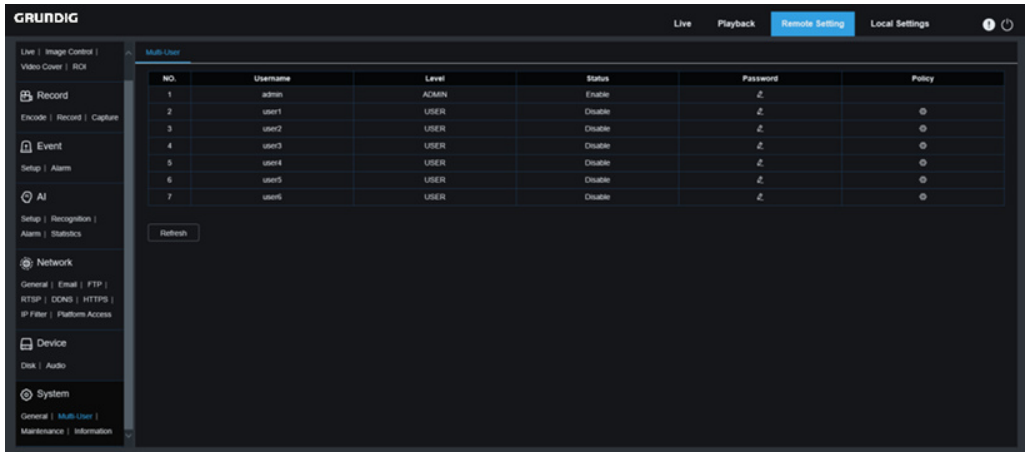


Figure 8.10.2.1

To change the administrator's or user's password, click the "Editing" icon. The password must be at least 8 characters and must be composed of numbers, letters and symbols. Enter the new password again to confirm. Save the new password, the system will ask you to enter the old password for authentication.

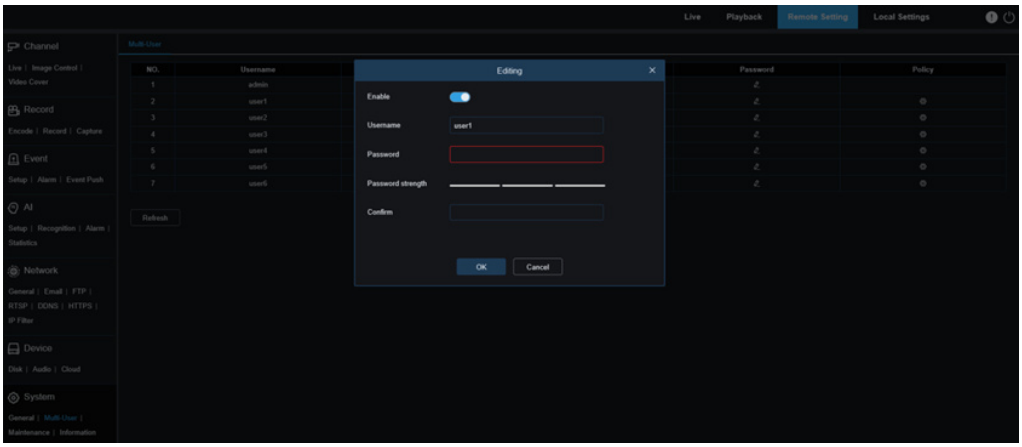


Figure 8.10.2.2

1. Select one of inactive users and click the "Edit Password" icon.
2. Turn on "**Enable**" to enable users.
3. Click "**Username**" to edit the username.
4. Click the field next to **Password** to enter your password.
5. Click the field next to **Confirm** to enter your confirm password.

Click **Save**. You will have to enter the administrator password for authentication.
Set user permissions and check the boxes corresponding to the functions. Click **All** to check all boxes. Click **Clear** to clear all boxes.

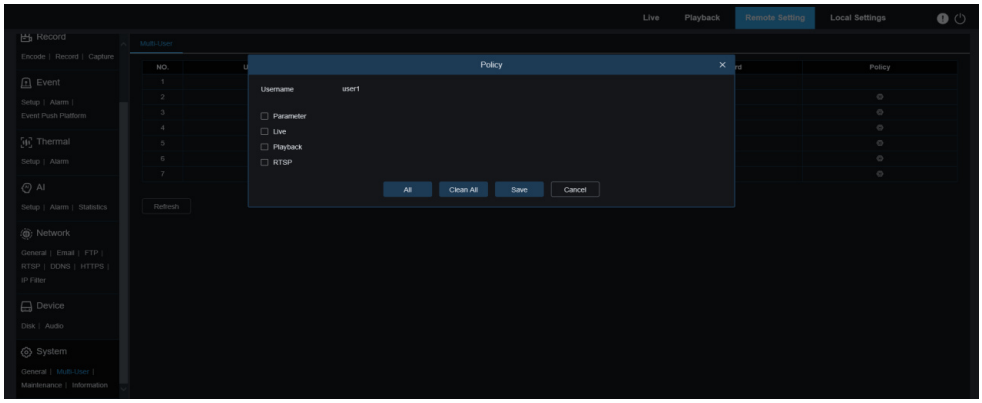


Figure 8.10.2.3

8.10.3 System maintenance

In this menu, you will be able to search and view system logs, restore factory settings, upgrade the system, export and import system parameters, and configure system's automatic reboot.

8.10.3.1 Log management

The system log shows important system events such as motion alarms and system warnings. You can easily import the system log backup file to the computer within a set period of time.

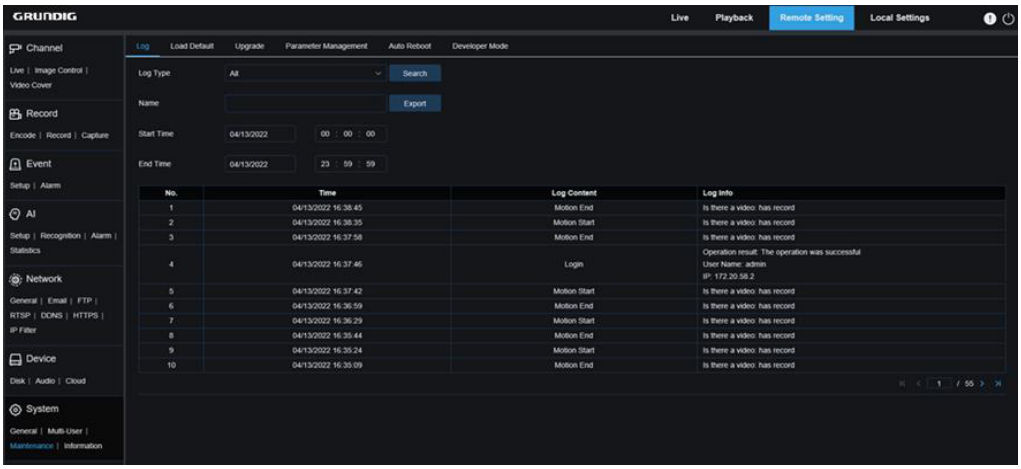


Figure 8.10.3.1.1

Log Search and Backup:

Click the area next to **Start Time** and select the start date and time from the on-screen calendar.

Click the area next to **End Time** and select the end date and time from the on-screen calendar.
Select the event type you want to search for from the drop-down list next to **Log Type**, or select **All** to view the entire system log for the selected time range. The type options include: system log, configuration log, warning log, account log, recording log, storage log, and network log.
Select the event type you want to search for from the drop-down list next to **Minor Type** (this menu is unavailable if ALL is selected for Log Type), or select **All** to view the entire system log for the selected time range. The type options include:

- **System:** System settings, restart, automatic restart, upgrade, time settings, and NTP.
- **Configuration:** IPC live control, private area settings, recording mode settings, recording plan settings, main stream settings, network settings, sub-stream settings, email settings, color settings, motion detection settings, hard disk settings, multi-user settings, NTP settings, image control, mobile stream settings, RTSP settings, IP filter settings, restore

factory settings, audio settings, video tampering alarm settings, export settings, and import settings and push settings.

- **Alarm:** Motion Detection start, Motion Detection end, IO alarm start, IO alarm end, Line Crossing alarm start, Line Crossing alarm end, Object Detection alarm start, Object Detection alarm end, Pedestrian & Vehicle alarm start, Pedestrian & Vehicle alarm end, Face Detection alarm start, Face Detection alarm end, Cross Counting alarm start, Cross Counting alarm end, Crowd Density alarm start, Crowd Density alarm end, Queue Length Alarm starts, Queue Length Alarm Ends, Intrusion Alarm starts, Intrusion Alarm Ends, Region Entrance Alarm starts, Region Entrance Alarm Ends, Region Exiting Alarm starts, Region Exiting alarm start, Rare Sound alarm start, Rare Sound alarm end, Sound detection Alarm starts, Sound detection Alarm ends, Video Tampering Alarm starts, Video Tampering Alarm ends, Fire point detection alarm start, Fire point detection alarm end, Temperature measurement alarm start and Temperature measurement alarm end.
- **Account：** Log in, log out, locking and switch users.
- **Recording:** Search, playback and backup.
- **Storage：** Formatted hard drive, hard drive full and hard drive error.
- **Network:** Network offline, network online, network error and network mode change.

1. From **Minor Type** (If ALL is selected for Log Type, this menu will not exist.) Select the event type to be searched from the drop-down list next to it.
2. Exist **Name.** Enter the export file name in the field next to it. Click **Export** to create a backup of the system logs.
3. Click **Start Time.** In the area next to it, select the start date and time for your search from the on-screen calendar.
4. Click **End Time.** In the area next to it, select the end date and time for your search from the on-screen calendar.
5. Click **Search** to search.
6. Browse system logs from a selected time period.
7. Use the |< < / > >| button to switch between pages of system log events.

8.10.3.2 Load Default

Reset the device to factory settings. You can choose to reset all the settings at a time, or the settings on a specific menu.

Note: Restoring the default settings will not delete videos and snapshots saved to the SD card.

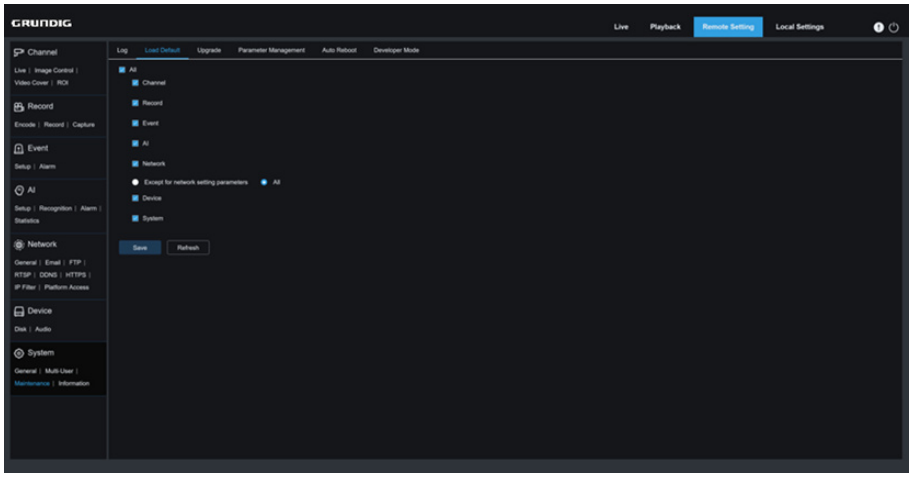


Figure 8.10.3.2.1

Select the item to restore, or **All** to select all items. Click "**Save**" to load the default settings for the selected items.

8.10.3.3 System Upgrade

This menu allows you to upgrade firmware.

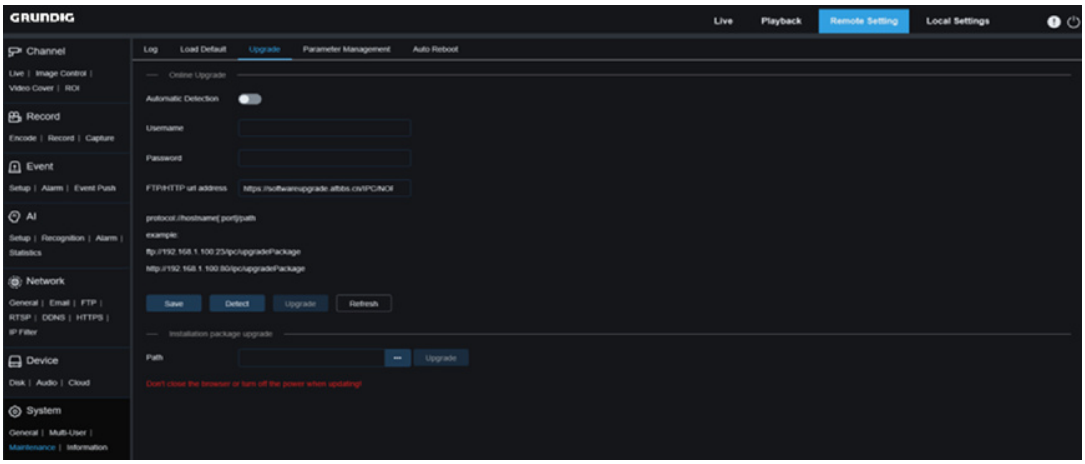


Figure 8.10.3.3.1

- **Automatic Detection:** Enable automatic detection. You can enable this function to automatically detect available updates.
- **Username:** Set the username of your FTP server.
- **Password:** Set the password of your FTP server.
- **FTP/HTTP URL address:** Set the over-the-air upgrade address (no username or password is required for upgrade over HTTP).

Note: The FTP address is in the format as below: ftp://{IP address of FTP server: port}/Upgrade (the name of the folder containing the over-the-air upgrade path of the FTP server).

- **Save:** Click this button to save current settings.
- **Detect:** After the upgrade file is uploaded and the upgrade path is set, you can click Detect to manually detect the over-the-air upgrade file. A message pops up when updates are available, as shown in the figure below:

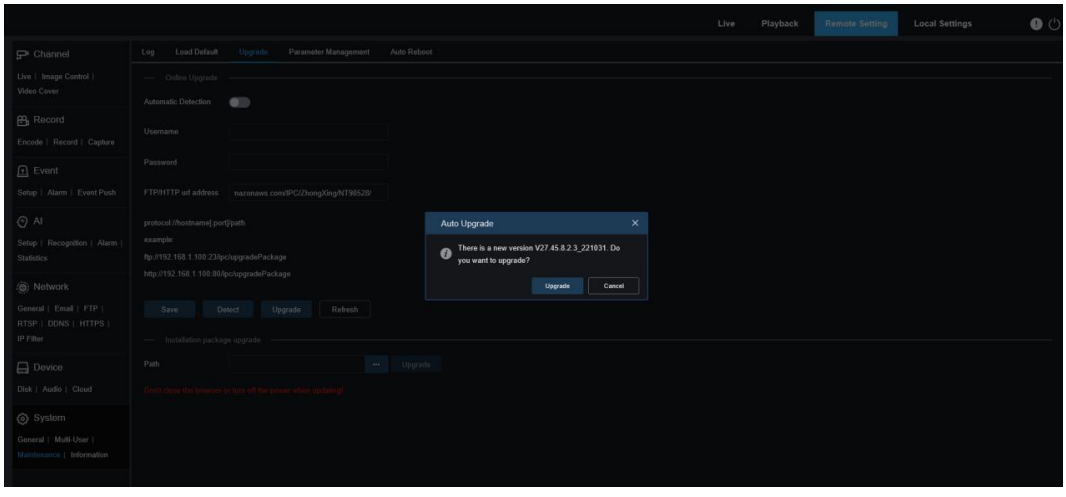


Figure 8.10.3.3.2

- **Upgrade:** Click this button to start system upgrade.
- Place the firmware file (.sw) into the HDD of your PC.

Click "**...**" next to "**Path**" to select the firmware file from your PC.

Click the **Upgrade** button to start system upgrade. The system upgrade will take about 2 to 3

minutes. Do not power off the device or close your IE browser while system upgrade is in progress.

8.10.3.4 Parameter management

You can export the configured parameters to your PC or import the exported configuration file from your PC to the device.

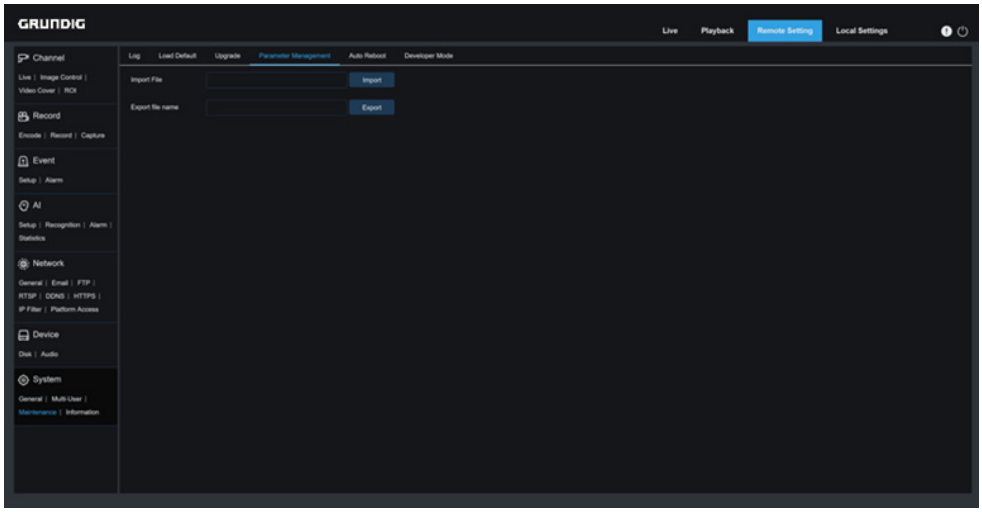


Figure 8.10.3.4.1

Import File: Click the field to display the path window. Select the parameter file and then click **Import** to start importing parameters.
Export File Name: Click the field to enter the name of the file to which parameters are exported. Click **Export** to export parameters.

8.10.3.5 Auto Reboot

This menu enables the system to automatically reboot. You are advised to enable this function to guarantee the stable operation of the device.

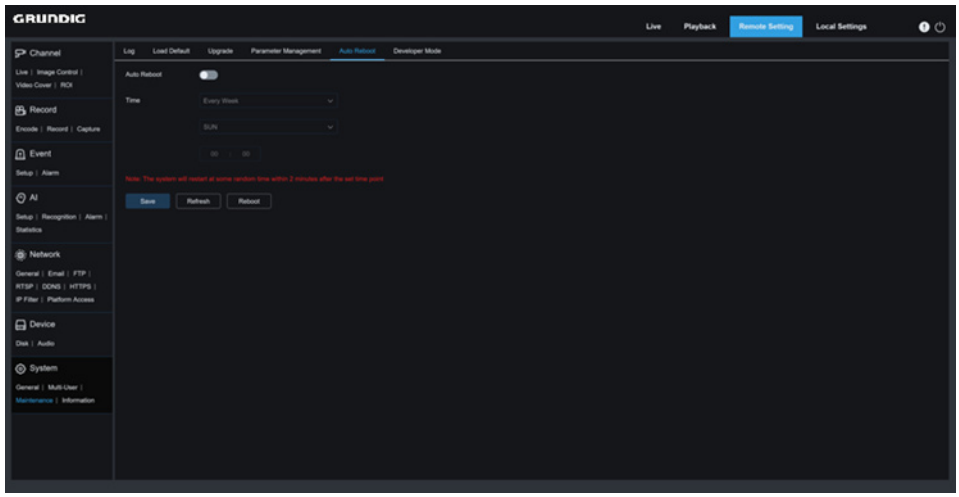


Figure 8.10.3.5.1

Auto Reboot: Enable and disable auto restart.
Time: Set IPC to reboot by day, week, or month.

8.10.4 System information

This menu allows you to view system information, such as device ID, device model, MAC address, firmware version, and so on.

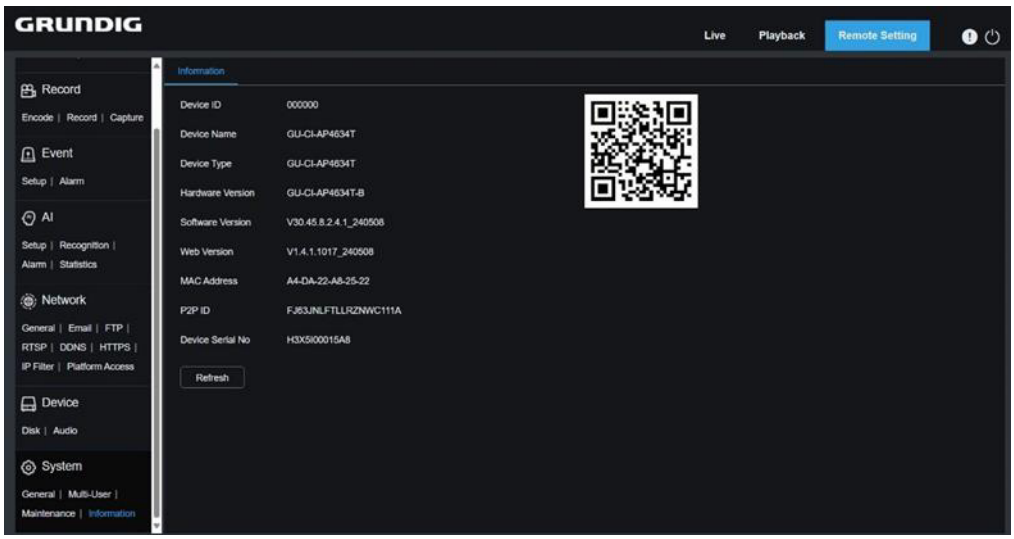


Figure 8.10.4.1

9 Local settings

This menu allows you to set the path for storing videos and downloaded and captured image files, as well as the format of videos and captured images.
Note: Programs without plug-ins are supported. If you use Safari 12 and above, Chrome57 and above, Firefox 52 and above, Edge 41 and other browsers for web access, this menu can be ignored.

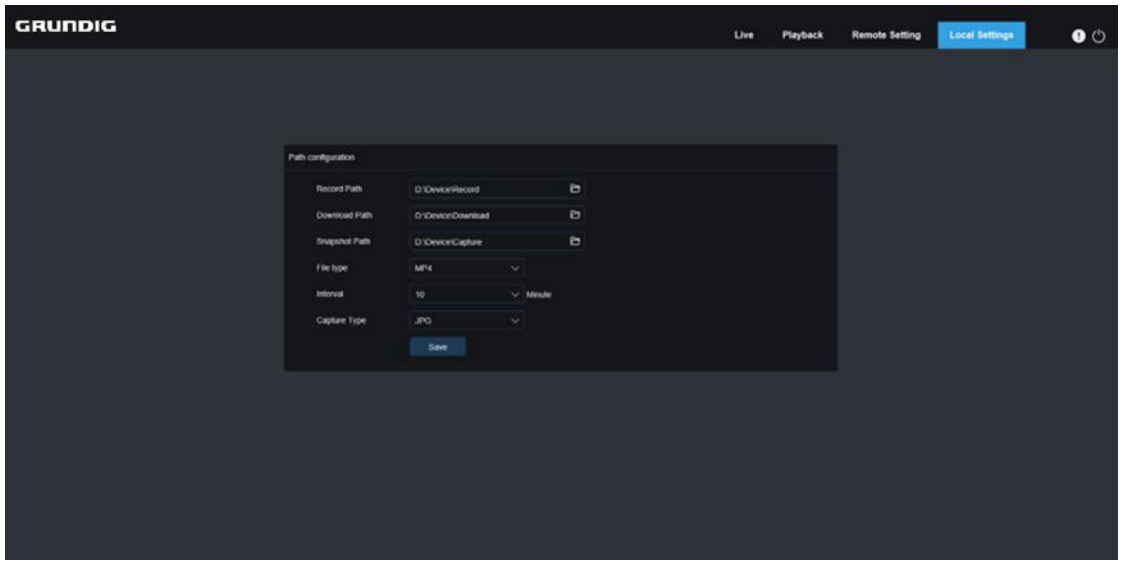


Figure 9.1

Appendix A: Table of Emissivity of Common Substances

substance	Emissivity
Human skin	0.98
Cotton fabric	0.98
Water	0.96
Asphalt	0.96
Concrete	0.95
Brick	0.95
Rubber	0.95
Paint	0.93
Ceramics	0.92
Soil	0.92
Printed circuit board	0.91
Paper	0.90
Cardboard	0.90
Sand	0.90
Wood	0.85