

# Thermal Image Box Network Camera

## User Manual

Issue            V1.0

Date            2025-11-05



# Precautions

## Precautions

Fully understand this document before using this device, and strictly observe the rules in this document when using this device. If you install this device in public places, put a sign "You have entered the area of electronic surveillance" in an eye-catching place. Failure to correctly use electrical products may cause fire and severe injuries. To prevent accidents, carefully read the following context:

## Symbols

This document may contain the following symbols whose meanings are described accordingly.

| Symbol   | Description  |
|--|--|
|  <b>DANGER</b>  | It alerts you to fatal dangers which, if not avoided, may cause deaths or severe injuries.   |
|  <b>WARNING</b> | It alerts you to moderate dangers which, if not avoided, may cause minor or moderate injuries.   |
|  <b>CAUTION</b> | It alerts you to risks. Neglect of these risks may cause device damage, data loss, device performance deterioration, or unpredictable results. |
|  <b>TIP</b>     | It provides a tip that may help you resolve problems or save time.   |
|  <b>NOTE</b>   | It provides additional information.  |

### **DANGER**

To prevent electric shocks or other dangers, keep power plugs dry and clean.

### **WARNING**

- Strictly observe installation requirements when installing the device. The manufacturer shall not be responsible for device damage caused by users' operation of non-conformance.

- Strictly conform to local electrical safety standards and use power adapters that are marked with the LPS standard when installing and using this device. Otherwise, this device may be damaged.
- Use accessories delivered with this device. The voltage must meet the input voltage requirements for this device.
- If this device is installed in places with unsteady voltage, ground this device to discharge high energy, such as electrical surges, to prevent the power supply from burning out.
- When this device is in use, ensure that no water or any liquid flows into the device. If water or liquid unexpectedly flows into the device, immediately power off the device and disconnect all cables (such as power cables and network cables) from this device.
- Do not place the thermal imaging camera and unpackaged products at a radiation source with a high intensity, regardless of whether the device is in the normal power-on state, for example, the sun, laser, or electric arc welder, and place the thermal imaging camera and unpackaged products against objects with a high heat source, for example, the sun. Otherwise, the accuracy of the thermal imaging camera will be affected. In addition, the detector in the thermal imaging camera may be permanently damaged.
- If this device is installed in places where thunder and lightning frequently occur, ground the device nearby to discharge high energy, such as thunder strikes, to prevent device damage.



## CAUTION

- Unless otherwise specified in the user manual, do not use the thermal imaging camera in an environment with a temperature lower than -30°C (-22 °F) or higher than 60°C (+140°F). Otherwise, the images displayed by the thermal imaging camera are abnormal, and the device may be damaged because of working beyond the temperature range for a long period.
- As for the outdoor installation, avoid the morning or evening sunlight incidence on the lens of the thermal imaging camera. The sunshade must be installed and adjusted according to the angle of the sunlight illumination.
- During transportation and storage, avoid damage to products caused by heavy pressure, severe vibration, and soaking. The warranty does not cover any damage that is caused during secondary packaging and transportation after the original packaging is taken apart.

- This product is sensitive to static. Improper static may damage the thermal imaging camera. ESD protection measures and reliable grounding must be well prepared for device installation and uninstallation.
- Protect this device from falls and intensive strikes, keep the device away from magnetic field interference, and do not install the device in places with shaking surfaces or under shocks.
- Clean the device body with a soft and dry cloth. In case the dirt is hard to remove, use a dry cloth dipped in a small amount of mild detergent, gently wipe the device, and then dry it again. Pay special attention to the front window of the thermal imaging camera because this is precision optics. If the front window has water spots, use a clean and soft cloth to moisten it with water and wipe it. If the front window needs further cleaning, use a soft cloth dampened with isopropyl alcohol or detergent. Improper cleaning can cause damage to the device.
- The lens window of the thermal imaging camera is designed for apply in an outdoor environment. The window is coated with a durable coating material, but it may require frequent cleaning. When you find lens image degradation or excessive accumulation of pollutants, you should clear the window on time. Exercise caution when you use this device in severe sandstorms (such as deserts) or corrosive environments (such as offshore). Improper use may cause the surface coating to come off.
- Do not jam the ventilation opening. Follow the installation instructions provided in this document when installing the device.
- Keep the device away from heat sources such as radiators, electric heaters, or other heat equipment.
- Keep the device away from moist, dusty, extremely hot, or cold places, or places with strong electric radiation.
- If the device is installed outdoors, take insect- and moisture-proof measures to avoid circuit board corrosion that can affect monitoring.
- Remove the power plug if the device is idle for a long time.
- Before unpacking, check whether the fragile sticker is damaged. If the fragile sticker is damaged, contact customer services or sales personnel. The manufacturer shall not be held responsible for any artificial damage to the fragile sticker.

## Special Announcement

All complete products sold by the manufacturer are delivered along with nameplates, operation instructions, and accessories after strict inspection. We shall not be responsible for counterfeit products.

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**Precautions**

This manual may contain misprints, technology information that is not accurate enough, or product function and operation descriptions that are slightly inconsistent with the actual product. The manufacturer will update this manual according to product function enhancement or changes, and regularly update the software and hardware described in this manual. Updated information will be added to new versions of this manual without prior notice.

This manual is only for reference and does not ensure that the information is consistent with the actual product. For consistency, see the actual product.

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# 1 Product Overview

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## 1.1 Thermal Imaging Principles and Advantages

Thermal Imaging Cameras offer the monitoring and temperature measurement capabilities needed to accurately detect and identify thermal issues across manufacturing and industrial processes. With multiple field-of-view choices, dual-streaming capabilities, and a motorized focus lens, these fixed cameras can be installed in the structure you need to solve the requirements of special scenes to achieve remote monitoring goals.

Thermal Network Cameras are a perfect tool for perimeter protection, offering highly performing video analytics. The cameras use thermal imaging, which allows users to detect objects and incidents 24 hours a day, seven days a week, from pitch-dark areas to a sunlit parking lot. This makes it possible to acknowledge suspect activity already before intrusion and to visually verify what is going on before taking relevant action.

The small size can be provided to other PTZ devices for dual-spectrum view convenience.

The pixel of the detector is 640\*512, so users can view the scene clearly. The camera can detect a person or a vehicle to send an alarm, and it can also count the people across the deployment area.

## 1.2 Device Structure

The following figures show the rear panel of the thermal imaging box network camera. For details of the interfaces, refer to Figure 1-1.

Figure 1-1 F 15 (9) mm Appearance &amp; Dimension

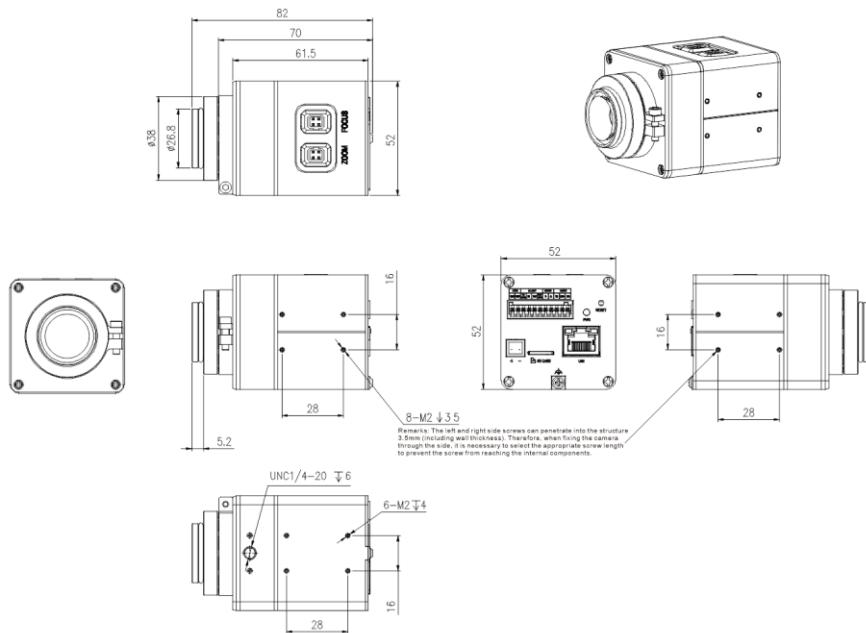


Figure 1-2 F 25mm Appearance & Dimension

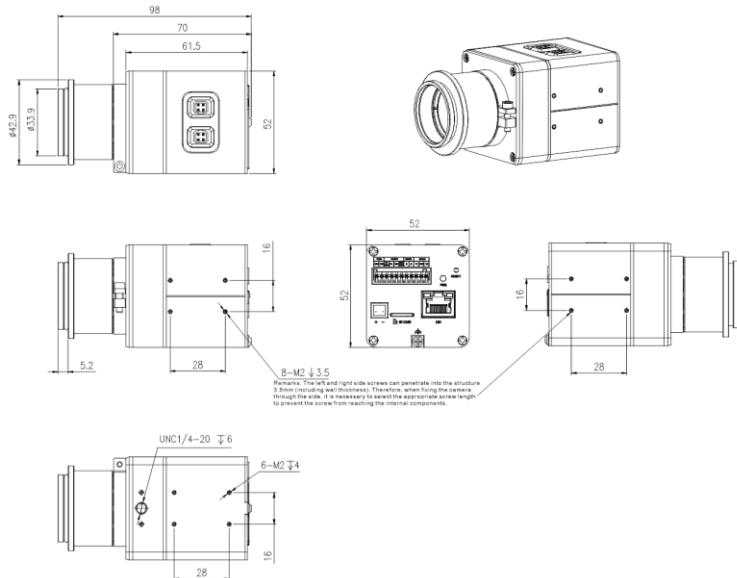


Figure 1-3 F 35mm Appearance & Dimension

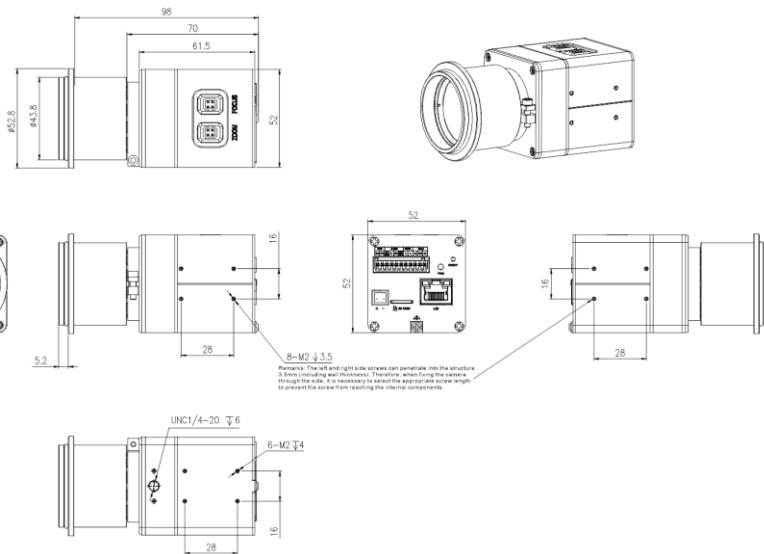


Figure 1-4 F 50mm Appearance &amp; Dimension

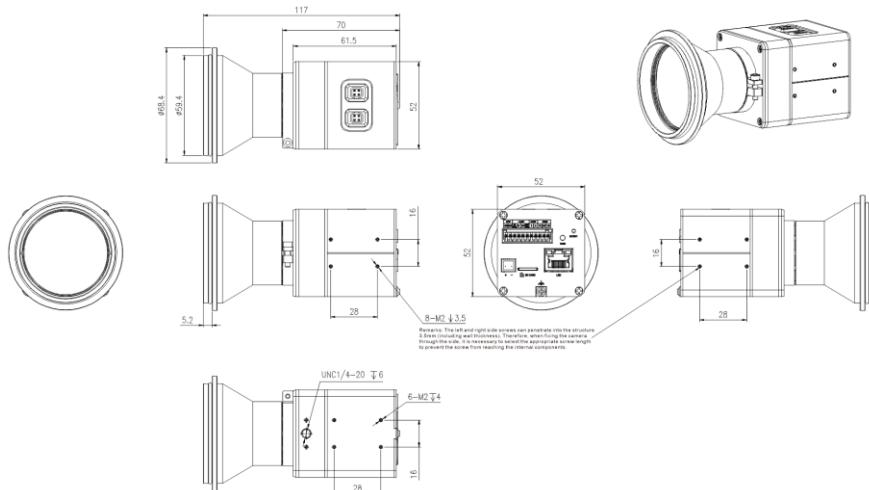


Figure 1-5 M 25mm Appearance &amp; Dimension

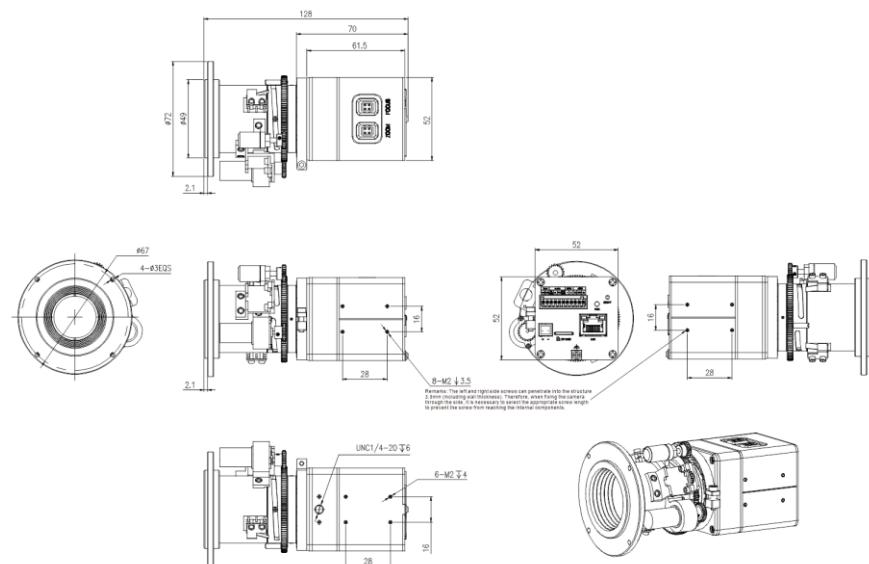


Figure 1-6 M 50mm Appearance & Dimension

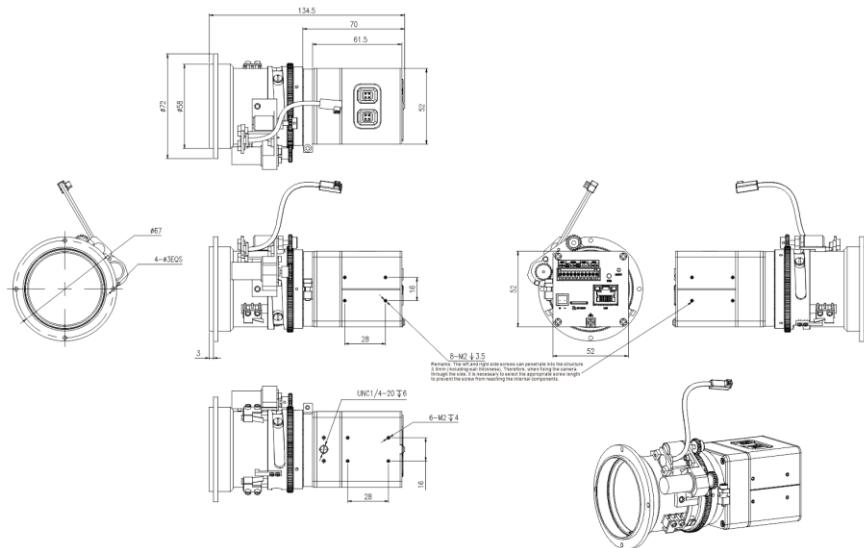


Figure 1-7 M 75mm Appearance & Dimension

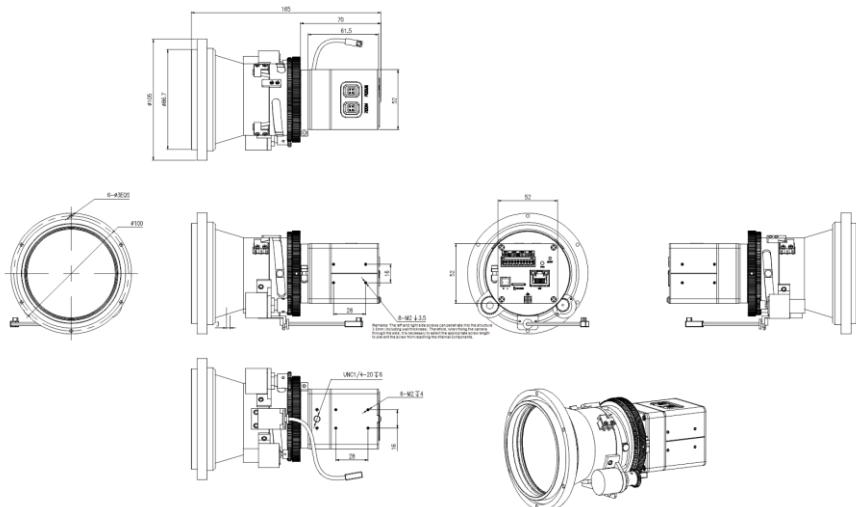
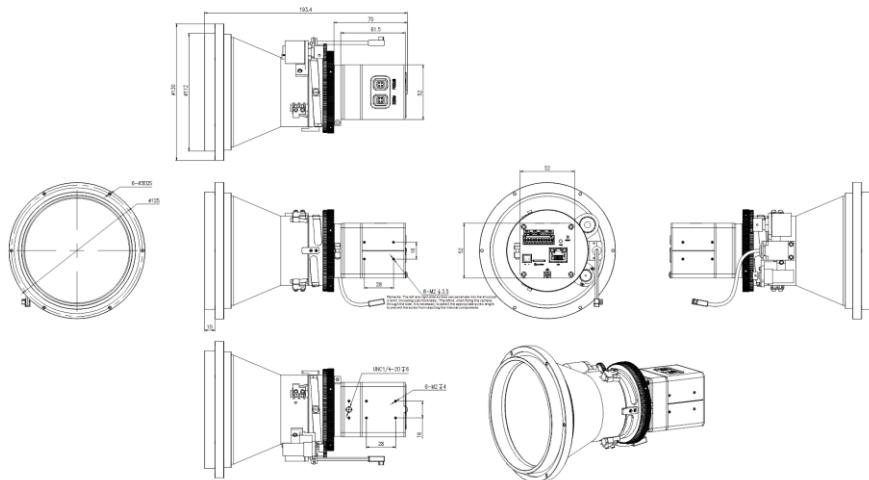


Figure 1-8 M 10mm Appearance &amp; Dimension

**NOTE**

The left and right side screws can penetrate into the structure 3.5mm (including wall thickness). Therefore, when fixing the camera through the side, it is necessary to select the appropriate screw length to prevent the screw from reaching the internal components.

Figure 1-9 Port of Device

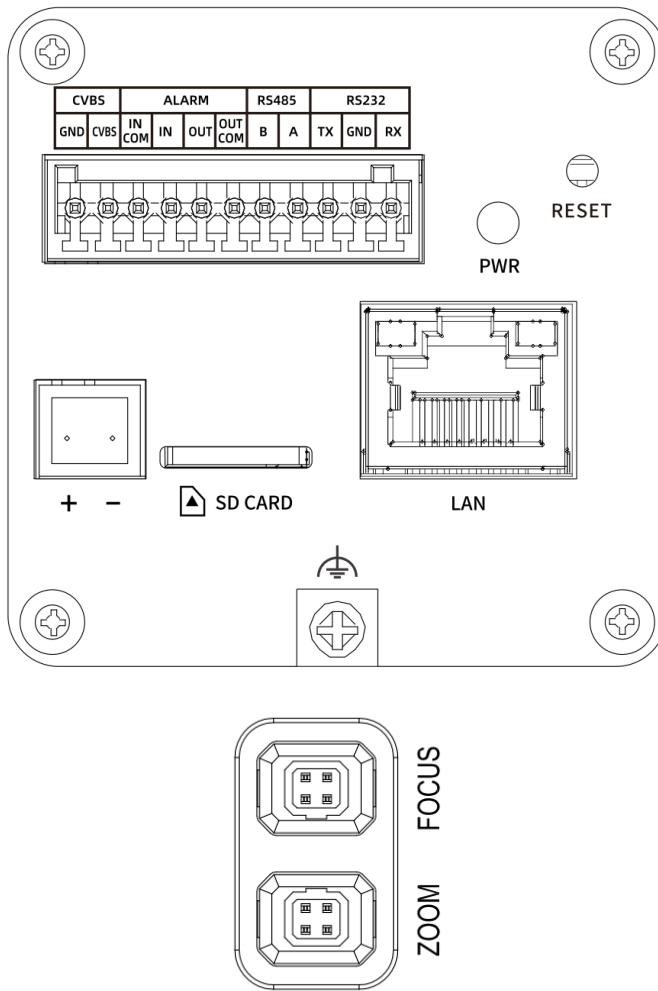


Table 1-1 Port of Device

| Char  | Physical Interface | Connection                                   |
|-------|--------------------|--|
| CVBS  | GND/CVBS           | Connect to the analogy monitor.              |
| Alarm | Alarm in/ out      | Connect to alarm out and alarm in devices.   |
| RS485 | RS-485 port        | Connect to the external devices with the PTZ |

| Char  | Physical Interface     | Connection  |
|---|------------------------|---|
|   |                        | function.   |
| RS232   | RS-232 port            | Connect to the RS-232 peripheral.   |
| RESET   | Reset button (RESET)   | The configuration returns to the factory settings after you press the reset button for 5 seconds. The default value of IP is 192.168.0.121. |
| PWR   | Power indicator light  | When the power is normal, the red light is on.  |
| + -   | DC 12V Power interface | Connect to the 12 V DC power supply.  |
| SD CARD   | SD card slot           | Insert the SD card to save the video recording.   |
| LAN   | Network interface      | Connect to the standard Ethernet cable.   |
|  | Ground                 | GND   |
| FOCUS   | Focus port             | Connect to the focus control cable of the motorized lens.   |
| Zoom  | Zoom port              | Connect to the Zoom control cable of the motorized lens.  |

## 1.3 Packing List

Open the package, check the appearance of the product for no obvious damage, and confirm whether the items are consistent with the list.

Table 1-2 Packing list

| Component                  | Quantity | Remark |
|----------------------------|----------|--------|
| Box Thermal Network Camera | 1        |        |
| User Manual                | 1        |        |
| Terminal block 2 /11pin    | 1/1      |        |

----End

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## 2 Device Login

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### 2.1 Login and Logout



#### NOTE

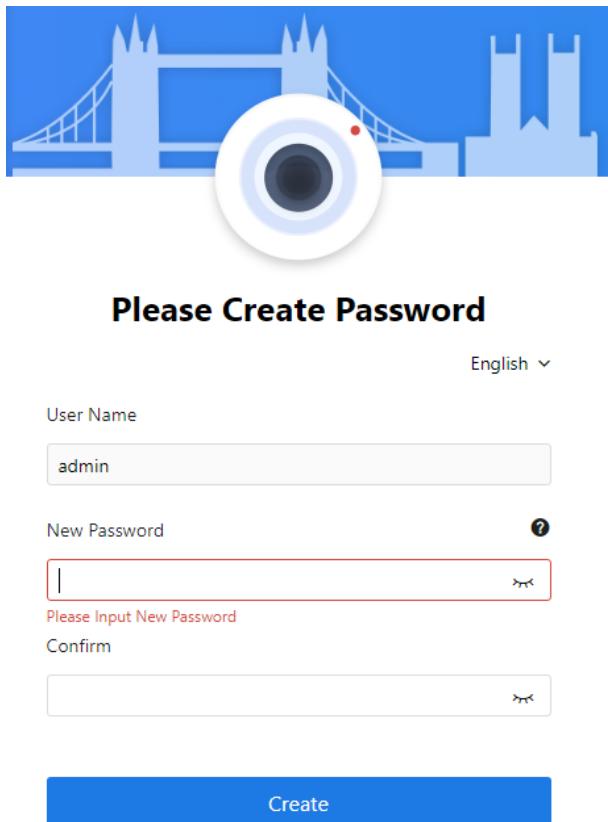
To access the camera's web interface, use **Microsoft Edge, Google Chrome, or Mozilla Firefox**. Other browsers may not support all functions.

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#### Login

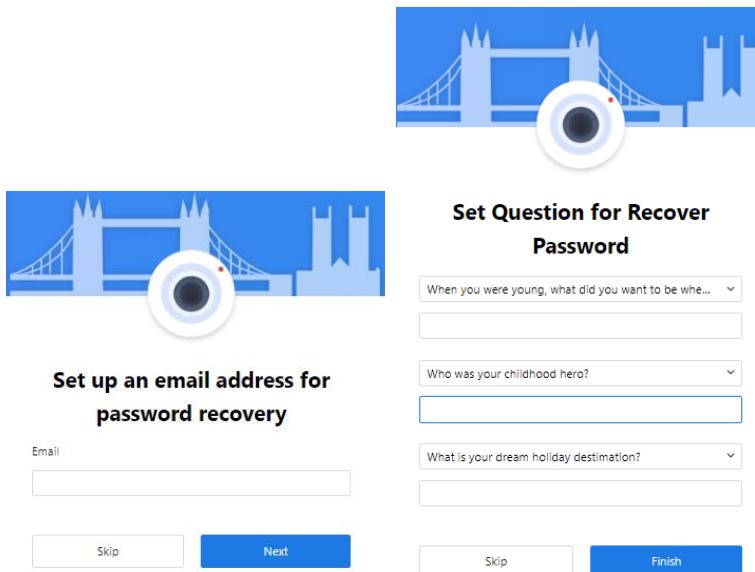
1. **Open a web browser** (Chrome recommended) and enter the camera's IP address in the address bar.
  - o **Default IP address:** 192.168.0.121
2. **First-time users:** Create a password when prompted, then proceed to the login page.

Figure 2-1 Create password



3. **Enter your username and password to log in.**
  - o **Default username:** admin
  - o You must set a password during the first login.
4. Set an **email address** for password recovery, and set the questions for recovery. If you don't want to set these, you can skip them.

Figure 2-2 password recover



Set Question for Recover Password

When you were young, what did you want to be when...

Who was your childhood hero?

Email

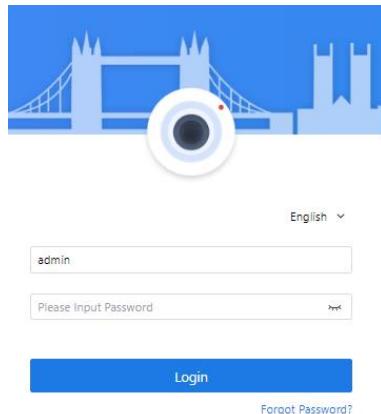
What is your dream holiday destination?

Skip Next Skip Finish

## Forget Password

Input the **super administrator** user name to show the “**Forget password**” . If you forget the password, click this button to jump to the “Forget password” page.

Figure 2-3 Login page



English

admin

Please input Password

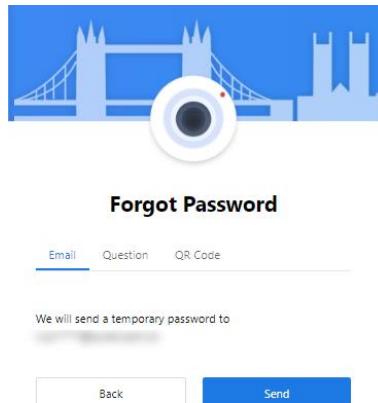
Login

Forgot Password?

There are three methods available for recovering the password. For Email and Question, the user should set them first during the activation of the camera.

Method 1: **Email**. The camera should be connected to the network so that it can send the temporary password to the email address. The temporary password is **valid for five minutes**; create a new password immediately.

Figure 2-4 Forget password



Method 2: **Question** Answer the security questions correctly to enter the “New Password” page.



**Forgot Password**

Email  Question  QR Code

When you were young, what did you want to be when you grew up?

Who was your childhood hero?

What is your dream holiday destination?



**Please Input New Password**

New Password  ?  
Please Input New Password

Confirm  ?  
Please Input New Password

Method 3: **QR Code**. If the user did not set the recovery email and question, the user can scan the QR Code on the login page and send it to the reseller. We will provide a temporary password that will be valid until 11:59:59PM. Use the temporary or new password to log in and then create a new one.

Figure 2-5 QR Code



**Forgot Password**

Email  Question  QR Code



003#FF1120#2025-08-04

Scan QR-Code and send it to your reseller to  
recovery user password

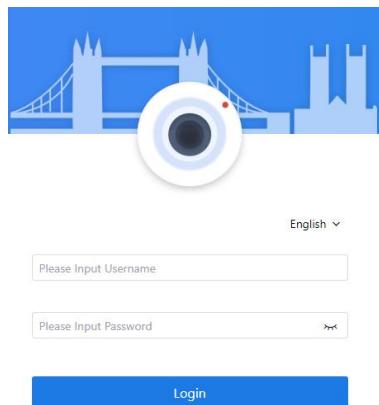
**Note:** DHCP is enabled by default. Use the provided tool to search for the camera IP. Default IP: 192.168.0.121.

**Important:** After updating the password, wait at least 3 minutes before powering off the device to ensure the changes are saved. Alternatively, log in with the new password to verify.

You can change the system language on the login page.

Click **Login** to access the homepage.

Figure 2-6 Login page



### NOTE

The default username is admin. Users should create a password for the first time to log in.

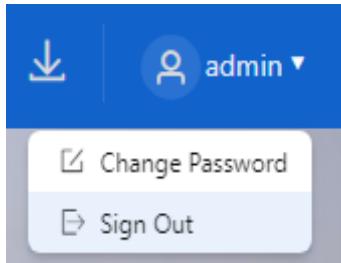
**DHCP is enabled by default**, meaning the IP address may change if your network assigns a new one. You can use the provided tool to search for the current IP address.

**Changing the password requires a reboot**: After modifying the password, wait **at least three minutes** before powering off the device. Alternatively, log in again to confirm the new password.

For security, regularly update your password.

You can change the system language from the login page.

### Logout



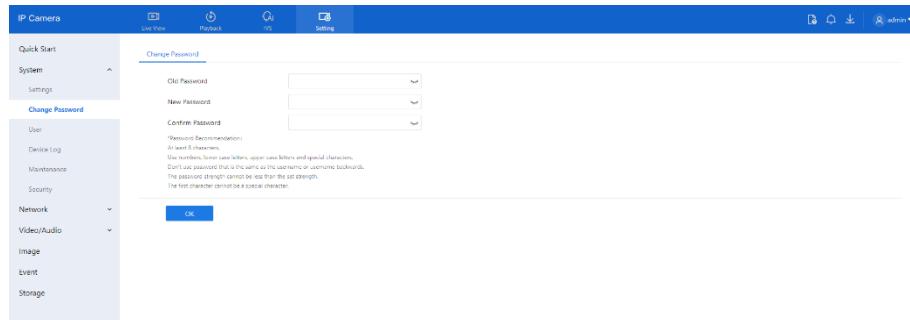
Click “**Sign Out**” in the upper right corner to return to the login page.

## 2.2 Change Password

### Description

Step 1 Click the username on the upper right, choose **Change Password** to enter the change password as shown in Figure 2-7. Or navigate to **Setting > System > Change Password**.

Figure 2-7 Change the default password page



Step 2 Input the old password, new password, and confirm password.

Step 3 Click **OK**.

If the message "Change your password success!" pops up, the password is successfully changed. If the password fails to be changed, there will be some tips for changing the password. (For example, the new password length couldn't be less than eight.)

It is advised to restart the device three minutes after modifying the password.

Step 4 Click **OK**. The login page is displayed.

----End

## 2.3 Homepage Layout

On the homepage, you can view real-time videos, receive alarm and fault notifications, set parameters, change the password, and log out of the system. The figure shows the homepage layout. Table 1-1 describes the elements on the homepage.

Figure 2-8 Homepage layout



Table 1-1 Elements on the homepage

| No. | Element     | Description  |
|-----|-------------|--|
| 1   | Live View   | Real-time videos are played on this page.  |
| 2   | Playback    | You can query the playback videos in this area.<br><b>NOTE</b><br>Only when the SD card or NAS has videos can you query the playback videos.   |
| 3   | IVS setting | Intelligent Video System, set the AI multi-target, intelligent analysis (intrusion, smart motion, single line crossing, double line crossing, multi-loitering, wrong-way, general parameters), people counting, and so on. |
| 4   | Thermal     | Set the parameters of thermal, such as temperature parameter, temperature alarm, schedule linkage, and so on.  |
| 5   | Setting     | You can choose a menu to set device parameters, quick start, system, network, audio/video, image, event, and storage.  |
| 6   |             | About the intercom function.   |

| No. | Element   | Description   |
|-----|---|---|
| 7   |    | When the device accepts an alarm signal, the alarm icon will display  . You can click  to view the alarm information. |
| 8   |    | SD card video backup and download status.   |
| 9   |    | Current user, sign out or change password.  |
| 10  |    | Set brightness, saturation, contrast, and sharpness.  |
| 11  |    | Window scale, switch the scale of play live video.  |
| 12  |    | Full screen, click the icon to play live video at full screen.  |
| 13  |    | Stream, click the icon to switch streams. There are two modes of stream.  |
| 14  |   | Pause/Start. Close live video or play live video.   |
| 15  |  | Audio. Open or close audio.   |
| 16  |  | Two-way audio. Open or close the intercom, the computer should be plugged in microphone in advance.   |
| 17  |  | Click the icon to snapshot the video and save the images to the specified location.   |

| No. | Element  | Description  |
|-----|--|--|
| 18  |   | Record the video and save the file to the specified location.  |
| 19  |   | <p><b>Target Frame</b><br/><b>Intelligent marking</b></p> <p>Target frame: when detecting the target, it will show the frame on the target.</p> <p>Intelligent marking: the detection area frame of the intelligent analysis in IVS will be displayed in the live video interface.</p> |
| 20  |  [60fps] [2592x1944] [3.333Mbps][H.264] | Frame rate / resolution / bit rate / video encode type.  |
| 21  |   | Audio alarm status. Red means it is alarming. Click the icon to show the <b>Stop</b> button. Click Stop to close the audio alarm.  |
| 22  |   | Red and blue light, start or stop the red and blue light manually.   |
| 23  |   | <p>I/O output, control the I/O alarm output</p> <p>manually. Click  to open the alarm or close the alarm.</p>   |

Figure 2-9 About the intercom function

## About The Intercom Function:

Description: Only For Enabling the Two-way Audio (Camera) in Chrome on HTTP in Chrome for (local) insecure origins. On HTTPS, all browsers are compatible with Two-way Audio (Camera).

HTTP Environment Chrome Opens The Intercom Step:

1. Ensure That The Computer is Plugged Into a Usable Microphone Device
2. Navigate to 'chrome://flags/#unsafely-treat-insecure-origin-as-secure' in Chrome.
3. Find and Enable The 'Insecure Origins Treated as Secure'
4. Add any camera addresses you want to ignore the secure origin policy for on the input box. The comma (',') is used to separate multiple camera addresses. For Example http://192.168.0.123, http://192.168.0.123:8045
5. Left-Click Outside The Input Box to Save It and Relaunch Chrome.

## 2.4 Playback

Click “Playback” at the web interface. If users install a micro SD card, and there are videos on the SD card. Click “Playback” and the playback video will show as in Figure 1-1.

Figure 2-10 Playback page



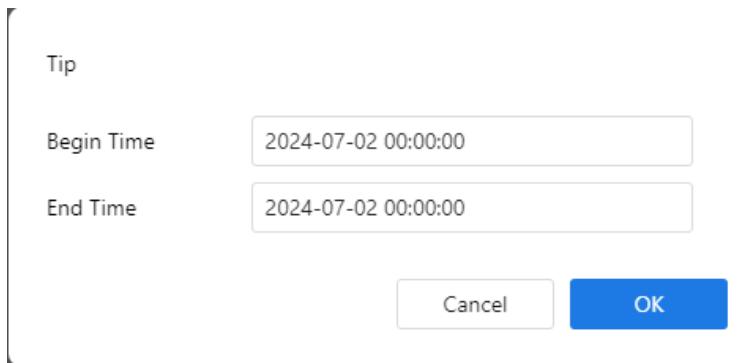
Table 1-2 Playback function

| No. | Element | Description |
|-----|---------|-------------|
|-----|---------|-------------|

|   |   |   |
|---|---|---|
| 1 | Channel   | The channel list of cameras.  |
| 2 | Calender  |  The green point means it has recorded video. Set the time to play the recording.  |
| 3 | <input checked="" type="checkbox"/> Schedule Record<br><input type="checkbox"/> All Types | <p>All Types</p> <p>I/O Alarm</p> <p>Motion Alarm</p> <p>Day/Night Switch Alarm</p> <p>Abnormal Audio Alarm</p> <p>Intrusion</p> <p>Smart Motion</p> <p>Single Line Crossing</p> <p>Double Line Crossing</p> <p><u>Multi-Loitering</u></p> <p>The green timeline represents scheduled recording, and the red timeline is alarm recording. The types of alarm recording vary according to model performance.</p> |
| 4 |         | One screen plays a recording. Choose one day has record, click  to play.   |
| 5 |        | Two screens play a recording. Choose the screen, choose the channel, select one day that has a recording(the date shows a green point), click  to play.  |
| 6 |        | Four screens play a recording. Choose the screen, choose the channel, select one day that has a recording(the date shows a green point), click  to play.   |

|    |  |   |
|----|--|---|
| 7  |  | Window scale: switch the scale of the play recording video.   |
| 8  |  | Full screen, click the icon to play the video at full screen.   |
| 9  |  | Pause/Start. Close live video or play recording video.  |
| 10 |  | Audio. Open or close audio.   |
| 11 |  | Click the icon to snapshot the video and save the images to the specified location.   |
| 12 |  | Fast Forward, 1/16X, 1/8 X, 1/4 X, 1/2 X, 1 X, 2 X, 4 X, 8 X  |
| 13 |  | Click the icon to start backup, drag the bar to download the recording quickly, and click the icon again to end. In the pop-up window of the tip, as shown in Figure 2-11, click the Save to save the video. Click Cancel to abandon.<br> |
| 14 |  | Time axis, users can choose 1h, 6h, 12h, or 24h.  |

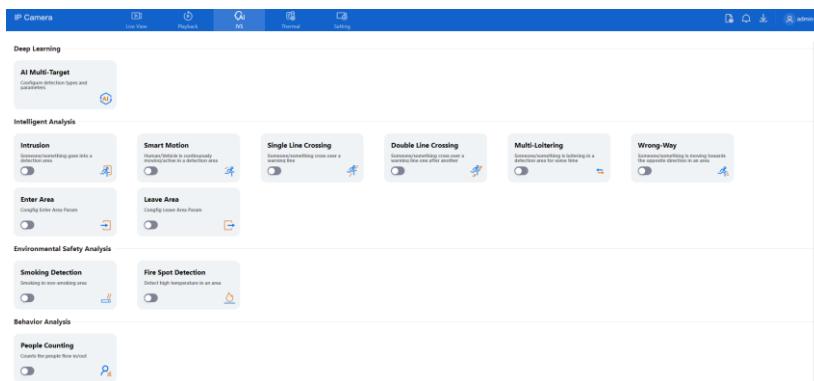
Figure 2-11 Record backup tip



## 2.5 IVS Setting

Click IVS to enter the IVS setting page, users can set the deep learning, intelligent analysis, and behavior analysis as shown in Figure 2-12. The detail settings will be introduced in the following chapters.

Figure 2-12 IVS setting page



### NOTE

The different models have different IVS functions; please refer to the actual product.

----End

# 3 Quick Start Settings

To use the camera quickly, users need to set the Local Network, Video, Display, OSD, Date, and Time at the Quick Start interface.

## 3.1 Local Network

### Overview

The local network settings allow you to configure essential parameters for your device's network connection, including:

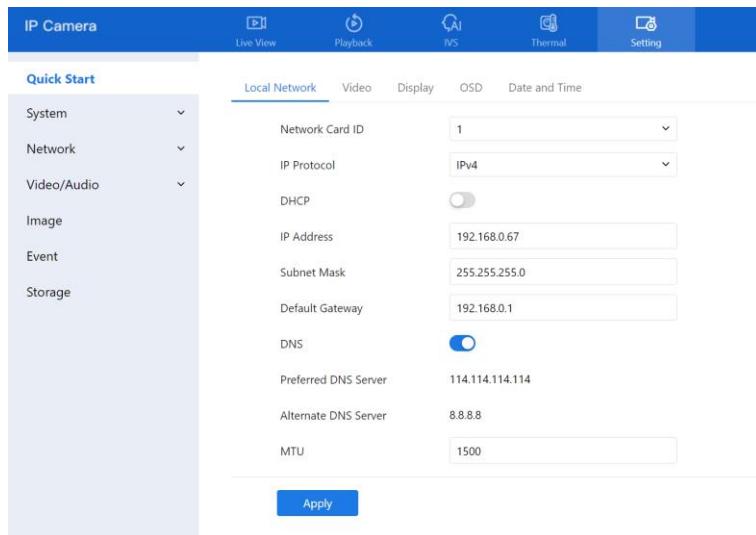
- IP protocol
- IP address
- Subnet mask
- Default gateway
- Dynamic Host Configuration Protocol (DHCP)
- Preferred and alternate Domain Name System (DNS) servers
- Maximum Transmission Unit (MTU)

By default, DHCP is enabled, meaning the device will automatically receive an IP address when connected to a network with DHCP support. If no DHCP server is available, the device will use the default IP address **192.168.0.120**. If multiple devices are connected to the same network, users must manually set unique IP addresses for each device.

### Steps to Configure the Local Network

1. Navigate to **Settings > Quick Start > Local Network**.
2. Adjust the parameters as needed according to the table below:

Figure 3-1 Local network page



3. Set the parameters according to Table 3-1.

Table 3-1 Local network parameters

| Parameter       | Description  | Setting   |
|-----------------|--|---|
| Network Card ID | --   | [Default value]<br><b>1</b>   |
| IP Protocol     | IPv4 is the IP protocol that uses an address length of 32 bits.<br>IPv6 is the IP protocol that uses an address length of 64 bits. | [Setting method]<br>Select a value from the drop-down list box.<br>[Default value]<br><b>IPv4</b> |

| Parameter            | Description  | Setting  |
|----------------------|--|--|
| DHCP                 | Enable DHCP, and the device will automatically obtain the IP address from the DHCP server.   | <p>[Setting method]<br/>Click the button to enable <b>DHCP</b>.</p> <p>NOTE<br/>To query the current IP address of the device, you must query it on the platform based on the device name.</p> |
| IP Address           | Device IP address that can be set as required.   | <p>[Setting method]<br/>Enter a value manually.</p> <p>[Default value]<br/><b>192.168.0.121</b></p>  |
| Subnet Mask          | DHCP is off.<br>The subnet mask of the network adapter.  | <p>[Setting method]<br/>Enter a value manually.</p> <p>[Default value]<br/><b>255.255.255.0</b></p>  |
| Default Gateway      | DHCP is off.<br>This parameter must be set if the client accesses the device through a gateway.  | <p>[Setting method]<br/>Enter a value manually.</p> <p>[Default value]<br/><b>192.168.0.1</b></p>  |
| Preferred DNS Server | DNS is on.<br>The IP address of a DNS server.  | <p>[Setting method]<br/>Enter a value manually.</p> <p>[Default value]<br/><b>192.168.0.1</b></p>  |
| Alternate DNS Server | DNS is on.<br>The IP address of a domain server.<br>If the preferred DNS server is faulty, the device uses the alternate DNS server to resolve domain names. | <p>[Setting method]<br/>Enter a value manually.</p> <p>[Default value]<br/><b>192.168.0.2</b></p>  |

| Parameter | Description   | Setting  |
|-----------|---|--|
| MTU       | Set the maximum value of network transmission data packets. | <p>[Setting method]<br/>Enter a value manually.</p> <p><b>NOTE</b><br/>The MTU value ranges from 1280 to 1500; the default value is 1500.<br/>Please do not change it arbitrarily.</p> |

Click **Apply**.

- If successful, a confirmation message will appear, and you will need to log in again with the new IP address.
- If an error message appears, check and correct the parameters before applying again.

----End

## 3.2 Video

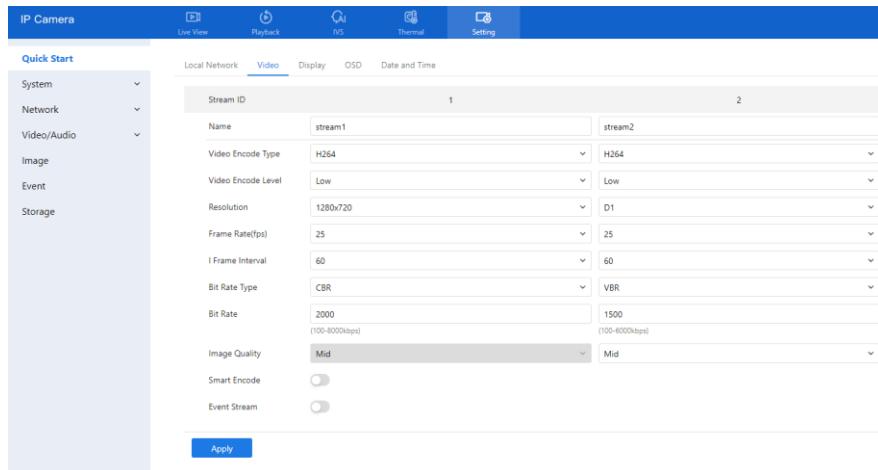
### Overview

Modifying video settings affects real-time streaming quality, playback, and storage efficiency. Adjust these settings based on available network bandwidth and storage capacity.

### Steps to Configure Video Settings

1. Navigate to **Settings > Quick Start > Video**.
2. Adjust the parameters according to the table below:

Figure 3-2 Video setting page



Step 2 Set the parameters according to Table 3-2.

Table 3-2 Parameters of stream configuration

| Parameter         | Description  | Setting   |
|-------------------|--|---|
| Stream ID         | <p>The device supports at most three streams.</p> <p>Streams 1 and 2 adopt the H.264 code.</p> <p>Stream 1 stands for the best stream performance that the device supports.</p> <p>Stream 2 usually offers comparatively low-resolution options.</p> | <p>[Setting method]</p> <p>Select a value from the drop-down list box.</p>  |
| Name              | <p>Stream name.</p> <p><b>NOTE</b></p> <p>The stream name consists of characters, numbers, and underlines.</p>   | <p>[Setting method]</p> <p>Enter a value manually. The value cannot exceed 32 bytes.</p> <p>[Default value]</p> <p>Stream 1</p> |
| Video Encode Type | The video encoding determines the image quality and network bandwidth required by a video. Currently, the following encoding standards are   | [Setting method]<br>Select a value from the drop-down list  |

| Parameter          | Description  | Setting  |
|--------------------|--|--|
|                    | <p>supported:</p> <p><b>MJPEG</b></p> <p>MJPEG is a standard intra-frame compression encoding. The compressed image quality is good. No mosaic is displayed on motion images. MJPEG does not support proportional compression and requires a large storage space. Recording and network transmission occupy large hard disk space and bandwidth. MJPEG does not apply to continuous recording for a long period or network transmission of videos. It can be used to send alarm images.</p> <p>Only the low video encoding level can be chosen.</p> <p><b>H.264</b></p> <p>H.264 consists of H.264 low Profile, H.264 Main Profile, and H.264 High Profile. The performance of H.264 High Profile is higher than that of H.264 Main Profile, and the performance of H.264 Main Profile is higher than that of H.264 Base Profile. If a hardware decoding device is used, select the appropriate encoding based on the decoding performance of the device.</p> <p>H.264 High Profile has the highest requirements for hardware performance, and H.264 Base Profile has the lowest requirements for hardware performance.</p> <p>Three levels can be chosen</p> <p><b>H.265</b></p> <p>H.265 is the advanced video encoding standard. It's the improvement standard from H.264. H.265 improves the streams, encoding quality, and algorithm complexity to make configuration optimization.</p> <p>Only the Mid-video encode level can be chosen.</p> | <p>box.</p> <p>[Default value]</p> <p>H.264 High Profile</p> <p><b>NOTE</b></p> <p>The H.264 High Profile encoding means high requirements on the hardware. If the hard-decoding capability is low, use H.264 Main Profile or H.264 Base Profile.</p> <p>When users choose the MJPEG for Stream 1, some functions will cause an error, such as the videos of FTP upload may not be played correctly.</p> |
| Audio Encode Level | <p>The following audio encoding standards are supported:</p> <p>G. 711_ULAW: mainly used in North America and Japan.</p> <p>G. 711_ALAW: mainly used in Europe and other areas.</p>  | <p>[Setting method]</p> <p>Select a value from the drop-down list box.</p>   |

| Parameter           | Description   | Setting   |
|---------------------|---|---|
|                     | RAW_PCM: encoding of the original audio data. This encoding is often used for platform data.  |   |
| Resolution          | <p>A higher resolution means better image quality.</p> <p><b>NOTE</b></p> <p>IP cameras support different resolutions based on the model.</p>   | [Setting method]<br>Select a value from the drop-down list box. |
| Frame Rate(fps)     | <p>Frame rate is the number of images, snapshots, or frames that a camera can take per second. The frames per second determine the smoothness of a video. A video whose frame rate is higher than 22.5 f/s is considered smooth by human eyes.</p> <p>Frame rates for different frequencies are as follows:</p> <p>50 Hz: 1–25 f/s</p> <p>60 Hz: 1–30 f/s</p> <p><b>NOTE</b></p> <p>The frequency is set on the <b>Device Configuration &gt; Camera</b> page. The biggest MJPEG coding format frame rate is 12 frames per second.</p> | [Setting method]<br>Select a value from the drop-down list      |
| I Frame Interval(f) | <p>I frame does not require other frames to decode.</p> <p>A smaller I-frame interval means better video quality but higher bandwidth.</p>  | [Setting method]<br>Select a value from the drop-down list      |
| Bit Rate Type       | <p>The bit rate is the number of bits transmitted per unit of time.</p> <p>The following bit rate types are supported:</p> <p>Constant bit rate (CBR)</p> <p>The compression speed is fast; however, improper bit rates may cause vague motion images.</p> <p>Variable bit rate (VBR)</p> <p>The bit rate changes according to the image complexity. The encoding efficiency is high, and the definition of motion images can be ensured.</p>   | [Setting method]<br>Select a value from the drop-down list box. |
| Bit Rate Range      | Indicates the maximal value of the bit rate. The different models may have different ranges. Please   | [Setting method]<br>Enter a value                               |

| Parameter     | Description  | Setting  |
|---------------|--|--|
|               | refer to the actual product.   | manually.  |
| Image Quality | The video quality of the camera output.  | [Setting method]<br>Select a value from the drop-down list box.      |
| Smart Encode  | Smart Encode.<br>Smart encode includes H.264 & H.265.<br>The storage space will be reduced by fifty percent when Smart Encode is enabled.<br>Only mainstream supports smart encoding.  | [Setting method]<br>Click the button to enable <b>Smart Encode</b> . |
| Event Stream  | Enable Event Stream. Set the event frame rate and event bit rate. It can be recording at the frame rate and bitrate set in the event stream, which facilitates recording with higher image quality when an alarm occurs. During normal periods, recording can be done according to the parameters set above. | [Setting method]<br>Click the button to enable <b>Event Stream</b> . |

Click **Apply**.

If the message "Apply success!" is displayed, the system will save the settings.

If the message "Apply failed!" is displayed, you must apply for the Parameter Configure permission from an administrator.

If a message indicating that the bit rate is invalid is displayed, enter a new bit rate value.

----End

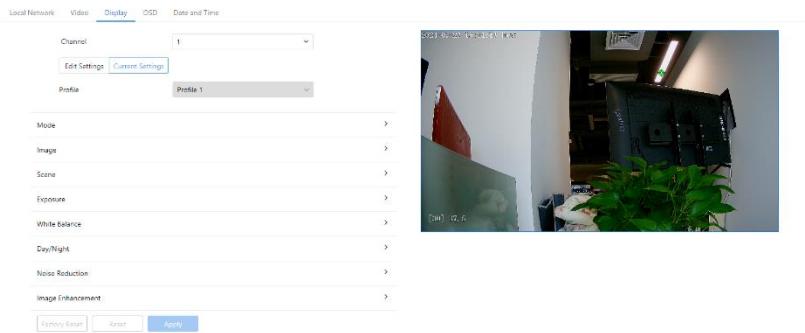
## 3.3 Image Display

### 3.3.1 Accessing the Display Settings

#### Procedure:

1. Navigate to **Setting > Quick Start > Display**.

Figure 3-3 Display settings page



2. Select **Edit Settings** under the **Mode** section to configure the parameters. You can set up to four profiles.
  - All image settings can be modified in **Edit Settings**.
  - **Factory Reset**: Restores all parameters to factory settings.

### 3.3.2 Mode

#### Procedure:

1. Navigate to **Setting > Quick Start > Display > Mode**.

Figure 3-4 Mode page



2. Select **Switch Mode** to choose from the following modes:
  - **None**: Executes the selected profile continuously.
  - **Time Mode**: Switches profiles based on the configured start and end times.
  - **D/N Linkage Mode**: Automatically switches between **Profile 1** (Day Mode) and **Profile 2** (Night Mode) based on ambient light conditions.
3. Configure the start and end times as needed.
4. Click **Apply** to save the settings.

### 3.3.3 Image Settings

Users can manually adjust brightness, contrast, saturation, and sharpness based on the scene.

#### Procedure:

1. Navigate to **Setting > Quick Start > Display > Image**.
2. Adjust the parameters as per Table 3-3:
  - Brightness: Adjusts the overall brightness of the image. Default: 50.
  - Detail Enhancement: Adjust the details and edges of the higher-temperature image. Default: 50.
  - Sharpness: Enhances image clarity. Default: 50.
  - Contrast: Adjusts the difference between bright and dark areas. Default: 50.
3. Click **Apply** to save the settings.

Figure 3-5 Image interface



Table 3-3 Image setting parameter description

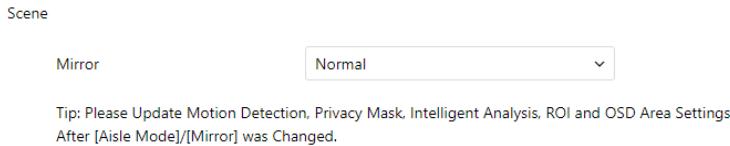
| Parameter          | Description   | Setting  |
|--------------------|---|--|
| Brightness         | It indicates the total brightness of an image. As the value increases, the image becomes brighter.  | [Setting method]<br>Drag the slider.<br>[Default value]<br><b>50</b> |
| Detail Enhancement | Adjust the details and edges of the higher-temperature image.   | [Setting method]<br>Drag the slider.<br>[Default value]<br><b>50</b> |
| Contrast           | It indicates the contrast between the bright part and the dark part of an image. As the value increases, the contrast increases.          | [Setting method]<br>Drag the slider.<br>[Default value]<br><b>50</b> |
| Sharpness          | It indicates the sharpness of the image plane and the sharpness of the image edge. The clearer the image, the better the detail contrast. | [Setting method]<br>Drag the slider.<br>[Default value]<br><b>50</b> |

----End

### 3.3.4 Scene

Click **Setting > Quick Start > Display**, and choose the **Scene** item. Figure 3-6 shows the scene interface.

Figure 3-6 Scene interface



Provide the selection of image pixel locations.

Normal: the image is not flipped.

Horizontal: the image is flipped left and right.

Vertical: the image is flipped up and down.

Horizontal + Vertical: the image upside-down and reversal.

---End

### 3.3.5 Set Pseudocolor

Users can set the pseudocolor; the different types will show the different visual effects.

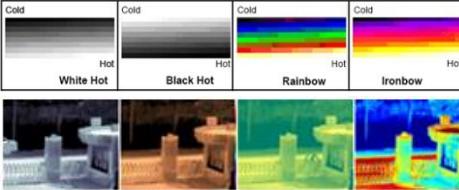
#### Procedure:

1. Navigate to **Setting > Quick Start > Display > Set Pseudocolor**.
2. Configure the settings as per Table 3-4:
3. Click **Apply** to save the settings.

Figure 3-7 Set Pseudocolor interface



Table 3-4 Pseudocolor parameter

| Parameter                   | Description  | Setting   |
|-----------------------------|--|---|
| Pseudo-Colors               | <p>Polarity/LUT: the temperatures of the temperature fields detected by the thermal imaging camera are separately mapped to values ranging from 0 to 255 by the algorithm. In the black/white display mode, this range is converted to the grayscale tones. For example, 0 indicates completely black, and 255 indicates completely white. The temperature field of the scene is converted to images by using a grayscale ranging from 0 to 255. Different polarity modes can be converted to different display images. The most common setting is white hot (a hotter object is displayed brighter than a colder object) or black hot (a hotter object is displayed darker than a colder object). The difference between the two modes lies in that the temperatures corresponding to the darker one and the lighter one are reversed. Other modes include rainbow, iron bow, HSV, autumn, bone, and so on.</p>  | <p>[How to set]<br/>Select from the drop-down list box.</p> <p>[Default value]<br/><b>White Hot</b></p> |
| Legend of Temperature Value | <p>It is on, the live video will show; otherwise, there is no legend.</p>  | <p>[How to set]<br/>Select from the drop-down list box.</p> <p>[Default value]<br/><b>Close</b></p>     |

### 3.3.6 FFC Control

Users can adjust the flat field correction (FFC) parameter, such as mode, interval, temp deviation, shutter correction, and background correction.

1. Navigate to **Setting > Quick Start > Display > FFC control**.
2. Configure the settings as per Table 3-5.
3. Click **Apply** to save the settings.

Figure 3-8 FFC control interface

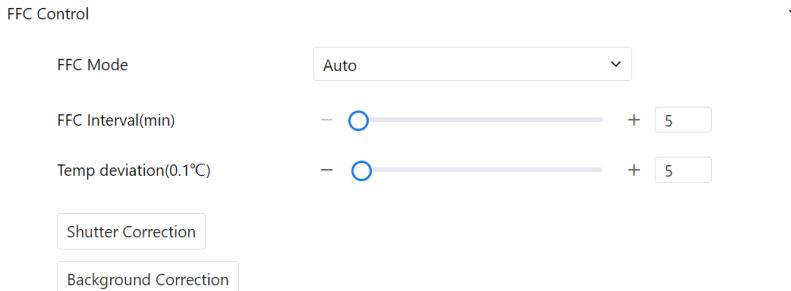


Table 3-5 FFC control parameter description

| Parameter | Description   | Setting  |
|-----------|---|--|
| FFC Mode  | <p>The internal of the thermal imaging camera may comprise a mechanical action correction mechanism that can periodically improve the image quality. This component is called flat field correction (FFC). When controlling the FFC, the FFC shields the sensor array, so that each portion of the sensor can collect uniform temperature fields (flat field). Using FFC, the camera can update the correction coefficients to output more uniform images. Throughout the FFC process, the video image is frozen for two seconds, and a static-frame image is displayed. After the FFC is complete, the image is automatically recovered. Repeated FFC operations can prevent grainy and image degradation problems. The FFC is especially important when the temperature of the camera changes. For example, after the camera is powered on or the ambient temperature is changed, you should immediately perform the FFC.</p> <p><b>Auto:</b> In the Automatic FFC mode, the camera performs FFC whenever its temperature changes by a specified amount or at the end of a specified period (whichever comes first). When this mode</p> | <p>[How to set]<br/>Select from the drop-down list box.</p> <p>[Default value]<br/><b>Auto</b></p> |

| Parameter               | Description   | Setting   |
|-------------------------|---|---|
|                         | <p>is selected, the FFC interval (minutes) ranges from 5 to 30 minutes. The temperature change of the camera is based on the temperatures collected by the internal temperature probe. The temperature of the camera sharply changes when the camera is powered on. The FFC is relatively frequent, which is normal.</p> <p><b>Manual:</b> In the manual FFC mode, the camera does not automatically perform the FFC based on the temperature change or the specified period. You can press the Do FFC button to select the manual FFC mode. When you feel that the image is obviously degraded but the automatic FFC is not performed, you can use the manual FFC function to check whether the image quality can be improved.</p> |   |
| FFC Interval (min)      | In the automatic FFC mode, the FFC interval ranges from 2 to 255 minutes.   | <p>[How to set]<br/>Drag the slider.<br/>[Default value]<br/><b>5</b></p> |
| Temper deviation(0.1°C) | In the automatic FFC mode, the FFC interval ranges from 0.2 to 25.5 centigrade.   | <p>[How to set]<br/>Drag the slider.<br/>[Default value]<br/><b>5</b></p> |
| Shutter Correction      | Click the icon to adjust exposure immediately.  | Click the button  |
| Background Correction   | Click the icon and cover the camera with something to adjust the image. Remove the thing to finish the adjustment.  | Click the button  |

----End

## 3.3.7 Noise Reduction

Adjust noise reduction settings to improve image clarity in low-light conditions.

### Procedure:

1. Navigate to **Setting > Quick Start > Display > Noise Reduction**.
2. Configure noise reduction settings according to the environment and requirements.
3. Click **Apply** to save the settings.

Figure 3-9 Noise reduction interface

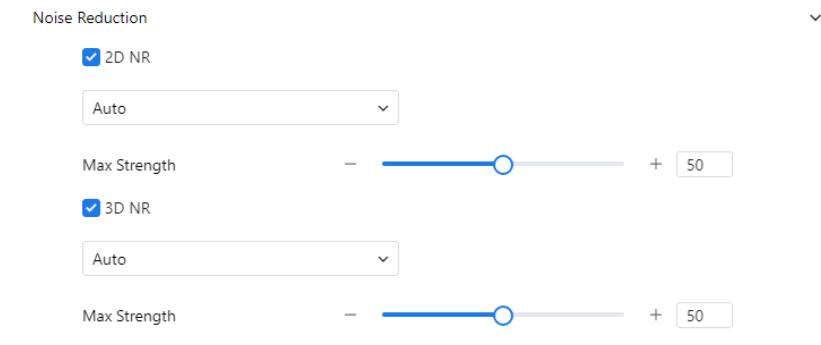


Table 3-6 DNR parameter description

| Parameter | Description               | Setting  |
|-----------|---------------------------|--|
| 2 DNR     | Decrease the image noise. | [How to set]<br>Select from the drop-down list box.<br>Drag the slider to adjust the maximum strength.<br>[Default value]<br><b>Auto</b> |
| 3 DNR     | Decrease the image noise. | [How to set]<br>Select from the drop-down list box.<br>Drag the slider to adjust the maximum   |

| Parameter | Description | Setting                                     |
|-----------|-------------|---|
|           |             | strength.<br>[Default value]<br><b>Auto</b> |

----End

### 3.3.8 Lens control

Users can adjust the Lens when the image is blurry.

**Procedure:**

1. Navigate to **Setting > Quick Start > Display > Lens control**.
2. Configure lens control settings as per Table 3-7.
3. Click **Apply** to save the settings.

Figure 3-10 Lens control

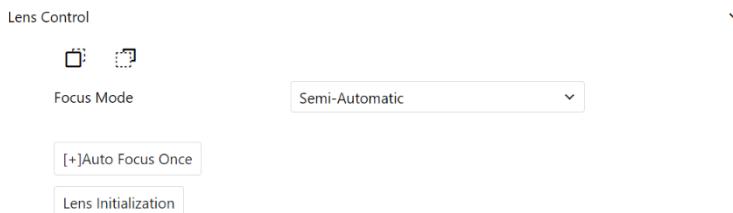


Table 3-7 Lens control parameter description

| Parameter           | Description  | Setting                          |
|---------------------|--|----------------------------------|
| Focus mode          | Near focus/ far focus.<br>Semi-Automatic or Manual | [How to set]<br>Click the button |
| Auto focus once     | Click to focus once automatically.                 | [How to set]<br>Click the button |
| Lens Initialization | Click to initialize the lens                       | [How to set]<br>Click the button |

## 3.4 OSD

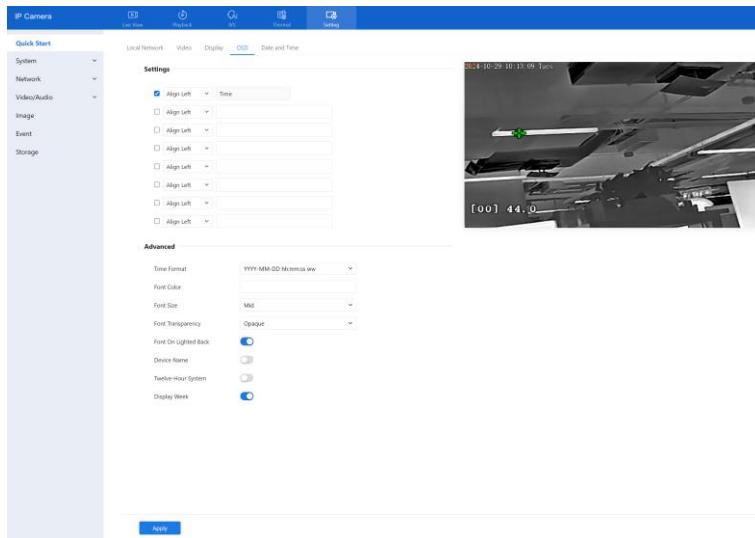
The On-Screen Display (OSD) feature overlays important information directly onto the live video feed, improving the practicality and management of your monitoring system. Commonly displayed details include time, camera location, device status, operational actions, and additional notes. It's important to arrange the information effectively to ensure it's useful without blocking the view of the footage.

### What You Can Display

The OSD allows you to show the device name, channel ID, time, and other customizable content on your videos. You can drag the OSD frames to any location on the screen.

- For resolutions such as D1 and CIF, the OSD customization can display up to 22 characters.
- The OSD supports simplified Chinese, English, numbers, and some special characters.

Figure 3-11 OSD



### Steps to Configure OSD

1. Go to **Settings > Quick Start > OSD**. The OSD configuration page will appear.
2. Set the parameters as outlined in the table below:

Table 3-8 Parameters of OSD

| Parameter         | Description  | Setting  |
|-------------------|--|--|
| Time              | Indicates whether to display the time.   | [Setting method]<br>Tick the time.   |
| Custom OSD        | Tick to enable, and choose the position to show the content of the custom OSD. | [Setting method]<br>Enter the characters.  |
| Time Format       | Format in which the time is displayed.   | [Setting method]<br>Select a value from the drop-down list box.<br>[Default value]<br>YYYY-MM-DD<br>hh:mm: ss ww |
| Font Color        | Set the font color.  | [Setting method]<br>Select a value from the drop-down list box.<br>[Default value]<br>Blank                      |
| Font Size         | Set the font size.   | [Setting method]<br>Select a value from the drop-down list box.<br>[Default value]<br>Mid                        |
| Font Transparency | Set the font transparency.   | [Setting method]<br>Select a value from the drop-down list box.<br>[Default value]<br>Opaque                     |

| Parameter            | Description                                   | Setting  |
|----------------------|---|--|
| Font on Lighted Back | Enable the font on the lighted back.          | [Setting method]<br>Click the button to enable <b>Font on the lighted back</b> . |
| Device Name          | Indicates whether to display the device name. | [Setting method]<br>Click the button to enable the <b>Device Name</b>            |
| Twelve-hour System   | The time format shows a twelve-hour system.   | [Setting method]<br>Click the button to enable                                   |
| Display Week         | The week will show.                           | [Setting method]<br>Click the button to enable                                   |

3. Click **Advanced** to customize settings for **Time Format**, **Font Color**, **Font Transparency**, and other options.
4. Click **Apply** to save your settings. You should see a confirmation message, "Apply success!" indicating that your settings have been saved.

## 3.5 Date and Time

### Description

The Date and Time settings allow you to adjust the device's time, including time zone, daylight-saving time (DST), and synchronization with an NTP server (Network Time Protocol).

### Settings You Can Modify

- **Time Zone**
- **Device Time**
- **NTP Server**

### Steps to Configure Date and Time

1. Go to **Settings > Quick Start > Date and Time**. The Date and Time page will appear.
2. Modify the settings as shown in the table below:

Figure 3-12 Date and time page

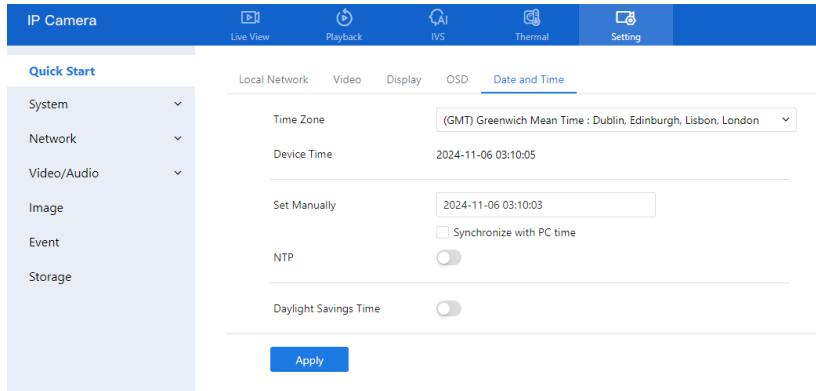


Table 3-9 Parameters of date and time

| Parameter    | Description  | Setting   |
|--------------|--|---|
| Time Zone    | N/A  | [Setting method]<br>Select a value from the drop-down list box.<br>[Default value]<br>Greenwich Mean Time           |
| Device Time  | Device display time.   | [Setting method]<br>Synchronize the time from the PC.<br>Enter a value manually.                                    |
| Set Manually | You can set the device time manually or synchronize it with PC time. | [Setting method]<br>Click <b>Set Manually</b> and set the date and time in the format <i>YYYY-MM-DD HH:MM: SS</i> . |
| NTP          | IP address or domain name of the NTP server.                         | [Setting method]<br>Click the button to enable <b>NTP</b> and enter a value   |

| Parameter            | Description   | Setting  |
|----------------------|---|--|
|                      |   | manually.  |
| Server Address       | NTP is enabled.<br>The NTP server IP.   | [Setting method]<br>Enter a value manually.                                    |
| Port                 | NTP is enabled.<br>Port number of the NTP server.   | [Setting method]<br>Enter a value manually.<br>[Default value]<br><b>123</b>   |
| Interval             | NTP is enabled.<br>Set time intervals to check if the device time has synchronized with the NTP server time.  | [Setting method]<br>Enter a value manually.<br>[Default value]<br><b>60</b>    |
| Daylight Saving Time | When the DST start time arrives, the device time will automatically be one hour earlier. When the DST end time arrives, the device time will automatically be one hour later. | [Setting method]<br>Click the button to enable<br><b>Daylight Saving Time.</b> |

3. Click **Apply**. The message "Apply success!" is displayed, and the system will save the settings.

----End

# 4 Configuring Thermal

## 4.1 Settings

### 4.1.1 Temperature Parameters

#### Description

Temperature parameters include

- Temperature Unit
- Ambient Type
- Ambient Temperature
- Cavity Temperature
- Correctional Coefficient
- Area Temperature Display Mode
- Area Temperature Type
- Measure Mode
- Area Alarm Interval
- Temperature OSD

#### Steps to Configure Temperature Parameter

1. Navigate to **Thermal > Settings > Temperature Parameter**.
2. Modify the settings as shown in the table below:

Figure 4-1 Temperature Parameters Interface

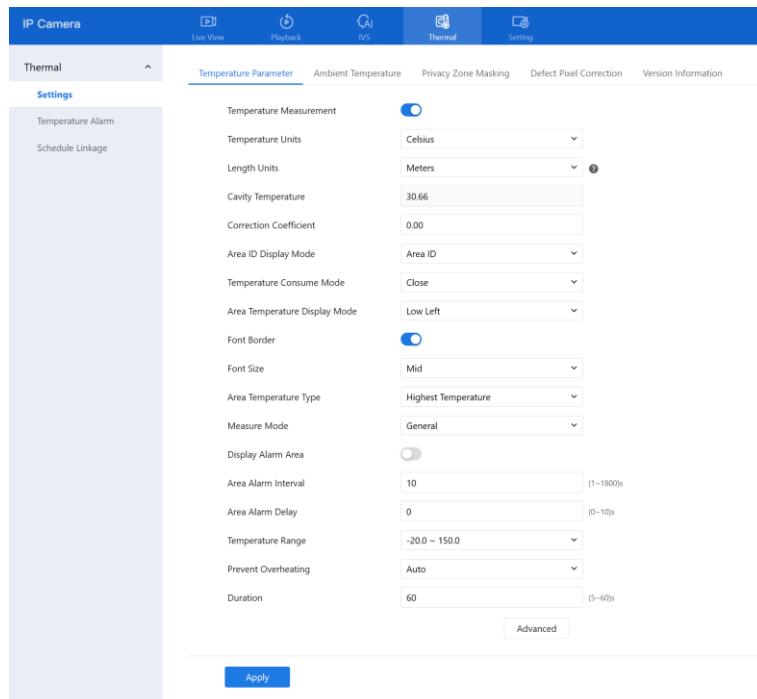


Table 4-1 Temperature Parameters

| Parameter               | Description   | Setting  |
|-------------------------|---|--|
| Temperature Measurement | The default is enabled.                                 | [Setting method]<br>Enable or disable<br>[Default value]<br><b>Enable</b>                            |
| Temperature Units       | Celsius and Fahrenheit temperature units are available. | [Setting method]<br>Select a value from the drop-down list box.<br>[Default value]<br><b>Celsius</b> |
| Length units            | Meters and feet length units are available.             | [Setting method]<br>Select a value from  |

| Parameter                | Description  | Setting  |
|--------------------------|--|--|
|                          |  | the drop-down list box.<br>[Default value]<br>Meters   |
| Cavity Temperature       | The cavity temperature of the camera.  | N/A  |
| Correction Coefficient   | <p>The correction coefficient refers to the deviation between the measured object temperature and the actual temperature, which is the offset value. It ranges from -100 to 100.</p> <p>For example:</p> <ol style="list-style-type: none"><li>1. The measured object temperature is 20, and the actual temperature is 20.5, so the correction coefficient should be <b>0.5</b>.</li><li>2. The measured object temperature is 20, and the actual temperature is 19.5, so the correction coefficient should be <b>-0.5</b>.</li></ol> <p>NOTE</p> <p>The user should contact the technical support staff of our company under these conditions to ensure that to apply</p> | [Setting method]<br>Enter a value manually.<br>[Default value]<br><b>0.00</b>                        |
| Area ID display mode     | Two modes are displayed: area ID and area name   | [Setting method]<br>Select a value from the drop-down list box.<br>[Default value]<br><b>Area ID</b> |
| Temperature Consume Mode | Transfer temperature values or images to third-party platforms via SDK(Software development kit) protocol. You can get a custom SDK from the manufacturing company if needed.  | [Setting method]<br>Select a value from the drop-down list box.<br>[Default value]<br><b>Close</b>   |

| Parameter                     | Description  | Setting  |
|-------------------------------|--|--|
| Area Temperature Display Mode | The display position of temperature information on the live video image. | [Setting method]<br>Select a value from the drop-down list box.<br><br>[Default value]<br><b>Low left</b>            |
| Font Border                   | Enable bold font   | [Setting method]<br>Enable or disable<br><br>[Default value]<br><b>Disable</b>                                       |
| Font size                     | There are font sizes that can be chosen: small/mid/big                   | [Setting method]<br>Enable or disable<br><br>[Default value]<br><b>Mid</b>   |
| Area Temperature Type         | There are three types of area temperature.                               | [Setting method]<br>Select a value from the drop-down list box.<br><br>[Default value]<br><b>Highest Temperature</b> |
| Measure Mode                  | There are two types of measurement modes.                                | [Setting method]<br>Select a value from the drop-down list box.<br><br>[Default value]<br><b>General</b>             |
| Display Alarm Area            | Tick, the setting alarm area will display on live video.                 | [Setting method]<br>Enable or disable<br><br>[Default value]<br><b>Disable</b>                                       |
| Area Alarm Interval           | During the interval, the same alarm will only be sent once.              | [Setting method]<br>Enter a value manually that ranges   |

| Parameter                | Description   | Setting  |
|--------------------------|---|--|
|                          |   | from 1 to 1800s.<br>[Default value]<br><b>10</b>   |
| Area Alarm delay (0-10S) | The area alarm information will be delayed for the setting time.  | [Setting method]<br>Enter a value manually ranging from 1 to 10.<br>[Default value]<br><b>10</b> |
| Temperature range        | It depends on the device. Different devices have different modes, such as -20 °C -150°C.  | [Setting method]<br>Select a value from the drop-down list box.                                  |
| Prevent Overheating      | Open, if the temperature of the testing area is too high, you can enable it to prevent the overheating function. The control cover will be laid down to keep the detector safe. There are two types, manual and auto. | [Setting method]<br>Select a value from the drop-down list box.                                  |
| Duration                 | Prevent overheat mode is auto, the control cover will block for a duration of time automatically if overheated.   | [Setting method]<br>Enter a value manually ranging from 5 to 60s.                                |

Figure 4-2 Advanced Interface

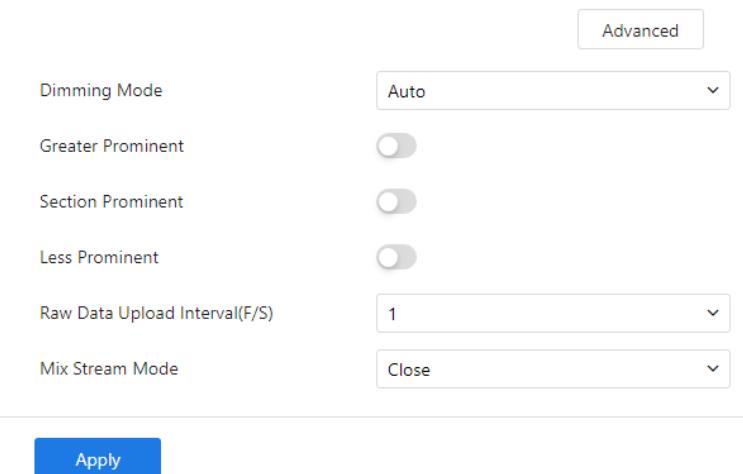


Table 4-2 Advance Parameters

| Parameter         | Description   | Setting  |
|-------------------|---|--|
| Dimming Mode      | <p>There are auto and manual modes.</p> <p>Auto: It will show on the temperature item depending on the full-screen temperature.</p> <p>Manual: it will show the manual value.</p> | <p>[Setting method]</p> <p>Select a value from the drop-down list box.</p> <p>[Default value]</p> <p><b>Auto</b></p> |
| Greater Prominent | Enable that, and the image will show the set color if the temperature is higher than the set value.   | <p>[Setting method]</p> <p>Enter a value manually.</p> <p>Choose one color to show.</p>                              |
| Section Prominent | Enable that, the image will show the setting color if the temperature is between the minimum and maximum temperatures.  | <p>[Setting method]</p> <p>Enter a value manually.</p> <p>Choose one color to show.</p>                              |
| Less Prominent    | Enable that, and the image will show the set color if the temperature is lower than the set value.  | <p>[Setting method]</p> <p>Enter a value manually.</p> <p>Choose one color to show.</p>                              |

| Parameter                     | Description  | Setting  |
|-------------------------------|--|--|
| Raw Data Upload Interval(F/S) | Interval for uploading the raw data.   | [Setting method]<br>Select a value from the drop-down list box.<br>[Default value]<br><b>1</b> |
| Mix Stream Mode               | This function is used for mixing thermal and visible imaging. If you want to adjust the location, please set it at the thermal channel “Setting > Display > Pseudocolor” tab interface. There are close, mode 1, mode 2, and mode 3. The different models may have different displays. Please refer to the actual product. | [Default value]<br><b>Close</b>  |

3. Click **Apply** to save.

---End

#### 4.1.2 Ambient Temperature

Usually, no customer configuration is required. The current ambient temperature needs to be configured only when the device has just been powered on, but the user needs to measure the temperature immediately.

- **Ambient Temperature**

##### Procedure:

1. Navigate to **Thermal > Settings > Ambient Temperature**.
2. Modify the settings as shown in the table below:

Figure 4-3 Ambient Temperature

Temperature Parameter   **Ambient Temperature**   Privacy Zone Masking   Thermal Mapping   Defect Pixel Correction   Version Information

Ambient Temperature: 25.00

Self-adaptive Temperature: 22.60

**Apply**

Table 4-3 Parameter of Ambient Temperature

| Parameter                 | Description   | Setting   |
|---------------------------|---|---|
| Ambient Temperature       | The environmental temperature of the camera. When the camera is powered on for at least half an hour and the cavity temperature is stabilized, set the temperature. It is set as the environmental temperature of the camera. | [Setting method]<br>Enter the temperature of the ambient environment.<br>[Default value]<br><b>25</b> |
| Self-adaptive Temperature | Set the ambient temperature, and click “Apply”, the camera will get the value automatically.  | ---   |

3. Click **Apply** to save.

---End

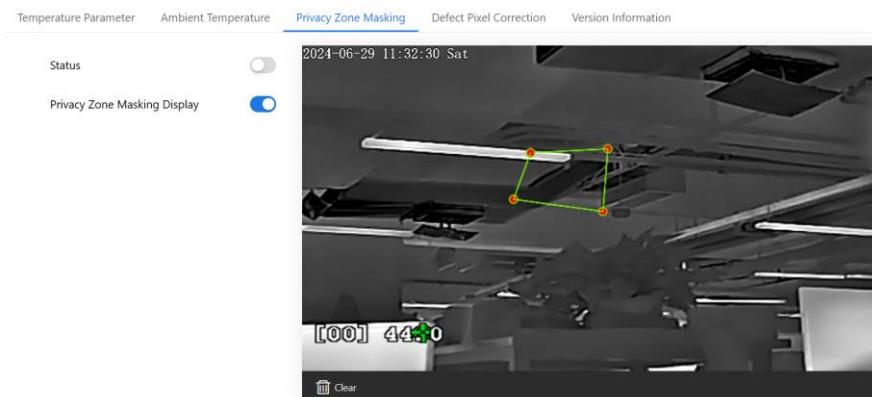
### 4.1.3 Privacy Zone Masking

Privacy zone masking means that the camera will not detect the temperature of that area. The shield areas can be set up to eight areas.

#### Procedure:

1. Navigate to **Thermal > Settings > Privacy Zone Masking**.

Figure 4-4 Privacy Zone Masking



2. Enable the privacy zone masking.
3. Enable Show Privacy Zone Masking Display, then the setting shield will show on live video.
4. Click the left mouse button to set the area; click the right mouse button to end the setting.
5. Click **Clear** to clear the setting area.
6. Click **Apply** to save.

----End

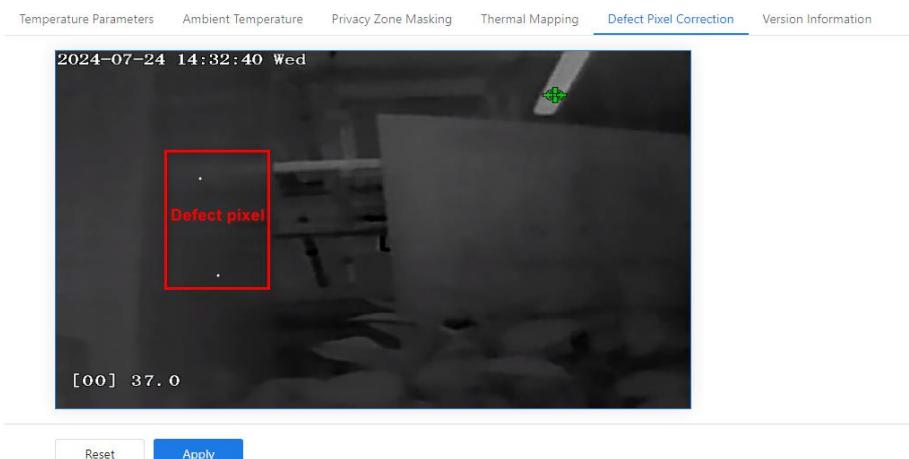
#### 4.1.4 Defect Pixel Correction

If the image has a white dot as shown in the figure, the user can test the function to recover the defective pixel. Users should connect with the technical support under these conditions to ensure to apply.

##### Procedure:

1. Navigate to **Thermal > Settings > Defect Pixel Correction**.

Figure 4-5 Defect pixel correction



2. Click the white point in the image, and click **Reset** to recover the defect pixel, as shown in Figure 4-6.

Figure 4-6 Recover Defect Pixel



3. Click **Apply**. The message "Apply success" is displayed, and the system will save the settings.

----End

## 4.1.5 Version Information

Check the MCU version and MCU sequence number for easy traceability

## 4.2 Temperature Alarm

Users can set the alarm area and type.

- **PTZ Setting**
- **Alarm Type**
- **Warning Value**
- **Alarm Value**
- **Maximum Alarm Value**
- **Duration**
- **Emission Rate**
- **Distance**
- **Reflection Temperature**
- **Ignore Object**

### Procedure:

1. Navigate to **Thermal > Temperature Alarm**.
2. Modify the settings as shown in the table below:
3. Click **Apply** to save.

Figure 4-7 Temperature Area and Alarm Configuration

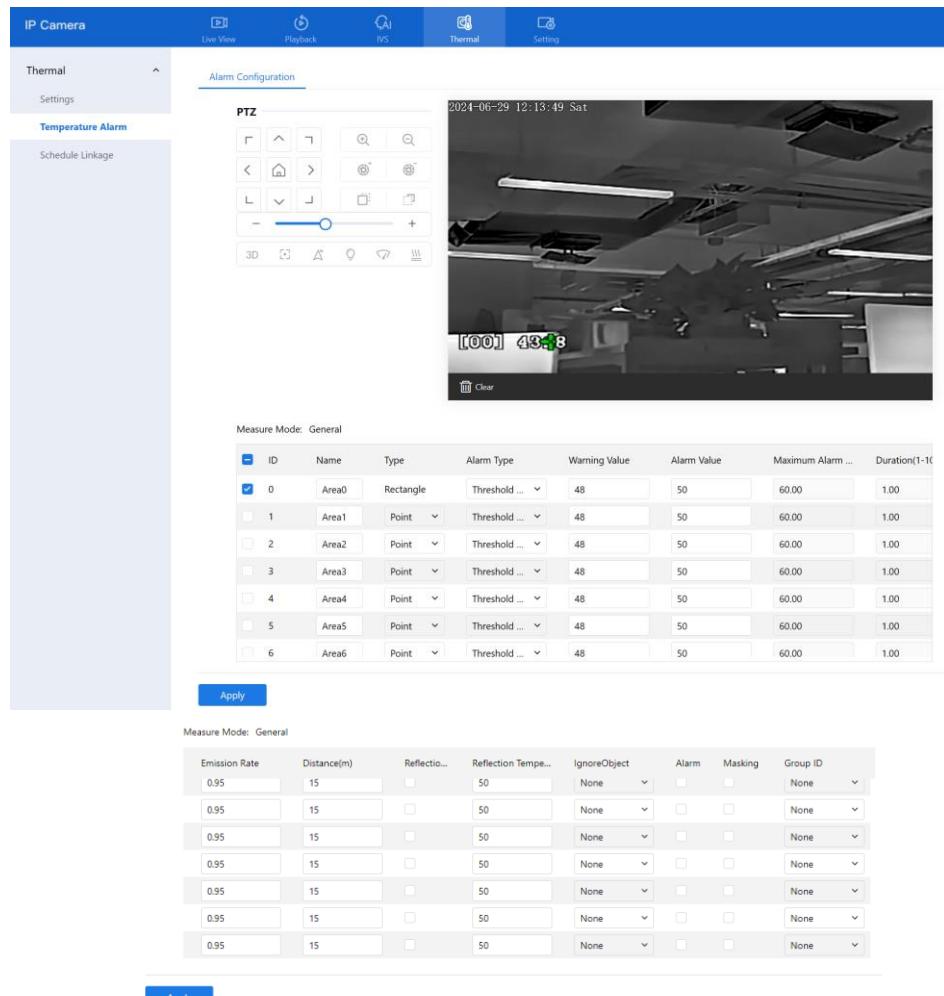


Table 4-4 Alarm configuration

| Parameter    | Description                               | Setting                  |
|--------------|---|--------------------------|
| Measure Mode | Set at temperature parameter interface.   | N/A                      |
| Enable       | Tick the ID to enable the area measuring. | [Setting method]<br>Tick |

| Parameter     | Description  | Setting  |
|---------------|--|--|
| Name          | Area name of temperature area.   | [Setting method]<br>Enter a value manually.  |
| Type          | Type of temperature area.<br><br>ID 0 is the default rectangle area, which is full screen. It cannot be modified.<br><br>Other IDs can be set as point, line, or polygon.  | [Setting method]<br>Select a value from the drop-down list box.<br><br>[Default value]<br><b>Rectangle/Point</b> |
| Alarm Type    | <b>Temperature difference alarm:</b> when the area's temperature difference (Highest temperature minus Average temperature) is over the setting value(Warning temperature or Alarm temperature), it will generate the alarm.<br><br><b>Temperature rise alarm:</b> During the duration time. If the rising temperature value is more than the set value(Warning temperature or Alarm temperature), it will generate the alarm.<br><br><b>Temperature threshold alarm:</b> when the temperature is higher than the threshold, the alarm will be triggered.<br><br><b>Section Alarm:</b> if the temperature value is within the set temperature range, it will generate the alarm. | [Setting method]<br>Select a value from the drop-down list box.<br><br>[Default value]<br><b>Threshold alarm</b> |
| Warning Value | The camera will trigger a warning alarm when the object's temperature reaches the warning value.   | [Setting method]<br>Enter a value manually.<br><br>[Default value]<br><b>48</b>                                  |

| Parameter           | Description   | Setting   |
|---------------------|---|---|
| Alarm Value         | The camera will alarm when the object temperature reaches the alarm value.  | <p>[Setting method]<br/>Enter a value manually.</p> <p>[Default value]<br/><b>50</b></p>    |
| Maximum Alarm Value | In the section alarm type, the device would not alarm when the temperature is higher than the maximum alarm value.  | <p>[Setting method]<br/>Enter a value manually.</p> <p>[Default value]<br/><b>60.00</b></p> |
| Duration (1-10S)    | Choose the temperature rise alarm, and set the duration. If the temperature value rises within the duration setting, the alarm is triggered successfully. | <p>[Setting method]<br/>Enter a value manually.</p> <p>[Default value]<br/><b>1.00</b></p>  |
| Emission Rate       | The emission rate is the capability of an object to emit or absorb energy. The emission rate should be set only when the target is a special material.    | <p>[Setting method]<br/>Enter a value manually.</p> <p>[Default value]<br/><b>0.95</b></p>  |

| Parameter                 | Description   | Setting  |
|---------------------------|---|--|
| Distance(m)               | The distance between the camera and the target.   | <p>[Setting method]<br/>Enter a value manually.<br/>[Default value]<br/><b>15</b></p> <p> <b>NOTE</b><br/>Enter the actual distance when the distance between the camera and the target is less than 15m. Enter 15 when the distance between the camera and the target is greater than or equal to 15m.</p> |
| Reflection Temperature on | When there are some high-temperature objects on the scene, and the temperature reflects on the other object, you can enable this function to calibrate the temperature. | [Setting method]<br>Tick to enable   |
| Reflection Temperature    | The temperature of high-temperature objects.  | <p>[Setting method]<br/>Enter a value manually.<br/>[Default value]<br/><b>50.00</b></p>   |
| Ignore Object             | Enable shielding the temperature of the area capturing AI objects.  | [Setting method]<br>Select a value from the drop-down list box.  |
| Alarm                     | Enable or disable the alarm output and linkage of the area.   | [Setting method]<br>Tick to enable the alarm.  |

| Parameter | Description  | Setting  |
|-----------|--|--|
| Masking   | Enabling the device will shield this area's temperature.<br><br>The ID can be chosen from one of six groups or no group. The group will be alarmed following the next rules:<br><br>A = The highest temperature of groups (the highest temperature of N regions is the largest)<br>B = Average temperature of groups (average temperature of N regions)<br>WA=Warning value<br>AA=Alarm value<br><br>a. If $A-B \geq WA$ , a temperature difference warning signal is generated --> (The one with the largest difference between the N areas and the average temperature is the alarm area flashing.)<br>b. If $A-B \geq AA$ , a temperature difference alarm signal is generated --> (the one with the largest difference between the N areas and the average temperature is the alarm area flashing)<br>c. If the warning and alarm conditions are met at the same time, the alarm signal will be generated first. | [Setting method]<br>Tick to shield.<br><br>[Setting method]<br>Select a value from the drop-down list box. |
| Group ID  |  |  |

#### 4. Set the temperature area.

1. Tick an area ID. Set the name.
2. Choose the type (point, line, polygon)
3. Press and hold the left mouse button, and drag in the video area to draw a temperature area, as shown in Figure 4-8. Right-click to finish the area selected.

Figure 4-8 Temperature Area Setting Interface



5. Click **Apply**, the message “Apply success” is displayed, and the temperature area is set successfully.

#### NOTE

ID 0 is the full screen; The area cannot be changed.

 : The lowest temperature of the full screen.

 : The highest temperature of the full screen.

 : The lowest temperature in the area.

 : The highest temperature in the area.

#### Delete a temperature area:

1. Select an area ID.
2. Click **Clear**.
3. Remove the tick from the area ID.
4. Click **Apply**, the message “Apply success” is displayed, and the temperature area is deleted successfully.

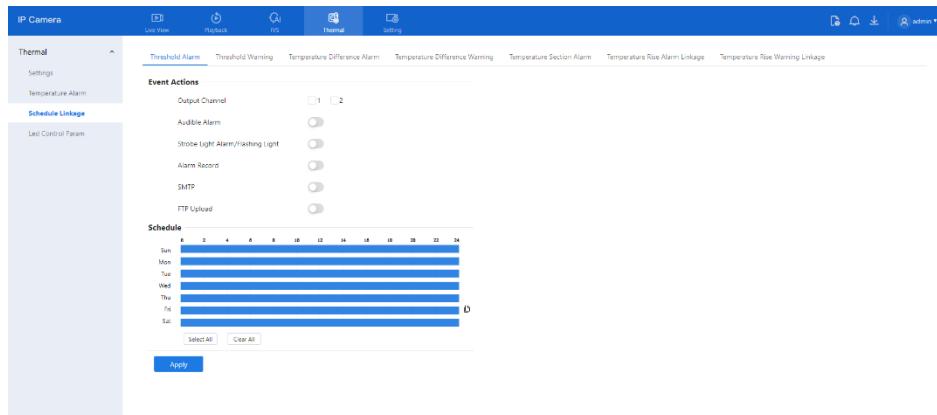
## 4.3 Schedule Linkage

There are seven types of alarm linkage: threshold alarm, threshold warning, temperature difference alarm, temperature difference warning, temperature section alarm, temperature rise alarm, and temperature rise warning.

### Procedure:

1. Navigate to **Thermal > Schedule Linkage**.

Figure 4-9 Schedule Linkage



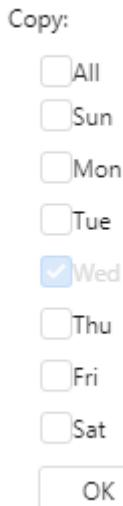
2. Tick the output channel.
3. Enable wanted linkage: “Output Channel”, “Audible alarm”, “Alarm Record”, “SMTP”, “FTP upload”.
4. Set schedule linkage.

**Method 1:** Hold down the left mouse button, drag and release the mouse to select the deployment time 0:00-24:00 from Monday to Sunday.

**Method 2:** Click **Select All** to deploy all the time.

**Method 3:** Set one day, click  to copy to other days.

Figure 4-10 Copy



**Delete schedule time:** click **Clear All** to delete all times.

Click the set time,  click **OK** to confirm or click **Delete** to delete this time.

5. The message "Apply success" is displayed, and the system will save the settings.



**NOTE**

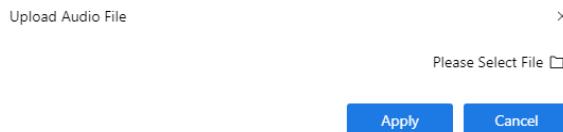
Figure 4-11 Audio file

| ID | File Name                    | Cycle Number | Operate |
|----|------------------------------|--------------|---------|
| 1  | high_temperature_alarm.wav   | 1            | ↓↑ ↕    |
| 2  | normal_temperature.wav       | 1            | ↓↑ ↕    |
| 3  | low_temperature_alarm.wav    | 1            | ↓↑ ↕    |
| 4  | hello_welcome.wav            | 1            | ↓↑ ↕    |
| 5  | verification_success.wav     | 1            | ↓↑ ↕    |
| 6  | verification_failed.wav      | 1            | ↓↑ ↕    |
| 7  | temperature_rise_warning.wav | 1            | ↓↑ ↕    |
| 8  | temperature_rise_alarm.wav   | 1            | ↓↑ ↕    |
| 9  | temperature_range_alarm.wav  | 1            | ↓↑ ↕    |
| 10 | temperature_diff_alarm.wav   | 1            | ↓↑ ↕    |

Apply

Users can set the audio file manually. Click  to upload the audio file(The type should be WAV, the size must be less than 250 Kb, and the bit rate should be 128 kbps.), as shown in Figure 4-12.

Figure 4-12 Upload an audio file



----End

# 5 IVS Settings

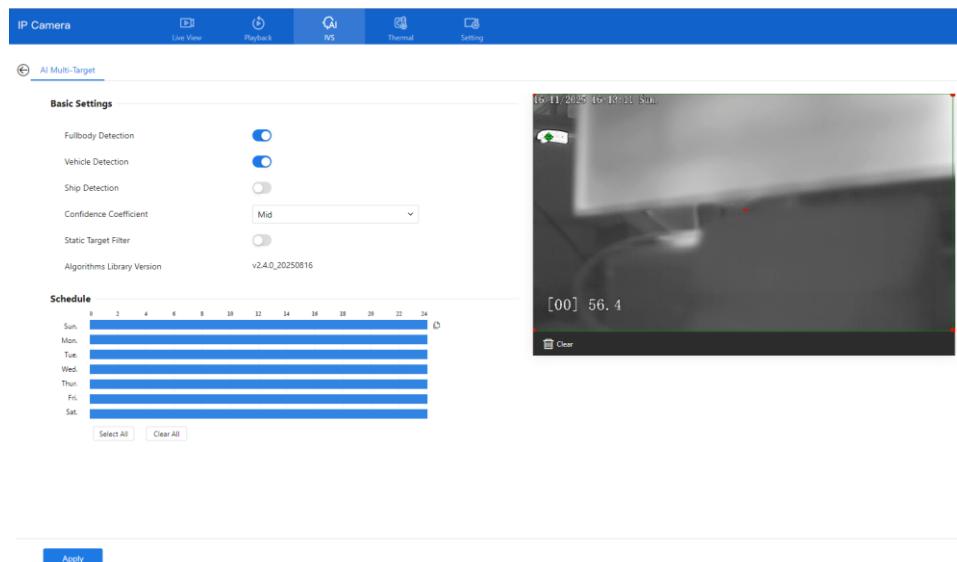
On the IVS (intelligent video system) page, users can set deep learning (**AI multi-target**), intelligent analysis (**intrusion**, **smart motion**, **single line crossing**, **double line crossing**, **multi-loitering**, **wrong-way**, **enter area**, **leave area**), environmental safety analysis (**smoking**, **fire spot detection**), and behavior analysis (**people counting**).

## 5.1 AI Multi-Target

AI multi-target means the users are enabled to full-body detection, vehicle detection, and ship detection. If the camera detects the target in the defended areas at an armed schedule, it will trigger the alarm.

1. Navigate to **IVS > AI Multi-Target** interface.

Figure 5-1 AI Multi-Target



2. Set the parameters as shown in the table below:

Table 5-1 AI Multi-Target parameters

| Parameter | Description   | How to set |
|-----------|---|------------|
| Full body | The camera will snap the whole body when someone appears in the live video. The detection | Enable     |

|                        |  |                                 |
|------------------------|--|---------------------------------|
| detection              | frame is blue.   |                                 |
| Vehicle Detection      | The camera will snap the vehicle when the vehicle appears in live video. The detection frame is yellow.  | Enable                          |
| Ship Detection         | The camera will snap the ship when the ship appears in live video. The detection frame is green.   | Enable                          |
| Confidence Coefficient | In the range of snapshots, there are three types such as high, mid, and low. The higher the confidence, the better the snap quality and the fewer snapshots. | Choose from the drop-down list. |
| Static Target Filter   | If the target is static, the device will filter this target. For example, if a vehicle stops for a long time, the device will be filtered.                   | Enable                          |

3. Draw the detection area by using the mouse.
4. To set the schedule, please refer to *Chapter 4.3*.
5. Click **Apply** to save the settings.

## 5.2 Intelligent Analysis

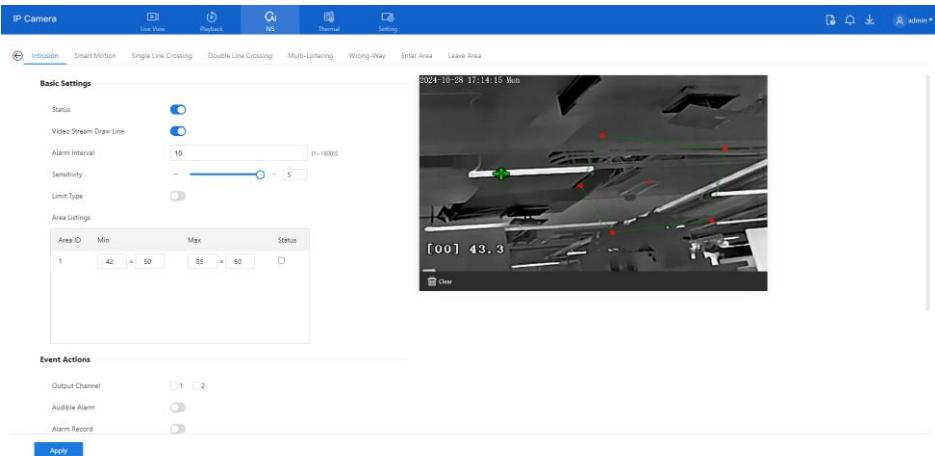
### 5.2.1 Intrusion

The Intrusion function refers to an alarm generated when target objects (such as Person, Vehicle, and both Person and Vehicle) enter the deployment area.

#### Procedure

1. Navigate to **IVS > Intelligent Analysis > Intrusion** to access the **Intrusion** interface, as shown in Figure 5-2.

Figure 5-2 Intrusion Setting Interface



2. Set all parameters as per Table 5-2.

Table 5-2 Intrusion Parameter Description

| Parameter              | Description  | Setting  |
|------------------------|--|--|
| Status                 | Enable the button to enable the alarm.   | [How to set]<br>Click Enable to enable.<br>[Default value]<br><b>OFF</b>     |
| Video Stream Draw Line | Enable the button, and the drawing frame detection will show in the live video.  | [How to set]<br>Click to enable FTP Upload.<br>[Default value]<br><b>OFF</b> |
| Alarm Interval         | During the interval, the same alarm will only be sent once.  | [How to set]<br>Input a value<br>[Default value]<br><b>10</b>                |
| Sensitivity            | The sensitivity of detecting smoking, when the value is high, the alarm can be triggered easily, but the accuracy will be lower. | [How to set]<br>Choose from the drop-down list<br>[Default value]            |

| Parameter      | Description  | Setting   |
|----------------|--|---|
|                |  | <b>5</b>  |
| Limit Type     | Effective alarms are set based on target type, with options of Person or Vehicle, person, vehicle. When the device is used indoors, because of the small space and large targets, to avoid wrong alarms being triggered by the person, even if the vehicle is selected, it is recommended to set the target type to person for indoor use. | [How to set]<br>Click to enable Limit Target Type.<br>[Default value]<br><b>OFF</b> |
| Area Listing   | When users set the areas, the area will show on the listing. If the area status is on, the min and max size will show on the area, drag the frame to move, and adjust the points of the frame to change size.  |   |
| Output Channel | If you check to set the Output Channel and the device is connected to an external alarm indicator, the alarm indicator signals when an alarm is triggered.   | [How to set]<br>Click to select an ID.  |
| Audible alarm  | After enabling Audible Warning and setting Audible Alarm Output, the built-in speaker of the device or the connected external speaker plays warning sounds when an alarm happens. (set at the “Setting > Video / Audio > Audio File” )   | [How to set]<br>Click to enable the Audible alarm<br>[Default value]<br><b>OFF</b>  |
| SMTP           | Enable the button to enable the SMTP server.   | [How to set]<br>Click to enable SMTP.<br>[Default value]<br><b>OFF</b>              |
| FTP Upload     | Enable the button to enable File Transfer Protocol.  | [How to set]<br>Click to enable FTP Upload.<br>[Default value]<br><b>OFF</b>        |

Step 2 Set a deployment area. Move the cursor to the drawing interface and click to generate a point, move the cursor to draw a line, and then click to generate another point. This is how a line is generated. In this way, continue to draw lines to form any shape, and right-click to finish the drawing.

### NOTE

- A drawn line cannot cross another one, or the line drawing fails.
- Any shape with 32 sides at most can be drawn.
- The quantity of deployment areas is up to 8.

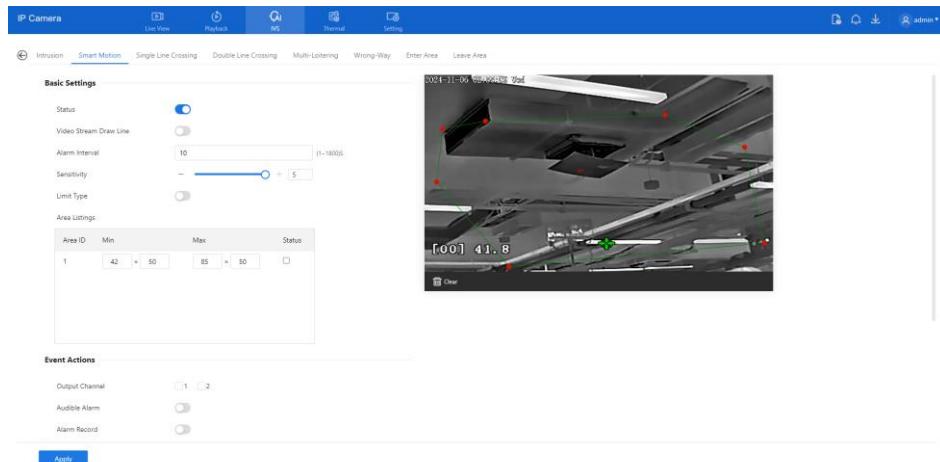
3. For the set deployment time, please refer to Chapter 4.
4. Click **Apply** to save the settings.

## 5.2.2 Smart Motion

Smart motion refers to the alert generated when a specified type of target (such as a person, vehicle, etc.) moves within the live video defense area.

Select **IVS > Intelligent Analysis > Smart Motion** to access the **Smart Motion** interface, as shown in.

Figure 5-3 Smart Motion



To set all parameters of smart motion, please refer to *Chapter 5.2.1*

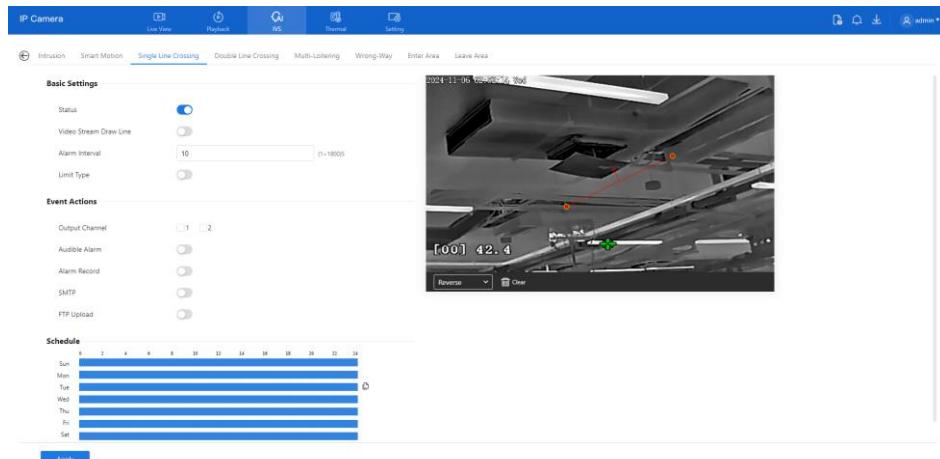
## 5.2.3 Single Line Crossing

A Single Line Crossing is a line that is set at a concerned position within the monitored field of view and specifies the forbidden travel direction; An alarm is generated when the targets of specified types (such as person or vehicle) cross this line.

### Procedure

1. Navigate to **IVS > Intelligent Analysis > Single Line Crossing**.

Figure 5-4 Single Line Crossing Setting Interface



2. Set all parameters of the Single Line Crossing as per Table 5-2.
3. Set a deployment area.

**Draw a line:** Move the cursor to the drawing interface, hold down the left mouse button, and move the cursor to draw a line. When you release the left mouse button, a Single Line Crossing is generated.

**Setting a Single Line Crossing:** Click a line (and the trip line turns red) to select the Single Line Crossing and set its direction as Positive, Reverse, or Bidirectional, or delete the selected line. You can also press and hold the left mouse button at the endpoint of a Single Line Crossing and move the mouse to modify the position and length of this Single Line Crossing. You can right-click to delete the Single Line Crossing.

Figure 5-5 Set Single Line Crossing Line



#### NOTE

- Try to draw the Single Line Crossing in the middle, because the recognition of a target takes time after the target appears on the screen, and an alarm is generated only when the object is recognized to have crossed the Single Line Crossing.
- The Single Line Crossing, which detects a person's foot as the recognition target, cannot be too short, because a short Single Line Crossing tends to miss targets.

- For the set deployment time, please refer to Chapter 4.
- Click **Apply** to save the settings.

---End

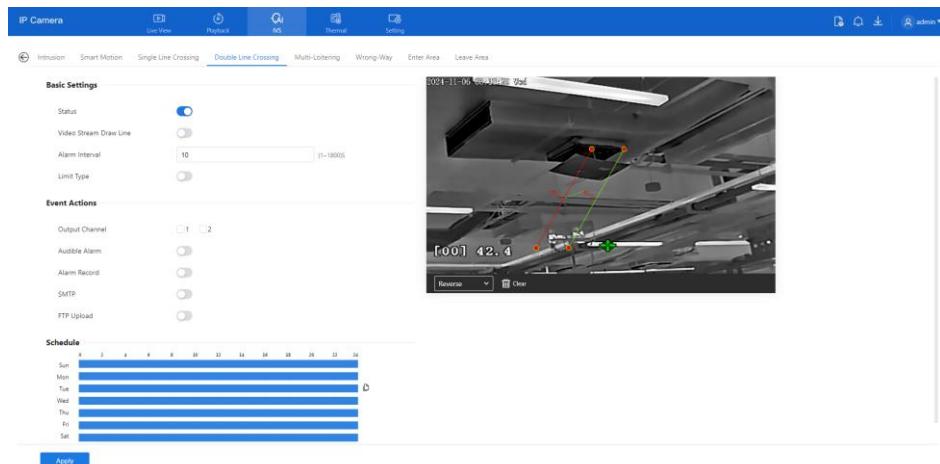
## 5.2.4 Double Line Crossing

Double Line Crossing refers to two lines that are set at a concerned special position within the field of view and specify the forbidden travel direction. When the targets of specified types (such as persons or vehicles) move along the set travel direction and cross these lines in a certain order (line 1 followed by line 2) within the pass max time, an alarm is generated.

### Procedure

- Navigate to **IVS > Intelligent Analysis > Double Line Crossing** to access the **Double Line Crossing** setting interface, as shown in Figure 5-6.

Figure 5-6 Double Line Crossing Setting Interface



2. Set all parameters of the Double Line Crossing. Please refer to *Chapter 5.2.1*.
3. Set a deployment area.

**Draw a line:** Move the cursor to the drawing interface, hold down the left mouse button, and move the cursor to draw two lines. When you release the left mouse button, two numbered virtual fences are generated. Choose either of the Double Line Crossing to set the direction to **Positive** or **Reverse**.

**Set Double Line Crossing:** Click one of the Double Line Crossing (and the virtual fence turns red) to select this virtual fence and set the direction to **Positive** or **Reverse**, or delete the selected line. You can also press and hold the left mouse button at the endpoint of a virtual fence and move the mouse to modify the position and length of this virtual fence. You can right-click to delete the Double Line Crossing.

#### **NOTE**

- The two lines are in sequential order. An alarm is generated only when a target crosses virtual fence 1 and then virtual fence 2 within the set maximum passing time.
- Try to draw a Double Line Crossing in the middle, because the recognition of a target takes time after the target appears on the screen, and an alarm is generated only when the object is recognized to have crossed the Double Line Crossing.
- The Double Line Crossing, which detects a person's foot as the recognition target, cannot be too short, because a short Double Line Crossing tends to miss targets.

4. For the set deployment time, please refer to Chapter 4.
5. Click **Apply** to save the settings.

---End

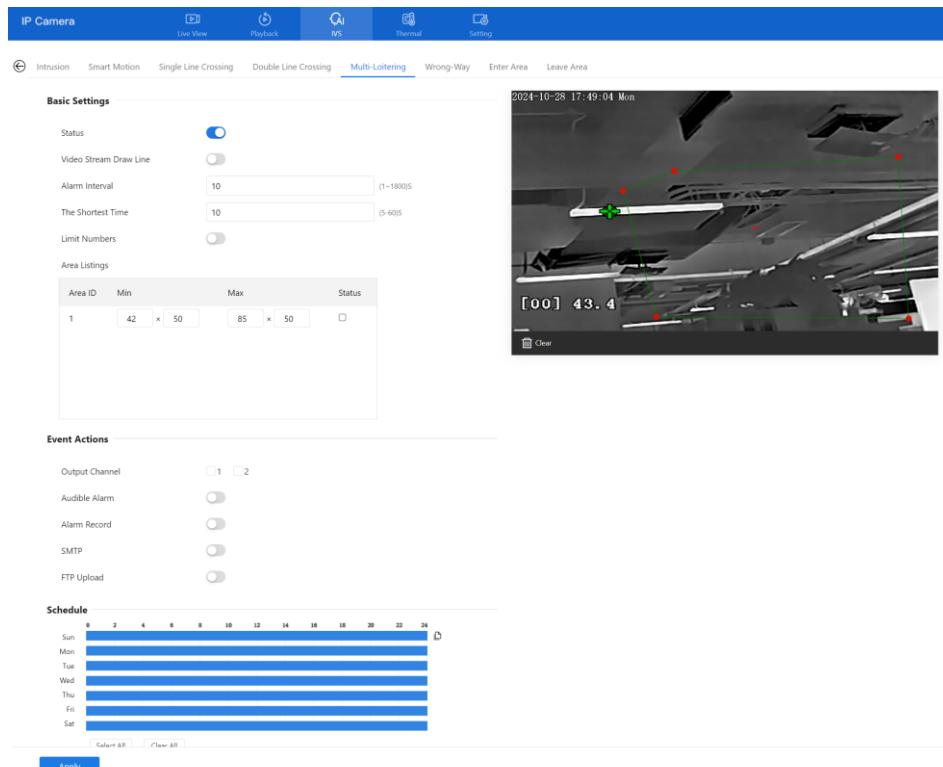
## 5.2.5 Multi-Loitering

Multi-loitering allows setting the shortest loitering time for multiple targets of the specified type (such as a person or vehicle) within the deployment area in the field of view. When the loitering time of the multiple targets within this area meets the set shortest loitering time, an alarm is generated.

### Procedure

1. Navigate to **IVS > Intelligent Analysis > Multi-Loitering** to access the **Multi-Loitering** setting interface, as shown in Figure 5-7.

Figure 5-7 Multi-Loitering



2. To set all parameters of multi-loitering, please refer to Chapter 5.2.1.

## 5.2.6 Wrong-Way

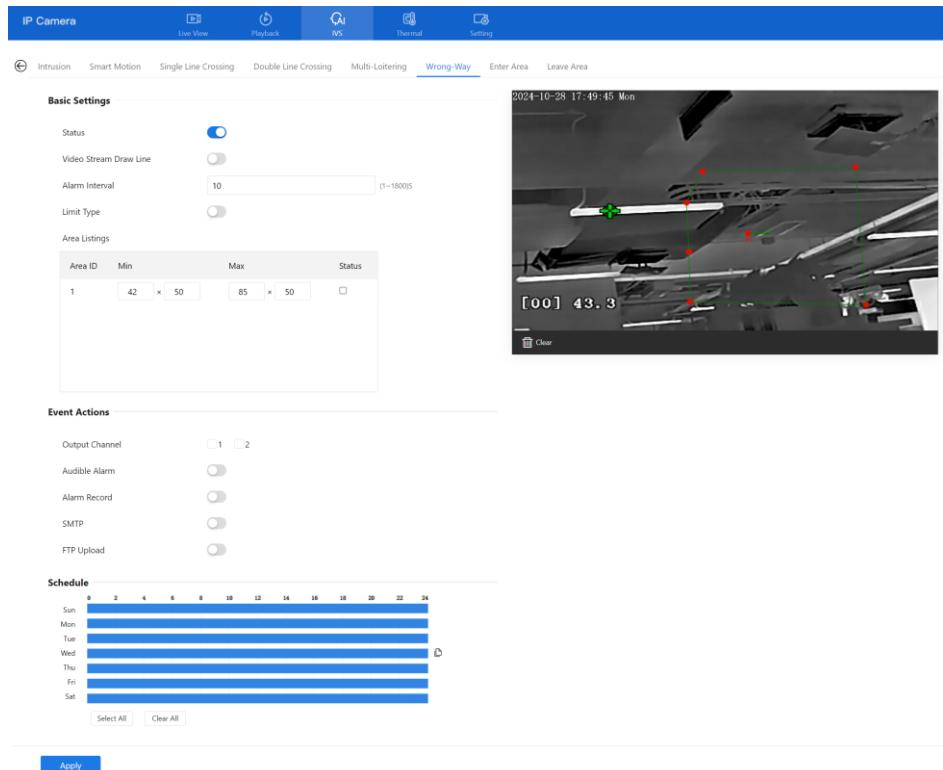
Wrong-way allows setting the travel direction criteria for a target within an area on the video screen.

If someone/something is moving in the opposite direction in an area, an alarm is generated.

### Procedure

1. Navigate to **IVS** > **Intelligent Analysis** > **Wrong-Way** to access the **Wrong-Way** setting interface, as shown in Figure 5-8.

Figure 5-8 Wrong-Way



2. To set all parameters of wrong-way, please refer to *chapter 5.2.1*

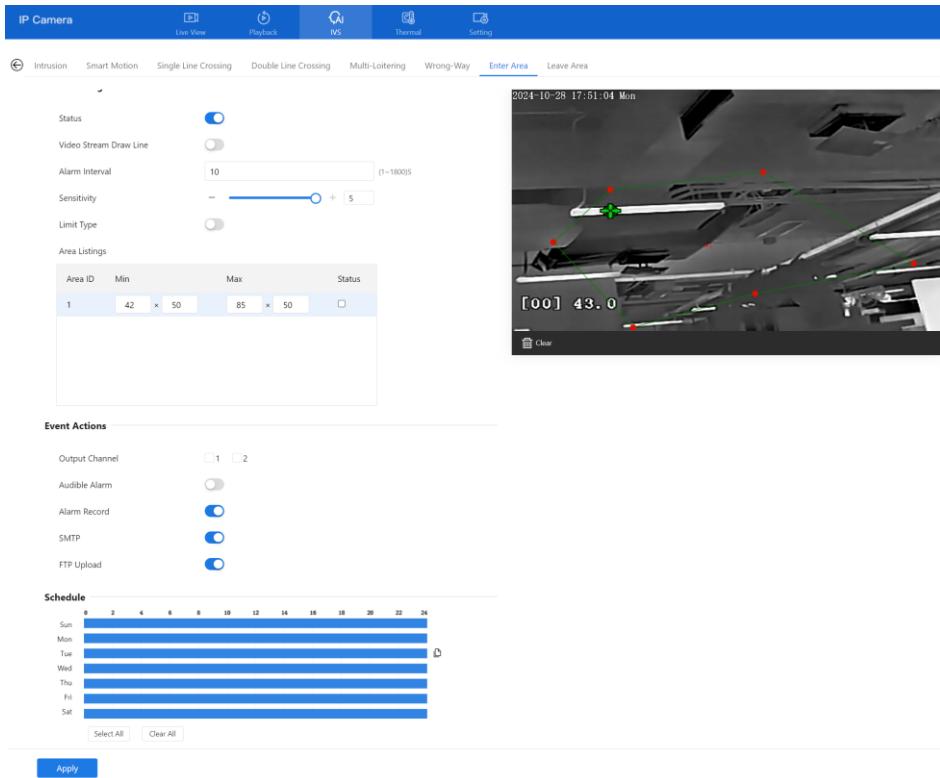
## 5.2.7 Enter Area

The enter area refers to an alarm generated when a target enters the deployment area at a valid time.

## Procedure

1. Navigate to **IVS > Intelligent Analysis > Enter Area** to access the **Enter Area** setting interface, as shown in Figure 5-9.

Figure 5-9 Enter Area



2. To set all parameters of the entering area, please refer to *Chapter 5.2.1*.

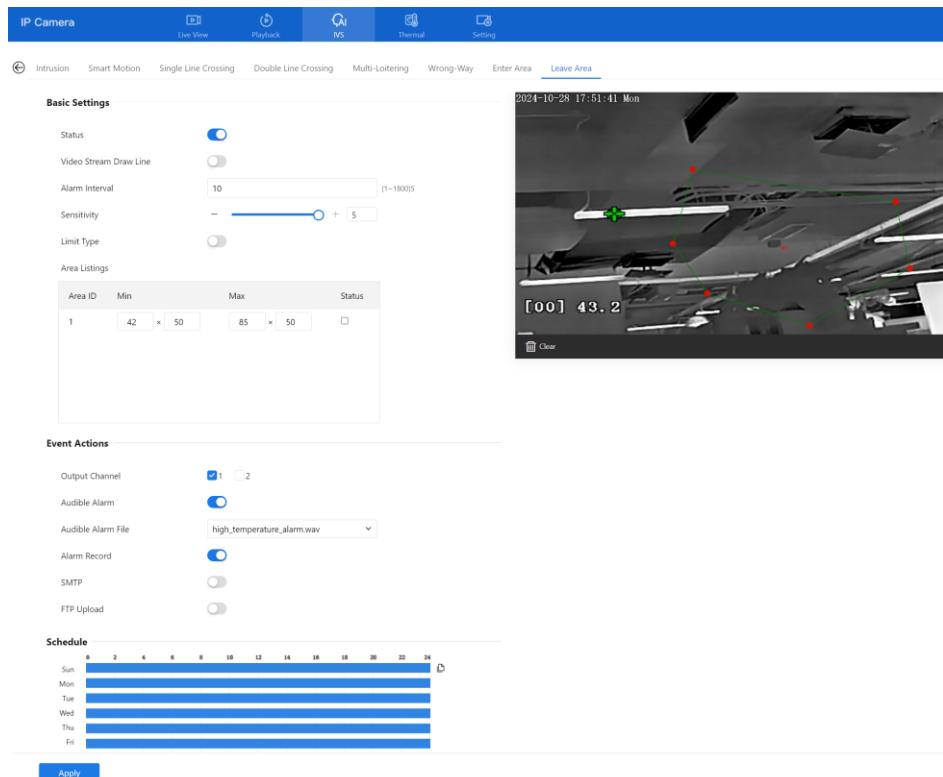
### 5.2.8 Leave Area

The leave area refers to an alarm generated when a target leaves the deployment area at a valid time.

## Procedure

1. Navigate to **IVS > Intelligent Analysis > Leave Area** to access the **Leave Area** setting interface, as shown in Figure 5-10.

Figure 5-10 Leave Area



2. To set all parameters of the leaving area, please refer to Chapter 5.2.1

## 5.3 Environmental Safety Analysis

At the advanced environmental Safety Analysis interface, users can set the parameters of smoking detection, smoke and flame detection, and fire spot detection. Enable the linkage actions, and the alarm information can be sent to the user through the linkage.

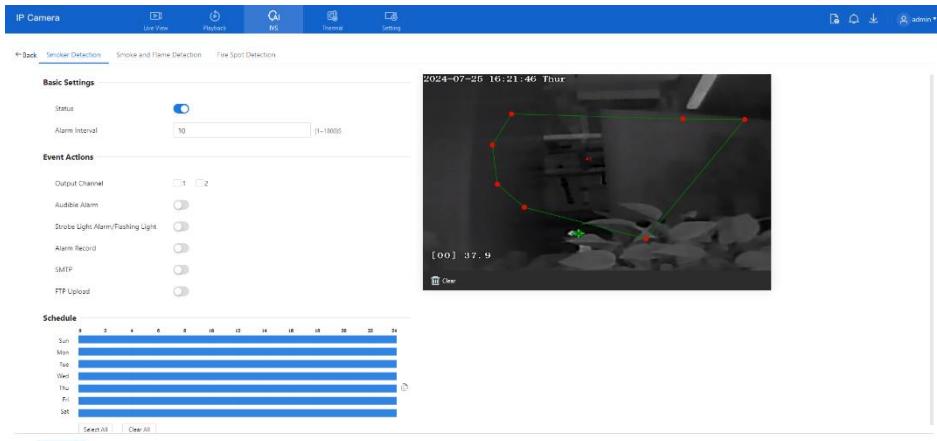
### 5.3.1 Smoking Detection

The smoking detection function refers to that an alarm is generated when someone is smoking or generating a spark in the deployment area.

## Procedure

1. Navigate to **IVS > Environmental Analysis > Smoking Detection** to access the **Smoking Detection** interface, as shown in Figure 5-11.

Figure 5-11 Smoking detection interface



2. To set all parameters of smoking detection, please refer to Chapter 5.2.1.

### 5.3.2 Fire Spot Detection

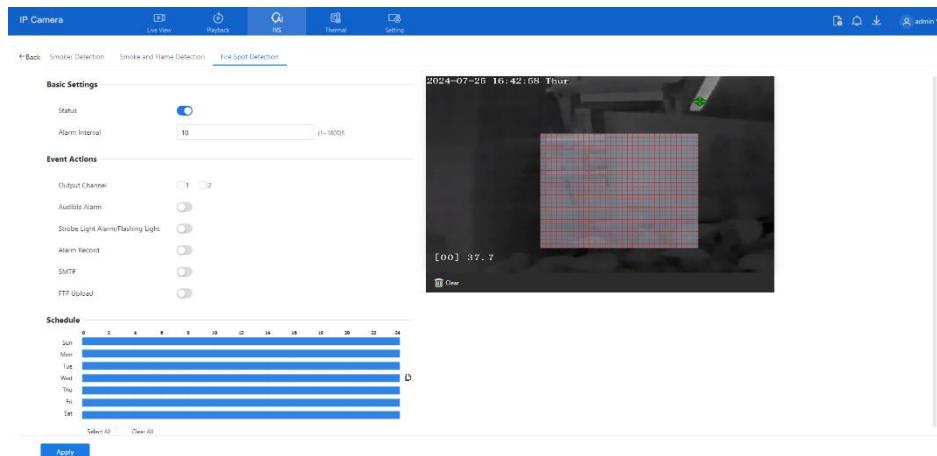
#### Description

The fire spot detection function refers to that an alarm is generated when something is on fire in the deployment area.

#### Procedure

1. Select **IVS > Environmental Analysis > Fire Spot Detection** to access the **Fire Spot Detection** interface, as shown in Figure 5-12

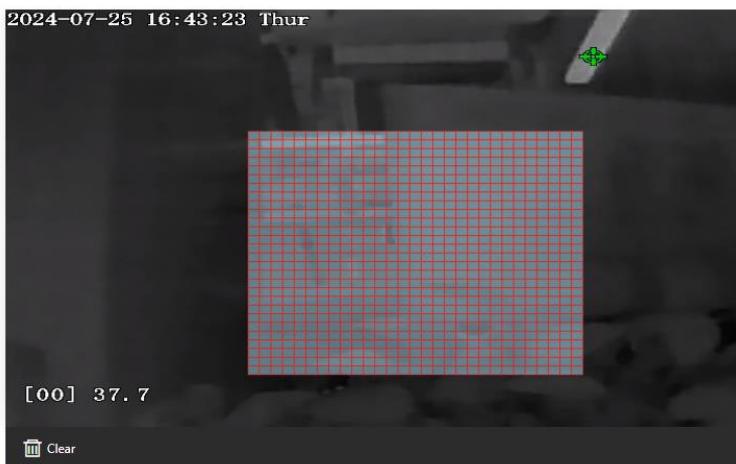
Figure 5-12 Fire spot detection interface



2. Set all parameters of Fire Spot Detection, please see chapter 5.2.1
3. Set a deployment area.

Use the mouse to draw a rectangular area; you can set several areas to deploy, as shown in Figure 5-13.

Figure 5-13 Set deployment area



4. For the set deployment time, please refer to Chapter 4.
5. Click **Apply** to save the settings.

--End

## 5.4 People Counting

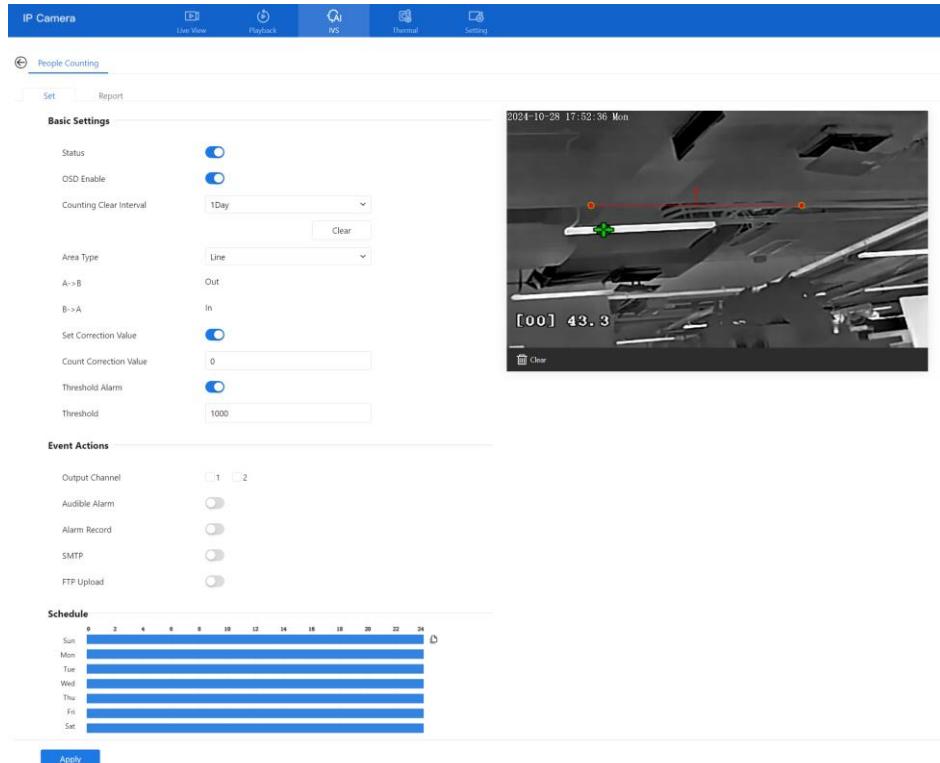
Users can draw a line to count the number of people in the special area.

### 5.4.1 Set

#### Procedure

1. Navigate to **IVS > People Counting > Set** to access the **People Counting** setting interface, as shown in Figure 5-14.

Figure 5-14 People counting



2. Set all parameters of People Counting as per Table 5-3.

Table 5-3 Parameters of people counting

| Parameter               | Description  | Setting   |
|-------------------------|--|---|
| Status                  | Enable the button to enable the alarm.   | [How to set]<br>Click the button to enable.<br>[Default value]<br><b>OFF</b>          |
| OSD Enable              | Enable the OSD, and the count data will show on the live video screen.   | [How to set]<br>Click Enable to enable.<br>[Default value]<br><b>OFF</b>              |
| Counting Clear Interval | The camera will clear the counting data at the setting interval.<br>Click the “Clear Counting”, clearing the data immediately.   | [How to set]<br>Choose from the drop-down list.<br>[Default value]<br><b>1 Day</b>    |
| Area Type               | Draw a line on the live video screen.<br>The labels A and B indicate out and in.   | [How to set]<br>Choose from the drop-down list.<br>[Default value]<br><b>Line</b>     |
| Set Correction Value    | Enable and set the count correction value; it can be positive or negative. For example, if 30 people are entering the area before counting, input 30 to correct. If 30 people go out of the area, input -30. | [How to set]<br>Enable /Input a value in the area box.<br>[Default value]<br><b>0</b> |
| Threshold Alarm         | Enable, when the counting number reaches the threshold value, an alarm is triggered.   | [How to set]<br>Click Enable to enable.<br>[Default value]<br><b>OFF</b>              |

| Parameter      | Description   | Setting  |
|----------------|---|--|
| Threshold      | The threshold for enabling the alarm.   | [How to set]<br>Enable /Input a value in the area box.<br>[Default value]<br><b>1000</b> |
| Output Channel | If you check to set the Output Channel and the device is connected to an external alarm indicator, the alarm indicator signals when an alarm is triggered.                          | [How to set]<br>Click to select an ID.   |
| Audible alarm  | Enable so that when an alarm occurs, it will play audio for the alarm.<br>Choose the audible alarm file (set at the “ <b>Configuration &gt; Alarm &gt; Audible Alarm Output</b> ”). | [How to set]<br>Click to enable the Audible alarm<br>[Default value]<br><b>OFF</b>       |
| SMTP           | Enable the button to enable the SMTP server.<br>The parameters of SMTP can be set at <b>Configuration &gt; Network Service &gt; SMTP</b> interface.                                 | [How to set]<br>Click to enable SMTP.<br>[Default value]<br><b>OFF</b>                   |
| FTP Upload     | Enable the button to enable File Transfer Protocol.<br>The parameters of FTP can be set at <b>Configuration &gt; Network Service &gt; FTP</b> interface.                            | [How to set]<br>Click to enable FTP Upload.<br>[Default value]<br><b>OFF</b>             |

3. Set a deployment area.

Move the cursor to the drawing interface and click to generate a point, move the cursor to draw a line, and then click to generate another point. This is how a line is generated. In this way, continue to draw lines to form any shape, and right-click to finish the drawing.

4. Set deployment time.

5. Click **Apply** to save the settings.

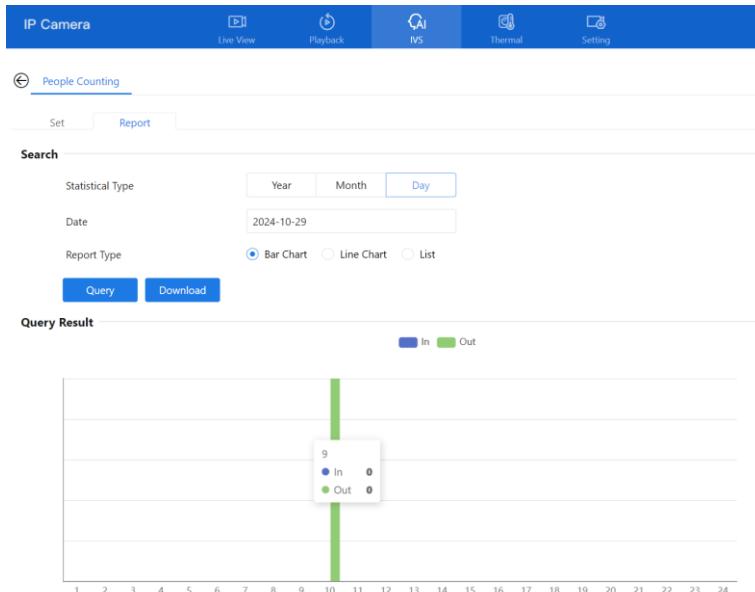
---End

## 5.4.2 Report

At the people counting report interface, you can view the data of people counting by setting the query condition (choose the detailed time in the date's pop-up window). There are three modes to show the data, such as line chart, histogram, and list, as shown in Figure 5-15.

Navigate to **IVS > People Counting > Report**

Figure 5-15 Report of people counting



- Click “Download” to download the query result.
- Choose the mode of showing results, such as a line chart, a histogram, or a list.
- Click “Query” to query the data on people counting.
- The data result can be saved to the local folder.

----End

# A Troubleshooting

| Common Trouble                            | Possible Cause  | Solution  |
|---|---|---|
| Unable to access the web                  | The network is not connected.   | Connect the network cable of the camera to the PC to check whether the network cable is in good contact.<br>Run the ping command to check the network connection and whether the device works normally. |
|   | The IP address is occupied.   | Directly connect the camera to the PC, and reset the IP address of the camera.  |
|   | The IP addresses of the PC and the device are in different networks.          | Check the IP address, subnet mask, and gateway settings of the camera.  |
| PTZ or high-speed dome is out of control. | The protocol, bit rate, or address setting of the PTZ is incorrect.           | Modify the address of the PTZ on the web.   |
|   | The signal cable is unconnected or not connected correctly.                   | Check the signal strength and reconnect the signal cable.   |
| The measured temperature is not accurate. | The device is just powered on, and the temperature of the cavity is unstable. | The temperature of the cavity is stable within 15 to 30 minutes after the device is powered on.   |
|   | The FFC mode is incorrect.  | The FFC default mode is automatic. If the mode is set to manual, there will be no block calibration, which may lead to fuzzy pictures and inaccurate temperature.                                       |
|   | The target configuration is incorrect.  | Check whether the emission rate and distance of the target are configured correctly.  |

| Common Trouble  | Possible Cause  | Solution  |
|---|---|---|
| An error occurs in accessing the web of the device after the upgrade. | The data in the cache of the browser is not updated in time.        | Delete the cache of Microsoft Edge. The steps are as follows:<br>Press <b>Ctrl + Shift + Delete</b> , and the pop-up window shows the <b>Delete Browsing History</b> dialog box. <ol style="list-style-type: none"><li>1. Select all checkboxes.</li><li>2. Click <b>Delete</b>.</li><li>3. Relog in to the web page of the camera.</li></ol> |
| Upgrade failed.   | No network cable is connected.<br>The network setting is incorrect. | Ensure the upgraded network is connected.<br>Check whether the network settings are correct.  |
|   | The upgrade package is incorrect.                                   | Perform the correct upgrade package again.  |

# B Common Emission Rate

## Emission Rate

The emission rate is the capability of an object to emit or absorb energy. An ideal transmitter provides an emission rate of emitting 100% of the intake energy. An object with an emission rate of 0.8 can absorb 80% of the intake energy and reflect the remaining 20%. The emission rate is the ratio of the energy emitted by an object at a specific temperature to that emitted by an ideal radiator at the same temperature. The range of emission rate values is 0.0 to 1.0 generally.

| Materials                         | Temperature (°C/F) | Emissivity |
|-----------------------------------|--------------------|------------|
| Gold (High-purity)                | 227/440            | 0.02       |
| Aluminum foil                     | 27/81              | 0.04       |
| Aluminum sheet                    | 27/81              | 0.18       |
| Aluminum used for families (flat) | 23/73              | 0.01       |
| Aluminum plate ( 98.3% purity)    | 227/440            | 0.04       |
|                                   | 577/1070           | 0.06       |
| Aluminum plate (rough)            | 26/78              | 0.06       |
| Aluminum (oxidized @ 599°C)       | 199/390            | 0.11       |
|                                   | 599/1110           | 0.19       |
| Polished aluminum                 | 38/100             | 0.22       |
| Tin (light tinned Iron sheet)     | 25/77              | 0.04       |
| Nickel wire                       | 187/368            | 0.1        |
| Lead (99.9% purity, No oxidized)  | 127/260            | 0.06       |
| Copper                            | 199/390            | 0.18       |

|  |                     |      |
|--|---------------------|------|
| Cobalt                                       | 599/1110            | 0.19 |
| Steel  | 199/390             | 0.52 |
|  | 599/1110            | 0.57 |
| Tinned iron sheet (Light)                    | 28/82               | 0.23 |
| Brass(High-polish)                           | 247/476             | 0.03 |
| Brass (Tough rolled,<br>polished metal wire) | 21/70               | 0.04 |
| Tinned Iron (Light)                          | -                   | 0.13 |
| Iron plate (Rust-eaten)                      | 20/68               | 0.69 |
| Rolled steel sheet                           | 21/71               | 0.66 |
| Ferric oxide                                 | 100/212             | 0.74 |
| Wrought-iron                                 | 21/70               | 0.94 |
| Fused iron                                   | 1299-1399/3270-2550 | 0.29 |
| Copper (Polished)                            | 21-117/70-242       | 0.02 |
| Copper(Polished, not<br>reflected)           | 22/72               | 0.07 |
| Copper (Heavy oxide<br>Board )               | 25/77               | 0.78 |
| Enamel (Fuse on iron)                        | 19/66               | 0.9  |
| Formica Plate                                | 27/81               | 0.94 |
| Frozen soil                                  | -                   | 0.93 |
| Brick (Red, rough)                           | 21/70               | 0.93 |
| Brick (Unglazed, rough)                      | 1000/1832           | 0.8  |

|                              |         |      |
|------------------------------|---------|------|
| Carbon (T - carbon 0.9% ash) | 127/260 | 0.81 |
| Concrete                     | -       | 0.94 |
| Glass (Glossy)               | 22/72   | 0.94 |
| Granite (Surfaced)           | 21/70   | 0.85 |
| Ice                          | 0/32    | 0.97 |
| Marble (I Polished, grey)    | 22/72   | 0.93 |
| Asbestos board               | 23/74   | 0.96 |
| Asbestos paper               | 38/100  | 0.93 |
|                              | 371/700 | 0.95 |
| Asphalt ( Paving the road)   | 4/39    | 0.97 |
| Paper ( Black tar)           | -       | 0.93 |
| Paper (White)                | -       | 0.95 |
| Plastic (White)              | -       | 0.91 |

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