

Fixed Thermal Network Camera User Manual



Issue **V1.1**

Date **2025-01-09**






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
 DANGER	It alerts you to fatal dangers which, if not avoided, may cause deaths or severe injuries.
 WARNING	It alerts you to moderate dangers which, if not avoided, may cause minor or moderate injuries.
 CAUTION	It alerts you to risks. Neglect of these risks may cause device damage, data loss, device performance deterioration, or unpredictable results.
 TIP	It provides a tip that may help you resolve problems or save time.
 NOTE	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 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, and 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 ($+140^{\circ}\text{F}$). 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 device 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 fall-down 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 to apply to an outdoor environment. The window is coated with durable coating material but may require frequent cleaning. When you find lens image degradation or excessive accumulation of pollutants, you should clear up 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 surface coating 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.

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

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, 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 the person or car to send an alarm, it also can 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 & Dimension

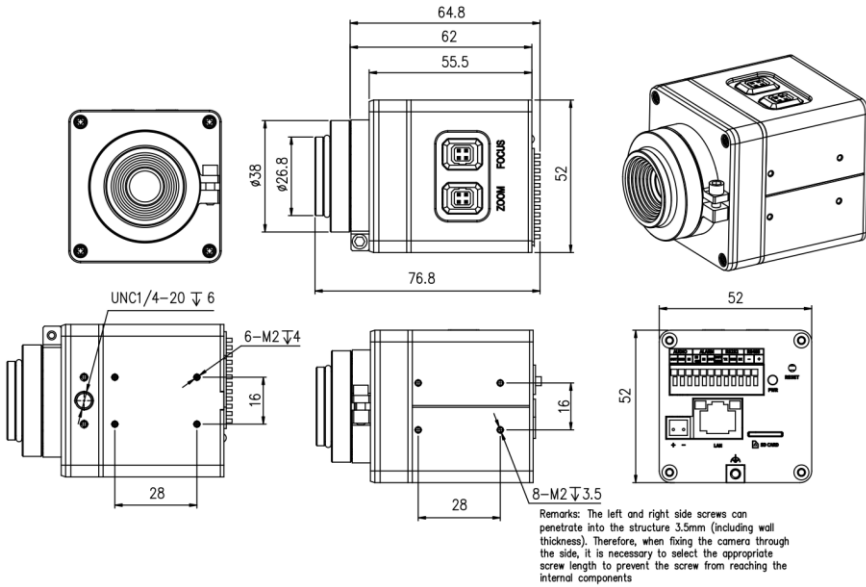


Figure 1-2 F 25mm Appearance & Dimension

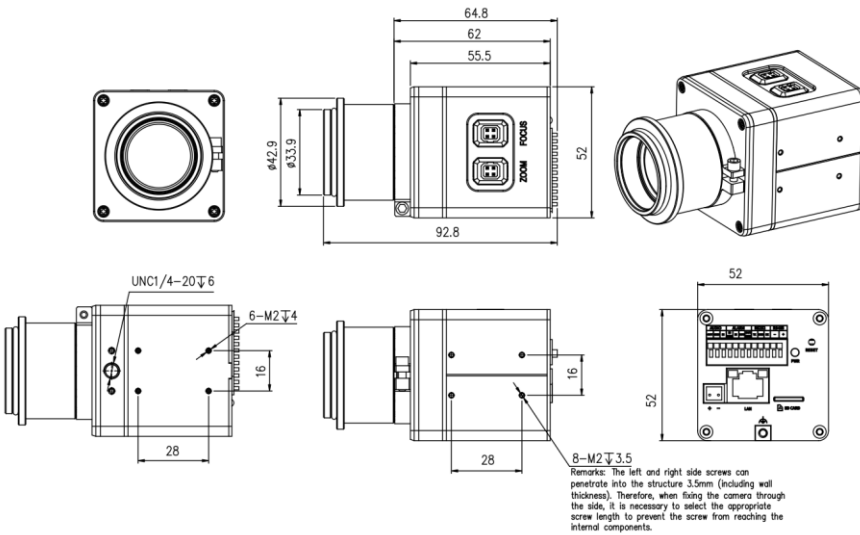


Figure 1-3 F 35mm Appearance & Dimension

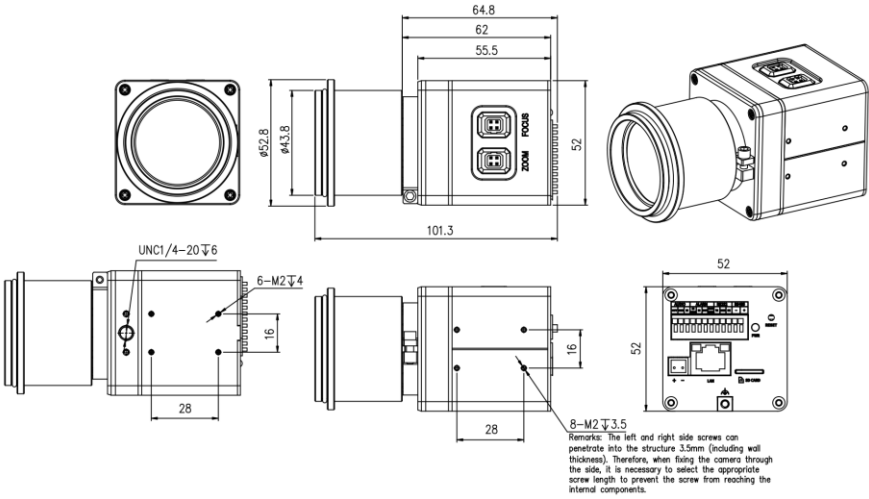


Figure 1-4 F 50mm Appearance & Dimension

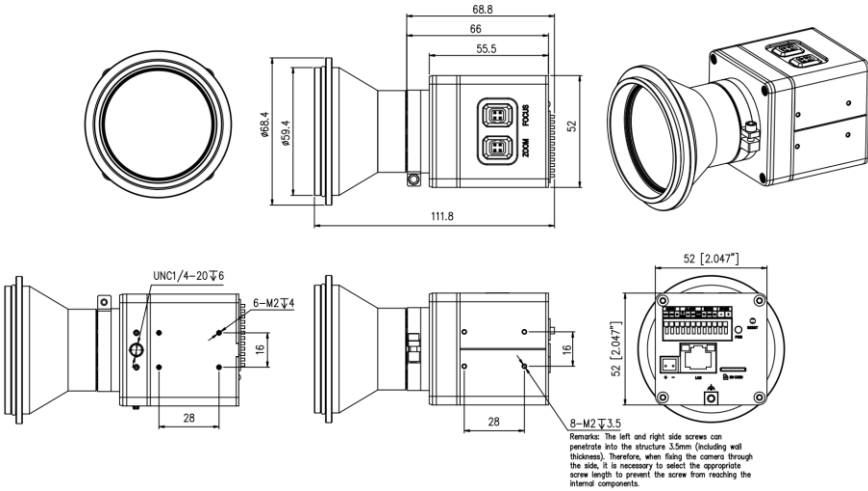


Figure 1-5 Port of Device

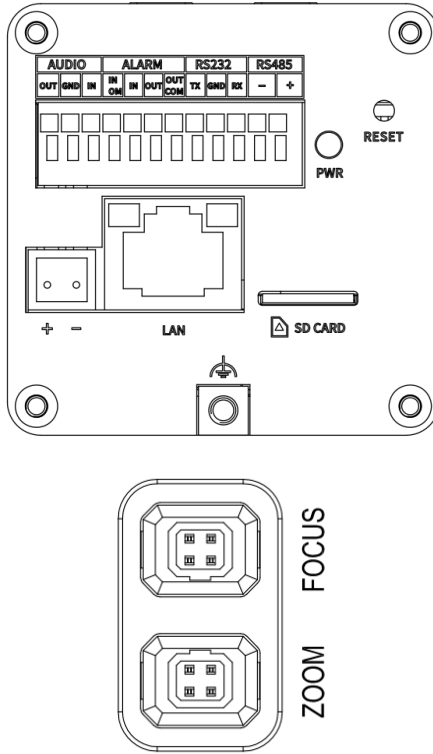



Table 1-1 Port of Device

Char	Physical Interface	Connection
Audio	Audio input / audio output	Input the audio signal and receive the analog audio signals from the sound pick-up device. Connect to the external alarm out device, such as the alarm light.
GND	Ground	The com port of peripheral.
Alarm	Alarm in/ out	Connect to alarm out and alarm in devices.
RS232	RS 232 port	Connect to RS 232 peripheral.
RS485	RS 485 port	Connect to the external devices with the PTZ

Char	Physical Interface	Connection
		function.
PWR	Power indicator light	When the power is normal, the red light is on.
RESET	Reset button (RESET)	The configuration resumes to the factory settings after you press the reset button for 5s. The default value of IP is 192.168.0.121.
LAN	Network interface	Connect to the standard Ethernet cable.
+ -	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.
	Ground	GND
FOCUS	Focus port	Connect to the focus control cable of the motorized lens.
Zoom	Zoom port	Connect to 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
Fixed Thermal Network Camera	1	
User Manual	1	
Terminal block 2 pin	1	

---End

2 Device Login

2.1 Login and Logout



CAUTION

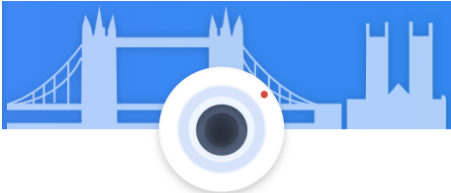
To access the web interface through Microsoft Edge, Chrome, or Firefox browser; Otherwise, some functions may be unavailable.

Login

Step 1 Open Chrome browser, enter the IP address of the IP camera (default value: 192.168.0.121) in the address box and click on the **Enter** button.

Step 2 Create a password when you log in for the first time, then jump to the login interface.

Figure 2-1 Create password



Please Create Password

English ▾

User Name

New Password ?

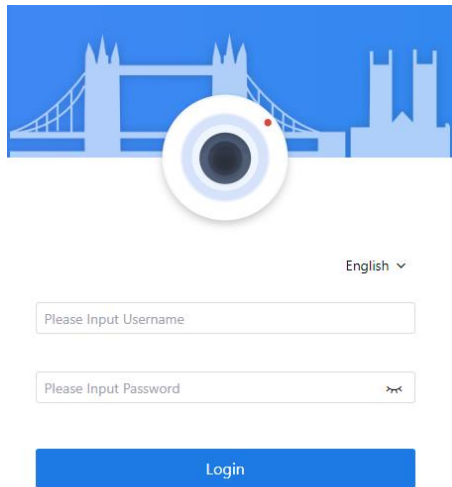
Please Input New Password

Confirm

Create

Step 3 Enter the username and password. The login page is displayed, as shown in Figure 2-2.

Figure 2-2 Login page

The image shows a login page with a blue background. At the top, there is a white camera lens icon. Below it, there is a language dropdown menu set to 'English'. There are two input fields: 'Please Input Username' and 'Please Input Password'. Below the password field is a blue 'Login' button.

English ▾

Please Input Username

Please Input Password

Login

NOTE

The default username is admin. Users should create the password for the first time login.

DHCP is on by default. Please use the tool to search IP, the default IP address is 192.168.0.121.

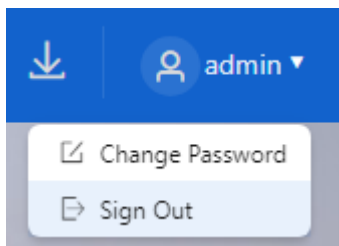
After modifying the password, you need to wait at least three minutes and then power off to make sure modify it successfully. Or log into the Web again to test the new password.

You can change the system display language on the login page.

Step 4 Click **Login** to enter the homepage.

---End

Sign out



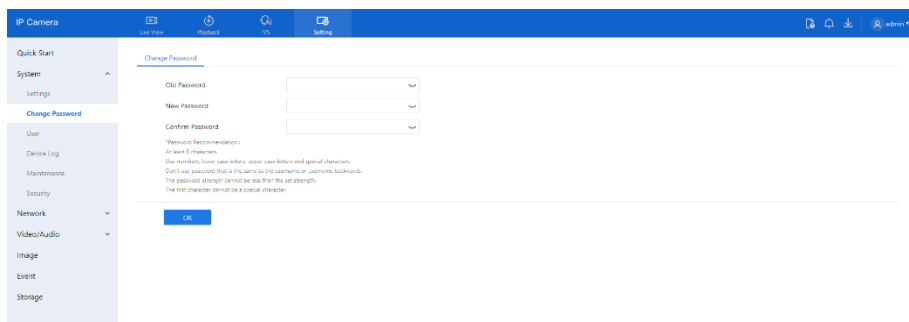
Click **Sign Out** to sign out in the upper right to return to the login page.

2.2 Change Password

Description

Step 1 Click the username on the upper right, and choose **Change Password** to enter the change password as shown in Figure 2-3. Or choose **Setting > System > Change Password**.

Figure 2-3 Change the default password page.



Step 2 Input the old password, and new password, and confirm the 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 later after modifying the password.

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

----End

2.3 Homepage Layout






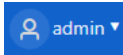
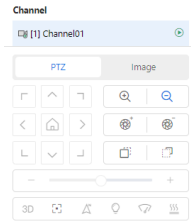


On the homepage, you can view real-time videos, receive alarm and fault notifications, set parameters, change the password, and log out of the system. The figure shows the homepage layout. Table 2-1 describes the elements on the homepage.

Figure 2-4 Homepage layout



Table 2-1 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. NOTE Only when the SD card or NAS has videos can you query the playback videos.

No.	Element	Description
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 parameters, temperature alarm, schedule linkage, LED control, 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.
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	 admin ▾	Current user, sign out or change password.
10		Set brightness, saturation, contrast, and sharpness. For motorized lenses, users can control the lens here.
11		Window scale, switch the scale of playing live video.
12		Full screen, click the icon to play live video at full screen.










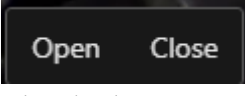
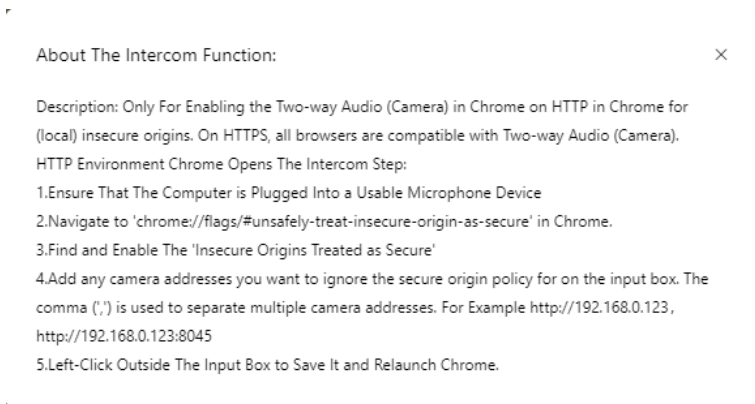
No.	Element	Description
13		Stream, click the icon to switch stream. There are two modes stream.
14		Pause/Start. Close live video or play live video.
15		Audio. Open or close audio.
16		Two-way audio. Open or close the intercom, the computer should be plugged into a microphone in advance.
17		Click the icon to snapshot the video and save the images to the specified location.
18		Record the video and save the file to the specified location.
19		<div data-bbox="476 729 759 863" style="background-color: #333; color: white; padding: 10px; margin-bottom: 10px;"> <p style="margin: 0;">Target Frame</p> <p style="margin: 0;">Intelligent marking</p> </div> <p>Target frame: when detecting the target, it will show a 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		Frame rate / resolution / bit rate / video encode type.
21		<p>I/O output controls the I/O alarm output manually. Click  to open the alarm or close the alarm.</p>

Figure 2-5 About the intercom function




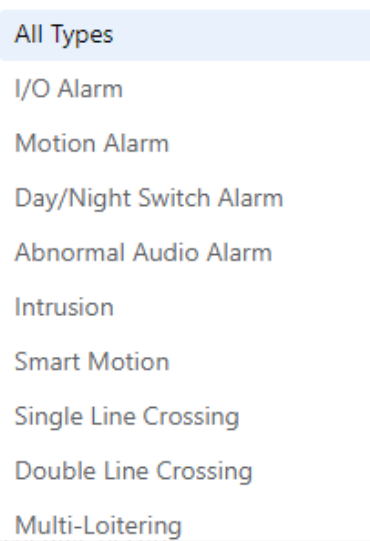


2.4 Playback












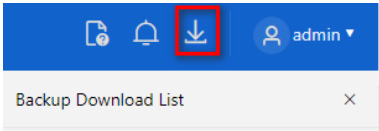
Click “Playback” on the web interface. If users install a micro SD card, and there are videos on the SD card. Click “Playback” and the playback video will show as in Figure 1-1.

Figure 2-6 Playback page



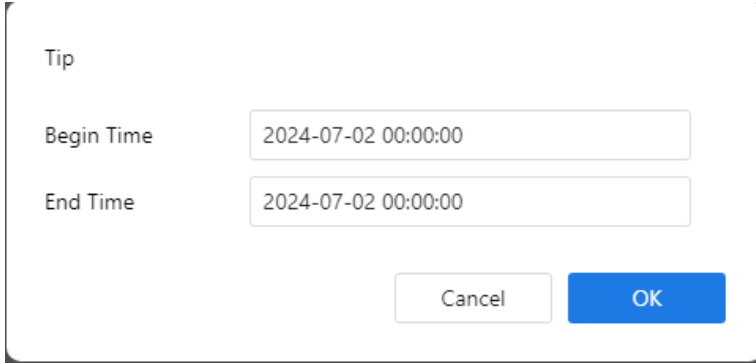
Table 2-2 Playback function

No.	Element	Description
1	Channel	The channel list of cameras.
2	Calendar	 the green point means it has a recording video. Set the time to play the recording.
3	<input checked="" type="checkbox"/> Schedule Record <input checked="" type="checkbox"/> All Types	 <p>The green timeline represents scheduled recording and the red timeline is alarm recording. The types of alarm recordings vary according to model performance.</p>
4		One screen plays a recording. Choose one day that has a recording, click  to play.

5		<p>Two screens play the recording. Choose the screen, choose the channel, select one day that has a recording (the date shows the green point), and click  to play.</p>
6		<p>Four screens play recording. Choose the screen, choose the channel, select one day that has a recording (the date shows the green point), and click  to play.</p>
7		<p>Window scale, switch the scale of play recording video.</p>
8		<p>Full screen, click the icon to play recording video at full screen.</p>
9		<p>Pause/Start. Close the live video or play the recording video.</p>
10		<p>Audio. Open or close audio.</p>
11		<p>Click the icon to snapshot the video and save the images to the specified location.</p>
12		<p>Fast Forward, 1/16X, 1/8 X, 1/4 X, 1/2 X, 1 X, 2 X, 4 X, 8 X</p>
13		<p>Click the icon to start back up, drag the bar to download the recording quickly, and click the icon again to end up. In the pop-up window of a tip as shown in Figure 2-7, click the save to save the video. Click Cancel to abandon.</p>  <p>the backup list to show the detailed information.</p>

14	<input checked="" type="radio"/> 1h <input type="radio"/> 6h <input type="radio"/> 12h <input type="radio"/> 24h	Time axis, users can choose 1h, 6h,12h, 24h.
----	--	--

Figure 2-7 Record backup tip



Tip

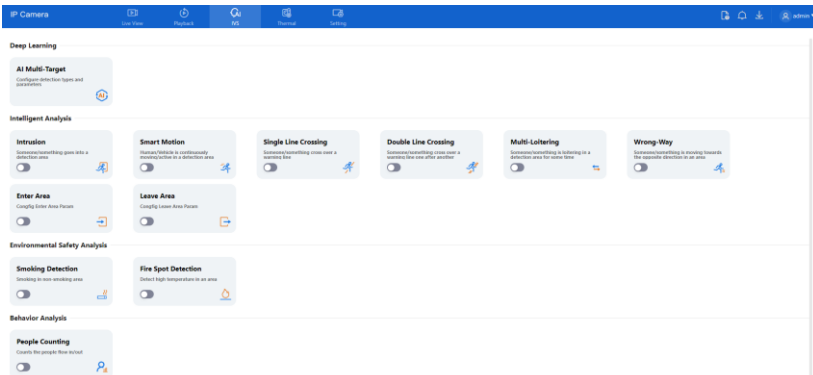
Begin Time

End Time

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 2-8. The detailed settings will be introduced in the following chapters.

Figure 2-8 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 to set the Local Network, Video, Display, OSD, Date, and Time at the Quick Start interface.

3.1 Local Network

Description

Local network parameters include:

- IP protocol

- IP address

- Subnet mask

- Default gateway

- Dynamic Host Configuration Protocol (DHCP)

- Preferred Domain Name System (DNS) server

- Alternate DNS server

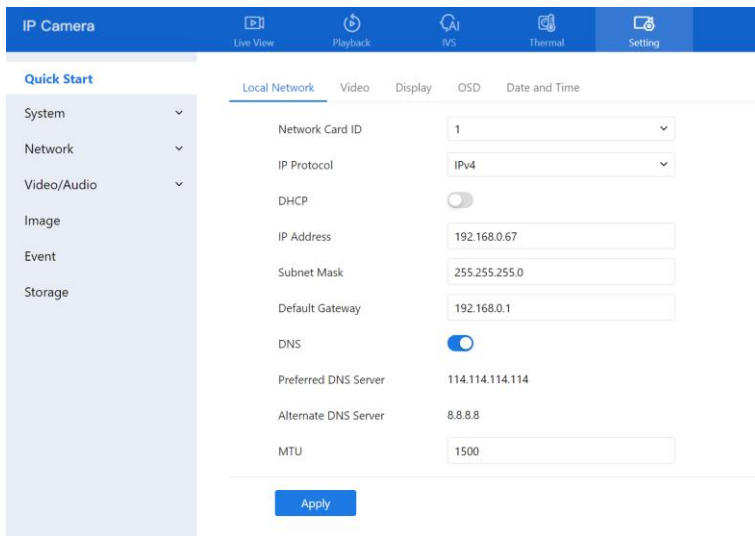
- MTU

Procedure

Step 1 Choose **Setting > Quick Start > Local Network**.

The **Local Network** page is displayed, as shown in Figure 3-1.

Figure 3-1 Local network page



Step 2 Set the parameters according to Table 3-1.

Table 3-1 Local network parameters

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

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

Parameter	Description	Setting
MTU	Set the maximum value of network transmission data packets.	[Setting method] Enter a value manually. NOTE The MTU value ranges from 1280 to 1500, the default value is 1500, Please do not change it arbitrarily.

Step 3 Click **Apply**.

If the message "Apply success!" is displayed, the system will save the settings. The message "Set network parameter success, please login system again" is displayed. Use the new IP address to log in to the web management system.

If the message "Parameter is Invalid " is displayed, please set the parameters correctly.

----End

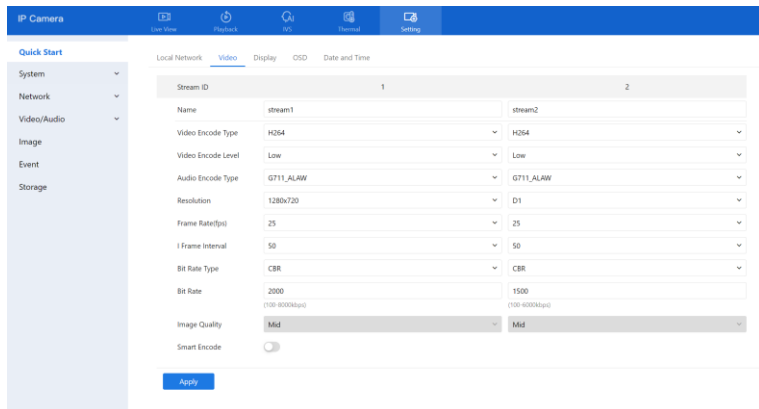
3.2 Video

Procedure

Step 1 Choose **Setting > Quick Start > Video**.

The **Video** page is displayed, as shown in Figure 3-2.

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

Parameter	Description	Setting
	<p>MJPEG</p> <p>MJPEG is a standard intra-frame compression encode. The compressed image quality is good. No mosaic is displayed on motion images. MJPEG does not support proportional compression and requires 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 encode level can be chosen.</p> <p>H.264</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 encode 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>H.265</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>[Default value]</p> <p>H.264 High Profile</p> <p>NOTE</p> <p>The H.264 High Profile encode 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 be an error, such as the videos of FTP upload may not be played correctly.</p>
<p>Audio Encode Level</p>	<p>The following audio encoding standards are supported:</p> <p>G711_ULAW: mainly used in North America and Japan.</p> <p>G711_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: encode of the original audio data. This encode is often used for platform data.	
Resolution	A higher resolution means better image quality. NOTE IP cameras support different resolutions based on the model.	[Setting method] Select a value from the drop-down list box.
Frame Rate(fps)	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. Frame rates for different frequencies are as follows: 50 Hz: 1–25 f/s 60 Hz: 1–30 f/s NOTE The frequency is set on the Device Configuration > Camera page. The biggest MJPEG coding format frame rate is 12 frames per second.	[Setting method] Select a value from the drop-down list
I Frame Interval(f)	I frame does not require other frames to decode. A smaller I-frame interval means better video quality but higher bandwidth.	[Setting method] Select a value from the drop-down list
Bit Rate Type	The bit rate is the number of bits transmitted per unit of time. The following bit rate types are supported: Constant bit rate (CBR) The compression speed is fast; however, improper bit rates may cause vague motion images. Variable bit rate (VBR) The bit rate changes according to the image complexity. The encoding efficiency is high and the definition of motion images can be ensured.	[Setting method] 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] Enter a value

Parameter	Description	Setting
	refer to the actual product.	manually.
Image Quality	The video quality of the camera output.	[Setting method] Select a value from the drop-down list box.
Smart Encode	Smart Encode. Smart encode includes H.264 & H.265. The storage space will be reduced by fifty percent when smart encode is enabled. Only mainstream supports smart encoding.	[Setting method] Click the button to enable Smart Encode .

Step 3 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

There are two settings, current settings and edit settings. Modify the parameters in the edit setting. Four profiles can be set.

3.3.1 Mode

Step 1 Go to **Settings > Quick Start > Display**, and choose **Edit Settings** Click the **Mode** tag on the Display Settings interface, and the Mode page is displayed, as shown in figure.

Figure 3-3 Mode page

Mode ▼

Switch Mode

Start Time :

End Time :

Step 2 Set the Mode parameters.

Step 3 Click **APPLY** to save the setting.

----End

3.3.2 Image

Click **Setting > Quick Start > Display**, and choose **Image** item. The figure shows the image interface.

Figure 3-4 Image interface

Image ▼

Brightness

Detail Enhancement

Contrast

Sharpness

The table describes the image setting parameters.

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] Drag the slider. [Default value] 50

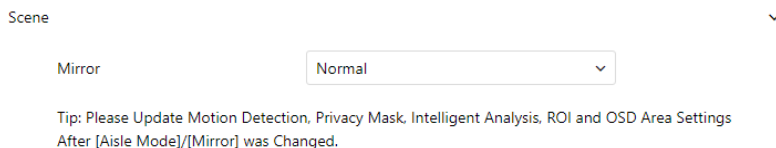
Parameter	Description	Setting
Detail Enhancement	Adjust the details and edges of the higher-temperature image.	[Setting method] Drag the slider. [Default value] 50
Contrast	It indicates the contrast between the bright part and the dark part of an image. As the value increases, the contrast increases.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

----End

3.3.3 Scene

Click **Setting > Quick Start > Display**, and choose **Scene** item. Figure 3-5 shows the scene interface.

Figure 3-5 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

3.3.4 Set Pseudocolor

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

Figure 3-6 Set Pseudocolor interface



Table 3-4 Pseudocolor parameter

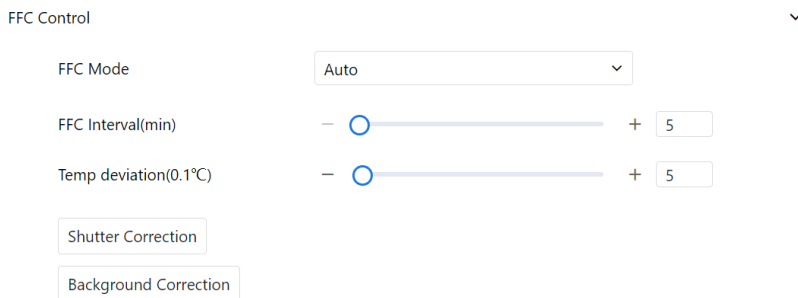
Parameter	Description	Setting
Pseudo-Colors	<p>Polarity/LUT: the temperatures of the temperature fields detected by the thermal imaging camera are separately mapped to values ranging from 0 to 255 by the algorithm. In the black/white display mode, this range is converted to the grayscale tones. For example, 0 indicates completely black, and 255 indicates completely white. The temperature field of the scene is converted to images by using the 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] Select from the drop-down list box. [Default value] White Hot</p>

Legend of Temperature Value	It is on, the live video will show, otherwise there is no legend.	[How to set] Select from the drop-down list box. [Default value] Close
-----------------------------	---	--

3.3.5 FFC Control

Click **Setting > Quick Start > Display**, and choose the **FFC control** item. The figure shows the FFC control interface.

Figure 3-7 FFC control interface



The table describes the FFC mode parameters.

Table 3-5 FFC control parameter description

Parameter	Description	Setting
FFC Mode	The internal of the thermal imaging camera may comprise the 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	[How to set] Select from the drop-down list box. [Default value] Auto

Parameter	Description	Setting
	<p>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>Auto: 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 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>Manual: 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.	[How to set] Drag the slider. [Default value] 5
Temper deviation(0.1℃)	In the automatic FFC mode, the FFC interval ranges from 0.2 to 25.5 centigrade.	[How to set] Drag the slider. [Default value] 5
Shutter	Click the icon to adjust exposure immediately.	Click the button

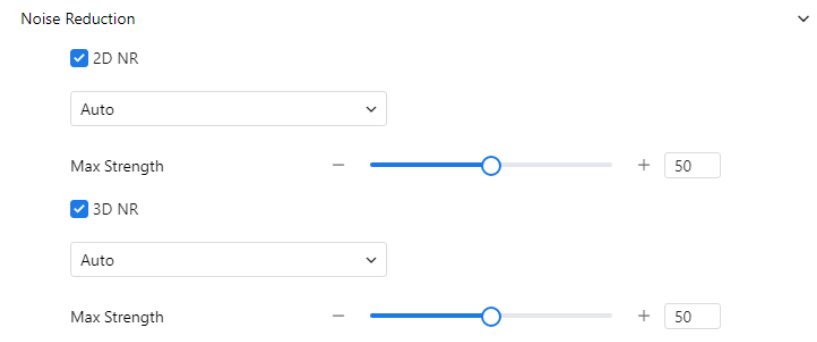
Parameter	Description	Setting
Correction		
Background Correction	Click the icon and cover the camera with something to adjust the image. Remove the thing to finish the adjustment.	Click the button

----End

3.3.6 Noise Reduction

Click **Setting > Quick Start > Display**, and choose the **Noise Reduction** item. The figure shows the Noise Reduction interface.

Figure 3-8 Noise reduction interface



The table describes noise reduction parameters.

Table 3-6 DNR parameter description

Parameter	Description	Setting
2 DNR	Decrease the image noise.	[How to set] Select from the drop-down list box. Drag the slider to adjust the maximum

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

---End

3.3.7 Lens control

Click **Setting** > **Quick Start** > **Display**, and choose **Lens control** item. Figure 3-9 shows the lens control interface.

Figure 3-9 Lens control

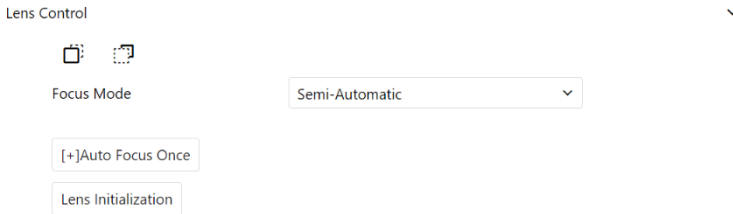


Table 3-7 Lens control parameter description

Parameter	Description	Setting
Focus mode	Near focus/ far focus. Semi-Automatic or Manual	[How to set] Click the button
Auto focus once	Click to focus once automatically.	[How to set]

Parameter	Description	Setting
		Click the button
Lens Initialization	Click to initialize the lens	[How to set] Click the button

**NOTE**

All image settings can be modified at edit settings.

Factory Reset: All parameters will be restored to the factory settings.

Reset: the settings will be recovered to the last settings.

----End

3.4 OSD

Description

The on-screen display (OSD) function allows you to display the device name, channel ID and name, time, and other customized content on videos. You can drag the OSD frames to anywhere you want to put them.

When the resolution is D1 and CIF, the OSD customized in the web interface can show at most 22 words normally.

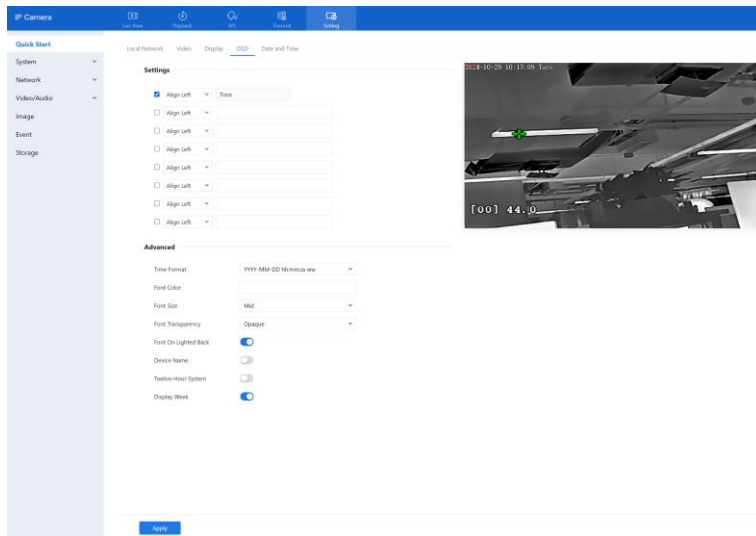
The OSD supports simplified Chinese, English, digital, and some special characters only.

Procedure

Step 1 Choose **Setting > Quick Start > OSD**.

The **OSD** page is displayed, as shown in 4.3Step 4.

Figure 3-10 OSD



Step 2 Set the parameters according to Table 3-8.

NOTE

There are no more than seven OSD display areas.

Table 3-8 Parameters of OSD

Parameter	Description	Setting
Time	Indicates whether to display the time.	[Setting method] Tick the time.
Custom OSD	Tick to enable, and choose the position to show the content of custom OSD.	[Setting method] Enter the characters.
Time Format	Format in which the time is displayed.	[Setting method] Select a value from the drop-down list box. [Default value] YYYY-MM-DD hh:mm: ss ww

Parameter	Description	Setting
Font Color	Set the font color.	[Setting method] Select a value from the drop-down list box. [Default value] Blank
Font Size	Set the font size.	[Setting method] Select a value from the drop-down list box. [Default value] Mid
Font Transparency	Set the font transparency.	[Setting method] Select a value from the drop-down list box. [Default value] Opaque
Font on Lighted Back	Enable the font on the lighted back.	[Setting method] Click the button to enable Font on the lighted back .
Device Name	Indicates whether to display the device name.	[Setting method] Click the button to enable the Device Name
Twelve-hour System	The time format shows at twelve-hour system.	[Setting method] Click the button to enable
Display Week	The week will show.	[Setting method] Click the button to enable

Step 3 Click **Advanced**, set the parameter of “ Time Format” , “Font Color” , “Font Transparency” , “Font on lighted back” , and so on.

Step 4 Click **Apply**. The message "Apply success!" is displayed and the system will save the settings.

---End

3.5 Date and Time

Description

On the **Date and Time** page, you can modify the date and time. Parameters that can be set include:

Time zone and daylight-saving time (DST)

Date and time

Network Time Protocol (NTP) server

Procedure

Choose **Setting > Quick Start > Date and Time**.

The **Date and Time** page is displayed, as shown in Figure 3-11. Table 3-9 describes the parameters.

Figure 3-11 Date and time page

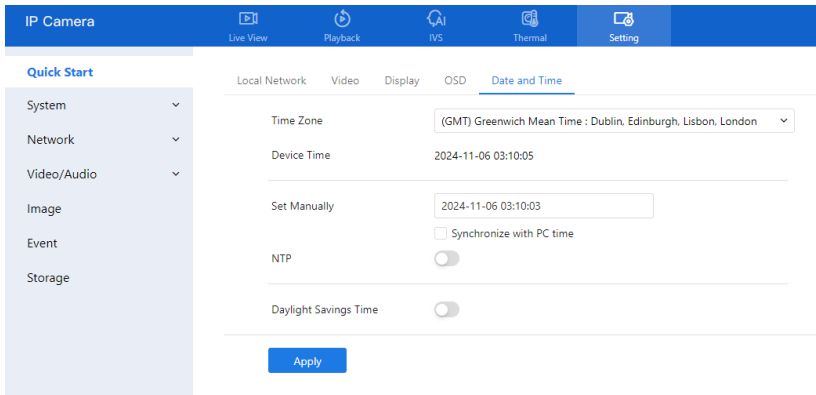


Table 3-9 Parameters of date and time

Parameter	Description	Setting
Time Zone	N/A	[Setting method] Select a value from the drop-down list box. [Default value] Greenwich mean time
Device Time	Device display time.	[Setting method]

Parameter	Description	Setting
		Synchronize the time from the PC. Enter a value manually.
Set Manually	You can set the device time manually or synchronize it with PC time.	[Setting method] Click Set Manually 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] Click the button to enable NTP and enter a value manually.
Server Address	NTP is enabled. The NTP server IP.	[Setting method] Enter a value manually.
Port	NTP is enabled. Port number of the NTP server.	[Setting method] Enter a value manually. [Default value] 123
Interval	NTP is enabled. Set time intervals to check if the device time has synchronized with the NTP server time.	[Setting method] Enter a value manually. [Default value] 60
Daylight Savings 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] Click the button to enable Daylight Saving Time .

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

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, and so on.

Operation Procedure

Step 1 Choose **Thermal > Settings > Temperature Parameter**.

The **Temperature Parameters** page is displayed, as shown in Figure 4-1.

Figure 4-1 Temperature Parameters Interface

The screenshot displays the 'Temperature Parameter' configuration page within a web interface. The top navigation bar includes 'IP Camera', 'Live View', 'Playback', 'IPC', 'Thermal', and 'Settings'. The 'Thermal' menu is expanded, showing 'Temperature Parameter', 'Ambient Temperature', 'Privacy Zone Masking', 'Defect Pixel Correction', and 'Version Information'. The 'Settings' sidebar on the left lists 'Temperature Alarm' and 'Schedule Linkage'. The main configuration area includes the following settings:

Parameter	Value	Range/Options
Temperature Measurement	<input checked="" type="checkbox"/>	
Temperature Units	Celsius	
Length Units	Meters	
Cavity Temperature	30.66	
Correction Coefficient	0.00	
Area ID Display Mode	Area ID	
Temperature Consume Mode	Close	
Area Temperature Display Mode	Low Left	
Font Border	<input checked="" type="checkbox"/>	
Font Size	Mid	
Area Temperature Type	Highest Temperature	
Measure Mode	General	
Display Alarm Area	<input type="checkbox"/>	
Area Alarm Interval	10	(1-1800)s
Area Alarm Delay	0	(0-10)s
Temperature Range	-20.0 ~ 150.0	
Prevent Overheating	Auto	
Duration	60	(5-60)s

An 'Advanced' button is located at the bottom right of the configuration area, and an 'Apply' button is at the bottom center.

Step 2 Set the parameters according to Table 4-1.

Table 4-1 Temperature Parameters

Parameter	Description	Setting
Temperature Measurement	The default is enabling.	[Setting method] Enable or disable [Default value] Enable
Temperature Units	Celsius and Fahrenheit temperature units are available.	[Setting method] Select a value from the drop-down list box. [Default value] Celsius
Length units	Meters and feet length units are available.	[Setting method] Select a value from the drop-down list box. [Default value] Meters
Cavity Temperature	The cavity temperature of the camera.	N/A
Correction Coefficient	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. For example: 1. The measured object temperature is 20, and the actual temperature is 20.5, so the correction coefficient should be 0.5 . 2. The measured object temperature is 20, and the actual temperature is 19.5, so the correction coefficient should be -0.5 .	[Setting method] Enter a value manually. [Default value] 0.00

Parameter	Description	Setting
	<p>NOTE</p> <p>The user should contact the technical support staff of our company at this condition to make sure to apply</p>	
Area ID display mode	Two modes are displayed, area ID and area name	[Setting method] Select a value from the drop-down list box. [Default value] Area ID
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] Select a value from the drop-down list box. [Default value] Close
Area Temperature Display Mode	The display position of temperature information on the live video image.	[Setting method] Select a value from the drop-down list box. [Default value] Low left
Font Border	Enable to bold the font	[Setting method] Enable or disable [Default value] Disable
Font size	There are font sizes can be chosen, small/mid/big	[Setting method] Enable or disable [Default value] Mid
Area Temperature Type	There are three types of area temperature.	[Setting method] Select a value from the drop-down list box.

Parameter	Description	Setting
		[Default value] Highest Temperature
Measure Mode	There are two types of measurement modes.	[Setting method] Select a value from the drop-down list box. [Default value] General
Display Alarm Area	Tick, the setting alarm area will display on live video.	[Setting method] Enable or disable [Default value] Disable
Area Alarm Interval	During the interval, the same alarm will only be sent once.	[Setting method] Enter a value manually ranges from 1 to 1800s. [Default value] 10
Area Alarm delay (0-10S)	The area alarm information will be delayed for setting time.	[Setting method] Enter a value manually ranging from 1 to 10. [Default value] 10
Temperature range	It depends on the device. Different devices have different modes, such as -20 °C -150°C.	[Setting method] 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] Select a value from the drop-down list box.

Parameter	Description	Setting
Duration	Prevent over heat' mode is auto, the control cover will block for a duration of time automatically if overheated.	[Setting method] Enter a value manually ranging from 5 to 60s.

Figure 4-2 Advanced Interface

Advanced

Dimming Mode		Auto ▼
Greater Prominent		<input type="checkbox"/>
Section Prominent		<input type="checkbox"/>
Less Prominent		<input type="checkbox"/>
Raw Data Upload Interval(F/S)		1 ▼
Mix Stream Mode		Close ▼

Apply

Table 4-2 Advance Parameters

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

Parameter	Description	Setting
Section Prominent	Enable that, the image will show the setting color if the temperature is between minimum and maximum temperature.	[Setting method] Enter a value manually. Choose one color to show.
Less Prominent	Enable that, the image will show the setting color if the temperature is lower than the set value.	[Setting method] Enter a value manually. Choose one color to show.
Raw Data Upload Interval(F/S)	Interval of uploading the raw data.	[Setting method] Select a value from the drop-down list box. [Default value] 1
Mix Stream Mode	This function is used for mixing thermal and visible imaging, if you want to adjust the location, please set at 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] Close

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.

Choose **Thermal > Settings > Ambient Temperature**

Figure 4-3 Ambient Temperature

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

Ambient Temperature

Self-adaptive Temperature

Apply

Table 4-3 Parameter of Ambient Temperature

Parameter	Description	Setting
Ambient Temperature	Environment 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 environment temperature of the camera.	[Setting method] Enter the temperature of the ambient environment. [Default value] 25
Self-adaptive Temperature	Set the ambient temperature, and click “Apply”, the camera will get the value automatically.	---

Click **Apply** to save.

---End

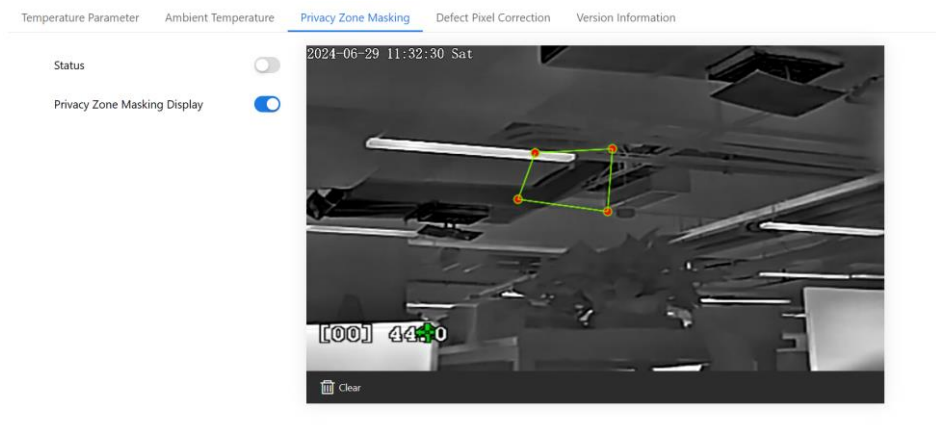
4.1.3 Privacy Zone Masking

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.

Operation Procedure

Step 1 Choose **Thermal > Settings > Privacy Zone Masking**.

Figure 4-4 Privacy Zone Masking



Apply

Step 2 Enable the privacy zone masking.

Step 3 Enable Show Privacy Zone Masking Display, then the setting shield will show on live video.

Step 4 Click-left mouse button to set the area; Click-right mouse button to end the setting.

Step 5 Click **Clear** to clear the setting area.

Step 6 Click **Apply** to save.

----End

4.1.4 Defect Pixel Correction

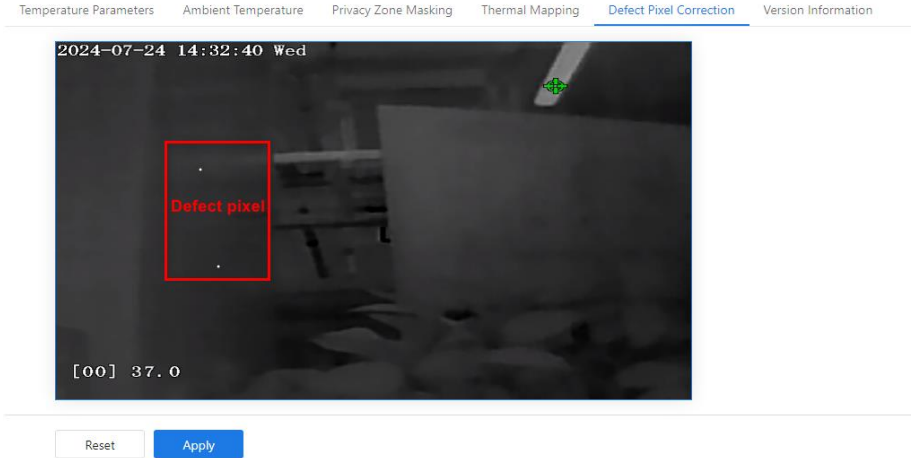
Operation Procedure

Step 1 Choose **Thermal > Settings > Defect Pixel Correction**.

The **Defect Pixel Correction** page is displayed, as shown in the figure.

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 the technical support at this condition to make sure to apply.

Figure 4-5 Defect pixel correction



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

Figure 4-6 Recover Defect Pixel



Step 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

Operation Procedure

Step 1 Choose **Thermal > Temperature Alarm**.

The **Temperature Alarm** page is displayed, as shown in Figure 4-7.

Figure 4-7 Temperature Area and Alarm Configuration

The screenshot displays the 'Temperature Alarm' configuration page. On the left, there is a sidebar with 'Thermal' and 'Temperature Alarm' sections. The main area is titled 'Alarm Configuration' and features a PTZ control panel with various navigation and zoom controls. To the right of the PTZ panel is a live video feed showing an indoor scene with a temperature overlay of 43.3. Below the video feed is a table for configuring alarm areas, with columns for ID, Name, Type, Alarm Type, Warning Value, Alarm Value, Maximum Alarm Value, and Duration. The table contains seven rows, with the first row (Area0) selected. An 'Apply' button is located at the bottom of the configuration area.

ID	Name	Type	Alarm Type	Warning Value	Alarm Value	Maximum Alarm ...	Duration(1-10)
<input checked="" type="checkbox"/>	Area0	Rectangle	Threshold ...	48	50	60.00	1.00
<input type="checkbox"/>	Area1	Point	Threshold ...	48	50	60.00	1.00
<input type="checkbox"/>	Area2	Point	Threshold ...	48	50	60.00	1.00
<input type="checkbox"/>	Area3	Point	Threshold ...	48	50	60.00	1.00
<input type="checkbox"/>	Area4	Point	Threshold ...	48	50	60.00	1.00
<input type="checkbox"/>	Area5	Point	Threshold ...	48	50	60.00	1.00
<input type="checkbox"/>	Area6	Point	Threshold ...	48	50	60.00	1.00

Measure Mode: General

Emission Rate	Distance(m)	Reflectio...	Reflection Tempe...	IgnoreObject	Alarm	Masking	Group ID
0.95	15	<input type="checkbox"/>	50	None	<input type="checkbox"/>	<input type="checkbox"/>	None
0.95	15	<input type="checkbox"/>	50	None	<input type="checkbox"/>	<input type="checkbox"/>	None
0.95	15	<input type="checkbox"/>	50	None	<input type="checkbox"/>	<input type="checkbox"/>	None
0.95	15	<input type="checkbox"/>	50	None	<input type="checkbox"/>	<input type="checkbox"/>	None
0.95	15	<input type="checkbox"/>	50	None	<input type="checkbox"/>	<input type="checkbox"/>	None
0.95	15	<input type="checkbox"/>	50	None	<input type="checkbox"/>	<input type="checkbox"/>	None
0.95	15	<input type="checkbox"/>	50	None	<input type="checkbox"/>	<input type="checkbox"/>	None


Apply

Step 2 Set the parameters according to Table 4-4.

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] Tick
Name	Area name of temperature area.	[Setting method] Enter a value manually.
Type	Type of temperature area. ID 0 is the default rectangle area, which is full screen. It cannot be modified. Other IDs can be set as point, line, or polygon.	[Setting method] Select a value from the drop-down list box. [Default value] Rectangle/Point

Parameter	Description	Setting
Alarm Type	<p>Temperature difference alarm: 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.</p> <p>Temperature rise alarm: In the duration time. If the rising temperature value is more than the set value (Warning temperature or Alarm temperature), it will generate the alarm.</p> <p>Temperature threshold alarm: when the temperature is higher than the threshold, the alarm will be triggered.</p> <p>Section Alarm: if the temperature value is within the set temperature range, it will generate the alarm.</p>	<p>[Setting method] Select a value from the drop-down list box. [Default value] Threshold alarm</p>
Warning Value	The camera will trigger a warning alarm when the object's temperature reaches the warning value.	<p>[Setting method] Enter a value manually. [Default value] 48</p>
Alarm Value	The camera will alarm when the object temperature reaches the alarm value.	<p>[Setting method] Enter a value manually. [Default value] 50</p>
Maximum Alarm Value	At section alarm type, the device would not alarm when the temperature is higher than the maximum alarm value.	<p>[Setting method] Enter a value manually. [Default value] 60.00</p>

Parameter	Description	Setting
Duration (1-10S)	Choose the temperature rise alarm, and set the duration. The temperature value rises within the duration setting, the alarm is triggered successfully.	[Setting method] Enter a value manually. [Default value] 1.00
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.	[Setting method] Enter a value manually. [Default value] 0.95
Distance(m)	The distance between the camera and the target.	[Setting method] Enter a value manually. [Default value] 15  NOTE 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.
Reflection Temperature on	When there are some high-temperature objects on the scene, and the temperature reflects to the other object, you can enable this function to calibrate the temperature.	[Setting method] Tick to enable

Parameter	Description	Setting
Reflection Temperature	The temperature of high-temperature objects.	[Setting method] Enter a value manually. [Default value] 50.00
Ignore Object	Enable to shield the temperature of area capturing AI objects.	[Setting method] Select a value from the drop-down list box.
Alarm	Enable or disable the alarm output and linkage of the area.	[Setting method] Tick to enable the alarm.
Masking	Enable, the device will shield this area's temperature.	[Setting method] Tick to shield.

Parameter	Description	Setting
Group ID	<p>Different areas can be divided into the same group. The same group's areas will be merged calculated temperature difference alarm.</p> <p>The ID can be chosen into one of six groups or no group. The group will be alarm following the next rules:</p> <p>A=The highest temperature of groups (the highest temperature of N regions is the largest)</p> <p>B=Average temperature of groups (average temperature of N regions)</p> <p>WA=Warning value</p> <p>AA=Alarm value</p> <p>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)</p> <p>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)</p> <p>c. If the warning and alarm conditions are met at the same time, the alarm signal will be generated first.</p>	<p>[Setting method]</p> <p>Select a value from the drop-down list box.</p>

Step 3 Set 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



Step 4 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.

Step 5 Delete a temperature area:

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

Step 6 Click **Apply**. The message "Apply success" is displayed, and the system will save the settings.

----End

4.3 Schedule Linkage

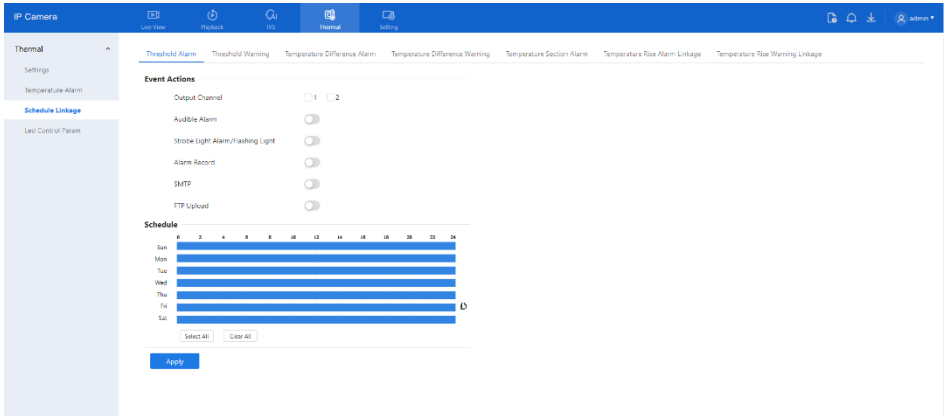
Operation Procedure

Step 1 Choose **Thermal > 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.

The **Schedule Linkage** page is displayed, as shown in Figure 4-9.

Figure 4-9 Schedule Linkage



Step 2 Tick the output channel.

Step 3 Enable wanted linkage: “Output Channel” “Audible alarm”, “Alarm Record”, “SMTP”, “FTP upload”.

Step 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

Copy:

All

Sun

Mon

Tue

Wed

Thu

Fri

Sat

OK

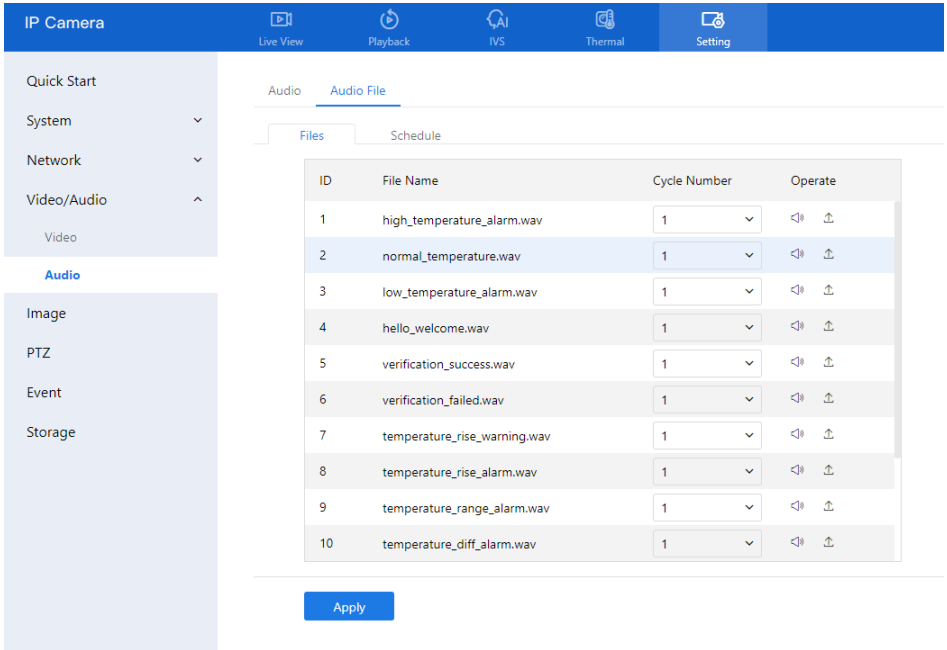
Delete schedule time: click **Clear All** to delete all time.

Click the set time, ~ click **Delete** to delete this time.

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

 **NOTE**

Figure 4-11 Audio file




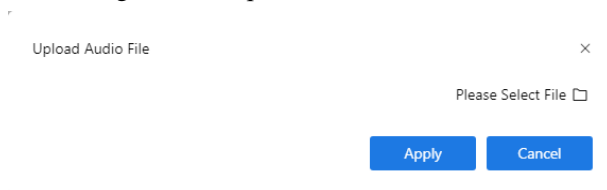
Users can set the audio file manually. Click  to upload the audio file(The type should be WAV, the size must be less than 250 Kb, and the bit rate should be 128 kbps.), as shown in Figure 4-12.

Figure 4-12 Upload audio file



---End

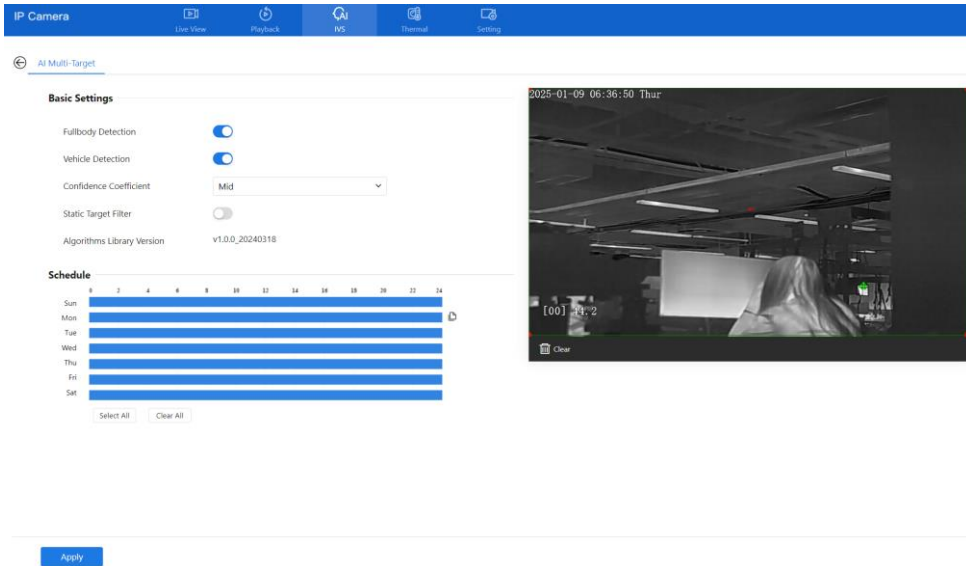
5 IVS Settings

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**), behavior analysis (**people counting**).

5.1 AI Multi-Target

Step 1 At **IVS > AI Multi-Target** interface, the user can enable full-body detection, and vehicle detection to detect the person and vehicle, as shown in Figure 5-1.

Figure 5-1 AI Multi-Target



Step 2 Set the parameters of AI Multi-Target following as the Table 5-1.

Table 5-1 AI Multi-Target parameters

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

	frame is blue.	
Vehicle detection	The camera will snap the license when the vehicle appears in live video. The detection frame is yellow.	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

Step 3 Draw the detection area by using the mouse.

Step 4 To set the schedule, please refer to Chapter 4.3Step 4.

Step 5 click “Apply” to save the settings.

---End

5.2 Intelligent Analysis

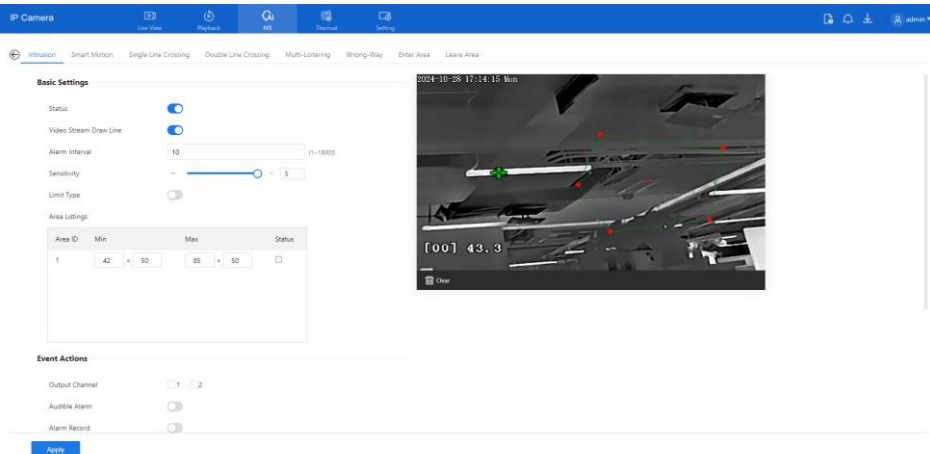
5.2.1 Intrusion

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

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

Figure 5-2 Intrusion Setting Interface



Step 2 Set all parameters of Intrusion. Table 5-2 describes the specific parameters.

Table 5-2 Intrusion Parameter Description

Parameter	Description	Setting
Status	Enable the button to enable the alarm.	[How to set] Click Enable to enable. [Default value] OFF
Video Stream Draw Line	Enable the button, and the draw frame of detection will show in the live video.	[How to set] Click to enable FTP Upload. [Default value] OFF
Alarm Interval	During the interval, the same alarm will only be sent once.	[How to set] Input a value [Default value] 10

Parameter	Description	Setting
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] Choose from the drop-down list [Default value] 5
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 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] Click to enable Limit Target Type. [Default value] OFF
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] Click to select an ID.
Audible alarm	After enabling Audible Warning and setting Audible Alarm Output, the built-in speaker of the device or connected external speaker plays warning sounds when an alarm happens. (set at the “ Setting > Video / Audio > Audio File ”)	[How to set] Click to enable the Audible alarm [Default value] OFF
SMTP	Enable the button to enable the SMTP server.	[How to set] Click to enable SMTP. [Default value] OFF

Parameter	Description	Setting
FTP Upload	Enable the button to enable File Transfer Protocol.	[How to set] Click to enable FTP Upload. [Default value] OFF

Step 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.

 **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.

Step 4 For set deployment time, please refer to *Chapter 4.3Step 4*.

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

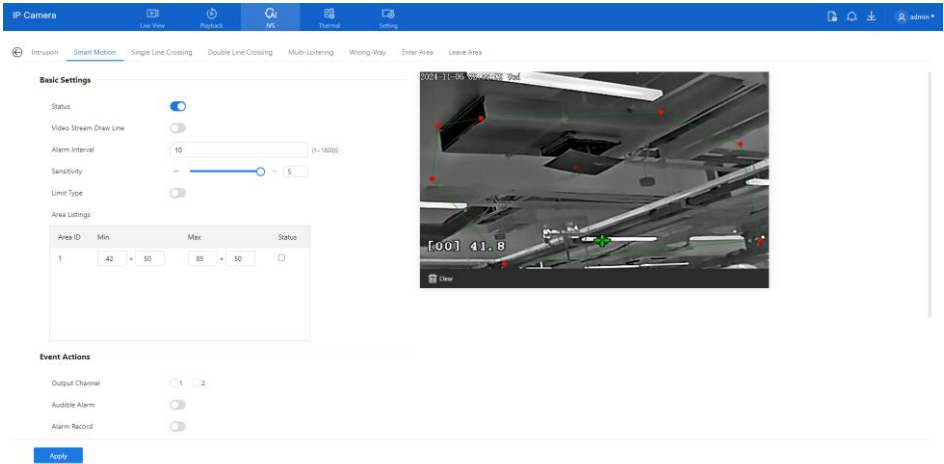
----End

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*

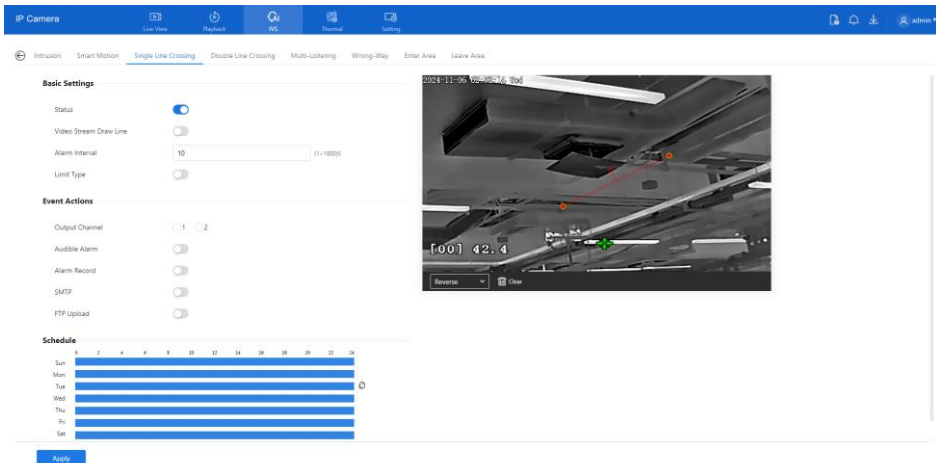
5.2.3 Single Line Crossing

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

Step 1 Select **IVS > Intelligent Analysis > Single Line Crossing** to access the **Single Line Crossing** setting interface, as shown in Figure 5-4.

Figure 5-4 Single Line Crossing Setting Interface



Step 2 Set all parameters of the Single Line Crossing, please refer to Table 5-2.

Step 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 appearance 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.

Step 4 For set deployment time, please refer to *Chapter 4.3Step 4*.

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

----End

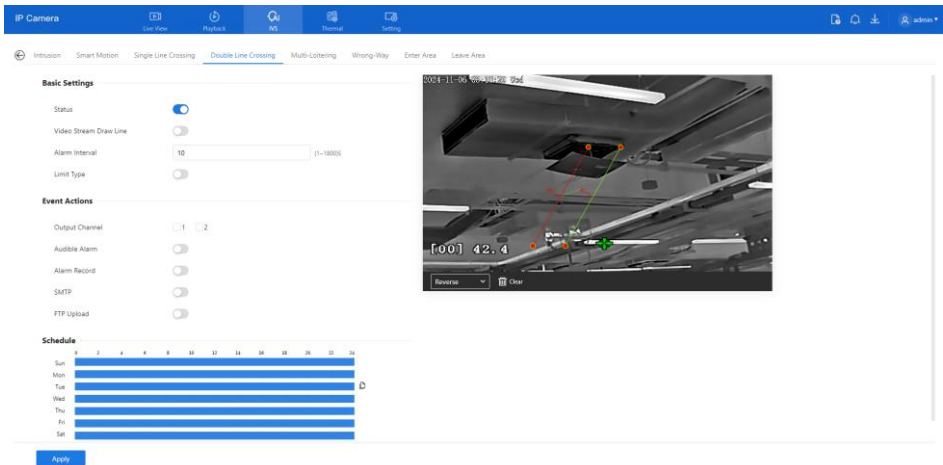
5.2.4 Double Line Crossing

Double Line Crossing refers to two lines that are set at a concerned special position within the field of view and specifies 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) in pass max time, an alarm is generated.

Procedure

Step 1 Select **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



Step 2 Set all parameters of the Double Line Crossing. Please refer to *Chapter 5.2.1*

Step 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 appearance 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.

Step 4 For set deployment time, please refer to *Chapter 4.3Step 4*.

Step 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.

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

Figure 5-7 Multi-Loitering

Basic Settings

Status

Video Stream Draw Line

Alarm Interval 01-1800S

The Shortest Time 05-60S

Limit Numbers

Area Listings

Area ID	Min	Max	Status		
1	42	50	85	50	<input type="checkbox"/>

Event Actions

Output Channel 1 2

Audible Alarm

Alarm Record

SMTP

FTP Upload

Schedule

Day	Schedule
Sun	00:00 - 24:00
Mon	00:00 - 24:00
Tue	00:00 - 24:00
Wed	00:00 - 24:00
Thu	00:00 - 24:00
Fri	00:00 - 24:00
Sat	00:00 - 24:00

Apply

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

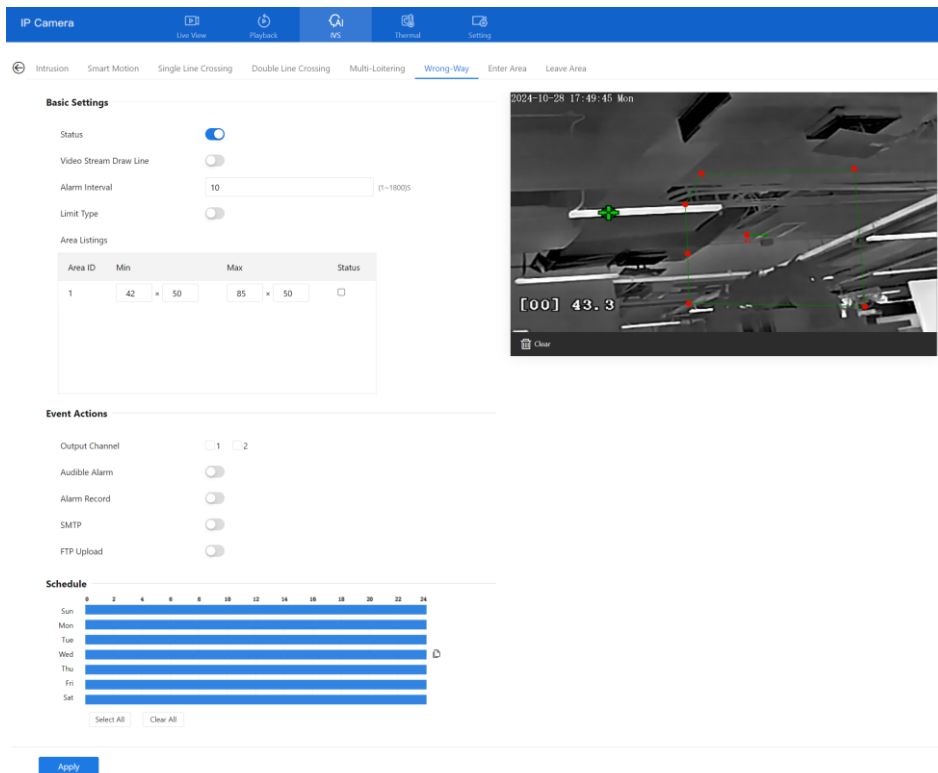
5.2.6 Wrong -Way

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.

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

Figure 5-8 Wrong-Way



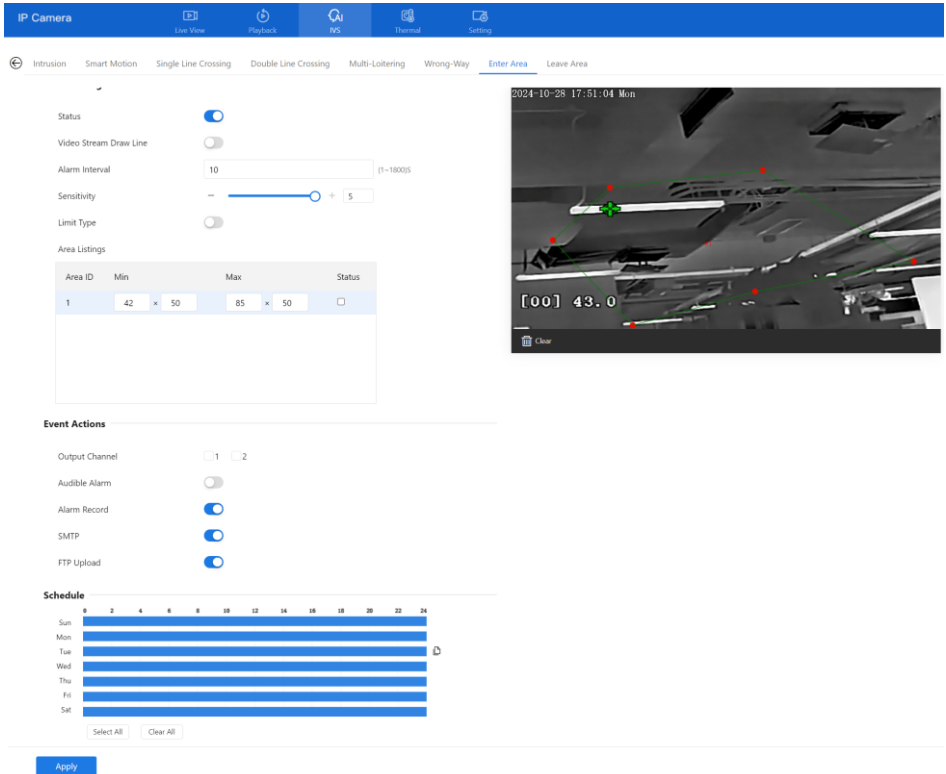
To set all parameters of wrong-way please refer to *chapter 5.2.1*

5.2.7 Enter Area

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

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

Figure 5-9 Enter Area



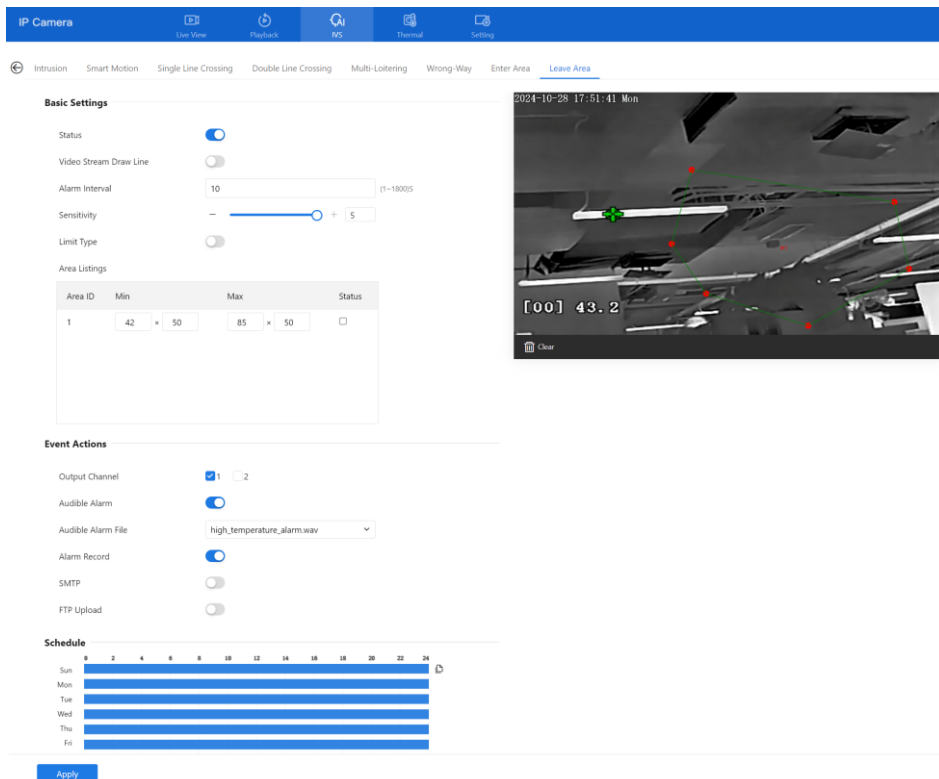
To set all parameters of entering area, please refer to *Chapter 5.2.1*.

5.2.8 Leave Area

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

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

Figure 5-10 Leave Area



To set all parameters of 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, the alarm information can be sent to the user by the linkage.

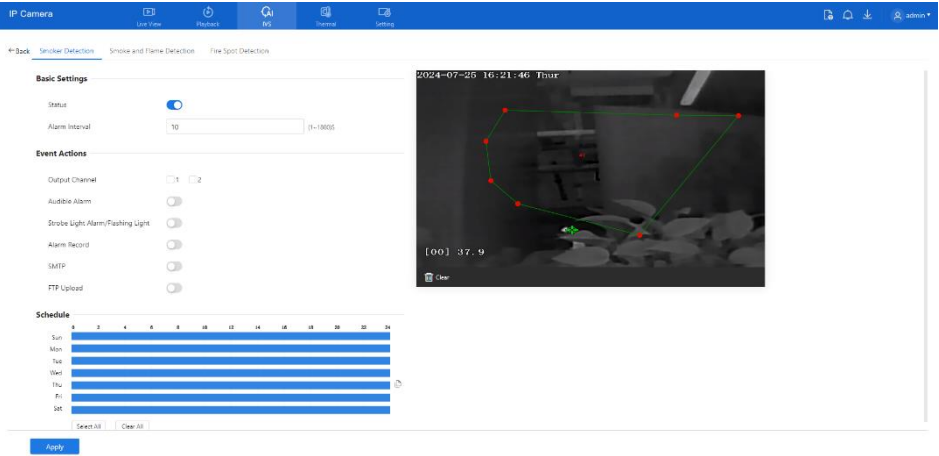
5.3.1 Smoking Detection

Description

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

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

Figure 5-11 Smoking detection interface



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

---End

5.3.2 Fire Spot Detection

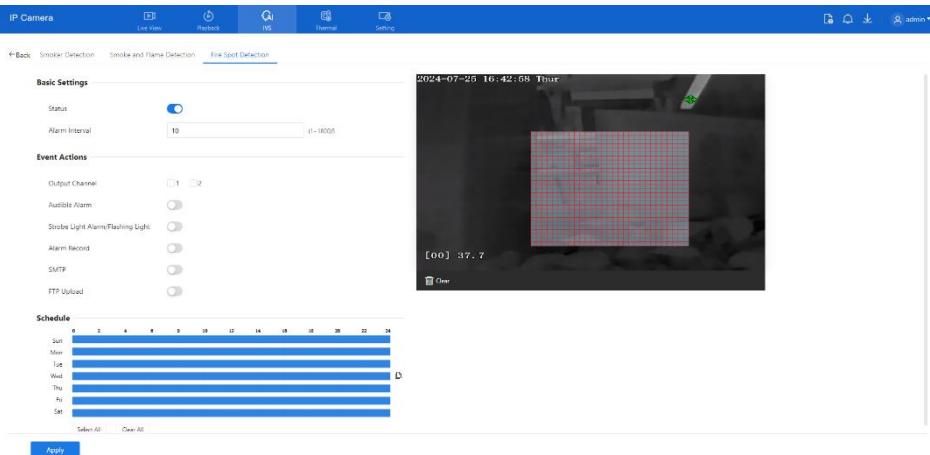
Description

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

Procedure

Step 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



Step 2 Set all parameters of Fire Spot Detection, please refer to chapter 5.2.1

Step 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



Step 4 For set deployment time, please refer to Chapter 4.3 Step 4.

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

---End

5.4 People Counting

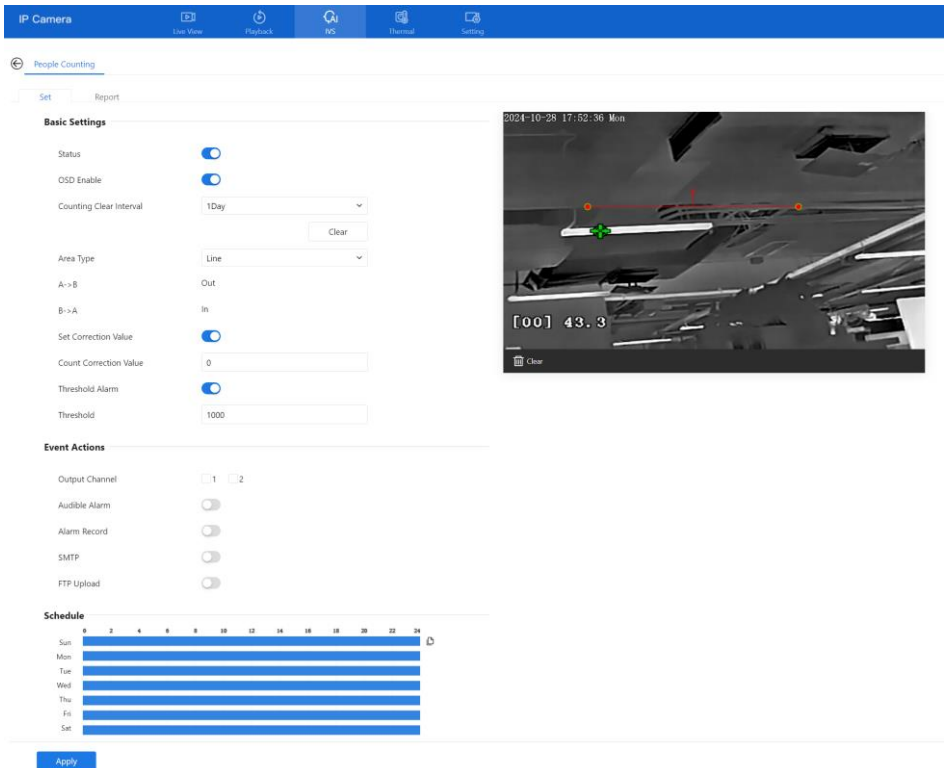
Users can draw a line to count the number of people in the special area.

5.4.1 Set

Procedure

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

Figure 5-14 People counting



Step 2 Set all parameters of People Counting. Table 5-3 describes the specific parameters.

Table 5-3 Parameters of people counting

Parameter	Description	Setting
Status	Enable the button to enable the alarm.	[How to set] Click the button to enable. [Default value] OFF
OSD Enable	Enable the OSD, and the count data will show on the live video screen.	[How to set] Click Enable to enable. [Default value] OFF
Counting Clear Interval	The camera will clear counting data at the setting interval. Click the “Clear Counting”, clearing the data immediately.	[How to set] Choose from the drop-down list. [Default value] 1 Day
Area Type	Draw a line on the live video screen. The labels A and B indicate out and in.	[How to set] Choose from the drop-down list. [Default value] Line
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] Enable /Input a value in the area box. [Default value] 0
Threshold Alarm	Enable, when the counting number reaches the threshold value, an alarm is triggered.	[How to set] Click Enable to enable. [Default value] OFF

Parameter	Description	Setting
Threshold	The threshold of enabling alarm.	[How to set] Enable /Input a value in the area box. [Default value] 1000
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] Click to select an ID.
Audible alarm	Enable, when an alarm occurs, it will play audio to the alarm. Choose the audible alarm file (set at the “ Configuration > Alarm > Audible Alarm Output ”).	[How to set] Click to enable the Audible alarm [Default value] OFF
SMTP	Enable the button to enable the SMTP server. The parameters of SMTP can be set at Configuration > Network Service > SMTP interface.	[How to set] Click to enable SMTP. [Default value] OFF
FTP Upload	Enable the button to enable File Transfer Protocol. The parameters of FTP can be set at Configuration > Network Service > FTP interface.	[How to set] Click to enable FTP Upload. [Default value] OFF

Step 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.

Step 4 Set deployment time.

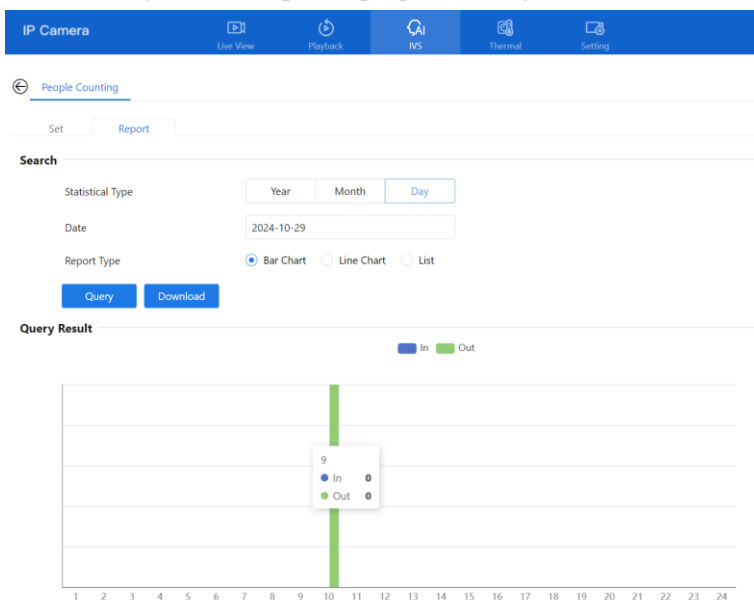
Step 5 Click **Apply** to save the settings

----**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 at 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.

Figure 5-15 Report of people counting



Click “Download” to download the query result.

Choose the mode of showing results, such as line chart, histogram, and list.

Click “Query” to query the data of 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. 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 setting 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 the Microsoft Edge. The steps are as follows: Press Ctrl + Shift + Delete , the pop-up window shows the Delete Browsing History dialog box. Select all checkboxes. Click Delete . Relogin the web page of the camera.
Upgrade failed.	No network cable is connected. The network setting is incorrect.	Ensure the upgraded network is connected. Check whether the network setting is 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 intake energy. An object with an emission rate of 0.8 can absorb 80% of 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 value 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, 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 reflected)	22/72	0.07
Copper (Heavy oxide 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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