

# ***Thermal Bi-spectrum Webcam***

## ***User Manual***

**Warnings:**

- The camera lens mustn't be aimed at intense light source (such as sunlight, laser, soldering iron at high temperature etc.). Or the imaging sensor will be damaged.
- The product mustn't be installed in violently vibrating or shocking environment. Keep the product away from electromagnetic interference when in use. (Ignoring of this rule might damage the product.)
- The product must be used within the range of suggested temperatures and humidity. It mustn't be used in overheating, undercooling, heavy-dust or high-humidity environments.
- The device mustn't be exposed to corrosive gas. Or it will be damaged by the corrosive gas.
- The device may have network safety issues when connected with internet. Please well protect your personal information and data safety. When you find the device may have network safety danger, please contact us in time.
- Please keep properly all the original packing materials of the camera in case you need to send it back to the agency or factory because of some issues when the camera is required to be packed in the original materials. Customer is responsible for any accidental damage caused by non-original packing during transport.

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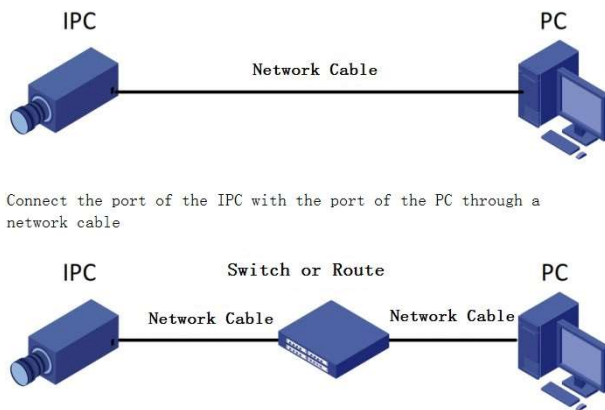
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# 1. Network Settings

## 1.1 Network Connections

Please connect the IP Camera (IPC) to PC by a network cable or a switch or a route before accessing it.



## 1.2 Login to Web Interface

Step 1 Open a browser, enter the IP address of the camera in the address bar, and press [Enter]. Once it's successful, it will show the web interface as below.



Step 2 Enter username and password on the web interface (the default username is *admin* and the default password is *admin123*.)

Username

admin

Password

.....

Login >>

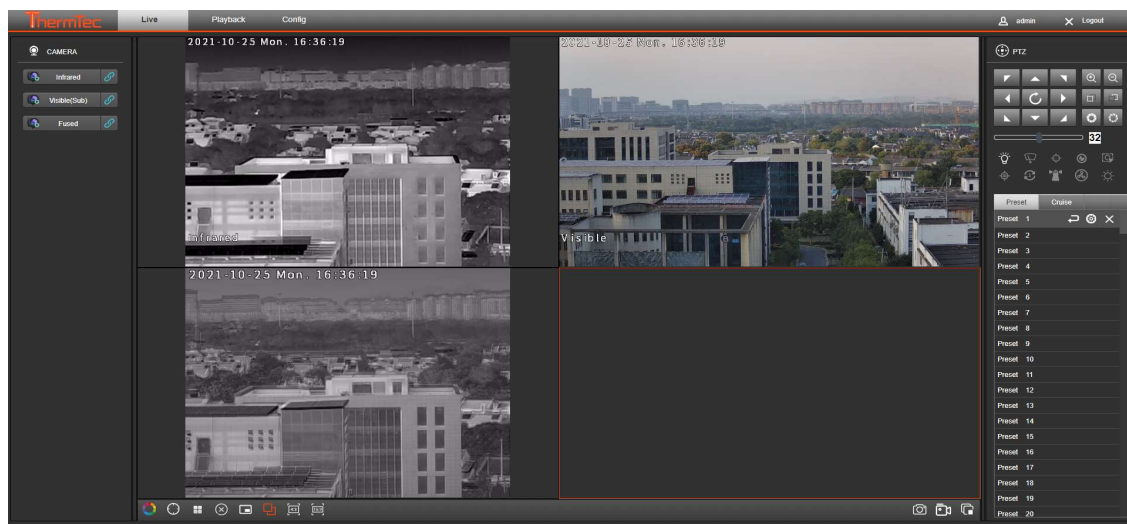
Step 3 Once the password is entered it will jump to the video preview interface.

On the main interface user can click "Logout" to exit.






## 2. Live

2.1 User can preview and play back the videos and set parameters on the main interface.












## 2.2 Operations under Live

Click “Live” to enter the preview interface, and user can have the following preview operations:

- Pseudo color selection: select a pseudo color under the dropdown list of  and click “Save” .
- Zero setting of the blade: click , the physical blade will move to calibrate the thermal imager. A sound can be heard in this process.
- Screen split: click , and the screen can be divided into one-frame and four-frame. Normally it shows the three-way images, infrared images, visible

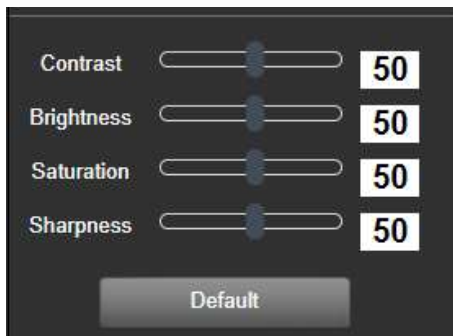
images and fused images. On one-frame screen, the selected image can be enlarged. Double-click the image, it will spread to full screen.

- Eliminating: Click  to eliminate all the points, lines and frames for measuring temperatures on the image (only apply to device with temperature measuring functions).
- Picture in picture:  is used to enable picture in picture function for visible image.
- Image fusion:  is used to enable the fusion model for thermal imagery.
- Capture: click  to capture a real time preview image and save it to the local path.
- Recording a video: click  to record the video and click again to stop. The recorded file will be saved to the path as set.
- Starting and stopping the preview: click  to start preview of all videos and click again to stop them all.
- Aspect ratio:  respectively show the auto aspect ratio of 4:3 and 16:9.
- Night fill-in light: click  to turn on or turn off the night Infrared fill-in light.
- Focus of the thermal lens: click  to adjust the focus of the thermal lens.

## 2.3 Picture Adjustment

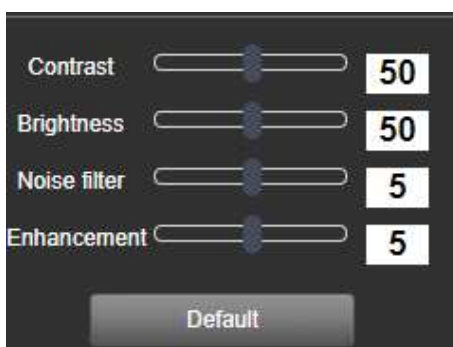
- The adjustment function of visible images can adjust the contrast, brightness, saturation and sharpness of the visible images.





Parameters	Descriptions
Contrast	Adjust the contrast of the visible image
Brightness	Adjust the brightness of the visible image
Saturation	Adjust the saturation of the visible image
Sharpness	Adjust the sharpness of the visible image
Default	Click this icon to restore default settings of contrast, brightness, saturation and sharpness.

- The adjustment function of infrared image can adjust the contrast, brightness, noise filter and enhancement of the infrared image.



Parameter	Descriptions
Contrast	Adjust the contrast of the infrared image
Brightness	Adjust the brightness of the infrared image

Noise filter	Adjust the noise of the infrared image
Enhancement	Adjust the enhancement of the infrared image
<div>Default</div>	Click this icon to restore default settings of contrast, brightness, noise filter and enhancement.

## 2.4 OSD Configuration

On Screen Display (OSD) refers to the character information displaying on the screen overlapping the video image, which includes time setting and so on.

☒ Show Name  
 Channel Name

☒ Show Data  
☒ Show Week

Time Format

Data Format

☒ Char Overlap

☐ 1

☐ 2

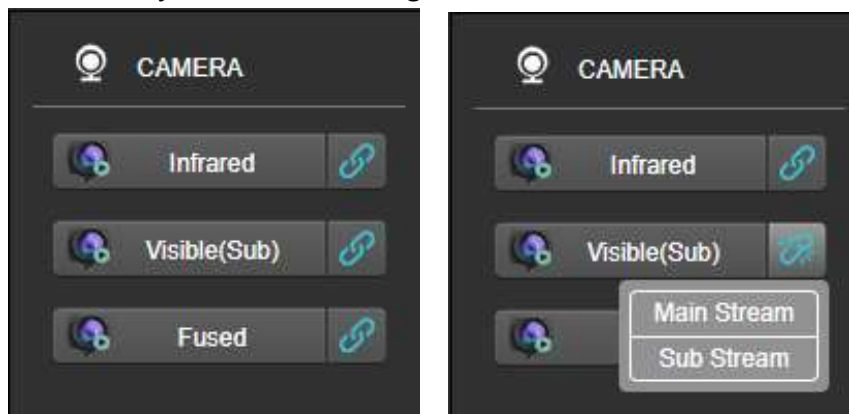
- User can set the Channel Name as needed and choose to enable or not Show Name, Show Date and Show Week.
- Time Format can be in 24HR model or 12HR model.
- OSD Date can be in several formats.

- Characters (no more than 15 each line) can overlap the video image.
- Enter the characters on the character bar, save them, and they can be previewed immediately. Drag the characters by the mouse to the location where they are wanted, save them, and the characters will display on the image.

## 2.5 Image Connection

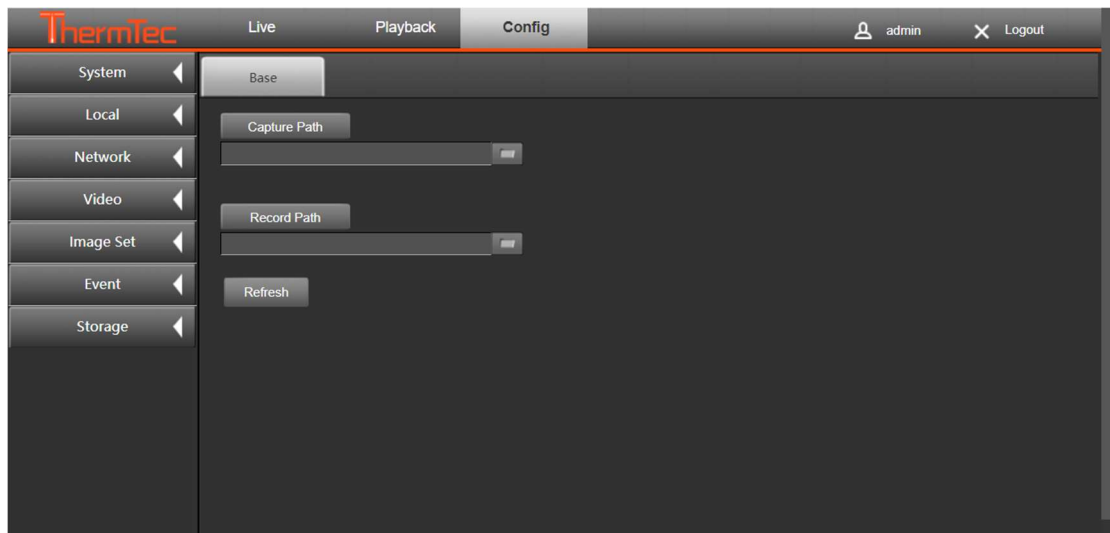
Images can be connected in three ways, infrared, visible and fused. To connect visible image s, two options are available, Main Stream and Sub Stream.

After the login to the preview interface, it will automatically connect three ways of images. Click the shortcut key, image connection will be cut; double click the shortcut key, the selected image will be re-connected.



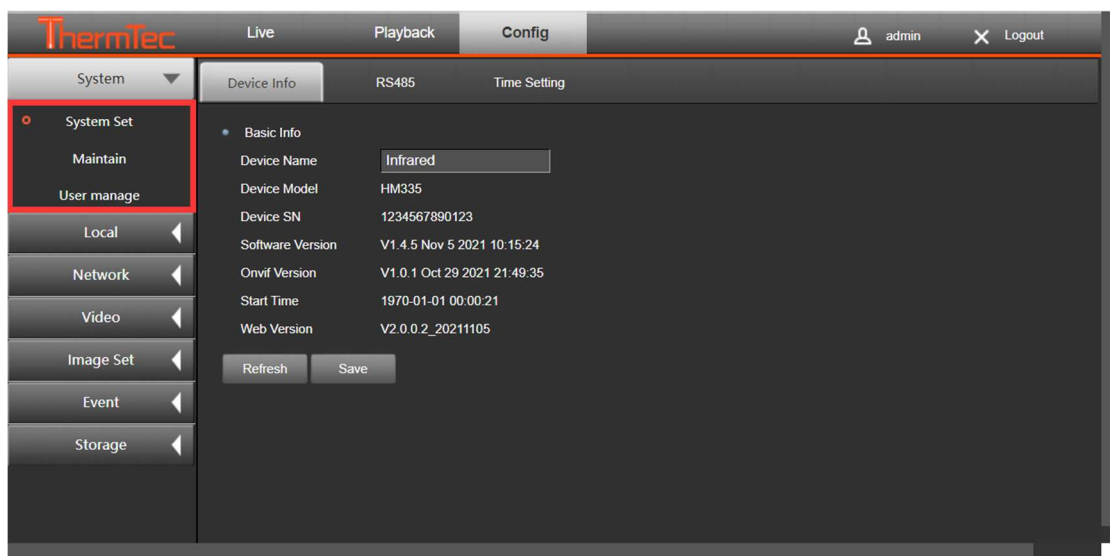
## 3. Configurations

Configurations include System, Local, Network, Video, Image, Event and Storage configurations as below:



## 3.1 System Configuration

System Configuration includes System Settings, Maintain and User Manage as below:



### 3.1.1 System Settings

- Device Info: user can find "Device Model" , "Device SN" , "Software Version" , and "Web Version" etc. in this interface. Click "Device Name" to change and save the name.

### ➤ RS485:

Set the parameters of the serial interface to match the port.

Band Rate: choose the band between 2400 and 115200.

Data Bit: choose among "5" , "6" , "7" , "8" .

Parity Bit: choose among "None" , "Odd" and "Even" .

Stop Bit: Choose either "1" or "2" .

Decode type and address: set it as needed.

### ➤ Time Setting

The default time zone is where the device is current located. It can be set manually under “Time zone” .

Time calibration can be in NTP time and Manual Time. NTP Time: Set the Server address, NTP port, and Time interval for the device to correct time in this period of time; Manual time: set time manually. Check “Time synchronization with computer” , the time of the device will be kept the same as the PC.

After all the parameters are set, click “Save” .

The screenshot shows a web management console with a dark theme. At the top, there are three tabs: "Device Info", "RS485", and "Time Setting", with "Time Setting" being the active tab. Below the tabs, the "Time zone" is set to "(GMT+08:00) Beijing, Urumqi, Singapore" via a dropdown menu. There are two main sections: "NTP time" and "Manual Time". The "NTP time" section is currently inactive, showing fields for "Server address" (time.windows.com) and "Time interval" (1 min). The "Manual Time" section is active, showing "Device Time" (1970-01-01 10:23:16) and "Setting Time" (1970-01-01 10:22:08). A checkbox for "Time synchronization with computer" is present and checked. At the bottom of the "Manual Time" section, there are "Refresh" and "Save" buttons.

### 3.1.2 Maintenance

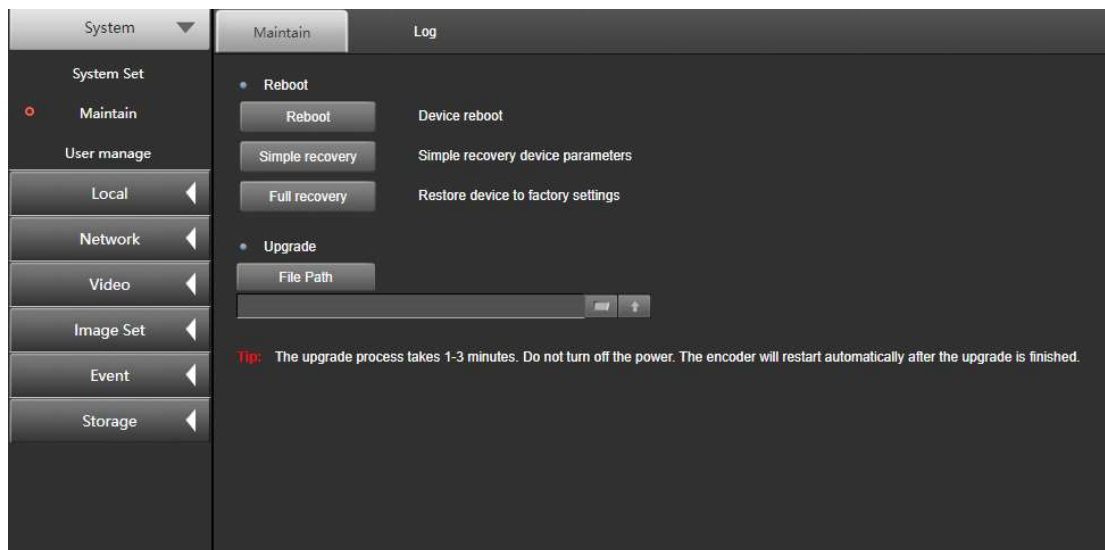
Reboot: click “Device Reboot” to restart the device.

Simple recovery: simply restore the parameters, except IP address, ip-mask and gateway, to factory settings.

Full recovery: fully restore the device to factory settings.

Upgrade: click “Browse” to choose a local path for upgrade files and click “Upgrade” to begin. Please do not power off in the upgrade process. The device

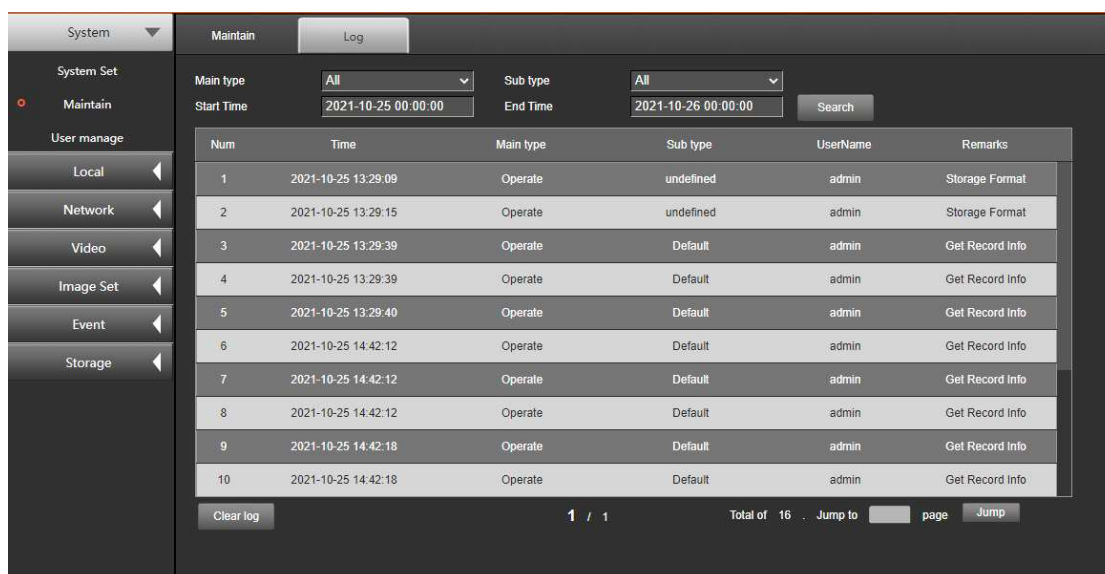
will restart automatically after the upgrade is finished.



Logs:

Log search: select Main type, Sub type, Start time and End Time, click "Search" to find the relevant logs.

Log information: The information of the logs are listed as "Num" , "Time" , "Main type" , "Sub type" , "UserName" , "Remarks" .



### 3.1.3 User Management

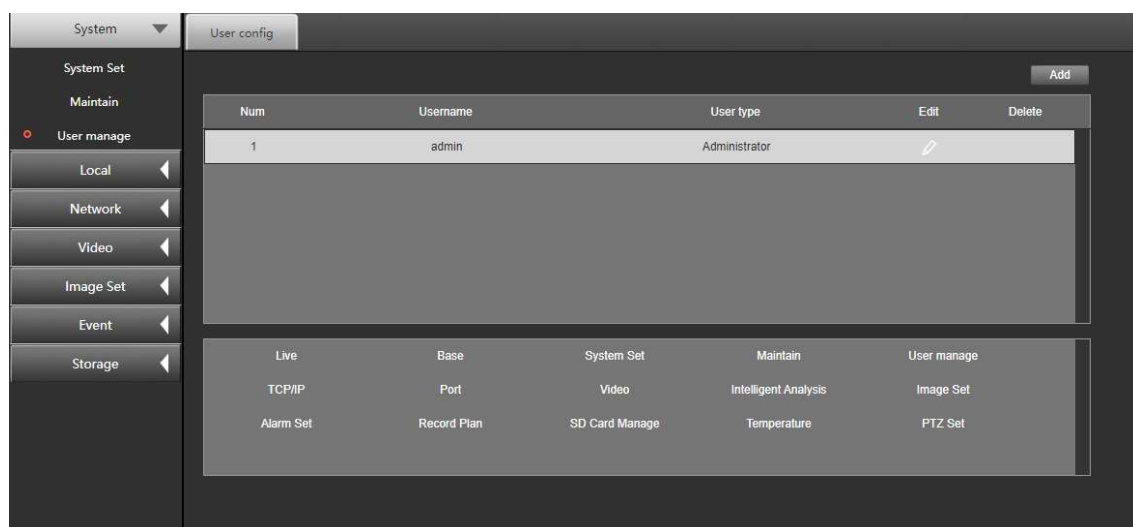
When the current user is “admin” , a maximum of 9 users can be created.

Add user: click “Add” to set username and password. Click “User Permission” to set basic permission and channel permission and then click “OK” .

Edit user: select the user that needs to be edited, and click it to enter the editing interface.

The “Basic Permission” and “Channel Permission” of the added or edited user can be set.

Delete user: select the user that needs to be deleted, and click “Delete” to delete it.



### 3.2 Local Storage

Live capture storage path: the local path where the live capture is saved.

Record storage path: the local path where the record file of the preview is saved.





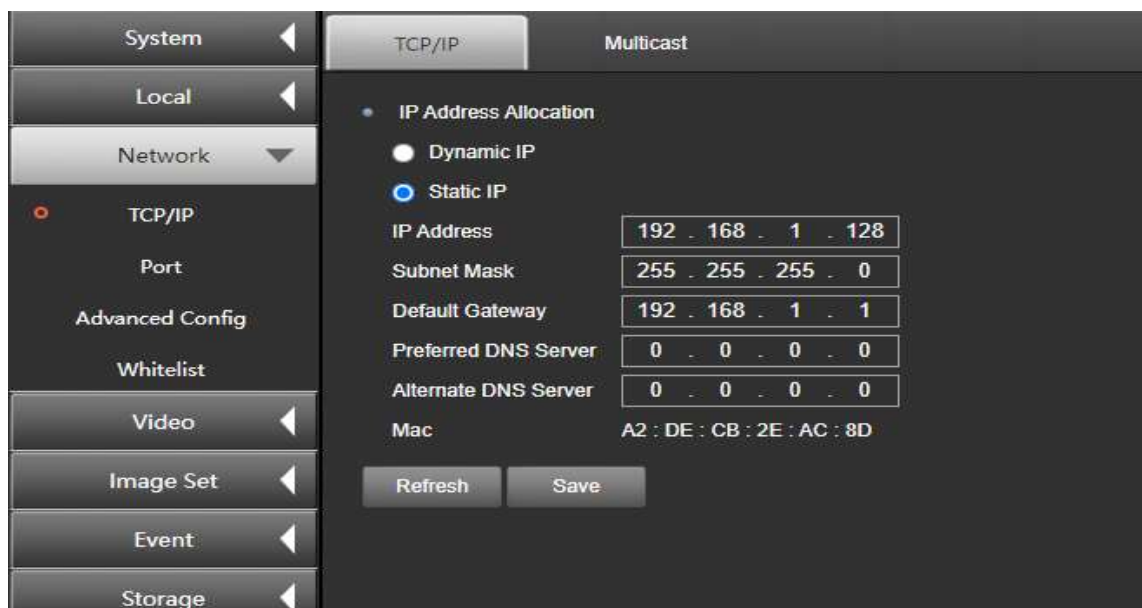
## 3.3 Network

### 3.3.1 TCP/IP

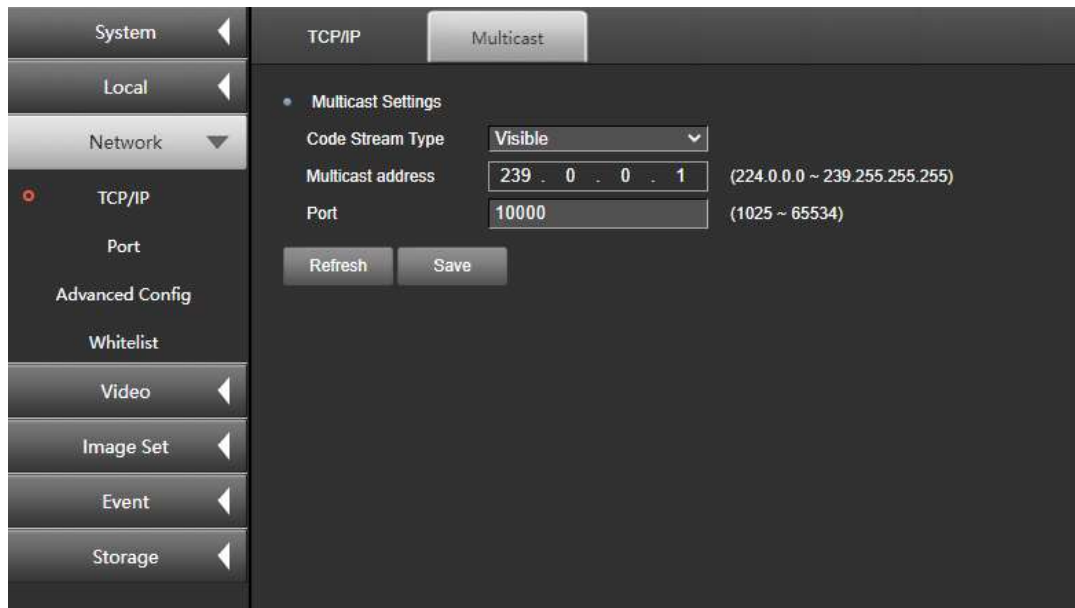
Under TCP/IP, user can set "IP Address Allocation" , "IP Address" , and "Default Gateway" . If auto acquiring the IP address is ON, the device will automatically acquire the IP address and related network parameters.

User can set the DNS servers at "Preferred DNS Server" and "Alternate DNS Server" . Only when the DNS servers are set at the right address, domain can be accessed properly.

MAC address: it shows the MAC address of the device.



Multicast: the videos on the device can be viewed through network. If it exceeds the access limit, they can't be viewed. But it can be solved by using multicast protocol after setting the multicast IP. Click "Enable" to start multicast, enter multicast address and port, and click "Save" to finish setting.



### 3.3.2 Port

RISP, ONVIF and other network protocol accesses are available.

Under Port Setting, user can set "ONVIF (default value 8080)" , "HITP (80 in default)" , "HTTPS (443 in default)" , RISP (554 in default)" , "TPC (4321 in default)" , and "Web Socket (8877 in default)" .

User can set the relevant port as needed to visit the device through network.

Port mapping configuration interface showing the following settings:

Service	Port
Onvif	8080
RTSP	554
TCP	4321
Web Socket	8877
HTTP	80
HTTPS	443

Buttons: Refresh, Save

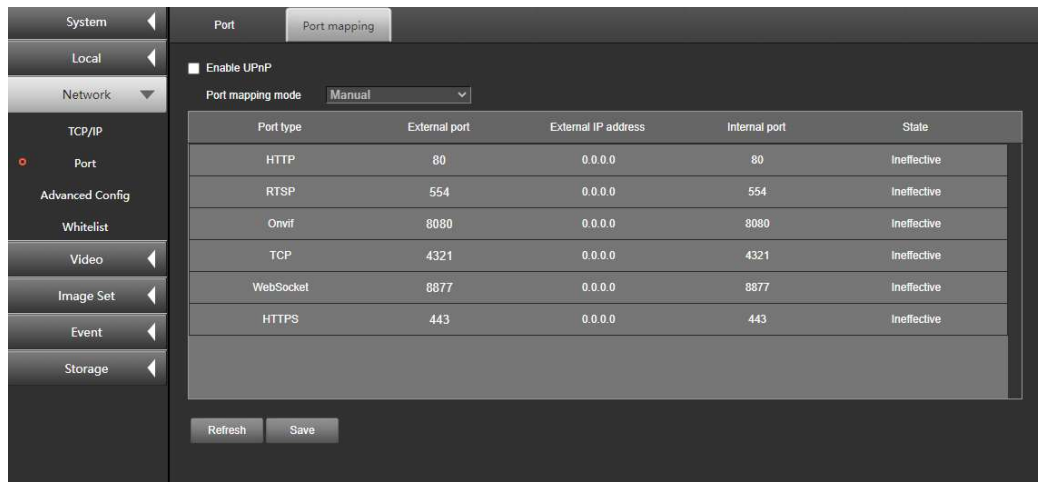
### Port Mapping:

Check the box before “Enable UPnP” to enable port mapping, which can be “Manual” and “Auto” .

When it’ s on “Auto” model, user doesn’ t need to edit the mapping port. The device will automatically map public network.

When it’ s on “Manual” model, user can manually edit the external port to map in public network without editing the port of the device. The port of the device will map public network.

In a system sharing the same LAN broadcast domain with open UPnP protocol, user can search the device in the same network and the model and SN of the device will show. Double click the icon, and a browser will automatically pop out, to access the current IP address of the device.



### 3.3.3 Email

By setting email parameters, alarm will be sent to the assigned email address.

Sender' s information: enter the sender' s email address, SMTP server address, SMTP port (9537 in default), username and password.

Email Encryption: user can choose SSL, TLS or Not Encrypted.

Image attached: check the box, the email will attach an instant capture.

Recipient' s information: enter the recipient' s email address, click "save" and confirm the address.

System

Local

Network

TCP/IP

Port

Advanced Config

Whitelist

Video

Image Set

Event

Storage

Mail Set

FTP

Mail Sender

admin

Email Address

SMTP Server

SMTP Port

9537

(1-65535)

☐ Image Attachments

☐ Server Authentication

Username

admin

Password

\*\*\*\*\*

Confirm Password

Mail Recipient

Num	Mail Recipient Name	Email Address
1		
2		
3		

Refresh

Save

By setting FTP parameters, files can be transferred in both ways on certain FTP servers.

User can set the address and port of the FTP server, username with permission to upload files and its password, and check the box to set date and time.

Click "Save" to save the settings after editing relevant settings.

Mail Set

FTP

Username

admin

Password

\*\*\*\*\*

IP Address

192.168.1.226

FTP Port

21

0	2	4	6	8	10	12	14	16	18	20	22	24	
Sunday													Set
Monday													Set
Tuesday													Set
Wednesday													Set
Thursday													Set
Friday													Set
Saturday													Set

☐ Whole week

☒ Sunday

☐ Monday

☐ Tuesday

☐ Wednesday

☐ Thursday

☐ Friday

☐ Saturday

Period 1

00 : 00 : 00

23 : 59 : 59

Period 2

00 : 00 : 00

23 : 59 : 59

Period 3

00 : 00 : 00

23 : 59 : 59

Period 4

00 : 00 : 00

23 : 59 : 59

Period 5

00 : 00 : 00

23 : 59 : 59

Period 6

00 : 00 : 00

23 : 59 : 59

Refresh

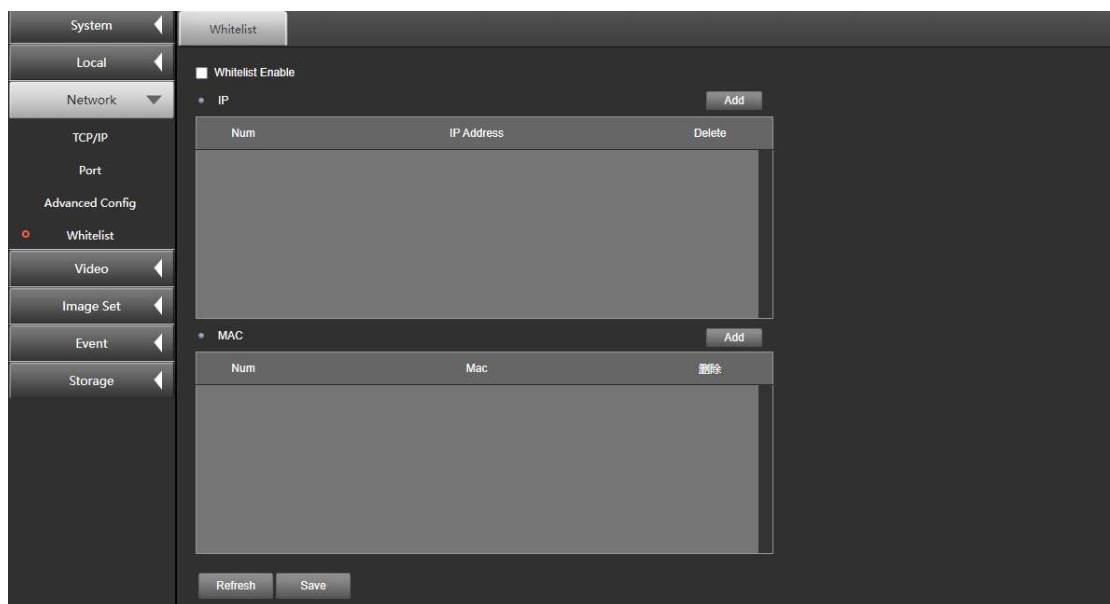
Save

### 3.3.4 Whitelist

User can set the users who can have access to the device through IP permission.

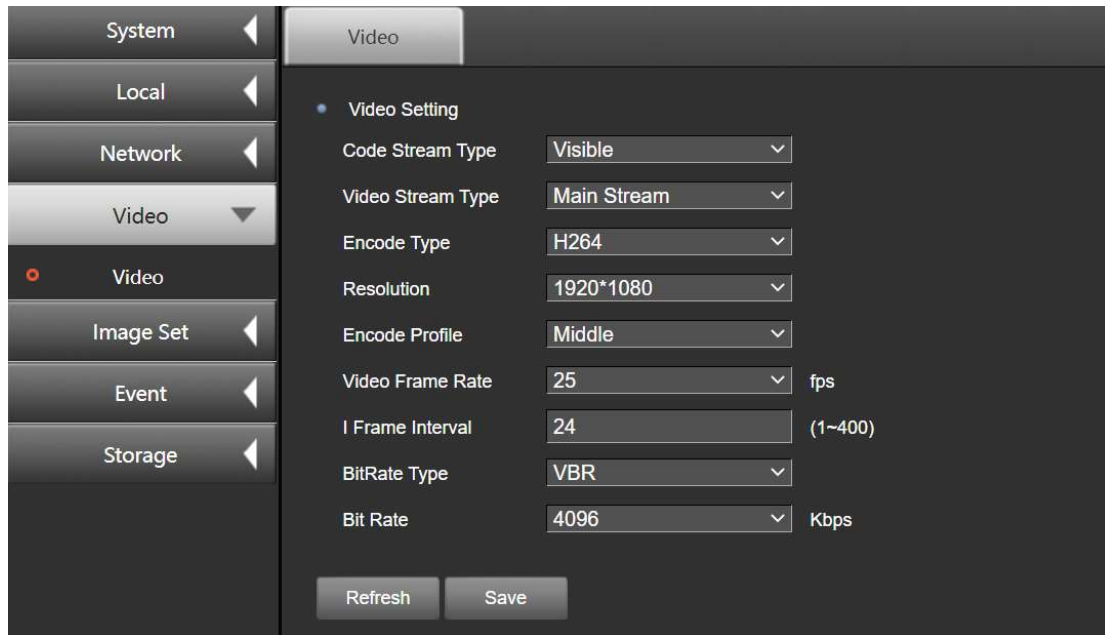
Whitelist: Add the IP/MAC of the users who can have access to the device. If the whitelist is enabled, only the users whose IP/MAC are on the list can login the device; if the whitelist is not enabled, any user can access this device without restrictions.

Only when the IP addresses of the device and the PC are in the same LAN, MAC can be verified.



### 3.4 Video Configuration

User can set Code Stream Type, Encode Type, Resolution and other video parameters.



- Code Stream Type: it can be Visible or Infrared.
- Video Stream Type: it can be Main Stream or Sub Stream
- Encode Type: it can be H265 or H264 decided by the actual device.
- Resolution: it can be set as needed. The higher the resolution is, the wider broadband it requires.
- Encode Profile: it can be Low, Middle and High. The higher the grade is, the higher is the image quality.
- Video Frame Rate: it refers to the number of frames per second of the video. It can be set as needed. The higher the frame rate is, the wider broadband and more memory space it requires.
- I Frame Interval: it refers to the number of frames between two key frames. The longer the I frame interval is, the less volatile is the bitrate, but the image quality is lower. Otherwise, the image quality will be

higher.

- BitRate Type and Rate: the bitrate can be CBR, VBR and ABR. CBR indicates a constant bitrate. The video can be compressed fast this way but it may cause mosaic. VBR indicates the bitrate changes within the rate. The video can be compressed slower this way, but the video can remain clear in complex scenes.

## 3.5 Image Configuration

### 3.5.1 Image Settings

Set the image parameters for different scenes to match the current live preview image on the device, to meet the demands of different scenes.

- Visible image adjustment: user can adjust the "Brightness" , "Contrast" , "Saturation" , and "Sharpness" of the image.
- Day night switch: user can choose "Day" , "Night" , "Auto" , "Timer Switch" , "Alarm In Trigger" , and "Photoresistance" .

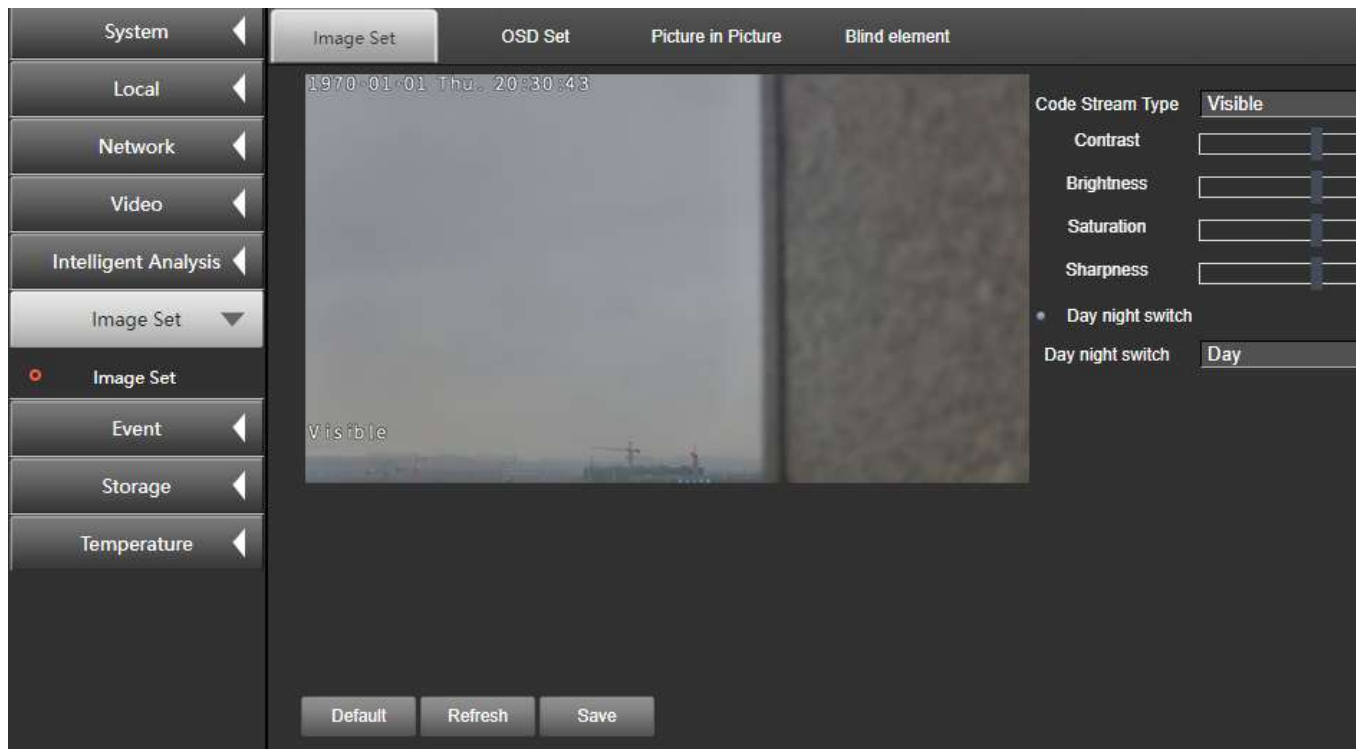
Day Model: the images are in colors.

Night Model: the images are black and white.

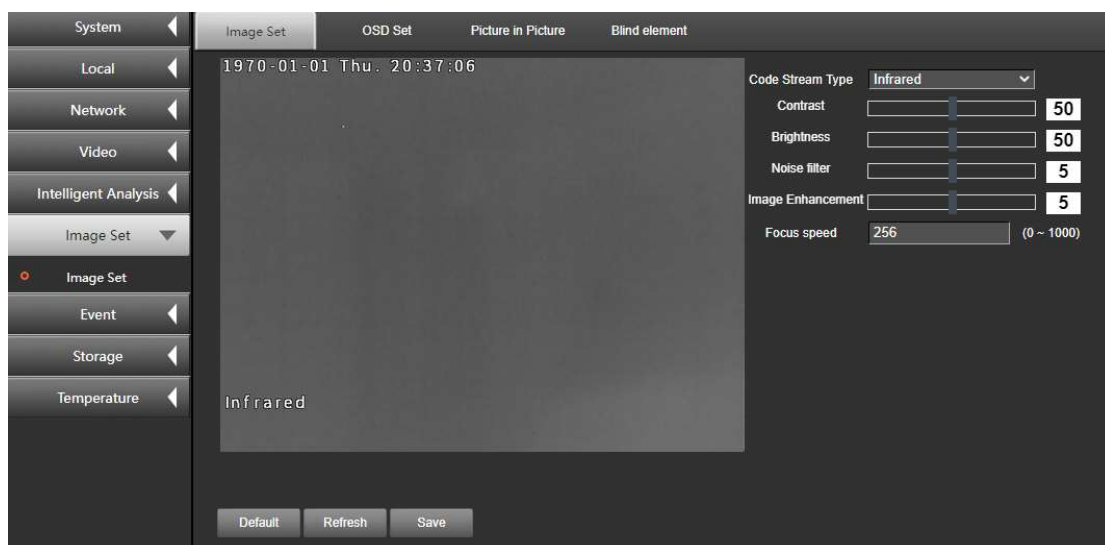
Timer Switch Model: user needs to set the start time and end time for Day during which period the device automatically takes the Day Model.

Out of this period, the device automatically takes the Night Model.





- Infrared image adjustment: adjust the "Brightness" , "Contrast" , "Noise Filter" , and "Image Enhancement" of the image.
- Focus Speed: set the focus speed for the infrared camera lens motor between 0 and 1000. The smaller the value is, the lower is the focus speed; the larger the value is, the higher is the focus speed.

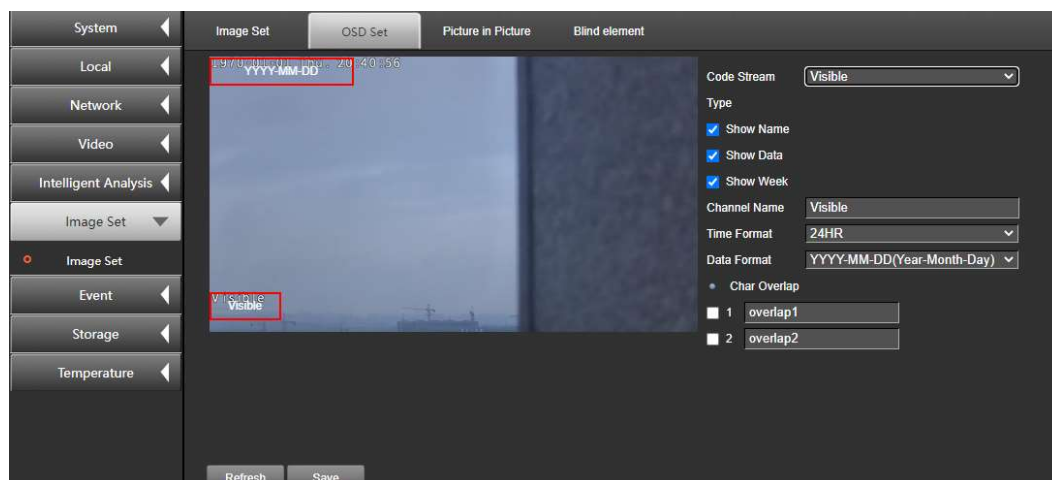


## 3.5.2 OSD Settings

On Screen Display (OSD) refers to the character information displaying on the screen overlapping on the video image, which includes time setting and so on.

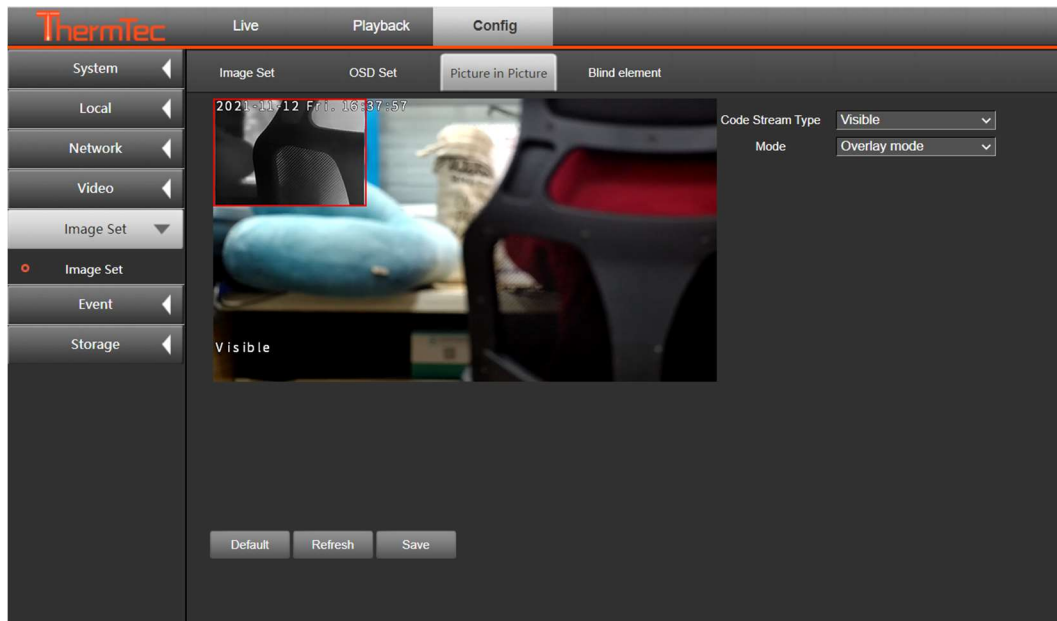
- Video Type: it can be Visible and Infrared.
- User can set the Channel Name as needed and choose to enable or not Show Name, Show Date and Show Week.
- Time Format can be in 24HR model or 12HR model.
- OSD Date can be in several formats.
- Characters (no more than 15 each line, and a maximum of 3 lines is allowed) can overlap the video image.

Enter the characters on the character bar, save them, and they can be previewed immediately. Drag the characters by the mouse to the location where they are wanted, save them, and the characters will display on the image.



### 3.5.3 Picture in Picture and Fusion

- Under Visible from Code Stream Type, General Model and Picture in Picture models are available. Visible image will show infrared image if it's in Picture in Picture model.



- Under Infrared from Code Stream Type, General Model and Fused Model are available. In Fused Model, infrared image will convert to fused image. Select fused ratio and distance further, and it will show fused image.



## 3.5.4 Blind Elements Management

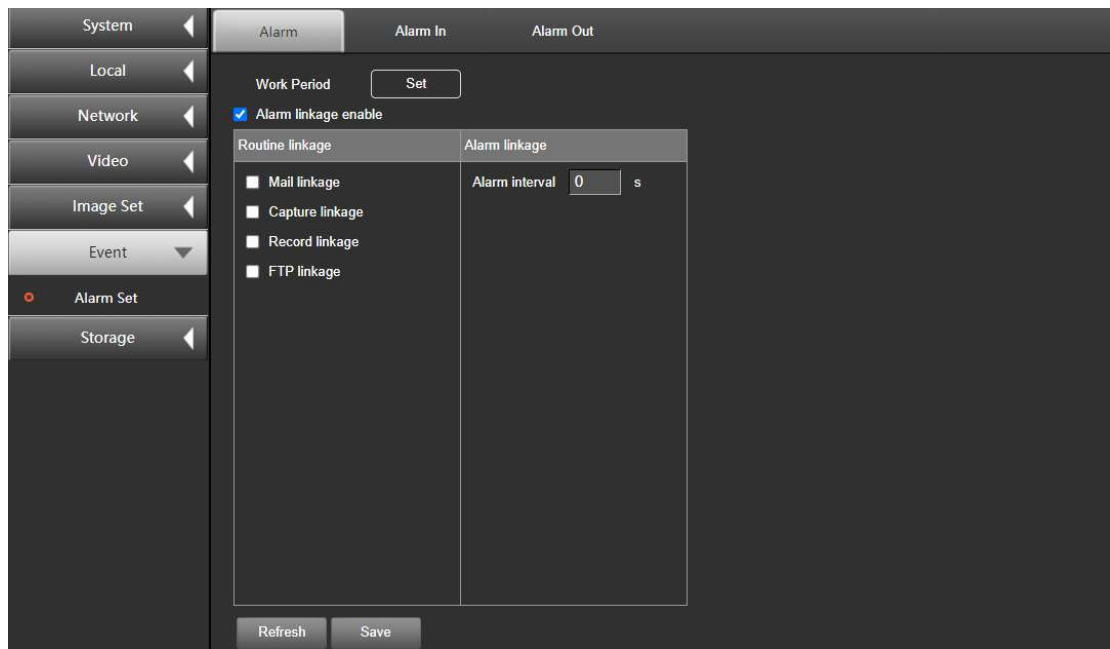
Enable Blind Elements to see if the image changes. If it has blind elements as points, spot and lines, use the direction keys to reach where they are. Click the blind elements to delete them. If the spots are too many, user can choose to automatically manage the blind elements. After that, click "Save" .



## 3.6 Events

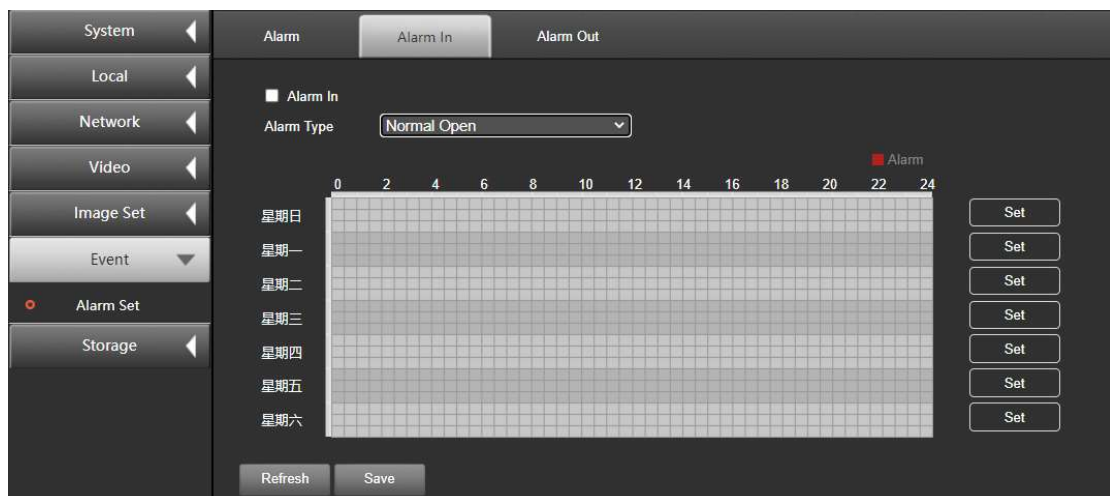
### 3.6.1 Alarm Settings

By Alarm Settings alarms will be reported. By setting linkage actions of other devices, the triggered alarm will be linked to some type or several types of actions so that user can manage the alarm and other linkage actions in time. Linkage model can be Mail Linkage, Capture Linkage, Record Linkage and FTP Linkage. In addition, alarm interval and work period can be set.



## 3.6.2 Alarm In

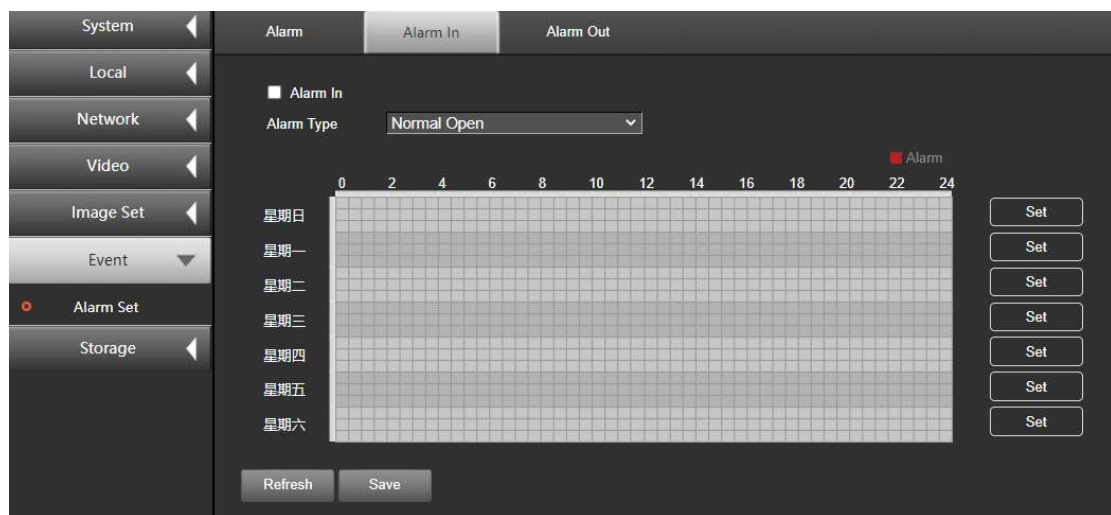
Check the box before “Alarm In” to enable it. Alarm Type can be Normal Open and Normal Close. Click “Edit” to set alarming time, which can be a whole week and some day in one week. The start time and end time of 6 periods can be set in one day.



### 3.6.3 Alarm Out

Check the box before “Alarm Out” to enable it. Alarm Type can be Normal Open and Normal Close. Select alarm delay time, which indicates to the duration after the alarm is triggered, to set it between 5 seconds to 10 seconds, or manually close the alarm. The alarming state cannot be set.

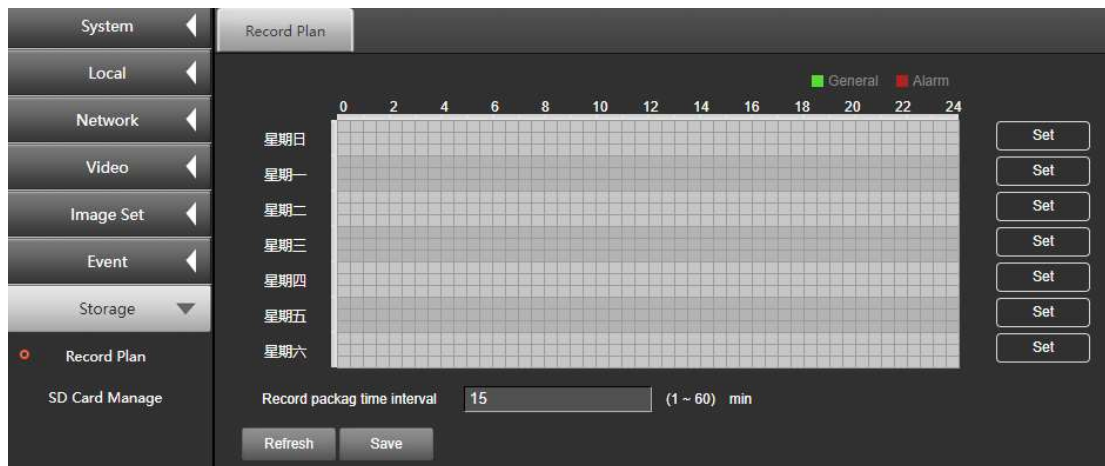
Click “Edit” to set alarming time, which can be a whole week or some day in one week. The start time and end time of 6 periods can be set in one day.



## 3.7 Storage

### 3.7.1 Record Plan

User can edit the alarming time for records. Select record type, and set the alarming time to be a whole week or some day in one week. The start time and end time of 6 periods can be set in one day. User can also set record package time interval (1~60m). Click “Save” after finishing setting.



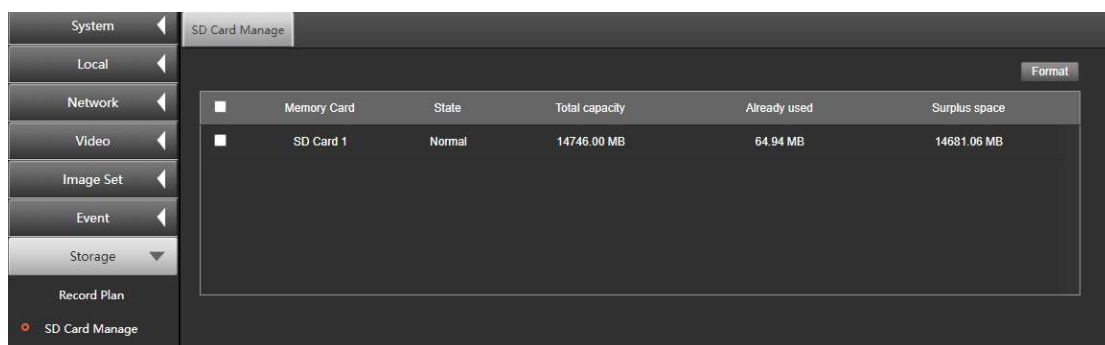
### 3.7.2 SD Card Management

SD Card Manage is used to check the capacity and state of the storage device, and format the storage device.

SD Card Information shows the configured information, such as total capacity, already used space, surplus space and state.

Check the box before the detected SD card, click "Format". When the state of the SD card changes from "Unformatted" to "Normal", it will function normally.

Click "Save" after finishing setting.



## 4. Playback

### 4.1 Record Playback

On the playback interface, user can locate, play back and download the valid files stored in SD card and NAS disk:

- Playback state: the playback state bar can be green or red.  
Normal records will show green; it will turn to red when it is an alarm record. User needs to set linkage model for alarm record playback.
- Play/Stop: click "Play" to play back the located file, and click "Stop" to stop playing.
- Playing speed: user can accelerate playing back record. The default speed is 1x. It can be sped up to 2x maximally.
- Record downloading: click "Record Downloading" to enter downloading interface. Select the record clip that needs to be downloaded and click "Download" to download it to a local path; click "Stop", the downloading task will stop. Click "Open Record Folder" to open the local folder path to check the downloaded record.
- Play in fullscreen: click the fullscreen shortcut button, it will



play in full screen.

- Play in picture in picture: click the lower right corner of the picture in picture button, it will play in widget. User can view the playback while operating on some other settings.

