

Thermal Network Camera

User Manual

Please read this instruction carefully before operating the unit and keep it for further reference

Notes on Safety

- This product is intended to be supplied by a Listed Power Unit, marked with 'Limited Power Source', 'LPS' on unit, output rated minimum 12V/2 A or POE 48V/ 350mA (depending on models), no more than 2000m altitude of operation and Tma=60 Deg.C.
- Do not attempt to disassemble the camera; in order to prevent electric shock, do not remove screws or covers.
- There are no user-serviceable parts inside. Please contact the nearest service center as soon as possible if there is any failure.
- Avoid from incorrect operation, shock vibration, heavy pressing which can cause damage to product.
- Do not use corrosive detergent to clean main body of the camera. If necessary, please use soft dry cloth to wipe dirt; for hard contamination, use neutral detergent. Any cleanser for high grade furniture is applicable.
- Do not operate it in case temperature, humidity and power supply are beyond the limited stipulations.
- The thermal camera shall be used in a stable indoor environment without wind. Please ensure the monitoring field is far away from objects that could produce airflow, high temperature and reflection. Please do not install opposite to a door, air conditioner or any place in sunshine.
- Please put up a tent or build a closed environment to ensure the accuracy if outdoor installation is inevitable.
- If blackbody is used, please make sure it is installed opposite to the camera (where the camera can see it).
- Avoid backgrounds that are too crowded or bright.
- This manual is for using and managing the product. We may reserve the rights of amending the typographical errors, inconsistencies with the latest version, software upgrades and product improvements, interpretation and modification. These changes will be published in the latest version without special notification.
- In this manual, the trademarks, product names, service names, company names, products that are not owned by our company are the properties of their respective owners.
- This manual is suitable for thermal network cameras.

Disclaimer

■ With regard to the product with internet access, the use of product shall be wholly at your own risks. Our company shall be irresponsible for abnormal operation, privacy leakage or other damages resulting from cyber attack, hacker attack, virus inspection, or other internet security risks; however, our company will provide timely technical support if necessary.

■ Surveillance laws vary from country to country. Check all laws in your local region before using this product for surveillance purposes. We shall not take the responsibility for any consequences resulting from illegal operations.

Cybersecurity Recommendations

- Use a strong password. At least 8 characters or a combination of characters, numbers, and upper and lower case letters should be used in your password.
- It is recommended to change the service default ports (like HTTP-80, HTTPS-443, etc.) to reduce the risk of outsiders being able to access.
- It is recommended to set the firewall of your router. But note that some important ports cannot be closed (like HTTP port, HTTPS port, Data Port).
- It is not recommended to expose the device to the public network. When it is necessary to be exposed to the public network, please set the external hardware firewall and the corresponding firewall policy.
- In order to enhance the security of WEB client access, please create a TLS certificate to enable HTTPS.
- Use black and white list to filter the IP address. This will prevent everyone, except those specified IP addresses from accessing the system.
- If you add multiple users, please limit functions of guest accounts.
- If you enable UPnP, it will automatically try to forward ports in your router or modem. It is really very convenient for users, but this will increase the risk of data leakage when the system automatically forwards ports. Disabling UPnP is recommended when the function is not used in real applications.
- Check the log. If you want to know whether your device has been accessed by unauthorized users or not, you can check the log. The system log will show you which IP addresses were used to log in your system and what was accessed.

Regulatory Information

FCC Information

1. FCC compliance

The products have been tested and found in compliance with the council FCC rules and regulations part 15 subpart B. These limits are designed to provide reasonable

protection against harmful interference. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. The user will be required to correct the interface at his own expense in case the harmful interference occurs.

2. FCC conditions:

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

CE Information

CE The products have been manufactured to comply with the following directives.
EMC Directive 2014/30/EU

RoHS

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



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

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

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

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1 Introduction

Thermal Network camera series is specially designed to detect human body temperature with high accuracy in real time. This series of product supports real-time temperature measurement, face capture, smart event detection and alarm linkages. It can help you discover abnormal body temperature of people entering and exiting and other unexpected events immediately and protects you from property loss.

It can be used for preliminary temperature screening in office buildings, factories, stations, airports and other public places compared to other visible light cameras.

Main Features

Temperature Measurement

- Temperature measurement range: 30~45°C
- Temperature accuracy: $\pm 0.5^{\circ}\text{C}$ (without blackbody); $\pm 0.3^{\circ}\text{C}$ (with blackbody)
- 3 view modes: optical image and thermal image, optical image, thermal image
- Multi-target automatic temperature measurement
- Audio and light alarm linkage

Intelligent Analytics

- Abnormal video signal detection: including scene blur detection, video blur detection, video color cast detection
- Perimeter Alert: Line crossing detection (human/motor vehicle/non-motor vehicle classification), Region intrusion/entrance/exiting detection (human/motor vehicle/non-motor vehicle classification)
- Target Counting: line crossing people/motor vehicle/non-motor vehicle counting
- Face detection: face capture, face detection
- Audio and light alarm linkage

2 Network Connection

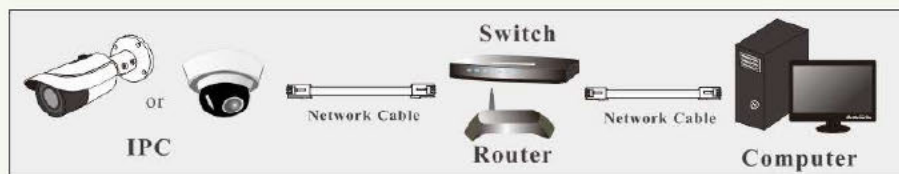
Connect IP-Cam via LAN or WAN. Here only take IE browser for example. The details are as follows:

1.1 LAN

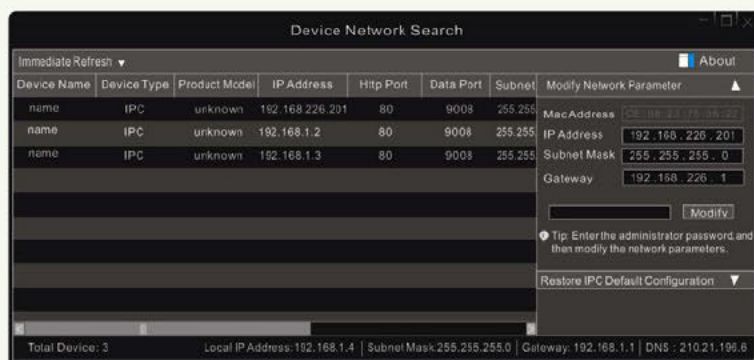
In LAN, there are two ways to access IP-Cam: 1. access through IP-Tool; 2. directly access through IE browser.

1.1.1 Access through IP-Tool

Network connection:

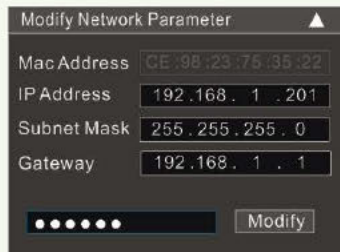


- ① Make sure the PC and IP-Cam are connected to the LAN and the IP-Tool is installed in the PC from the CD.
- ② Double click the IP-Tool icon on the desktop to run this software as shown below:



- ③ Modify the IP address. The default IP address of this camera is 192.168.226.201. Click the information of the camera listed in the above table to show the network information on the right hand. Modify the IP address and gateway of the camera and make sure its network address is in the same local network segment as the computer's. Please modify the IP address

of your device according to the practical situation.

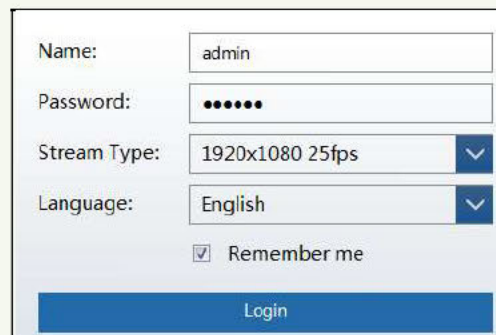


For example, the IP address of your computer is 192.168.1.4. So the IP address of the camera shall be changed to 192.168.1.X. After modification, please enter the password of the administrator and click the “Modify” button to modify the setting.



The default password of the administrator is “**123456**”.

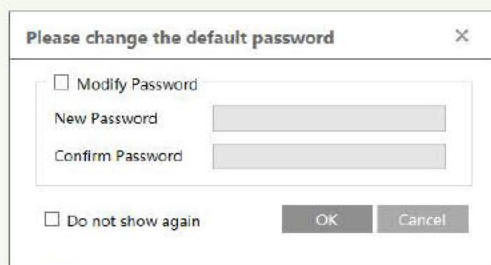
④ Double click the IP address and then the system will pop up the IE browser to connect IP-CAM. Follow directions to download, install and run the Active X control.



Enter the username and password in the login window to log in.



The default username is “**admin**”; the default password is “**123456**”.



The system will pop up the above-mentioned textbox to ask you to change the default password. It is strongly recommended to change the default password for account security. If “Do not show again” is checked, the textbox will not appear next time.

1.1.2 Directly Access through IE

The default network settings are as shown below:

IP address: **192.168.226.201**

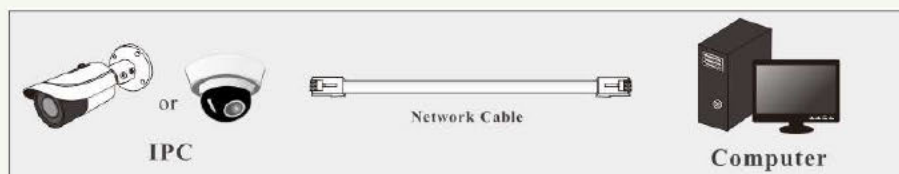
Subnet Mask: **255.255.255.0**

Gateway: **192.168.226.1**

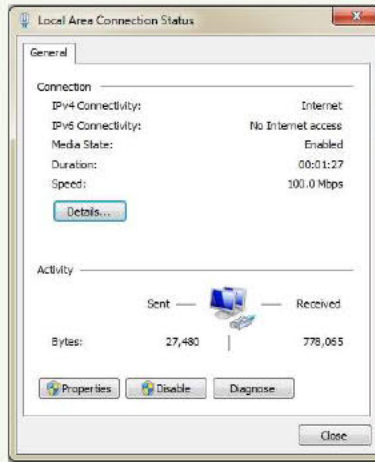
HTTP: **80**

Data port: **9008**

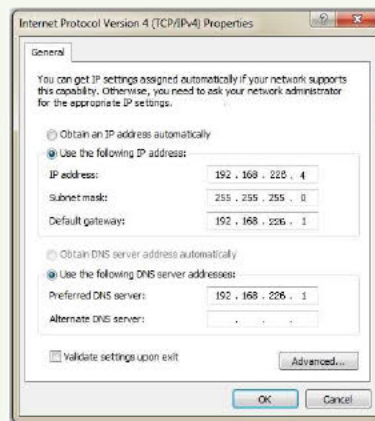
Use the above default settings when logging in the camera for the first time. Directly connect the camera to the computer through network cable.



① Manually set the IP address of the PC and the network segment should be as the same as the default settings of the IP camera. Open the network and share center. Click “Local Area Connection” to pop up the following window.



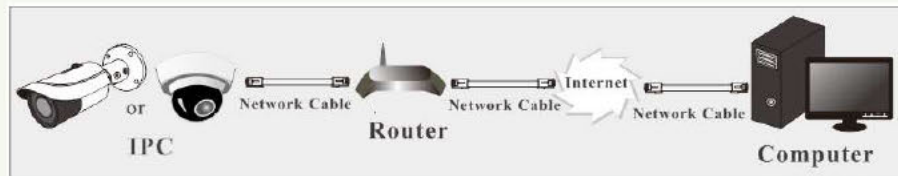
Select “Properties” and then select internet protocol according to the actual situation (for example: IPv4). Next, click the “Properties” button to set the network of the PC.



- ② Open the IE browser and enter the default address of IP-CAM and confirm.
- ③ Follow directions to download and install the Active X control.
- ④ Enter the default username and password in the login window and then enter to view.

1.2 WAN

- Access through the router or virtual server



- ① Make sure the camera is connected to the local network and then log in the camera via LAN and go to Config→Network→Port menu to set the port number.

HTTP Port	80
HTTPS Port	443
Data Port	9008
RTSP Port	554

Port Setup

- ② Go to Config →Network→TCP/IP menu to modify the IP address.

IPv4	IPv6	PPPoE Config	IP Change Notification Config
☐ Obtain an IP address automatically			
☒ Use the following IP address			
IP Address	192.168.226.201	Test	
Subnet Mask	255.255.255.0		
Gateway	192.168.226.1		
Preferred DNS Server	210.21.196.6		
Alternate DNS Server	8.8.8.8		

IP Setup

- ③ Go to the router's management interface through IE browser to forward the IP address and port of the camera in the "Virtual Server".

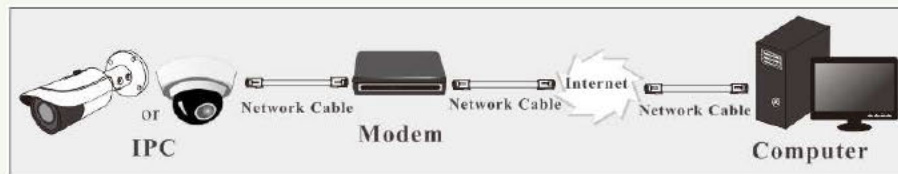
Port Range						
Application	Start	End	Protocol	IP Address	Enable	
1	9007	to 9008	Both	192.168.1.201	☒	
2	80	to 81	Both	192.168.1.201	☒	
3	10000	to 10001	Both	192.168.1.166	☐	
4	21000	to 21001	Both	192.168.1.166	☐	

Router Setup

④ Open the IE browser and enter its WAN IP and http port to access. (for example, if the http port is changed to 81, please enter “192.198.1.201:81” in the address bar of web browser to access).

➤ Access through PPPoE dial-up

Network connection



Access the camera through PPPoE auto dial-up. The setup steps are as follow:

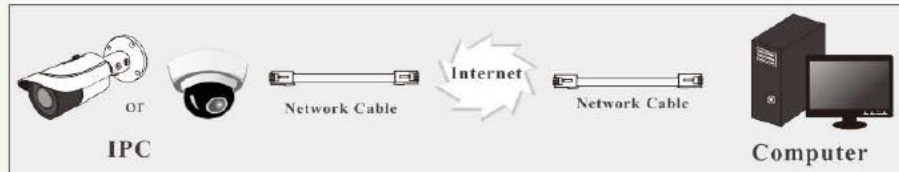
- ① Go to Config→Network→Port menu to set the port number.
- ② Go to Config →Network→TCP/IP→PPPoE Config menu. Enable PPPoE and then enter the user name and password from your internet service provider.

IPv4	IPv6	PPPoE Config	IP Change Notification Config
☒ Enable			
User Name		xxxxxxxx	
Password		••••••	
Save			

- ③ Go to Config →Network→DDNS menu. Before configuring the DDNS, please apply for a domain name first. Please refer to DDNS configuration for detail information.
- ④ Open the IE browser and enter the domain name and http port to access.

➤ **Access through static IP**

Network connection



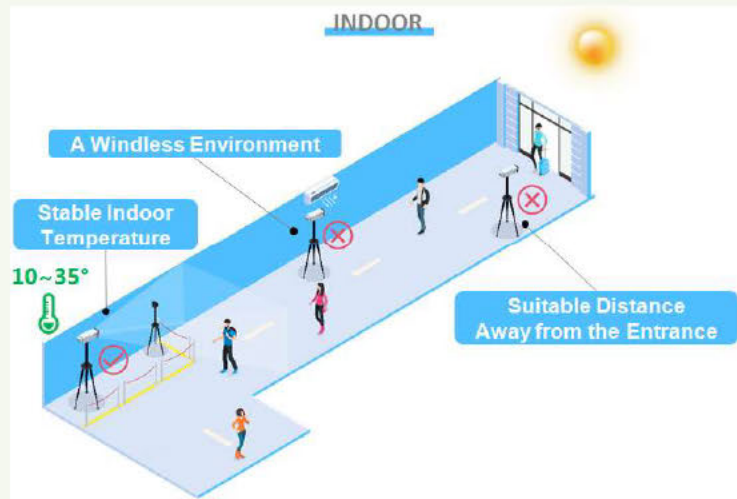
The setup steps are as follow:

- ① Go to Config→Network→Port menu to set the port number.
- ② Go to Config →Network→TCP/IP menu to set the IP address. Check “Use the following IP address” and then enter the static IP address and other parameters.
- ③ Open the IE browser and enter its WAN IP and http port to access.

3 Temp Measurement Config

3.1 Temperature Measurement Requirements

- Thermal camera is temperature-sensitive. When it is used for temperature measuring, in order to ensure the accuracy, the recommended ambient temperature is 10~35°C, and the infrared light should be turned off during the temperature measurement.
- Thermal camera can be adopted independently, but together with blackbody, the accuracy will be better.
- Thermal camera should be used in a stable indoor environment without wind. Please make sure the monitoring field is far away from any objects that could produce airflow, high temperature, reflection.
- Don't install the thermal camera opposite to a door, air conditioner or any place in or near infrared sources, such as sunshine.
- It is recommended to use DC12V power supply at high temperature to reduce power consumption.
- For monitoring, the best temperature measurement distance is 2~4m, recommended distance should be 2~6m.
- Set up a one-way temperature measuring zone and make sure the camera can clearly see the human face.
- After turning on, the thermal camera needs to wait 20~30 minutes to be steady.





Note:

Faces should be unobstructed by hair, eyeglasses, and other objects because their presence will interfere with the ability of a thermograph detection.

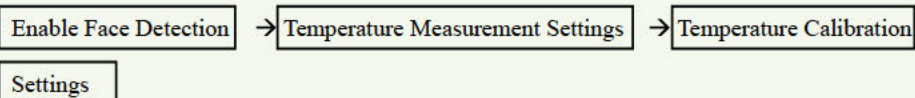
This device is not intended for use in the diagnosis or treatment of any disease, nor should it be solely or primarily relied upon to diagnose or exclude a diagnosis of any illness, disease or other medical condition.

Elevated body temperature should be confirmed with secondary evaluation method, such as a clinical grade contact thermometer.

Public health officials should determine the significance of any fever or elevated temperature based on the skin telethermographic temperature measurement.

Visible thermal patterns are only intended for locating the points from which to extract the thermal measurement.

The temperature measurement setting steps are as follows.



Log in the Web Client of the device according to the above-mentioned network configuration.

3.2 Enable Face Detection

Click Config→Event→Face Detection to go to the face detection interface as shown below.

Detection Config	Area	Advanced	Schedule
State Working			
☒ Enable			
☐ Save Source Information			
☐ Save Face Information			
Alarm Holding Time 20 Seconds			
Trigger Alarm Out			
☐ Alarm Out			
☐ Trigger Audio Alarm			
☐ Trigger Light Alarm			
☐ Trigger SD Snap			
☐ Trigger SD Recording			
☐ Trigger Email			
☐ Trigger FTP			
Save			

Check “Enable” to enable face detection.

Then click “Save” to save the setting. For the detail settings of face detection, please refer to **5.5.1 Face Detection Settings**.

3.3 Temperature Measurement Settings

Click Config→Temperature Measurement to go to the following interface.

1. Enable “Temperature Measurement”, select Celsius or Fahrenheit temperature as needed and then set the high temperature threshold and the low temperature threshold. When the body temperature measured is higher or lower than the set value, it will trigger alarms.
2. Set the alarm holding time.
3. Set the alarm trigger options.

Trigger Alarm Out: If enabled, the alarm output device will be triggered when detecting abnormal temperature.

Trigger Audio Alarm: If enabled, the warning voice will be triggered when the temperature exceeds the set value. (Please set the warning voice first. See [Audio Alarm](#) for details)

Trigger Light Alarm: If enabled, the light of the camera will flash when the temperature exceeds the set value. (Please set the light flashing time and frequency first. See [Light Alarm](#) for details)

Trigger SD Snap: If enabled, the system will capture images on detecting abnormal temperature alarm and save the images on an SD card.

Trigger SD Recording: If selected, video will be recorded on an SD card on detecting abnormal temperature alarm.

Trigger Email: If “Trigger Email” and “Attach Picture” are checked (email address must be set first in the Email configuration interface), the captured pictures and triggered event will be sent into those addresses.

Trigger FTP: If “Trigger FTP” is checked, the captured pictures will be sent into FTP server address. Please refer to FTP configuration chapter for more details.

4. Click “Save” to save the settings.

5. Set the schedule of temperature measurement.

The screenshot displays the 'Schedule' configuration page. At the top, there are tabs for 'Detection Config' and 'Schedule', with 'Schedule' being the active tab. Below the tabs, there are radio buttons for 'Erase' and 'Add', with 'Add' selected. The main section is titled 'Week Schedule' and contains seven rows, one for each day of the week (Sun., Mon., Tue., Wed., Thu., Fri., Sat.). Each row has a timeline from 0 to 24 hours. The timeline is divided into 24-hour increments, with green bars indicating scheduled periods. Below each timeline is a 'Manual Input' button. At the bottom of the page, there is a 'Save' button.

Weekly schedule

Set the alarm time from Monday to Sunday for a single week. Each day is divided in one hour increments. Green means scheduled. Blank means unscheduled.

“Add”: Add the schedule for a special day. Drag the mouse to set the time on the timeline.

“Erase”: Delete the schedule. Drag the mouse to erase the time on the timeline.

Manual Input: Click it for a specific day to enter specific start and end times. This adds more granularities (minutes).

Day schedule

Set the alarm time for alarm a special day, such as a holiday.

Note: Holiday schedule takes priority over weekly schedule.

3.4 Temperature Calibration

Click Config→Temperature→Temp Calibration to go to the following interface.



Set the ambient temperature and humidity according to the actual scene. In temperature measurement mode, the recommended ambient temperature should be 10~35°C (airless) and the humidity should be less than 95%.

Object Distance: The actual distance between the camera and human.

Emissivity: For human skin, this value is normally set as 95%

Without Blackbody

Blackbody: select "Close".

Temperature Correction: it ranges from -30~30°C.

Temperature Correction Value = Thermometer Measurement Temp - Thermal Measurement Temp

After calibrating the temperature and saving the settings, it will take about 10 minutes to make the temperature module of the camera stable. Therefore, please measure the body temperature after 10 minutes.

With Blackbody

Blackbody: select "Open". The interface is shown as below.



Note: Blackbody does not support IP66. If the blackbody is used with the camera, it shall be installed 2 or 3 meters away from the camera. It cannot be blocked. During operation, do not move the camera and blackbody and make sure the blackbody is in a fixed and proper place in the camera image.

Blackbody Temperature: It is recommended to be set as 35°C here.

Blackbody Temperature Setting:

Here we take the blackbody of our company for example.



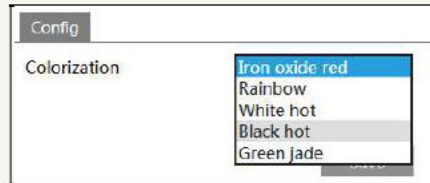
Push "SET" once. Then the ">" icon will appear in front of "SV+". The temperature can be increased or decreased by pushing "+" or "-". After you finish setting, push "EXIT" to exit the temperature setup. It will take about 20-30 minutes for the blackbody to be steady.

Temperature Correction Value = Blackbody Temp - Thermal Measurement Temp

After you calibrate and save the settings, it will take about 5 minutes to make the temperature module of the camera stable. Therefore, please scan the body temperature after 5 minutes.

3.5 Display Settings

Click Config→Temperature→Display Settings to go to the following interface.



More colors can be selected for thermal image here, such as iron oxide red, rainbow, white hot, black hot and green jade. Please select the color of thermal image for details.

4 Live View

After configuring temperature measurement and face detection, the temperature and face detection result can be viewed on the screen.



The following table is the instructions of the icons on the live view interface.

Icon	Description	Icon	Description
	Visible light image and thermal image display		Face detection indicator
	Visible light image display		Temperature indicator
	Thermal image display		SD card recording indicator
	Start/stop live view		Color abnormal indicator
	Start/stop two-way audio		Abnormal clarity indicator
	Enable/disable audio		Scene change indicator
	Snapshot		Sensor alarm indicator
	Start/stop local recording		Motion alarm indicator
	Zoom in		Line crossing indicator
	Zoom out		Intrusion indicator
	Face Detection		Target counting indicator
	PTZ control (only available for the model with RS485 interface)		

Those smart alarm indicators will flash only when the camera supports those functions and the corresponding events are enabled.

The camera can be installed in a compatible external PTZ enclosure through RS485. Click the PTZ icon to reveal the PTZ control panel. (This function is only available for the model with RS485 interface).

The descriptions of the control panel are as follows:

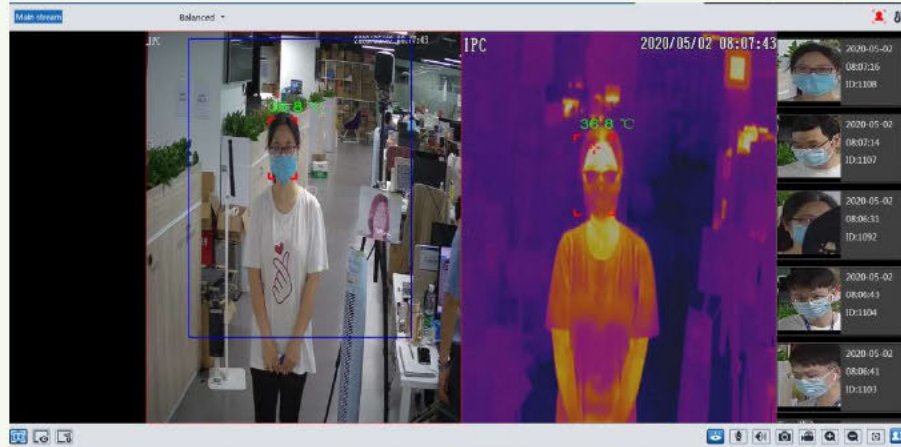
Icon	Description	Icon	Description
	Move upper left direction		Move upper right direction
	Move up		Stop movement
	Move left		Move right
	Move lower left direction		Move lower right direction
	Move down		Speed adjustment
	Zoom out		Zoom in
	Focus -		Focus +
	Iris -		Iris +
	Auto scan		Wiper
	Light		Radom scan
	Group scan		Preset

Select preset and click  to call the preset. Select and set the preset and then click  to save the position of the preset. Select the set preset and click  to delete it.

➤ Face Detection View

Click  to view the captured face picture.

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5 Other Configurations

In the Webcam client, choose “Config” to go to the configuration interface.

Note: Wherever applicable, click the “Save” button to save the settings.

5.1 System Settings

5.1.1 Basic Information

In the “Basic Information” interface, the system information of the device is listed.

Device Name	IP01
Product Model	TE-5433E
Brand	Customer
Software Version	5.0.2.0(9346)
Software Build Date	2020-06-22
Kernel Version	20200527
Hardware Version	1.4-1425222
Onvif Version	19.12
Temperature Version	00005299
Video Structured Version	1.2.10
Face Detection Version	1.46
OCX Version	2.1.2.1
MAC	00:18:ae:88:fa:df

5.1.2 Date and Time

Go to Config→System→Date and Time. Please refer to the following interface.

Select the time zone and DST as required.
Click the “Date and Time” tab to set the time mode.

5.1.3 Local Config

Go to Config→System→Local Config to set up the storage path of captured pictures and recorded videos on the local PC. There is also an option to enable or disable the bitrate display in the recorded files.

Additionally, the local smart snapshot storage can be enabled/disable here.
Rendering Mode: High-efficient mode, compatible mode or low-efficient (inefficient) mode can be optional.
If the performance of your computer is not so good or your computer has no graphics card, low-efficient (inefficient) mode is suggested.

5.1.4 Storage

Go to Config→System→Storage to go to the interface as shown below.

Management	Record	Snapshot	USB disk
Total picture capacity	766 MB		
Picture remaining space	766 MB		
Total recording capacity	0 MB		
Record remaining space	0 MB		
State	Normal		
Snapshot Quota	10 %		
Video Quota	90 %		
Changes in the quota ratio need to be formatted before they become effective.			
Eject Format			

- **SD Card Management**

Click the “Format” button to format the SD card. All data will be cleared by clicking this button.

Click the “Eject” button to stop writing data to SD card. Then the SD card can be ejected safely.

Snapshot Quota: Set the capacity proportion of captured pictures on the SD card.

Video Quota: Set the capacity proportion of record files on the SD card.

- **Schedule Recording Settings**

1. Go to Config→System→Storage→Record to go to the interface as shown below.

Management	Record	Snapshot
Record Parameters		
Record Stream	Main	
Pre Record Time	No Pre Record	(H264,H265,MJPEG)
Cycle Write	Yes	
Timing		
☒ Enable Schedule Record		

2. Set record stream, pre-record time, cycle writing.

Pre Record Time: Set the time to record before the actual recording begins.

3. Set schedule recording. Check “Enable Schedule Record” and set the schedule.

The screenshot displays the alarm schedule configuration interface. At the top, there are radio buttons for 'Erase' and 'Add', with 'Add' being selected. Below this is the 'Week Schedule' section, which lists the days of the week from Sunday to Saturday. Each day has a timeline from 0 to 24 hours, with green bars indicating scheduled alarm times. A 'Manual Input' button is located at the end of each day's timeline. Below the weekly schedule is the 'Holiday Schedule' section, which includes a date input field (showing '07-12'), 'Add' and 'Delete' buttons, and a timeline from 0 to 24 hours with a 'Manual Input' button.

Weekly schedule

Set the alarm time from Monday to Sunday for a single week. Each day is divided in one hour increments. Green means scheduled. Blank means unscheduled.

“Add”: Add the schedule for a special day. Drag the mouse to set the time on the timeline.

“Erase”: Delete the schedule. Drag the mouse to erase the time on the timeline.

Manual Input: Click it for a specific day to enter specific start and end times. This adds more granularities (minutes).

Day schedule

Set the alarm time for alarm a special day, such as a holiday.

Note: Holiday schedule takes priority over weekly schedule.

● Snapshot Settings

Go to Config→System→Storage→Snapshot to go to the interface as shown below.

Management	Record	Snapshot
Snapshot Parameters		
Image Format	JPEG	
Resolution	704x576	
Image Quality	Low	
Event Trigger		
Snapshot Interval	1	Second
Snapshot Quantity	5	
Timing		
☒ Enable Timing Snapshot		
Snapshot Interval	5	Second

Set the format, resolution and quality of the image saved on the SD card and the snapshot interval and quantity and the timing snapshot here.

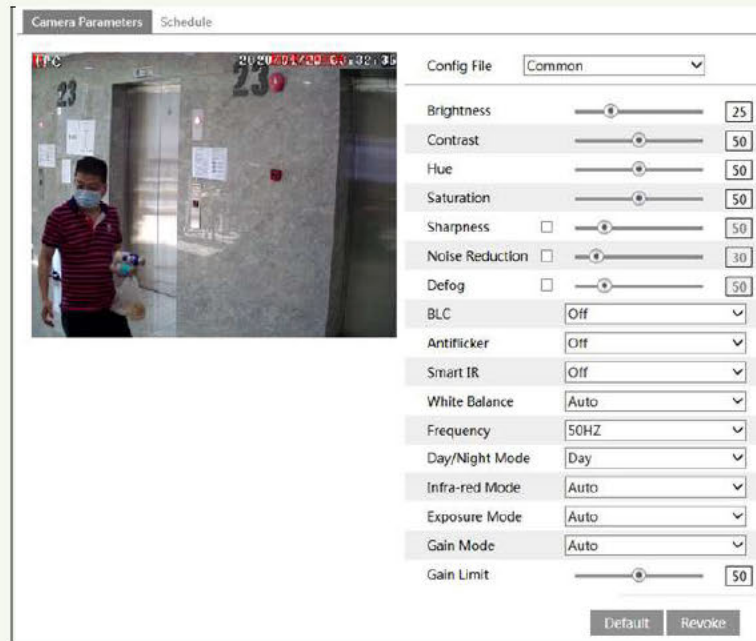
Snapshot Quantity: The number you set here is the maximum quantity of snapshots. The actual quantity of snapshots may be less than this number. Supposing the occurrence time of an alarm event is less than the time of capturing pictures, the actual quantity of snapshots is less than the set quantity of snapshots.

Timing Snapshot: Enable timing snapshot first and then set the snapshot interval and schedule. The setup steps of schedule are the same as the schedule recording (See [Schedule Recording](#)).

5.2 Image Configuration

5.2.1 Display Configuration

Go to Image→Display interface as shown below. The image's brightness, contrast, hue and saturation and so on for common, day and night mode can be set up separately. The image effect can be quickly seen by switching the configuration file.



Brightness: Set the brightness level of the camera's image.

Contrast: Set the color difference between the brightest and darkest parts.

Hue: Set the total color degree of the image.

Saturation: Set the degree of color purity. The purer the color, the brighter the image is.

Sharpness: Set the resolution level of the image plane and the sharpness level of the image edge.

Noise Reduction: Decrease the noise and make the image more thorough. Increasing the value will make the noise reduction effect better but it will reduce the image resolution.

Defog: Activating this function and setting an appropriate value as needed in foggy, dusty, smoggy or rainy environment to get clear images.

Backlight Compensation (BLC):

- Off: disables the backlight compensation function. It is the default mode.
- HWDR: WDR can adjust the camera to provide a better image when there are both very bright and very dark areas simultaneously in the field of the view by lowering the brightness of the bright area and increasing the brightness of the dark area. Recording will be stopped for a few seconds while the mode is changing from non-WDR to WDR mode.

● HLC: lowers the brightness of the entire image by suppressing the brightness of the image's bright area and reducing the size of the halo area.

● BLC: If enabled, the auto exposure will activate according to the scene so that the object of the image in the darkest area will be seen clearly.

Antiflicker:

- Off: disables the anti-flicker function. This is used mostly in outdoor installations.
- 50Hz: reduces flicker in 50Hz lighting conditions.
- 60Hz: reduces flicker in 60Hz lighting conditions.

Smart IR: Choose “ON” or “OFF”. This function can effectively avoid image overexposure and underexposure by controlling the brightness of the IR lights according to the actual conditions to make the image more realistic. Please enable it as needed.

White Balance: Adjust the color temperature according to the environment automatically.

Frequency: 50Hz and 60Hz can be optional.

Day/Night Mode: Choose “Auto”, “Day”, “Night” or “Timing”.

Exposure Mode: Choose “Auto” or “Manual”. If manual is chosen, the digital shutter speed can be adjusted.

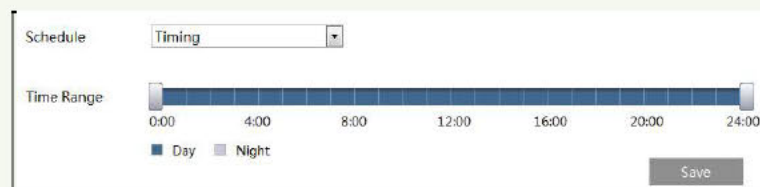
Gain Mode: Choose “Auto” or “Manual”. If “Auto” is selected, the gain value will be automatically adjusted according to the actual situation. If “Manual” is selected, the gain value shall be set manually. The higher the value is, the brighter the image is.

Schedule Settings of Image Parameters:

Click the “Schedule” tab as shown below.



Set full time schedule for common, day, night mode and specified time schedule for day and night. Choose “Timing” in the drop-down box of schedule as shown below.



Drag “🕒” icons to set the time of day and night. Blue means day time and blank means night time. If the current mode of camera parameters is set to schedule, the image configuration mode will automatically switch between day and night according to the schedule.

5.2.2 Video / Audio Configuration

Go to Image→Video / Audio interface as shown below. In this interface, set the resolution, frame rate, bitrate type, video quality and so on subject to the actual network condition.

Video
Audio

Index	Stream	Resolution	Frame Rate	Bitrate Type	Bitrate(Kbps)	Video	I Frame	Video	Profile
1	Main stream	2592x1944	30	VBR	4096	Higher	60	H265	High Profile
2	Sub stream	352x240	30	VBR	384	Higher	60	H265	High Profile
3	Third stream	704x480	30	CBR	512	Higher	60	H265	High Profile
4	Thermal	704x480	30	CBR	768	Higher	120	H264	High Profile

Send Snapshot
Sub stream
Size: (352x240)

☐ Video encode slice split

☐ Watermark (H264 , H265)
Watermark content:

Save

Four video streams can be adjustable.

Resolution: The size of image.

Frame rate: The higher the frame rate, the video is smoother.

Bitrate type: CBR and VBR are optional. Bitrate is related to image quality. CBR means that no matter how much change is seen in the video scene, the compression bitrate will be kept constant. VBR means that the compression bitrate will be adjusted according to scene changes. For example, for scenes that do not have much movement, the bitrate will be kept at a lower value. This can help optimize the network bandwidth usage.

Bitrate: it can be adjusted when the mode is set to CBR. The higher the bitrate, the better the image quality will be.

Video Quality: It can be adjusted when the mode is set to VBR. The higher the image quality, the more bitrate will be required.

I Frame interval: It determines how many frames are allowed between a “group of pictures”. When a new scene begins in a video, until that scene ends, the entire group of frames (or pictures) can be considered as a group of pictures. If there is not much movement in the scene, setting the value higher than the frame rate is fine, potentially resulting in less bandwidth usage. However, if the value is set too high, and there is a high frequency of movement in the video, there is a risk of frame skipping.

Video Compression: MJPEG, H264 or H265 can be optional. MJPEG is not available for main stream. Compared to H.264, H.265 reduces the transmission bitrate under the same resolution, frame rate and image quality.

Profile: For H.264. Baseline, main and high profiles are selectable.

Send Snapshot: How many snapshots to generate for an event.

Video encode slice split: If this function is enabled, smooth image can be gotten even though using the low-performance PC.

Watermark: When playing back the local recorded video in the search interface, the watermark can be displayed. To enable it, check the watermark box and enter the watermark text.

Click the “Audio” tab to go to the interface as shown below.

Check “Enable”.

Audio Encoding: G711A and G711U are selectable.

Audio Type: LIN.

Speaker: When the “Warning” is selected, the built-in speaker will be used to output the pre-defined audio alarm.

5.2.3 OSD Configuration

Go to Image→OSD interface as shown below.

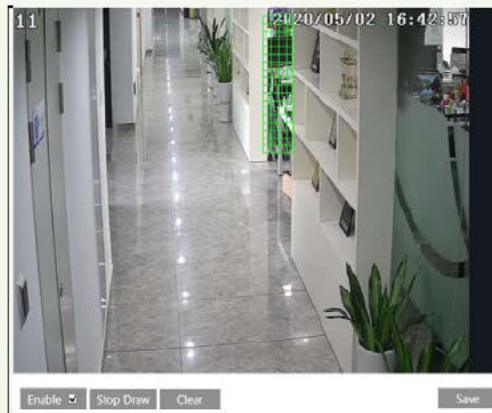
Set time stamp, device name, OSD content and picture overlap here. After enabling the corresponding display and entering the content, drag them to change their position. Then click the “Save” button to save the settings.

Picture Overlay Settings:

Check “OSD Content1”, choose “Picture Overlay” and click “Browse” to select the overlap picture. Then click “Upload” to upload the overlap picture. The pixel of the image shall not exceed 200*200, or it cannot be uploaded.

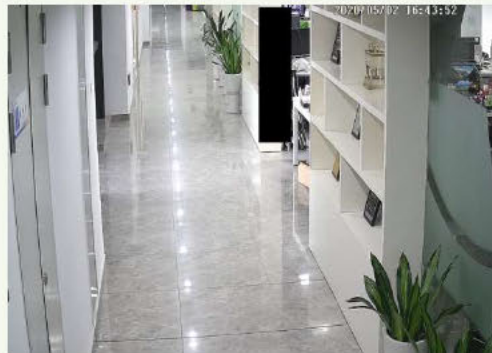
5.2.4 Video Mask

Go to Image→Video Mask interface as shown below. A maximum of 4 zones can be set up.



To set up video mask:

1. Enable video mask.
2. Click the “Draw Area” button and then drag the mouse to draw the video mask area.
3. Click the “Save” button to save the settings.
4. Return to the live to verify that the area have been drawn as shown as blocked out in the image.



To clear the video mask:

Click the “Clear” button to delete the current video mask area.

5.2.5 ROI Configuration

Go to Image→ROI Config interface as shown below. An area in the image can be set as a region of interest. This area will have a higher bitrate than the rest of the image, resulting in better image quality for the identified area.



1. Check “Enable” and then click the “Draw Area” button.
2. Drag the mouse to set the ROI area.
3. Set the level.
4. Click the “Save” button to save the settings.

5.3 PTZ Configuration

This function is only available for the models with RS485 interface. It can be used with a compatible external PTZ enclosure. Go to PTZ→Protocol interface as shown below.

Protocol	PELCOD ▼
Address	1
Baud-Rate	2400 ▼
Save	

Set the protocol, address and baud rate according to the PTZ.

5.4 Alarm Configuration

5.4.1 Motion Detection

Go to Alarm→Motion Detection to set motion detection alarm.

The screenshot shows the 'Alarm Config' tab in a web interface. It includes an 'Enable' checkbox (checked), an 'Alarm Holding Time' dropdown set to '20 Seconds', and a 'Trigger Alarm Out' section with an 'Alarm Out' checkbox (unchecked). Below these are five more checkboxes: 'Trigger Audio Alarm' (checked), 'Trigger SD Snap' (unchecked), 'Trigger SD Recording' (unchecked), 'Trigger Email' (unchecked), and 'Trigger FTP' (unchecked). A 'Save' button is located at the bottom of the form.

1. Check “Enable” check box to activate motion based alarms. If unchecked, the camera will not send out any signals to trigger motion-based recording to the NVR or CMS, even if there is motion in the video.

Alarm Out: If selected, this would trigger an external relay output that is connected to the camera on detecting a motion based alarm.

Trigger Audio Alarm: If selected, the warning voice will be uttered on detecting a motion based alarm. (Please set the warning voice first. See [Audio Alarm](#) for details).

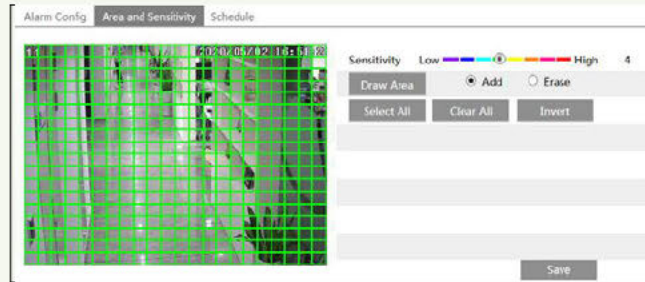
Trigger SD Snap: If selected, the system will capture images on motion detection and save the images on an SD card.

Trigger SD Recording: If selected, video will be recorded on an SD card on motion detection.

Trigger Email: If “Trigger Email” and “Attach Picture” are checked (email address must be set first in the Email configuration interface), the captured pictures and triggered event will be sent into those addresses.

Trigger FTP: If “Trigger FTP” is checked, the captured pictures will be sent into FTP server address. Please refer to FTP configuration chapter for more details.

2. Set motion detection area and sensitivity. Click the “Area and Sensitivity” tab to go to the interface as shown below.



Move the “Sensitivity” scroll bar to set the sensitivity. Higher sensitivity value means that motion will be triggered more easily.

Select “Add” and click “Draw”. Drag the mouse to draw the motion detection area; Select “Erase” and drag the mouse to clear motion detection area.

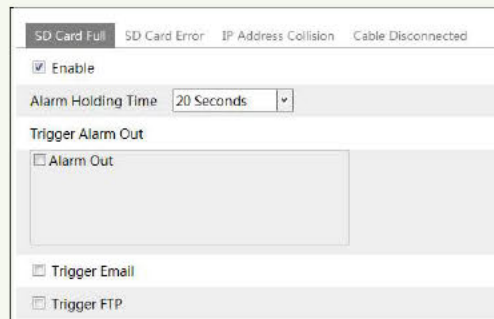
After that, click the “Save” to save the settings.

3. Set the schedule for motion detection. The schedule setup steps of the motion detection are the same as the schedule recording setup (See [Schedule Recording](#)).

5.4.2 Other Alarms

● SD Card Full

1. Go to Config→Alarm→Anomaly→SD Card Full.



2. Click “Enable” and set the alarm holding time.

3. Set alarm trigger options. The setup steps are the same as motion detection. Please refer to motion detection chapter for details.

● SD Card Error

When there are some errors in writing SD card, the corresponding alarms will be triggered.

1. Go to Config→Alarm→Anomaly→SD Card Error as shown below.

SD Card Full SD Card Error IP Address Collision Cable Disconnected

☒ Enable

Alarm Holding Time 20 Seconds ▾

Trigger Alarm Out

☐ Alarm Out

☐ Trigger Email

☐ Trigger FTP

2. Click “Enable” and set the alarm holding time.
3. Set alarm trigger options. Trigger alarm out, Email and FTP. The setup steps are the same as motion detection. Please refer to [motion detection](#) chapter for details.

● **IP Address Conflict**

1. Go to Config→Alarm→Anomaly→IP Address Collision as shown below.

SD Card Full SD Card Error IP Address Collision Cable Disconnected

☒ Enable

Alarm Holding Time 20 Seconds ▾

Trigger Alarm Out

☐ Alarm Out

2. Click “Enable alarm” and set the alarm holding time.
3. Trigger alarm out. When the IP address of the camera is in conflict with the IP address of other devices, the system will trigger the alarm out.

● **Cable Disconnection**

1. Go to Config→Alarm→Anomaly→Cable Disconnected as shown below.

SD Card Full SD Card Error IP Address Collision Cable Disconnected

☒ Enable

Alarm Holding Time 20 Seconds ▾

Trigger Alarm Out

☐ Alarm Out

2. Click “Enable” and set the alarm holding time.

3. Trigger alarm out. When the camera is disconnected, the system will trigger the alarm out.

5.4.3 Alarm In

To set sensor alarm (alarm in):

Go to Config→Alarm→Alarm In interface as shown below.

The screenshot shows the 'Alarm In' configuration window. It includes tabs for 'Alarm Config' and 'Schedule'. The 'Alarm Config' tab is active, showing options to enable the alarm, select an alarm type (currently 'NO'), set an alarm holding time (currently '20 Seconds'), and enter a sensor name. Below these are checkboxes for various triggers: 'Alarm Out' (checked), 'Trigger Audio Alarm', 'Trigger Light Alarm', 'Trigger SD Snap', 'Trigger SD Recording', 'Trigger Email', and 'Trigger FTP'. A 'Save' button is at the bottom right.

1. Click “Enable” and set the alarm type, alarm holding time and sensor name.

2. Set alarm trigger options.

Alarm Out: If selected, this would trigger an external relay output that is connected to the camera when the sensor alarm is triggered.

Trigger Audio Alarm: If selected, the warning voice will be uttered when the sensor alarm is triggered. (Please set the warning voice first. See [Audio Alarm](#) for details).

Trigger Light Alarm: If selected, the light of the camera will flash when the sensor alarm is triggered. (Please set the light flashing time and frequency first. See [Light Alarm](#) for details).

Trigger SD Snap: If selected, the system will capture images when the sensor alarm is triggered and save the images on an SD card.

Trigger SD Recording: If selected, video will be recorded on an SD card when the sensor alarm is triggered.

Trigger Email: If “Trigger Email” and “Attach Picture” are checked (email address must be set first in the Email configuration interface), the captured pictures and triggered event will be sent into those addresses.

Trigger FTP: If “Trigger FTP” is checked, the captured pictures will be sent into FTP server

address. Please refer to FTP configuration chapter for more details.

3. Click “Save” button to save the settings.

4. Set the schedule of the sensor alarm. The setup steps of the schedule are the same as the schedule recording setup. (See [Schedule Recording](#)).

5.4.4 Alarm Out

Go to Config→Alarm→Alarm Out.

Alarm Out Mode	Alarm Linkage
Alarm Out Name	alarmOut1
Alarm Holding Time	20 Seconds
Alarm Type	NC
Save	

Alarm Out Mode: Alarm linkage, manual operation, day/night switch linkage and timing are optional.

Alarm Linkage: Having selected this mode, select alarm out name, alarm holding time at the “Alarm Holding Time” pull down list box and alarm type.

Manual Operation: Having selected this mode, select the alarm type and click “Open” to trigger the alarm out immediately; click “Close” to stop alarm.

Alarm Out Mode	Manual Operation
Alarm Type	NC
Manual Operation	OpenClose
Save	

Day/Night Switch Linkage: Having selected this mode, select the alarm type and then choose to open or close alarm out when the camera switches to day mode or night mode.

Alarm Out Mode	Day/night switch linkage
Alarm Type	NC
Day	Close
Night	Close

Timing: Select the alarm type. Then click “Add” and drag the mouse on the timeline to set the schedule of alarm out; click “Erase” and drag the mouse on the timeline to erase the set

time schedule. After this schedule is saved, the alarm out will be triggered in the specified time.

Alarm Out Mode: Timing

Alarm Type: NC

Time Range: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

Buttons: Erase, Add, Manual Input, Save

5.4.5 Alarm Server

Go to Alarm→Alarm Server interface as shown below.

Set the server address, port, heartbeat and heartbeat interval. When an alarm occurs, the camera will transfer the alarm event to the alarm server. If an alarm server is not needed, there is no need to configure this section.

Server Address: []

Port: 0

Heartbeat: Disable

Heartbeat interval: 30 Second

5.4.6 Audio Alarm

Go to Alarm→Audio Alarm interface as shown below.

Voice Configuration

Language: English

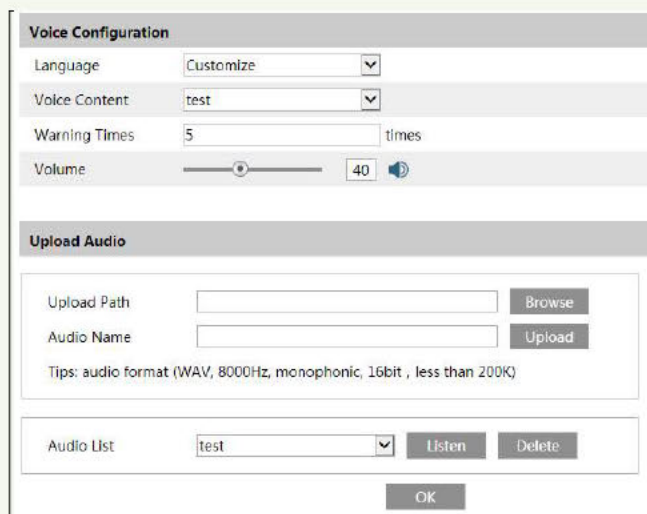
Voice Content: Abnormal Temperature

Warning Times: 1 times

Volume: 73

Button: OK

① Select the language. If you want to customize the voice content, you can choose “Customize”. Click “Browse” to choose the audio file you want to upload and then enter the audio name. Finally, click “Upload” to upload the audio file. Note that the format of the audio file must meet the requirement (see Tips), or it will not be uploaded. After you upload the audio file, you can select the audio name from the audio list and click “Listen” to listen to it. Click “Delete” to delete the audio.



The interface is divided into two main sections: 'Voice Configuration' and 'Upload Audio'.

Voice Configuration:

- Language:** A dropdown menu with 'Customize' selected.
- Voice Content:** A dropdown menu with 'test' selected.
- Warning Times:** A text input field containing '5' followed by the unit 'times'.
- Volume:** A slider control with a numerical value of '40' and a speaker icon.

Upload Audio:

- Upload Path:** A text input field with a 'Browse' button next to it.
- Audio Name:** A text input field with an 'Upload' button next to it.
- Tips:** A small text box stating: 'audio format (WAV, 8000Hz, monophonic, 16bit , less than 200K)'.
- Audio List:** A section containing a dropdown menu with 'test' selected, and 'Listen' and 'Delete' buttons.

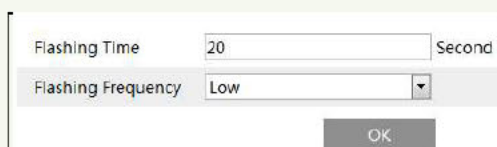
An 'OK' button is located at the bottom center of the interface.

② Select the voice content and then set the warning times and volume as needed.
Warning times: it ranges from 1 to 50.

③ Click “OK” to save the settings.

5.4.7 Light Alarm

Go to Alarm→Light Alarm interface as shown below.
Set the flashing time and frequency of the light.



The interface contains two main settings:

- Flashing Time:** A text input field with '20' and the unit 'Second'.
- Flashing Frequency:** A dropdown menu with 'Low' selected.

An 'OK' button is located at the bottom right of the interface.

Flashing time: the flashing time ranges from 1 second to 60 seconds.
Flashing Frequency: three options- low, middle and high.

5.5 Smart Event Configuration

5.5.1 Face Detection Settings

Face detection function is to detect the face appearing in the surveillance scene. Alarms will be triggered when a face is detected.

The setting steps are as follows:

1. Go to Config→Event→Face Detection as shown below.

Detection Config	Area	Advanced	Schedule
State Working			
☒ Enable			
☐ Save Source Information			
☐ Save Face Information			
Alarm Holding Time 20 Seconds ▼			
Trigger Alarm Out			
☐ Alarm Out			
☐ Trigger Audio Alarm			
☐ Trigger Light Alarm			
☐ Trigger SD Snap			
☐ Trigger SD Recording			
☐ Trigger Email			
☐ Trigger FTP			
Save			

2. Enable the face detection function.

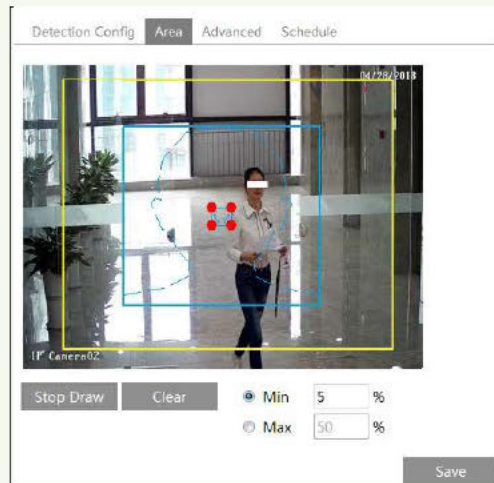
Save Source Information: if checked, the whole picture will be saved to the SD card when detecting a face.

Save Face Information: if checked, the captured face picture will be saved to the SD card when detecting a face.

Note: To save images to the local PC, please enable the local smart snapshot storage first (Config→System→Local Config). To save images to the SD card, please install an SD card first.

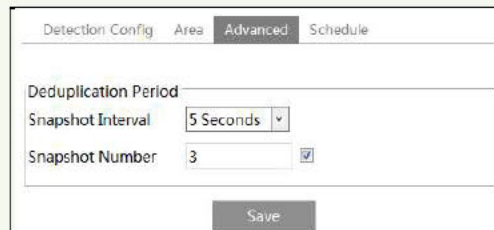
3. Set alarm holding time and alarm trigger options. The setup steps are the same as alarm in (sensor alarm) detection. Please refer to [Alarm IN](#) chapter for details.

4. Set alarm detection area.



Click “Draw Area” and drag the border lines of the rectangle to modify its size. Move the rectangle to change its position. Click “Stop Draw” to stop drawing the area. Click “Clear” to clear the area. Then set the detectable face size by defining the maximum value and the minimum value (The default size range of a single face image occupies from 3% to 50% of the entire image).

5. Advanced settings. Choose the snapshot interval and number as needed to avoid capturing multiple similar pictures in a very short period of time.



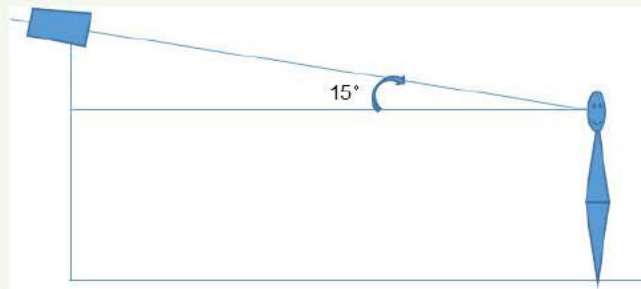
Snapshot Interval: If 5 seconds is selected, the camera will capture the same target once every 5 seconds during its continuous tracking period.

Snapshot Number: If the snapshot number is enabled and set (eg. 3), the camera will capture the same target once every 5 seconds and it will capture this target 3 times at most during its continuous tracking period. If the snapshot number is disabled, the camera will capture the same target once every 5 seconds until the target disappears in the detected area.

6. Set the schedule of the face detection. The setup steps of the schedule are the same as schedule recording setup (See [Schedule Recording](#)).

✱ Configuration requirements of camera and surrounding area

1. Cameras must be installed in the area with stable and adequate light sources.
2. The installation height ranges from 2.0m to 3.5m, adjustable according to the focal-length of different lenses and object distances.
3. The depression angle of the camera shall be less than or equal to 15° .



4. The object distance depends on the focal-length of the lens mounted in the camera.
5. To ensure the accuracy of face detection, the captured faces are only allowed to deviate less than 30° leftward or rightward or 20° upward or downward.

5.5.2 Exception Settings

This function can detect changes in the surveillance environment affected by the external factors.

To set exception detection:

Go to Config→Event→Exception interface as shown below.

1. Enable the applicable detection that's desired.

Scene Change Detection: Alarms will be triggered if the scene of the monitor video has changed.

Video Blur Detection: Alarms will be triggered if the video becomes blurry.

Enable Video Color Cast Detection: Alarms will be triggered if the video becomes obscured.

2. Set the alarm holding time and alarm trigger options. The setup steps are the same as motion detection. Please refer to motion detection chapter for details.

3. Click "Save" button to save the settings.

4. Set the sensitivity of the exception detection. Click "Sensitivity" tab to go to the interface as shown below.

Drag the slider to set the sensitivity value or directly enter the sensitivity value in the textbox.

Click "Save" button to save the settings.

The sensitivity value of Scene Change Detection: The higher the value is, the more sensitive the system responds to the amplitude of the scene change.

The sensitivity value of Video Blur Detection: The higher the value is, the more sensitive the system responds to the blurriness of the image.

The sensitivity value of Video Color Cast Detection: The higher the value is, the more sensitive the system responds to the obscuring of the image.

※ **The requirements of camera and surrounding area**

1. Auto-focusing function should not been enabled for exception detection.
2. Try not to enable exception detection when light changes greatly in the scene.
3. Please contact us for more detailed application scenarios.

5.5.3 Line Crossing Detection Settings

Line Crossing: Alarms will be triggered if the target crosses the pre-defined alarm lines. Go to Config→Event→Line Crossing interface as shown below.

Detection Config		Area	Schedule
☒ Enable			
☐ Save Panoramic Picture			
☐ Save Target Cutout			
Detection Target			
☒ Human	Sensitivity	<input type="range" value="50"/>	50
☒ Motor Vehicle	Sensitivity	<input type="range" value="50"/>	50
☒ Motorcycle/Bicycle	Sensitivity	<input type="range" value="50"/>	50
Alarm Holding Time		20 Seconds	
Trigger Alarm Out			
☐ Alarm Out			
☐ Trigger Audio Alarm			
☐ Trigger Light Alarm			
☐ Trigger SD Snap			
☐ Trigger SD Recording			
☐ Trigger Email			
☐ Trigger FTP			

1. Enable line crossing detection and select the snapshot type and the detection target.

Save Panoramic Picture: If it is enabled, the detected panoramic pictures will be captured and saved to the SD card when there are targets detected.

Save Target Cutout: If it is enabled, the detected target cutout pictures will be captured and saved to the SD card when there are targets detected.

Note: To save snapshots to the local PC, please enable “Local Smart Snapshot Storage” in the local config interface first. To save snapshots to the SD card, please install an SD card first.

Detection Target:

Human: Select it and then alarms will be triggered if someone crosses the pre-defined alarm lines.

Motor Vehicle: Select it and then alarms will be triggered if a vehicle with four or more wheels (eg. a car, bus or truck) crosses the pre-defined alarm lines.

Motorcycle/Bicycle: Select it and then alarms will be triggered if a non-motor vehicle (eg. a motorcycle or bicycle) crosses the pre-defined alarm lines.

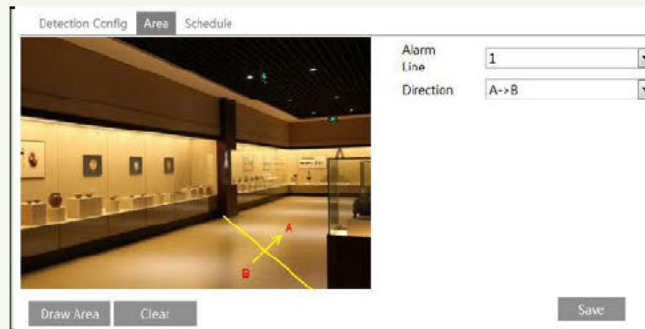
These three types of objects can be selected simultaneously. Please select the detection objects as needed. If no object/target is selected, alarms will not be triggered even if line crossing detection is enabled.

2. Set the alarm holding time.

3. Set alarm trigger options. The setup steps are the same as alarm in (sensor alarm) detection. Please refer to [Alarm IN](#) chapter for details.

4. Click “Save” button to save the settings.

5. Set the alarm line of the line crossing alarm. Click the “Area” tab to go to the interface as shown below.



Set the alarm line number and direction. Only one line can be added.

Direction: A<->B, A->B and A<-B optional. This indicates the direction of the intruder/vehicle crosses over the alarm line.

A<->B: The alarm will be triggered when the intruder/vehicle crosses over the alarm line from B to A or from A to B.

A->B: The alarm will be triggered when the intruder/vehicle crosses over the alarm line from A to B.

A<-B: The alarm will be triggered when the intruder/vehicle crosses over the alarm line from B to A.

Click the “Draw Area” button and then drag the mouse to draw a line in the image. Click the “Stop Draw” button to stop drawing. Click the “Clear” button to delete the lines. Click the “Save” button to save the settings.

6. Set the schedule of the line crossing alarm. The setup steps of the schedule are the same as the schedule recording setup (See [Schedule Recording](#)).

※ Configuration of camera and surrounding area

1. Avoid the scenes with many trees or the scenes with various light changes (like many flashing headlights). The ambient brightness of the scenes shouldn't be too low.

2. Cameras should be mounted at a height of 2.8 meters or above.
3. Keep the mounting angle of the camera at about 45°.
4. The detected objects should not be less than 1% of the entire image and the largest sizes of the detected objects should not be more than 1/8 of the entire image.
5. Make sure cameras can view objects for at least 2 seconds in the detected area for accurate detection.
6. Adequate light and clear scenery are crucial for line crossing detection.

5.5.4 Intrusion Detection Settings

Intrusion: Alarms will be triggered if the target intrudes and loiters in the pre-defined areas. Go to Config→Event→Intrusion interface as shown below.

Detection Config Area Schedule

☒ Enable

☐ Save Panoramic Picture

☐ Save Target Cutout

Detection Target

☒ Human Sensitivity 50

☒ Motor Vehicle Sensitivity 50

☒ Motorcycle/Bicycle Sensitivity 50

Alarm Holding Time 20 Seconds

Trigger Alarm Out

☐ Alarm Out

☐ Trigger Audio Alarm

☐ Trigger Light Alarm

☐ Trigger SD Snap

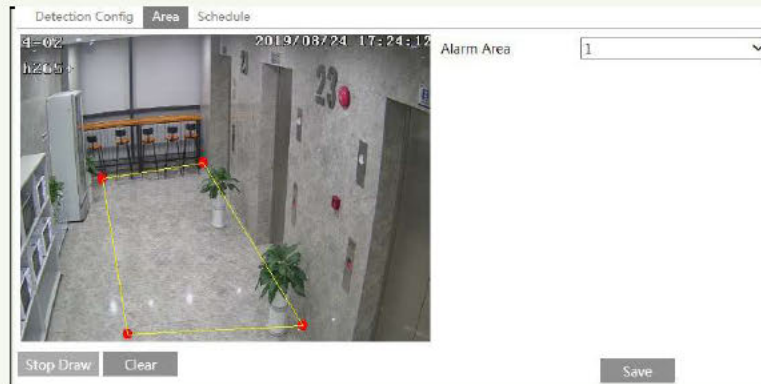
☐ Trigger SD Recording

☐ Trigger Email

☐ Trigger FTP

Save

1. Enable intrusion detection and select the snapshot type and the detection target.
2. Set the alarm holding time.
3. Set alarm trigger options. The setup steps are the same as alarm in (sensor alarm) detection. Please refer to [Alarm IN](#) chapter for details.
4. Click the “Save” button to save the settings.
5. Set the alarm area of the intrusion detection. Click the “Area” tab to go to the interface as shown below.



Set the alarm area number on the right side. One alarm area can be added.

Click the “Draw Area” button and then click around the area where you want to set as the alarm area in the image on the left side (the alarm area should be a closed area). Click the “Stop Draw” button to stop drawing. Click the “Clear” button to delete the alarm area. Click the “Save” button to save the settings.

6. Set the schedule of the intrusion detection. The setup steps of the schedule are the same as schedule recording setup (See [Schedule Recording](#)).

※ Configuration requirements of camera and surrounding area

1. Avoid the scenes with many trees or the scenes with various light changes (like many flashing headlights). The ambient brightness of the scenes shouldn't be too low.
2. Cameras should be mounted at a height of 2.8 meters or above.
3. Keep the mounting angle of the camera at about 45°.
4. The detected objects should not be less than 1% of the entire image and the largest sizes of the detected objects should not be more than 1/8 of the entire image.
5. Make sure cameras can view objects for at least 2 seconds in the detected area for accurate detection.
6. Adequate light and clear scenery are crucial to line crossing detection.

5.5.5 Target Counting Settings

This function is to calculate the number of the people or vehicles crossing the alarm line through detecting, tracking and counting the shapes of the people or vehicles.

1. Go to Config→Event→Target Counting as shown below.

2. Enable target counting and select the snapshot type and the detection target.

Save Panoramic Picture: If it is enabled, the detected panoramic pictures will be captured and saved to the SD card when the targets cross the pre-defined alarm line.

Save Target Cutout: If it is enabled, the detected target cutout pictures will be captured and saved to the SD card when the targets cross the pre-defined alarm line.

Note: To save snapshots to the local PC, please enable “Local Smart Snapshot Storage” in the local config interface first. To save snapshots to the SD card, please install an SD card first.

Detection Target: Select the target to calculate. Human, motor vehicle and motorcycle/bicycle can be selected.

Counting Reset: The current number of the target counting can be reset. You can choose to reset the counting daily, weekly or monthly. Click “Reset” to manually reset the current number of crossing line people/car/bike counting.

3. Set the area of the target counting. Click the “Area” tab to go to the interface as shown below.

Set the alarm line number and direction. Only one alarm line can be added.

Direction: A->B and A<-B can be optional. The direction of the arrow is entrance.

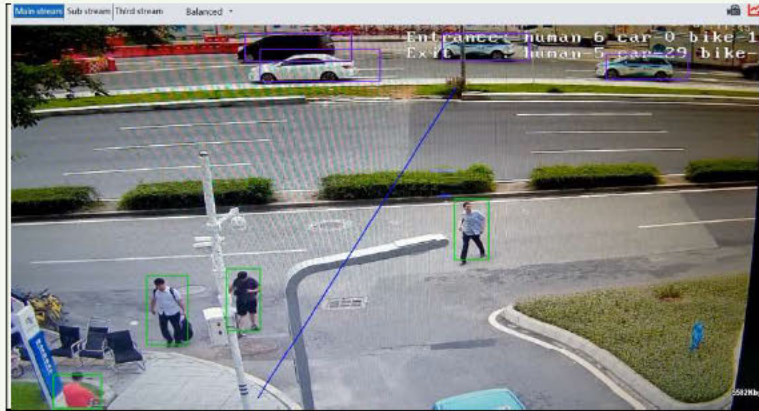
Click the “Draw Area” button and then drag the mouse to draw a line in the image. Click the “Stop Draw” button to stop drawing. Click the “Clear” button to delete the lines.

Statistics: If enabled, you can see the statistical information in the live view interface. If disabled, the statistical information will not be displayed in the live view interface.

Check “Statistics” and then move the red box to change the position of the statistical information displayed on the screen. Click the “Save” button to save the settings.

Note: If the OSD content4 is enabled, it will be disabled after you enable “Statistics”.

4. Set the schedule of the target counting. The setup steps of the schedule are the same as schedule recording setup (See [Schedule Recording](#)).
5. View the statistical information in the live view interface.



5.6 Network Configuration

5.6.1 TCP/IP

Go to Config→Network→TCP/IP interface as shown below. There are two ways for network connection.

IPv4	IPv6	PPPoE Config	IP Change Notification Config
☐ Obtain an IP address automatically			
☒ Use the following IP address			
IP Address	192.168.226.201		Test
Subnet Mask	255.255.255.0		
Gateway	192.168.226.1		
Preferred DNS Server	210.21.196.6		
Alternate DNS Server	8.8.8.8		

Use IP address (take IPv4 for example)—There are two options for IP setup: obtain an IP address automatically by DHCP and use the following IP address. Please choose one of the options as needed.

Test: Test the effectiveness of the IP address by clicking this button.

Use PPPoE—Click the “PPPoE Config” tab to go to the interface as shown below. Enable PPPoE and then enter the user name and password from your ISP.



IPv4	IPv6	PPPoE Config	IP Change Notification Config
☒ Enable			
User Name	xxxxxxx		
Password	•••••		
Save			

Either method of network connection can be used. If PPPoE is used to connect internet, the camera will get a dynamic WAN IP address. This IP address will change frequently. To be notified, the IP change notification function can be used.

Click “IP Change Notification Config” to go to the interface as shown below.

IPv4	IPv6	PPPoE Config	IP Change Notification Config
☐ Trigger Email			
☐ Trigger FTP			
Save			

Trigger Email: when the IP address of the device is changed, the new IP address will be sent to the email address that has been set up.

Trigger FTP: when the IP address of the device is changed, the new IP address will be sent to FTP server that has been set up.

5.6.2 Port

Go to Config→Network→Port interface as shown below. HTTP port, Data port and RTSP port can be set.

HTTP Port	80
HTTPS Port	443
Data Port	9008
RTSP Port	554
Persistent connection Port	8080
Save	

HTTP Port: The default HTTP port is 80. It can be changed to any port which is not occupied.

HTTPS Port: The default HTTPS port is 443. It can be changed to any port which is not occupied.

Data Port: The default data port is 9008. Please change it as necessary.

RTSP Port: The default port is 554. Please change it as necessary.

Persistent Connection Port: The default port is 8080. The port is used for a persistent connection of the third-party platform to push smart data, like face pictures.

5.6.3 Server Configuration

This function is mainly used for connecting network video management system.



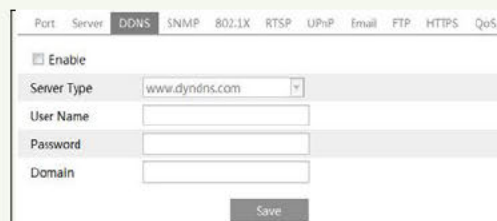
The screenshot shows a web form for server configuration. It includes a checkbox labeled "Enable" which is checked. Below it are three input fields: "Server Port" with the value "2009", "Server Address" which is empty, and "Device ID" with the value "1". A "Save" button is located at the bottom right of the form.

1. Check "Enable".
2. Check the IP address and port of the transfer media server in the ECMS/NVMS. Then enable the auto report in the ECMS/NVMS when adding a new device. Next, enter the remaining information of the device in the ECMS/NVMS. After that, the system will automatically allot a device ID. Please check it in the ECMS/NVMS.
3. Enter the above-mentioned server address, server port and device ID in the corresponding boxes. Click the "Save" button to save the settings.

5.6.4 DDNS

If the camera is set up with a DHCP connection, DDNS should be set for the internet.

1. Go to Config→Network→ DDNS.



The screenshot shows the DDNS configuration page. At the top, there is a navigation bar with tabs: Port, Server, DDNS (selected), SNMP, 802.1X, RTSP, UPnP, Email, FTP, HTTPS, and QoS. The main form includes a checkbox labeled "Enable" which is checked. Below it are four input fields: "Server Type" with a dropdown menu showing "www.dyndns.com", "User Name", "Password", and "Domain", all of which are currently empty. A "Save" button is at the bottom right.

2. Apply for a domain name. Take www.dvrddns.com for example.
Enter www.dvrddns.com in the IE address bar to visit its website. Then Click the "Registration" button.

NEW USER REGISTRATION

USER NAME:

PASSWORD:

PASSWORD CONFIRM:

FIRST NAME:

LAST NAME:

SECURITY QUESTION:

ANSWER:

CONFIRM YOU'RE HUMAN:

Create domain name.

You must create a domain name to continue.

Domain name must start with (a-z, 0-9). Cannot end or start, but may contain a hyphen and is not case sensitive.

After the domain name is successfully applied for, the domain name will be listed as below.

Search by Domain:

Click a name to edit your domain settings.

NAME	STATUS	DOMAIN
654521ABC		654521abc.dvrddns.com

Last Updated: *Not yet updated!* IP Address: 230.21.229.130

Click on the domain name to edit

3. Enter the username, password, domain you apply for in the DDNS configuration interface.
4. Click the "Save" button to save the settings.

5.6.5 RTSP

Go to Config→Network→RTSP.

☒ Enable	
Port	554
Address	rtsp://IP or domain name:port/profile1
	rtsp://IP or domain name:port/profile2
	rtsp://IP or domain name:port/profile3
	rtsp://IP or domain name:port/profile4
Multicast address	
Main stream	239.0.0.0 50554 ☐ Automatic start
Sub stream	239.0.0.1 51554 ☐ Automatic start
Third stream	239.0.0.2 52554 ☐ Automatic start
Thermal	239.0.0.3 53554 ☐ Automatic start
Audio	239.0.0.4 54554 ☐ Automatic start
☐ Allow anonymous login (No username or password required)	
Save	

Select “Enable” to enable the RTSP function.

Port: Access port of the streaming media. The default number is 554.

RTSP Address: The RTSP address (unicast) format that can be used to play the stream in a media player.

Multicast Address

Main stream: The address format is

“rtsp://IP address: rtsp port/profile1?transportmode=mcast”.

Sub stream: The address format is

“rtsp://IP address: rtsp port/profile2?transportmode=mcast”.

Third stream: The address format is

“rtsp://IP address: rtsp port/profile3?transportmode=mcast”.

Thermal stream: The address format is

“rtsp://IP address: rtsp port/profile4?transportmode=mcast”.

Audio: Having entered the main/sub stream in a VLC player, the video and audio will play automatically.

If “Allow anonymous login...” is checked, there is no need to enter the username and password to view the video.

If “auto start” is enabled, the multicast received data should be added into a VLC player to play the video.

Note:1. This camera support local play through a VLC player. Enter the RTSP address (unicast or multicast, eg. rtsp://192.168.226.201:554/profile1?transportmode=mcast) in a VLC player to realize the simultaneous play with the web client.

2. The IP address mentioned above cannot be the address of IPv6.

3. Avoid the use of the same multicast address in the same local network.

4. When playing the video through the multicast streams in a VLC player, please pay attention to the mode of the VLC player. If it is set to TCP mode, the video cannot be played.

5. If the coding format of the video of the main stream is MJPEG, the video may be

disordered at some resolutions.

5.6.6 802.1X

If it is enabled, the camera's data can be protected. When the camera is connected to the network protected by the IEEE802.1x, user authentication is needed.

☒ Enable	
Protocol Type	EAP_MD5
EAPOL Version	1
User Name	test
Password	•••••
Confirm Password	•••••

To use this function, the camera shall be connected to a switch supporting 802.1x protocol. The switch can be reckoned as an authentication system to identify the device in a local network. If the camera connected to the network interface of the switch has passed the authentication of the switch, it can be accessed via the local network.

Protocol type and EAPOL version: Please use the default settings.

User name and password: The user name and password must be the same with the user name and password applied for and registered in the authentication server.

5.6.7 UPnP

If this function is enabled, the camera can be quickly accessed through the LAN. Go to Config→Network→UPnP. Enable UPnP and then enter UPnP name.

☒ Enable	
UPnP Name	
Save	

5.6.8 Email

If you need to trigger Email when an alarm happens or IP address is changed, please set the Email here first.

Go to Config→Network →Email.

Sender

Sender Address: XXX@126.com

User Name: XXX@126.com

Password: *****

Server Address: smtp.126.com

Secure Connection: Unnecessary

SMTP Port: 25 (Default)

☐ Send Interval(S): 0 (0-3600)

Clear Test

Recipient

XXX@126.com

Recipient Address:

Add Delete

Save

Sender Address: sender's e-mail address.

User name and password: sender's user name and password.

Server Address: The SMTP IP address or host name.

Select the secure connection type at the "Secure Connection" pull-down list according to what's required.

SMTP Port: The SMTP port.

Send Interval(S): The time interval of sending email. For example, if it is set to 60 seconds and multiple motion detection alarms are triggered within 60 seconds, they will be considered as only one alarm event and only one email will be sent. If one motion alarm event is triggered and then another motion detection alarm event is triggered after 60 seconds, two emails will be sent. When different alarms are triggered at the same time, multiple emails will be sent separately.

Click the "Test" button to test the connection of the account.

Recipient Address: receiver's e-mail address.

5.6.9 FTP

After an FTP server is set up, captured pictures from events will be uploaded to the FTP server.

Go to Config→Network→FTP.

Server Name	Server Address	Port	User Name	Upload Path
Add FTP Server Name Server Address Upload Path Port User Name Password Example:/dir/folder 21 Anonymous OK Cancel				
Add Modify Delete Test Save				

Server Name: The name of the FTP server.

Server Address: The IP address or domain name of the FTP.

Upload Path: The directory where files will be uploaded to.

Port: The port of the FTP server.

User Name and Password: The username and password that are used to login to the FTP server.

5.6.10 HTTPS

HTTPS provides authentication of the web site and protects user privacy.

Go to Config → Network → HTTPS as shown below.

☒ enable	
Certificate installed	C=CN, ST=GD, L=SZ, O=embeddedsoftware Delete
Attribute	Issued to: C=CN, ST=GD, L=SZ, O=embeddedsoftware, OU=IPC, H=localhost, E=com.cn, Issuer: C=CN, ST=GD, L=SZ, O=embeddedsoftware, OU=IPC, H=localhost, E=com.cn, Validity date: 2017-07-26 01:02:07 - 2022-07-26 01:02:07
Save	

There is a certificate installed by default as shown above. Enable this function and save it. Then the camera can be accessed by entering https://IP: https port via the web browser (eg. https://192.168.226.201:443).

A private certificate can be created if users don't want to use the default one. Click "Delete" to cancel the default certificate. Then the following interface will be displayed.

☒ Enable

Installation type: ☒ Have signed certificate, install directly
☐ Create a private certificate
☐ Create a certificate request

Install certificate:

* If there is a signed certificate, click “Browse” to select it and then click “Install” to install it.

* Click “Create a private certificate” to enter the following creation interface.

☒ Enable

Installation type: ☐ Have signed certificate, install directly
☒ Create a private certificate
☐ Create a certificate request

Create a private certificate:

Click the “Create” button to create a private certificate. Enter the country (only two letters available), domain (camera’s IP address/domain), validity date, password, province/state, region and so on. Then click “OK” to save the settings.

* Click “Create a certificate request” to enter the following interface.

☒ Enable

Installation type: ☐ Have signed certificate, install directly
☐ Create a private certificate
☒ Create a certificate request

Create a certificate request:

Click “Create” to create the certificate request. Then download the certificate request and submit it to the trusted certificate authority for signature. After receiving the signed certificate, import the certificate to the device.

5.6.11 QoS

QoS (Quality of Service) function is used to provide different quality of services for different network applications. With the deficient bandwidth, the router or switch will sort the data streams and transfer them according to their priority to solve the network delay and network congestion by using this function.

Go to Config→Network→QoS.

Video/Audio DSCP	13
Alarm DSCP	35
Manager DSCP	53

Video/Audio DSCP: The range is from 0 to 63.

Alarm DSCP: The range is from 0 to 63.

Manager DSCP: The range is from 0 to 63.

Generally speaking, the larger the number is, the higher the priority is.

5.7 Security Configuration

5.7.1 User Configuration

Go to Config→Security→User interface as shown below.

Add Modify Delete			
Index	User Name	User Type	Binding MAC
1	admin	Administrator	

Add user:

1. Click the “Add” button to pop up the following textbox.

Add User

User Name

Password

Level

9~15 characters, including at least two of the following categories: numbers, special characters, upper case letters, lower case letters.

Confirm Password

User Type

Administrator

Bind MAC

00:00:00:00:00:00

☐

OK

Cancel

2. Enter user name in “User Name” textbox.

3. Enter the password in the “Password” and “Confirm Password” textbox. Please set the password according to the requirement of the password security level (Go to Config→Security→Security Management→Password Security interface to set the security level).

It is recommended to set a high level password that shall be composed of numbers, special characters, upper or lower case letters for your account security.

4. Choose the user type. Administrator has all permissions. Normal user can only view the live video. Advanced user has the same permissions as an Administrator except for; user, backup settings, factory reset, and upgrading the firmware.

5. Enter the MAC address of the PC in the “Bind MAC” textbox.

If this option is enabled, only the PC with the specified MAC address can access the camera for that user.

6. Click the “OK” button and then the newly added user will be displayed in the user list.

Modify user:

1. Select a user to modify password and MAC address if necessary in the user configuration list box.

2. The “Edit user” dialog box pops up by clicking the “Modify” button.



3. Enter the old password of the user in the “Old Password” text box.

4. Enter the new password in the “New password” and “Confirm Password” text box.

5. Enter computer’s MAC address as necessary.

6. Click the “OK” button to save the settings.

Note: To change the access level of a user, the user must be deleted and added again with the new access level.

Delete user:

1. Select the user to be deleted in the user configuration list box.

2. Click the “Delete” button to delete the user.

Note: The default administrator account cannot be deleted.

5.7.2 Online User

Go to Config→Security→Online User to view the user who is viewing the live video.

Index	Client Address	Port	User Name	User Type	
1	192.168.17.232	55760	admin	Administrator	Kick Out

An administrator user can kick out all the other users (including other administrators).

5.7.3 Block and Allow Lists

Go to Config→Security→Block and Allow Lists as shown below.



The interface shows the 'IP/MAC Address Filter Settings' window. It has a tabbed header with 'IP/MAC Address Filter Settings' selected. Below the header, there is a checked checkbox for 'Enable address filtering'. Underneath, there are two radio buttons: 'Block the following address' (selected) and 'Allow the following address'. A large empty text box is provided for entering addresses. To the right of the text box are 'Add' and 'Delete' buttons. Below these is an input field containing '0.0.0.0'. To the right of the input field are three radio buttons: 'IPv4' (selected), 'IPv6', and 'MAC'. At the bottom right is a 'Save' button.

The setup steps are as follows:

Check the “Enable address filtering” check box.

Select “Block/Allow the following address”, IPv4/IPv6/MAC and then enter IP address or MAC address in the address box and click the “Add” button.

5.7.4 Security Management

Go to Config→Security→Security Management as shown below.



The interface shows the 'Security Service' tab in the 'Security Management' section. The 'Password Security' sub-tab is selected. It contains a checked checkbox for 'Enable "locking once illegal login" function'. At the bottom right is a 'Save' button.

In order to prevent against malicious password unlocking, “locking once illegal login” function can be enabled here. If this function is enabled, login failure after trying six times will make the login interface locked. The camera can be logged in again after a half hour or after the camera reboots.

● Password Security

Security Service	Password Security
Password Level	Weak ▼
Expiration Time	Never ▼

Please set the password level and expiration time as needed.

Password Level: Weak, Medium or Strong.

Weak level: Numbers, special characters, upper or lower case letters can be used. You can choose one of them or any combination of them when setting the password.

Medium Level: 9~15 characters, including at least two of the following categories: numbers, special characters, upper case letters, lower case letters.

Strong Level: 9~15 characters. Numbers, special characters, upper case letters and lower case letters must be included.

For your account security, it is recommended to set a strong password and change your password regularly.

5.8 Maintenance Configuration

5.8.1 Backup and Restore

Go to Config→Maintenance→Backup & Restore.

Import Setting	
Path	Browse
Import Setting	
Export Settings	
Export Settings	
Default Settings	
Keep	☐ Network Config ☐ Security Configuration ☐ Image Configuration
Load Default	

- **Import & Export Settings**

Configuration settings of the camera can be exported from a camera into another camera.

1. Click “Browse” to select the save path for import or export information on the PC.
2. Click the “Import Setting” or “Export Setting” button.

- **Default Settings**

Click the “Load Default” button to restore all system settings to the default factory settings except those you want to keep.

5.8.2 Reboot

Go to Config→Maintenance→Reboot.

Click the “Reboot” button to reboot the device.

Timed Reboot Setting:

If necessary, the camera can be set up to reboot on a time interval. Enable “Time Settings”, set the date and time and then click the “Save” button to save the settings.

5.8.3 Upgrade

Go to Config→Maintenance→Upgrade. In this interface, the camera firmware can be updated.



The screenshot shows a web interface titled "Local upgrade". Below the title bar, there is a label "Path" followed by a text input field. To the right of the input field are two buttons: "Browse" and "Upgrade".

1. Click the “Browse” button to select the save path of the upgrade file
2. Click the “Upgrade” button to start upgrading the firmware.
3. The device will restart automatically

Caution! Do not close the browser or disconnect the camera from the network during the upgrade.

5.8.4 Operation Log

To query and export log:

1. Go to Config→Maintenance→Operation Log.

Thermal Network Camera User Manual

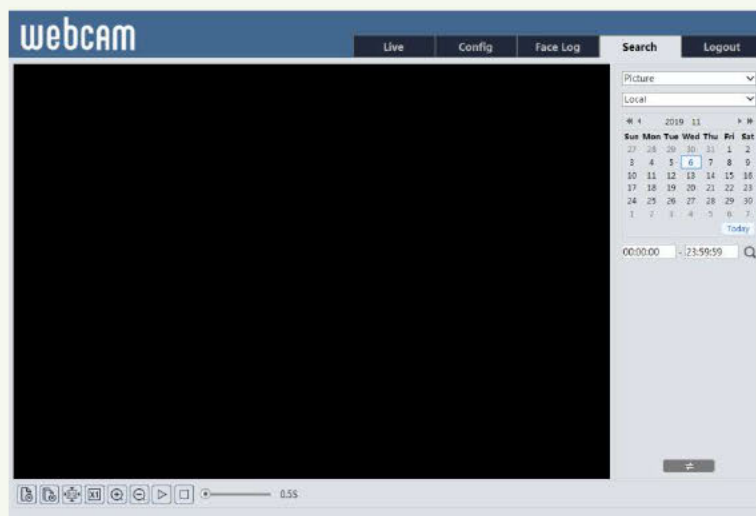
Main Type	All log	Sub Type	All log		
Start Time	2020-06-28 00:00:00	End Time	2020-06-28 23:59:59	Search	Export
Index	Time	Main Type	Sub Type	User Name	Login IP
1	2020-06-28 10:38:19	Alarm	Vfd Alarm		
2	2020-06-28 10:29:44	Alarm	Vfd Alarm		
3	2020-06-28 10:23:03	Alarm	Vfd Alarm		
4	2020-06-28 10:19:53	Alarm	Vfd Alarm		
5	2020-06-28 10:18:44	Operation	Log in	admin	10.110.9.100

2. Select the main type, sub type, start and end time.
3. Click “Search” to view the operation log.
4. Click “Export” to export the operation log.

6 Search

6.1 Image Search

Click Search to go to the interface as shown below. Images that are saved on the SD card can be found here.

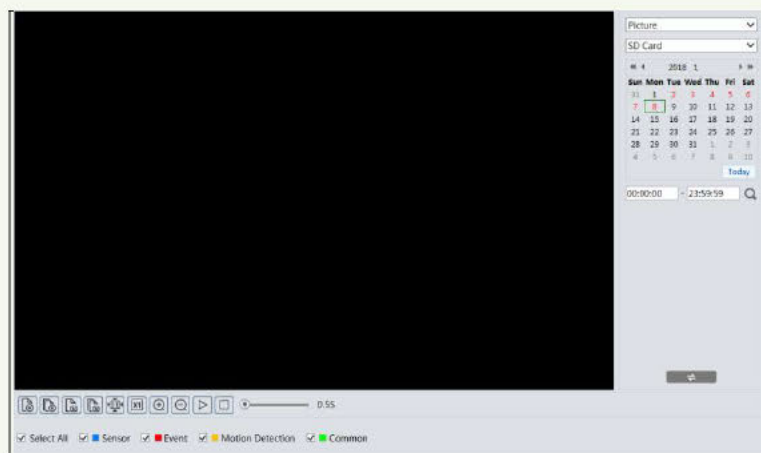


- **Local Image Search**

1. Choose "Picture"—"Local".
2. Set time: Select date and choose the start and end time.
3. Click  to search the images.
4. Double click a file name in the list to view the captured photos.
Click  to return to the previous interface.

- **SD Card Image Search**

1. Choose "Picture"—"SD Card".



2. Set time: Select date and choose the start and end time.
3. Choose the alarm events at the bottom of the interface.
4. Click  to search the images.
5. Double click a file name in the list to view the captured photos.
Click  to return to the previous interface.

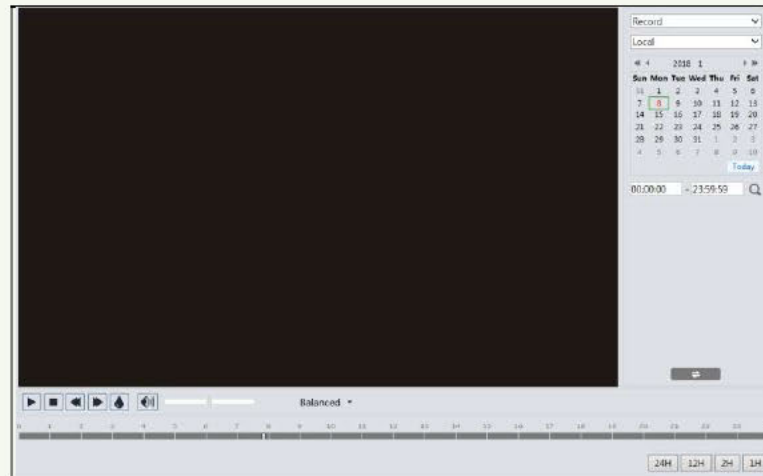
The descriptions of the buttons are shown as follows.

Icon	Description	Icon	Description
	Close: Select an image and click this button to close the image.		Close all: Click this button to close all images.
	Save: Click this button to select the path for saving the image on the PC.		Save all: Click this button to select the path for saving all pictures on the PC.
	Fit size: Click to fit the image on the screen.		Actual size: Click this button to display the actual size of the image.
	Zoom in: Click this button to digitally zoom in.		Zoom out: Click this button to digitally zoom out.
	Slide show play: Click this button to start the slide show mode.		Stop: Click this button to stop the slide show.
	Play speed: Play speed of the slide show.		

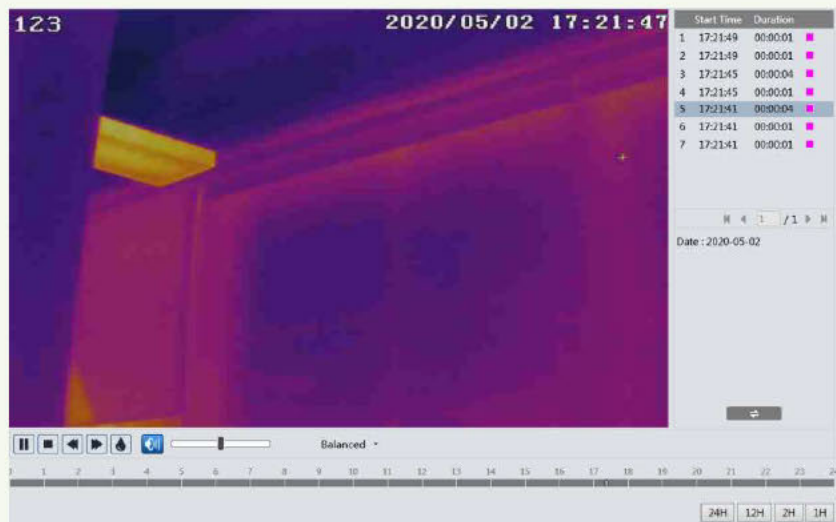
6.2 Video Search

6.2.1 Local Video Search

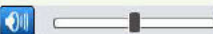
Click Search to go to the interface as shown below. Videos were recorded locally to the PC can be played in this interface.



1. Choose “Record”—“Local”.
2. Set search time: Select the date and choose the start and end time.
3. Click  to search the images.
4. Double click on a file name in the list to start playback.



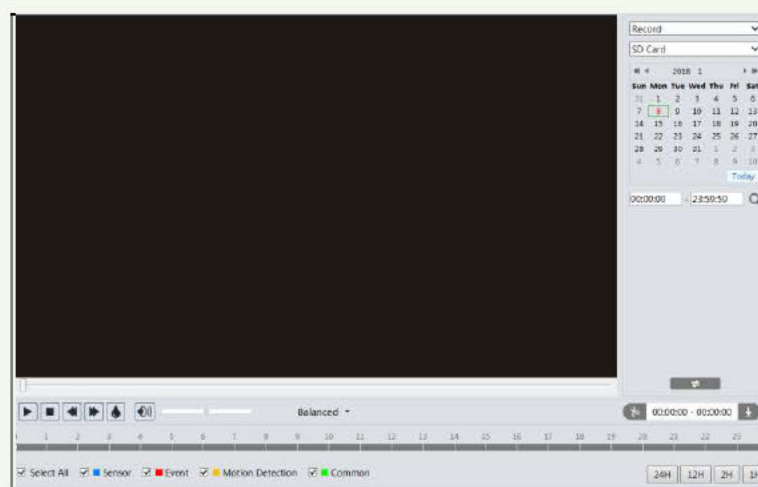
Thermal image or optical image can be searched.

Icon	Description	Icon	Description
	Play button. After pausing the video, click this button to continue playing.		Pause button
	Stop button		Speed down
	Speed up		Watermark display
	Enable / disable audio; drag the slider to adjust the volume after enabling audio.		

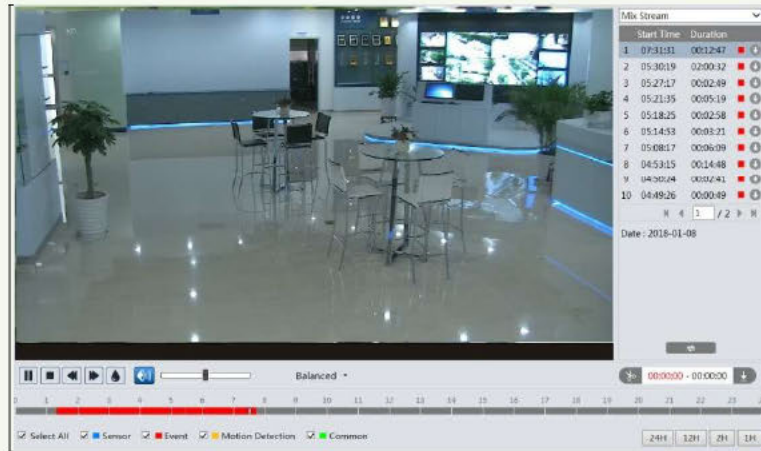
6.2.2 SD Card Video Search

Click Search to go to the interface as shown below. Videos that were recorded on the SD card can be played in this interface.

1. Choose “Record”—“SD Card”.
2. Set search time: Select the date and choose the start and end time.
3. Click  to search the images.



4. Select the alarm events at the bottom of the interface.
5. Select mix stream (video and audio stream) or video stream as needed.
6. Double click on a file name in the list to start playback.



The time table can be shown in 24H/12H/2H/1H format by clicking the corresponding buttons.

Video clip and downloading

1. Search the video files according to the above mentioned steps.
2. Select the start time by clicking on the time table.
3. Click to set the start time and then this button turns blue ().
4. Select the end time by clicking on the time table. Then click to set the end time.
5. Click to download the video file in the PC.

Index	Process	Record	Start Time	End Time	Path	Operate
1	100%	Cut	2018-01-16 01:1...	2018-01-16 01:1...	Favorites	Open
Set up D:\Favorites Clear List Close						

Click “Set up” to set the storage directory of the video files.

Click “Open” to play the video.

Click “Clear List” to clear the downloading list.

Click “Close” to close the downloading window.

6.3 Data Record Search

The body temperature and the face picture of the person passing through can be recorded to the SD card. Click “Data Record” in the live view interface to go to the following interface.

Thermal Network Camera User Manual

Face recognition result


2020-05-23 02:03:02 34.2°C


2020-05-23 02:02:59 34.3°C


2020-05-23 02:02:14 34.1°C


2020-05-23 02:02:13 34.4°C


2020-05-23 02:02:06 34.5°C


2020-05-23 02:02:13 34.4°C


2020-05-23 02:00:42 34.5°C


2020-05-23 02:00:38 34.2°C


2020-05-23 01:36:43 34.1°C


2020-05-23 01:43:02

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Appendix

Appendix 1 Troubleshooting

How to find the password?

A: Reset the device to the default factory settings.

Default IP: 192.168.226.201; User name: admin; Password: 123456

Fail to connect devices through IE browser.

A: Network is not well connected. Check the connection and make sure it is connected well.

B: IP address is not available. Reset the IP address.

C: Web port number has been changed: contact administrator to get the correct port number.

D: Exclude the above reasons. Restore to default setting by IP-Tool.

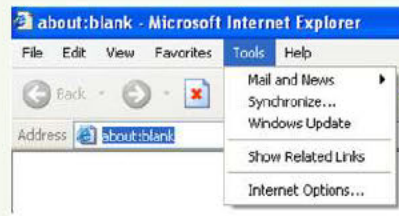
IP tool cannot search devices.

It may be caused by the anti-virus software in your computer. Please exit it and try to search device again.

IE cannot download ActiveX control.

A. IE browser may be set up to block ActiveX. Follow the steps below.

① Open IE browser and then click Tools-----Internet Options.

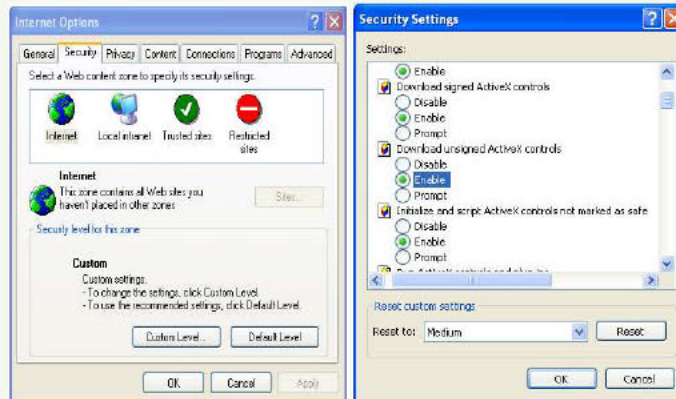


② Select Security-----Custom Level....

③ Enable all the options under “ActiveX controls and plug-ins”.

④ Click OK to finish setup.

B. Other plug-ins or anti-virus blocks ActiveX. Please uninstall or close them.



No sound can be heard.

A: Audio input device is not connected. Please connect and try again.

B: Audio function is not enabled at the corresponding channel. Please enable this function.

Appendix 2 Specifications

Mode	Thermal Network Bullet Camera	
Thermal Module		
Detector Type	17um 384×288 Vanadium oxide uncooled focal plane detector	17um 256×192 Vanadium oxide uncooled focal plane detector
NETD	<35mK/(@25°C, F#=1.0)	
IRIS Type	Fixed Iris	
Lens	12.3mm@F1.0	
Field of View	29.7°×22.5°(H×V)	
Min. Focusing Distance	1.34m	
Temperature Measuring Distance	2-6m	
Color Palettes	Black, White, Pseudo-color	
Visible Light Module		
Image Sensor	1/2.7"CMOS	
Image Size	2592 × 1944	
Electronic Shutter	1/30s ~ 1/100000s	
Iris Type	Fixed Iris	
Min. Illumination	0.0125 lux@F2.0,AGC ON; 0 lux with IR 0.0045 lux@F1.2,AGC ON; 0 lux with IR	
Lens	8mm@F2.0	
Field of View	38°×27.5°(H×V)	
Wide Dynamic Range	120dB	
BLC	Yes	
HLC	Yes	
Defog	Yes	
Digital NR	2D/3D DNR	
Image		
Video Compression	H.265 / H.264 / MJPEG	
H.264 Compression Standard	Baseline Profile / Main Profile / High Profile	
Resolution	Thermal : 384 × 288 Visible Light: 5MP (2592 × 1944), 4MP (2592 × 1520), 2K (2560 × 1440), 3MP (2304 × 1296),1080P (1920 × 1080), 720P (1280 × 720), D1, CIF, 480 × 240	
Main Stream	Thermal : 60Hz: 384 × 288 (1~30fps); 50Hz: 384 × 288 (1~25fps) Visible Light: 60Hz: 5MP/4MP/2K/3MP/1080P/720P (1~30fps); 50Hz: 5MP/4MP/2K/3MP/1080P/720P (1~25fps)	
Sub Stream	Thermal : 60Hz: 384 × 288 (1~30fps); 50Hz: 384 × 288 (1~25fps) Visible Light: 60Hz: 720P/D1/CIF (1~30fps); 50Hz: 720P/D1/CIF (1~25fps)	
Third Stream	60Hz: D1/CIF/480 × 240(1~30fps); 50Hz: D1/CIF/480 × 240(1~25fps)	
Image Settings	ROI, Saturation, Brightness, Chroma, Contrast,Wide Dynamic, Sharpen, NR,etc adjustable through client software or web browser	
Video & Data Overlay	The thermal image can be overlaid on visible light image. The temperature can be overlaid on visible light image.	

Audio Compression	G711A/U
ROI	8 regions; each ROI to be configured separately
Interface	
Network	RJ45
Video Output	No
Audio	1CH audio input; 1CH built-in speaker
Storage	Built-in micro SD card slot; up to 256GB
Reset	Yes
RS 485	Yes
Alarm	1CH alarm input; 1CH alarm output
Function	
Temperature Measurement	$\pm 0.5^{\circ}\text{C}@ (30^{\circ}\text{C}\sim 45^{\circ}\text{C}, \text{ without blackbody})$ $\pm 0.3^{\circ}\text{C}@ (30^{\circ}\text{C}\sim 45^{\circ}\text{C}, \text{ with blackbody})$ A maximum of 30 people can be measured simultaneously $\pm 0.5^{\circ}\text{C}@ (30^{\circ}\text{C}\sim 45^{\circ}\text{C}, \text{ without blackbody})$ $\pm 0.3^{\circ}\text{C}@ (30^{\circ}\text{C}\sim 45^{\circ}\text{C}, \text{ with blackbody})$ A maximum of 20 people can be measured simultaneously
Temperature Alarm	High temperature alarm, low temperature alarm, temperature exception alarm
Remote Monitoring	Web browsing, CMS remote control
Online Connection	Support simultaneous monitoring for up to 10 users; Support multi-stream real time transmission
Network Protocol	IPv4, IPv6, UDP, DHCP, NTP, RTSP, PPPoE, DDNS, SMTP, FTP, 802.1x, UPnP, HTTP, HTTPS, QoS
Interface Protocol	ONVIF
Storage	Network remote storage; micro SD card storage
Smart Alarm	Motion detection, SD card error, SD card full, IP address conflict, Cable connection
Intelligent Analytics	Region intrusion (human/vehicle classification), line crossing (human/vehicle classification), scene change detection, video blur detection, video color cast detection, target counting, face detection, face capture
Sound & Light Warning	Yes
General Function	Watermark, IP address filtering, video mask, heartbeat, password protection, non-photosensitive switch, image distortion correction
PoE	Yes, IEEE802.3af, class0
IR Distance	20 ~ 30 m
Protection Grade	IP66
Others	
Power Supply	DC12V / PoE
Power Consumption	< 9W
Operating Environment	Humidity: less than 95% (non-condensing) Temperature Screening Mode: 16 °C ~ 35 °C (without wind)
Certificate	CE, FCC
Environment Protection	Directive EU RoHS, WEEE(2012/19/EU), directive 94/62/EC and REACH(EC1907/2006)
Dimensions (mm)	278.3 × 100.2 × 88.7
Weight (net)	Approx. 1.18KG
Installation	Ceiling mounting, Wall mounting