User Manual
Dual Lens Thermal IP Camera

O5TMLB1

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

Important Safeguards and Warnings

1. Electrical safety

All installation and operation here should conform to local electrical safety codes.
Use a certified/listed 12VDC Class2 or adequate PoE switch.
Improper handling and/or installation could run the risk of fire or electrical shock.

2. Environment

Do not expose the unit to heavy stress, violent vibration or long-term exposure to water and humidity during transportation, storage, and/or installation.
Do not install near sources of heat.
Only install the product in environments inside the specification operating temperature and humidity range.
Do not install the camera near power lines, radar equipment or other electromagnetic radiation.
Do not block any ventilation openings if any.
Use allthe weatherproofing hardware requirement to minimize weather intrusion.

3. Operation and Daily Maintenance

Please shut down the device and then unplug the power cable before you begin any maintenance work.
Do not touch the CMOS sensor optic component. You can use a blower to clean the dust on the lens surface.
Always use the dry soft cloth to clean the device. If there is too much dust, use a cloth dampened with a small quantity of neutral detergent. Finally use the dry cloth to clean the device.
Please use a professional optical cleaning method to clean the enclosure. Improper enclosure cleaning (such as using cloth) may result in poor IR functionality and/or IR reflection.
The grounding holes of the product are recommended to be grounded to further enhance the reliability of the camera.
Dome cover is an optical device, please do not touch or wipe cover surface directly during installation and use, please refer to the following methods if dirt is found.
Stained with dirt:
Use oil-free soft brush or hair dryer to remove it gently.
Stained with grease or fingerprint.
Use oil-free cotton cloth or paper soaked with alcohol or detergent to wipe from the lens center outward. Change the cloth and wipe several times if it is not clean enough.

Warning

This camera should be installed by qualified personnel only.
All the examination and repair work should be done by qualified personnel.
Any unauthorized changes or modifications could void the warranty.
This device may potentially trigger seizures for people with photosensitive epilepsy.
This device may emit loud audible alarms, check your local laws before enabling audio.

Statement

This guide is for reference only.
Product, manuals, and specifications may be modified without prior notice. Speco Technologies reserves the right to modify these without notice and without incurring any obligation.
Speco Technologies is not liable for any loss caused by improper operation.

Regulatory Information

FCC conditions:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

FCC compliance:

This equipment has been tested and found to comply with the limits for a digital device, pursuant to part 15 of the FCC Rules. 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. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Note:
Before installation, check the package and make sure that all components are included.
Contact your rep or Speco customer service department immediately if something is broken or missing in the package.

Accessory name	Amount
Network Camera Unit	1
Junction box	1
Quick Start Guide	1
Installation Accessories Bag	1
CD	1

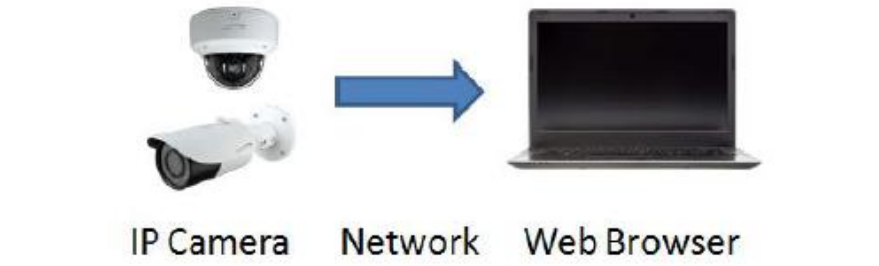
Table of Contents

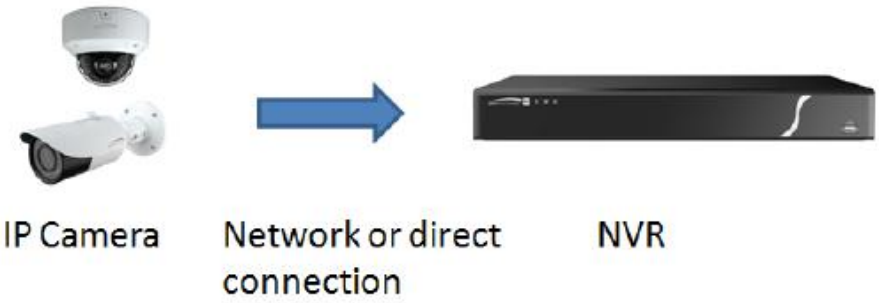
1 Introduction

Welcome

Thank you for purchasing this network camera!
Please read this manual carefully before operating the unit and retain it for further reference.
Should you require any technical assistance, please contact Speco Technologies Technical Support at 1-800-645-5516.

Applications





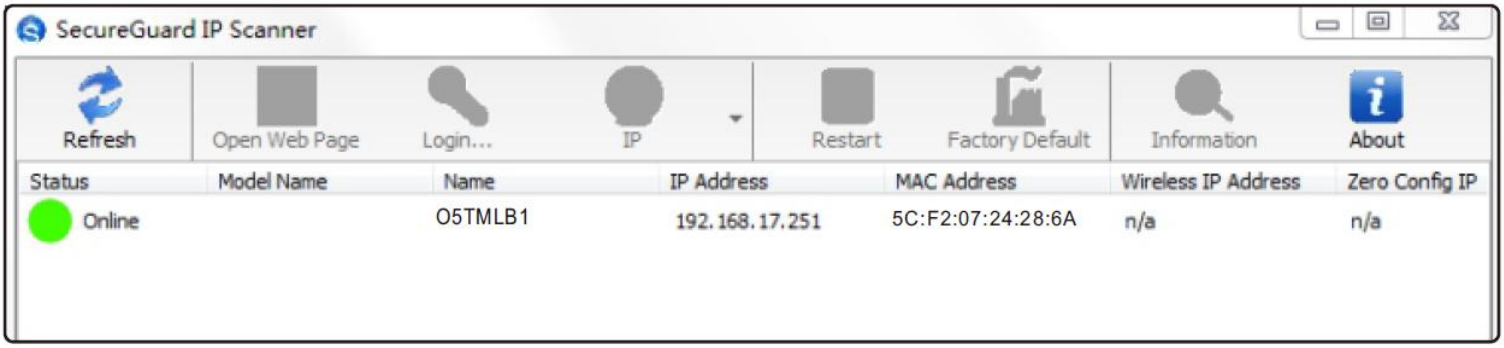
2 Web Access and Login

The IP camera settings can be accessed via a web browser through the LAN.
Available web browser: IE (plug-in required)/ Firefox/Edge/Safari/Google Chrome
It is recommended to use the latest version of these web browsers.
The menu display and operation of the camera may be slightly different by using the browser with plug-in or without plug-in. Installing plug-in will display more functions of the camera.
Connect IP-Cam via LAN or WAN. Here only take IE browser for example. The details are as follows:

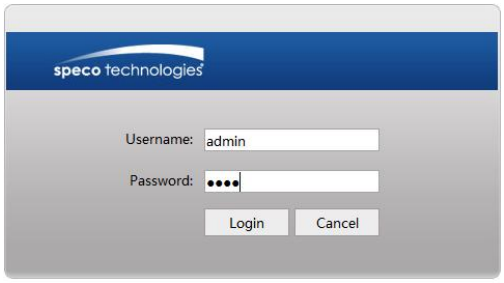
- Access through IP Scanner

Network connection:

①Make sure the PC and IP-Cam are connected on the same local network. The camera is set to DHCP by default and will be assigned an IP address by the DHCP server. Make sure that the local network has a DHCP server. Routers typically have a DHCP server built in.
② Install IP Scanner from the CD and run it after installation. IP Scanner is the tool for discovering the IP cameras on the local network.

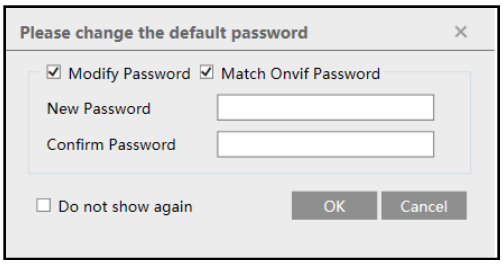


③ In the device list, the IP address, model number, and MAC address of each device will be listed. Select the applicable device and double click to open up the web viewer. You can also manually enter the IP address in the address bar of the web browser. Read the privacy statement and then check and click “Already Read” to enter the login interface.

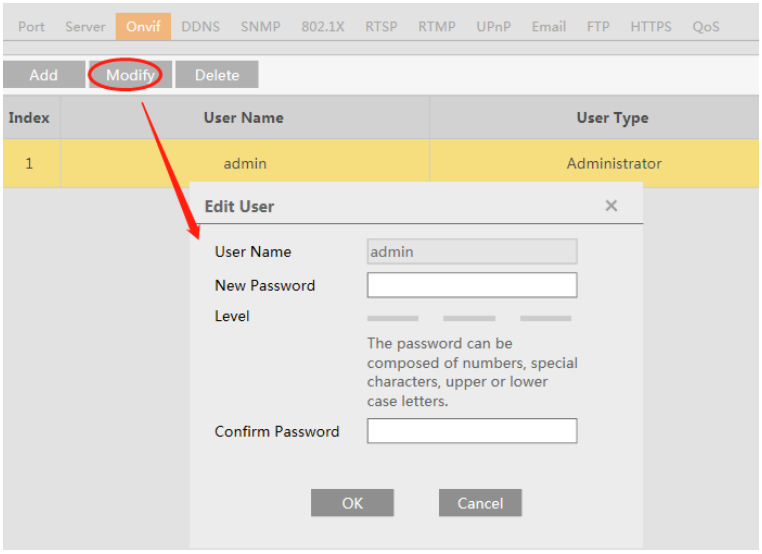


The login interface is shown above. Default username is **admin** and the password is**1234**. After logging in, follow directions to install

applicable plug-ins for viewing video if prompted.



If this is the first time for you to log in, the password prompt may only change the admin password. By default, the ONVIF password will match the admin password that you set. Should you wish to change the ONVIF password to a different password than your admin password, go to the ONVIF section to change the password. (Config→Network→Ports/Connections→Onvif)



3 Live View

The window below will be shown after logging in.

The following table describes the icons on the live view interface on the browser

Icon	Description	Icon	Description
	Visible light image and thermal image display		Fire detection indicator
	Visible light image display		Temperature indicator
	Thermal image display		SD card recording indicator
	Start/stop live view		Motion alarm indicator
	Enable/disable alarm output(only some models support)		Alarm output indicator(only some models support)
	Enable/disable light alarm		Light alarm indicator
	Start/stop two-way audio		Color abnormal indicator
	Enable/disable audio		Abnormal clarity indicator
	Snapshot		Scene change indicator
	Start/stop local recording		Line crossing indicator
	Zoom in		Intrusion indicator
	Zoom out		Region entrance indicator
	Face Detection		Region exiting indicator

Icon	Description	Icon	Description
	Face detection indicator		

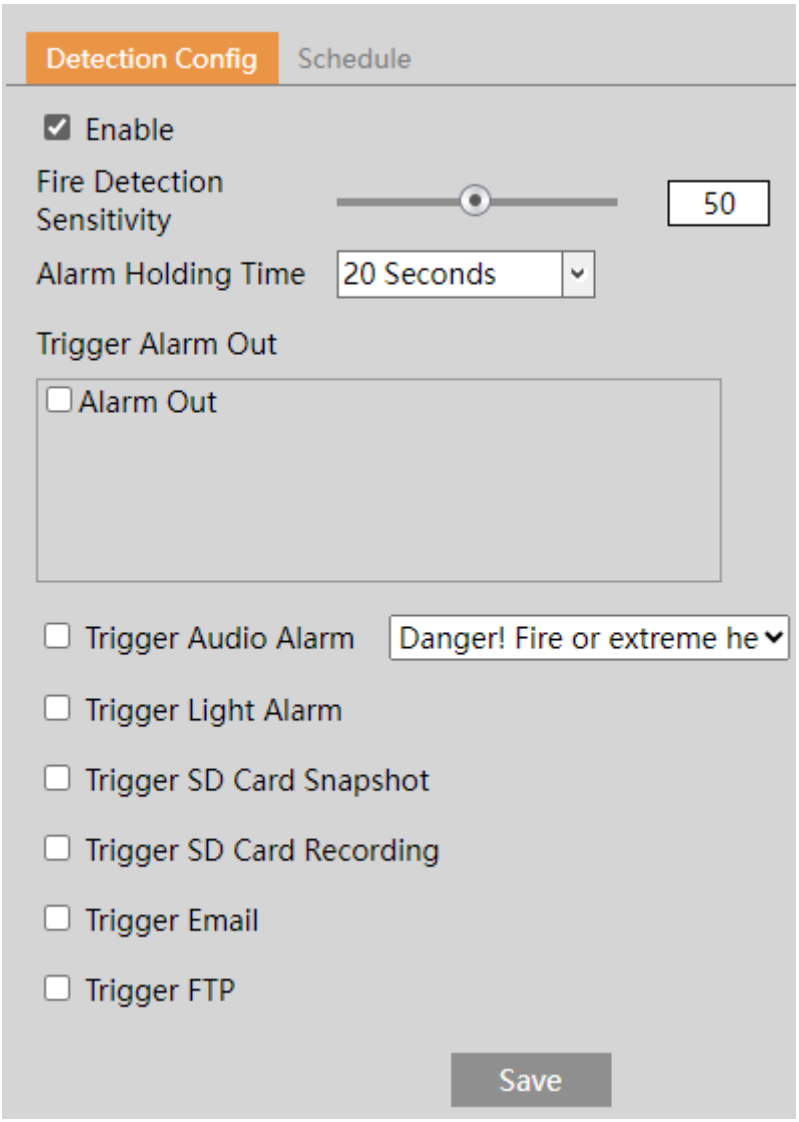
*Plug-in free live view: Two-way audio and local recording are not supported.

- All indicator icons above will flash in live view interface only when the corresponding events are enabled.
- After clicking the light alarm icon, the white light will flash alternatively according to the set flashing time (you can set the flashing time by clicking Config→Alarm→Light Alarm). Click this icon again to stop flashing.
- In full screen mode, to exit, double click on the mouse or press the ESC key on the keyboard.

4 Fire Detection

4.1 Fire Detection Settings

Please note this is only intended as a supplement to official fire detection methods and should not be relied on as a primary alert source.
Fire Detection: Alarms will be triggered when the camera detects a fire source through thermal imaging.
Click Config→Fire Detection setting to enter the following interface.

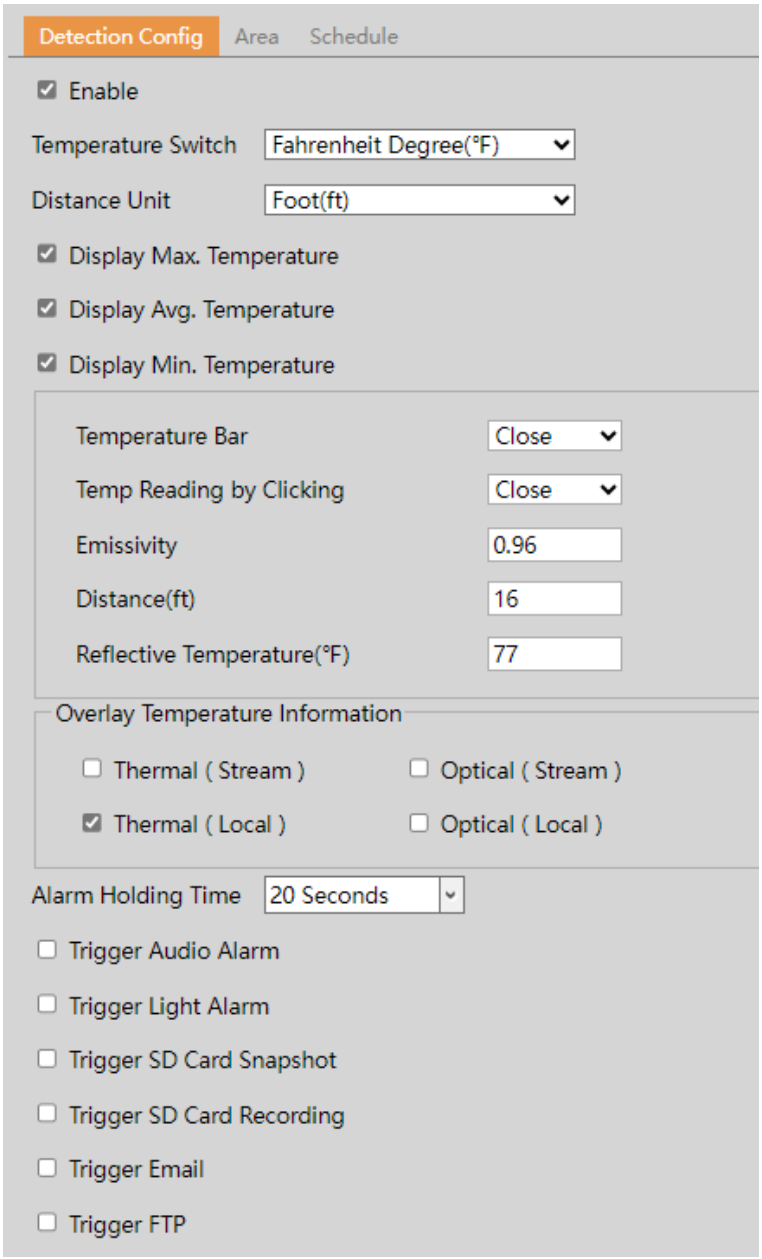


1. Click “Enable” and set the fire detection sensitivity and alarm holding time.
Fire Detection Sensitivity: the higher the value is, the easier a fire can be detected, but the false rate is higher. Please adjust the sensitivity as needed.
Alarm Holding Time: it refers to the time that the alarm extends for after an alarm ends.
2. Set alarm trigger options.
Alarm Out: If selected, this would trigger an external relay output that is connected to the camera when the fire source is detected.
Trigger Audio Alarm: If selected, the warning voice will sound when the fire source is detected. (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 fire source is detected. (Please set the light flashing time

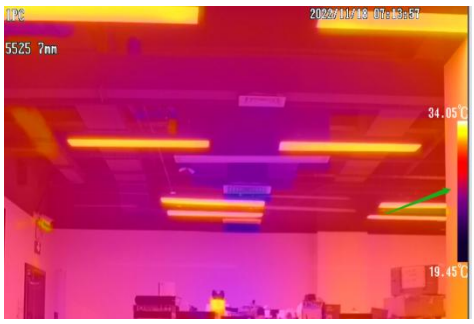
and frequency first. See Light Alarm for details).
Trigger SD Card Snapshot: If selected, the system will capture images when the fire source is detected and save the images on an SD card.
Trigger SD Card Recording: If selected, video will be recorded on an SD card when the fire source is detected.
Trigger 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" and "Attach Picture" are 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 fire detection. The setup steps of the schedule are the same as the schedule recording setup. (See Schedule Recording).

4.2 Temperature Measurement

Temperature Measurement: When the temperature of the pre-defined point/line/area exceeds the temperature threshold value, alarms will be triggered.
Click Config→Fire Detection→Temperature Measurement to enter the following interface.



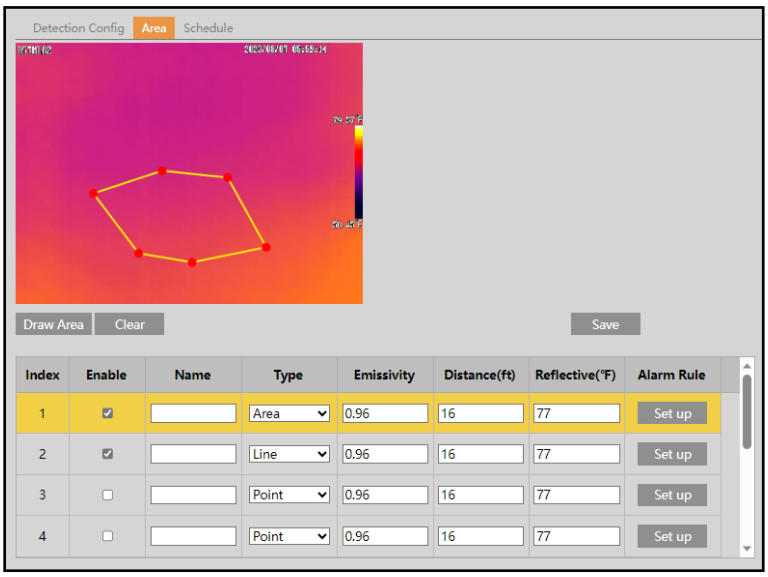
1. Click “Enable” and set the temperature measurement parameters.
Temperature Switch: select the temperature unit (°C or °F).
Distance Unit: set the unit of the temperature measurement distance. “Meter” or “Foot” can be selected.
Display Max. Temperature: if checked, the Max. Temperature in the set area/line will be displayed in real time.
Display Avg. Temperature: if checked, the Avg. Temperature in the set area/line will be displayed in real time.
Display Min. Temperature: if checked, the Min. Temperature in the set area/line will be displayed in real time.
Temperature Bar: if “Open” is selected, a color reference temperature bar will appear on the right of the thermal image in the live view interface as shown below.



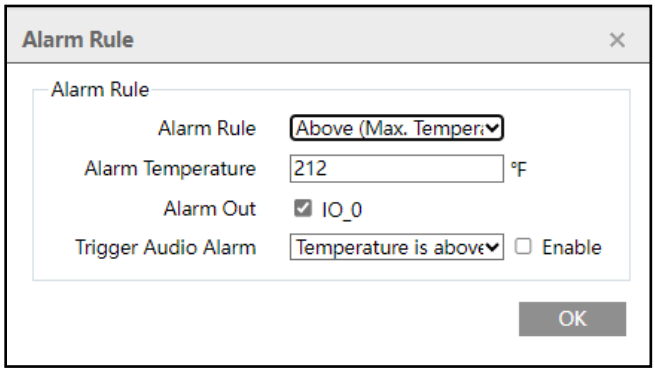
The current minimum and maximum temperature of the scene will display. The minimum temperature shows at the bottom of the bar; the maximum temperature shows on the top of the bar.

Temp Reading by Clicking: if enabled, you can read the real-time temperature of any point you click on the thermal image in the live interface.
Emissivity: Set the emissivity of the target. The emissivity of each object is different. Please refer to Common Material Emissivity for details.
Distance: The distance between the target and the camera.
Reflective: If there is any object with high emissivity in the scene, set the reflective temperature to correct the ambient temperature. The reflective temperature should be set the same as the temperature of the high emissivity object.
Overlay temperature information:
Thermal/optical (local): if enabled, the temperature information shown in the live view interface will get locally. However, when playing back the recorded files, the temperature information will not be overlaid.
Thermal/optical (stream): if enabled, the temperature information will overlay on the video stream. When playing the live video or the recorded video, you can view the temperature information.

2. Set the alarm holding time and alarm trigger options. The setup steps are the same as fire detection. Please refer to Fire Detection Settings section for details.
3. Set thermography rule. Click the “Area” tab to go to the following interface.
The thermography rule type includes Point, Line Area.
Point setting: After the type is set to “Point”, click “Draw Area” and then drag the mouse in the image on the left side to move the point. Click the “Stop Draw” button to stop drawing. Up to 10 points can be set in the above interface.
Line setting: After the type is set to “Line”, click “Draw Area” and then drag the mouse in the image on the left side to draw a line. Click the “Stop Draw” button to stop drawing. To ensure the accuracy of temperature measurement, it is recommended to set not more than two lines at the same time.
Area setting: 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. To ensure the accuracy of temperature measurement, it is recommended to set not more than two areas at the same time.

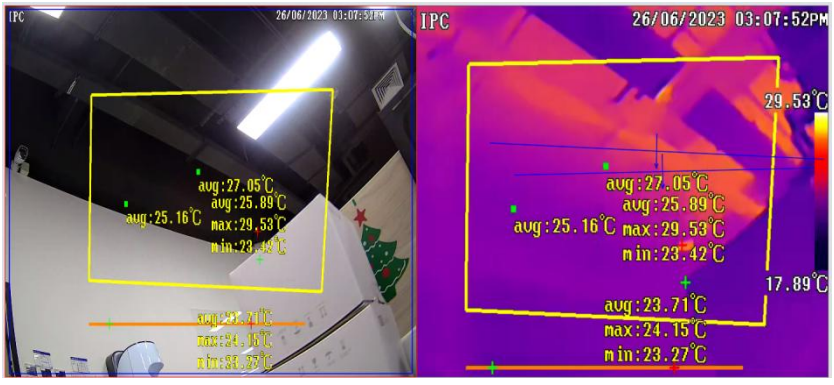


4. Click “Set up” to set the alarm rule.



Set the alarm rule and alarm temperature and enable alarm output or audio alarm as needed. For example, select Alarm Rule as Above (Average Temperature), set the alarm temperature to 100°C and check alarm output. Then alarms will be triggered when the average temperature of the target is higher than 100°C

5. Click “Live” to view the temperature and rule information.



Requirements of Fire detection and temperature measurement

1. The 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.
2. In order to avoid the damage of the sensor, keep the lens of the camera away from the sun.
3. The thermal camera should be installed in the highest position of the detection area and the camera should face the detected object.

5 Camera Configuration

Press the “Setup” button to go to the configuration interface.
Note: Wherever applicable, click the “Save” button to save the settings.

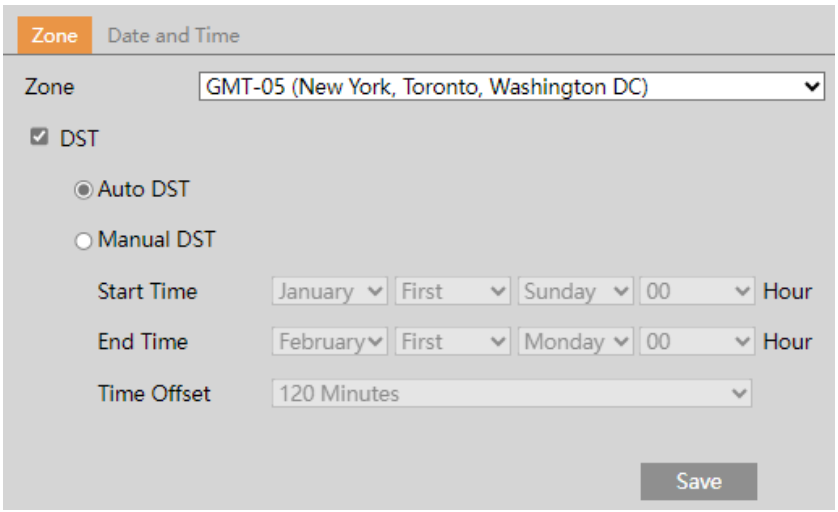
5.1 System Configuration

5.1.1 System Information

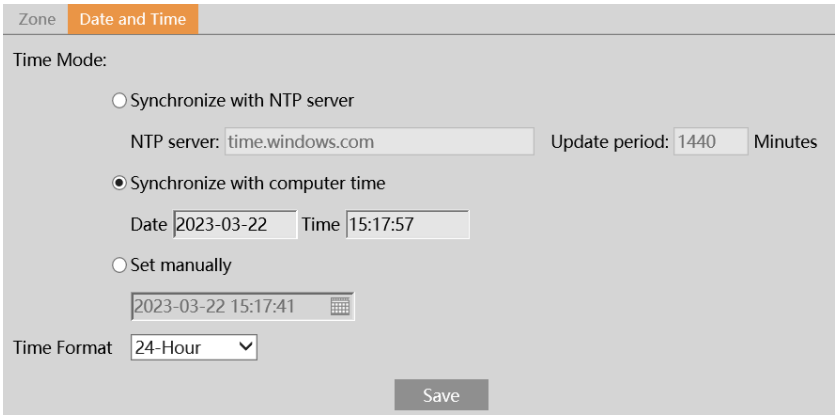
In the “System Information” interface, the system information of the device is listed.

5.1.2 Date and Time

To set the time and date, go to System→Date and Time. Please refer to the following interface.

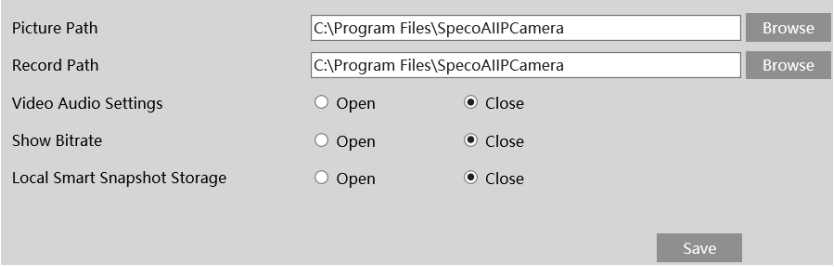


Select the applicable time zone and enable / disable DST as needed.
Click the “Date and Time” tab to set the time, date and time format.



5.1.3 Local Recording

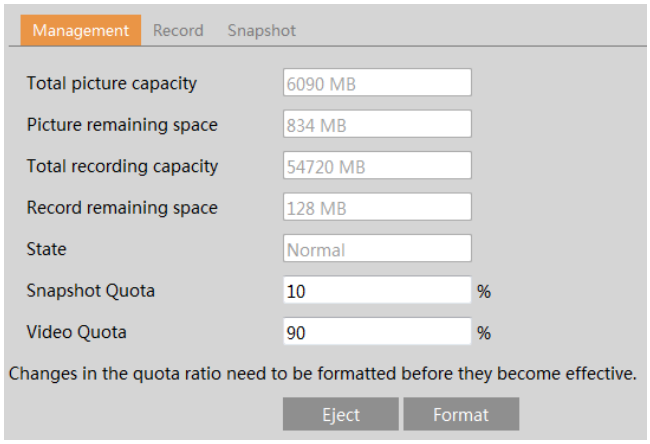
Go to System→Local Recording to set up the storage path of captured pictures and recorded videos on the local PC. There is also an option to enable or disable the bitrate display in the recorded files.



Additionally, the snapshots triggered by smart events (like line crossing detection, intrusion detection, etc.) can be selected to save to the local PC.

5.1.4 Storage

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



- **SD Card Management**

When the card is used for the first time, click the "Format" button to format the SD card. **All data on the card will be cleared by clicking this button.**

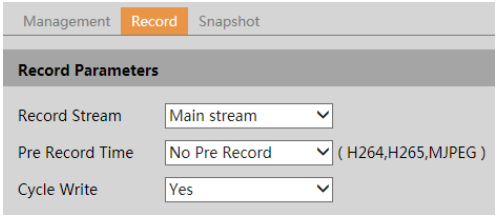
Click the "Eject" button to stop writing data to the SD card. Then the SD card can be ejected safely.

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 toStorage→Record to go to the interface as shown below.



2. Set record stream, pre-record time and 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.

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).

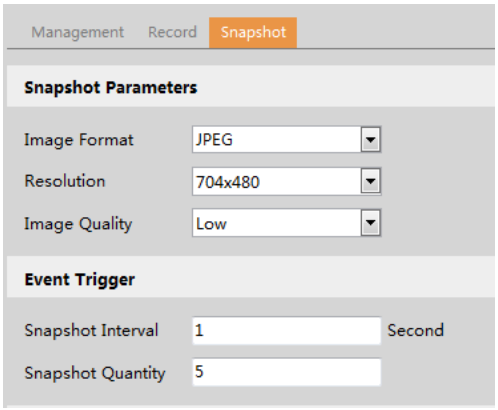
Day schedule

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

Note: Holiday schedule takes priority overweekly schedule.

- **Snapshot Settings**

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



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.

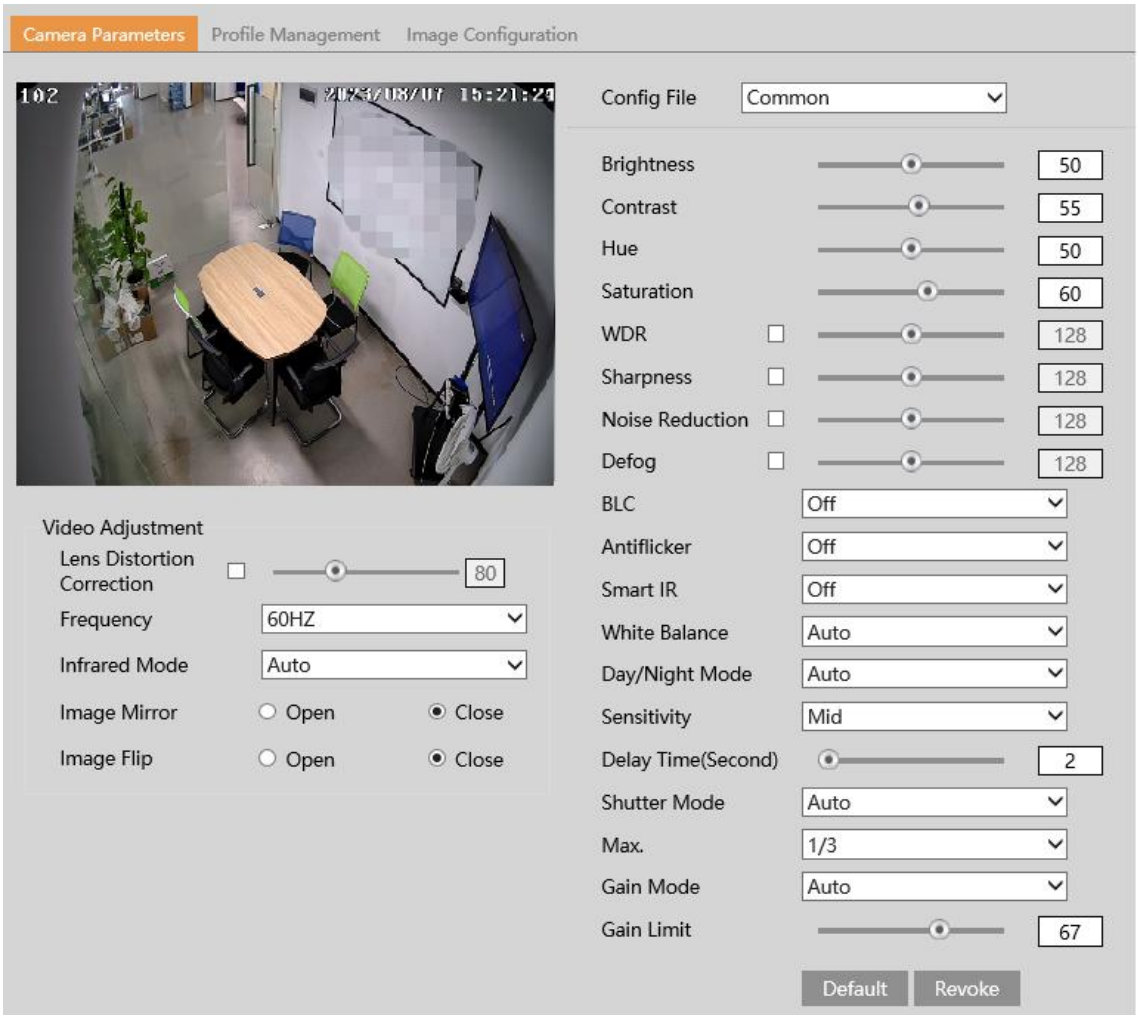
Timing Snapshot: Enable timing snapshot first and then set the snapshot interval and schedule. The setup steps of schedule are the same as the schedule recording (See Schedule Recording).

5.2 Video Configuration

Video Configuration includes Display Settings, Video/Audio Setup, OSD, Privacy Mask and Region of Interest.

5.2.1 Image Configuration

In the Display Settings interface as shown below, various settings can be adjusted, such as brightness, contrast, hue and saturation and so on. The common mode and day and night mode can be set up separately. The image effect can be quickly viewed 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.
WDR: 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.
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.
- 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.

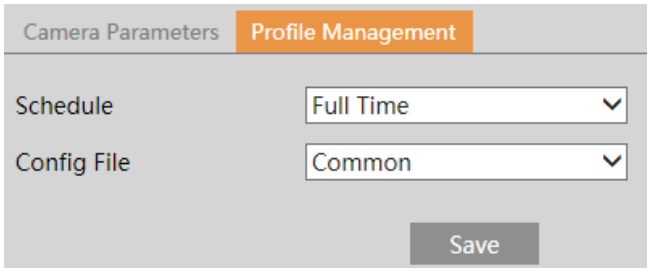
Antiflicker:

- 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.

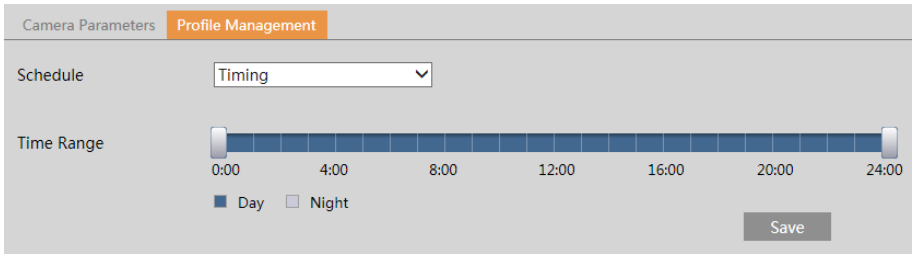
Smart IR: Choose "ON" or "OFF". This function can effectively avoid image overexposure so as to make the image more discernable. The higher the level is, the more overexposure compensation will be given.

White Balance: Adjust the color temperature according to the environment automatically.
Day/Night Mode: Choose “Auto”, “Day”, “Night” or “Timing”.
Shutter 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 (within the set gain limit value) 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.
Lens Distortion Correction: When the image appears distortion to some extent, please enable this function and adjust the level according to the actual scene to correct the distortion.
Frequency: 50Hz and 60Hz can be optional.
Infrared Mode: Choose “Auto”, “On” or “Off”. Some modes may not support this mode.
Image Mirror: Turn the current video image horizontally.
Image Flip: Turn the current video image vertically.

Schedule Settings of Image Parameters:
Click the “Profile Management” tab as shown below.

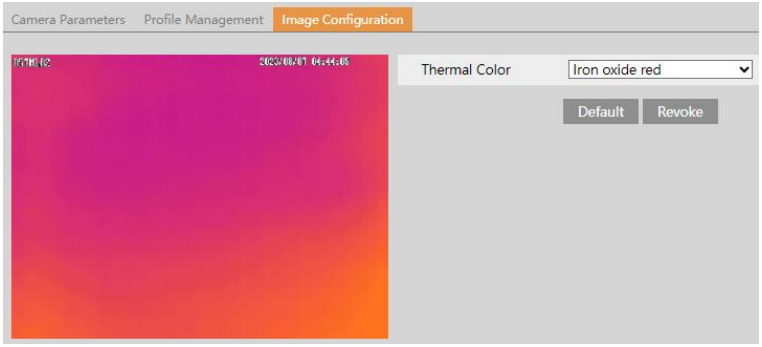


Set full time schedule for common, auto mode and specified time schedule for day and night. Choose “Timing” in the drop-down box of schedule as shown below.



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

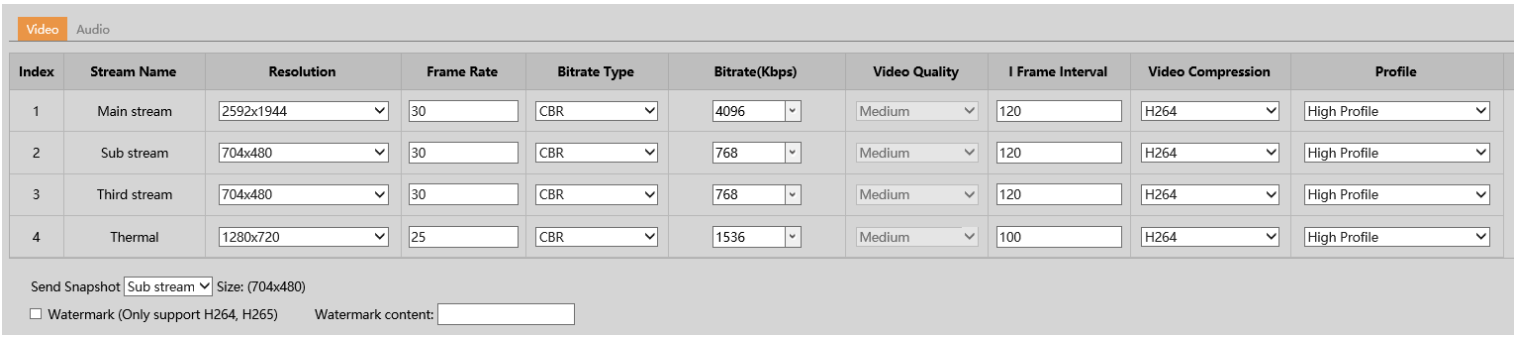
Thermal Image Configuration:
Click the “Image Configuration” tab to go to the thermal image configuration interface as shown below:



Thermal color: set the display color of the thermal image as needed.

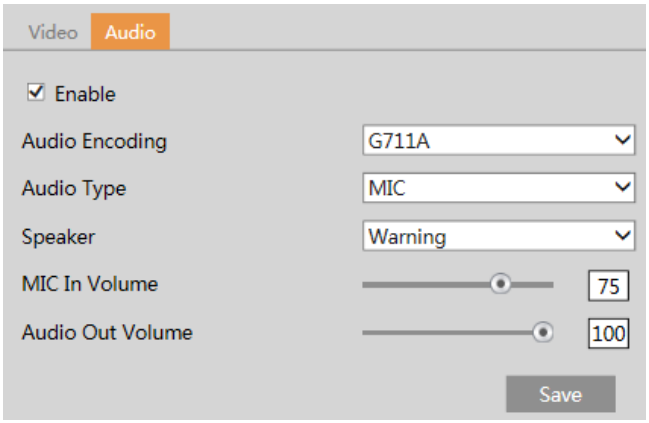
5.2.2 Video / Audio Configuration

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.



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+, H264, H265or H265+can be optional. MJPEG is not available for main stream. If H.265/H.265+ is chosen, make sure the client system is able to decode H.265/H.265+. Compared to H.265, H.265+ saves more storage space with the same maximum bitrate in most scenes. 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: Set the snapshot stream.
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.

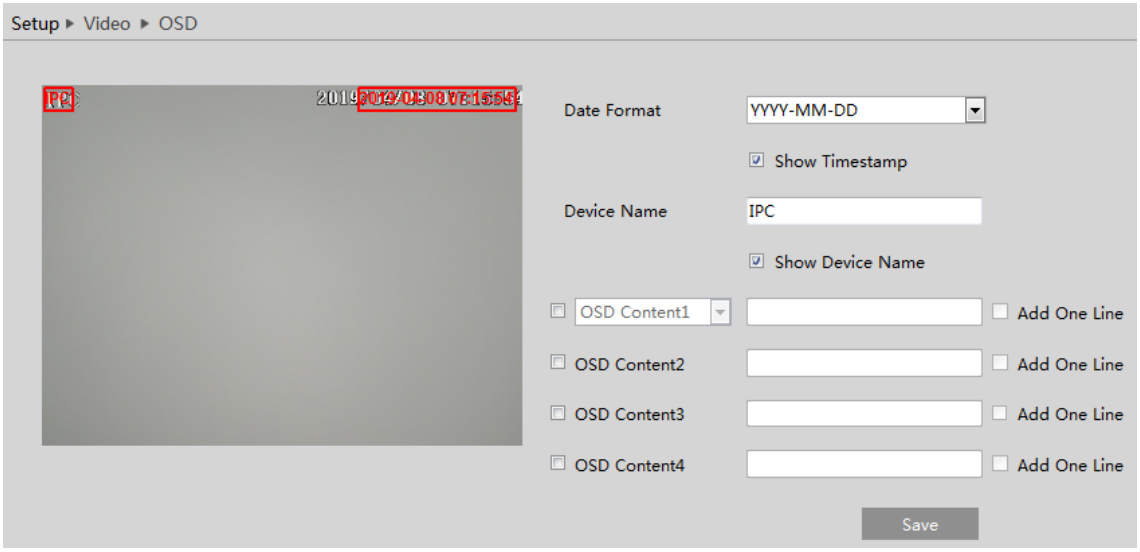
Click the "Audio" tab to go to the interface as shown below.



Audio Encoding: G711A and G711U are selectable.
Audio Type: LIN. LIN/MIC can be selected if the model supports built-in microphone.
Speaker: Talkback, warning or auto can be optional. If “Talkback” is selected, the built-in speaker will be used to output sound for two-way talk. If “Warning” is selected, the built-in speaker will be used to output the pre-defined audio alarm. If “Auto” is selected, the system will output sound for two-way talk or warning voice as needed. When the camera is uttering warning voice and two-way audio is being enabled simultaneously, two-way audio will be output first.
Please set LIN/MIC IN Volume and audio out volume as needed.

5.2.3 OSD Configuration

Go to Video→OSD interface as shown below.

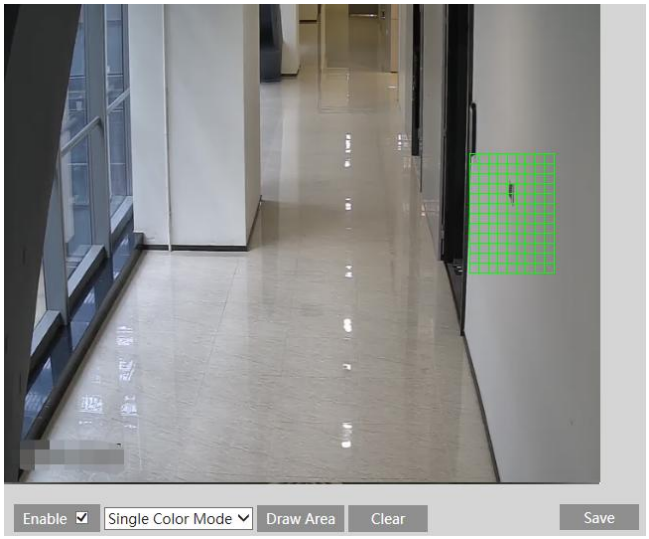


Set time stamp, device name, OSD content and picture overlap here. After enabling the corresponding display and entering the content, drag them to change their position. Then click the “Save” button to save the settings.

Picture Overlap 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.

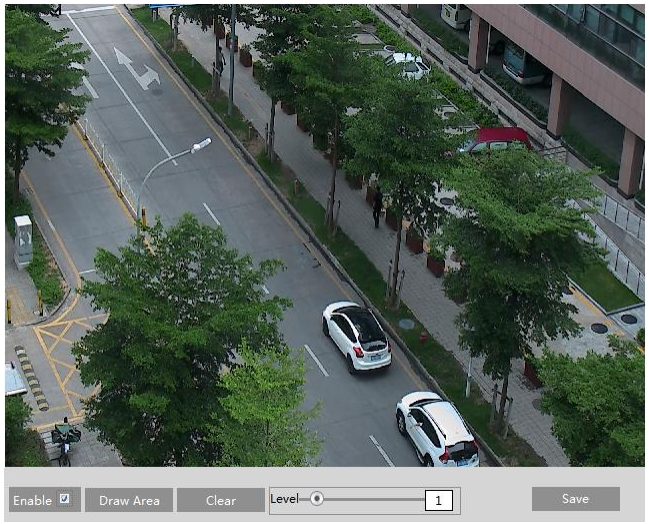


To set up video mask:
1. Enable video mask.
2. Click the “Draw Area” button and then drag the mouse to draw the video mask area.
3. Click the “Save” button to save the settings.
4. Return to the live to verify that the area have been drawn as shown as blocked out in the image.

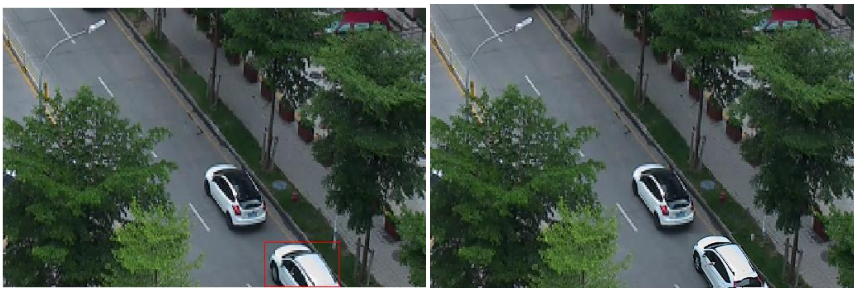
To clear the video mask:
Click the “Clear” button to delete the current video mask area.

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.



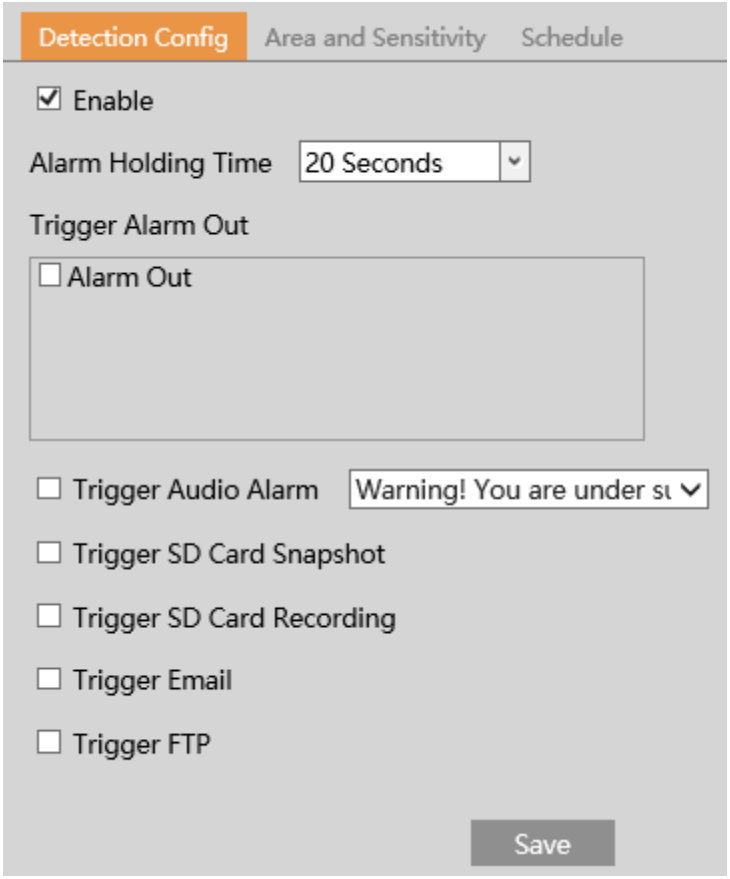
1. Check “Enable” and then click the “Draw Area” button.
2. Drag the mouse to set the ROI area.
3. Set the level.
4. Click the “Save” button to save the settings.



5.3 Alarm Setup

5.3.1 Motion Detection

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

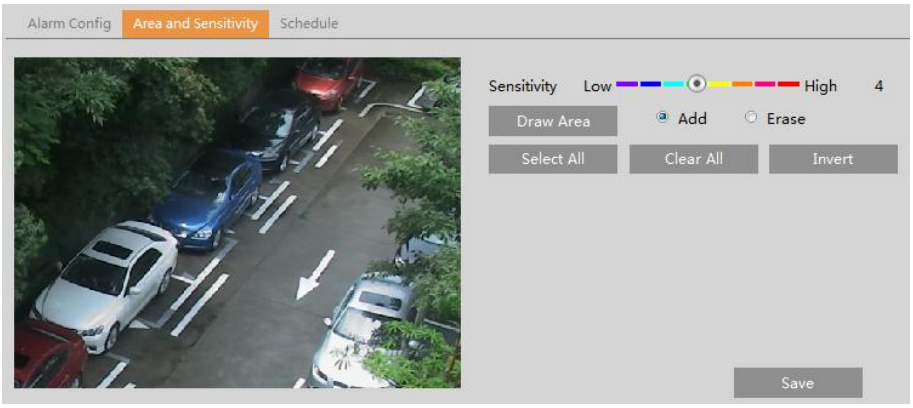


1. Check “Enable” check box to activate motion-based alarms. If unchecked, the camera will not send out any signals to trigger motion-based recording to the NVR or CMS, even if there is motion in the video.
Alarm Out: If selected, this would trigger an external relay output that is connected to the camera on detecting a motion-based alarm.
Trigger Audio Alarm: If selected, the warning voice will sound on detecting a motion based alarm. (Please set the warning voice first. See Audio Alarm for details).

Trigger SD Card Snapshot: If selected, the system will capture images on motion detection and save the images on an SD card.
Trigger SD Card 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" and "Attach Picture" are checked, the captured pictures will be sent into FTP server address. Please refer to FTP configuration chapter for more details.

Note: There is no light alarm setting for motion as the light will cast continuous motion to the scene.

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



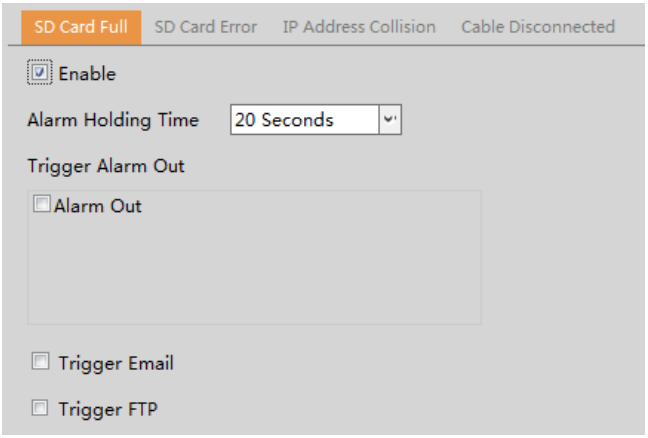
Move the "Sensitivity" scroll bar to set the sensitivity. Higher sensitivity value means that motion will be triggered more easily. Select "Add" and click "Draw". Drag the mouse to draw the motion detection area; Select "Erase" and drag the mouse to clear motion detection area.
After that, click the "Save" to save the settings. "Clear All" can be used to clear out the entire motion zone.

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).

5.3.2 Exception Alarm

- **SD Card Full**

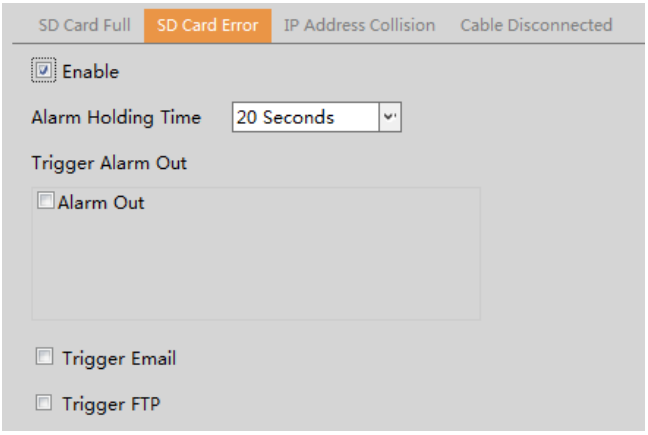
1. Go to Alarm→Exception Alarm→SD Card Full.



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**

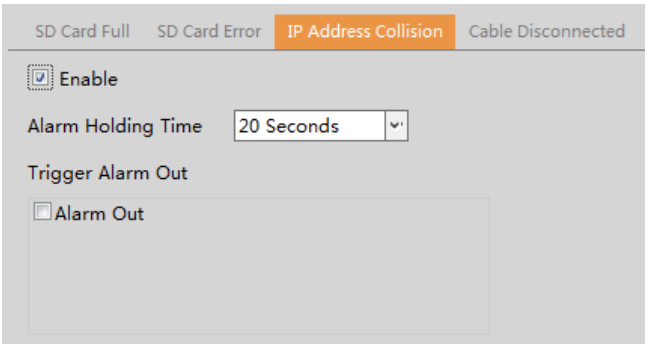
When there are some errors in writing SD card, the corresponding alarms will be triggered.
1. Go to Alarm→Exception Alarm→SD Card Error as shown below.



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 detectionsection for details.

- **IP Address Conflict**

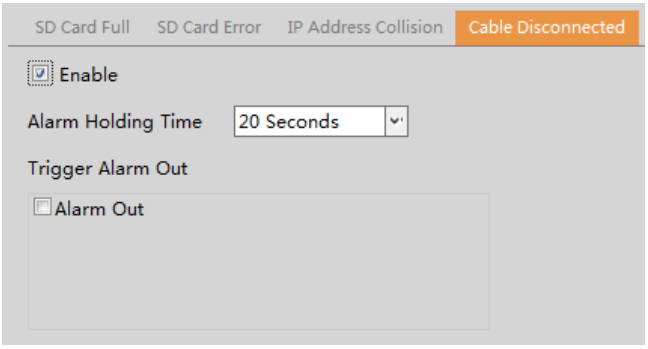
This function is only available for the models with Alarm Out interface.
1. Go to Alarm→Exception Alarm→IP Address Collision as shown below.



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

- **Cable Disconnection**

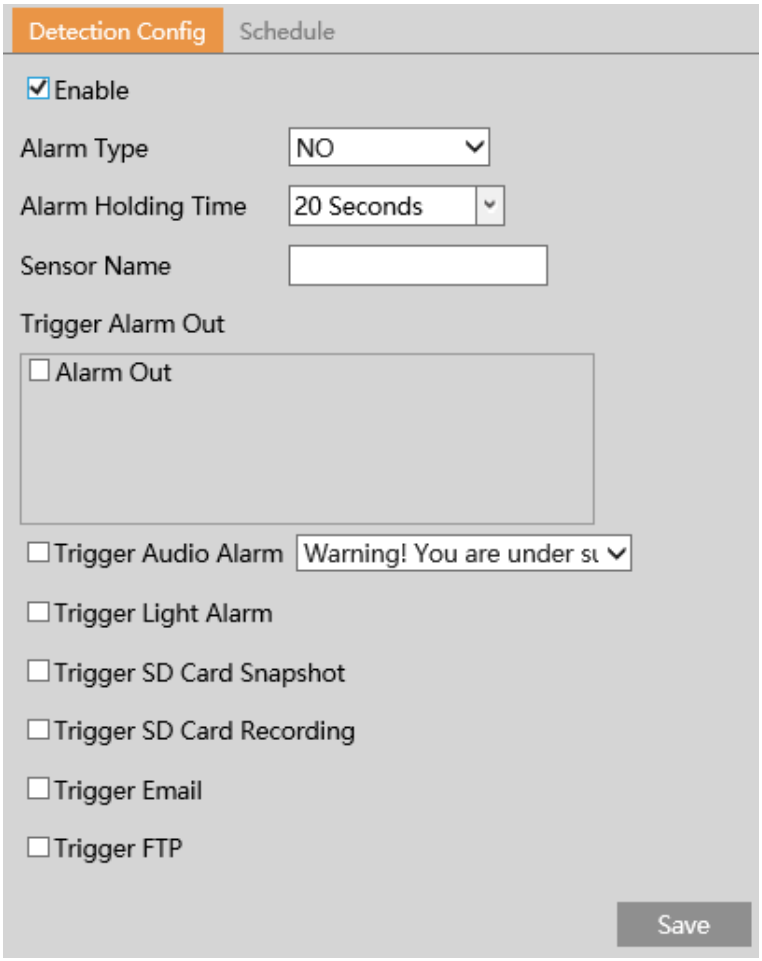
This function is only available for the models with Alarm Out interface.
1. Go to Alarm→Exception Alarm→Cable Disconnected as shown below.



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.

5.3.3 Alarm In (Sensor Input)

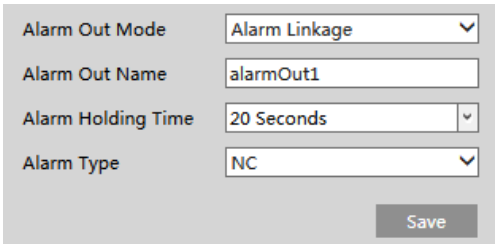
This function is only available for some models. To set sensor alarm (alarm in):
Go to Alarm→Alarm In interface as shown below.



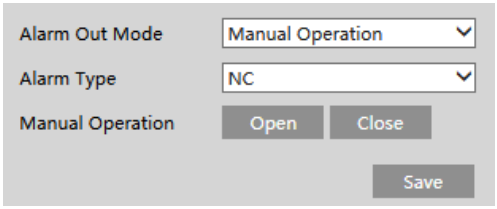
1. Click “Enable” and set the alarm type, alarm holding time and sensor name.
2. Set alarm trigger options.
Alarm Out: If selected, this would trigger an external relay output that is connected to the camera when the sensor alarm is triggered (This function is only available for the models with Alarm Out interface).
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 Alarmfor 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 Alarmfor details).
Trigger SD Card Snapshot: If selected, the system will capture images when the sensor alarm is triggered and save the images on an SD card.
Trigger SD Card 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” and “Attach Picture” are 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).

5.3.4 Alarm Out

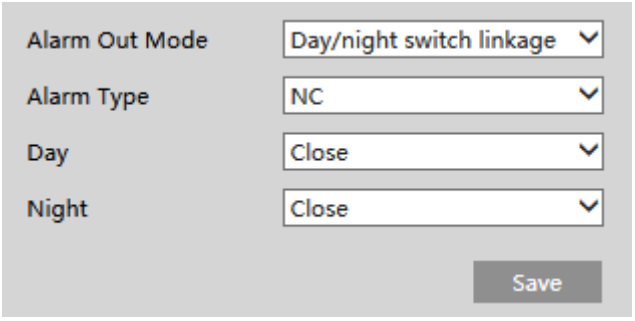
This function is only available for some models. Go to Alarm→Alarm Out.



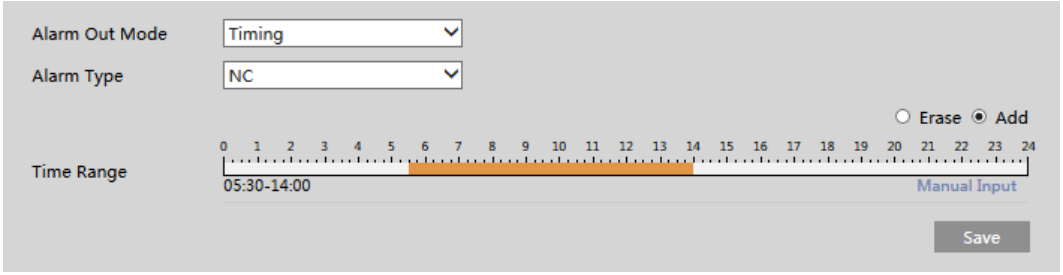
Alarm Out Mode: Alarm linkage, manual operation, day/night switch linkage and schedule are optional.
Alarm Linkage: Having selected this mode, select alarm out name, alarm holding time at the "Alarm Holding Time" pull down list box and alarm type.
Manual Operation: Having selected this mode, select alarm type and click "Open" to trigger the alarm out immediately; click "Close" to stop alarm.



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



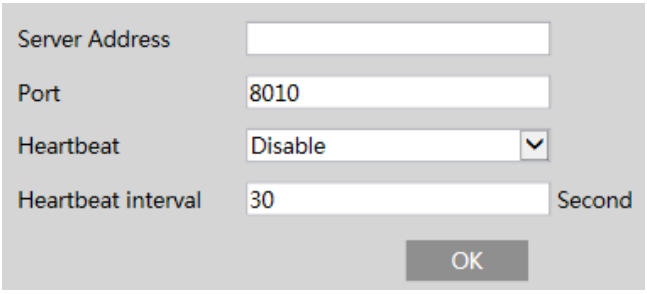
Timing: Select the alarm type. Then click "Add" and drag the mouse on the timeline to set the schedule of alarm out; click "Erase" and drag the mouse on the timeline to erase the set time schedule. After this schedule is saved, the alarm out will be triggered in the specified time.



5.3.5 Alarm Server

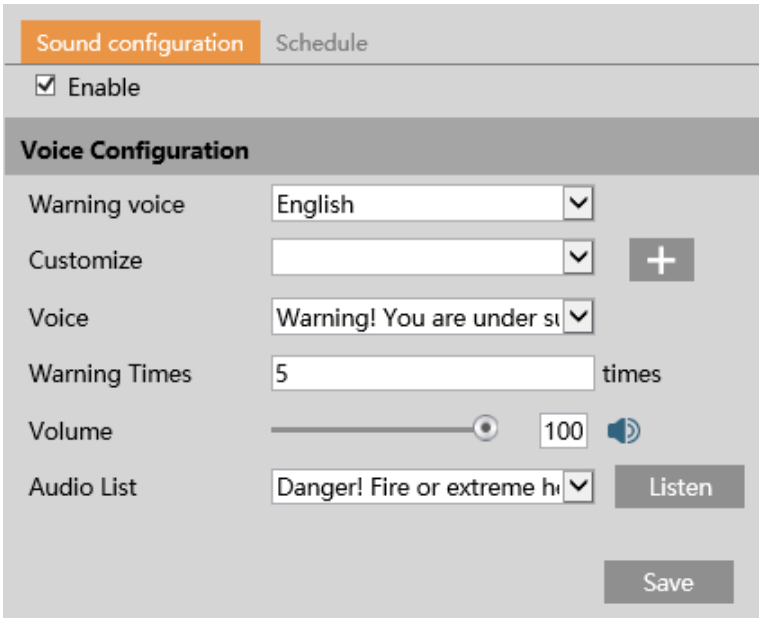
Go to Alarm→Alarm Server interface as shown below.
Set the server address, port, heartbeat, and heartbeat interval. When an alarm occurs, the camera will transfer the alarm event to

the alarm server. If an alarm server is not needed, there is no need to configure this section.



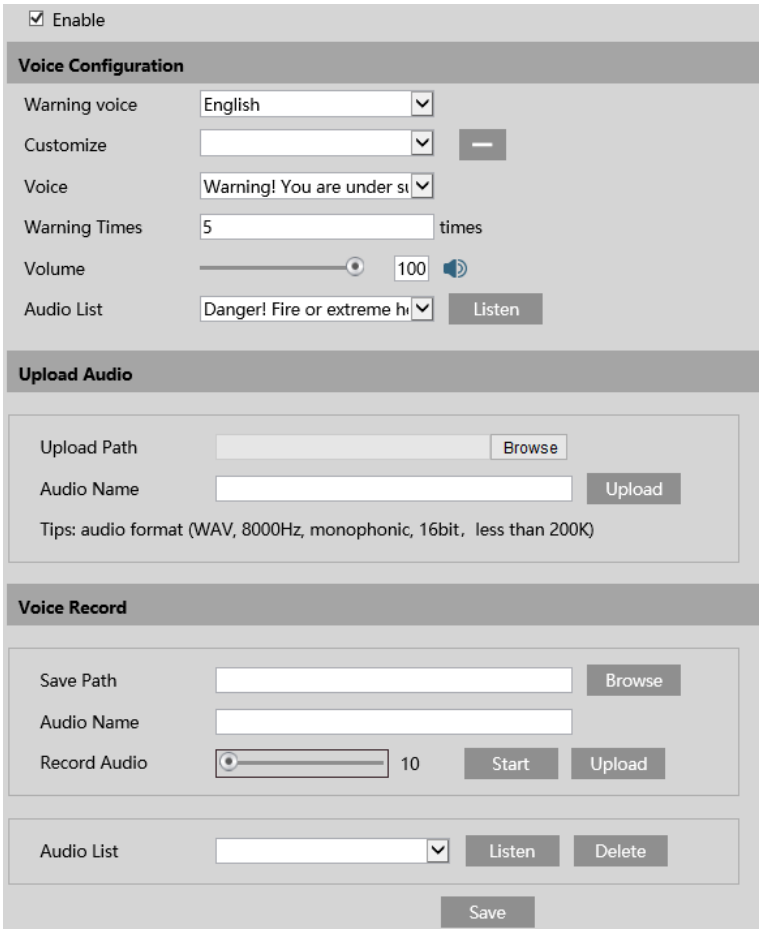
5.3.6 Audio Alarm

1. Go to Alarm→Audio Alarm interface as shown below.



2. Enable audio alarm.

3. Select the warning voice. If you want to customize the voice, you can choose "+". Click "Browse" or "Select File" 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.



You can also record your own voice in the above interface and then upload.

- Insert the microphone into your PC.
- Click “Browse” to choose the save path of the audio you want to record.
- Set the record audio volume and then click “Start” to start recording your voice.
- Click “Upload” to upload your customized voice.

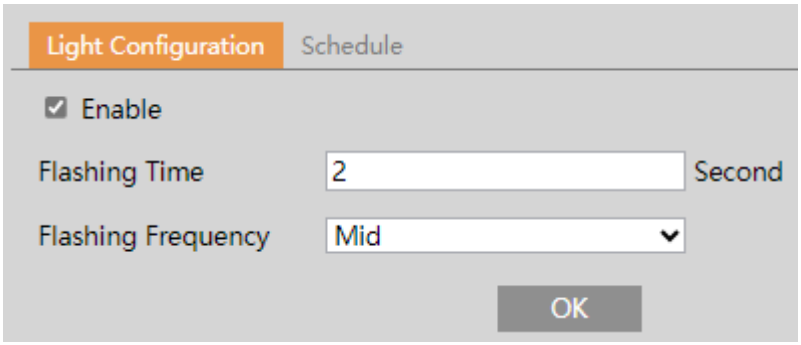
Note: The voice can be recorded only when you log in via IE browser.

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

5. Click “OK” to save the settings.

5.3.7 Light Alarm

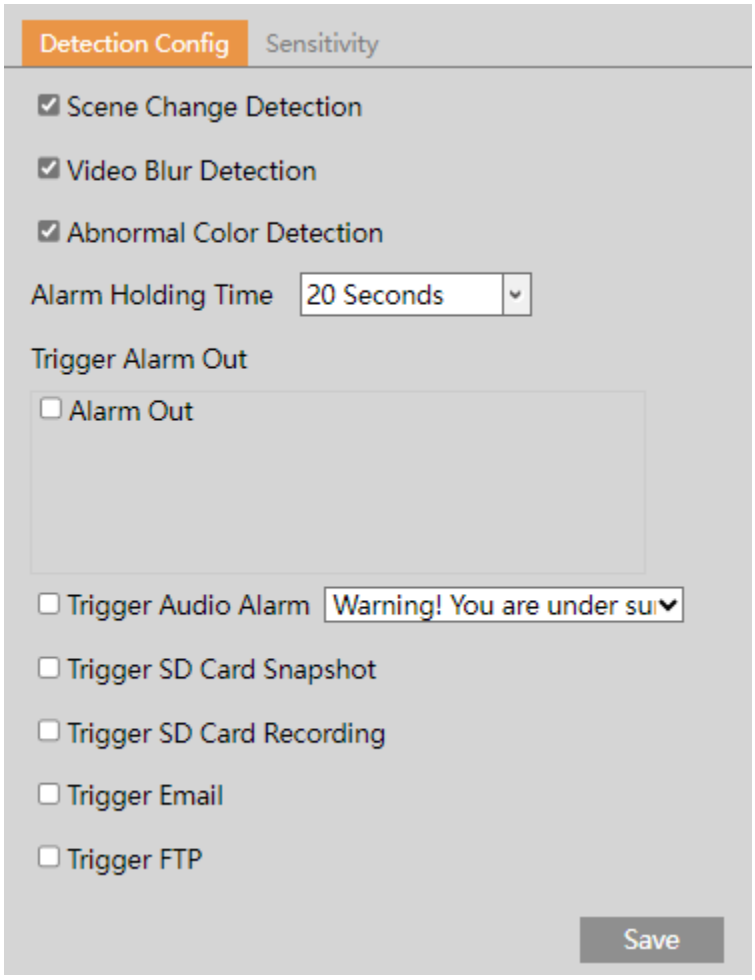
Go to Alarm→Light Alarm interface as shown below.
Set the flashing time and frequency of the light.



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

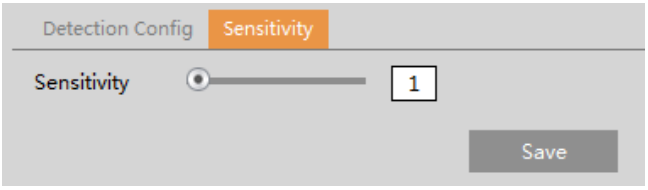
5.3.8 Video Exception

This function can detect changes in the surveillance environment affected by external factors.
Go to Event→Video Exception interface as shown below.



1. Enable the applicable detection that is desired.
Scene Change Detection: Alarms will be triggered if the scene of the video has changed.
Video Blur Detection: Alarms will be triggered if the video becomes blurry.
Abnormal Color Detection: Alarms will be triggered if the image is abnormal caused by color deviation.
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.

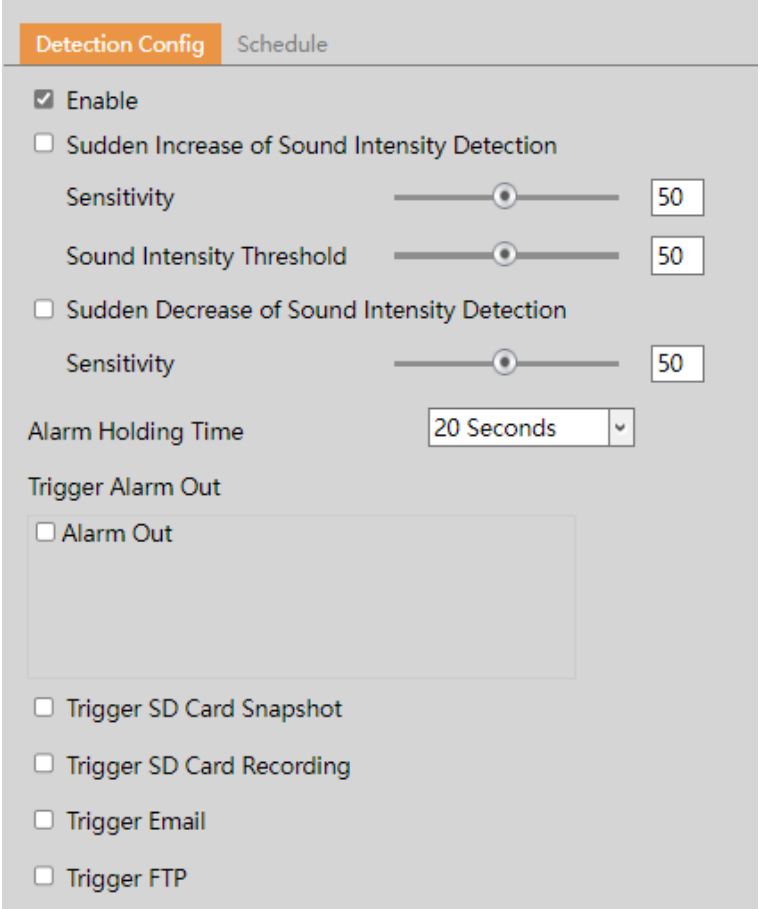


Drag the slider to set the sensitivity value or directly enter the sensitivity value in the textbox. Click “Save” button to save the settings.
The sensitivity value of Scene Change Detection: The higher the value is, the more sensitive the system responds to the amplitude of the scene change.
The sensitivity 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 Abnormal Color Detection: The higher the value is, the more sensitive the system responds to the color shift of the image.

※**The requirements of camera and surrounding area**
1. Auto-focusing function should not be enabled for exception detection.
2. Try not to enable exception detection when light changes greatly in the scene.

5.3.9 Audio Exception

Alarms will be triggered when the abnormal sound is detected in the surveillance scene, such as the sudden increase/decrease of the sound intensity.
To set audio exception detection:
1. Go to Alarm→Audio Exception interface as shown below.



2. Enable audio exception.
3. Select the audio exception detection types.

Sudden Increase of Sound Intensity Detection: Detect sudden increase of sound intensity. If enabled, sensitivity and sound intensity threshold are configurable. Alarms will be triggered when the detected sound intensity exceeds the sound threshold.

Sensitivity: The higher the value is, the easier the alarm will be triggered.

Sound Intensity Threshold: It is the sound intensity reference for the detection. The lower the value is, the easier the alarm will be triggered. It is recommended to set as the average sound intensity in the environment. The louder the environment sound, the higher the value should be. Please adjust it according to the actual environment condition.

Sudden Decrease of Sound Intensity Detection: Detect sudden decrease of sound intensity. Please set the sensitivity as needed. The higher the value is, the easier the alarm will be triggered.

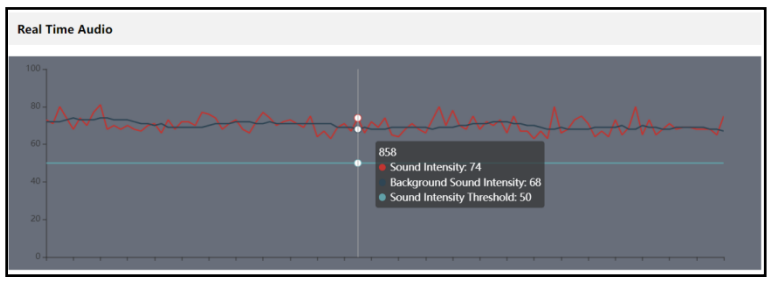
Real-time audio graphic:

Red wavy line stands for the current detected sound intensity.

Navy blue line stands for the environment (background) sound intensity.

Green line stands for the sound intensity threshold.

In order to reduce false alarm, it is recommended to set the sensitivity and sound intensity threshold according to the real-time audio graphic.



4. Set the alarm holding time and alarm trigger options. The setup steps are similar to motion detection. Please refer to motion detectionsection for details.
5. Set the schedule of the audio exception detection. The setup steps of schedule are the same as the schedule recording (See Schedule Recording).
Note: The alarm recording type triggered by audio exception event is "Common". In the search interface, you can search the recorded files of audio exception by selecting the "Common" event.

5.4 Analytics Configuration

This series of IP cameras supports certain smart functions, such as line crossing detection, region intrusion detection, etc. These events can be triggered as alarm events.
For more accuracy, here are some recommendations for installation.

- Cameras should be installed on stable surfaces, as vibrations can affect the accuracy of detection.
- Avoid pointing the camera at the reflective surfaces (like shiny floors, mirrors, glass, lake surfaces and so on).
- Avoid places that are narrow or have too much shadowing.
- Avoid scenario where the object's color is similar to the background color.
- At any time of day or night, please make sure the image of the camera is clear and with adequate and even light, avoiding overexposure or too much darkness on both sides.

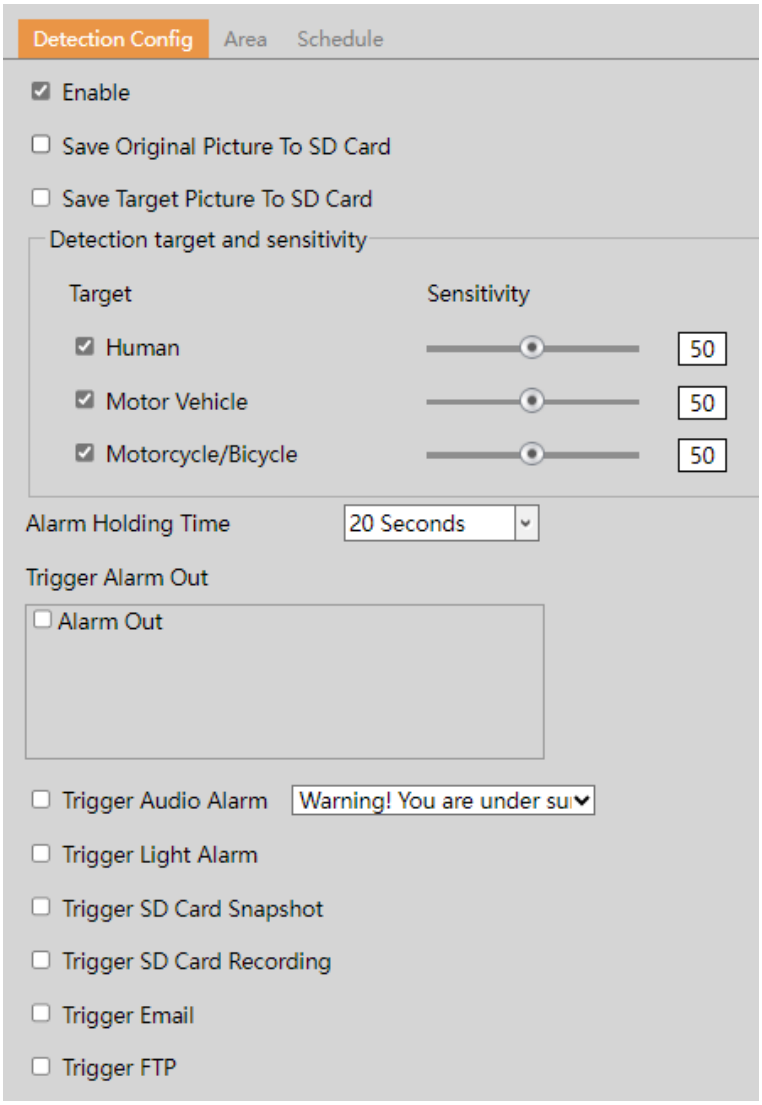
You can enable the event type as needed. Go to Config→Event→Enable Event interface as shown below.

Event Type: 1 Face Event; 2 Smart Event
The default event type is smart event. If you want to switch to face event, please select the face event type and then click "Save". After successful reboot, the face event will be displayed. Select and set as needed.

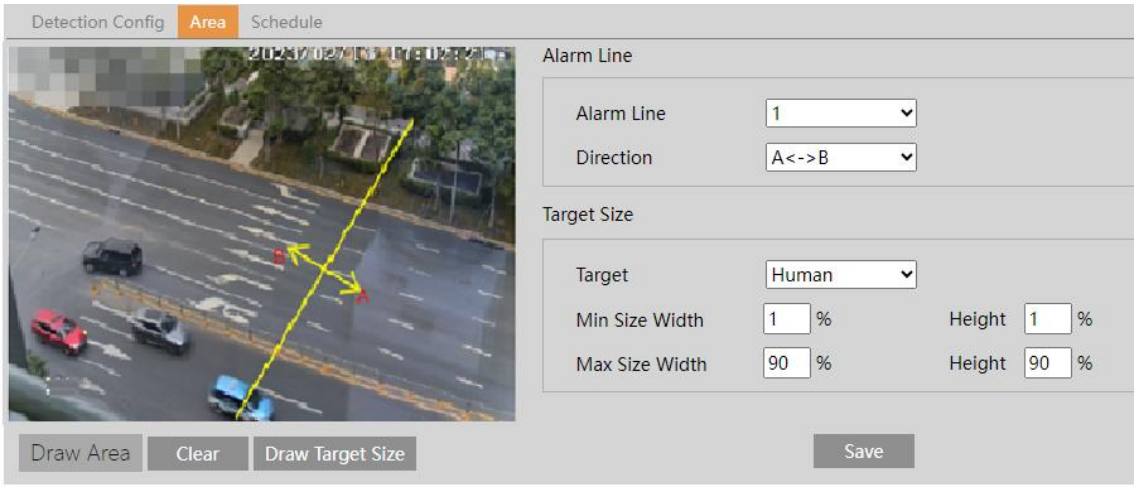
Note: 1. You can enable multiple smart detection events for optical channel (such as line crossing detection, region intrusion detection, region exiting detection, etc.) simultaneously, but detecting multiple smart events in the same time will cause the reduction in performance and affect the detection results. Please enable smart events according to the actual performance of your camera.
2. Line crossing and region intrusion can be enabled simultaneously in optical and thermal channels.

5.4.1 Line Crossing (Optional/Thermal)

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



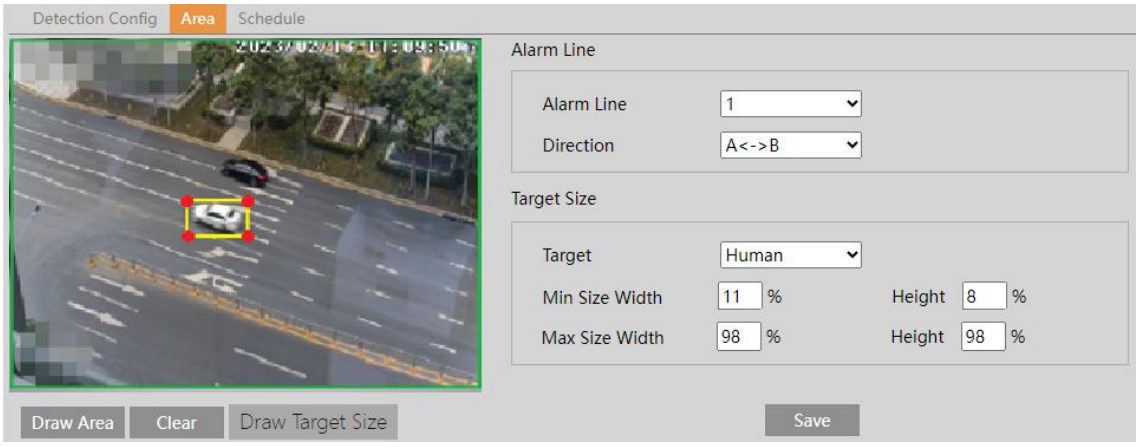
1. Enable line crossing alarm and select the snapshot type and the detection target.
Save Original Picture to SD Card: If it is enabled, the detected original pictures will be captured and saved to the SD card when there are targets detected.
Save Target Picture to SD Card: If it is enabled, the detected target cutout pictures will be captured and saved to the SD card when there are targets detected.
Note: To save images to a local PC, please enable the local smart snapshot storage first (System→Local Recording). To save images to an 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 line.
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 line.
Motorcycle/Bicycle: Select it and then alarms will be triggered if a vehicle with two wheels (eg. a motorcycle or bicycle) crosses the pre-defined alarm line.
All of the 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 sensor alarm. Please refer to Alarm IN section for details.
4. Click “Save” button to save the settings.
5. Set the area and sensitivity of the line crossing alarm. Click the “Area and Sensitivity” tab to go to the interface as shown below.



Set the alarm line number and direction. Up to 4 lines can be added. Multiple lines cannot be added simultaneously.
Direction： A<->B, A->B and A<-B optional. This indicates the direction of the intruder who crosses over the alarm line that would trigger the alarm.
A<->B: The alarm will be triggered when the intruder crosses over the alarm line from B to A or from A to B.
A->B: The alarm will be triggered when the intruder crosses over the alarm line from A to B.
A<-B: The alarm will be triggered when the intruder 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.

To set target size filter:
Click "Draw Target Size" to draw the maximum and minimum size of a specific target as shown below.
Target: choose "Human", "Motor Vehicle" or "Motorcycle/Bicycle" as needed.
Green box is the maximum target detection box; yellow box is the minimum target detection box.
Click the green box to edit the maximum target detection box; click the yellow box to edit the minimum target detection box.
Drag one of four corners of the green or yellow box to change the box size. The corresponding size value on the right will be changed too. You can also enter the digital number to directly change the box size.
Click and drag the green or yellow box to move its position.
Finally, click "Save" to save the settings.

After the target size range is set, only the target whose size is between the minimum value and the maximum value can be detected.



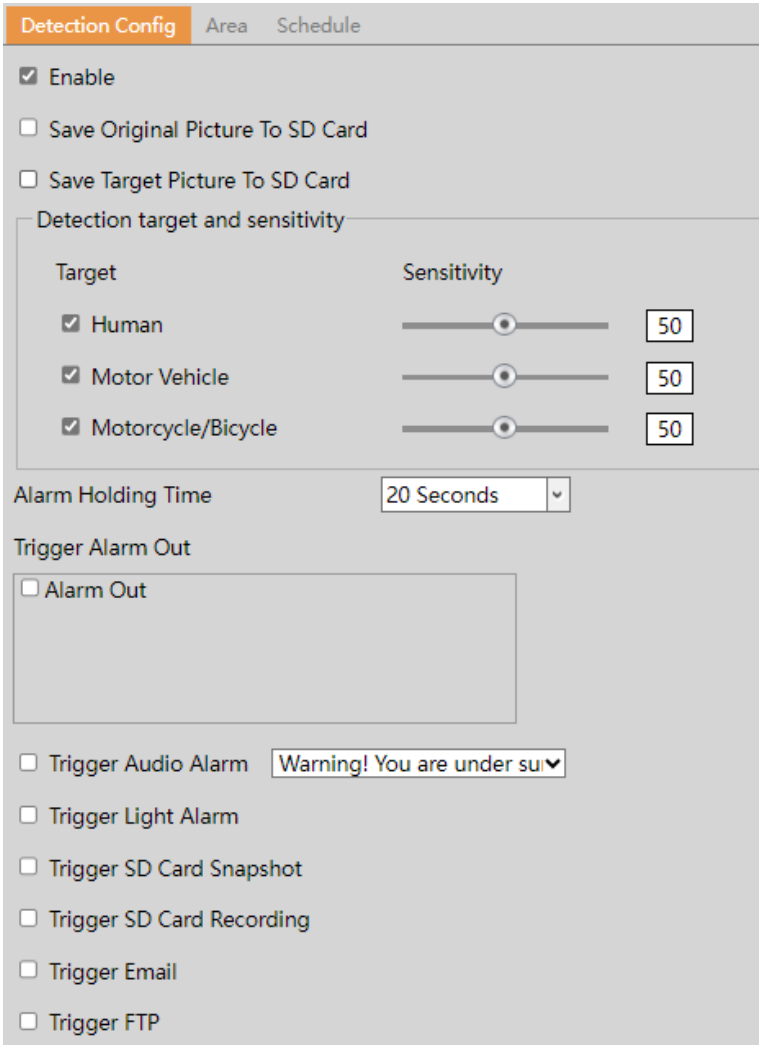
6. Set the schedule of the line crossing alarm. The setup steps of the schedule are the same as the schedule recording setup (See Schedule Recording).

※**Configuration of camera and surrounding area**

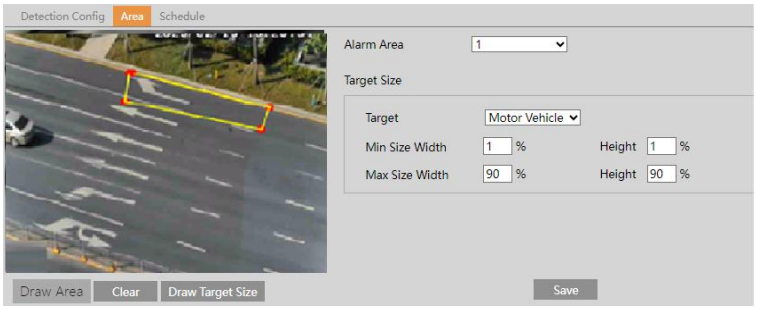
1. Avoid the scenes with many trees or the scenes with various light changes (like many flashing headlights). The ambient brightness of the scenes shouldn't be too low.
2. Cameras should be mounted at a height of 10ft or above.
3. Keep the mounting angle of the camera at about 45°.
4. The detected objects 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.

5.4.2 Region Intrusion (Optional/Thermal)

Region Intrusion: Alarms will be triggered if the target intrudes into the defined areas.
Go to Event→Region Intrusion interface as shown below.



1. Enable intrusion alarm 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 sensor alarm. Please refer to Alarm IN section for details.
4. Click the "Save" button to save the settings.
5. Set alarm areas and target size filter for region intrusion detection. Click the "Area" tab to go to the interface as shown below.



Set the alarm area number on the right side. Up to 4 alarm areas 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.
Target size filter setup: The setup steps of the target size filter are the same as line crossing target size filter setup (See Line Crossing for details).
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. Auto-focusing function should not be enabled for intrusion detection.
2. 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.
3. Cameras should be mounted at a height of 10ft or above.
4. Keep the mounting angle of the camera at about 45°.
5. 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.
6. Make sure cameras can view objects for at least 2 seconds in the detected area for accurate detection.
7. Adequate light and clear scenery are crucial to line crossing detection.

5.4.3 Region Entrance

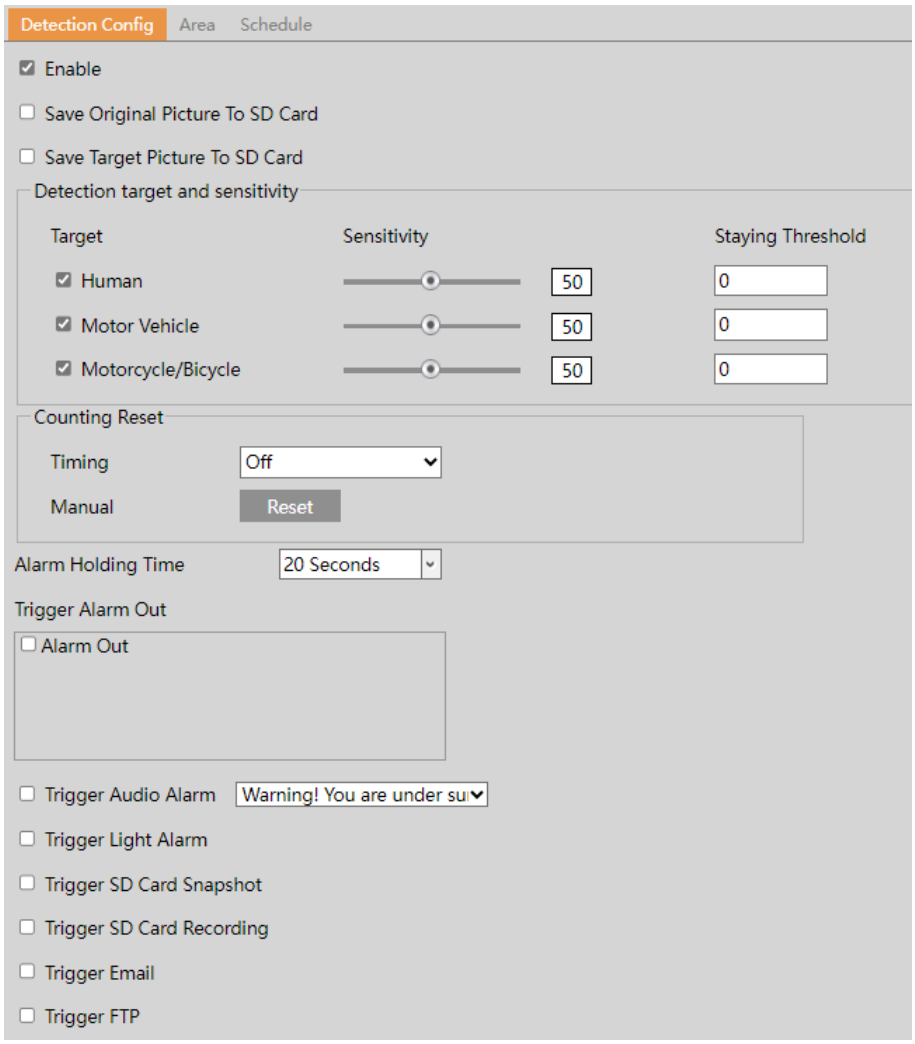
Region Entrance: Alarms will be triggered if the target enters the pre-defined areas.
Go to Config→Event→Region Entrance interface.
1. Enable region entrance detection and select the snapshot type and the detection target.
2. Set the alarm holding time and alarm trigger options.
3. Set alarm areas and target size filter for region entrance detection.
4. Set the schedule of region entrance detection.
The setup steps of the region entrance detection are the same as the region intrusion detection setup (See Region Intrusion for details).

5.4.4 Region Exiting

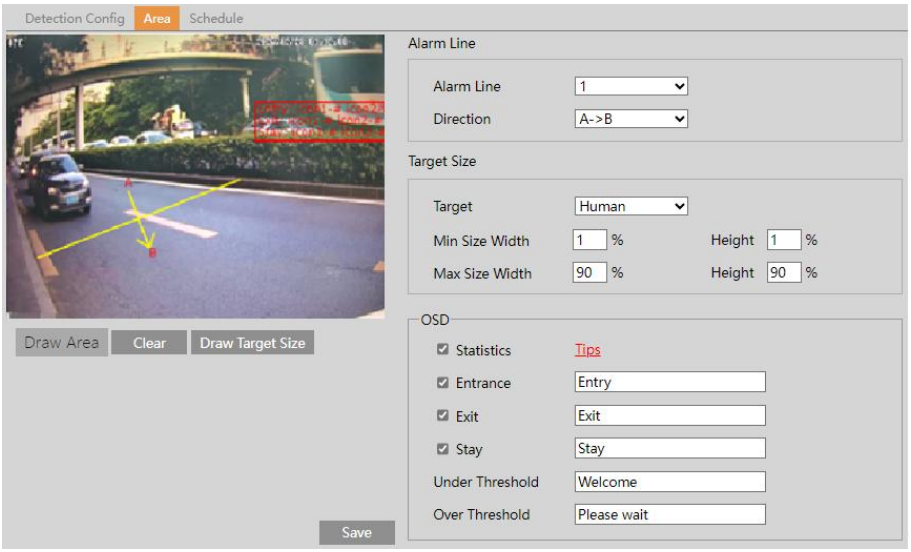
Region Exiting: Alarms will be triggered if the target exits from the pre-defined areas.
Go to Config→Event→Region Exiting interface.
1. Enable region exiting detection and select the snapshot type and the detection target.
2. Set the alarm holding time and alarm trigger options.
3. Set alarm areas and target size filter for region exiting detection.
4. Set the schedule of region exiting detection.
The setup steps of the region exiting detection are the same as the region intrusion detection setup (See Region Intrusion for details).

5.4.5 Target Counting by Line

This function is used to detect, track and count the number of people or vehicles crossing the set alarm line.
1. Go to Config→Event→Target Counting by Line as shown below.



2. Enable target counting by line and select the snapshot type and the detection target.
Detection Target: Select the target to calculate. Human, motor vehicle and motorcycle/bicycle can be selected.
Staying Threshold: When the targets (human/vehicle) staying in the specified area exceed the threshold, alarms will be triggered.
Counting Reset: You can choose to reset the counting daily, weekly or monthly. The current number of people/cars/bikes counted will be cleared immediately when you click the “Reset” button.
3. Set the alarm holding time and alarm trigger options. The setup steps are the same as sensor alarm. Please refer to Alarm IN section for details.
4. Set alarm lines and target size filter. 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 “Clear” button to delete the lines.

Target size filter setup: The setup steps of the target size filter are the same as line crossing target size filter setup (See Line Crossing for details).

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.

The statistical OSD information can be customized as needed.

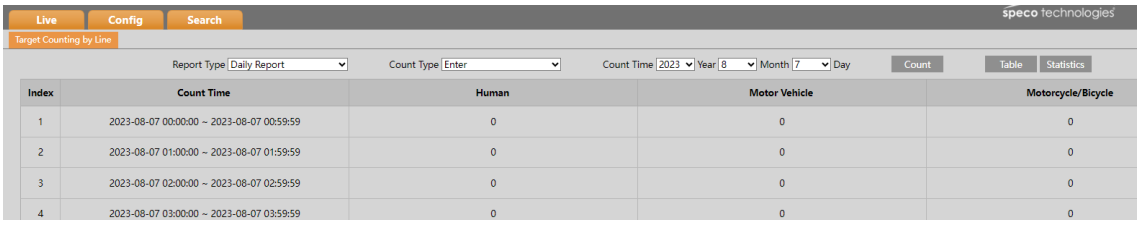
Note: When target counting by line and by area are enabled simultaneously, the OSD position shown in the image depends on the OSD position of target counting by area.

Click the “Save” button to save the settings.

5. Set the schedule of target counting by line. The setup steps of the schedule are the same as schedule recording setup (See Schedule Recording).

6. View the statistical information in the live view interface.

7. View the statistical information of target counting by line. Click “Statistics” to enter the following interface.

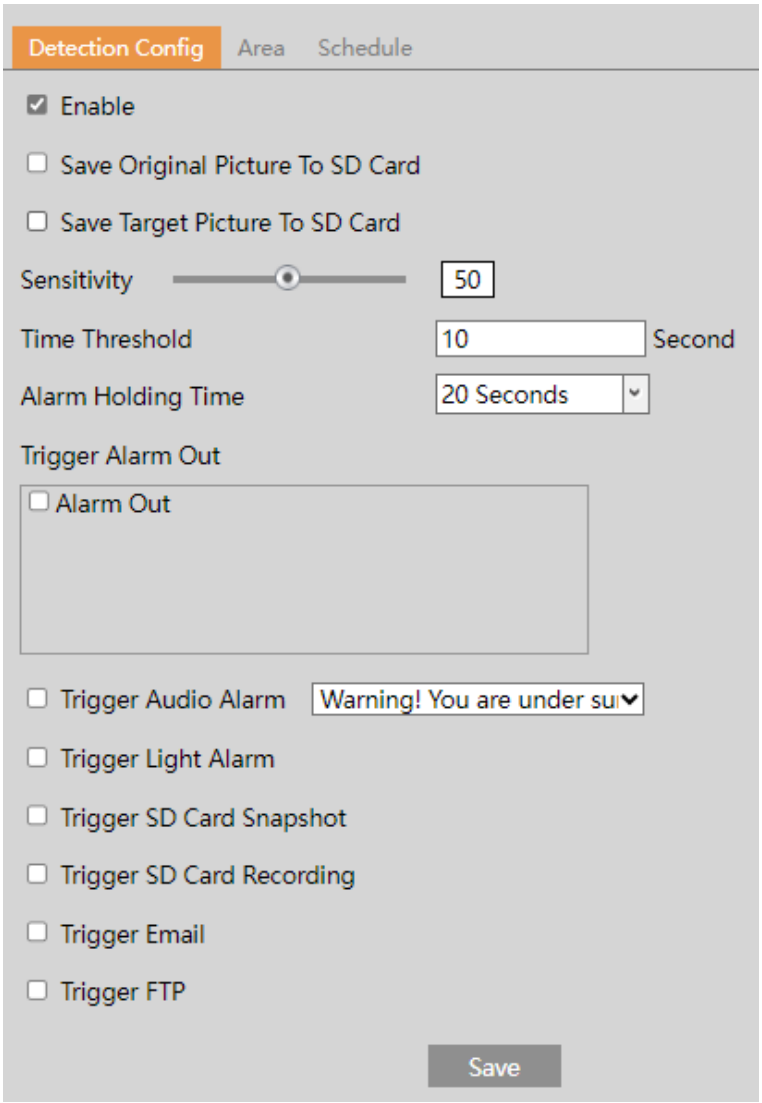


Select the report type. Daily report, weekly report, monthly report and annual report are selectable.

Select the count type. Enter or leave can be optional.
Select the start time and then click “Count”. Then the counting result will display in the statistic result area. Click Table or Statistics to display the result in different way.

5.4.6 Loitering Detection

Loitering Detection: when someone entering and loitering in a pre-defined area exceeds the threshold, alarms will be triggered until the object leaves this area.
Go to Event→Loitering Detection interface as shown below. The setting steps are as follows:
1. Enable loitering detection and select the snapshot type.



2. Set sensitivity, time threshold and alarm holding time.
Sensitivity: The higher the value is, the easier the alarm can be triggered.
Time Threshold: the time that a person is allowed to stay in the area. If a person staying and moving in the specified area exceeds the threshold, alarms will be triggered until this person leaves or stops moving.
For example: Set the threshold to “60seconds; when a person staying and moving in the specified area exceeds 60 seconds, an alarm is triggered and continues. 2 minutes later, this person stops moving in the specified area, and then the alarm stops. However, the alarm will continue once this person moves again in the specified area unless the person leaves this area.

Alarm Holding Time: it is the time that the alarm extends for after an alarm ends.
3. Set alarm trigger options. The setup steps are the same as sensor alarm. Please refer to Alarm IN section for details.

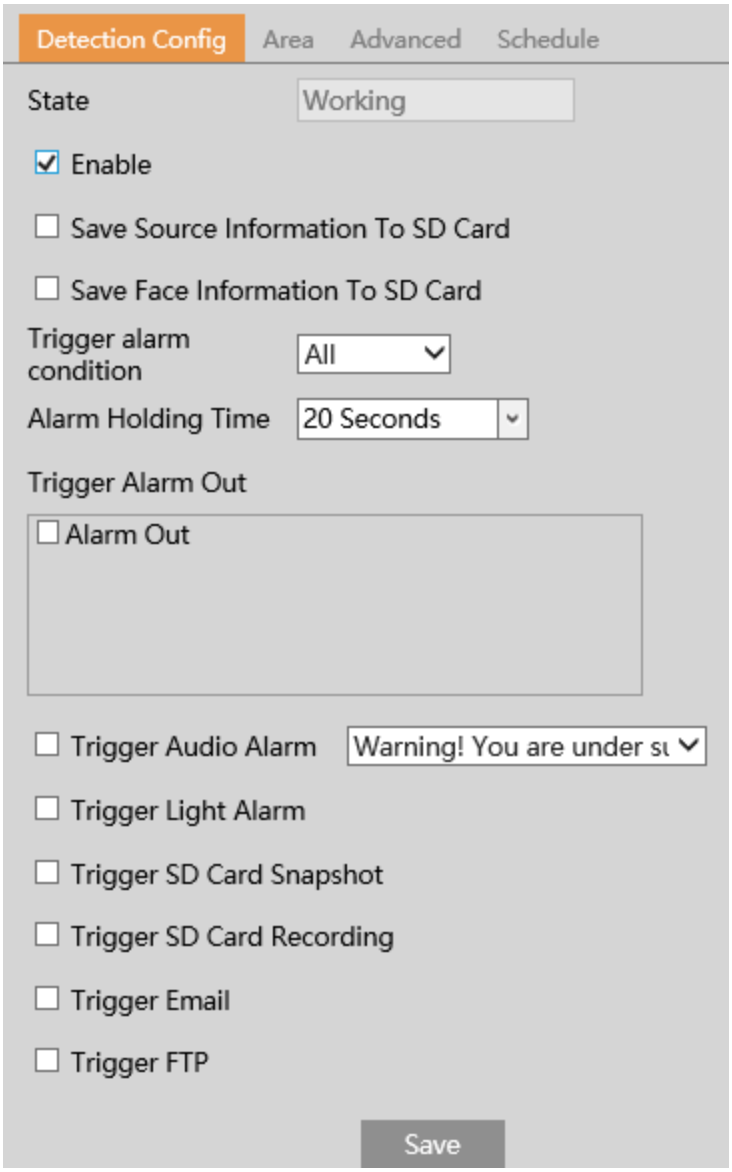
4. Click the “Save” button to save the settings.
5. Set alarm areas and target size filter. Click the “Area” tab to go to the interface as shown below.

Select the alarm area number on the right side. Four alarm areas 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 “Clear” button to delete the alarm area. Click the “Save” button to save the settings.

Target size filter setup: The setup steps of the target size filter are the same as line crossing target size filter setup (See Line Crossing for details).
6. Set the schedule of loitering detection. The setup steps of the schedule are the same as schedule recording setup (See Schedule Recording).

5.4.7 Face Detection

Face detection function is to detect the face appearing in the surveillance scene. Alarms will be triggered when a face is detected.
Click Config→Event→Enable Event. Select the face event and then save the setting. After the camera restarts successfully, you can view the face detection menu.
The setting steps are as follows:
1. Go to Event→Face Detection as shown below.



2. Enable the face detection function.

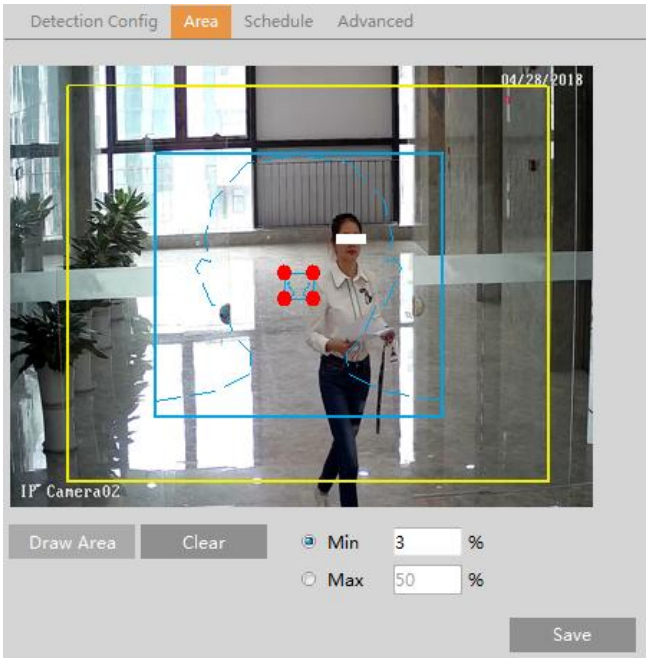
Save Source Information to SD Card: if checked, the whole picture will be saved to an SD card when detecting a face.

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

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

3. Set alarm holding time and alarm trigger options. The setup steps are the same as sensor alarm. Please refer to Alarm INsection for details.

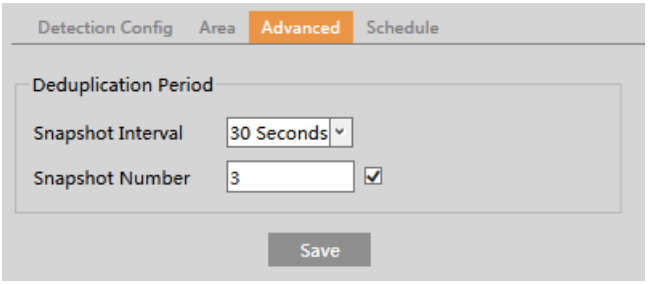
4. Set alarm detection area.



Use this to draw the approximate size of the face that you want the camera to capture. This is useful when there are multiple faces in the background or foreground that are not needed to be captured. To enable, 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).

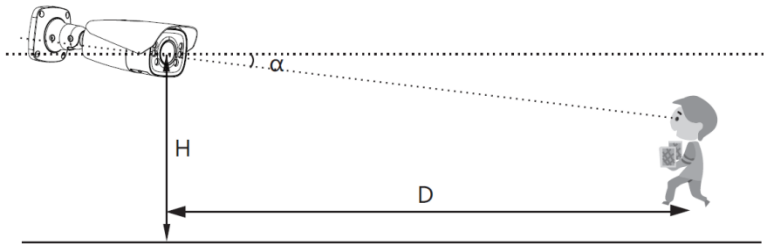
5. Set the schedule of the face detection. The setup steps of the schedule are the same as schedule recording setup (See Schedule Recording).

6. Advanced configuration. 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.

※ **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 1.9m(6.2ft) to 2.5m(8.2ft), adjustable according to the focal-length of different lenses and object distances.
3. The depression angle (a) of the camera shall be less than or equal to 15°.

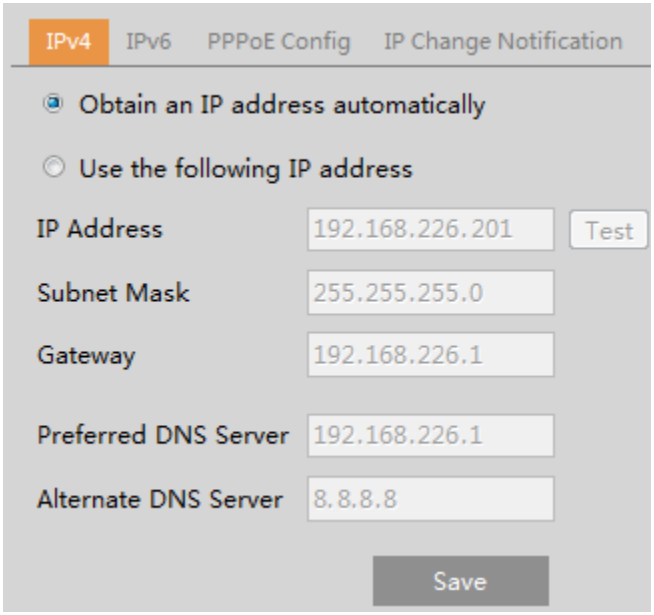


4. The object distance depends on the focal-length of the lens mounted in the camera.
5. In order to guarantee the captured face recognition rate, the requirement for face capture are: left or right face turn angle is less than about 30°; pitching angle is less than 20°.
6. Face illumination must be uniform, if the brightness is low or there is a large area of shadow, need to do the light filling.
7. When the capture scenario is backlight, the camera's BLC/HLC/WDR need to be turned on, or fill the light.
8. The face recognition do not support black & white mode for now.

5.5 Network Configuration

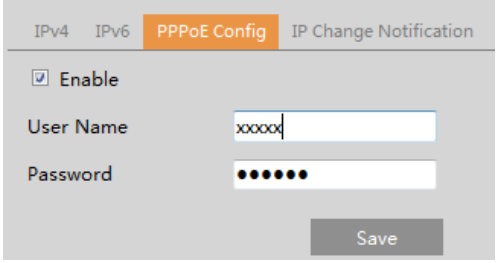
5.5.1 TCP/IP

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

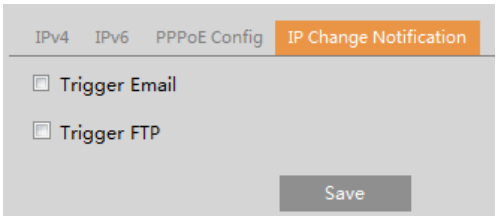


Use IP address (take IPv4 for example)-obtain a local IP address automatically through DHCP. A typical router has a DHCP server built in, and therefore is able to assign an IP address to the camera.

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.



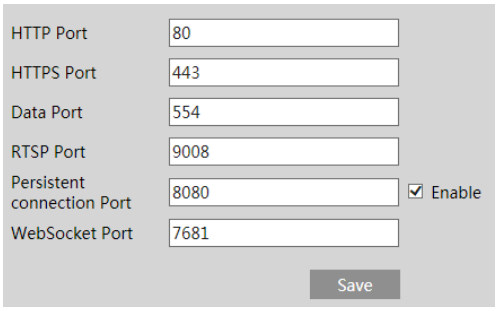
Either method of network connection can be used. If PPPoE is used to connect internet, the camera will get a dynamic WAN IP address. This IP address will change frequently. To be notified, the IP change notification function can be used.
Click “IP Change Notification Config” to go to the interface as shown below.



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.

5.5.2 Port

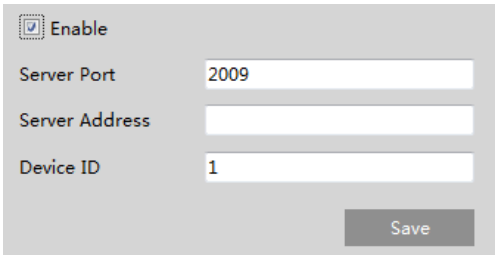
Go to Network→Ports/Connection interface as shown below. HTTP port, Data port and RTSP port can be set.



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 port is used for a persistent connection of the third-party platform to push smart data, like face pictures.
WebSocket Port: Communication protocol port for plug-in free preview.

5.5.3 Server Configuration

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

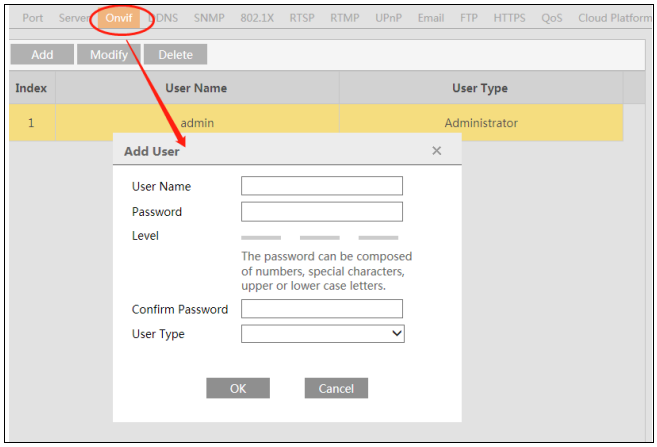


1. Check “Enable”.
2. Check the IP address and port of the transfer media server in the VMS. Then enable the auto report in the VMS when adding a new device. Next, enter the remaining information of the device in the VMS. After that, the system will automatically allot a device ID. Please check it in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

the settings.

5.5.4 Onvif

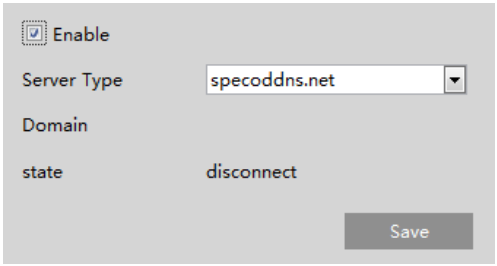
The camera can be searched and connected to the third-party platform via ONVIF/RTSP protocol.



Note: when adding the device to the third-party platform with ONVIF/RTSP protocol, please enter the username and password created in the above interface.

5.5.5 DDNS

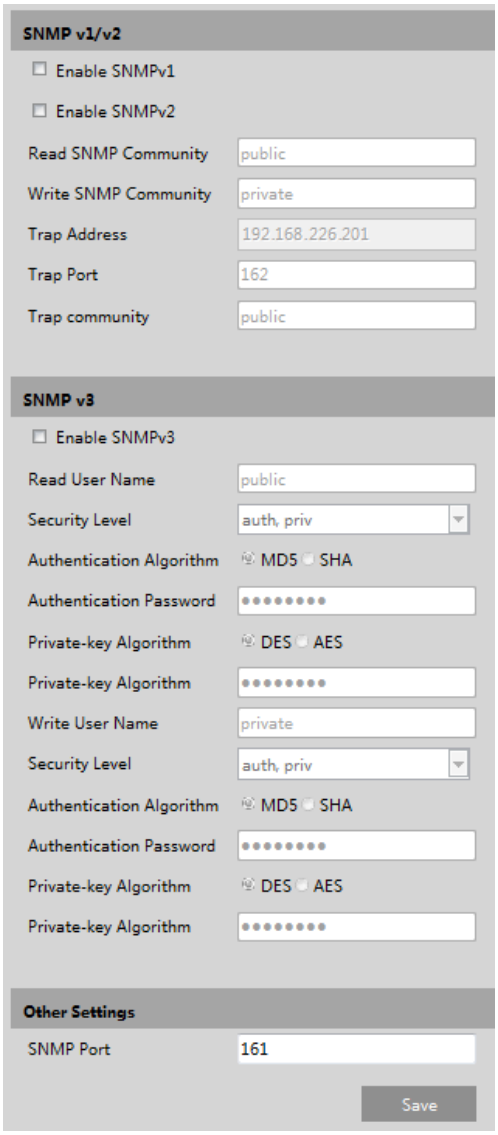
If the camera is set up with a DHCP connection, DDNS should be set for accessing the camera from the internet.
1. Go to Network→Ports/Connections→ DDNS.



2. Enable, save and use DDNS to log in.

5.5.6 SNMP

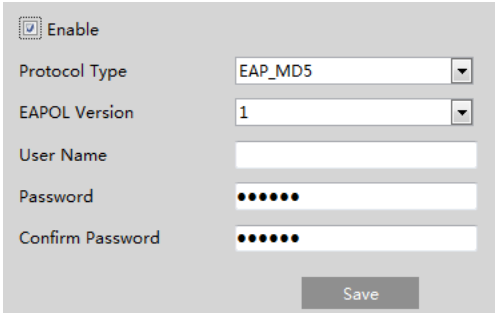
To get camera status, parameters and alarm information and remotely manage the camera, the SNMP function can be used. Before using SNMP, please install an SNMP management tool and set the parameters of the SNMP, such as SNMP port, trap address.
1. Go to Network→Ports/Connections→SNMP.



2. Check the corresponding version checkbox (Enable SNMPv1, Enable SNMPv2, Enable SNMPv3) according to the version of the SNMP software that will be used.
3. Set the values for “Read SNMP Community”, “Write SNMP Community”, “Trap Address”, “Trap Port” and so on. Please make sure the settings are the same as that of the SNMP software.

5.5.7 802.1x

If it is enabled, the camera’s data can be protected. When the camera is connected to the network protected by the IEE802.1x, user authentication is needed.

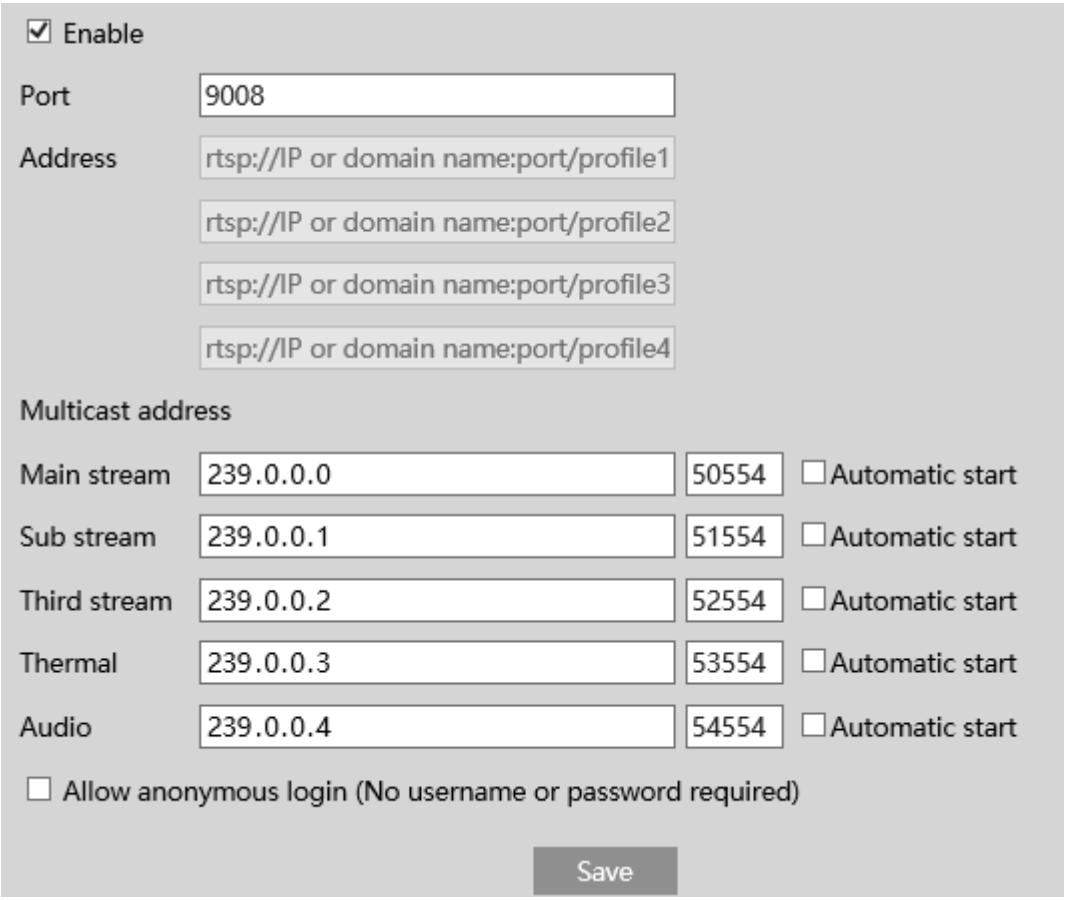


To use this function, the camera shall be connected to a switch supporting 802.1x protocol. The switch can be reckoned as an

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.

5.5.8 RTSP

Go toNetwork→Ports/Connections→RTSP.



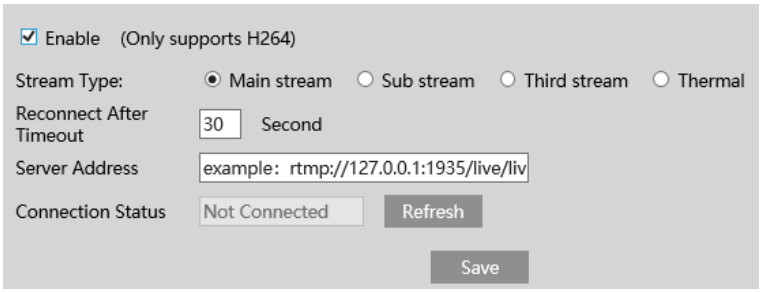
Select “Enable” to enable the RTSP function.
Port: Access port of the streaming media. The default number is 554.
RTSP Address: The RTSP address (unicast) formatthat can be used to play the stream in a media player.

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 media player(like VLC), 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.

5.5.9 RTMP

You can access the third-party (like YouTube) to realize video live view through RTMP protocol.
Go to Config→Network→Ports/Connections→RTMP.



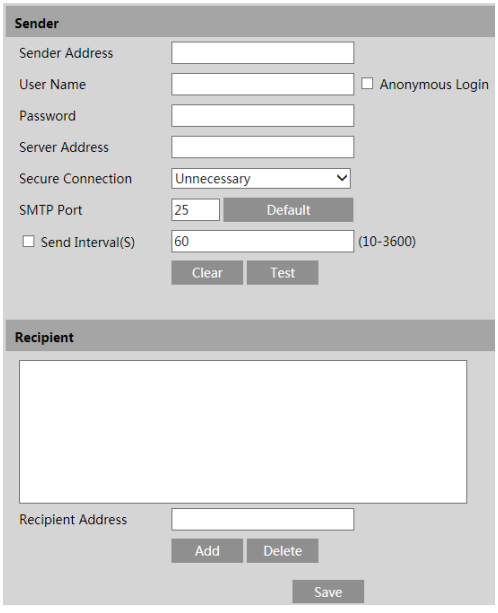
Check “Enable”, select stream type, set the reconnection time after timeout and server address as needed.
Server address: Enter the server address allocated by the third party server.
After that, click “Save” to save the settings. Then click “Refresh” to view the connection status.

5.5.10 UPNP

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

5.5.11 Email

If you need to trigger Email when an alarm happens or IP address is changed, please set the Email here first.
Go to Network→Ports/Connections→Email.

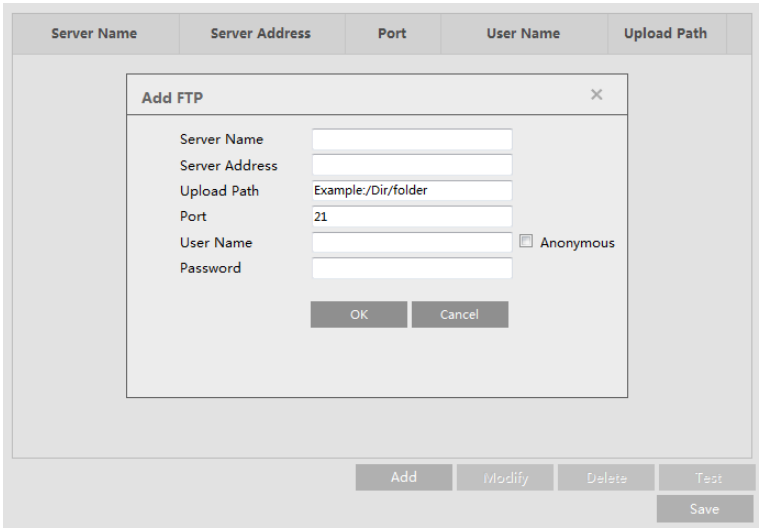


Sender Address: sender’s e-mail address.
User name and password: sender’s user name and password (you don’t have to enter the username and password if “Anonymous Login” is enabled).
Server Address: The SMTP IP address or host name.

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.

5.5.12 FTP

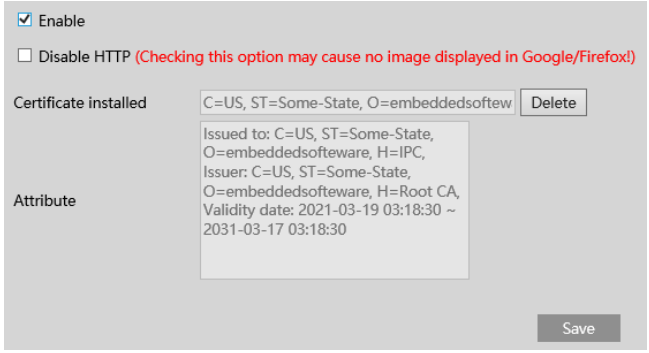
After an FTP server is set up, captured pictures from events will be uploaded to the FTP server.
Go to Network→Ports/Connections→FTP.



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

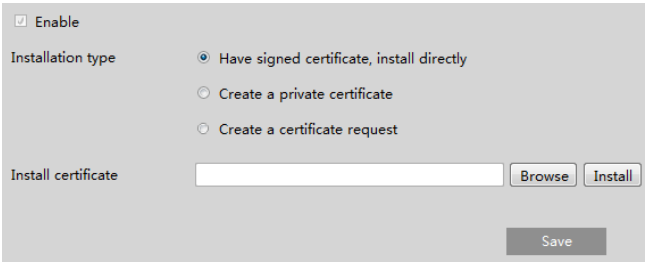
5.5.13 HTTPS

HTTPs provides authentication of the web site and protects user privacy.
Go to Network→Ports/Connections→HTTPS as shown below.

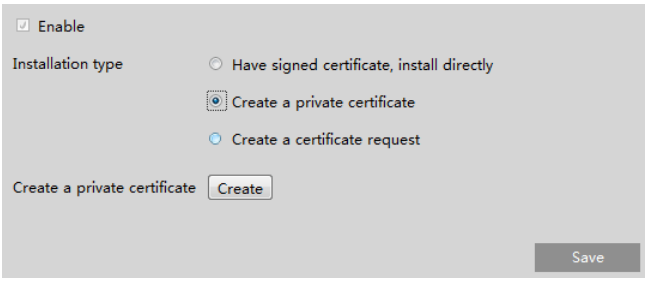


There is a certificate installed by default as shown above. Enable this function and save it. Then the camera can be accessed by entering https://IP: https port via the web browser (eg. https://192.168.226.201:443).
A private certificate can be created if users don’t want to use the default one. Click “Delete” to cancel the default certificate. Then

the following interface will be displayed.



* 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.

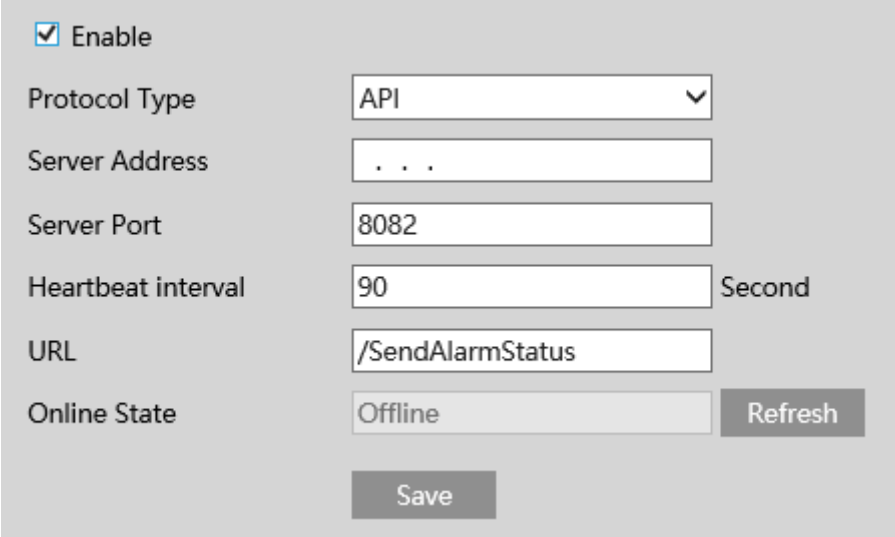


Click the “Create” button to create a private certificate. Enter the country (only two letters available), domain (camera’s IP address/domain), validity date, password, province/state, region and so on. Then click “OK” to save the settings.
* Click “Create a certificate request” to enter the following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

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.

5.5.14 HTTP POST

Go to Config→Network →Ports/Connections→HTTP POST interface.
Check “Enable”, select protocol type and then set the server address (IP address/domain name), server port and heartbeat interval.



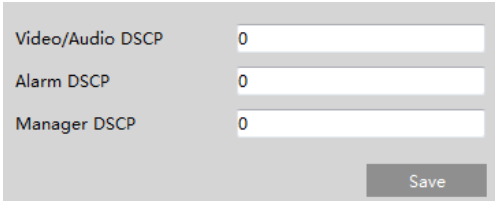
Server address: the IP address/domain name of the third-party platform.
Server port: the server port of the third-party platform.

URL: enter the subdomain of the above server, for example, the URL of alarm information push: "/SendAlarmStatus".

After the above parameters are set, click "Save" to save the settings. Then the camera will automatically connect the third-party platform. The online state can be viewed in the above interface. After the camera is successfully connected, it will send the alarm information (HTTP format) to the third-party platform once the smart alarm is triggered. The alarm information includes target tracing coordinates, target features, the captured original/target image (like the captured face picture, motor vehicle picture) and so on.

5.5.15 QoS

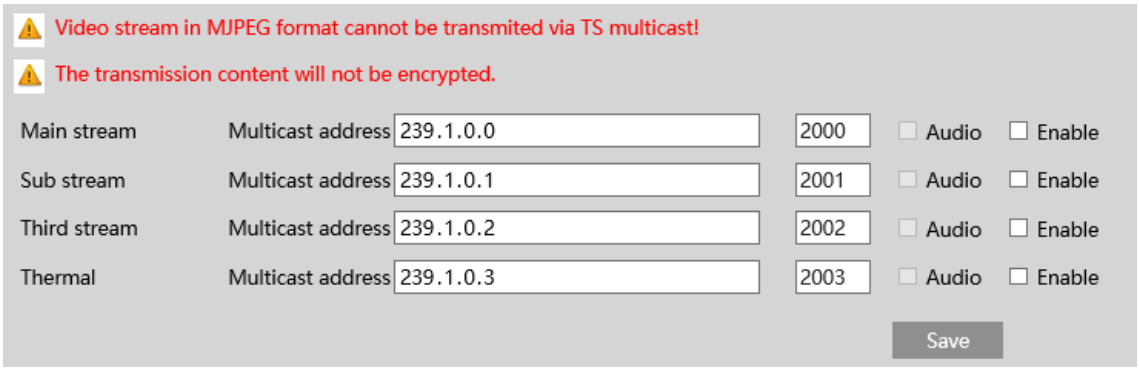
QoS (Quality of Service) function is used to provide different quality of services for different network applications. With the deficient bandwidth, the router or switch will sort the data streams and transfer them according to their priority to solve the network delay and network congestion by using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



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.

5.5.16 TS Multicast

By using transport stream multicast (TS Multicast), multiple users can view the video image simultaneously even if there is not enough bandwidth.

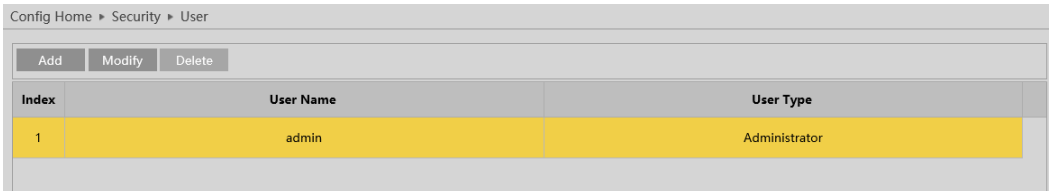


Click “Edit” to set TS Multicast.
Multicast address: the multicast IP address of Main Stream/Sub Stream/Third Stream ranges from 224.0.0.0 to 239.255.255.255.
Port: Main stream:2000; sub stream:2001; third stream:2002
Main stream: The address format is “udp://@IP address: main stream port.”
Sub stream: The address format is “udp://@IP address: sub stream port.”
Third stream: The address format is “udp://@IP address: third stream port.”
Third stream: The address format is “udp://@IP address: thermal port.”
Audio: if enabled, the video and audio will play automatically.
For example: you can test the TS multicast by using a VLC player. Enter the TS multicast address (eg. udp://@239.1.0.1:2001) in a VLC player.
Note: The TS multicast user also will be counted as an online user. You can go to Config→Security→Online User to view.

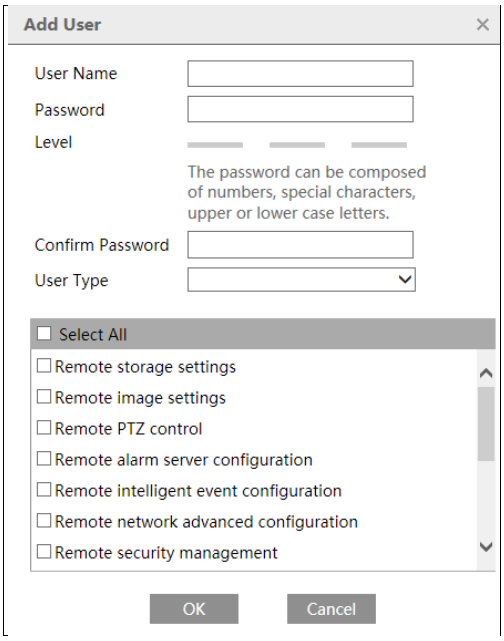
5.6 Security Configuration

5.6.1 User Admin

Go to Security→User Admin interface as shown below.

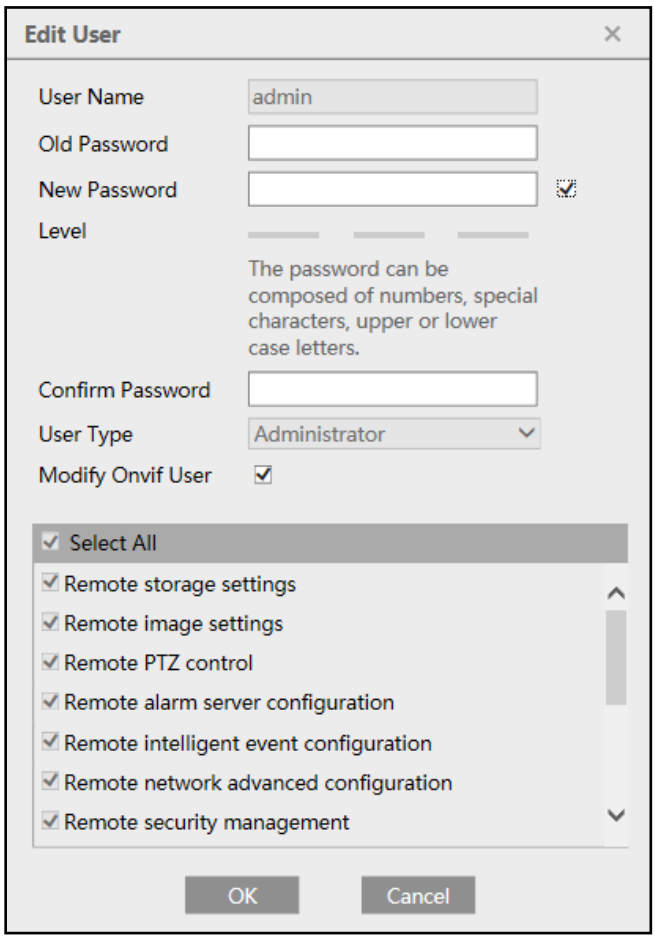


Add user:
1. Click “Add” to pop up the following textbox.



2. Enter user name in “User Name” textbox.
3. Enter letters or numbers in “Password” and “Confirm Password” textbox. Please set the password according to the requirement of the password security level (Go to Setup→Security→Security Management→Password Security interface to set the security level).
4. Choose the user type and select the permission.
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. Modify the permission 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.

5.6.2 Online User

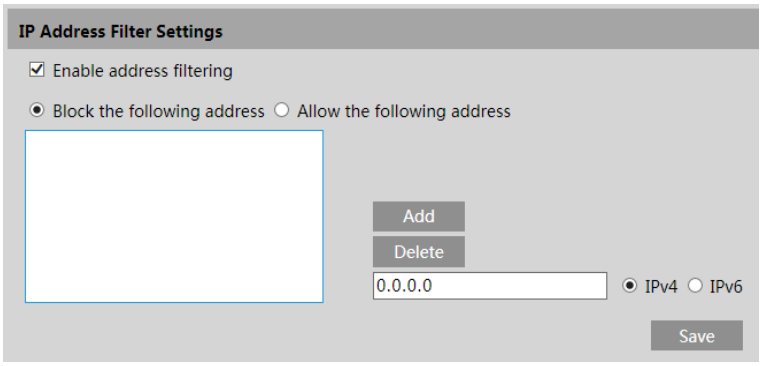
Go to Security→Online User to view the user who is viewing the live video.

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).

5.6.3 Block and Allow Lists

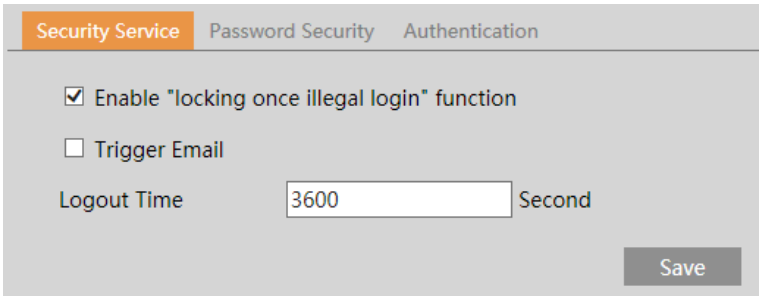
Go to Security→Block and Allow Lists as shown below.



The setup steps are as follows:
Check the “Enable address filtering” check box.
Select “Block/Allow the following address”, IPv4/IPv6 and then enter IP address in the address box and click the “Add” button.

5.6.4 Security Management

Go to Security→Security Management as shown below.



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 five times will make the login interface locked. The camera can be logged in again after a half hour or after the camera reboots.
Trigger Email: if enabled, e-mail will be sent when logging in/out or illegal login lock occurs.
Logout time: Set the logout time as needed. For example: 3600s, you will be automatically logged out after 3600s and then you need to enter the username and password again to log in.

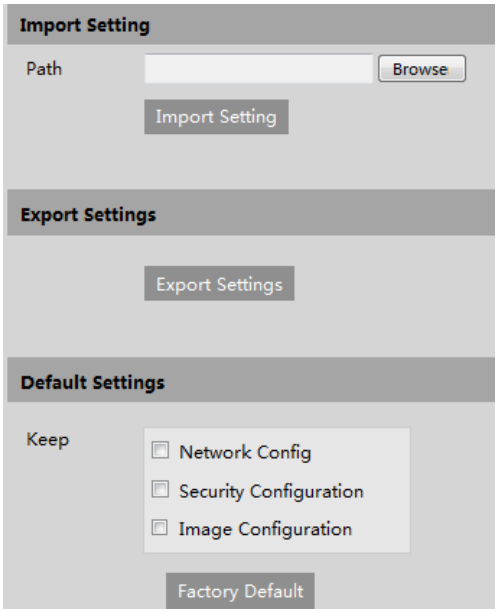
- **Password Security**

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: 8~16 characters, including at least two of the following categories: numbers, special characters, upper case letters, lower case letters.
Strong Level: 8~16 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.
RTSP/HTTP Authentication: Basic or Token is selectable.

5.7 Maintenance Configuration

5.7.1 Backup and Restore

Go to Maintenance→Backup & Restore.



- **Import & Export Settings**

Configuration settings of the camera can be exported form 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.
Note: The login password needs to be entered after clicking the “Import Setting” button.

- **Default Settings**

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

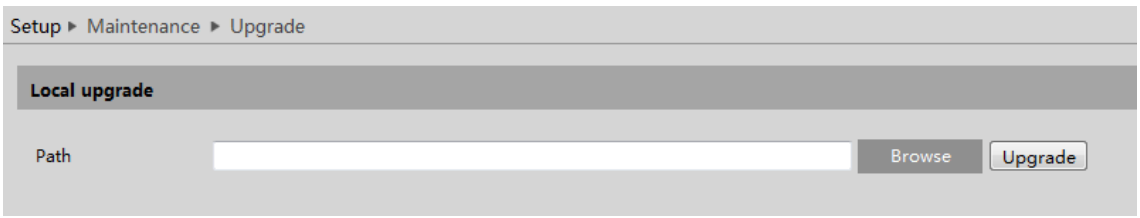
5.7.2 Reboot

Go to Maintenance→Reboot.
Click the “Reboot” button and then enter the password 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, click the “Save” button and then enter the password to save the settings.

5.7.3 Upgrade

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

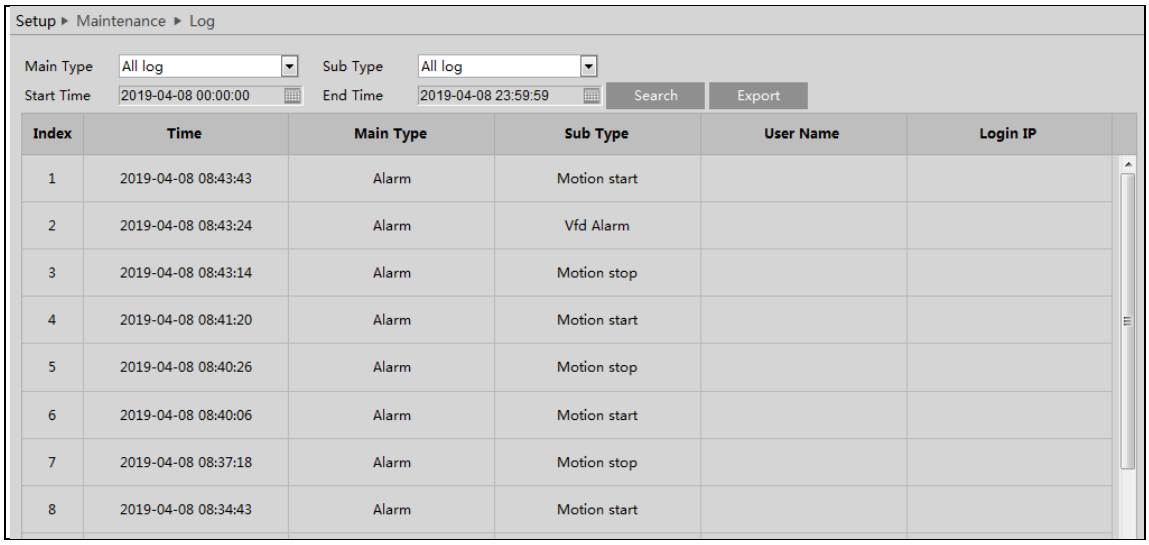


1. Click the “Browse” button to select the save path of the upgrade file

2. Click the “Upgrade” button to start upgrading the firmware.
3. Enter the correct password and then the device will restart automatically
Caution! Do not close the browser or disconnect the camera from the network during the upgrade.

5.7.4 Operation Log

To query and export log:
1. Go to Maintenance→Operation Log.

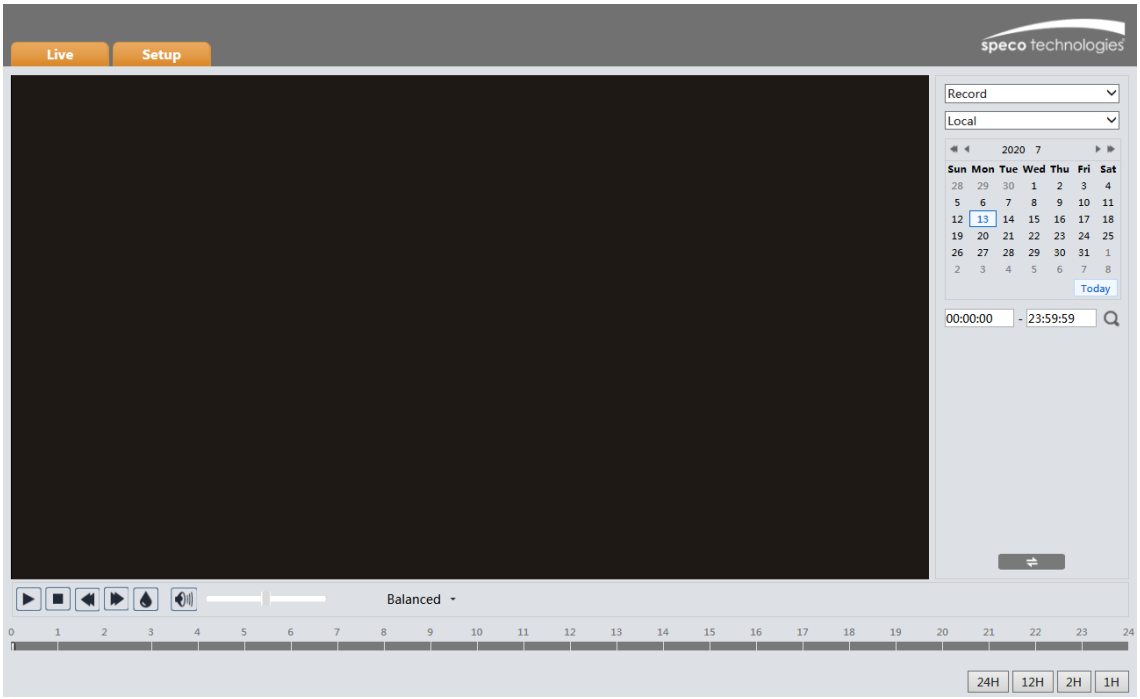


2. Select the main type, sub type, start and end time.
3. Click “Search” to view the operation log.
4. Click “Export” to export the operation log.

6 Search

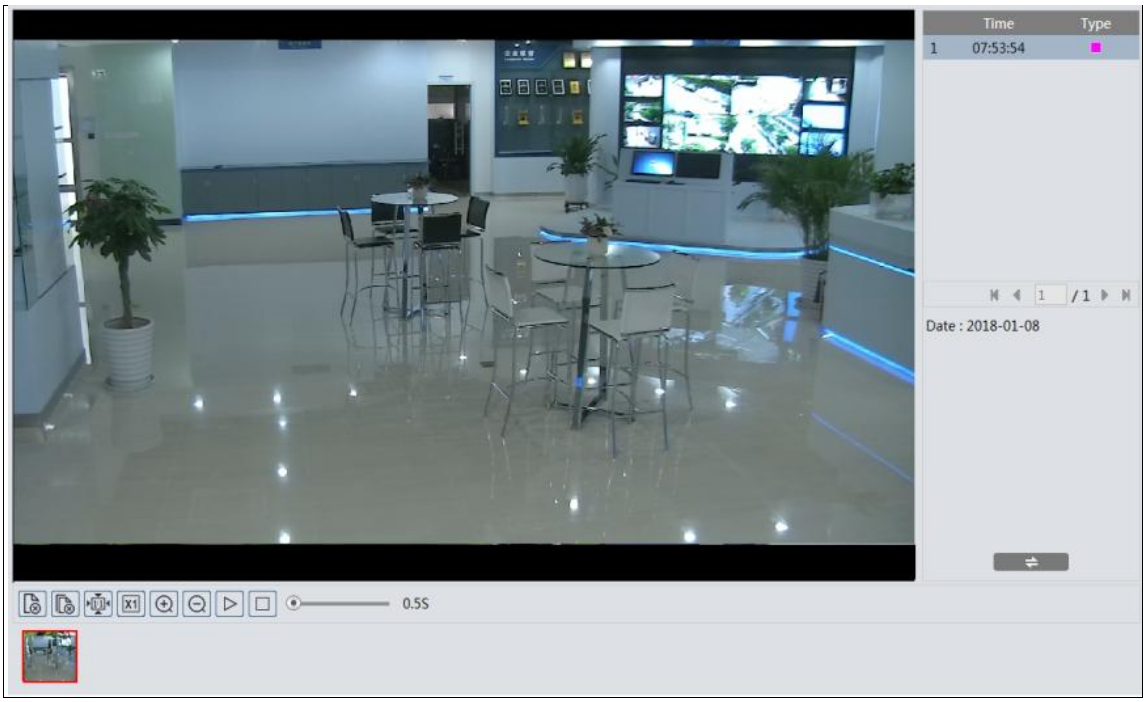
6.1 Image Search

In the Setup interface, click Search to go to the interface as shown below. Images that are saved on the PC or SD card can be found here.



- **Local Image Search**

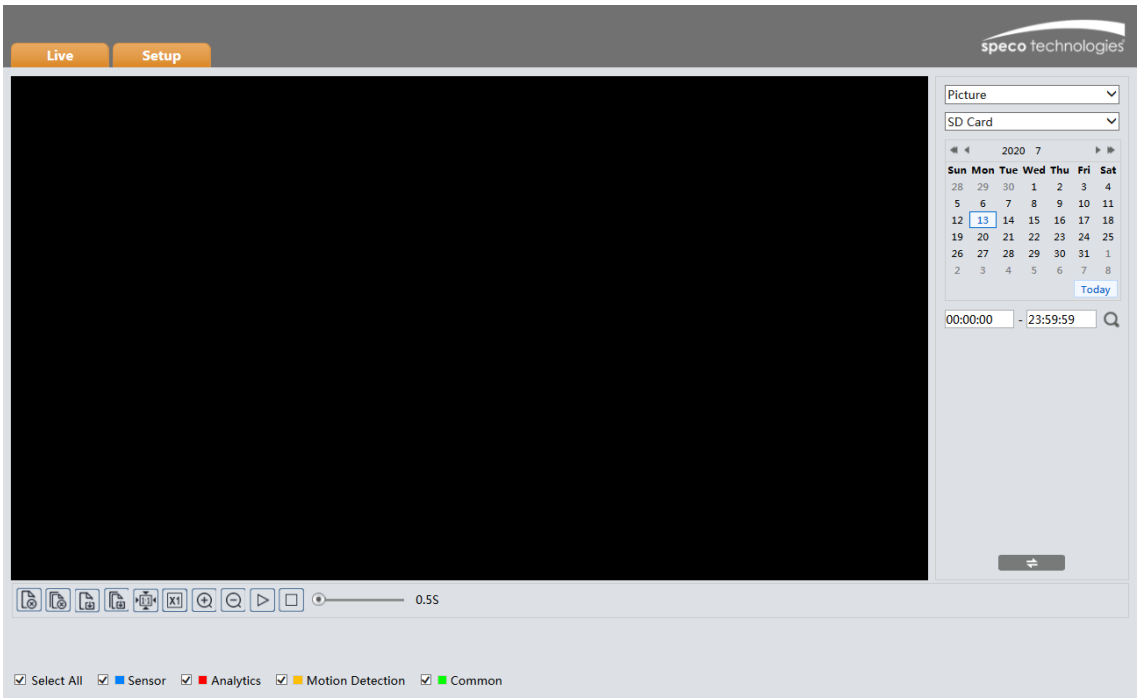
1. Choose “Picture”—“Local”.
2. Set time: Select date and choose the start and end time.
3. Click to search the images.
4. Double click a file name in the list to view the captured photos as shown above.



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.

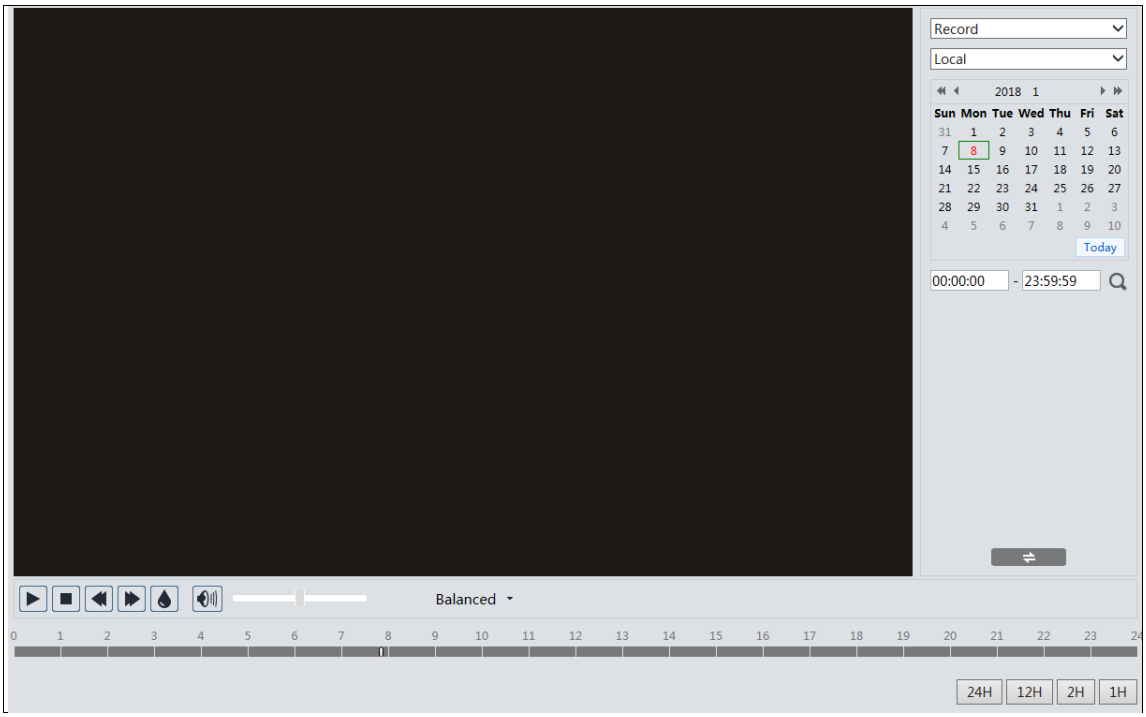
The descriptions of the buttons are shown as follows.

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.
5.5S	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.



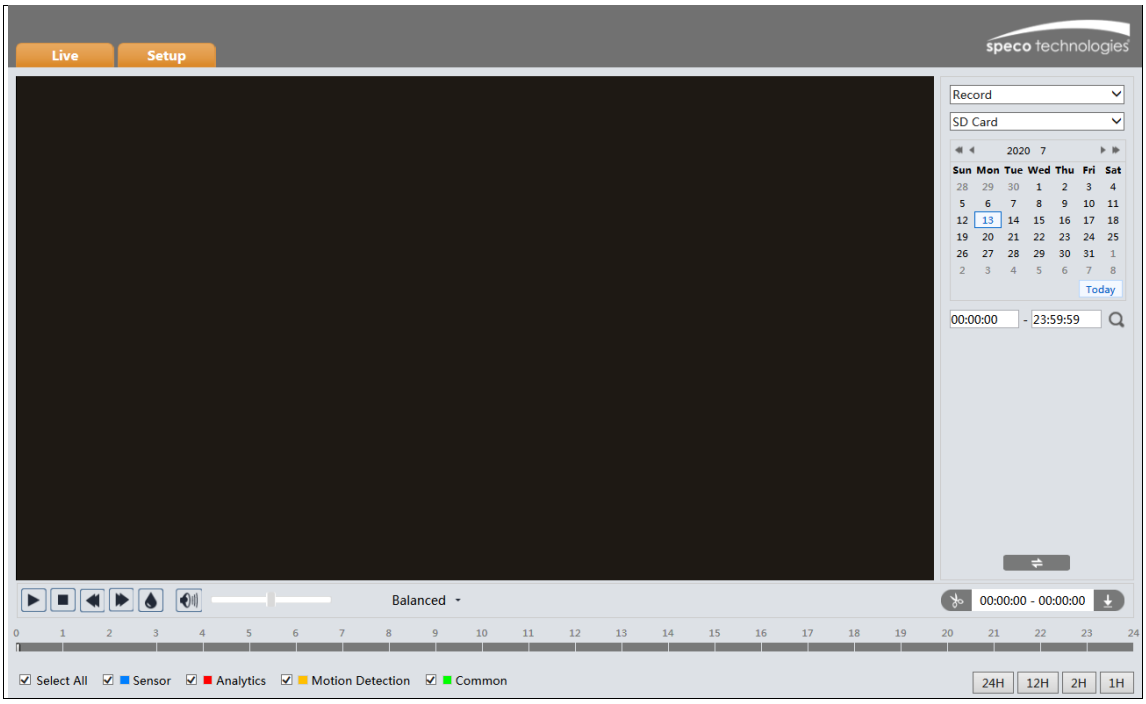
1. Choose “Record”—“Local”.
2. Set search time: Select the date and choose the start and end time.
3. Click to search the images.
4. Double click on a file name in the list to start playback.

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.		

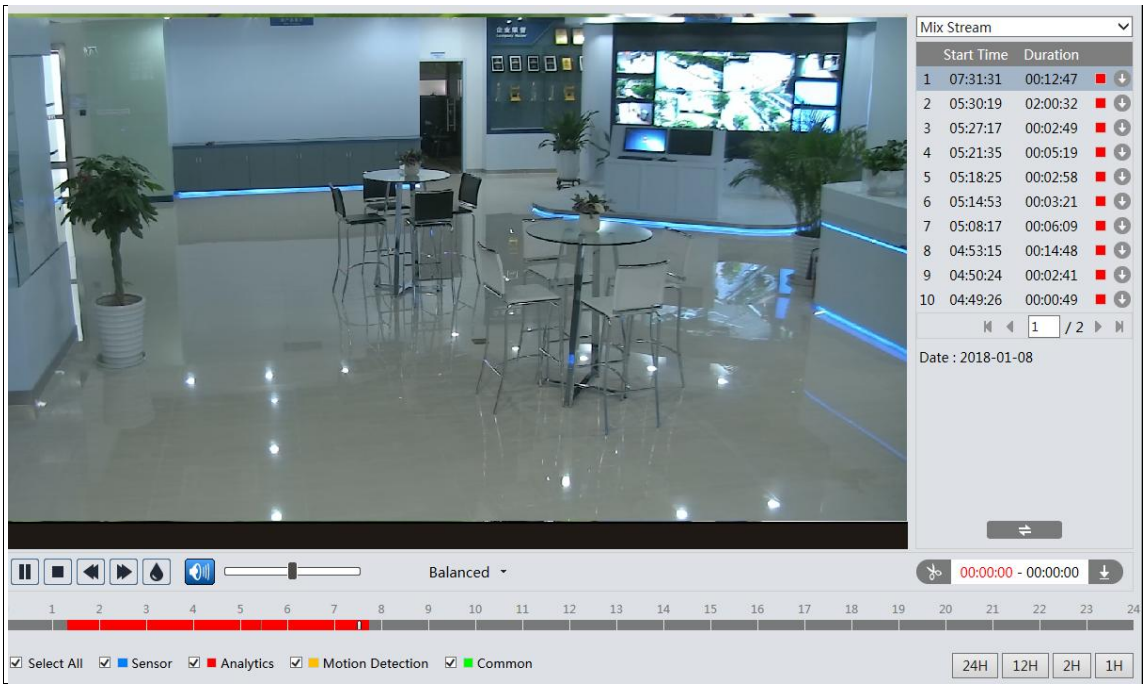
6.2.2 SD Card Video Search

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.



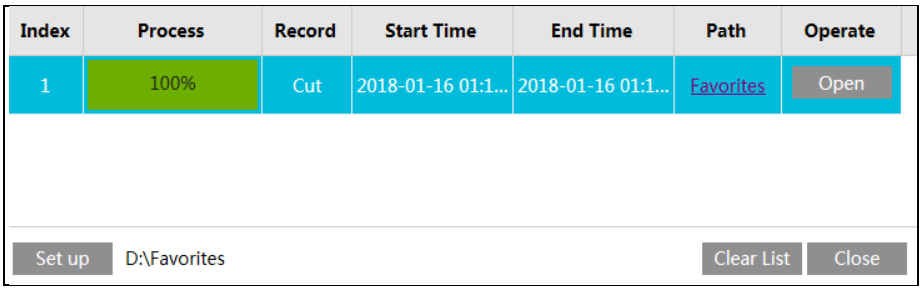
4. Select the alarm events at the bottom of the interface.
5. Select mix stream (video and audio stream) or video stream as needed.
6. Double click on a file name in the list to start playback.



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.



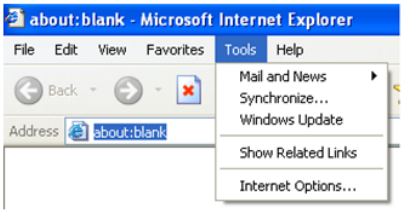
Click “Set up” to set the storage directory of the video files.
Click “Open” to play the video.
Click “Clear List” to clear the downloading list.
Click “Close” to close the downloading window.

Appendix

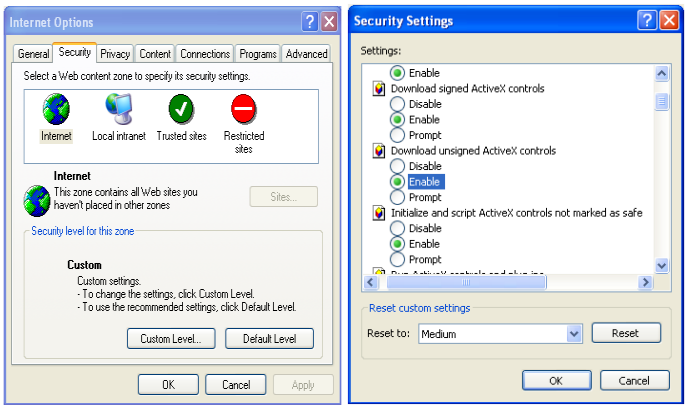
Appendix 1 Troubleshooting

IP Scanner does not show any device.
Make sure that the PC that's running IP Scanner is on the same local network as the devices.

Internet Explorer cannot download ActiveX control.
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.



No sound can be heard.
1. Audio input device is not connected. Please connect and try again.
2. Audio function is not enabled at the corresponding channel. Please enable this function.

Appendix 2 Common Material Emissivity

Material	Emissivity	Material	Emissivity
Human Skin	0.98	Brick	0.95
Printed Circuit Board	0.91	Sand	0.90
Concrete	0.95	Soil	0.92
Ceramic	0.92	Cloth	0.98
Rubber	0.95	Hard Paperboard	0.90
Paint	0.93	White Paper	0.90
Wood	0.85	Water	0.96
Pitch	0.96	Flame	0.2~0.3

The material emissivity is also affected by the surface of the material.

Material Surface	Emissivity
Rough	0.95
Slightly Rough	0.8
Slightly Smooth	0.6
Smooth	0.3

Models: O5TMLB1

Federal Communications Commission (FCC) Statements

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

FCC Responsible Party:

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