NETWORK CAMERA

User Manual

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

The following symbols or words may be found in this manual.

Symbols/Words	Description
⚠ **Warning**	Indicates a medium or low potential hazardous situation which , if not avoided, will or could result in slight or moderate injury
⚠ **Caution**	Indicates a potential risk which, if not avoided, will or could result in device damage, data loss, lower performance or unexpected results
☞ **Note**	Provides additional information to emphasize or supplement important points of the text.

About the Manual

- This manual is suitable for many models. All examples, screenshots, figures, charts, and illustrations used in the manual are for reference purpose, and actual products may be different with this Manual. The functions may vary by models. If your cameras doesn't support one or more functions described in the manual, please skip the relevant instructions.
- Please read this user manual carefully to ensure that you can use the device correctly and safely.
- Within the maximum scope permitted by the law, the products described in this Manual (including hardware, software, firmware, etc.) are provided "AS IS". The information in this document (including URL and other Internet site reference data) is subject to change without notice. This Manual may contain technical incorrect places or printing errors. This information will be periodically updated, and these changes will be added into the latest version of this Manual without prior notice.
- In this manual, the trademarks, product names, service names and company names that are not owned by our company are the properties of their respective owners.

Use of the Product

- This product should not be used for illegal purposes.
- The company does not allow anyone to use the Company's products to infringe the privacy, personal information, and portrait rights of others. The user shall not use this product for any illegal use or any prohibited use under these terms, conditions, and declarations. When using this product, the user shall not damage, disable, overload or obstruct any of the hardware of this product in any way, or interfere with the use of this product by any other users. Also, the user should not attempt to use the product or the

software, by hacking, stealing the password, or any other means.

Electrical Safety

- This product is intended to be supplied by a Listed Power Unit, marked with 'Limited Power Source', 'LPS' on unit, output rated minimum 12V or POE 48V/ 350mA or AC24V (varies by models), no more than 2000m altitude of operation and Tma=60 Deg.C.
- As for the modes with PoE function, the function of the ITE being investigated to IEC 60950-1 standard is considered not likely to require connection to an Ethernet network with outside plant routing, including campus environment and the ITE is to be connected only to PoE networks without routing to the outside plant.
- Improper handling and/or installation could run the risk of fire or electrical shock.
- The product must be grounded to reduce the risk of electric shock.
- ⚠ Warning: Wear anti-static gloves or discharge static electricity before removing the bubble or cover of the camera.

Environment

- Heavy stress, violent vibration or exposure to water is not allowed during transportation, storage and installation.
- Avoid aiming the camera directly towards extremely bright objects, such as, sun, as this may damage the image sensor.
- Keep away from heat sources such as radiators, heat registers, stove, etc.
- Do not expose the product to the direct airflow from an air conditioner.
- Do not block any ventilation openings and ensure proper ventilation around the camera.
- Do not place the device in a damp, dusty extremely hot or cold environment, or the locations with strong electromagnetic radiation or unstable lighting.
- Make sure that no reflective surface (like shiny floors, mirrors, glass, lake surfaces and so on) is too close to the camera lens, resulting in image blur.

Operation and Daily Maintenance

- There are no user-serviceable parts inside. Please contact the nearest service center if the product does not work properly.
- Please shut down the device and then unplug the power cable before you begin any maintenance work.
- ⚠ Warning: All the examination and repair work should be done by qualified personnel.
- Do not touch the CMOS sensor optic component. You can use a blower to clean the dust on the lens surface.
- Always use a dry soft cloth to clean the device. If there is too much dust, use a cloth cleaning (such as using cloth) may result in poor IR/illumination LEDs functionality and/or IR/illumination LEDs reflection.
- The dome cover is an optical device, please don't touch or wipe the cover surface

directly during installation and use. For dust, use an oil-free soft brush or hair dryer to remove it gently; for grease or finger print, use oil-free cotton cloth or paper soaked with detergent to wipe from the lens center outward. Change the cloth and wipe several times if it is not clean enough.

White Light Illuminator (if supported)

- DO NOT turn on the white light when you install or maintain the camera. Please wear appropriate eye protection when you want to test the white light.
- DO NOT stare at the operating light source. It will probably be harmful to your eyes.
- The white light illuminators and/or the IR LED's should at no time be covered when the camera is running to prevent overheating and the possible risk of fire.

Privacy Protection

- When installing cameras in public areas, a warning notice shall be given in a reasonable and effective manner and clarify the monitoring range.
- As the device user or data controller, you might collect the personal data of others, such as face, car plate number, etc. As a result, you shall implement reasonable and necessary measures to protect the legitimate rights and interests of other people, avoiding data leakage, improper use, including but not limited to, setting up access control, providing clear and visible notice to inform people of the existence of the surveillance area, providing required contact information and so on.

Disclaimer

- With regard to the product with internet access, the use of product shall be wholly at your own risks. Our company shall be irresponsible for abnormal operation, privacy leakage or other damages resulting from cyber attack, hacker attack, virus inspection, or other internet security risks; however, Our company will provide timely technical support if necessary.
- Surveillance laws vary from country to country. Check all laws in your local region before using this product for surveillance purposes. We shall not take the responsibility for any consequences resulting from illegal operations.

Cybersecurity Recommendations

- Use a strong password. At least 8 characters or a combination of characters, numbers, and upper and lower case letters should be used in your password.
- Regularly change the passwords of your devices to ensure that only authorized users can access the system (recommended time is 90 days).
- It is recommended to change the service default ports (like HTTP-80, HTTPS-443, etc.) to reduce the risk of outsiders being able to access.

- It is recommended to set the firewall of your router. But note that some important ports cannot be closed (like HTTP port, HTTPS port, Data Port).
- It is not recommended to expose the device to the public network. When it is necessary to be exposed to the public network, please set the external hardware firewall and the corresponding firewall policy.
- It is not recommended to use the v1 and v2 functions of SNMP.
- In order to enhance the security of WEB client access, please create a TLS certificate to enable HTTPS.
- Use black and white list to filter the IP address. This will prevent everyone, except those specified IP addresses from accessing the system.
- If you add multiple users, please limit functions of guest accounts.
- If you enable UPnP, it will automatically try to forward ports in your router or modem. It is really very convenient for users, but this will increase the risk of data leakage when the system automatically forwards ports. Disabling UPnP is recommended when the function is not used in real applications.
- Check the log. If you want to know whether your device has been accessed by unauthorized users or not, you can check the log. The system log will show you which IP addresses were used to log in your system and what was accessed.

Regulatory Information

FCC Information

Please take attention that changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

1. FCC compliance

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. 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.
- Consult the dealer or an experienced radio/TV technician for help.

2. FCC conditions:

- This device complies with part 15 of the FCC Rules. Operation of this product is subject

the following two conditions:

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

RoHS

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

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

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

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

Table of Contents

1 Network Connection

System Requirement

For proper operating the product, the following requirements are suggested for your computer.

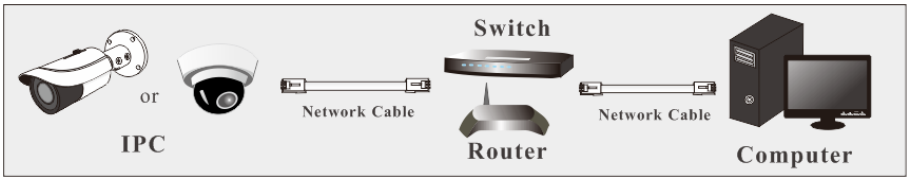
Resolution	5MP or lower	6MP or higher
Operating System	Windows 7 or higher	Windows 10 professional version or higher
CPU	2.0GHz or higher	2.5GHz or higher
RAM	1G or higher	8G or above
Display	1920*1080 resolution or higher	

Web browser: Chrome105.0+/Edge105.0+/Firefox121.0+/Safari 14.0+
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 the plug-in will display more functions of the camera.
Connect IP camera via LAN or WAN. Here only take the plug-in required browser for example. The details are as follows:

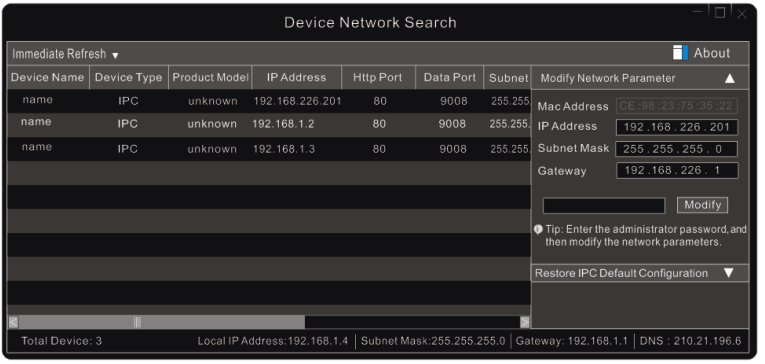
1.1 LAN

- **Access through IP-Tool**

Network connection:



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

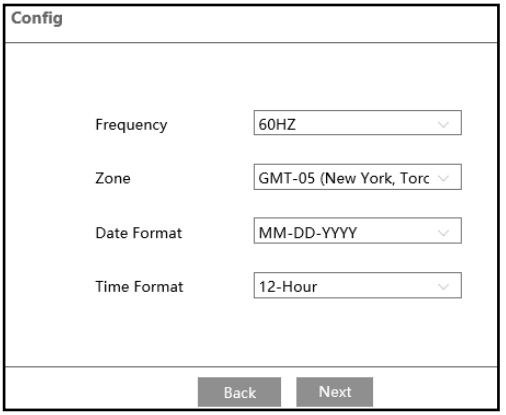


The default IP address of the camera is ***192.168.226.201*.**

③ Double click the IP address and then the system will open a web browser to connect the camera. After you read the privacy statement, check and click "Already Read". This will bring you to a configuration wizard interface.

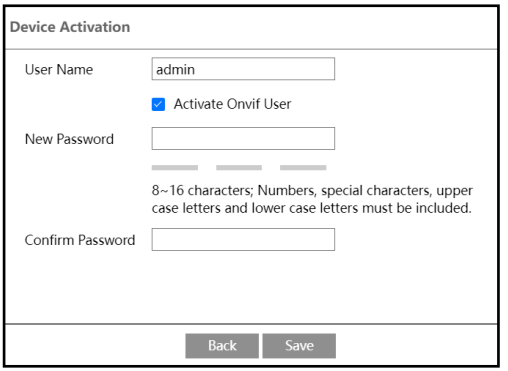
a. Select the location (eg. Britain). Then click [Next].

b. Set the zone, video format (frequency), date and time format.



c. Set security questions and answers as needed. After setting the questions and answers, click [Next] to continue. It is very important for you to reset your password. Please remember these answers.

d. Activate the device.



The default username is “admin”. Please self-define the password of admin according to the tip.

Note: It is highly recommended to use the strong password for your account security. If you want to change your password level, you can go to ***Config→Security Management →Password Security*** to change the level and then modify the admin password (Go to ***Config→User***).

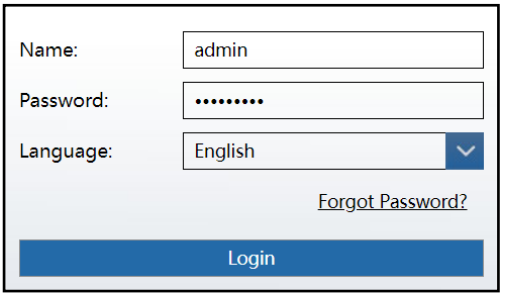
By default, the ONVIF password will match the admin password that you set. Should you wish to change the ONVIF password to a different password than your admin password, go to the ONVIF section to change the password (***Config→Network→ Onvif***)

When you connect the camera through the ONVIF protocol in the third-party platform, you can use the username and the password set to connect.

e. Click “Save” to save the settings.

Read the privacy statement, check and click “Already Read”. Then the login interface will appear as shown below.

If it is the first time for you to log in, follow directions to download, install and run the Active X control if prompted.

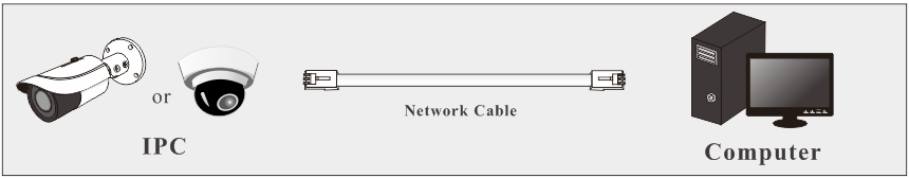


Please enter the user name (admin) and password. Then select the language as needed.

If you forget the admin password, you can reset the password by clicking **Forget Password** on the login page. Then you can reset the password by the security questions and answers you set. You can set the account security question during the activation, or you can go to

Config→Security→User, click **Safety Question**, select the security questions and input your answers.

In addition, you can also directly connect the camera to the computer through a network cable.



① Use a network cable to connect the IPC and the computer.

② Run the IP Tool to search the IPC. Double click the IP address and then the system will open a web browser to connect the IPC.

③ Follow directions to download and install the Active X control.

④ Enter the default username and password in the login window and then enter to view.

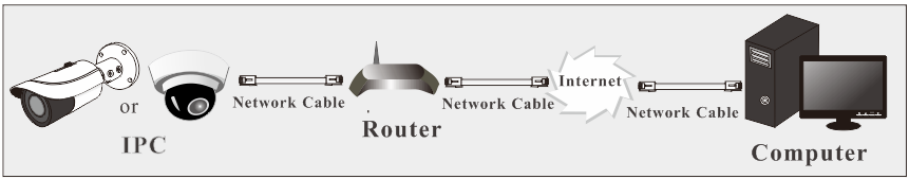
1.2 WAN

- **Access via Cloud Service**

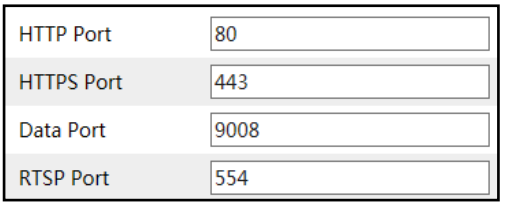
Connect and activate the device according to the above-mentioned steps. Enable NAT (click ***Config→Network→NAT***) and then enter the visit address in the address bar of a web browser to access remotely.

After you bind the camera to your APP account and enable the NAT function, a verification code will be required when logging onto the web client by using the above visit address (different areas and regions maybe have different visit addresses). Please enter the correct verification code that getting from the APP.

- **Access through the router or virtual server**

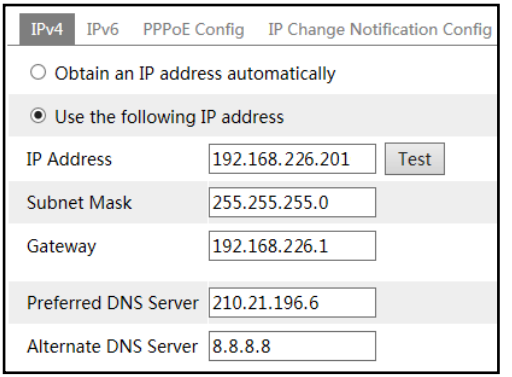


① Make sure the camera is connected to the local network and then log in the camera via LAN and go to ***Config→Network→Port*** to set the port number.



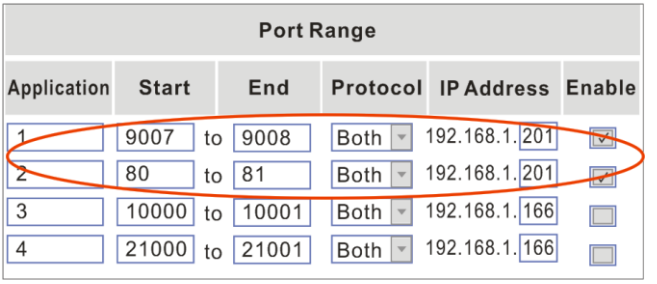
Port Setup

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



IP Setup

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

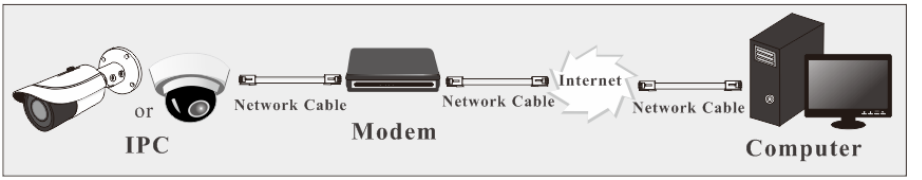


Router Setup

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

- **Access through PPPoE dial-up**

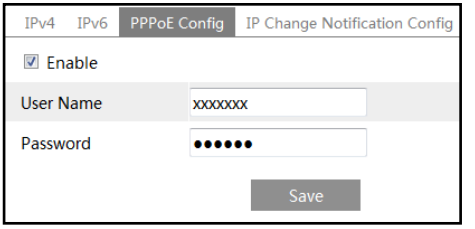
Network connection



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

① Go to ***Config→Network→Port*** to set the port number.

② Go to ***Config→Network→TCP/IP→PPPoE Config***. Enable PPPoE and then enter the user name and password from your internet service provider.

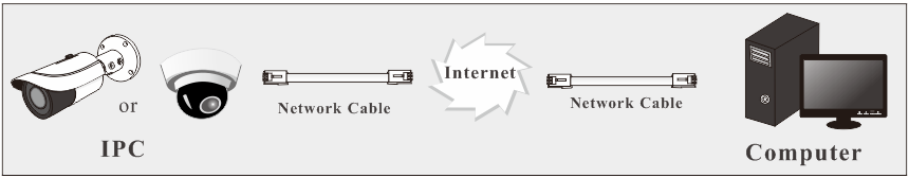


③ Go to ***Config→Network→DDNS***. Before configuring the DDNS, please apply for a domain name first. Please refer to the DDNS configuration for detail information.

④ Open a web browser and enter the domain name and http port to access.

➢ **Access through static IP**

Network connection



The setup steps are as follow:

① Go to ***Config→Network→Port*** to set the port number.

② Go to ***Config→Network→TCP/IP*** to set the IP address. Check "Use the following IP address" and then enter the static IP address and other parameters.

③ Open a web browser and enter its WAN IP and http port to access.

2 Live View

After logging in, the following window will be shown. The live view interface of different cameras may be slightly different. The following pictures and descriptions are for reference only.

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

Icon	Description	Icon	Description
	Original size		Audio alarm indicator
	Fit correct scale		Light alarm indicator
	Auto (fill the window)		Audio exception indicator icon (sudden increase)
	Full screen		Audio exception indicator icon (sudden decrease)
	Measure Tool		SD card recording indicator
	Start/stop live view		Motion alarm indicator
	Enable/disable alarm status display		Color abnormal indicator
	Enable/disable alarm output		Abnormal clarity indicator
	Enable or disable audio alarm (only some models support this function)		Scene change indicator
	Enable/disable audio		Line crossing indicator

Icon	Description	Icon	Description
	Enable/disable light alarm(only some models support this function)		Intrusion indicator
	Start/stop two-way audio (only available for the model with audio input connector)		Region entrance indicator
	Snapshot		Region exiting indicator
	Start/stop local recording		Target counting (by line) indicator
	Zoom in		Target counting (by area) indicator
	Zoom out		Object detection indicator (object abandoned/missing)
	AZ control (only available for the model with motorized zoom lens)		Heat map indicator
	Target detection(only available for face event or video metadata event)		Loitering detection indicator
	PTZ control (only some models support this function)		Illegal parking detection indicator
	Rule information display		Video metadata indicator
	Alarm output indicator		People gathering indicator
	Sensor alarm indicator		Face detection indicator

*Measure Tool: get the height and width pixel of the selected region in the live view interface. (This function is only available for main stream). Click  and drag the mouse on the image to draw a desired box. The width and height pixel will directly display in the box.

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

*After clicking the audio alarm icon, the sound warning will be triggered according to the set warning times (you can set the warning times by clicking ***Config→Alarm→Audio Alarm***). Click this icon again. After the current warning voice is completely sounded, it will stop.

*For the red-blue light alert cameras, after clicking the light alarm icon, the red-blue 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.

* For the white light alert cameras, after clicking the light alarm icon, the white light will flash 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. (For dual-light cameras that support white light alarm, only when the illumination mode in Display Settings is set to “Infrared light”, can this function be displayed; for white light cameras that support white light alarm, only when the white light mode is set to “Off”, can this function be displayed)

*Plug-in free live view: two-way audio and local recording are not supported and the preview mode switch (real-time/balanced/fluent mode) is not available too.
* In full screen mode, double click on the mouse to exit or press the ESC key on the keyboard.
* Click AZ control button to show AZ control panel. The descriptions of the control panel are as follows:

Icon	Description	Icon	Description
	Zoom -		Zoom +
	Focus -		Focus +
	One key focus (used when image is out of focus after manual adjustment		

To set the stream profile, select Main stream, Sub stream, Third stream and fourth/fifth stream (if supported). Go to ***Configure→Video/Audio*** to set the resolution for each stream as needed.

Some cameras can be connected with a compatible external PTZ camera through RS485 (Go to ***Configure→Serial Port*** to set). Click the PTZ icon to reveal the PTZ control panel.
The descriptions of the control panel are as follows:

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

Select preset and click  to call the preset. Select and set the preset and then click  to

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

Descriptions of Rule Information

Color Descriptions of Target Recognition box:
Green box: detect human
Purple box: detect motor vehicle
Light blue box: detect non-motor vehicle (motorcycle/bicycle)
Target box after an event is triggered: turn yellow

Rule line or area color display:
Rule line or area: blue
Rule line or area after an event is triggered: turn from blue to red

3 Network Camera Configuration

In the Webcam client, choose “Config” to go to the configuration interface.
Note: Wherever applicable, click the “Save” button to save the settings.

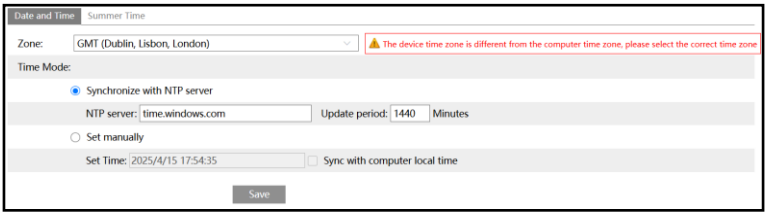
3.1 System Configuration

3.1.1 Basic Information

In the “Basic Information” interface, the system information of the device is listed, such as product model, brand, firmware version, ONVIF version, MAC address, device ID, etc. In addition, you can modify the device name as needed.

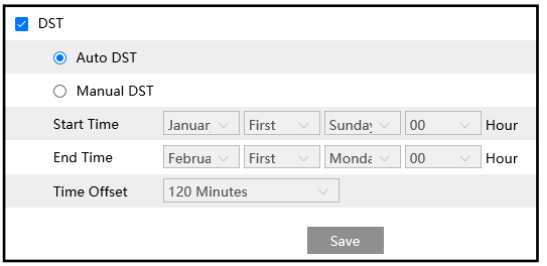
3.1.2 Date and Time

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



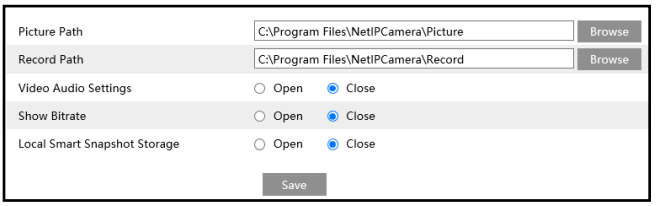
Select the time zone and time mode as needed.
Note: The time zone of the camera and the computer must be the same. It is recommended to modify the time zone of the camera according to the time zone of the computer. If the time zone of the computer is modified, the current web client needs to be closed. Then re-open it and log in again.

Time Mode:
NTP: Specify an NTP server to synchronize the time.
Manual: Set the system time manually or you can synchronize the time with the time of the local computer.
Click the “Summer Time” tab to set DST (Daylight Saving Time) as needed.



3.1.3 Local Config

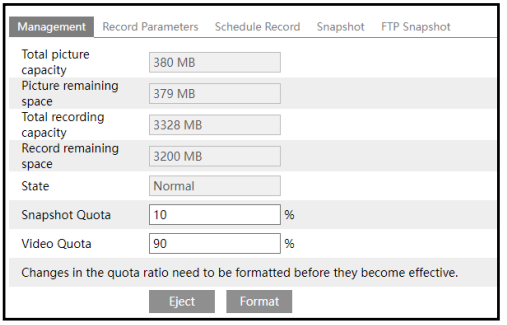
Go to ***Config→System→Local Config*** to set up the storage path of captured pictures and recorded videos on the local PC. There is also an option to enable or disable audio in the recorded files.



Show Bitrate: enable or disable bitrate display on the live video.
Additionally, "Local smart snapshot storage" can be enabled or disabled here. If enabled, the captured pictures triggered by smart events will be saved to the local PC.
Note: when you access your camera by the web browser without the plug-in, only Show Bitrate can be set in the above interface.

3.1.4 Storage

Note: If your camera doesn't support the SD card storage function, please skip the following instructions.
Go to ***Config→System→Storage*** to go to the interface as shown below.



- **SD Card Management**

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

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

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

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

Note: This series of products support ANR (Automatic Network Replenishment) function.

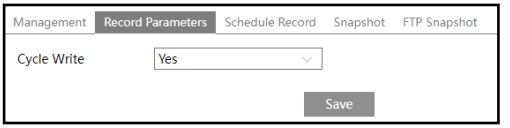
The offline video recorded files can be searched in the search interface.

1. When the network of the camera is disconnected (for example, the network cable is unplugged), the camera will automatically trigger record and store the recorded files to the SD card.

2. After the IPC is added to the NVR supporting ANR function and the ANR function of the IPC is enabled in the NVR, the IPC will automatically trigger record and store the recorded files to the SD card when the network between the NVR and the IPC is disconnected. After resuming connection, the IPC will automatically upload the recorded files during the offline period to the NVR.

- **Configuring Record Parameters**

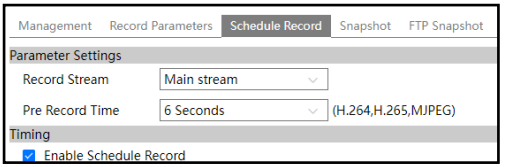
Go to ***Config→System→Storage→Record Parameters***.



Overwrite (Cycle Write): the earliest record data will be replaced by the latest when the SD card is full.

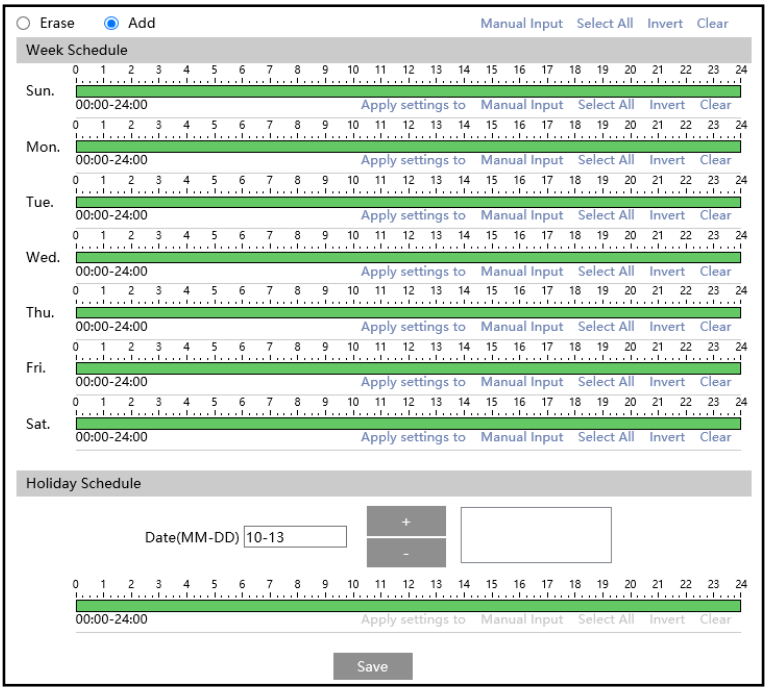
- **Schedule Recording Settings**

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



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

Schedule Record: 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 into 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).

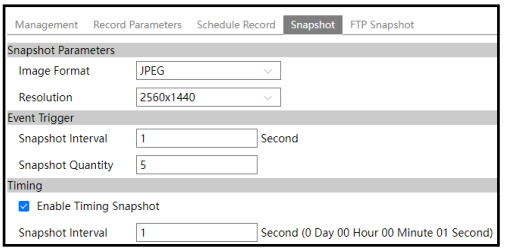
Day schedule

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

Note: Holiday schedule takes priority over weekly schedule.

- **Snapshot Settings**

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



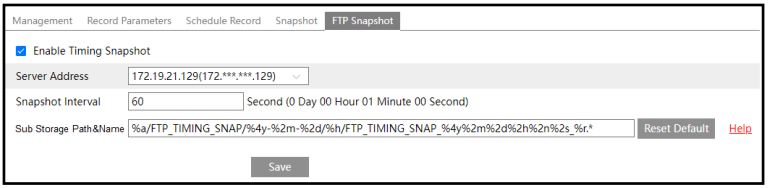
Set the format, resolution, and quality of the image saved on the SD card and the snapshot interval and quantity and the timing snapshot here.

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 the schedule are the same as the schedule recording setup (See Schedule Recording).

- **FTP Snapshot**

Enable timing snapshot. If enabled, the system will upload snapshots to the FTP server according to the set snapshot interval.



Server Address: select the set FTP server. See FTP for the FTP server setting.

Sub Storage Path& Name: Click “Help” to view the rule and then set it as needed.

Meanings of the default Path & Name Settings:

“%a/FTP_TIMING_SNAP/%4y-%2m-%2d/%h” stands for sub storage path.

“FTP_TIMING_SNAP_%4y%2m%2d%2h%2n%2s_%r.* ” stands for file name.

The entire default value means that a jpg file named “FTP_TIMING SNAP _Year Month Day Hour Minute Second_Random number” will be generated under FTP root directory> MAC address>FTP_TIMING SNAP>Year-Month-Day>Hour.

“FTP_TIMING SNAP” refers to the event type. You can modify the event name as needed (for example: FTP Snapshot).

If the sub storage path and name box is empty, the snapshot will be uploaded and named according to the default settings.

If you only enter the file name rule, the snapshot will be uploaded to the root directory of the

FTP server.

3.1.5 Serial Port Settings

Only some models support this function. If your camera doesn't support RS485 interface, you can skip the following instructions.

This function can be used with a compatible external PTZ camera through RS485 interface. The Baud-Rate, protocol and address must be the same as the PTZ camera's.

In addition, you can use RS485 to transmit the data between the camera and the computer or terminal. Before using this function, please connect the camera and computer or terminal with RS485 cable. Please set the parameters of RS485 as needed. Note that you should keep the parameters of the camera and the computer or terminal all the same.

3.1.6 Indicator

Only some models support a status indicator. If your camera doesn't support it, please skip the following instructions.

Click ***Config→System→Indicator*** to enable or disable the indicator. After you enable the indicator, different colors will show you different device status.

Solid red light: starting

Flashing red light: network disconnected

Flashing green light: upgrading

Flashing blue light: alarm triggered

Solid green light: work normally

Note: Alarm status takes priority over other status. When the camera is upgrading and an alarm is triggered at the same time, the blue light flashes. After the alarm ends, the green light flashes (if the camera is still upgrading). When the camera is upgrading and the network is disconnected simultaneously, the red light flashes.

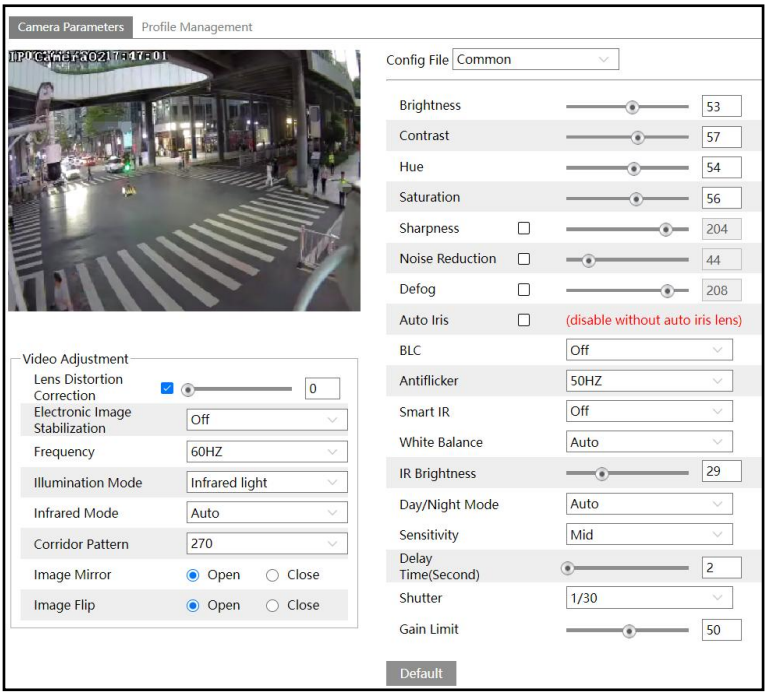
If you don't need the indicator, you can disable it as needed.

3.2 Image Configuration

3.2.1 Display Configuration

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

Note: the camera parameters of different cameras may be slightly different. The following pictures and descriptions are for reference only. The real camera interface shall prevail.



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

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

Hue: Set the total color degree of the image.

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

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

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

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

Auto Iris: If your camera is auto Iris, please enable it (only varifocal models support this function).

Backlight Compensation (BLC):

- Off: disables the backlight compensation function. It is the default mode.
- HWDR: WDR can adjust the camera to provide a better image when there are both very bright and very dark areas simultaneously in the field of 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.

Note:

* Only some models support HWDR (true WDR). If your camera doesn't support HWDR,

you can set (digital) WDR as needed.

* After enabling HWDR, the shutter and gain limit cannot be modified. Additionally, the anti-flicker function is automatically turned off, and cannot be set.

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.

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

Shutter: Set the upper limit of the effective exposure time. The exposure time will be automatically adjusted (within the set shutter limit value) according to the actual situation.

Slow Shutter: If enabled, when the ambient light drops to a certain level, the frame rate will be gradually reduced to maintain the brightness of the camera. It is recommended to enable this function for scenarios with high requirements in low light environment.

Gain Limit: Set the upper limit of the gain. The gain value will be automatically adjusted (within the set gain limit value) according to the actual situation.

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 (only some models support this function).

EIS：Electronic image stabilization; increase the stability of video image by using jitter compensation technology (only some models support this function).

Frequency: 50Hz and 60Hz can be optional.

Note: If the frequency is switched, the camera will reboot automatically.

Corridor Pattern: Corridor viewing modes can be used for situations such as long hallways. 0, 90, 180 and 270 are available. The default value is 0. (Only some models support this function)

Image Mirror: Turn the current video image horizontally.

Image Flip: Turn the current video image vertically.

- **Dual-light models:**

You can set the illumination mode as shown in the picture above.

Illumination Mode: choose "White light", "Infrared light" or "Smart supplement light" as needed.

Smart supplement light: If selected, in low ambient light, the system will automatically turn on the visible infrared light. Once there are people/vehicles appearing/staying in the detection area, it will automatically switch to full-brightness visible white light. When people/vehicles leaving the detection area exceeds the set duration, it will resume to infrared light. See Smart Supplement Light Configuration for details.

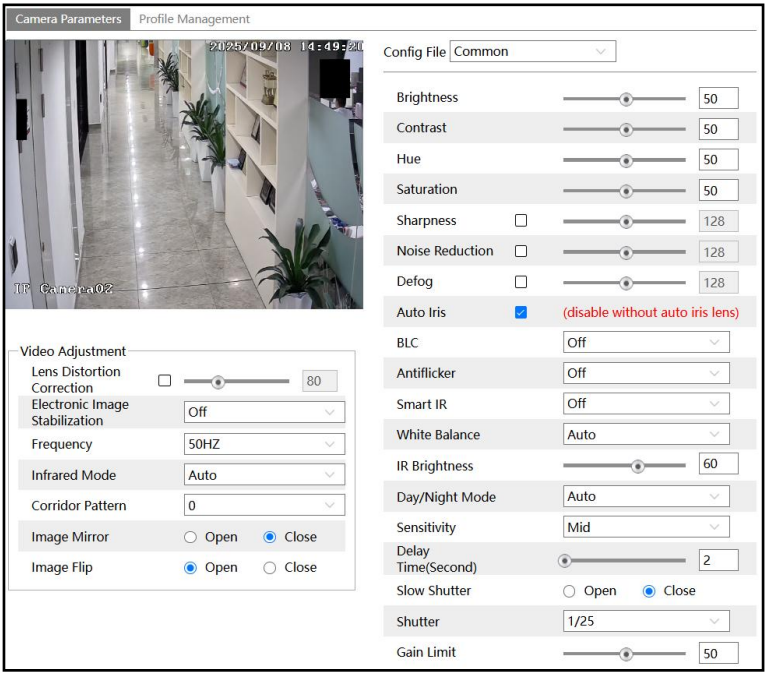
If "White light" is selected, overexposure control and white light mode can be set.

White light mode: Choose "Off", "Auto" or "Manual". Please select it as needed.

Overexposure control: Choose "OFF", "Low", "Mid" or "High". This function can

automatically adjust the exposure parameter according to the actual effect of the image, effectively avoiding detail missing caused by image overexposure, so that the image will be more vivid. Please set it as needed.
If “Infrared light” is selected, “Smart IR”, “IR Brightness”, “Day/Night Mode” and “Infrared Mode” can be configured.

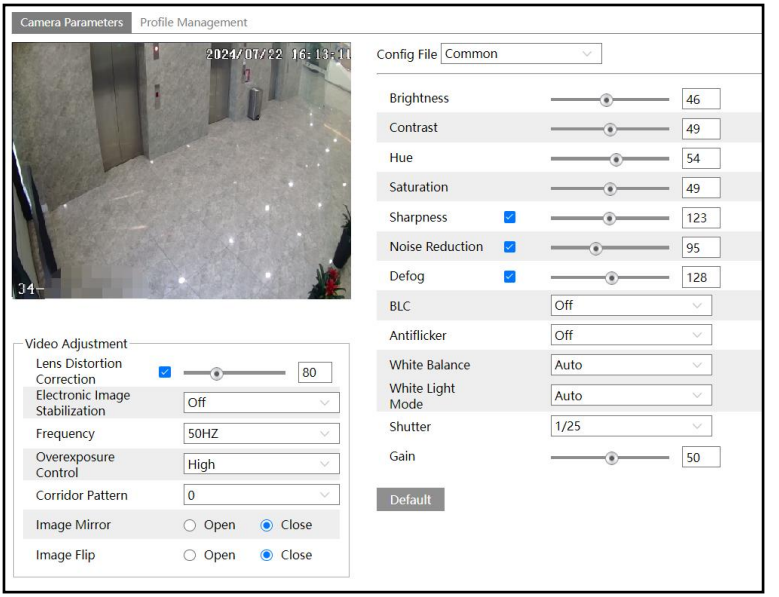
- **Only IR light models**:



“Smart IR”, “IR Brightness”, “Day/Night Mode” and “Infrared Mode” can be configured.
Smart IR: Choose “ON” or “OFF”. This function can effectively avoid image overexposure to make the image more realistic. The higher the level is, the more overexposure compensation will be given.
IR Brightness: The value ranges from 1 to 100. Please set it as needed.
Day/Night Mode: Choose “Auto”, “Day”, “Night”, “Alarm input linkage”, or “Timing”.
If “Timing” is selected, you need to set daytime and night time. For example: if “Daytime” is set to “7:00”, the camera will switch to Day mode at 7:00 o’clock; if “Night time” is set to “17:00”, the camera will switch from Day mode to Night mode at 17:00 o’clock.
If “Alarm input linkage” is selected, the system will switch to day or night mode (according to your choice) upon the occurrence of the sensor alarm.
Infrared Mode: Choose “Auto”, “ON” or “OFF”.

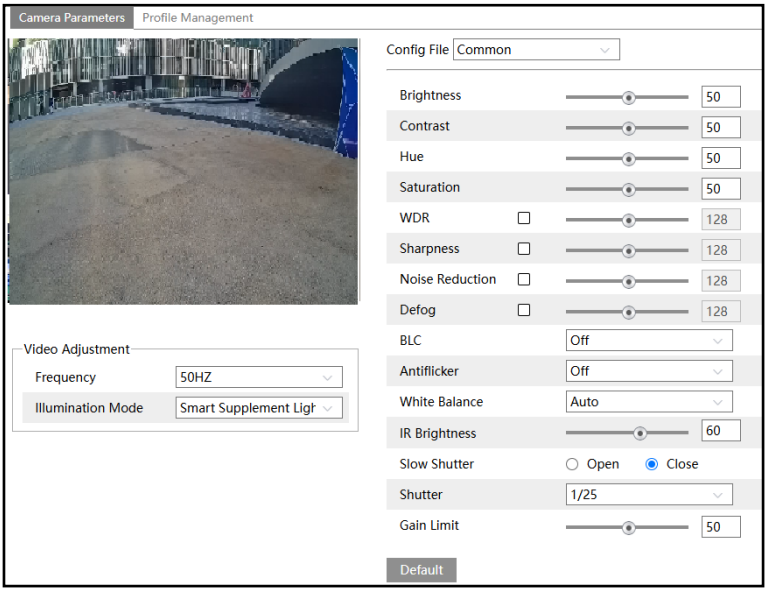
- **Only white light models**:

White light mode and overexposure control can be set. The parameters related to IR light will not be displayed as shown below.

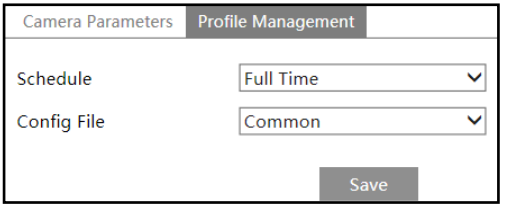


- **Dual-lens Splicing Models:**

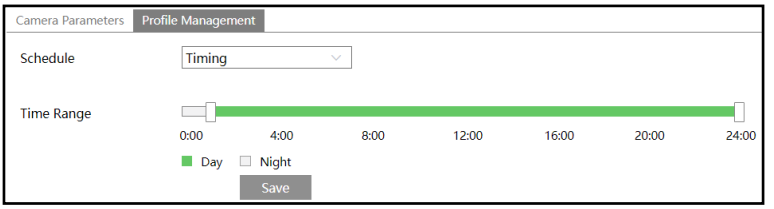
Image mirror and image flip cannot be set.



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



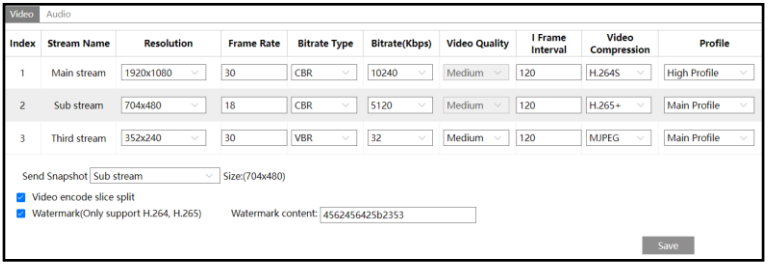
Set full time schedule for common, auto mode and specified time schedule for day and night.
Auto mode: in the daytime, it will automatically perform the day config file set above; at night, it will automatically perform the night config file set above.
Choose "Timing" in the drop-down box of schedule as shown below.



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

3.2.2 Video / Audio Configuration

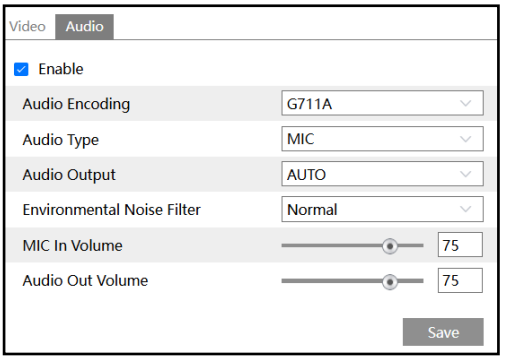
Go to ***Image→Video / Audio*** as shown below. In this interface, set the resolution, frame rate, bitrate type, video quality, and so on subject to the actual network condition.
Note: the video stream parameters of different camera series may be different. The following pictures and descriptions are for reference only. The real camera interface shall prevail.



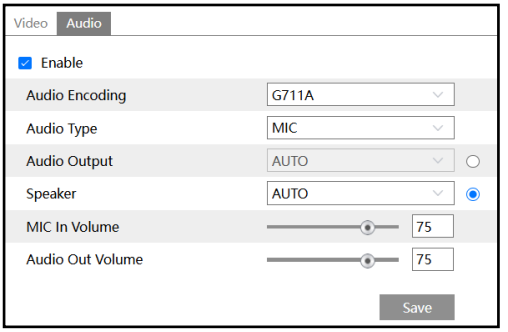
Multiple video streams can be adjustable.

Resolution: The size of the 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, H265 or 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.
Note: Some models may support H264S (Smart H.264)/H265S(Smart H.265). Compared to H.265+/H.265, smart H.265 can spontaneously adjust the bitrate distribution according to the requirements of the actual scene. For example, when there is no human or vehicle detected, the bitrate will be automatically reduced with no effect on image quality by using H.265S.
SVC：Only some models support this function. Scalable Video Coding (SVC) is able to extract one or more subset bit streams with different frame rates from a bit stream.
Profile: For H.264. Baseline, main and high profiles are selectable.
Send Snapshot: Set the snapshot stream.
Stream Smoothing: Only some models support this function. Drag the progress bar or set the stream smoothing value as needed. The higher the value is, the better fluency of the stream is, but the video quality is reduced. The lower the value is, the clearer the image is.
Video encode slice split: If this function is enabled, a smooth image can be obtained 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.



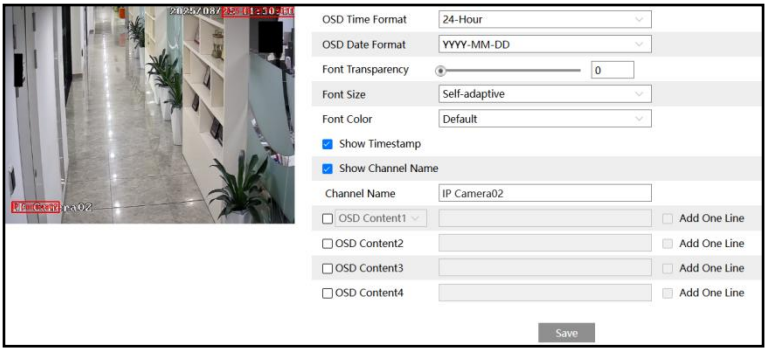
Audio Encoding: G711A and G711U are selectable.
Audio Type: MIC or LINE. (If the internal MIC is used, choose "MIC". If you want to use an external line-level audio input device, choose "LINE".)
Audio Output (if supported): Talkback, warning or auto can be optional. If "Talkback" is selected, the audio output will be used for two-way audio. If "Warning" is selected, the audio output will be used to play the pre-defined audio alarm. If "Auto" is selected, the system will output sound for two-way audio or warning voice as needed. But when it is warning and two-way audio is being enabled simultaneously, two-way audio will be output first.
Some modes may support built-in speaker. You can set the audio output or speaker separately.



Speaker: Talkback, warning or auto can be optional. If "Talkback" is selected, the built-in speaker will be used for two-way audio. If "Warning" is selected, the built-in speaker will be used to play the pre-defined audio alarm. If "Auto" is selected, the system will output sound for two-way audio or warning voice as needed. But when it is warning and two-way audio is being enabled simultaneously, two-way audio will be output first.
Select audio output or speaker as needed. Only one of them can be effective for some models.
Environmental Nosie Filter: "Normal" or Enhanced" can be optional. If the camera is installed near the seaside or in a windy sports field, you can select enhanced mode to filter out environmental noise. (Only some models support this function)
LINE IN/MIC IN/Audio Out Volume: Set the volume as needed.

3.2.3 OSD Configuration

Go to ***Image→OSD*** as shown below.



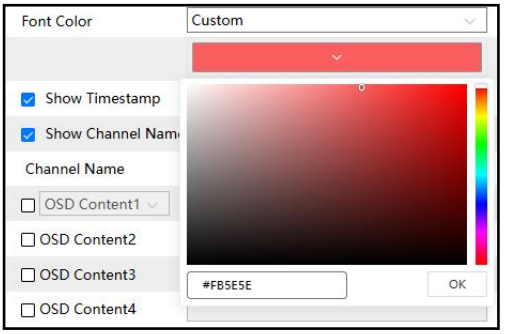
Set OSD time format, OSD date format, OSD content and font transparency/size/color here. After enabling the corresponding display and entering the content, drag them to change their position. Then click the "Save" button to save the settings.

Note: The quantities of the OSD items are different for different models.

OSD Font Size: When the image resolution is less than 720P, the font size will be automatically changed to 16*16, and will not follow the change of the font size you have set.

OSD Font Color: You can use the default font color (white) or customize the font color as needed.

To customize the font size color:



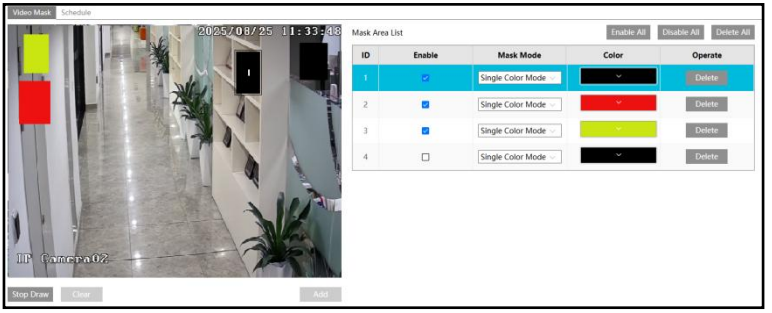
1. Select "Custom" and then click on the blank box under it.
2. Select a color on the colorful bar (right).
3. Click on the left color box to choose the desired color. Or you can directly enter the hexadecimal color code to set the color.
4. Click "OK" to save the font color settings.

Picture Overlap Settings (This function is only available for some models):

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

3.2.4 Video Mask

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



To set up a video mask:

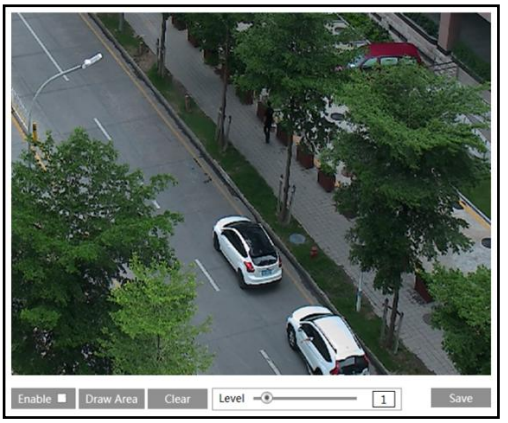
1. Click the “Draw Area” button and then drag the mouse on the left window to draw the video mask area.
2. Click the color block to select the desired color.

Note: For some models, you can set the mask mode to “Mosaic Mode”. If this mode is set, the color cannot be set.

3. Enable/disable the mask area as needed. After the video mask areas are set, you can enable/disable/delete mask areas as needed.
4. Set the schedule. The mask areas only take effect during the scheduled period. The setup steps of the schedule are the same as the schedule recording setup. (See Schedule Recording).
5. Return to the live to verify that the area has been drawn as shown as blocked out in the image.

3.2.5 ROI Configuration

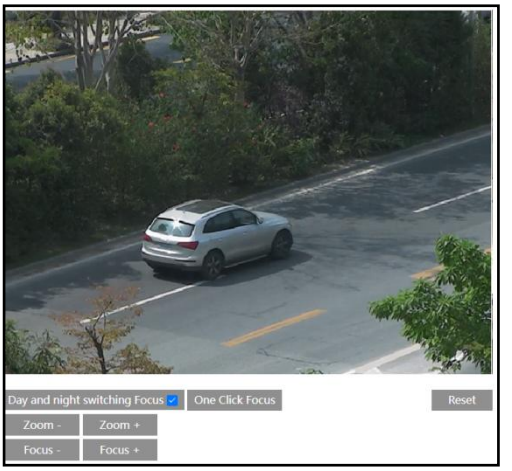
Go to ***Image→ROI Config*** as shown below. An area in the image can be set as a region of interest. This area will have a higher bitrate than the rest of the image, resulting in better image quality for the identified area.



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.

3.2.6 Lens Control

This function is only available for the model with a motorized zoom lens. Within this section, zoom and focus can be controlled. If the image is out of focus after a manual adjustment, one key focus can be used to set the focus automatically. Go to ***Config→Image→ Zoom/Focus*** to set.

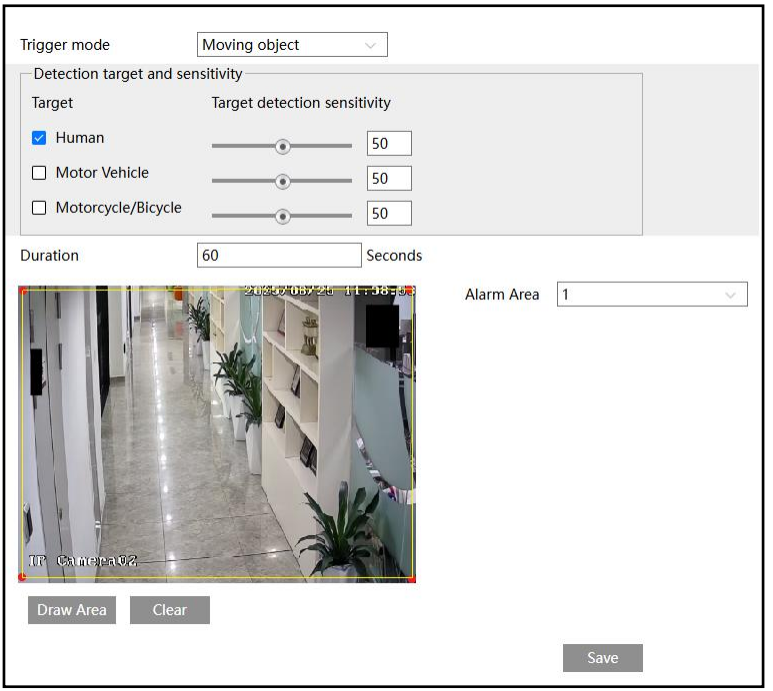


In white light mode, “Day and night switching focus” is hidden.

3.2.7 Smart Supplement Light Configuration

This function is only available for some models.

1. Set the illumination mode to “Smart Supplement Light” in the Display Setting interface.
2. Go to ***Config→Image→Smart Supplement Light***.



3. Select the trigger mode. “Moving object” or “All objects” can be selected.
4. Set the detection target and sensitivity. “Human” is selected by default. You can also select “Motor Vehicle” or “Motorcycle/Bicycle” as needed.

Target Detection Sensitivity: The higher the value is, the easier the white light will be triggered by targets.

5. Set the duration of the white light. In low ambient light, the system will automatically turn on the visible infrared light.

If “Moving object” is selected, once there are people/vehicles appearing and moving in the set alarm area, it will automatically switch to full-brightness visible white light. When people/vehicles staying and not moving in the alarm area or leaving the alarm area exceed the set duration, it will resume to infrared light.

If “All objects” is selected, once there are people/vehicles appearing (moving or not moving) in the set alarm area, it will automatically switch to full-brightness visible white light. When people/vehicles leaving the alarm area exceed the set duration and no other targets are detected during the period, it will resume to infrared light.

6. Set alarm areas. Select the alarm area number. Four alarm areas can be added.

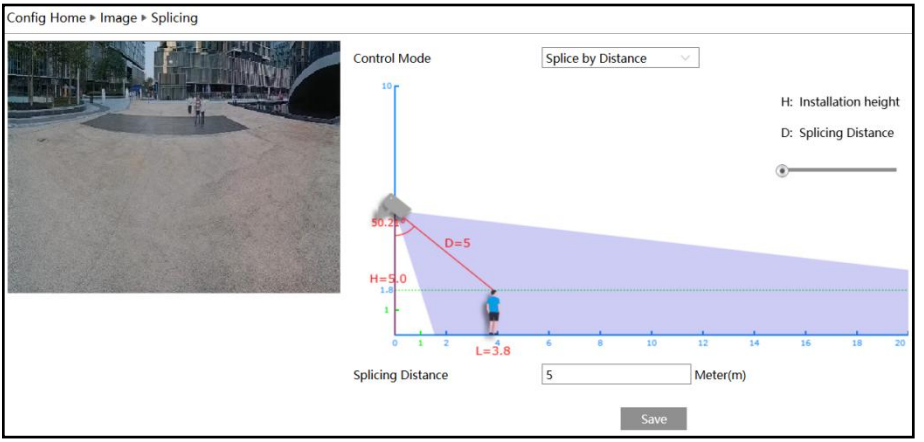
Click the “Draw Area” button and then click around the area where you want to set as the alarm area in the image (the alarm area should be a closed area). Click the “Stop Draw” button to stop drawing. Click the “Clear” button to delete the alarm area.

7. Click “Save” to save the settings.

3.2.8 Splicing

This function is only available for dual-lens splicing cameras.

1. Click ***Config→Image→Splicing*** to go to the following interface.



2. Select the control mode. Currently only "Splice by Distance" can be selected.

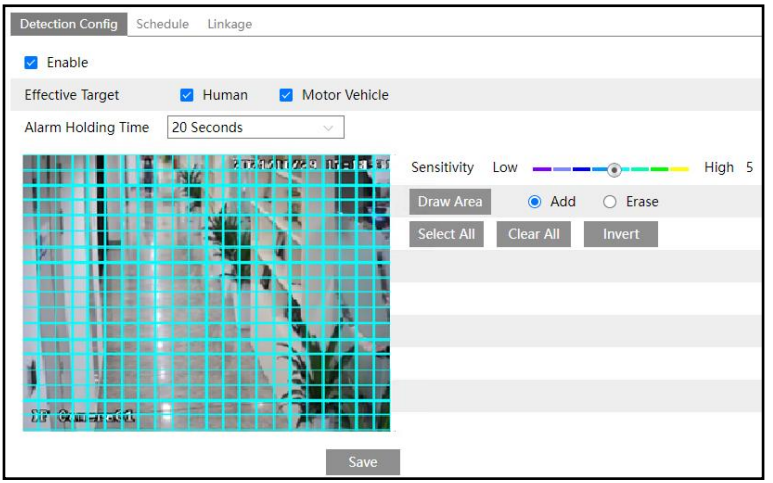
3. Set the installation distance by moving the camera icon as needed. Configure the splicing distance of the object to be detected by moving the object icon. For example, if you want to detect an object at 3 meters, you can move the object icon to 3 meters. Then the system will automatically show the splicing distance.

4. Click "Save" to save the settings.

3.3 Alarm Configuration

3.3.1 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.

Effective Target: Choose “Human” or “Motor Vehicle”. If “Human/Motor Vehicle” is enabled, the camera will only detect the movement of human/motor vehicle. If no target is enabled, alarms will be triggered when the moving object appears on the image, including human, vehicle or other moving objects. (Some models only support “Human”)

Alarm Holding Time: it refers to the time that the alarm extends for after an alarm ends. For instance, if the alarm holding time is set to 20 seconds, once the camera detects a motion, it will go to alarm and would not detect any other motion in 20 seconds. If there is another motion detected during this period, it will be considered as continuous movement; otherwise it will be considered as a single motion.

2. Set motion detection area and sensitivity.

Clear all grids. Then move the “Sensitivity” scroll bar to set the sensitivity. A 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.

You can set different sensitivity levels for different areas.

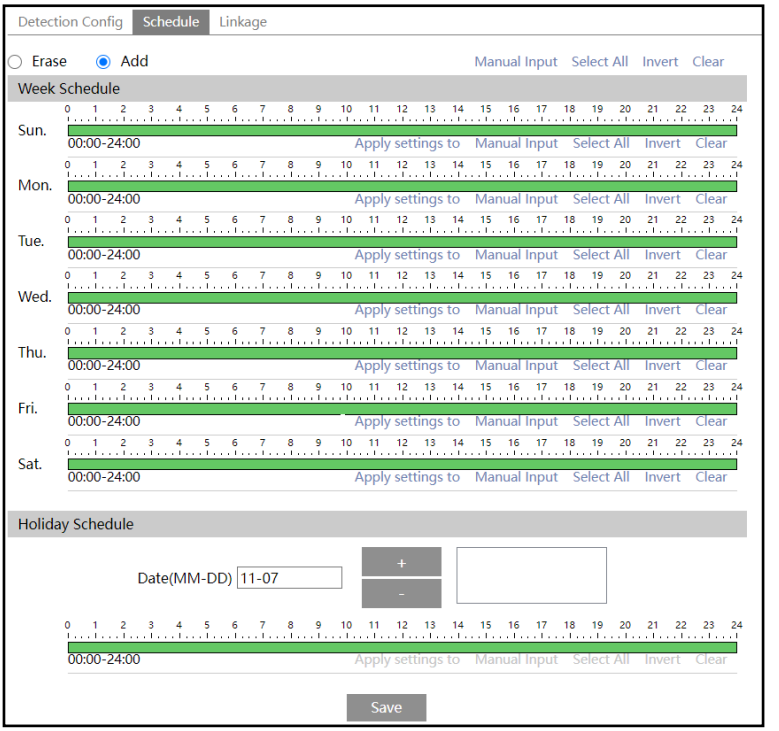
After that, click the “Save” to save the settings.

Note:

a) The area without colored grids means the sensitivity value is 0, which will be considered as a blocked area.

b) After detecting a moving object in the area covered with grid lines, an alarm will be triggered when the number of the red grid lines exceeds the threshold of the sensitivity level.

3. Set the schedule for motion detection.



Weekly schedule

Set the alarm time from Monday to Sunday for a single week. Each day is divided into 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.

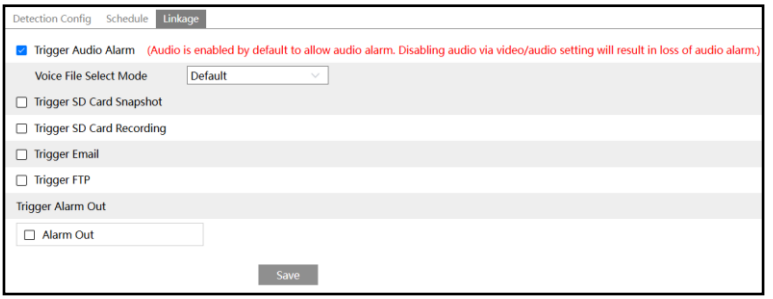
Manual Input: Click it for a specific day to enter specific start and end times. This adds more granularities (minutes).

Day schedule

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

Note: Holiday schedule takes priority over weekly schedule.

4. Click "Linkage" to configure the alarm linkage items.



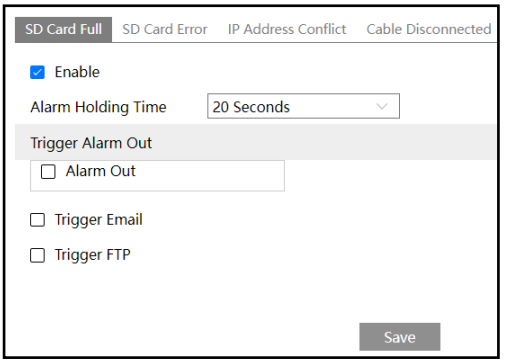
Trigger Audio Alarm: If selected, the warning voice will be played on detecting a motion based alarm. After checking it, you need to select the voice file as needed. If "Default" is selected, the voice file is the voice set in the audio alarm interface (see Audio Alarm for details). If "Specified" is selected, you can specify the warning voice and language for the motion alarm. (Only some models support this function)
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 to the FTP server address. You can set the sub storage path and name as needed. Please refer to the FTP configuration for more details.
Trigger Alarm Out: If selected, this would trigger an external relay output that is connected to the camera on detecting a motion based alarm. Only some models support this function. (For the models with two alarm output interfaces, two alarm output can be selected)
After that, click "Save" to save the settings.

3.3.2 Exception Alarm

Note: Only the camera with the SD card storage function supports SD card full and SD card error alarms.

- **SD Card Full**

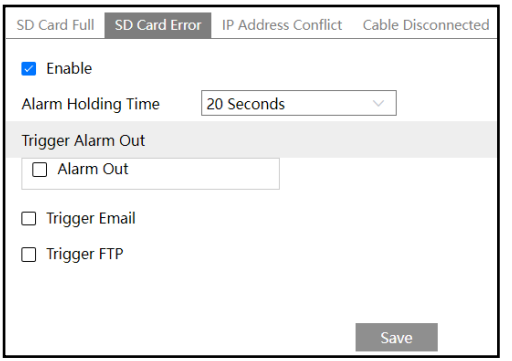
1. Go to ***Config →Alarm →Exception Alarm →SD Card Full***.



2. Click “Enable”.
3. Set the alarm holding time and alarm trigger options. Trigger alarm out (only some models support), Email, and FTP as needed. The setup steps are the same as motion detection. Please refer to Motion Detection for details.

- **SD Card Error**

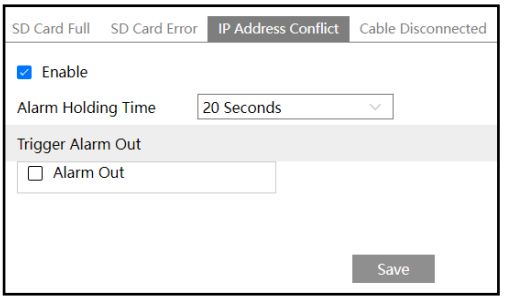
When there are some errors in writing to the SD card, the corresponding alarms will be triggered.
1. Go to ***Config→Alarm→ Exception Alarm →SD Card Error*** as shown below.



2. Click “Enable”.
3. Set the alarm holding time and alarm trigger options. Trigger alarm out (only some models support), Email, and FTP as needed. The setup steps are the same as motion detection. Please refer to Motion Detection for details.

- **IP Address Conflict**

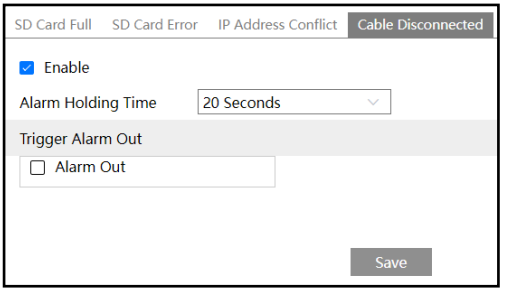
1. Go to ***Config→Alarm→ Exception Alarm →IP Address Conflict*** as shown below.



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.
Note: if your camera doesn't support alarm out, you can go to ***Config→Maintenance→ Operation Log*** to check the relevant alarm information after enabling this function.

- **Cable Disconnection**

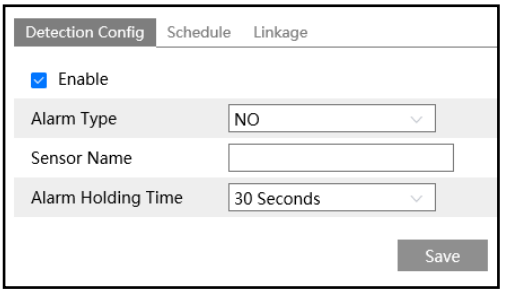
1. Go to ***Config→Alarm→ Exception Alarm →Cable Disconnected*** as shown below.



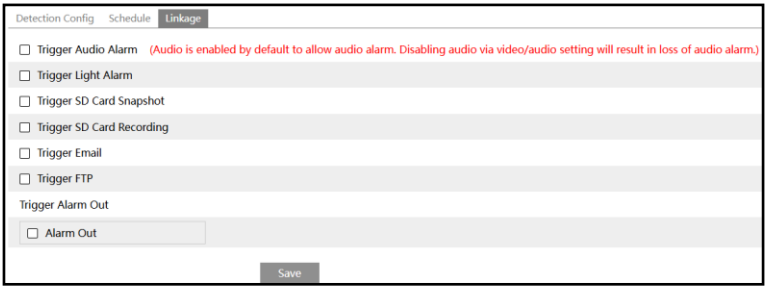
2. Click "Enable" and set the alarm holding time.
3. Trigger alarm out. When the camera is disconnected, the system will trigger the alarm out.
Note: if your camera doesn't support alarm out, you can go to ***Config→Maintenance→ Operation Log*** to check the relevant alarm information after enabling this function.

3.3.3 Alarm In

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



1. Click “Enable” and set the alarm type, alarm holding time and sensor name. If your camera support two alarm input interfaces, please select the sensor ID first.
2. Set the schedule of the sensor alarm. The setup steps of the schedule are the same as the schedule recording setup. (See Schedule Recording).
3. Click “Linkage” to configure the alarm linkage items.



Sensor ID: If there are multiple alarm input, select the sensor ID first.
Trigger Audio Alarm: If selected, the warning voice will be played when the sensor alarm is triggered. Select the voice file as needed. If “Default” is selected, the voice file is the voice set in the audio alarm interface (see Audio Alarm for details). If “Specified” is selected, you can specify the warning voice and language for the sensor alarm. (Only some models support this function)
Trigger Light Alarm: If selected, the light of the camera will flash when the sensor alarm is triggered. Please set the light flashing time and frequency first. See Light Alarm for details. (This function is only available for the red-blue light alert cameras and white light alert cameras; for the dual-light cameras that support white light alarm, only when the illumination mode in Display Settings is set to “Infrared light”, can this function be displayed; for the white light cameras that support white light alarm, only when the white light mode is set to “Off”, can this function be displayed)
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

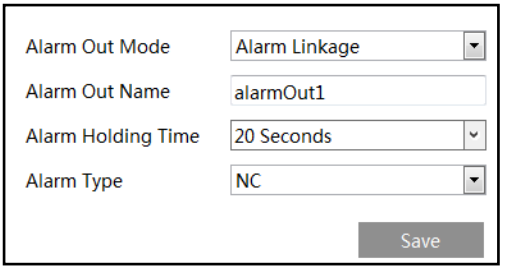
set first in the Email configuration interface), the captured pictures and triggered event will be sent into those addresses.

Trigger FTP: If "Trigger FTP" and "Attach Picture" are checked, the captured pictures will be sent in the FTP server address. You can set the sub storage path and name as needed. Please refer to the FTP configuration for more details.

Trigger 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 the alarm output interface; some models may support two alarm output interfaces).

3.3.4 Alarm Out

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

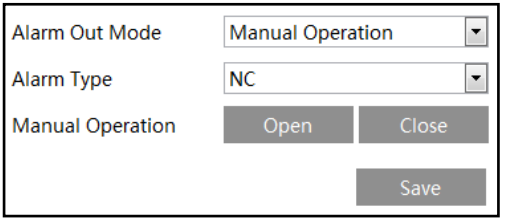


Alarm Out ID: Some models may support two alarm output interfaces. The alarm out can be set respectively by selecting alarm out ID.

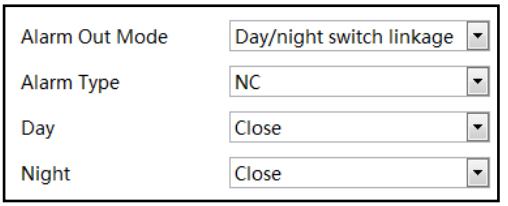
Alarm Out Mode: Alarm linkage, manual operation, day/night switch linkage and timing are optional.

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

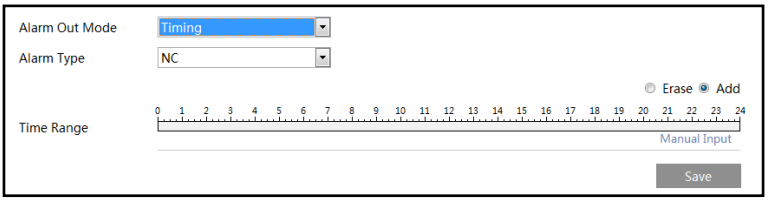
Manual Operation: Having selected this mode, select the alarm type and click "Open" to trigger the alarm out immediately; click "Close" to stop alarm.



Day/Night Switch Linkage: Having selected this mode, select the alarm type and then choose to open or close alarm out when the camera switches to day mode or night mode. (In white light mode, this function is not available)

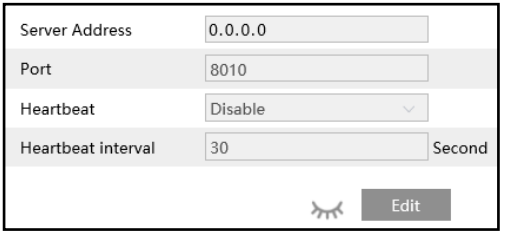


Timing: Select the alarm type. Then click "Add" and drag the mouse on the timeline to set the schedule of alarm out; click "Erase" and drag the mouse on the timeline to erase the set time schedule. After this schedule is saved, the alarm out will be triggered in the specified time.



3.3.5 Alarm Server

Go to ***Alarm→Alarm Server*** as shown below.



Click "Edit" to set the alarm server.

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.

Click to view the entire server address; click to hide a part of sensitive data.

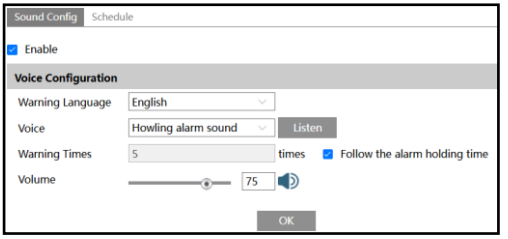
3.3.6 Audio Alarm

Only some models support this function.

Go to ***Alarm→Audio Alarm*** as shown below.

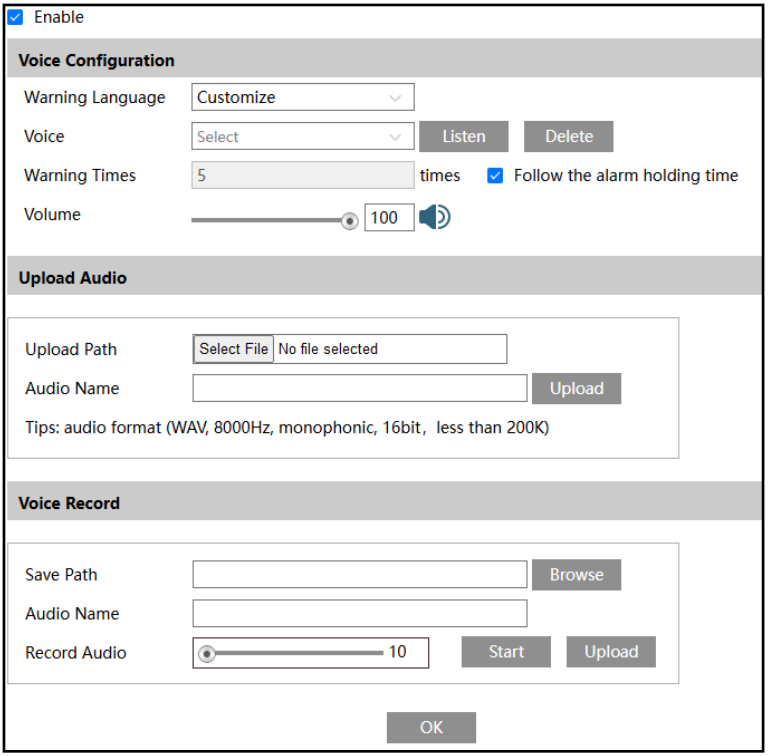
Enable audio alarm. If disabled, the camera will not play the desired warning voice even if an event triggers audio alarm. Additionally, you need to enable audio in the audio configuration interface and the speaker type (if supported) should be "Warning" or "Auto", or the warning

voice cannot play too.



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

Follow the alarm holding time: if enabled, the warning voice will stop when the alarm holding time ends.



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: when you access your camera by the web browser without the plug-in, “video record” is not available in the above interface.

② Select the voice and then set the warning times and volume as needed.

Warning times: it ranges from 1 to 50.

③ Set the schedule of audio alarm. The setup steps of the schedule are the same as the schedule recording setup. (See Schedule Recording).

④ Click “OK” to save the settings.

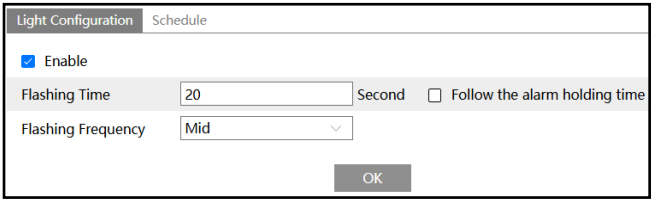
3.3.7 Light Alarm

Note: This function is only available for the red-blue light alert cameras and white light alert cameras; for the dual-light cameras that support white light alarm, only when the illumination mode in Display Settings is set to “Infrared light”, can this function be displayed**;** for the white light cameras that support white light alarm, only when the white light mode is set to “Off”, can this function be displayed)

Go to ***Alarm→Light Alarm*** as shown below.

① Enable light alarm as needed. Enable light alarm as needed. If it is disabled, the flashing light will not be turned on when the light alarm is triggered.

② Set the flashing time and frequency of the light.



Flashing time: the flashing time ranges from 1 second to 60 seconds.

Follow the alarm holding time: if enabled, the light will stop flashing when the alarm holding time ends.

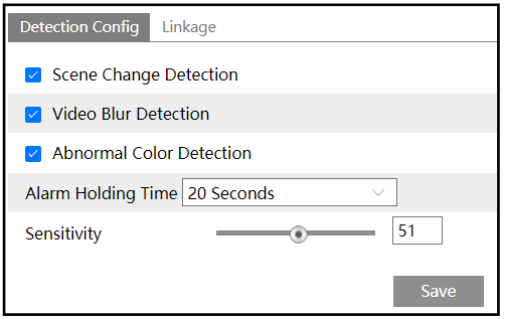
Flashing Frequency: three options- low, middle and high

③ Set the schedule of audio alarm. The setup steps of the schedule are the same as the schedule recording setup. (See Schedule Recording).

3.3.8 Video Exception

Only some models support this function.

This function can detect changes in the surveillance environment affected by external factors.
To set video exception detection:
Go to ***Config→Event→Video Exception*** as shown below.



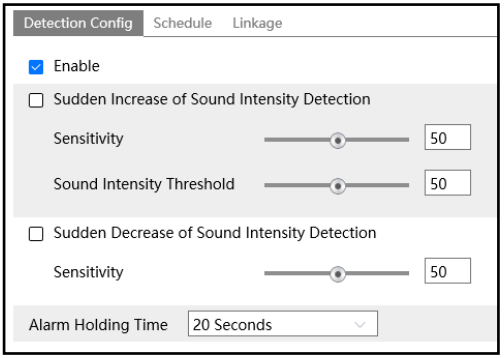
1. Enable the applicable detection that's desired.
Scene Change Detection: Alarms will be triggered if the scene of the monitor video has changed.
Video Blur Detection: Alarms will be triggered if the video becomes blurry.
Abnormal Color Detection: Alarms will be triggered if the image is abnormal because of color deviation.
2. Set the alarm holding time.
3. Set the sensitivity of the exception detection.
Drag the slider to set the sensitivity value or directly enter the sensitivity value in the textbox.
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.
4. Click "Linkage" to configure the alarm linkage items. The setup steps are the same as motion detection. Please refer to Motion Detection for details.
After checking "Trigger SD Card Snapshot" and/or "Trigger SD Card Recording", you can search the recorded files or snapshots of video exception by selecting the "Common" event.

※ **The requirements of camera and surrounding area**
1. Auto-focusing function should not been enabled for exception detection.
2. Try not to enable exception detection when light changes greatly in the scene.
3. Please contact us for more detailed application scenarios.

3.3.9 Audio Exception

Only some models support this function.
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*** 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 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.

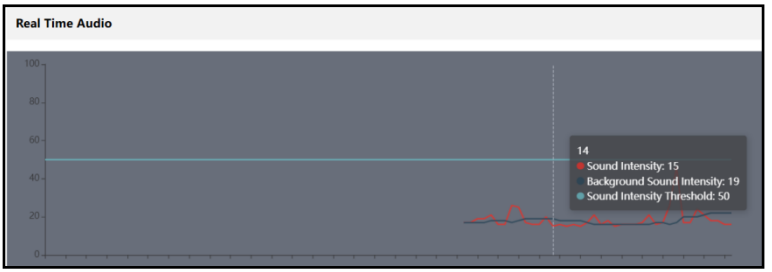
Real-time audio graphic:

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 alarms, it is recommended to set the sensitivity and sound intensity threshold according to the real-time audio graphic.

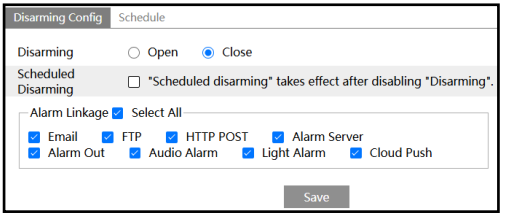


4. Set the alarm holding time and click “Save” to save the settings.
5. Set the schedule of the audio exception detection. The setup steps of schedule are the same as the schedule recording (See Schedule Recording).
6. Click “Linkage” to configure the alarm linkage items. The setup steps are similar to the sensor alarm. Please refer to Alarm In for details.

Note: The alarm recording type triggered by an audio exception event is “Common”. In the search interface, you can search the recorded files of audio exception by selecting the “Common” event.

3.3.10 Disarming

You can disarm alarm linkage actions quickly in this interface.



Disarming: The system stops triggering alarm linkage actions immediately.

Scheduled Disarming: The system stops triggering alarm linkage actions in the selected period. Click “Schedule” to set the schedule. The setup steps of schedule are the same as the motion detection schedule settings (See Motion Detection for details).

Note: After “Disarming” or “Scheduled Disarming” is enabled, the reported general alarms (the alarm start time and end time of alarm out and audio alarm) will probably not match the actual situation. You need to handle it manually.

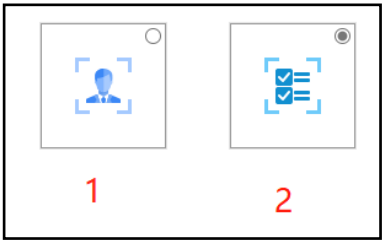
3.4 Event Configuration

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 for some models. Go to ***Config→System→Application Scenarios*** as shown below.

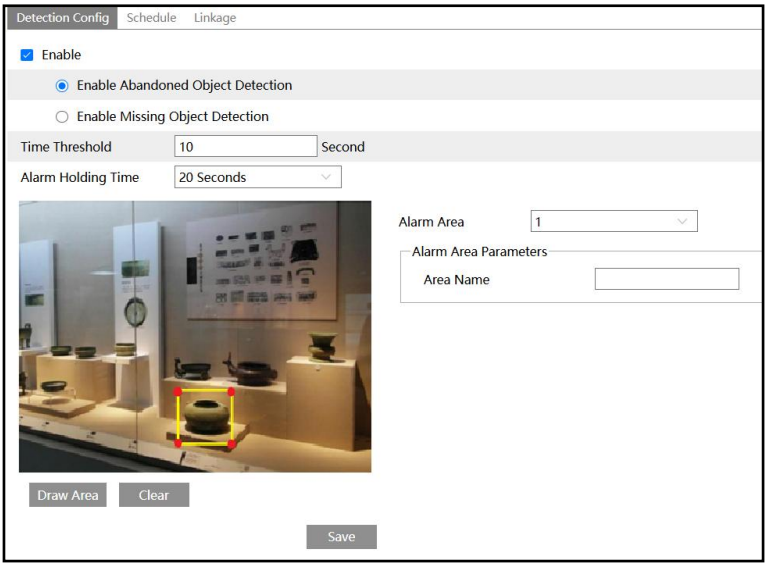


Event Type: 1- Face Event; 2- Smart Event
The default event type is smart event. If you want to switch to face event, please select face event and then click "Save". After successful reboot, the corresponding event will be displayed. Select and set as needed.

Note:
*** You can enable multiple smart detection events (such as line crossing detection, region intrusion detection, region exiting detection, etc.) simultaneously for some models, 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.**
*** Smart events may vary by models. If your cameras doesn't support one or more of the following events, please skip the relevant instructions.**

3.4.1 Object Abandoned/Missing

Alarms will be triggered when the objects are removed from or left at the pre-defined area.
To set abandoned/missing object detection:
Go to ***Config→Event→Object Abandoned/Missing*** as shown below.



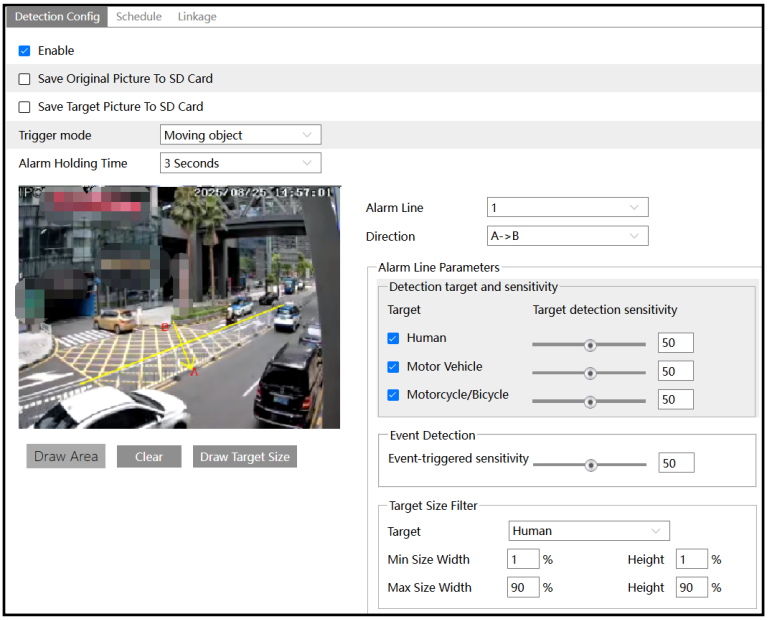
1. Enable abandoned/missing object detection and then select the detection type.
Enable Abandoned Object Detection: Alarms will be triggered if there are items left in the pre-defined area.
Enable Missing Object Detection: Alarms will be triggered if items are missing in the pre-defined area.
Time Threshold: it is the alarm delay time of the object left in the region (ranging from 10~3600s) or the alarm delay time of the object removed from the region (ranging from 3~3600s). For example, if "Enable Abandoned Object Detection" is selected and the duration of delay is set as 10, alarms will be triggered after the object is left and stay in the region for 10s, but when someone takes away the object within 10s, alarms will not be triggered.
2. Set the alarm holding time.
3. Set the alarm area and area name.
Set the alarm area number and then enter the desired alarm area name. Only one alarm area can be added. Click the "Draw Area" button and then click around the area where you want to set as the alarm area in the image (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.
4. Set the schedule of the abandoned/missing object detection. The setup steps of the schedule are the same as the motion detection schedule settings (See Motion Detection for details).
5. Click "Linkage" to configure the alarm linkage items. The setup steps are the same as the motion alarm. Please refer to Motion Detection for details.

※ The configuration requirements of camera and surrounding areas
1. The range of the detection object should occupy from 1/50 to 1/3 of the entire image.
2. The detection time of objects in the camera shall be from 3 to 5 seconds.

3. The defined area cannot be covered frequently and continuously (like people and traffic flow).
4. It is necessary for missing object detection that the drawn frame must be very close to the margin of the object in enhancing the sensitivity and accuracy of the detection.
5. Abandoned/missing object detection cannot determine the objects' ownership. For instance, there is an unattended package in the station. Abandoned object detection can detect the package itself but it cannot determine to whom it belongs to.
6. Try not to enable abandoned/missing object detection when light changes greatly in the scene.
7. Try not to enable abandoned/missing object if there are complex and dynamic environments in the scene.
8. Adequate light and clear scenery are very important to abandoned/missing object detection.

3.4.2 Line Crossing

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

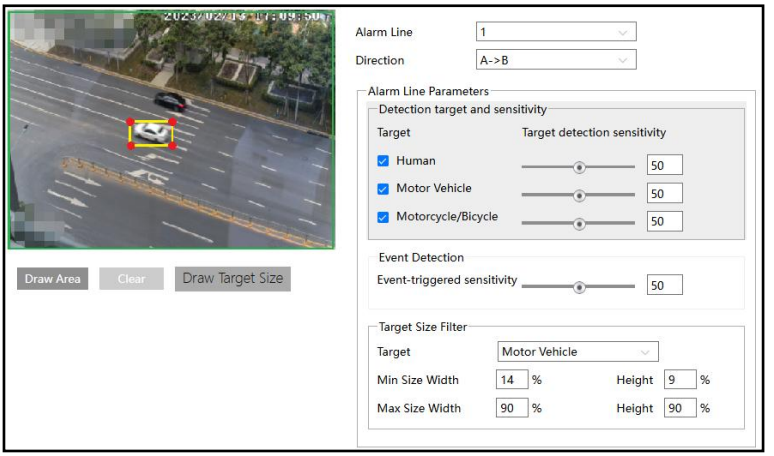


1. Enable line crossing detection and select the snapshot type.
Save Original Picture to SD Card: If it is enabled, the detected original pictures will be captured and saved to the SD card when the targets cross the alarm line.
Save Target Picture to SD Card: If it is enabled, the detected target cutout pictures will be captured and saved to the SD card when the targets cross the alarm line.
Note: To save snapshots to the local PC, please enable "Local Smart Snapshot Storage" in the

local config interface first. To save snapshots to the SD card, please install an SD card first.
2. Set trigger mode and alarm holding time.
Trigger Mode: Choose "Moving object" or "All objects" as needed. If "Moving object" is selected, alarms will be triggered when an object is crossing over the alarm line; if the object stops moving on the alarm line, the line crossing alarm stops too. If "All objects" is selected, alarms will be triggered when an object stops on the alarm line or crosses over the alarm line.
3. Set alarm lines, targets, sensitivity and target size filter for line crossing detection.
Set the alarm line number and direction. Four 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.
Note: If the set rule line is very close to the edge of the screen, it may be difficult for the target to trigger the alarm. Please make sure that there is at least one full target-sized space between the rule line and the edge of the screen.

Detection Target:
Human: Select it and then alarms will be triggered if someone crosses the pre-defined alarm lines.
Motor Vehicle: Select it and then alarms will be triggered if a vehicle with four or more wheels (eg. a car, bus or truck) crosses the pre-defined alarm lines.
Motorcycle/Bicycle: Select it and then alarms will be triggered if a vehicle with two wheels (eg. a motorcycle or bicycle) crosses the pre-defined alarm lines.
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.
Target Detection Sensitivity: The higher the value is, the easier the alarm can be triggered by targets.
Event Triggered Sensitivity: It refers to the percentage of the body part of an object that goes across the alarm line. The higher the value of sensitivity is, the more easily the alarm can be triggered.

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.
After that, click the “Save” button to save the settings.
4. Set the schedule of line crossing detection. The setup steps of the schedule are the same as the motion detection schedule settings (See Motion Detection for details).
5. Click “Linkage” to configure the alarm linkage items. The setup steps are the same as the sensor alarm. Please refer to Alarm In for details.

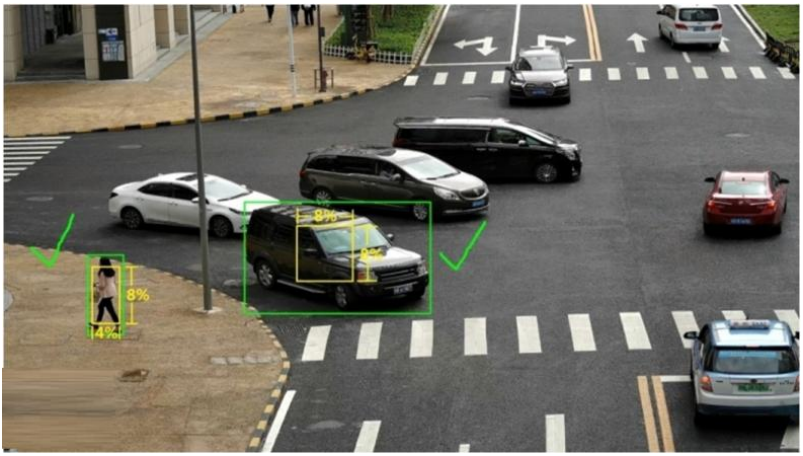
※ **Configuration requirements of the camera and surrounding area**
1. Auto-focusing function should not be enabled for line crossing detection.
2. Avoid the scenes with many trees or the scenes with various light changes (like many flashing headlights). The ambient brightness of the scenes shouldn’t be too low.
3. Cameras should be mounted at a height of 2.8 meters or above.
4. The recommended depression angle of the camera is from 30 °to 45 °(See Outdoor Mounting example).
For pedestrians, their heads and main bodies should be clearly visible on a video.

For vehicles, the depression angle should not be more than the recommended value. The sideways or horizontal viewing angle is recommended on a video (see below).

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.
7. Please adjust the installation position or focus to meet the requirements of the target recognition size.
The recommended target recognition size:

Percentage	Human	Motor Vehicle	Motorcycle/Bicycle
Minimum (Width × Height)	4% × 8%	8% × 8%	4% × 4%
Maximum (Width × Height)	50% × 50%	50% × 50%	50% × 50%

Note: The percentage means that a target occupies the percentage of the entire image. For example: In a 1080P (1920×1080) video image, the minimum resolution of human is 80×160 (w =1920×4%=80, h=1920×8%=160)



Correct example

The target recognition box meets the requirements of the minimum size. The yellow box stands for the minimum recognition size. The green box stands for the set target box.

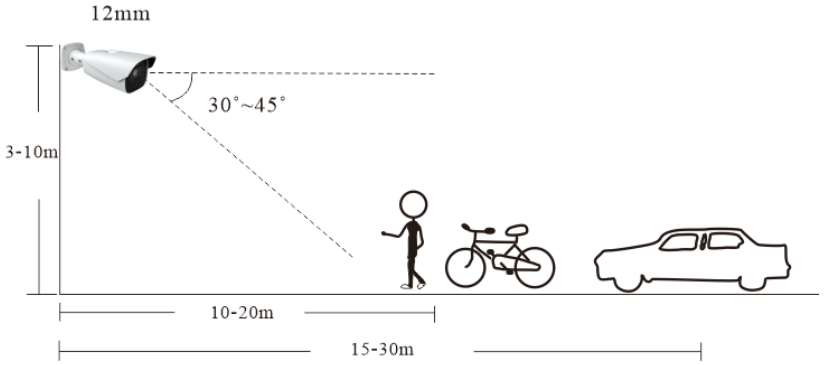
Wrong example

The yellow box stands for the minimum recognition size. The green box stands for the set target box. These two target recognition boxes don't meet the requirement of the minimum size. Therefore, you need to adjust the camera position or focus as needed.

8. Installation suggestion:

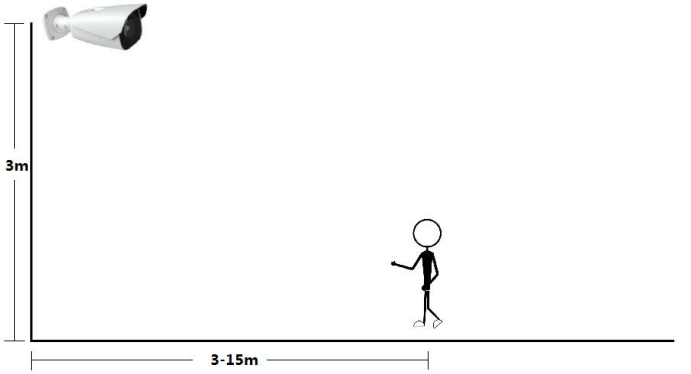
Outdoor mounting:
The optimal detection distance varies due to different focal length. Please refer to the following table.

Focal Length	Installation Height(m)	Human/Motorcycle/Bicycle		Motor Vehicle	
		Maximum Distance(m)	Optimal Distance(m)	Maximum Distance(m)	Optimal Distance(m)
2.8mm	3-10	8	4-8	15	10-15
3.6mm	3-10	10	5-10	20	15-20
12mm	3-10	25	10~20	35	15~30
22mm	3-10	45	30~40	70	20~50



Example for 12mm focal length

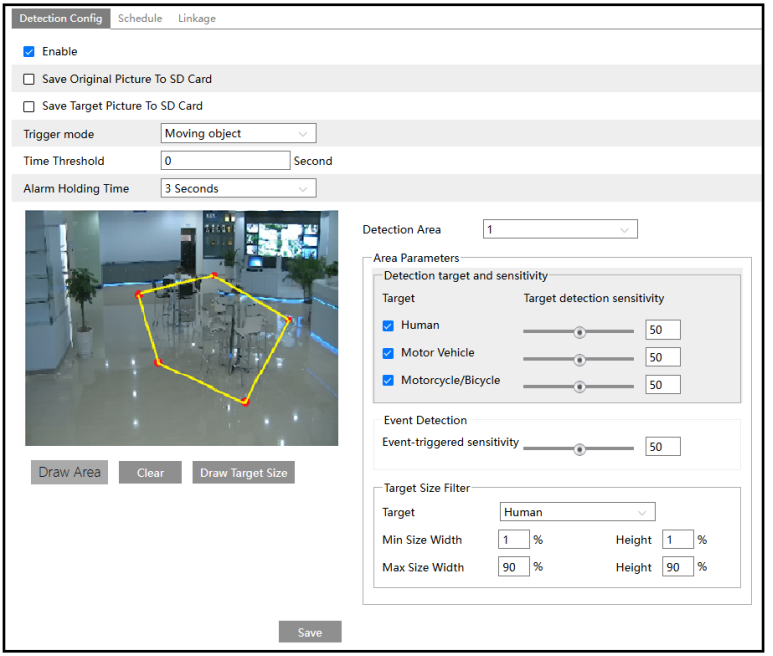
Indoor Mounting



3.4.3 Region Intrusion

Region Intrusion: Alarms will be triggered if the target enters and stays in the pre-defined areas. This function can be applicable to important supervision places, danger areas and prohibited areas, like military administrative zones, high danger areas, no man's areas, etc.

Go to ***Config→Event→Region Intrusion*** as shown below.



1. Enable region intrusion detection 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 the target intrudes into the pre-defined areas.

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 the target intrudes into the pre-defined areas.

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

2. Set trigger mode, time threshold and alarm holding time.

Trigger Mode: Choose "Moving object" or "All objects" as needed. If "Moving object" is selected, alarms will be triggered when an object intrudes into the pre-defined area; if the object stops moving on the alarm line, the region intrusion alarm stops too. If "All objects" is selected, alarms will be triggered when an object keeps still on the alarm line or intrudes into the pre-defined area.

Time Threshold: It refers to the threshold for the time of the object/target staying in the region. If one object entering and staying in the pre-defined area exceeds the time threshold, alarms will be triggered.

Alarm Holding Time: It is the time that the alarm extends after an alarm ends.

3. Set alarm areas, targets, sensitivity and target size filter for region intrusion detection.

Set the alarm area number. 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 (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.

Note: If the set rule line is very close to the edge of the screen, it may be difficult for the target to trigger the alarm. Please make sure that there is at least one full target-sized space between the rule line and the edge of the screen.

Detection Target:

Human: Select it and then alarms will be triggered if someone intrudes into the pre-defined area.

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

Motorcycle/Bicycle: Select it and then alarms will be triggered if a vehicle with two wheels (eg. a motorcycle or bicycle) intrudes into the pre-defined area.

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 intrusion detection is enabled.

Target Detection Sensitivity: The higher the value is, the easier the alarm can be triggered by targets.

Event Triggered Sensitivity: It refers to the percentage of the body part of an object that enters the alarm area. The higher the value of sensitivity is, the more easily the alarm can be triggered.

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

4. Set the schedule of region intrusion detection. The setup steps of the schedule are the same as the motion detection schedule settings (See Motion Detection for details).
5. Click "Linkage" to configure the alarm linkage items. The setup steps are the same as the sensor alarm. Please refer to Alarm In for details.

※ **Configuration requirements of the camera and surrounding area**

The requirements are similar to line crossing detection. Please refer to Configuration requirements of the camera and surrounding area of line crossing detection for details.

3.4.4 Region Entrance

Only some models support this function.

Region Entrance: Alarms will be triggered if the target enters the pre-defined areas.

Go to ***Config→Event→Region Entrance***.

1. Enable region entrance detection and select the snapshot type and the detection target.
2. Set the alarm holding time.
3. Set alarm areas, targets, sensitivity and target size filter for region entrance detection.
4. Set the schedule of region entrance detection.
5. Set the alarm linkage items.

The setup steps of the region entrance detection are similar to the region intrusion detection

setup (See Region Intrusion for details).

3.4.5 Region Exiting

Only some models support this function.

Region Exiting: Alarms will be triggered if the target exits from the pre-defined areas.

Go to ***Config→Event→Region Exiting***.

1. Enable region exiting detection and select the snapshot type and the detection target.
2. Set the alarm holding time.
3. Set alarm areas, targets, sensitivity and target size filter for region exiting detection.
4. Set the schedule of region exiting detection.
5. Set the alarm linkage items.

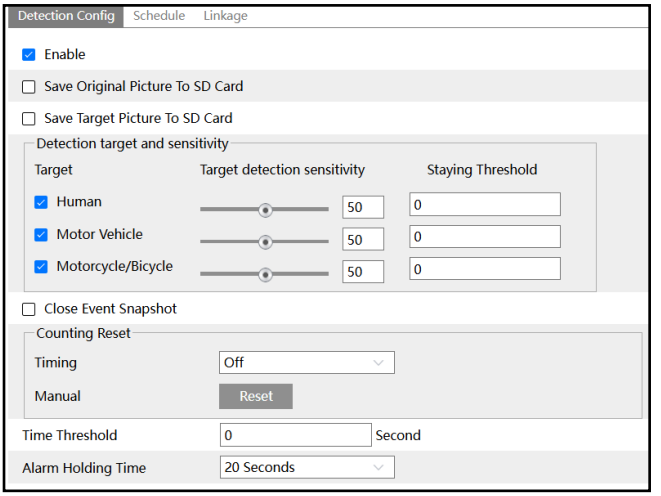
The setup steps of the region exiting detection are similar to the region intrusion detection setup (See Region Intrusion for details).

3.4.6 Target Counting by Line

Only some models support this function. If your camera doesn't support this function, please skip the following instructions.

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.

Target Detection Sensitivity: The higher the value is, the easier the alarm can be triggered by targets.

Staying Threshold: When the targets (human/vehicle) staying in the specified area exceed the threshold, alarms will be triggered.

Close Event Snapshot: if enabled, the captured pictures based on target counting by line will be neither saved to an SD card/local PC nor pushed to the NVR/APP/platform/….

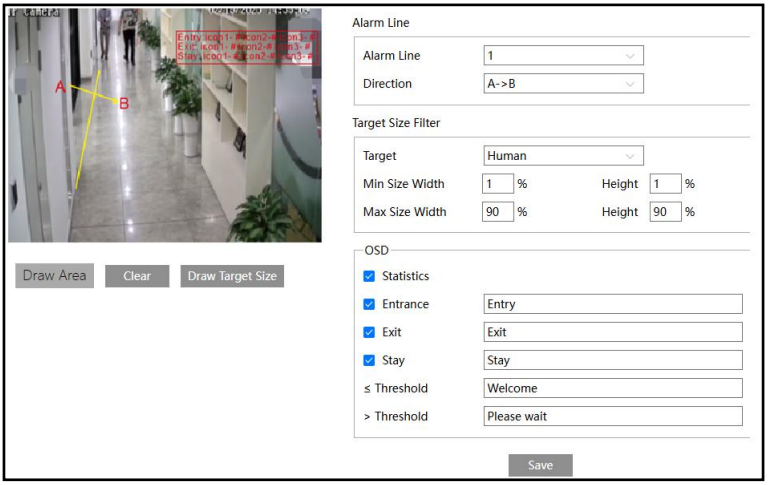
Counting Reset: The current number of the target counting can be reset. You can choose to reset the counting daily, weekly or monthly. Click "Reset" to manually reset the current number of crossing line people/motor vehicle/non-motor vehicle counting.

Time Threshold: The duration time that the number of targets exceeds the staying threshold. Alarms will not be triggered even if the targets staying in the specified area exceed the threshold within the set delay alarm duration. But if you set it to "0", alarms will be triggered immediately when the targets staying in the specified area exceed the threshold.

3. Set the alarm holding time.

Alarm Holding Time: it is the time that the alarm extends after an alarm ends.

4. Set alarm lines and target size filter.



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.

Note: If the set rule line is very close to the edge of the screen, it may be difficult for the target to trigger the alarm. Please make sure that there is at least one full target-sized space between the rule line and the edge of the screen.

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.

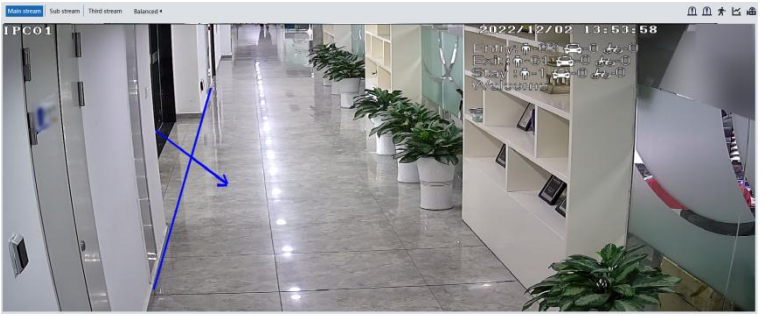
Note: When target counting by line and by area are enabled simultaneously, the OSD position shown in the image depends on the OSD position of target counting by area.

Click the "Save" button to save the settings.

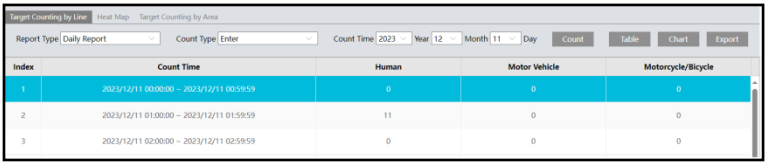
5. Set the schedule of target counting by line. The setup steps of the schedule are the same as the schedule recording setup (See Schedule Recording).

6. Click "Linkage" to configure the alarm linkage items. The setup steps are the same as the sensor alarm. Please refer to Alarm In for details.

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



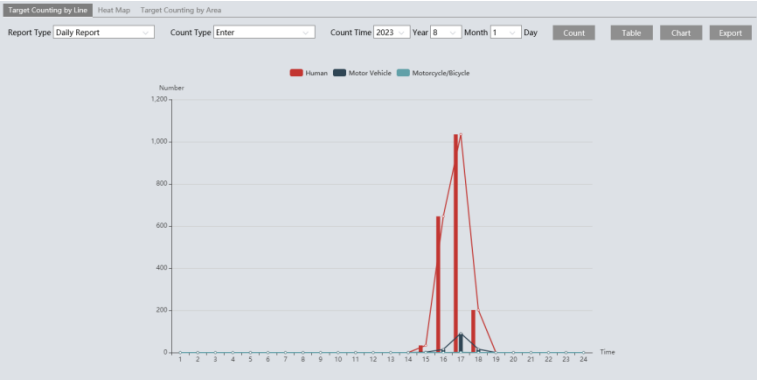
8. View the statistical information of target counting by line. Click "Statistics" to enter the following interface.



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 be displayed in the statistic result area. Click Table or Chart to display the result in different way.



※ **Configuration requirements of the camera and surrounding area**

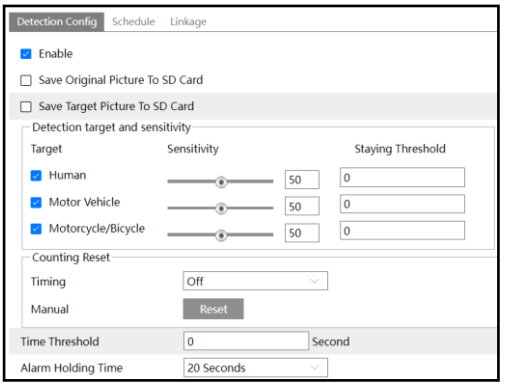
The requirements are similar to line crossing detection. Please refer to Configuration requirements of the camera and surrounding area of line crossing detection for details.

3.4.7 Target Counting by Area

Only some models support this function.

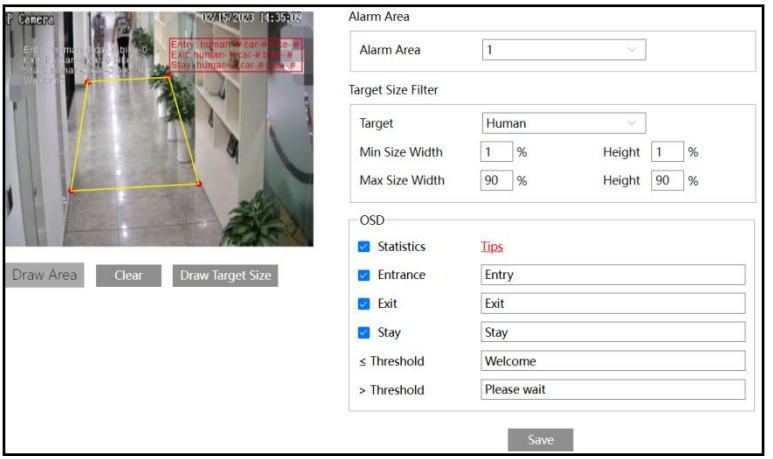
This function is used to detect, track and count the number of people or vehicles intruding into a pre-defined area.

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



2. Enable target counting by area, select the snapshot type, the detection target and counting reset. The setup steps are the same as the target counting by line.

3. Set the statistic area.



Select the alarm area number. Only one alarm area can be added.

Click the "Draw Area" button and then click around the area where you want to set as the alarm area in the image (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.

Note: If the set rule line is very close to the edge of the screen, it may be difficult for the target to trigger the alarm. Please make sure that there is at least one full target-sized space between the rule line and the edge of the screen.

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.

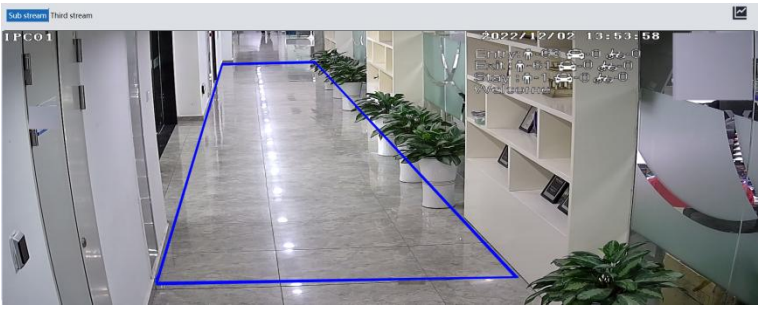
Check "Statistics" and then move the red box to change the position of the statistical information displayed on the screen.

The statistical OSD information can be customized as needed.

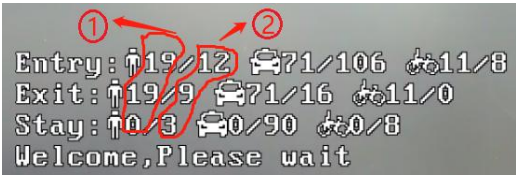
4. Set the schedule of target counting by area. The setup steps of the schedule are the same as the schedule recording setup (See Schedule Recording).

5. Click "Linkage" to configure the alarm linkage items. The setup steps are the same as the sensor alarm. Please refer to Alarm In for details.

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



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.

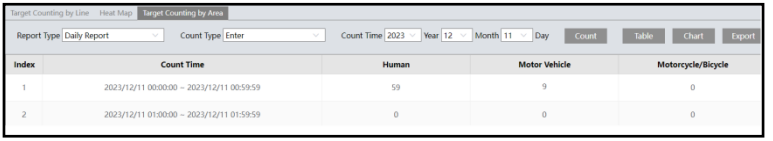


①: the statistical number of target counting by area

②: the statistical number of target counting by line

Each line of the above OSD information (including OSD content, colon, slashes and images) cannot exceed 37 characters, or some data will not be displayed completely.

7. View the statistical information of target counting by area. Click ***Statistics→Target Counting by Area*** to enter the following interface.



Please select report type, count type and start time as needed. Then click “Count” to search the statistic result. Click “Chart” to view the statistic result intuitively.

※ Configuration requirements of the camera and surrounding area

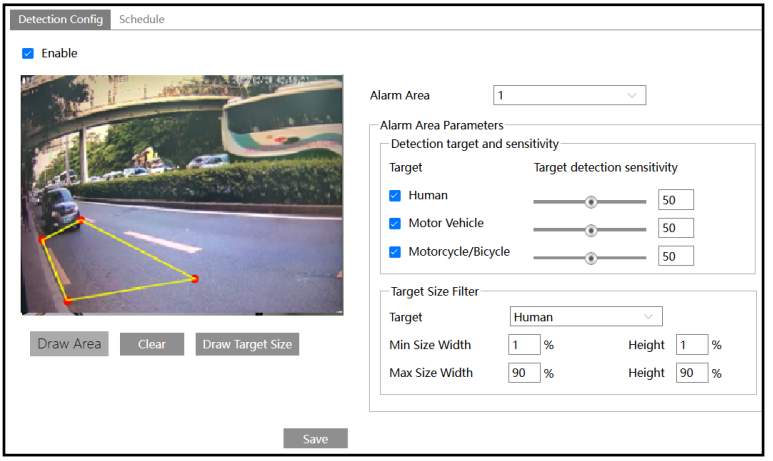
The requirements are similar to line crossing detection. Please refer to Configuration requirements of the camera and surrounding area of line crossing detection for details.

3.4.8 Heat Map

Only some models support this function.

Heat Map is to display the flow distribution of people/vehicles in pre-defined areas by different colors.

1. Enable heat map, set snapshot type, detection target type and target detection sensitivity as needed.
2. Set heat map display area and target size filter. Up to 4 areas can be set.



Click the "Draw Area" button and then click around the area where you want to set as the alarm area in the image (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 the line crossing target size filter setup (See Line Crossing for details).

3. Set the schedule of heat map. The setup steps of the schedule are the same as the schedule recording setup (See Schedule Recording).
4. View the heat map data (click ***Statistics→Heat Map***). Set the start time and the end time. Click "Count" to view the heat map as shown below. The default heat map is people flow data display. Click "Motor Vehicle" or "Motorcycle/bicycle" to view the corresponding data.

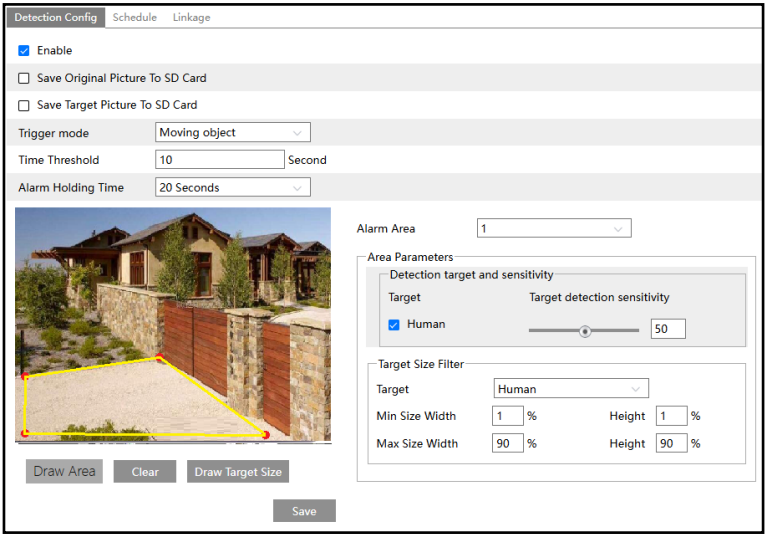
3.4.9 Loitering Detection

Only some models support this function.

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*** as shown below. The setting steps are as follows:

1. Enable loitering detection and select the snapshot type.



2. Set trigger mode, time threshold and alarm holding time.

Trigger Mode: Choose "Moving object" or "All objects" as needed. If "Moving object" is selected, alarms will be triggered when a person staying and moving in the specified area exceeds the threshold. If "All objects" is selected, alarms will be triggered when a person keeping still or moving in the specified area exceeds the threshold.

Time Threshold: the time that a person is allowed to stay in the area. If a person staying in the specified area exceeds the threshold, alarms will be triggered until this person leaves.

For example: Trigger mode is set to "Moving object" and the threshold is set to "60seconds; when a person staying and moving in the specified area exceeds 60seconds, an alarm is triggered and continues unless the person leaves this area.

Alarm Holding Time: it is the time that the alarm extends after an alarm ends.

3. Set alarm areas, sensitivity and target size filter.

Select the alarm area number. 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 (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 Detection Sensitivity: The higher the value is, the easier the alarm can be triggered.

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

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

5. Click "Linkage" to configure the alarm linkage items. The setup steps are the same as the

sensor alarm. Please refer to Alarm In for details.

※ **Configuration requirements of the camera and surrounding area**

1. Avoid enabling this function in complex scenes, such as a scene with a large flow of people and vehicles.
2. Other requirements are similar to line crossing detection. Please refer to Configuration requirements of the camera and surrounding area of line crossing detection for details.

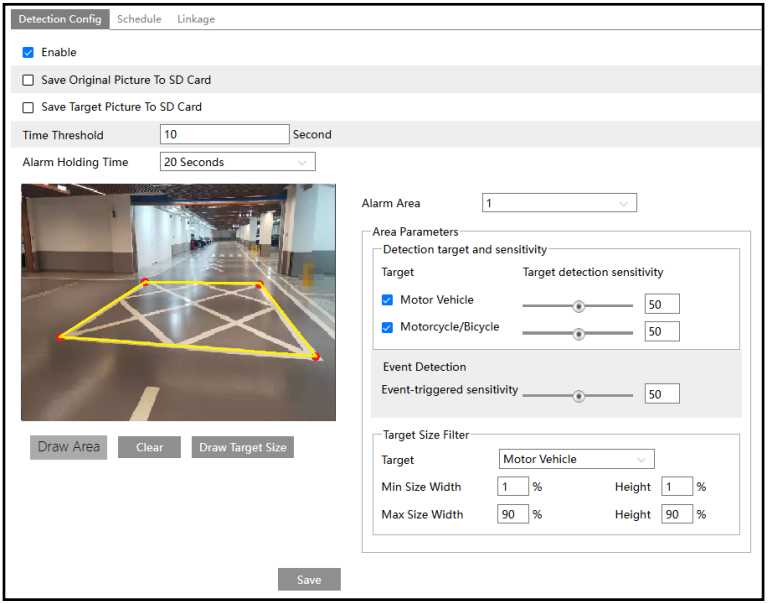
3.4.10 Illegal Parking Detection

Only some models support this function.

Illegal Parking Detection: when a vehicle (like a car, truck, motorcycle, etc.) staying in a no-parking zone exceeds the threshold, alarms will be triggered until the vehicle is driven away.

Go to ***Event→Illegal Parking Detection***. The setting steps are as follows:

1. Enable illegal parking detection and select the snapshot type.



2. Set the time threshold and alarm holding time.

Time Threshold: the time that a vehicle is allowed to stay in the specified area. If a vehicle staying in the area exceeds the threshold, alarms will be triggered until it is driven away. For example, the time threshold is set to 30s. When the system detects a vehicle stopping in the set no-parking zone, it will start counting. Alarms will be triggered after it stays for more than 30s. And the illegal parking alarm will not stop until the vehicle is driven away from the non-parking zone.

Alarm Holding Time: This is the time that the alarm extends after the overstaying vehicle

leaves.
3. Set alarm areas, target, sensitivity and target size filter.
Select the alarm area number. 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 (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.

Detection Target:
Motor Vehicle: a vehicle with four or more wheels
Motorcycle/Bicycle Vehicle: a vehicle with two wheels (eg. a motorcycle or bicycle)
Target Detection Sensitivity: The higher the value is, the easier the alarm can be triggered by targets.
Event Triggered Sensitivity: It refers to the percentage of the body part of an object that enters the alarm area. The higher the value of sensitivity is, the more easily the alarm can be triggered.

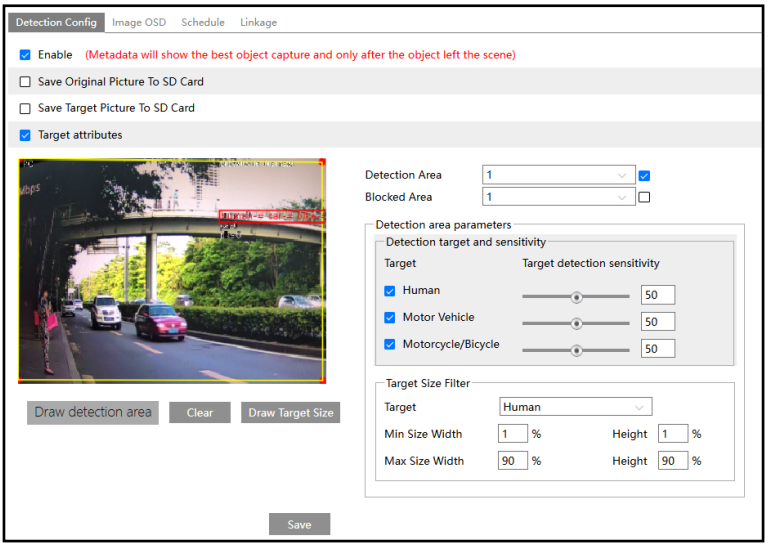
Target size filter setup: The setup steps of the target size filter are the same as the line crossing target size filter setup (See Line Crossing for details).

4. Set the schedule of illegal parking detection. The setup steps of the schedule are the same as the schedule recording setup (See Schedule Recording).
5. Click "Linkage" to configure the alarm linkage items. The setup steps are the same as the sensor alarm. Please refer to Alarm In for details.

※ **Configuration requirements of the camera and surrounding area**
1. Avoid enabling this function in complex scenes, such as the scene with a large flow of people and vehicles.
2. Other requirements are similar to line crossing detection. Please refer to Configuration requirements of the camera and surrounding area of line crossing detection for details.

3.4.11 Video Metadata

Only some models support this function. If your camera doesn't support this function, please skip the following instructions.
Video Metadata: Human, motor vehicle and motorcycle/bicycle in the video can be classified and captured and the relevant features can be extracted and displayed on the live interface.
Go to ***Config→Event→Video Metadata***. The setting steps are as follows:



1. Enable video metadata and select the snapshot type.

Save Original Picture to SD Card: If it is enabled, the detected original pictures will be captured and saved to the SD card when the targets enter the pre-defined areas.

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 the targets enter the pre-defined areas.

2. Enable target attributes as needed. If not enabled, the detected targets will be pushed, but the target attribute information (eg. whether to wear a mask, glasses, etc.) will not be pushed.

3.Set the detection area, blocked area, detection target and target size filter.

Detection Area: 4 detection areas can be set. Targets that enter the pre-defined detection area will be captured.

Blocked Area: 4 blocked areas can be set. Targets that enter the pre-defined blocked area will not be captured.

You need to set the detection area and blocked area separately.

To set detection area:

Check the checkbox of detection area and select the number and to set the detection area.

Click the “Draw Area” button and then click around the area where you want to set as the alarm area in the image (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.

To set blocked area:

Check the checkbox of blocked area and select the number and to set the blocked area. The setting steps are the same as detection area settings.

Detection target: choose “Human”, “Motor Vehicle” or “Motorcycle/Bicycle” as needed**.**

After you choose the detection target, set the target detection sensitivity as needed.

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

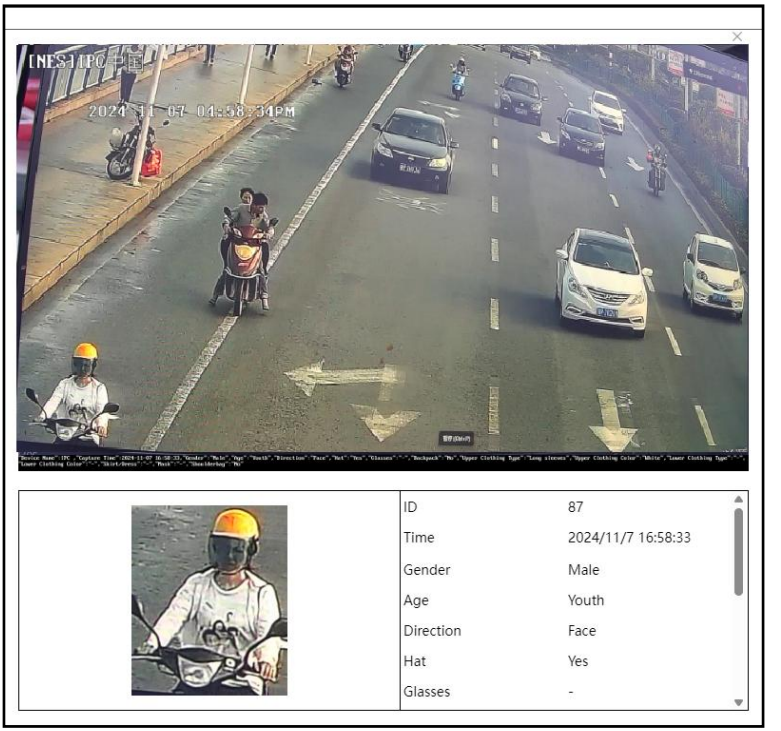
4. Select the attribute information of the target. Click “Image OSD” and then select the relevant attribute information. When the target is detected, the information you select will be displayed in the attribute display area. See Video Metadata View for details.
5. Set the schedule of the video metadata function. The setup steps of the schedule are the same as the schedule recording setup (See Schedule Recording).
6. Click “Linkage” to check “FTP” as needed. Please refer to the FTP configuration for more details.

After all settings above are configured, return to the live interface to view the captured pictures and features.

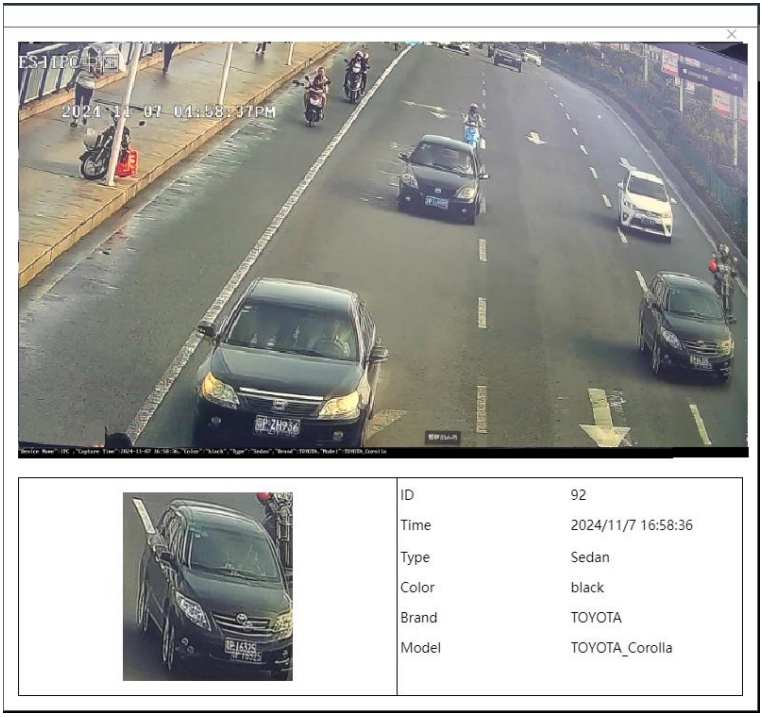
- **Video Metadata View**

In the live interface, click  to view the following smart snapshots.

Click the captured human picture to view the detailed information as shown below.



Click the captured vehicle picture to view the detailed information as shown below.



Note: This function is not applicable to the scene with a large flow of people and vehicles.

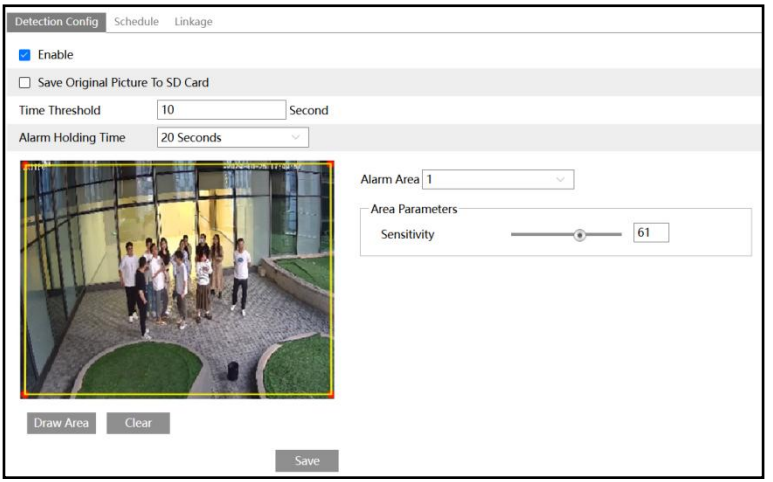
3.4.12 People Gathering Detection

Only some models support this function. If your camera doesn't support this function, please skip the following functions.

People Gathering Detection: It detects the people density in a pre-defined area. If the people density reaches the threshold of the set sensitivity level and exceeds the set time threshold, alarms will be triggered. This function can be applicable to the scenes with medium or long distance, such as outdoor plaza, government entrance, station entrance and exit.

The setting steps are as follows:

1. Go to ***Config→Event→People Gathering***.



2. Enable people gathering detection and select the snapshot type.

Save Original Picture to SD Card: If it is enabled, the detected original pictures will be captured and saved to the SD card when people gathering detection is triggered.

3. Set the alarm area and sensitivity.

Click the "Draw Area" button and then click around the area where you want to set as the alarm area in the image (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.

Sensitivity: the sensitivity is related to the local density. The higher the value is, the easier the alarm can be triggered.

4. Set the time threshold and alarm holding time.

Time threshold: When the people density in the pre-defined area reaches the threshold of the sensitivity level and exceeds the set time threshold, alarms will be triggered.

Alarm Holding Time: it is the time that the alarm extends after an alarm ends.

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

6. Click "Linkage" to configure the alarm linkage items. The setup steps are the same as the sensor alarm. Please refer to Alarm In for details.

※ Configuration requirements of the camera and surrounding area

1. Low installation height is not allowed for this function.

2. Try to avoid the following situations: large percentage of a single person in the image, obvious target occlusion, continuous shaking of the camera, shaking of leaves and tree shade, or dense traffic or people flow.

3. Other requirements are similar to line crossing detection. Please refer to Configuration requirements of the camera and surrounding area of line crossing detection for details.

3.4.13 Face Detection

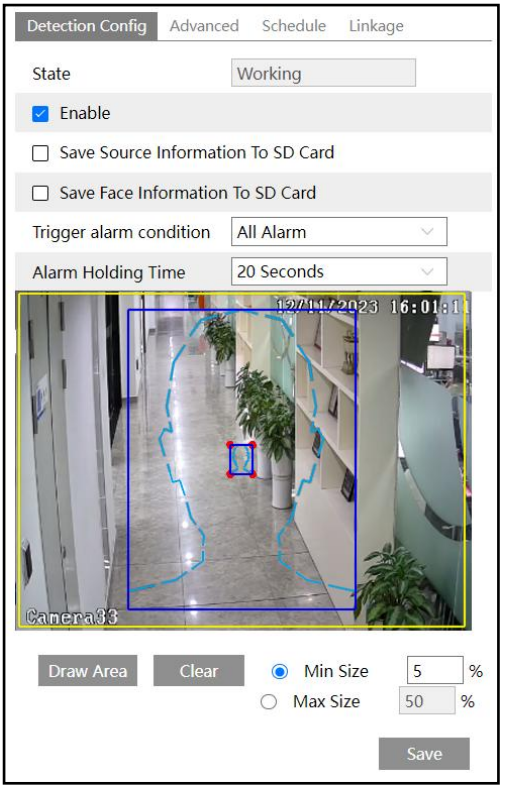
Only some models support this function. If your camera doesn't support this function, please skip the following instructions.

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

Click ***Config→System→Application Scenarios***. 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 ***Config→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 SD card when detecting a face.

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

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

3. Set alarm condition and the alarm holding time.

Trigger alarm condition: all or mask off can be selectable.

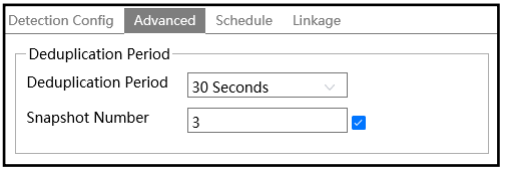
All: Alarms will be triggered when the camera detects a face (with/without a mask).

Mask off: Alarms will be triggered when the detected person is not wearing a mask on the face.

4. Set alarm detection area.

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

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



Deduplication Period: If 30 seconds is selected, the camera will capture the same target once every 30 seconds during its continuous tracking period.

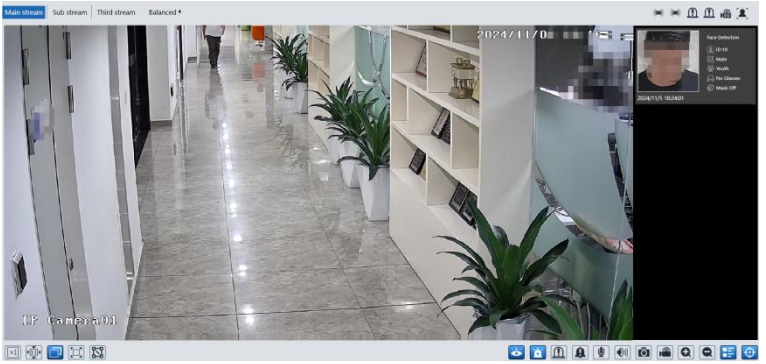
Snapshot Number: If the snapshot number is enabled and set (eg. 3), the camera will capture the same target once every 30 seconds and it will capture this target 3 times at most during its continuous tracking period. If the snapshot number is disabled, the camera will capture the same target once every 30 seconds until the target disappears in the detected area.

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

7. Click "Linkage" to configure the alarm linkage items. The setup steps are the same as the sensor alarm. Please refer to the Alarm In section for details.

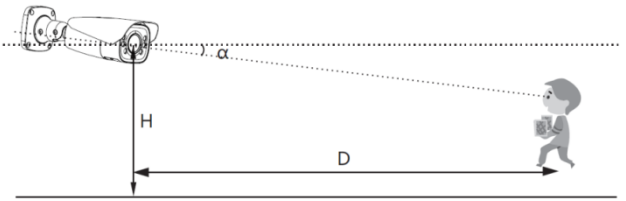
Face Capture View

After enabling face detection function, return to the live view interface. Click  to go to the following interface. When there are faces detected, the face pictures will be listed on the right. The features of captured faces also can be displayed, such as gender, whether to wear a mask, whether to wear glasses, age group, etc.



※ Configuration requirements of camera and surrounding area

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



4. The object distance depends on the focal-length of the lens mounted in the camera.
5. In order to guarantee the captured face recognition rate, the requirement for face capture are: left or right 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 dealing with backlight scenarios, enabling BLC, HLC, or WDR can help improve video quality and visibility. These features compensate for extreme lighting conditions and ensure better surveillance results.
8. The following scenes are not applicable, like crowded scenes (airport, railway station, square, etc), and so on.

3.4.14 Face Comparison

Only some models support function.

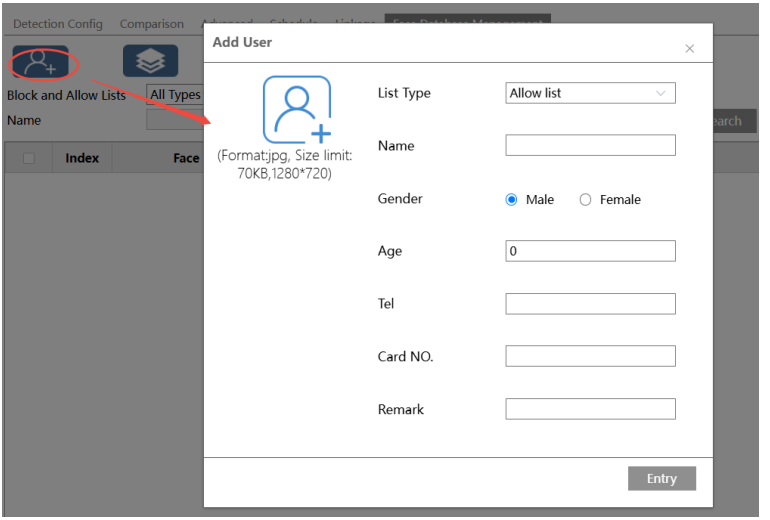
Click ***Config→System→Application Scenarios***. Select the face event and then save the setting. After the camera restarts successfully, you can view the face comparison menu.

The setting steps are as follows:

1. Go to ***Config→Event→Face Comparison***.
2. Enable the face detection function. Select the snapshot storage type, and set alarm

condition, alarm holding time and alarm detection area. See Face Detection for details.

3. Face database management: click “Face Database Management” tab. This will enter the following interface.



There are four ways to add face pictures.

① Adding face pictures one by one

Click  to pop up an adding user box. Then click  to select a face picture saved on the local PC. Please select the picture according to the specified format and size limit. After that, fill out the relevant information of the face picture and click “Entry” to add.

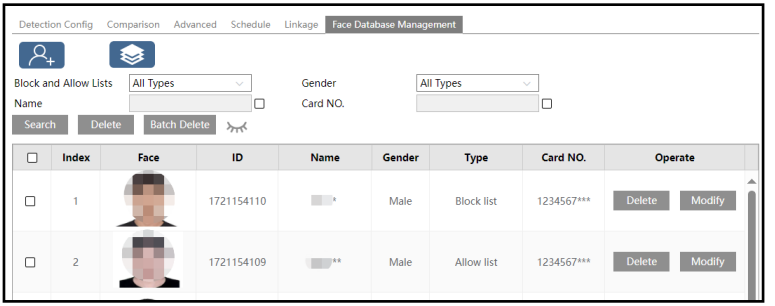
② Adding face pictures in bulk

Click  and then add multiple face pictures once according to the prompted rules.

③ Add face pictures by using face album management tool

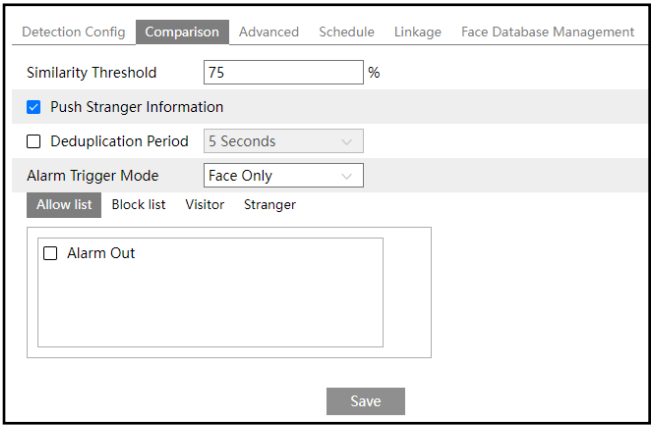
④ Add the captured picture in the live mode (See ***Add captured face pictures to the face database***).

After adding face pictures, you can search them by name, gender, ID number and so on.



Click “Modify” to change people information and click “Delete” to delete this face picture.

4. Set face comparison trigger options. Click “Comparison” to go to the following interface.



Similarity threshold: When the similarity of the captured face picture and the face picture added into the face database exceeds the similarity threshold, alarms will be triggered.

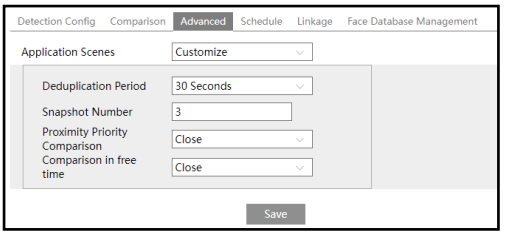
Push Stranger Information: Push the comparison alarm information of the stranger. After it is enabled, the comparison information of the stranger will be shown on the left comparison area of the live interface.

Deduplication Period: In the set period, delete the repeated comparison results.

Alarm Trigger Mode: Face only. When the captured face is successfully recognized, alarms will be triggered.

Alarm Output: Select the list type and then checkmark alarm out. Then alarm output will be triggered when the captured face is matched successfully with the face image of the selected list.

5. Advanced settings.



Application Scenes: “Access control”, “security monitoring” or “customize” can be selected.

Deduplication Period: If 30 seconds is selected, the camera will capture the same target once every 30 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.

Proximity Priority Comparison: When several persons are in the recognition area at the same time, the person closer to the camera is recognized first.

Comparison in free time: When the processor is busy, the comparison of the current detected person will not be performed immediately (for example, there is not enough time for the processor to perform all comparisons, because so many people are detected at the same time). It will continue after the processor load is reduced.

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

7. Click “Linkage” to configure the alarm linkage items. The setup steps are the same as motion detection. Please refer to Motion Detection for details.

- **Face Match View**

After all face comparison settings are set successfully, enter the live view interface. Click  to view the captured face pictures and face comparison information.

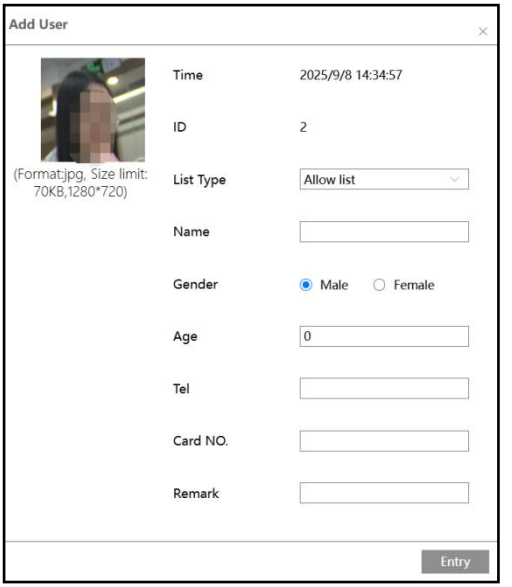
You can view the detailed face comparison information, such as the similarity, capture time, list type, etc. If “Push Stranger” is enabled, the stranger comparison information will be displayed as shown below.

- **View the comparison details**

In area ②, click the compared face picture to bring the following window. In this interface, you can view the detailed comparison information.

- **Add captured face pictures to the face database**

Click a captured picture. This will bring a face picture adding box.

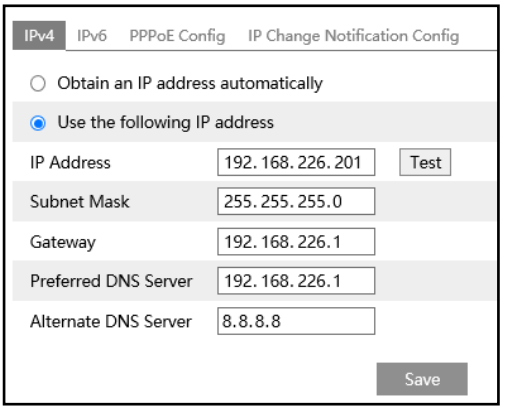


Fill out the relevant information and click “Entry” to add this face picture.

3.5 Network Configuration

3.5.1 TCP/IP

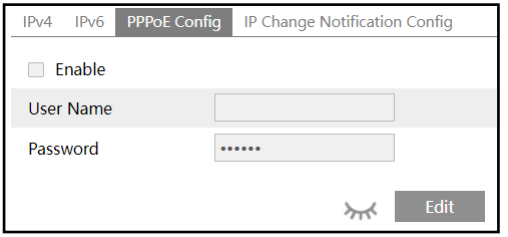
Go to ***Config→Network→TCP/IP*** as shown below. There are two ways for network connection.



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

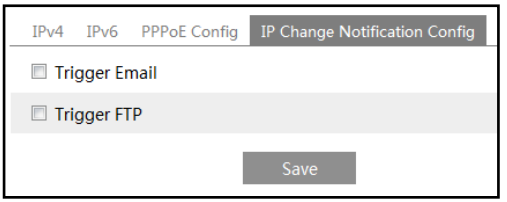
Test: Test the effectiveness of the IP address by clicking this button.

Use PPPoE-Click the "PPPoE Config" tab to go to the interface as shown below. Click "Edit", enable PPPoE and then enter the user name and password from your ISP. (Only some models support the PPPoE function)



Either of these two network connection methods 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.

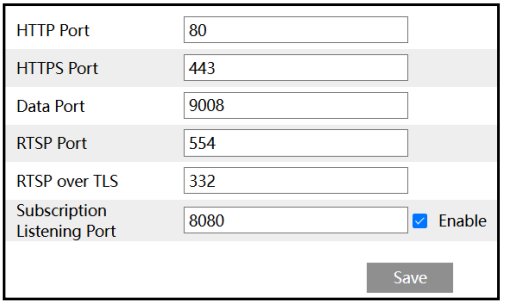
Click "IP Change Notification Config" to go to the interface as shown below.



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 the FTP server that has been set up.

3.5.2 Port

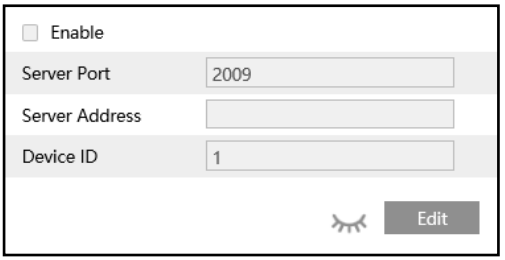
Go to ***Config→Network→Port*** as shown below.



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.
RTSP over TLS: Supports media stream transmission based on TLS channel encryption protection.
Subscription Listening Port: The port is used for a persistent connection of the third-party platform to push smart data.

3.5.3 Server Configuration

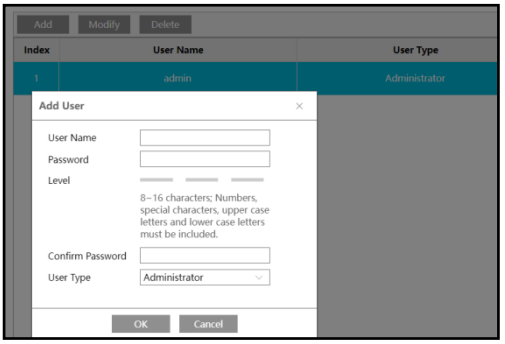
This function is mainly used for connecting network video management system.



1. Click “Edit” and then check “Enable”.
2. Check the IP address and port of the transfer media server in the NVMS. Then enable the auto report in the NVMS when adding a new device. Next, enter the remaining information of the device in the NVMS. After that, the system will automatically allot a device ID. Please check it in the NVMS.
3. Enter the above-mentioned server address, server port and device ID in the corresponding boxes. Click the “Save” button to save the settings. You can show or hide the sensitive data as needed.

3.5.4 Onvif

The camera can be searched and connected to the third-party platform via ONVIF/RTSP protocol.
If “Activate Onvif User” is enabled in the device activation interface, the password of ONVIF admin user can be modified simultanously. When you connect the camera through the ONVIF protocol in the third-party platform, you can use this onvif user to connect.
You can also modify the password of admin sperately in the following interface and add new users in the Onvif interface.

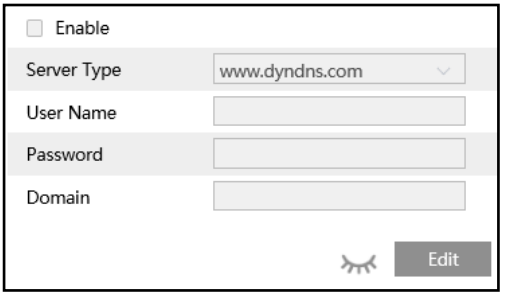


Note: when adding the device to the third-party platform with ONVIF/RTSP protocol, please use the onvif user in the above interface.

3.5.5 DDNS

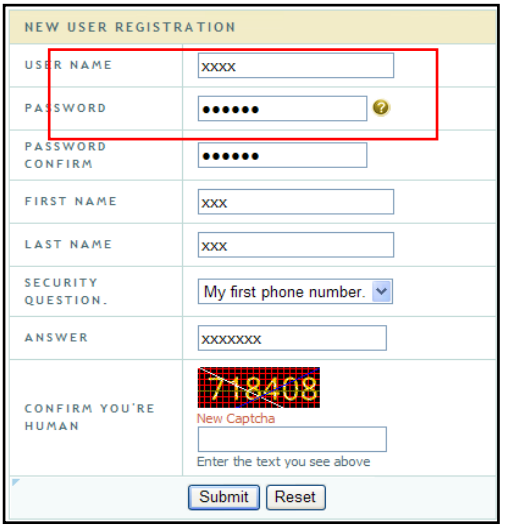
If the camera is set up with a DHCP connection, DDNS should be set for the internet.

1. Go to ***Config→Network→ DDNS***.



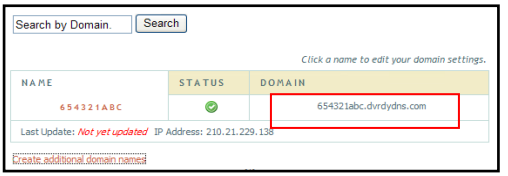
2. Apply for a domain name. Take www.dvrdyndns.com for example.

Enter www.dvrdydns.com in the web address bar to visit its website. Then Click the "Registration" button.



Create domain name.

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



3. Click “Edit” and then enter the username, password, domain you apply for in the DDNS configuration interface.
4. Click the “Save” button to save the settings.

3.5.6 SNMP

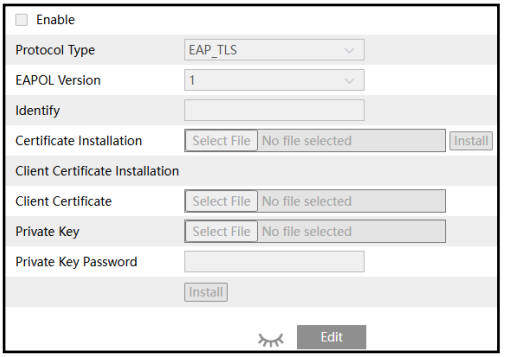
Only some models support this function.
To get camera status, parameters and alarm information and remotely manage the camera, the SNMP function can be used. Before using SNMP, please install an SNMP management tool and set the parameters of the SNMP, such as SNMP port, trap address.
1. Go to ***Config→Network→SNMP***.

2. Click “Edit” and then 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.

Note: Please use the different version in accordance with the security level you required. The higher the version is, the higher the level of the security is.

3.5.7 802.1x

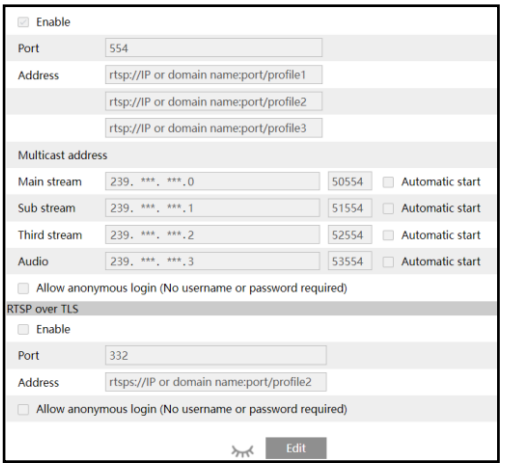
If it is enabled, the camera's data can be protected. When the camera is connected to the network protected by the IEE802.1x, user authentication is needed.



To use this function, the camera shall be connected to a switch supporting 802.1x protocol. The switch can be regarded 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.
Click "Edit" to start the setup.
Protocol type: Choose "EAP_MD5" or "EAP_TLS" as needed.
Select EAP-TLS as the EAP method. Enter your ID issued by the CA, and then upload related certificate(s). Before connecting the camera to the protected network with 802.1x, apply a digital certificate from a Certificate Authority (i.e., your network administrator) which can be validated by a RADIUS server.
Select EAP_MD5 as the EAP method. You need to enter the username and password.
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.

3.5.8 RTSP

Go to ***Config→Network→RTSP***.



Click “Edit” and then select “Enable” to enable the RTSP function.

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

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

Multicast Address

Main stream: The address format is

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

Sub stream: The address format is

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

Third stream: The address format is

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

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

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

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

RTSP over TLS: Enable RTSP stream encryption by using TLS.

Note:

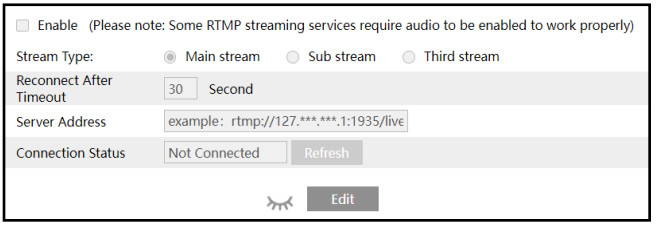
1. The IP address mentioned above cannot be the address of IPv6.
2. Avoid the use of the same multicast address in the same local network.
3. When playing the video through the multicast streams in a player (eg. VLC player), please pay attention to the mode of the player. If it is set to TCP mode, the video cannot be played.

3.5.9 RTMP

Only some models support this function.

You can access the third-party (like YouTube) to realize video live view through RTMP protocol.

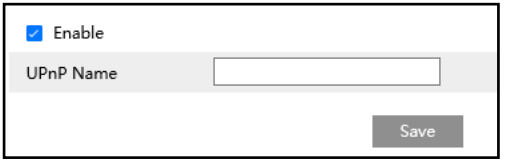
Go to ***Config→Network→RTMP***.



Click "Edit" and then check "Enable", select stream type and 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.

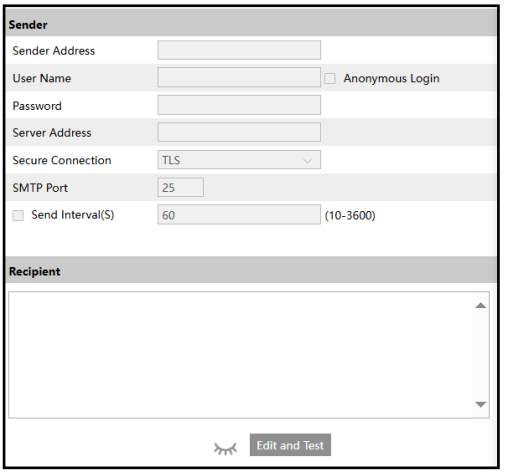
3.5.10 UPNP

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



3.5.11 Email

Only some models support this function.
If you need to trigger an Email when an alarm happens or IP address is changed, please set the Email here first.
Go to ***Config→Network→Email***.



Click “Edit and Test” to set the sender and the recipient.

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 an 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.

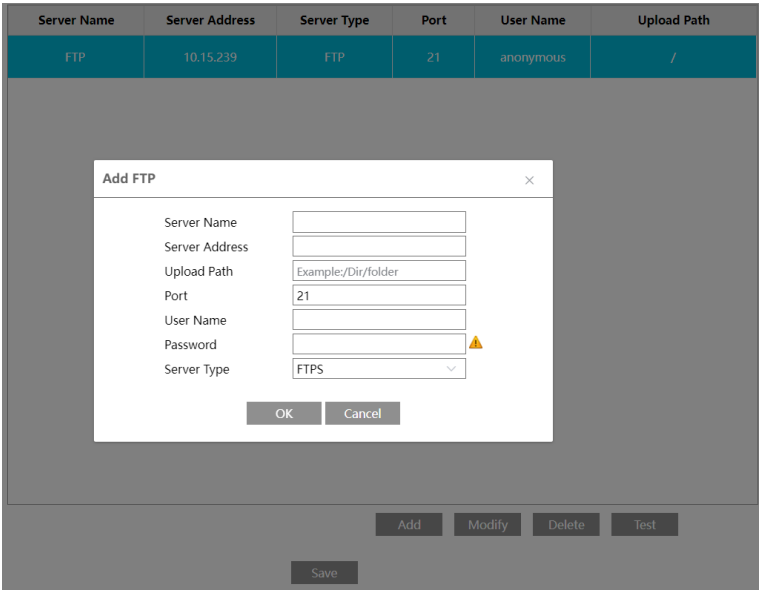
Recipient Address: receiver’s e-mail address.

3.5.12 FTP

Only some models support this function.

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

1. Go to ***Config →Network →FTP***.



2. Click “Edit and Test” and then click “Add” to add the information of the FTP. After that, click “Save” to save the settings.

Server Name: The name of the FTP server.

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

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

Port: The port of the FTP server.

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

Server Type: FTP or FTPS

3. In the event setting interface (like motion detection, region intrusion, line crossing, etc.), trigger FTP as shown below.

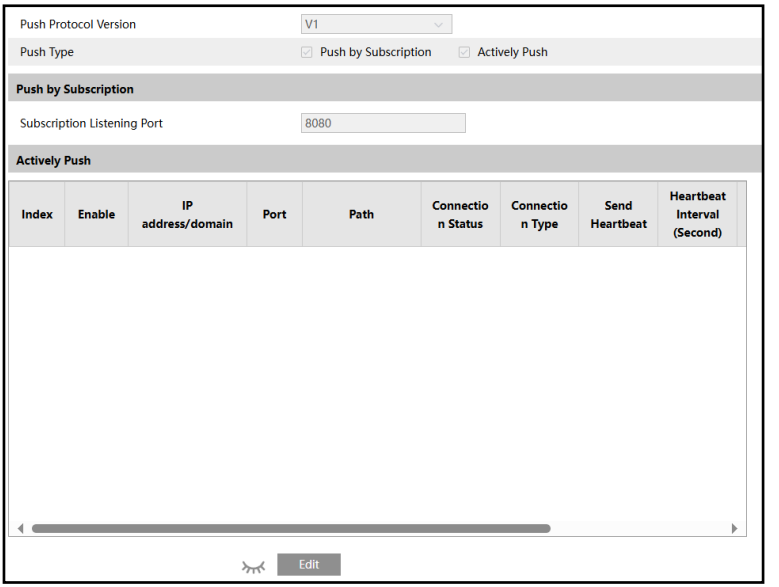
If “Trigger FTP” and “Attach Picture” are checked, the captured pictures will be sent to the FTP server address.

Sub Storage Path& Name: Click “Help” to view the rule and then set it as needed.

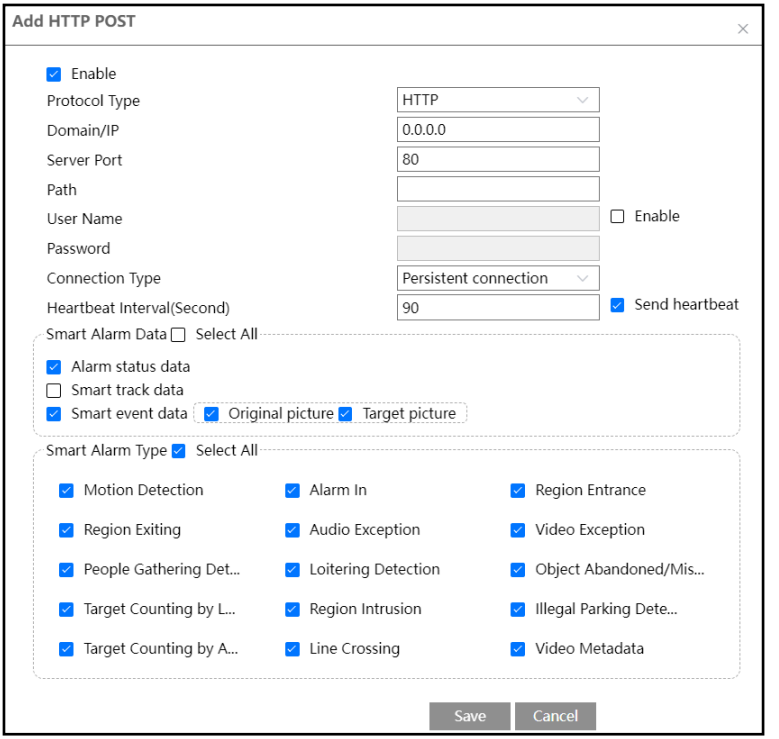
Meanings of the default Path & Name Settings (taking motion detection as an example):
"%a/MOTION/%4y-%2m-%2d/%h" stands for sub storage path
"MOTION_%4y-%2m-%2d-%2h-%2n-%2s-%3u-%3i.* " stands for file name
When an motion alarm is triggered and "Trigger FTP" and "Attach Picture" are checked, a jpg file named "MOTION_Year Month Day Hour Minute Second_Event number" and a txt file named "MOTION_Year Month Day Hour Minute Second_Event number" will be generated under FTP root directory> MAC address>MOTION>Year-Month-Day>Hour
"MOTION" refers to the event type. You can modify the event name as needed (for example: Motion). You can also change the display order and contents of the sub storage path and file name.
If the sub storage path and name box is empty, the snapshot will be uploaded and named according to the default settings.
If you only enter the file name rule, the snapshot will be uploaded to the root directory of the FTP server.

3.5.13 HTTP POST

Only some models support this function.
Go to ***Config→Network →HTTP POST*** and click "Edit".
Push Protocol Version: Choose "V1" or "V2" as needed. It is recommended to use V2.
Push Type: "Push by Subscription" and/or "Actively Push" can be selected.
Push by Subscription: Push target trajectory (moving coordinate) to API test tool with a persistent connection. If enabled, the system will push the target trajectory upon detecting a target. If disabled, the system will push the target trajectory only when triggering a smart event (such as line crossing detection, region intrusion detection, etc.)
If the subscription listening port is occupied, you can modify it.



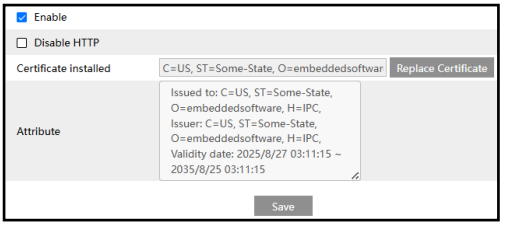
Actively Push: Click “Add” to add HTTP POST.



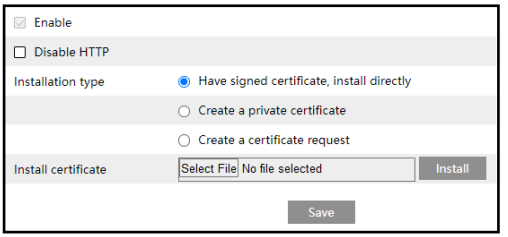
Protocol type: HTTP
Domain/IP: the IP address/domain name of the third-party platform.
Server port: the server port of the third-party platform.
Path: enter the subdomain of the above server, for example, the URL of alarm information push: "/SendAlarmStatus".
Username and password: Please enable and enter as needed.
Connection Type: Choose "Persistent connection" or "Short connection" as needed. A persistent connection is always pushed with an established connection. A short connection will be disconnected after it is successfully pushed and re-established for the next push.
If "Persistent Connection" is selected, enable "Send heartbeat" and set heartbeat interval as needed to maintain the connection. A short connection doesn't have heartbeat sending or heartbeat interval options.
Enable "Send heartbeat" and set heartbeat interval as needed. Check smart alarm data and type. After the above parameters are set, click "Save" to save the settings. Select one URL and click "Test" to test the connection of the URL. 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 selected alarm data to the third-party platform once the selected smart alarm is triggered.

3.5.14 HTTPS

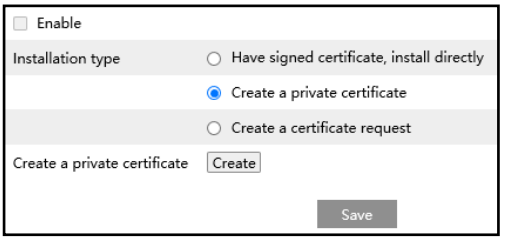
Only some models support this function.
HTTPs provides authentication of the web site and protects user privacy.
Go to ***Config→Network→HTTPS*** as shown below.



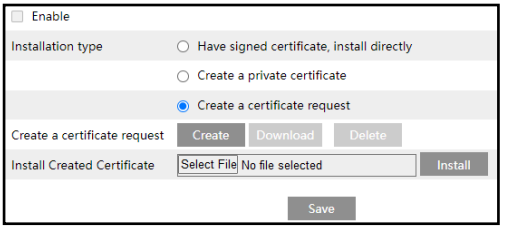
There is a certificate installed by default as shown above. Enable this function and save it. Then the camera can be accessed by entering https://IP: https port via a web browser (eg. https://192.168.226.201:443).
A private certificate can be created if users don't want to use the default one. Click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



* If there is a signed certificate, click “Select File” 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.

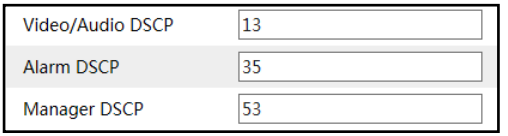
3.5.15 NAT

If this function is enabled, the network camera can be quickly accessed by scanning the QR Code and entering the security code in the mobile APP via WAN. In addition, you can also enter the visit address in the address bar of a web browser to log in the camera via WAN. Enable this function by going to ***Config→Network→NAT***.

After the device is successfully bound, you can unbind it via APP (go to the server list of the APP and delete the device).
Note that after you bind the camera to your APP account, a verification code will be required when logging onto the web client by using the above-mentioned visit address.

3.5.16 QoS

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

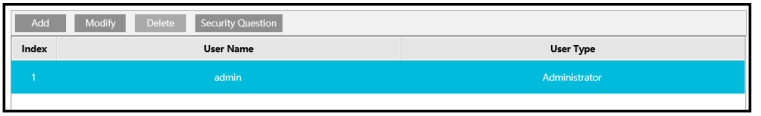


Video/Audio DSCP: The range is from 0 to 63.
Alarm DSCP: The range is from 0 to 63.
Manager DSCP: The range is from 0 to 63.
Generally speaking, the larger the number is, the higher the priority is.

3.6 Security Configuration

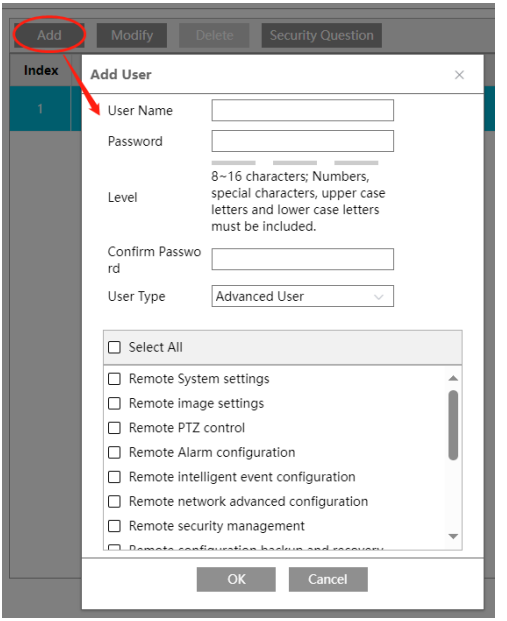
3.6.1 User Configuration

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



Add user:

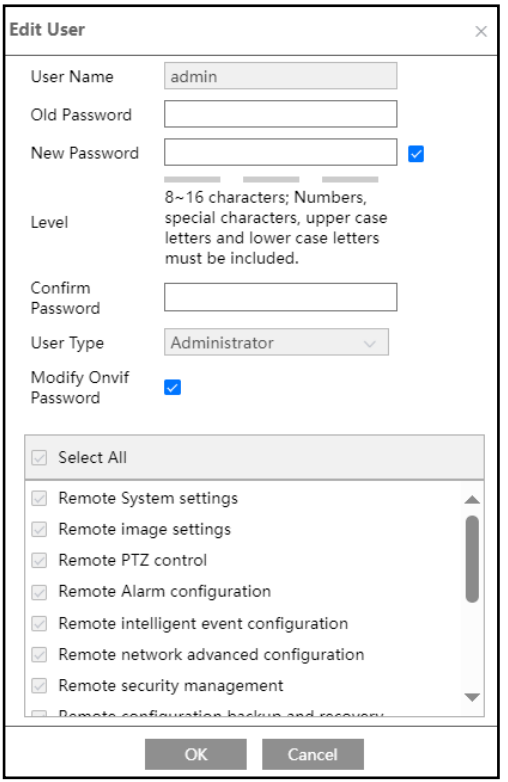
1. Click the “Add” button to pop up the following textbox.



2. Enter user name in the “User Name” textbox.
3. Enter the password in the “Password” and “Confirm Password” textbox. Please set the password according to the requirement of the password security level (Go to ***Config→Security→Security Management→Password Security*** to set the security level).
4. Choose the user type and select the desired user permissions.
5. 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 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. Select the user permissions for advanced or normal user.
6. Click the “OK” button to save the settings.

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.

Safety Question Settings: set the questions and answers for admin to reset the password after you forget the password.

3.6.2 Online User

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

In addition, you can also view the number of video streams, IP address, user type, etc.
An administrator user can kick out all the other users (including other administrators).

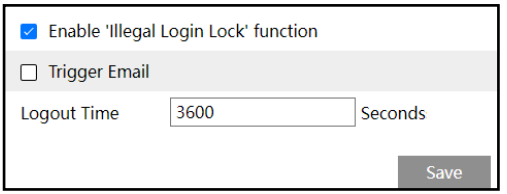
3.6.3 Block and Allow Lists

Go to ***Config→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.

3.6.4 Security Management

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

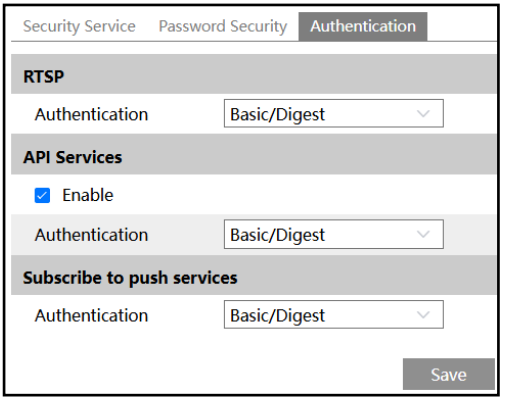


In order to prevent against malicious password unlocking, "Illegal Login Lock" function can be enabled here. If this function is enabled, login failure after trying five times will make the login interface locked. The camera can be logged in again after a half hour or after the camera reboots.
Trigger 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 and 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.

- **Authentication**

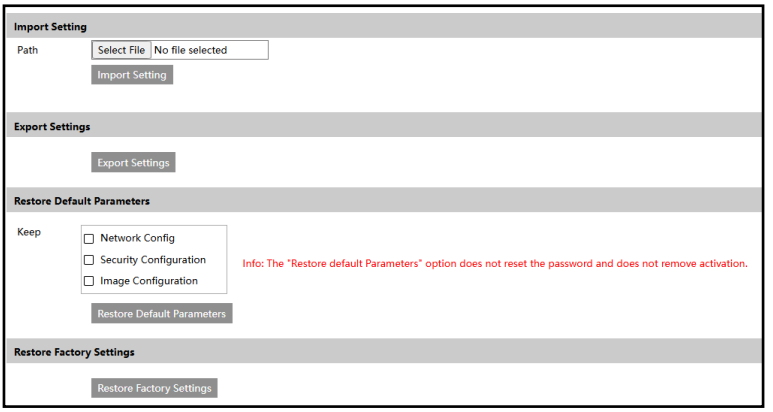


RTSP Authentication: “Digest” or “Basic/Digest” can be selected.
API Service Authentication: “Digest” or “Basic/Digest” can be selected.
Push Subscription Authentication: “Digest” or “Basic/Digest” can be selected.

3.7 Maintenance Configuration

3.7.1 Backup and Restore

Go to ***Config→Maintenance→Backup and Restore***.



- **Import & Export Settings**

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

1. Click "Select File" 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.

* The customized audio files are not supported to export or import.

- **Restore Default Parameters**

Click the "Restore Default Parameters" button and then verify the password to restore all parameters to the default parameters except those you want to keep.

- **Restore Factory Settings**

Click the "Restore Factory Settings" button and then verify the password to restore all system settings to the default factory settings.

3.7.2 Reboot

Go to ***Config→Maintenance→Reboot***.

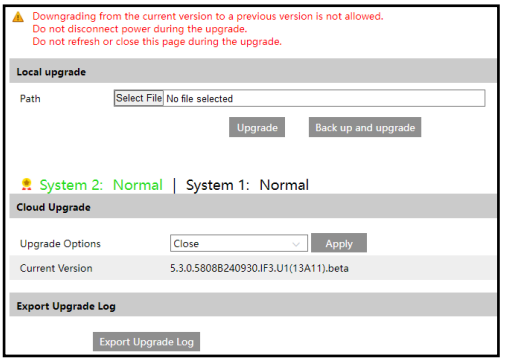
Click the "Reboot" button and then enter the password to reboot the device.

Scheduled 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.

3.7.3 Upgrade

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



- **Local Upgrade**

1. Click the "Select File" button to select the save path of the upgrade file.
2. Click the "Upgrade" or "Back up and upgrade" button to start upgrading the firmware.
3. Enter the correct password and then the device will restart automatically.

Note: If "Back up and upgrade" is selected, the configuration file will be exported to your local PC before starting upgrading.

- **Cloud Upgrade**

Only some models support this function.

Note: Before you use cloud upgrade, please make sure the cloud service is enabled successfully.

After the cloud server pushes the latest version, you can upgrade the camera by itself or NVR.

1. Go to ***Config→Maintenance→Upgrade***.
2. Select "Notify Only" in the cloud upgrade options or click "Manual Check" to check whether the current version is the latest. If your software version is not the latest, click "Upgrade" to download and upgrade from the cloud server.

Caution:

1. You cannot downgrade to a lower version.
2. Do not refresh/close the browser or disconnect the camera from the network during the upgrade, or it will cause system failure. After the device is successfully upgraded, there are ten minutes of observation. During this observation period, do not upgrade the device again.

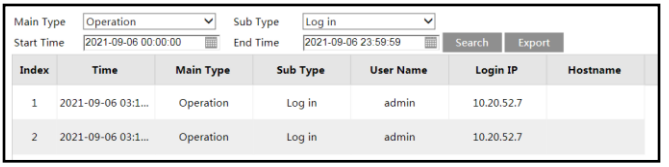
Note: To decrease the upgrade risk, this series of cameras adopts two systems. After one system is successfully upgraded, the other system will be synchronized. If one system fails caused by power failure or other reasons during the upgrade, the other system will not be affected and the camera still can work normally. You can also upgrade your camera through the normal system.

Export Upgrade Log: If upgrade error occurs, the upgrade log can be exported to help the technician to analyze and solve the problem.

3.7.4 Operation Log

To query and export log:

1. Go to ***Config→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.

3.7.5 Maintenance Information

When the device failure occurs, you can export the maintenance information and send it to the technicians, so that they can quickly find out and analyze the problem. Go to ***Config→Maintenance Information*** to export.

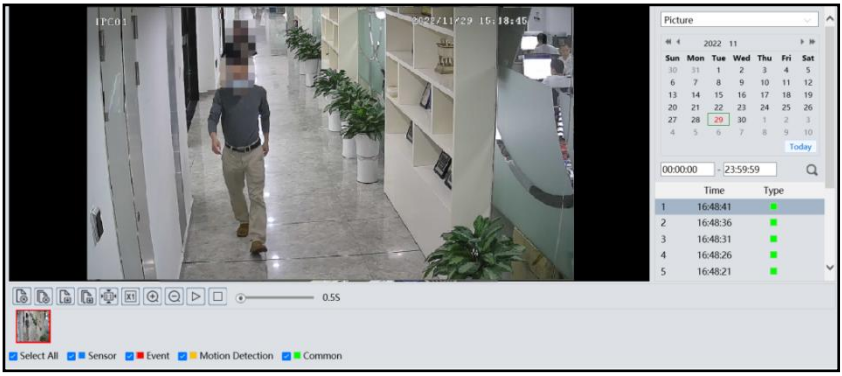
4.1 Image Search

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

- **SD Card Image Search**

1. Choose “Picture”.

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.



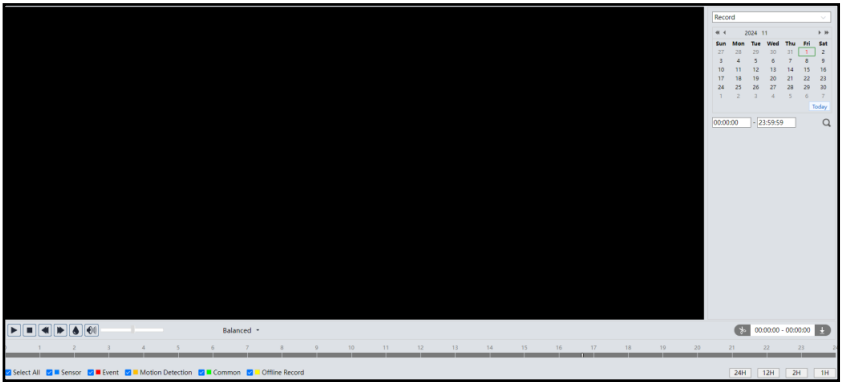
The descriptions of the buttons are shown as follows.

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.		

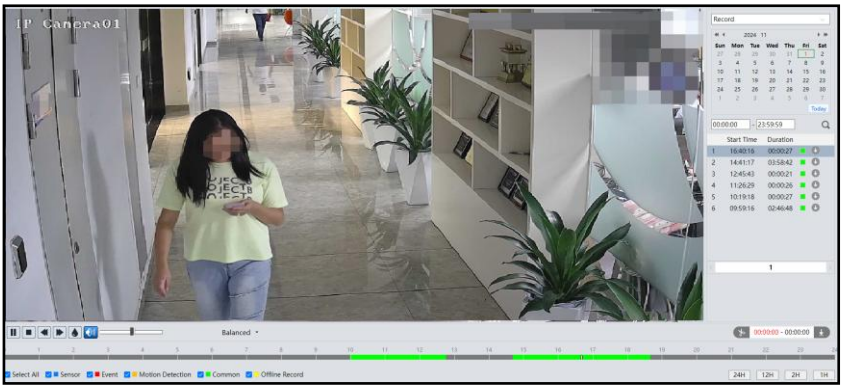
4.2 Video Search

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”.
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. 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.		

Note: *1. and cannot be displayed in the above interface via the plug-in free browser.

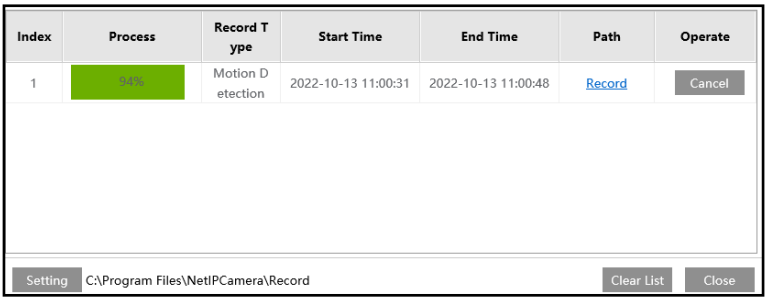
*2. For plug-in free playback, playback mode switch (balanced/real-time/fluent mode) and downloading functions are not supported too.

*3. For the fluent playback, it is recommended to use the plug-in required browser to play the recorded video with 2MP or above resolution.

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

Video clip and downloading

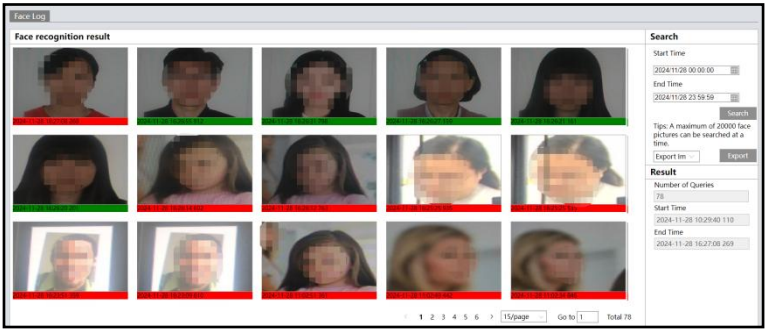
1. Search the video files according to the above mentioned steps.
2. Select the start time by clicking on the time table.
3. Click to set the start time and then this button turns blue ( ).
4. Select the end time by clicking on the time table. Then click to set the end time.
5. Click to download the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



Click “Setting” 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.

5 Face Recognition Result Search

Note: This function is only available for the camera with the face comparison function.
Click ***Data Record*** to go to the face recognition result search interface.
Set the start time and end time and click “Search” to view the face recognition result.



Red time tag means no comparison result. Green time tag means there is a comparison result. Click the picture with green time tag and then the face comparison information can be viewed as shown below.

Appendix 1 Troubleshooting

How to find the password?

A: The password for ***admin*** can be reset through "Edit Safety Question" function.

Click "Forget Password" in the login window and then enter the corresponding answer of the selected question in the popup window. After you correctly answer all questions, you can reset the password for ***admin***. If you forget the answer of the question, this way will be invalid, please contact your dealer for help.

B: The passwords of other users can be reset by ***admin***.

Fail to connect devices via a web browser.

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

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

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

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

IP tool cannot search devices.

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

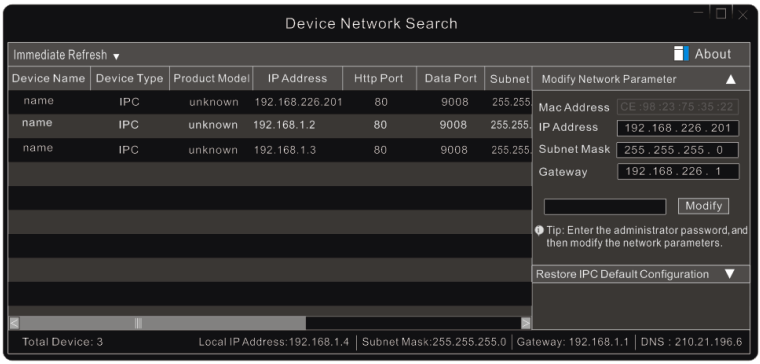
No sound can be heard.

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

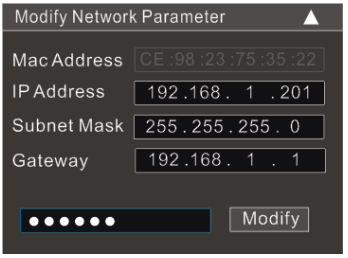
B: Audio function is not enabled at the corresponding channel. Please enable this function.

How to modify IP address through IP-Tool?

A: After you install the IP-Tool, run it as shown below.



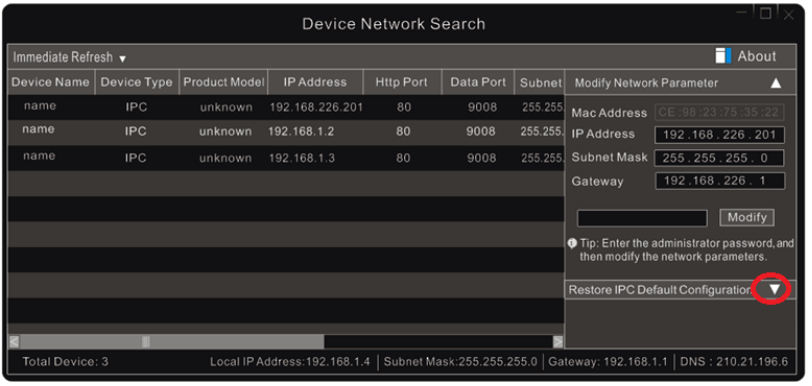
The default IP address of this camera is 192.168.226.201. Click the information of the camera listed in the above table to show the network information on the right hand. Modify the IP address and gateway of the camera and make sure its network address is in the same local network segment as the computer's.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



For example, the IP address of your computer is 192.168.1.4. So the IP address of the camera shall be changed to 192.168.1.X. After modification, please enter the password of "admin" which is set in the device activation interface in advance and then click the "Modify" button to change the network parameters.

How to restore to factory default setting through IP-Tool?

A: Drag the slider at the bottom of the device list to the right and then the MAC address of the searched devices will be viewed. Find the MAC address of the IPC you want to restore to the factory default setting, click ▼ next to "Restore IPC Default Configuration" to expand the menu, then enter the MAC address and click "OK". After that, manually reboot your camera within 30s. Then the camera will successfully restore to the factory default setting



Appendix 2 Communication Matrix

See next page

Protocol/Service	Source Device	Source Port	Destination Device	Destination Port (Listening)	Connection Type	Enabled by Default (Yes/No)	Destination Port Configurable (Yes/No)	Description
HTTP	Web/Onvif Client	-	IPC	80	TCP	No	Yes	80 port is used to provide HTTP WebServer and ONVIF services.
HTTPS	Web/Onvif Client	-	IPC	443	TCP	Yes	Yes	443 prot is used to provide HTTPS WebServer and ONVIF services.
Data Communication Protocol	Private Protocol Client (NVR/NVMS/SDK/OCX Plug-in)	-	IPC	9008	TCP	Yes	Yes	9008 port can be used to transmit audio-video stream and the private protocol client can manage and control IPCs through this port.
Subscribe to service	Third-party Platform	-	IPC	8080	TCP	Yes	Yes	8080 is a long-lived connection port, which are used to push intelligent data to a third-party platform.
RTSP	RTSP Client	-	IPC	554	TCP	Yes	Yes	554 port is used to provide real-time RTSP streaming media transmission service.
RTSPS	RTSPS Client	-	IPC	332	TCP	Yes	Yes	332 port is used to provide real-time and secure RTSP streaming media transmission service.
Multicast Search Protocols	IPC	9407	234.55.55.56	23456	UDP	Yes	No	9407 port is used to send multicast to 234.55.55.56:23456, which can be searched by IPTOOL/NVMS/NVR; 23456 port is used to receive the multicast information from IPTOOL/NVMS/NVR
	IPTOOL/NVMS/NVR	-	IPC	23456	UDP	Yes	No	
ONVIF	Other ONVIF Devices	-	IPC	3702	UDP	Yes	No	3702 port is used to find ONVIF devices and make a ONVIF service query.
SNMP	Network Management System	-	IPC	161	UDP	No	Yes	161 port is used to provide SNMP service.
	IPC	162	Network Management System	-	UDP	No	Yes	As an SNMP client, the device uses 162 port to send trap information to the network management system. (When enalbing SNMP function, 162 port will not be enabled by default. Only when sending the trap information, can it be on temporarily. After the information is sent successfully, the port will be turned off.
RTMP	IPC	Random Port (1024-65535)	RTMP Server	-	UDP	No	No	The device uses a random port to push audio-video streaming media data to RTMP server.
UPnP	Other UPnP Devices	-	IPC	Random Port (49152-65535)	TCP	No	No	Port 49152 is used for network communication with other UPnP devices. If it is already occupied, the port number is automatically incremented by 1 until an available port is found.
	Other UPnP Devices	-	239.255.255.250	1900	UDP	No	No	1900 port is used to receive the multicast reports sent by other UPnP devices, so that these UPnP devices can be found from the network; The random port is used to send multicast to 1900 port, so that the IPC can be found by other UPnP devices on the network (1900 is a default port of SSDP protocol).
	IPC	Random Port (1024-65535)	239.255.255.250	1900	UDP	No	No	
p2p	IPC	2 Random Ports (1024-65535)	NAT Server	-	UDP	No	No	These two random ports are used to communicate with NAT server, realizing P2P penetration function.