8 Megapixel

NETWORK CAMERA

User Manual

Please read this instruction carefully before using the product and keep it for further reference

Notes on Safety

- Please use the specified power supply to connect.
- Do not attempt to disassemble the camera; in order to prevent electric shock, do not remove screws or covers.
- There are no user-serviceable parts inside. Please contact the nearest service center as soon as possible if there is any failure.
- Avoid from incorrect operation, shock vibration, heavy pressing which can cause damage to product.
- Do not use corrosive detergent to clean main body of the camera. If necessary, please use soft dry cloth to wipe dirt; for hard contamination, use neutral detergent. Any cleanser for high grade furniture is applicable.
- Avoid aiming the camera directly towards extremely bright objects, such as, sun, as this may damage the image sensor.
- Please follow the instructions to install the camera. Do not reverse the camera, or the reversing image will be received.
- Do not operate it in case temperature, humidity and power supply are beyond the limited stipulations.
- 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.
- This manual is for using and managing the product. We may reserve the rights of amending the typographical errors, inconsistencies with the latest version, software upgrades and product improvements, interpretation and modification. These changes will be published in the latest version without special notification.
- In this manual, the trademarks, product names, service names, company names, products that are not owned by our company are the properties of their respective owners.
- This manual is suitable for IR water-proof network camera. All pictures and examples used in the manual are for reference only.

Disclaimer

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

Cybersecurity Recommendations

- Use a strong password. At least 8 characters or a combination of characters, numbers, and upper and lower case letters should be used in your password.
- It is recommended to change the service default ports (like HTTP-80, HTTPS-443, etc.) to reduce the risk of outsiders being able to access.
- It is recommended to set the firewall of your router. But note that some important ports cannot be closed (like HTTP port, HTTPS port, Data Port).
- It is not recommended to expose the device to the public network. When it is necessary to be exposed to the public network, please set the external hardware firewall and the corresponding firewall policy.
- 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

1.FCC compliance

The products have been tested and found in compliance with the council FCC rules and regulations part 15 subpart B. These limits are designed to provide reasonable protection against harmful interference. This equipment generates uses and can radiate radio

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

2. FCC conditions:

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

CE Information

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

RoHS

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

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

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

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

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1 Introduction

Main Features

- 8MP (3840 × 2160) @20fps
- ICR auto switch, true day/night
- 3D DNR, digital WDR, defog, BLC, HLC, anti-flicker, smart IR
- ROI coding
- Scene change detection, video blur detection , video color cast detection, intrusion detection, line crossing detection
- Support mobile surveillance by smart phones with iOS or Android OS

Surveillance Application

2 Network Configuration

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

2.1 LAN

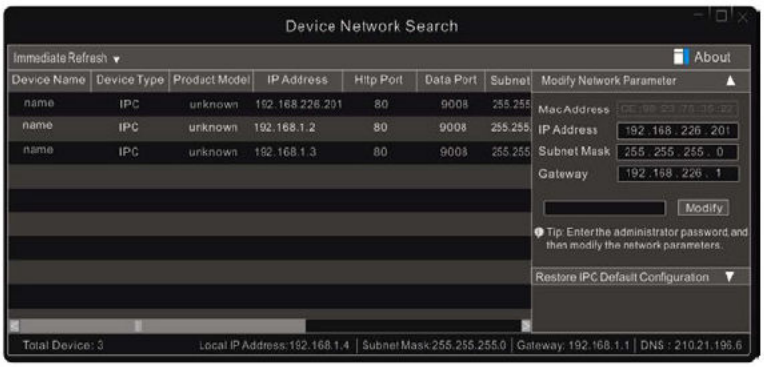
In LAN, there are two ways to access IP-Cam: 1. access through IP-Tool; 2. directly access through IE browser.

2.1.1 Access through IP-Tool

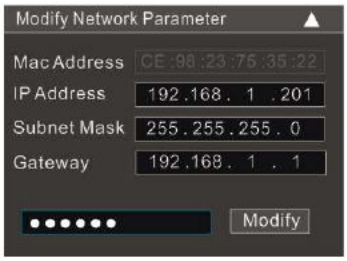
Network connection:

① Make sure the PC and IP-Cam are connected to the LAN and the IP-Tool is installed in the PC from the CD.

② Double click the IP-Tool icon on the desktop to run this software as shown below:



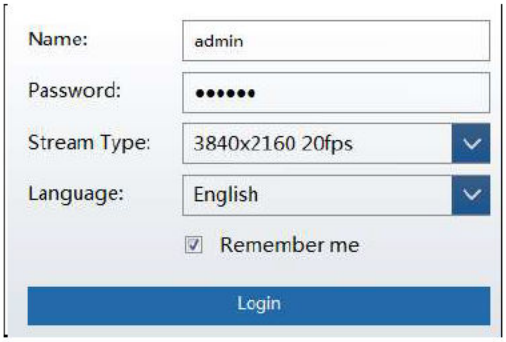
③ Modify the IP address. The default IP address of this camera is 192.168.226.201. Click the information of the camera listed in the above table to show the network information on the right hand. Modify the IP address and gateway of the camera and make sure its network address is in the same local network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



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

☞ The default password of the administrator is "***123456***".

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



Input the username and password to log in.

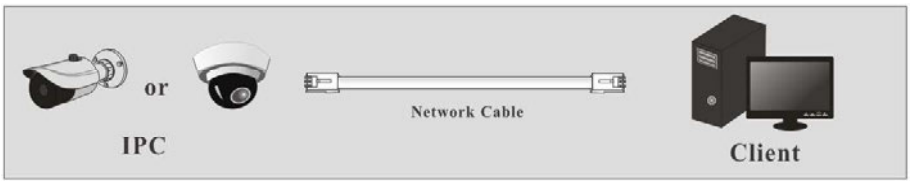
☞ The default username is "***admin***"; the default password is "***123456***".

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

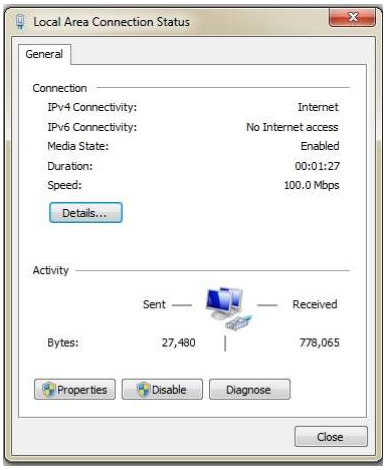
2.1.2 Directly Access through IE

The default network settings are as shown below:
IP address: **192.168.226.201**
Subnet Mask: **255.255.255.0**
Gateway: **192.168.226.1**
HTTP: **80**
Data port: **9008**

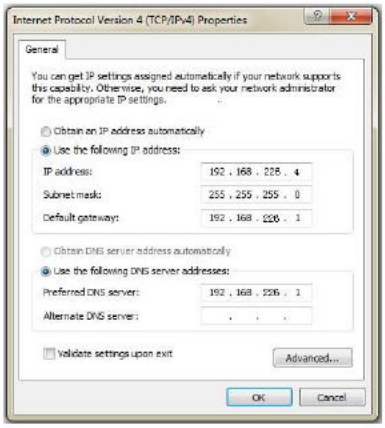
You may use the above default settings when you log in the camera for the first time. You may directly connect the camera to the computer through network cable.



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



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



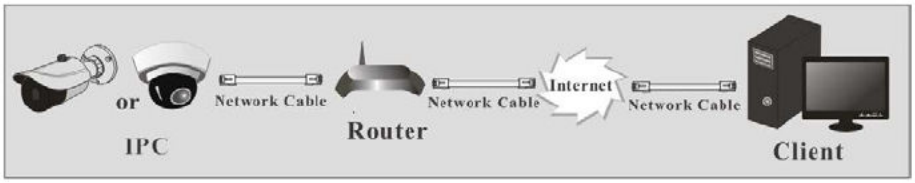
② Open the IE browser and enter the default address of IP-CAM and confirm.

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

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

2.2 WAN

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

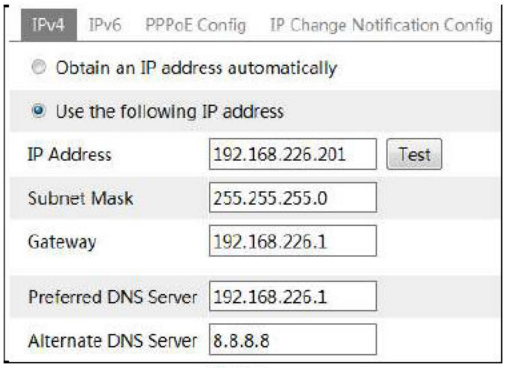


① Make sure the camera is well connected via LAN and then log in the camera via LAN and go to Config→Network→Port menu to set the port number.

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

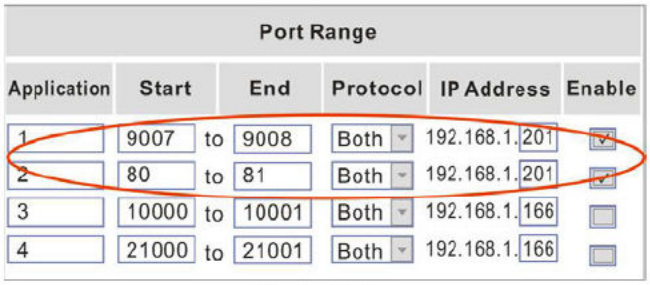
Port Setup

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



IP Setup

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



Port Range

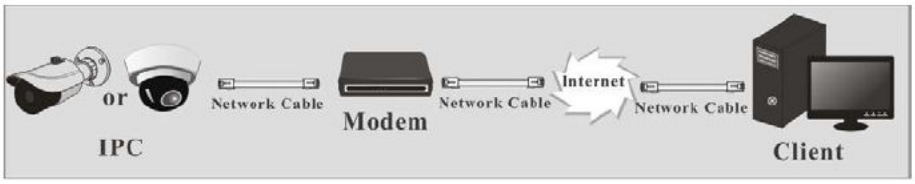
Application	Start		End	Protocol	IP Address	Enable
1	9007	to	9008	Both	192.168.1.201	☑
2	80	to	81	Both	192.168.1.201	☑
3	10000	to	10001	Both	192.168.1.166	☐
4	21000	to	21001	Both	192.168.1.166	☐

Router Setup

④ Open the IE browser and input its WAN IP and http port to access.

➢ **Access through PPPoE dial-up**

Network connection

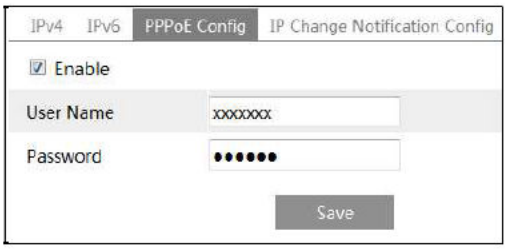


You may access the camera through PPPoE auto dial-up. The setting steps are as follow:

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

② Go to Config→Network→TCP/IP→ PPPoE Config menu. Enable PPPoE and then input

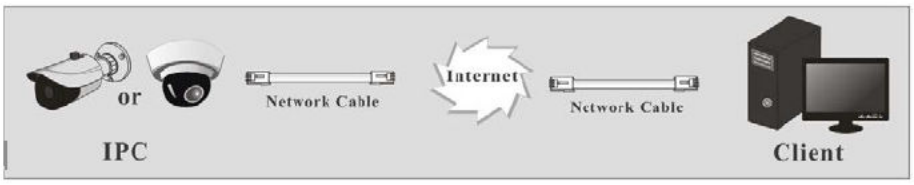
the user name and password which you can get from your internet service provider.



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

➢ **Access through static IP**

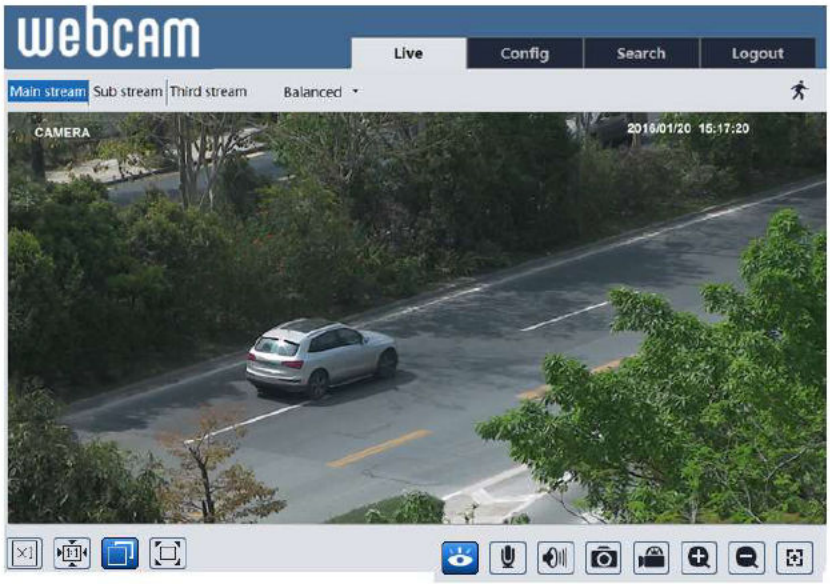
Network connection



The setting steps are as follow:
① Go to Config→Network→Port menu to set the port number.
② Go to Config→Network→TCP/IP menu to set the IP address. Check "Use the following IP address" and then input the static IP address and other parameters.
③Open the IE browser and input its WAN IP and http port to access.

3 Live View

After you log in, you will see the following window.



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

Icon	Description	Icon	Description
	Original size		Zoom out
	Fit correct scale		SD card recording indicator
	Auto (fill the window)		Motion alarm indicator
	Full screen		Sensor alarm indicator
	Start/stop live view		Scene change indicator
	Snap		Color abnormal indicator
	Start/stop recording		Abnormal clarity indicator
	Enable/disable audio		Line crossing indicator
	Start/stop two-way audio (only available for the model with audio input connector)		Intrusion indicator

Icon	Description	Icon	Description
	Zoom in		AZ control (only available for the model with motorized zoom lens)

- In full screen mode, double click to exit.
- Those smart alarm indicators will flash only when the camera supports those functions and the corresponding events are enabled.
- 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		

4 Configuration

4.1 System Configuration

The "System" configuration includes three submenus: Basic Information, Date and Time and Local Config.

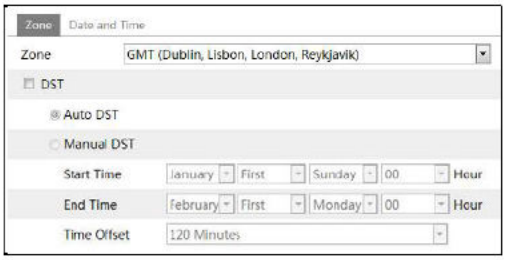
4.1.1 Basic Information

In the "Basic Information" interface, you can check the relative information of the device.

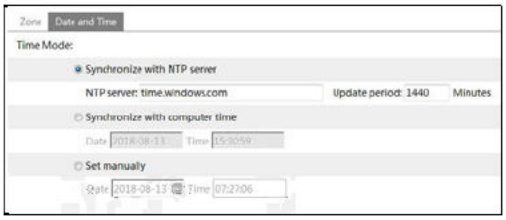
Device Name	IPC
Product Model	[redacted]
Brand	[redacted]
Software Version	5.0.1.0(18806)
Software Build Date	2021-04-23
Kernel Version	04040105
Hardware Version	1.5
Onvif Version	20.06
Video Structured Version	1.0.6
OCX Version	2.1.7.7
MAC	00:18:ae:96:e3:ac

4.1.2 Date and Time

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

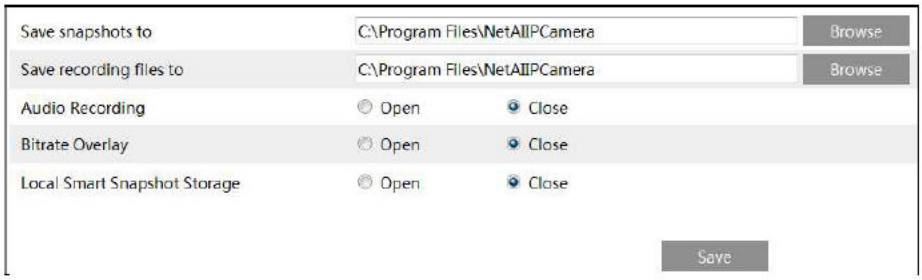


You can select the time zone and DST as required.
Click "Date and Time" tab to set the time mode.



4.1.3 Local Config

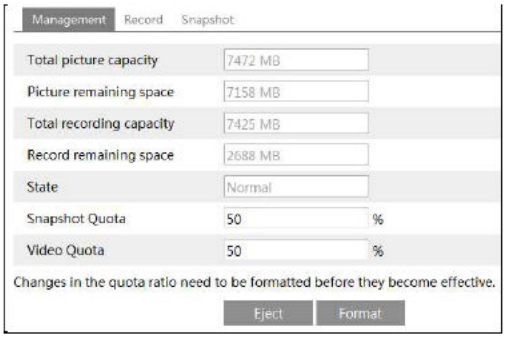
Go to Config→System→Local Config to set up the storage path of captured pictures and recorded videos on the local PC. There is also an option to enable or disable the bitrate display in the recorded files.



Additionally, "Local smart snapshot storage" can be enabled or disabled here. If enabled, the captured pictures triggered by smart events (like line crossing detection, region intrusion, etc.) will be saved to the local PC.

4.1.4 Storage

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.

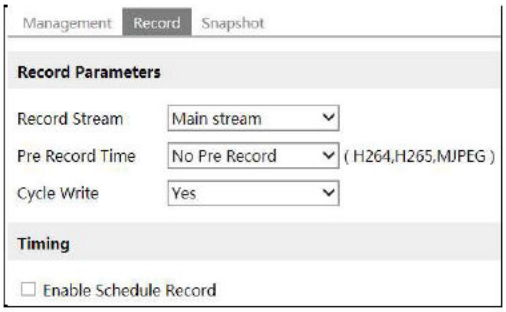
Click the "Eject" button to stop writing data to SD card. Then the SD card can be ejected safely.

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.

- **Schedule Recording Settings**

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



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

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

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

Weekly schedule

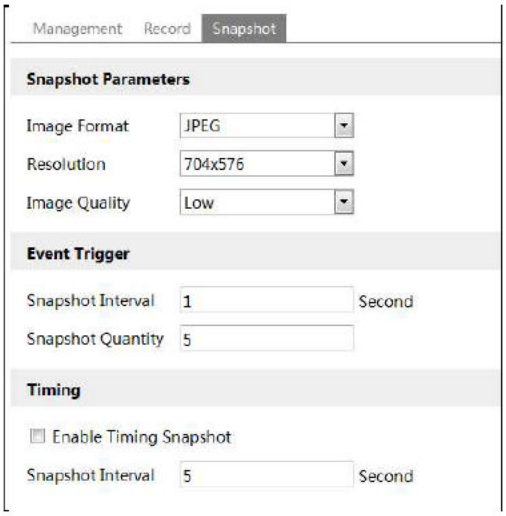
Set the alarm time from Monday to Sunday for a single week. Each day is divided in one hour

increments. Green means scheduled. Blank means unscheduled.
"Add": Add the schedule for a special day. Drag the mouse to set the time on the timeline.
"Erase": Delete the schedule. Drag the mouse to erase the time on the timeline.
Manual Input: Click it for a specific day to enter specific start and end times. This adds more granularities (minutes).

Day schedule
Set the alarm time for alarm a special day, such as a holiday.
Note: Holiday schedule takes priority over weekly schedule.

- **Snapshot Settings**

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



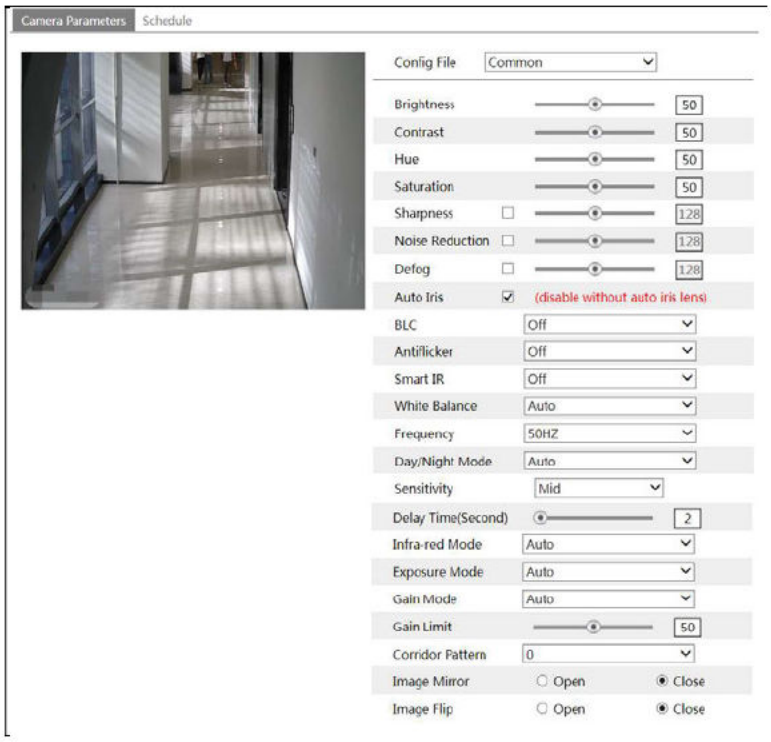
Set the format, resolution and quality of the image saved on the SD card and the snapshot interval and quantity and the timing snapshot here.
Snapshot Quantity: The number you set here is the maximum quantity of snapshots. The actual quantity of snapshots may be less than this number. Supposing the occurrence 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 schedule are the same as the schedule recording (See Schedule Recording).

4.2 Image Configuration

Image Configuration includes Display, Video/Audio, OSD, Video Mask, ROI Config and so on.

4.2.1 Display Configuration

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



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

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

Hue: Set the total color degree of the image.

Saturation: Set the degree of color purity. The purer the color is, 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: Please check it according to the actual Iris type.

Backlight Compensation (BLC):

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

of the bright area and increasing the brightness of the dark area.

- HLC: lowers the brightness of the entire image by suppressing the brightness of the image's bright area and reducing the size of the halo area.
- BLC: If enabled, the auto exposure will activate according to the scene so that the object of the image in the darkest area will be seen clearly.

Antiflicker:

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

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

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

Frequency: 50Hz and 60Hz can be optional.

Day/night Mode: Please choose the mode as needed.

Sensitivity: High, middle and low can be selected for switching back and forth from day to night modes.

Infrared Mode: Choose "ON", "OFF" and "Auto" (**Some models may not support the infrared mode**).

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

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

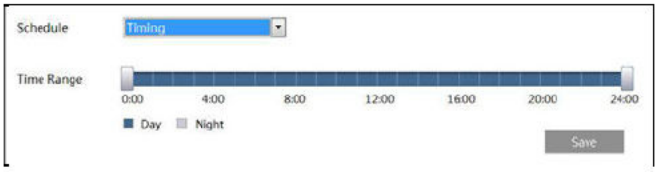
Image Mirror: Turn the current video image horizontally.

Image Flip: Turn the current video image vertically.

Schedule Settings of Image Parameters:

Click the "Schedule" tab as shown below.

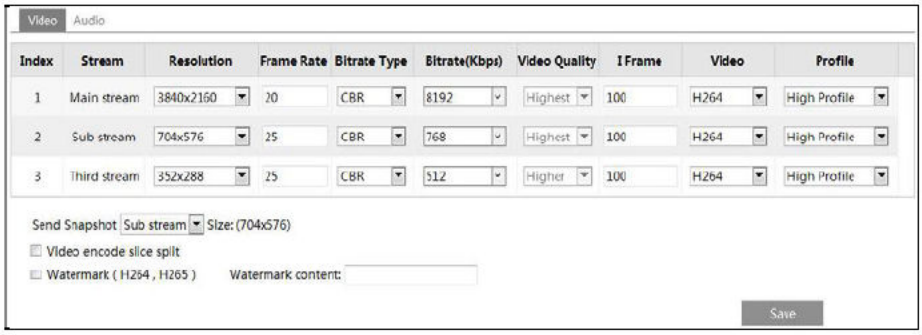
Set full time schedule for common, day, night mode and specified time schedule for day and night. Choose "Timing" in the drop-down box of schedule as shown below.



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

4.2.2 Video Configuration

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



Three video streams can be adjustable.

Resolution: The higher the resolution is, the clearer the image is.

Frame rate: The higher the frame rate is, the more fluency the video is. However, more storage room will be taken up.

Bitrate type: Including CBR and VBR. CBR means that no matter how changeable the video resources are, the compression bitrate keeps constant. This will not only facilitate the image quality better in a constant bitrate but also help to calculate the capacity of the recording. VBR means that the compression bitrate can be adjustable according to the change of the video resources. This will help to optimize the network bandwidth.

Bitrate: Please choose it according to the actual network situation.

Video Quality: When VBR is selected, you need to choose image quality. The higher the image quality you choose, the more bitrate will be required.

I Frame interval: It is recommended to use the default value. If the value is over high, the read speed of the group of pictures will be slow resulting in the quality loss of the video.

Video Compression: MJPEG, H264+, H264, H265 or H265+ can be optional. If H.265/H.265+is chosen, make sure the client system is able to decode H.265/H.265+. Compared to H.265, H.265+ saves more storage space with the same maximum bitrate in most scenes. Compared to H.264, H.265 reduces the transmission bitrate under the same resolution, frame rate and image quality.

Profile: Baseline, main/high profiles are optional. Baseline profile is mainly used in interactive application with low complexity and delay. Main/high profile is mainly used for higher coding requirement.

Send Snapshot: Set the snapshot stream as needed.

Video encode slice split: If enabled, you may get more fluency image even though using the

low-performance PC.

Watermark: If enabled, input the watermark content. You may check the watermark when playing back the local record in the search interface, lest the record files is tampered.

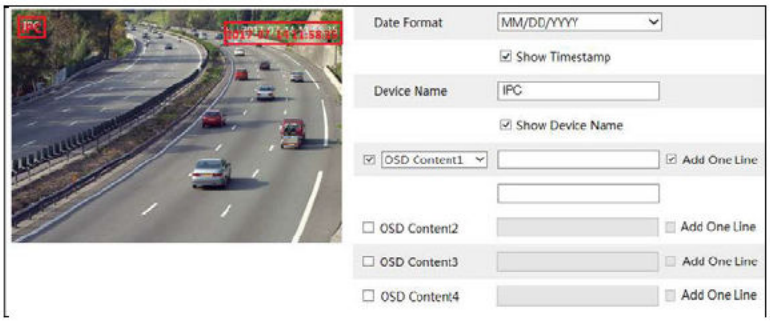
Click the "Audio" tab to go to the interface as shown below.

Audio Encoding: G711A and G711U are selectable.

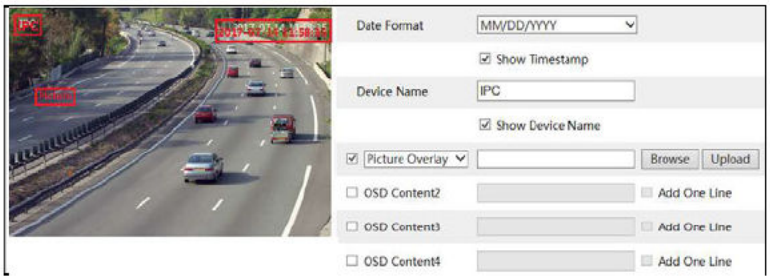
Audio Type: LIN. The model with built-in MIC supports MIC.

4.2.3 OSD Configuration

Go to Image→OSD interface as shown below.



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

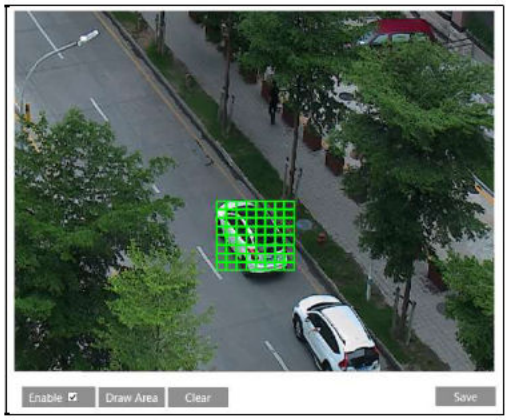


Picture Overlay Settings:

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

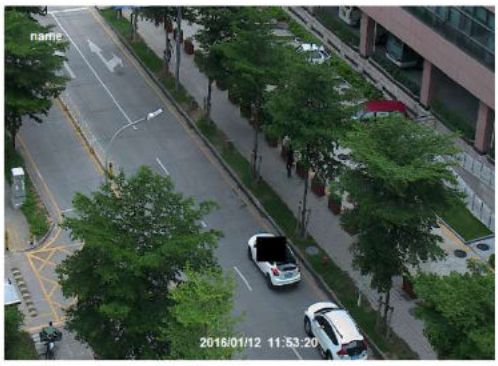
4.2.4 Video Mask

Go to Image→Video Mask interface as shown below. You can set 4 mask areas at most.



To set up video mask:

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

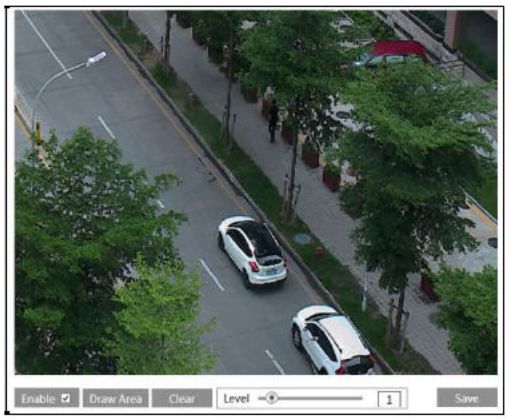


To clear the video mask:

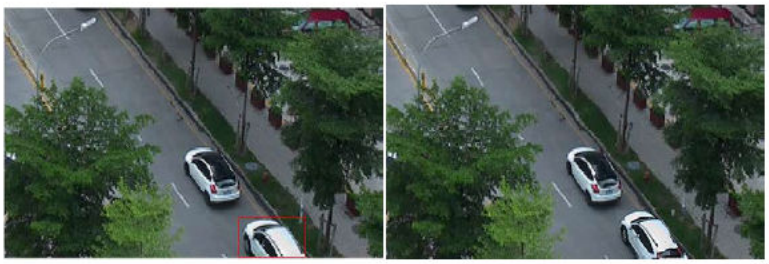
Go to video mask interface and then click "Clear" button to delete the current video mask area.

4.2.5 ROI Configuration

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

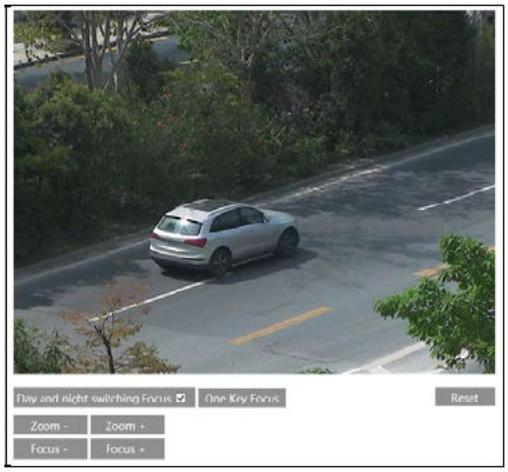


1. Check "Enable" and then click "Draw Area" button.
2. Drag the mouse to set the ROI area.
3. Set the level.
4. Click "Save" button to save the settings.



4.2.6 Zoom/Focus

This function is only available for the model with motorized zoom lens. Go to Config→Image→Zoom/Focus interface. 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.



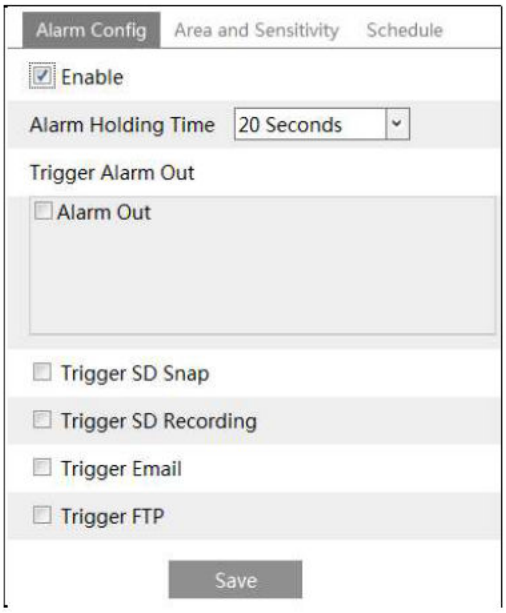
4.3 Alarm Configuration

4.3.1 Motion Detection

To set motion detection:

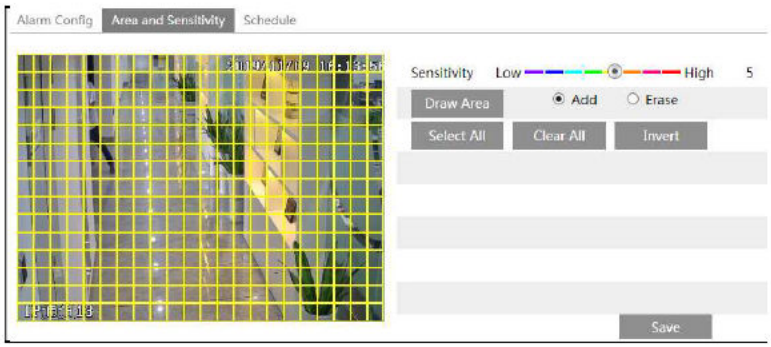
1. Go to Config→Alarm→Motion Detection to set motion detection alarm.

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.



Then select the alarm holding time and set the alarm trigger options.
Alarm Out: If selected, this would trigger an external relay output that is connected to the camera on detecting a motion based alarm (**this function is only available for the model with alarm output connector**).
Trigger SD Snap: If selected, the system will capture images on motion detection and save the images on an SD card.
Trigger SD Recording: If selected, video will be recorded on an SD card on motion detection.
Trigger Email: If "Trigger Email" and "Attach Picture" are checked (email address must be set first in the Email configuration interface), the captured pictures and triggered event will be sent into those addresses.
Trigger FTP: If "Trigger FTP" is checked, the captured pictures will be sent into FTP server address. Please refer to FTP configuration chapter for more details.

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

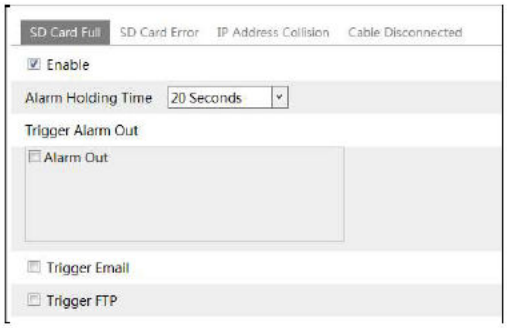


Move the "Sensitivity" scroll bar to set the sensitivity. Higher sensitivity value means that motion will be triggered more easily.
Select "Add" and click "Draw". Drag the mouse to draw the motion detection area; Select "Erase" and drag the mouse to clear motion detection area.
After that, click the "Save" to save the settings.
3. Set the schedule of the motion detection. The schedule setup steps of the motion detection are the same as the schedule recording setup (See Schedule Recording).

4.3.2 Other Alarms

- **SD Card Full**

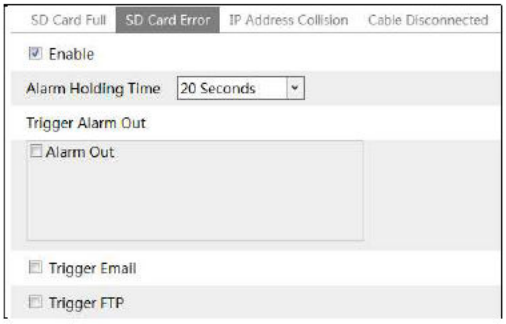
1. Go to Config→Alarm→Anomaly→SD Card Full.



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

- **SD Card Error**

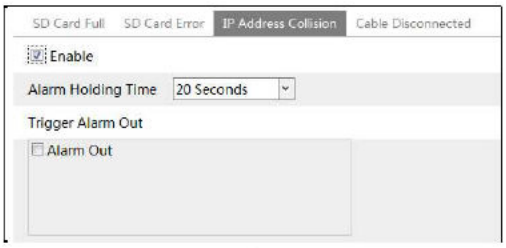
1. When there are some errors in writing SD card, the corresponding alarms will be triggered.
2. Go to Config→Alarm→Anomaly→SD Card Error as shown below.



3. Click "Enable" and set the alarm holding time.
4. Set alarm trigger options. Trigger Email and FTP. The setup steps are the same as motion detection. Please refer to motion detection chapter for details.

- **IP Address Conflict**

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



2. Click "Enable" and set the alarm holding time.
3. Trigger alarm out. When the IP address of the camera is in conflict with the IP address of other devices, the system will trigger the alarm out.
Note: **This function is only available for the model with alarm output connector.**

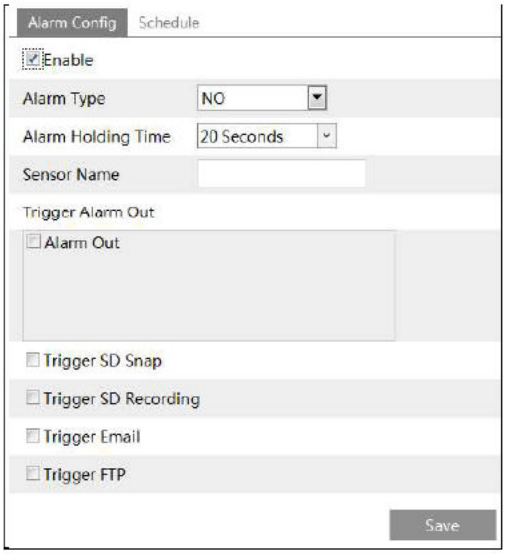
- **Cable Disconnection**

1. Go to Config→Alarm→Anomaly→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: **This function is only available for the model with alarm output connector.**

4.3.3 Alarm In

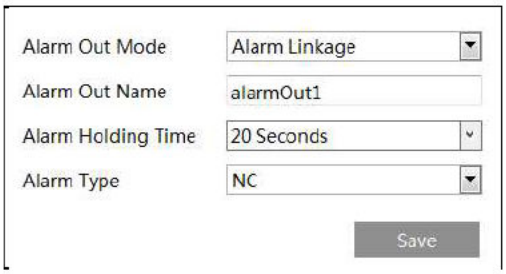
This function is only available for the model with alarm input connector. To set sensor alarm (alarm in):
Go to Config→Alarm→Alarm In interface as shown below.



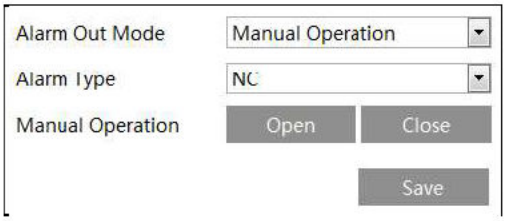
1. Click "Enable" and set the alarm type, alarm holding time and sensor name.
2. Set alarm trigger options. The setup steps are the same as motion detection. Please refer to motion detection chapter for details.
3. Click "Save" button to save the settings.
4. Set the schedule of the sensor alarm. The setup steps of the schedule are the same as the schedule recording setup. (See Schedule Recording).

4.3.4 Alarm Out

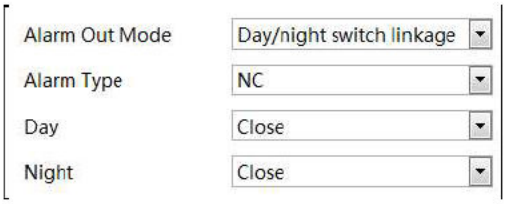
This function is only available for the model with alarm output connector.
Go to Config→Alarm→Alarm Out.



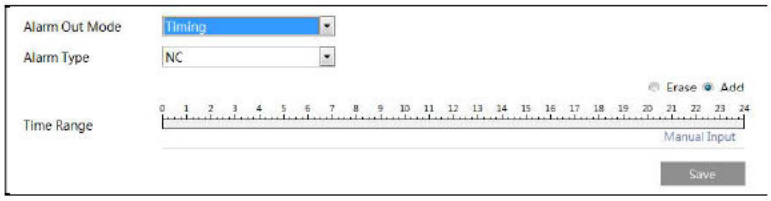
Alarm Out Mode: Alarm linkage, manual operation, day/night switch linkage and timing are optional.
Alarm Linkage: Having selected this mode, select alarm out name, alarm holding time at the "Alarm Holding Time" pull down list box and alarm type.
Manual Operation: Having selected this mode, select the 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.



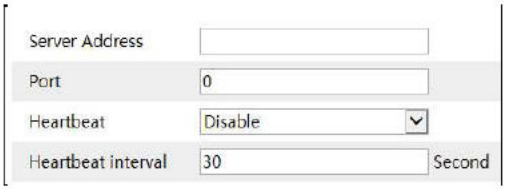
Timing: Select the alarm type. Then click "Add" and drag the mouse on the timeline to set the schedule of alarm out; click "Erase" and drag the mouse on the timeline to erase the set time schedule. After this schedule is saved, the alarm out will be triggered in the specified time.



4.3.5 Alarm Server

Go to Alarm→Alarm Server interface as shown below.

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



4.4 Event Configuration

For more accuracy, here are some recommendations for installation.

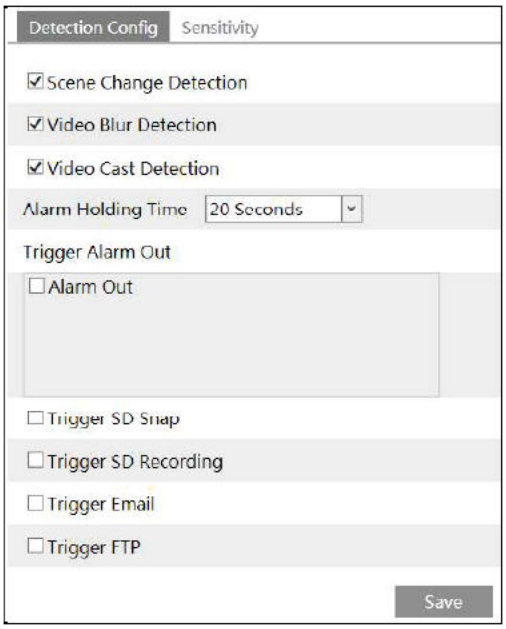
- Cameras should be installed on stable surfaces, as vibrations can affect the accuracy of detection.
- Avoid pointing the camera at the reflective surfaces (like shiny floors, mirrors, glass, lake surfaces and so on).
- Avoid places that are narrow or have too much shadowing.
- Avoid scenario where 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.

4.4.1 Exception

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

To set exception detection:

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



1. Enable the applicable detection that's desired.

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

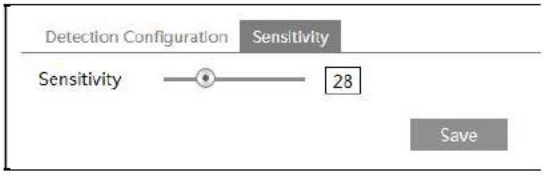
Video Blur Detection: Alarms will be triggered if the video becomes blurry.

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

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

3. Click "Save" to save the settings.

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



Drag the slider to set the sensitivity value or directly enter the sensitivity value in the textbox. Click "Save" button to save the settings.

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

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

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

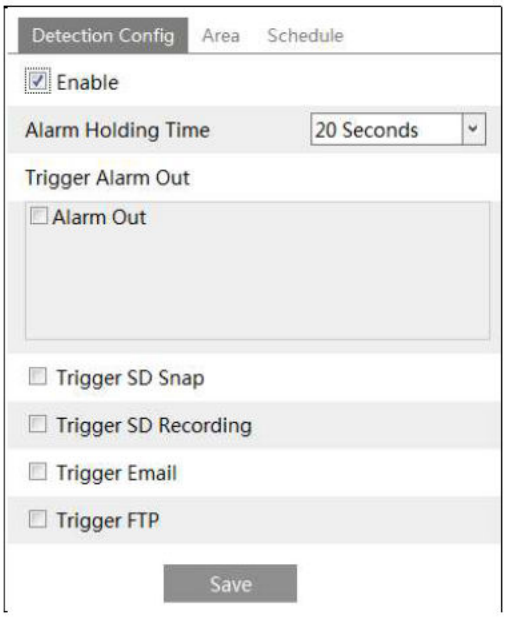
※ The requirements of camera and surrounding area

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

4.4.2 Line Crossing

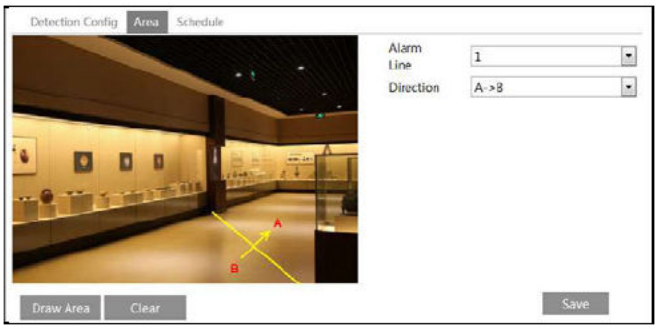
Line Crossing: Alarms will be triggered if someone or something crosses the pre-defined alarm lines.

Go to Config→Event→Line Crossing interface as shown below.



1. Enable line crossing alarm and set the alarm holding time.
2. Set alarm trigger options. The setup steps are the same as motion detection. Please refer to motion detection chapter for details.
3. Click "Save" to save the settings.

4. Set area and sensitivity of the line crossing alarm. Click the "Area and Sensitivity" tab to go to the interface as shown below.



Set the alarm line number and direction. Four alarm lines can be added.

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

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

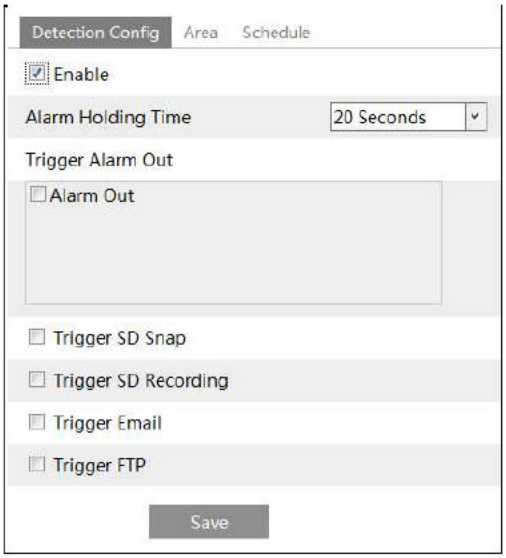
※ Configuration of camera and surrounding area

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

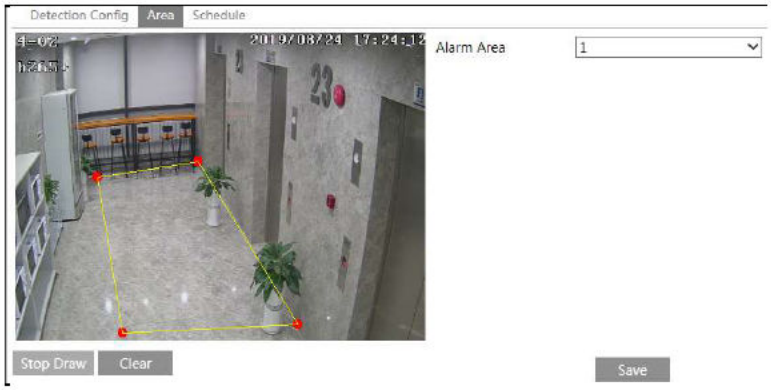
4.4.3 Intrusion

Intrusion: Alarms will be triggered if someone or something intrudes into the pre-defined areas.

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



1. Enable region intrusion detection alarm and set the alarm holding time.
2. Set alarm trigger options. The setup steps are the same as motion detection. Please refer to motion detection chapter for details.
3. Click "Save" to save the settings.
4. Set the alarm area of the intrusion detection. Click the "Area" tab to go to the interface as shown below.



Set the alarm area number on the right side. Four alarm areas can be added.
Click "Draw Area" and then draw the alarm area. Click "Stop Draw" to stop drawing. Click "Clear" to delete the alarm area. Click "Save" to save the settings.
5. Set the schedule of the intrusion detection. The setup steps of the schedule are the same as the schedule recording setup. (See Schedule Recording).

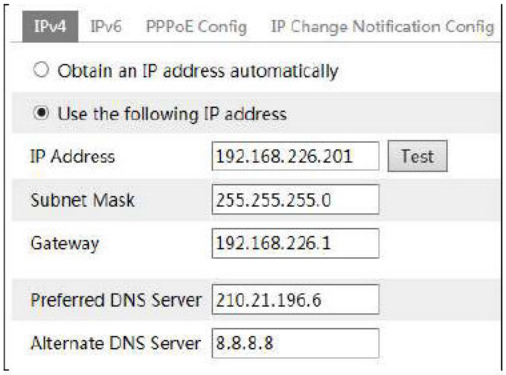
※ Configuration requirements of camera and surrounding area

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

4.5 Network Configuration

4.5.1 TCP/IP

Go to Config→Network→TCP/IP interface 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.

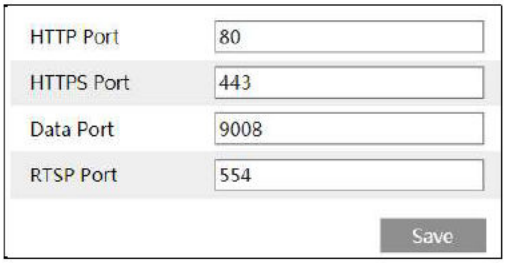
Use PPPoE-Click the "PPPoE Config" tab to go to the interface as shown below. Enable PPPoE and then enter the user name and password from your ISP.

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

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

4.5.2 Port

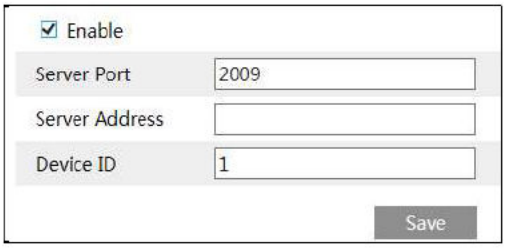
Go to Config→Network→Port interface as shown below. HTTP port, Data port and RTSP port can be set.



HTTP Port: The default HTTP port is 80. It can be changed to any port which is not occupied.
HTTPS Port: The default HTTPs port is 443. It can be changed to any port which is not occupied.
Data Port: The default data port is 9008. Please change it as necessary.
RTSP Port: The default port is 554. Please change it as necessary.

4.5.3 Server Configuration

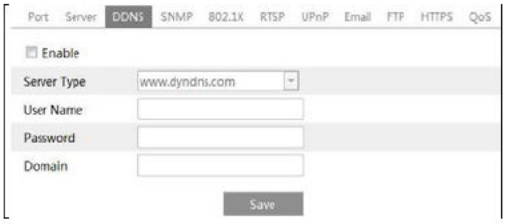
This function is mainly used for connecting network video management system.



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

4.5.4 DDNS

If the camera is set up with a DHCP connection, DDNS should be set for the internet.
1. Go to Config→Network→ DDNS.



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

Create domain name.

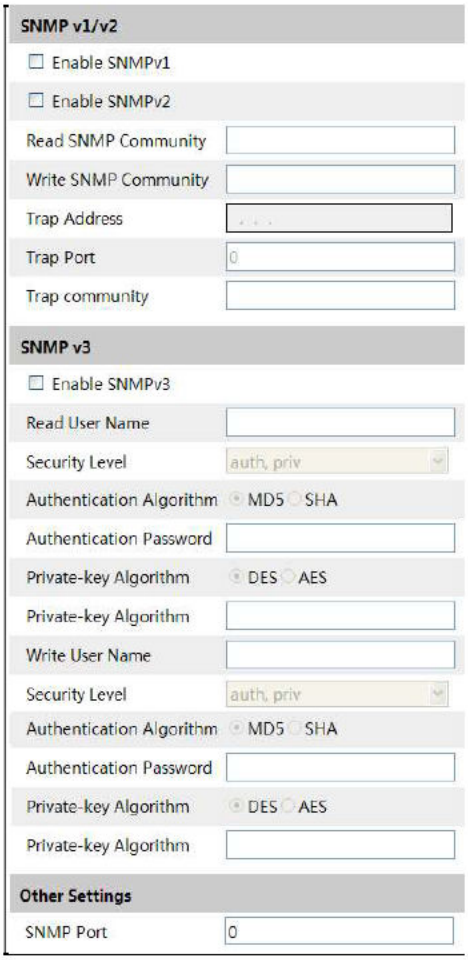
After the domain name is successfully applied for, the domain name will be listed as below.

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

4.5.5 SNMP

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

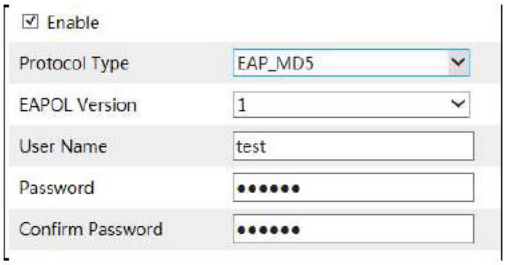
1. Go to Config→Network→SNMP.



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

4.5.6 802.1x

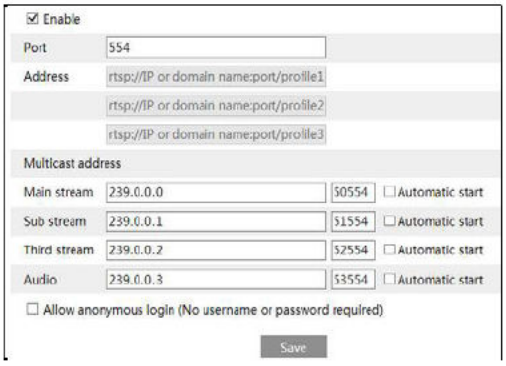
IEEE802.X which is an access control protocol manages devices in connection with the local network by authentication. The setup steps are as follows:



To use this function, the camera shall be connected to a switch supporting 802.1x protocol. The switch can be reckoned as an authentication system to identify the device in a local network. If the camera connected to the network interface of the switch has passed the authentication of the switch, it can be accessed via the local network.
Protocol type and EAPOL version: Please use the default settings.
User name and password: The user name and password must be the same with the user name and password applied for and registered in the authentication server.

4.5.7 RTSP

Go to Config→Network→RTSP.



Select "Enable" to enable the RTSP function.
Port: Access port of the streaming media. The default number is 554.
RTSP Address: The RTSP address (unicast) 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 VLC player to play the video.

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

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

3. Avoid using the same multicast address in the same local network.

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

4.5.8 UPNP

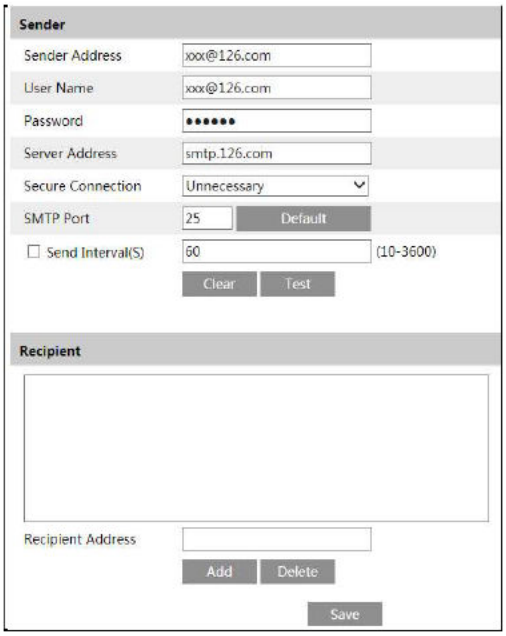
If this function is enabled, the camera can be quickly accessed through the LAN.

Go to Config→Network→UPnP. Enable UPNP and then enter UPnP name.

4.5.9 Email

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

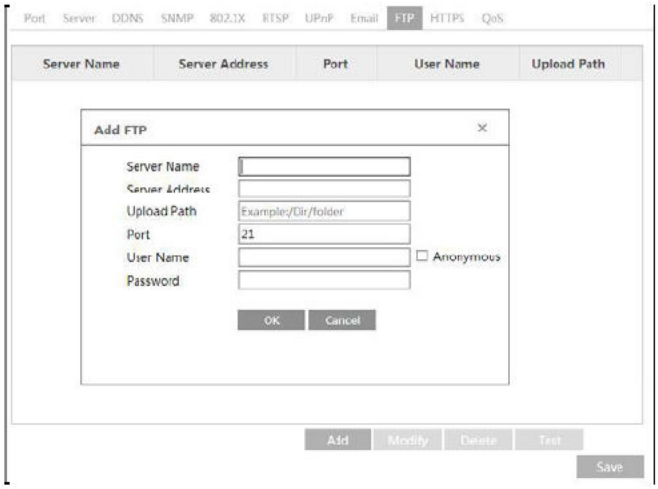
Go to Config→Network →Email.



Sender Address: Sender's e-mail address.
User name and password: Sender's user name and password.
Server Address: The SMTP IP address or host name.
Select the secure connection type at the "Secure Connection" pull-down list according to what's required.
SMTP Port: The SMTP port.
Send Interval(S): The time interval of sending email. For example, if it is set to 60 seconds and multiple motion detection alarms are triggered within 60 seconds, they will be considered as only one alarm event and only one email will be sent. If one motion alarm event is triggered and then another motion detection alarm event is triggered after 60 seconds, two emails will be sent. When different alarms are triggered at the same time, multiple emails will be sent separately.
Click the "Test" button to test the connection of the account.
Recipient Address: receiver's e-mail address.

4.5.10 FTP

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



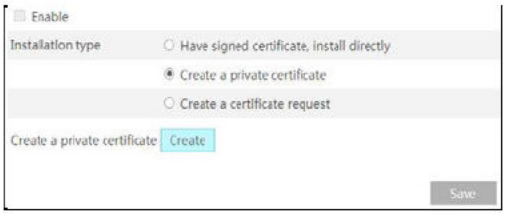
Server Name: The name of the FTP server.
Server Address: The IP address or domain name of the FTP.
Upload Path: The directory where files will be uploaded to.
Port: The port of the FTP server.
Use Name and Password: The username and password that are used to login to the FTP server.

4.5.11 HTTPS

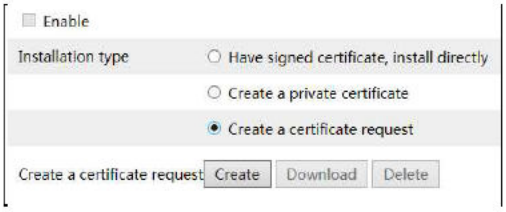
HTTPs provides authentication of the web site and protects user privacy.
Go to Config→Network→HTTPS as shown below.

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 the web browser (eg. https://192.168.226.201:443).
A private certificate can be created if users don't want to use the default one. Click "Delete" to cancel the default certificate. Then the following interface will be displayed.

* If there is a signed certificate, click "Browse" to select it and then click "Install" to install it.
* Click "Create a private certificate" to enter the following creation interface.



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



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

4.5.12 QoS

QoS (Quality of Service) function is used to provide different quality of services for different network applications. If there is not enough network bandwidth, the router or switch will sort the data streams and transfer them according to their priority to solve the network delay and network congestion by using this function.
Go to Config→Network→QoS.

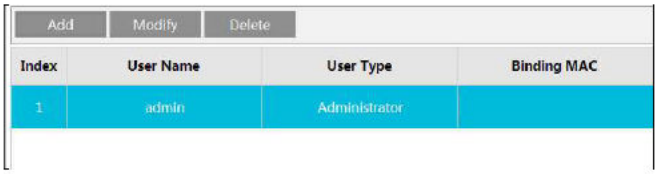
Video/Audio DSCP	13
Alarm DSCP	35
Manager DSCP	53

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

4.6 Security Configuration

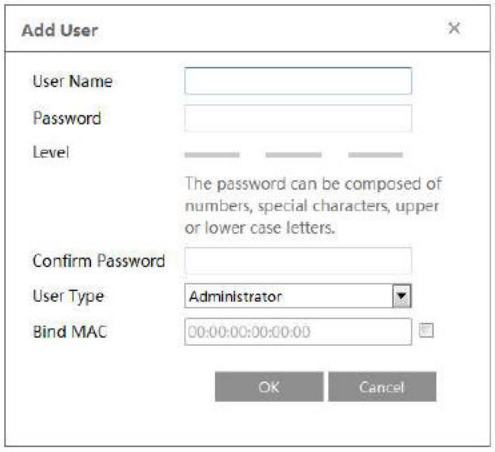
4.6.1 User Configuration

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



Add user:

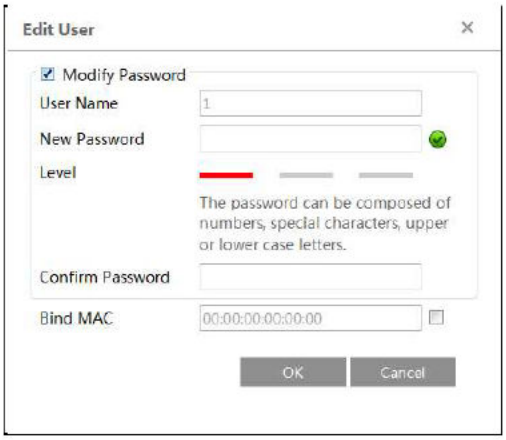
1. Click the "Add" button to pop up the following textbox.



2. Enter user name in "User Name" textbox.
3. Enter letters or numbers in "Password" and "Confirm Password" textbox.
4. Choose the user type. Administrator has all permissions. Normal user can only view the live video. Advanced user has the same permissions as an Administrator except for user, backup settings, factory reset, and upgrading the firmware.

5. Enter the MAC address of the PC in "Bind MAC" textbox.
If this option is enabled, only the PC with the specified MAC address can access the camera for that user.
6. Click "OK" and then the newly added user will be displayed in the user list.

Modify user:
1. Select a user to modify password and MAC address if necessary in the user configuration list box.
2. The "Edit user" dialog box pops up by clicking the "Modify" button.



3. Enter the old password of the user in the "Old Password" text box.
4. Enter the new password in the "New password" and "Confirm Password" text box.
5. Enter computer's MAC address as needed.
6. Click "OK" to save the settings.
Note: To change the access level of a user, the user must be deleted and added again with the new access level.
Delete user:
1. Select the user to be deleted in the user configuration list box.
2. Click the "Delete" button to delete the user.
Note: The default administrator account cannot be deleted.

4.6.2 Online User

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

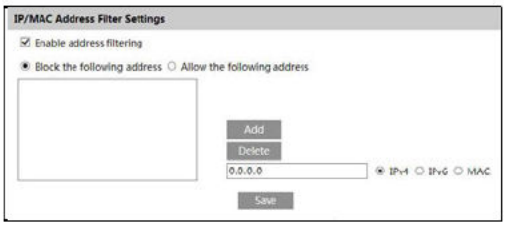
Index	Client Address	Port	User Name	User Type	
1	192.168.17.232	55760	admin	Administrator	Kick Out

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

user is kicked out, it will be added into the block list.

4.6.3 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/MAC and then enter IP address or MAC address in the address box and click the "Add" button.

4.6.4 Security Management

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

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

- **Password Security**

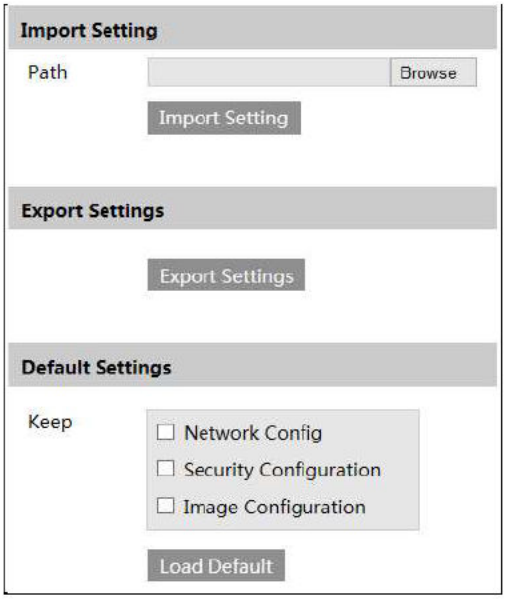
Please set the password level and expiration time as needed.
Password Level: Weak, Middle or Strong.
Weak level: Numbers, special characters, upper or lower case letters can be used. You can choose one of them or any combination of them when setting the password.

Medium Level: 9~15 characters, including at least two of the following categories: numbers, special characters, upper case letters, lower case letters.
Strong Level: 9~15 characters. Numbers, special characters, upper case letters and lower case letters must be included.
For your account security, it is recommended to set a strong password and change your password regularly.

4.7 Maintenance Configuration

4.7.1 Backup and Restore

Go to Config→Maintenance→Backup & Restore.



- **Import & Export Settings**

Configuration settings of the camera can be exported from a camera into another camera.
1. Click "Browse" to select the save path for import or export information on the PC.
2. Click the "Import Setting" or "Export Setting" button.

- **Default Settings**

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

4.7.2 Reboot

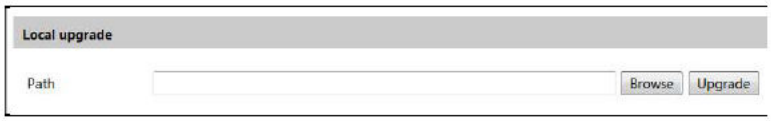
Go to Config→Maintenance→Reboot.
Click the "Reboot" button to reboot the device.

Timed Reboot Setting:

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

4.7.3 Upgrade

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



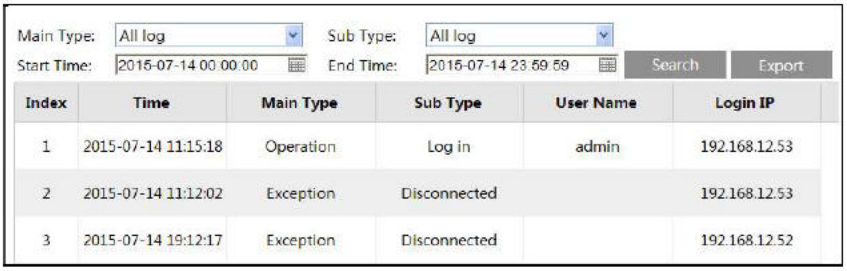
1. Click the "Browse" button to select the save path of the upgrade file.
2. Click the "Upgrade" button to start upgrading the firmware.
3. The device will restart automatically.

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

4.7.4 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.

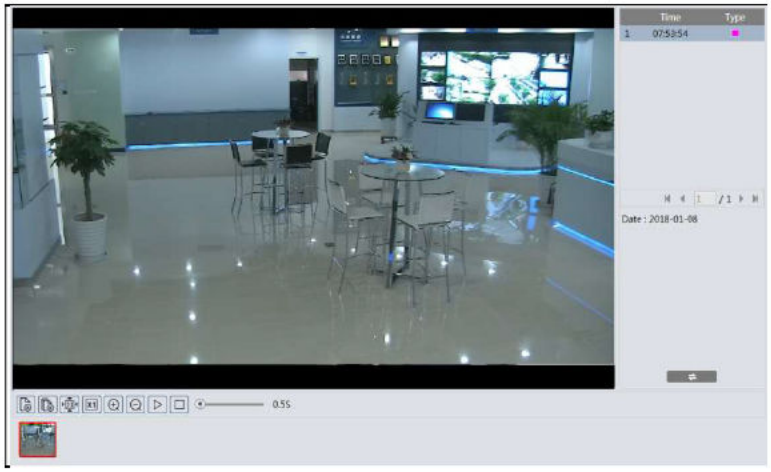
5 Record Search

5.1 Image Search

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

- **Local Image Search**

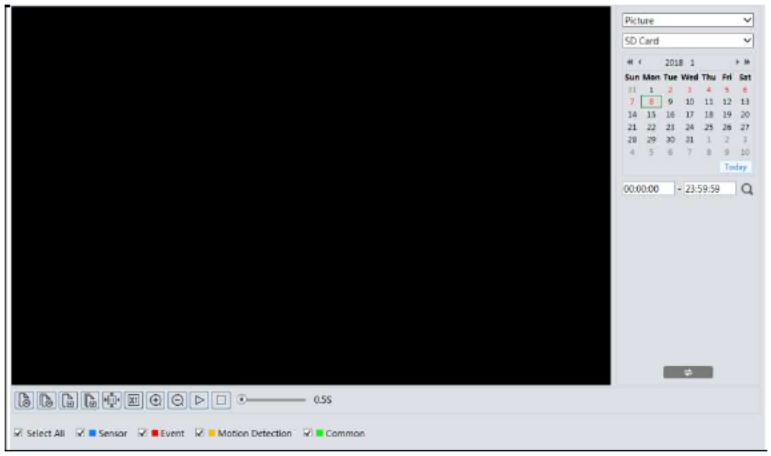
1. Choose "Picture"—"Local".
2. Set time: Select date and choose the start and end time.
3. Click to search the images.
4. Double click a file name in the list to view the captured photos as shown above.



Click to return to the previous interface.

- **SD Card Image Search**

1. Choose "Picture"—"SD Card".



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

Click to return to the previous interface.

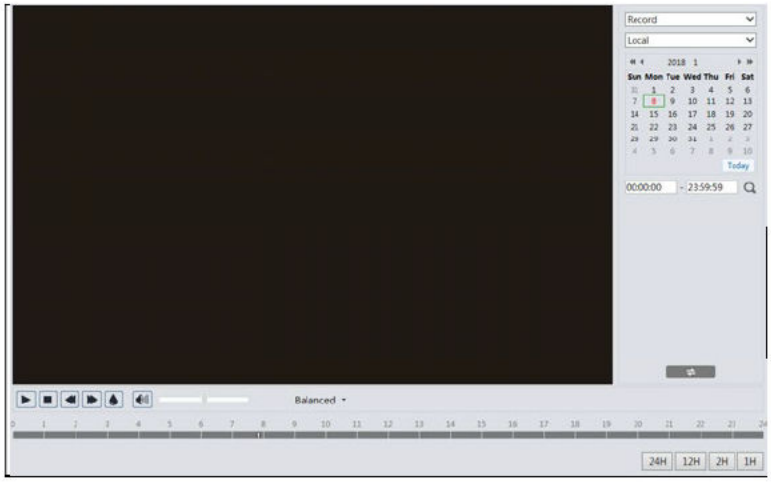
The descriptions of the buttons are shown as follows.

Icon	Description	Icon	Description
	Close: Select an image and click this button to close the image.		Close all: Click this button to close all images.
	Save: Click this button to select the path for saving the image on the PC.		Save all: Click this button to select the path for saving all pictures on the PC.
	Fit size: Click to fit the image on the screen.		Actual size: Click this button to display the actual size of the image.
	Zoom in: Click this button to digitally zoom in.		Zoom out: Click this button to digitally zoom out.
	Slide show play: Click this button to start the slide show mode.		Stop: Click this button to stop the slide show.
5.5S	Play speed: Play speed of the slide show.		

5.2 Video Search

5.2.1 Local Video Search

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



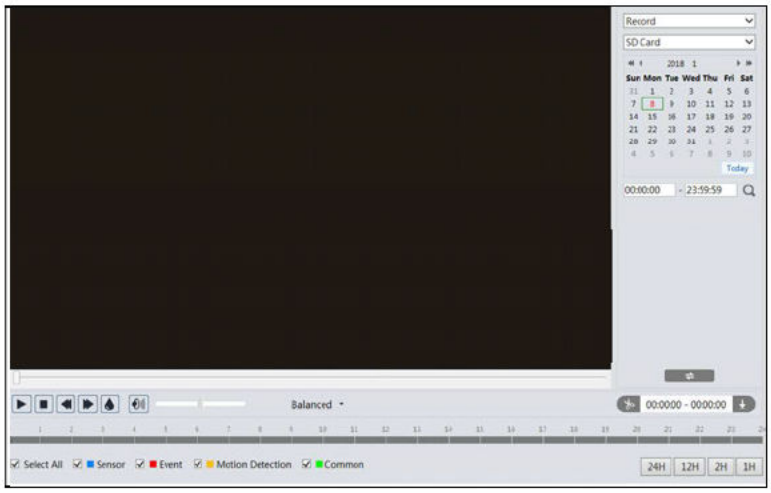
1. Choose "Record"—"Local".
2. Set search time: Select the date and choose the start and end time.
3. Click to search the images.
4. Double click on a file name in the list to start playback.

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

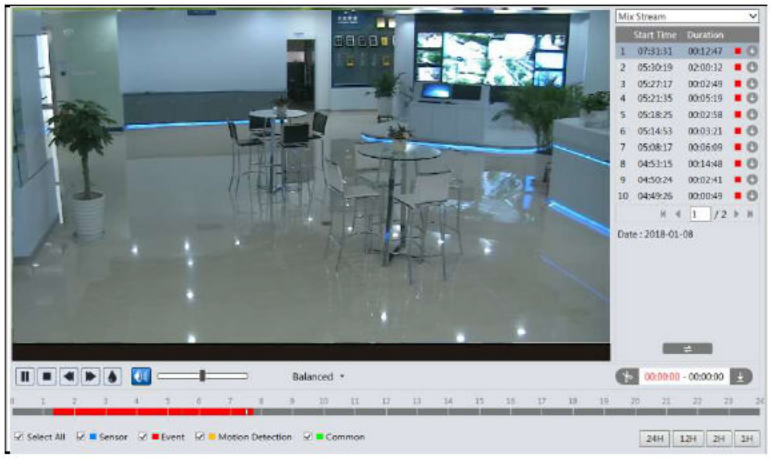
5.2.2 SD Card Video Search

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

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



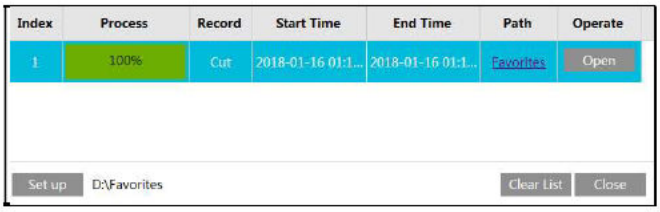
4. Select the alarm events at the bottom of the interface.
5. Select mix stream (video and audio stream) or video stream as needed.
6. Double click on a file name in the list to start playback.



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

Video clip and downloading

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



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

Click "Open" to play the video.

Click "Clear List" to clear the downloading list.

Click "Close" to close the downloading window.

Appendix 1 Q& A

Q: How to find my password if I forget it?

A：Reset the device to the default factory settings.

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

Q: Fail to connect devices through IE browser, why?

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

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

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

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

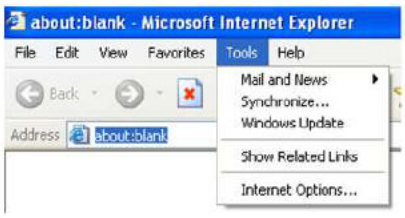
Q: IP tool cannot search devices, why?

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

Q: IE cannot download ActiveX control. How can I do?

a. IE browser blocks ActiveX. Please do setup as below.

① Open IE browser. Click Tools-----Internet Options….



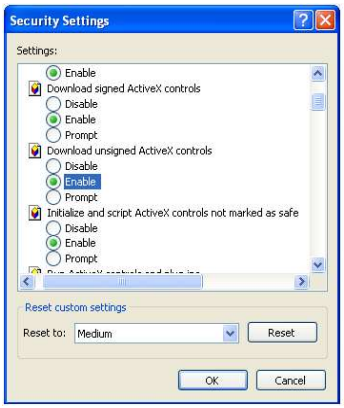
② Select Security------Custom Level….

③ Enable all the sub options under "ActiveX controls and plug-ins".

④ Then click OK to finish setup.

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

Internet Options
General
Security
Privacy
Content
Connections
Programs
Advanced
Select a Web content zone to specify its security settings.
Internet
Local intranet
Trusted sites
Restricted sites
Internet
This zone contains all Web sites you haven't placed in other zones
Sites...
Security level for this zone
Custom
Custom settings.
- To change the settings, click Custom Level.
- To use the recommended settings, click Default Level.
Custom Level...
Default Level
OK
Cancel
Apply


Security Settings
Settings:
Enable
Download signed ActiveX controls
Disable
Enable
Prompt
Download unsigned ActiveX controls
Disable
Enable
Prompt
Initialize and script ActiveX controls not marked as safe
Disable
Enable
Prompt
Reset custom settings
Reset to:
Medium
Reset
OK
Cancel

Appendix 2 Specifications

Specification /Model		IR Water-proof Bullet Network Camera	IR Water-proof Bullet Network Camera
Camera	Image Sensor	1/2.8 " CMOS	
	Image Size	3840 × 2160	
	Electronic Shutter	1s~1/100000s	
	Iris Type	Fixed Iris	
	Min. Ilumination	0.02 lux, F1.6,AGC ON; 0 lux with IR	
	Lens	2.8mm@F1.6, horizontal FoV:108.9°; vertical FoV:76.4°; diagonal FoV:116.2°	
	Lens Mount	M12	
	Day&Night	ICR	
	Digital NR	3D DNR	
	WDR	120dB	
	Angle Adjustment	Pan: 0°~360°; Tilt: 0°~90°; Rotation: 0°~360°	
Image	Video Compression	H.265+ / H.265/ H.264+/H.264/MJPEG	
	Video Bit Rate	64Kbps~12Mbps	
	Resolution	8MP (3840 × 2160), 6MP(3072 × 2048),5MP(2592 × 1944), 4MP (2560 × 1520), 2K(2560 × 1440), 3MP(2304 × 1296), 1080P (1920 × 1080), 720P (1280 × 720), D1, CIF, 480 × 240	
	Main Stream	60Hz : 8MP(1~20fps)/6MP/5MP/4MP/2K/3MP/1080P/720P(1~30fps) 50Hz : 8MP(1~20fps)/6MP/5MP/4MP/2K/3MP/1080P/720P(1~25fps)	
	Sub Stream	60Hz :720P(1~12fps)/D1/CIF/480×240 (1~30fps) 50Hz: 720P/D1/CIF/480×240 (1~25fps)	
	Third Stream	D1/CIF/480×240 (60Hz:1~30fps; 50Hz: 1~25fps)	
	Image Settings	Saturation, Brightness, Hue, Contrast, Wide Dynamic, Sharpness, NR, Anti-flicker, BLC, HLC, defog, etc. adjustable through client or web browser	
	ROI	Support	
Interfaces	Network	RJ45	
	Audio	1CH audio input	
	Storage	Built-in micro SD card slot, up to 256GB	
	Reset	Yes	
Fucntion	Remote Monitoring	Web browser, CMS remote control	
	Online Connection	Support simultaneous monitoring for up to 10 users and multi-stream transmission	
	Network Protocol	UDP, IPv4, IPv6, DHCP, NTP, RTSP, RTP, RTCP, ICMP, IGMP, PPPoE, DDNS, SMTP, FTP, SNMP,HTTP, 802.1x, UPnP, HTTPs, QoS	
	Interface Protocol	ONVIF	
	Storage	Network remote storage, micro SD card storage	
	Smart Alarm	Motion alarm, SD card full, SD card error	
	Intelligent Analytics	Scene change, video blur detection, video cast detection, intrusion detection, line crossing detection	
Others	IR Distance	20~30 m	
	Protection Grade	IP67	
	PoE	Yes (IEEE802.af)	
	Power	DC12V/PoE	
	Power Consumption	< 7W	
	Opterating Environment	Temperature: -30°C~60°C(-22°F~140°F); RH: < 95%(non-condensing)	
	Dimension (mm)	167.5×74.5×74.5	167.5×69×69
	Weight（net）	Approx. 0.44KG	Approx. 0.39KG
	Installation	Wall mounting; ceiling mounting	

Specification /Model		IR Water-proof Bullet Network Camera	IR Water-proof Bullet Network Camera
Camera	Image Sensor	1/2.8 " CMOS	
	Image Size	3840 × 2160	
	Electronic Shutter	1s~1/100000s	
	Iris Type	Fixed Iris	DC Iris
	Min. Ilumination	0.02 lux, F1.6,AGC ON; 0 lux with IR	
	Lens	2.8mm@F1.6, horizontal FoV:108.9°; vertical FoV:76.4°; diagonal FoV:116.2°	2.8~12mm@F1.6，horizontal FoV: 102°~32.1°; vertical FoV:69.6°~18.4°; diagonal FoV:109.6°~36.5°
	Lens Mount	M12	Ø14
	Day&Night	ICR	
	Digital NR	3D DNR	
	WDR	120dB	
	Angle Adjustment	Pan: 0°~360°; Tilt: 0°~90°; Rotation: 0°~360°	
Image	Video Compression	H.265+ / H.265/ H.264+/H.264/MJPEG	
	Video Bit Rate	64Kbps~12Mbps	
	Resolution	8MP (3840 × 2160), 6MP(3072 × 2048),5MP(2592 × 1944), 4MP (2560 × 1520), 2K(2560 × 1440), 3MP(2304 × 1296), 1080P (1920 × 1080), 720P (1280 × 720), D1, CIF, 480 × 240	
	Main Stream	60Hz : 8MP(1~20fps)/6MP/5MP/4MP/2K/3MP/1080P/720P(1~30fps) 50Hz : 8MP(1~20fps)/6MP/5MP/4MP/2K/3MP/1080P/720P(1~25fps)	
	Sub Stream	60Hz :720P(1~12fps)/D1/CIF/480×240 (1~30fps) 50Hz: 720P/D1/CIF/480×240 (1~25fps)	
	Third Stream	D1/CIF/480×240 (60Hz:1~30fps; 50Hz: 1~25fps)	
	Image Settings	Saturation, Brightness, Hue, Contrast, Wide Dynamic, Sharpness, NR, Anti-flicker, BLC, HLC, defog, etc. adjustable through client or web browser	
	ROI	Support	
Interfaces	Network	RJ45	
	Audio	1CH audio input	
	Storage	Built-in micro SD card slot, up to 256GB	
	Reset	Yes	
Fucntion	Remote Monitoring	Web browser, CMS remote control	
	Online Connection	Support simultaneous monitoring for up to 10 users and multi-stream transmission	
	Network Protocol	UDP, IPv4, IPv6, DHCP, NTP, RTSP, RTP, RTCP, ICMP, IGMP, PPPoE, DDNS, SMTP, FTP, SNMP,HTTP, 802.1x, UPnP, HTTPs, QoS	
	Interface Protocol	ONVIF	
	Storage	Network remote storage, micro SD card storage	
	Smart Alarm	Motion alarm, SD card full, SD card error	
	Intelligent Analytics	Scene change, video blur detection, video color cast detection, intrusion detection, line crossing detection	
Others	IR Distance	30~50 m	
	Protection Grade	IP67	
	PoE	Yes (IEEE802.af)	
	Power	DC12V/PoE	
	Power Consumption	< 10W	
	Opterating Environment	Temperature: -30°C~60°C(-22°F~140°F); RH: < 95%(non-condensing)	
	Dimension (mm)	217.8×80.5×80.3	218.1×79.5×70.4
	Weight（net）	Approx. 0.662KG	Approx. 0.776KG
	Installation	Wall mounting; ceiling mounting	

Specification /Model		IR Water-proof Bullet Network Camera
Camera	Image Sensor	1/2.8 " CMOS
	Image Size	3840 × 2160
	Electronic Shutter	1s~1/100000s
	Iris Type	DC Iris
	Min. Ilumination	0.02 lux, F1.6,AGC ON; 0 lux with IR
	Lens	2.8~12mm@F1.6，horizontal FoV: 102°~32.1°; vertical FoV:69.6°~18.4°; diagonal FoV:109.6°~36.5°
	Lens Mount	Ø14
	Day&Night	ICR
	Digital NR	3D DNR
	WDR	120dB
	Angle Adjustment	Pan: 0°~360°; Tilt: 0°~90°; Rotation: 0°~360°
Image	Video Compression	H.265+ / H.265/ H.264+/H.264/MJPEG
	Video Bit Rate	64Kbps~12Mbps
	Resolution	8MP (3840 × 2160), 6MP(3072 × 2048),5MP(2592 × 1944), 4MP (2560 × 1520), 2K(2560 × 1440), 3MP(2304 × 1296), 1080P (1920 × 1080), 720P (1280 × 720), D1, CIF, 480 × 240
	Main Stream	60Hz : 8MP(1~20fps)/6MP/5MP/4MP/2K/3MP/1080P/720P(1~30fps) 50Hz : 8MP(1~20fps)/6MP/5MP/4MP/2K/3MP/1080P/720P(1~25fps)
	Sub Stream	60Hz :720P(1~12fps)/D1/CIF/480×240 (1~30fps) 50Hz: 720P/D1/CIF/480×240 (1~25fps)
	Third Stream	D1/CIF/480×240 (60Hz:1~30fps; 50Hz: 1~25fps)
	Image Settings	Saturation, Brightness, Hue, Contrast, Wide Dynamic, Sharpness, NR, Anti-flicker, BLC, HLC, defog, etc. adjustable through client or web browser
	ROI	Support
Interface s	Network	RJ45
	Video	CVBS output (BNC×1)
	Audio	1CH audio input; 1CH audio output
	Alarm	1CH alarm input; 1CH alarm output
	Storage	Built-in micro SD card slot, up to 256GB
	Reset	Yes
Fucntion	Remote Monitoring	Web browser, CMS remote control
	Online Connection	Support simultaneous monitoring for up to 10 users and multi-stream transmission
	Network Protocol	UDP, IPv4, IPv6, DHCP, NTP, RTSP, RTP, RTCP, ICMP, IGMP, PPPoE, DDNS, SMTP, FTP, SNMP,HTTP, 802.1x, UPnP, HTTPs, QoS
	Interface Protocol	ONVIF
	Storage	Network remote storage, micro SD card storage
	Smart Alarm	Motion alarm, sensor alarm, SD card full, SD card error, IP address conflict, cable disconnection
	Intelligent Analytics	Scene change, video blur detection, video color cast detection, intrusion detection, line crossing detection
Others	IR Distance	50~70 m
	Protection Grade	IP67
	Power	DC12V/PoE
	PoE	Yes (IEEE802.af)
	Power Consumption	< 10.5W
	Opterating Environment	Temperature: -30°C~60°C(-22°F~140°F); RH: <95%(non-condensing)
	Dimension (mm)	278.3×100.2×88.7
	Weight（net）	Approx. 1.1KG
	Installation	Wall mounting; ceiling mounting

Specification /Model		IR water-proof Dome Network Camera	IR water-proof Dome Network Camera
Camera	Image Sensor	1/2.8 " CMOS	
	Image Size	3840 × 2160	
	Electronic Shutter	1s~1/100000s	
	Iris Type	Fixed Iris	
	Min. Ilumination	0.02 lux, F1.6,AGC ON; 0 lux with IR	
	Lens	2.8mm@F1.6, horizontal FoV:108.9°; vertical FoV:76.4°; diagonal FoV:116.2°	
	Lens Mount	M12	
	Day&Night	ICR	
	Digital NR	3D DNR	
	WDR	120dB	
	Angle Adjustment	Pan: 0°~360°; Tilt: 0°~90°; Rotation: 0°~360°	
Image	Video Compression	H.265+ / H.265/ H.264+/H.264/MJPEG	
	Video Bit Rate	64Kbps~12Mbps	
	Resolution	8MP (3840 × 2160), 6MP(3072 × 2048),5MP(2592 × 1944), 4MP (2560 × 1520), 2K(2560 × 1440), 3MP(2304 × 1296), 1080P (1920 × 1080), 720P (1280 × 720), D1, CIF, 480 × 240	
	Main Stream	60Hz : 8MP(1~20fps)/6MP/5MP/4MP/2K/3MP/1080P/720P(1~30fps) 50Hz : 8MP(1~20fps)/6MP/5MP/4MP/2K/3MP/1080P/720P(1~25fps)	
	Sub Stream	60Hz :720P(1~12fps)/D1/CIF/480×240 (1~30fps) 50Hz: 720P/D1/CIF/480×240 (1~25fps)	
	Third Stream	D1/CIF/480×240 (60Hz:1~30fps; 50Hz: 1~25fps)	
	Image Settings	Saturation, Brightness, Hue, Contrast, Wide Dynamic, Sharpness, NR, Anti-flicker, BLC, HLC, defog, etc. adjustable through client or web browser	
	ROI	Support	
Interfaces	Network	RJ45	
	Audio	1CH audio input; 1CH built-in MIC	
	Storage	Built-in micro SD card slot, up to 256GB	
	Reset	Yes	
Fucntion	Remote Monitoring	Web browser, CMS remote control	
	Online Connection	Support simultaneous monitoring for up to 10 users and multi-stream transmission	
	Network Protocol	UDP, IPv4, IPv6, DHCP, NTP, RTSP, RTP, RTCP, ICMP, IGMP, PPPoE, DDNS, SMTP, FTP, SNMP,HTTP, 802.1x, UPnP, HTTPs, QoS	
	Interface Protocol	ONVIF	
	Storage	Network remote storage, micro SD card storage	
	Smart Alarm	Motion alarm, SD card full, SD card error	
	Intelligent Analytics	Scene change, video blur detection, video cast detection, intrusion detection, line crossing detection	
Others	IR Distance	20~30 m	
	Protection Grade	IP67&IK10	
	PoE	Yes (IEEE802.af)	
	Power	DC12V/PoE	
	Power Consumption	< 7W	
	Opterating Environment	Temperature: -30°C~60°C(-22°F~140°F); RH: < 95%(non-condensing)	
	Dimension (mm)	Ø 119×87.8	Ø 115×90
	Weight（net）	Approx. 0.64KG	Approx. 0.63KG
	Installation	Wall mounting; ceiling mounting	

Specification /Model		IR water-proof Dome Network Camera	IR water-proof Dome Network Camera
Camera	Image Sensor	1/2.8 " CMOS	
	Image Size	3840 × 2160	
	Electronic Shutter	1s~1/100000s	
	Iris Type	DC Iris	
	Min. Ilumination	0.02 lux, F1.6,AGC ON; 0 lux with IR	
	Lens	2.8~12mm@F1.6，horizontal FoV: 102°~32.1°; vertical FoV:69.6°~18.4°; diagonal FoV:109.6°~36.5°	
	Lens Mount	Ø14	
	Day&Night	ICR	
	Digital NR	3D DNR	
	WDR	120dB	
	Angle Adjustment	Pan: 0°~345°; Tilt: 0°~77°; Rotation: 0°~345°	
Image	Video Compression	H.265+ / H.265/ H.264+/H.264/MJPEG	
	Video Bit Rate	64Kbps~12Mbps	
	Resolution	8MP (3840 × 2160), 6MP(3072 × 2048),5MP(2592 × 1944), 4MP (2560 × 1520), 2K(2560 × 1440), 3MP(2304 × 1296), 1080P (1920 × 1080), 720P (1280 × 720), D1, CIF, 480 × 240	
	Main Stream	60Hz : 8MP(1~20fps)/6MP/5MP/4MP/2K/3MP/1080P/720P(1~30fps) 50Hz : 8MP(1~20fps)/6MP/5MP/4MP/2K/3MP/1080P/720P(1~25fps)	
	Sub Stream	60Hz :720P(1~12fps)/D1/CIF/480×240 (1~30fps) 50Hz: 720P/D1/CIF/480×240 (1~25fps)	
	Third Stream	D1/CIF/480×240 (60Hz:1~30fps; 50Hz: 1~25fps)	
	Image Settings	Saturation, Brightness, Hue, Contrast, Wide Dynamic, Sharpness, NR, Anti-flicker, BLC, HLC, defog, etc. adjustable through client or web browser	
	ROI	Support	
Interfaces	Network	RJ45	
	Video	CVBS output (BNC×1)	
	Audio	1CH audio input; 1CH audio output; 1CH built-in MIC	
	Alarm	1CH alarm input; 1CH alarm output	
	Storage	Built-in micro SD card slot, up to 256GB	
	Hardware Reset	Yes	
Fucntion	Remote Monitoring	Web browser, CMS remote control	
	Online Connection	Support simultaneous monitoring for up to 10 users and multi-stream transmission	
	Network Protocol	UDP, IPv4, IPv6, DHCP, NTP, RTSP, RTP, RTCP, ICMP, IGMP, PPPoE, DDNS, SMTP, FTP, SNMP,HTTP, 802.1x, UPnP, HTTPs, QoS	
	Interface Protocol	ONVIF	
	Storage	Network remote storage, micro SD card storage	
	Smart Alarm	Motion alarm, sensor alarm, SD card full, SD card error, IP address conflict, cable disconnection	
	Intelligent Analytics	Scene change, video blur detection, video color cast detection, intrusion detection, line crossing detection	
Others	IR Distance	30~50 m	
	Protection Grade	IP67&IK10	
	PoE	Yes (IEEE802.af)	
	Power	DC12V/PoE	
	Power Consumption	< 10.5W	
	Opterating Environment	Temperature: -30°C~60°C(-22°F~140°F); RH: <95%(non-condensing)	
	Dimension (mm)	Ø 141×100.2	Ø 150.4×114.2
	Weight（net）	Approx. 0.91KG	Approx. 1.23KG
	Installation	Ceiling mounting (wall mounting available with the juction box and bracket)	

Specification /Model		IR Water-proof Dome Network Camera	IR Water-proof Dome Network Camera
Camera	Image Sensor	1/2.8 " CMOS	
	Image Size	3840 × 2160	
	Electronic Shutter	1s~1/100000s	
	Iris Type	Fixed Iris	
	Min. Ilumination	0.02 lux, F1.6,AGC ON; 0 lux with IR	
	Lens	2.8mm@F1.6, horizontal FoV:108.9°; vertical FoV:76.4°; diagonal FoV:116.2°	
	Lens Mount	M12	
	Day&Night	ICR	
	Digital NR	3D DNR	
	WDR	120dB	
	Angle Adjustment	Pan: 0°~360°, Tilt: 0°~70°, Rotate: 0°~360°	
Image	Video Compression	H.265+ / H.265/ H.264+/H.264/MJPEG	
	Video Bit Rate	64Kbps~12Mbps	
	Resolution	8MP (3840 × 2160), 6MP(3072 × 2048),5MP(2592 × 1944), 4MP (2560 × 1520), 2K(2560 × 1440), 3MP(2304 × 1296), 1080P (1920 × 1080), 720P (1280 × 720), D1, CIF, 480 × 240	
	Main Stream	60Hz : 8MP(1~20fps)/6MP/5MP/4MP/2K/3MP/1080P/720P(1~30fps) 50Hz : 8MP(1~20fps)/6MP/5MP/4MP/2K/3MP/1080P/720P(1~25fps)	
	Sub Stream	60Hz :720P(1~12fps)/D1/CIF/480×240 (1~30fps) 50Hz: 720P/D1/CIF/480×240 (1~25fps)	
	Third Stream	D1/CIF/480×240 (60Hz:1~30fps; 50Hz: 1~25fps)	
	Image Settings	Saturation, Brightness, Hue, Contrast, Wide Dynamic, Sharpness, NR, Anti-flicker, BLC, HLC, defog, etc. adjustable through client or web browser	
	ROI	Support	
Interfaces	Network	RJ45	
	Audio	1CH audio input; 1CH built-in MIC	
	Storage	Built-in micro SD card slot; up to 256GB	
	Reset	Yes	
Fucntion	Remote Monitoring	Web browser, CMS remote control	
	Online Connection	Support simultaneous monitoring for up to 10 users and multi-stream transmission	
	Network Protocol	UDP, IPv4, IPv6, DHCP, NTP, RTSP, RTP, RTCP, ICMP, IGMP, PPPoE, DDNS, SMTP, FTP, SNMP,HTTP, 802.1x, UPnP, HTTPs, QoS	
	Interface Protocol	ONVIF	
	Storage	Network remote storage, micro SD card storage	
	Smart Alarm	Motion alarm, SD card full, SD card error	
	Intelligent Analytics	Scene change, video blur detection, video color cast detection, intrusion detection, line crossing detection	
Others	IR Distance	20~30 m	
	Protection Grade	IP67	
	PoE	Yes (IEEE802.af)	
	Power	DC12V/PoE power supply	
	Power Consumption	< 7.5W	
	Opterating Environment	Temperature: -30°C~60°C(-22°F~140°F); RH: <95%(non-condensing)	
	Dimension (mm)	Ø 94.6 ×82.8	Ø108mm×95.7mm
	Weight（net）	Approx. 0.482KG	Approx. 0.45KG
	Installation	Ceiling mounting (wall mounting available with the juction box and bracket)	

Specification /Model		IR Water-proof Dome Network Camera	IR Water-proof Dome Network Camera
Camera	Image Sensor	1/2.8 " CMOS	
	Image Size	3840 × 2160	
	Electronic Shutter	1s~1/100000s	
	Iris Type	DC Iris	
	Min. llumination	0.02 lux, F1.6,AGC ON; 0 lux with IR	
	Lens	2.8~12mm@F1.6，horizontal FoV: 102°~32.1°; vertical FoV:69.6°~18.4°; diagonal FoV:109.6°~36.5°	
	Lens Mount	Ø14	
	Day&Night	ICR	
	Digital NR	3D DNR	
	WDR	120dB	
	Angle Adjustment	Pan: 0°~360°, Tilt: 0°~80°, Rotate: 0°~360°	
Image	Video Compression	H.265+ / H.265/ H.264+/H.264/MJPEG	
	Video Bit Rate	64Kbps~12Mbps	
	Resolution	8MP (3840 × 2160), 6MP(3072 × 2048),5MP(2592 × 1944), 4MP (2560 × 1520), 2K(2560 × 1440), 3MP(2304 × 1296), 1080P (1920 × 1080), 720P (1280 × 720), D1, CIF, 480 × 240	
	Main Stream	60Hz : 8MP(1~20fps)/6MP/5MP/4MP/2K/3MP/1080P/720P(1~30fps) 50Hz : 8MP(1~20fps)/6MP/5MP/4MP/2K/3MP/1080P/720P(1~25fps)	
	Sub Stream	60Hz :720P(1~12fps)/D1/CIF/480×240 (1~30fps) 50Hz: 720P/D1/CIF/480×240 (1~25fps)	
	Third Stream	D1/CIF/480×240 (60Hz:1~30fps; 50Hz: 1~25fps)	
	Image Settings	Saturation, Brightness, Hue, Contrast, Wide Dynamic, Sharpness, NR, Anti-flicker, BLC, HLC, defog, etc. adjustable through client or web browser	
	ROI	Support	
Interfaces	Network	RJ45	
	Audio	1CH audio input; 1CH built-in MIC	
	Storage	Built-in micro SD card slot; up to 256GB	
	Reset	Yes	
Fucntion	Remote Monitoring	Web browser, CMS remote control	
	Online Connection	Support simultaneous monitoring for up to 10 users and multi-stream transmission	
	Network Protocol	UDP, IPv4, IPv6, DHCP, NTP, RTSP, RTP, RTCP, ICMP, IGMP, PPPoE, DDNS, SMTP, FTP, SNMP,HTTP, 802.1x, UPnP, HTTPs, QoS	
	Interface Protocol	ONVIF	
	Storage	Network remote storage, micro SD card storage	
	Smart Alarm	Motion alarm, SD card full, SD card error	
	Intelligent Analytics	Scene change, video blur detection, video cast detection, intrusion detection, line crossing detection	
Others	IR Distance	30~50 m	
	Protection Grade	IP67	
	PoE	Yes (IEEE802.af)	
	Power	DC12V/PoE power supply	
	Power Consumption	< 8W	
	Opterating Environment	Temperature: -30°C~60°C(-22°F~140°F); RH: <95%(non-condensing)	
	Dimension (mm)	Ø 111.5× 99.6	Ø 130.7mm× 109.3mm
	Weight(net)	Approx. 0.661KG	Approx. 0.65KG
	Installation	Ceiling mounting (wall mounting available with the juction box and bracket)	