

**KEDACOM**

# **User Manual for Lecturer-Tracking ePTZ Camera**

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V1.1 (August, 2020)

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## Target Audience

Administrators and Operators of Video Surveillance Products

## Document Version

V1.1


## Applicable Models

IPC7201-i318-N series

## Related Document

*Quick Start Guide*

## Convention

Icon	Convention
	Notes and warning: necessary supplement of operations
Sign	Convention
<b>BOLD</b>	Menu, e.g. <b>Drag to Zoom</b>
>	Connector between menus of different level, e.g. <b>Settings &gt; Camera</b>

## Safety Instruction

These instructions are intended to ensure that the user can use the product correctly to avoid danger or property loss. Please read this Guide carefully before using the product, and keep it properly for future reference. If the product cannot work normally or is damaged because the user does not follow the safety instructions, we shall not assume any responsibility.

Before installation, please follow the instructions below:

### Instructions

1. Please adopt power supply in the safety voltage range.
2. If the product does not work properly, please contact your dealer or the nearest service center. Never attempt to disassemble or repair the product yourself in any way.
3. Do not drop the camera or subject it to physical shock.
4. When cleaning the lens, please use a rubber dust blower to remove dust on the lens or filter, and use dry soft cleaning cloth to remove the dirt on camera surface. For some hard dirt, user can apply some detergent to the cleaning cloth and wipe gently. Never apply any volatile solvent, such as ethanol, benzene and diluents, to avoid damage to surface coating.
5. Do not focus the camera lens on strong light such as the sun or incandescent lamp. The strong light can cause overexposure or light leak (not camera malfunction), which may shorten camera lifetime.
6. Do not expose the camera in the environment not defined in the Manual. Maintenance and fee due to exposure of product in the wrong conditions will be user's responsibility.
7. Indoor Dome Camera cannot be installed at rainy or wet places. If the Indoor Dome Camera has a

connecting rod on the bracket, make sure there is no hole on the rod to avoid water.

8. Outdoor Dome Camera must be completely sealed to avoid dampness. Make sure there is no hole on the connecting rod of bracket to avoid water.
9. While shipping the camera, pack it in the factory packing or use materials with equivalent quality.
10. When it is necessary to replace a part, please contact your dealer in advance and replace the part with specified model or part of the same features. We shall not assume any responsibility for problems caused by unauthorized replacement.
11. Do not shield the sensor at front of the lens housing.
12. When power off the camera, reboot it after 30 seconds.

### **Anti-thunder and Anti-surge**

The camera adopts built-in anti-thunder technology and can withstand instant 4KV thunder when it is well grounded. To prevent damage caused by thunders exceeding the built-in anti-thunder level, an independent anti-thunder engineering must be carried out. When installing it outdoor, please note the following tips to reduce damage efficiently such as thunder.

1. The distance between the signal wire and the high-tension apparatus or high voltage cable should be at least 50m.
2. Try to route cables along the eave when installing outdoor.
3. When installing camera in an open field, route cables inside sealed steel pipes under the earth and ground the pipes with one point. Never route cables in aerial way.
4. In heavy thunderstorm area or high-tension zone (such as high voltage transformer substation), an extra superpower anti-thunder apparatus and lightning rod must be installed.
5. The anti-thunder and grounding design of outdoor apparatus and wires must consider the anti-thunder requirements of the building and conform to the requests of national and industrial standards.
6. The system must be grounded with equipotential. The grounding apparatus must be anti-interference and electrically safe. It cannot be short-circuited or hybrid connected to the null line of high-voltage power grid. When it is grounded independently, the ground impedance is  $\leq 4\Omega$  and the earth lead section surface must be  $\geq 25\text{mm}^2$ .
7. The anti-thunder grounding wire of the dome camera uses multi-strand copper cable with section surface  $\geq 4\text{mm}^2$  (strand diameter about  $\geq 2.3\text{mm}$ ).

## Contents

<b>1. Product Brief .....</b>	<b>3</b>
<b>2. Product Appearance.....</b>	<b>4</b>
<b>3. Start Up .....</b>	<b>5</b>
3.1 Activate Camera .....	5
3.2 Quick Setting of Network Parameters .....	7
3.3 Login and Log Out .....	7
3.4 Password Reset.....	9
3.5 Focus.....	10
3.6 Main Interface .....	11
<b>4. Basic Functions .....</b>	<b>12</b>
4.1 Live View .....	12
4.1.1 PTZ Control.....	12
4.1.2 Image Adjustment .....	13
4.1.3 Live View Window .....	14
4.2 Playback .....	15
4.3 Snapshot.....	17
4.4 Local Setting.....	17
<b>5. Network.....</b>	<b>21</b>
5.1 IP and Port.....	21
5.1.1 LAN .....	21
5.1.2 Port.....	22
5.1.3 Multicast .....	22
5.2 Access Protocol.....	23
5.2.1 ONVIF .....	23
5.2.2 SIP.....	24
5.2.3 VIID .....	25
5.2.4 Others.....	26
5.3 Other Protocol.....	27
5.3.1 DDNS .....	27
5.3.2 FTP.....	27
5.3.3 PPPoE.....	28
5.3.4 K-SNMP .....	28
5.3.5 802.1X.....	29
5.3.6 QoS .....	29
5.3.7 UPnP .....	30
5.3.8 SNMP .....	30
5.3.9 SMTP .....	31
<b>6. Camera.....</b>	<b>33</b>
6.1 Image.....	33

6.1.1	Image Adjustment .....	33
6.1.2	Exposure .....	33
6.1.3	Focus.....	34
6.1.4	White Balance .....	35
6.1.5	Night Cut .....	35
6.1.6	Image Enhancement .....	36
6.1.7	Rotate and BNC .....	37
6.1.8	Effect Parameters .....	37
6.2	OSD .....	38
6.3	Video.....	41
6.3.1	Encoding Format.....	41
6.3.2	ROI .....	43
6.3.3	Privacy Mask.....	43
6.3.4	Video Info Overlay.....	45
6.4	Audio.....	45
6.4.1	Audio Encoding .....	45
6.4.2	Audio Decoding.....	46
6.5	Scene.....	46
<b>7.</b>	<b>Other Settings .....</b>	<b>48</b>
7.1	Event.....	48
7.2	Storage .....	48
7.2.1	Storage Management.....	48
7.2.2	Recording.....	49
7.2.3	Snapshot.....	51
<b>8.</b>	<b>System .....</b>	<b>54</b>
8.1	Device Info.....	54
8.2	User Security .....	54
8.2.1	User.....	54
8.2.2	RTSP Authorization .....	56
8.2.3	IP Filter .....	56
8.2.4	Security Service .....	57
8.3	Time .....	58
8.4	Serial Port.....	59
8.5	Log.....	59
8.5.1	Logs.....	60
8.5.2	System Health.....	60
8.6	System Maintenance .....	60
8.6.1	System Maintenance.....	60
8.6.2	Network Test.....	62
<b>9.</b>	<b>Specification.....</b>	<b>64</b>
<b>10.</b>	<b>Appendix: Glossary of Terms .....</b>	<b>65</b>

## 1. Product Brief

Lecturer-tracking ePTZ camera is applicable to normal lecturing. It tracks and records the whole process of lecturing, during which it could switch freely and automatically between close-up of the lecturer and panorama of the platform, requiring no concern or operation of the lecturer.

Product features:

- 8.0 MP progressive scan CMOS image sensor;
- H.265/H.264 video encoding, support simultaneously outputting HD live image of main stream of 1080P@60fps, secondary stream of 1080P@30fps and third stream of 1080P@30fps;
- Support three-channel output of different video sources: panoramic, blackboard and close-up;
- Built-in all-in-one AF movement for lens, auto iris, distinct in whole process;
- Multiple view-angles, recording lecturing process from all round;
- Multiple tracking modes satisfying different scenarios;
- Built-in intelligent algorithm, support lecturer tracking and lecturer face recognition;
- Support two-way audio, echo cancellation, dumb voice, mute voice and mixed recording;
- Support SIP and ONVIF protocols;
- Support TF card local storage up to 256G;
- Support RS485 control;
- Support wide temperature range design, range being -20°C~+40°C;
- Applicable to multiple lecture-recording classrooms in schools of higher education, general education and vocational education.

## 2. Product Appearance



Picture 2-1 Product appearance



### 3. Start Up

Please refer to the Quick Start Guide for installation and wiring of the system.

After the devices are installed, configure parameters and functions through the web client. Please ensure the mutual network communication between the cameras and the PC before configuring.

**i** Note: You are responsible for risks of accessing cameras to the Internet, including but not limited to possible cyber-attack, hacking attack, virus infection and etc. This company is not responsible for the product failures and information disclosure caused thereby, but will provide timely technical support for the cameras.

Requirements of PC for installing the web client:

- Processor: 3.3 GHz CORE®i3 series and later version or other equivalent processors
- RAM Memory: 4GB or above
- Operating System: Windows 7 or higher versions
- Browser: Suggest using IE kernel browser, other kernel browsers may affect some functions of the client
- DirectX: 9.0 C

#### 3.1 Activate Camera

When the camera is first used, user should activate it and set the login password for normal use.

There are 2 methods to activate the camera: though IPCSearch or through browser.

- Activate through IPCSearch
  - a) Get IPCSearch from our website (<https://www.kedacom.com/cn/softtools/index.jhtml>) and install it according to the prompts.
  - b) After finishing installation, open IPCsearch and the system will search the cameras in LAN and display the list as shown below.

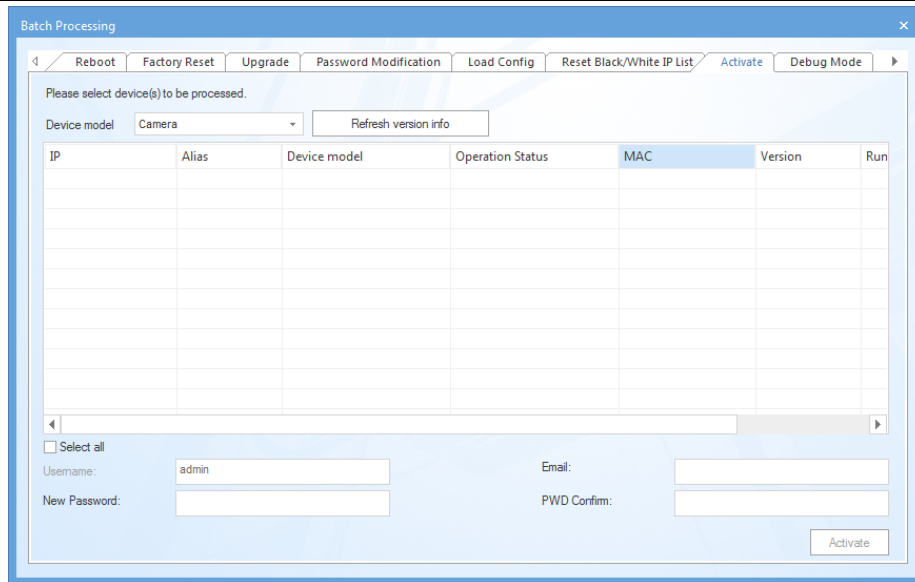
No.	IP	Alias	Device Type	Mask	Gateway	MAC	Version	Serial Number	Runtime	Active State
1	10.255.223.103	IP Camera	IP Camera	255.255.255.0	10.255.223.254	00-14-10-14-53-06	7.1.6.329	1642009823	18hr,14min,56sec.	Activated

Picture 3-1 IPCSearch

**i** Note: Device type and alias is subject to the search result.

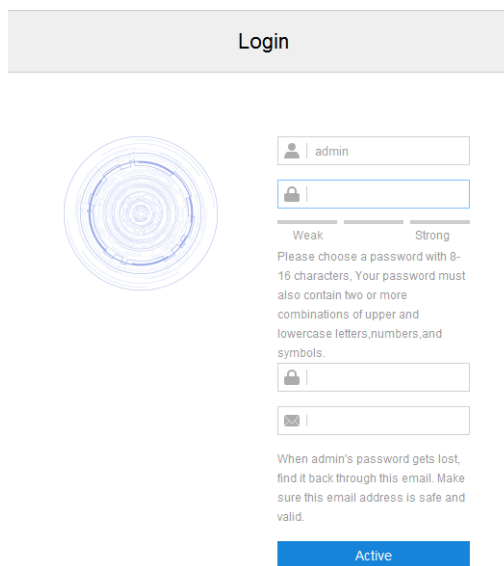
- c) Select the camera to be activated, right click and select “Activate”. On the popup interface, configure admin user password and email for claiming password. Click “Activate”.

**i** Note: When there are more than one non-activated devices, select the devices and click “Batch processing”. On the popup interface, set admin user’s password and the email address to claim password. Click “Activate” and wait for rebooting.



Picture 3-2 Batch Processing

- Activate through browser
- a) Configure the IP addresses of PC in the same network segment as the camera and input the camera IP address in browser, the device activation interface will pop up, as shown below:



Picture 3-3 Activate through browser

- b) Configure admin user password and email for claiming password. Click “Activate”.

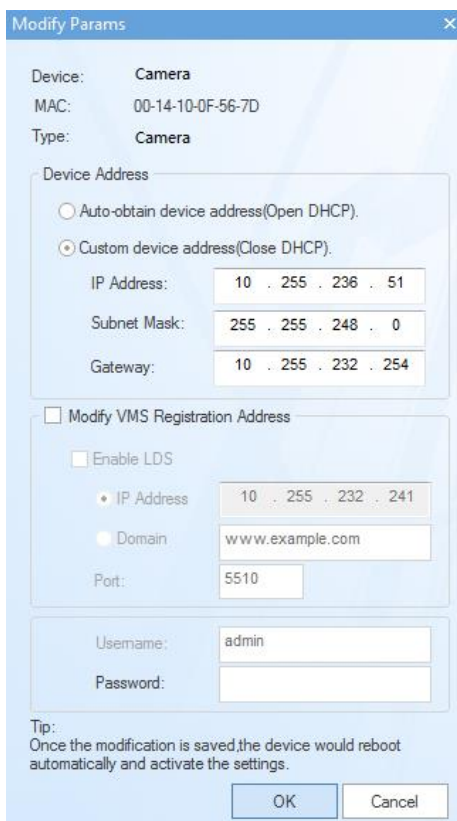
**Note:**

- ◆ To ensure the safety of device on internet, it is strongly recommended that you set a strong password composed of at least 2 kinds of the following, numbers, upper-case letters, lower-case letters or specific symbols with length of 8 to 16 characters.
- ◆ Please modify the password periodically such as once every 3 months. If the device is used in highly risky environment, suggest modifying the password monthly or weekly.
- ◆ Please keep your username and password safe.

### 3.2 Quick Setting of Network Parameters

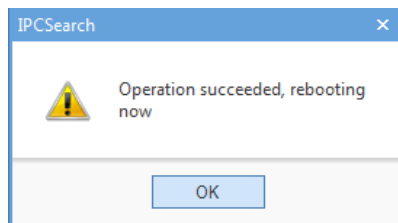
After activating the device, user can quickly modify the network parameters of the camera through IPCSearch, including IP address, subnet mask, gateway and etc.

- 1) Open IPCSearch and the system will search the cameras in LAN automatically and display the results on the list;
- 2) Select a camera to be configured, click **“Modify Params”** or right click the mouse. Modify parameters and fill the password set during activation.



Picture 3-4 Modify Parameter

- 3) Click **“OK”** and in the popup window click **“OK”**. Wait for rebooting.



Picture 3-5 Reboot device

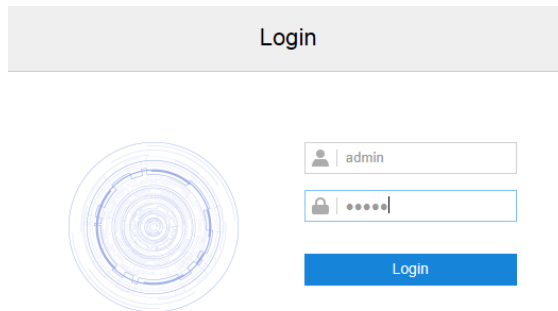
 Note: To configure more parameters, login to the web client and modify.

### 3.3 Login and Log Out

➤ Login

After activating the camera and modifying the parameters, the device will reboot. After reboot, the button will be enabled again. Select either of the following methods to login to the web client.

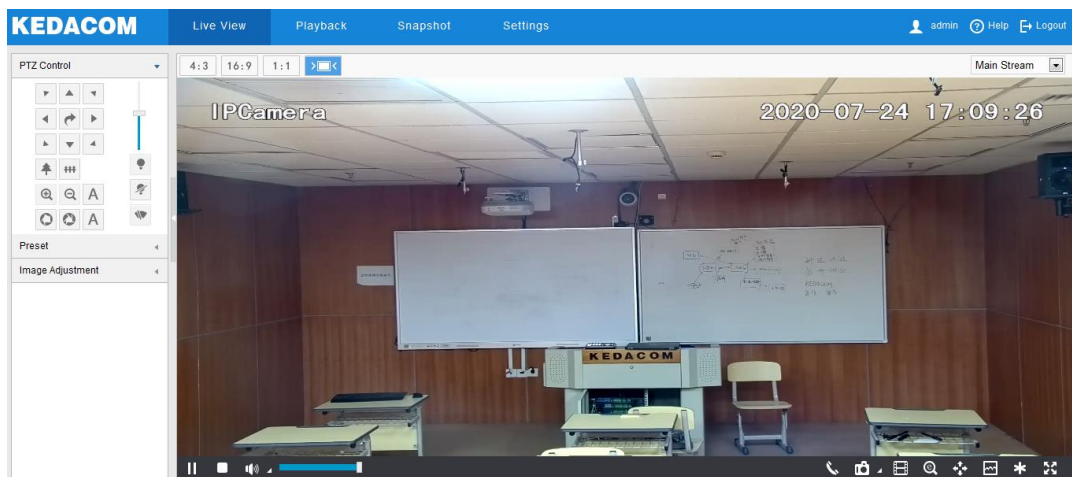
- Please select the device from IPCSearch and click “**Login**” or double click the line the device is in to enter web client. Input username and the password set during activation and click “**Login**” to enter the client.
- Enter camera IP address in the address bar of the browser to login to the web client. Input username and the password set during activation and click “**Login**” to enter the client.




Picture 3-6 Login Interface

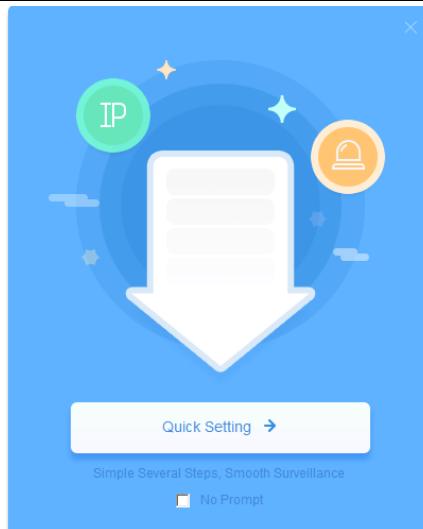
When login successfully for the first time, please download and install the plug-in. Close browser during installation. After finishing, re-login to the web client. Interface after login is shown below.

 Note: Suggest using IE kernel browser, other kernel browsers may affect some functions of the client.



Picture 3-7 Web Client Interface

 Note: After logging into the web client successfully for the first time, the “Quick Setting” window will pop up. Click “Quick Setting ->” to enter quick setting interface and perform simple settings. To disable quick setting, go to **Settings > Local Setting** and unselect “Enable Configuration Guide” checkbox; or select “No Prompt” under “Quick Setting ->” on the quick setting interface.



Picture 3-8 Quick setting interface

LAN


IP Address Configuration		
NIC	GLAN1	
IP Version	IPV4	
Mode	Static	
IP Address	10.255.248.52	Test
Subnet Mask	255.255.255.0	
Default Gateway	10.255.248.254	
MAC Address	00-14-10-13-2A-42	
MTU	1500	1280~1500


DNS Server Setting	
Automatically Obtain DNS	<input type="checkbox"/>
Preferred DNS Server	<input type="text"/>
Alternate DNS Server	<input type="text"/>

Picture 3-9 Quick setting

➤ Log Out

On the live view interface, click  to log out.

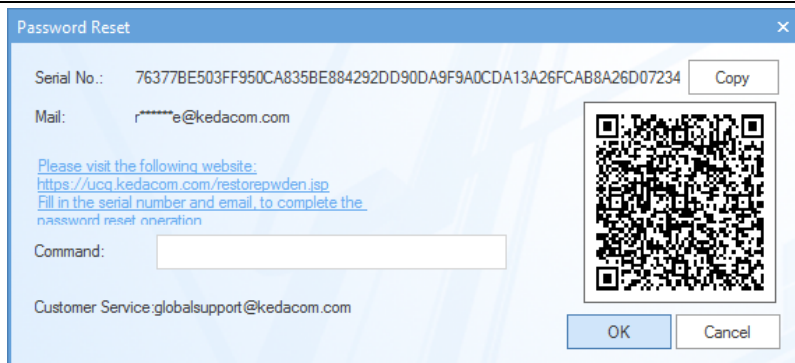
➤ Help

Click the icon  at the top right corner of the window and the help file interface will pop up. User can view the help file of the device.

### 3.4 Password Reset

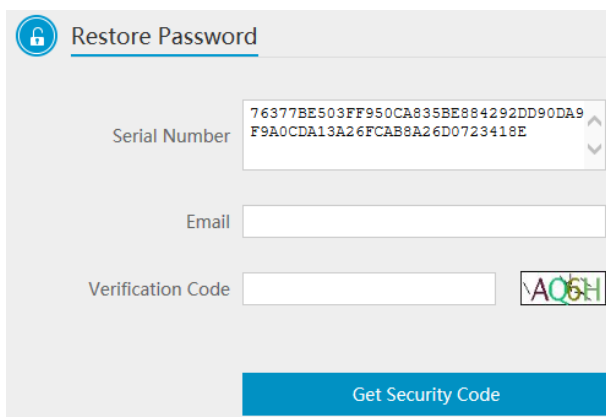
If user enters a wrong username or password for 6 times, the camera IP will be locked up for 10 minutes, during which user cannot login to this camera. If user forgets the password, reset the password.

- 1) Open IPCSearch and select the device whose password needs to be reset. Click **“Password Reset”** and a window will pop up, as shown below:



Picture 3-10 Password Reset

- 2) Click the password reset link or scan the QR code in the above picture with a mobile device and fill in the Serial Number and Email address in the following picture. Click “Get Security Code”;







Picture 3-11 Password Reset

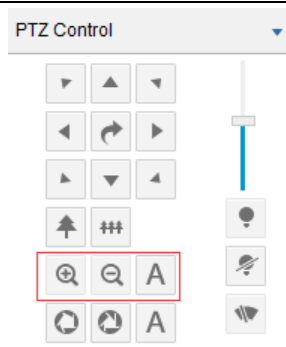
- 3) Login to the email address to get a security code and fill in “**Command**” blank in Picture 2-10 and click “**OK**”. Please remember the new password on the popup window and click “**OK**”. The device will reboot.

### 3.5 Focus

It is the process of imaging the target object clearly.

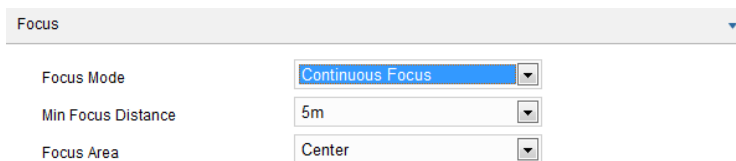
Manual focus: Click the focus buttons on the PTZ control interface to perform manual focus. Click  to focus near and make distant objects obscure while near objects become clear gradually; click  make near objects obscure while distant objects become clear gradually; click  for auto focus (auto focus under manual mode). In the process of manual focusing, preview live video on the web client and adjust focal length till the image is clear.

 Note: Before adjust focus manually, go to **Settings > Camera > Image > Focus**, and select “**Manual**” mode.



Picture 3-12 Manual focus

Auto focus: Under auto focus mode, it focuses automatically according to the change of scenes. Go to **Settings > Camera > Image > Focus**, select auto focus mode, options including “Continuous Focus” and “Single Focus”.



Picture 3-13 Electrical focus

### 3.6 Main Interface

On the main interface of camera, you can view live video, playback video records, manage snapshots and configure settings.

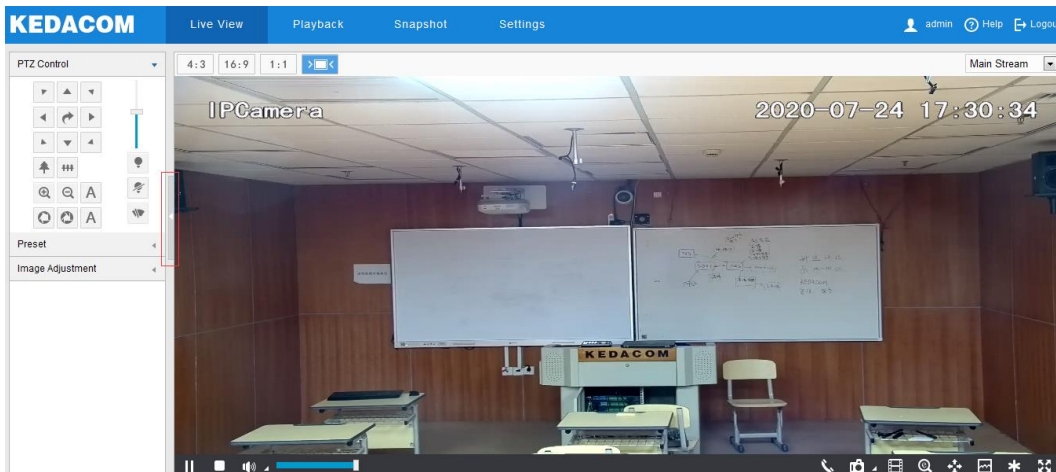
- Live View: preview camera live video and adjust camera parameters;
- Playback: search, playback and download video records by timeline;
- Snapshot: view, search and download snapshots by picture types;
- Settings: configure camera functions and system parameters.

## 4. Basic Functions

By the web client, user can not only view live images, but also capture snapshots and record videos and configure alarm linkage.

### 4.1 Live View

Click “Live View” to enter the preview interface.

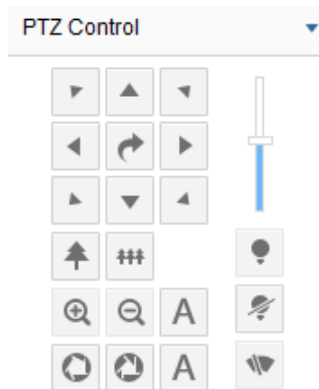


Picture 4-1 Live View

Click the hidden button on the left of the interface to hide PTZ control, Preset and Image Adjustment interfaces. Click it again to show the interfaces.

#### 4.1.1 PTZ Control


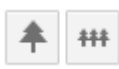


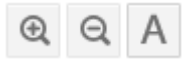










Click **PTZ Control** to show the following interface:



Picture 4-2 PTZ Control

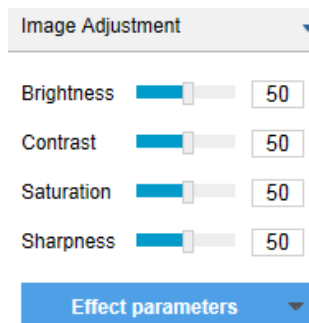
Icon	Note
	<p>The 8 direction buttons control the pan and tilt rotation of the PTZ. Click them to adjust the direction of image;</p> <p>Click  and the camera will patrol in pan; click again to stop.</p>



	<p>Step length adjustment button, the step length means the rotation speed of the image on each click of the direction button. Drag the slide bar to adjust. The larger the step length is, the faster the image will rotate.</p>
	<p>Buttons to adjust the camera's field of view. Field of view is the surveillance scope of the camera. The larger the field of view is, the broader the scope will be. Click  to zoom in and the object is magnified; click  to zoom out and object is narrowed.</p>
	<p>Buttons to adjust the sharpness of focused object. Click  to focus nearby object clear and distant object will become misty; click  to focus distant object and nearby object will become misty; click  to focus automatically.</p>
	<p>Buttons to adjust the size of aperture. Click  to enlarge aperture and the image becomes bright; click  to narrow aperture and the image becomes dark; click  to adjust aperture automatically.</p>
	<p>Light on/off button, click  to enable IR light detection. When the light condition turns dark, enable the IR light for lighting. Click  to disable IR light, and even the light condition turns dark, the IR light will not be on.</p>

#### 4.1.2 Image Adjustment

Click **Image Adjustment** to show the following interface:







Picture 4-3 Image adjustment

Adjust image brightness, contrast, saturation and sharpness if necessary by dragging the slide bars or enter a value behind the slide bars.

- **Brightness:** Adjust current image brightness by actual request. The higher the value is, the brighter the image will be.
- **Contrast:** Adjust current image contrast by actual request. The higher the value is, the clearer the contrast between the dark and the bright of the image will be.
- **Saturation:** Adjust current image saturation by actual request. The higher the value is, the fresher the image will be.
- **Sharpness:** Adjust current image sharpness by actual request. The higher the value is, the more distinct the objects on the image will look.
- **Effect parameters:** Load set image parameters by request. Go to **Settings > Camera > Image > Image Quality > Effect Parameters**, and refer to **Effect Parameters** in Chapter 6 for details.

### 4.1.3 Live View Window














#### ➤ Aspect Ratio

-  means the live view window displays image in standard screen ratio 4:3.
-  means the live view window displays image in wide screen ratio of 16:9.
-  means the live view window displays image in actual size 1:1.
-  makes the image window adaptive to your PC resolution.




#### ➤ Stream Selection

- **Main Stream:** Display the HD image. It is the encoding format of live view, and can be set in **Settings > Camera > Video > Encoding Format**. The main stream displays the panoramic image.
- **Secondary Stream:** Display the SD image. It is the encoding format of live view, and can be set in **Settings > Camera > Video > Encoding Format**. The secondary stream displays the blackboard image.
- **Third Stream:** Display the SD image. It is the encoding format of live view, and can be set in **Settings > Camera > Video > Encoding Format**. The third stream displays the tracking image.

#### ➤ Preview Toolbar

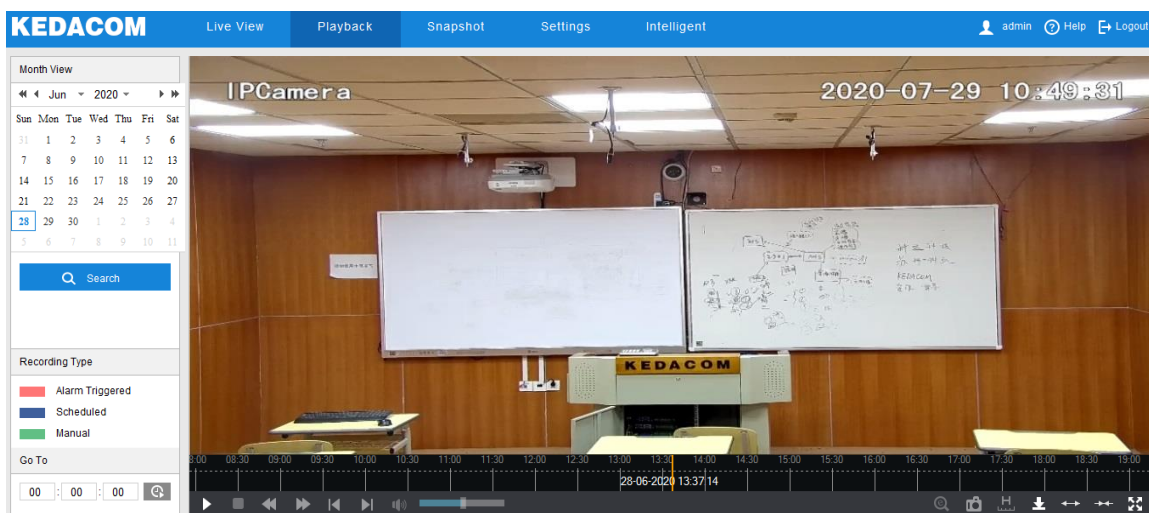
-  Play/ Pause, click this button to play or pause a viewing.
-  Stop, click this button to stop live view.
-  Volume, it is the local decoding volume. Click  to enable or disable voice; click  to select audio channel.
-  Drag the slide bar to adjust volume.
-  Click this button to call and talk to camera. Click again to stop talking.
-  Snapshot, click  to capture current image; click  to select camera snapshot or local snapshot. The former means the camera captures an image and sends it to local client; the latter means the web client captures an image and saves it locally.
-  Start/ Stop recording, click this button to start recording and click again to stop recording.
-  Click this icon to enable the e-PTZ function. Left click and drag toward lower right to draw an area. The pixels of this area will be amplified and will cover the whole screen. Left click and drag toward upper left to draw an area, then image will recover.
-  PTZ, click the icon to zoom. Left click and drag toward lower right to draw an area. The pixels of this area will be amplified and will cover the whole screen. Left click and drag toward

upper left to draw an area, then the image will recover. Double click a point in the image and the point will be centered.

-  Status, click this button to display the frame rate and bitrate of the live video, and click again to hide. This button is hidden by default. To enable this function, go to **Settings > Local Setting > Play**, select **"Display Status Info"** and click **"Save"**.
-  Video freeze, click this button and the image will freeze at the last frame before clicking. Click again to recover image. During video freeze, the PTZ function is disabled.
-  Full screen, click this button to display in full screen. Double click in full screen or press Esc to exit full screen.

### 4.2 Playback


Click **"Playback"** to enter the interface of recording management. User can search, view and download video records saved in the SD card.




Picture 4-4 Playback

Operation steps:














- 1) Select recording duration from the calendar. If there is a blue triangle on a date, it means there is recording on that day.
- 2) Click **"Search"** and the video will be displayed directly in the timeline on the right (the highlight parts on the timeline).

 Note: Red means alarm video recordings, blue meaning scheduled video recordings, and green meaning manual video recordings.

- ◆ Alarm video recording: Enable video recording when an alarm event occurs such as motion detection triggered video recording. Go to **Settings > Event > Intelligent Function > Motion Detection**, and select **"Recording Linkage"**.
- ◆ Scheduled video recording: Enable video recording automatically during certain durations. Configure on the interface of **Settings > Storage > Recording**.
- ◆ Manual video recording: When the camera is disconnected from VMS or NVR, the video recording will be enabled by default.

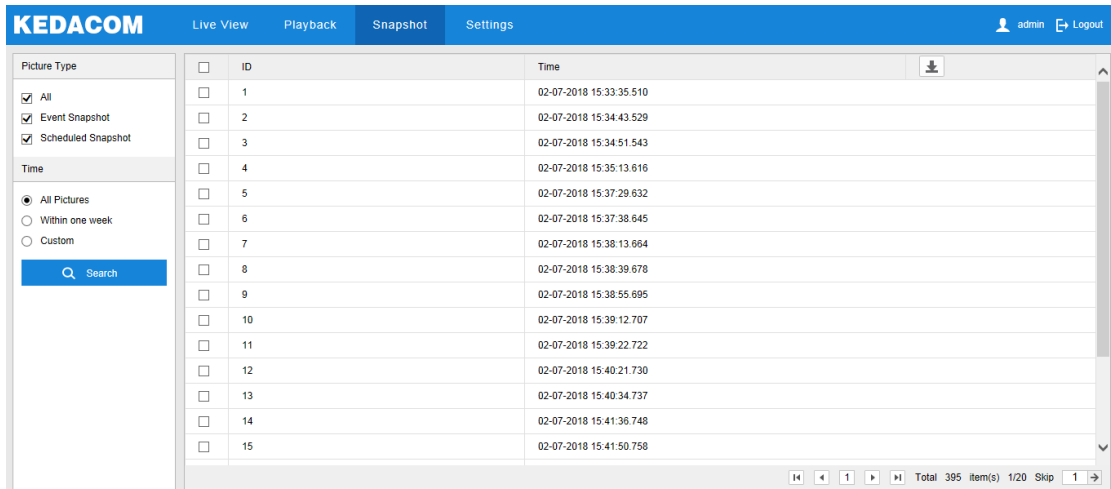
- 3) Click the "Play" button on the interface to playback the video recording. During the playback, user can perform operations such as clipping, accelerating and downloading the video recording.
- 4) Put the cursor of the mouse on the timeline to show the time of the video. Double-click or press the left button of the mouse and drag the timeline to skip playing. Also, user can set playback time under "Go To" and click  to select playback time.

Buttons on the playback interface:

Icon	Note
	Play/ Pause, click the icon to play the video and click again to pause.
	Stop, click the icon to stop playing the video.
	Decelerate playing speed; click the icon to decelerate the speed of playing the video, one-click to decelerate by 1/2x and one more click by 1/4x, max by 1/8x.
	Accelerate playing speed; click the icon to accelerate the speed of playing the video, one-click to accelerate by one time, max 8 times.
	Previous video section, click the icon to play the previous video section and user can click it continuously. Click it in continuous video and it skips 1 hour by default.
	Next video section, click the icon to play the next video section and user can click it continuously. Click it in continuous video and it skips 1 hour by default.
	Volume, click the button to enable sound and click again to disable sound. Drag the slide bar to adjust volume.
	ePTZ, click this icon to enable the ePTZ function. Left click and drag toward lower right to draw an area. The pixels of this area will be amplified and will cover the whole screen. Left click and drag toward upper left to draw an area, then image will recover.
	Snapshot, click the icon to capture current playback image. The save path for playback snapshots can be set in Chapter 4.4 Settings > Local Setting.
	Clip, click this icon to start clipping current video and click again to stop clipping. The save path for clipped playback videos can be set in Chapter 4.4 Settings > Local Setting.
	Download, click the icon to pop up the download interface. On the popup interface, configure the start time, end time and select video type(s) to download. Click "Search" to display expected videos. Select the files to be downloaded and click "Download". User can view the download progress on the list. Save path can be set in Chapter 4.4 Settings > Local Setting.
	Zoom in/ Zoom out timeline, adjust the scale interval on the timeline. Click the icons to zoom in or zoom out the timeline. The scale intervals on the timeline include 5 min, 10 min and 30 min. Zooming of the timeline will not affect the playback of current video.
	Full screen, click this button to display the video in full screen. Double-click on the screen or press Esc to exit.


## 4.3 Snapshot

Click **“Snapshot”** to enter the interface of snapshot management. User can view or download snapshots in SD card.



Picture 4-5 Snapshot

Snapshot search and download steps:

- 1) Select required picture type(s) on the left checkboxes;
- 2) Select duration of snapshots from "Time". If selecting "Custom", specify the Start Time and End Time;
- 3) Click **“Search”** and the search result will show on the right list, from which you can see picture ID and snapshot time;
- 4) Select pictures and click  to download the selected pictures. Snapshot save path can be set in **Local Setting > Camera Snapshot Save Path**.

## 4.4 Local Setting

Go to **Settings > Local Setting**, and configure parameters of video playing, the size and save path of video records and snapshots on local PC, as shown in the following picture.

Local Setting

Play			
Protocol	<input checked="" type="radio"/> TCP	<input type="radio"/> UDP	
Performance	<input type="radio"/> Real-time	<input checked="" type="radio"/> Balanced	<input type="radio"/> Smooth
Decoded Process Mode	<input type="radio"/> Default	<input checked="" type="radio"/> Brightness Enhance	
Enable Image Noise Reduction	<input type="checkbox"/>		
Noise Reduction Level	<input type="range" value="1"/>		
Enable Vertical Synchronization	<input type="checkbox"/>	(Enabling this function will increase the CPU Utilization.)	
Display Status Info	<input checked="" type="checkbox"/>		
Rule information display	<input checked="" type="checkbox"/>		
Hard Decode Preferred	<input type="checkbox"/>		

Recording			
Packet size	<input type="radio"/> 256M	<input checked="" type="radio"/> 512M	<input type="radio"/> 1G
Local Recording Save Path	<input type="text" value="C:\Users\jnz\Documents\IPCWeb\Rec"/>	<input type="button" value="View"/>	<input type="button" value="Opendir"/>
Clipping Save Path	<input type="text" value="C:\Users\jnz\Documents\IPCWeb\Video\PlayBack"/>	<input type="button" value="View"/>	<input type="button" value="Opendir"/>
Download Save Path	<input type="text" value="C:\Users\jnz\Documents\IPCWeb\RecPlayback"/>	<input type="button" value="View"/>	<input type="button" value="Opendir"/>

Snapshot			
Local Snapshot Save Path	<input type="text" value="C:\Users\jnz\Documents\IPCWeb\Pic\Preview"/>	<input type="button" value="View"/>	<input type="button" value="Opendir"/>
Camera Snapshot Save Path	<input type="text" value="C:\Users\jnz\Documents\IPCWeb\Pic\PuGrab"/>	<input type="button" value="View"/>	<input type="button" value="Opendir"/>
Snapshot Save Path	<input type="text" value="C:\Users\jnz\Documents\IPCWeb\Pic\PlayBack"/>	<input type="button" value="View"/>	<input type="button" value="Opendir"/>

Others	
Enable Configuration Guide	<input checked="" type="checkbox"/>
Download Plug-in	<input type="button" value="Download Plug-in"/>

Picture 4-6 Local setting

➤ Play

- Protocol: Select the stream output protocol, options including UDP and TCP, default being TCP; UDP is applicable when the request for image quality is not high and the network is unstable.
- Performance: Select playing level from "Real-time", "Balanced" and "Smooth", default being "Balanced". "Balanced" mode gives consideration of both real-time playing and smooth playing; "real-time" ensures the shortest latency of video playing but affects the smoothness of the video; "smooth" ensures smooth playing of the video but affects the real-time performance of the video.
- Decoded Process Mode: Select the process mode after decoding, options including "Default" and "Brightness Enhance".
- Enable Image Noise Reduction: After selecting it, drag the slide bar below to adjust the noise reduction level, including 4 levels. Enabling image noise reduction will change the resolution of

current image. When the level is too high, it will cause tailing effect on moving objects. Usually it's unnecessary to enable it.

- **Enable Vertical Synchronization:** When there is image tearing, enable vertical synchronization to improve image quality. Usually it's unnecessary to enable this option as it will increase CPU utilization.
- **Display Status Info:** After enabling this function, there will be a status icon in the menu bar at the bottom of the live view window. Click it to view frame rate, bitrate and packet loss rate.
- **Rule Information Display:** If a device supports intelligent functions, when this option is selected, the settings on Settings > Event > Intelligent Function interfaces and on Settings > Camera > Video > Video Info Overlay interface will be shown in the intelligent zone on live view window such as the rule box and target box of guard line alarming, on which user can perform operations if necessary.
- **Hard Decode Preferred:** After enabling this function, the video will be decoded by PC hardware first so as to save CPU consumption.

➤ Recording

- **Packet Size:** Configure the size of single local recording, options including 256M, 512M and 1G.
- **Local Recording Save Path:** Configure the local save path for recordings recorded during live viewing. Click the button of "View" to customize the save path. Click "Opendir" to open the folder where the recordings are saved currently.
- **Clipping Save Path:** Configure the local save path for video clippings clipped during playback. Click the button of "View" to customize the save path. Click "Opendir" to open the folder where the clippings are saved currently.
- **Download Save Path:** Configure the local save path for recordings downloaded during playback. Click the button of "View" to customize the save path. Click "Opendir" to open the folder where the recordings are saved currently.

➤ Snapshot

- **Local Snapshot Save Path:** Configure the local save path for snapshots captured during live viewing. Click the button of "View" to customize the save path. Click "Opendir" to open the folder where the recordings are saved currently.
- **Camera Snapshot Save Path:** Configure the local save path for snapshots downloaded from "Snapshot" interface. Click the button of "View" to customize the save path. Click "Opendir" to open the folder where the recordings are saved currently.

 Note:

- ◆ **Camera Snapshot:** Camera captures an image and sends it to local client. The image quality is good, but there is some time delay caused by network.
- ◆ **Local Snapshot:** Client captures an image and saves it locally. The image quality is ordinary, but there is no time delay.
- **Snapshot Save Path:** Configure the local save path for snapshots captured during playback. Click the button of "View" to customize the save path. Click "Opendir" to open the folder where the recordings are saved currently.

➤ Others

- Enable Configuration Guide: When it is selected, the configuration guide will pop up during login and lead user to the Quick Settings interface. It is selected by default.
- Download Plug-in: Use IE kernel browser to log into the web client. Click the button of "Download Plug-in" to download the video plug-in. When logging into the web client for the first time, download and install the plug-in to view the live video normally.



## 5. Network

Go to **Settings > Network** to configure IP and Port, Access Protocol and Other Protocols.

### 5.1 IP and Port

#### 5.1.1 LAN

Go to **Settings > Network > IP and Port > LAN** and configure network parameters, including IP address, subnet mask, default gateway and etc.

The screenshot displays the LAN configuration interface, divided into two main sections: IP Address Configuration and DNS Server Setting.

**IP Address Configuration:**

- NIC:** GLAN1 (dropdown menu)
- IP Version:** IPV4 (dropdown menu)
- Mode:** Static (dropdown menu)
- IP Address:** 10.255.32.117 (text input) with a **Test** button to its right.
- Subnet Mask:** 255.255.224.0 (text input)
- Default Gateway:** 10.255.63.254 (text input)
- MAC Address:** 00-14-10-1E-9C-60 (text input)
- MTU:** 1500 (text input) with a range of 1280~1500 indicated to its right.
- Default Route:** GLAN1 (dropdown menu)

**DNS Server Setting:**

- Automatically Obtain DNS:**
- Preferred DNS Server:** (empty text input)
- Alternate DNS Server:** (empty text input)

Picture 5-1 LAN

#### ➤ IP Address Configuration

If selecting "IPV4", the mode includes "Static" or "DHCP". When selecting static mode, you need to configure IP Address, Subnet Mask and Default Gateway manually; when selecting DHCP mode, the system obtains IP address automatically;



Note: When filling the IPV4 IP address, click "Test" to confirm if the address is available.

If selecting "IPV6", the mode includes "Manual" and "Automatically obtain". Under the "Automatically obtain" mode, the IPV6 address is distributed from server, gateway or router. Under "Manual" mode, enter the IP address, subnet mask and default gateway according to actual conditions.

**MTU:** Maximum transmission unit, the maximum size of data packet transmitted through TCP/UDP protocol, ranging 500 ~ 1500, by default 1500.



Note: The larger the MTU is, the higher the communication efficiency will be and the longer the transmission latency will be. Please enter according to actual conditions.

#### ➤ DNS Server Setting

When camera accesses to external platform in form of domain name, user needs to configure the right DNS server. You can select “Automatically Obtain DNS” or enter the IP address behind “Preferred DNS Server” manually. If selecting the former, the camera will obtain the configuration parameters of DNS server from the gateway automatically.

After finishing configuration, click “Save”.

### 5.1.2 Port

Go to **Settings > Network > IP and Port > Port** and configure the ports.

HTTP Port	<input type="text" value="80"/>	1~65535
HTTPS Port	<input type="text" value="5544"/>	1~65535
RTSP Port	<input type="text" value="554"/>	1~65535

Picture 5-2 Port

- **HTTP Port:** Hypertext Transport Protocol Port. When login through browser, you need to add a port number behind camera IP address. For example, if HTTP port is edited as 83, when you login through browser, you need to input "http://camera IP address:83. The number is 80 by default, ranging 1 ~ 65535.
- **HTTPS Port:** Hypertext Transport Protocol Secure Port based on SSL. When login through browser, you need to add a port number behind camera IP address. For example, if HTTPS port is edited as 5545, when you login through browser, you need to input "http://camera IP address:5545. The number is 5544 by default, ranging 1 ~ 65535.
- **RTSP Port:** Real Time Streaming Protocol Port. When login through browser, you need to add a port number behind camera IP address. For example, if RTSP port is edited as 555, when you login through browser, you need to input “rtsp://camera IP address:555/id=0 (id=0 play main stream, id=1 play secondary stream)”. RTSP port number is 554 by default, ranging 1 ~ 65535.

After finishing configuration, click “Save”.

### 5.1.3 Multicast

Go to **Settings > Network > IP and Port > Multicast** and configure multicast parameters such as Stream Type, Media Type and Multicast Address.



Note: Multicast is a method of data packet transmission. The source host can send the data packets to every host in the group by sending a datagram only. It also depends on the group relationship maintenance and selection by the router.

Stream Type	Main Stream	
Media Type	Video	
Multicast Address	0.0.0.0	
Multicast Port	61000	1~65535
Send Mode	Passive	
TTL	64	0~255

[Save](#)

Picture 5-3 Multicast

- Stream Type: the stream to be sent, the default being “Main Stream”.
- Media Type: the media type of the stream to be sent, the default being “Video”.
- Multicast Address: the address to send the stream, fill it according to the actual conditions.
- Multicast Port: the multicast port of the multicast address, the default being 61000, ranging 1 ~ 65535.
- Send Mode: options include “Passive” and “Initiative”. Under “Initiative” mode, if the multicast address is normal and valid, the default setting is to send stream to this multicast address; under “Passive” mode, only when receiving the request of multicast can the system send stream to the multicast address. If the address is set 0.0.0.0, the system will send stream to 239.2.2.2 by default.
- TTL: Time to Live, ranging 0~255.



Note: TTL means the maximum number of network segments allowed to pass through IP data packet before it is discarded by the router. It is used to avoid endless loop of sending and receiving the data packet in the network so as to save network resources.

## 5.2 Access Protocol

Go to **Settings > Network > Access Protocol**, and access the camera to different platforms by configuring different access protocols.

### 5.2.1 ONVIF

The client supports adding device to the back-end platform through ONVIF protocol, which enables different network video products such as cameras and recorders from different manufacturers to communicate with each other.

Configuration steps are as follows:

- 1) Go to **Settings > Network > Access Protocol > ONVIF**;

The screenshot shows a configuration interface for ONVIF. It is divided into two main sections: 'Basic' and 'Authentication'. In the 'Basic' section, there is a checkbox for 'Enable' which is checked, and a text input field for 'Server Address (URL)' containing the value 'http://10.255.32.117:80/onvif/device\_service'. The 'Authentication' section contains a label 'Authentication Method' followed by two radio button options: 'N/A' and 'WS-Username token'. The 'WS-Username token' option is selected. Below these sections is a blue 'Save' button.

Picture 5-4 ONVIF

- 2) Select “Enable”. Afterwards, the device will generate a server address (URL) automatically, default port number being 80;
- 3) Set authentication method for ONVIF login. When selecting "N/A", user can login freely; when selecting "WS-Username token", user needs to verify username and password before login;
- 4) Click “Save” to validate settings.

### 5.2.2 SIP

On SIP interface, add the camera to GB platform according to the requirements of GB/T28181. Configuration steps are as follows:

- 1) Go to **Settings > Network > Access Protocol > SIP**;
- 2) Select the “Registered VMS” (Registered VMS 1 or Registered VMS 2). The camera supports registered to 2 different VMS;
- 3) Select “Enable”;
- 4) Enter Network Access ID, VMS ID, VMS Port Number, User Name/ Password and Video Encoding Channel ID, which are all provided by VMS;
- 5) Click “**Save**” to validate settings.

Registered VMS

Enable

Local Port Number

Network Access ID

Camera Name

VMS ID

VMS Address

VMS Port Number

User Name

Password

Renewal Time

Heartbeat Signaling Interval

Camera Ownership

Administrative Region

Guard Area

Installation Address

Registered VMS 1

1024-85535

5060

31000000001120000195

IPCAMERA

31000000002000000000

10.67.36.11

5511

1024-85535

31000000001120000026

•••••

60 (s) 30~999999

30 (s) 10~1000

owner

Add
Modify
Delete

Video Encoding Channel ID	Video Encoding Channel Name	IPC Stream Type
31000000001320000196	enc	Main Stream
31000000001320000197	enc-2	Secondary Stream
31000000001320000198	enc-3	Third Stream
31000000001320000199	enc-4	Fourth Stream

Add
Modify
Delete

Alarm ID	Alarm Name	Validity
Chinese GB Standard Compatibility Order		
Chinese GB Standard->Chinese GB Standard Extension(2014)->Chinese GB Standard Extension(2016)		
Modify Chinese GB Standard Compatibility Order		
More Setting->>		

Skip
Back
Next

Picture 5-5 SIP

### 5.2.3 VIID

The camera can upload the captured snapshots to VIID platform for future data analysis and comparison. Configuration steps are as follows:

- 1) Go to **Settings > Network > Access Protocol > VIID**.

VIID	<input type="text" value="VIID"/>	
Enable	<input type="checkbox"/>	
Network Access ID	<input type="text" value="00000000000000000000"/>	
VIID Address	<input type="text" value="0.0.0.0"/>	
VIID Port	<input type="text" value="8080"/>	1-65535
User Name	<input type="text" value="admin"/>	
Password	<input type="password" value="•••••"/>	
Heartbeat Time	<input type="text" value="60"/>	30-300
Installation Address	<input type="text" value="1"/>	
Regionalism	<input type="text" value="1"/>	
What to Send	<input type="text" value="Picture Set"/>	(If this option is not supported, contents to be sent are subject to actual conditions.)
Transmit Pictures Preferentially	<input type="checkbox"/>	
Auto Time Correction	<input type="checkbox"/>	
Time Correction Interval	<input type="text" value="60"/>	1-65535

Picture 5-6 VIID

- 2) Select “Enable” to enable VIID access.
- 3) Enter VIID platform ID in “Network Access ID”.
- 4) Enter VIID platform IP address and port number in “VIID Address” and “VIID Port”.
- 5) Enter VIID platform user name and password in “User Name” and “Password”.
- 6) Heartbeat time is used to detect abnormal disconnection of TCP. Usually it sends simple communication packets periodically. If the system does not receive any response from the other side in the configured interval, it will judge the other side has been disconnected. For example, if the parameter is set 30, the system will send the packet once every 30 s.
- 7) Enter installation address and regionalism if necessary for facilitating device positioning.
- 8) Click “Save” to validate settings.

### 5.2.4 Others

The device can also be registered to Intelligent Teaching Platform and Lecturer Recorder Platform.

Intelligent Teaching Platform		
Enable	<input type="checkbox"/>	
IP Address	<input type="text" value="0.0.0.0"/>	
Port	<input type="text" value="80"/>	1-65535
Device UUID	<input type="text" value="00000000000000000000000000000000"/>	
Lecture Recorder		
Enable	<input type="checkbox"/>	
IP Address	<input type="text" value="0.0.0.0"/>	
Port	<input type="text" value="80"/>	1-65535
Device UUID	<input type="text" value="00000000000000000000000000000000"/>	

Picture 5-7 Others

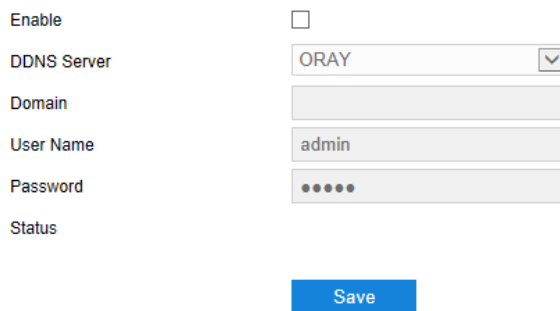
Go to Settings > Network > Access Protocol > Others, as shown above. Select “Enable” and configure the parameters thereof. Click “Save” to validate settings.

## 5.3 Other Protocol

### 5.3.1 DDNS

DDNS (Dynamic Domain Name Server) is to connect the camera to various servers so that user can login to the camera through servers. Apply domain names at different server websites and then visit the device by domain names directly even if the IP address has been modified. Configuration steps are as follows:

- 1) Go to **Settings > Network > Other Protocols > DDNS**;



The screenshot shows the DDNS configuration page. It includes an 'Enable' checkbox which is currently unchecked. Below it is a 'DDNS Server' dropdown menu with 'ORAY' selected. There are input fields for 'Domain', 'User Name' (containing 'admin'), and 'Password' (masked with dots). A 'Status' label is at the bottom left. A blue 'Save' button is centered at the bottom.

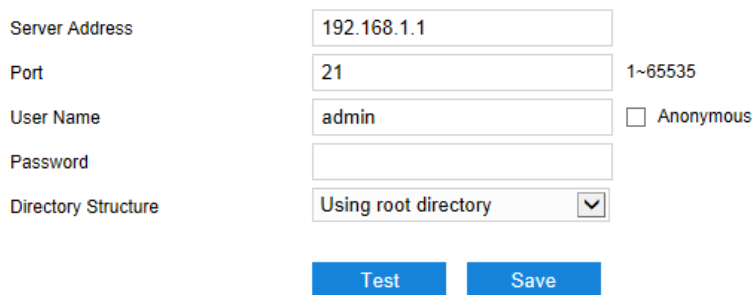
Picture 5-8 DDNS

- 2) Select "Enable";
- 3) Select DDNS Server type from the dropdown list, options including "ORAY", "DYNDS" and "NOIP". When selecting "DYNDS" or "NOIP", the domain name should be filled;
- 4) Enter username and password according to the selected DDNS server;
- 5) Click "**Save**" to validate setting.

### 5.3.2 FTP

File Transfer Protocol, the web client supports FTP protocol and user can upload the pictures of the camera to specific FTP server. Configuration steps are as follows:

- 1) Go to **Settings > Network > Other Protocols > FTP**;



The screenshot shows the FTP configuration page. It includes input fields for 'Server Address' (192.168.1.1), 'Port' (21), 'User Name' (admin), and 'Password'. To the right of the port field is the range '1~65535'. There is an 'Anonymous' checkbox which is unchecked. A 'Directory Structure' dropdown menu is set to 'Using root directory'. At the bottom are two blue buttons: 'Test' and 'Save'.

Picture 5-9 FTP

- 2) Enter FTP server address and port;
- 3) Enter FTP server username and password, and you can select "Anonymous" to visit FTP server anonymously;

- 4) Configure directory structure, i.e. file save path. Select from the dropdown list by actual request, options including "Using root directory", "Using level one directory" and "Using level two directory";
  - Level one directory options include "Use device name", "Use device IP" and "Custom".
  - Level two directory options include "Use channel number" and "Custom".
- 5) Click "**Test**" to verify if current FTP is available, and the result will show on the dialogue box;
- 6) Click "**Save**" to validate setting.

### 5.3.3 PPPoE

PPPoE (Point-to-Point Protocol over Ethernet) function is to access camera to the internet by dialing the account provided by ISP (Telecom, Unicom and CMCC). Configuration steps are as follows:

- 1) Go to **Settings > Network > Other Protocols > PPPoE**;

NIC	GLAN1	<input type="button" value="v"/>
IP Version	IPV4	<input type="button" value="v"/>
Enable	<input type="checkbox"/>	
DHCP	0.0.0.0	
User Name	root	
Password	●●●●	

Picture 5-10 PPPoE

- 2) Select "Enable" to enable PPPoE function;
- 3) Input user name and password provided by ISP;
- 4) Click "**Save**" to validate setting. It will show dynamic IP after dialing succeeds.

### 5.3.4 K-SNMP

K-SNMP means KEDACOM private network management protocol. Configuration steps are as follows:

- 1) Go to **Settings > Network > Other Protocols > K-SNMP**;

Network Management Server IP Address	0.0.0.0	
Network Management Server Port Number	1727	
Device Location	0	
CPU Utilization Threshold	100	1~100
Memory Utilization Threshold	100	1~100
Packet Loss Rate Threshold	100	1~100

Picture 5-11 K-SNMP

- 2) Input "Network Management Server IP Address" and "Device Location";



- 3) Configure "CPU Utilization Threshold", "Memory Utilization Threshold" and "Packet Loss Rate Threshold". The default values are all 100, ranging 1 ~ 100;
- 4) Click "**Save**" to validate setting.

### 5.3.5 802.1X

802.1X is a port based network access control protocol. User can select "Protocol Type" manually to control if the device connected to the LAN can access to the LAN, which will support the requirements of network authentication, charging, safety and management well. Configuration steps are as follows:

- 1) Go to **Settings > Network > Other Protocols > 802.1X**;

Enable	<input checked="" type="checkbox"/>
Protocol Type	EAP-MD5
EAPOL Version	1
User Name	root
Password	••••


**Save**

Picture 5-12 802.1X

- 2) Select "Enable" to enable IEEE 802.1X protocol;
- 3) Select "Protocol Type" from the dropdown list and the default is "EAP-MD5".
- 4) Select version from the list of "EAPOL Version";
- 5) Input user name and password;
- 6) Click "**Save**" to validate setting.

### 5.3.6 QoS

QoS stands for Quality of Service, which can solve the problem of network delay and network congestion efficiently. Configuration steps are as follows:

 Note: QoS function needs the support from network transmission device such as a router or a switch.


- 1) Go to **Settings > Network > Other Protocols > QoS**;

Enable	<input checked="" type="checkbox"/>
DSCP for Audio/Video	0 0~63
DSCP Management	0 0~63

**Save**

Picture 5-13 QoS

- 2) Select "Enable" to enable QoS function;
- 3) Configure "DSCP for Audio/Video" and "DSCP Management", ranging 0 ~ 63;

 Note: There are 64 DSCP priority levels (0-63), which identify different priority levels of packets, 0 with the lowest priority and 63 with the highest. Select and keep packets according to

their priority levels. Different levels occupy different bandwidths with different packet loss rates during network congestion, thus the quality of service is ensured.

**i** Attention: You need to configure the same value on the router.

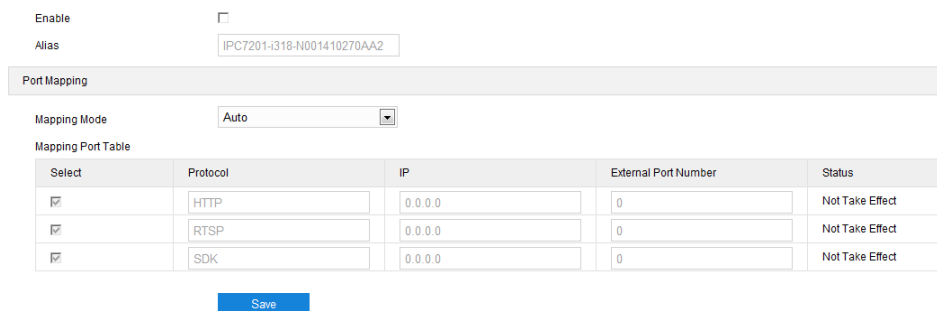
- 4) Click "Save" to validate setting.

### 5.3.7 UPnP

By UPnP protocol, it is able to set up mapping relation between private network and the internet. Internal port is camera port while external port is router port. User can visit camera when accessing to the external port. Configuration steps are as follows:

**i** Note: For a camera in an Ethernet, UPnP function can make gateway or router perform auto-port-mapping which maps the camera monitor port from gateway or router to the Ethernet device, thus the firewall module on the gateway or router starts to open this port to other PCs on the internet.

- 1) Go to **Settings > Network > Other Protocols > UPnP**;



Picture 5-14 UPnP

- 2) Select "Enable" to enable UPnP function;
- 3) Set alias, then user can search the alias directly from the network on PCs which have enabled UPnP protocol in the broadcast domain of the same Ethernet. Double-click the icon and the system will pop up a page automatically for user to visit current IP address;
- 4) Select "Auto" or "Manual" for Mapping Mode. When selecting "Manual", enter external port number manually;
- 5) Click "Save" to validate setting.

### 5.3.8 SNMP

SNMP means Simple Network Management Protocol. It is an application level protocol consisting of a set of network management standards that support a network management system for monitoring devices connected to the network for any management concerns. Configuration steps are as follows:

- 1) Go to **Settings > Network > Other Protocols > SNMP**;

SNMP Version	<input type="checkbox"/> SNMP v1 <input type="checkbox"/> SNMP v2 <input checked="" type="checkbox"/> SNMP v3
SNMP Port	<input type="text" value="161"/> 1-85535
Read community	<input type="text" value="public"/>
Write community	<input type="text" value="private"/>
Trap Address	<input type="text" value="0.0.0.0"/>
Trap Port	<input type="text" value="162"/> 1-85535
Trap Group name	<input type="text" value="public"/>
Camera ID	<input type="text" value="00000000000000000000000000000000"/>
Read only user name	<input type="text" value="admin"/>
Authentication Method	<input type="text" value="md5"/>
Authentication password	<input type="text" value="....."/>
Encryption mode	<input type="text" value="des"/>
Encrypted password	<input type="text" value="....."/>
Read/write user name	<input type="text" value="admin"/>
Authentication Method	<input type="text" value="md5"/>
Authentication password	<input type="text" value="....."/>
Encryption mode	<input type="text" value="des"/>
Encrypted password	<input type="text" value="....."/>

Picture 5-15 SNMP

- 2) Select "SNMP Version" to enable SNMP;
- 3) Enter "Read community" and "Write community" names;
- 4) Configure "Trap Address" and "Trap Port" (default being 162). The camera can send exception alarm to the management base;
- 5) Configure "Trap Group Name";
- 6) Enter "Camera ID", "Read-only User Name", "Authentication Method", "Authentication Password", "Encryption Mode" and "Encryption Password";
- 7) Enter "Read/Write User Name", "Authentication Method", "Authentication Password", "Encryption Mode" and "Encryption Password";
- 8) Click "Save" to validate settings.

### 5.3.9 SMTP

SMTP means Simple Message Transfer Protocol. When an alarm is triggered, the system will send email notification automatically through SMTP protocol. Configuration steps are as follows:

- 1) Go to **Settings > Network > Other Protocols > SMTP**;

SMTP Server	<input type="text"/>	
Port	<input type="text" value="25"/>	1~65535
Sender	<input type="text"/>	
Sender Address	<input type="text"/>	
Server Authentication	<input checked="" type="checkbox"/>	
User Name	<input type="text" value="root"/>	
Password	<input type="password" value="••••"/>	
Topic	<input type="text" value="IPCMail"/>	
Attachment	<input type="checkbox"/>	
File Format	<input type="text" value="Pic"/>	<input type="button" value="v"/>
Receiver	<input type="text"/>	<input type="button" value="+"/>
	<div style="border: 1px solid #ccc; height: 40px; width: 100%;"></div>	<input type="button" value="-"/>
	<input type="button" value="Save"/>	

Picture 5-16 SMTP

- 2) Input SMTP server IP address and port number, which ranges 1 ~ 65535, 25 by default;
- 3) Input "Sender" and "Sender Address"; optionally select "Server Authentication" and input correct user name and password;
- 4) Input email topic; optionally select "Attachment" and choose attached file format, then the email sent will attach the relative file;
- 5) Add receiver email address. Input the receiver's email address and click the symbol "+" behind it and the address will be saved to the list below. Select an address from the list and click the symbol "-" to remove the email address;
- 6) Click "Save" to validate setting.



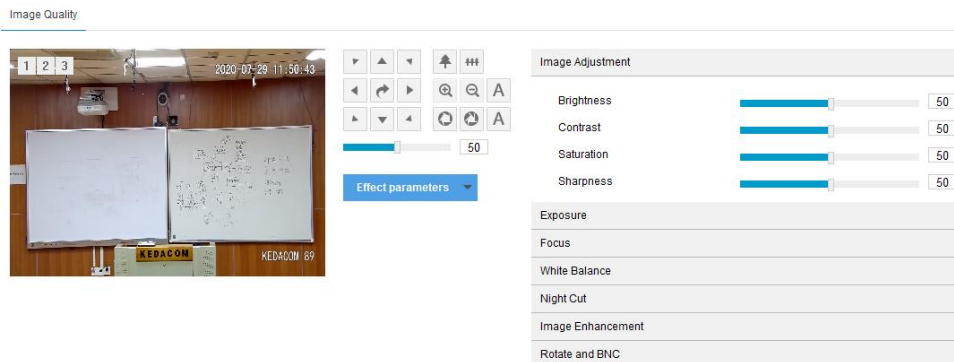
Note: After finishing configuration and enabling email notification, it will send alarm emails normally.

## 6. Camera

Go to **Settings > Camera** to configure camera parameters, including Image, OSD, Video, Audio and etc.

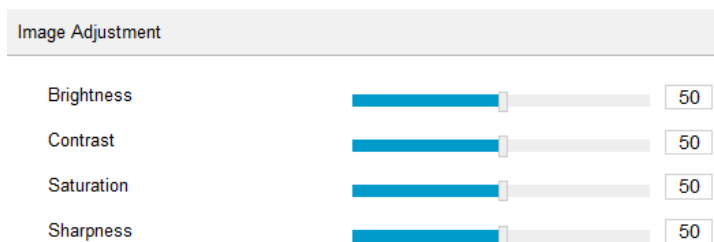
### 6.1 Image

Go to **Settings > Camera > Image**, and configure image adjustment, exposure, focus and etc.



Picture 6-1 Image

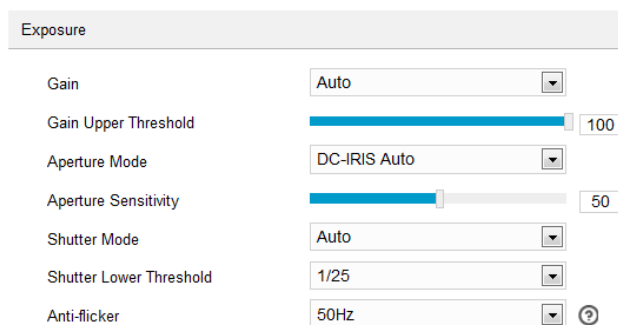
#### 6.1.1 Image Adjustment



Picture 6-2 Image adjustment

The image adjustment in this part is the same as that on the Live View interface, which can be referred to in Chapter 4.1.2 Image Adjustment.

#### 6.1.2 Exposure



Picture 6-3 Exposure

- Gain: A higher gain will make the image look brighter. However, meanwhile there will be more noise points on the image. Auto mode is suggested.
- When selecting "Auto" mode, drag the slide bar below to set Gain Upper Threshold. Then the value of gain can only be adjusted automatically within the range of 0 to the set upper threshold;

- When selecting "Manual" mode, drag the slide bar below to set Gain Level and the value will remain.
- Aperture Mode: Aperture controls the light input through the lens. A large aperture allows more light input and the image looks bright. Options including "DC-IRIS Auto" and "DC-IRIS-Manual". Auto mode is suggested.
  - If selecting "DC-IRIS Auto", drag the slide bar of Aperture Size and Aperture Sensitivity.
  - If selecting "DC-IRIS Manual", drag the slide bar of Aperture Size to set the value and the aperture will remain as the set value.
- Shutter Mode: Camera shutter means the exposure shutter speed of image pixels. The smaller the value is, the darker the image will look. Options include "Auto" and "Manual". Suggest "Auto".
  - When selecting "Auto", you can select Shutter Lower Threshold from the dropdown list below. Then the shutter will be adjusted within the range from the lower threshold to the minimum shutter value automatically;
  - When selecting "Manual", you can select Shutter Level from the dropdown list below. Then the value of shutter will remain.
- Anti-flicker: When there are floating cross stripes on the image, select the correct anti-flicker frequency (50Hz or 60Hz or natural light) to solve the problem. The frequency should be in accordance with that of the nation's AC frequency and light frequency.

### 6.1.3 Focus

Focusing is the process of controlling a beam of light or particle flow and trying to gather it to a point. It is necessary to form images. Adjustment of focus mode will help obtaining optimum and clear target images.

The screenshot shows a control panel titled "Focus" with three settings:

- Focus Mode:** A dropdown menu currently set to "Single Focus".
- Min Focus Distance:** A dropdown menu currently set to "5m".
- Focus Area:** A dropdown menu currently set to "1/2 from bottom".

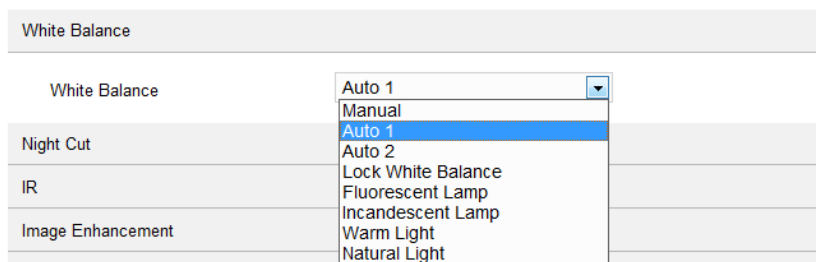
Picture 6-4 Focus

- Focus Mode: Select a mode from the dropdown list by request. The default mode is "Single Focus".
  - Manual: On the live view interface, click focus icons to perform manual focusing;
  - Continuous Focus: The camera will trigger auto focus once there is moving object in the image.
  - Single Focus: The camera will trigger auto focus once the PTZ changes.
  - Camera Lock: Lock parameters of current lens. On live view interface, the zoom and focus buttons will be invalid.
  - Manual Focus (Day/Night): On live view interface, click focus buttons for manual focusing and save focus parameters under day mode and night mode for future loading if necessary.

- Min Focus Distance: It is the minimum focus distance. When the distance is shorter than this, the lens will be unable to focus automatically and clearly. Select a value from the dropdown list.
- Focus Area: Select focus area manually, options including "Center", "2/3 from bottom", "1/2 from bottom", "1/3 from bottom" and "Custom". If selecting "Custom", edit focus area manually.

### 6.1.4 White Balance

Under different light conditions, there will be color cast in different images. White balance adjustment can restore white objects to be white regardless of the color temperature of the light source.



Picture 6-5 White Balance

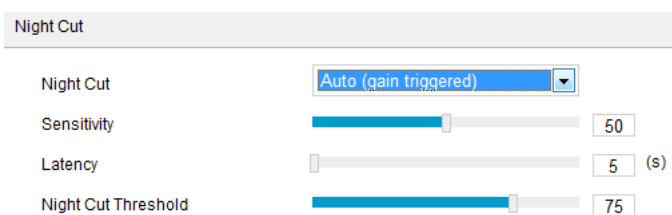
Select an option from the dropdown list of white balance mode. Suggest "Auto".

- Manual: support R Gain and B Gain adjustment.
- Auto 2: have a larger white balance range than "Auto 1", though both are auto mode.
- Lock White Balance: lock current color correction matrix.

If the camera works under light which provides fixed light condition, select according to actual environment.

- Fluorescent Lamp: for color temperature of 6500K.
- Incandescent Lamp: for color temperature of 3000K.
- Warm Light: for color temperature of 4000K.
- Natural Light: for color temperature of 5500K.

### 6.1.5 Night Cut

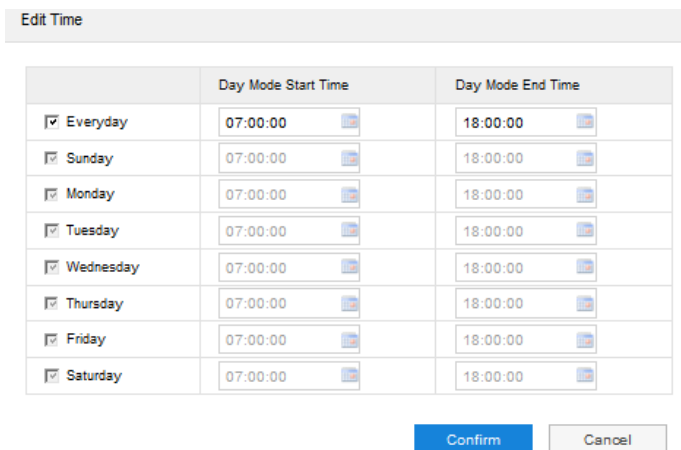


Picture 6-6 Night Cut

Select night cut mode from the dropdown list up to request. Explanation of different modes is as follows:

- Day: Under "Day" mode, the image keeps colored all the time.
- Night: Under "Night" mode, the image keeps black and white all the time.
- Auto (gain triggered): The camera switches day/night mode automatically according to the gain values. When selecting this mode, configure Sensitivity, Latency and Night Cut Threshold according to actual request.

- Sensitivity: The switching sensitivity from night mode to day mode. The lower the sensitivity is the higher brightness in the condition the camera needs to switch to day mode; the higher the sensitivity is the lower brightness in the condition the camera needs.
- Latency: When the camera detects that the light condition is satisfactory to trigger night cut and the time lasts longer than the preset latency, the camera will switch night cut automatically. The range of it is 5 s to 120 s.
- Night Cut Threshold: The switch threshold from day mode to night mode. The lower the value is, the easier it is to switch from day mode to night mode.
- Scheduled Day/Night: Under "Scheduled Day/Night" mode, click "Edit Time" and configure "Day Mode Start Time" and "Day Mode End Time" on the popup interface. The camera will switch day and night modes according to the scheduled durations.

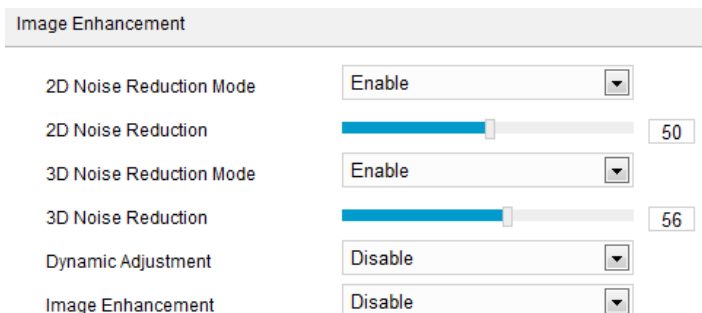


Picture 6-7 Edit time

- Alarm Triggered Cut: It is the night cut triggered by alarm input. After selecting "Alarm Triggered Cut" mode, select day or night from the dropdown list. If selecting "Day", it will switch to day mode after alarm triggered.

### 6.1.6 Image Enhancement

When there are many noise points caused by environment and camera lens, noise reduction function can be enabled to correct images. Images processed by 2D noise reduction will look softer; while those processed by 3D noise reduction will have obviously fewer noise points and will look much clearer.



Picture 6-8 Image enhancement

- 2D Noise Reduction: You can select "Enable" or "Disable". After enabling, you can drag the slide bar to adjust 2D noise reduction level.

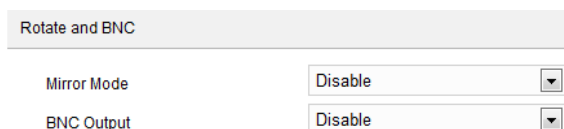


- 3D Noise Reduction: You can select "Enable" or "Disable". After enabling, you can drag the slide bar to adjust 3D noise reduction level.

 **Note:** When the 3D noise reduction level is too high, there will be hauling tail on moving objects. Usually, it's unnecessary to edit this parameter.

- Dynamic Adjustment: When there is strong light background, which causes sharp contrast between the light and the dark part of the image, you can adjust and optimize images through dynamic adjustment. Select a mode from the dropdown list according to actual requirements.
  - Disable: the default option is "Disable", which disables dynamic adjustment.
  - Backlight Auto: When selecting "Backlight Auto", drag the slide bar to adjust "Backlight Sensitivity".
  - Backlight Manual: When selecting "Backlight Manual", drag the slide bar to adjust "Backlight Sensitivity" and select an option from the dropdown list of "Backlight Area". If selecting "Custom", click "Edit" below the image window and drag mouse to draw a backlight compensation area, and click "Setting" to finish.
  - HLC: The HLC function can avoid unclear image caused by strong light interference. Select "HLC" from the drop-down list of Dynamic Adjustment and drag the slide bar of "HLC Level". It is usually used under night conditions to obtain clear plate number.
  - WDR: WDR can provide optimal exposure when there is sharp contrast between the background and foreground light (the former being too bright while the latter being too dark). Select "WDR" from the drop-down list of Dynamic Adjustment and drag the slide bar of "WDR Sensitivity".
- Image Enhancement: When there is fog in the scene, select "Gamma" from the dropdown list to enable image enhancement and drag the slide bar to adjust the sensitivity.

### 6.1.7 Rotate and BNC



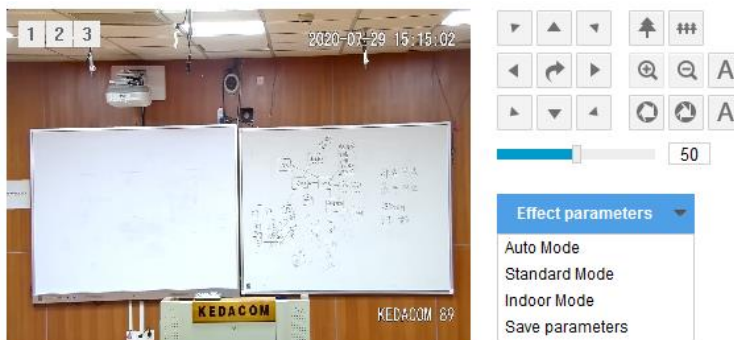
Picture 6-9 Rotate and BNC

#### Mirror Mode

- Disable: It is disabled by default, and the image will not flip.
- Left and Right: The image will flip horizontally but vertically remains unchanged.
- Up and Down: The image will flip vertically but horizontally remains unchanged.
- Center: The image will flip by 180°.

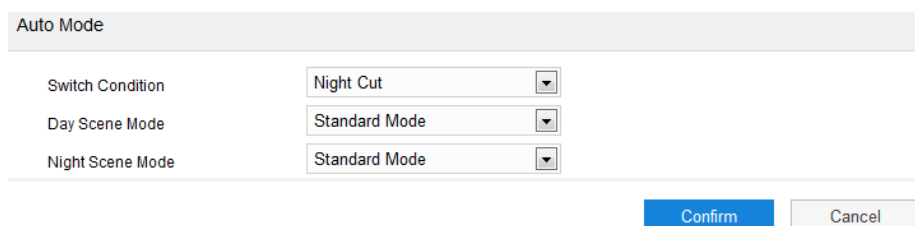
### 6.1.8 Effect Parameters

Effect parameters include "Auto Mode", "Standard Mode", "Indoor Mode" and "Save Parameters".



Picture 6-10 Effect parameters

- Auto Mode: Select “Auto Mode” and configure the switch conditions on the popup interface, options including “Night Cut” and “Time Schedule”. If selecting the former, configure day scene mode and night scene mode; if selecting the latter, configure the start time and end time of switching.



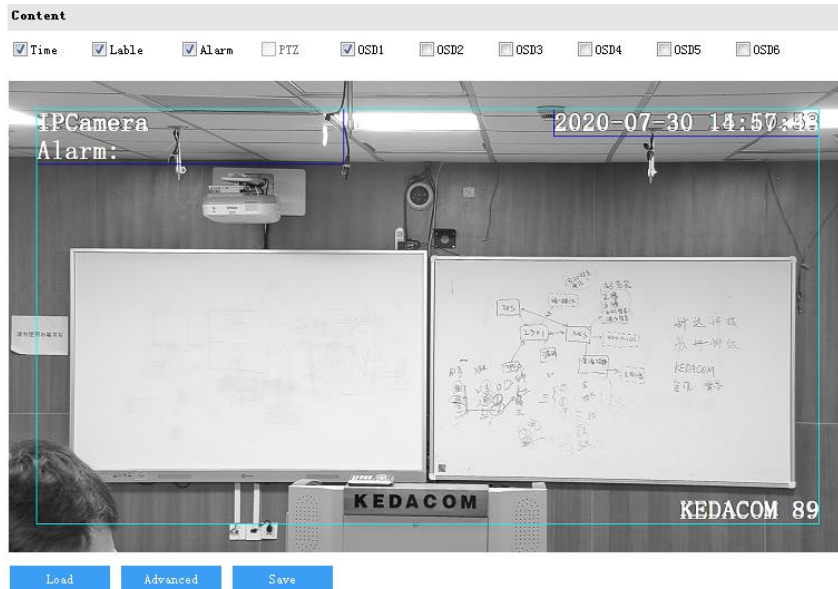
Picture 6-11 Auto mode

- Standard Mode: Select “Standard Mode” and all parameters will restore to defaults.
- Indoor Mode: Select “Indoor Mode” and the image brightness and noise reduction will become more suitable to indoor environment.
- Save Parameters: Select “Save Parameters” and enter “Scene Name” on the popup interface and click “OK”. Then all the configured parameters will be saved under the scene name and will show as a mode option on the dropdown list of “Effect Parameters” for future use.

## 6.2 OSD

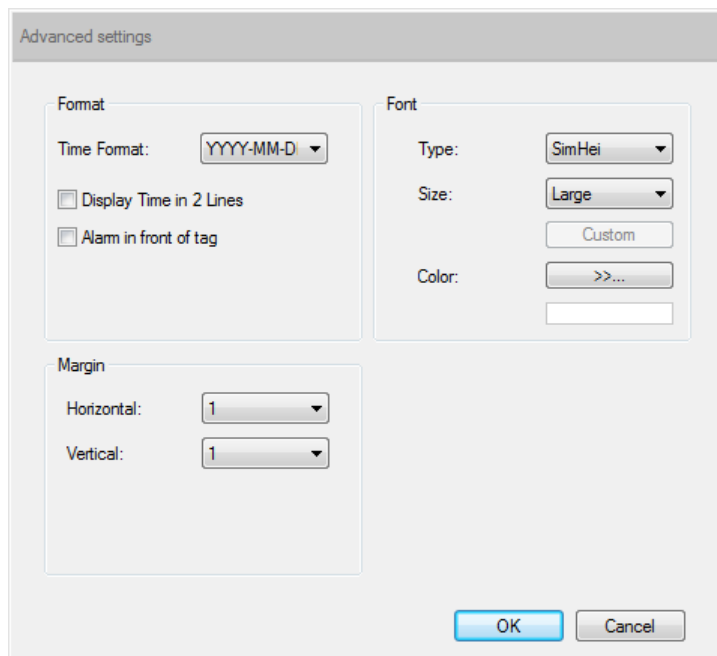
On OSD interface, you can configure OSD text on the surveillance window. Configuration steps are as follows:

- 1) Go to **Settings > Camera > OSD**;



Picture 6-12 OSD

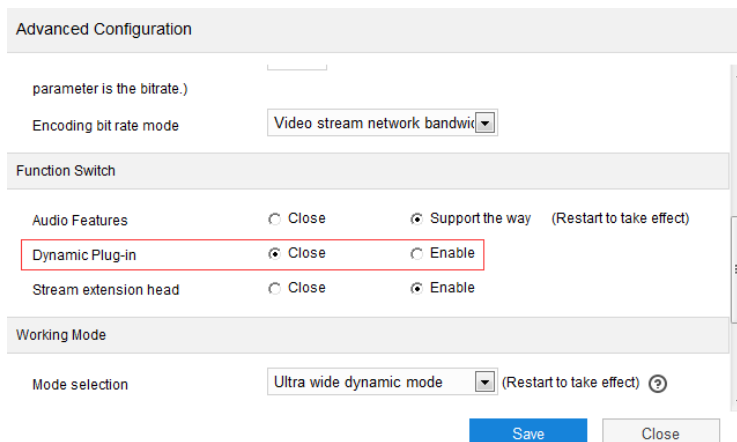
- 2) Select options in “Content” according to requirements and preview the effect in the window below, options including "Time", "Label", "Alarm", "PTZ" and "OSD";
- 3) Click “**Advanced**” to set “Format”, “Font” and “Margin”;
  - In format, you can set "Time Format", "Display time in 2 lines" and "Alarm in front of tag";
  - In font, you can set font "Type", "Size" and "Color";
  - In margin, you can adjust the distance between OSD border and image border, i.e. the distance from the yellow frame to the image border;



Picture 6-13 Advanced setting

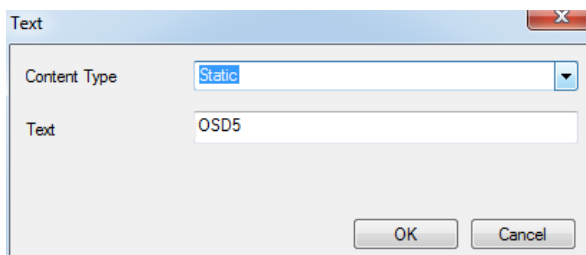
- 4) Edit OSD texts: select the checkbox to show the content, double click the OSD textbox and input characters on the popup interface. In “Content Type”, select “Static” or “Dynamic”;

**i** Attention: The default content type is static and cannot be edited. Go to Settings > System > System Maintenance > Advanced, and select "Enable" to enable dynamic plug-in to display option of "Magnification".



Picture 6-14 Advanced

- When selecting "Static", enter the characters in the textbox below and click "OK" to show it on the image.
- When selecting "Dynamic", click "OK" and the image will display in the set magnification times.



Picture 6-15 Text setting

- 5) Edit OSD positions: select the OSD in the window with mouse and drag to change its position. The dark blue box and the light blue box can move freely in the yellow box and they can even overlap with each other. The time, label and alarm OSDs in the dark blue box move with the box; while the custom OSDs and PTZ OSD in the light blue box move freely in the light blue box and the light blue box can be downsized within the yellow box up to actual request;

**i** Note: The OSD box size changes with the font size, and the sizes of dark blue and light blue boxes change with the sizes of OSD boxes.

- 6) Load font: Click "Load" to configure the OSD font conveniently. Options include "Default Font", "Large Font", "Medium Font" and "Small Font";
- 7) Click "Save" to validate setting.

**i** Note:

- ◆ A number, an English letter or a punctuation mark occupies one character.
- ◆ You can load "Default Font", "Large Font", "Medium Font" or "Small Font". Then edit content and position according to the above steps.

## 6.3 Video

Go to **Settings > Camera > Video** and configure Encoding Format, ROI, Privacy Mask and Video Info Overlay.

### 6.3.1 Encoding Format

Go to **Settings > Camera > Video > Encoding Format** and configure parameters of stream type, resolution, bit rate type and etc.

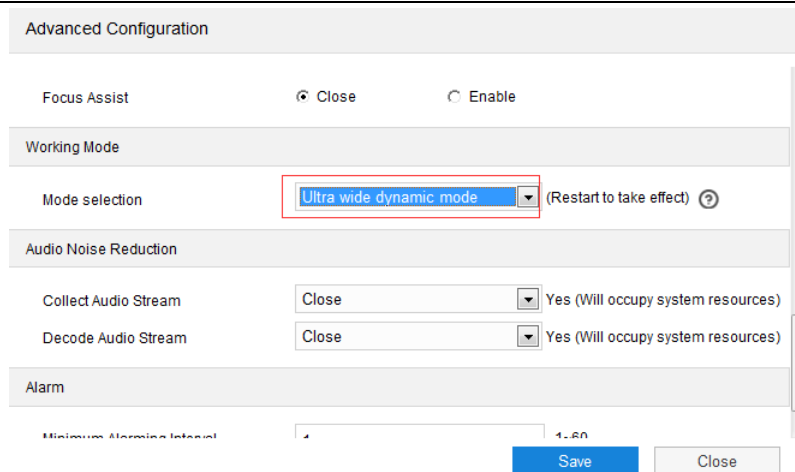
Encoding Format		
Multi-Stream	Dual-Stream	Effective after reboot
Stream Type	Main Stream	
Resolution	1280*720	
Bit Rate Type	CBR	
Image Quality	Middle	
Frame Rate	25	1~25 Upper Limit
Average Bit Rate	2048	32~16384 (Kbps)
Encoding Format	H.265	
Encoding Complexity	Middle	
Max Key Frame Interval	75	1~250
Smart Encoding	Close	Effective after reboot
Stream Smoothing Factor	50	(The higher factor, the lower image clarity.)

Save

Picture 6-16 Encoding Format

- **Multi-Stream:** It means the same video source is encoded in several streams with different resolutions. This series of camera support single stream, dual-stream and triple-stream. Configure the parameters according to actual request and the setting will be validated after reboot. When selecting the stream, go to **Settings > System > System Maintenance > Advanced Configuration** and select the respective working mode, options including “Ultra wide dynamic mode” and “60 frames mode”. Under “60 frames mode”, it supports dual-stream at most, and the maximum frame rate for main stream is 60 fps and that for the secondary stream is 30 fps; under “Ultra wide dynamic mode”, it supports triple-stream at most, and the frame rate for the three streams is the same as 30 fps (the default is 25 fps).

**Note:** Under “Ultra wide dynamic mode”, the main stream is the panoramic image of the lecturer, the secondary stream is the image of the blackboard and the third stream is the image of lecturer-tracking. Under “60 frames mode”, the main stream is the panoramic image of the lecturer and the secondary stream is the image of lecturer-tracking.



Picture 6-17 Select working mode

- Stream Type: Configure the resolution and bitrate of main or secondary stream.
- Resolution: According to the requirements of image quality by user, select resolution from the dropdown list. The higher the resolution is, the more bandwidth it requires.
- Bit Rate Type: Options include CBR and VBR, by which you can control stream rate. CBR is fixed bit rate while VBR means the bit rate is adaptive within the upper limit. CBR transfers stream by average bitrate with high speed compressing, but there may be mosaic on the images; while VBR adjusts bitrate automatically with slow compressing, but could ensure image sharpness under complex conditions.
- Image Quality: When selecting “VBR”, select image quality level from the dropdown list according to actual requirements. The higher the level is, the clearer the image will look.
- Frame Rate: Set the encoding frames per second. The higher the frame rate is, the more bandwidth is required and the more storage it will take.
- Average Bit Rate: Set the average bit rate for CBR.
- Encoding Format: Select according to actual requirements, options including H.264, H.265 and MJPEG.
- Encoding Complexity: Select encoding complexity level according to actual request. Under the same bitrate, the higher the complexity level is, the better quality the image will have and the more bandwidth it will require. When the encoding format is MJPEG, the encoding complexity is certain to be low while when the encoding format is H.265, the encoding complexity is certain to be middle.
- Max Key Frame Interval: Configure the interval frames between two key frames, ranging 1 ~ 250. Suggest applying the default value 75. The larger the value is, the less fluctuation of the stream there will be and the worse the image will be, vice versa.
- Smart Encoding: Enabling “Smart Encoding” will reduce the frame rate. When enabling Smart Encoding under low bit rate, the image quality will be improved. Please select according to actual request. It takes effect after reboot.
- Stream Smoothing Factor: Drag the slide bar or enter a number to set the value. The smaller the value is, the clearer the image will be; the larger the value is, the smoother the stream transmission will be.



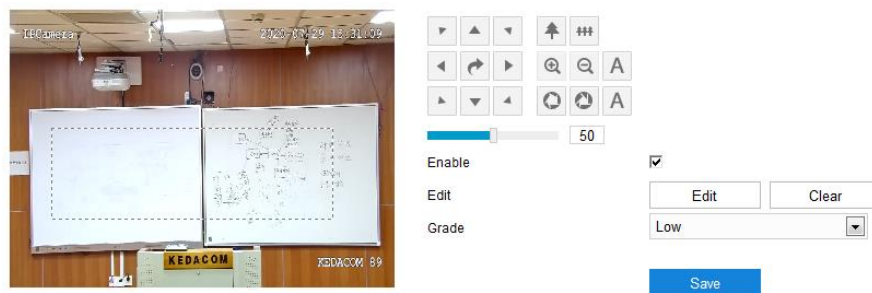
Note:

- ◆ The parameter of Image Quality is enabled only when “VBR” is selected and it will remain “Middle” when “CBR” is selected.
- ◆ Different encoding formats have different levels of encoding complexity.
- ◆ The higher the Encoding Complexity is, the more the stream will be compressed. In this way it will relieve bandwidth restriction somehow, but meanwhile it will also occupy the CPU resource of more devices. Suggest using the default level.
- ◆ After enabling Smart Encoding, some functions will be disabled, such as ROI and Max Key Frame Interval.

### 6.3.2 ROI

ROI means Region of Interest. The camera only encodes specific area of interest to improve image quality of this area while at the cost of decreasing the image quality outside this area. It not only ensures the image quality of ROI area, but also reduces the bit rate. Configuration steps are as follows:

- 1) Go to **Settings > Camera > Video > ROI**;



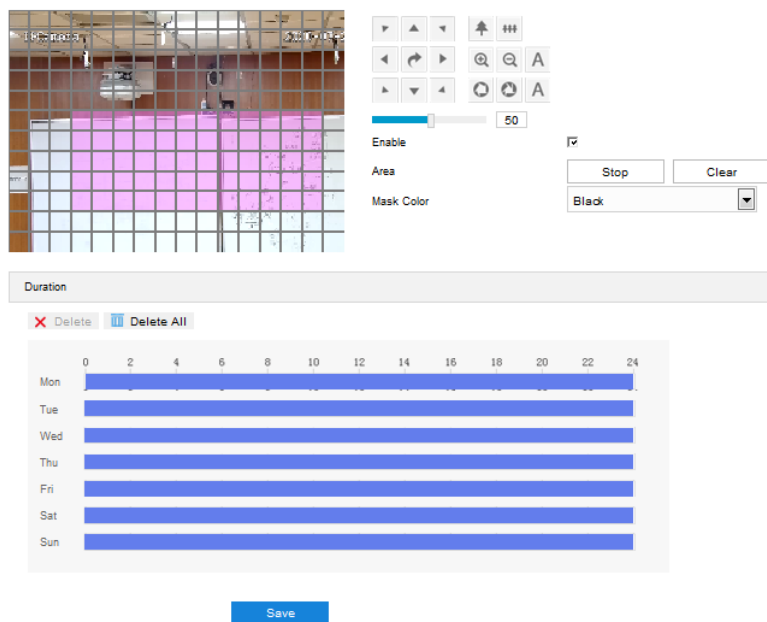
Picture 6-19 ROI

- 2) Select “Enable” to enable ROI function;
- 3) Click “**Edit**” and drag an area from the left window as the clipping area. Select encoding grade from the dropdown list. Click “**Clear**” to clear edition and reset area;
- 4) Click “**Save**” to validate setting.

### 6.3.3 Privacy Mask

Privacy mask is to mask sensitive and private part of the image so as to keep sensitive information private. Configuration steps are as follows:

- 1) Go to **Settings > Camera > Video > Privacy Mask**;




Picture 6-19 Privacy mask

- 2) Select "Enable" to enable privacy mask;
- 3) Click "Edit", and the image is divided into 16 columns and 12 rows of small squares. Click any square and drag an area toward lower right, then this area is the privacy mask detection area. Click "Clear" to reset the area;
- 4) Select a color from the dropdown list of "Mask Color";
- 5) Configure arming duration. The default arming duration is 24 hours in blue bars, or you can customize the durations;



Picture 6-20 Arming durations

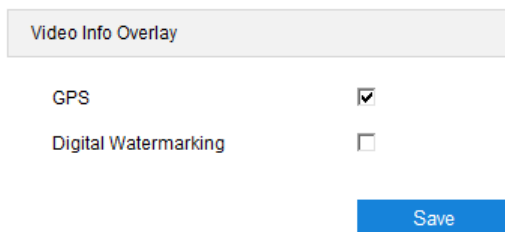
- Set duration: Select a day of the week and click the white bar behind it and drag mouse to make a blue bar as the task duration of the day. Select the duration and there will be a window showing the start time and end time of the duration, and you can edit the time duration more accurate. Click "Save" to validate setting. There can be multiple durations (max 10) on one day and different durations cannot overlap with each other.
- Copy: Click the copy icon  behind the duration to copy the duration setting of that day to another day or many other days.



- Delete: Click "**Delete All**" on the top of the duration bars to clear all durations. Click one and click "**Delete**" on the popup window or on the top of the duration bars to remove this duration.
- 6) Click "**Save**" to validate the settings.

### 6.3.4 Video Info Overlay

Go to **Settings > Camera > Video > Video Info Overlay**, and composite basic intelligent feature and digital watermarking into the surveillance image.



Picture 6-21 Video info overlay

- **GPS**: Select it to show camera coordinates in the image.
- **Digital Watermarking**: Select it to show digital watermarking in the videos. It is used to protect the video recordings and avoid tampering.

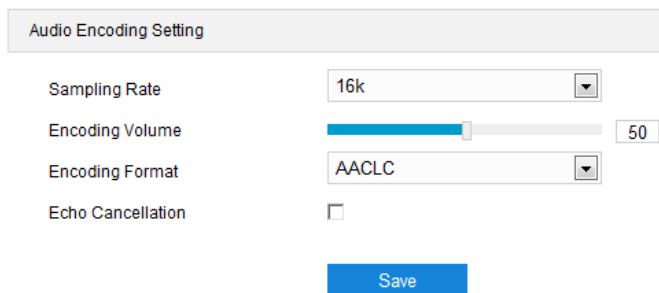
Click "Save" to validate settings.

## 6.4 Audio

Go to **Settings > Camera > Audio**, and configure audio encoding and audio decoding.

### 6.4.1 Audio Encoding

Go to **Settings > Camera > Audio > Audio Encoding**.



Picture 6-22 Audio encoding

- **Sampling Rate**: It means the sampling times to sound signals by the audio-recording device in 1 second. The higher the sampling rate is, the more real and natural the sound reproduction will be.
- **Encoding Volume**: Drag the slide bar to adjust audio encoding volume, i.e. audio input volume. The larger the value is, the higher the voice will be.
- **Encoding Format**: Select audio encoding format from the dropdown list, by default G.711 a (PCMA).



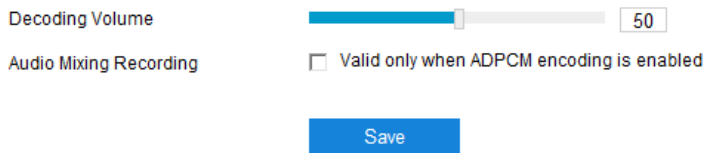
Note: When the encoding format is AACLC, you can configure the sampling rate; under other encoding formats, the sampling rate is certain.

- Echo Cancellation: Select the checkbox to cancel noises in the input audio and to improve the audio quality.

Click "Save" to validate settings.

### 6.4.2 Audio Decoding

Go to **Settings > Camera > Audio > Audio Decoding**, and configure audio decoding.



Picture 6-23 Audio decoding

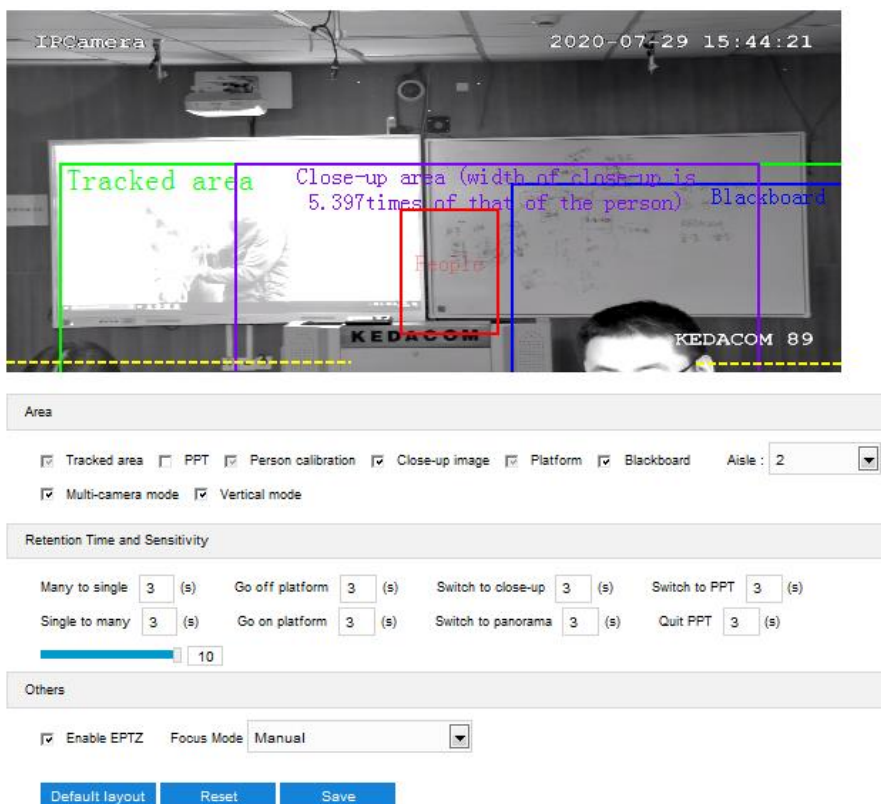
- Decoding Volume: i.e. audio output volume, drag the slide bar to adjust audio decoding volume.
- Audio Mixing Recording: Select the checkbox to enable audio mixing recording function, which is valid only when "ADPCM" is selected.

**i** Note: When "Audio Mixing Recording" is disabled, there will be only heard sound without calling sound during video recording; when it is enabled, there will be both heard and calling sound during video recording.

Click "Save" to validate settings.

## 6.5 Scene

Go to **Settings > Camera > Scene** and configure tracked area, retention time and sensitivity.



Picture 6-24 Scene

## Explanation of parameters:

<b>Tracked Area</b>	Checked by default and cannot be unchecked. It's in green rectangle which can be dragged to adjust the area. Only one tracked area can be set and only moving objects in the set area can be tracked. The area must be larger than the person calibration area.
<b>PPT</b>	Optional, in gray rectangle, for defining the PPT size in the scene. Only one PPT area can be set and its borders should coincide with that of the PPT in the scene.
<b>Person Calibration</b>	Checked by default and cannot be unchecked. It's in red rectangle for defining the size of the tracked person. Only one such area can be set. Circumscribe the upper part of the person into the rectangle, the width of which is the width of the person's shoulder. The area must be smaller than the tracked area.
<b>Close-up Image</b>	Checked by default. It's in purple rectangle, for defining the width of the close-up image of the lecturer. Only one such area can be set. Its width is 4 to 6 times as that of the person's shoulder.
<b>Platform</b>	Checked by default and cannot be unchecked. It's in cyan rectangle, for defining the size of the platform in the scene. Only one such area can be set. Define the area according to the actual position of the platform.
<b>Blackboard</b>	Optional, in blue rectangle, for defining the size of the blackboard in the scene. Only one such area can be set. The area should be set in proportion of 16:9.
<b>Aisle</b>	Every aisle is made up of 2 straight dotted lines, for setting aisle positions under the tracked area. The max allowed aisle number is 3 and by default 2. The top of the aisle is the bottom of the tracked area and the bottom of it is the bottom of the panoramic image.
<b>Multi-Camera Mode</b>	Checked by default. When the lecturer walks in or leaves the tracked area, switch to the panoramic image. When the lecturer stops in the tracked area, switch to the close shot and track the lecturer.
<b>Vertical Mode</b>	Checked by default. Allow the close-up image to center on the lecturer and track vertically. When it's unchecked, only allow the close-up image to center on the lecturer and track horizontally.
<b>Retention Time</b>	It's the retention time of current tracking state, during which it will not trigger the next tracking state. Range is 1~10s, by default 3s.
<b>Moving sensitivity of close-up image</b>	To set the moving sensitivity of the lecturer in the close-up image. Drag the slide bar to adjust. The range is 0~10, by default 5.
<b>Enable ePTZ</b>	Checked by default. User can perform PTZ operations on Live View interface through ePTZ function.
<b>Focus Mode</b>	The same as that on the Image > Focus setting interface, focus mode including Manual, Single Focus, Continuous Focus and Camera Lock.
<b>Default Layout</b>	Click the button to restore to the default layout and settings.
<b>Reset</b>	Click the button to reset to the previous configuration.
<b>Save</b>	Click the button to save the configuration.

## 7. Other Settings

### 7.1 Event

Configure the alarm linkage method for abnormal events, and the camera will judge if it is necessary to trigger an alarm. Configuration steps are as follows:

- 1) Go to **Settings > Event > Abnormality Linkage**;

Abnormality Linkage

Enable

Abnormality Type

Linkage Method(Common Linkage)

Report to Management System

Text Overlay

Acoustic Alarm

Email Notification

Save

Picture 7-1 Abnormality Linkage

- 2) Select "Enable";
- 3) Select an option from the dropdown list of Abnormality Type;
  - Disk Full: when the disk storage is insufficient.
  - Disk Error: when the disk cannot be recognized.
  - Internet Disconnected: when the device isn't connected to the internet normally.
- 4) Select linkage type(s), which is/are the alarm output method(s) when an event triggers an alarm;
  - Report to Management System: when there is an alarm triggered, report to the management center.
  - Text Overlay: when there is an alarm triggered, display the alarm text on screen.
  - Acoustic Alarm: when there is an alarm triggered, make an alarm sound.
  - Email Notification: when there is an alarm triggered, send an email to notify.
- 5) Click "**Save**" to validate settings.

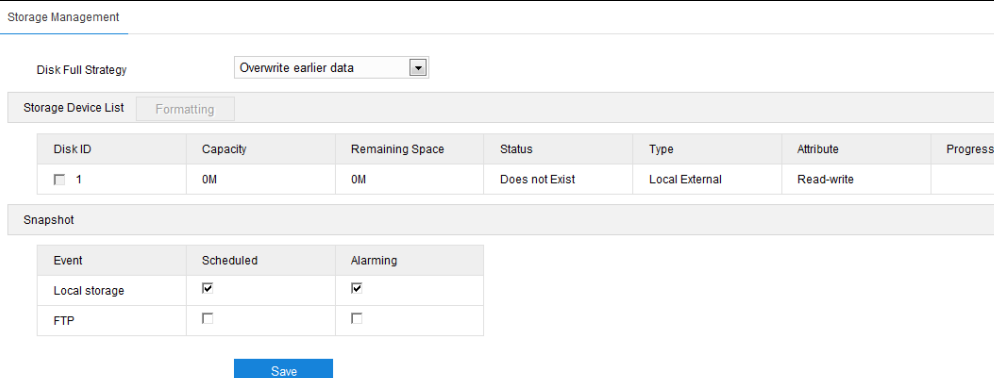
### 7.2 Storage

#### 7.2.1 Storage Management

Go to **Settings > Storage > Storage Management** to configure strategy for disk full, view storage device list, format the storage card, and configure the save path for snapshots.



Note: When the camera is installed with a storage card and works normally, you can configure scheduled recording and scheduled snapshot.




Picture 7-2 Storage Management

- Disk Full Strategy: Configure the video recording strategy when there is insufficient storage space.
  - Overwrite earlier data: when there is insufficient storage space, overwrite the oldest videos;
  - Stop: when there is insufficient storage space, stop video recording automatically.

Go to **Settings > Event > Abnormality Linkage** and select "Disk Full" as Abnormality Type to remind user that local video recording has stopped.

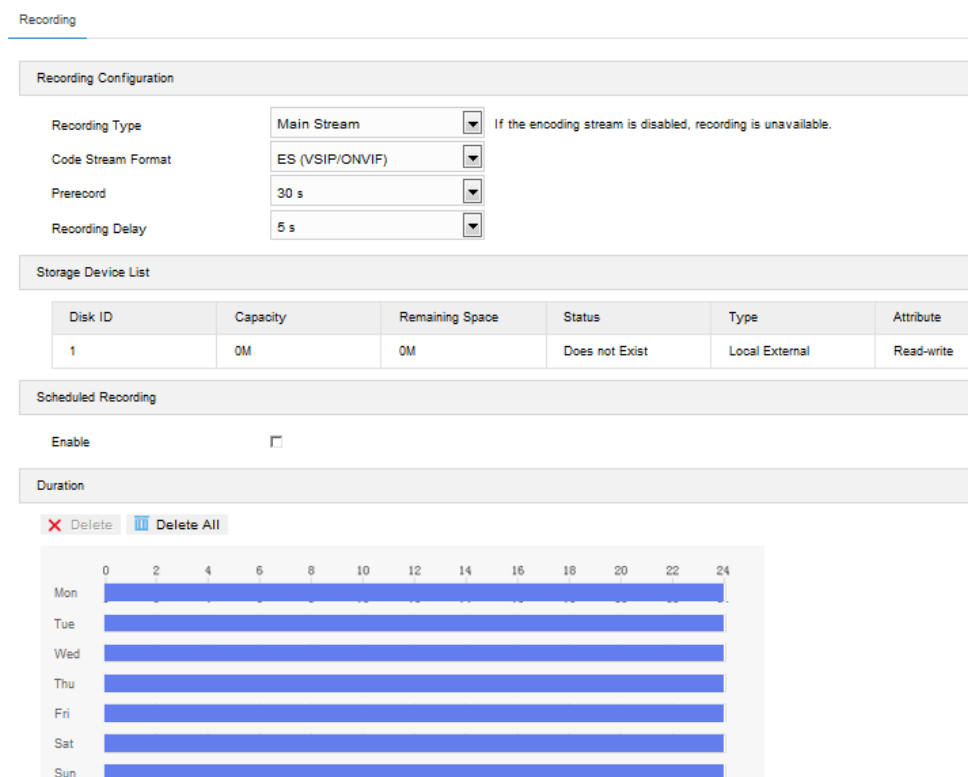
- Storage Device List: Display the status, capacity, progress and other information of all storage devices.
  - Disk ID: display the serial number of the storage device.
  - Capacity: display the storage space of the storage device.
  - Remaining Space: display the remaining space of the storage device.
  - Status: show the status of storage devices such as "Normal" (with a storage card which can read and write normally), "Does not Exist" (without a storage card), "Not Formatted" (need to be formatted when first inserted) and etc.
  - Type: show the installation method of the storage device.
  - Attribute: display the read and write attributes of the storage device, Read-only, Write-only or Read-write.
  - Progress: show the percentage of the formatting progress of the storage card. Select the disk and click "Formatting" to format the selected disk.
- Snapshot: Configure the save path for the snapshots. According to actual requirements, select "Local storage" (TF card in the camera) or "FTP" (server) to save the scheduled snapshots and alarm snapshots.

 Note: The storage card is installed in the camera when going out of the factory. When using the local storage card for the first time, please click "Formatting" first.

### 7.2.2 Recording

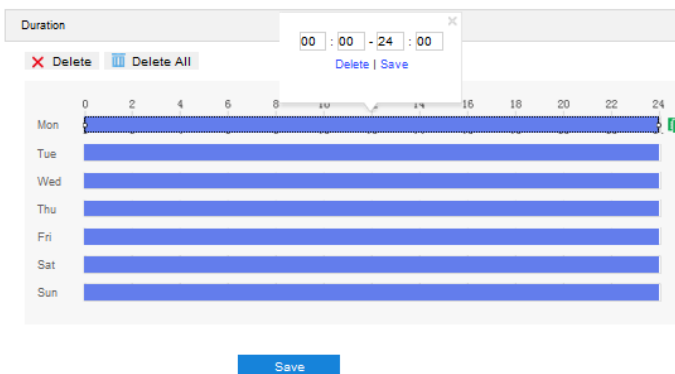
After configuring scheduled recording, the camera will perform different video recording tasks automatically in the configured durations and save the videos in the storage card. Configuration steps are shown below:

- 1) Go to **Settings > Storage > Storage Management** to configure disk full strategy and format the storage card recognized by the camera. If formatting is successful, the Status will turn "Normal" which means the storage card can be used normally;
- 2) Go to **Settings > Storage > Recording** to configure video recording;
  - Recording Type: Select the stream to be recorded. If none is selected, it will not be able to record videos.
  - Code Stream Format: Select a video packaging format according to the type of access protocol.
  - Prerecord: Select prerecord duration, i.e. the prerecord duration before recording starts. It is certain to be 30s.
  - Recording Delay: Select recording delay time, i.e. the prolonged recording duration after the configured duration.





Picture 7-3 Scheduled recording

- 3) Select "Enable" to enable Scheduled Recording;
- 4) Set arming duration: the default is 24 hours displaying in blue bar, or user can customize durations. The maximum allowed number of durations is 4 on one day and different durations cannot overlap with each other;



Picture 7-4 Arming durations

- Set duration: configure arming durations according to actual requirements.
  - Click the blue bar to pop up a window for editing the accurate start time and end time; click "**Save**" to validate setting.
  - Click any duration and there will be small white squares on the 2 ends of it. Put the mouse on any whit square, left-click and drag the edit the start time and end time.
  - Select the timeline of any day and delete the default blue bar. Left click on the mouse and drag on the timeline from left to right to form a blue bar, above which it shows the start time and end time.
- Copy duration: click the copy icon  behind the timeline and copy the durations on the day to one or several other days.
- Delete duration: click "**Delete All**" above the timeline to delete all the durations. Select any duration and click "**Delete**" on the popup window or above the timeline to delete the duration.

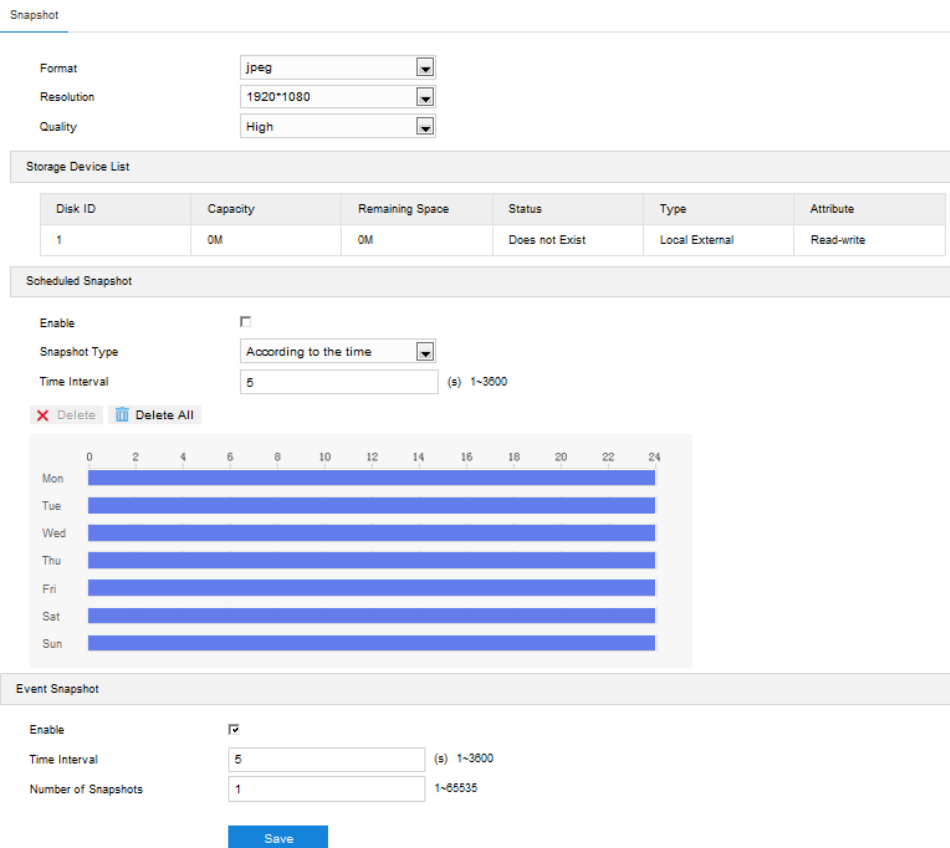
 **Note:** Select any duration with a mouse, and drag the blue bar on the timeline as a whole without changing the length of recording duration

5) Click "**Save**" to validate setting.

### 7.2.3 Snapshot

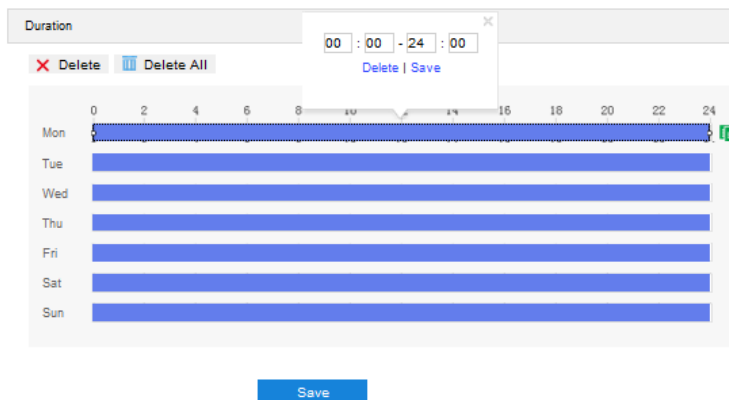
After configuring scheduled snapshot, the camera will perform different snapshot tasks automatically in the configured durations and save the pictures in the storage card. Configuration steps are shown below:

- 1) Go to **Settings > Storage > Storage Management** to configure disk full strategy and format the storage card recognized by the camera. If formatting is successful, the Status will turn "Normal" which means the storage card can be used normally;
- 2) Go to **Settings > Storage > Snapshot** to configure;
  - Format: only support .jpeg format.
  - Resolution: same as that of current main stream.
  - Quality: the quality of captured image.



Picture 7-5 Scheduled snapshot


- 3) Configure scheduled snapshot:
  - a) Select "Enable" enable scheduled snapshot;
  - b) Snapshot Type: select "According to the time" or "According to the number". The latter requires configuration of "Number of Snapshots";
  - c) Time Interval: select the interval between snapshots;
  - d) Configure durations for scheduled recording. The default setting is 24 hours in bright blue bar, or you can customize the durations;




Picture 7-6 Arming durations

- Set duration: configure arming durations according to actual requirements.
  - Click the blue bar to pop up a window for editing the accurate start time and end time; click "Save" to validate setting.



- Click any duration and there will be small white squares on the 2 ends of it. Put the mouse on any white square, left-click and drag to edit the start time and end time.
- Select the timeline of any day and delete the default blue bar. Left click on the mouse and drag on the timeline from left to right to form a blue bar, above which it shows the start time and end time.
- Copy duration: click the copy icon  behind the timeline and copy the durations on the day to one or several other days.
- Delete duration: click "**Delete All**" above the timeline to delete all the durations. Select any duration and click "**Delete**" on the popup window or above the timeline to delete the duration.

 **Note:** Select any duration with a mouse, and drag the blue bar on the timeline as a whole without changing the length of recording duration.

- 4) Configure event snapshot:
  - e) Select "Enable" to enable event snapshot;
  - f) Configure time interval;
  - g) Configure the number of snapshots captured at each event.
- 5) Click "**Save**" to validate settings.

## 8. System

### 8.1 Device Info

Go to **Settings > System > Device Info**.

Device info includes device name, device model, device serial No. and etc. User can customize device name and select "Set as OSD text". Device name doesn't support specific symbols. If "Set as OSD text" is selected, click "Save" and the device name will be synchronized to the OSD, interface shown below:

Device Name	<input type="text" value="IPCamera"/>	<input type="checkbox"/> Set as OSD text.
Device Model	IPC7201-I318-N	
Device Serial No.	01951A0TXW	
Hardware Version	1.0.16	
Software Version	7.3.3.659(1.0.0_Jul-29-2020) Jul 23 2020 13:39:58	
Web Version	22-07-2020	
Web Plugin Version	7.3.3.618620(19-06-2020)	
ISP Version	2.5.0.119329bf.20200723	
Number of Video Sources	1	

Picture 8-1 Device info

### 8.2 User Security

Go to **Settings > System > User Security**, and configure user information, RTSP authorization, IP filter and security service.

#### 8.2.1 User

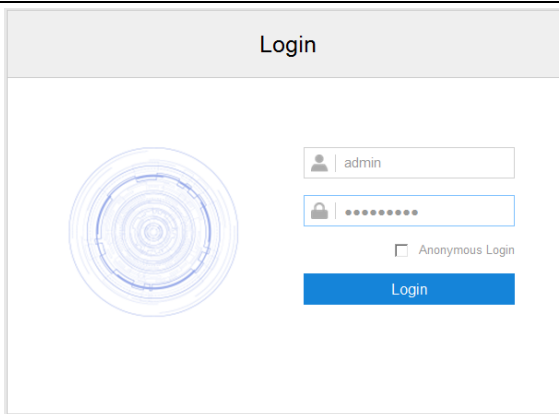
Go to **Settings > System > User Security > User**, you can add user, delete user, edit username and password, configure user authorizations and etc.

Anonymous Access  ✔ Save success

User list	<input type="button" value="Add"/>	<input type="button" value="Modify"/>	<input type="button" value="Delete"/>
Serial No.	User Name	User Type	
1	admin	Administrator	

Picture 8-2 User information

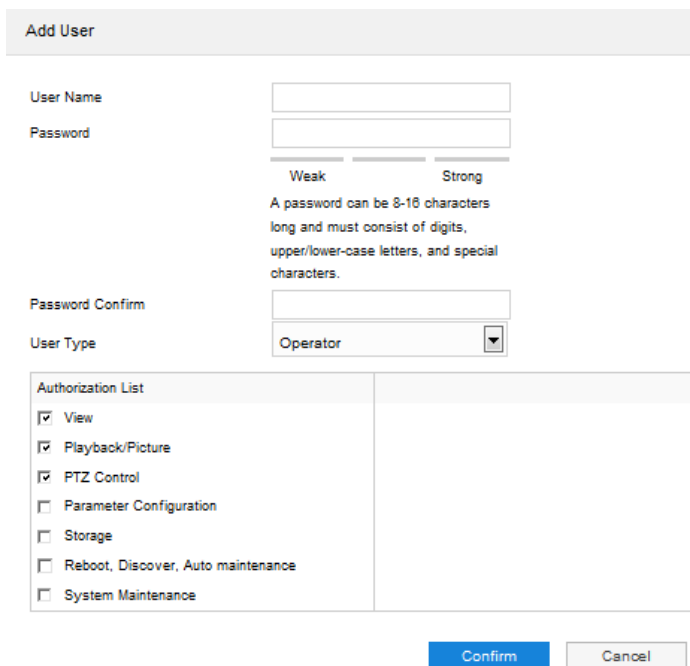
- Anonymous Access: After selecting the checkbox, you will be able to select "Anonymous Login" on the login interface.



Picture 8-3 Anonymous login

**i** Note: Anonymous user has the authorization of live view only.

- Add user: Click “Add”, and enter user name and password on the popup interface. Select user type from the dropdown list, and assign operation rights to newly added user from the Authorization List. After setting, click “Confirm”.



Picture 8-4 Add user

**i** Note:

- ◆ By default, all options are available to administrator users; Live View, Playback/ Snapshot, and PTZ Control options are available to operator users; a browser can only view the live video from the camera.
- ◆ Some settings take effect after rebooting the camera, which requires user with both the authorizations of configuration and reboot.
- Modify user: Select user and click “Modify” to modify on the popup interface.

**Modify User**

User Name:

Old Password:

Password:

Weak                      Strong

A password can be 8-16 characters long and must consist of digits, upper/lower-case letters, and special characters.

Password Confirm:

User Type:

Email:

Authorization List	
<input checked="" type="checkbox"/> View	
<input checked="" type="checkbox"/> Playback/Picture	
<input checked="" type="checkbox"/> PTZ Control	
<input checked="" type="checkbox"/> Parameter Configuration	
<input checked="" type="checkbox"/> Storage	
<input checked="" type="checkbox"/> Reboot, Discover, Auto maintenance	
<input checked="" type="checkbox"/> System Maintenance	

Picture 8-5 Modify user

- Delete user: Select user and click “Delete” to delete the user.

**Tips**

Delete the user?

Picture 8-6 Delete user

**i** Attention: “admin” user cannot be deleted, nor its username be modified.

### 8.2.2 RTSP Authorization

Go to **Settings > System > User Security > RTSP Authorization**, and select authorization type from the dropdown list, options including “none”, “basic/digest” and “digest”. By default, it is “basic/digest”.

**i** Note: “basic” means basic authorization, which transfers messages without encryption and has a severe safety risk; “digest” means digest authentication, which transfers information through MD5 Hash conversion and has a higher level of safety.

Authorization Type:

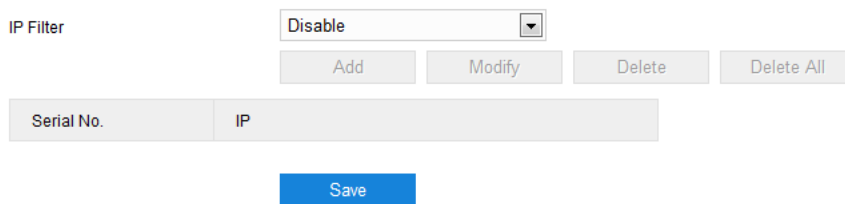
Note: Some protocol will modify the safety level by force automatically.

Picture 8-7 RTSP Authorization

### 8.2.3 IP Filter

By setting IP filter, user can manage access limitation to the web client. Configuration steps are as follows:

1) Go to **Settings > System > User Security > IP Filter**;



Picture 8-8 IP Filter

2) Select IP filter from the dropdown list up to request, options including “Disable”, “Black List” and “White List”;

- Disable: IP filter is disabled.
- White List: IP list allowed visiting the device.
- Black List: IP list not allowed visiting the device.

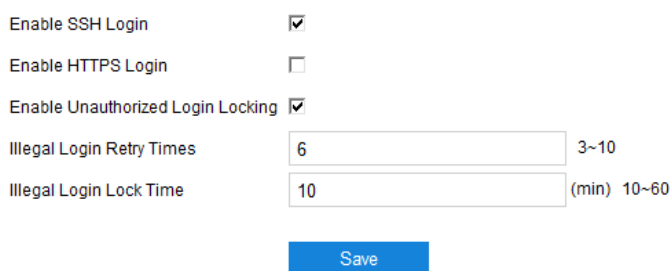
3) Configure IP address list;

- Add Black/ White List: Select filter method, click “Add” and input IP address on the popup interface, and click “Confirm”.
- Modify Black/ White List: Select IP address from the black/ white list and click “Modify” to modify the IP address, and click “Confirm”.
- Delete Black/ White List: Select IP address from the black/ white list and click “Delete” to delete the IP address. Click “Delete All” to clear all the added IP addresses.

4) Click "Save" to validate settings.

### 8.2.4 Security Service


Go to **Settings > System > User Security > Security Service**, and configure the parameters to protect user safety.



Picture 8-9 Security Service

- Enable SSH Login: Select the checkbox to enable SSH login, which means SSH service is enabled and you can login by SSH mode. Usually it's unnecessary to enable when the camera works normally.
- Enable HTTPS Login: Select the checkbox to enable HTTPS login, which means HTTPS service is enabled and you can login by HTTPS mode.
- Enable Unauthorized Login Locking: Select the checkbox to enable unauthorized login locking, and configure illegal login retry times and illegal login lock time.

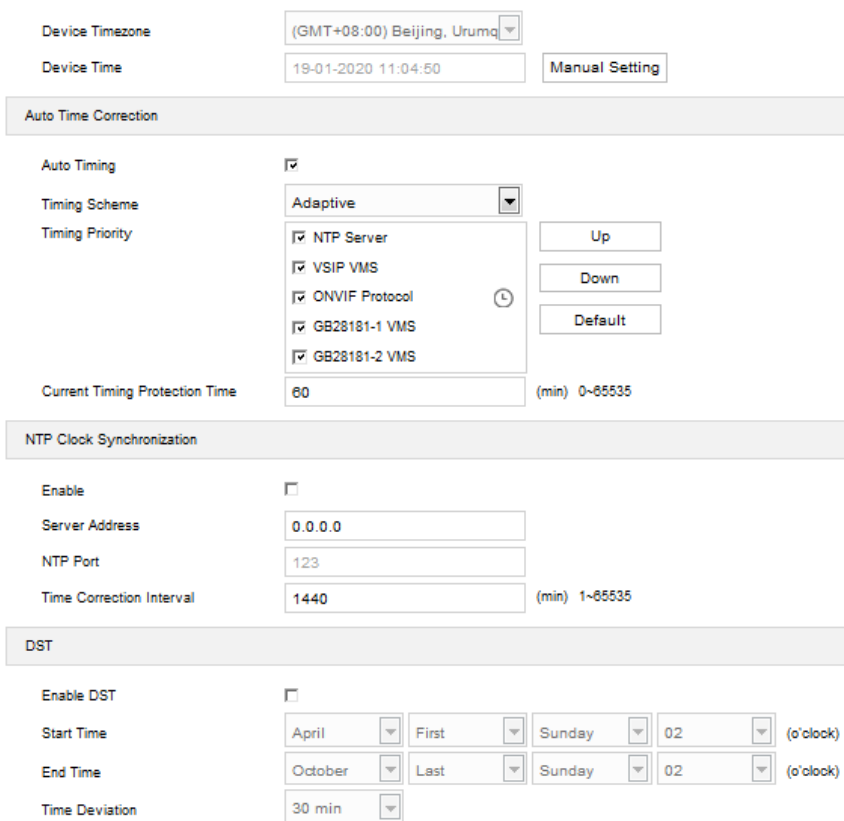
- Illegal Login Retry Times: Configure illegal login retry times, default being 6 times.
- Illegal Login Lock Time: Configure illegal login lock time, default being 10 minutes.

 Note: After enabling unauthorized login locking, when the configured locking conditions occur, the user IP will be locked up.

Click "Save" to validate settings.

### 8.3 Time

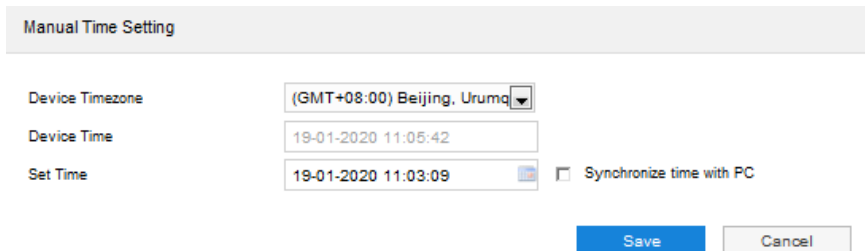
Go to **Settings > System > Time**, and configure Device Time Zone, Device Time, Auto Time Correction, NTP Clock Synchronization and DST. Configure parameters by actual requests and click "**Save**" to validate setting.



The screenshot shows the 'Time' configuration page. At the top, 'Device Timezone' is set to '(GMT+08:00) Beijing, Urumq' and 'Device Time' is '19-01-2020 11:04:50'. A 'Manual Setting' button is visible. Below is the 'Auto Time Correction' section, where 'Auto Timing' is checked, 'Timing Scheme' is 'Adaptive', and 'Timing Priority' includes 'NTP Server', 'VSIP VMS', 'ONVIF Protocol', 'GB28181-1 VMS', and 'GB28181-2 VMS'. 'Current Timing Protection Time' is '60' minutes. The 'NTP Clock Synchronization' section has 'Enable' unchecked, 'Server Address' '0.0.0.0', 'NTP Port' '123', and 'Time Correction Interval' '1440' minutes. The 'DST' section has 'Enable DST' unchecked, 'Start Time' 'April First Sunday 02 (o'clock)', 'End Time' 'October Last Sunday 02 (o'clock)', and 'Time Deviation' '30 min'.

Picture 8-10 Time setting

- Set device time zone and device time: Click "**Manual Setting**", select time zone and set time on the popup interface. You can select "Synchronize time with PC" and click "**Save**" to validate setting.



The screenshot shows the 'Manual Time Setting' popup. It contains 'Device Timezone' '(GMT+08:00) Beijing, Urumq', 'Device Time' '19-01-2020 11:05:42', and 'Set Time' '19-01-2020 11:03:09'. There is a checkbox for 'Synchronize time with PC' which is currently unchecked. At the bottom are 'Save' and 'Cancel' buttons.

Picture 8-11 Manual setting of time

- Auto Time Correction: Select "Auto Timing" and the system will correct time automatically according to the selected access protocol (including NTP server, VSIP, ONVIF, GB28181) or adaptive. Configure the timing protection time.
  - Adaptive: When selecting "Adaptive", select necessary adaptive protocols, set the Timing Priority sequence and enter current Timing Protection Time (i.e. the save time during protocol switching).
  - Access protocol: the protocol of the device accessing to t platform or a server. When selecting a protocol, the system will correct time automatically according to the protocol.



Note:

- ◆ In the box of "Timing Priority", the priority level decreases from top to bottom.
  - ◆ Select a protocol and click "Up" to improve its priority and "Down" to decrease its priority; click "Default" to apply the default priority levels.
  - ◆ If selecting "NTP Server", configure the parameters thereof.
- NTP Clock Synchronization: Select "Enable" and configure "Server Address", "NTP Port" (certain to be "123") and "Time Correction Interval". When it is enabled, the camera will correct time on a time basis of the configured interval.
  - DST: DST (daylight saving time) is the practice of advancing clocks during summer months so that evening daylight lasts longer, while sacrificing normal sunrise times and the time applied during DST is called DST time. Select "Enable DST" and set "Start Time", "End Time" and "Time Deviation".

## 8.4 Serial Port

Go to **Settings > System > Serial Port**, and configure the serial port.

Serial port is used to control camera rotation, extended alarm input or device adjustment (subject to devices). Usually serial port is identified as RS485 A/B. Pair the ports by configuring RS485 port parameters. Please configure the parameters such as "Baud Rate", "Data Bits" and "Address Code" according to the actual conditions. Click "Save" to validate settings.

Serial Port

---

Type	<input type="text" value="RS485"/>	
Serial Post Number	<input type="text" value="1"/>	
Name	<input type="text" value="com1"/>	
Baud Rate	<input type="text" value="9600"/>	
Data Bits	<input type="text" value="8"/>	
Stop Bits	<input type="text" value="1"/>	
Correction	<input type="text" value="None"/>	
Stream Control	<input type="text" value="None"/>	
Address Code	<input type="text" value="1"/>	1~255
Control Protocol	<input type="text" value="PELCO_D_K"/>	

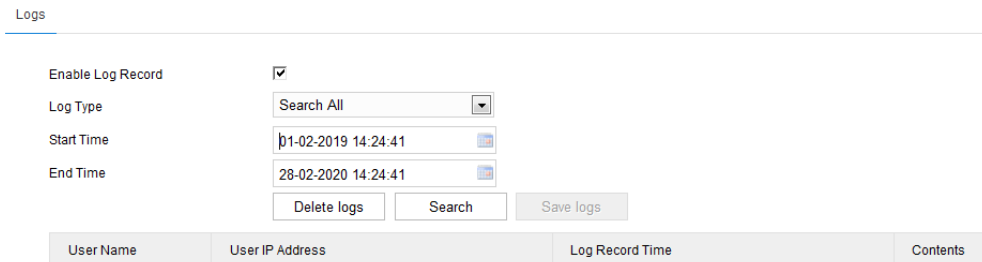
Picture 8-12 Serial port

## 8.5 Log

Go to **Settings > System > Log** to manage logs and view system health and service status.

### 8.5.1 Logs

Go to **Settings > System > Log > Logs**, and select "Enable Log Record" to enable log record. Then you can search, view and download logs by request.



Picture 8-13 Log management

Operation steps are as follows:

- 1) On the dropdown list of Log Type, select a log type, otherwise the default is "Search All";
- 2) Select Start Time and End Time, and click "**Search**". The search result will show on the list below;
- 3) Click "**Save Logs**" to download all logs locally; click "**Delete logs**" to clear all logs.

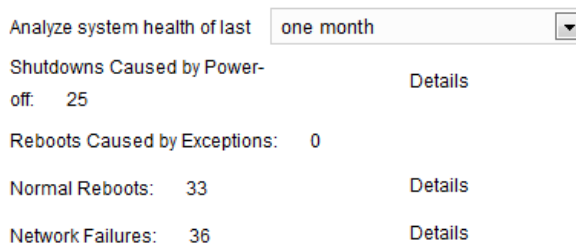


Note:

- ◆ When selecting "User Operation" or "Alarm Info" for Log Type, you need to select a "Secondary Type" to narrow the search scope.
- ◆ The system can save maximum 2,000 entries of logs. When it is full, the latest one will overwrite the oldest one automatically.

### 8.5.2 System Health

Go to **Settings > System > Log > System Health**, and select a duration from the dropdown list to view the camera health status in this duration. Click "Details" behind each item to view the detailed logs of each item.



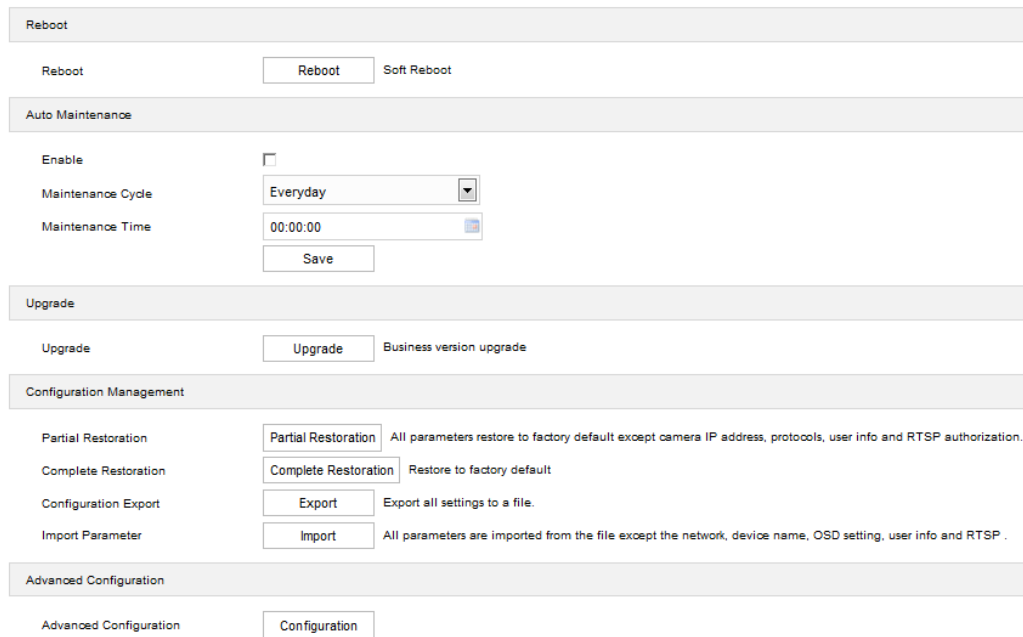
Picture 8-14 System status

## 8.6 System Maintenance

### 8.6.1 System Maintenance

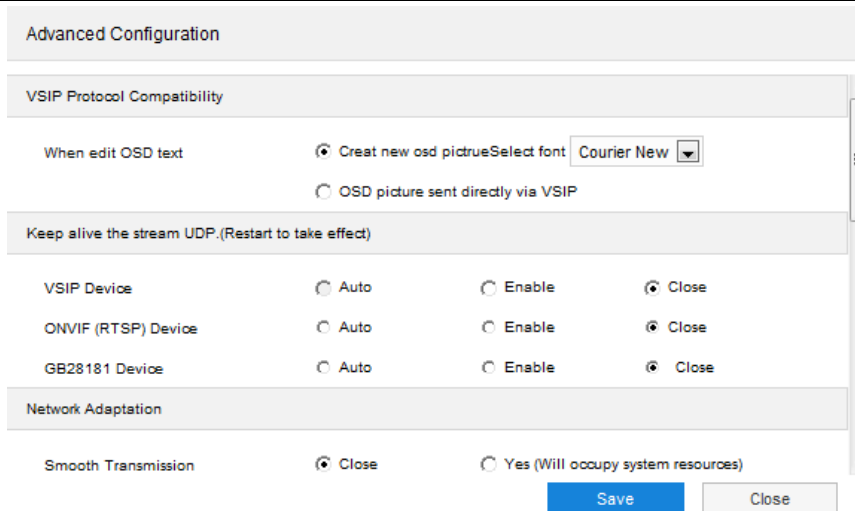
Go to **Settings > System > System Maintenance > System Maintenance**, and perform operations of reboot, upgrade and etc.





Picture 8-15 System maintenance

- Reboot: Click "**Reboot**" to reboot the camera.
- Auto Maintenance: Select "**Enable**", and configure Maintenance Cycle and Maintenance Time. Click "**Save**" to validate setting.
- Upgrade: Upgrade business version. Click "**Upgrade**" and open local upgrade file in <\*.pkg> format. During upgrading, please do nothing but waiting. After upgrading, re-login to the web client.
- Configuration Management: including partial restoration, complete restoration, and configuration export and import.
  - Partial Restoration: Click this button and all parameters will restore to factory default except network setting, access protocol, user info and RTSP authorization.
  - Complete Restoration: Click this button and all parameters will restore to factory default.
  - Configuration Export: After configuring camera parameters, you can export the configurations to local PC for copying. Click "**Export**" and select a local save path to export.
  - Import Parameter: You can import local configuration file from local PC without manual setting. Click "**Import**" and select local configuration file to import.
- Advanced Configuration: including "VSIP Protocol Compatibility", "Keep Alive the Stream UDP", "Network Adaptation", "Function Switch", "Working Mode" and "Audio Noise Reduction". Only "admin" user can perform advanced configuration. Click "**Configuration**", input the right password for advanced user and click "**Confirm**" to enter the configuration interface.

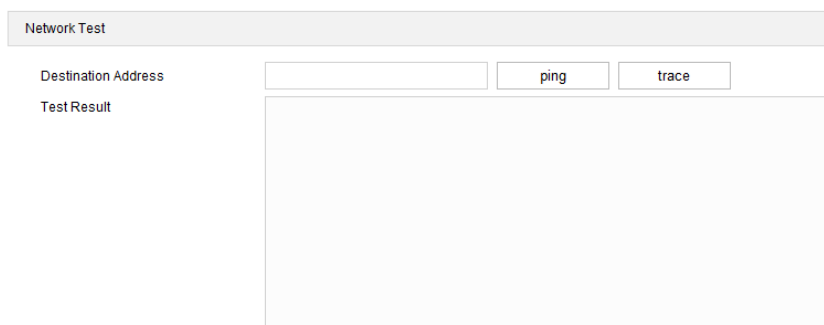


Picture 8-16 Advanced configuration

- VSIP Protocol Compatibility: select the OSD picture obtaining method for the camera when configuring OSD through VSIP; generate a new OSD picture through text and location, and change OSD font, Black or Song; or use the OSD picture sent by VSIP directly.
- Keep Alive the Stream UDP: configure VSIP, ONVIF (RTSP) and SIP devices separately, options including “Enable”, “Close” and “Auto”.
- Network Adaptation: enable “Smooth Transmission”, which will occupy some system resources; configure “Smooth Sending Limited Bandwidth”, subject to actual bitrate when the bitrate exceeds the limit; select “Encoding Bit Rate Mode”, options including video stream network bandwidth, video data bandwidth and audio-video stream network bandwidth.
- Function Switch: including “Audio Features”, “Audio Mix Mode”, “Dynamic Plug-in”, “Stream Extension Head” and “MRTC Adaptive”.
- Audio Noise Reduction: configure “Collect Audio Stream” and “Decode Audio Stream”. Options including “Close”, “Low”, “Middle” and “High”; enabling this function will occupy some system resources.
- Alarm: configure “Minimum Alarming Interval”.

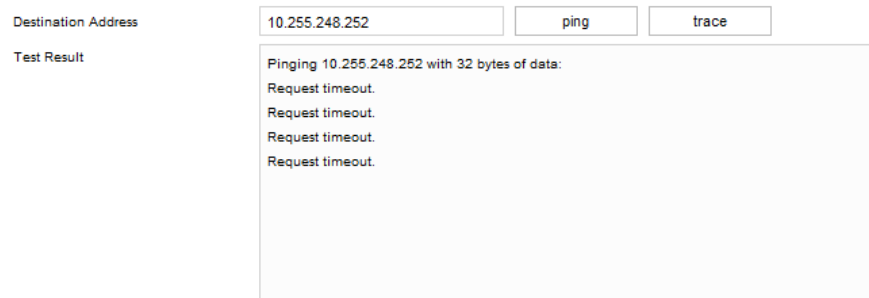
### 8.6.2 Network Test

Go to **Settings > System > System Maintenance > Network Test**, and test the network connectivity between the device and the destination address.



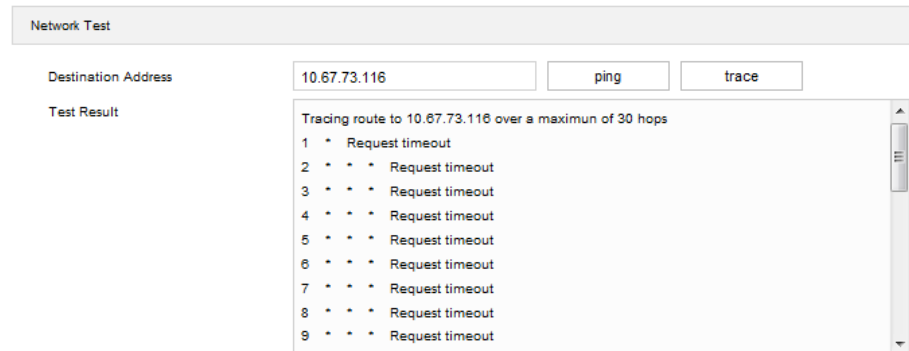
Picture 8-17 Network test

- Enter an IP address in "Destination Address" and click "ping". The test result will show on the list below;



Picture 8-18 ping

- Enter an IP address in "Destination Address" and click "trace". The test result will show the routing entries visiting the destination address. It is used to test the network routing information between the device and the destination address.



Picture 8-19 trace

## 9. Specification

Camera	Image Sensor	8.0 MP 1/1.8" Progressive scanning image sensor
	Lens Focal Length	6.7-125mm, 18 x optical zooming
	Lens Aperture	F1.58-F3.95, DC-drive
	Adjustable Angle	Pan $\pm 5^\circ$ , tilt $\pm 15^\circ$
	Min. Illumination	Color: 0.05Lux @ (F1.2, AGC ON)
		B/W: 0.005Lux @ (F1.2, AGC ON)
	Shutter	Support manual (1s ~ 1/30000s), auto
	Night-Cut	IR-Cut dual; forced color/ forced black & white/ auto
	WDR	Support
	SNR	$\geq 52$ dB
	White Balance	Manual/ Auto
	Gain Control	Manual/ Auto
	Digital Noise Reduction	2D, 3D digital noise reduction
Defog	Support	
BLC	Support	
Video	Encoding/ Decoding Format	H.265 (Main Profile)/ H.264 (BaseLine Profile/ Main Profile/ High Profile)
	Max. Resolution	1920 x 1080
	Frame Rate	1 ~ 60fps
	Video Bitrate	32Kbps ~ 16Mbps
	Multi-Stream	Triple-stream, main stream 1080P@60fps + secondary stream 1080P@30fps + third stream 1080P@30fps <a href="#">Note: Triple-stream mode (support three channels of different sources), each channel by 1080P</a>
	Bitrate Control	CBR/VBR
	OSD	Support time and letters overlay, OSD position configurable
	Image Setting	Support settings of brightness, contrast, saturation and sharpness
	Image Rotation	Support mirror mode
	HLC	Support
Intelligent Tracking	Support ePTZ intelligent lecturer-tracking and close-up and panorama switching	
	Support camera snapshot and analysis on lecturer <a href="#">Note: It needs to co-work with the back-end intelligent teaching server</a>	
Audio	Encoding Format	ADPCM, PCMU (G.711u), PCMA (G.711a), G.722, AAC_LC
	Audio Bitrate	32Kbps ~ 64Kbps
	Audio Function	Two-way audio, echo cancellation, dumb, mute, mixing recording

## 10. Appendix: Glossary of Terms

<b>1080p</b>	Resolution of 1920*1080 pixels (16:9)
<b>720p</b>	Resolution of 1280*720 pixels (16:9)
<b>AAC_LC</b>	Advanced Audio Coding Low-Complexity
<b>ADPCM</b>	Adaptive Differential Pulse Code Modulation
<b>CIF</b>	Common Intermediate Format, Resolution of 352*288 pixels
<b>4CIF</b>	4 Common Intermediate Format, Resolution of 704*576 pixels
<b>DDNS</b>	Dynamic Domain Name Server
<b>DHCP</b>	Dynamic Host Configuration Protocol
<b>G.711</b>	Pulse code modulation (PCM) of voice frequencies
<b>G.722.1 Annex C</b>	Low-complexity coding at 24 and 32 kbit/s for hands-free operation in systems with low frame loss
<b>G.726</b>	Audio coding algorithm
<b>H.264</b>	Advanced video coding for generic audiovisual services
<b>H.265</b>	High Efficiency Video Coding
<b>HD</b>	High-definition
<b>IP</b>	Internet Protocol
<b>MPEG4</b>	Moving Pictures Experts Group
<b>MJPEG</b>	Motion Joint Photographic Experts Group
<b>NAT</b>	Network Address Translation
<b>NTSC</b>	National Television Standards Committee
<b>PAL</b>	Phase Alternation Line
<b>PC</b>	Personal Computer
<b>PPPoE</b>	Point to Point Protocol over Ethernet
<b>QCIF</b>	Quarter common intermediate format, Resolution of 176*144 pixels
<b>QXGA</b>	Resolution of 2048*1536 pixels (4:3)
<b>RTCP</b>	Real-Time Transport Control Protocol
<b>RTP</b>	Real-time Transport Protocol
<b>SVAC</b>	Surveillance Video and Audio Coding
<b>TCP</b>	Transport Control Protocol
<b>UDP</b>	User Datagram Protocol
<b>UXGA</b>	Resolution of 1600*1200 pixels (4:3)