KEDACOM

User Manual for HD IP Camera IPC520 Series

V2 (August, 2018)

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Target Audience

Administrators and Operators of Video Surveillance Products

Document Version

V2

Applicable Models

IPC520 series

Related Document

Quick Start Guide

Convention

Icon	Convention
ⓘ	Notes and warning: necessary supplement of operations

Sign	Convention
BOLD	Menu, e.g. **Drag to Zoom**
>	Connector between menus of different level, e.g. **Settings > Camera**

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 $\geq 25mm^2$.

7. The anti-thunder grounding wire of the dome camera uses multi-strand copper cable with section surface $\geq 4mm^2$ (strand diameter about $\geq 2.3mm$).

Contents

1. Product Appearance

Picture 1-1 IR type

Picture 1-2 Non-IR type

2. Startup

Device installation and wiring can be referred to in the Quick Start Guide.

2.1 Client Installation Conditions

- Operating System: Windows XP or later versions
- Browser: IE7.0 or later versions, Firefox, Google Chrome (41 and below versions)
- Processor: 3.3 GHz CORE®i3 series and later version or other equivalent processors
- RAM Memory: 4GB or above
- DirectX：9.0c

This manual will take IE7.0 as an example.

2.2 Initial Configuration

2.2.1   Modify Parameter

1)   Get IPCSearch from the attached CD.

Picture 2-1 IPCSearch

ⓘ Note: Camera name is subject to the search result.

2)   Run IPCSearch: it will search devices in LAN automatically and display the list as shown in Picture 2-1.

3)   When login to a non-activated camera for the first time, activate it first. Select the device and click "**Batch processing**". In the popup interface, set admin user's password and the email address to find back the password. Click "**Activate**" and wait for rebooting, as shown in Picture 2-2.

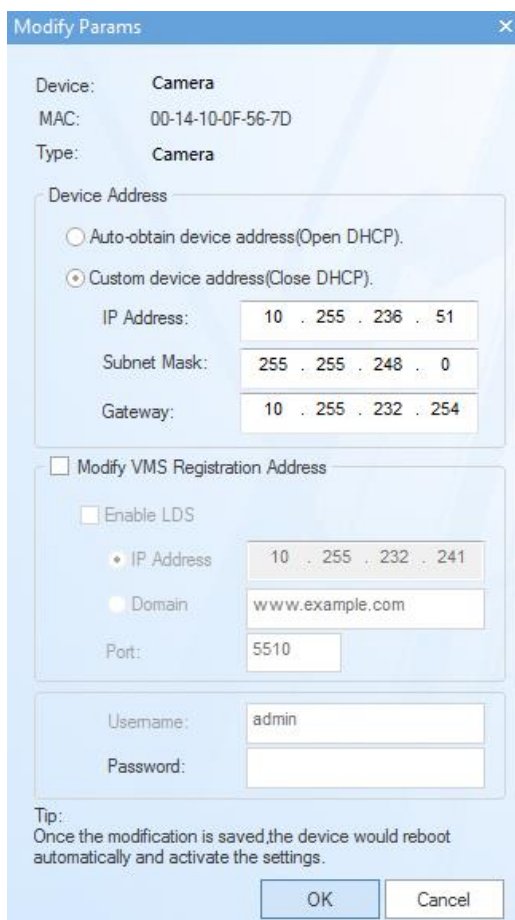**Picture 2-2 Activate camera**
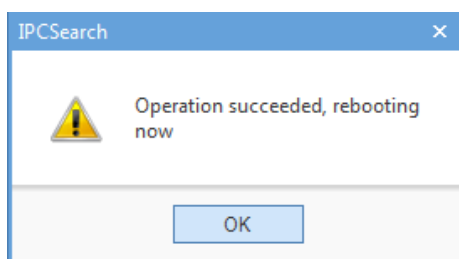
4

4) Select a camera to be configured, click "**Modify Params**" or right click the mouse. Interface is shown in Picture 2-3. Modify parameters and fill admin user name (admin) and the password set when activating the device.
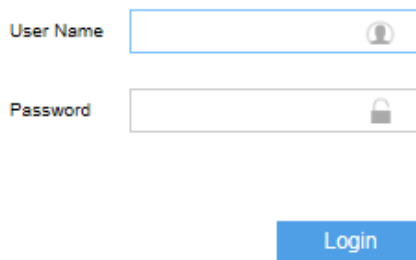

Picture 2-3 Modify Parameter

5) Click "OK" and in the popup window click "OK". Wait for rebooting.

Picture 2-4 Reboot device

2.2.2   Login Web Client

1) After modification, the device will reboot automatically and please wait patiently. After reboot, the button will be enabled again. Please select this device again and click "**Login**" or double click device name to enter web client. Interface is shown in Picture 2-5.
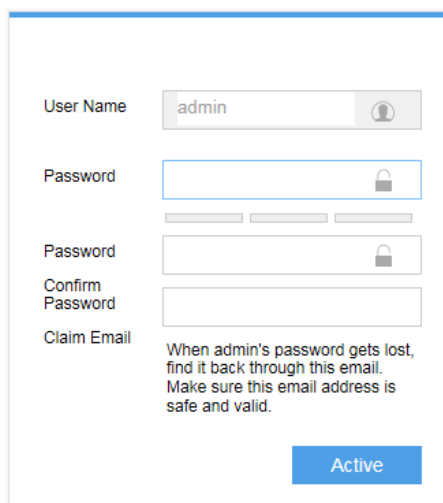
Picture 2-5 Web Client Login

ⓘ Note: If log in a non-activated device through web client for the first time, user can set admin password and activate the device in the login interface, as shown below.

ⓘ Note:

　　1)　To ensure the safety of device on internet, it is strongly recommended that a strong password which is composed of at least 2 kinds of the following, numbers, lowercase letters, uppercase letters and specific symbols with a length of 8 to 16 characters should be set.

　　2)　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.

　　3)　Please keep your user name and password safe.

Picture 2-6 First login through web client

2)　If user enters a wrong username or password for 3 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. Click "**Password Reset**" and a window will pop up, as shown below:
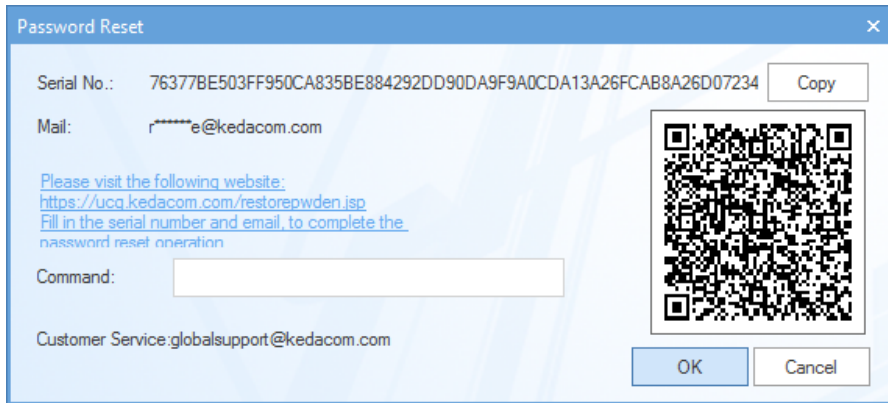
Picture 2-7 Password Reset

3)   Click the password reset link first and fill in the Serial Number and Email address. Then login to the email address to get a security code and fill in "**Command**" blank in Picture 2-7 and click "**OK**". Please remember the new password (admin123 by default) shown in the popup window and click OK. The device will reboot. After resetting the password, re-login the web client and configure the device. Alternatively, scan the QR code in Picture 2-7 with a mobile device and complete this step.
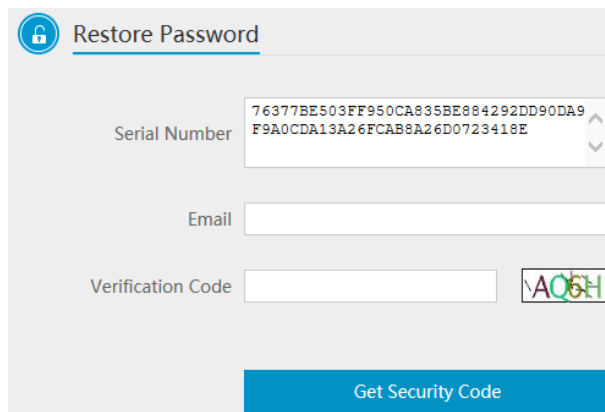
Picture 2-8 Password Reset

2.2.3   Login to the Web Client Interface

Enter user name and password: when login successfully for the first time, download and install the plug-in. Close browser during installation. After finishing, double-click the device in IPCSearch to open browser and enter username and password. Interface after login is shown below.
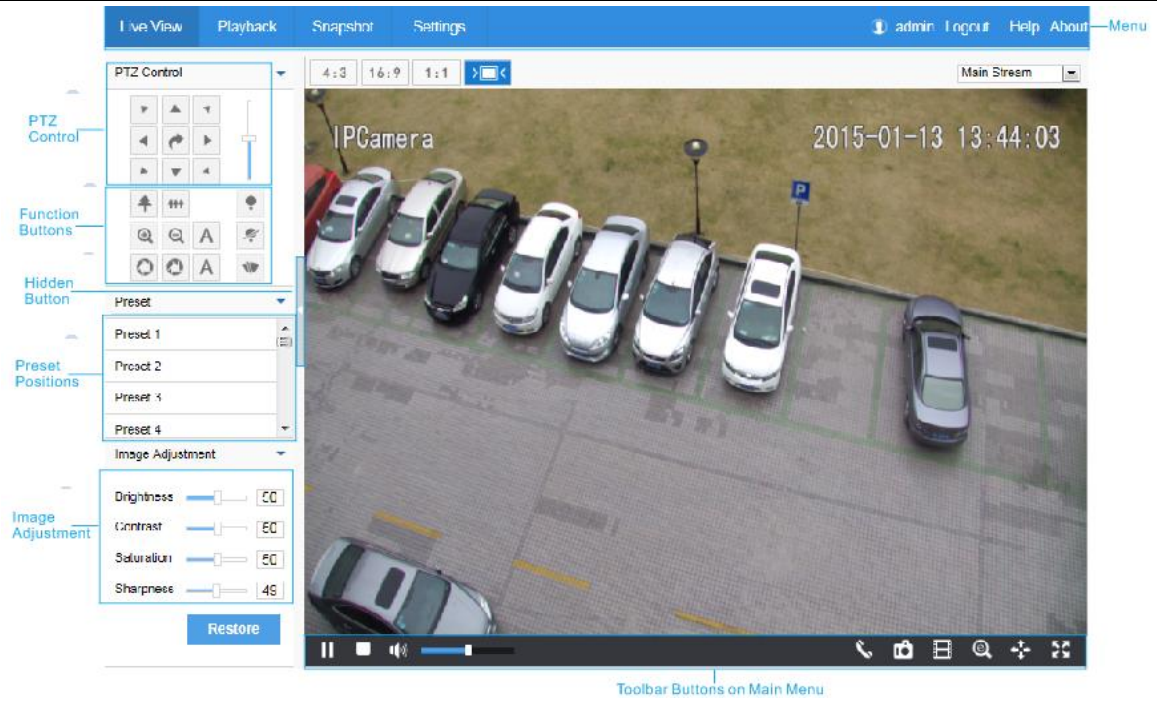
Picture 2-9 Web Client Interface

3.   Product Functions

On the web client, user can not only view live video, but also perform local snapshot and recording, and set alarm linkage.

(i) Note: Disabled button in the web client means the function is unavailable for the model.

3.1 Live View

The default interface after login is live view, or user can click **Live View** to enter the interface.

3.1.1   Toolbar

Picture 3-1 Toolbar Buttons

Play/Pause

Click this icon to play or pause a viewing.

Stop

Click this icon to stop live view.

Volume

It is the local decoding volume. Drag the slide bar to adjust volume. Click this icon to mute voice and click again to enable voice.

Call

Click this icon to call camera and the volume slide bar will appear. Click again to stop calling. Not all cameras support this function.

Snapshot

Click this icon to capture current image.

Snapshot includes Camera Snapshot and Local Snapshot. User can set picture saving path in **Settings > Local Setting**.

(i)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 save it locally. The image quality is ordinary, but there is no time delay.

Recording

Click this icon to start recording and click again to stop recording. Recording is saved on local PC. User can set recording file save size and path in **Settings > Local Setting**.
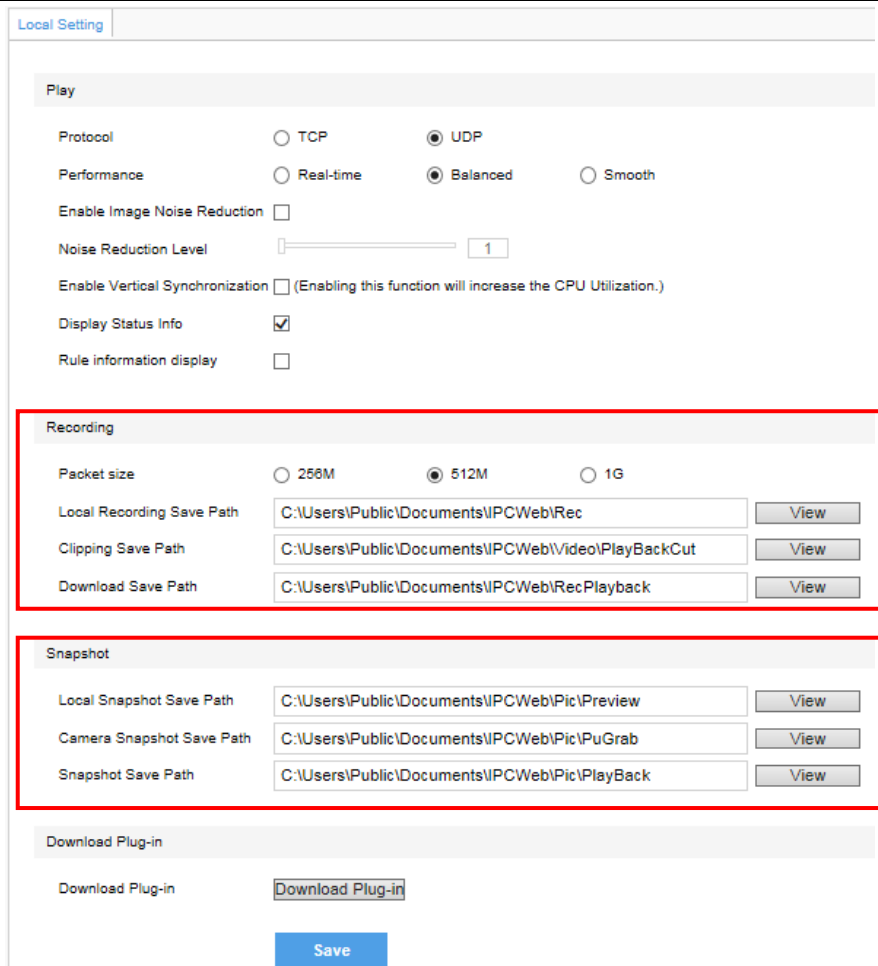
Picture 3-2 Snapshot and recording setting

EPTZ 🔍

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.

Video Freeze ✳

Click this icon and the image will freeze for a moment.

Status Info 〰

Click this button to display the frame rate and bit rate of the live video. This button is hidden by default. To enable this function, go to Settings > Local Setting > Play, check "**Display Status Info**" and click "Save".

Full Screen ⛶

Click this button to display full screen. Double click or press Esc to exit.

3.1.2   Image Adjustment

3.1.2.1   Focus

The function of focusing is to make image clear.

In the interface of **Live View**, click ⊕ (Focus Near), ⊖ (Focus Far) or A (Auto Focus). Alternatively, go to **Settings > Camera > Image > Focus**, and select "**Manual**" for Focus Mode.

Go to **Settings > Camera > Image > Focus**, select **"Continuous Focus"** and the camera will focus automatically every time the system triggers focusing.

Go to **Settings > Camera > Image > Focus**, select **"Single Focus"** and the camera will focus automatically only once when the system triggers focusing.

Go to **Settings > Camera > Image > Focus**, select "30cm/ 1m/ 2m/ 5m/ 10m" from the dropdown list of Min Focus Distance (i.e. the min. focus distance for the lens, the lens will be unable to focus automatically when the distance is less than the selected distance).

3.1.2.2   Aperture

The function of aperture is to control the amount of input light. A large aperture allows more light and thus the image is brighter.

On the interface of **Live View**, click ◐ (Aperture+)/ ◑ (Aperture-) and adjust aperture.

Go to **Settings > Camera > Image > Exposure**, select "DC-IRIS Auto/ DC-IRIS Manual" for **Aperture Mode** and drag the slide bar of **Aperture Sensitivity** to adjust aperture. Auto mode is suggested.

3.1.2.3   Brightness

The image will look completely or partially dark and hard to recognize in low light condition. Web client provides the following methods to increase image brightness and ensure surveillance quality.

Increase Image Brightness

In the interface of **Live View**, click **Image Adjustment** and show the parameters, or go to **Settings > Camera > Image > Image Adjustment** and drag the slide bar of brightness.

Longer Time of Shutter

Camera shutter time means the cycle of the sensor calculating light input amount. Therefore, the longer the shutter is, the brighter the image will be.

ⓘ Note: If the target object is moving fast, this method is not applicable.

Go to **Settings > Camera > Image > Exposure**, user can set Shutter Mode (Auto/ Manual) and Shutter Lower Threshold or Shutter Level.

Increase Gain

Camera gain means photo-sensibility, the sensitivity level of a sensor to light. A high gain requires less light exposure for low light condition.

ⓘ Note: However, the higher the gain is, the worse the image will be. Auto mode is suggested.

Apply default values, or select "Auto" and set Gain Upper Threshold in **Settings > Camera > Image > Exposure**. If selecting "Manual", drag the slide bar to adjust gain level.

Enable WDR

WDR can provide optimal exposure when there is strong background light.

Go to **Settings > Camera > Image > Image Enhancement**, select "WDR" in the drop-down list of Dynamic Adjustment and drag the slide bar of WDR Sensitivity.

3.1.2.4   White Balance

The basic concept of white balance is "to restore white objects to be white regardless of the color temperature of the light source". It can compensate color cast in pictures taken in specific light source.

Go to **Settings > Camera > Image > White Balance**, select white balance mode from the drop-down list.

When selecting "Manual", drag the slide bar of White Balance R (red) Gain and White Balance B (blue).

3.1.2.5   Night Cut

Day (Night) mode means the image switches to color (B/W), thus to get optimal images for day (sufficient light source) and night (insufficient light source) conditions.

Go to **Settings > Camera > Image > Night Cut**, select night cut mode.

Day

Select Day from the dropdown list of Night Cut mode and the image will become colored.

Night

Select Night from the dropdown list of Night Cut mode and the image will become black and white.

(i) Note: For some models supporting IR light, when it switches to day mode, the image will turn color and meanwhile the IR light is disabled; when it switches to night mode, the image will turn black and white and meanwhile the IR light is enabled.

Auto

Select Auto (gain triggered) from the dropdown list of Night Cut mode and configure Sensitivity, Latency and Night Cut Threshold. The system will switch day/night mode automatically.

(i) ATTN: Non-IR type cameras do not support Auto (photosensor triggered) mode while IR type cameras support. It detects light with photoresistance and decides according to the returned value whether to trigger night cut.

Scheduled Day / Night

Under this mode, camera switches to day/night mode automatically in the preset period of time.

When selecting Scheduled Day/Night from the dropdown list, click **Edit Time**, and edit Day Mode Start Time and Day Mode End Time in the popup interface.

*Alarm Triggered Cut

Under this mode, night cut is 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.

ⓘ Note: Functions with symbol "*" in this manual are supported by some models only. Please confirm if the functions are supported according to actual devices.

3.1.2.6   Noise Reduction

When there are many noise points caused by environment and camera lens, Noise Reduction function can be enabled to adjust images.

Go to **Settings > Camera > Image > Image Enhancement**, enable 2D/ 3D Noise Reduction and drag the slide bar to adjust 2D/ 3D Noise Reduction level. When selecting "Disable", this function will be disabled.

3.1.2.7   *Defog

This function is suitable for outdoor foggy scene and after enabling it, the camera is able to see through the fog.

Go to **Settings > Camera > Image > Image Enhancement**, select "Defog" from the dropdown list of Image Enhancement and drag the slide bar of Defog Sensitivity.

3.1.2.8   EIS

EIS function is to prevent image flicker when the camera is zoomed in too much.

Go to **Settings > Camera > Image > EIS**, select "Enable" from the dropdown list of Mode and drag the slide bar of EIS Level.

3.1.2.9   Rotate and BNC

Go to **Settings > Camera > Image > Rotate and BNC**, select Mirror Mode from the drop-down list, options including Left and Right, Up and Down, Center and Disable. When the image is reverse, set through this menu.

Cameras with BNC output ports will be able to output analog images directly after enabling BNC output.

Select BNC output mode from the dropdown list of BNC output, options including PAL (25 frames) and NTSC (30 frames).
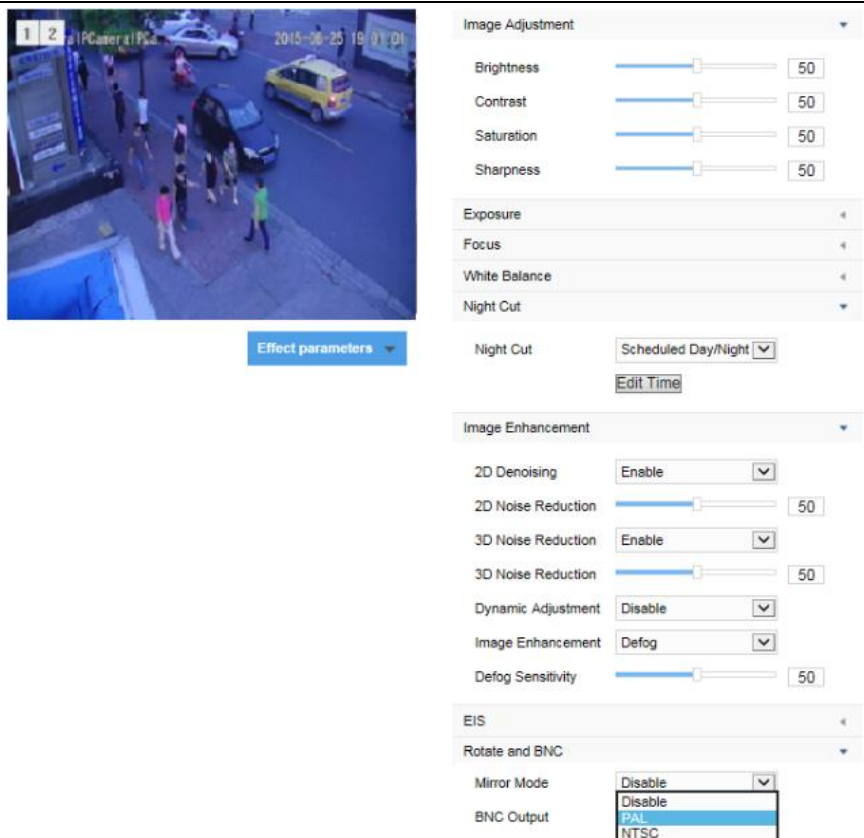
Picture 3-3 Rotate and BNC

### 3.1.3   Auxiliary Function

Wiper

Wiper is used to clean the glass dome. In the PTZ control part of the Live View interface, Click   to enable wiper and click again to disable it.

The wiper will stop automatically after 10 brushes. Click   to enable it again if necessary.

3.2 PTZ Control

The camera is equipped with digital PTZ, which is suitable for wide range monitoring and enlarges the field of view. User can control PTZ via web client.

In the PTZ control part of the **Live View** interface, user can control PTZ manually, as is shown below:
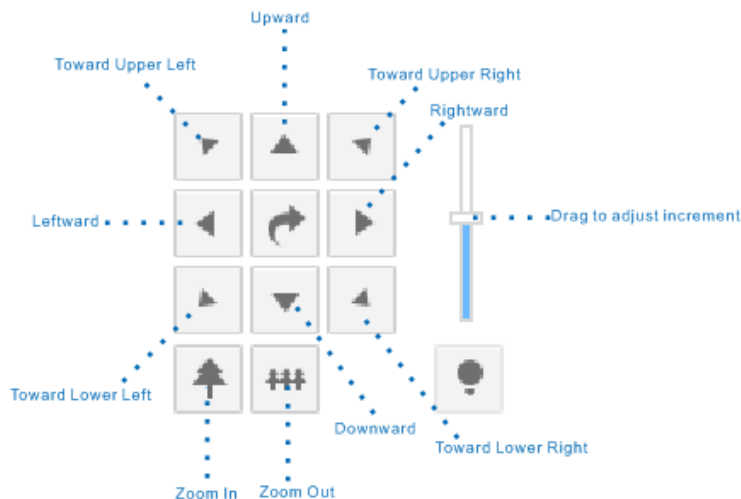
Picture 3-4 PTZ Control

Note: The PTZ holder will stop rotation when reaching its pan limits. Please strictly follow the Quick Start Guide during installation.

3.2.1   Preset Position

Preset position includes information of PT position and lens focal length. It is set by user and can be loaded, edited or deleted anytime.

Setting steps:

1) Go to **Settings > Camera > PTZ > Preset**, and adjust PTZ to expected position.

2) Select **Preset No.** from the drop-down list and input **Preset Name**.

3) Click **"Set"** to finish preset setting. User can define different preset positions.

4) Click "**Load**" to load the expected Preset No. and click "**Delete**" to remove the preset ID.

5) In the preset part of the **Live View** interface, user can also select a preset ID to load, set or delete.
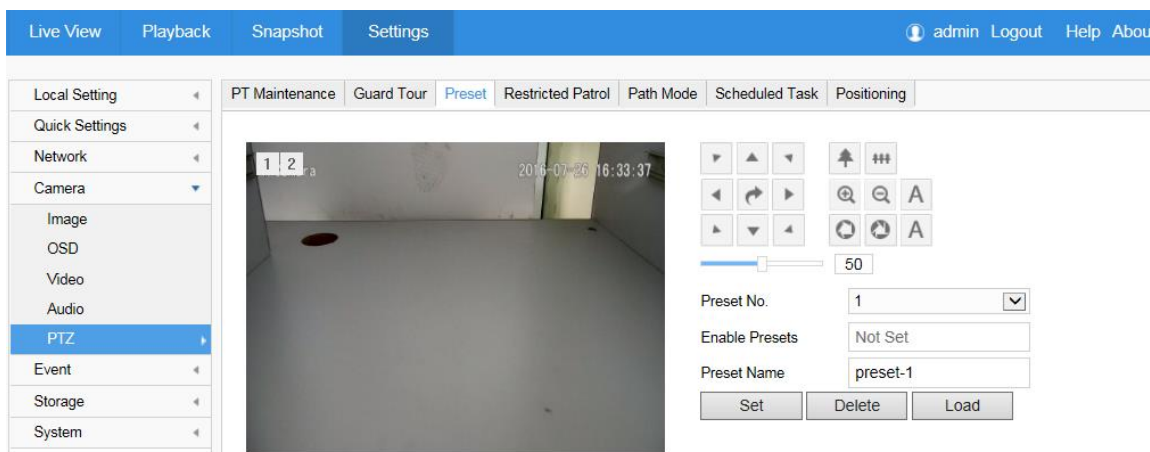
Picture 3-5 Preset Position

3.2.2   Guard Tour

Guard Tour means the dome camera can perform preset operations if not receiving any command in a specific period of time (i.e. the Waiting Time on the interface). After stopping PTZ operations for a certain period of time, user can enable the Guard Tour function.

Pan Mode: Camera rotates in pan direction from 0° to 360° automatically. The Waiting Time is 1 minute by default (configurable).

*Tilt Mode: Camera rotates in tilt direction from -73° to 27° automatically. The Waiting Time is 1 minute by default (configurable).

Load Preset: After user stops operating on the camera for a certain period of time, the camera will return to a preset position automatically. The Waiting Time is 3 minutes by default (configurable). Please refer to the part of preset position for setting steps.

Path Mode: After user stops operating on the camera for a certain period of time, camera will enable Path Mode automatically. The Waiting Time is 1 minute by default (configurable). Please refer to the part of path mode for setting steps.

* Frame Mode: In every key frame interval, camera rotates frame by frame by 90° automatically in pan direction. The Waiting Time is 1 minute by default (configurable).

*Random Mode: Camera patrols at random speed in pan direction. The Waiting Time is 1 minute by default (configurable).

*Panoramic Mode: Camera patrols panoramically from -73° to 27° in tilt and from 0° to 360° in pan. The Waiting Time is 1 minute by default (configurable).

*Mixed Mode: Camera patrols automatically following the historical PTZ patrol paths in a certain period of time. The Waiting Time is 1 minute by default (configurable). Please refer to the part of *Mixed Mode* for setting steps.
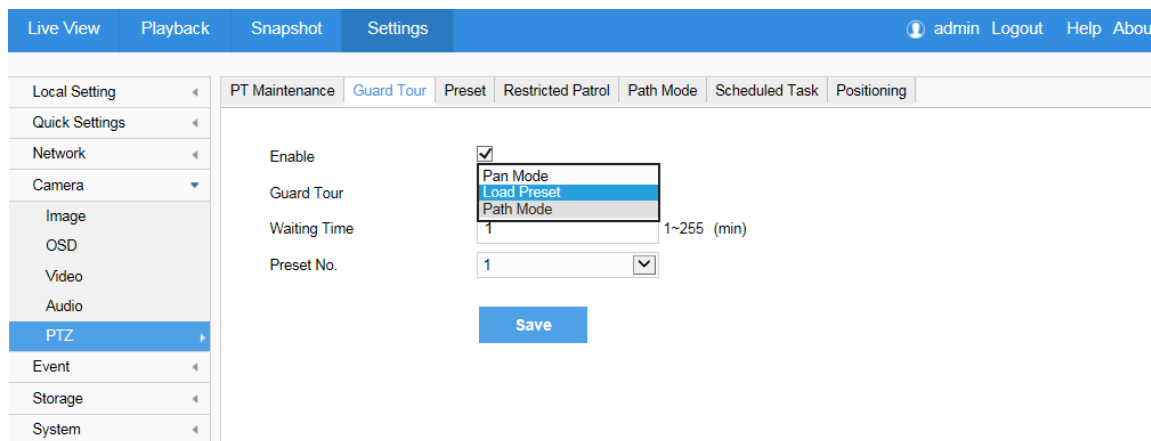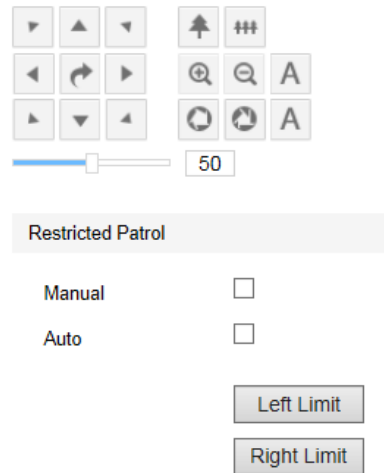

Picture 3-6 Guard Tour

Setting steps:

1)   Go to **Settings > Camera > PTZ > Guard Tour.**

2)   Check "**Enable**" and select mode from the drop-down list.

3)   Set Waiting Time according to the mode.

3.2.3   Restricted Patrol

Restricted Patrol includes Manual and Auto modes. After enabling this function, user can define borders of PTZ patrol.


Picture 3-7 Restricted Patrol

Setting steps:

1) Go to **Settings > Camera > PTZ > Restricted Patrol.**

2) Check "Manual" or "Auto". Adjust the PTZ to a proper position and set it as the **Left Limit**. Adjust the PTZ again to another position and set it as the **Right Limit.**

3) Settings take effect right after configuration. To clear limits, set one position both as the left and the right limit, then the limits will be cleared.

4) When checking **Manual**, user can control the PTZ manually to make it rotate between the left and the right limits only; when checking **Auto**, the PTZ will rotate in pan direction only between the left and the right limits.

3.2.4   Path Mode

Path Mode means the camera patrols around all the valid preset spots on a path. After enabling this function, click any PTZ control button to disable this function. Currently, the camera supports 8 paths and the max allowed number of patrol spot on each path is 32 which can be selected from the 256 presets.
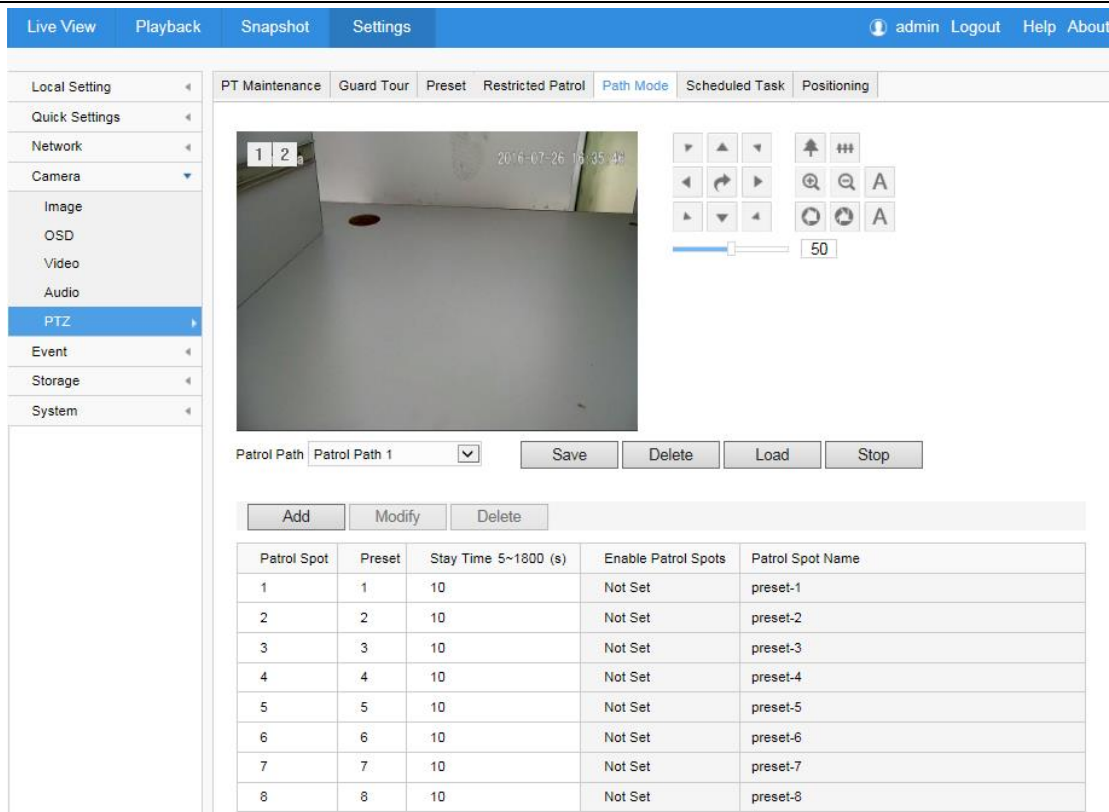
Picture 3-8 Path mode

Setting steps:

1) Go to **Settings > Camera > PTZ > Path Mode.**

2) Select path from the dropdown list of **Patrol Path.**

3) Click "**Add**". Set Patrol Spots and Stay Time in the popup interface. The max allowed number of patrol spots on each path is 32 which can be selected from the 256 preset positions.

4) Click "**Save**".

5) Click "**Delete**", "**Load**" or "**Stop**" to perform respective operations.

3.2.5   Scheduled Task

Enable Scheduled Task. Set durations and tasks. Camera will complete the tasks within the set durations.
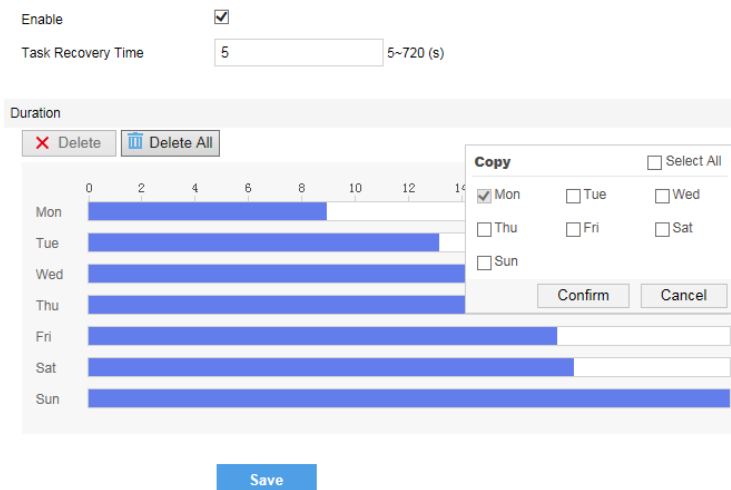
Picture 3-9 Scheduled Task

Setting steps:

1) Go to **Settings > Camera > PTZ > Scheduled Task**. Check "**Enable**".

2) Input "Task Recovery Time" (5~720s). Take 5s as example, if user performs other PTZ operations during the task, camera will recover the scheduled task in 5 seconds.

3) Set scheduled task and arming duration: the default task duration is 24 hours displaying in blue bar, or user can define durations up to request.

- Click any point on the timeline and drag mouse rightward to make a blue bar as task duration for that day. Different durations cannot overlap. Click on the duration and a window like Picture 3-10 will pop up.

- As shown in Picture 3-10, select a task and configure duration. Set the start time and end time, and click "Save" to finish.

- Click the icon ▣ behind the timeline and the Copy window will pop up. Check several weekdays or "**Select All**" and click "**Copy**" to copy task durations to the weekdays, as shown in Picture 3-11. Click "Delete" in Picture 3-10 or ✕ Delete to cancel scheduled task. Click 🗑 Delete All to cancel all the scheduled tasks in one week.
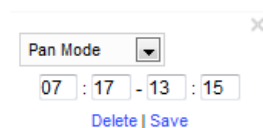
Picture 3-10 Edit duration
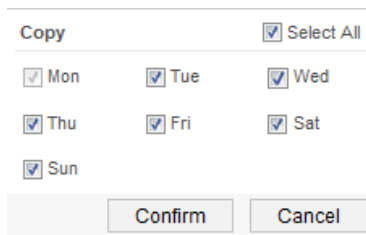
Picture 3-11 Copy

3.2.6   Positioning

Go to **Settings > Camera > PTZ > Positioning.**

Zero Correction

When the PTZ position fails to synchronize with the positioning or user wants it to return to the zero position, zero correction can be performed. After zero correction, camera will return to the mechanical zero position automatically. Click "Pan/Tilt Zero Correction" to perform.
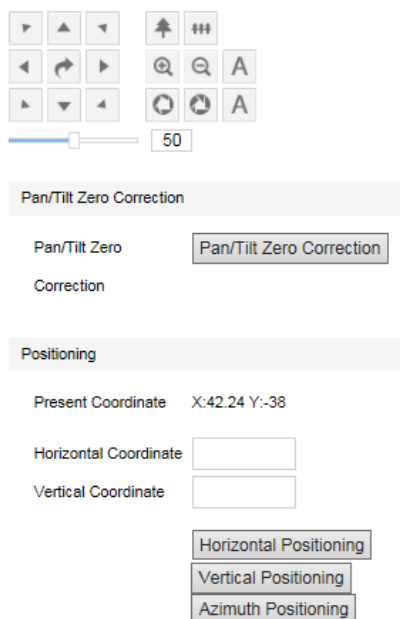
Picture 3-12 Positioning

Positioning

➢ **Present Coordinates**: show the coordinates of current PTZ position.

➢ **Horizontal Positioning**: fill the target Horizontal Coordinate and click "Horizontal Positioning", then the PTZ will rotate to the target pan position.

➢ **Vertical Positioning**: fill the target Vertical Coordinate and click "Vertical Positioning", then the PTZ will rotate to the target tilt position.

➢ ***Azimuth Positioning:** Azimuth means the PTZ camera faces to the due north. If azimuth positioning is done, when user enables "PTZ" OSD, it will show the live direction of the PTZ camera.

Rotate the PTZ camera to a specific position and click "**Azimuth Positioning**". Save this position and set it as the due north direction.

To display the compass on Live View interface: go to **Settings > Camera > OSD**, and check "**PTZ**".

3.3 Alarm Linkage

Alarm linkage is the system reaction after an alarm signal is received. It is to call the user's attention to handle the event.

The alarm signal comes from the alarm triggered in the arming areas such as motion detection or alarm input devices such as smoke detector.

Alarm linkage reaction includes Alarm Text Overlay, Snapshot or triggering alarm output device (such as alarm bell). Explanations are as follows:

Acoustic Alarm: when an alarm is triggered, generate sound alarming (it requires the IP camera to connect with an audio output device).

Report to Management System: when an alarm is triggered, report it to the VMS (it requires the VMS to support this function).

Recording Linkage: when an alarm is triggered, start video recording automatically. Need to install a storage card.

Text Overlay: when an alarm is triggered, display alarm text on the screen.

Snapshot: when an alarm is triggered, capture the image automatically. Need to install a storage card.

Alarm Output: it means linking to an alarm output device. It requires the camera to support alarm output function and has connected with an alarm output device.

Email Notice: when an alarm is triggered, send an e-mail to the e-mail address automatically.

Note: Go to **Settings > Network > Other Protocols > SMTP** to set the e-mail address. SMTP (Simple Mail Transfer Protocol) is a group of rules for sending email from source address to target address and it determines the transition method of email.

Picture 3-13 SMTP

3.3.1   Motion Detection

Detect movement features in the defined area. Once the movement exceeds the defined sensitivity, an alarm will be triggered.
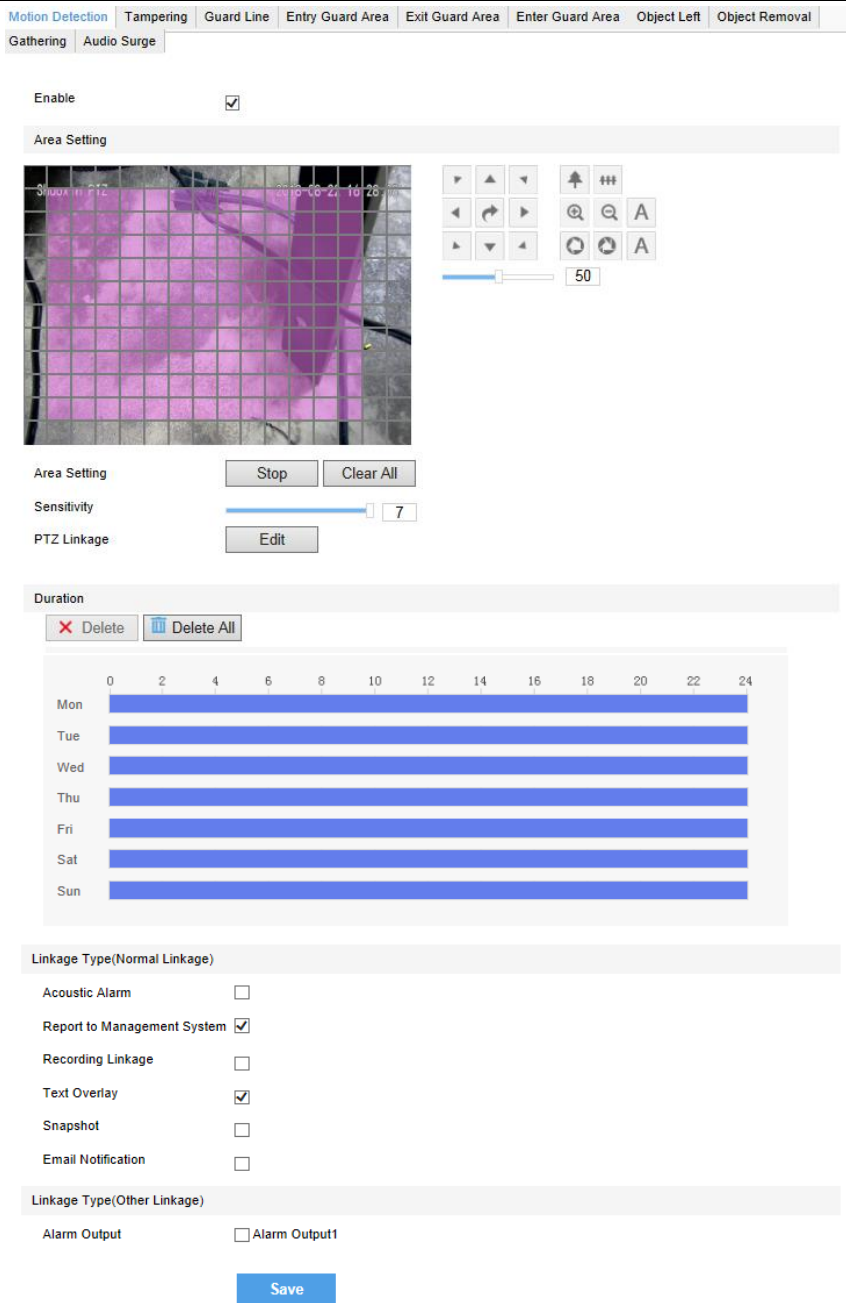
Picture 3-14 Motion Detection

Motion detection supports full area detection and max 4 user-defined areas. The default is full area detection.

1)   Go to **Settings > Event > Intelligent Function > Motion Detection**, and check "**Enable**".

2)   Click "**Clear All**" and then "**Edit**" and the image will be divided into 16 columns and 12 lines of small squares. Click a square, drag toward lower right and click "Stop". Then the area is the detected area and it turns purple red. A camera can support max 4 motion detection areas at the same time. Draw an area toward upper left that contains the defined area, or click the defined squares one by one to clear setting, or click "Clear All" to clear setting.

3)   Drag the slide bar to adjust **Sensitivity**. The higher the value is, the more sensitive it is to the small moving objects in the specific active area.

4)   Set PTZ linkage. Click "**Edit**" and a window of **PTZ linkage** will pop up. User can set **PTZ Rotation Stops Detection** time. For example, if it is set 10s, when the PTZ rotation stops for 10s, motion detection will start and will stop when the PTZ is rotating. The default setting of Motion Detection Effective Positions is **At All PTZ Positions**, i.e. when the PTZ rotates to any position and stops for 10s, the motion detection will start. Alternatively, select preset positions, such as checking one or multiple preset positions and motion detection will start only when the PTZ rotation stops for 10s at these positions.
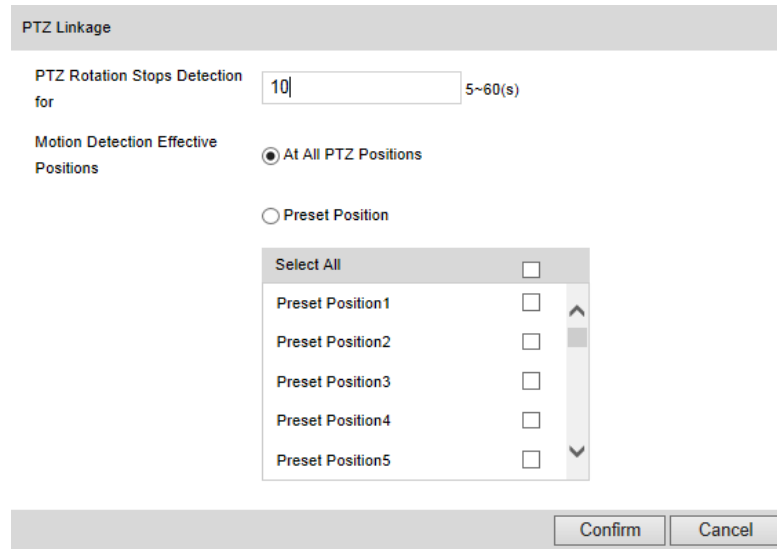

Picture 3-15 PTZ linkage

5)   Set arming duration: the default duration is 24 hours displaying in blue, or user can define durations up to request.

- Click any free point on the timeline and drag mouse rightward to make a blue bar as task duration for that day. Different durations cannot overlap. Click on the duration and a window will pop up.

- As shown in Picture 3-16, select a task and configure duration. Set the start time and end time, and click "Save" to finish scheduled task setting.

- Click the icon behind the timeline and the Copy window will pop up. Check several weekdays or "**Select All**" and click "**Copy**" to copy durations to the weekdays. Click "Delete" button or icon to cancel scheduled task. Click to cancel all the scheduled tasks in one week.
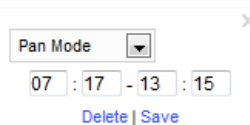
Picture 3-16 Edit duration
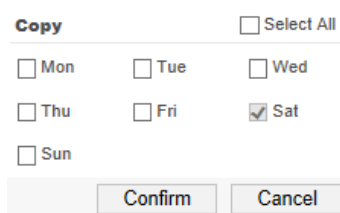

Picture 3-17 Copy duration

6)   Check "Linkage Type". It is the alarm output method when motion detection triggers an alarm. If checking snapshot, when motion detection triggers an alarm, the system will capture an image. Go to **Settings > Storage > Snapshot** to set image format, resolution and quality, and enable "Event Snapshot" and set Time Interval and Number of Snapshots.

7)   Click "**Save**".

3.3.2   Tampering

In the surveillance scene, if the camera's field of view is blocked by something, it will be unable to monitor normally. At this time, the tampering detection algorithm can detect that the camera lens has been blocked and will trigger an alarm. It supports max 1 detection area.

Go to **Settings > Event > Intelligent Function > Tampering** and configure. Please refer to **Motion Detection** part for setting steps.
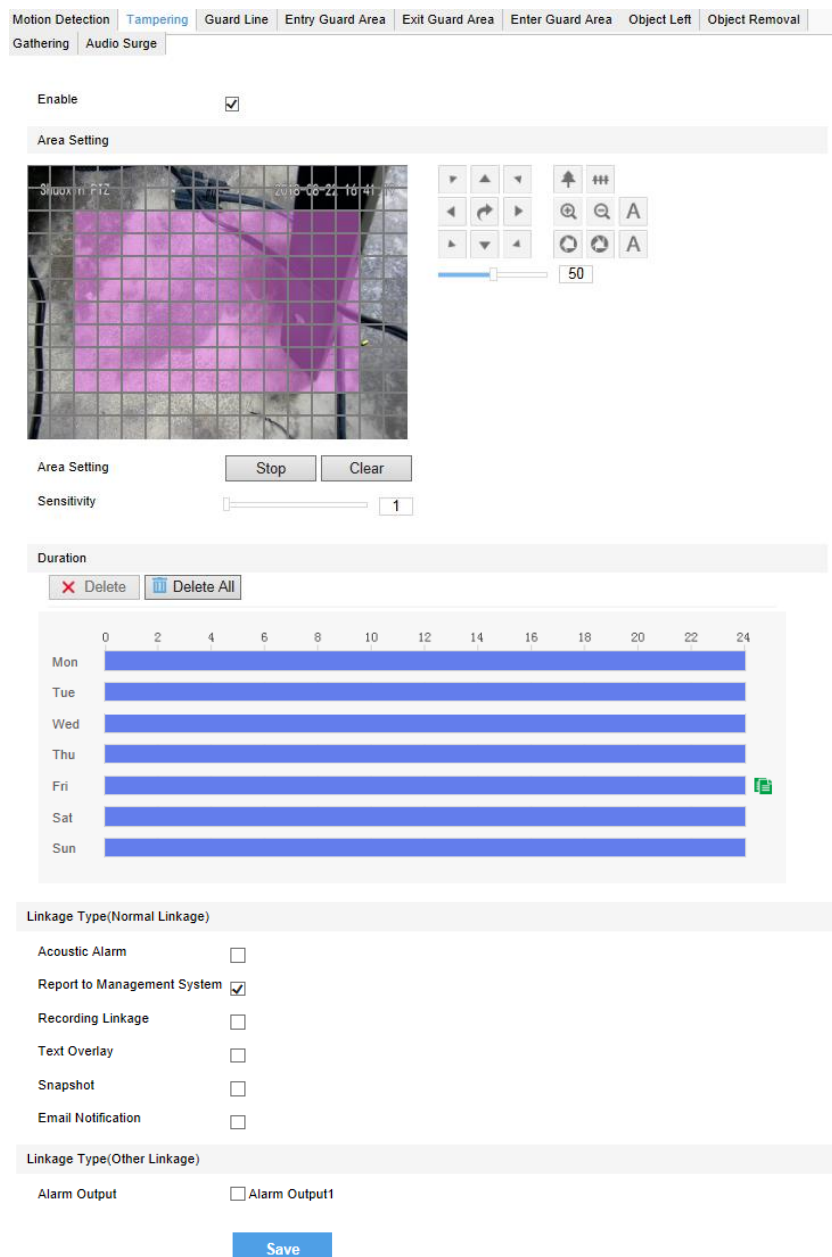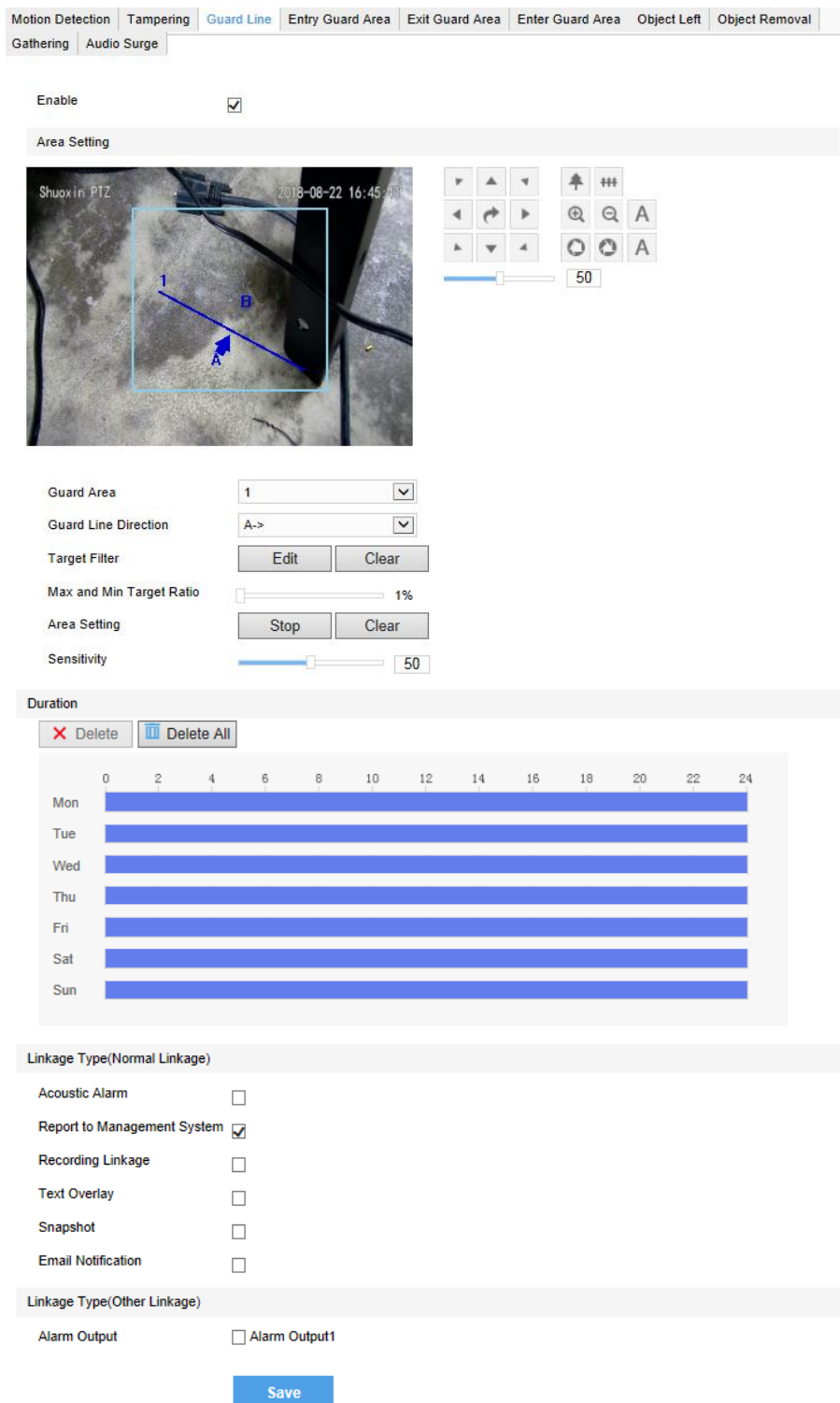

Picture 3-18 Tampering

3.3.3   Guard Line

Enable this function on the interface to detect specific area at real time. Once any object enters the guard line, an alarm will be triggered.

Go to **Settings > Event > Intelligent Function > Guard Line** and configure.

**Picture 3-19 Guard Line**

Setting steps:

1)   Check "**Enable**";

2) Select a number from the dropdown list of **Guard Line** and once only one number can be selected. After saving it, user can set another and max 4 guard lines can be set;

3) Select a direction from the dropdown list of **Guard Line Direction,** "A→", "B→" or "A→&&B→". Take "A→" as an example, when selecting this direction, only when objects move from A to B the system will detect it and trigger an alarm;

4) Target Filter: to set target area. Click "**Edit**" and drag the mouse in the scene to draw a rectangle. Click "**Stop**" after finishing and drag the slide bar of "Max and Min Target Ratio" (1% by default). Moving objects over max or less than min will not trigger an alarm when they enter the guard line(s);

5) Area Setting: to set guard lines. Click "**Edit**" and drag the mouse in the scene to draw a guard line. User can click its starting point or end point to adjust its length and angle, and drag the slide bar of "Sensitivity" to set the guard line's sensitivity to moving objects;

6) Duration: there can be several durations on one day and each can have a start time and end time. Please refer to step 5) in chapter 3.3.1 for details.

7) Check **"Linkage Method"**.

8) Click "**Save**" to validate settings.

3.3.4   Entry Guard Area

Enable this function in the interface to detect specific area at real time. Once any moving object enters the guard area, an alarm will be triggered.

Go to **Settings > Event > Intelligent Function > Entry Guard Area** and configure. Setting steps:

1) Check "**Enable**";

2) Select a number from the dropdown list of **Guard Area** and user can set only one area at one time. After saving it, user can set another and max 4 guard areas can be set;

3) **Target Filter**: to set target area. Click "**Edit**" and drag the mouse in the scene to draw a rectangle. Click "**Stop**" after finishing and drag the slide bar of "Max and Min Target Ratio" (1% by default). Moving objects over max or below min will not trigger an alarm when they enter the guard area(s);

4) **Area Setting**: to set guard area. Click "**Edit**" and click mouse to draw a closed area made up of 3 to 6 points in the scene. Right click or click the starting or end point to close the area, and drag the slide bar of "Sensitivity" to set the sensitivity of the guard area to moving objects;

5) Duration: there can be several durations on one day and each can have a start time and end time. Please refer to step 5) in chapter 3.3.1 for details.

6) Check **"Linkage Method"**.

7) Click "**Save**" to validate settings.
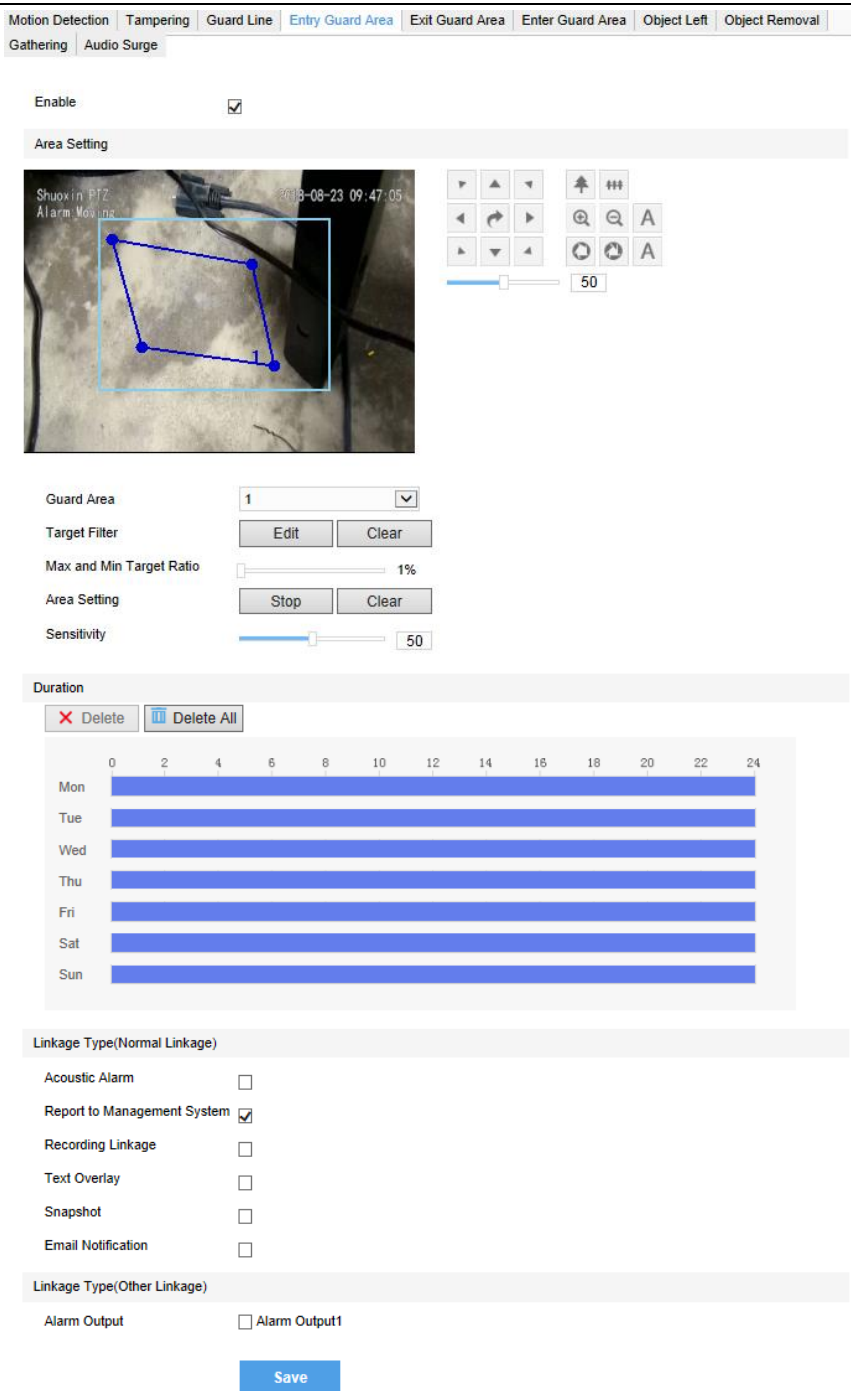
Picture 3-20 Enter guard area

3.3.5   Exit Guard Area

Enable this function in the interface to detect specific area at real time. Once any moving object leaves the area, an alarm will be triggered.

Go to **Settings > Event > Intelligent Function > Exit Guard Area** and configure. Setting steps can be referred to in chapter 3.3.4 Entry Guard Area.

3.3.6   Enter Guard Area

Enable this function in the interface to detect specific area at real time. Once any moving object enters the guard area and stays for a period of time reaching the time threshold, an alarm will be triggered. Only some models support this function. Please subject to actual devices. Operation steps are as follows:

1) Check "**Enable**";

2) Select a number from the dropdown list of **Guard Area** and user can set only one area at one time. After saving it, user can set another and max 4 guard areas can be set;

3) **Target Filter**: to set target area. Click "**Edit**" and drag the mouse in the scene to draw a rectangle. Click "**Stop**" after finishing and drag the slide bar of "Max and Min Target Ratio" (1% by default). Moving objects over max or below min will not trigger an alarm when they enter the guard area(s);

4) **Area Setting**: to set guard area. Click "**Edit**" and click mouse to draw a closed area made up of 3 to 6 points in the scene. Right click or click the starting or end point to close the area, and drag the slide bar of "Sensitivity" and "Time Threshold";

5) Check linkage type(s), which is/are the alarm output method(s) when an event triggers an alarm;

6) Duration: there can be several durations on one day and each can have a start time and end time. Please refer to step 5) in chapter 3.3.1 for details;

7) Click "**Save**" to validate settings.

3.3.7   Object Left

Enable this function in the interface to detect specific area at real time. When any object is left in the area for a period of time reaching the time threshold, an alarm will be triggered. Only some models support this function. Please subject to actual devices.

Go to **Settings > Event > Intelligent Function > Object Left** and configure. Setting steps can be referred to in chapter 3.3.4 Entry Guard Area.

3.3.8   Object Removal

Enable this function in the interface to detect specific area at real time. When any object is taken from the area for a period of time reaching the time threshold, an alarm will be triggered. Only some models support this function. Please subject to actual devices.

Go to **Settings > Event > Intelligent Function > Object Removal** and configure. Setting steps can be referred to in chapter 3.3.4 Entry Guard Area.

3.3.9   Gathering

Enable this function in the interface to detect specific area at real time. When the coverage of people exceeds the set ratio, an alarm will be triggered. For example, if setting the ratio 50%, when 50% or more of the area is covered by people, an alarm will be triggered. Only some models support this function. Please subject to actual devices.

Go to **Settings > Event > Intelligent Function > Gathering** and configure. Setting steps can be referred to in chapter 3.3.4 Entry Guard Area.
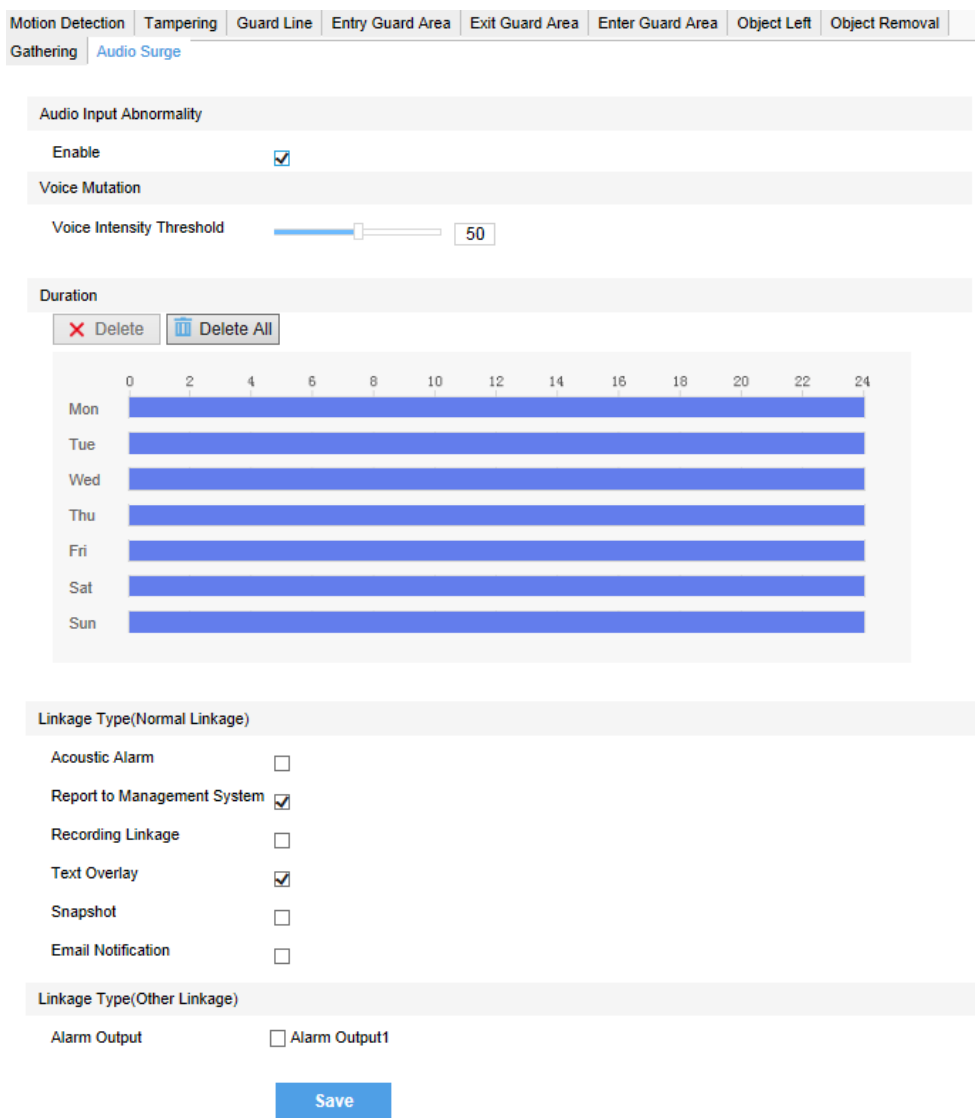
3.3.10   Audio Surge

After enabling this function, when there is audio surge, an alarm is triggered. Only some models support this function. Please subject to actual devices. Operation steps are as follows:

Go to **Settings > Event > Intelligent Function > Audio Surge**. Operation steps are as follows:

1) Check "**Enable**";

2)   Drag the slide bar of **Voice Intensity Threshold** to adjust the detection sensitivity to voice mutation. The higher the Voice Intensity Threshold is, the more sensitive it is to Voice Mutation;

3)   Check linkage type(s), which is/are the alarm output method(s) when an event triggers an alarm;

4)   Duration: there can be several durations on one day and each can have a start time and end time. Please refer to step 5) in chapter 3.3.1 for details;

5)   Check **Linkage Method;**

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

Picture 3-21 Audio surge

3.3.11   Alarm Input

Camera supports connecting with on-off alarm devices. If the alarm input device is always disabled, when it alarms, the circuit will become a loop and the camera will trigger alarm output by the set alarm linkage type. If the alarm input device is always enabled, when it alarms, the circuit will become open and the camera will trigger alarm output by the set alarm linkage type.

Setting steps:

1) Confirm that the alarm input device is always enabled or always disabled and has been rightly connected with the alarm input port of camera;

2) Go to **Settings > Event > Alarm Input** and check "**Enable**";

3) Select a number from the dropdown list of **Alarm Input ID** (corresponding to the connected input ID);

4) Enter alarm name. If the alarm input device is always disabled, which means the circuit is usually open, user must select "**Always Disabled**" from the dropdown list of Alarm Type. If the alarm input device is always enabled, which means the circuit is usually loop, user must select "**Always Enabled**" from the dropdown list of Alarm Type. The default setting is "Always Disabled";

5) Duration: there can be several durations on one day and each can have a start time and end time. Please refer to step 5) in chapter 3.3.1 for details;

6) Check linkage method;

7) If user sets several alarm inputs, check "All" under Copy to Alarm to copy all configurations of current alarm input to other alarm inputs;

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

Picture 3-22 Alarm input

3.3.12   Abnormality Linkage

Abnormality linkage means the linkage triggered when abnormality occurs. Abnormality type includes Disk Full, Disk Error and Internet Disconnected.

Setting steps:

1)   Go to **Settings > Event > Abnormality Linkage**, and check "**Enable**".

2)   Select an option from the dropdown list of Abnormality Type.

3)   Check **Linkage Method**.

4)   Click "**Save**".
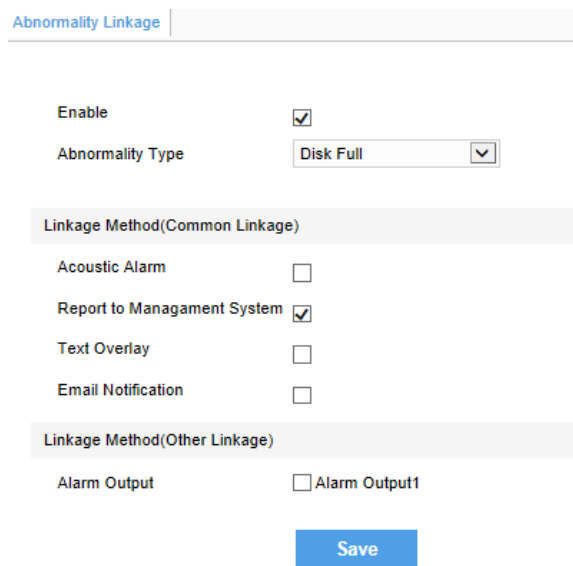
Picture 3-23 Abnormality linkage

Note: Abnormalities of disk full and disk error are prompted in live view window in the format of icons, which show in the same line as system time.

3.4 Video Parameters

3.4.1   Video Encoding

Camera supports multiple streams encoding and decoding. Multi-stream means the same video source is encoded into different streams of videos with different resolutions. User can select proper resolution to view or record according to the network bandwidth.
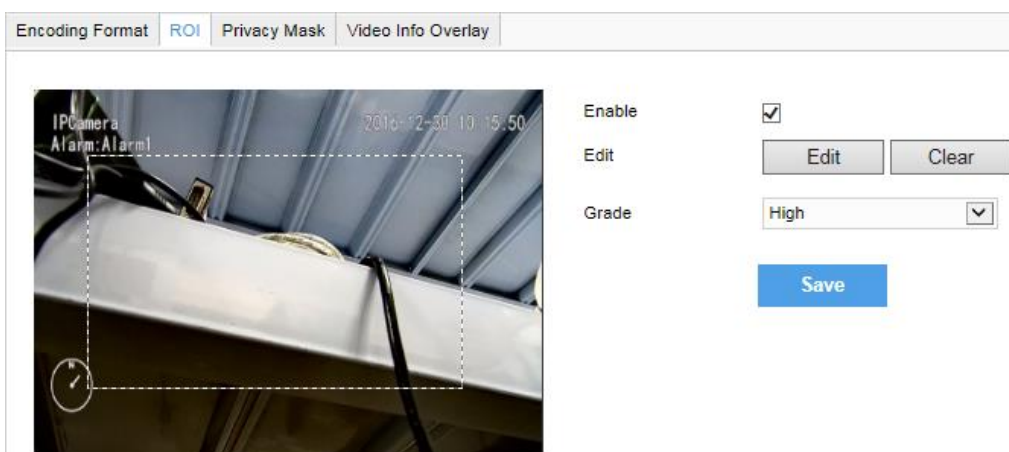
Go to **Settings > Camera > Video > Encoding Format**, as shown in the following picture. In the dropdown list of "Multi-Stream", select Single Stream, Dual-Stream or Triple-Stream, and the setting takes effect after rebooting.
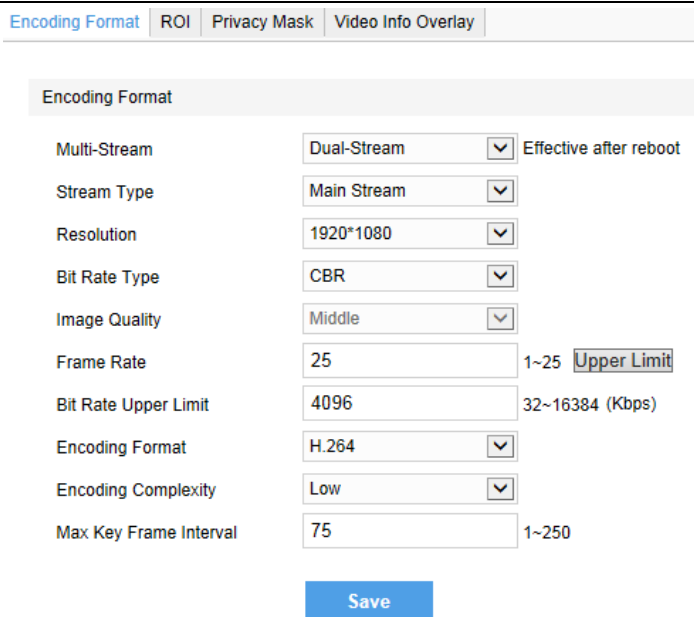
Picture 3-24 Main Stream Encoding

3.4.2   ROI

Only encode specific area to ensure normal surveillance and constant resolution of the specific area under poor network.
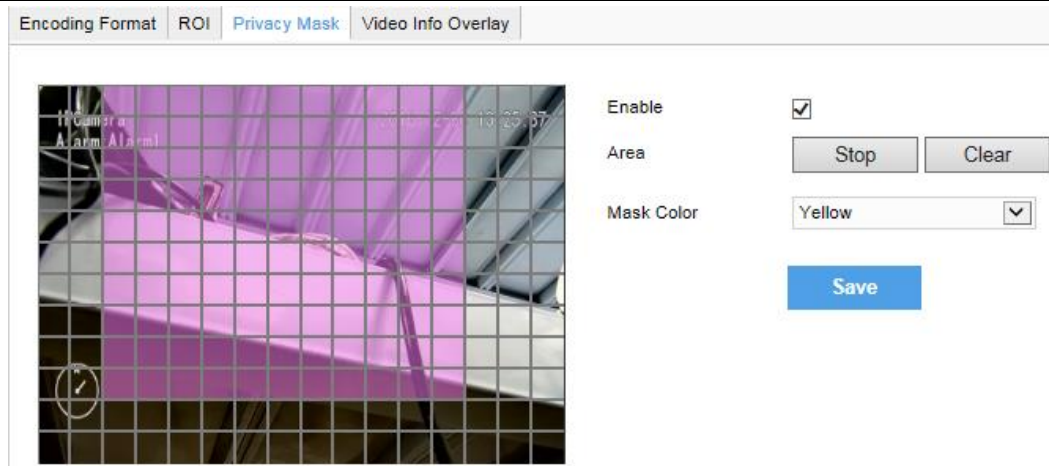
Picture 3-25 ROI

Setting steps for ROI:

1) Go to **Settings > Camera > Video > ROI**, and check "**Enable**".

2) Click "**Edit**", and drag a rectangle area with mouse as the specific area. Click "Clear" to cancel setting and reset.

3) Select encoding "**Grade**" from the dropdown list.

4) Click "**Save**".

Note: When ROI is enabled, if user modifies image resolution or aspect ratio (standard screen/widescreen), the device will quit ROI automatically.

3.4.3   Privacy Mask

Mask sensitive and private part of the image so as to keep sensitive information private.

Picture 3-26 Privacy Mask

The image is divided into 16 columns and 12 rows of small squares. The max supported number of Privacy Mask area is 4. Setting steps for privacy mask areas:

1) Go to **Settings > Camera > Video > Privacy Mask**, and check "**Enable**".

2) 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, which turns purple red. Start from an undefined square and draw an area toward upper left that contains the defined area, or click the defined squares one by one to clear setting, or click "**Clear**" directly.

3) User can select "**Mask Color"** from the drop-down list.

4) Click "**Save**".

3.5 Snapshot

Click **"Snapshot"** on the menu bar to enter snapshot management interface. User can view or download snapshots in SD card (An SD card must be inserted in the camera).

Operation steps:

1) Search snapshots: search snapshots in accordance with the duration and format from the SD card.

2) On the snapshot list, check searched pictures and click ⬇ to download.

3.6 Playback

Click **"Playback"** on the menu to enter recording management interface. User can playback, clip and download recordings in SD card (An SD card must be inserted in the camera).

ⓘ Note: User can set scheduled recording durations in **Settings > Storage > Recording**.
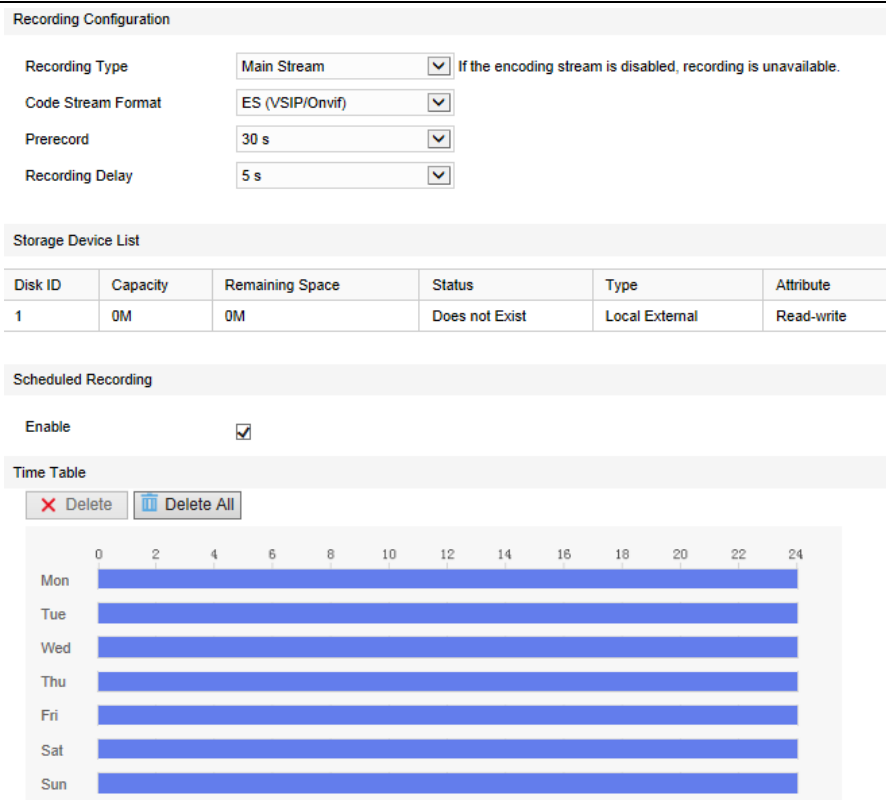
Picture 3-27 Recording

ⓘ Note: After setting "Code Stream Format" as PS (GB28181), the video encoding format is H.264 only.

3.6.1   Playback

1)   Select recording duration from the calendar.

2)   If there is background color on a date, it means there is recording on that day. Select duration of the date and the video will be displayed directly in the window on the right.

3.6.2   Download

Select recording duration from calendar and download recording to local PC. Download path can be configured in **Settings > Local Setting > Local Setting**.
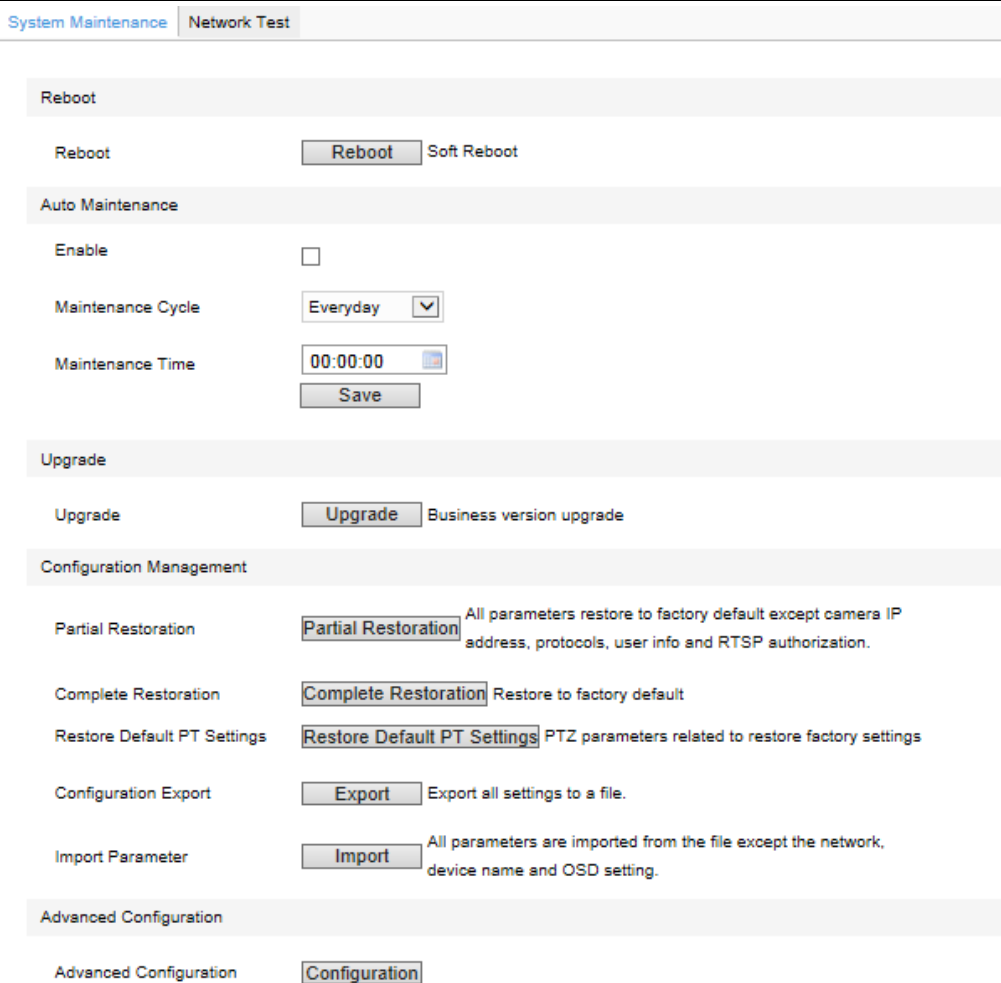
3.7 Upgrade

3.7.1   Firmware Upgrade

Contact dealer for upgrade file.

Method 1

1)   Go to **Settings > System > System Maintenance > Upgrade**, as shown in the picture.

Picture 3-28 Firmware Upgrade

2)   Click "**Upgrade**" and open local upgrade file (<*.pkg> format).

3)   During upgrading, please do nothing but waiting.

4)   After upgrading, if it is necessary to upgrade the web client, the system will prompt to download the plug-in. Please refer to the chapter of **Web Client Upgrade** for details.

Method 2

1)   Run IPCSearch and select the device from the list.

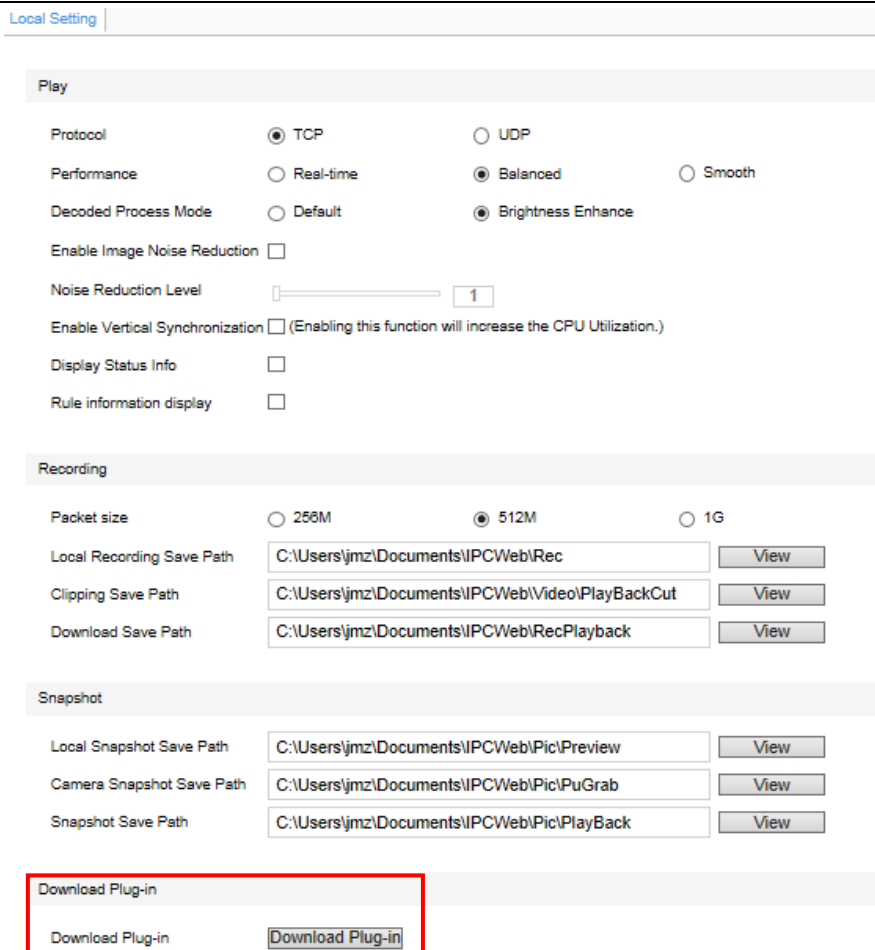2)   Right click and select "**Upgrade**" to upgrade firmware of cameras for the same models simultaneously.

Note: Select one by one or select all cameras to upgrade one by one or in batch.

3.7.2   Web Client Upgrade

Method 1

Go to **Settings > Local Setting > Local Setting > Download Plug-in.** Click "**Download Plug-in**" and follow the prompts to finish upgrade.

Picture 3-29 Download Plug-in

Method 2

After firmware upgrade, please re-login web client. The page will prompt to download a new plug-in control. After downloading, the upgrade is completed. Re-login to enter the latest web client.

(i) Note: For detailed operations on the web client, please refer to "*Help*" on web.

3.7.3   Configuration Management

Go **to Settings > System > System Maintenance** and in the configuration management part, there are options of Partial Restoration and Complete Restoration.

Partial Restoration: click this button and all parameters will restore to factory default except camera IP address, protocols, user info and RTSP authorization.

Complete Restoration: click this button and all parameters will restore to factory default.

Picture 3-30 Restoration

4.   Settings

Some models may not support some of the functions stated below. User operation is subject to the actual models and clients.

4.1 Network Access

The chapter of *Initial Configuration* has introduced how to modify parameters via IPCSearch to make camera access to network. Camera accepts multiple methods (via Ethernet and PPPoE) to access to network. The following will introduce how to configure camera network parameters through the web client.

4.1.1   Ethernet

Go to **Settings > Network > IP and Port > LAN,** as shown in the picture to configure IP Address, Subnet Mask and Default Gateway.

Picture 4-1 LAN

4.1.2   PPPoE

Go to **Settings > Network > Other Protocols > PPPoE**, as shown in the picture. Input user name and password, and click "Save".

Picture 4-2 PPPoE

4.2 Register to VMS

Go to **Settings > Network > Access Protocol > VSIP**, as shown in the picture. Enter "VMS Address" and "VMS Port Number". Click "Save" and reboot device.

Picture 4-3 Register to VMS

4.3 User Security

4.3.1 User Management

Go to **Settings > System > User Security > User**.
Add:
Click "**Add**", and enter "User Name" and "Password" in the popup interface. Select user type from the dropdown list of "User Type", and assign operation authority to newly added user from the "Authorization List". Click "Confirm".

Picture 4-4 Add user

ⓘNote:

1) To ensure the safety of device on internet, it is strongly recommended that a strong password which is composed of at least 2 kinds of the following, numbers, lowercase letters, uppercase letters and specific symbols with a length of 8 to 16 characters should be set.

2) 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.

3) Please keep your user name and password safe.

Delete:

Select user IP and click "Delete" to delete the user.

Modify:

Select user IP and click "Modify" to modify in the popup interface.

4.3.2   IP Filter

By setting IP address filtering, user can manage access authentication to the web client.

White List means the IP addresses able to access to the client while Black List means the IP addresses unable to access to the client.

Enable:

Select filter method from the dropdown list, Black List, White List, or "**Disable**".

Add:

After select filter method, click "**Add**" and input IP address in the popup interface, and click "**Confirm**".

Modify:

Select the IP address from the list and click "**Modify**" to modify the IP address, and click "**Confirm**".

Delete:

Select the IP address from the list and click "**Delete**". Click "**Delete All**" to clear all the IP addresses.

4.3.3   Security Service

To improve network security, go to **Settings > System > User Security > Security Service**, and enable SSH login or unauthorized login.

Check "Enable Unauthorized Login". Configure Illegal Login Retry Times and Illegal Login Lock Time. Click "Save". When user logs in and input wrong user name or password for the configured times, the user IP will be locked up for a certain period of time, during which the user cannot log in.
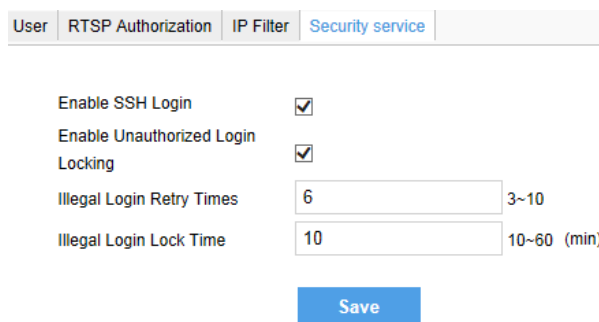
Picture 4-5 Security service

4.4 Serial Port

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

Configurable parameters include "**Name**", "**Baud Rate**" and "**Address Code**", while others such as "Data Bits", "Stop Bits", "Correction", "Stream Control" and "Control Protocol" should keep the default values.

Serial Port	
Type	RS485
Serial Post Number	1
Name	com1
Baud Rate	9600
Data Bits	8
Stop Bits	1
Correction	None
Stream Control	None
Address Code	1 1~255
Control Protocol	PELCO_D_K

Save

Picture 4-6 Serial Port

ⓘATTN:

1) Serial port number 2 is the port for internal device and all parameters should apply default values;
2) One device has only one address code which cannot be repeatedly used.

ⓘNote:

1) The default baud rate of serial port number 1 is 4800;
2) Address code 1 is broadcast address, suggest starting from number 2;
3) When connecting to external device, the address code should be set in accordance with that of the external device.

4.5 Text Overlay

Display preset text on the surveillance window, configuration steps as follows:

1) Go to **Settings > Camera > OSD**, as shown in the picture.
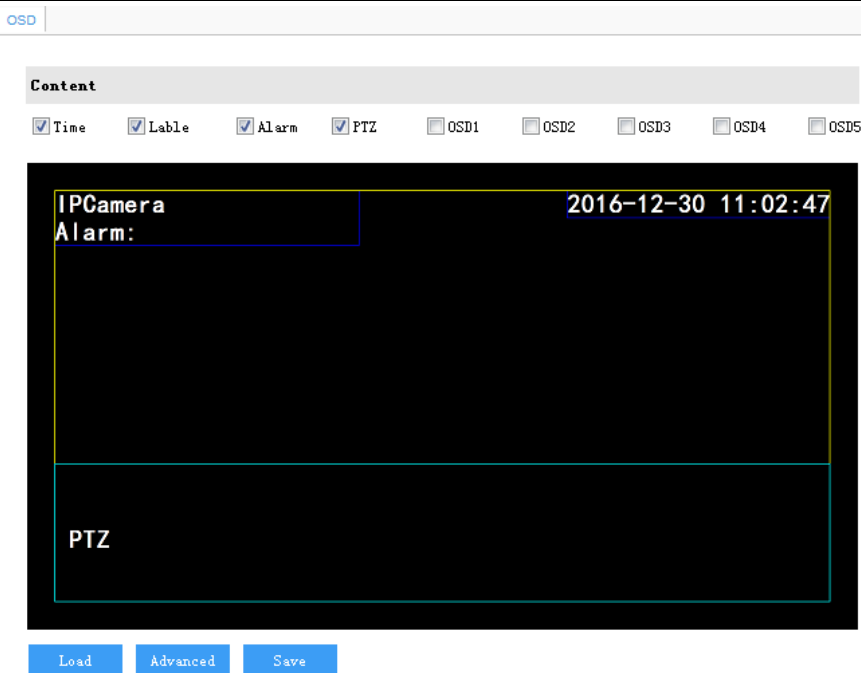
Picture 4-7 OSD

2) Check the options in "**Content**" and preview the result in the window below. For example, if user checks "**Time**", time will be displayed in the window.

3) Load font: Click "**Load**" to load "Default Font" or other fonts. Then edit content and position according to the above steps.

4) Edit positions: drag the items in the window with mouse to change their positions.

5) Edit OSD texts: for example, if user checks OSD2, double click OSD2 textbox and input characters in the popup interface. Click "**OK**".

6) Click "**Advanced**" to set "Format", "Font" and "Margin".
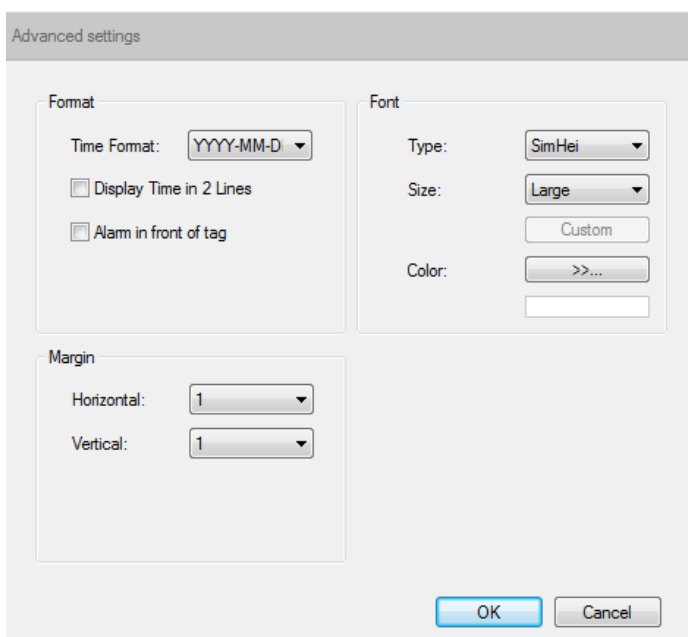
Picture 4-8 Advanced setting

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

5. Appendix: Glossary of Terms

1080p	Resolution of 1920*1080 pixels (16:9)
720p	Resolution of 1280*720 pixels (16:9)
QXGA	Resolution of 2048*1536 pixels (4:3)
UXGA	Resolution of 1600*1200 pixels (4:3）
CIF	Resolution of 352*288 pixels
QCIF	Resolution of 176*144 pixels
HD	High-definition
NAT	Network Address Translation
DHCP	Dynamic Host Configuration Protocol
DDNS	Dynamic Domain Name Server
IP	Internet Protocol
MPEG4	Moving Pictures Experts Group
PC	Personal Computer
PPPoE	Point to Point Protocol over Ethernet