



User Manual

2MP Face Recognition IP Camera

O2BFR/O2BFRM/O2DFR/O2DFRM

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

Important Safeguards and Warnings

1. Electrical safety

All installation and operation here should conform to local electrical safety codes.

Use a certified/listed 12VDC Class2 power supply only.

Please note: Do not connect two power supplying sources to the device at the same time; it may result in device damage! The product must be grounded to reduce the risk of electric shock.

Improper handling and/or installation could run the risk of fire or electrical shock.

2. Environment

Heavy stress, violent vibration or exposure to water is not allowed during transportation, storage and installation.

This product should be installed in a cool, dry place away from direct sunlight and heat sources.

Do not install the product in extreme temperature conditions.

Do not expose the camera to electromagnetic radiation. Otherwise it may result in CMOS sensor failure.

Do not block any ventilation openings.

Do not allow water and liquid intrusion into the camera.

3. Operation and Daily Maintenance

Please shut down the device and then unplug the power cable before you begin any maintenance work.

Do not touch the CMOS sensor optic component. You can use a blower to clean the dust on the lens surface.

Always use the dry soft cloth to clean the device. If there is too much dust, use a cloth dampened with a small quantity of neutral detergent. Finally use the dry cloth to clean the device.

Please use a professional optical cleaning method to clean the enclosure. Improper enclosure cleaning (such as using cloth) may result in poor IR functionality and/or IR reflection.

The grounding holes of the product are recommended to be grounded to further enhance the reliability of the camera.

Dome cover is an optical device, please don't touch or wipe cover surface directly during installation and use, please refer to the following methods if dirt is found.

Stained with dirt:

Use oil-free soft brush or hair dryer to remove it gently.

Stained with grease or fingerprint

Use oil-free cotton cloth or paper soaked with alcohol or detergent to wipe from the lens center outward. Change the cloth and wipe several times if it is not clean enough.

Warning

This camera should be installed by qualified personnel only.
All the examination and repair work should be done by qualified personnel.
Any unauthorized changes or modifications could void the warranty.

Statement

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

Regulatory Information

FCC conditions:

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

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

FCC compliance:

This equipment has been tested and found to comply with the limits for a digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

Note:

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

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

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1 Introduction

Welcome

Thank you for purchasing this network camera!

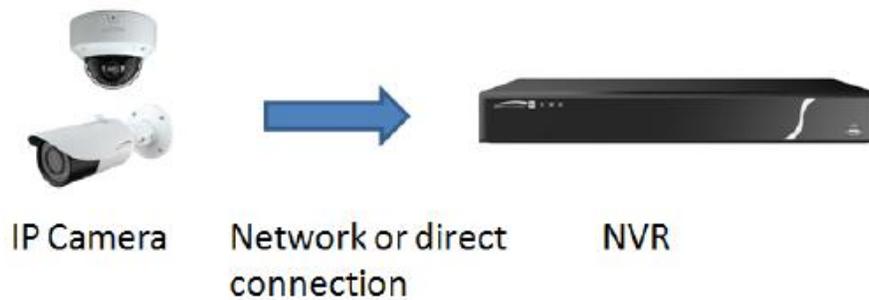
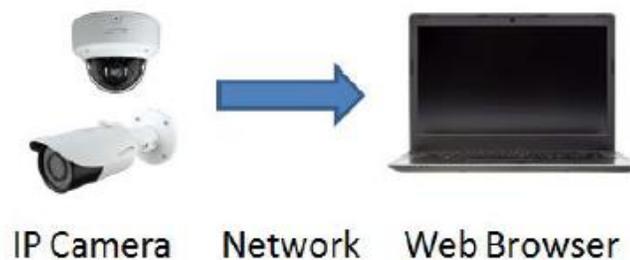
Please read this manual carefully before operating the unit and retain it for further reference.

Should you require any technical assistance, please contact Speco Technologies Technical Support.

Main Features

- Built-in PoE (Power over Ethernet)
- Integrated IR LEDs for clear vision in low light
- IP67 rated for outdoor installations
- Remote viewing support via web browser, mobile APP, and VMS

Applications



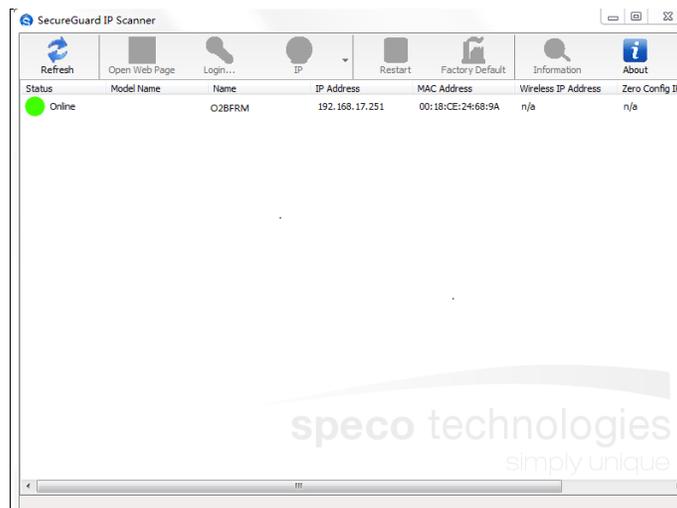
2 Web Access and Login

The IP camera settings can be accessed via a web browser through the LAN.

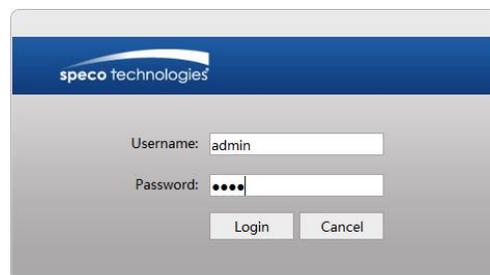
- Access through IP Scanner
Network connection:



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



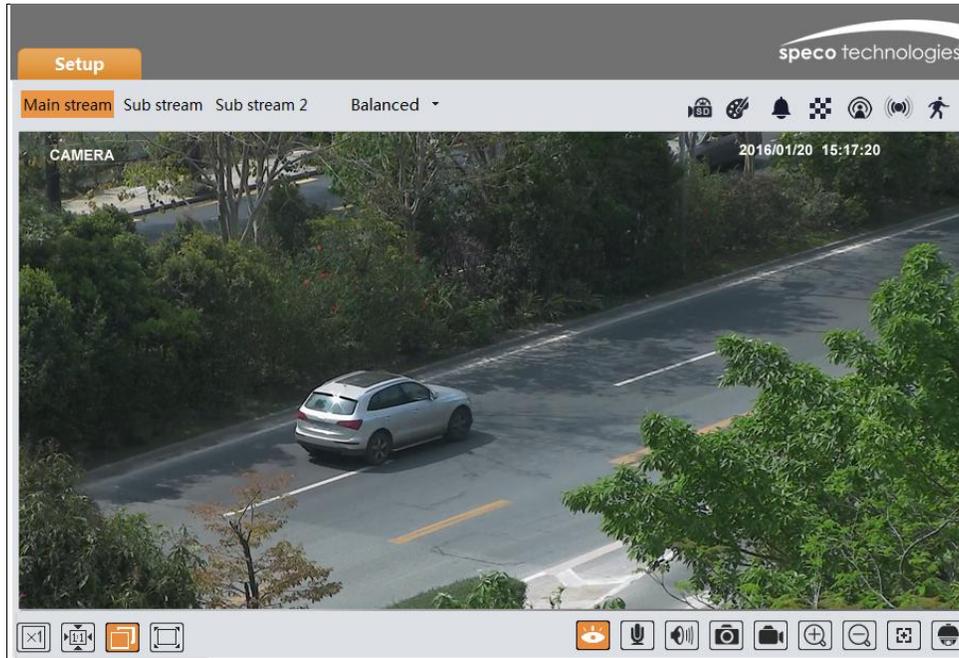
- ③ In the device list, the IP address, model number, and MAC address of each device will be listed. Select the applicable device and double click to open up the web viewer. You can also manually enter the IP address in the address bar of the web browser.



The login interface is shown above. Default user name is admin and password is 1234. After logging in, follow directions to install applicable plug-ins for viewing video.

3 Live View

The window below will be shown after logging in.



The following table describes the icons on the live view interface

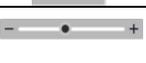
Icon	Description	Icon	Description
	Original size of resolution		SD card recording indicator
	Fit (correct scale)		Abnormal color indicator
	Auto (fill the window)		Abnormal clarity indicator
	Full screen (show video only)		Scene change indicator
	Start/stop live view		Line crossing indicator
	Start/stop two-way audio		Crowd density indicator
	Enable/disable audio		People counting indicator
	Snapshot		Object removal indicator
	Start/stop local recording		Intrusion indicator
	Zoom in (for motorized models)		People intrusion indicator
	Zoom out (for motorized models)		Sensor alarm indicator
	PTZ control (for external PTZ enclosures)		Motion alarm indicator
	Zoom/Focus control (for motorized models)		Face detection indicator

- All indicator icons above will flash in live view interface only when the corresponding events are enabled.
- In full screen mode, to exit, double click on the mouse or press the ESC key on the keyboard.

Click the zoom/focus control button to show the control panel. The descriptions of the control panel are as follows:

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

The camera can be installed in a compatible external PTZ enclosure through RS485. Click the PTZ icon to reveal the PTZ control panel. The descriptions of the control panel are as follows:

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

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

4 Camera Configuration

Press the “Setup” button to go to the configuration interface.

Note: Wherever applicable, click the “Save” button to save the settings.

4.1 System Configuration

4.1.1 System Information

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

The screenshot shows the 'System Information' configuration page. On the left is a navigation menu with categories: System, Video, PTZ, Event Setup, Analytics, Network Setup, Security, and Maintenance. Under 'System', 'System Information' is selected. The main area displays the following information:

Field	Value
Device Name	IPC
Product Model	O2BFRM
Brand	Speco
Software Version	4.3.0.0(22419)
Software Build Date	2019-03-29
Kernel Version	20180411
Hardware Version	1.3-1422309
Onvif Version	18.06
OCX Version	2.0.4.0
MAC	00:18:ae:87:3d:cf

4.1.2 Date and Time

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

The screenshot shows the 'Date and Time' configuration page. It includes a 'Zone' dropdown menu set to 'GMT (Dublin, Lisbon, London, Reykjavik)'. There is a checkbox for 'DST' which is currently unchecked. Below it are radio buttons for 'Auto DST' (selected) and 'Manual DST'. The 'Start Time' is set to January, First, Sunday, 00:00. The 'End Time' is set to February, First, Monday, 00:00. The 'Time Offset' is set to 120 Minutes. A 'Save' button is located at the bottom right.

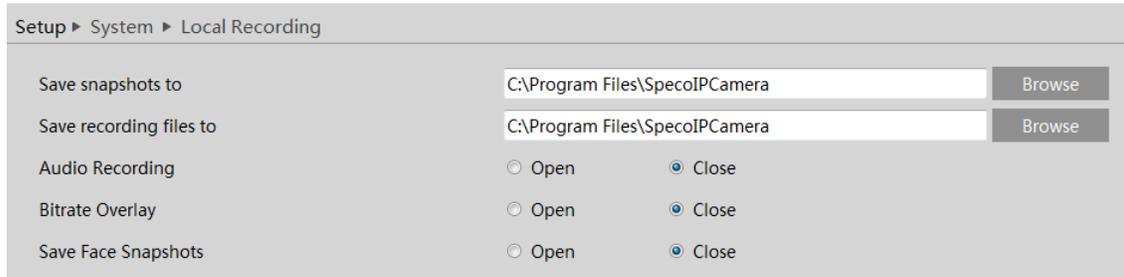
Select the applicable time zone and enable / disable DST as needed.

Click the “Date and Time” tab to set the time and date.

The screenshot shows the 'Date and Time' configuration page with the 'Time Mode' section. It includes three radio button options: 'Synchronize with NTP server' (selected), 'Synchronize with computer time', and 'Set manually'. The 'Synchronize with NTP server' option has an 'NTP server' field set to 'time.windows.com' and an 'Update period' field set to '1440 Minutes'. The 'Synchronize with computer time' option has 'Date' and 'Time' fields set to '2019-04-08' and '14:35:18' respectively. The 'Set manually' option has 'Date' and 'Time' fields set to '2019-04-08' and '06:35:18' respectively. A 'Save' button is located at the bottom right.

4.1.3 Local Recording

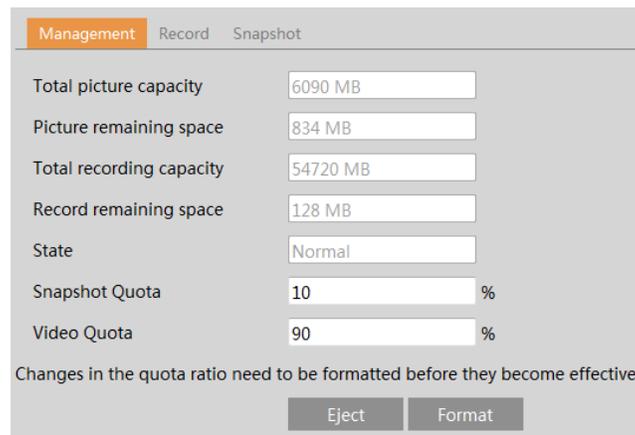
Go to System→Local Recording to set up the storage path of captured pictures and recorded videos on the local PC. There is also an option to enable or disable the bitrate display in the recorded files.



Additionally, face snapshots storage can be enabled or disabled here.

4.1.4 Storage

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



● SD Card Management

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

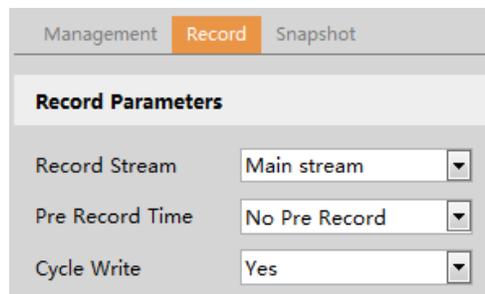
Click the “Eject” button to stop writing data to the SD card. Then the SD card can be ejected safely.

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

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

● Schedule Recording Settings

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



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

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

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

The screenshot shows the 'Timing' configuration interface. At the top, there is a checkbox labeled 'Enable Schedule Record' which is checked. To the right of this checkbox are two radio buttons: 'Erase' (unselected) and 'Add' (selected). Below this is the 'Week Schedule' section, which consists of seven rows representing the days of the week (Sun. through Sat.). Each row has a 24-hour timeline from 0 to 24. The timeline for each day is currently blank, indicating no schedule is set. To the right of each timeline is a 'Manual Input' button. Below the week schedule is the 'Holiday Schedule' section. It has a 'Date' input field containing '04-08', an 'Add' button, and a 'Delete' button. Below the date input is another 24-hour timeline, which is also blank. At the bottom right of the interface is a 'Save' button.

Weekly schedule

Set the alarm time from Monday to Sunday for a single week. Each day is divided in one hour increments. Green means scheduled. Blank means unscheduled.

“Add”: Add the schedule for a special day. Drag the mouse to set the time on the timeline.

“Erase”: Delete the schedule. Drag the mouse to erase the time on the timeline.

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

Day schedule

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

Note: Holiday schedule takes priority over weekly schedule.

● Snapshot Settings

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

The screenshot shows the 'Snapshot' configuration page. At the top, there are three tabs: 'Management', 'Record', and 'Snapshot' (which is selected). Below the tabs is the 'Snapshot Parameters' section. It contains three dropdown menus: 'Image Format' set to 'JPEG', 'Resolution' set to '704x480', and 'Image Quality' set to 'Low'. Below this is the 'Event Trigger' section. It has two input fields: 'Snapshot Interval' set to '1' with the unit 'Second' to its right, and 'Snapshot Quantity' set to '5'.

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

snapshot here.

Snapshot Quantity: The number you set here is the maximum quantity of snapshots. The actual quantity of snapshots may be less than this number. Supposing the occurrence time of an alarm event is less than the time of capturing pictures, the actual quantity of snapshots is less than the set quantity of snapshots.

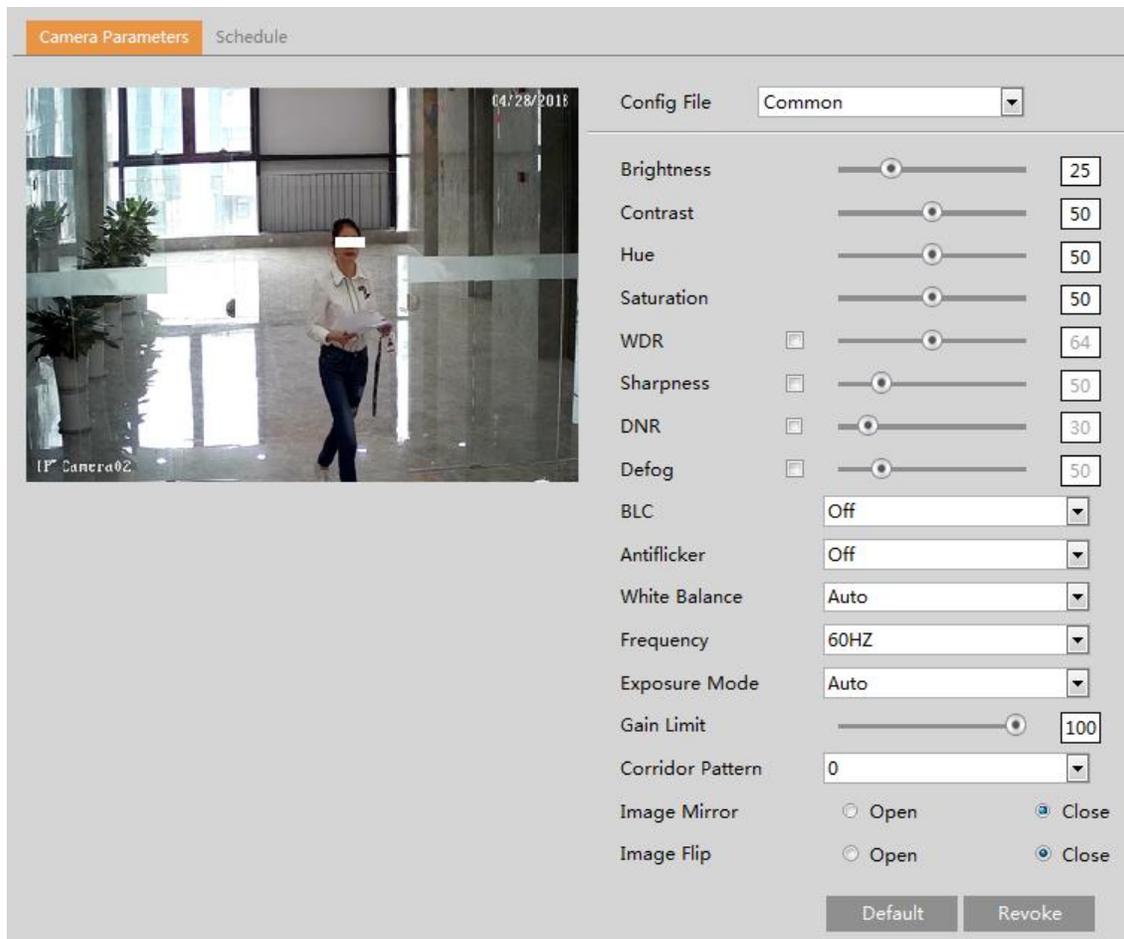
Timing Snapshot: Enable timing snapshot first and then set the snapshot interval and schedule. The setup steps of schedule are the same as the schedule recording (See [Schedule Recording](#)).

4.2 Video Configuration

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

4.2.1 Image Configuration

In the Image Settings interface as shown below, various settings can be adjusted, such as brightness, contrast, hue and saturation and so on. The common mode and day and night mode can be set up separately. The image effect can be quickly viewed by switching the configuration file.



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

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

Hue: Set the total color degree of the image.

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

WDR: WDR can adjust the camera to provide a better image when there are both very bright and very dark areas simultaneously in the field of the view by lowering the brightness of the bright area and increasing the brightness of the dark area.

◆ Recording will be stopped for a few seconds while the mode is changing from non-WDR to WDR mode.

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

DNR: Digital noise reduction.

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

Backlight Compensation (BLC):

- Off: disables the backlight compensation function. It is the default mode.
- HLC: lowers the brightness of the entire image by suppressing the brightness of the image’s bright area and reducing the size of the halo area.
- BLC: If enabled, the auto exposure will activate according to the scene so that the object of the image in the darkest area will be seen clearly.

Antiflicker:

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

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

Frequency: 50Hz and 60Hz can be optional.

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

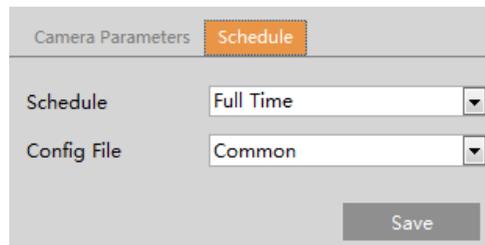
Corridor Pattern: Corridor viewing modes can be used for situations such as long hallways. 0, 90, 180 and 270 are available. The default value is 0. The video resolution should be 1080P or below if this function is used.

Image Mirror: Turn the current video image horizontally.

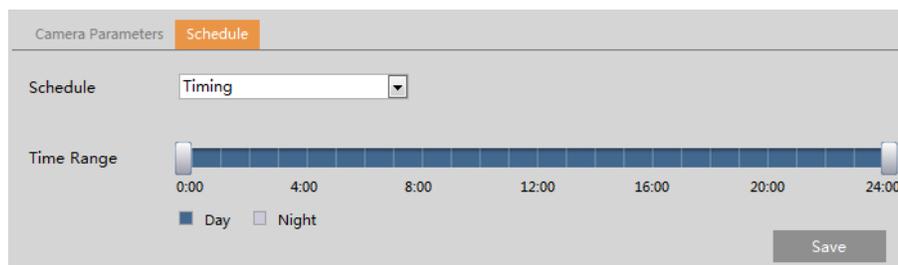
Image Flip: Turn the current video image vertically.

Schedule Settings of Image Parameters:

Click the “Schedule” tab as shown below.



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



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

4.2.2 Video / Audio Configuration

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

Video Audio

Index	Stream	Resolution	Frame	Bitrate Type	Bitrate(Kbps)	Video	GOP	Compression	Profile
1	Main stream	1920x1080	30	CBR	2048	Highest	120	H264	High Profile
2	Sub stream	704x480	30	CBR	768	Highest	120	H264	High Profile
3	Sub strea.	352x240	30	CBR	512	Higher	120	H264	High Profile

Send Snapshot Size: (704x480)

Watermark (H264 , H265) Watermark content:

Click the “Audio” tab to go to the interface as shown below.

Video **Audio**

Audio Compression Audio Type

Three video streams can be adjustable.

Resolution: The size of image.

Frame rate: The higher the frame rate, the video is smoother.

Bitrate type: CBR and VBR are optional. Bitrate is related to image quality. CBR means that no matter how much change is seen in the video scene, the compression bitrate will be kept constant. VBR means that the compression bitrate will be adjusted according to scene changes. For example, for scenes that do not have much movement, the bitrate will be kept at a lower value. This can help optimize the network bandwidth usage.

Bitrate: it can be adjusted when the mode is set to CBR. The higher the bitrate, the better the image quality will be.

Video Quality: It can be adjusted when the mode is set to VBR. The higher the image quality, the more bitrate will be required.

I Frame interval: It determines how many frames are allowed between a “group of pictures”. When a new scene begins in a video, until that scene ends, the entire group of frames (or pictures) can be considered as a group of pictures. If there is not much movement in the scene, setting the value higher than the frame rate is fine, potentially resulting in less bandwidth usage. However, if the value is set too high, and there is a high frequency of movement in the video, there is a risk of frame skipping.

Video Compression: H264+, H264, H265+ or H265 can be optional. If H.265/H.265+ is chosen, make sure the client system is able to decode H.265/H.265+.

Profile: For H.264. Baseline, main and high profiles are selectable.

Send Snapshot: How many snapshots to generate for an event.

Video encode slice split: If this function is enabled, smooth image can be gotten even though using the low-performance PC.

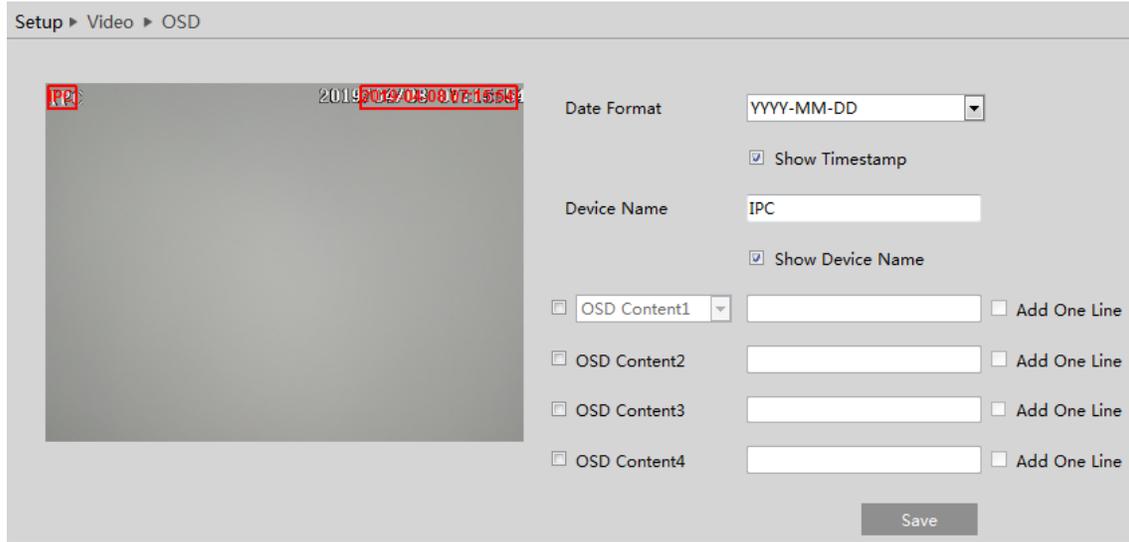
Watermark: When playing back the local recorded video in the search interface, the watermark can be displayed. To enable it, check the watermark box and enter the watermark text.

Audio Encoding: G711A and G711U are selectable.

Audio Type: LIN. Some models may support MIC type.

4.2.3 OSD Configuration

Go to Video→OSD interface as shown below.



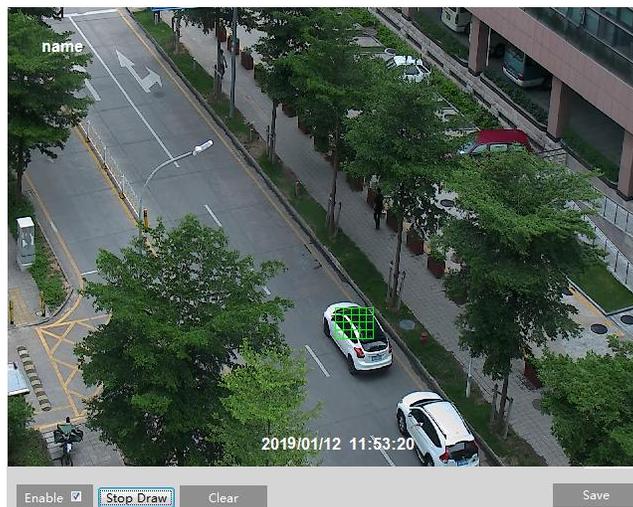
Set time stamp, device name, OSD content and picture overlap here. After enabling the corresponding display and entering the content, drag them to change their position. Then click the “Save” button to save the settings.

Picture Overlap Settings:

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

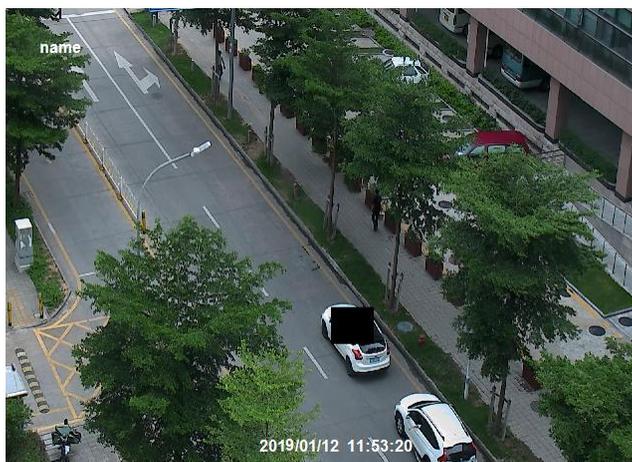
4.2.4 Video Mask

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



To set up video mask:

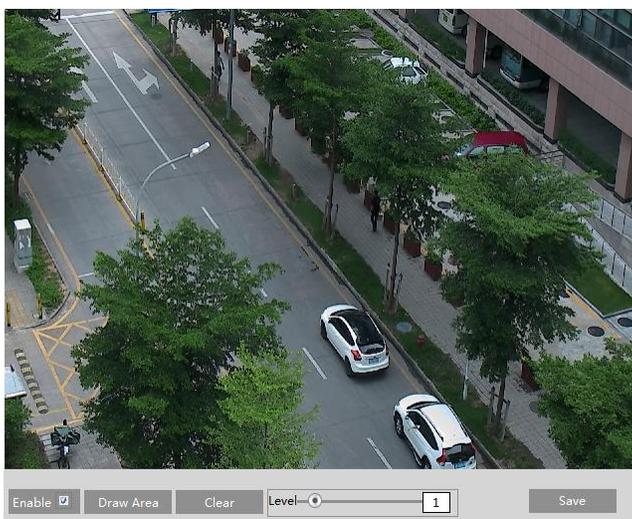
1. Enable video mask.
2. Click the “Draw Area” button and then drag the mouse to draw the video mask area.
3. Click the “Save” button to save the settings.
4. Return to the live to verify that the area have been drawn as shown as blocked out in the image.



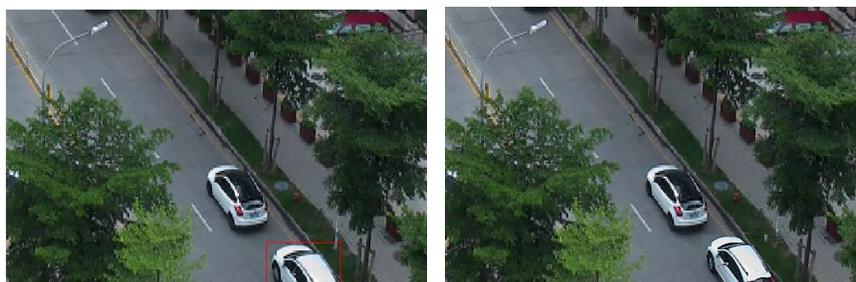
To clear the video mask:
Click the “Clear” button to delete the current video mask area.

4.2.5 ROI Configuration

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

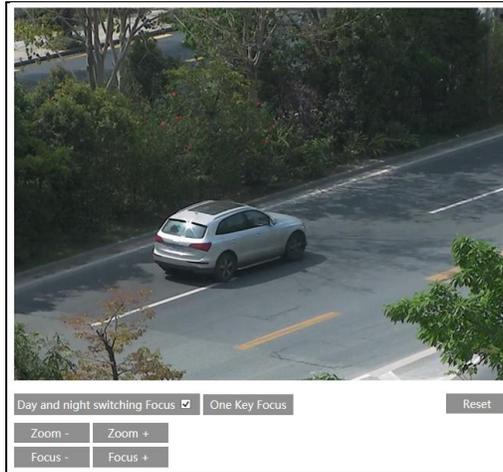


1. Check “Enable” and then click the “Draw Area” button.
2. Drag the mouse to set the ROI area.
3. Set the level.
4. Click the “Save” button to save the settings.



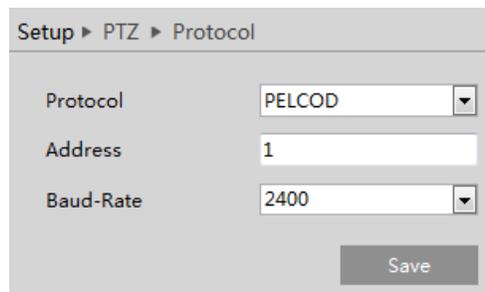
4.2.6 Zoom/Focus

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



4.2.7 PTZ Configuration

This function is only available to use with a compatible external PTZ enclosure. Go to PTZ→Protocol interface as shown below.

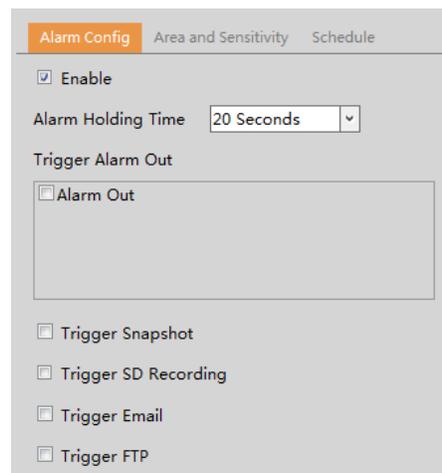
A screenshot of a web interface for PTZ configuration. The breadcrumb path is 'Setup > PTZ > Protocol'. There are three configuration fields: 'Protocol' with a dropdown menu set to 'PELCOD', 'Address' with a text input field containing '1', and 'Baud-Rate' with a dropdown menu set to '2400'. A 'Save' button is located at the bottom right of the configuration area.

Set the protocol, address and baud rate corresponding to the enclosure.

4.3 Event Setup

4.3.1 Motion Detection

Go to Event Setup →Motion Detection to set motion detection alarm.

A screenshot of a web interface for Alarm Configuration. The breadcrumb path is 'Alarm Config > Area and Sensitivity > Schedule'. The 'Alarm Config' tab is active. There are several options: 'Enable' (checked checkbox), 'Alarm Holding Time' (dropdown menu set to '20 Seconds'), 'Trigger Alarm Out' (checkbox, unchecked), 'Trigger Snapshot' (checkbox, unchecked), 'Trigger SD Recording' (checkbox, unchecked), 'Trigger Email' (checkbox, unchecked), and 'Trigger FTP' (checkbox, unchecked).

1. Check “Enable” check box to activate motion based alarms. If unchecked, the camera will not send out any signals to trigger motion-based recording to the NVR or CMS, even if there is motion in the video.

Alarm Out: If selected, this would trigger an external relay output that is connected to the camera on detecting a motion based alarm.

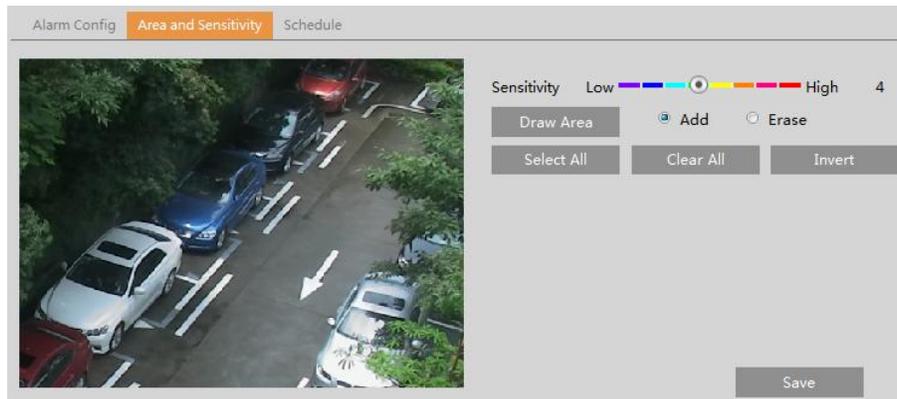
Trigger Snapshot: If selected, the system will capture images on motion detection and save the images on an SD card.

Trigger SD Recording: If selected, video will be recorded on an SD card on motion detection.

Trigger Email: If “Trigger Email” and “Attach Picture” are checked (email address must be set first in the Email configuration interface), the captured pictures and triggered event will be sent into those addresses.

Trigger FTP: If “Trigger FTP” and “Attach Picture” are checked, the captured pictures will be sent into FTP server address. Please refer to FTP configuration chapter for more details.

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



Move the “Sensitivity” scroll bar to set the sensitivity. Higher sensitivity value means that motion will be triggered more easily. Select “Add” and click “Draw”. Drag the mouse to draw the motion detection area; Select “Erase” and drag the mouse to clear motion detection area.

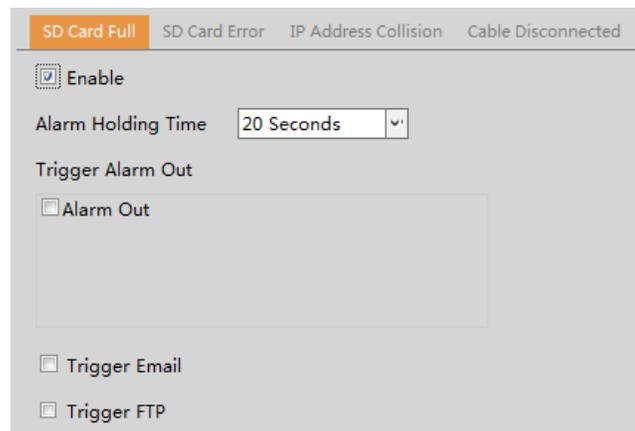
After that, click the “Save” to save the settings. “Clear All” can be used to clear out the entire motion zone.

3. Set the schedule for motion detection. The schedule setup steps of the motion detection are the same as the schedule recording setup (See [Schedule Recording](#)).

4.3.2 Other Alarms

● SD Card Full

1. Go to Event Setup → Anomaly → SD Card Full.



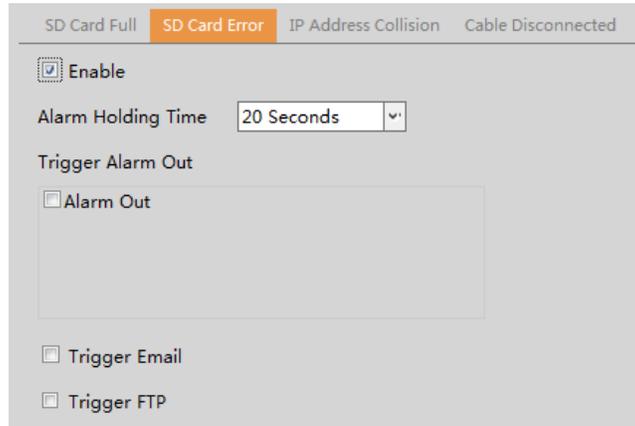
2. Click “Enable” and set the alarm holding time.

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

- **SD Card Error**

When there are some errors in writing SD card, the corresponding alarms will be triggered.

1. Go to Event Setup → Anomaly → SD Card Error as shown below.



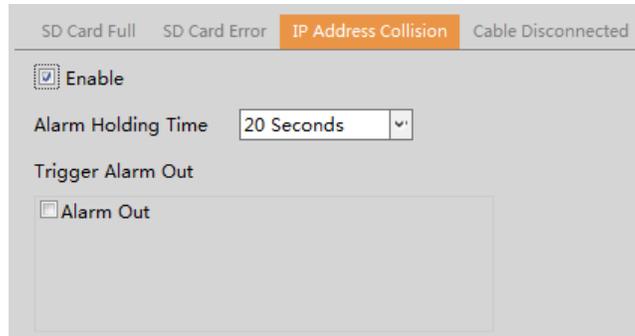
2. Click “Enable” and set the alarm holding time.

3. Set alarm trigger options. Trigger alarm out, Email and FTP. The setup steps are the same as motion detection. Please refer to [motion detection](#) chapter for details.

- **IP Address Conflict**

This function is only available for the models with Alarm Out interface.

1. Go to Event Setup → Anomaly → IP Address Collision as shown below.



2. Click “Enable alarm” and set the alarm holding time.

3. Trigger alarm out. When the IP address of the camera is in conflict with the IP address of other devices, the system will trigger the alarm out.

- **Cable Disconnection**

This function is only available for the models with Alarm Out interface.

1. Go to Event Setup → Anomaly → Cable Disconnected as shown below.

2. Click “Enable” and set the alarm holding time.
3. Trigger alarm out. When the camera is disconnected, the system will trigger the alarm out.

4.3.3 Alarm In (Sensor Input)

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

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

4.3.4 Alarm Out

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

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

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

Manual Operation: Having selected this mode, click “Open” to trigger the alarm out immediately; click “Close” to stop alarm.

The screenshot shows a configuration window for 'Alarm Out Mode'. The 'Alarm Out Mode' dropdown is set to 'Manual Operation'. Below it, there are two buttons: 'Open' and 'Close'. At the bottom right, there is a 'Save' button.

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

The screenshot shows a configuration window for 'Alarm Out Mode'. The 'Alarm Out Mode' dropdown is set to 'Day/night switch linkage'. Below it, there are two dropdown menus: 'Day' and 'Night', both set to 'Close'. At the bottom right, there is a 'Save' button.

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

The screenshot shows a configuration window for 'Alarm Out Mode'. The 'Alarm Out Mode' dropdown is set to 'Timing'. Below it, there is a timeline labeled 'Time Range' with a scale from 0 to 24. There are two radio buttons: 'Erase' and 'Add', with 'Add' selected. At the bottom right, there is a 'Manual Input' label.

4.3.5 Alarm Server

Go to Alarm→Alarm Server interface as shown below.

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

The screenshot shows the 'Alarm Server' configuration window. It has a breadcrumb trail: 'Setup > Event Setup > Alarm Server'. The fields are: 'Server Address' (text input), 'Port' (text input with '0'), 'Heartbeat' (dropdown menu with 'Disable'), and 'Heartbeat interval' (text input with '30' and 'Second' label). There is an 'OK' button at the bottom.

4.4 Analytics Configuration

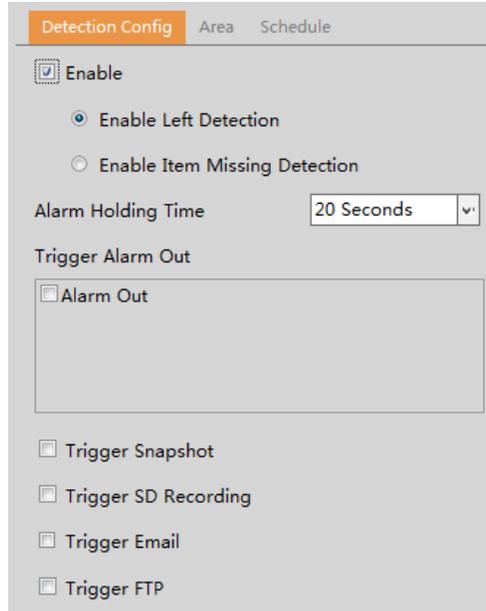
This series of IP cameras supports certain smart functions, such as object removal, line crossing detection, region intrusion detection, etc. These events can be triggered as alarm events.

For more accuracy, here are some recommendations for installation.

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

4.4.1 Object Removal

Alarms will be triggered when objects are removed from or left at the pre-defined area.
To set object removal:
Go to Analytics→Object Removal interface as shown below.



1. Enable object removal detection and then select the detection type.

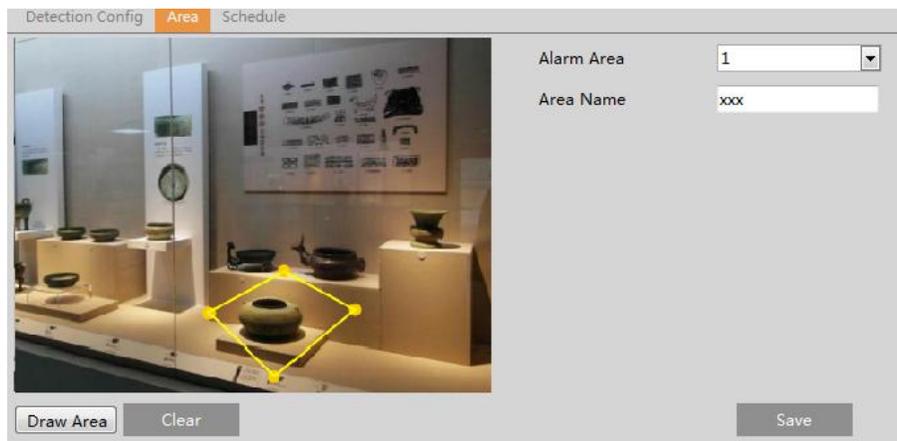
Enable Left Detection: Alarms will be triggered if there are items left in the pre-defined area.

Enable Item Missing Detection: Alarms will be triggered if there are items missing in the pre-defined area.

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

3. Click “Save” button to save the settings.

4. Set the alarm area of the object removal detection. Click the “Area” tab to go to the interface as shown below.



Set the alarm area number and then enter the desired alarm area name. Up to 4 alarm areas can be added. Click the “Draw Area” button and then click around the area where you want to set as the alarm area in the image (the alarm area should be a closed area). Click the “Stop Draw” button to stop drawing. Click the “Clear” button to delete the alarm area. Click the “Save” button to save the settings.

5. Set the schedule of the object removal detection. The setup steps of the schedule are the same as the schedule recording setup (See [Schedule Recording](#)).

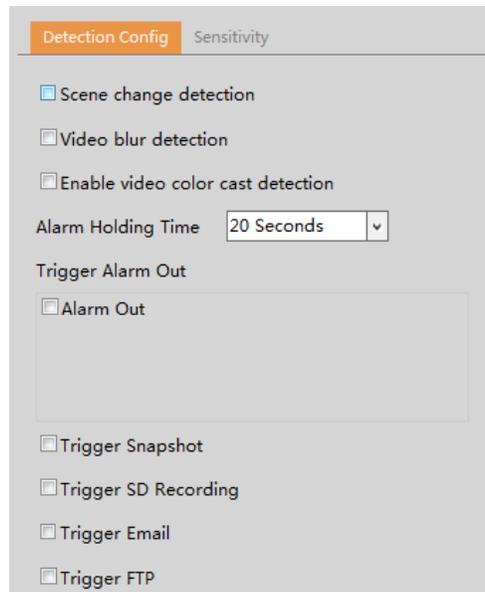
※ The configuration requirements of camera and surrounding areas

1. The range of the detection object should occupy from 1/50 to 1/3 of the entire image.
2. The detection time of objects in the camera shall be from 3 to 5 seconds.
3. The defined area cannot be covered frequently and continuously (like people and traffic flow).
4. It is necessary for object removal detection that the drawn frame must be very close to the margin of the object in enhancing the sensitivity and accuracy of the detection.
5. Object removal detection cannot determine the objects' ownership. For instance, there is an unattended package in the station. Object removal detection can detect the package itself but it cannot determine to whom it belongs to.
6. Try not to enable object removal detection when light changes greatly in the scene.
7. Try not to enable object removal detection if there are complex and dynamic environments in the scene.
8. Adequate light and clear scenery are very important to object removal detection.

4.4.2 Abnormality

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

Go to Analytics→Abnormality interface as shown below.



The screenshot shows the 'Detection Config' interface with two tabs: 'Detection Config' (active) and 'Sensitivity'. Under 'Detection Config', there are several checkboxes: 'Scene change detection' (checked), 'Video blur detection' (unchecked), and 'Enable video color cast detection' (unchecked). Below these is a dropdown menu for 'Alarm Holding Time' set to '20 Seconds'. Under the 'Trigger Alarm Out' section, there is a checkbox for 'Alarm Out' (unchecked) and a large empty text area. At the bottom, there are five more checkboxes: 'Trigger Snapshot' (unchecked), 'Trigger SD Recording' (unchecked), 'Trigger Email' (unchecked), and 'Trigger FTP' (unchecked).

1. Enable the applicable detection that's desired.

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

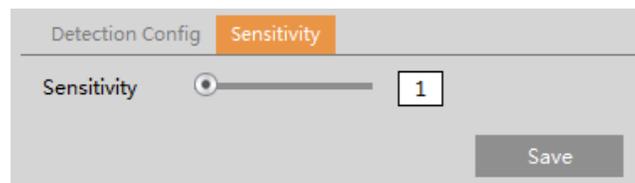
Video Blur Detection: Alarms will be triggered if the video becomes blurry.

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

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

3. Click "Save" button to save the settings.

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



The screenshot shows the 'Sensitivity' interface with two tabs: 'Detection Config' and 'Sensitivity' (active). Under 'Sensitivity', there is a slider control labeled 'Sensitivity' with a value of '1' displayed in a text box next to it. A 'Save' button is located at the bottom right of the interface.

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

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

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

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

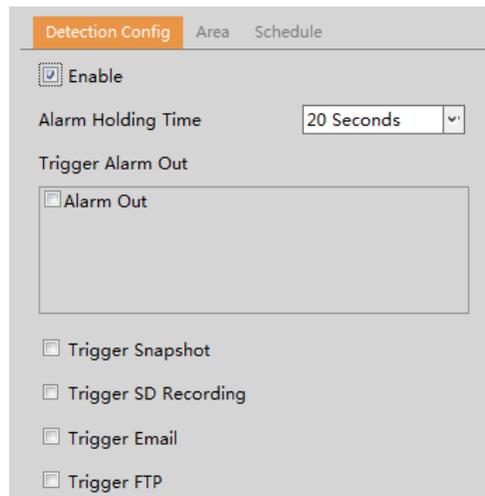
※ **The requirements of camera and surrounding area**

1. Auto-focusing function should not been enabled for exception detection.
2. Try not to enable exception detection when light changes greatly in the scene.

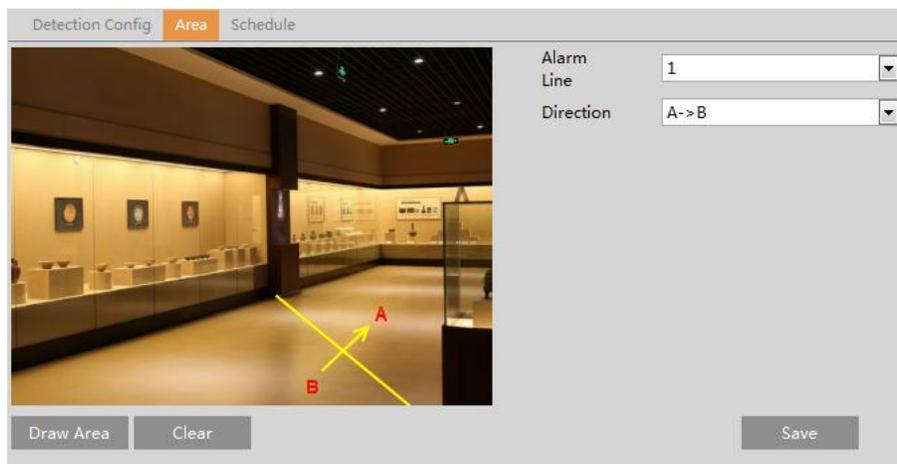
4.4.3 Line Crossing

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

Go to Analytics→Line Crossing interface as shown below.



1. Enable line crossing alarm and set the alarm holding time.
2. Set alarm trigger options. The setup steps are the same as motion detection. Please refer to [motion detection](#) chapter for details.
3. Click “Save” button to save the settings.
4. Set area and sensitivity of the line crossing alarm. Click the “Area and Sensitivity” tab to go to the interface as shown below.



Set the alarm line number and direction. Up to 4 lines can be added. Multiple lines cannot be added simultaneously.

Direction: A<->B, A->B and A<-B optional. This indicates the direction of the intruder who crosses over the alarm line that would trigger the alarm.

A<->B: The alarm will be triggered when the intruder crosses over the alarm line from B to A or from A to B.

A->B: The alarm will be triggered when the intruder crosses over the alarm line from A to B.

A<-B: The alarm will be triggered when the intruder crosses over the alarm line from B to A.

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

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

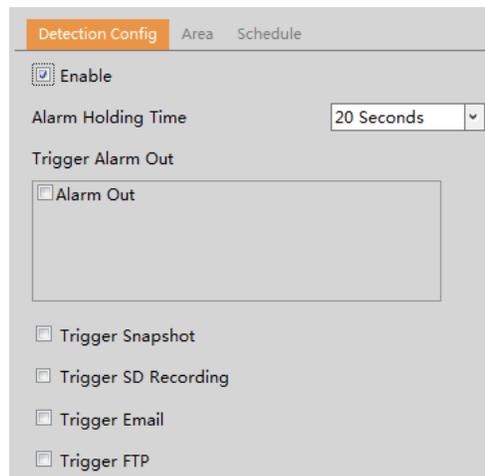
※ Configuration of camera and surrounding area

1. Auto-focusing function should not be enabled for line crossing detection.
2. Avoid the scenes with many trees or the scenes with various light changes (like many flashing headlights). The ambient brightness of the scenes shouldn't be too low.
3. Cameras should be mounted at a height of 10ft or above.
4. Keep the mounting angle of the camera at about 45°.
5. The detected objects should not be less than 1% of the entire image and the largest sizes of the detected objects should not be more than 1/8 of the entire image.
6. Make sure cameras can view objects for at least 2 seconds in the detected area for accurate detection.
7. Adequate light and clear scenery are crucial for line crossing detection.

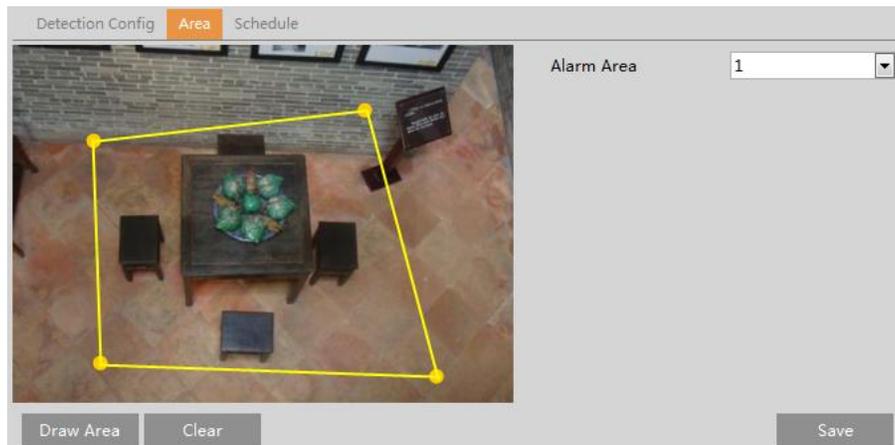
4.4.4 Intrusion

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

Go to Analytics→Intrusion interface as shown below.



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



Set the alarm area number on the right side. Up to 4 alarm areas can be added.

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

5. Set the schedule of the intrusion detection. The setup steps of the schedule are the same as schedule recording setup (See [Schedule Recording](#)).

※ Configuration requirements of camera and surrounding area

1. Auto-focusing function should not be enabled for intrusion detection.
2. Avoid the scenes with many trees or the scenes with various light changes (like many flashing headlights). The ambient brightness of the scenes shouldn't be too low.
3. Cameras should be mounted at a height of 10ft or above.
4. Keep the mounting angle of the camera at about 45°.
5. The detected objects should not be less than 1% of the entire image and the largest sizes of the detected objects should not be more than 1/8 of the entire image.
6. Make sure cameras can view objects for at least 2 seconds in the detected area for accurate detection.
7. Adequate light and clear scenery are crucial to line crossing detection.

4.4.5 Crowd Density Detection

This function can detect the density of the people in a specified area (like square, supermarket). Go to Analytics→Crowd Density as shown below.

The screenshot shows the 'Alarm Config' tab in a software interface. It features several settings: 'Enable' is checked; 'Refresh Frequency' is set to '1 Seconds'; 'Density Alarm Threshold' is a slider set to 50%; 'Alarm Holding Time' is set to '20 Seconds'. Under 'Trigger Alarm Out', there are checkboxes for 'Alarm Out', 'Trigger Snapshot', 'Trigger SD Recording', 'Trigger Email', and 'Trigger FTP', all of which are currently unchecked.

1. Enable the crowd density detection.
2. Set “Refresh Frequency”, “Density Alarm Threshold” and “Alarm Holding Time”.

Refresh Frequency: The refresh frequency of the detection result.

Density Alarm Threshold: Alarms will be triggered once the percentage of the crowd density in a specified area exceeds the pre-defined threshold value.

3. Set alarm trigger options. The setup steps are the same as motion detection. Please refer to [motion detection](#) chapter for details.

4. Set an alarm area for the crowd density detection. Click the “Area” tab as shown below.

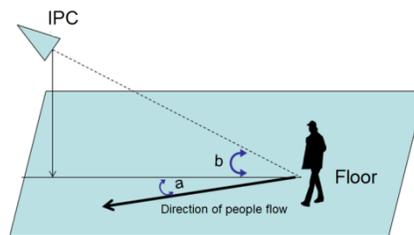
Click “Draw Area” and drag the mouse to draw a rectangle area. Drag the border lines of the rectangle to modify its size and move the rectangle to change its position. Click “Stop Draw” to stop drawing the area. Click “Clear” to clear the area.



5. Set the schedule of the crowd density detection. The setup steps of the schedule are the same as schedule recording setup (See [Schedule Recording](#)).

※Configuration of camera and surrounding area

1. The camera lens should face to the people flow. The direction of the people flow is allowed to deviate slightly from the direction of the camera lens (The angle (a) shall be less than 45°). It is recommended that the angle (b) shall range from 30° to 60° .



2. The size range of a single person image should occupy from 1% to 5% of the entire image and the height range of a single person image should occupy from $1/5$ to $1/2$ of the entire image.

3. This function is inapplicable to the scene where there are many moving objects except human shape. (eg. moving cars)

4. A lot of trees and billboards will affect the detection results in the detected area.

4.4.6 People Intrusion

This function is specially designed for indoor scenes. To prevent someone from intruding a house to endanger the family security, you can enable this function. Alarms will be triggered if someone enters into the detection area in 3~5s. The setup steps are as follows.

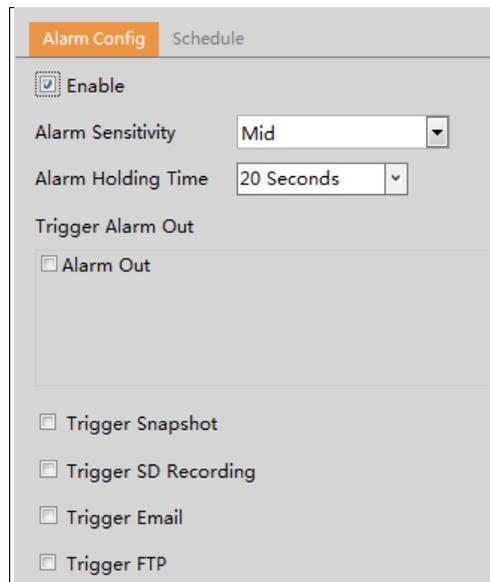
1. Go to Analytics→People Intrusion. Please refer to the following picture.

2. Enable the people intrusion detection.

3. Set “Alarm Sensitivity” and “Alarm Holding Time”.

4. Set alarm trigger options. The setup steps are the same as motion detection setup. Please refer to [motion detection](#) chapter for details.

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



※ Configuration requirements of camera and surrounding area

1. The detection area should have stable and adequate light.
2. In order to detect all moving people in the detection area, the height range of the camera installation should be from 1 meter to 3 meters.
3. To make sure that the camera can capture all indoor objects, the camera lens should be pointed at the detected direction and the camera had better be installed in the corner of the room.
4. The range of the captured people image should occupy from 1/5 to 1/2 of the whole picture.
5. The false alarm will be triggered if the indoor scene has cluttered and frequently changing lights.
6. This function is inapplicable to outdoors.

4.4.7 People Counting

This function is to calculate the number of the people entering or exiting from the detected area through detecting, tracking and counting the head shapes of the people. The setup steps are as follows.

1. Go to Analytics→People Counting. Please refer to the following picture.
2. Enable the people counting detection.
3. Set "Detection Sensitivity", "Entrancing Threshold", "Departing Threshold", "Staying Threshold", "Counting Period", "Alarm Holding Time" and so on.

Counting Period: All, daily, weekly and monthly are optional.

Counting Reset: The current number of people counting will be cleared and the current counting period will restart by clicking "Reset" button.

If the number of people exceeds the pre-defined threshold value (the default value is 500; the maximum value is 655350), alarms will be triggered.

When someone passes the detected area, it will take 1~5 seconds to complete the people counting according to different scenes.

Set alarm trigger options. The setup steps are the same as motion detection. Please refer to [motion detection](#) chapter for details.

Alarm Config Area

Enable

Detection Sensitivity Mid

Entrancing Threshold 1000

Departing Threshold 1000

Staying Threshold 500

Counting Period Always

Counting Reset

Alarm Holding Time 20 Seconds

Trigger Alarm Out

Alarm Out

Trigger Snapshot

Trigger SD Recording

Trigger Email

Trigger FTP

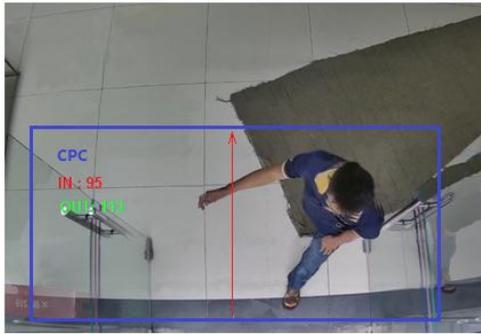
4. Set the area of the people counting. Click the “Area” tab to go to the area setting interface.



Click “Draw Area” and drag the mouse to draw a rectangle area. Drag the four border lines or the four corners of the rectangle to modify its size. Click “Stop Draw” to stop drawing the area. Click “Clear” to clear the area. Click and drag the arrow or the other end of the arrow line to change the people entrance direction.

The area drawn yellow box is the detected area. The size range of the head image (width or height) shall occupy from 1/5 to 1/2 of the drawn detection area. The direction of the red arrow is entrance.

After the people counting detection is set successfully, go back to the live view interface to view the counting results. Please refer to the following picture.



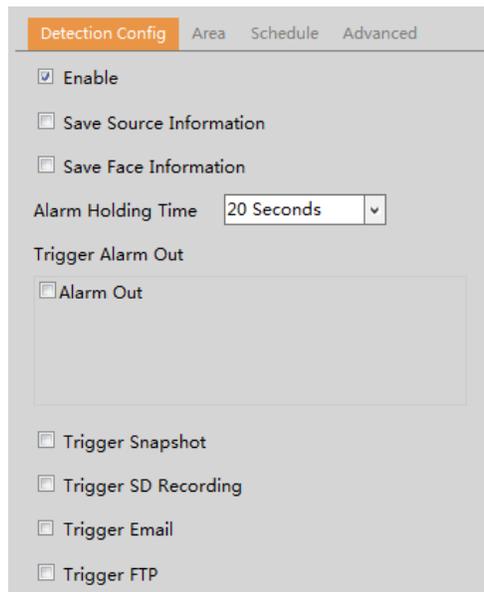
※ Configuration requirements of camera and surrounding area

1. Cameras must be installed in the area with stable and adequate light sources.
2. The background color (like floor color) should be light color.
3. The lens of the camera should be adjusted straight down to ensure that the whole head of the people can be captured.
4. The installation height of the camera depends on the actual focal length of the lens. The entrance/exit in the image should make up over a half of the width of the entire image and the head of a single person should account for about 1/5 of the height of the entire image. Remember leaving a certain space on both sides to let the entrance/exit lie in the center of the entire image.
5. Various changeable lights will disturb the people counting and the dark scenes will reduce the accuracy of counting.
6. If someone is moving at a high speed (passing the detected area within 2 seconds), it may result in detection failure. However, if someone is moving at a low speed, staying more than 15 seconds in the detected area, the camera will give up tracing.
7. If the cloth colors of people are similar with the color of the background, it may cause detection failure.
8. More headwears which probably conceal the head features will lead to detection failure.

4.4.8 Face Detection

Face detection function is to detect the face appearing in the surveillance scene. Alarms will be triggered when a face is detected. The setting steps are as follows:

1. Go to Analytics→Face Detection as shown below.



2. Enable the face detection function.

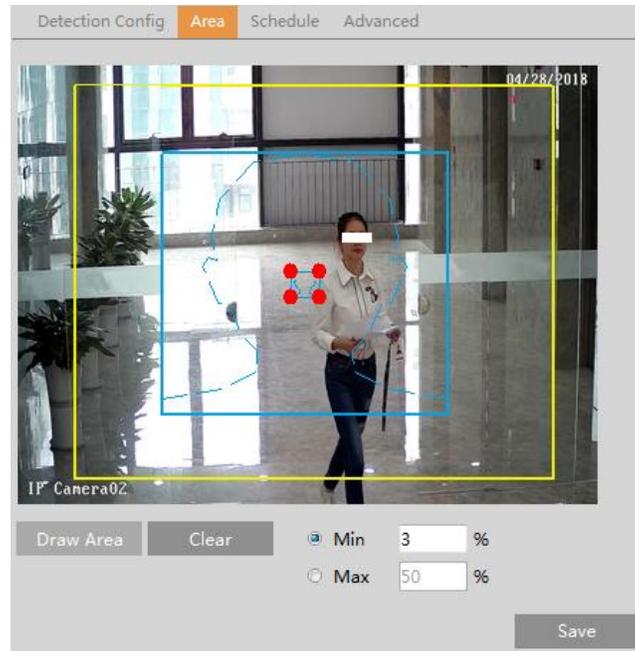
Save Source Information: if checked, the whole picture will be saved to a local PC or an SD card when detecting a face.

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

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

3. Set alarm holding time and alarm trigger options. The alarm trigger setup steps are the same as motion detection setup. Please refer to [motion detection](#) chapter for details.

4. Set alarm detection area.



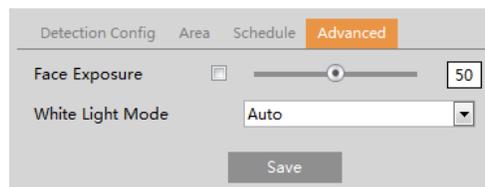
Use this to draw the approximate size of the face that you want the camera to capture. This is useful when there are multiple faces in the background or foreground that are not needed to be captured. To enable, Click “Draw Area” and drag the border lines of the rectangle to modify its size. Move the rectangle to change its position. Click “Stop Draw” to stop drawing the area. Click “Clear” to clear the area. Then set the detectable face size by defining the maximum value and the minimum value (The default size range of a single face image occupies from 3% to 50% of the entire image).

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

5. Advanced configuration.

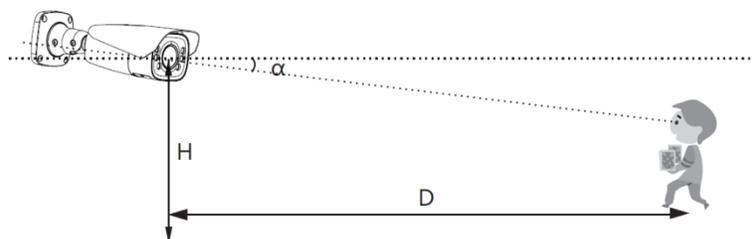
Face Exposure: When the brightness of the captured face is not enough, it can be enabled.

White Light Mode: “OFF”, “Manual” or “Auto” is optional. In low illumination condition, this mode can be enabled. (Only some models support this function)



※ Configuration requirements of camera and surrounding area

1. Cameras must be installed in the area with stable and adequate light sources.
2. The installation height ranges from 2.0m(6.6ft) to 3.5m(11.5ft), adjustable according to the focal-length of different lenses and object distances.
3. The depression angle (α) of the camera shall be less than or equal to 15° .



The recommended information

Model	Surveillance Width	Focal-Length	Optimal Object Distance	Installation Height	Depression Angle
O2BFRM/O2DFRM	2.4m (7.9ft)	7mm	3.6m(11.8ft)	2.1m(6.9ft)	10°
O2BFRM/O2DFRM	2.4m (7.9ft)	22mm	6.0m(19.7ft)	2.6m(8.5ft)	10°
O2BFR/O2DFR	2.4m (7.9ft)	8mm	3.2m(10.5ft)	2.1m(6.9ft)	10°
O2BFR/O2DFR	2.4m (7.9ft)	12mm	5.1m(16.7ft)	2.4m(7.9ft)	10°

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

4.5 Network Configuration

4.5.1 TCP/IP

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

IPv4 IPv6 PPPoE Config IP Change Notification

Obtain an IP address automatically

Use the following IP address

IP Address Test

Subnet Mask

Gateway

Preferred DNS Server

Alternate DNS Server

Save

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

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

IPv4 IPv6 PPPoE Config IP Change Notification

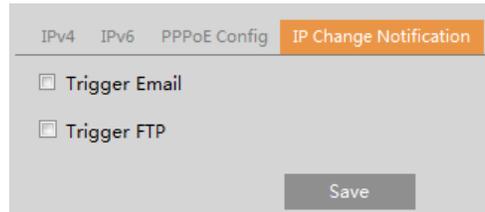
Enable

User Name

Password

Save

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

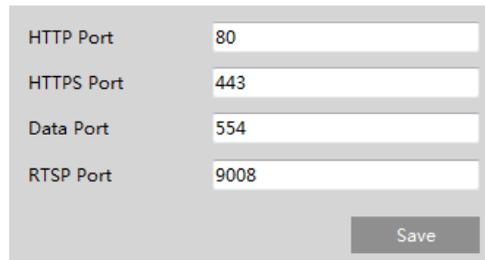


Trigger Email: when the IP address of the device is changed, the new IP address will be sent to the email address that has been set up.

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

4.5.2 Port

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



HTTP Port: The default HTTP port is 80. It can be changed to any port which is not occupied.

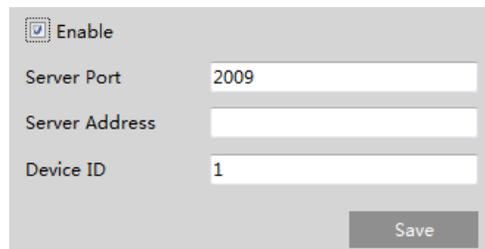
HTTPS Port: The default HTTPS port is 443. It can be changed to any port which is not occupied.

Data Port: The default data port is 9008. Please change it as necessary.

RTSP Port: The default port is 554. Please change it as necessary.

4.5.3 Server Configuration

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



1. Check “Enable”.

2. Check the IP address and port of the transfer media server in the VMS. Then enable the auto report in the VMS when adding a new device. Next, enter the remaining information of the device in the VMS. After that, the system will automatically allot a device ID. Please check it in the VMS.

3. Enter the above-mentioned server address, server port and device ID in the corresponding boxes. Click the “Save” button to save the settings.

4.5.4 DDNS

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

1. Go to Network→ DDNS.



Enable

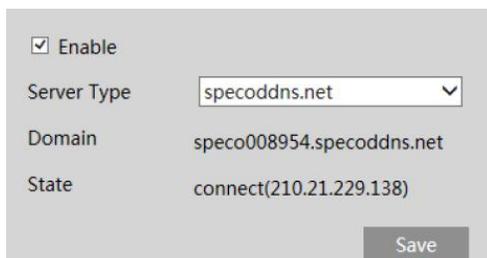
Server Type specoddns.net

Domain

state disconnect

Save

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



Enable

Server Type specoddns.net

Domain speco008954.specoddns.net

State connect(210.21.229.138)

Save

4.5.5 SNMP

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

1. Go to Network→SNMP.

SNMP v1/v2

Enable SNMPv1

Enable SNMPv2

Read SNMP Community:

Write SNMP Community:

Trap Address:

Trap Port:

Trap community:

SNMP v3

Enable SNMPv3

Read User Name:

Security Level:

Authentication Algorithm: MDS SHA

Authentication Password:

Private-key Algorithm: DES AES

Private-key Algorithm:

Write User Name:

Security Level:

Authentication Algorithm: MDS SHA

Authentication Password:

Private-key Algorithm: DES AES

Private-key Algorithm:

Other Settings

SNMP Port:

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

4.5.6 802.1x

If it is enabled, the camera’s data can be protected. When the camera is connected to the network protected by the IEEE802.1x, user authentication is needed.

Enable

Protocol Type:

EAPOL Version:

User Name:

Password:

Confirm Password:

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

authentication system to identify the device in a local network. If the camera connected to the network interface of the switch has passed the authentication of the switch, it can be accessed via the local network.

Protocol type and EAPOL version: Please use the default settings.

User name and password: The user name and password must be the same with the user name and password applied for and registered in the authentication server.

4.5.7 RTSP

Go to Network→RTSP.

Enable

Port: 9008

Address: rtsp://IP or domain name:port/profile1
rtsp://IP or domain name:port/profile2
rtsp://IP or domain name:port/profile3

Multicast address

Main stream	239.0.0.0	50554	<input type="checkbox"/> Automatic start
Sub stream	239.0.0.1	51554	<input type="checkbox"/> Automatic start
Sub stream 2	239.0.0.2	52554	<input type="checkbox"/> Automatic start
Audio	239.0.0.3	53554	<input type="checkbox"/> Automatic start

Allow anonymous login (No username or password required)

Select “Enable” to enable the RTSP function.

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

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

Multicast Address

Main stream: The address format is

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

Sub stream: The address format is

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

Third stream: The address format is

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

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

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

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

4.5.8 UPNP

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

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

Enable

UPnP Name:

Save

4.5.9 Email

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

Go to Network →Email.

Sender Address: sender’s e-mail address.

User name and password: sender’s user name and password.

Server Address: The SMTP IP address or host name.

Select the secure connection type at the “Secure Connection” pull-down list according to what’s required.

SMTP Port: The SMTP port.

Send Interval(S): The time interval of sending email. For example, if it is set to 60 seconds and multiple motion detection alarms are triggered within 60 seconds, they will be considered as only one alarm event and only one email will be sent. If one motion alarm event is triggered and then another motion detection alarm event is triggered after 60 seconds, two emails will be sent. When different alarms are triggered at the same time, multiple emails will be sent separately.

Click the “Test” button to test the connection of the account.

Recipient Address: receiver’s e-mail address.

4.5.10 FTP

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

Go to Network → FTP.

Server Name: The name of the FTP server.

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

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

Port: The port of the FTP server.

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

4.5.11 HTTPS

HTTPS provides authentication of the web site and protects user privacy.

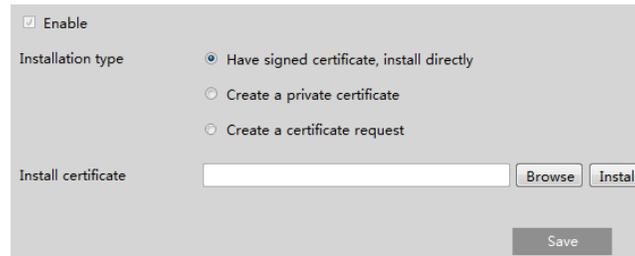
Go to Network→HTTPS as shown below.



The screenshot shows the HTTPS configuration interface. At the top, there is a checkbox labeled "Enable" which is checked. Below it, the "Certificate installed" field contains the text "C=CN, ST=GD, L=SZ, O=embeddedsoftware," followed by a "Delete" button. The "Attribute" field contains a detailed certificate information box with the following text: "Issued to: C=CN, ST=GD, L=SZ, O=embeddedsoftware, OU=IPC, H=localhost, E=com.cn, Issuer: C=CN, ST=GD, L=SZ, O=embeddedsoftware, OU=IPC, H=localhost, E=com.cn, Validity date: 2017-07-26 01:02:07 ~ 2022-07-26 01:02:07". At the bottom right, there is a "Save" button.

There is a certificate installed by default as shown above. Enable this function and save it. Then the camera can be accessed by entering https://IP: https port via the web browser (eg. https://192.168.226.201:443).

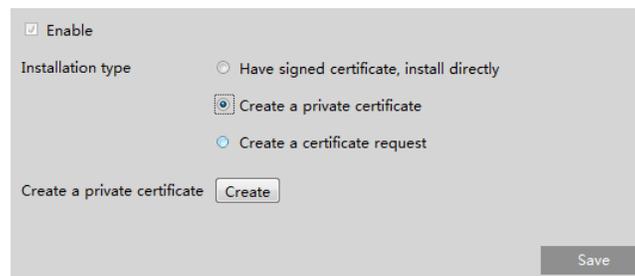
A private certificate can be created if users don't want to use the default one. Click "Delete" to cancel the default certificate. Then the following interface will be displayed.



The screenshot shows the HTTPS configuration interface. At the top, there is a checkbox labeled "Enable" which is checked. Below it, the "Installation type" section has three radio button options: "Have signed certificate, install directly" (selected), "Create a private certificate", and "Create a certificate request". Below this, the "Install certificate" field is empty, followed by "Browse" and "Install" buttons. At the bottom right, there is a "Save" button.

* If there is a signed certificate, click "Browse" to select it and then click "Install" to install it.

* Click "Create a private certificate" to enter the following creation interface.



The screenshot shows the HTTPS configuration interface. At the top, there is a checkbox labeled "Enable" which is checked. Below it, the "Installation type" section has three radio button options: "Have signed certificate, install directly", "Create a private certificate" (selected), and "Create a certificate request". Below this, the "Create a private certificate" field is empty, followed by a "Create" button. At the bottom right, there is a "Save" button.

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

* Click "Create a certificate request" to enter the following interface.

Enable

Installation type

Have signed certificate, install directly

Create a private certificate

Create a certificate request

Create a certificate request

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

4.5.12 QoS

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

Go to Network → QoS.

Video/Audio DSCP

Alarm DSCP

Manager DSCP

Video/Audio DSCP: The range is from 0 to 63.

Alarm DSCP: The range is from 0 to 63.

Manager DSCP: The range is from 0 to 63.

Generally speaking, the larger the number is, the higher the priority is.

4.6 Security Configuration

4.6.1 User Admin

Go to Security → User Admin interface as shown below.

Setup ▶ Security ▶ User Admin

Index	User Name	User Type	Bind MAC
1	admin	Administrator	

Add user:

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

2. Enter user name in “User Name” textbox.
3. Enter letters or numbers in “Password” and “Confirm Password” textbox.
4. Choose the user type. Administrator has all permissions. Normal user can only view the live video. Advanced user has the same permissions as an Administrator except for; user, backup settings, factory reset, and upgrading the firmware.
5. Enter the MAC address of the PC in “Bind MAC” textbox.
If this option is enabled, only the PC with the specified MAC address can access the camera for that user.
6. Click the “OK” button and then the newly added user will be displayed in the user list.

Modify user:

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

3. Enter the old password of the user in the “Old Password” text box.
4. Enter the new password in the “New password” and “Confirm Password” text box.
5. Enter computer’s MAC address as necessary.
6. Click the “OK” button to save the settings.

Note: To change the access level of a user, the user must be deleted and added again with the new access level.

Delete user:

1. Select the user to be deleted in the user configuration list box.
2. Click the “Delete” button to delete the user.

Note: The default administrator account cannot be deleted.

4.6.2 Online User

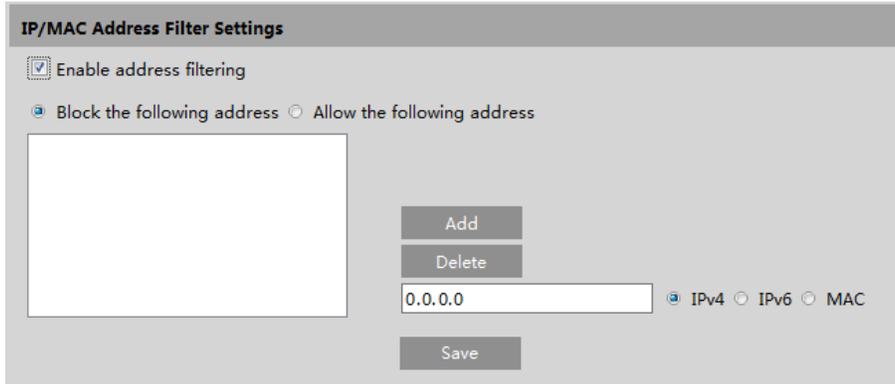
Go to Security→Online User to view the user who is viewing the live video.

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

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

4.6.3 Block and Allow Lists

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



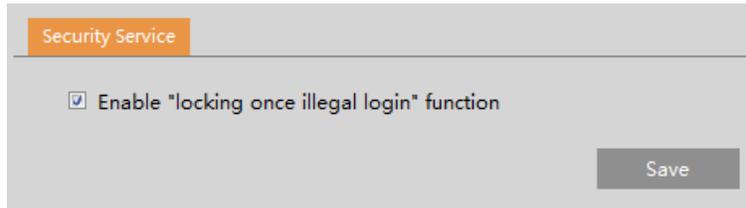
The setup steps are as follows:

Check the “Enable address filtering” check box.

Select “Block/Allow the following address”, IPv4/IPv6/MAC and then enter IP address or MAC address in the address box and click the “Add” button.

4.6.4 Security Management

Go to Security→Security Management as shown below.

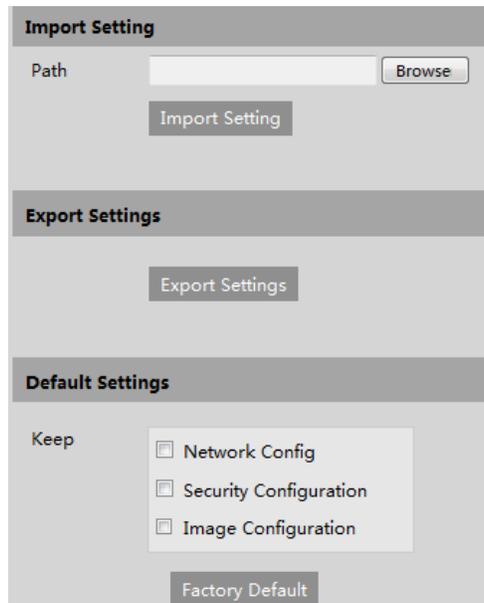


In order to prevent against malicious password unlocking, “locking once illegal login” function can be enabled here. If this function is enabled, login failure after trying six times will make the login interface locked. The camera can be logged in again after a half hour or after the camera reboots.

4.7 Maintenance Configuration

4.7.1 Backup and Restore

Go to Maintenance→Backup & Restore.



● Import & Export Settings

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

1. Click "Browse" to select the save path for import or export information on the PC.
2. Click the "Import Setting" or "Export Setting" button.

● Default Settings

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

4.7.2 Reboot

Go to Maintenance → Reboot.

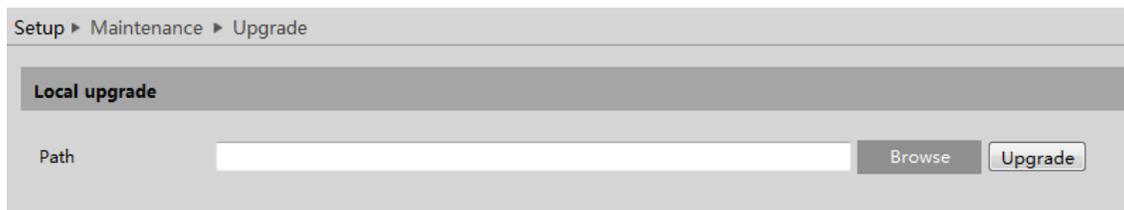
Click the "Reboot" button to reboot the device.

Timed Reboot Setting:

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

4.7.3 Upgrade

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



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

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

4.7.4 Operation Log

To query and export log:

1. Go to Maintenance → Operation Log.

Setup ▶ Maintenance ▶ Log

Main Type: All log Sub Type: All log

Start Time: 2019-04-08 00:00:00 End Time: 2019-04-08 23:59:59 Search Export

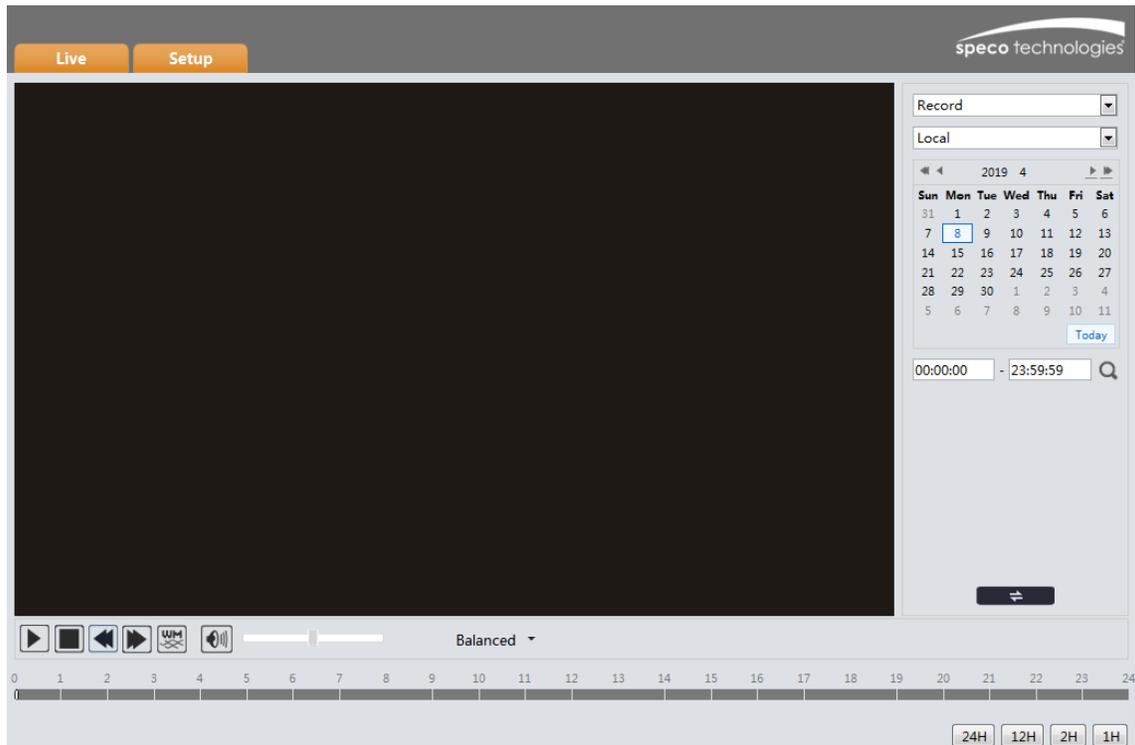
Index	Time	Main Type	Sub Type	User Name	Login IP
1	2019-04-08 08:43:43	Alarm	Motion start		
2	2019-04-08 08:43:24	Alarm	Vfd Alarm		
3	2019-04-08 08:43:14	Alarm	Motion stop		
4	2019-04-08 08:41:20	Alarm	Motion start		
5	2019-04-08 08:40:26	Alarm	Motion stop		
6	2019-04-08 08:40:06	Alarm	Motion start		
7	2019-04-08 08:37:18	Alarm	Motion stop		
8	2019-04-08 08:34:43	Alarm	Motion start		

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

5 Search

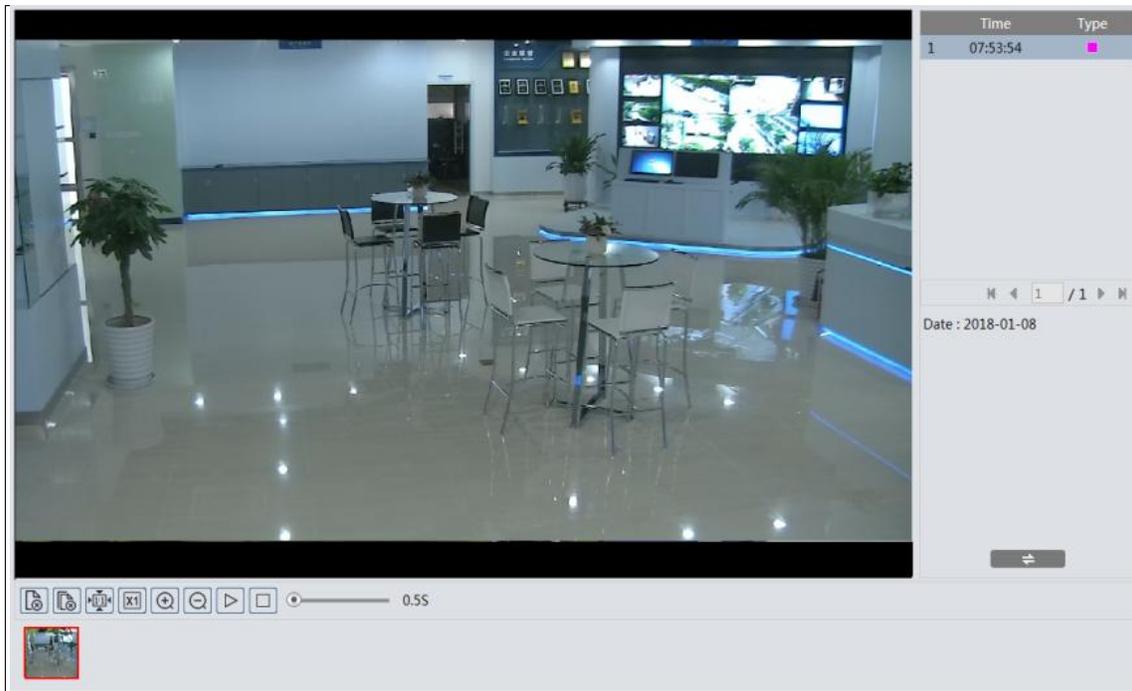
5.1 Image Search

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



● Local Image Search

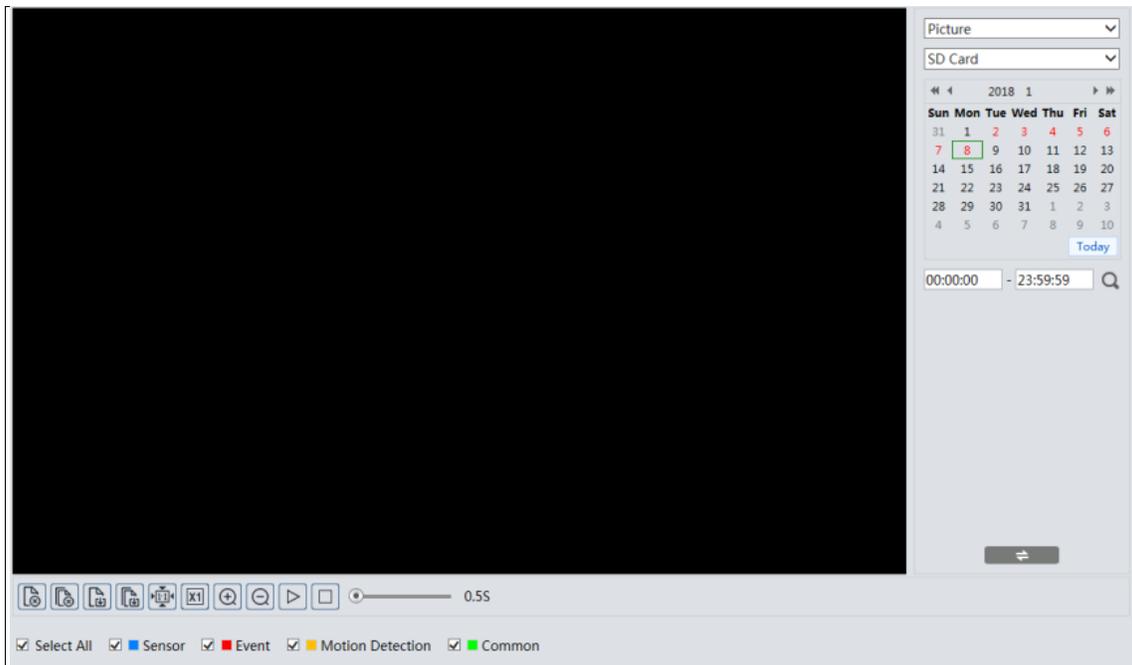
1. Choose "Picture"—"Local".
2. Set time: Select date and choose the start and end time.
3. Click  to search the images.
4. Double click a file name in the list to view the captured photos as shown above.



Click  to return to the previous interface.

● **SD Card Image Search**

1. Choose “Picture”—“SD Card”.



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

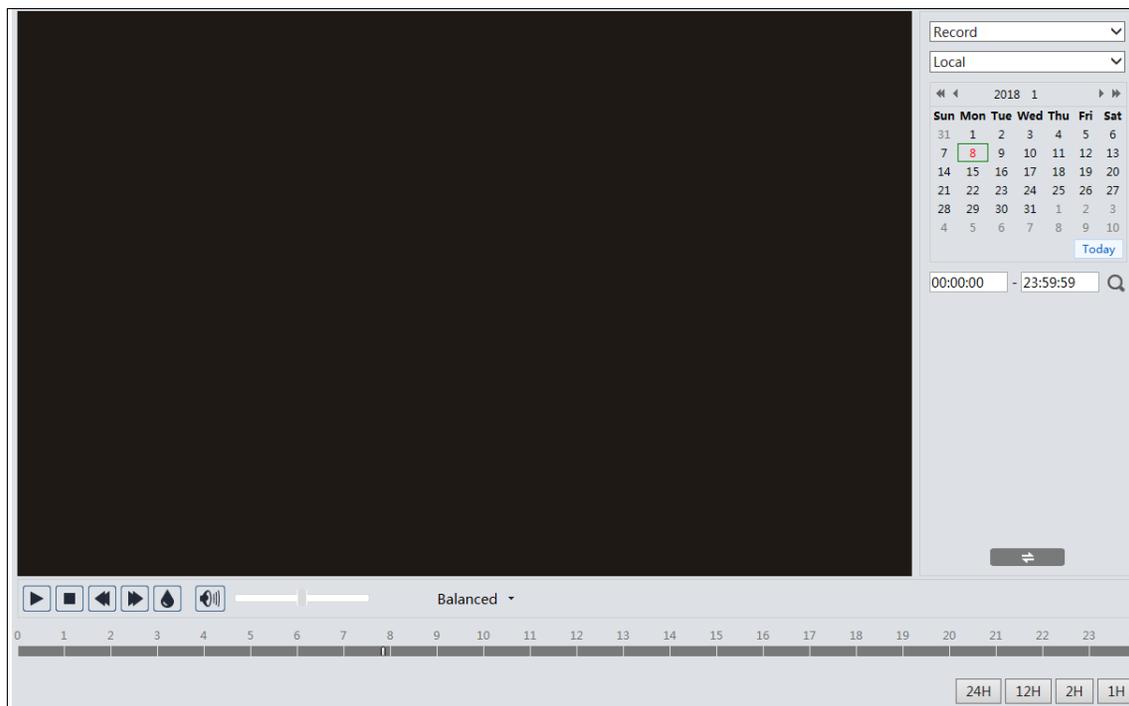
The descriptions of the buttons are shown as follows.

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

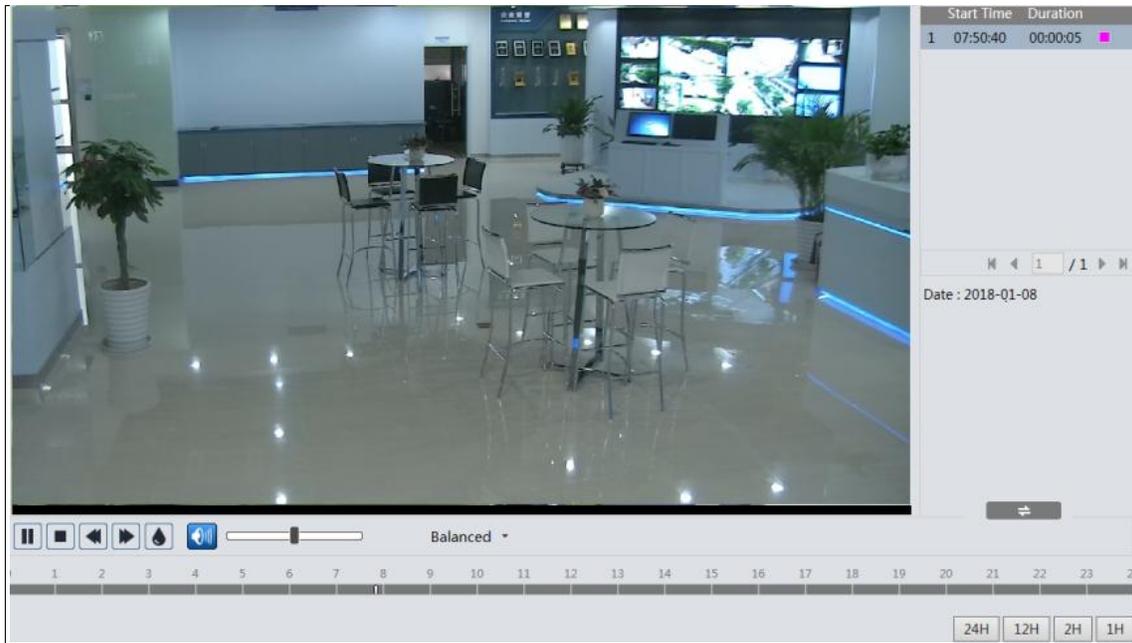
5.2 Video Search

5.2.1 Local Video Search

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



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

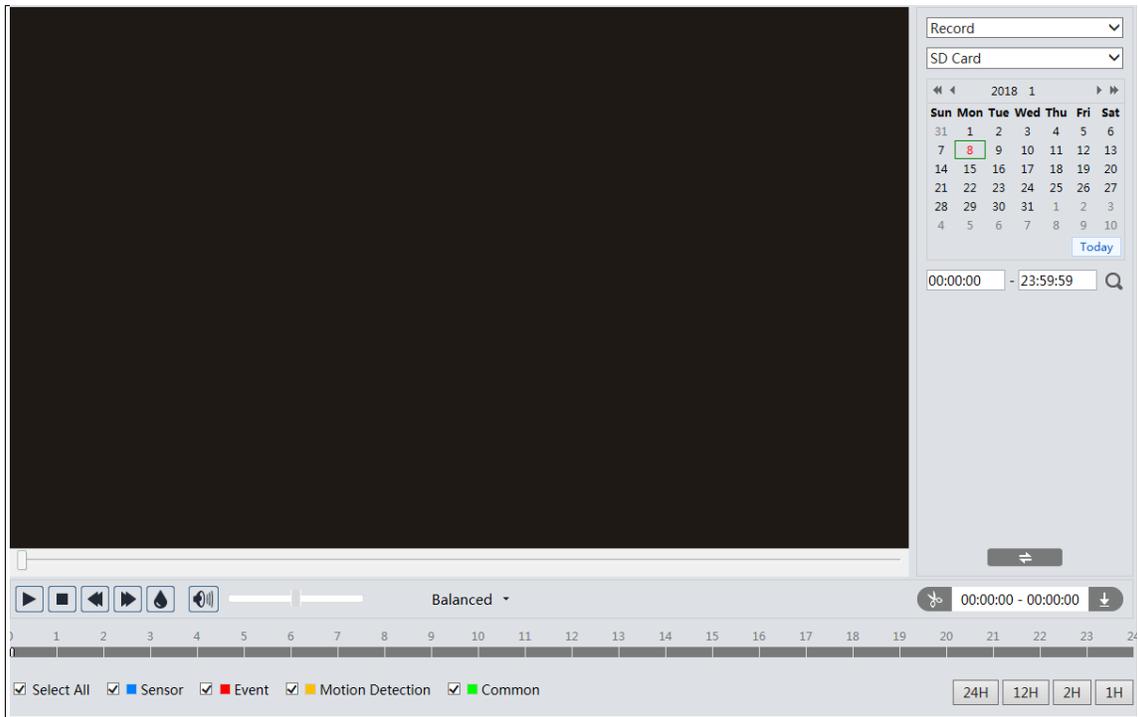


Icon	Description	Icon	Description
	Play button. After pausing the video, click this button to continue playing.		Pause button
	Stop button		Speed down
	Speed up		Watermark display
	Enable / disable audio; drag the slider to adjust the volume after enabling audio.		

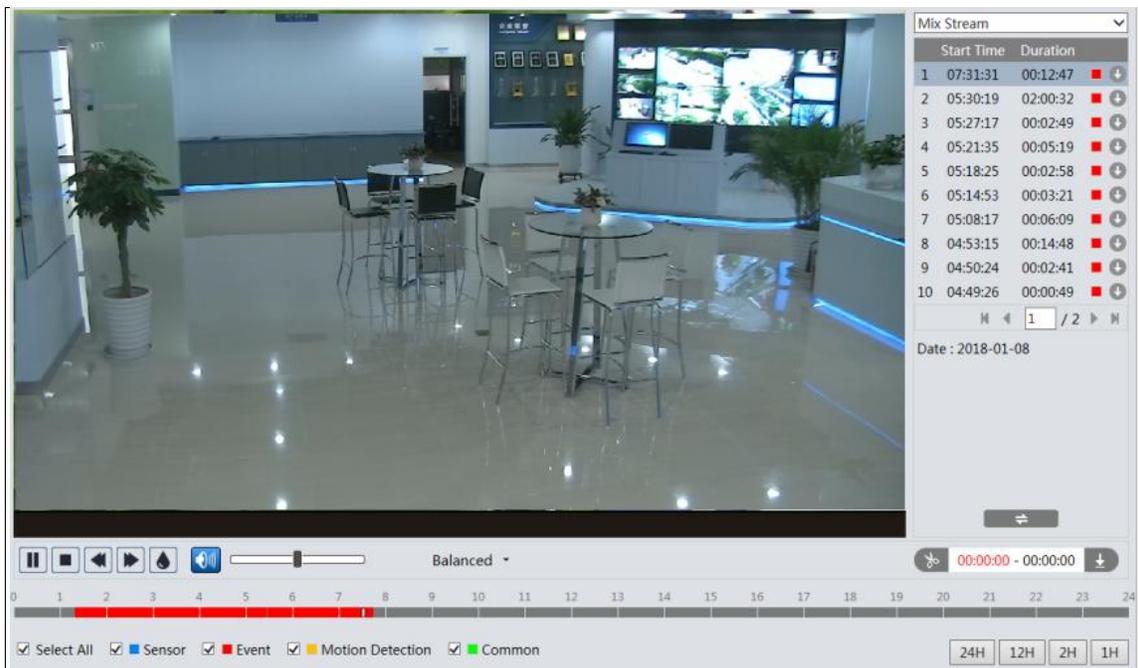
5.2.2 SD Card Video Search

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

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



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



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

Video clip and downloading

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

Index	Process	Record	Start Time	End Time	Path	Operate
1	100%	Cut	2018-01-16 01:1...	2018-01-16 01:1...	Favorites	Open

Set up D:\Favorites Clear List Close

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

Click "Open" to play the video.

Click "Clear List" to clear the downloading list.

Click "Close" to close the downloading window.

Appendix

Appendix 1 Troubleshooting

IP Scanner does not show any device.

Make sure that the PC that's running IP Scanner is on the same local network as the devices.

Internet Explorer cannot download ActiveX control.

IE browser may be set up to block ActiveX. Follow the steps below.

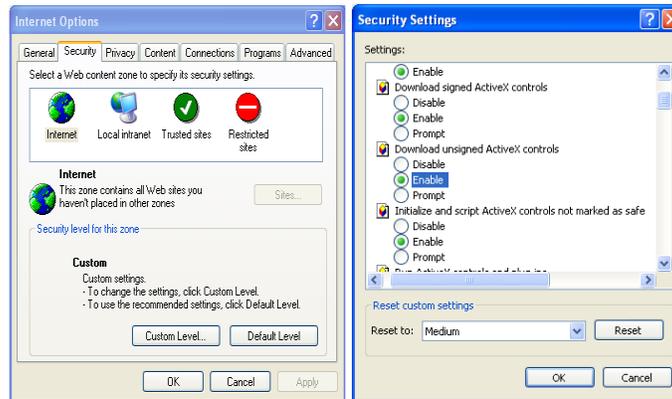
1. Open IE browser and then click Tools→Internet Options.



2. Select Security→Custom Level.

3. Enable all the options under “ActiveX controls and plug-ins”.

4. Click OK to finish setup.



No sound can be heard.

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

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

Appendix 2 Specifications

Specification /Model		O2BFR
Camera	Image Sensor	1/2.8"CMOS
	Image Size	1920×1080
	Electronic Shutter	1/25s~1/100000s
	Iris Type	Fixed Iris
	Min. Illumination	0 lux
	Lens	8mm@F1.6, horizontal FoV: 40.6°, recommended face capturing distance: 3m 12mm@F2.0, horizontal FoV: 26.6°, recommended face capturing distance: 5m
	Lens Mount	M12
	Day&Night	ICR
	WDR	Digital WDR
	Digital NR	3D DNR
	Angle Adjustment	Pan: 0°~360°; Tilt 0°~90°; Rotation:0°~360°
Image	Video Compression	H.265+/H.265/H.264+/H.264/MJPEG
	H.264 Type	Baseline profile/main profile/high profile
	Video Bit Rate	128Kbps~6Mbps
	Resolution	1080P, 720P, D1, CIF, 480×240
	Main Stream	60Hz: 1920×1080/1280×720(1~30fps); 50Hz: 1920×1080/ 1280×720(1~25fps)
	Sub Stream	60Hz: D1/CIF(1~30fps); 50Hz: D1/CIF (1~25fps)
	Third Stream	60Hz: CIF/ 480×240 (1~30fps); 50Hz: CIF/ 480×240 (1~25fps)
	Image Settings	BLC, HLC, Defog, Saturation, Brightness, Chroma, Contrast, Wide Dynamic, Sharpen, NR, etc. adjustable through client or web browser
	ROI	Supported
Interfaces	Network	RJ45
	Auido	MIC IN×1
	Video	BNC×1 (analog output)
	Storage	Built-in micro SD card slot; up to 128GB
Fucntion	Remote Monitoring	Web browser, CMS remote control
	Online Connection	Support simultaneous monitoring for up to 6 users and multi-stream transmission
	Network Protocol	IPv4, IPv6, UDP, DHCP, NTP, RTSP, PPPoE, DDNS, SMTP, FTP, SNMP, HTTPS, 802.1x, QoS
	Interface Protocol	ONVIF, GB-T/28181-2011
	Storage	Network remote storage; micro SD card storage
	Smart Alarm	Motion detection;SD card Full, SD card error, face detection
Others	LED View Distance	98ft
	Protection Grade	IP67
	Power	DC12V/PoE
	Power Consumption	< 12W
	Operating Environment	Temperature: -22°F~140°F; Relative Humidity: less than 95% (non-condensing)
	Dimension (mm)	3.17"(W) × 3.17" (H)× 8.57"(D)
	Weight (net)	Approx. 1.48lbs
	Installation	Wall mounting; ceiling mounting

Specification /Model		O2BFRM
Camera	Image Sensor	1/2.8"CMOS
	Image Size	1920×1080
	Electronic Shutter	1/25s~1/100000s
	Iris Type	Fixed Iris
	Min. Illumination	0 lux
	Lens	7~22mm@F1.4, horizontal FoV:37°~22.5°, recommended face capturing distance: 5~15m
	Lens Mount	Ø14
	Day&Night	ICR
	WDR	Digital WDR
	Digital NR	3D DNR
	Angle Adjustment	Pan: 0°~360°; Tilt 0°~90°; Rotation:0°~360°
Image	Video Compression	H.265+/H.265/H.264+/H.264/MJPEG
	H.264 Type	Baseline profile/main profile/high profile
	Video Bit Rate	128Kbps~6Mbps
	Resolution	1080P, 720P, D1, CIF, 480×240
	Main Stream	60Hz: 1920×1080/1280×720(1~30fps); 50Hz: 1920×1080/ 1280×720(1~25fps)
	Sub Stream	60Hz: D1/CIF(1~30fps); 50Hz: D1/CIF (1~25fps)
	Third Stream	60Hz: CIF/ 480×240 (1~30fps); 50Hz: DCIF/ 480×240 (1~25fps)
	Image Settings	BLC, HLC, Defog, Saturation, Brightness, Chroma, Contrast, Wide Dynamic, Sharpen, NR, etc. adjustable through client or web browser
ROI	Supported	
Interfaces	Network	RJ45
	Auido	MIC IN×1, Line OUT×1
	Video	BNC×1 (analog output)
	RS485	Supported
	Storage	Built-in micro SD card storage slot, up to 128 GB
	Alarm	1CH Alarm input; 1CH Alarm Ouput
Fucntion	Remote Monitoring	Web browser, CMS remote control
	Online Connection	Support simultaneous monitoring for up to 6 users and multi-stream transmission
	Network Protocol	IPv4, IPv6, UDP, DHCP, NTP, RTSP, PPPoE, DDNS, SMTP, FTP, SNMP, HTTPS, 802.1x, QoS
	Interface Protocol	ONVIF, GB-T/28181-2011
	Storage	Network remote storage, micro SD card storage
	Smart Alarm	Motion detection, Sensor detection, SD card Full, SD card error, IP conflict, cable disconnection, face detection
Others	LED View Distance	164ft
	Protection Grade	IP67
	Power	AC24V/DC12V/PoE
	Power Consumption	< 12W
	Operating Environment	Temperature: -22°F~140°F; Relative Humidity: less than 95% (non-condensing)
	Dimension (mm)	3.95"(W) × 3.5" (H)× 11"(D)
	Weight (net)	Approx. 2.34lbs
	Installation	Wall mounting; ceiling mounting

Specification /Model		O2DFR
Camera	Image Sensor	1/2.8"CMOS
	Image Size	1920×1080
	Electronic Shutter	1/25s~1/100000s
	Iris Type	Fixed Iris
	Min. Illumination	0 lux
	Lens	8mm@F1.6, horizontal FoV: 40.6°, recommended face capturing distance: 3m 12mm@F2.0, horizontal FoV: 26.6°, recommended face capturing distance: 5m
	Lens Mount	M12
	Day&Night	ICR
	WDR	Digital WDR
	Digital NR	3D DNR
	Angle Adjustment	Pan: 0°~355°; Tilt 0°~67°; Rotation:0°~355°
Image	Video Compression	H.265+/H.265/H.264+/H.264/MJPEG
	H.264 Type	Baseline profile/main profile/high profile
	Video Bit Rate	128Kbps~6Mbps
	Resolution	1080P, 720P, D1, CIF, 480×240
	Main Stream	60Hz: 1920×1080/1280×720(1~30fps); 50Hz: 1920×1080/ 1280×720(1~25fps)
	Sub Stream	60Hz: D1/CIF(1~30fps); 50Hz: D1/CIF (1~25fps)
	Third Stream	60Hz: CIF/ 480×240 (1~30fps); 50Hz: CIF/ 480×240 (1~25fps)
	Image Settings	BLC, HLC, Defog, Saturation, Brightness, Chroma, Contrast, Wide Dynamic, Sharpen, NR, etc. adjustable through client or web browser
	ROI	Supported
Interfaces	Network	RJ45
	Auido	MIC IN×1; Built-in MIC×1
	Video	BNC×1 (analog output)
	Storage	Built-in micro SD card slot; up to 128GB
Fucntion	Remote Monitoring	Web browser, CMS remote control
	Online Connection	Support simultaneous monitoring for up to 6 users and multi-stream transmission
	Network Protocol	IPv4, IPv6, UDP, DHCP, NTP, RTSP, PPPoE, DDNS, SMTP, FTP, SNMP, HTTPS, 802.1x, QoS
	Interface Protocol	ONVIF, GB-T/28181-2011
	Storage	Network remote storage; micro SD card storage
	Smart Alarm	Motion detection;SD card Full, SD card error, face detection
	Protection Grade	IP67&IK10
	Power	AC24V/DC12V/PoE
	Power Consumption	< 4W
	Operating Environment	Temperature: -22°F~140°F; Relative Humidity: less than 95% (non-condensing)
	Dimension (mm)	4.69"(∅) × 3.46"
	Weight (net)	Approx. 1.43lbs
	Installation	Ceiling mounting (Wall mounting available with the junction box and bracket)

Specification /Model	O2DFRM	
Camera	Image Sensor	1/2.8 " CMOS
	Image Size	1920×1080
	Electronic Shutter	1/25s~1/100000s
	Iris Type	Fixed Iris
	Min. Illumination	0 lux
	Lens	7~22mm@F1.4, horizontal FoV:37°~22.5°, recommended face capturing distance: 5~15m
	Lens Mount	Ø14
	Day&Night	ICR
	WDR	Digital WDR
	Digital NR	3D DNR
	Angle Adjustment	Pan: 0°~345°; Tilt 0°~77°; Rotation:0°~345°
Image	Video Compression	H.265+/H.265/H.264+/H.264/MJPEG
	H.264 Type	Baseline profile/main profile/high profile
	Video Bit Rate	128Kbps~6Mbps
	Resolution	1080P, 720P, D1, CIF, 480×240
	Main Stream	60Hz: 1920×1080/1280×720(1~30fps); 50Hz: 1920×1080/ 1280×720(1~25fps)
	Sub Stream	60Hz: D1/CIF(1~30fps); 50Hz: D1/CIF (1~25fps)
	Third Stream	60Hz: CIF/ 480×240 (1~30fps); 50Hz: DCIF/ 480×240 (1~25fps)
	Image Settings	BLC, HLC, Defog, Saturation, Brightness, Chroma, Contrast, Wide Dynamic, Sharpen, NR, etc. adjustable through client or web browser
ROI	Supported	
Interfaces	Network	RJ45
	Auido	MIC IN×1, Line OUT×1
	Video	BNC×1 (analog output)
	RS485	Terminal block
	Storage	Built-in micro SD card storage slot, up to 128 GB
	Alarm	1CH alarm input; 1CH alarm ouput (terminal block)
Fucntion	Remote Monitoring	Web browser, CMS remote control
	Online Connection	Support simultaneous monitoring for up to 6 users and multi-stream transmission
	Network Protocol	IPv4, IPv6, UDP, DHCP, NTP, RTSP, PPPoE, DDNS, SMTP, FTP, SNMP, HTTPS, 802.1x, QoS
	Interface Protocol	ONVIF, GB-T/28181-2011
	Storage	Network remote storage, micro SD card storage
	Smart Alarm	Motion detection, Sensor detection, SD card Full, SD card error, IP conflict, cable disconnection, face detection
	Protection Grade	IP67&IK10
	Power	AC24V/DC12V/PoE
	Power Consumption	< 4W
	Operating Environment	Temperature: -22°F~140°F; Relative Humidity: less than 95% (non-condensing)
	Dimension (mm)	5.56"(Ø)×3.94"(H)
	Weight (net)	Approx. 1.96lbs
Installation	Ceiling mounting (Wall mounting available with the junction box and bracket)	

Models: O2BFR/O2BFRM/O2DFR/O2DFRM

Federal Communications Commission (FCC) Statements

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

FCC Responsible Party:

Speco Technologies
200 New Highway
Amityville, NY11701
www.specotech.com