

Multi-object Network Camera Quick Setup Guide

NO:101-090-0139-04
Issue:1.3

Precautions

Fully understand this document before using this device, and strictly observe rules in this document when using this device. If you install this device in public places, provide the tip "You have entered the area of electronic surveillance" in an eye-catching place. Failure to correctly use electrical products may cause fire and severe injuries.

WARNING	It alerts you to moderate dangers which, if not avoided, may cause minor or moderate injuries.
CAUTION	It alerts you to risks. Neglect of these risks may cause device damage, data loss, device performance deterioration, or unpredictable results.
NOTE	It provides additional information.

WARNING

- Strictly observe installation requirements when installing the device. The manufacturer shall not be held responsible for device damage caused by users' non-conformance to these requirements.
- Strictly conform to local electrical safety standards and use power adapters that are marked with the LPS standard when installing and using this device. Otherwise, this device may be damaged.
- Use accessories delivered with this device. The voltage must meet input voltage requirements for this device.
- If this device is installed in places with unsteady voltage, ground this device to discharge high energy such as electrical surges in order to prevent the power supply from burning out.
- When this device is in use, ensure that no water or any

1.1.2 License Plate Recognition and Debugging

Table 1-1 Recognition distance and image size

No.	Recognition distance(m)	Corresponding algorithm image size
1	More than 6 m	1080P(1920*1080)
2	5-6 m	900P(1600*900)
3	4.5-5 m	700P(1280*900)
4	3.5-4.5 m	540P(960*540)
5	Less than 3.5 m	540P(960*540)

1.1.3 Camera Installation Tips

Erection height:
The installation height of the camera is about 1.5 meters. In order to avoid the nighttime headlights directly illuminating the camera lens, if the camera installation height is low, it is like a person lying on the side of the road, the lights are shining, the license plate is not visible to the human eye, the license plate The same is true for recognizing cameras. The position of the license plate on the camera screen is as horizontal as shown in the red box in . Adjust the camera position so that most of the license plate appears in the position of the screen and the bottom edge level.

Figure 1-7 Installation tip



1.1.4 Other

Network transmission selection:
The license plate recognition camera adopts H.264 video stream, and it is recommended to use Gigabit Ethernet switch through network transmission to ensure image fluency and corresponding time. The network cable is preferably more than five types, and the transmission rate will be much higher.

Nighttime fill light debugging:
Nighttime fill light debugging needs to ensure that the completed fill light can clearly and accurately display the license plate, to ensure that the license plate is not overexposed. The brightness adjustment of the fill light is based on the vehicle license plate as the reference object. When adjusting the height, the license plate picture is captured to check the license plate image quality. If the license plate is clear and not exposed, the brightness of the fill light is adjusted. Under normal circumstances, the recognition distance is about 5 meters, the fill light brightness is 6Lux.

1.2 Face Detection

1.2.1 Scene

The camera should be installed in the middle of the entrance of the channel, and the surrounding environment is unobstructed. The target face should not be displayed too small in the image, and the horizontal width (the spacing between the pupils) must be at least 80 pixels or more. The face detection camera should be installed at the entrance and exit as much as possible. The face is captured, and the horizontal deflection angle is less than 15°. The smaller the better. The installation needs to have a slight angle of view to avoid obscuring the rear face when the

liquid flows into the device. If water or liquid unexpectedly flows into the device, immediately power off the device and disconnect all cables (such as power cables and network cables) from this device.

- Do not focus strong light (such as lighted bulbs or sunlight) on this device. Otherwise, the service life of the image sensor may be shortened.
- If this device is installed in places where thunder and lightning frequently occur, ground the device nearby to discharge high energy such as thunder strikes in order to prevent device damage.

CAUTION

- Avoid heavy loads, intensive shakes, and soaking to prevent damages during transportation and storage. The warranty does not cover any device damage that is caused during secondary packaging and transportation after the original packaging is taken apart.
- Protect this device from fall-down and intensive strikes, keep the device away from magnetic field interference, and do not install the device in places with shaking surfaces or under shocks.
- Clean the device with a soft dry cloth. For stubborn dirt, dip the cloth into slight neutral cleanser, gently wipe the dirt with the cloth, and then dry the device.
- Do not jam the ventilation opening. Follow the installation instructions provided in this document when installing the device.
- Keep the device away from heat sources such as radiators, electric heaters, or other heat equipment.
- Keep the device away from moist, dusty, extremely hot or cold places, or places with strong electric radiation.
- If the device is installed outdoors, take insect- and moisture-proof measures to avoid circuit board corrosion that can affect monitoring.
- Remove the power plug if the device is idle for a long time.
- Before unpacking, check whether the fragile sticker is damaged. If the fragile sticker is damaged, contact customer services or sales personnel. The manufacturer shall not be held responsible for any artificial damage of the fragile sticker.

Special Announcement

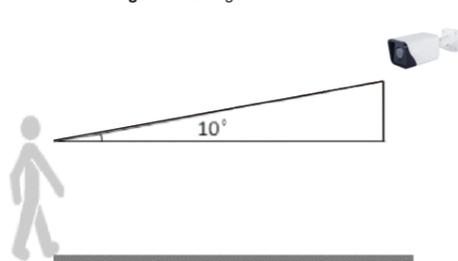
- All complete products sold by the manufacturer are delivered along with nameplates, quick setup guide and accessories after strict inspection. The manufacturer shall not be held responsible for counterfeit products.
- The manufacturer will update this manual according to product function enhancement or changes and regularly update the software and hardware described in this manual. Update information will be added to new versions of this manual without prior notice.
- This manual may contain misprints, technology information that is not accurate enough, or product function and operation description that is slightly inconsistent with the actual product, the final interpretation of company is as a standard.
- This manual is only for reference and does not ensure that the information is totally consistent with the actual product. For consistency, see the actual product.

NOTE

For more information, please refer to website.

person passes through the passage, and the vertical top view angle $\alpha=10^{\circ}\pm 3^{\circ}$. As shown in figure 1-8 .

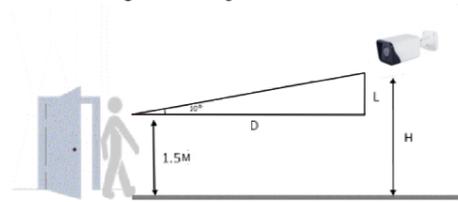
Figure 1-8 Angel of installation



1.2.2 Camera Installation Height

The camera usually has a height of 1.8 meters to 2.3 meters. The best installation position during camera installation is that the camera is parallel to the collection face, or higher; keep the tilt angle not too large, the success rate of the face collection and the detection rate will be greatly increased, as shown in figure 1-9.

Figure 1-9 Height of Installation



The height of the lens erection: $H=1.5+0.18^{\circ}D$, 1.5 meters means that the height of the human head is averaged, and D is the monitoring distance.

Camera installation lighting problem:
The camera installation position should be adjusted according to the lighting and lighting conditions to adjust the position of the camera; if the camera is installed behind the light.

The direction of influence of light on the face is: light, back light, side light, etc.; camera installation position requires human faces face to light direction.

To the light: the face is facing the light or the direction of the light

Backlighting: face facing away from light or light direction
Sidelight: the light on the left and right sides of the face, the light is higher than the light intensity before and after
Illuminance: face is not less than 20 LUX, the spacing between pupils is not less than 80 pixels
The recommended camera is as follows:

Table 1-1 The best viewing width

Monitoring width(m)	Monitoring distance(m)	Lens focal length(mm)	Installing height(m)	Top view angle(°)
2.5	2.5	8	2	10
2.5	4	12	2.2	10
2.5	6	16	2.5	10
2.5	8	25	3	10
2.5	11	32	3.6	10

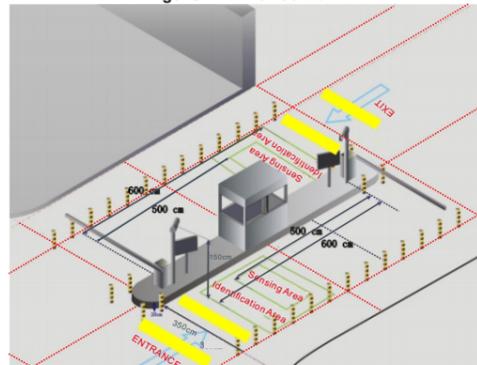
1 Device Installation

1.1 Vehicle Detection

1.1.1 Scene

The vehicle detection needs horizontal pixels of the license plate size of the scene is between 90 to 170 pixels.
Generally, the height of the camera erection needs to consider the application scenario. In the entrance and exit scene, about 1.5 meters, the installation height of the road monitoring scene is recommended to be 5-6 meters, the pitch angle is not more than 15 degrees, and the license plate recognition distance is about 5 meters.
The height of the entrance and exit camera column needs to exceed 1.5 meters. The configuration can adjust the moving bracket up and down to facilitate debugging equipment, as shown in Figure 1-1.

Figure 1-1 Allowed tilt



The camera erection position must meet the angle of view to detect most vehicles entering, as shown in Figure 1-2.

Figure 1-2 The best installation

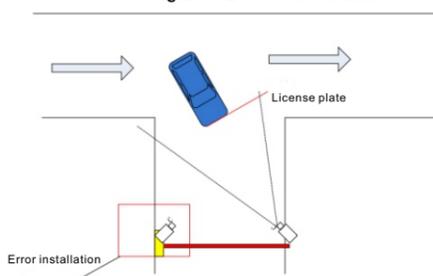
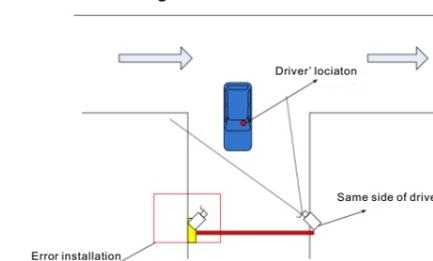


Figure 1-3 Scene 1



2.5	14	32	4.1	10
2.5	18	50	4.7	10

1.3 Road Monitoring

Road monitoring is used for video detection methods to detect pedestrians, motor vehicles, and non-motor vehicles, and rapid discrimination s have been monitored in all directions.

1.4 Basic Requirements for Camera Installation

- When the camera is installed, try to install it in a fixed place. The camera's anti-shake function and the algorithm itself can compensate the camera shake to a certain extent, but excessive shaking will affect the accuracy of the detection.
- If wide dynamic range function is not enabled, try to avoid backlit scenes such as the sky in the camera field of view.
- In order to make the target more stable and accurate, it is recommended that the target size in the actual scene is less than 50% of the scene size and the height is more than 10% of the scene height.
- Try to avoid reflective scenes such as glass, floor tiles, and water.
- Try to avoid narrow or over-shielded surveillance sites.
- In the daytime environment, the camera should have clear image and good contrast. If there is insufficient light at night, you need to fill the scene to ensure the brightness of the detection area.

1.5 Requirements of Computer

CPU Core (TM) i5 7500 @ 3.4GHz or above.
Graphics card: discrete graphics, memory 1G or above.
Network: Support Gigabit (network card and switch).
Memory: 4G and above.
Hard disk: 500G or more.
Display resolution: 1920*1080 or more.
Operating system recommendations: win 7 32 bit or more.

NOTE

Different installations of device may affect the accuracy of personnel count, please choose a suitable installation distance according to the actual situation

2 Device Structure

2.1 Device Ports

NOTE

Different device may have different ports and multi-head cable, please refer to the actual product.

Figure 2-1 Multi-head cable 1

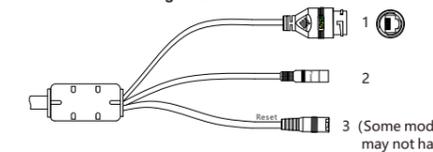


Table 2-1 Multi-head cable 1 description

ID	Core	Description	Remark
1	Network access port	Connects to a standard Ethernet cable or PoE. The green light is on, the network connection is normal; the yellow light flashes when the data is transmitted. Some models maybe not have the lights, please refer to actual product.	Support PoE supply.
2	Power supply (DC 12V)	Connects to a 12V direct current (DC) power supply.	
3	Reset button	Long press the reset button 5 seconds to restore the original settings.	

Figure 1-4 Scene 2

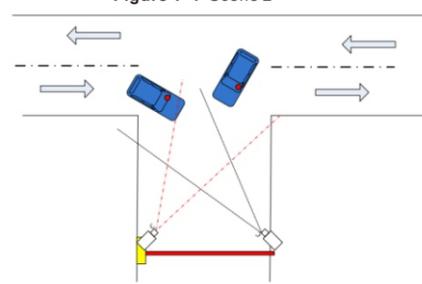


Figure 1-5 Scene 3

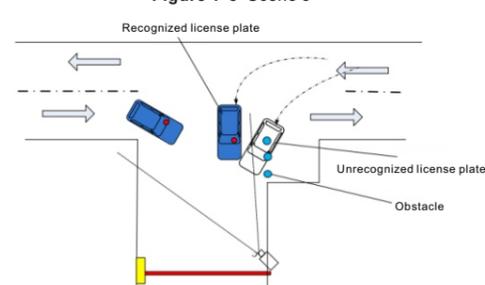


Figure 1-6 Motion track

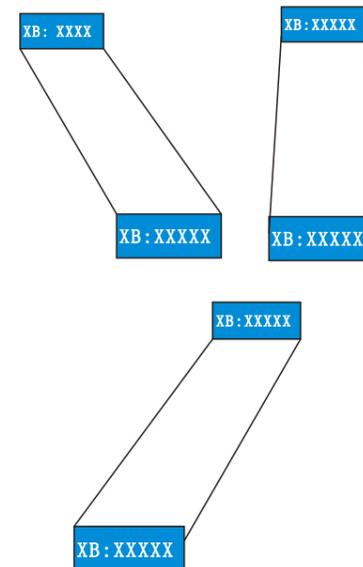


Figure 2-2 Multi-head cable 2

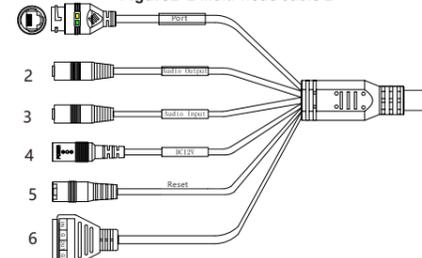


Table 2-2 Multi-head cable 2 description

ID	Core	Description	Remark
1	Network access port	Connects to a standard Ethernet cable or PoE. The green light is on, the network connection is normal; the yellow light flashes when the data is transmitted. Some models maybe not have the lights, please refer to actual product.	Support PoE supply.
2	Audio output	Connects to an external audio device such as a speaker.	Applied for camera with audio function
3	Audio input port	Receives an analog audio signal from devices such as a sound pickup device.	
4	Reset button	Long press the reset button 5 seconds to restore the original settings.	
5	Power supply (DC 12V)	Connects to a 12V direct current (DC) power supply.	
6	G	Alarm output COM	Applied for alarm function
	OUT	Alarm output terminal	
	G	Alarm input COM	
	IN	Alarm input terminal	

Table 2-3 Multi-head cable 3 description

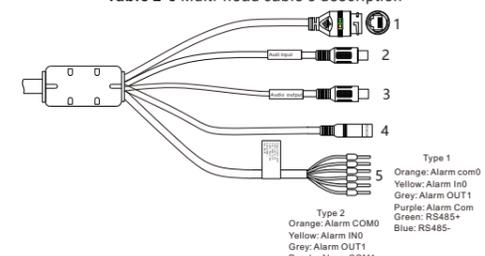


Table 2-3 Multi-head cable description

ID	Core	Description	Remark
1	Network access port	Connects to a standard Ethernet cable or PoE. The green light is on, the network connection is normal; the yellow light flashes when the data is transmitted.	Support PoE supply
2	Audio input port	Receives an analog audio signal from devices such as a sound pickup device.	Applied for audio function
3	Audio output port	Connects to an external audio device such as a speaker.	
4	Power supply (DC 12V)	Connects to a 12V direct current (DC) power supply or 24V alternating current (AC) power supply.	
5	Alarm	Applied for alarm function. It maybe have two types, please refer to actual product.	

3 Quick Configuration(e.g IE)

3.1 Login

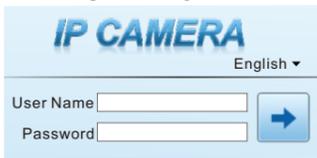
Step 1 Open the Internet Explorer, enter the IP address of IP camera (the default value: 192.168.0.120) in the address box, and press Enter. The login page is displayed, as shown in figure 3-1.

Step 2 Input the user name and password.

NOTE

The default user name and password both are admin. Modify the password when user login the system for the first time to ensure system security. It is advised to restart the device three minutes later after modifying password. User can change the system display language on the login page.

Figure 3-1 Login



Step 3 Click Login, the main page is displayed, as shown in figure 3-5.

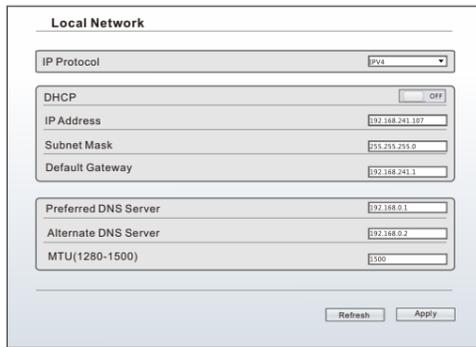
3.2 Modify IP address

Choose **Configuration > Device > Local Network**, the **Local Network** page is displayed.

Input the IP address in the IP Address box and click **Apply** as shown in figure 3-2.

After the success of the IP address setting, please use the new IP address to login the Web interface.

Figure 3-2 Local Network



3.3 Browsing Video

To ensure the real-time video can be played properly, you must perform the following operation when you login the web for the first time:

Step 1 The Internet Explorer. Choose **Tools > Internet options > Security > Trusted sites > Sites**, in the display dialog box, click **Add**, as shown in figure 3-3.

Step 2 In the Internet Explorer, choose **Tool > Internet Options > Security > Customer level**, and set **Download unsigned ActiveX control and initialize and script ActiveX controls not marked as safe for scripting under ActiveX controls and plug-ins to enable**, as shown in figure 3-4.

Figure 3-3 Adding a trusted site

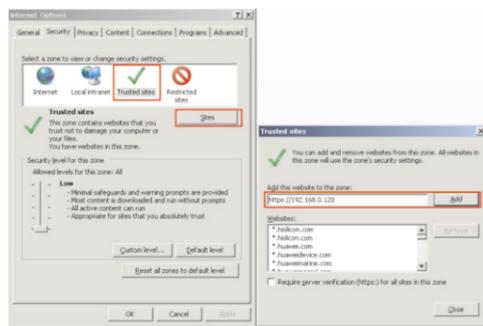
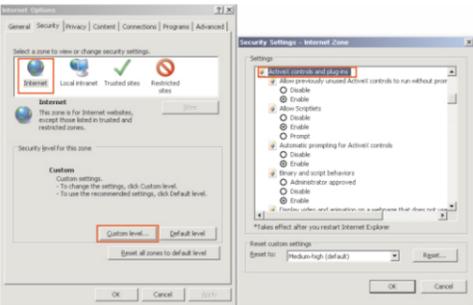


Figure 3-4 Configuring ActiveX control and plug-ins



Step 3 Download and install the player control as prompted.

NOTE

If the repair tips displayed when installing the control, please ignore the prompt, and continue the installation, close the Web page during installing. Then login the page again.

3.4 Browsing Video

To browse a real-time video, login the device and click **Live Video**.

Figure 3-5 Live video

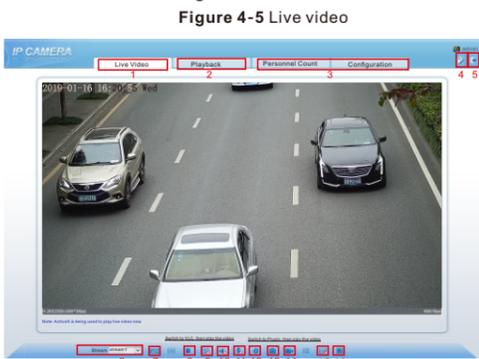
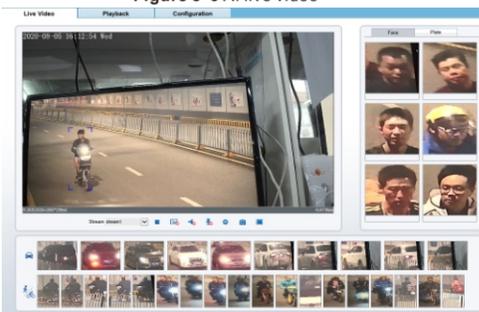


Figure 4-5 Live video

Table 4-1 Live video interface

No	Item	Description
1	Live video	Display live video, right-click to set sensor settings.
2	Playback	Query the recording video if the camera has SD card.
3	Personnel Count / Configuration	Configuration of camera, such as personnel count, information, stream, device, external device, AI multiply objects, alarm, device record, privacy masking, network service, privilege manager, protocol, device log, maintenance and local log.
4	Modify password	Modify the password
5	Log out	Log out, change language at login interface.
6	Stream	Select the stream of live video
7	PTZ	Electric camera enter the PTZ interface to zoom in, zoom out, far focus, near focus, iris +, iris -, focus.
8	Stop/video	Click the icon to stop or start play live video.
9	Live/Smooth	Switch the video mode.
10	Audio	Open or close audio
11	Interphone	Open or close two way audio
12	Sensor setting	Click to set the sensor setting, such as time segment, image, scene, exposure, WB, day night, noise reduction, enhance image and zoom focus.
13	Snapshot	Click to snapshot the current image, and the saved directory is set at Configuration > Local Config
14	Local record	Click to record the current video, click again to finish.
15	Intelligent analysis	Click to open the intelligent analysis.
16	AI multiobject	Click to switch the AI live video, as shown in figure 2-6.

Figure 3-6 AI live video



At AI interface, user can view the snapshot of vehicle and riding at the bottom of interface. the detail information of face or plate license will show on the right of interface.

NOTE

when alarm is triggered, the alarm icon will be shining, and click to view the alarm information.

4 AI Multi object

Choose **Configuration > AI Multi Object** to set parameter of detection face, and license plate, as shown in figure 4-1.

Figure 4-1 Configuring AI multiobject

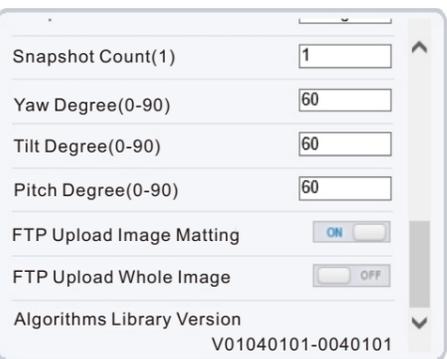
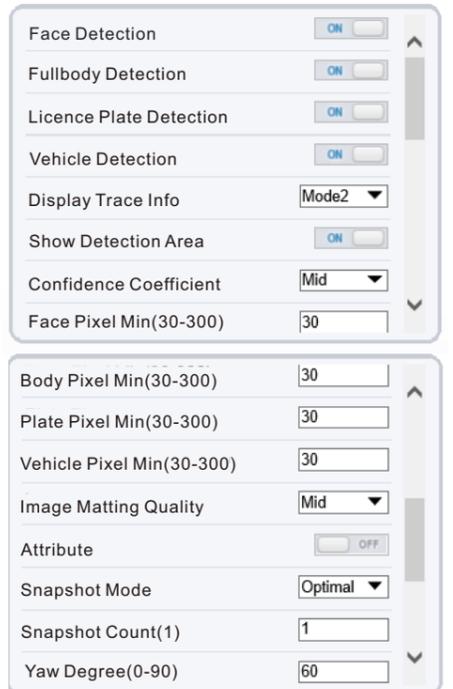


Table 4-1 AI multi object parameter

Parameter	Description	How to set
Face detection	The camera will snap the face when someone appear in live video.	Enable
Full body detection	The camera will snap the whole body when someone appear in live video.	Enable
Licence plate detection	The camera will snap the licence will the vehicle's licence appear in live video.	Enable
Vehicle detection	The camera will snap the licence will the vehicle appear in live video.	Enable
Display trace info	Enable the function and a trace frame will show at live video	Enable
Show detection area	Enable to set detection area, and the frame will show at live video	Enable
Confidence coefficient	The range of snap image, there are three type, such as high, mid and low.	Choose from drop list
Face pixel min(30-300)	30-300 pixels, the smaller the pixel be set, the more face will be captured, but it may mistake.	Input a value ranges 30 to 300
Body pixel min(30-300)	30-300 pixels, the smaller the pixel be set, the more body will be captured, but it may be mistaken.	Input a value ranges 30 to 300
Plate pixel min(30-300)	30-300 pixels, the smaller the pixel be set, the more face will be captured, but it may be mistaken.	Input a value ranges 30 to 300
Vehicle pixel min(30-300)	30-300 pixels, the smaller the pixel be set, the more face will be captured, but it may be mistaken.	Input a value ranges 30 to 300

Image matting quality	The quality of snap image. There are three mode can be chosen, such as low, mid and high.	Choose from drop list.
Attribute	Enable, the AI live video will show the attribute of the snapshots.	Enable
Snapshot mode	There are three mode can be chosen, such as timing, and optimal.	Choose from drop list.
Upload image interval(1- 10s)	At timing mode, set the interval of upload image.	Input a value ranges 1 to 10
Snapshot count	At optimal mode, set the number of snapshot image	Input 1
Yaw degree (0-90)	Both eyes appear on the screen, offset in the left and right direction	Input a value ranges 0 to 90
Tilt degree (0-90)	The face is deflected, and both eyes cannot appear in the picture.	
Pitch degree (0-90)	Face is moving up and down	
FTP upload image matting	Configuration > Network Service > FTP , set FTP related parameters, the captured picture will be sent to the set FTP location but it may be mistaken.	Enable
FTP upload whole image	Capture a picture and send a panorama.	Enable

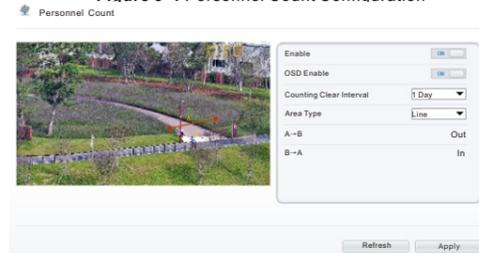
5 Personnel Count

5.1 Personnel Count Configuration

AI high-speed Dome can count the number of people passing in the line drawing area

At **Configuration > Intelligent Analysis > Personnel Count** interface, user can set the parameters as shown in figure 5-1.

Figure 5-1 Personnel Count Configuration

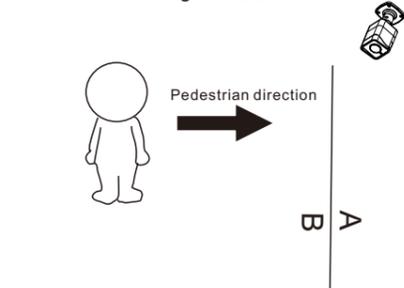


Enable the personnel count, enable the OSD (the live video displays the number of people through the OSD).

Counting clear interval: Select from the drop-down list, 10 minutes, half an hour, 1 hour, 12 hours, 1 day, the default value is 1 day.

Area type: Line, draw a line in the real-time interface. Click "Apply" to complete the setting.

Figure 5-2 Draw line



CAUTION

If user require higher accuracy of personnel count, we recommend the user to install camera and draw the line following as figure 5-2.

5.2 Personnel Count

At personnel count interface, you can view the personnel count throughout setting query condition(choose the detail time at date's pop-up window). There are three modes to show the data, such as line chart, histogram, and list, as shown in figure 5-3.

Figure 5-3 Personnel Count interface

