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2 Mega Pixel

IR Network High Speed Dome

User Manual

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About this Document

Purpose

This document is a user manual for *IR Network High Speed Dome*. Including the product features, hardware installation, network access, network configuration, technical specification and troubleshooting.

Intended Audience

This document is intended for:

- Technical support engineers.
- Maintenance engineer.

Symbol conventions

The symbols may be founded in this document are defined as followed:

Symbol	Description
 DANGER	Alerts you to a high risk hazard that could, if not avoided.
 WARNING	Alerts you to a medium or low risk hazard that could, if not avoided, result in moderate or minor injury.
 CAUTION	Alerts you to a potentially hazardous situation that could, if not avoided, result in equipment damage, data loss, performance deterioration, or unanticipated results.
 TIP	Provides a tip that may help you solve a problem or save time.
 NOTE	Provides additional information to emphasize or supplement important points in the main text.

Special notices

When using video surveillance products, comply with applicable statutory and regulatory requirement to enable and maintain legal surveillance devices. It is illegal for a company or person to install surveillance devices in an office to monitor employees outside the scope of local law, or to use surveillance devices to invade other people's privacy with illegal purposes.

Contents

1 Installation preparation

1.1 Safety precaution

The following precautions provide important information to prevent fire and personal injury caused by improper use of the device. Read this section carefully before installing a device and comply with these cautions during use. If you want to install the device in a public place, provide a conspicuous warning message "You have enter electronic surveillance area".

CAUTION

- The actual device governs, and this document is only for reference.
- The device may be upgraded without prior notice.
- For the latest program and supplementary documentation, contact customer service center.
- If any problems occur during use, contact the supplier or customer service center.
- Any loss caused by improper operation is born by the buyer.

Basic precaution

- Install the device in strict accordance with the manufacture requirement.
- Never try to dissemble the device on you own. If any fault occurs, contact the specified maintenance center.
- No unit and individual are allowed to change the device structure, safety configuration, and performance without authorization.
- Use the device in accordance with relate law and with respect for other's legal rights.

Power supply precautions

- Use a power complies with the local electrical safety standards during device installation.
- Use a power adapter matching this device. The power supply voltage must meet the input voltage requirement.
- Never power on the device before installation completes. Before installing or removing a cable, stop using the device and power it off.

Verify that a proper power supply is used before running the device.

- Keep the power plug to be clean and dry to prevent electric shock or other risks.

Precaution For Use

- Avoid heavy weight, violent vibration, soaking during transport, store, and installation; otherwise, the device may be damaged. Any damage caused by improper transport of the assembled device during delivery from or sending back to the manufacture for repair is out of the warranties.
- Never install the device upside down. Hold the camera core carefully. Never tightly press any structural parts; otherwise, mechanical breakdown may occur.
- Never dissemble the device to repair it. The device must be checked and repaired by professional maintenance.
- Never scratch or abrade the device surface, otherwise, the paint that is drops down may cause allergy or device damage. For example, if it drops into the host, electrical malfunction may occur.
- If any exception occur, for example, smoke is blown out of the device, the device sounds abnormally, or peculiar smell is found, stop using the device, power it off, and remove all the cables(such as the power cables and networking cable) connected to the device.
- If the device is faulty, contact the specified maintenance center for repair.

Clean precautions

- Before cleaning the device, stop using the device and power it off, and then remove all cables (such as the power cord and networking cable) connected to the device.
- Use a soft and dry cloth to clean the device. If there is any dirt that is difficult to clean, place a few drops of mild detergent on a soft and clean cloth before cleaning. After the dirt is removed, dry the device with a cloth.
- Never use any volatile solvents (such as the alcohol, benzene, and thinner) or strong and abrasive alkaline detergent; otherwise the device surface may be damaged or the device performance may be reduced.

Environment Precautions

- Never allow any water or other liquid to flow into the device. If any liquid flows into device by accident, power the device off, and remove all the cables (such as the power cord and network cable) connected to the device.
- Avoid heavy weight, violent vibration, soaking during transport, storage, and installation; otherwise, the device may be damaged.
- Install the device at a place far away from the heat source or ignition source, such as an electric heater or lighted candle.
- Never install or use the device in places where flammable or explosive material are saved or in use.

Personnel precautions

The device-related installation and maintenance can be only be performed by professional technical engineers or specific installation personnel.

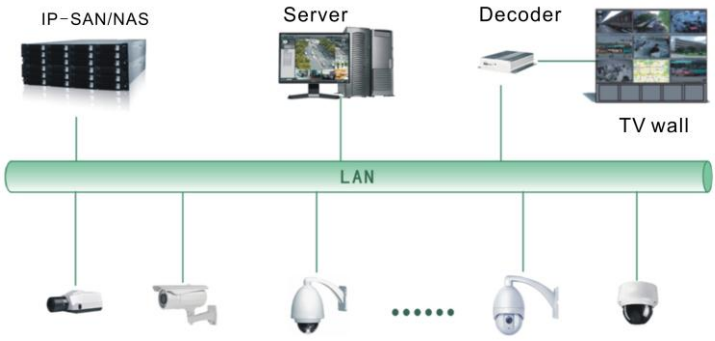
1.2 Checking the Installation Environment

Before installing the device, check the installation environment according to Table 1-1.

Table 1-1 Installation environment check items

Check Item	Standard
Moisture-resistant	The relative environment humidity must be in the range from 5% to 95%. If the humidity is higher than 95%, a dehumidifier must be installed, such as an air conditioner with the dehumidification function or a dedicated dehumidifier. In addition, water seepage, water dropping, and dew forming are not allowed.
Dustproof	If the office block is near the source of dust, such as the colliery, country road, and farm, aluminum alloy doors and windows of double layers must be installed for the offices, and anti-burglary and fireproofing doors must be installed for the equipment room.
Lightproof	The device must be installed in the environment that is not shined by a strong light, delaying the aging of the device enclosure.

1.3 Network Plan



2 Device Port and Description

2.1 Product Appearance

Figure 2-1 shows the appearance of an *IR Network High Speed Dome*.

Figure 2-1 IR Network High Speed Dome

Figure 2-2 shows the structure diagram of an I*R Network High Speed Dome*.

Figure 2-2 Structure diagram of an IR Network High Speed Dome

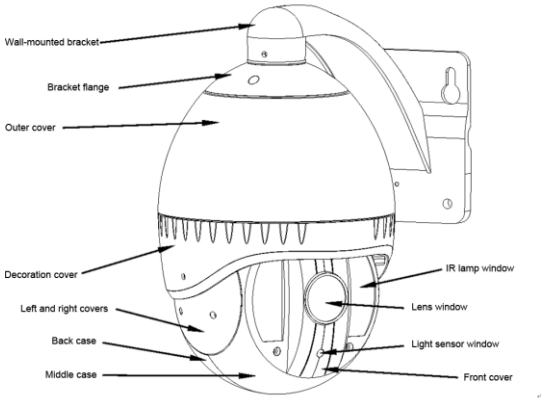


Figure 2-3 shows the multi-head cable used by a dome camera. Figure 2-3describes cores of the multi-head cable.

Figure 2-3 Multi-head cable

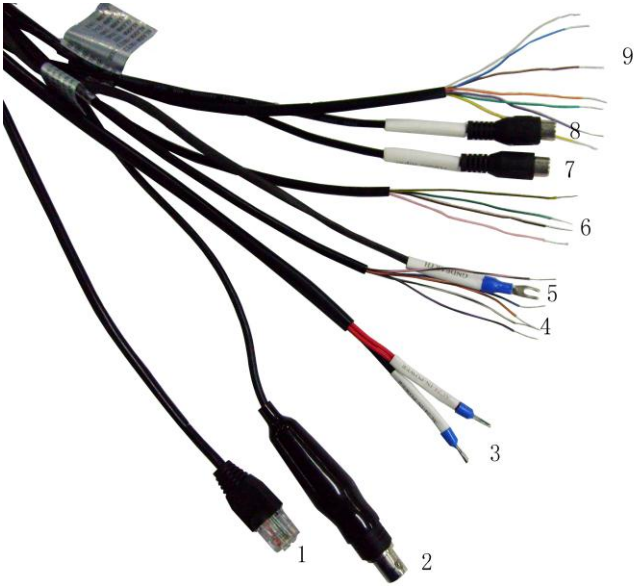


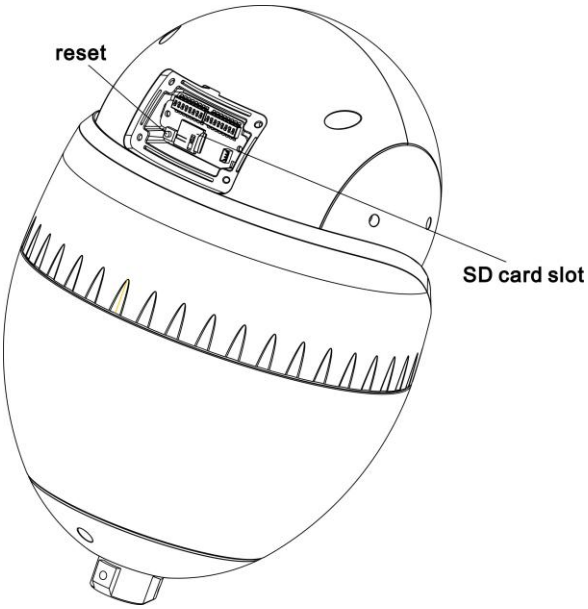
Table 2-1 cores of the multi-head cable

No.	Color	Function	Description
1	N/A	Network port	Connects to an external audio device such as a speaker.
2	N/A	Video output port	Sends analog video signals. You can connect the camera to a TV monitor through this port to view analog videos.
3	Red core	AC 24V power supply wire	The red and black core supply power for the device, and supply power for the heater.
	Black core		
9	Yellow core	Alarm output channel 2	Seven channels of switching-value alarm input and two channels of switching-value alarm output.
	Orange core	Alarm output channel 2 common terminal	
	Grey core	Alarm input channel 7	
	Blue core	Alarm input channel 6	

No.	Color	Function	Description
	Purple	Alarm input channel 5	
	Brown core	Alarm input channel 4	
	Green core	Alarm input channel 3	
4	Black red core	Alarm input channel common terminal	
	Black orange core	Alarm input channel 1	
	Black grey core	Alarm input channel 2	
	Black blue core	Alarm output channel 1 common terminal	
	Black purple core	Alarm output channel 1	
5	-	Grounding wire	N/A
6	Black brown core	RS485 output (negative)	Connects an external Pan Tilt Zoom (PTZ).
	Black green core	RS485 output (positive)	
	Black yellow core	RS485 input (positive)	
	Pink core	RS485 input (negative)	
7	Red-taped core	Audio output	Connects to an external audio device such as a speaker.
8	White taped core	Audio input	Receives analog audio signals from devices such as a sound pickup device.

Figure 2-4 shows the location of SD card slot and reset button.

Figure 2-4 The location of SD card slot and reset button



2.2 Features

Network Features

- Support complete TCP/IP protocol suite.
- Support video, audio, and alarm data.
- Provides a built-in web browser and supports access using Internet explorer.
- Supports network data transmission and remote access.
- Support Point-to-Point protocol over Ethernet (PPPoE), Dynamic Host configuration protocol (DHCP), and Dynamic Domain Name System (DDNS). Protocols.
- Supports Power over Ethernet (POE) that complies with the IEEE802.3af standard. The IP camera can connect to a switch or router supporting the POE function to implement POE.
- Support remote upgrade and maintenance.

Image Processing Features

- Support multiple steams. Single-stream model or dual-stream mode can be selected based on the site requirement. Encoding parameters for the main stream and sub stream be configured separately.
- Support dynamic stream parameters based on different image quality requirement.
- Support independent hardware compression and constant bit rate (CBR) and variable bit rate(VBR) Videos can be compressed using the Motion Joint Photographic Experts Group（MJPEG）or H.264 standards. The frame rate and image quality can be configured

I/O Features

- Support bidirectional intercom and unidirectional broadcast.
- Support RS-485 serial port control and transparent channel transmission.
- Provides a 10/100 Mbits/s self-adaptive Ethernet port.

Other Features

- Support the heartbeat function that allows the management host to learn the running status of the IP camera in real time.
- Support alarm input and output, motion detection alarm, and alarm linkage function.
- Supports level-based user rights management.

3 Hardware Installation

3.1 Preparing Installation Tools

Table 3-1 show list installation tools that you must prepare.

Table 3-1 Installation tools

Tool	Description
Phillips screwdriver	
Claw hammer	
Hammer drill	
Level ruler	
Slotted screwdriver （camera accessory）	
Screw （camera accessory）	
Hexagon wrench （camera accessory）	

3.2 Installing a Dome Camera

3.2.1 Installation Modes

A dome camera supports wall-mounted and suspension installation modes.

NOTE

The following describes how to install a dome camera in wall-mounted mode. For details about other installation modes, see the *Installation Guide*.

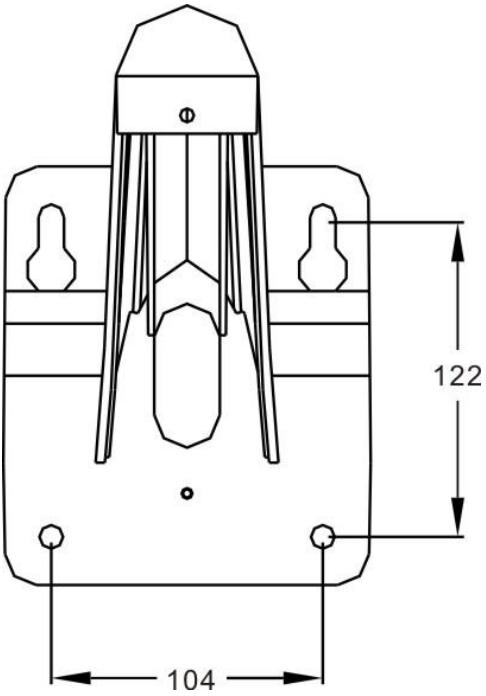
3.2.2 Wall-Mounted installation

Two kinds of bracket could be used. The following is steps for two installation ways.

Wall-Mounted Installation I

Step 1 Please make the mark based on bracket size for drilling the hole on the wall. And drill four ϕ8 holes over 60 mm depth. The bracket installing size is shown in the Figure 3-1.

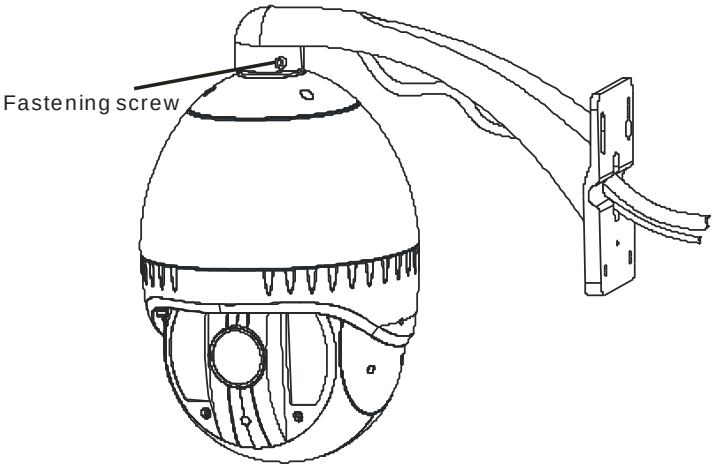
Figure 3-1 Bracket installing size



Step 2 Insert four expansion bolts into the holes.

Step 3 Attach the PTZ camera to the bracket and rotate the camera clockwise to align screw holes on the installing base of the camera and the bracket .Then tighten the three screws using to fix the bracket and camera, shown in the Figure 3-2.

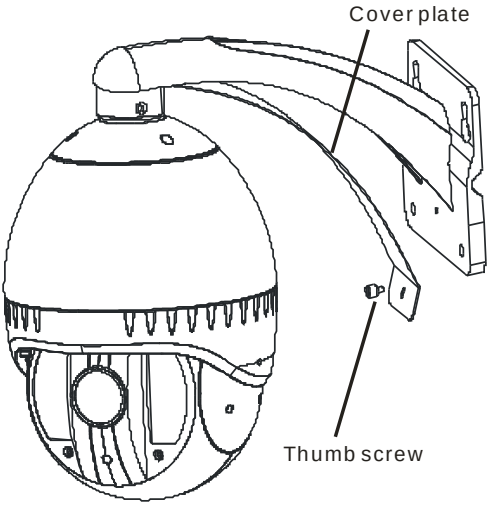
Figure 3-2 Fix the IPC onto the bracket



Step 4 Thread all the cables through the cable hole on the side of the bracket

Step 5 Put on the bracket's cover as shown in the Figure 3-3.

Figure 3-3 Installing the cover plate of the bracket



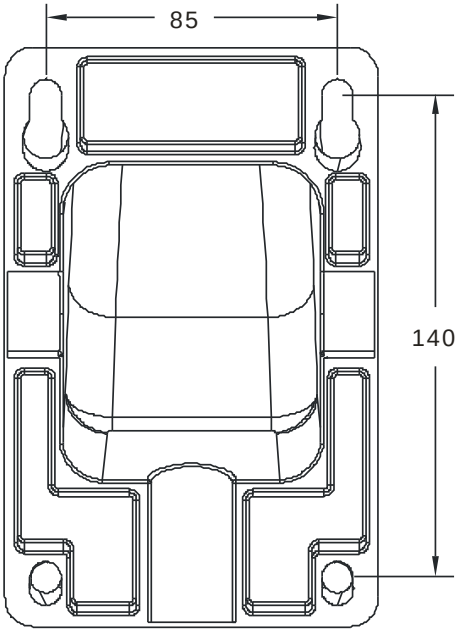
Step 6 Mounting the PTZ dome camera to the wall, tighten the four screws on the bracket completely.

----end

Wall-Mounted Installation II

Step 1 Please make the mark based on bracket size for drilling the hole on the wall. And drill four Φ8 holes over 60 mm depth. The bracket installing size is shown in the Figure 3-4.

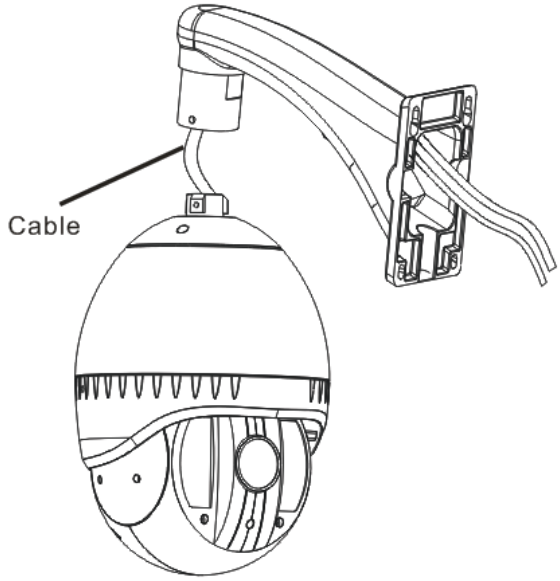
Figure 3-4 Bracket installing size



Step 2 Insert four expansion bolts into the holes.

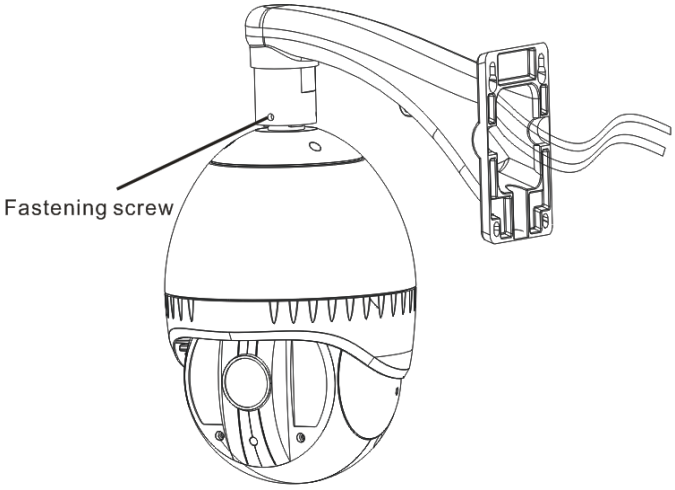
Step 3 Thread all the cables through the cable hole on the side of the bracket , show in the Figure 3-5.

Figure 3-5 Thread all cables through the bracket



Step 4 Attach the PTZ camera to the bracket and rotate the camera clockwise to align screw holes on the installing base of the camera and the bracket .Then tighten the three screws using to fix the bracket and camera, shown in the Figure 3-6.

Figure 3-6 Fix the PTZ camera and bracket together



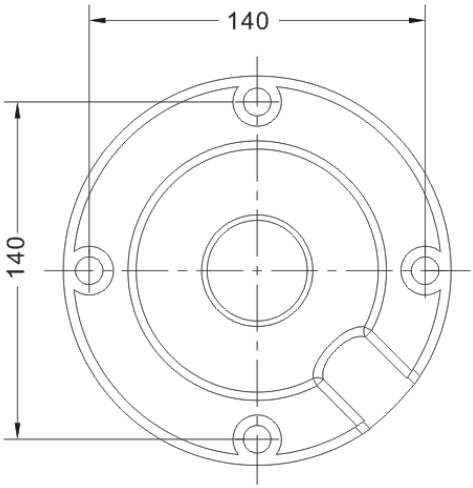
Step 5 Mounting the PTZ dome camera to the wall , tighten the four screws on the bracket completely

----End

3.2.3 Suspension Installation

Step 1 Please make the mark based on bracket size for drilling the hole on the wall. And drill four Φ8 holes over 60 mm depth. The bracket installing size is shown in the Figure 3-7.

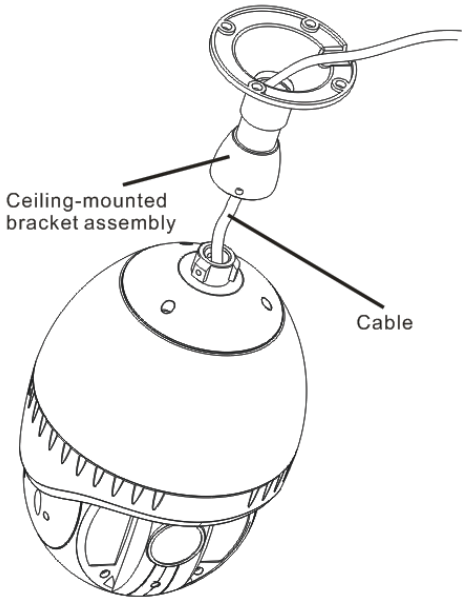
Figure 3-7 Find the hole position and Make the mark for drilling the holes



Step 2 Insert the expansion bolts into the holes.

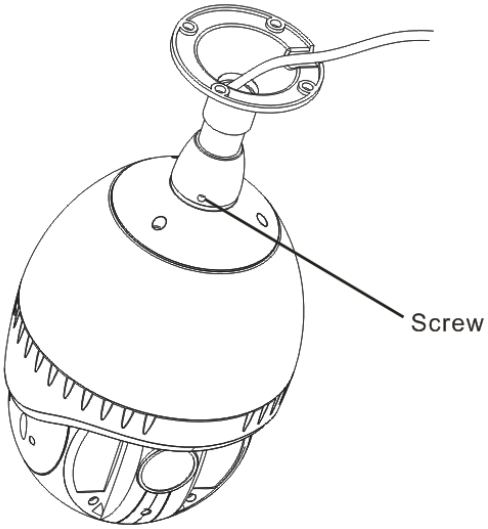
Step 3 Thread all cables through the cable hole on the side of the suspension bracket ,shown in the Figure 3-8.

Figure 3-8 Thread the cables through the cable hole on the bracket



Step 4 Fix the suspension bracket and PTZ dome together and attach PTZ camera to the bracket with rotating the camera clockwise to align the screw holes on the PTZ camera base and suspension bracket .Then tighten the three screws fixing the PTZ dome and bracket , shown in the Figure 3-9.

Figure 3-9 Fixing



Step 5 Mounting the PTZ dome camera to the ceiling and tighten the four screws on the bracket completely.

----End

4 Quick Configuration

4.1 Login and Logout

CAUTION

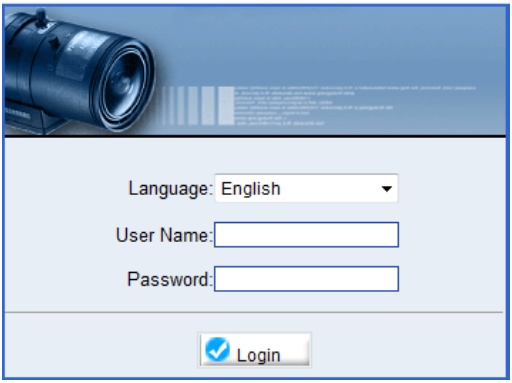
You must use Internet Explorer 6 or a later version to access the web management system; otherwise, some functions may be unavailable.

Login system

Step 1 Open the Internet Explorer, enter the IP address of IP camera (default value: 192.168.0.120) in the address box, and press Enter.

The login page is displayed, as shown in Figure 4-1

Figure 4-1 Login page



Step 2 Input the User and password.

NOTE

- The default name is **admin.** The default password is **admin**. Change the password when you log in the system for first time to ensure system security.
- You can change the system display language on the login page.

Step 3 Click Login.

The main page is displayed.

----End

logout

To logout of system, click Sign out in the upper right corner of the main page, the login page is display after you log out of the system.

4.2 Main page layout

On the main page, you can view real-time video, set parameter, Video parameter, Video control, PTZ control, PTZ Configure and log out of the system. Figure 4-2 is shown the main page layout.

Figure 4-2 Main page layout

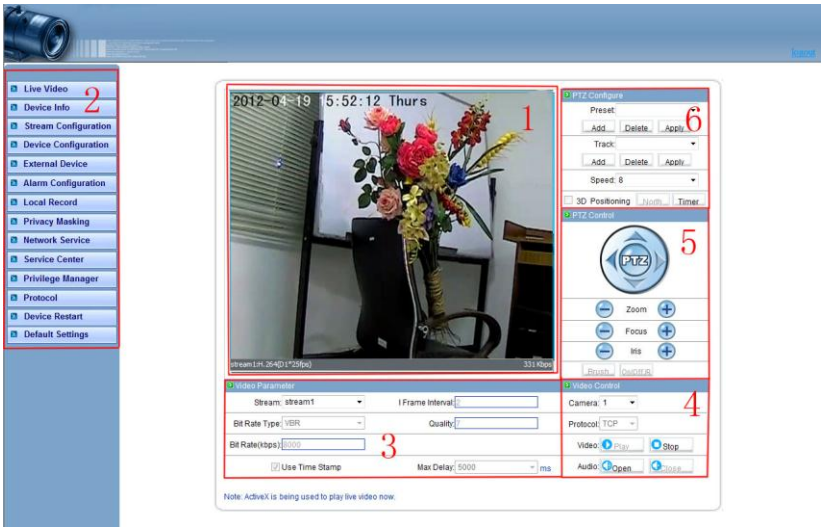


Table 4-1 Elements on the main page

NO.	Element	Description
1	Real-time video area	Real-time videos are displayed in this area, You can also set sensor parameters.
2	Menu area	You can choose a menu to set device parameters, including the device information, audio and video streams, alarm setting, and privacy mask function.
3	Video area	Video parameters, such as the I frame interval, bit rate

NO.	Element	Description
		type, bit rate, and quality, are display.
4	Video control area	You can perform the following operation in this area: • Switch between cameras. • Start or stop playing Videos. • Start or stop playing audio. • Enable or disable the intercom function
5	PTZ control	You can control the camera direction, zoom in or out, and change the focal length and aperture for a dome camera or a camera connected to an external PTZ. **NOTE** Currently the automatic aperture adjustment function is not support.
6	PTZ configuration area	you can perform the following operation in this area: • Add, delete, and invoke the presents and tacks. • Adjust the PTZ rotation speed. • Enable or disable 3D position. • Set the direction to due north. • Set the PTZ timer. **NOTE** • PTZ timer function as a time trigger. When it is activated, the PTZ rotates according to presents and tracks as scheduled. • The PTZ timer use the time set in camera. Ensure the time is correct. • This function is available only to a camera with PTZ or camera connected to external PTZ.

4.3 Browsing Video

User can browse the real-time video in the web management system.

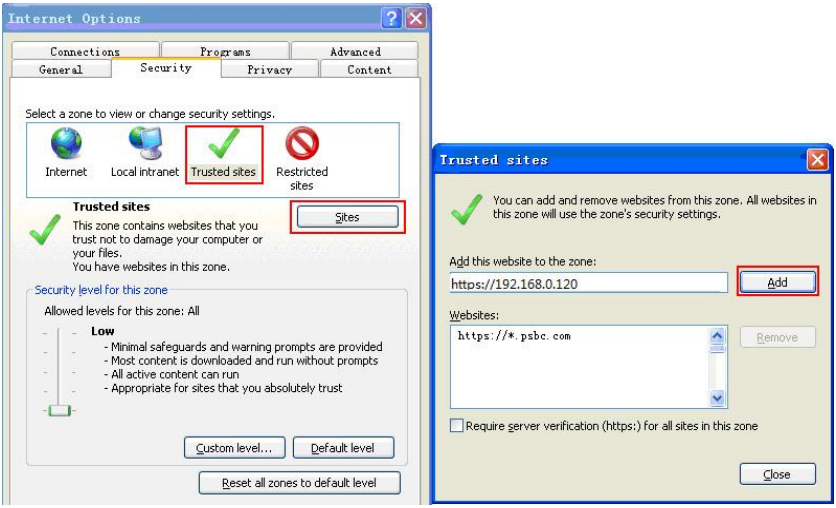
Preparation

To ensure the real-time video can be play properly, you must perform the following operation when you log in to the web for the first time:

1. Open the Internet Explorer. **Choose Tools > Internet options > Security > Trusted sites > Sites.**

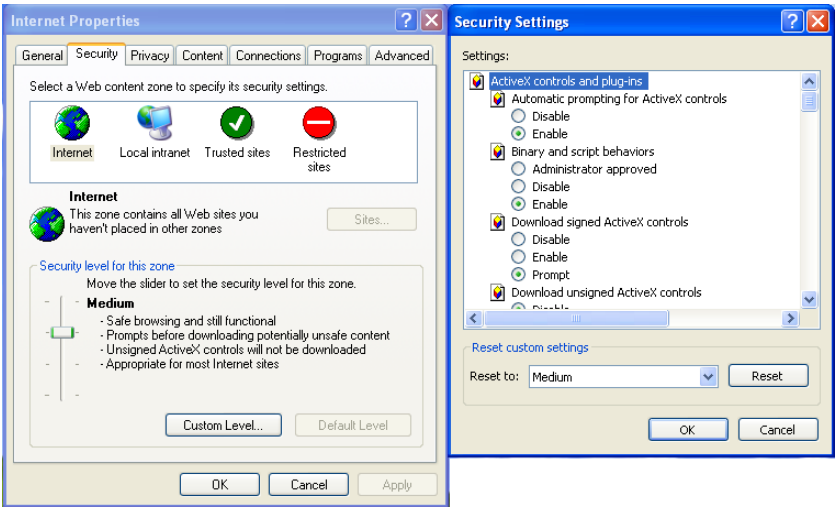
   In the display dialog box, click **Add**, as shown in Figure 4-3.

Figure 4-3 Adding the a trusted site



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 4-4.

Figure 4-4 Configuring ActiveX control and plug-ins



3. Download and install the player control as prompted.

NOTE

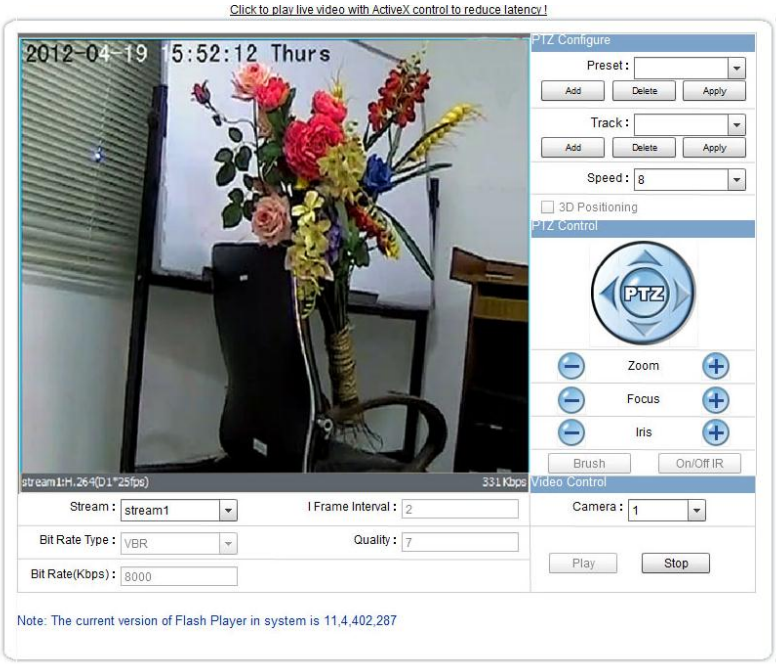
The login page is display when the control is loaded.

4.3.1 Download the right control in the Internet Explorer

Preparation

- User uses the Internet Explorer browse video.
- Real-time video page pop-ups the message "clicks to play live video with ActiveX control to reduce latency" as shown in Figure 4-5.

Figure 4-5 Change the ActiveX



Click the message, jump to download ActiveX control interface, once downloading is complete, you can watch more fluent video screen.

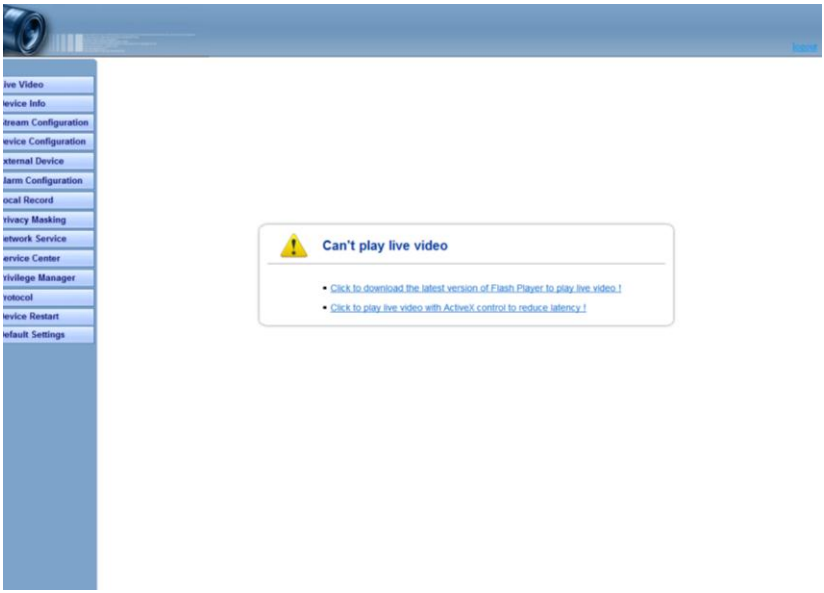
Unable to display video picture, and need to download and install the control

Preparation

- User uses the IE Explorer browse video.

- Real-time video page pop-up the message “click to download the latest version of Flash Play live video” and “click to play video with ActiveX control to reduce latency” as shown in Figure 4-6.

Figure 4-6 Download control tips



Click the message” click to play live video with ActiveX control to reduce latency”, jump download Adobe Flash Player Plugin control interface, once downloading is complete, you can watch video screen.

Click the message “click to download the latest version of Flash Play live video”, jump to download ActiveX control interface, once downloading is complete, you can watch more fluent video screen.

4.3.2 In the Google, Firefox, or Safari browsers watch real-time video

Google, Firefox, and Safari browsers only support Adobe Flash Player Plugin to play video. When Adobe Flash Plugin control version is too low, browser will automatically clew you to download the latest control.

4.4 Setting Local Network Parameters

Description

Local network parameters include:

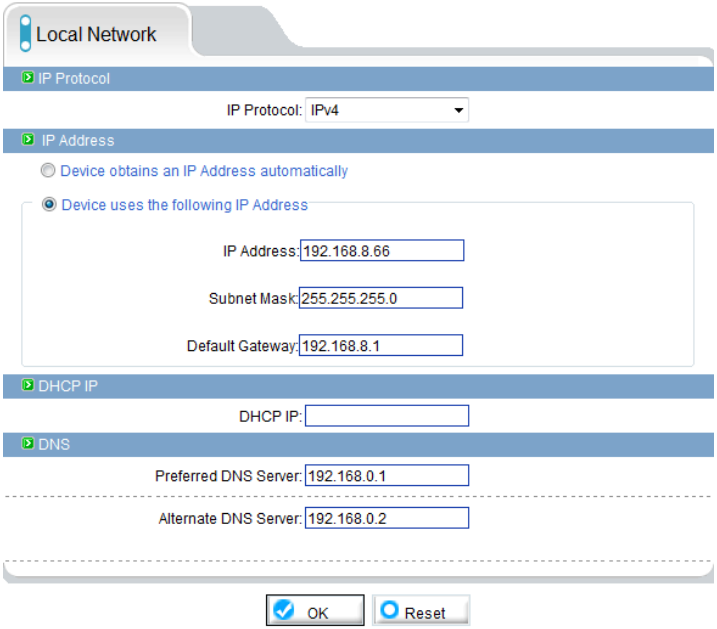
- IP protocol
- IP address
- Subnet mask
- Default gateway
- Dynamic Host Configuration Protocol (DHCP)
- Preferred Domain Name System (DNS) server
- Alternate DNS server

Procedure

Choose **Device Configuration** > **Local Network**.

The **Local Network** page is displayed, as shown in Figure 4-7.

Figure 4-7 Local Network page



Step 4 Set the parameters according to Table 4-2.

Table 4-2 Local network parameters

Parameter	Description	Setting
IP Protocol	IPv4 is the IP protocol that uses an address length of 32 bits.	[Setting method] Select a value from the drop-down list box. [Default value] IPv4
Device obtain an IP address automatically	The device automatically obtains the IP address from the DHCP server.	[Setting method] Click the option button. **NOTE** To query the current IP address of the device, you must query it on the platform based on the device name.
DHCP IP	IP address that the DHCP server assigned to the device.	N/A
IP Address	Device IP address that can be set as required.	[Setting method] Enter a value manually. [Default value] 192.168.0.120
Subnet Mask	Subnet mask of the network adapter.	[Setting method] Enter a value manually. [Default value] 255.255.255.0
Default Gateway	This parameter must be set if the client accesses the device through a gateway.	[Setting method] Enter a value manually. [Default value] 192.168.0.1
Preferred DNS Server	IP address of a DNS server.	[Setting method] Enter a value manually. [Default value] 192.168.0.1
Alternate DNS Server	IP address of a domain server. If the preferred DNS server is faulty, the device uses the alternate DNS server to resolve domain names.	[Setting method] Enter a value manually. [Default value] 192.168.0.2

Step 5 Click **OK**.

- If the message "Network Parameter Updated" is displayed, click OK. The system saves the settings. The message "Set network params success, Please login system again" is displayed. Use the new IP address to log in to the web management system.
- If the message "Invalid IP Address", "Invalid Subnet Mask", "Invalid default gateway", "Invalid primary DNS", or "Invalid space DNS" is displayed, set the parameters correctly.

NOTE

- If you set only the **Subnet Mask**, **Default Gateway**, **Preferred DNS Server**, and **Alternate DNS Server** parameters, you do not need to log in to the system again.
- You can click **Reset** to set the parameters again if required.

----End

5 Technical Specification

5.1 IRHigh Speed Dome technical parameters

Table 5-1 shows the *IR High Speed Dome* technical parameters.

Table 5-1 Technical parameters table

Items	parameters	Module：FCB-CH6300	Module;CMD-8100DN
Module function	Image sensor	1/2.8 Type Exmor CMOS Sensor	
	Pixels	2 Mega Pixel	
	resolution	1920×1080	
	Video system	1920×1080p/25fps；1920×1080p/30fps	
	Synchronous	internal Synchronous	
	Len	4.7mm(wide) - 94mm(tele)，F1.6 - F3.5	4.7mm(wide) - 103mm(tele)，F1.6 - F3.2
	Minimum working distance	10mm(wide) 1000mm(tele)	
	Focus	Auto/manual	Auto/manual /push
	Optical variable times	20x	22x
	Digital zoom	12x	N/A
	Horizontal viewing angle	55.4 degree(wide) - 2.9degree(tele)	58.16degree(wide) - 2.9degree(tele)
	S./N Ratio	50dB	
	Minimum illumination	ICR off:0.26Lux ICR on :0.005Lux	ICR off：0.1Lux； ICR ON：0.002Lux
	Recommend working illumination	100Lux - 100000Lux	30Lux - 100000Lux
	BLC	on/off	N/A

Items	parameters	Module：FCB-CH6300	Module;CMD-8100DN
	Iris	Auto/manual	Auto
	Electric shutter	1/1 – 1/10000 sec, have 22 level	1/25 – 1/10000 sec
	White balance mode	Auto/automatic track/indoor/outdoor/manual/sodium lamp	ATW/PUSH
	Gain control	Auto/manual, -3 – 28dB, have 16 level	Auto 0dB – 28dB
	Wide-dynamic	Auto/open/close	On/off
	Nose suppression	6 level	
	sharpness	16 level	0-100
Dome function	Horizontal range	360 Degree continuous	
	Horizontal speed	0.01-120 degree/sec	
	Vertical range	0-180 degree, auto rotation	
	Vertical angle	0-93degree	
	Vertical speed	0.01-120 degree/sec	
	Grid indication	support	
	Direction	support	
	Present	255	
	Present speed	120 degree/sec	
	Present position	<0.5 degree	
	Line scan	12. boundary can be set	
	Cruise	12, each up to 32 present point	
	Pattern	6, maximum 1000 command each and 5 minutes.	
	Guard position	Present/cruise/ scan/ track	
	Timing run	Timing can be set to run present position, cruise, pattern etc.	
	Power memory	support	
	Alarm function	7 alarm input (switch type), 2 alarm output (support normally open and normally close)	

Items	parameters	Module：FCB-CH6300	Module;CMD-8100DN
	Alarm linkage	Present ,cruise, pattern, SD card store can trigger switch output	
	3D position	Support	
	Remote update	Support	
	PTZ Control	IP platform control, also support 485 control	
	485 interface	Full duplex	
	485 Protocol	PELCO-D，PELCO-P, support self-adaption, protocol can be customized	
	485 Software address	Support	
	BNC	BNC male，1.0Vp-p/75ohm, support PAL/NTSC	
	Intelligent temperature power control	Support	
	Intelligent fan control	support	
Network function	Audio input/output	Linear audio, 1 output, one input	
	Network interface	RJ-45，10/100Base-T	
	SD card	1 MICRO SD card interface, support 32GB MicroSD card	
	Video coding	H.264(ISO/IEC 14496-10) high/baseline profile	
	Bit rate control	CBR、VBR	
	Image coding specification	Support 1920x1080p@30fps	
	Multi-stream	Support	
	OSD	Time, date, channel number, temperature, and channel name, user-defined.	
	Audio compression	SupportG.711，G.723.1/AMR(optical)	
	Bidirectional talk	Support	
	Motion detection	Support	
	Heartbeat	Support	

Items	parameters	Module：FCB-CH6300	Module;CMD-8100DN
	Alarm events and handing	Can through the internal dynamic, external input, or plan trigger events, Picture can upload through Email and HTTP	
	Network transmission	Auto adaptive flow control technology	
	WebServer	Build-in Web Server, support through the browser to see the real-time video and configure the parameters	
	Network protocol	IPv4/v6、RTP/RTCP、TCP/UDP、HTTP、DHCP、DNS、FTP、DDNS、PPPOE、SMTP	
	safety	Password protection, support multistage user and multiple management	
Infrared function	Infrared lamp mode	Can manual or automatic control switch	
	IR viewing distance	100 meters	
	Wavelengths	850nm	
	Open infrared lamp illumination	lower 1-3Lux	
	Close infrared lamp illumination	over 7-10Lux	
	Open delay time	1 sec	
	Close delay time	60 sec	
	Infrared lamp strength intelligent control	support	
General specification	Power supply	Power supply: AC 24V, 4A	
	Power	Maximum power: 60W Heater power: 20W	
	Operator temperature and humidity	-40℃ － 60℃,humidity <90%	
	Heaters starts working	5℃（error:±5℃）	

Items	parameters	Module：FCB-CH6300	Module;CMD-8100DN
	temperature		
	Protection level	IP66(outdoor), 6K lightning protection, anti-surge, anti-break	
	Store environment	-40-85℃ humidity 0-95%	
	Bracket	Can choose outdoor wall-mounted bracket, corner-mounted bracket, and indoor lifting bracket.	
	Installation	Wall, ceiling, corner mounted	
	Weight(without the bracket)	5.7KG	

6 Troubleshooting

Table 6-1 describes the common faults and solutions

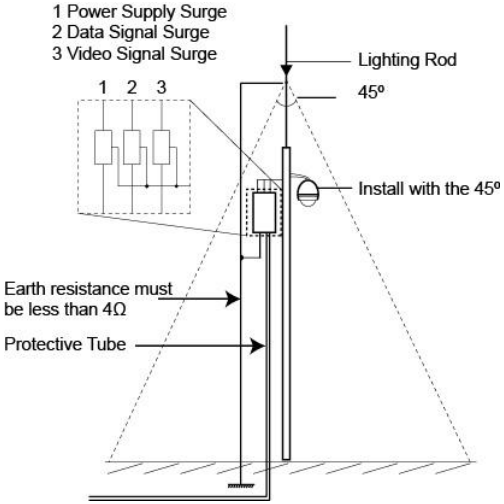
Table 6-1 Common fault and solution

Problems	Possible Causes	Remedies
No action when power is switched on	Power supply fault	Replace
	Bad connection of the power	Correct
	Transformer damaged	Replace
Abnormal self-check. Images with motor noise	Mechanical failure	Repair
	Camera inclined	Reinstall
	Power supply not enough	Replace
Normal self-check but no images	Video signal fault	Reinstall
	Bad connection of the video	Press to connect well
	Camera damaged	Replace
Normal self-check but out of control	RS485 bus bad connection	Check the RS485 connection
	Dome ID setup is wrong	Reselect
	Protocol setup is wrong	Reset and Switch ON again
Vague image	Bad connection of the video	Press to connect well
	Power supply not enough	Replace
Dome camera out of control	Self check error	Switch ON again
	Bad connection of control	Press to connect well
	Bad control of matrix	Switch ON again
Lens of Dome out of control	In manual state	Use the control command to set the lens of dome into manual state.
Use IR Remote controller on DVR but out of control	Address of IR Remote controller error	Correct
	IR Remote controller no battery	Change battery

7 Lightning Proof and Surge Signal Proof

The product adopts TVS lightning proof technology to prevent from damage by lightning strike below 1500 W and impulse signals such as surge; but it is also necessary to abide by the following precautions to ensure electrical safety based on practical circumstances:

- Keep the communication cables at least 50 meters away from high voltage equipment or cables.
- Make outdoor cable laying-out under eaves as possible as you can.
- In open area shield cables in steel tube and conduct a single point ground to the tube. Trolley wire is forbidden in such circumstances.
- In strong thunderstorm or high faradic zone (such as high voltage transformer substation), extra strong lightning proof equipment must be installed.
- Take the building lightning proof requirements into account to design the lightning proof and grounding of outdoor equipment and cable laying-out in accordance with the national and industrial standards.
- The system must be grounded with equal potentials. The earth ground connection must satisfy the anti-interference and electrical safety requirements and must not be short connected with high voltage electricity net. When the system is grounded separately, the resistance of down conductor should be ≤ 4Ω and the sectional area of down conductor should be ≤25mm^2 (refer to Figure E.1).



A Declaration on Hazardous Substances in Electronic Information Products

Part	Hazardous Substances					
	Pb	Hg	Cd	Cr6+	PBB	PBDE
Mechanical part	○	○	○	○	○	○
Board/circuit module	○	○	○	○	○	○
Connector	○	○	○	○	○	○
Support devices	○	○	○	○	○	○

○: Indicates that the concentration of the hazardous substance contained in all the homogeneous materials of this part is below the limit requirement of the SJ/T 11363−2006 standard.

×: Indicates that the concentration of the hazardous substance contained in all the homogeneous materials of this part is above the limit requirement.

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