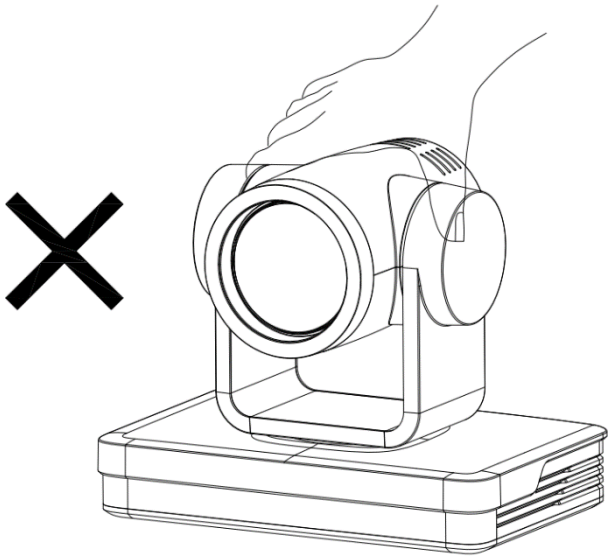
GERMANY

4K PTZ CAMERA

ALF-25X-4KCAM / NDI

⚠ Warning

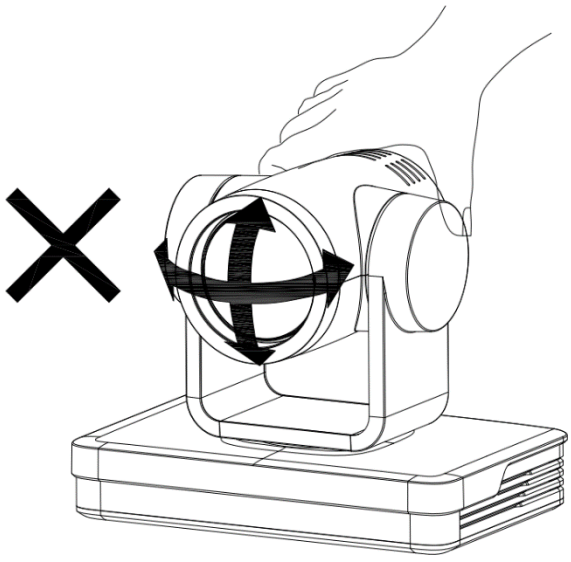
Improper operations may damage the product structure and result in mechanical failure. Please note the following tips.



⚠ Do not move the camera by grabbing the head.

Move the camera by holding the bottom with one or both hands.

⚠ Please do not rotate the lens and holder manually no matter the camera is power on or off; otherwise it may damage the camera structure and result in failure of camera self-check and unable to start the camera.



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Attention

CE FC CAN ICES-3 (B)/NMB-3(B)

NOTE: This equipment has been tested and was found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment can generate and radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. 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 through one or more of the following measures:

---Reorient or relocate the receiving antenna.
---Increase the distance between the equipment and receiver.
---Connect the equipment into an outlet on a circuit different from which the receiver is connected.
---Consult the dealer or an experienced radio/TV technician for help.

WARNING: Changes or modifications not expressly approved by the party responsible for compliance, could void the user's authority to operate the equipment.

Radiation Exposure
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:
(1) this device may not cause interference, and
(2) this device must accept any interference, including interference that may cause undesired operation of the device.

Do not dispose of this product with the normal household waste at the end of its life cycle. Return it to a collection point for the recycling of electrical and electronic devices. This is indicated by the symbol on the product, user manual or packaging

The materials are reusable according to their markings. By reusing, recycling or other forms of utilization of old devices you make an important contribution to the protection of our environment.

Please contact your local authorities for details about collection points.

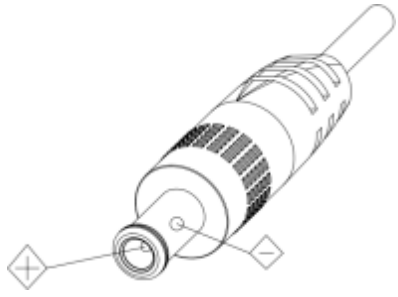
This manual introduces in detail the functions, installation and operation for this PTZ camera. Please read this manual carefully before installation and use.

1. Cautions

1.1 Avoid damage to product caused by heavy pressure, strong vibration or immersion during transportation, storage and installation.
1.2 Housing of this product is made of organic materials. Do not expose it to any liquid, gas or solids which may corrode the shell.
1.3 Do not expose the product to rain or moisture.
1.4 To prevent the risk of electric shock, do not open the case. Installation and maintenance should only be carried out by qualified technicians.
1.5 Do not use the product beyond the specified temperature, humidity or power supply specifications.
1.6 Wipe it with a soft, dry cloth when cleaning the camera lens. Wipe it gently with a mild detergent if needed. Do not use strong or corrosive detergents to avoid scratching the lens and affecting the image.
1.7 This product contains no parts which can be maintained by users themselves. Any damage caused by dismantling the product by user without permission is not covered by warranty.

2. Electrical Safety

Installation and use of this product must strictly comply with local electrical safety standards.
The power supply of the product is ±12V, the max electrical current is 2A .



3. Install

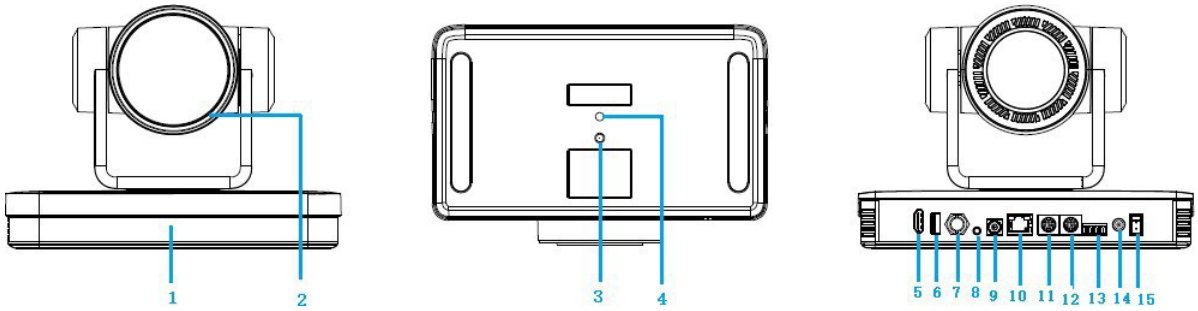
3.1 Do not rotate the camera head violently, otherwise it may cause mechanical failure.
3.2 This product should be placed on a stable desktop or other horizontal surface. Do not install the product obliquely, otherwise it may display inclined image.
3.3 Ensure there are no obstacles within rotation range of the holder.
3.4 Do not power on before completely installation.

4. Magnetic Interference

Electromagnetic fields at specific frequencies may affect the video image. This product is Class A. It may cause radio interference in household application. Appropriate measure is required.

1. Camera Installation

1.1 Camera Introduction



Interface：Figure1-1 Interface

1. Receiving Light	6. USB2.0	11. RS232 Input
2. Lens	7. SDI	12. RS232 Output
3. Fixation Hole	8. Audio In	13. RS422/RS485 Jack
4. Tripod Screw Hole	9. Rotary Dip Switch	14. DC12V Power Socket
5. HDMI Jack	10. Network Jack	15. Power Switch

1.2 Interfaces and Connection

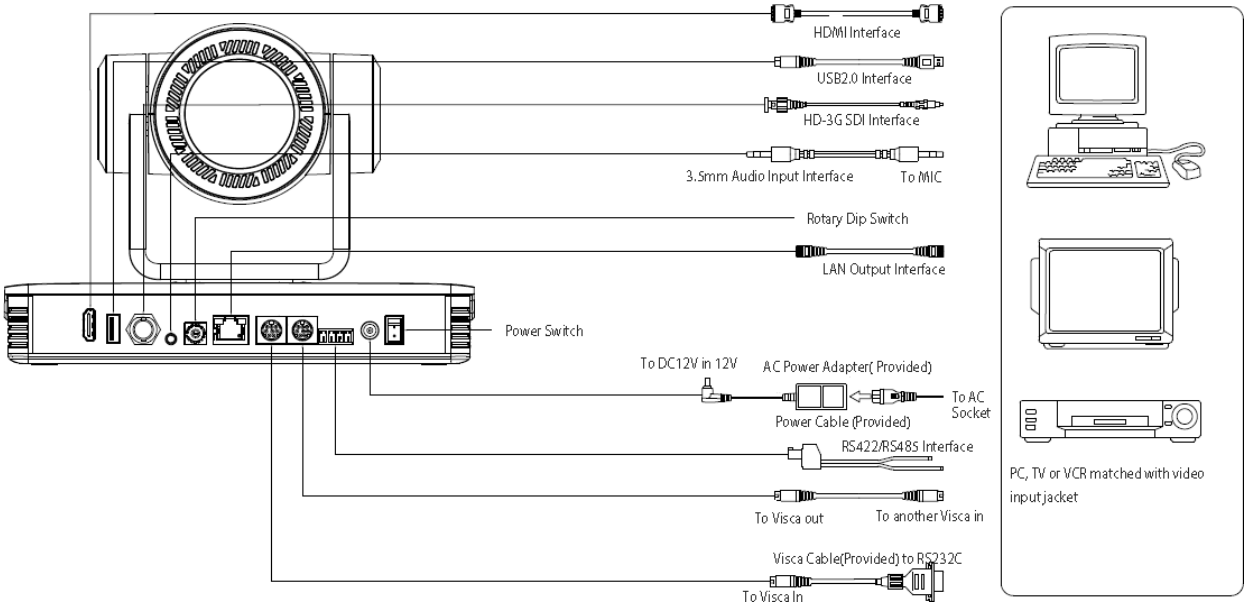


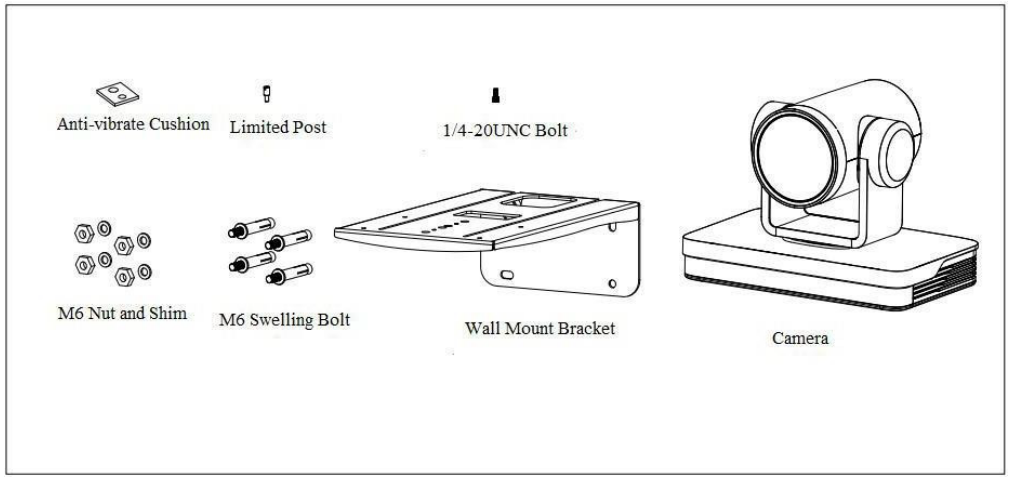
Figure 1.2 Wiring Diagram

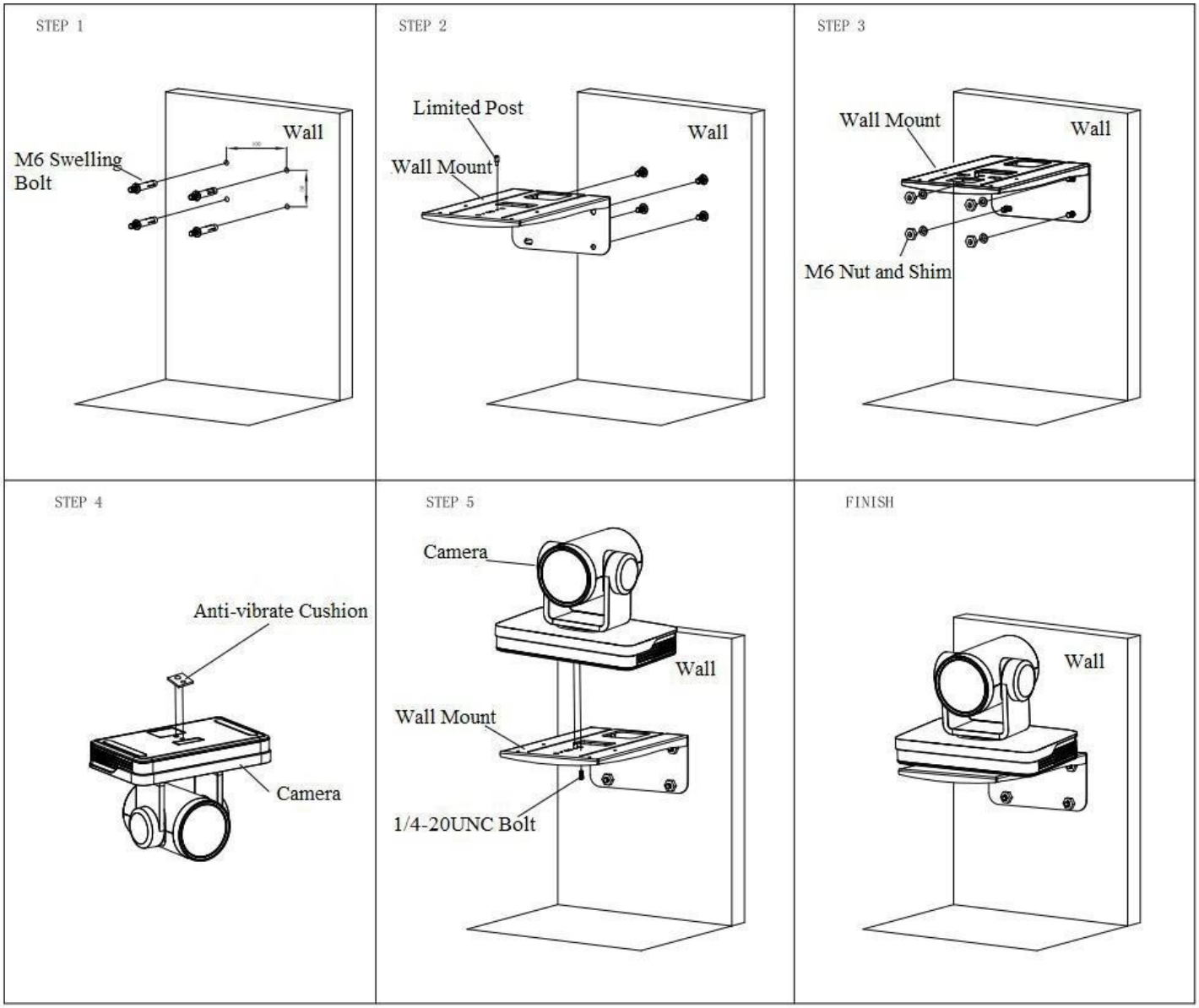
1) After power on and self-warming, the camera will automatically return to the preset 0 position if it's pre-set.
2) The default address for the IR remote control is 1#. If the menu restored to factory defaults, the remote-control default address will restore to 1#.

1.3 Mounting Brackets

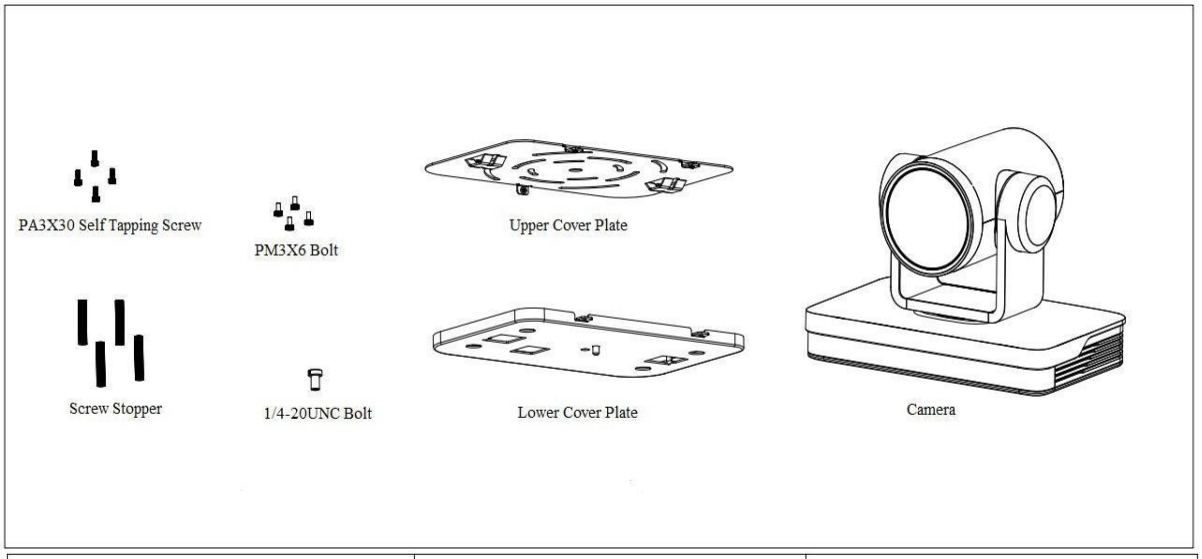
Notes:
Ceiling or wall mounting brackets can only be mounted on a concrete wall.
For safety reason, plasterboard is not recommended.

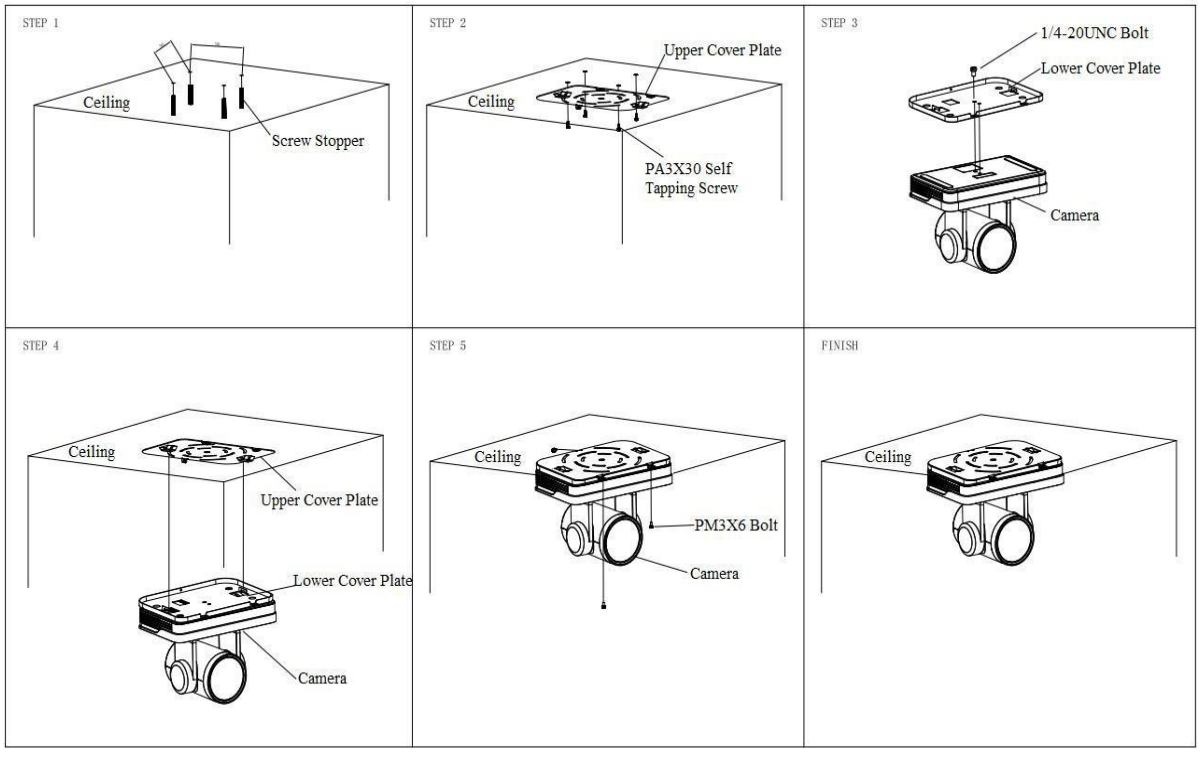
1) Wall Mounting

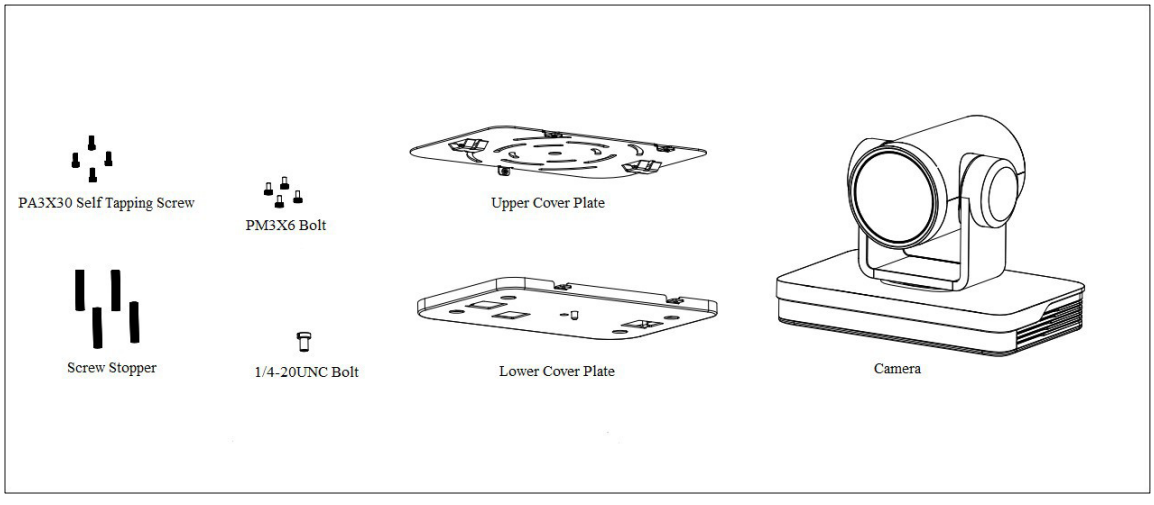



STEP 1
Wall
M6 Swelling Bolt
STEP 2
Limited Post
Wall
Wall Mount
STEP 3
Wall Mount
Wall
M6 Nut and Shim
STEP 4
Anti-vibrate Cushion
Camera
STEP 5
Camera
Wall
Wall Mount
1/4-20UNC Bolt
FINISH
Wall

2） Ceiling Mounting







2. Product Overview

2.1 Dimension

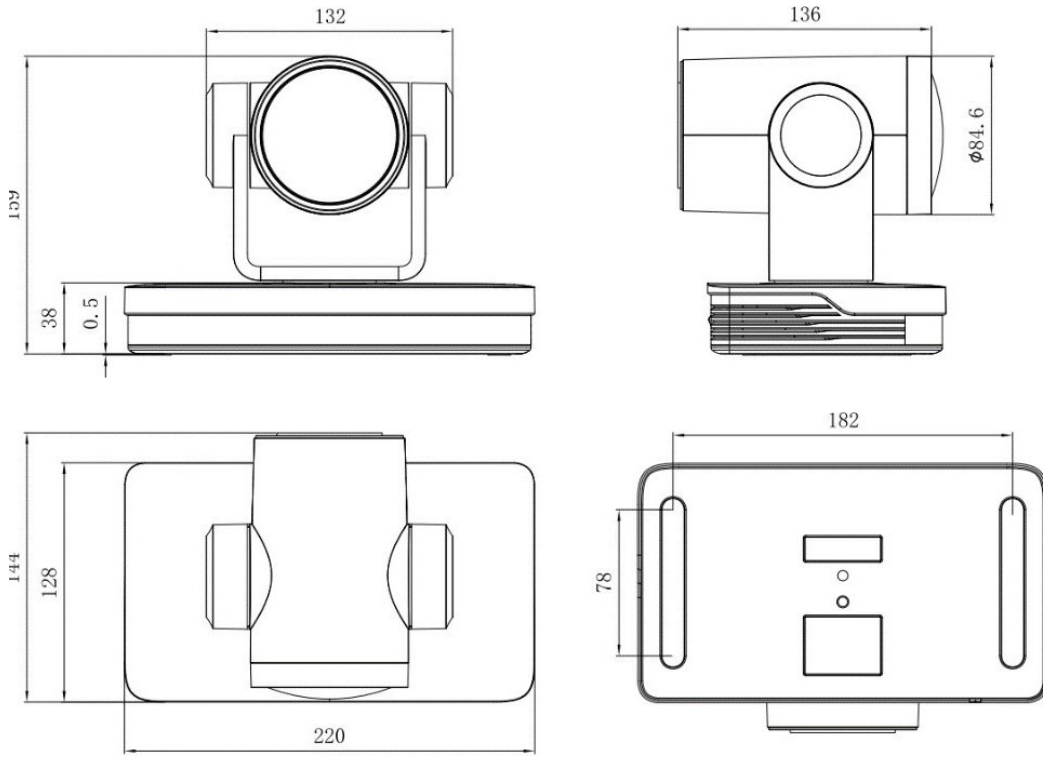


Figure 2.2 Product Dimension

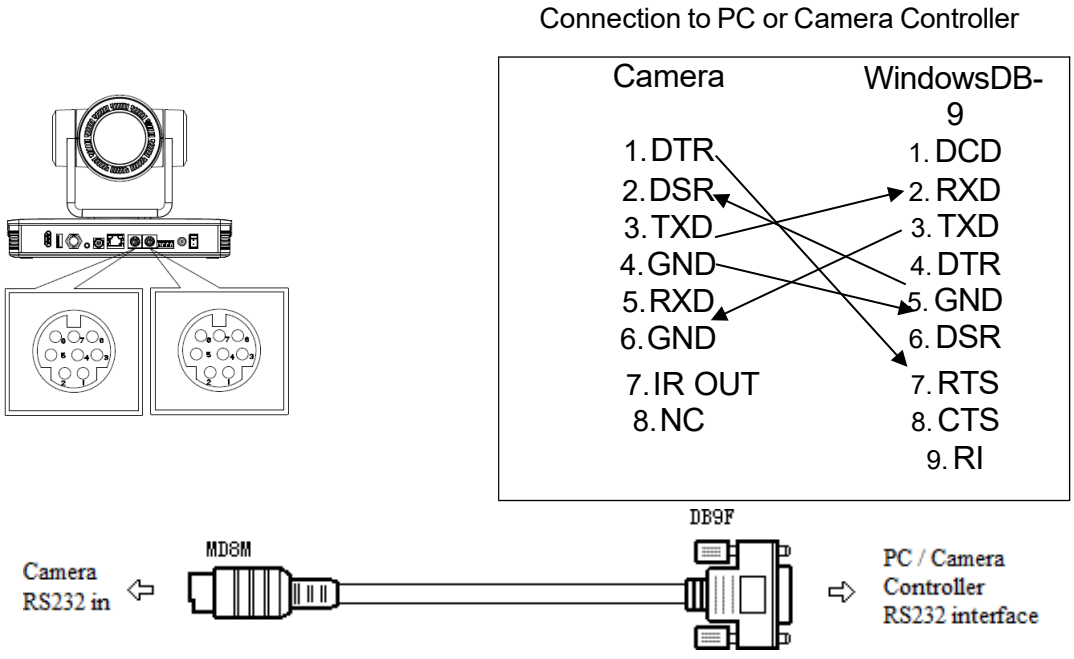
2.2 Accessory

Please see below standard and optional accessories when unpacking the box.

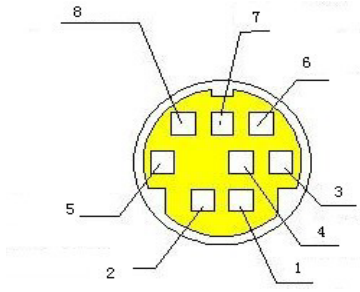
Standard Accessories
Power adapter
IR Remote Control
RS232 Cable
User Manual
USB2.0 Cable
Plastic Pad
Wall or Ceiling Mount Bracket

2.3 RS-232 Interface

1） RS-232 Interface Definition

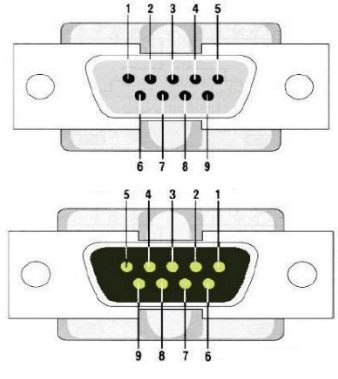


2） Mini-DIN8-pin Port Definition



NO.	Port	Definition
1	DTR	Data Terminal Ready
2	DSR	Data Set Ready
3	TXD	Transmit Data
4	GND	Signal Ground
5	RXD	Receive Data
6	GND	Signal Ground
7	IR OUT	IR Commander Signal
8	NC	No Connection

3) RS232(DB9) Port Definition

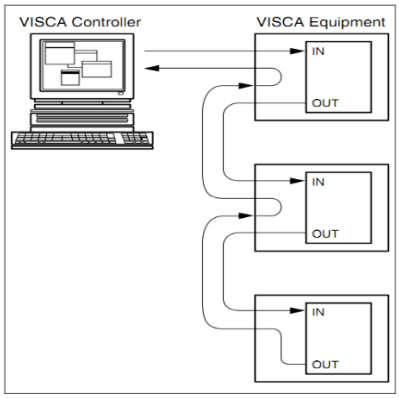


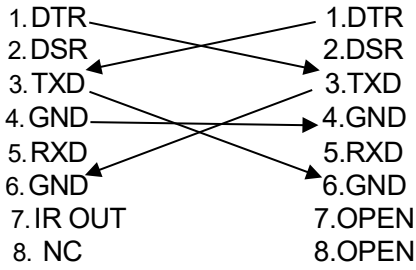
NO.	Port	Definition
1	DCD	Data Carrier Detect
2	RXD	Receive Data
3	TXD	Transmit Data
4	DTR	Data Terminal Ready
5	GND	System Ground
6	DSR	Data Set Ready
7	RTS	Request to Send
8	CTS	Clear to Send
9	RI	Ring Indicator

VISCA serial network as shown below

Camera cascade connection

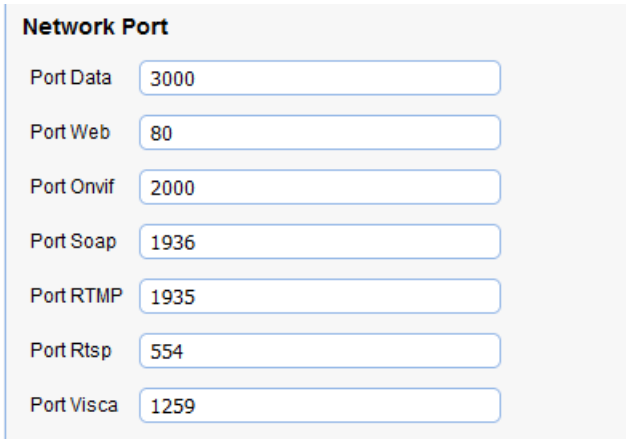
Camera 1 Camera 2



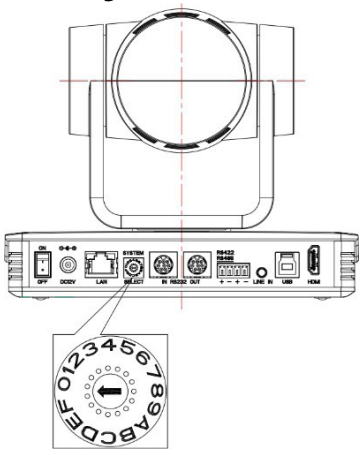


Note: Camera has an RS232 input and output interfaces, which can be cascaded according to the above diagram;

.3 Port Numbers



.4 Rotary DIP Switch



Note: After the video format is modified by the rotating encoder, a full power cycle is required.
Example: Turn the dial to C, D, E or F, power off the and restart it after a few seconds, the On-Camera Display menu will now reflect the new video format selected.

.5 Main Features

This series camera has multiple functions, superior performance and a rich video output interface; Featuring advanced ISP processing algorithms, offering vivid and high resolution video with a strong sense of depth and fantastic color rendition. It supports H.264 and H.265 encoding which makes motion video more fluent and clear under low bandwidth conditions.

Dial-up	video format	Dial-up	video format
0	4KP60	8	1080P30
1	4KP50	9	1080P25
2	4KP30	A	720P60
3	4K25	B	720P50
4	1080P60	C	video format to be set on the menu
5	1080P50	D	video format to be set on the menu
6	1080I60	E	video format to be set on the menu
7	1080I50	F	video format to be set on the menu

- **4K UHD Resolution**: SONY CMOS sensor. Resolution is up to 4K with a frame rate up to 60fps.
- **Dual Stream Output**: USB supports the main stream and sub stream output simultaneously, and meets the needs of near-end and far-end.
- **Optical Zoom Lens**: 25X optical zoom lens and 59.2° wide angle lens.
- **Interfaces**: Supports HDMI, USB 2.0, SDI, LAN, and outputs 4K audio and video simultaneously.
- **Leading Auto Focus Technology**: Fast, accurate, and stable auto focusing technology.
- **Low Noise and High SNR**: Super high SNR image is achieved with low noise CMOS. Advanced 2D/3D noise reduction technology further reduces the noise while ensuring high image clarity.
- **Multiple Audio / Video Compression Standards**: LAN interface supports H.264/H.265 video compression, USB3.0 interface supports MJPG, H264, YUY2, NV12, H265; A-IN interface supports AAC, MP3, G.711A audio compression coding
- **Audio input interface:** 8000, 16000, 32000, 44100, and 48000 sampling frequency. Supports AAC, MP3 and G.711A audio compression
- **Multiple Network Protocols**: Supports ONVIF, GB/T28181, RTSP, RTMP protocols; Supports RTMP push mode, easy connection to streaming server (Wowza, FMS); Supports RTP multicast mode; Supports full network command VISCA control protocol.
- **Control Interface:** RS422 input (compatible with RS485), RS232 input/output, RS232 (cascade connection)
- **Multiple Control Protocol**: Supports VISCA, PELCO-D, and PELCO-P protocols; Supports automatic identification protocols.
- **Multiple presets**: Up to 255 presets (10 presets via remote control).
- **AI Human Tracking:** Built in high speed processor and advanced image processing and analysis algorithm, and real-time tracking and zone tracking modes are available.
- **Multiple Application**: Online-education, Lecture Capture, Webcasting, Video conferencing, Tele-medicine, Unified Communication, Emergency command and control systems, etc.

.6 Technical Parameter

Camera Parameter

Optical Zoom	25X f=7.1 mm～175.11 mm ±5%
View Angle	Horizontal: 2.5°（N）～ 59.2°（W） Vertical: 1. 4°（N）～ 34.6（W）
AV	F1.61(Wide) ～F5.15(Tele) ±5%
Sensor	1/1.8 inch SONY CMOS sensor
Effective Pixels	8.51M megapixel 16：9
	HDMI: 3840*2160P60 / 50 / 25 / 59.94 / 29.97; 1080P60 / 50 / 25 / 59.94 / 29.97; 1080I60 / 50 / 59.94; 1080P@30fps, 720P@60fps, 720P@50fps, 720P60 / 50 / 59.94
Video Format	SDI: 1080P60 / 50 / 25 / 59.94 / 29.97; 1080I60 / 50 / 59.94; 1080P@30fps, 720P@60fps, 720P@50fps, 720P60 / 50 / 59.94 USB2.0 MJPG：1920*1080 / 1600*896 / 1280*720 / 1024*576 / 960*540 / 800*600 / 800*448 / 720*576 / 720*480 / 640*480 / 640*360 / 480*270 / 352*288 / 320*240P60 / 50 / 30 / 25; 3840*2160P30 H264：1920*1080 / 1600*896 / 1280*720 / 1024*576 / 960*540 / 800*600 / 800*448 / 720*576 / 720*480 / 640*480 / 640*360 / 480*270 / 352*288 / 320*240P60 / 50 / 30 / 25 3840*2160P30 YUY2：640*480 /640*360 /480*270 /320*180P30/25 NV12：640*480 /640*360 /480*270 /320*180P30/25
Minimum Illumination	0.5 Lux (F1.8, AGC ON)
DNR	3D DNR
White Balance	Auto / Manual / One Push / Specified Temperature
Focus	Auto / Manual / One Push Focus
Exposure Mode	Auto / Manual / Shutter priority / Aperture priority / brightness priority
Aperture	F1.8 ～ F11 CLOSE
Shutter Speed	1/25～1/10000
BLC	ON / OFF
WDR	OFF / Dynamic level adjustment
Video Adjustment	Brightness, Color, Saturation, Contrast, Sharpness, B/W mode, Gamma curve
SNR	≥50dB
Interface	
Video Interfaces	HDMI, SDI, LAN (Support POE), USB 2.0, A-IN, RS232-IN, RS232 OUT, RS422 (Compatible with RS485) Rotary DIP switch, DC12V Power Supply, Power Switch
Video Compression Format	LAN Interface: H.264, H.265 USB 2.0 Interface: MJPG, H264, YUY2, NV12
Audio Input Interface	Double track 3.5mm linear input
Audio Output Interface	HDMI, LAN, USB 2.0

Audio Compression Format	AAC, MP3, G.711A
Network Interface	10M / 100M / 1000M adaptive Ethernet port, supports POE power supply, supports audio and video output
Network Protocols	RTSP, RTMP, ONVIF, GB/T28181; Network VISCA control protocol: Supports remote upgrade, reboot and reset
Control Interface	RS232-IN, RS232-OUT, RS422 compatible with RS485
Serial Communication protocol	VISCA / Pelco-D / Pelco-P Baud Rate: 115200 / 38400 / 9600 / 4800 / 2400
USB Communication Protocol	UVC (Video), UAC (Audio)

Power Interface	HEC3800 outlet (DC12V)
Supply Adapter	AC110V~AC220V to DC12V/2.5A
Input Voltage	DC12V±10%
Input Current	<1A
Power Consumption	<12W
PTZ Parameter	
Pan Rotation	-110°～+110°
Tilt Rotation	-30°～+30°
Pan Control Speed	0.1°/s ～100°/s
Tilt Control Speed	0.1°/s ～70°/s
Preset Speed	Pan: 78.8°/s, Tilt: 31.7°/s
Preset Number	255 presets (10 presets via remote control)
Other Parameter	
Stored Temperature	-10℃～+60℃
Storage Humidity	20%～95%
Working Temperature	-10℃～+50℃
Working Humidity	20%～80%
Dimension	220 mm(L)*144 mm (W) *159mm (H)
Weight	1.7kg
Application	Indoor
Accessory	
Package	Power Supply, RS232 Control Cable, USB 2.0 Cable, IR Remote Control, User Manual, Warranty Card
Optional Accessories	Ceiling / Wall Mount

AI Function
The longest tracking distance can reach 6-7 meters, which can support the speaker to walk at a speed of 5-6 mph
4 tracking zones are available, which can be set within -110°～+110°in horizontal and 30° ～+30° in vertical.

3.Remote Control

Remote control instructions: remote control is divided into two types: infrared remote control and wireless remote control. Please read the following contents according to the actual remote-control type.

3.1 Code Matching for Wireless Remote Control

One to One Code Matching:
Press the "set" button and "[CAMERA NUMBER]" keys combined for 3 seconds, LED indicator starts flashing. When the camera receives the signal the power on LED indicator will go off if the code matching was successful. The camera can then be controlled by this remote control after one to one code pairing. Otherwise please clear the code matching of this remote control or use another remote control to pair with the camera again. If one to one code matching failed, the red LED light flashes for 20 seconds and then goes off, the camera will stop code match and turn on sleep mode; Press any key to wake up the camera and restart code matching procedure.
Note: After code matching is successful, please select the camera address to control it.

Clearing Code:
Press the "set" button and "[CAMERA NUMBER]" keys combined for 3 seconds, the LED indicator starts flashing. The camera will power off and on, the LED indicator will go off if code clearing successfully.

Sleep Mode and Wake Up:
Press any key to wake up the camera from sleep mode.

3.2 Keys Introduction for IR Remote Control

1) In this manual, “press the key” means a click rather than a long-press, and a special note will be given if a long-press for more than one second is required.
2) When a key-combination is required, do it in sequence. For example, “【*】+【#】+【F1】” means press“【*】”first and then press“【#】” and last press“【F1】”.

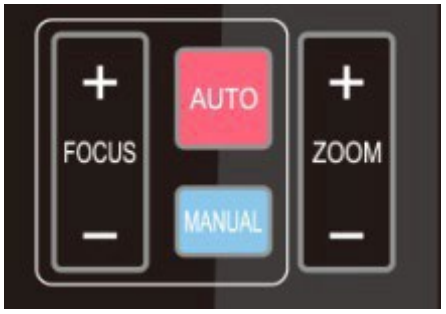
1. Standby Key

The camera enters standby mode if long pressed for 3s on standby key;
Long press 3s again on the standby key, the camera will self-check again and return to HOME position (If preset 0 position is set, the camera will return to preset 0 position).

2. Camera Selection

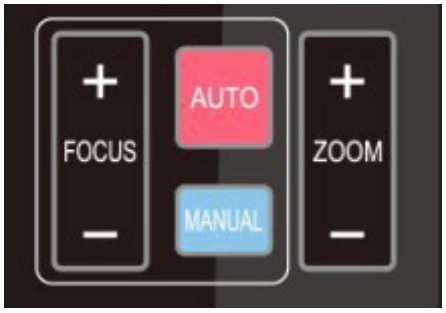
Select the camera address to control.

3. Focus Control



Auto: auto focus mode
Manual: manual focus mode
Focus + (near)**:** Press【FOCUS +】 key (Valid only in manual focus mode)
Focus - (far)**:** Press【FOCUS -】 key (Valid only in manual focus mode)
Press and hold the keys, the action of focus will keep continue and stop as soon as the key is released.

4. Zoom Control



ZOOM +: press【ZOOM +】key to zoom in
ZOOM -: press 【ZOOM -】key to zoom out
Press and hold the keys, the action of focus will keep continue and stop as soon as the key is released.

5. Set and Clear Presets

Set Preset: press 【SET PRESET】 button, and then press the number key 0-9 to set preset positions.
Note: 10 presets via remote control.

Call Preset: Press a number key 0-9 directly to call a preset position.

Clear Preset: press 【CLEAR PRESET】 button, and then press the number key 0-9 to clear preset positions.

Note : press the【#】 key three times continually to clear all presets.

6. Pan/Tilt Control

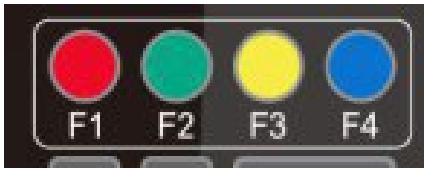
Up: press ◄ **Down**: press ▲
Left: press ▼ **Right**: press ◄
Back to middle position: press "【HOME】"

Press and hold the up/ down/ left/ right key, the pan/ tilt movements will keep running, from slow to fast, until it runs to the endpoint; movement stops as soon as the key is released.

7. Menu Setting

【MENU】: Open / close the OSD menu
【HOME】: Camera lens back to the middle position; Confirm button; Enter next menu
【↑】【⇓】: Choose item
【←】【→】: Modify values
【BLC ON/OFF】: Turn on or off the back light compensation

8. Camera Remote Control Address Setting



【*】+【＃】+【F1】: Camera Address No.1
【*】+【＃】+【F2】: Camera Address No. 2
【*】+【＃】+【F3】: Camera Address No. 3
【*】+【＃】+【F4】: Camera Address No. 4

9. Key Combination

1) 【#】+【#】+【#】: Clear all presets
2) 【*】+【#】+【6】: Restore factory defaults
3) 【*】+【#】+【3】: Menu set to Chinese
4) 【*】+【#】+【4】: Menu set to English
5) 【*】+【#】+【9】: Flip switch
6) 【*】+【#】+ Auto: Enter aging mode
7) 【#】+【*】+ Auto: Exit aging mode
8) 【*】+【#】+Manual: Restore the default username, password, and IP address
9) 【#】+【#】+【0】: Switch the video format to 4KP60
10) 【#】+【#】+【1】: Switch the video format to 4KP50
11) 【#】+【#】+【2】: Switch the video format to 4KP30
12) 【#】+【#】+【3】: Switch the video format to 4KP25
13) 【#】+【#】+【4】: Switch the video format to 1080P60
14) 【#】+【#】+【5】: Switch the video format to 1080P50
15) 【#】+【#】+【6】: Switch the video format to 1080I60
16) 【#】+【#】+【7】: Switch the video format to 1080I50
17) 【#】+【#】+【8】: Switch the video format to 1080P30
18) 【#】+【#】+【9】: Switch the video format to 1080P25

Note: If the address of former remote control is not addressed to 1 but another one from 2, 3 or 4, the corresponding camera address will restore to address 1 when all parameters are restored to factory default. User should change the remote control address to address 1.

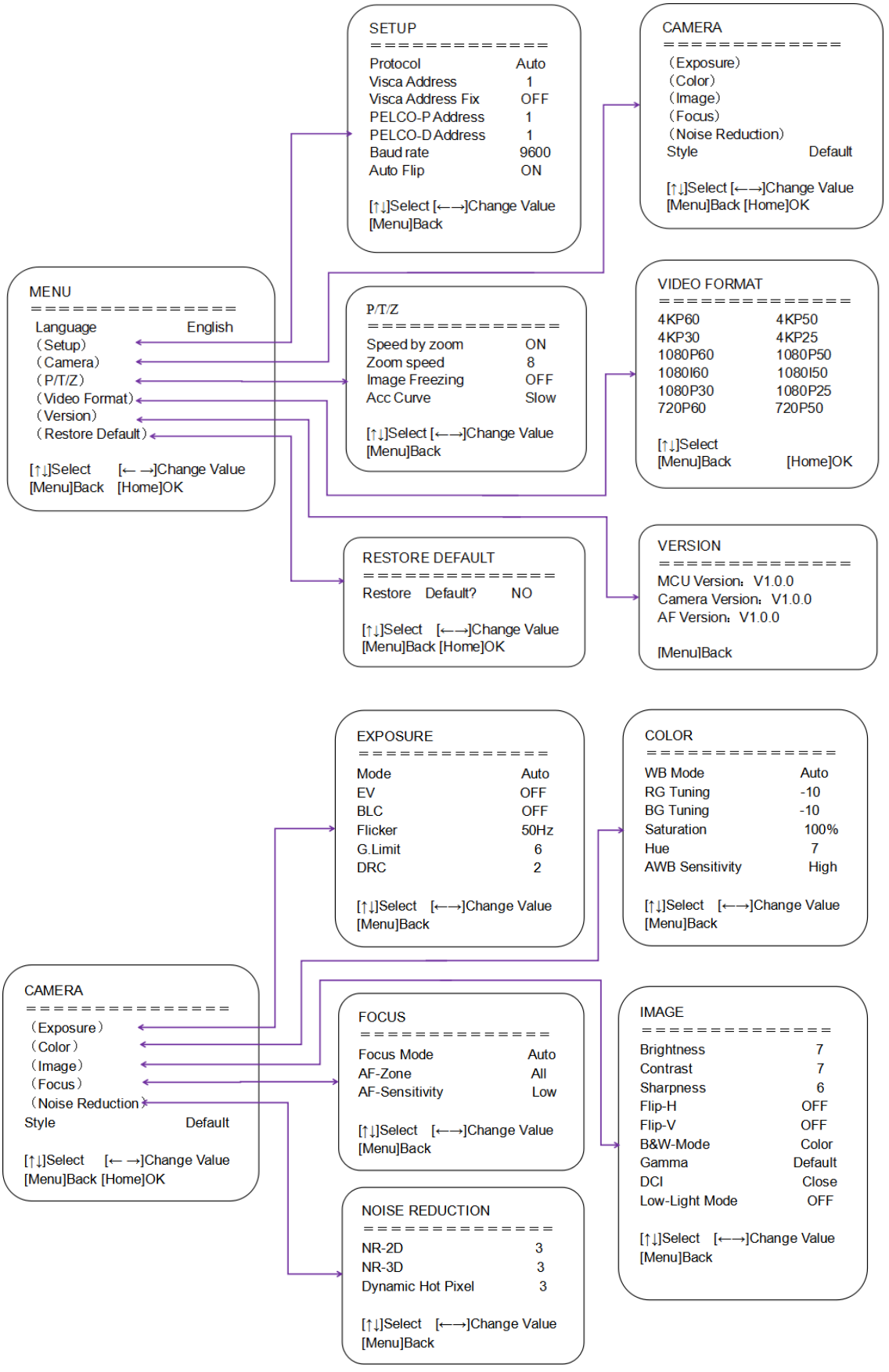
3.3 Menu Introduction

Note: The settings modified are only valid if saved before the menu is exited and/ or camera powered off.

1) Menu Control

【MENU】: Enter / exit the OSD menu or return to the previous menu
【HOME】: Enter next menu
【↑】【↓】: Choose item
【←】【→】: Modify values

2) Menu Layout



4. Network Configuration

4.1 Network Connection

Direct Connection：Direct connections via “cross-over” network cable

Connection to LAN：Connections to LAN via patch cable to LAN wall jack or LAN switch

Caution

- Please do not put the power and network cable in places where can be easily touched to prevent video quality lowered by unstable signal transmission due to poor contact of cables.

The computer must have the network segment where the camera IP address belongs to. The device will not be accessible if without the segment. I.E. The camera default IP address is 192.168.5.163, then segment 5 must be added in the computer.

Specific steps are as below:

Firstly open the window of Local Area Connection Properties on computer, select the “Internet protocol version 4(TCP/IPv4)” as shown by picture on the left. Double click or click the property “Internet” protocol version 4 (TCP/IPv4)to enter into the Internet Protocol Version 4(TCP/IPv4) Properties window, select “Advanced” to enter into the Advanced TCP/IP Setting and add IP and subnet mask in the IP browser as picture shown below. Click the “Confirm” to finish the adding of IP segment. User can add the corresponding network segment according to the revised IP address of the camera.

Caution

- The IP address to be added cannot be same with that of other computers or devices. The existence of this IP address needs to be verified before adding.

Click the “Start” and select “Operation” to input cmd as picture below to verify if the network segment has been successfully added.

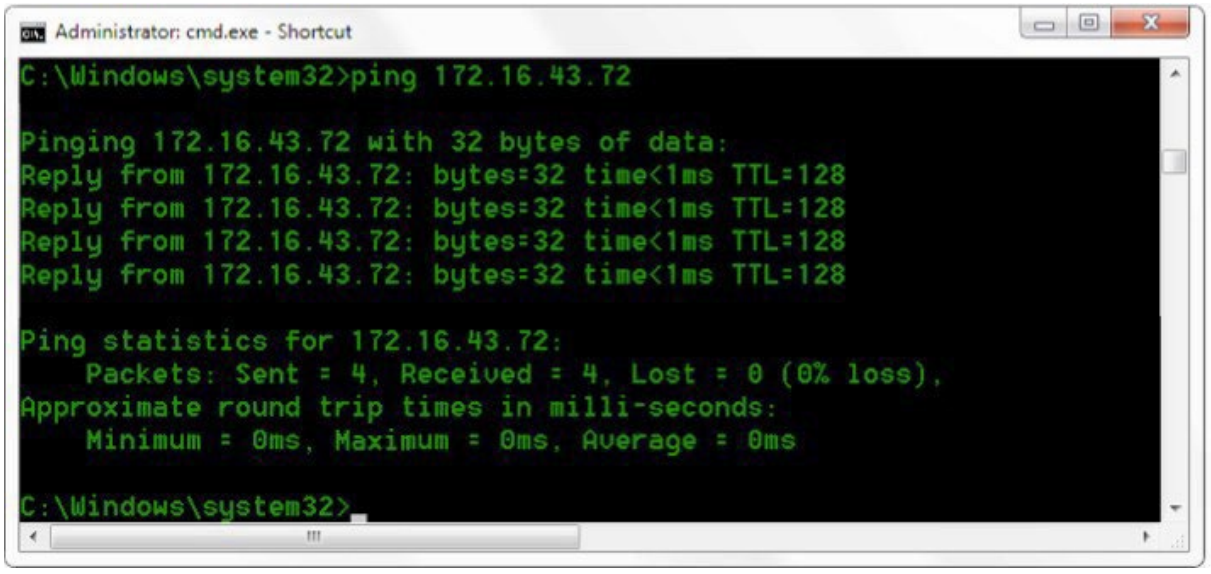


Figure1-8 Network segment successfully added

User can also to verify network connection as steps above mentioned after the finish of camera self-check. If IP is default, open DOS command window and input 192.168.5.163, then press Enter key. It will show message as below: which means network connection is normal.

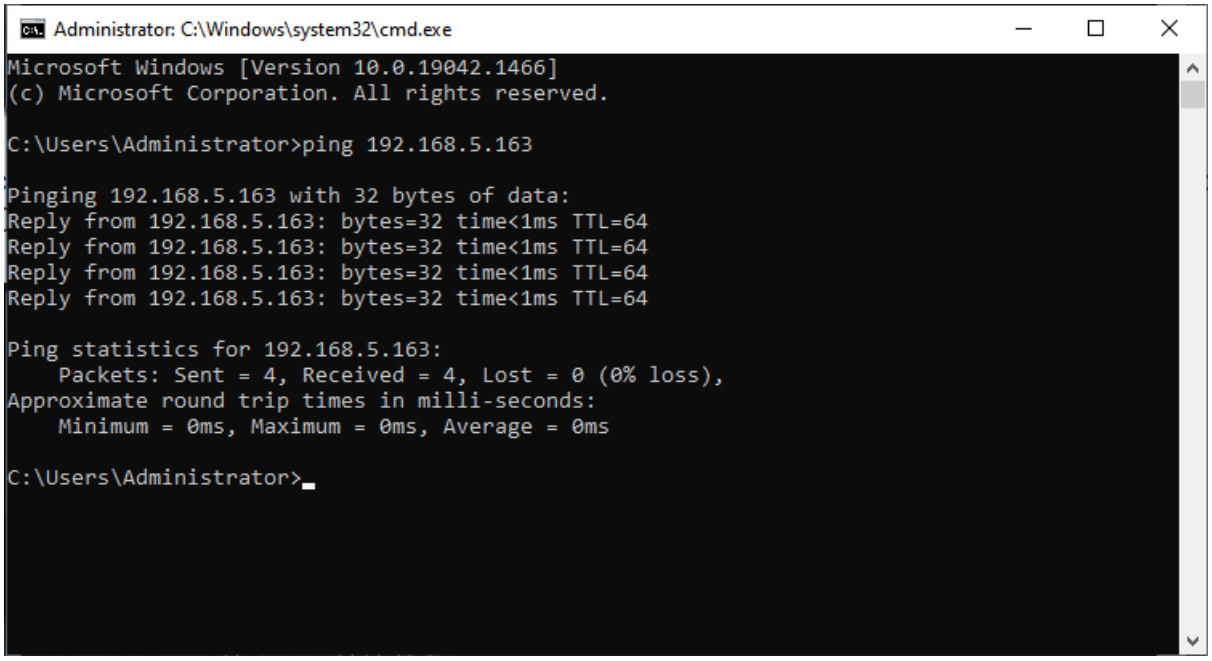


Figure1-9 Network Connection Screenshot

4.1 Camera Web Interface

4.1.1 Web Login

1） Web Login

After assigning an IP address to the camera, you can reach the Web Interface by typing in the camera's IP address into a web browser. You can log in this interface as administrator or user. If as administrator, type in "admin" into the username and password fields. If as user, type in "user1" or "user2" into the username and password fields. From the Web Interface, you can control the camera using the arrows on the left side. You can also adjust many of your camera's settings via this IP interface.

Note:

1. If login as "user", your rights are limited to preview, playback, and logout (No configuration right)

2. Browsers that support Web function are Google, IE, 360 and other popular browsers.

Language Selection: On the right top of the interface display "中文|English", click "English".

2） Download Plug-in

When first using IE browser to access the web conferencing camera, the login page will appear "Playback plug-in is not installed, please download and install!" Click on this message, download and install MRWebXinstall.exe, according to information prompts.

After installing the plugin, enter user name and password, click and Sign (initial default user name and password: "admin", users can change the user name and password on their own after entering) into the Web client management interface.

4.1.2 Preview

After successful login into the management interface, it enters the video preview interface. In the preview screen, users can control PTZ, zoom, focus, video capture, sound, focus, full screen and set the preset position, run, delete and other operations.

You can record the video and save it on SD Card when SD Card built in. Video can be saved on the Computer at Local.

1） Login as administrator

User name and default password: admin

You can control PTZ, zoom, focus, video capture, sound, focus, full screen and set run, and delete the preset position.

2） Login as user

User name and default password: “user1” or “user2”

You can control PTZ, zoom, focus, video capture, sound, focus, full screen and set run, and delete the preset position.

4.1.3 Configuration

Click Configuration to enter into the device parameters setting page

There are the following options: Local configuration, audio configuration, video configuration, network configuration, internet access configuration, system configuration, detailed description see the following table.

Table1-12 Explanation of Camera Configuration

Menu	Explanation
Audio Configuration	Including audio compressing format, sampling frequency, sampling precision, compressing code rate settings etc.
Video Configuration	Including video encoding, video parameters, character-overlapping, character size, video output setting etc.

Network Configuration	Including basic parameters, Ethernet, DNS, wireless network setting, GB28181 etc.
System Configuration	Including equipment property, system time, user management, version update, Reset, Reboot device settings etc.

4.1.4 Audio Configuration

Switch: Choose to enable the audio or not.

Compressing Format: Set audio compressing format and manually reboot the device after change (default MP3,PCM,AAC optional)

Sampling Frequency: Set sampling frequency and manually reboot the device after change (MP3, AAC default 16000, 32000, 44100, 48000 optional, G.711A default

value is 8000)

Sampling Precision: Set sampling precision (default 16bits)

Compressing Code Rate: Set audio compressing code rate (default 64bits, 32, 48, 96,128bits optional)

Channel Type: Set the channel type (mono by default, stereo optional)

Input volume: set the input volume (default 2,1-10 optional)

Note Click "SAVE", it will display "Successfully saved. Restart the device to take effect".

4.1.5 Video Configuration

1) Video Encoding

Code Stream: Different video output mode setting, use different streams. (Main stream, secondary stream)

Compression Format: Set the video compression format, save to take it effect (primary / secondary stream default:H.264,H.265 optional)

Profile: Profile Mode Setting (Default HP， BP,MP Optional)

Video Size: Set video image resolution, save to take it effect (main stream default 1920 * 1080 or 1280 * 720 optional; default secondary stream 640 * 320,320 *

180,1280 * 720,1920 * 1080 optional)

Stream Rate Control: Set rate control mode, save to take it effect (Primary / secondary stream default variable bit rate, fixed rate is for option).

Image Quality: Set the image quality, image quality can be changed only when rate control is variable bit rate,(main stream defaulted is better, secondary stream default is not good, there are best, better, good, bad, worse, worst for options).

Rate (Kb / s): Set the video bit rate (main stream default 4096Kb / s,64-12288Kb / s optional; secondary stream default 1024Kb / s,64-10240Kb / s optional).

Frame rate (F / S): Set the video frame rate (primary / secondary stream default 25F / S, primary stream 5-60F/S optional, secondary stream 5-30F / S optional).

Key frame interval: Set the key frame interval (primary / secondary stream default 75F,primary / stream 1-300F optional. secondary stream 1-150F optional).

Minimum QP of key frame interval: Set minimum QP of key frame interval(Default 20, 10-51 optional)

Stream Name: When streaming via rtsp or rtmp, user can modify stream name. Main Stream(live/av0), sub stream(live/av1)

Click the "Save" button to display the "Parameter saved successfully" message, then settings take effect.

2) Stream Release

Switch: To turn on/off the main / secondary stream.

Protocol: primary / secondary stream applies RTMP protocol. **Host Port:**

server port number (default 1935,0-65535 optional) **Host Address:** server

IP addresses (default 192.168.5.11)

Stream Name: choose a different stream name (live / av0,live / av1 optional).

User: Set the user name.

Password: Set the password.

Click on the "Save" button to display the "Save successful" message,then settings take effect.

3） RTP Broadcasting

Main/Sub Stream：On/off;

Protocol：RTP or TS

Address：Default 224.1.2.3. It can be edited.

Port：The main stream defaults to 4000, the secondary stream defaults to 4002, and the main/secondary stream is optional from 0 to 65535.

Visit：Address comes up after setting. Eg; rtp://224.1.2.3:4000； udp://@224.1.2.3:4000; tcp://@224.1.2.3:4002

4) Video Parameters

A） Focus: Focus mode, focus tactic, focus sensitivity can be set.

Focus Mode: set the focus mode (Default automatic, manual optional, one-push)

Focus Tactic: set the focus tactic (Default before-focus, after-focus, normal meeting, education tracking, moving-target focus, center focus optional.)

Focus Sensitivity: Set the focus sensitivity (default is low, high, medium optional)

B） Exposure: Exposure mode, exposure compensation, backlight compensation, anti-flicker, gain limit, dynamic range, shutter, aperture, brightness, gain can be set.

Exposure Mode: Set the exposure mode (Default automatic, manual, shutter priority, aperture priority, brightness priority optional)

Exposure Compensation: Exposure compensation setting is active when it is auto status (default is off).

Exposure Compensation Value: Set the exposure compensation value, valid when Exposure Compensation is on (default 0,-7 to 7 optional).

BLC: Set back light compensation, valid when it is auto status (default is off).

Gain Limit: Set the gain limits, valid in auto focus, iris priority, and brightness priority.

Gain: Set gain, only valid in manual exposure mode and shutter priority (default 0, 0~20 optional)

Dynamic Range: Set the dynamic range (default 4, 1-8 optional).

Shutter Speed: Set shutter speed value, valid in manual focus and shutter priority. (default 1/100，1/25,1/30,1/50,1/60,1/90,1/100,1/120,1/180,1/250,1/350,1/500,1/1000,1/2000,1/3000

,1/4000,1/6000,1/10000 optional).

Aperture Value: Set the aperture value, valid in auto focus and iris priority (default F1.8,closed, F11, F9.6,F8.0,F6.8,F5.6,F4.8,F4.0,F3.4,F2 .8,F2.4,F2.0,F1.8 optional).

Brightness: Set the brightness value, valid in brightness priority mode (default 7,0- 23 optional).

C） Color: White balance, saturation, hue, white balance sensitivity, red fine tuning, blue fine tuning, red gain, blue gain can be set.

White Balance Mode: Set the white balance mode (Default automatic, manual, one- push white balance, 3000K, 3500K, 4000K, 4500K, 5000K, 5500K, 6000K, 6500K,

7000K optional).Note: Right click the “Correction” button when selected the One-push white balance mode.

Saturation: Set the saturation (default 100%，60%, 70%, 80%, 90%, 100%, 110%,

120%, 130%, 140%, 150%, 160%, 170%, 180%, 190%, 200% optional).

Red Fine Tuning: Set red fine tuning, valid in manual white balance mode. **Blue Fine Tuning:** Set Blue fine tuning, valid in manual white balance mode. **Chroma:** Set the chrome (default 7, 0-14 optional).

Auto White Balance Sensitivity: Sensitivity Auto white balance settings (default is low, high, medium optional).

Red Gain: Set the red gain, effective when it is manual (default 145, 0-255 optional).

Blue Gain: Sets the Blue gain, effective when it is manual (default 56, 0-255 optional).

D) Image: You can set brightness, contrast, sharpness, gamma curve, dynamic contrast, black and white mode, horizontal flip, vertical flip, electronic zoom, ultra-low illumination

Brightness: Set the brightness (default 7, 0-14 optional).

Contrast: Set the contrast (default 7, 0-14 optional).

Sharpness: Set the sharpness value (default 6, 0-15 optional). **Gamma:** Gamma value setting (default 0.45, 0.50, 0.55, 0.63 optional). **Dynamic Contrast:** Set dynamic contrast (default off, 1-8 optional)

BW Mode: Set black and white mode (default color, black/white optional).

Digital Zoom: Set digital zoom (default off, on optional)

Lens Distortion Calibration: Set image distortion (default off, on optional)

E) Noise Reduction: 2D noise reduction, 3D noise reduction and dynamic dead pixel correction available.

2D Noise Reduction: Set 2D noise reduction level (default 3, 1-8 and off optional).

3D Noise Reduction: Set 3D noise reduction level (default 3, 1-8 and off optional).

Dynamic dead pixel correction: Set Dynamic dead pixel correction (default 4, 1-5 optional).

F) Style: Select image (Default, standard, brightness, clarity, and soft can be set)

Caution

- Refresh the page after changing above parameters in a, b, c, d, e, f to take effect.

5) Character Overlapping

Display Time & Date: Yes/No

Display Title: Yes/No

Time, Font and Color: Default white, black, yellow, red and blue optional)

Title Font Color: Default white, black, yellow, red, and blue optional)

Move Character: Set the location where the time and title to display. Click " up, down, left, right" button to move the characters' location.

Title: Set title on device property (default CAMERA1)

Time: Set time on system time (default 1970/01/01 05:36:00)

Click "Save" button, "parameters are successfully saves" window pop-up, which means the setting take effect.

6） Character Size

Automatically Adjust According to the Resolution: Yes/No

Main Stream Character Size: Set the character size of the display, the device will automatically restart after changed (default 48, 28-200 optional)

Secondary Stream Character Size: Set the character size of the display, the device will automatically restart after changed (default 48, 28-200 optional)

Click "Save" button, "parameters are successfully saves" window pop-up, which means the setting take effect.

7） Video Output

Output Format: Set the video output format

Click "Save" button, "parameters are successfully saves" window pop-up, which means the setting take effect.

4.1.6 Network Configuration

1) Network Port

Data Port: set the data port, the device will restart automatically after changed (default 3000,0-65535 optional).

Web Port: Set Web port, the device will restart automatically after changed (default is 80, 0-65535 is optional).

Onvif Port: Set Onvif port, the device will restart automatically after changed (default 2000, 0-65535 optional).

Soap Port: Set Soap port (default 1936, 0-65535 optional).

RTMP Port: Set RTMP port (default 1935, 0-65535 optional).

RTSP Port: Set RTSP port, the device will restart automatically after changed (default 554,0-65535 optional).

Visca Port: Set Visca port, the device will restart automatically after changed (default 3001,0-65535 optional).

Https Port: Set http port, the device will restart automatically after changed (default 443, 0-65535 optional).

WebSocket Port：Set WebSocket port, the device will restart automatically after changed (default 8088, 0-65535 optional).

Click on the "Save" button, it will be valid when display "Save successful".

RTMP access: RTMP: / / equipment IP address: 1935 / live/av0 (av0 main stream; av1 second stream)

RTMP Access：Rtmp://equipment IP address: 1935 / live/av0 (av0 main stream; av1 second stream)

1 ） Ethernet Parameter

DHCP: Enable or disable obtain IP automatically can be set. After saved, reboot the device to takes effect (default: OFF)

IP Address: Set the IP address, after saved, reboot the device to takes effect (default 192.168.5.163).

Note: This IP address is the same with the one used to login Web page. Subnet Mask:

Set the subnet mask (default 255.255.255.0).

Default Gateway: Set the default gateway (default 0.0.0.0).

Physical Address: Set the physical address (the parameter is read-only)

Click the "Save" button, it will be valid when display "Save successful". (Note: To prevent IP conflicts when modify).

3) DNS parameters

Preferred DNS Server: Set the preferred DNS server. (Default 0.0.0.0).

Alternate DNS Server: Set alternate DNS server. (Default 0.0.0.0). Click the "Save" button, it will be valid when display "Save successful".

4) *GB28181*

Switch: Set whether to activate GB28181.

Time Synchronization: Enable/Disable time synchronization

Stream Type: Set stream type (default main stream, secondary stream optional)

Signing Time (in seconds): 3600, range 5-65535

Heartbeat Time (seconds): 60, range 1-65535

Register ID: 34020000001320000001

Register User Name: IPC

Register Password: 12345678

Equipment Ownership: Users can add their own

Administrative Regions: Users can add their own

Alarm Zone: Users can add their own

Equipment Installation Address: Users can add their own

Local SIP Port: 5060 Range 0-65535

GB28181 Server Address: IP address of the computer

Server SIP Port: 5060 Range 0-65535

Server ID: 34020000002000000001

Click on the "Save" button, it will be valid when display "Save successful".

5) ***SRT***

SRT Port: Set the SRT port (default 9000, 0-65535 optional) SRT

Password: Set SRT password

SRT Password Length: Set the SRT password length (default 0, 16, 24, 32 optional)

Click the "Save" button, and the prompt message "Parameters saved successfully! It will take effect after restarting!"

6）RTMP

Enable RTMP: Enable/Disable RTMP

Click the "Save" button, and it will display "Parameters saved successfully! The new parameter will take effect after restarting.

7) RTSP

Enable RTSP: Enable/Disable RTSP

RTSP Authentication: Set RTSP authentication, default off, on optional

Click the "Save" button, and the prompt message "Save successfully! Modify RTSP authentication parameters will take effect after restarting the device!" will be displayed. After setting, restart the camera to take effect.

4.1.7 System Configuration

1) Device Properties

Device Name: Set the device name (Default Camera-1, user can add their own).

Device ID: Set the device ID (default 1, read-only).

System Language: Set the system language (default Simplified Chinese, English optional).Need to re-login after modify and save the setting.

Click on the "Save" button, it will be valid when display "Save successful".

2) System Time

Date Format: Set the date format (YYYY-MM-DD default year - month - day, MM- DD-YYYY namely Month - Day - Year, DD-MM-YYYY date - month - year Optional).

Date Separator: set the date separator (default '/','.','-' Optional).

Time Zone: Set the time zone (default UTC+08:00, other time zones optional).

Time Type: Set the time types (default 24 hours, optional 12 hours).

Enable NTP: Enable/disable NTP

Update Interval: Set the NTP server automatic updated time interval. Valid after setting NTP server synchronization (default one day, 2-10 days Optional).

NTP Server Address or Domain Name: Set NTP server address or domain name (default time.nits.gov). Valid after setting NTP server synchronization.

NTP Server Port: Sets the NTP server port (default 123).Valid after setting NTP server synchronization.

Click on the "Save" button, it will be valid when display "Save successful".

3) User Management

Select Users: Set the user type (the default administrator, User 1, User 2 optional)

User Name: Set the user name (Select User Administrator default admin; select a common user1 default user1; to select a common user 2 default user2; user can modify their own)

Password: Set a password (Select User Administrator default admin; select a common user1 default user1; to select a common user 2 default user2; user can modify their own).

Password Confirmation: Confirm the input passwords are the same or not.

4） Version Update

The version information displayed on the page is read-only version and cannot be modified by the user. It is the same as the version information in the menu. The version information of different device models is different.

Update File: Click "Browse..." in the pop-up window and select the upgrade file; click the "Upgrade" button, the upgrade dialog box will pop up. After successfully update, device will automatically reboot. (Note: Make sure that the device power and network can work during update, if not, the upgrade will fail.)

Caution

- After the version upgrade is completed, you need to restore the factory default values

a, restore the factory default through web configuration; b, restore the factory default value through the menu;

c, remote control shortcut key *#6 restore factory default;

Choose one of the above three methods, in which the IP account and password of “method a” are also restored to the default.

5) Restore Factory Setting

Click "Restore Factory Defaults" button and choose “yes” or “no” on pop-up window, then the device will restart automatically and restore factory setting.

6) Reboot

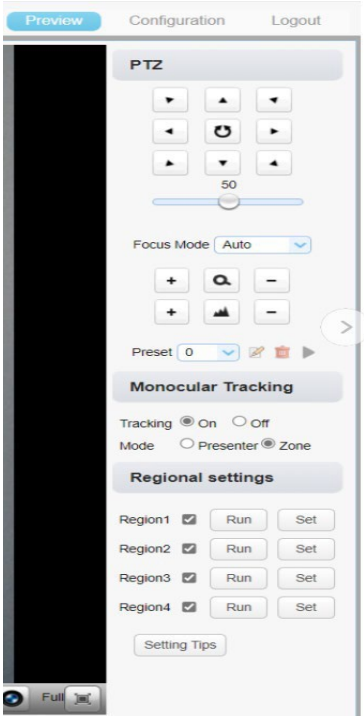
Click "Reboot" button and choose “yes” or “no” on the pop-up window, then the device will restart automatically.

4.1.8 Logout

Click "Logout"; and select "Yes" or "No" on pop-up window. If choose “Yes”, you will exit the current page and return to the user login interface again.

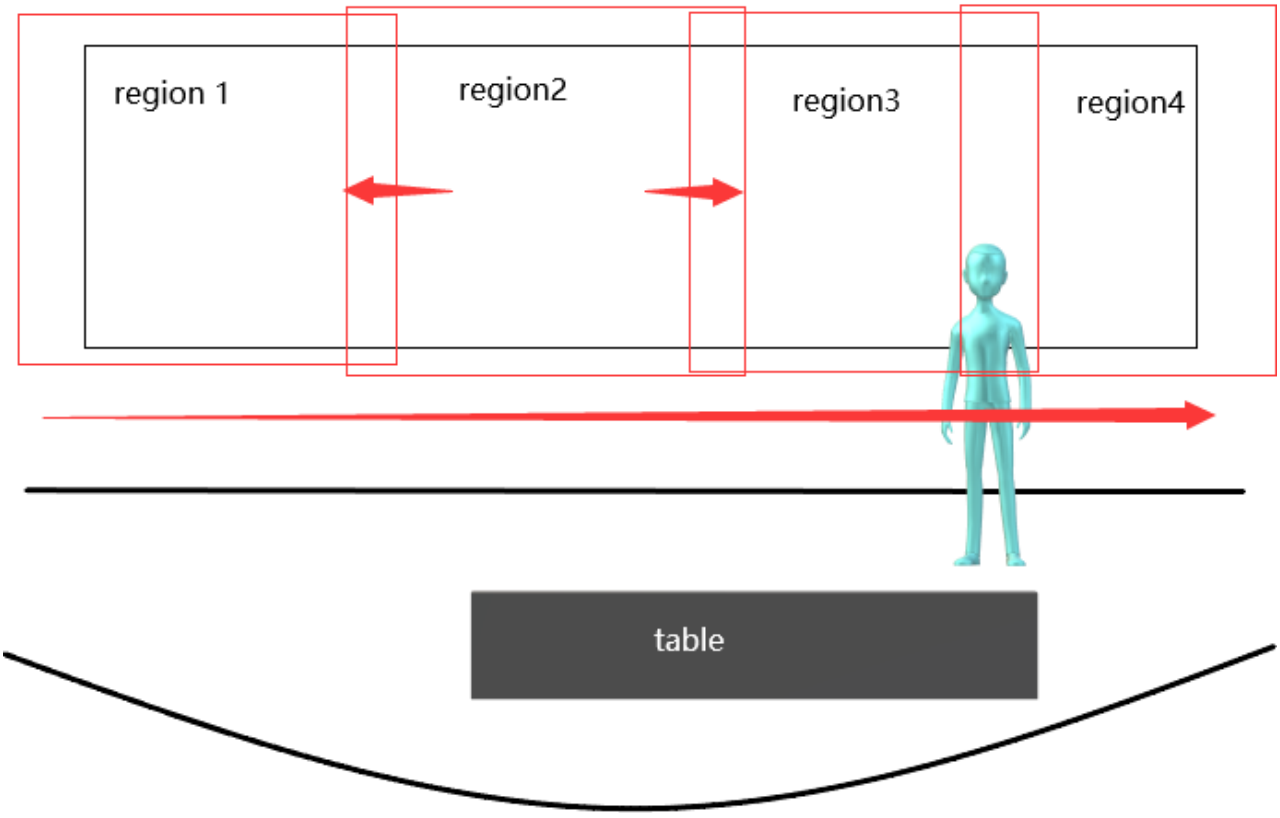
5. Monocular AI Tracking Function Web Page Configuration

1. After login, enter into the management interface and turn on Tracking below “Monocular Tracking”
2. On the right top is PTZ control area, in which you can set the preset region of Regional Tracking. Interface is as below.



Regional Settings Steps (We take Region1 as an example):
1. On the PTZ Area, adjust image by clicking direction buttons to select one region.
2. After finishing region1 setting, click “Set” to complete the Region1 Tracking. Other region settings are same as region1 setting steps.
You can set 4 different regions, and minimum 2 regions. And the Regional Tracking settings can only be configured through the webpage.
Call out the regional tracking: Click “Run” of corresponding region on the “Regional settings” area.

1.Each preset preview image must be continuous from left to right and overlap when setting the tracking regions.
2.You need to tick next to the region number to save the setting location when you setting the region.



6. Serial Port Communication and Control

The camera can be controlled through RS232/ RS485 interface; the RS232C serial parameters are as follows:

Baud rate: 2400/ 4800/ **9600(Prefered)** / 115200 bits / sec; Start bit: 1; data bits: 8; Stop bit: 1; Parity: None.

After power on, the camera performs a self-test. The self-test is finished when the camera zoom lens is moved to the farthest and then back to the nearest position. If the camera has a saved 0/ Home preset, it will revert to the ‘Home” position after initialization. At this point, the user can control the camera via the serial commands.

6.1 VISCA Protocol Return Command

Ack/Completion Message		
	Command packet	**Note**
ACK	z0 41 FF	Returned when the command is accepted.
Completion	z0 51 FF	Returned when the command has been executed.

z = camera address + 8

Error Messages		
	Command packet	**Note**
Syntax Error	z0 60 02 FF	Returned when the command format is different or when a command with illegal command parameters is accepted
Command Not Executable	z0 61 41 FF	Returned when a command cannot be executed due to current conditions. For example, when commands controlling the focus manually are received during auto focus.

6.2 VISCA Protocol Control Command

Command	Function	Command packet	Note
AddressSet	Broadcast	88 30 0p FF	p：Address setting
IF_Clear	Broadcast	88 01 00 01 FF	I/F Clear
CommandCancel		8x 21 FF	
CAM_Power	On	8x 01 04 00 02 FF	Power ON/OFF
	Off	8x 01 04 00 03 FF	
CAM_Zoom	Stop	8x 01 04 07 00 FF	
	Tele(Standard)	8x 01 04 07 02 FF	
	Wide(Standard)	8x 01 04 07 03 FF	
	Tele(Variable)	8x 01 04 07 2p FF	p = 0(low) - F(high)
	Wide(Variable)	8x 01 04 07 3p FF	
	Direct	8x 01 04 47 0p 0q 0r 0s FF	pqrs: Zoom Position
CAM _Focus	Stop	8x 01 04 08 00 FF	
	Far(Standard)	8x 01 04 08 02 FF	
	Near(Standard)	8x 01 04 08 03 FF	
	Far(Variable)	8x 01 04 08 2p FF	p = 0(low) - F(high)
	Near (Variable)	8x 01 04 08 3p FF	
	Direct	8x 01 04 48 0p 0q 0r 0s FF	pqrs: Focus Position
	Auto Focus	8x 01 04 38 02 FF	
	Manual Focus	8x 01 04 38 03 FF	
	One Push mode	8x 01 04 38 04 FF	
CAM _Zoom Focus	Direct	8x 01 04 47 0p 0q 0r 0s 0t 0u 0v 0w FF	pqrs: Zoom Position tuvw: Focus Position
CAM_AFSensitivity	High	8x 01 04 58 01 FF	Focus sensitivity Setting
	Normal	8x 01 04 58 02 FF	
	Low	8x 01 04 58 03 FF	
CAM_AFZone	Top	8x 01 04 AA 00 FF	Focus Region Setting
	Center	8x 01 04 AA 01 FF	
	Bottom	8x 01 04 AA 02 FF	
	ALL	8x1 01 04 AA 03 FF	
CAM_WB	One Push mode	8x 01 04 35 03 FF	

Command	Function	Command packet	Note
	One Push Trigger	8x 01 04 10 05 FF	One Push WB Trigger(Enabled during One Push WB mode)
	CAM_WB Mode	8x 01 04 35 pq FF	pq = 00--33 WBMode
CAM_AWBSensitivity	Low	8x 01 04 A9 00 FF	WB Sensitivity Setting
	Normal	8x 01 04 A9 01 FF	
	High	8x 01 04 A9 02 FF	
CAM _RGain	Reset	8x 01 04 03 00 FF	Manual Control of R Gain
	Up	8x 01 04 03 02 FF	
	Down	8x 01 04 03 03 FF	
	Direct	8x 01 04 43 00 00 0p 0q FF	pq: R Gain
CAM_ Bgain	Reset	8x 01 04 04 00 FF	Manual Control of B Gain
	Up	8x 01 04 04 02 FF	
	Down	8x 01 04 04 03 FF	
	Direct	8x 01 04 44 00 00 0p 0q FF	pq: B Gain
CAM_AE	Full Auto	8x 01 04 39 00 FF	Automatic Exposure mode
	Manual	8x 01 04 39 03 FF	Manual Control mode
	Shutter priority	8x 01 04 39 0A FF	Shutter Priority Automatic Exposure mode
	Iris priority	8x 01 04 39 0B FF	Iris Priority Automatic Exposure mode
	Bright	8x 01 04 39 0D FF	Bright mode
CAM_Shutter	Reset	8x 01 04 0A 00 FF	Shutter Setting
	Up	8x 01 04 0A 02 FF	
	Down	8x 01 04 0A 03 FF	
	Direct	8x 01 04 4A 00 00 0p 0q FF	pq: Shutter Position
CAM_Iris	Reset	8x 01 04 0B 00 FF	Iris Setting
	Up	8x 01 04 0B 02 FF	
	Down	8x 01 04 0B 03 FF	
	Direct	8x 01 04 4B 00 00 0p 0q FF	pq: Iris Position
CAM_Gain Limit	Reset	8x 01 04 0C 00 FF	Gain Limit Setting
	Up	8x 01 04 0C 02 FF	
	Down	8x 01 04 0C 03 FF	
	Gain Limit	8x 01 04 2C 0p FF	p: Gain Positon
CAM_Bright	Reset	8x 01 04 0D 00 FF	Bright Setting
	Up	8x 01 04 0D 02 FF	
	Down	8x 01 04 0D 03 FF	
	Direct	8x 01 04 4D 00 00 0p 0q FF	pq: Bright Positon
CAM_ExpComp	On	8x 01 04 3E 02 FF	Exposure Compensation ON/OFF
	Off	8x 01 04 3E 03 FF	
	Reset	8x 01 04 0E 00 FF	Exposure Compensation Amount Setting
	Up	8x 01 04 0E 02 FF	
	Down	8x 01 04 0E 03 FF	
	Direct	8x 01 04 4E 00 00 0p 0q FF	pq: ExpComp Position
CAM_Back Light	On	8x 01 04 33 02 FF	Back Light Compensation
	Off	8x 01 04 33 03 FF	
CAM_WDRStrength	Reset	8x 01 04 21 00 FF	WDR Level Setting
	Up	8x 01 04 21 02 FF	
	Down	8x 01 04 21 03 FF	
	Direct	8x 01 04 51 00 00 00 0p FF	p: WDR Level Positon

Command	Function	Command packet	Note
CAM_NR	2D	8x 01 04 53 0p FF	P=0-7 0:OFF
	3D	8x 01 04 54 0p FF	P=0-8 0:OFF
CAM_Gamma		8x 01 04 5B 0p FF	p = 0 – 4 0：Default 1：0.45 2：0.50 3：0.55 4：0.63
CAM_Low-Light Mode	ON	8x 01 04 2D 01 FF	Low-Light Mode Setting
	OFF	8x 01 04 2D 00 FF	
CAM_Flicker	OFF	8x 01 04 23 00 FF	OFF
	50HZ	8x 01 04 23 01 FF	50HZ
	60HZ	8x 01 04 23 02 FF	60HZ
CAM_Aperture	Reset	8x 01 04 02 00 FF	Aperture Control
	Up	8x 01 04 02 02 FF	
	Down	8x 01 04 02 03 FF	
	Direct	8x 01 04 42 00 00 0p 0q FF	pq: Aperture Gain
CAM_PictureEffect	B&W-Mode	8x 01 04 63 04 FF	PictureEffect Setting
	OFF	8x 01 04 63 00 FF	
CAM_Memory	Reset	8x 01 04 3F 00 pq FF	pq: Memory Number(=0 to 254) Corresponds to 0 to 9 on the Remote Commander
	Set	8x 01 04 3F 01 pq FF	
	Recall	8x 01 04 3F 02 pq FF	
CAM_LR_Reverse	On	8x 01 04 61 02 FF	Image Flip Horizontal ON/OFF
	Off	8x 01 04 61 03 FF	
CAM_PictureFlip	On	8x 01 04 66 02 FF	Image Flip Vertical ON/OFF
	Off	8x 01 04 66 03 FF	
CAM_ColorSaturation	Direct	8x 01 04 49 00 00 00 0p FF	P=0-E 0:60% 1:70% 2:80% 3:90% 4:100% 5:110% 6:120% 7:130% 8:140% 9:150% 10:160% 11:160% 12:180% 13:190% 14:200%
CAM_IDWrite		8x 01 04 22 0p 0q 0r 0s FF	pqrs: Camera ID (=0000 to FFFF)
SYS_Menu	ON	8x 01 04 06 06 02 FF	Turn on the menu screen
	OFF	8x 01 04 06 06 03 FF	Turn off the menu screen
IR_Receive	ON	8x 01 06 08 02 FF	IR(remote commander)receive On/Off
	OFF	8x 01 06 08 03 FF	
IR_ReceiveReturn	On	8x 01 7D 01 03 00 00 FF	IR(remote commander)receive message via the VISCA communication ON/OFF
	Off	8x 01 7D 01 13 00 00 FF	
CAM_SettingReset	Reset	8x 01 04 A0 10 FF	Reset Factory Setting
CAM_Brightness	Direct	8x 01 04 A1 00 00 0p 0q FF	pq: Brightness Position
CAM_Contrast	Direct	8x 01 04 A2 00 00 0p 0q FF	pq: Contrast Position
	On	81 0A 01 32 00 00 02 00 FF	Turns Auto Tracking on
	OFF	81 0A 01 32 00 00 03 00 FF	Turns Auto Tracking off
CAM_Flip	OFF	8x 01 04 A4 00 FF	Single Command For Video Flip
	Flip-H	8x 01 04 A4 01 FF	
	Flip-V	8x 01 04 A4 02 FF	
	Flip-HV	8x 01 04 A4 03 FF	
CAM_VideoSystem	Set camera video system	8x 01 06 35 00 0p FF	P: 0~E Video format 0:4KP60 6:1080I60 1:4KP50 7:1080I50 2:4KP30 8:1080P30 3:4KP25 9:1080P25 4:1080P60 A:720P60 5:1080P50 B:720P50
Pan_tiltDrive	Up	8x 01 06 01 VV WW 03 01 FF	VV: Pan speed 0x01 (low speed) to 0x18 (high speed) WW: Tilt speed 0x01 (low speed) to 0x14 (high speed)
	Down	8x 01 06 01 VV WW 03 02 FF	

Command	Function	Command packet	Note
	Left	8x 01 06 01 VV WW 01 03 FF	YYYY: Pan Position ZZZZ: Tilt Position
	Right	8x 01 06 01 VV WW 02 03 FF	
	Upleft	8x 01 06 01 VV WW 01 01 FF	
	Upright	8x 01 06 01 VV WW 02 01 FF	
	DownLeft	8x 01 06 01 VV WW 01 02 FF	
	DownRight	8x 01 06 01 VV WW 02 02 FF	
	Stop	8x 01 06 01 VV WW 03 03 FF	
	AbsolutePosition	8x 01 06 02 VV WW 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF	
	RelativePosition	8x 01 06 03 VV WW 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF	
	Home	8x 01 06 04 FF	
	Reset	8x 01 06 05 FF	
Pan-tiltLimitSet	Set	8x 01 06 07 00 0W 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF	W:1 UpRight 0:DownLeft YYYY: Pan Limit Position(TBD) ZZZZ: Tilt Limit Position(TBD)
	Clear	8x 01 06 07 01 0W 07 0F 0F 0F 07 0F 0F 0F FF	

6.3 VISCA Protocol Inquiry Command

Command	Command Packet	Return Packet	Note
CAM_PowerInq	8x 09 04 00 FF	y0 50 02 FF	On
		y0 50 03 FF	Off(Standby)
CAM_ZoomPosInq	8x 09 04 47 FF	y0 50 0p 0q 0r 0s FF	pqrs: Zoom Position
CAM_FocusAFModeInq	8x 09 04 38 FF	y0 50 02 FF	Auto Focus
		y0 50 03 FF	Manual Focus
		y0 50 04 FF	One Push mode
CAM_FocusPosInq	8x 09 04 48 FF	y0 50 0p 0q 0r 0s FF	pqrs: Focus Position
CAM_AFSensitivityInq	8x 09 04 58 FF	y0 50 01 FF	High
		y0 50 02 FF	Normal
		y0 50 03 FF	Low
CAM_AFZoneInq	8x 09 04 AA FF	y0 01 04 AA 00 FF	Top
		y0 01 04 AA 01 FF	Center
		y0 01 04 AA 02 FF	Bottom
		y0 01 04 AA 03 FF	All
CAM_WBModeInq	8x 09 04 35 FF	y0 50 pq FF	Auto
			pq =WBMode
CAM_AWBSensitivityInq	8x 09 04 A9 FF	y0 50 00 FF	Low
		y0 50 01 FF	Normal
		y0 50 02 FF	High
CAM_RGainInq	8x 09 04 43 FF	y0 50 0B FF	7000K
CAM_BGainInq	8x 09 04 44 FF	y0 50 00 00 0p 0q FF	pq: B Gain
CAM_AEModeInq	8x 09 04 39 FF	y0 50 00 FF	Full Auto
		y0 50 03 FF	Manual
		y0 50 0A FF	Shutter priority
		y0 50 0B FF	Iris priority
		y0 50 0D FF	Bright
CAM_ShutterPosInq	8x 09 04 4A FF	y0 50 00 00 0p 0q FF	pq: Shutter Position
CAM_IrisPosInq	8x 09 04 4B FF	y0 50 00 00 0p 0q FF	pq: Iris Position
CAM_Gain LimitInq	8x 09 04 2C FF	y0 50 0p FF	p: Gain Positon
CAM_ BrightPosiInq	8x 09 04 4D FF	y0 50 00 00 0p 0q FF	pq: Bright Position
CAM_ExpCompModeInq	8x 09 04 3E FF	y0 50 02 FF	On
		y0 50 03 FF	Off

CAM_ExpCompPosInq	8x 09 04 4E FF	y0 50 00 00 0p 0q FF	pq: ExpComp Position
CAM_BacklightModeInq	8x 09 04 33 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_WDRStrengthInq	8x 09 04 51 FF	y0 50 00 00 00 0p FF	p: WDR Strength
CAM_NRLevel(2D) Inq	8x 09 04 53 FF	y0 50 0p FF	P: 2DNRLevel
CAM_NRLevel(3D) Inq	8x 09 04 54 FF	y0 50 0p FF	P:3D NRLevel
CAM_FlickerModeInq	8x 09 04 55 FF	y0 50 0p FF	p: Flicker Settings(0: OFF, 1: 50Hz, 2:60Hz)
CAM_ApertureInq	8x 09 04 42 FF	y0 50 00 00 0p 0q FF	pq: Aperture Gain
CAM_PictureEffectModeInq	8x 09 04 63 FF	y0 50 00 FF	Off
		y0 50 04 FF	B&W
CAM_MemoryInq	8x 09 04 3F FF	y0 50 0p FF	p: Memory number last operated.
SYS_MenuModeInq	8x 09 06 06 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_LR_ReverseInq	8x 09 04 61 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_PictureFlipInq	8x 09 04 66 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_ColorSaturationInq	8x 09 04 49 FF	y0 50 00 00 00 0p FF	p: Color Gain setting 0h (60%) to Eh (130%)
CAM_IDInq	8x 09 04 22 FF	y0 50 0p FF	p: Gamma ID
IR_ReceiveInq	8x 09 06 08 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
IR_ReceiveReturn		y0 07 7D 01 04 00 FF	Power ON/OFF
		y0 07 7D 01 04 07 FF	Zoom tele/wide
		y0 07 7D 01 04 38 FF	AF ON/OFF
		y0 07 7D 01 04 33 FF	Camera _Backlight
		y0 07 7D 01 04 3F FF	Camera _Memery
		y0 07 7D 01 06 01 FF	Pan_titleDriver
CAM_BrightnessInq	8x 09 04 A1 FF	y0 50 00 00 0p 0q FF	pq: Brightness Position
CAM_ContrastInq	8x 09 04 A2 FF	y0 50 00 00 0p 0q FF	pq: Contrast Position
CAM_FlipInq	8x 09 04 A4 FF	y0 50 00 FF	Off
		y0 50 01 FF	Flip-H
		y0 50 02 FF	Flip-V
		y0 50 03 FF	Flip-HV
CAM_GammaInq	8x 09 04 5B FF	y0 50 0p FF	p: Gamma setting
CAM_Low-LightModeInq	8x 09 04 2D FF	y0 50 00 FF	OFF
		y0 50 01 FF	ON
CAM_VersionInq	8x 09 00 02 FF	y0 50 ab cd mn pq rs tu vw FF	ab cd : vender ID (0220) mn pq : model ID rs tu : ARM Version vw : reserve
VideoSystemInq	8x 09 06 23 FF	y0 50 0p FF	P: 0~E Video format 0:4KP60 6:1080I60 1:4KP50 7:1080I50 2:4KP30 8:1080P30 3:4KP25 9:1080P25 4:1080P60 A:720P60 5:1080P50 B:720P50
Pan-tiltMaxSpeedInq	8x 09 06 11 FF	y0 50 ww zz FF	ww: Pan Max Speed zz: Tilt Max Speed
Pan-tiltPosInq	8x 09 06 12 FF	y0 50 0w 0w 0w 0w 0z 0z 0z 0z FF	wwww: Pan Position zzzz: Tilt Position

Note: [X] in the above table indicates the camera address to be operated, 【y】=【x + 8】.

6.4 Pelco-D Protocol Command List

Function	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte 7
Up	0xFF	Address	0x00	0x08	Pan Speed	Tilt Speed	SUM

Down	0xFF	Address	0x00	0x10	Pan Speed	Tilt Speed	SUM
Left	0xFF	Address	0x00	0x04	Pan Speed	Tilt Speed	SUM
Right	0xFF	Address	0x00	0x02	Pan Speed	Tilt Speed	SUM
Upleft	0xFF	Address	0x00	0x0C	Pan Speed	Tilt Speed	SUM
Upright	0xFF	Address	0x00	0x0A	Pan Speed	Tilt Speed	SUM
DownLeft	0xFF	Address	0x00	0x14	Pan Speed	Tilt Speed	SUM
DownRight	0xFF	Address	0x00	0x12	Pan Speed	Tilt Speed	SUM
Zoom In	0xFF	Address	0x00	0x20	0x00	0x00	SUM
Zoom Out	0xFF	Address	0x00	0x40	0x00	0x00	SUM
Focus Far	0xFF	Address	0x00	0x80	0x00	0x00	SUM
Focus Near	0xFF	Address	0x01	0x00	0x00	0x00	SUM
Stop	0xFF	Address	0x00	0x00	0x00	0x00	SUM
Set Preset	0xFF	Address	0x00	0x03	0x00	Preset ID	SUM
Clear Preset	0xFF	Address	0x00	0x05	0x00	Preset ID	SUM
Call Preset	0xFF	Address	0x00	0x07	0x00	Preset ID	SUM
Query Pan Position	0xFF	Address	0x00	0x51	0x00	0x00	SUM
Query Pan Position Response	0xFF	Address	0x00	0x59	Value High Byte	Value Low Byte	SUM
Query Tilt Position	0xFF	Address	0x00	0x53	0x00	0x00	SUM
Query Tilt Position Response	0xFF	Address	0x00	0x5B	Value High Byte	Value Low Byte	SUM
Query Zoom Position	0xFF	Address	0x00	0x55	0x00	0x00	SUM
Query Zoom Position Response	0xFF	Address	0x00	0x5D	Value High Byte	Value Low Byte	SUM

6.5 Pelco-P Protocol Command List

Function	Byte1	Byte2	Byte3	Byte 4	Byte5	Byte6	Byte7	Byte 8
Up	0xA0	Address	0x00	0x08	Pan Speed	Tilt Speed	0xAF	XOR
Down	0xA0	Address	0x00	0x10	Pan Speed	Tilt Speed	0xAF	XOR
Left	0xA0	Address	0x00	0x04	Pan Speed	Tilt Speed	0xAF	XOR
Right	0xA0	Address	0x00	0x02	Pan Speed	Tilt Speed	0xAF	XOR
Upleft	0xA0	Address	0x00	0x0C	Pan Speed	Tilt Speed	0xAF	XOR
Upright	0xA0	Address	0x00	0x0A	Pan Speed	Tilt Speed	0xAF	XOR
DownLeft	0xA0	Address	0x00	0x14	Pan Speed	Tilt Speed	0xAF	XOR
DownRight	0xA0	Address	0x00	0x12	Pan Speed	Tilt Speed	0xAF	XOR
Zoom In	0xA0	Address	0x00	0x20	0x00	0x00	0xAF	XOR
Zoom Out	0xA0	Address	0x00	0x40	0x00	0x00	0xAF	XOR
Stop	0xA0	Address	0x00	0x00	0x00	0x00	0xAF	XOR
Focus Far	0xA0	Address	0x01	0x00	0x00	0x00	0xAF	XOR
Focus Near	0xA0	Address	0x02	0x00	0x00	0x00	0xAF	XOR
Set Preset	0xA0	Address	0x00	0x03	0x00	Preset ID	0xAF	XOR
Clear Preset	0xA0	Address	0x00	0x05	0x00	Preset ID	0xAF	XOR

Call Preset	0xA0	Address	0x00	0x07	0x00	Preset ID	0xAF	XOR
Query Pan Position	0xA0	Address	0x00	0x51	0x00	0x00	0xAF	XOR
Query Pan Position Response	0xA0	Address	0x00	0x59	Value High Byte	Value Low Byte	0xAF	XOR
Query Tilt Position	0xA0	Address	0x00	0x53	0x00	0x00	0xAF	XOR
Query Tilt Position Response	0xA0	Address	0x00	0x5B	Value High Byte	Value Low Byte	0xAF	XOR
Query Zoom Position	0xA0	Address	0x00	0x55	0x00	0x00	0xAF	XOR
Query Zoom Position Response	0xA0	Address	0x00	0x5D	Value High Byte	Value Low Byte	0xAF	XOR

7. Maintenance and Troubleshooting

7.1 Camera Maintenance

1) Please power off the camera and disconnect the power adapter and socket if the device is not used for a long period of time.
2) Use a soft cloth or lint free cloth to clean the camera outer housings.
3) Wipe with a soft, dry cloth when cleaning the camera lens. Wipe it gently with a mild detergent if needed. Do not use strong or corrosive detergents to avoid scratching the lens and affecting the video quality.

7.2 Troubleshooting

1) No video output

a. Check whether the camera power supply is connected, the voltage output of the PSU is normal, and/ or that the power indicator LED is lit.
b. Check that the device performed a successful self-check after restarted.
c. Check whether the DIP switches are set to the normal operating mode.
(see Table 2.2 and Table 2.3)
d. Check whether the video output cable is correctly connected and that the display is switched on and set to the right source selection.

2) No image sometimes

a. Check whether the video output cable is correctly connected and that the display is switched on and set to the right source selection.

3) Video dithering when zoom-in or zoom-out

a. Check whether the camera installation position is solid.
b. Whether there is shaking machine or objects around the camera.

4) Remote control does not work

a. Check that the remote control address is set to 1.
(If the machine is set back to the factory defaults, the remote control address needs to be set back to 1 as well.)
b. Check whether batteries are installed on the remote controller and are not low.
c, Check that the camera working mode is set to the normal operating mode. (see Table 2.2 and Table 2.3)
d. Check that the on-screen menu is closed, camera control through remote controller is only available after exiting the menu. If video output from LAN, the menu will not be displayed, menu will automatically exist after 30s.

5) Serial port not working

a. Check whether the camera serial device protocol, baud rate and camera address is set correctly.

b. Check whether the control cable is connected correctly.

c. Check that the camera working mode is set to the normal operating mode.

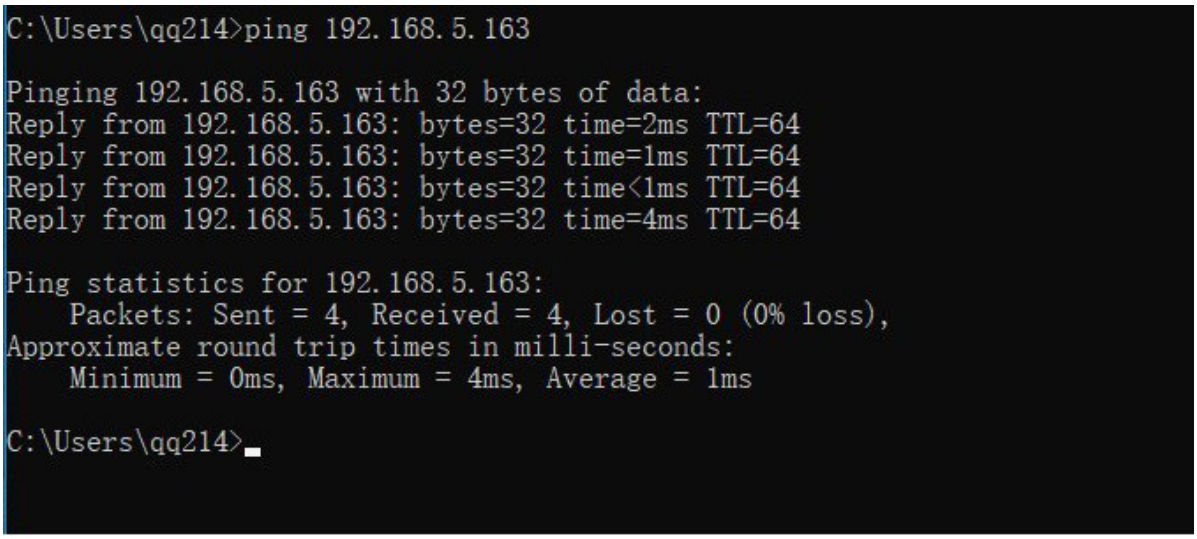
6) Web pages cannot log in

a. Check if the camera outputs video normally by connecting directly to the screen.

b. Check whether the network cable is connected. (Ethernet port light flashes yellow to indicate normal network cable connection)

c. Check whether your computer is added the segment and the segment is consistent with the IP address of the camera.

d. Click "Start" and select "Run", then type “cmd” and press ‘enter’ or click "OK". In the DOS command window type ‘ping 192.168.5.163’ (substitute with relevant IP address if different from default IP) and press the Enter key to initiate network ping. If the message appears as indicated below, the network connection is normal.



8. Warranty

1.1 This limited warranty covers defects in materials and workmanship in this product.

1.2 Should warranty service be required, proof of purchase must be presented to the Company. The serial number on the product must be clearly visible and not have been tampered with in any way whatsoever.

1.3 This limited warranty does not cover any damage, deterioration or malfunction resulting from any alteration, modification, improper or unreasonable use or maintenance, misuse, abuse, accident, neglect, exposure to excess moisture, fire, improper packing and shipping (such claims must be presented to the carrier), lightning, power surges, or other acts of nature. This limited warranty does not cover any damage, deterioration or malfunction resulting from the installation or removal of this product from any installation, any unauthorized tampering with this product, any repairs attempted by anyone unauthorized by the Company to make such repairs, or any other cause which does not relate directly to a defect in materials and/or workmanship of this product. This limited warranty does not cover equipment enclosures, cables or accessories used in conjunction with this product.

This limited warranty does not cover the cost of normal maintenance. Failure of the product due to insufficient or improper maintenance is not covered.

1.4 The Company does not warrant that the product covered hereby, including, without limitation, the technology and/or integrated circuit(s) included in the product, will not become obsolete or that such items are or will remain compatible with any other product or technology with which the product may be used.

1.5 Only the original purchaser of this product is covered under this limited warranty. This limited warranty is not transferable to subsequent purchasers or owners of this product.

1.6 Unless otherwise specified, the goods are warranted in accordance with the manufacturer’s product specific warranties against any defect attributable to faulty workmanship or materials, fair wear and tear being excluded.

1.7 This limited warranty only covers the cost of faulty goods and does not include the cost of labor and travel to return the goods to the Company’s premises.

1.8 In the event of any improper maintenance, repair or service being carried out by any third persons during the warranty period without the Company’s written authorization, the limited warranty shall be void.

1.9 A 7 (seven) year limited warranty is given on the aforesaid product where used correctly according to the Company’s instructions, and only with the use of the Company’s components.

1.10 The Company will, at its sole option, provide one of the following three remedies to whatever extent it shall deem necessary to satisfy a proper claim under this limited warranty:

1.10.1 Elect to repair or facilitate the repair of any defective parts within a reasonable period of time, free of any charge for the necessary parts and labor to complete the repair and restore this product to its proper operating condition.; or

1.10.2 Replace this product with a direct replacement or with a similar product deemed by the Company to perform substantially the same function as the original product; or

1.10.3 Issue a refund of the original purchase price less depreciation to be determined based on the age of the product at the time remedy is sought under this limited warranty.

1.11 The Company is not obligated to provide the Customer with a substitute unit during the limited warranty period or at any time thereafter.

1.12 If this product is returned to the Company this product must be insured during shipment, with the insurance and shipping charges prepaid by the Customer. If this product is returned uninsured, the Customer assumes all risks of loss or damage during shipment. The Company will not be responsible for any costs related to the removal or reinstallation of this product from or into any installation. The Company will not be responsible for any costs related to any setting up this product, any adjustment of user controls or any programming required for a specific installation of this product.

1.13 Please be aware that the Company's products and components have not been tested with competitor's products and therefore the Company cannot warrant products and/or components used in conjunction with competitor's products.

1.14 The appropriateness of the goods for the purpose intended is only warranted to the extent that the goods are used in accordance with the Company's installation, classification and usage instructions.

1.15 Any claim by the Customer which is based on any defect in the quality or condition of the goods or their failure to correspond with specification shall be notified in writing to the Company within 7 days of delivery or (where the defect or failure was not apparent on reasonable inspection by the Customer) within a reasonable time after discovery of the defect or failure, but, in any event, within 6 months of delivery.

1.16 If delivery is not refused, and the Customer does not notify the Company accordingly, the Customer may not reject the goods and the Company shall have no liability and the Customer shall pay the price as if the goods had been delivered in accordance with the Agreement.

1.17 THE MAXIMUM LIABILITY OF THE COMPANY UNDER THIS LIMITED WARRANTY SHALL NOT EXCEED THE ACTUAL PURCHASE PRICE PAID FOR THE PRODUCT.