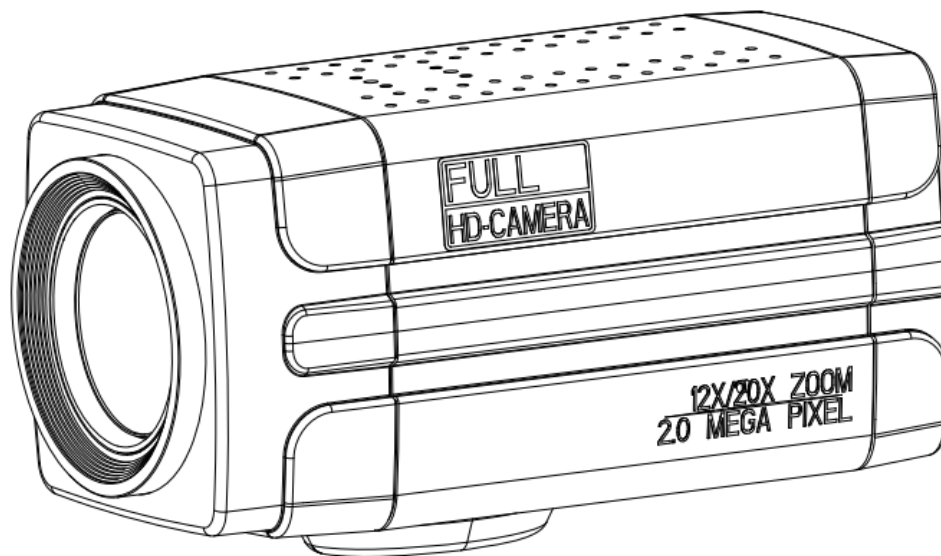




Prestel HD-Z12IPHS

HD Communication Camera



USER MANUAL

Attentions

This manual introduces functions, installations and operations for this camera in details. Please read this manual carefully before installation and use.

1、Precautions

This product can only be used in the specified conditions in order to avoid any damage to the camera;

- 1) Do not expose the product to rain or moisture;
- 2) To prevent the risk of electric shock, do not open the case. Installation and maintenance should only be carried out by qualified technicians;
- 3) Do not use the product beyond the specified temperature, humidity or power supply specifications;
- 4) Please use a soft dry cloth to clean the camera. If the camera is very dirty, clean it with diluted neutral detergent; do not use any type of solvents, which may damage the surface.

2、Electrical Safety

Installation and use of this product must strictly comply with local electrical safety standards.

3、Transportation

To prevent damage to the product during transportation, storage, and installation, it is important to avoid excessive pressure, severe vibrations, and immersion.

4、Polarity of power supply

This product operates on DC DVC12V power supply (located at the rear of the camera)

5、Installation

- 1) 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 ;
- 2) he housing of this product is made of organic materials, and contact with any liquid, gas or solid substance that may cause corrosion to the housing is strictly prohibited ;
- 3) This product contains heat-generating components. Please ensure proper ventilation ;
- 4) Do not power on before completely installation. .

6、Do Not Dismantle Camera

There are no user-serviceable parts inside this product. Any damage caused by user disassembly is not covered under warranty.

7、Magnetic Field 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.

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1、 Camera Installation

1.1 Camera Interface Explanation

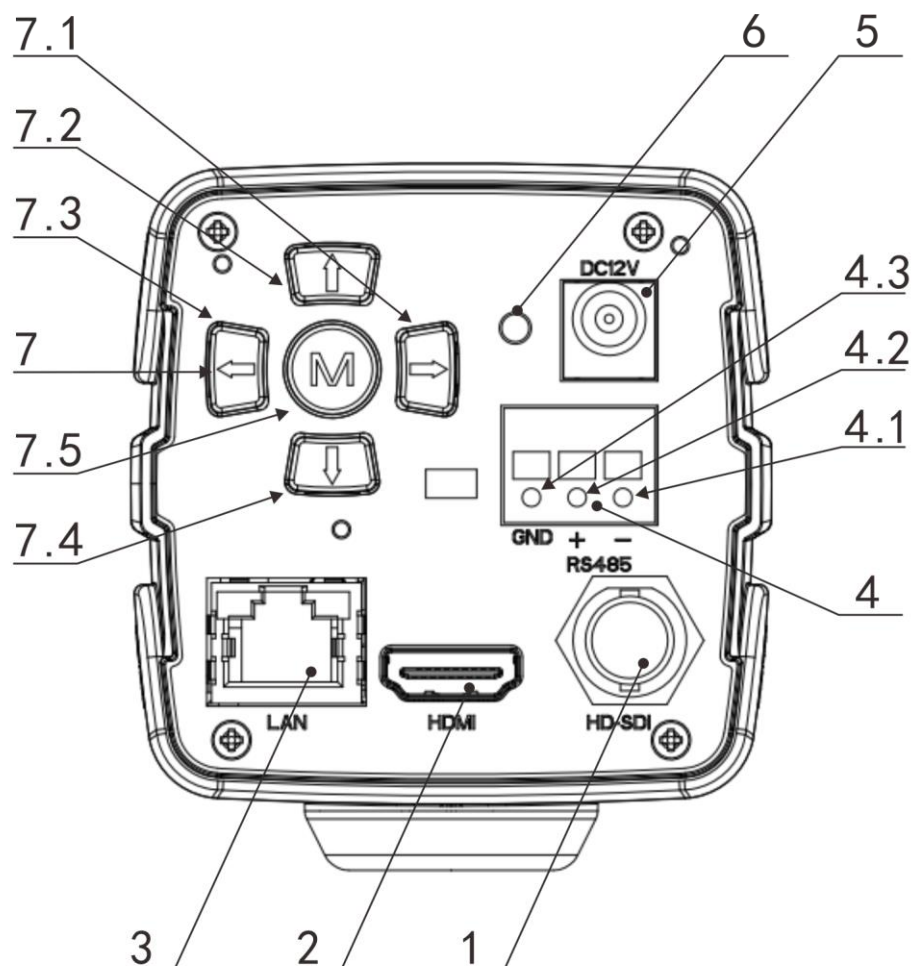


Figure1.1 Rear cover panel

- 1. HD-SDI interface
- 2. HDMI interface
- 3. LAN interface
- 4. RS485 interface, support VISCA 、 PELCO-D 、 PELCO-P protocol
 - 4.1 RS485 D-
 - 4.2 RS485 D+
 - 4.3 RS485 GND
- 5. Power interface, DC 12V
- 6. Power indicator
- 7. Keyboard
 - 7.1 Zoom In/Left
 - 7.2 Focus -/Down

7.3 Zoom Out/Right

7.4 Focus +/-Up

7.5 Menu/Confirm

1.2 Power On Self-Test

- 1) Power On: Connect the DC12V power adapter. After connecting the power, the power indicator (refer to number 6 in Figure 1.1) will light up.
- 2) Self-testing: Power on with power indicator light on ,camera module will stretches. When the module finish stretches, the self-testing is finished.

Note: If the preset position is set, the lens will automatically move to the preset position after the self-check is completed.

1.3 Video output

- 1) LAN Network output: Connect this product to the computer using an Ethernet cable. Open a web browser and enter the camera's IP address (default value: 192.168.5.163) in the address bar. Enter the username and password (both default values: admin) on the login page to access the preview page and view the images. Note: If you forget the username, password, or IP address, use the "Restore Factory Default Settings" option in the menu to reset the IP, username, and password to their default values.
 - a) Network cable connection: No. 3 in Figure 1.1;
 - b) Web page Login: open your browser and enter 192.168.5.163 in the address bar (factory default); press Enter to enter into the login page; Then enter the user name admin and password admin (factory default); press Enter to enter into the preview page,users can carry out PTZ control,video recording,playback,configuration and other operations.
 - c) If without image, refer to Chapter 6 Trouble Shooting.

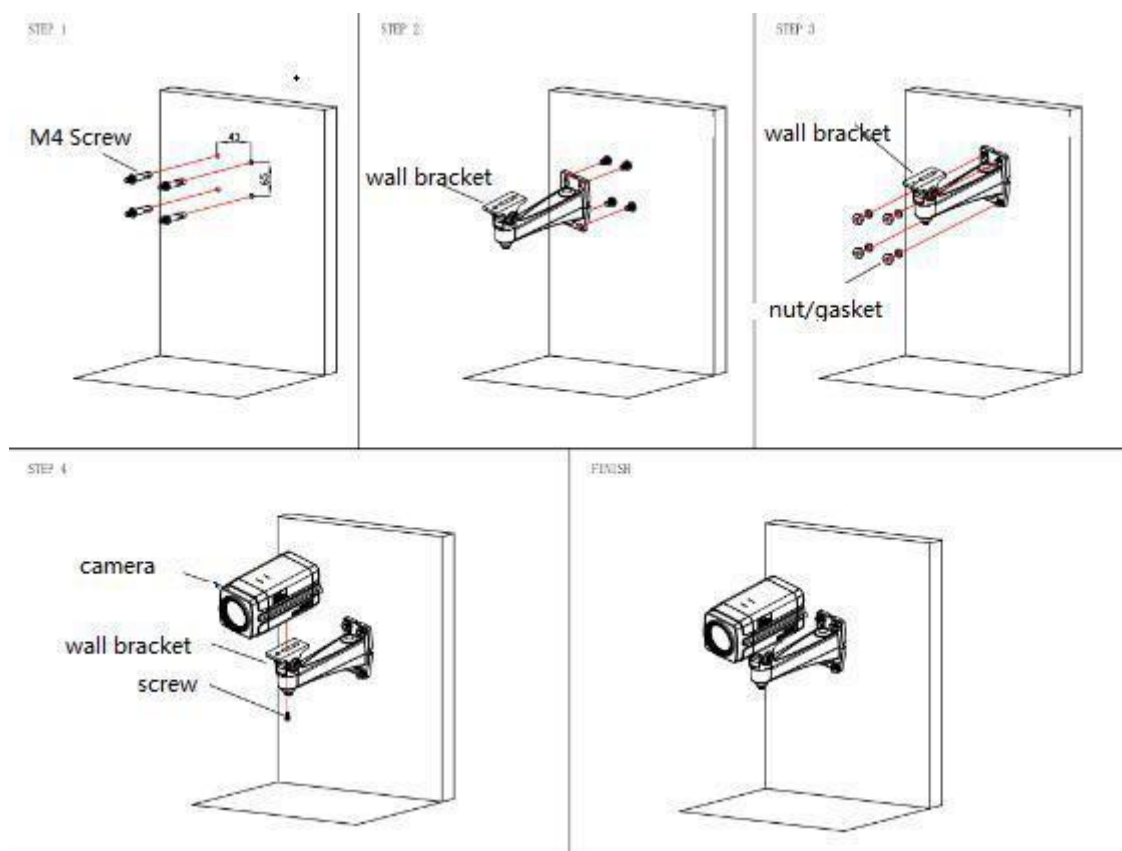


- 2) SDI video output: Connect the monitor to the corresponding video output interface, and the monitor will display the output image.
 - a) SDI video cable connection: Refer to Figure 1.1, labeled as number 1.;
 - b) Connect the camera and the monitor correctly using the SDI video cable. Once the camera self-check is complete, the monitor will display the image output from the camera.;
 - c) If without image, refer to Chapter 6 Trouble Shooting.
- 3) HDMI output: Connect the monitor to the corresponding video output interface, and the monitor will display the output image.
 - d) HDMI video cable connection: Refer to Figure 1.1, labeled as number 2.;
 - e) Connect the camera and the monitor correctly using the HDMI video cable. Once the camera self-check is complete, the monitor will display the image output from the camera.;
 - f) If without image, refer to Chapter 6 Trouble Shooting.

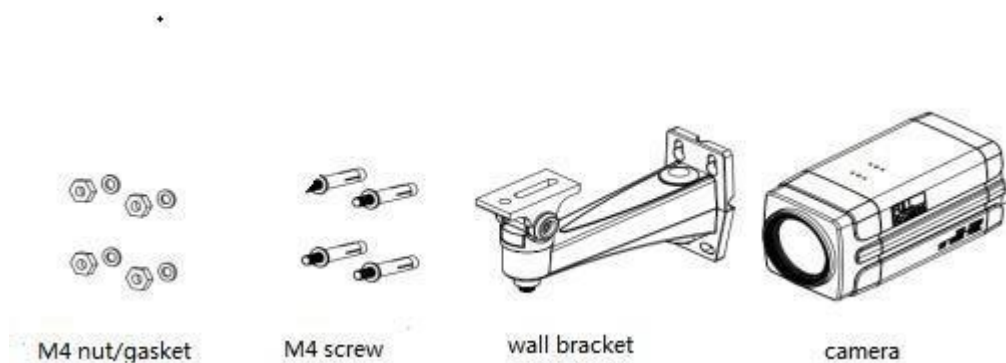
1.4 MOUNTING BRACKETS

Note: The materials of the wall must be follow board or concrete to mount the camera on the wall or ceiling, while plasterboard is not usable.

1) Bracket installation steps



2) Accessories introduction



Note: Mounting brackets as shown, can be only installed and maintained by a qualified technician. The product installation must strictly comply with all local electrical safety standards and may not be installed beyond the limited temperature, humidity.

2、 Product Overview

2.1 PRODUCT INTRODUCTION

2.1.1 Product Model

2.1.2 Dimension

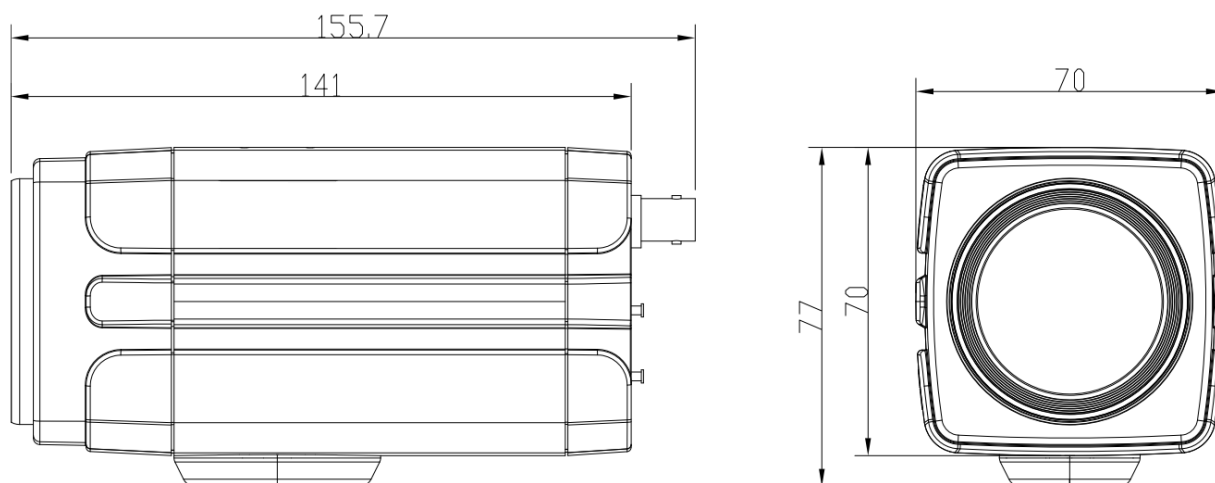


Figure 2.1.1 Dimension

2.1.3 Accessory

Table 2.1.1 Supply Accessory

Power adapter 1pcs	Standard
User manual 1pcs	
Warranty card 1pcs	
Bracket 1pcs	Optional

2.2 PRODUCT FEATURES

This series camera offers perfect functions, superior performance and rich interfaces. The features include advanced ISP processing algorithms to provide vivid images with a strong sense of depth, high resolution and fantastic color rendition. It supports H.265/H.264 encoding which makes motion video fluent and clear even with less than ideal bandwidth conditions.

- **Superb high-definition image:** Equipped with a high-quality 1/2.8-inch image sensor, capable of reaching a maximum resolution of 1920x1080 and achieving a high output frame rate of up to 60 frames per second.
- **Leading Auto focus technology:** Leading auto focus algorithm makes lens a fast, accurate and stable auto-focusing.
- **Low noise and High SNR:** Low Noise CMOS effectively ensure high SNR of camera video. Advanced 2D/3D noise reduction technology is also used to further reduce the noise, while ensuring image sharpness.
- **Multiple Video Output Interfaces:** Support HDMI, SDI, LAN, SDI support transmission 100 meters in 1080P format.

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- **Multiple Audio/Video Compression Standards** : Support for H.265/H.264 compression formats ; Supports up to 1920x1080 resolution compressed at 60 frames per second ;
- **Multiple Network Protocols** : Support ONVIF、GB/T28181、RTSP、RTMP protocols , Support RTMP push mode, easy to be connected to streaming server (Wowza, FMS); Support RTP multicast mode; Support network full command VISCA control protocol.
- **Multiple Control Protocols** : Support VISCA、PELCO-D、PELCO-P protocols , Support automatic identification protocols. Support VISCA control protocol through IP port.
- **Multiple Applications** : Online-education, Lecture Capture, Webcasting, Video conferencing, Tele-medicine, Unified Communication, Emergency command and control systems, etc.

2.2.3 Technical Parameter

Parameter/Model	HD Camera
Camera Lens	
Image Sensor	1/2.8 inch high quality HD CMOS sensor
Effective Pixel	2.07 million、16: 9
Video Signal	HDMI/SDI 1080P60/50/30/25 1080P59.94/29.94 720P60/50/29.97
Optical Zoom	12X
Viewing Angle	7.2° (N) ~68.8° (W)
Focal length.	f = 4.34~52.08mm
Iris	F1.85 ~ F2.43
Digital Zoom	16X
Minimum Illumination	0.5Lux(F1.8, AGC ON)
DNR	2D & 3D
White Balance	Auto/Manual/One-push /2400K/2500K/2600K/2700K/2800K/2900K/3000K/3100K/3200K/ 3300K/3400K/3500K/3600K/3700K/3800K/3900K/4000K/4100K/ 4200K/4300K/4400K/4500K/4600K/4700K/4800K/4900K/5000K/ 5100K/5200K/5300K/5400K/5500K/5600K/5700K/5800K/5900K/ 6000K/6100K/6200K/6300K/6400K/6500K/6600K/6700K/6800K/ 6900K/7000K/7100K
Focus	Auto/Manual/One-push
Iris Mode	Auto/Manual
BLC	On/off
Dynamic Range	Off, Dynamic Level Adjustment
Video Adjustment	Horizontal Flip, Vertical Flip, DCI, Super Low Illumination
SNR	>55dB

Input/Output Interface	
Interfaces	HDMI、SDI、LAN
Image Code Stream	Dual stream output
Video	H.265、H.264

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Compression Format	
Control Interface	RS485
Control Protocol	VISCA/Pelco-D/Pelco-P; Baud Rate: 115200/9600/4800/2400
LAN Interface	100M LAN port (10/100BASE-TX)
Network Protocol	RTSP、RTMP、ONVIF、GB/T28181; Support network VISCA control protocol; Support remote upgrade, remote restart, remote reset
Power Interface	DC12V
Power Adapter	Input: AC110V-AC220V ; Output:DC12V/1A
Input Voltage	DC12V±10%
Input Current	400mA (Max)
Consumption	4.8W(Max)

Other Parameter	
Storage Temperature	-10℃~+60℃
Storage Humidity	20%~95%
Working Temperature	-10℃~+50℃
Working Humidity	20%~80%
Dimension	155.7mmX70mmX70mm
Weight	0.7kg
Environment	Indoors
Accessory	
Supplied Accessory	12V/1A power supply、 manual,warranty
Optional Accessory	Mounting Bracket

2.2.4 Keyboard introduction

- **Meun**
Menu、 Confirm share the same key“menu/ok”;
when change the menu parameter,press menu/ok to confirm.
- **Up**
In the menu screen, when the cursor is on a particular sub-menu, the cursor will move up to the selected menu when we press the "up"key..
When it is not on menu screen, it is used as Focus+.
- **Down**
In the menu screen, when the cursor is on a particular sub-menu, the cursor will move up to the selected menu when we press the "down"key.
When it is not on menu screen, it is used as Focus-
- **Left**

In the menu screen, when the cursor is on a particular sub-menu, we can go to the selected menu by pressing the “left” key.

When it is not on menu screen, it is used as Zoom in.

- **Right**

In the menu screen, when the cursor is on a particular sub-menu, we can go to the selected menu by pressing the “Right” key.

When it is not on menu screen, it is used as Zoom out.。

3、 Product Application

3.1 Output Image

3.1.1 Power-On Self-test

Connect the DC12V power cable, and the camera will perform a self-check upon powering on. After the self-check, the camera zooms in and then out to its maximum capacity. If you enable and set the 0th preset position, the camera will automatically turn to the 0th preset position after the self-check is completed.

3.1.2 Video Output

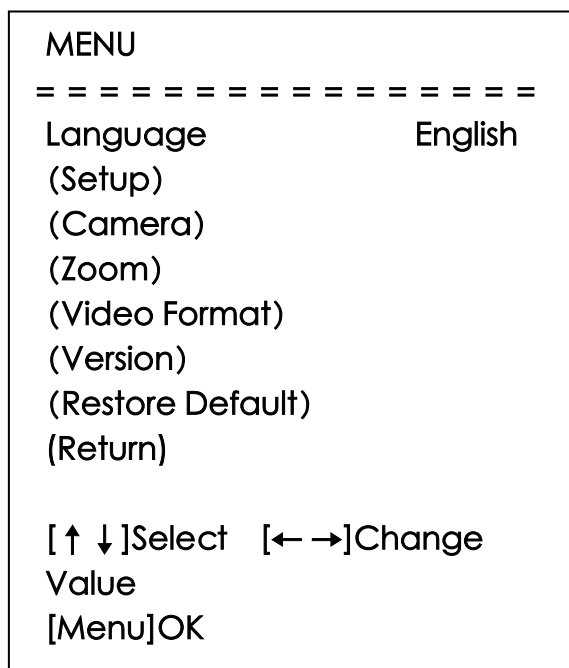
Connect to the video output cable: the user select the output mode according to the machine model.

- 1) Network output: connect this product and your computer through network cable, then open the browser, enter the camera IP address (factory default 192.168.5.163) in the address bar, then to the login page and input a user name and password (factory default are “admin”) , Finally enter the preview page, and the image comes out. (Note: If you forget your user name, password, IP address, you can manually restore the default by the default setting option in the menu.
- 2) SDI output: Connect the monitor with the corresponding video output interface, then the monitor output image.
- 3) HDMI output: Connect the monitor with the corresponding video output interface, then the monitor output image.

3.2 Menu Setting

3.2.1 Main menu

In normal working mode, press **【MENU】** key to display the menu, using scroll arrow to point at or highlight the selected items.



Language: Chinese/English ;

Setting: Enter into submenu of System parameter ;

Camera Parameter: Enter into submenu of camera parameter ;

Lens: Enter into submenu of Lens parameters ;

Version: camera version setting ;

Restore Default: Reset setting ;

Return: Return to the previous menu (if it is the main menu, the menu will be closed)

[↑↓] Select: for selecting menu **[← →] Change value:** for modify parameters ;

[Menu] OK: Press **【Mebu】** Key to confirm。

3.2.2 System setting

Move the pointer to the (Setup) in the Main Menu,click the **【MENU】** key and enter into the (System Setting) as shown below:

SETUP	
=====	
Protocol	Auto
Visca Address	1
Visca Address Fix	OFF
PELCO-P Address	1
PELCO-D Address	1
Baudrate	9600
Return	
[↑ ↓]Select [← →]Change	
Value	
[Menu]OK	

Protocol: VISCA/Pelco-P/Pelco-D/ Auto;

VISCA Address: VISCA=1~7;

Visca Address Fixed: On/Off;

PELCO-P Address: 1~255;

PELCO-D Address: 1~255;

Baud Rate: 2400/4800/9600/115200;

Return: Return to the former menu(if it is main menu, means close menu)

[↑↓] Select: for selecting menu **[← →] Change value:** for modify parameters;

[MENU] OK: Press **[MENU]** to confirm.

3.2.3 Camera Parameter Setting

Move the pointer to the (CAMERA) in the Main Menu, click the **[HOME]** key and enter the (CAMERA) as follow:

```
CAMERA
=====
(Exposure)
(Color)
(Image)
(Focus)
(Noise Reduction)
Style                default
Return

[↑ ↓]Select  [← →]Change
Value
[Menu]OK
```

Exposure: Enter into **Exposure** setting;

Image: Enter into **Image** setting;

Color: Enter into **Color** setting;

Focus: Enter into **Focus** setting;

Noise Reduction: Enter into **Noise Reduction** setting;

Style: Default, standard, clear, bright, soft;

Return: Return to the former menu(if it is main menu, means close menu);

[↑↓] Select: or selecting menu **[← →] Change Value:** for modify parameters;

[Menu] OK: Press **【Menu】** to confirm.

1) EXPOSURE SETTING

Move the pointer to the (EXPOSURE) in the Main Menu,click the **【MENU】** and enter the (EXPOSURE SET) as follow,

EXPOSURE	
=====	
Mode	Auto
EV	OFF
BLC	OFF
Flicker	50Hz
G.Limit	4
WDR	4
Return	
[↑ ↓]Select [← →]Change Value [Menu]OK	

Mode: Auto, Manual, Shutter priority, Iris priority and Brightness priority.;

EV: On/Off (only available in auto mode);

Compensation level: The "Exposure Compensation" function is only effective when in Auto mode.;

BLC: ON/OFF for options (only available in auto mode) ;

Anti-Flicker:: off、50Hz、60Hz(only available in Auto/Iris priority/Brightness priority modes) ;

Gain limit: 0~15(only available in Auto/ Iris priority /Brightness priority mode) ;

DR: 1~8, off;

Shutter priority: 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(only available in Manual and Shutter priority mode) ;

IRIS priority: off、 F11.0、 F9.6、 F8.0、 F6.8、 F5.6、 F4.8、 F4.0、 F3.4、 F2.8、 F2.4、 F2.0、 F1.8(only available in Manual and Iris priority mode) ;

BRIGHTNES: 0~23(only available in Brightness priority mode) ;

Return: Return to the former menu(if it is main menu, means close menu) ;

[↑↓] Select: for selecting menu

[← →] Change Value: for modify parameters;

[Menu] OK Press

[MENU] Key to confirm.

2) COLOR SETTING

Move the pointer to the (COLOR) in the Main Menu,click the **[MENU]** and enter the (COLOR SET) as follow:

COLOR	
=====	
WB Mode	Auto
RG Tuning	0
BG Tuning	0
Saturation	100%
Hue	7
AWB Sensitivity	Low
Return	
[↑ ↓]Select [← →]Change Value	
[Menu]OK	

WB MODE:Auto,Manual,One Push、

2400K/2500K/2600K/2700K/2800K/2900K/3000K/3100K/3200K/3300K/3400K/3500K/3600K/3700K/3800K/3900K/4000K/4100K/4200K/4300K/4400K/4500K/4600K/4700K/4800K/4900K/5000K/5100K/5200K/5300K/5400K/5500K/5600K/5700K/5800K/5900K/6000K/6100K/6200K/6300K/6400K/6500K/6600K/6700K/6800K/6900K/7000K/7100K

Red Tuning: -10~10 (only available in Auto mode)

Blue Tuning: -10~10 (only available in Auto mode)

RED GAIN: 0~255(only available in Manual mode)

BLUE GAIN: 0~255(only available in Manual mode)

SATURATION: 60%、70%、80%、90%、100%、110%、120%、130%、140%、150%、160%、170%、180%、190%、200%

Hue: 0~14;

AWB Sensitivity: high/middle/low;

RETURN: Return to the former menu(if it is main menu, means close menu);

[↑↓] Select: for selecting menu **[← →] Change value:** for modify parameters;

[MENU] OK: Press [MENU] to confirm

3) IMAGE

Move the pointer to the **(IMAGE)** in the Menu,click the **[HOME]** and enter the **(IMAGE)** as follow:

IMAGE	
=====	
Brightness	7
Contrast	7
Sharpness	6
Flip-H	OFF
Flip-V	OFF
B&W-Mode	
Color	
Gamma	Default
DZoom	OFF
DCI	Close
Low Light Mode	OFF
Return	
[↑ ↓]Select [← →]Change	
Value	
[Menu]OK	

Brightness:0~14;

Brightness:0~14;

Sharpness:0~15;

Flip-H: On/Off;

Flip-V: On/Off;

B&W mode: color,black/white;

Gamma:default、 0.45、 0.50、 0.55、 0.63

DZoom: On/Off;

DCI: Dynamic Contrast: Off,1~8;

Ultra-Low Light Mode: On/Off;

Return: Return to the former menu(if it is main menu, means close menu);

[↑↓] Select: for selecting menu **[← →] Change Value:** for modify parameters;

[Menu] OKPress **[MENU]** Key to confirm.

4) FOCUS

Move the pointer to the (FOCUS) in the Menu,click the **[MENU]** and enter the (FOCUS) as follow:

FOCUS	
=====	
Focus Mode	Auto
AF-Zone	All
AF-Sensitivity	Low
Return	
[↑ ↓]Select [← →]Change Value	
[Menu]OK	

Focus Mode: Auto,manual/ One push;

AF-Zone: Up,middle,down;

AF-Sensitivity: High,middle,low;

Return: Return to the former menu(if it is main menu, means close menu);

[↑↓] Select: for selecting menu **[← →] Change Value:** for modify parameters;

[Menu] OK: Press [MENU] to confirm

5) NOISE REDUCTION

Move the pointer to the **(NOISE REDUCTION)** in the Menu,click the **【MENU】** and enter the **(NOISE REDUCTION)** as follow:

NOISE REDUCTION	
=====	
NR-2D	3
NR-3D	3
Dynamic Hot Pixel	OFF
Return	
[↑ ↓]Select [← →]Change Value	
[Menu]OK	

2D NOISE REDUCTION: Auto,close、1~7;

3D NOISE REDUCTION: close、1~8;

Dynamic Hot Pixel: close、1~5;

Return: Return to the former menu(if it is main menu, means close menu);

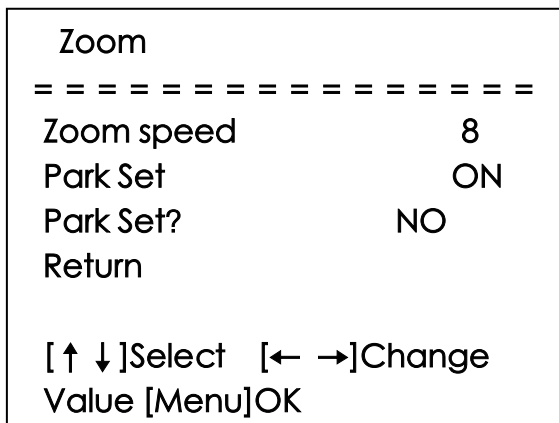
[↑↓] Select: for selecting menu **[← →] Change Value:** for modify parameters;

[Menu] OK Press **【MENU】** Key to confirm.

Style: default, standard, clear, bright, soft

3.2.4 Zoom

Move the pointer to the (Lens) in the Menu,click the **【MENU】** and enter the (Lens) as follow:



Zoom speed: Set the zoom speed for remote controller,1~8;

Park Set: OF/OF

Park Set: YES/ON

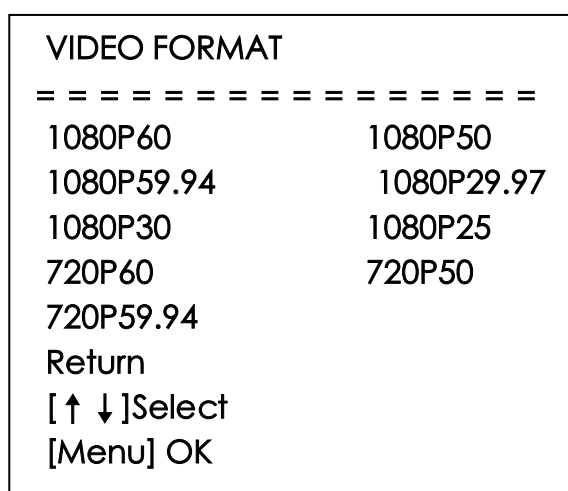
Return: Return to the former menu(if it is main menu, means close menu);

[↑↓] Select: for selecting menu **[← →] Change Value:** for modify parameters;

[Menu] OK: Press [MENU] to confirm

3.2.5 VIDEO FORMAT

Move the pointer to the (Video Format) in the Menu,click the **【MENU】** and enter the (Video Format) as follow:



3.2.6 VERSION

Move the pointer to the (VERSION) in the Main Menu,click the **【MENU】** and enter the (VERSION) as follow:

```
VERSION
=====
MCU Version   V3.2.0 2023-8-25
Camera Version V1.0.2 2023-9-7
AF Version    V1.0.0 2023-7-21
Return

[Menu]OK
```

Note: The version information may vary depending on the specific product ;

MCU Version: Display MCU version information ;

Camera Version: Display camera version ;

information AF Version: Display the focus version information ;

RETURN: Return to the former menu(if it is main menu, means close menu)

[↑↓] Select: for selecting menu

[← →] Change value: for modify parameters

[MENU] OK: Press [MENU] to confirm.

3.2.7 RESTORE DEFAULT

Move the pointer to the (RESTORE DEFAULT) in the Main Menu,click the **[MENU]** and enter the (RESTORE DEFAULT) as follow :

```
RESTORE DEFAULT
=====
Restore Default?   NO

Return

[↑ ↓]Select  [← →]Change
Value
[Menu]OK
```

Restore default: yes/no ;

RETURN: Return to the former menu(if it is main menu, means close menu)

[↑↓] Select: for selecting menu

[← →] Change value: for modify parameters

[MENU] OK: Press [MENU] to confirm.

4、 Network Connection

4.1 Connecting Mode

- 1) **Direct connection:** Connect the camera and computer by network connecting cable.
- 2) **Internet connection mode:** Connect the camera to Internet by Router or Switch and user can log in the device by browser.

Note: 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 belong 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 :

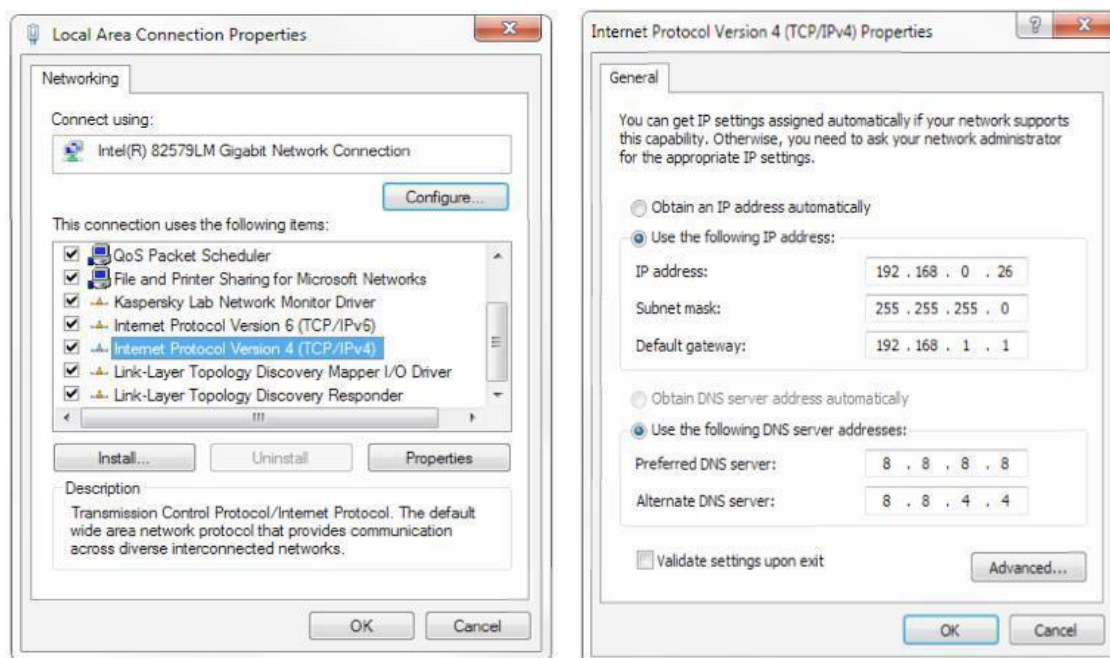


Figure4.1.1 Local Network Setting

- a) Firstly open the window of Local Area Connection Properties on computer,select the “Internet protocol version 4(TCP/IPv4)” as shown by pic 4.1.1 .
- b) Double click or click the property “Internet” protocol version 4 (TCP/IPv4)to enter into the Internet Protocol Version 4(TCP/IPv4) Properties window,and select “Advanced” option as shown Pic 4.1.1 ;
- c) select “Advanced” to enter into the Advanced TCP/IP Setting and add IP and subnet mask in the IP browser as picture 4.1.2,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. ;

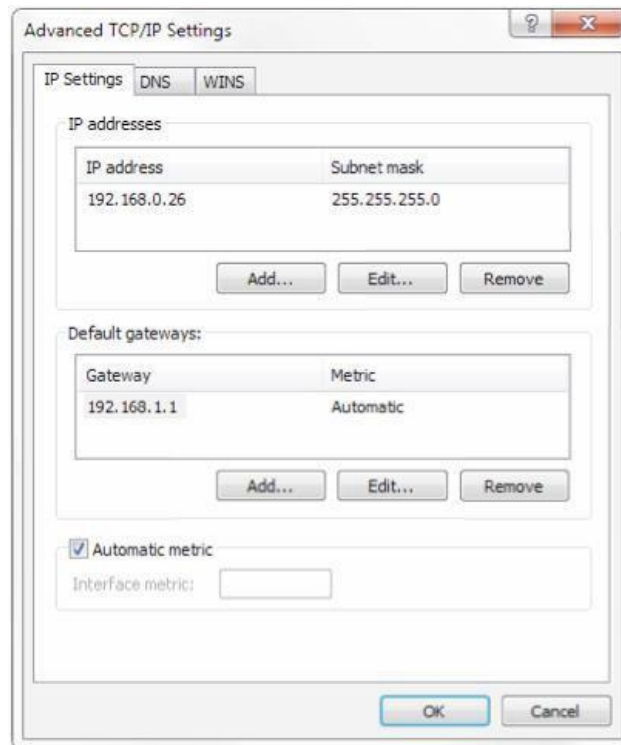


Figure4.1. 2 Network Advanced Setting

Click “OK” and open the DOS command window, input ping 192.168.5.26 and press Enter key, it will show message as below: which means network segment adding is succeed.

- d) Click the “Start” and select “Operation” to input cmd as picture 4.1.3 to verify if the network segment has been successfully added.

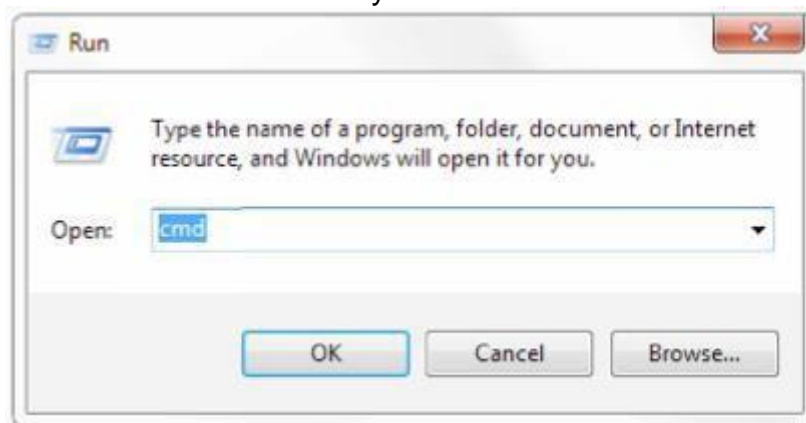


Figure4.1. 3 Run Window

- e) Click “OK” and open the DOS command window,input ping 192.168.5.26 and press Enter key,it will show message as below:

```
C:\Users\Administrator>ping 192.168.5.26

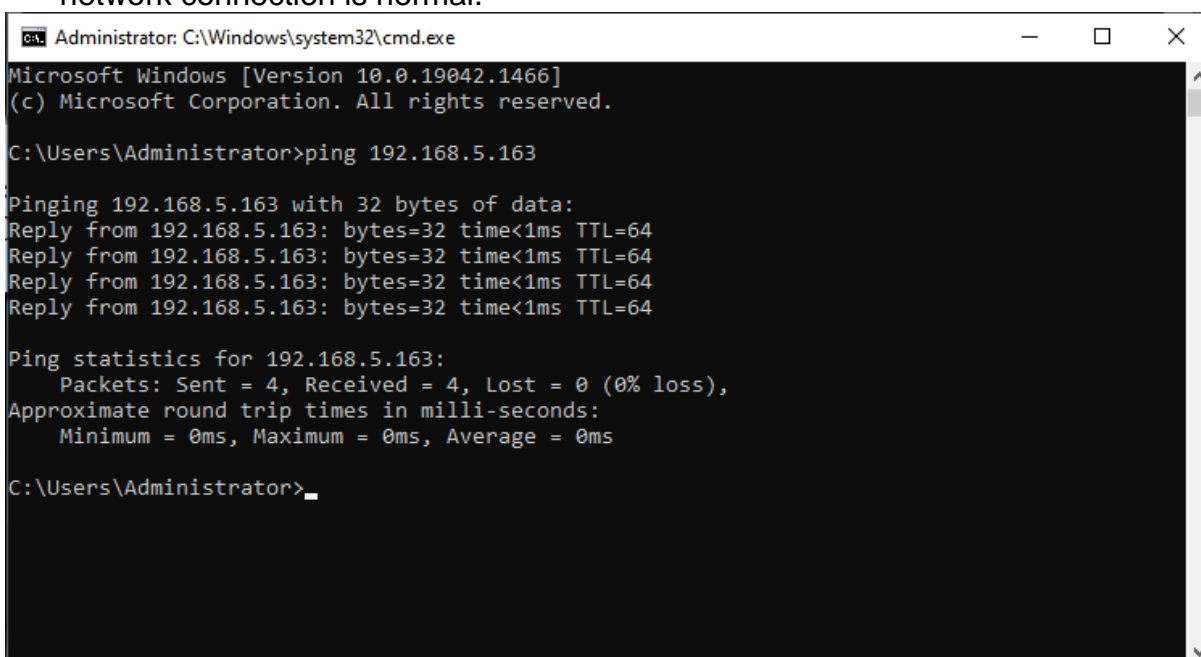
Pinging 192.168.5.26 with 32 bytes of data:
Reply from 192.168.5.26: bytes=32 time<1ms TTL=128
Reply from 192.168.5.26: bytes=32 time<1ms TTL=128
Reply from 192.168.5.26: bytes=32 time<1ms TTL=128
Reply from 192.168.5.26: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.5.26:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Users\Administrator>_
```

Figure 4.1.4 DOS control platform

- f) 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 ping 192.168.5.163,then press Enter key,it will show message as pic 4.1.5: which means network connection is normal.



```
Administrator: C:\Windows\system32\cmd.exe
Microsoft Windows [Version 10.0.19042.1466]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Administrator>ping 192.168.5.163

Pinging 192.168.5.163 with 32 bytes of data:
Reply from 192.168.5.163: bytes=32 time<1ms TTL=64
Reply from 192.168.5.163: bytes=32 time<1ms TTL=64
Reply from 192.168.5.163: bytes=32 time<1ms TTL=64
Reply from 192.168.5.163: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.5.163:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Users\Administrator>_
```

Figure 4.1.5 ping connecting result display

4.2 IE Login

4.2.1 Web Login

1) Web client

Input the IP address 192.168.5.163 of the device in the address filed of browser and click Enter button to enter into Web Client login page as pic 4.2.1.



4.2.1 Network log in

Note: Web access supported browsers: IE,Chrome,Firefox,Safari

Enter your username and password, and click "Login" (the default username and password are "admin," and you can change them after logging in). This will take you to the Web client management interface.

4.2.2 Preview

After login in the management interface it will show the default video preview interface. User can control the zoom, focus, enlarge, full screen preset set operations etc.

1) Login in as administrator

2) Login in as normal user

Username, password default user1 or user2

Username, password default user1 or user2

Can perform zoom, focus, zoom, full screen and preset settings, run, delete and other operations;

Note: The common user login does not have the configuration permission.

4.2.3 Configuration

Click Configuration to enter into the device parameters setting page..

There are the following options: audio configuration, network configuration, system configuration, detailed description see the following table 4.2.1.

Table 4.2.1 Explanation of Camera Configuration

Menu	Explanation
Video Configuration	Including video encoding, video parameters, RTP Broadcasting, character-overlapping, character size, video output setting etc.
Network Configuration	Including basic parameters, Ethernet, DNS, wireless network setting, GB28181 etc.
System configure	Including equipment property, system time, user management, version update, Reset, Reboot device settings etc.

4.2.4、 Video Configuration

1) Video Encoding

- a) **Code Stream:** video output mode setting, use different streams. (Main stream, secondary stream);
 - b) **Compression Format:** Set the video compression format, save to take it effect (primary / secondary stream default:H.264,H.265 optional) ;
 - c) **Video Size:** Set video image resolution, save to take it effect (main stream default 1920*1080, 1280*720, 640*480 optional; default secondary stream 320*180、320*240、640*360、640*480、1280*720、1920*1080 optional) ;
 - d) **Stream Rate Control:** Set rate control mode, save to take it effect (Primary / secondary stream default variable bit rate, fixed rate is for option) ;
 - e) **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) ;
 - f) **Rate (Kb/s):** Set the video bit rate (main stream default 4096Kb/s, 64-40960Kb/s optional; secondary stream default 512Kb/s, 64-40960Kb/s optional) ;
 - g) **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) ;
 - h) **Key frame interval:** Set the key frame interval (primary / secondary stream default 75F,primary / stream 1-150 optional. secondary stream 1-150F optional);
- Stream Name:** When streaming via rtsp or rtmp, user can modify stream name. Main Stream(live/av0), sub stream(live/av1).
- Save:** Click the "Save" button to display the "Parameter saved successfully" message, then settings take effect.

2) Stream Release

- a) **Switch:** To turn on/off the main / secondary stream ;
- b) **Protocol:** primary / secondary stream applies RTMP protocol ;
- c) **Host Port:** server port number (default 1935,0-65535 optional) ;
- d) **Host Address:** server IP addresses (default 192.168.5.11) ;
- e) **Stream Name:** choose a different stream name (live / av0,live / av1 optional) ;
- f) **User:** Set the user name ;
- g) **Password:** Set the password

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

3) RTP Broadcasting

- a) **Code Stream:** You can set one of the following streams for multicast or unicast transmission: close-up main stream, close-up sub-stream, panoramic main stream, panoramic sub-stream, or switching stream.
- b) **Switch:** You can enable or disable multicast/unicast transmission.
- c) **Protocol:** (default RTP, TS, UDP, TCP optional)
- d) **Address:** Default 224.1.2.3. It can be edited
- e) **Port Settings:** You can set the multicast/unicast port (the close-up main stream default is 4000, the close-up sub-stream default is 4002, the panoramic main stream default is 4004, the panoramic sub-stream default is 4006, and the switching stream default is 4008)
- f) **Visit:** The access address will be generated based on the information entered and selected above. For example, for RTP multicast, the access address is rtp://224.1.2.3:4000; for TS multicast, it is udp://@224.1.2.3:4000; for UDP unicast, it is udp://@224.1.2.3:4000; for TCP unicast, it is tcp://@224.1.2.3:4000;

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 area:** set the Focus area (Default all、 up、 middle、 down 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** 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) ;
 - AS:** Set Anti-Scintillation mode, only valid in auto exposure mode and Aperture/brightness is preferred (default 50Hz, close、 60Hz optional)
 - Gain Limit:** Set the gain limits, valid in auto focus, iris priority, and brightness priority) ;
 - Gain:** This setting is effective when using automatic, aperture, or brightness priority mode (default is 4, selectable from 0 to 15);

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

- d) **Shutter Speed:** Set shutter speed value, valid in manual exposure mode and shutter priority mode (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);

e) Aperture Value: Set Aperture Value, valid in manual exposure mode and Aperture priority mode (default F1.8, Close、F11、F9.6、F8.0、F6.8、F5.6、F4.8、F4.0、F3.4、F2.8、F2.4、F2.0、F1.8 optional);

f) Brightness: Set the brightness value, active when it is a state of brightness priority (default 7,0-23 optional).;

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

White balance modes: Set the white balance mode (the default automatic, 2400K/2500K/2600K/2700K/2800K/2900K/3000K/3100K/3200K/3300K/3400K/3500K/3600K/3700K/3800K/3900K/4000K/4100K/4200K/4300K/4400K/4500K/4600K/4700K/4800K/4900K/5000K/5100K/5200K/5300K/5400K/5500K/5600K/5700K/5800K/5900K/6000K/6100K/6200K/6300K/6400K/6500K/6600K/6700K/6800K/6900K/7000K/7100K、,manual, One-push optional);

Note: 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);

Chroma: Set the chrome (default 7, 0-14 optional);

White Balance Sensitivity: Sensitivity white balance settings (default low, high, medium optional));

Red Gain: Set the red gain, effective when it is manual white balance mode (default 255, 0-255 optional);

Blue Gain: Set the Blue gain, effective when it is manual white balance mode (default 199, 0-255 optional);

h) Image: You can set brightness, contrast, sharpness, gamma curve, black and white mode, horizontal flip, vertical flip

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

Contrast: Set the contrast (default 8, 0-14 optional);

Sharpness: Set the sharpness value (default 6, 0-15 optional);

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

Gamma: Gamma value setting (default, 0.45、0.50、0.55、0.63 optional);

Flip Horizontal: Set Flip Horizontal (default off, on optional);

Flip Vertical: Set vertical flip (default off, on optional);

i) **Noise Reduction:** Set 2D Noise Reduction, 3D Noise Reduction and dynamic dead pixel correction available.

2D Noise Reduction: Set 2D noise reduction level (default 3, 1-7, off optional);

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

Dynamic Bad Pixel Correction: Enables dynamic bad pixel correction (default, 1-8 optional);

Note: Refresh the page after changing above parameters in a, b, c, d, e to take effect

5) Character Overlapping

a) **Display Time & Date:** YES/NO

b) **Display Title:** Yes/No;

c) **Time, Font and Color:** (Default white, black, yellow, red and blue optional);

d) **Title Font Color:** (Default white, black, yellow, red, and blue optional);

e) **Move Character:** Set the location where the time and title to display. Click “ up, down, left, right” button to move the characters’ location

f) **Title:** Set title on device property (default CAMERA1);

g) **Time:** Set time on system time (default 1970/01/10 05:36:00);

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

6) Character Size

Main Stream Character Size: Set the character size of the display, the Camera will automatically restart after changed (default 48, 8-200 optional)

Secondary Stream Character Size: Set the character size of the display, the Camera will automatically restart after changed (48, 8-200 optional)

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

7) Video Output

a) **Output Format: Set the video output format** (default 1080P60, 1080P50, 1080P30, 1080P25, 720P60, 720P50, 1080P59.94, 1080P29.97, 720P59.97)

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

4.2.6 Network Configuration

1) Network Port

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

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

- c) **Onvif Port:** Set Onvif port, the device will restart automatically after changed (default 2000, 0-65535 optional);
 - d) **Soap Port:** Set Soap port (default 1936, 0-65535 optional);
 - e) **Rtmp Port:** Set RTMP port (default 1935, 0-65535 optional);
 - f) **Rtsp Port:** Set RTSP port, the device will restart automatically after changed (default 554, 0-65535 optional);
 - g) **Visca Port:** Set Visca port, the device will restart automatically after changed (default 1259, 0-65535 optional);
- Click "Save" button, "parameters are successfully saves" window pop-up, which means the setting take effect.

2) Ethernet Parameter

- a) **DHCP:** Enable or disable obtain IP automatically can be set. After saved, reboot the device to takes effect (default: OFF);
- b) **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.
- c) **Subnet Mask:** Set the subnet mask (default 255.255.255.0);
- d) **Default Gateway:** Set the default gateway (default 0.0.0.0);
- e) **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

- a) **Preferred DNS Server:** Set the preferred DNS server (Default 0.0.0.0);
- b) **Alternate DNS Server:** Set the preferred DNS server (Default 0.0.0.0);

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

4) GB28181

- a) **Switch:** Set whether to activate GB28181;
- b) **Time Synchronization:** Enable/Disable time synchronization;
- c) **Stream Type:** Set stream type (default main stream, secondary stream optional);
- d) **Signing Time (in seconds):** 3600 range 5-65535;
- e) **Heartbeat Time (seconds):** 60 range 1-65535;
- f) **Register ID:** 34020000001320000001;
- g) **Register User Name:** IPC;
- h) **Register Password:** 12345678;
- i) **Equipment Ownership:** Users can add their own;
- j) **Administrative Regions:** Users can add their own;
- k) **Alarm Zone:** Users can add their own;
- l) **Equipment Installation Address:** Users can add their own;
- m) **Local SIP Port:** 5060 Range 0-65535;

- n) **GB28181 Server Address:** IP address of the computer;
- o) **Server SIP Port:** 5060 Rang 0-65535;
- p) **Server ID:** 34020000002000000001
Click "Save" button, "parameters are successfully saves" window pop-up, which means the setting take effect

5) SRT

- a) **SRT Port :** Set the SRT port (default 9000, 0-65535 optional)
- b) **SRT Password:** Set SRT password, Changes will take effect after saving and rebooting the device (default is blank, password should be between 10 and 80 characters)
- c) **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) RTSP

- a) **RTSP Enable:** Enable/Disable RTSP
- b) **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.

4.2.7 System Configuration

1) Device Properties

- a) **Device Name:** Set the device name (Default CAMERA1, user can add their own);
- b) **Device ID:** Set the **Device ID** (Default 1, read-only);
- c) **System Language:** Set the system language (default Simplified Chinese, English optional).Need to re-login after modify and save the setting;
Click "Save" button, "parameters are successfully saves" window pop-up, which means the setting take effect.

2) System Time

- a) **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);
- b) **Date Separator:** set the date separator (default '/',',','-' Optional);
- c) **Time Zone:** Set the time zone (default UTC+08:00, other time zones optional);
- d) **Time Type:** Set the time types (default 24 hours, optional 12 hours);
- e) **Set of time:** Set time Mode (Optional synchronization with computer time, synchronization with NTP server, manual setting);
- f) **Computer Time:** Display Computer Time (Only the time setting mode is valid for synchronizing with the computer time), click the "Sync" button);
- g) **Manually set the time:** Click the calendar icon on the right to manually set the time (Only when the time setting method is manual setting is valid);

- h) **Update Interval**: Set the NTP server automatic updated time interval. Valid after setting NTP server synchronization (default one day, 2-10 days Optional) ;
- i) **NTP Server Address or Domain Name**: Set NTP server address or domain name (default time.nits.gov). Valid after setting NTP server synchronization) ;
- j) **NTP Server Port**: Sets the NTP server port (default 123).Valid after setting NTP server synchronization) ;
Click "Save" button, "parameters are successfully saves" window pop-up, which means the setting take effect.

3) User Management

- a) **Select Users**: Set the user type (the default administrator, User 1, User 2 optional) ;
- b) **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) ;
- c) **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) ;
- d) **Password Confirmation**: Confirm the input passwords are the same or not. ;
Click "Save" button, "parameters are successfully saves" window pop-up, which means the setting take effect.

Note: Username and password are case-sensitive. Please make sure to enter them correctly. If you log in to the website with a regular user's username and password, you will not have configuration permissions and can only perform preview, playback, and logout operations.

4) Version Update

- a) MCU version V3.2.0 2023-8-25
- b) Camera version V1.0.2 2023-9-7;
- c) Focused version V1.0.0 2023-7-21;
- d) Note: The version information displayed on the page is read-only version and cannot be modified by the user. The version information of different device models is different.
- d) **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)

Note: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 ;

5) Restore Factory Setting

- a) 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

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

4.2.8、 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、 Serial Port Communication Port

When the camera is working normally, it can be controlled through the RS485 interface (VISCA IN). The RS485 serial port parameters are as follows :

Baud rate: 2400/4800/9600/115200 second;

Start Bit: 1Bit;

Data Bit: 8Bit;

Stop Bit: 1Bit;

Verification Bit: None

After power on, the camera will have a brief tour and then back to the center position.

The zoom lens is pulled to the farthest position, and then pulled back, after that self-test is completed.

5.1 VISCA Protocol List

5.1.1 Camera return command (Correct)

Table5.1.1 Camera return command (Correct)

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

Note: z = Camera address + 8

Table5.1.2 Camera return command (Wrong))

Error Messages		
	Command packet	Remark
Syntax Error	z0 60 02 FF	Returned when the command format is different or when a command with illegal command parameters is accepted

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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.
------------------------	-------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------

5.1.2 Camera control command

Table 5.1.3 Camera control command

Command	Function	Command packet	Note
AddressSet	Broadcast	88 30 01 FF	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	p = 0(low) - 7(high) pqrs: Zoom Position
	Tele(Standard)	8x 01 04 07 02 FF	
	Wide(Standard)	8x 01 04 07 03 FF	
	Tele(Variable)	8x 01 04 07 2p FF	
	Wide(Variable)	8x 01 04 07 3p FF	
	Direct	8x 01 04 47 0p 0q 0r 0s FF	
CAM_Focus	Stop	8x 01 04 08 00 FF	p = 0(low) - 7(high) pqrs: Focus Position
	Far(Standard)	8x 01 04 08 02 FF	
	Near(Standard)	8x 01 04 08 2p FF	
	Far(Variable)	8x 01 04 08 3p FF	
	Near(Variable)	8x 01 04 08 03 FF	
	Direct	8x 01 04 48 0p 0q 0r 0s FF	
	Auto Focus	8x 01 04 38 02 FF	
	Manual Focus	8x 01 04 38 03 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_WB	Auto	8x 01 04 35 00 FF	
	3000K	8x 01 04 35 01 FF	
	4000k	8x 01 04 35 02 FF	
	One Push mode	8x 01 04 35 03 FF	
	5000k	8x 01 04 35 04 FF	
	Manual	8x 01 04 35 05 FF	
	6500k	8x 01 04 35 06 FF	
CAM_RGain	Reset	8x 01 04 03 00 FF	Manual Control of R Gain

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Command	Function	Command packet	Note
	Up	8x 01 04 03 02 FF	pq: R Gain
	Down	8x 01 04 03 03 FF	
	Direct	8x 01 04 43 00 00 0p 0q FF	
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	Reset	8x 01 04 0C 00 FF	Gain Setting
	Up	8x 01 04 0C 02 FF	
	Down	8x 01 04 0C 03 FF	
	Direct	8x 01 04 0C 00 00 0p 0q FF	pq: 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_NR (2D)		8x 01 04 53 0p FF	P=0-7 0:OFF

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Command	Function	Command packet	Note
CAM_NR (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: 0.47 2: 0.50 3: 0.52 4: 0.55
CAM_Flicker		8x 01 04 23 00 FF	OFF
		8x 01 04 23 01 FF	50HZ
		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_Memory	Reset	8x 01 04 3F 00 0p FF	p: Memory Number(=0 to 254) Corresponds to 0 to 9 on the Remote Commander
	Set	8x 01 04 3F 01 0p FF	
	Recall	8x 01 04 3F 02 0p 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=0-7 0:60% 1:70% 2:80% 3:90% 4:100% 5:110% 6:120% 7:130%
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
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_VideoSys	Set camera	8x 01 06 35 00 0p FF	P: 0~E Video format

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Command	Function	Command packet	Note
tem	video system		0:1080P60 8:720P30 1:1080P50 9:720P25 2:1080i60 A: 1080P59.94 3:1080i50 B: 1080i59.94 4:720P60 C: 720P59.94 5:720P50 D: 1080P29.97 6:1080P30 E: 720P29.97 7:1080P25
	Down	8x 01 06 01 VV WW 03 02 FF	
	Left	8x 01 06 01 VV WW 01 03 FF	
	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	
	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)
	Clear	8x 01 06 07 01 0W 07 0F 0F 0F 07 0F 0F 0F FF	ZZZZ: Tilt Limit Position(TBD)

5.1.3 Camera Inquiry command

Table 5.1.4 Camera Inquiry command

Command	Function	Command 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_FocusAFModelnq	8x 09 04 38 FF	y0 50 02 FF	Auto Focus
		y0 50 03 FF	Manual Focus
CAM_FocusPosInq	8x 09 04 48 FF	y0 50 0p 0q 0r 0s FF	pqrs: Focus Position
CAM_WBModelInq	8x 09 04 35 FF	y0 50 00 FF	Auto
		y0 50 01 FF	3000K
		y0 50 02 FF	4000K
		y0 50 03 FF	One Push Mode
		y0 50 04 FF	5000K
		y0 50 05 FF	Manual
		y0 50 00 FF	6500K
CAM_RGainInq	8x 09 04 43 FF	y0 50 00 00 0p 0q FF	pq: R Gain
CAM_BGainInq	8x 09 04 44 FF	y0 50 00 00 0p 0q FF	pq: B Gain
CAM_AEModelInq	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_BrightPosInq	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_BacklightModelnq	8x 09 04 33 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
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_FlickerModelnq	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	pq: Aperture Gain

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		FF	
CAM_PictureEffectModelInq	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_MenuModelInq	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
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_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
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_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 ST (0950) U3 (3950) rs tu : ARM Version vw : reserve
VideoSystemInq	8x 09 06 23 FF	y0 50 0p FF	P: 0~E Video format 0:1080P60 8:720P30

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			1:1080P50 9:720P25 2:1080i60 A: 1080P59.94 3:1080i50 B: 1080i59.94 4:720P60 C: 720P59.94 5:720P50 D: 1080P29.97 6:1080P30 E: 720P29.97 7:1080P25
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	www: Pan Position zzzz: Tilt Position

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

5.2 Pelco-D protocol command list

Table 5.2.1 Pelco-D protocol command list

Function	Byte1	Byte2	Byte 3	Byte 4	Byte5	Byte6	Byte7
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
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

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Focus Near	0xFF	Address	0x01	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

5.3 Pelco-P protocol command list

Table 5.3.1 Pelco-P protocol command list

Function	Byte 1	Byte2	Byte 3	Byte 4	Byte5	Byte6	Byte 7	Byte 8
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
Zoom In	0xA0	Address	0x00	0x20	0x00	0x00	0xAF	XOR
Zoom Out	0xA0	Address	0x00	0x40	0x00	0x00	0xAF	XOR
Focus Far	0xA0	Address	0x01	0x0	0x00	0x00	0xAF	XO

		s		0				R
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

6 、 Camera Maintenance and Troubleshooting

6.1 Camera Maintenance

- 1) If camera is not used for long time, please turn off power adapter switch and AC plug.
- 2) Use soft cloth or tissue to clean the camera cover.
- 3) Use soft cloth to clean the lens; Use neuter cleanser if bad smeared. No use strong or corrosive cleanser or corrosive cleanser avoiding scuffing.

6.2 Troubleshooting

1) No image

Solutions:

- a、 Check whether the camera power supply is connected, the voltage is normal, the power indicator is lit;
- b、 Whether the machine could do self-inspection after restarted. ;
- c、 Check whether the video interface of camera and display is loosen ;

- d、 Check whether the video output cable is worn. ;
- e、 Check whether the camera video format is supported by the display.

2) **Abnormal display of image**

Solutions:

- a、 Check whether the camera power supply is connected, the voltage is normal, the power indicator is lit;
- b、 Check whether the video output or video display interfaces are normal ;
- c、 Check whether the video cable is damaged.

3) **Image dithering when zoom-in or zoom-out**

Solutions:

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

4) **Serial port can not work**

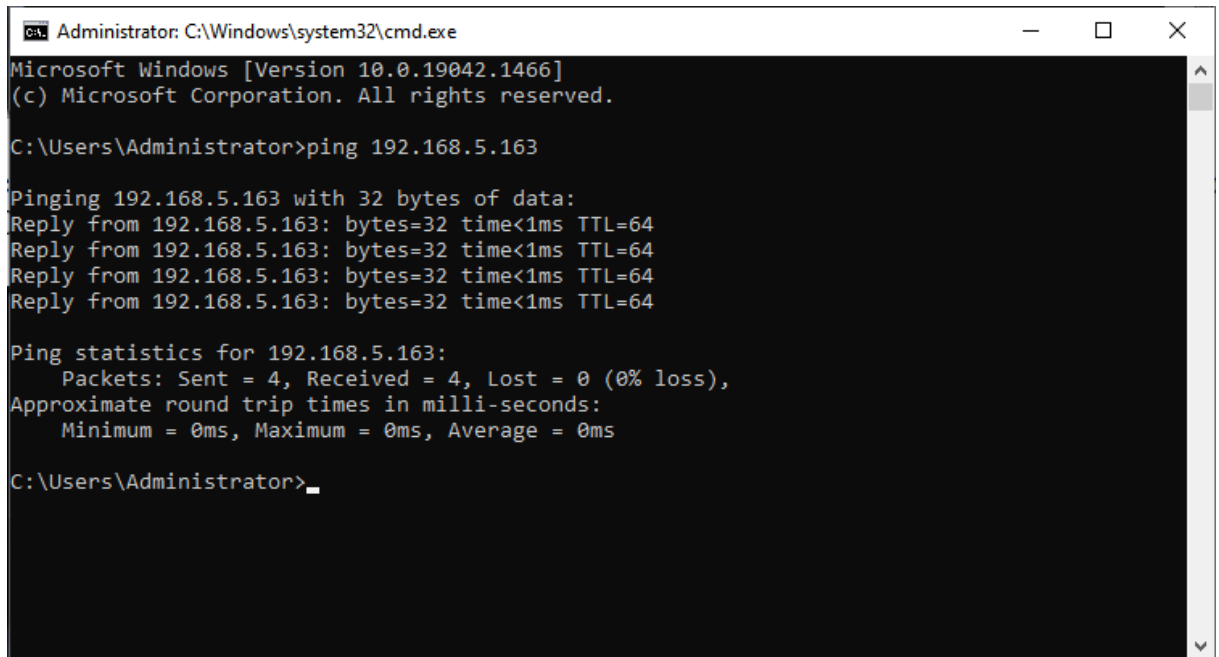
Solutions:

- a、 Check whether the camera serial device protocol, baud rate, address is consistent;
- b、 Check whether the control cable is connected properly ;
- c、 Check whether the camera working mode is the normal operating mode.

5) **Web pages can not log in**

Solutions:

- a、 Check whether the camera is showing normally. ;
- b、 Check whether the network cable is connected properly(Ethernet port indicator is flashing) ;
- 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" and then type "cmd" in the computer;Click "OK" then turn on a DOS command window to enter ping 192.168.5.163. Press the Enter key to appear message as follows: Description network connection is normal.



```
Administrator: C:\Windows\system32\cmd.exe
Microsoft Windows [Version 10.0.19042.1466]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Administrator>ping 192.168.5.163

Pinging 192.168.5.163 with 32 bytes of data:
Reply from 192.168.5.163: bytes=32 time<1ms TTL=64
Reply from 192.168.5.163: bytes=32 time<1ms TTL=64
Reply from 192.168.5.163: bytes=32 time<1ms TTL=64
Reply from 192.168.5.163: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.5.163:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Users\Administrator>_
```

Figure6.2.1 Network Connection Screenshot