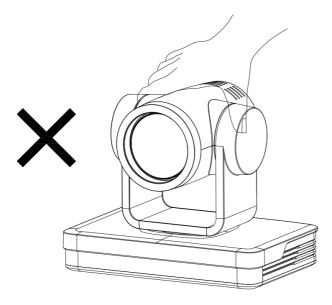
FULL HD PTZ CAMERA

User Manual (V1.0)



Attentions

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.



This manual introduces functions, installations and operations for this PTZ camera in details. 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 $\pm 12V$, the max electrical current is 2A.



3. Install

- 1.1 Do not rotate the camera head violently, otherwise it may cause mechanical failure;
- 1.2 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;
- 1.3 Ensure there are no obstacles within rotation range of the holder.
- 1.4 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.

Content

1. Camera Installation	2
1.1 Camera Introduction	
1.2 Interfaces and Connection	
1.3 Mounting Brackets	
2. Product Overview	7
2.1 Model	7
2.2 Dimension	
2.3 Accessory	
2.4 RS-232 Interface	9
2.5 Main Features	
2.6 Specifications	11
3. Remote Control	
3.1 Match Code for Wireless Remote Control	
3.2 Keys Introduction for IR Remote Control	
3.3 Menu Introduction	
4. Network Configuration	
4.1 Network Connection	
4.2 IE Login	
4.3 Streaming	
4.4 Software Upgrading	
5. Maintenance and Troubleshooting	
5.1 Maintenance	
5.2 Troubleshooting	
6. Copyright Statement	

1.1 Camera Introduction

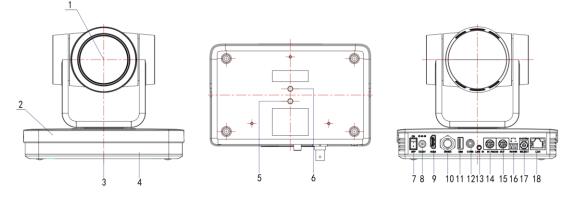


Figure 1.1 Interface of ST (standard) Model

- 1. Camera Lens
- 2. Camera Base
- 3. Remote Control Receiving Indicator
- 4. Infrared Receiver
- 5. Tripod Screw Hole
- 6. Screw Hole for Tripod
- 7. Power Switch
- 8. DC12V Input Power Supply Socket
- 9. HDMI Output Interface

- 10. 3G-SDI Output Interface
- 11. USB2.0 Interface (U-disk memory)
- 12. CVBS Output Interface
- 13. Audio Input Interface (Line-in)
- 14. RS232 Control Interface (input)
- 15. RS232 Control Interface (output)
- 16. RS485 Input (left +, right-)
- 17. Video Format Switch
- 18. 10/100M Network Interface

1.2 Interfaces and Connection

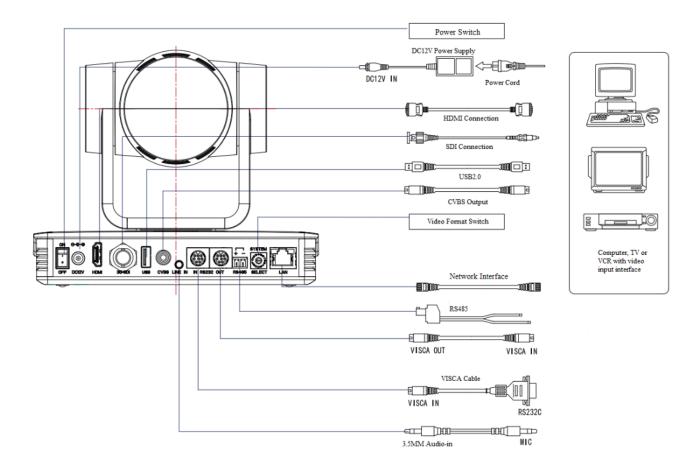


Figure 1.3 Wiring Diagram

1) After power on and self-check, 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#.

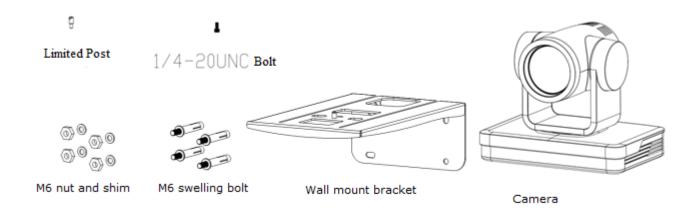
If the menu restored to factory defaults, the remote control default address will restore to 1#.

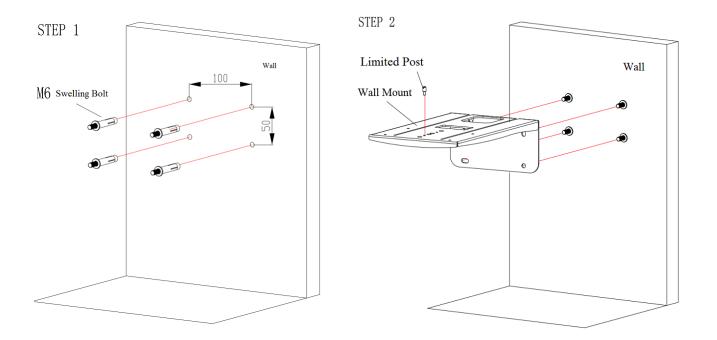
1.3 Mounting Brackets

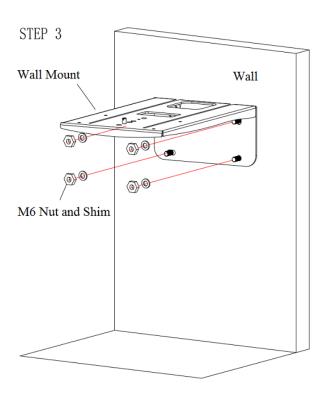
Notes:

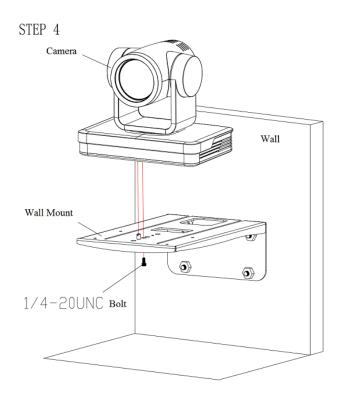
Ceiling or wall mounting brackets can only be mounted on template and concrete wall. For safety reason, plasterboard is not recommended.

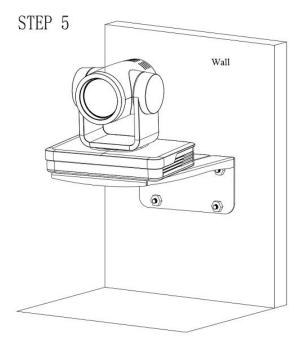
1) Wall Mounting:



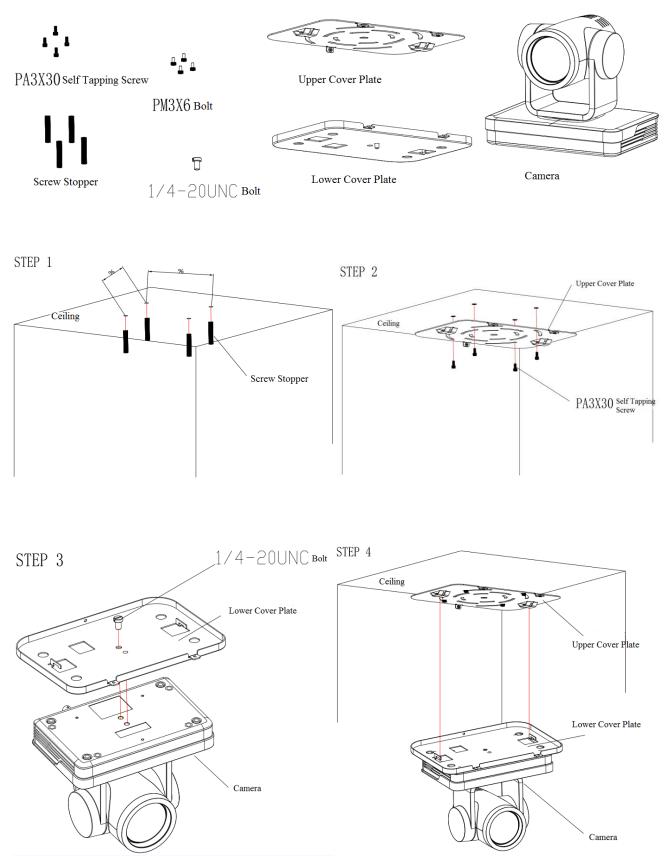




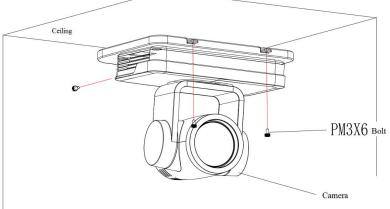




2) Ceiling Mounting



STEP 5



2. Product Overview

2.1 Model

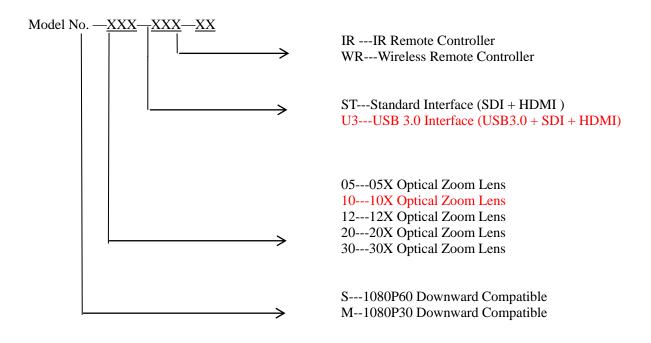


Figure 2.1 Product Model

2.2 Dimension

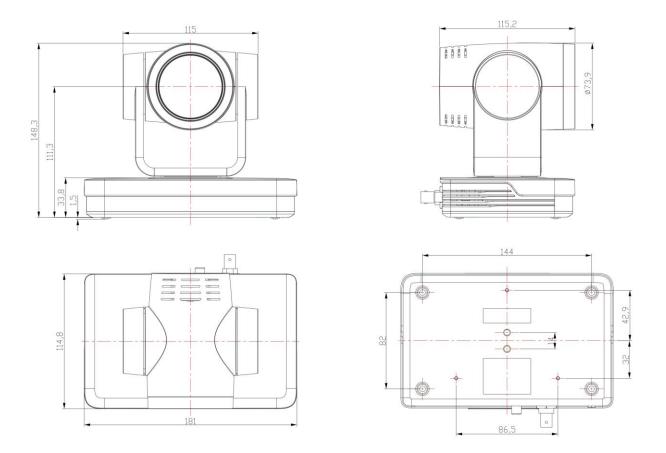


Figure 2.2 Product Dimension

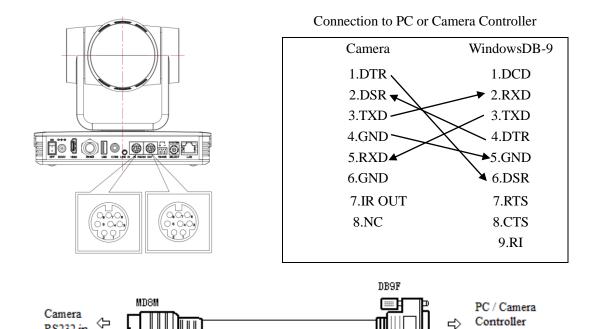
2.3 Accessory

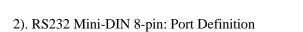
Please check below standard and optional accessories when unpacking the box.

Standard Accessory	Optional Accessory
Power adapter	Wireless Remote Control
IR Remote Control	Ceiling Mount
RS232 Cable	Wall Mount
User Manual	
USB3.0 Cable (only for model with USB3.0 output)	

2.4 RS-232 Interface

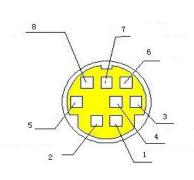
1). RS-232 Interface Definition





⇦

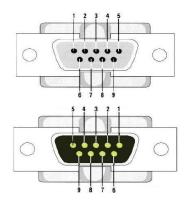
RS232 in



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

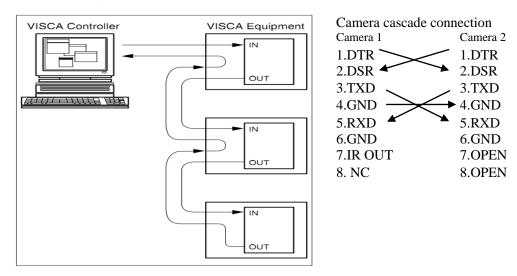
RS232 interface

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

4). VISCA networking as shown below:



2.5 Main Features

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

- **Full HD Resolution:** 1/2.8 inch high quality CMOS sensor. Resolution is up to 1920x1080 with frame rate up to 60 fps.
- Multiple Optical Zoom Lens: 5X/8X/12X/20X/30X optical zoom lens. The 5X zoom camera is with 83.7° FOV without distortion.
- 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 video output interfaces: HDMI, 3G-SDI, CVBS, LAN. Simultaneously output audio and video signal via HDMI, SDI and LAN. SDI output could up to 100M with 1080P@60fps
- Multiple Audio/Video Compression Standards: Support H.264/H.265 video compression, up to 1920×1080 resolution 60 fps; support AAC, MP3 and G.711A audio compression, 8000、16000、32000、44100、48000 sampling frequency
- Video / audio record and store: USB2.0 interface supports U disk storage, real-time record and store
- Built-in Gravity Sensor: support PTZ auto-flip function and easy installation.
- Multiple Network Protocol: 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.
- Control Interface: RS485, RS232 (cascade connection)
- **Multiple Control Protocol:** Support VISCA、PELCO-D、PELCO-P protocols; Support automatic identification protocols.
- Quiet Pan / Tilt Movement: with high accuracy step driving motor, camera can pan / tilt extremely quiet and smooth.
- Auto sleep function: Auto sleep/wake up function with low power consumption, less than 400mw.
- Multiple presets: Up to 255 presets (10 presets via remote control).
- IR / Wireless Remote Control: Users can choose IR remote control or wireless remote control according to different conditions. 2.4G wireless remote control is not affected by the angle, distance or infrared interference. Far-end-control is also available.
- Multiple Application: Online-education, Lecture Capture, Webcasting, Video conferencing, Tele-medicine, Unified Communication, Emergency command and control systems, etc.

2.6 Specifications

Model	5X	10X	12X	20X	30X	
Camera Parameter						
Optical Zoom	5X f=3.1~15.5mm	10X f=4.7~47mm	$f=3.9\sim46.8$ mm	20X 5.2~98mm	$ \begin{array}{c} 30X\\ f = 4.3 \\ 129mm \end{array} \sim$	
Sensor	1/2.8 inch high qua	ality HD CMOS sens	sor			
Effective Pixels	16: 9, 2.07 mega					
Video Format	1080P60/50/30/25/ CVBS output: 57(HDMI/SDI video format 1080P60/50/30/25/59.94/29.97, 1080I60/50/59.94, 720P60/50/30/25/59.94/29.97 CVBS output: 570i 480i USB3.0 interface video format: 1920X1080@60fps				
View Angle	83.7°(W)	60.9°(W)	72.5°(W)	55.8° (W)	65.1°(W)	
	20°(T)	6.43°(T)	6.3°(T)	3.2°(T)	2.34°(T)	
AV	F1.8 – F2.8	F1.6 – F3.0	F1.8 – F2.4	F1.5~ F3.0	F1.6 – F4.7	
Digital Zoom	10X					
Minimum Illumination	0.5Lux (F1.8, AGC	CON)				
DNR	2D & 3D DNR					
White Balance			or temperature (range	e: 2400k-7100k)		
Focus/Aperture/ Electronic Shutter	Auto/Manual/One	Auto/Manual/One Push Focus				
Iris	Auto/Manual					
Shutter	Auto/Manual					
BLC	ON/OFF					
WDR	OFF/ Dynamic lev	3				
Video Adjustment	Brightness, Color, Saturation, Contrast, Sharpness, B/W mode, Gamma curve					
SNR	>55dB					
Input/output Interfac						
Video Interfaces	UV570-05/10/12/20/30-ST Model: HDMI, SDI, LAN, CVBS, RS232-IN/OUT, RS485, A-IN, USB2.0(USB Disk Storage) UV570-05/10/12/20/30-U3 Model: HDMI, SDI, LAN, CVBS, RS232-IN/OUT, RS485, A-IN, USB3.0				, ,	
Video Output	HDMI, SDI, I	LAN, USB3.0, CVB	S			
Video Stream	Dual stream of	output				
Video Compression Format	LAN Interface: H.265, H.264, Dual stream output USB2.0 Interface: H.265, H.264, MJPEG USB3.0 Interface: YUV					
Audio Input Interface	Double track	3.5mm linear input				
Audio Output Interface						
Audio Compression Format	AAC/MP3/G	AAC/MP3/G.711A				
Control Interface	RS232, RS485					
Control Protocol		VISCA/Pelco-D/Pelco-P, Baud Rate: 115200/9600/4800/2400bps				
Power Interface	HEC3800 outlet (DC12V)					
Input Voltage	DC12V±10%					
Input Electric Current						
Power Consumption	Maximum: 12W					
IPC Features						

H.265、H.264			
Support dual streaming output, main code stream and sub-code stream			
Main stream: 1920×1080、1280×720、640×480			
Sub stream: 1920×1080、1280×720、640×480 、640×360 320×240、320×180			
64Kbps~40960Kbps			
AAC、MP3、G.711A			
32Kbps、48Kbps、64Kbps、96Kbps、128Kbps			
TCP/IP、RTSP、RTMP、ONVIF、GB/T28181;			
Network VISCA control protocol;			
Support remote upgrade, reboot and reset			
±170°, -30°~+90°			
0.1 - 60°/sec			
0.1- 30°/sec			
Pan: 60°/sec, Tilt: 30°/sec			
255 presets (10 presets via remote control)			
-10°C~+60°C			
20%~95%			
-10°C~+50°C			
20%~80%			
178mmX115.5mmX150.9mm			
1.38KG			
12V/1.5A Power supply, RS232 control cable, USB3.0 connection cable(U3 model), IR Remote Control, User Manual			
Ceiling / wall Mount (Extra Cost)			

3. Remote Control

3.1 Match Code for Wireless Remote Control



One to One Code Matching:

Press the "set" and "*" keys combined for 3 seconds, LED indicator starts flashing. Camera receive the signal and power on, LED indicator will go off if code matching successfully. The camera can be controlled by this wireless remote control only after one to one code pairing. Otherwise please clear the code matching of this remote control, or use other 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, camera will stop code match and turn on sleep mode; Press any key to wake up the camera and re-match code.

Note: After code matching successfully, please select the camera address to control it.

Clear Code:

Press the "set" and "*" keys combined for 3 seconds, LED indicator starts flashing. Camera will power off and on, the LED indicator will go off if clear code 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

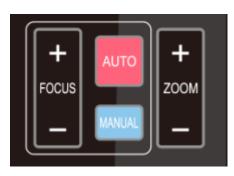
The camera enters standby mode if long press 3s on standby key;

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).

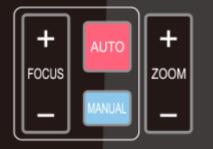
2. Camera Selection



3. Focus Control



4. Zoom Control



Select the camera address to 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.

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



7. Menu Setting



8. Camera Remote Control Address Setting



Up: press 🖪	Down: press 🔺
Left: press 🔻	Right: press 🖪
Back to middle position: p	ress" 【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; stop as soon as the key is released.

【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

[*] + [#] + [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 user name,
password, and IP address
9) $[\#]+[\#]+[0]$: Switch the video format to 1080P60
10) $[\#] + [\#] + [1]$: Switch the video format to 1080P50
11) $[\#] + [\#] + [2]$: Switch the video format to 1080I60
12) $[\#] + [\#] + [3]$:Switch the video format to 1080I50
13) $[\#] + [\#] + [4]$: Switch the video format to 720P60
14) $[\#] + [\#] + [5]$: Switch the video format to 720P50
15) $[\#] + [\#] + [6]$: Switch the video format to 1080P30
16) $[\#] + [\#] + [7]$: Switch the video format to 1080P25
17) $[\#] + [\#] + [8]$: Switch the video format to 720P30
18) $[\#] + [\#] + [9]$: Switch the video format to 720P25
-

Note: If the address of former remote control is not address 1 but another one from 2, 3, 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.

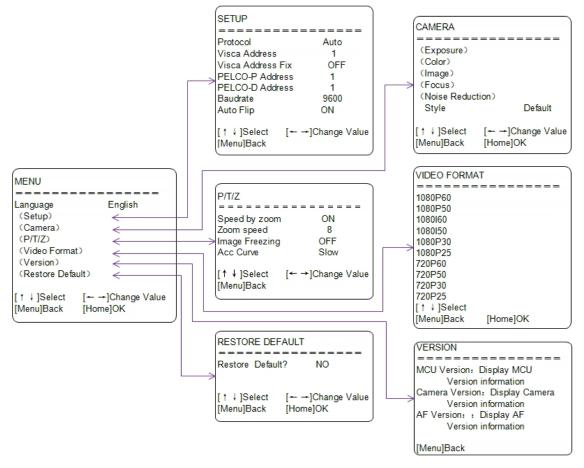
3.3 Menu Introduction

Note: The modification valid only if exit the menu before save and power 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). English Menu



4. Network Configuration

4.1 Network Connection

Direct connection: Connect the camera and computer by network connecting cable. **Internet connection mode:** Connect the camera to Internet by Router or Switcher and user can login the device by browser web page.

Note: Please do not put the power cable and network cable in places where can be easily touched, to prevent video 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.

The camera default IP address is 192.168.5.163, segment 5 must be added in the computer.

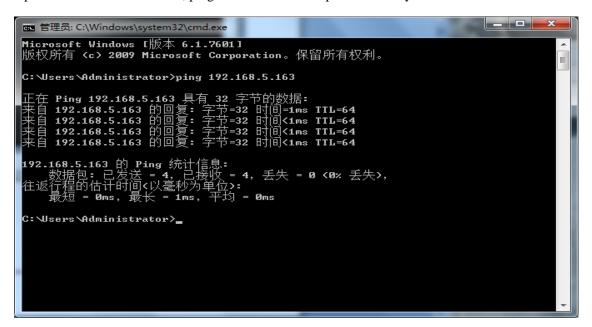
Firstly open the window of Local Area Connection Properties on computer, select the "Internet protocol version 4(TCP/IPv4)". Double click or click the property "Internet" protocol version 4 (TCP/IPv4) to enter into the Internet Protocol Version 4(TCP/IPv4) Properties window; select "Advanced" to enter into the Advanced TCP/IP Setting and add IP and subnet mask. 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.

Note: 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.

To verify whether the network segment has been successfully added, click the "Start" and select "Operation" to input cmd, then click CONFIRM and open DOS command window, ping 192.168.5.26 and press Enter key to display information as shown below:



After camera power on and self-check, follow the steps above to verify network connection. Open DOS command window, ping 192.168.5.163 and press Enter key.



4.2 IE Login

1). Web Page Login

Input the default IP address 192.168.5.163 in the browser and click Enter button to enter into Web Client login page. User can login as administrator and normal user. If login as administrator (Default User name/Password: admin), users can preview, playback, and set configuration in the Web Client; If login in as normal user (Default User name/Password:user1 or user2), users can only preview, playback and logout, no option for configuration.

Note: Web access support IE based browsers: IE, 360 browsers and etc.

Chrome login is available after firmware update, but only support basic configuration and preview video, no functions of record video, voice volume, video capture and playback.

2). Download and Install Plug in for IE login

If it's the first time to login via IE browser, the login page will prompt "Playback plug-in is not installed, please download and install!" Click on this message, download and install MRWebXinstall.exe according to the information.

Enter user name and password (default user name and password: "admin"). Users can manage and change user name, password and etc.

4.3 Streaming

1). Video Stream Capture

Configurations -> Video Configure-> Video Encode

Configurations	Video Encode				
 ♂ Audio Configure ✓ ♂ Video Configure 	Stream	Main Stream	>	Sub Stream	>
 Video Encode Stream Publish 	Compressed Format	H.264	~	H.264	~
RTP Multicast Video Parameters	Profile	HP	~	HP	~
 Video Parameters Video OSD OSD Font Size 	Image Size	1920*1080	~	320*180	~
Oldeo Out	Rate Control	CBR	~	CBR	~
Signature Setwork Configure Network Port Ethernet	Image Quality	Best	~	Better	~
O DNS	Bit Rate(Kb/S)	4096		512	
 System Configure SystAttr 	Frame Rate(F/S)	25		25	
 SysTime SysUser 	I Frame Interval	75		75	
O Update O Default	I Frame Min QP	20		20	
🙆 Reboot		live/av0		live/av1	
	Stream Name				
			\checkmark		
			Save		

Configure the parameters according to the network environment. Note: stream name live/av0 (live/ XXX)

For example:

The default IP address of the camera is 192.168.5.163. The way to obtain the RTSP video stream is as below rtsp://192.168.5.163:554/live/av0 (av0 main stream) rtsp://192.168.5.163:554/live/av1 (av1 sub stream)

The default IP address of the camera is 192.168.5.163. the way to obtain RTMP video stream is as below rtmp://192.168.5.163:1935/live/av0 (av0 main stream) rtmp://192.168.5.163:1935/live/av1 (av1 sub stream)

2). Push Video Stream

Configurations -> Video Configure-> Stream Publish

Configurations	Stream Publi	sh	
🔗 Local Configure 🧬 Audio Configure	Stream	Main Stream	Sub Stream
Video Configure Video Encode	Enable		
 Stream Publish Video Parameters 	Protol Type	RTMP	RTMP
 Video OSD OSD Font Size 	Host Address	192.168.5.11	192.168.5.11
 Video Out NetWork Configure 	Host Port	1935	1935
 Network Port Ethernet DNS GB28181 	Stream Name	live/av0	live/av1
 System Configure SystAttr SysTime 	User Name		1
 SysUser Update Default 	Password	Save	
💿 Reboot			

Push RTMP stream to public network server, the stream camera must be on the public network, otherwise it will fail to connect to server.

Host address: server address, which can be either a domain name or an IP address

Host port: server default port number

Stream name: live/test (live/ XXX)

Username and password: the username and password set by the server, or leave it empty

Access url: rtmp://host domain name: host port/live/xxx

Or (rtmp://host IP address: host port/live/xxx)

4.4 Software Upgrading

1). Log in to the web page and manage camera settings. The default page is preview interface, where users cam PTZ control, record video, preset camera positions and etc.

2). Configurations -> System Configure-> Update

Configurations	Release Upgra	de	
Se Local Configure	MCU Version	V2.2.5 2016-10-25	
Video Configure	Camera Version	V2.2.6 2016-10-20	
Stream Publish Video Parameters Video 200	AF Version	V2.4.3 2016-10-20	
 Video OSD OSD Font Size 	Update File		浏览
Video Out		Vpgrade	
NetWork Configure Network Port			
Ethernet			
ONS GB28181			
System Configure			
SystAttr SysTime			
SysUser			
🗿 Update			
 Default Reboot 			
Nebuut			

3). Click "browse" to select .mrg update file, then click upgrade button to finish software upgrading.
4). Camera reboot after completion of firmware update. It prompts with "successful upgrade".
Log in to check the firmware version to make sure software upgrade successful.
Then click "restore factory default", reboot and restore parameters to factory default (default IP 192.168.5.163, user name: admin; password admin).

5. Maintenance and Troubleshooting

5.1 Maintenance

1) Please power off the camera and disconnect the power adapter and socket, if it's not used for a long run.

2) Use soft cloth or tissue to clean the camera cover.

3) 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 video quality.

5.2 Troubleshooting

1)No video output

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-check after restarted.
- c. Check whether the bottom of the DIP switch is the normal operating mode (see Table 2.2 and Table 2.3)

d. Check whether the video output cable or video display is normal

2) No image sometimes

a. Check whether the video output cable or video display is normal

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 not works

a. Remote control address is set to 1 (if the machine is set back to the factory defaults, remote control addresses need to be back to 1 too)

b. Check whether the battery is installed on the remote controller or low .

c, Check the camera working mode is the normal operating mode (see Table 2.2 and Table 2.3)

d. Check the menu whether is closed, camera control through remote controller is only available after exiting the menu. If video output from LAN, menu will not be displayed, menu will automatically exists 30s later, and then it can be controlled by remote controller.

5) Serial port not works

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

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 properly (Ethernet port yellow light flashes 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" 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

```
C:\Users\Administrator>ping 192.168.5.163
    Ping 192.168.5.163
                        32
                                        シ泪居:
     192.168.5.163
                                 32
                                         =1ms
                        复:
    192.168.5.163
                     5=32
                                    时间<1ms TTL=64
                   Ĥ٩
                           子 □-32
字节=32
    192.168.5.163
                   的回复:
                                    时间<1ms TTL=64
                   的回
                                      Ì8Ì<1ms
    192.168.5.163
                              ₩=32
                                    84
         .163
                 Ping
                                          = 0 <0% 手失>,
              87181
                               Ha
           Øms.
C:\Users\Administrator>_
```

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