HD Conference Camera

User Manual

Version V1.0

1. Product Description

1.1 Front

① Lens
② Pan&Tilt
③ Power
④ Standby

1.2 Front

① DC12V
② RS-485
③ RS-232
④ USB
⑤ HDMI
⑥ RJ45
⑦ SDI

2. Packing List

HD Conference Camera

DC 12V power supply

Wall mount

Mounting screws

User manual

Remote control

USB cable

3. Performance Characteristics

Model No.	VHD10H	VHD20H	VHD12H
Image Sensor	Sony IMX327 1/2.8" CMOS		
Effective Pixels	2.07MP		
Optical Zoom	10x zoom	20x zoom	12x zoom
Lens	f=4.32-40.9mm	f=5.5-110mm	f=4.1-49.2mm
Aperture	F1.76~F3.0	F1.6-3.5	F1.8-2.68
Horizontal Angle	67.5°(W)+8.8°(T)	55.8°(W)-3.2°(T)	70.28°(W)-6.57°(T)
Vertical Angle	40.2°(W)+4.3°(T)	32.2°(W)-1.8°(T)	42.06°(W)-3.76°(T)
Diagonal Angle	75.4°(W)+8.8°(T)	(W)-3.84°(T)	78.36°(W)-7.5°(T)
Video Format	1080p@60/50/30/25fps, 720p@60/50/30/25fps		
Video Encoding Format	H.264, H.265, MJPG, YUY2		
Backlight Compensation	Support		
SNR	>50dB		
Focus	Auto / Manual		
Digital Noise Reduction	2D & 3D Noise Reduction		
Exposure	Auto / Manual		
I / O Interface			
Video Interfaces	HDMI, USB3.0, RJ45		
Video Compression Format	H.264, H.265, MJPG, YUY2		
LAN	10M/100M/1000M adaptive Ethernet port; Support POE IEEE802.3at		
Network Protocol	NDI(HX2,RTSP, RTMP, ONVIF, GB28181; Support VISCA Over IP		
Control Protocol	VISCA/Pelco-D/Pelco-P; Baud Rate: 9600/4800/38400/2400		
Control Interface	RS232, RS485,USB3.0 TYPE-B(UVC1.1),RJ45		
I / O Interface			
Pan/Tilt Rotation	±175°, -90° ~ +90°		
Pan Control Speed	0.1 -60°/sec		
Tilt Control Speed	0.1 -60°/sec		
Preset Number	User can set up to 255 presets (10 presets by IR remote)		
I / O Interface			
Operation Systems	Windows 7, Windows 8.1, Windows 10, Windows 11; Android, Mac OS™ 10.10 or higher, Linux (Required to support UVC.)		
Input Voltage	DC 12V		
Input Current	2.0A (Max.)		
Power Consumption	13W (Max.)		
Store Temperature	-10℃ ~ +60℃		
Store Humidity	20% ~ 90%		
Working Temperature	-10℃ ~ +50℃		
Working Humidity	20% ~ 80%		
Dimension (W*H*D)	247.1*152*169.6mm/285*217*197mm(before / after packing)		
N.W. / G.W.	1.37kg/2.45kg (net / gross weight)		
Accessory	1 x Camera; 1 x USB Cable; 1 x Power Adapter; 1 x Wall Mount; 1 x Manual		
Mfg. Warranty	3 Years standard Parts & Labour warranty		

4. Remote Control Button Description

No	Name	Function
1	Launch Window	Remote Control Launch Window
2	Power	Enter into Standby mode by pressing
3	PTZ Reset	Reset the PTZ
4	Camera Select Key	Select the camera needs to control
5	Position	Preset position setup keys, include【PRESET】and 【RESET】 Set the preset position Reset the preset position
6	UP	The camera rotates horizontally in regular installed direction
7	DOWN	The camera rotates horizontally in reversed installed direction
8	PTZ Control Key	PTZ moves according to the arrow indicates. Press【⌂】PTZ will get back to the default position
9	Return/Exit	Return to up level menu or exit menu
10	MENU	Enter or exit OSD Menu after pressing it
11	⊙	PTZ rotates speed-
12	⊙	PTZ rotates speed
13	⊙	PTZ rotates speed+
14	ZOOM Slow Key	Zoom in + or out - slowly
15	ZOOM Fast Key	Zoom in + or out - quickly
16	L/R Set	Support, press this key for 10 seconds
17	Focus Key	Auto/Manual/Far/Near Focus Default: Auto Focus
18	Bright Adjustment	Adjust the brightness of the image
19	▶I	Freeze/Unfreeze the image
20	Mirror	Enable the picture left/right flip
21	Image Mode	Switch between three image modes Normal, PC, Bright

★Attentions for Remote Control

1. Please check whether the indicator corresponding to the camera selection area is on or not.
2. If the remote control doesn't work, please replace batteries.
3. Make sure the Number keys on the camera selection area are consistent with the remote control address in the menu.

5. Camera Menu Setup

When operating remote control, press【MENU】 to enter main menu of the video camera.

5.1 Level 1 Menu- Main Menu

```
          Main Menu
-----------------------------
→ Exposure
  Color
  Image
  P/T/Z
  Communication
  Information
  Restore Default
  Language           English

[Home]             Enter
[Menu]             Back
```

Language: Support Chinese/English
Press the【⌂】button on the Remote to enter level 2 sub-menu
Press the【Menu】button on the Remote to exit menu

5.2 Level 2 Menu - Exposure

```
          Exposure
-----------------------------
→ Mode              Auto
  Backlight         Off
  ExpComp           00
  Flicker           50Hz
[Return]
```

Mode: Auto/Manual/SAE/AAE/Bright
Backlight: On/Off (only effective under Auto mode)
ExpComp: Optional item is -7~+7 (only effective under Auto mode)
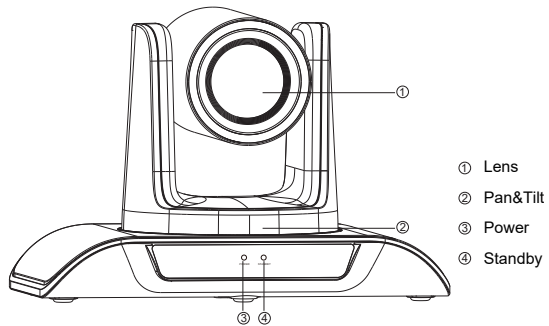Flicker: Support 50HZ/60HZ

When changing the exposure mode to Manual, the sub-menu is as shown below.

```
          Exposure
-----------------------------
→ Mode              Manual
  Iris              F2.2
  Shutter           1/30
  Gain              00
  Flicker           50Hz
[Return]
```
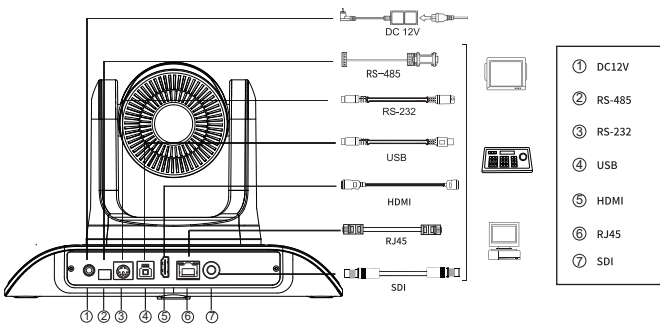
Iris: F1.6、F1.85、F2.0、F2.2、F2.63、F3.0、F3.4、F4.0、F6.0、F8.0、F10.0、F16.0、F32.0 Off (Only effective under Manual/AAE mode)
Shutter: 1/25、1/30、1/60、1/90、1/100、1/125、1/180、1/250、1/350、1/500、1/750、1/1000、1/1500、1/2000、1/3000、1/4000、1/6000、1/10000 (Only effective under Manual/SAE mode)
Gain: Optional item is 0 to 99 (Only effective under AAE/SAE mode)

```
          Exposure                    Exposure
--------------------------    --------------------------
→ Mode         SAE            → Mode         AAE
  Shutter      1/30             Iris         F2.2
  Gain         00               Gain         00
  Flicker      50Hz             Flicker      50Hz
[Return]                      [Return]
```

```
          Exposure
-----------------------------
→ Mode              Bright
  Flicker           07
  Bright            50Hz
[Return]
```

Bright: Optional item is 0-17 (Only effective under Bright mode)

5.3 Level 2 Menu - Color

```
          Color
-----------------------------
→ Brightness        50
  Contrast          50
  Hue               50
  Saturation        50
  Sharpness         50
  WB Mode           Auto
  Rtuning           00
  Btuning           00
[Return]
```

Brightness: Optional item is 0-99
Contrast: Optional item is 0-99
Hue: Optional item is 0-99
Saturation: Optional item is 0-99
Sharpness: Optional item is 0-99
WB mode: Auto/Manual/VAR/Indoor/Outdoor/Onepush
When the WB mode is Auto, the Rtuning and Btuning value can be tuning. The range is 0 to 99.
When the WB mode is Manual, the sub-menu will be as shown below:

```
          Color
-----------------------------
  Brightness        50
  Contrast          50
  Hue               50
  Saturation        50
  Sharpness         50
→ WB Mode           Manual
  Rgain             00
  Bgain             00
[Return]
```

When the WB mode is VAR, the sub-menu will be as shown below:

```
          Color
-----------------------------
  Brightness        50
  Contrast          50
  Hue               50
  Saturation        50
  Sharpness         50
→ WB Mode           VAR
  Color Mode        5600
[Return]
```

The Color Temp value is adjustable. The range is between 2500 and 9000.
When the WB mode is Indoor/Outdoor/Onepush, the sub-menu will be as shown below:

```
          Color                        Color
--------------------------    --------------------------
→ Brightness     50           → Brightness     50
  Contrast       50             Contrast       50
  Hue            50             Hue            50
  Saturation     50             Saturation     50
  Sharpness      50             Sharpness      50
  WB Mode        Indoor         WB Mode        Outdoor
[Return]                      [Return]
```

```
          Color
-----------------------------
  Brightness        50
  Contrast          50
  Hue               50
  Saturation        50
  Sharpness         50
→ WB Mode           OnePush
[Return]
```

5.4 Level 2 Menu-Image

```
          Color
-----------------------------
→ Flip              Off
  Mirror            Off
  Video Format      1080P60
  Menu Mirror       Off
  USB Mode          BULK
  Style             Normal
[Return]
```

Flip: On/Off (Enable/disable the picture flip up/down)
Mirror: On/Off (Enable/disable the picture flip left/right)
USB Mode: BULK (Adjust between Isochronous transfers mode and Bulk transfers mode)
Style: Normal/PC/Bright

5.5 Level 3 Menu-Video Format

1080P60 camera supports the following video formats

```
          Video Format
-----------------------------
→ 1080P60
  1080P59.94
  1080P50
  1080P30
  1080P29.97
  1080P25
  720P60
  720P59.94
  720P50
  720P30
```

4K camera supports the following video formats:

```
          Video Format
-----------------------------
→ 4KP30          1080P29.97
  4KP25          1080P25
  1080P60        720P60
  1080P59.94     720P59.94
  1080P50        720P50
  1080P30        720P30
```

5.6 Level 2 Menu- P/T/Z

```
          P/T/Z
-----------------------------
→ Acc Curve        Middle
  L/R SET          On
  ZOOM Speed       6
  AF Zone          Bottom
  AF Sense         Low
  AF Scene         Normal
[Return]
```

Acc Curve: Fast/Middle/Slow.
L/R SET: On/Off
Zoom Speed: Optional items are 0-7
AF Zone: Bottom/Left/Right/Front/Top/Middle
AF Sense: Normal/High/Low
AF Scene: Normal/Macro/Live

5.7 Level 2 Menu - Communication

```
          Communication
-----------------------------
→ Protocol         Auto
  Baudrate         9600
  RC Address       All
[Return]
```

Protocol: Option items are Auto/Visca/PELCO-D/PELCO-P
Baudrate: Option items are 2400/4800/9600/38400
RC Address: Set the IR remote control's address to control the corresponding camera.
Option items are ALL/1/2/3/4.
Address: Set the camera's address. Option items are 1-7 in Visca,
0-255 in PELCO-D, 0-31 in PELCO-P.

5.8 Level 2 Menu -Information

```
          Communication
-----------------------------
  Model            FHD Camera
  PTZ Version      1.0.1
  SOC Version      1.1.32
→ AF Version       1.0.1
[Return]
```

Notice:The version number here is just an example. The actual parameters shall prevail.

5.9 Level 2 Menu - Restore Default

```
          Restore Default
-----------------------------
→ Restore           No
[Return]
```
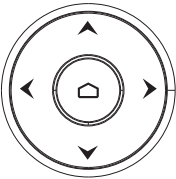
6. Common Operation Instructions

6.1 Camera Select

Set the IR remote control's address to control the corresponding camera, option item 1/2/3/4

```
          CAMERA SELECT
          1    2    3    4
```

6.2 Camera Direction Control

∧ Turning up
∨ Turning down
< Turning left
> Turning right
⌂ Turning to default

Note: Press the direction key when you need to adjust the angle. If you want to move the camera slowly, just click the direction key; If you want to move the camera fast at a large scale,just long-press the button; If you want to adjust the Pan-Tilt direction, just press and hold the L/R button for 10S.

6.3 Camera Focus Mode Control

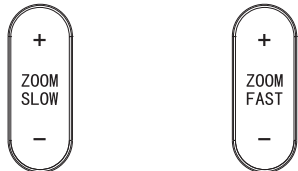【AUTO】Switch the focus mode to AUTO
【MANUAL】Switch the focus mode to MANUAL
【FAR】Far focus manually
【NEAR】Near focus manually

```
              FOCUS
  AUTO   MANUAL   FAR   NEAR
```

6.4 Camera Zoom Control

Press any one of the 4【ZOOM】to make the zoom functioning. These 4 keys are not applicable for fixed focus cameras.

```
   +            +
 ZOOM         ZOOM
 SLOW         FAST
   -            -
```

6.5 Preset Setup, Call, Cancel

(1) Reserve Preset: Press【PRESET】, then press one of the numbers (0-9) to reserve a preset that corresponds to the NUMBER.
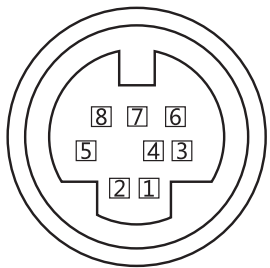Note: You can setup 10 presets at most by the remote control.
(2) Call Preset: Press the NUMBER (0-9) directly to call the reserved preset.
Note: It won't work if there's no preset reserved in the corresponding number.
(3) Remove Preset: Press【RESET】, then press one of the number (0-9) to remove a preset that corresponds to the NUMBER.
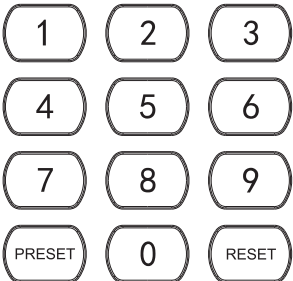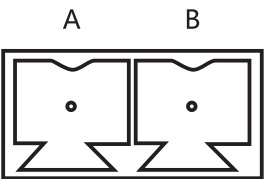
6.6 RS-232 Interface Distribution

VISCA RS-232 IN

1.N.C.
2.N.C.
3.TXD
4.GND
5.RXD
6.N.C.
7.N.C.
8.N.C.

6.7 RS-485 Interface Distribution

PIN NUM	FUNCTION
A	DTR IN+ (connect to RS-485)
B	DSR IN-(connect to RS-485)

A   B

Settings

Home

Status

Find a setting

Network status

Network & Internet

Status

Ethernet

Dial-up

VPN

Proxy

You're connected to the Internet
If you have a limited data plan, you can make this network a metered connection or change other properties.

From the last 30 days   32,64 GB

Properties   Data usage

Off

If you set a data limit, Windows will set the metered connection setting for you to help you stay under your limit.

Set a data limit to help control data usage on this network

IP settings

IP assignment: Automatic (DHCP)

Edit

Properties

Link speed (Receive/Transmit):   1000/1000 (Mbps)
Link-local IPv6 address: fe80::b1b8:1f9a:3e4d:4899%3
IPv4 address: 192.168.110.73
IPv4 DNS servers: 192.168.110.1
Primary DNS suffix: lan
Manufacturer: Realtek

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7. Network Function

7.1 Equipment installation

Connect HD video camera to your internet or your PC via network cable, or connect by Switch/Router.

You can log into the camera's web interface with the default or modified IP. (Different models have different IP, please check the default IP at the bottom of the camera.)

7.1.1 How to query the IP address of your PC (Note the text in the box)

Windows Settings

Find a setting

Devices
Bluetooth, printers, mouse

Phone
Link your Android, iPhone

Network & Internet
Wi-Fi, airplane mode, VPN

Accounts
Your accounts email, sync, work, family

Time & Language
Speech, region, date

Gaming
Xbox Game Bar, captures, Game mode

Privacy
Location camera, microphone

Update & Security
Windows Updates recovery, backup
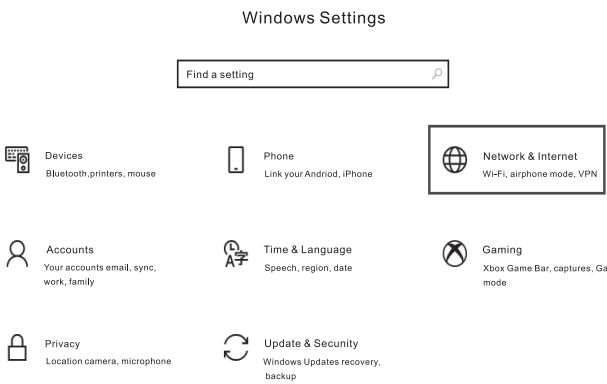
7.2 How to add networking:

7.2.1 Open the computer network local connection attribute window select "Internet Protocol Version 4 :TCP/IPv4;

7.2.2 Double-or-right-click " Internet Protocol Version 4 (TCP/IPv4) ;

7.2.3 Enter the Internet Protocol Version 4 (TCP/IPv4) window.

7.2.4 Change the computer's IP to 192.168.0.200 so that the computer IP and camera IP are on the same network segment.

PS: If no network segment is added, you will fail to login. The default IP address of the product is 192.168.0.206. "0"network segment needs to be added to the computer. The IP address cannot conflict with the IP address of other computers or products. Before adding, please verify whether the IP already exists.
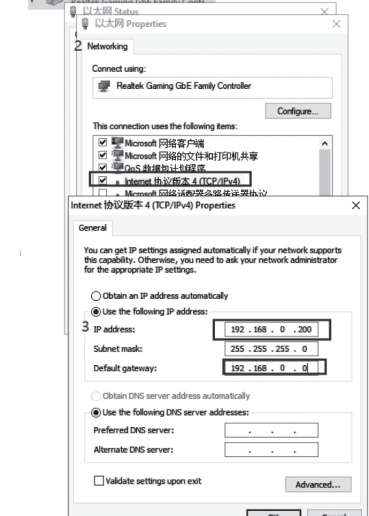
7.3 Input http:// 192.168.0.206 to IE (better with IE or Google web browser), then a login window will pop up; Input user name: admin, password: admin; and choose language: English, shown as below, whether the IP already exists.
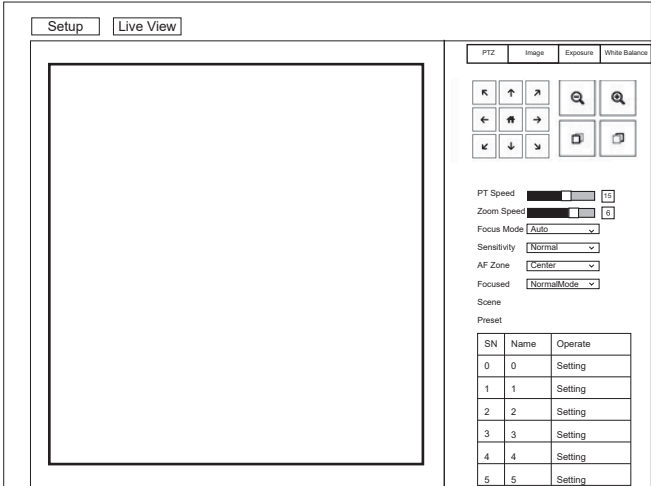
7.3.1 When logging in for the first time, will be prompted to change your password. Users can change the passwords and save it.

WELCOME
IP CAMERA
Web Service

LOGIN

English
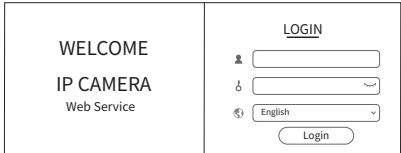
Login

7.3.2 After successfully login, you will enter the Video viewing interface. In the setting interface, you can set Pan and tilt control, Zoom, Focus, and set, call, clear of preset positions, etc.
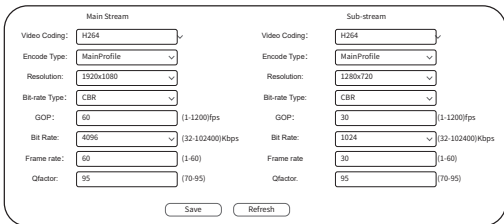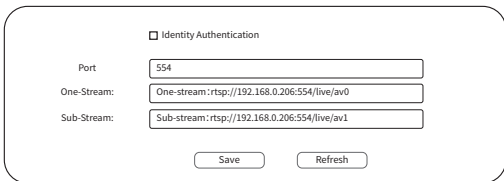

7.4 Video streaming

7.4.1Select "Setup"- "Video Settings"- "System Settings" to enter the following interface:

7.4.2 RTSP video streaming

Select "Setup"- "Network Settings"- "RTSP" to enter following interface:

Configure parameters according to the network environment.
If the camera default IP address is 192.168.0.206, then the way to get RTSP video streaming as below:
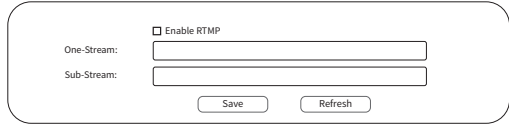Default RTSP main streaming address:
rtsp://192.168.0.206:554/live/av0 (av0 Main）
Default RTSP sub streaming address:
rtsp://192.168.0.206:554/live/av1(av1 Sub）

7.4.3RTMP video streaming

Select "Setup"- "Network Settings"- "RTMP" to enter following interface:

Enable and turn on the RTMP video stream to the server
Server URL: server address, which can be domain name or IP address
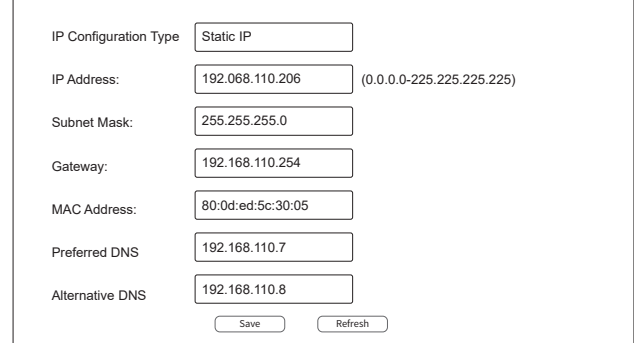Streaming code: Persistent Stream Key/Name

7.5 Modify the camera IP and computer IP on to the same network segment, so that the computer network is not affected.

7.5.1Select "Setup"- "Network Settings"- "Local Network" to enter the following interface:

IP Configuration Type	Static IP	
IP Address:	192.068.110.206	(0.0.0.0-225.225.225.225)
Subnet Mask:	255.255.255.0	
Gateway:	192.168.110.254	
MAC Address:	80:0d:ed:5c:30:05	
Preferred DNS	192.168.110.7	
Alternative DNS	192.168.110.8	

Save   Refresh

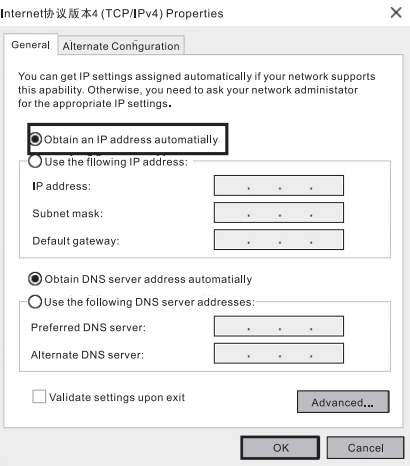7.5.1.1 Change the camera IP address to: 192.168.110.206
7.5.1.2 Default Gateway: 192.168.110.254
7.5.1.3 Alternate DNS: 192.168.110.7
7.5.1.4 Preferred DNS: 192.168.110.8

7.5.2 Return PC's IP to the original IP address, and select Obtain an IP address automatically

7.6 Software upgrade (upgrade if there is a new version)

7.6.1 Select "Setup"--"Maintenance" --"System Upgrade" to enter the following interface:

System Edition	
PTZ	1.0.1.1
SOC	9.0.01
Restart	Reboot
Upgrade	
Uparade File	Upload Upgrade

7.6.1.1 Open upgrade file to Upgrade automatically if needed.

7.6.1.2 Restart the camera and prompts "Upgrade succeeded". Log in to the network and check whether the software version is consistent with the upgrade file to ensure that the upgrading is successful. Then click "Restore factory default" to restart and restore the parameters to the factory default setting. (IP default 192.168.0.206, User default: admin, password default: admin)

7.7 VISCA over IP

VISCA protocol is transmitted over IP to reduce the trouble of RS232/RS485 wiring(controller must support IP communication function)
Communication port specifications:
Control port: RJ45
IP protocol: IPv4
Transport protocol: UDP
IP address: set through the web
Port address: 52381
Scope of application: the same network segment

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8. Installation Instructions

8.1 Surface Installation

Put the camera on the desk flatly, and make sure the camera is in a horizontal position. If you want to put the camera on an oblique surface, please make sure the angle of inclination is less than 15 degrees to ensure the camera's pan&tilt works normally.

8.2 Wall Mount Installation

Step 1: Mounting the wall mount bracket

Wall mount

Wall mount bracket
(This side is to the wall.)

Mounting the bracket vertically to the wall with screws.

Step 2: Install the camera

Screw hole

Rotate the camera clockwise to install it.

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9. Trouble Shooting

Before requesting service to service engineer, please refer to the following methods to remove failures. If the failures still can't be solved, please contact us for assistance.

Q: The video of the camera cannot be displayed on the screen.
A: Please check the connection between power cable, video cable, camera and monitor, fix the connector on each end.
Q: It's unable to Pan, Tilt and Zoom camera.
A: Because the menu was displayed on monitor. Please re-operate after exiting the menu.
Q: Why the camera rotates for about 10 seconds after power on?
A: This is the normal self-test of the camera.
Q: Poor Image quality while using in church or other low-light conditions.
A: Press menu (ON/OFF) to adjust backlight effect to suit the church lighting properly.
Q: Remote control is not working or insensitive.
A: ①Not work, please replace batteries.
   ②Not sensitive: Choose the correct "IR select" number to corrspond to the camera. Control the camera within 10m (32.8ft). Remove the obstacles. Aim at the sensor which is in front of the camera when controlling it.
Q: USB interface is not identifiable.
A: Please check if the USB cable and extension cable are well connected or not. If yes, change to another USB interface and try to connect again.
Q: It won't be controlled via RS-232/RS-485 when camera connect to PC.
A: Make sure it is a correct connection between the camera and PC. (Refer to RS-485 and RS-232 Pins distribution on page 12).
Q: Why no ceiling mount bracket?
A: Camera comes with wall mount only. ceiling mount or tripod brackets need to buy separately.
Q: Does this camera has built-in mic?
A: No, this camera comes with no built-in mic.
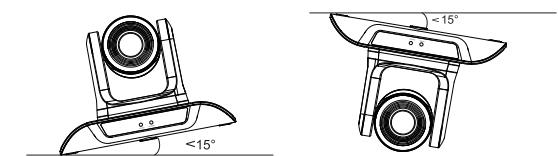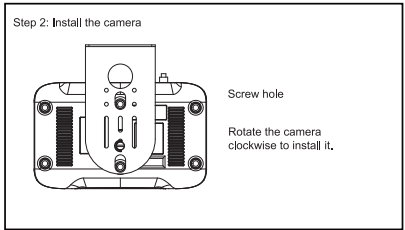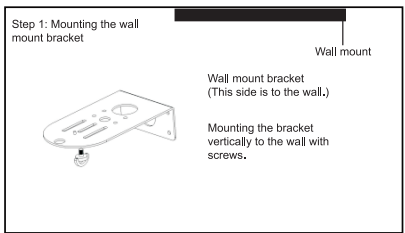Q: Can we control the camera only by the remote control?
A: You can control the camera by remote control, keyboard controller (joystick), and software.

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10. Maintenance Services

All products purchased from our company are guaranteed to keep in good repair for 36 months. If there are any quality problems during the guarantee period, we will maintain them for free.

Under any of the following warranties, related maintenance costs will be collected:

1. Product was not normally used.
2. Fire, electric shock, outside object collapse or other natural disasters causing the equipment damaged.
3. Unauthorized repair, misuse, abuse or change.