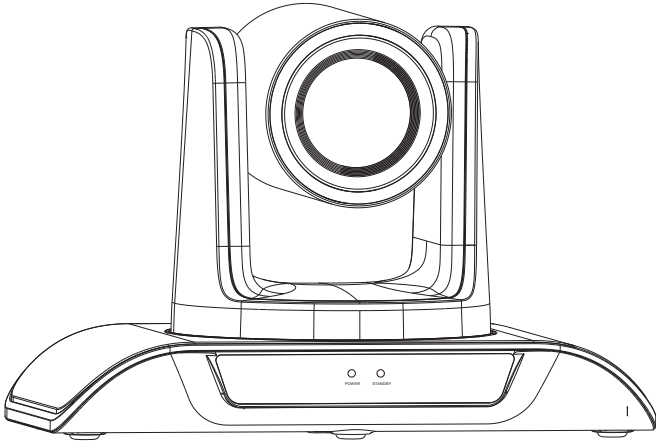


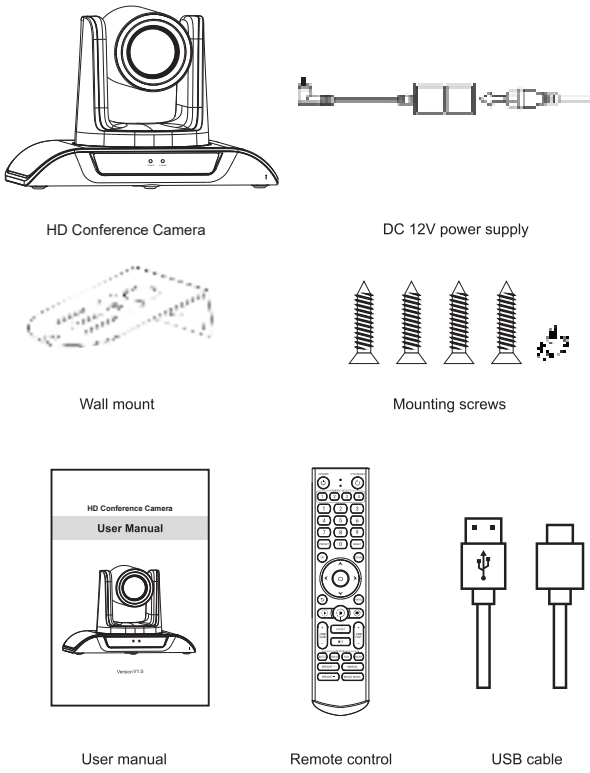
## HD Conference Camera

# User Manual



Version V1.0H

## 2. Packing List



## 4. Remote Control Button Description

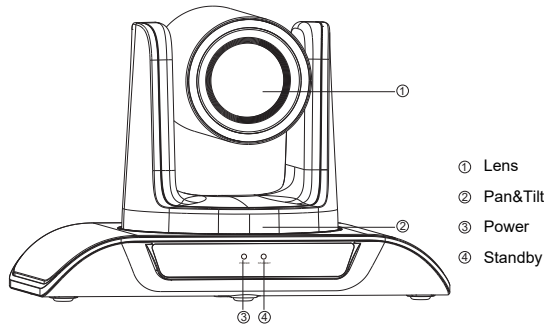
| No | Name                      | Function                                                                                                         |
|----|---------------------------|------------------------------------------------------------------------------------------------------------------|
| 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】<br>Set the preset position<br>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.<br>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-        | PTZ rotates speed-                                                                                               |
| 12 | PTZ rotates speed         | PTZ rotates speed                                                                                                |
| 13 | PTZ rotates speed+        | 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<br>Default: Auto Focus                                                                |
| 18 | Bright Adjustment         | Adjust the brightness of the image                                                                               |
| 19 | Freeze/Unfreeze the image | Freeze/Unfreeze the image                                                                                        |
| 20 | Mirror                    | Enable the picture left/right flip                                                                               |
| 21 | Image Mode                | Switch between three image modes<br>Normal, PC, Bright                                                           |

### ★Attentions for Remote Control

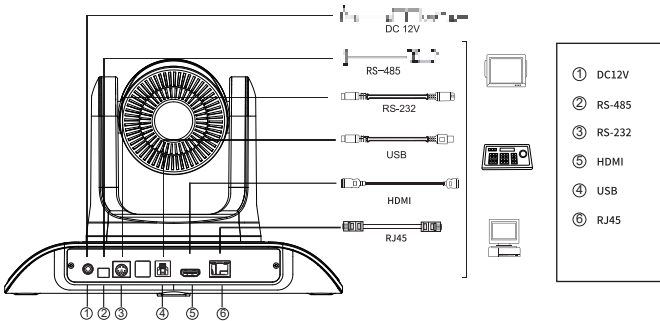
- Please check whether the indicator corresponding to the camera selection area is on or not.
- If the remote control doesn't work, please replace batteries.
- Make sure the Number keys on the camera selection area are consistent with the remote control address in the menu.

## 1. Product Description

### 1.1 Front



### 1.2 Back



## 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)                                                                                                      | 61°(W)-3.64°(T)  | 78.36°(W)-7.5°(T)  |
| Video Format             | 1080p@60/50/30/25ps, 720p@60/50/30/25ps                                                                               |                  |                    |
| 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        | 0.1~80°/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;<br>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 & Labor warranty                                                                               |                  |                    |

## 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/AEE/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/AEE 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 |      |
|----------|------|
| → Mode   | SAE  |
| Shutter  | 1/30 |
| Gain     | 00   |
| Flicker  | 50Hz |
| [Return] |      |

| Exposure |      |
|----------|------|
| → Mode   | AAE  |
| Iris     | F2.2 |
| Gain     | 00   |
| Flicker  | 50Hz |
| [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        |        |
|--------------|--------|
| → Brightness | 50     |
| Contrast     | 50     |
| Hue          | 50     |
| Saturation   | 50     |
| Sharpness    | 50     |
| WB Mode      | Indoor |
| [Return]     |        |

| Color        |         |
|--------------|---------|
| → Brightness | 50      |
| Contrast     | 50      |
| Hue          | 50      |
| Saturation   | 50      |
| Sharpness    | 50      |
| WB Mode      | Outdoor |
| [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   | 1.0.1.1    |
| 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

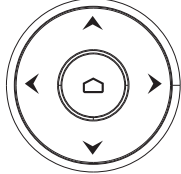
### 6.1 Camera Select

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



### 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.

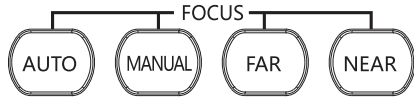
### 6.3 Camera Focus Mode Control

【AUTO】 Switch the focus mode to AUTO

【MANUAL】 Switch the focus mode to MANUAL

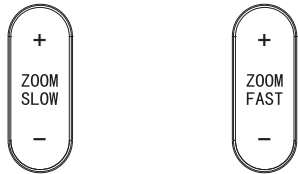
【FAR】 Far focus manually

【NEAR】 Near focus manually



### 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.



### 6.5 Preset Setup, Call, Cancel

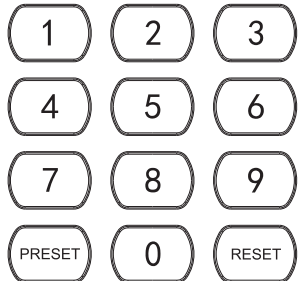
(1) Reserve Preset: Press 【PRESET】, then press one of the numbers (0-9) to reserve a preset that corresponds to the NUMBER.

Note: You can setup 10 presets at most by the remote control.

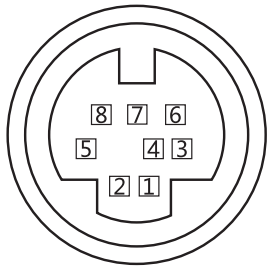
(2) Call Preset: Press the NUMBER (0-9) directly to call the reserved preset.

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

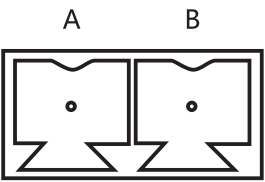


VISCA RS-232 IN

- 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)  |



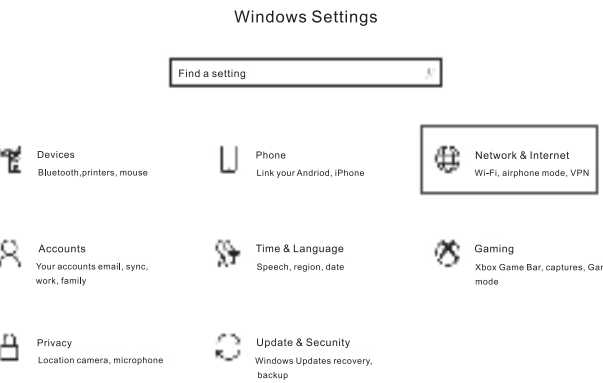
## 7. Network Function

### 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)



### 7.2 How to add networking:

7.2.1 Open the computer network local connection attribute window

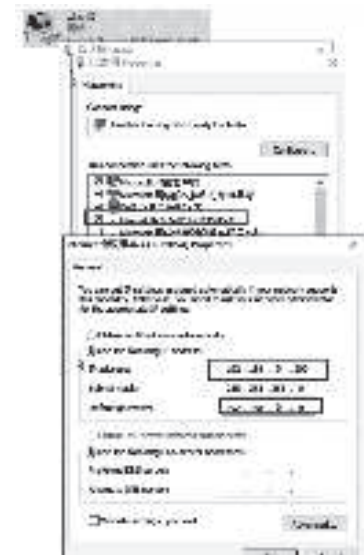
select "Internet Protocol Version 4 :TCP/IPv4;

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.

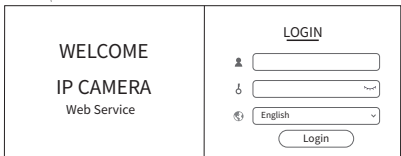
7.2.4 Change the computer's IP to 192.168.0.200 so that the computer IP and camera IP are on the same network segment.

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.



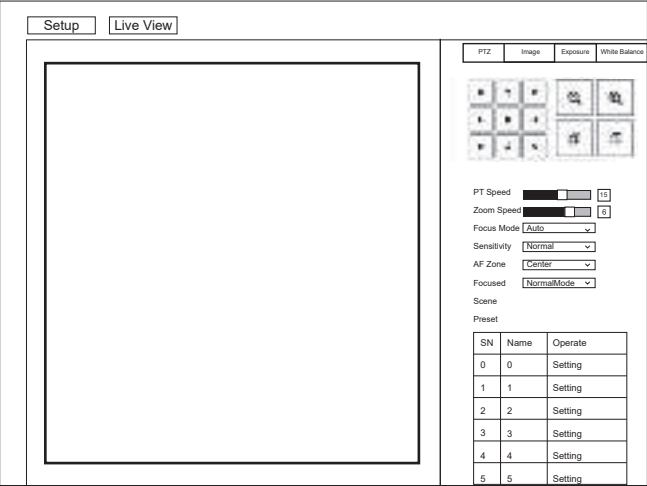
7.3 Input http:// 192.168.0.206 to IE (better with IE or Google web browser), then a login window will pop up; Input user name: admin, password: admin; and choose language: English, shown as below, whether the IP already exists.

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.



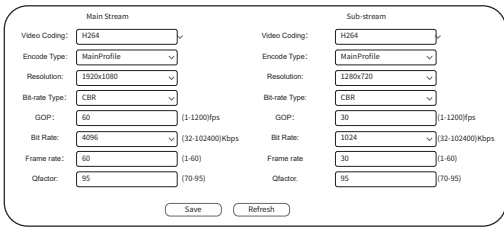
7.3.2 After successfully login, you will enter the Video viewing interface.

In the setting interface, you can set Pan and tilt control, Zoom, Focus, and set, call, clear of preset positions, etc.



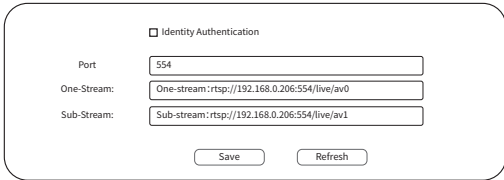
### 7.4 Video streaming

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:

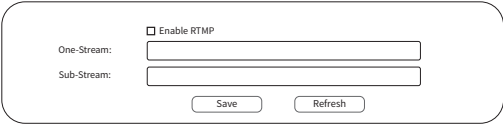
rtsp://192.168.0.206:554/live/av0 (av0 Main)

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:



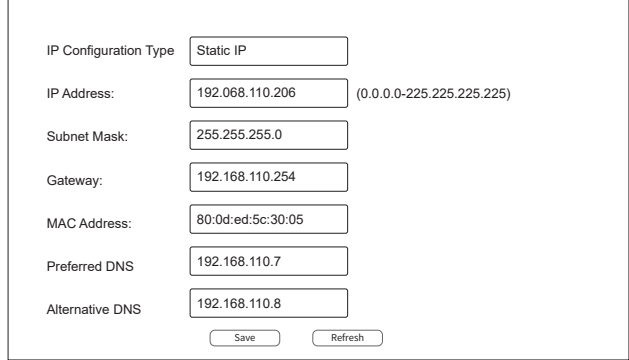
Enable and turn on the RTMP video stream to the server

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:



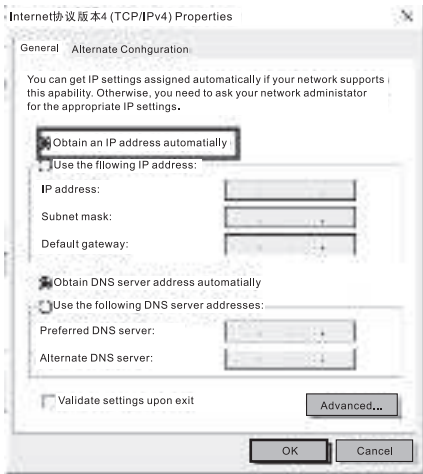
7.5.1.1 Change the camera IP address to: 192.168.110.206

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:



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

## 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 correspond 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.

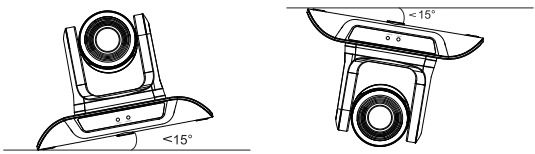
Q: Can we control the camera only by the remote control?

A: You can control the camera by remote control, keyboard controller (joystick), and software.

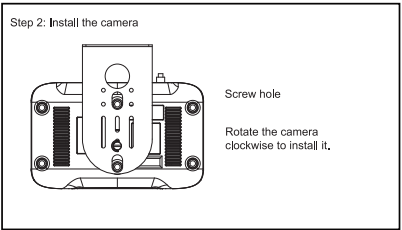
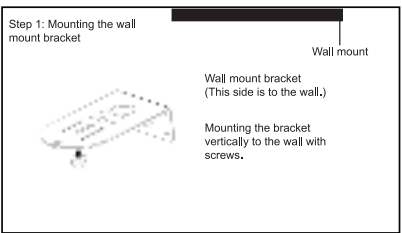
## 8. Installation Instructions

### 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



## 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.