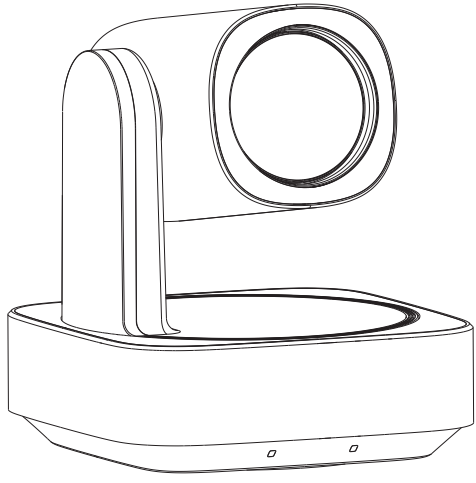


HD AI Auto Tracking Camera

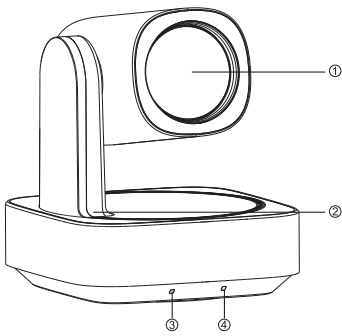
User Manual



Version V1.0-05.02.0248

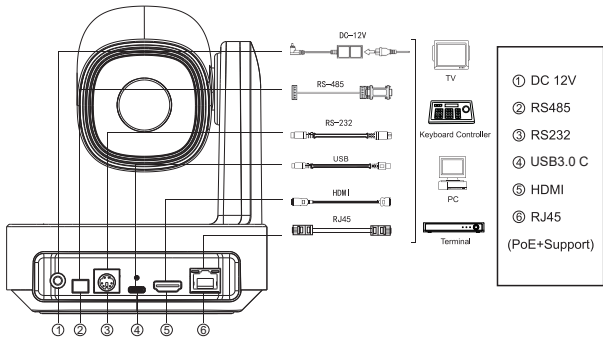
1. Product Description

1.1 Front



- ① Lens
- ② Pan&Tilt
- ③ Standby
- ④ Power

1.2 Back



3. Performance Characteristics

Model No.	4K 12x Zoom		1080P 20x Zoom	
Image Sensor	Sony IMX415 1/2.8" CMOS		Sony IMX327 1/2.8" CMOS	
Effective Pixels	8.29MP, 16.9		2.07MP	
Optical Zoom	12x optical zoom		20x optical zoom	
Lens	f=4.1-49.2mm		f=5.5-110mm	
Aperture	F1.8-2.68		F1.6-3.5	
Horizontal Angle	70.28°(W)-6.57°(T)		55.8°(W)-3.2°(T)	
Vertical Angle	42.06°(W)-3.76°(T)		32.2°(W)-1.8°(T)	
Diagonal Angle	78.36°(W)-7.5°(T)		61°(W)-3.64°(T)	
Video Format	HDMI(4K@30/25ps, 1080P@60/50/30/25ps, 720P@60/50/30/25ps), USB3.0(3840*2160P@30ps, 2560*1440P@30ps, 1920*1080P@30ps, 1280*720P@30ps, 640*480P@30ps, 320*240P@30ps), YUY2@V12H.264H.265MJPEG		1080p@60/50/30/25ps, 720p@60/50/30/25ps, 640*480P@30ps, 320*240P@30ps, YUY2@V12H.264H.265MJPEG	
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 C, RJ45			
Video Compression Format	H.264, H.265, MJPG, YUY2			
LAN	10M/100M adaptive Ethernet port; Support POE IEEE802.3af			
Network Protocol	NDI HX2, RTSP, RTMP, ONVIF, GB28181; Support VISCA Over IP			
Control Protocol	VISCA/Pelco-D/Pelco-P; Baud Rate: 38400/9600/4800/2400			
Control Interface	RS232 (input only), RS485, USB3.0 C, RJ45			
PTZ Parameter				
Pan/Tilt Rotation	±175°, ±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)			
General Parameter				
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°C~+60°C			
Store Humidity	20%~90%			
Working Temperature	-10°C~+50°C			
Working Humidity	20%~80%			
Dimension (W*H*D)	171.8*192.6*171.6mm/ 260*217*197mm (Before/ After packing)			
N.W./ G.W.	1.35kg/ 2.05kg (Net/ Gross weight)			
Accessory	1 x Camera; 1 x USB Cable; 1 x Power Adapter; 1 x IR Remote Control; 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	Off
Tracking	
Information	
Restore Default	
Language	English
[Home]	Enter
[Menu]	Back

Tracking: off/Presenter/Autoframing

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	
Backlight	Auto
ExpComp	Off
Flicker	00
[Return]	50Hz

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

5.3 Level 2 Menu - Color

Color	
→ Brightness	
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:

5.4 Level 2 Menu-Image

Image	
→ Flip	
Mirror	Off/On
Video Format	Off/On
Menu Mirror	1080P60
USB Mode	Off
UVC Format	ISOC/BULK
Style	YUY2
HDMI Mode	Normal/PC/Bright
[Return]	Force

Flip: Enable/disable the picture up/down flip

Mirror: Enable/disable the picture left/right flip

Video Format: 4K30(Only available for 4K 12x Zoom)/1080P60/1080P50/1080P30/1080P25/720P60/720P50

Menu Mirror: Off/On

USB Mode: ISOC/BULK

USB mode: Adjust between Isochronous transfers mode and Bulk

transfers mode

UVC Format:YUY2

Style Mode: Normal, PC, Bright

HDMI Mode:Force

5.5 Level 2 Menu- P/T/Z

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

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

5.6 Level 2 Menu - Communication

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

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.

5.7 Level 2 Menu -Information

Information	
Model	UHD Camera
PTZ Version	1.0.1.1
SOC Version	1.1.134
→ AF Version	1.22
IQ Version	3.02.001
HW Version	1.2
IP	192.168.0.205
[Return]	

Model: UHD Camera (FHD for 1080P Camera and UHD for 4K Camera)

PTZ Version:1.0.1.1

SOC Version: 1.1.32

AF Version:1.0.1

IQ Version:3.02.001

HW Version:1.2

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

5.8 Level 2 Menu - Restore Default

Restore Default	
→ Yes	
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

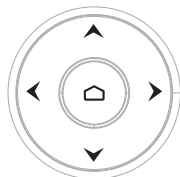
▲ Turning up

▼ 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.

6.3 Camera Focusing Mode Control

【AUTO FOCUS】 Switch the focus mode to AUTO

【MANUAL FOCUS】 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 correspond to the NUMBER.

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

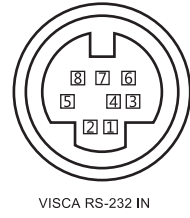
(2) Call Preset: Press the NUMBER (0-9) directly to call the reserved preset.

Note: It won't work if there's no preset reserved in the corresponded number.

(3) Remove Preset: Press **【RESET】**, then press one of the number (0-9) to remove a preset that corresponds to the NUMBER.

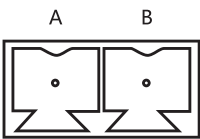


6.6 RS-232 Interface Distribution

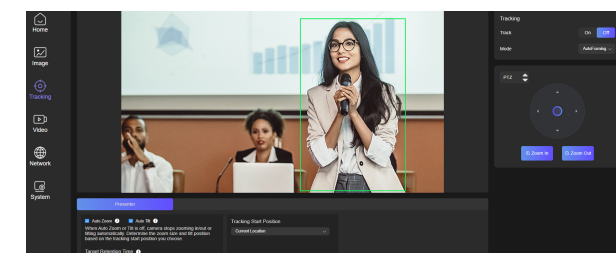


6.7 RS-485 Interface Distribution

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



7. AI Tracking Setting from Web page



Warranty Card

Thank you so much for choosing our products.

User's Info

Name: _____ Tel: _____

Email: _____ Post Code: _____

Address: _____

Product's Info

Product Name: _____

Factory Serial Number: _____

Fault Description

Attention

- This card is considered as the protection to fix warranty, so please reserve it carefully. Please fill in truthfully.
- Please indicate the model number, factory serial number and the detailed description of the fault information.



7.1 Tracking Settings

- (1) Tracking: Switch to enable/disable AI tracking.
- (2) Mode: Drop-down selection between Autoframing mode or Presenter tracking mode.

7.2 PTZ Control

PTZ control serves two purposes:

- (1) Before entering a mode: Adjust the camera's orientation to align with the target.
- (2) In Presenter tracking mode: Use left/right clicks to switch between detectable targets. Press the [Home] button to confirm the selected tracking target.

7.3 PresenterTracking Settings

- (1) Auto Zoom & Auto Tilt (Enabled by default, recommended): When Auto Zoom is disabled, the camera stops automatic zooming in/out. When Auto Tilt is disabled, the camera stops vertical movement.
- (2) Timeout Duration: Sets how many minutes the camera waits before exiting AI tracking after losing the target. Default: 5 minutes.

- (3) Tracking Starting Position: Options: Current position / Preset position X / Home position. Default: Current position.

Note: In AI tracking mode, the camera cannot be panned or tilted manually.

8. Network Function

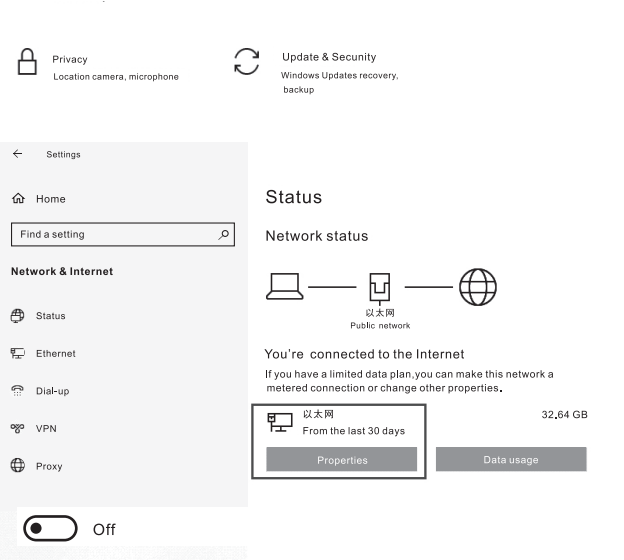
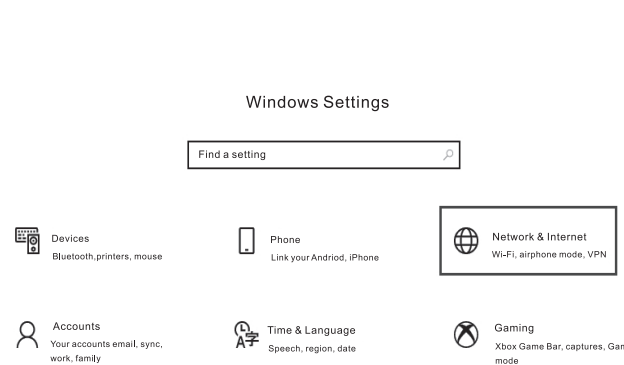
8.1 Equipment installation

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.

The default IP address of the camera is 192.168.0.205.

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



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

8.2 How to add networking:

- 8.2.1 Open the computer network local connection attribute window select "internet Protocol Version 4 (TCP/Pv4)";
 - 8.2.2 Double-or-right-click "Internet Protocol Version 4 (TCP/Pv4)";
 - 8.2.3 Enter the "internet Protocol Version 4 (TCP/IPv4)" window.
 - 8.2.4 Change the computer's IP to 192.168.0.73, ensuring that both the computer and the camera are in the same network segment.
- P.S.** Failure to add the correct network segment may result in login failure. The default IP address of the camera is 192.168.0.205. It's necessary to add the "1" network segment to the computer. Ensure the assigned IP address does not conflict with other devices on the network. Verify the IP address's availability before assigning it.

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

8.4.1Select "Network" - "Lan Settings" to enter the following interface:

IP Configuration Type	Static IP
IP Address:	192.088.110.205
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
<input type="button" value="Submit"/> <input type="button" value="Cancel"/>	

8.4.1.1 Change the camera IP address to: 192.168.110.205

8.4.1.2 Default Gateway: 192.168.110.254

8.4.1.3 Alternate DNS: 192.168.110.7

8.4.1.4 Preferred DNS: 192.168.110.8

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

Internet (TCP/IPv4) Properties	
General	Alternate Configurati n
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.	
<input type="radio"/> Obtain an IP address automatically	
<input type="radio"/> Use the following IP address:	
IP address:	
Subnet mask:	

Default gateway:	
Obtain DNS server address automatically	
Use the following DNS server addresses:	
Preferred DNS server:	
Alternate DNS server:	
Sub-Stream:	
Validate settings upon exit	
<input type="button" value="Advanced..."/>	
<input type="button" value="OK"/> <input type="button" value="Cancel"/>	

8.5 Video streaming

8.5.1Select "Video" - "System Settings" to enter the following interface:

Main-stream		Sub-stream	
Video Coding:	H264	Video Coding:	H264
Encode Type:	MainProfile	Encode Type:	MainProfile
Resolution:	1280x720	Resolution:	1280x720
Bit rate Type:	CBR	Bit rate Type:	CBR
Bit rate:	512000bps	Bit rate:	512000bps
Frame rate:	30	Frame rate:	30
Color:	YUV420P	Color:	YUV420P
Bit Rate:	512000bps	Bit Rate:	512000bps
Frame rate:	30	Frame rate:	30
Color:	YUV420P	Color:	YUV420P
<input type="button" value="Submit"/> <input type="button" value="Cancel"/>		<input type="button" value="Submit"/> <input type="button" value="Cancel"/>	

8.5.2 RTSP video streaming

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

Identity Authentication	<input type="radio"/> On <input checked="" type="radio"/> Off
Port	554
One-Stream	One-streamrtsp://192.168.110.205:554/live/av0
Sub-Stream	Sub-streamrtsp://192.168.110.205:554/live/av1
<input type="button" value="Submit"/> <input type="button" value="Cancel"/>	

Configure parameters according to the network environment.

If the camera modified IP address is 192.168.110.205, then the way to get RTSP video streaming as below:

Default RTSP main streaming address:

rtsp://192.168.110.205:554/live/av0 (av0 Main)

Default RTSP sub streaming address:

rtsp://192.168.110.205:554/live/av1 (av1 Sub)

8.5.3RTMP video streaming

Select "Network" - "RTMP Settings" to enter follwing interface:

Enable RTMP	<input type="radio"/> On <input checked="" type="radio"/> Off
Main-Stream	
Sub-Stream	
<input type="button" value="Submit"/> <input type="button" value="Cancel"/>	

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

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

Note: Please contact sales or after-sales service to obtain new firmware. Incompatible firmware will damage the camera, so please do not upgrade at will.

8.6.1 Select "System"--"Online Upgrade" to enter the following interface:

Select the upgrade file
<input type="button" value="Submit"/>

8.6.1.1 Open upgrade file to Upgrade automatically if needed.

8.6.1.2 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 192.168.0.205, User default: admin, Password default: admin)

8.7 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

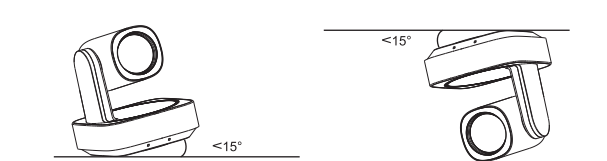
Port address: 52381

Scope of application: the same network segment

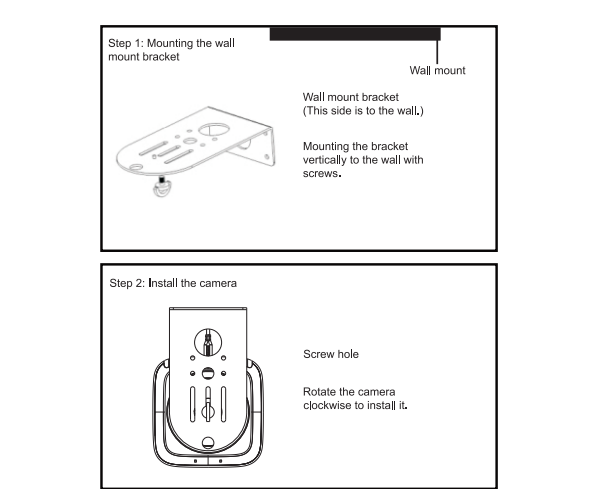
9. Installation Instructions

9.1 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 pan and tilt work in normal operation.



9.2 Wall Mount Installation



10. 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. (Reference to RS-485 and RS-232 Pins distribution on page 10).

Q: Why no ceiling mount bracket?
A: Camera comes with wall mount.Ceiling mount or tripod brackets need to buy separately.

Q: Does this camera have 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.

11. 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.

