

Nearity

# CONFERENCE CAMERA

User Manual

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Model: AW-V520D

V1.0

# Content

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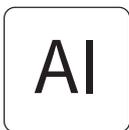
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# 1. Product Overview

## ● 1.1 Product Introduction

NEARITY V520D is a Dual-Lens conferencing camera which is the perfect choice for classrooms, auditoriums, and large meeting rooms. Bringing you vivid collaboration experiences through its dual lens system. Equipped with a 20x zoom PTZ lens and a wide angle fixed lens, V520D makes your speakers and attendees shine. Powered by AI algorithms, V520D has powerful video functions, such as auto-focus, Speaker tracking, Picture in Picture, Zone-following, and Auto-framing, to bring you a natural conversation experience.

## ● 1.2 Features



### - Smart AI Tracking for Meeting Freedom and Presentation Freedom

The V520D is a versatile conference camera that is ideal for use in classrooms, auditoriums, and large meeting rooms. It is equipped with a dual-lens PTZ system that allows for pan, tilt, and zoom functionality. With AI, the camera is able to offer zone-tracking to make sure the speaker is always at the center of the picture.



### - Ensure Inclusivity in Meetings with Intelligent Auto-Framing

When the room is filled with people, the wide-angle camera is enabled to make sure everyone is included in the picture. When less people is in the room, PTZ camera is enabled to provide crystal-clear auto-focused picture.



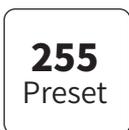
### - Speaker Tracking to Make Your Voice Heard

6-microphones array is used to track the speaker accurately. The PTZ camera is pointed to the speaker when main speaker is detected.



### - Experience premium studio-quality video like a pro

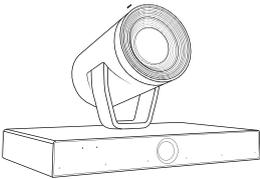
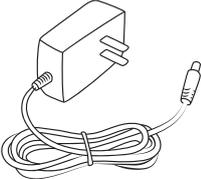
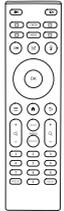
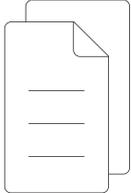
The 1080p high-definition video and 20x combined zoom lens of the V520D conference camera makes it possible to capture every detail with exceptional clarity. This feature is ideal for larger meeting rooms where a wide-angle view is necessary to capture all participants.



### - 255 Preset Camera View

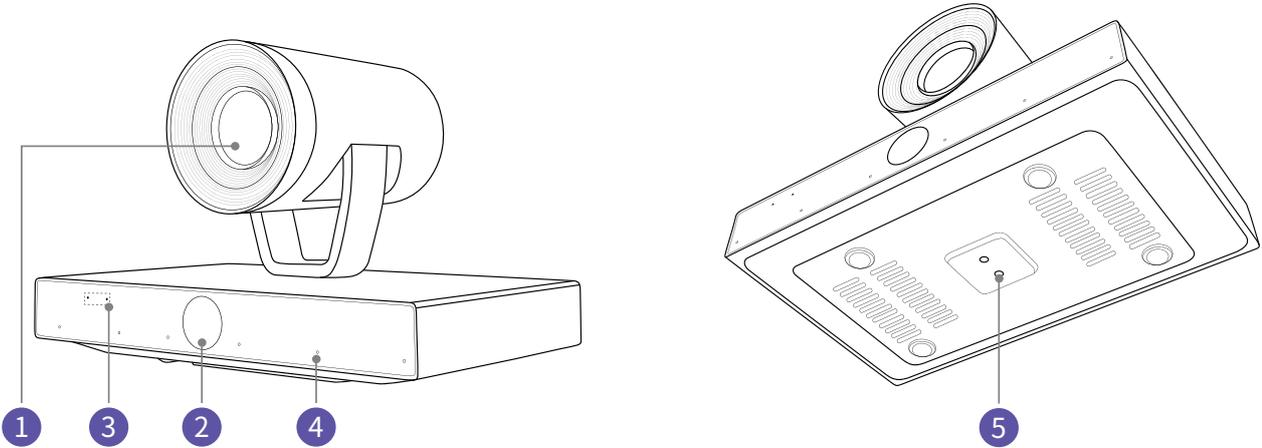
With the latest update, V520D conference camera comes with 255 preset camera positions and the option to configure them with the remote controller. This feature expertly captures all the key speakers in the conference room.

## ● 1.3 Packing List

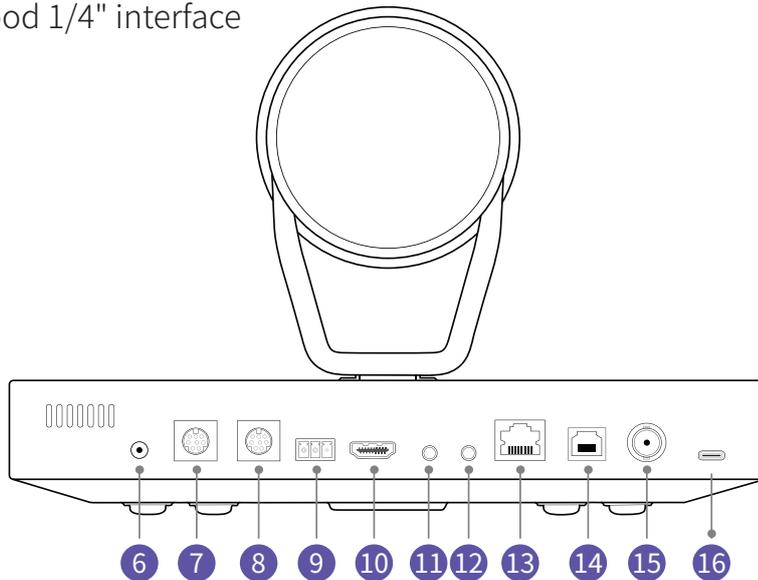
				
V520D * 1	USB Cable (B to A) * 1	Power Adaptor* 1	Remote Control * 1	User Manual * 1

## 2. Basic Information

### ● 2.1 Physical Structure

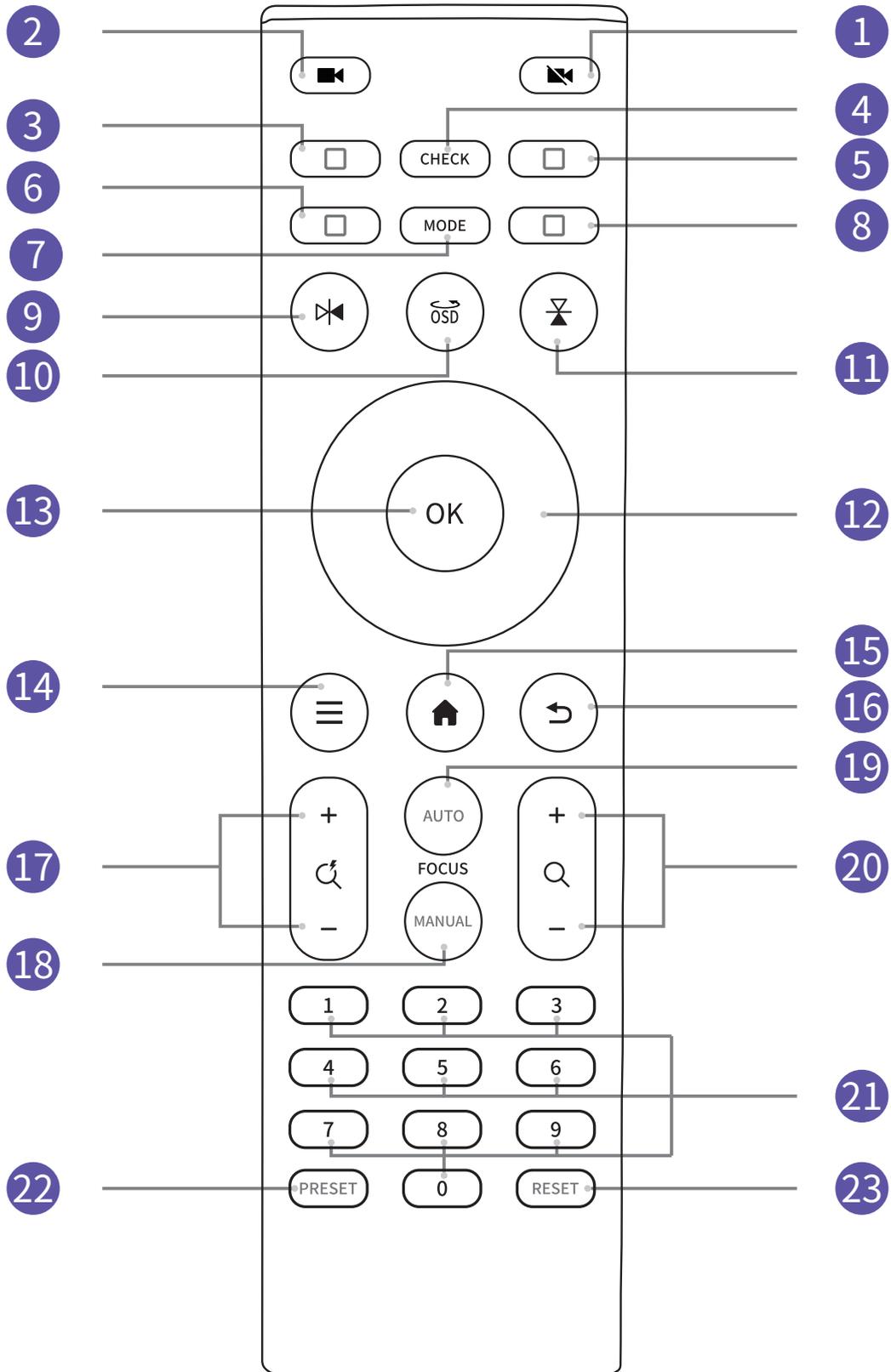


- ① PTZ Lens
- ② Panaromic Lens
- ③ Indicators
- ④ Microphoe
- ⑤ Universal Tripod 1/4" interface



- ⑥ Power Port(DC 12V/1.5A)
- ⑦ RS232 IN
- ⑧ RS232 OUT(Please connect with crossover cable MD8-MD8)
- ⑨ RS485
- ⑩ HDMI OUT
- ⑪ 3.5mm audio line in port
- ⑫ 3.5mm audio line out port
- ⑬ RJ45(NDI)
- ⑭ USB2.0 Type B
- ⑮ SDI OUT
- ⑯ USB2.0 Type-C(Reserved)

## ● 2.2 Remote Control Overview



NO.	Button	Function
1	Camera off	Camera off, not related to third-party conferencing software
2	Camera on	Camera On, not related to third-party conference software
3	Camera 1	Select camera 1 to operate
4	Reset self-test	Device rotation, self- check and reset
5	Camera 2	Select camera 2 to operate
6	Camera 3	Select camera 3 to operate
7	Mode switch	Switch between different smart functions
8	Camera 4	Select camera 4 to operate
9	Horizontal flip	Flip the screen left and right
10	Subtitle mirroring	Menu bar subtitle mirror flip
11	Vertical Flip	Flip the screen Up and Down
12	Arrow keys	PTZ / Menu bar Navigation
13	Confirm(OK)	Select menu bar options
14	HOME	Open or close the menu bar
15	Menu bar	PTZ back to neutral position
16	Back	Return to previous level of OSD menu
17	Quick zoom in/out	Quickly zoom the lens to wide/narrow angle
18	Manual Focus	Press manual focus and then adjust focus with slow zoom in/out button
19	Auto Focus	Auto-focus
20	Slow zoom in/out	Slowly zoom the lens to wide/narrow angle; Adjust focus
21	Preset position setting keys (0-9)	Set presets or recall presets Position
22	Set preset position	Setting: set preset position + corresponding preset position number key
23	Clear preset position	Clear: clear the preset + the corresponding preset number key

\*Please use the remote control within 90° in front of the device.

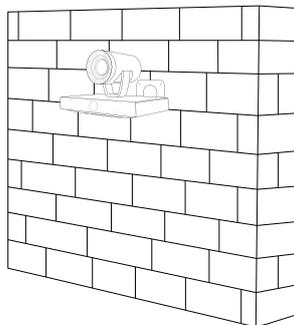
## 3. Deployment

### ● 3.1 Installation

#### Wall mounting

When wall mounted, Try to keep the device body in a horizontal position on the prime lens part to ensure the best viewing angle.

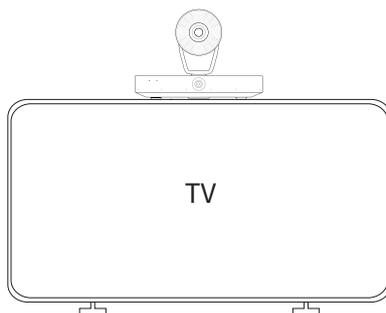
Recommended installation height: 150~200cm



#### ② TV Mounting

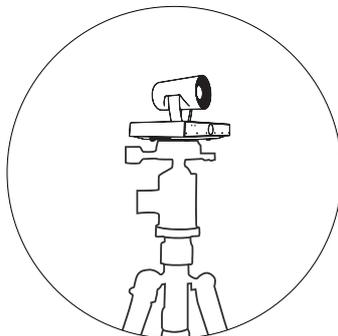
Fix the camera with a suitable TV mount.

Recommended installation height: 150~200cm

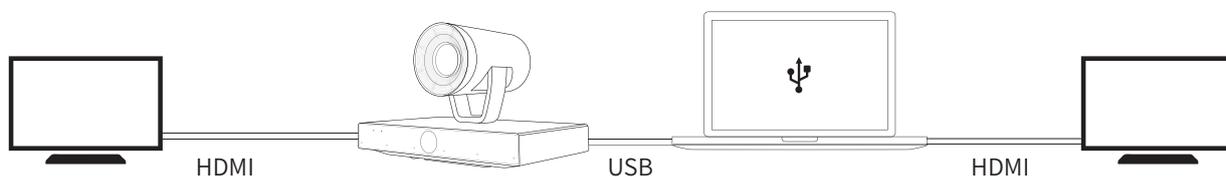


#### ③ Tripod/Desktop Positioning

Recommended installation height: 100~150cm



### ● 3.2 Device Connection



## ● 3.3 Power On and Off

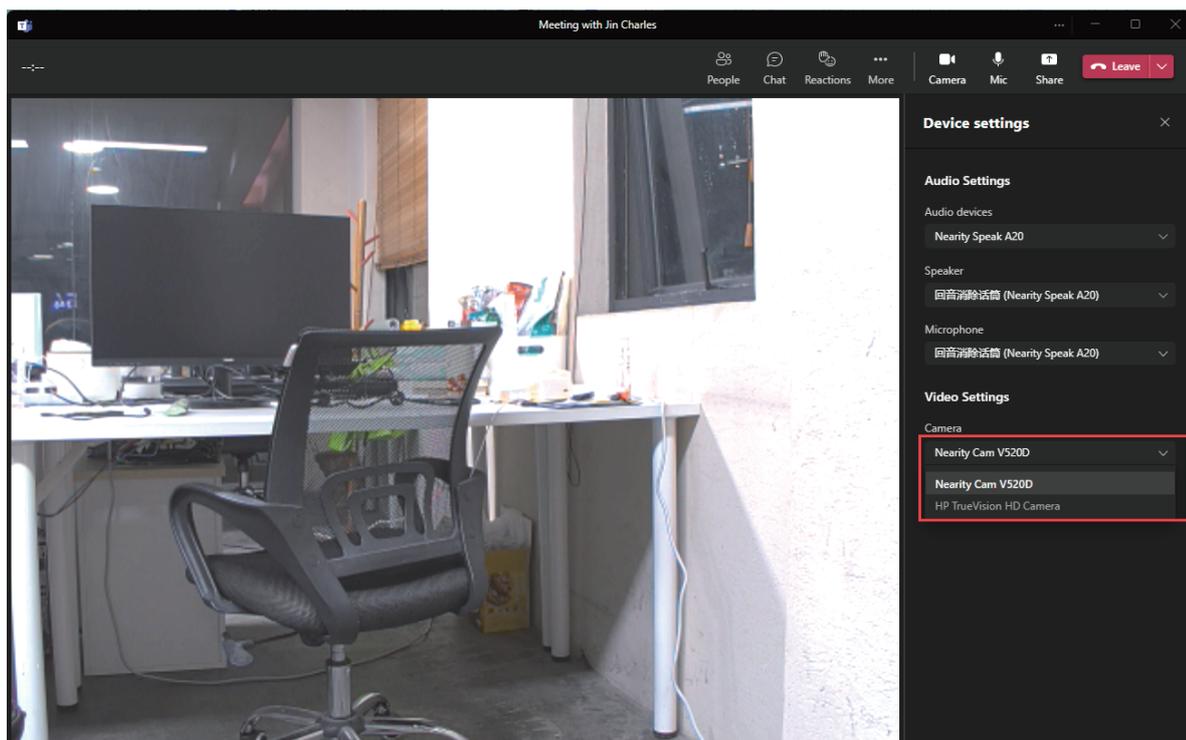
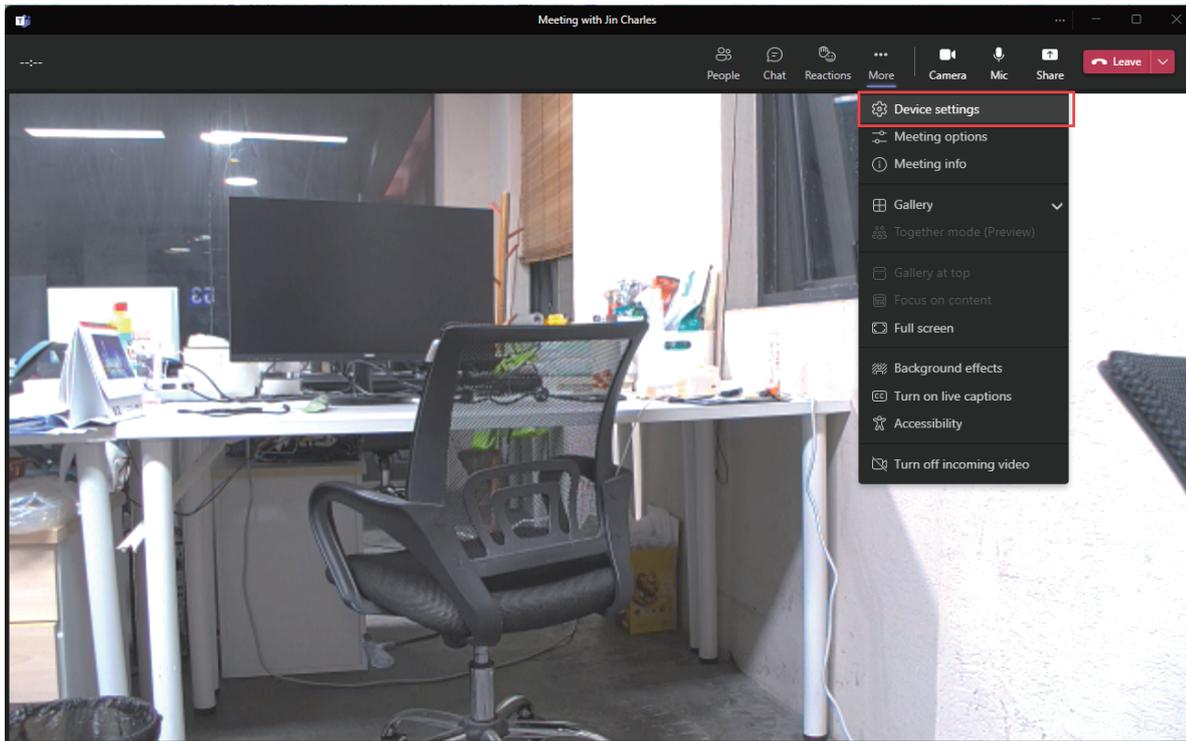
Nearity V520D doesn't have a power button. When you plug in the power cord, the device turns on.

## ● 3.4 Operating V520D

### 3.4.1 Set V520D as the default video device

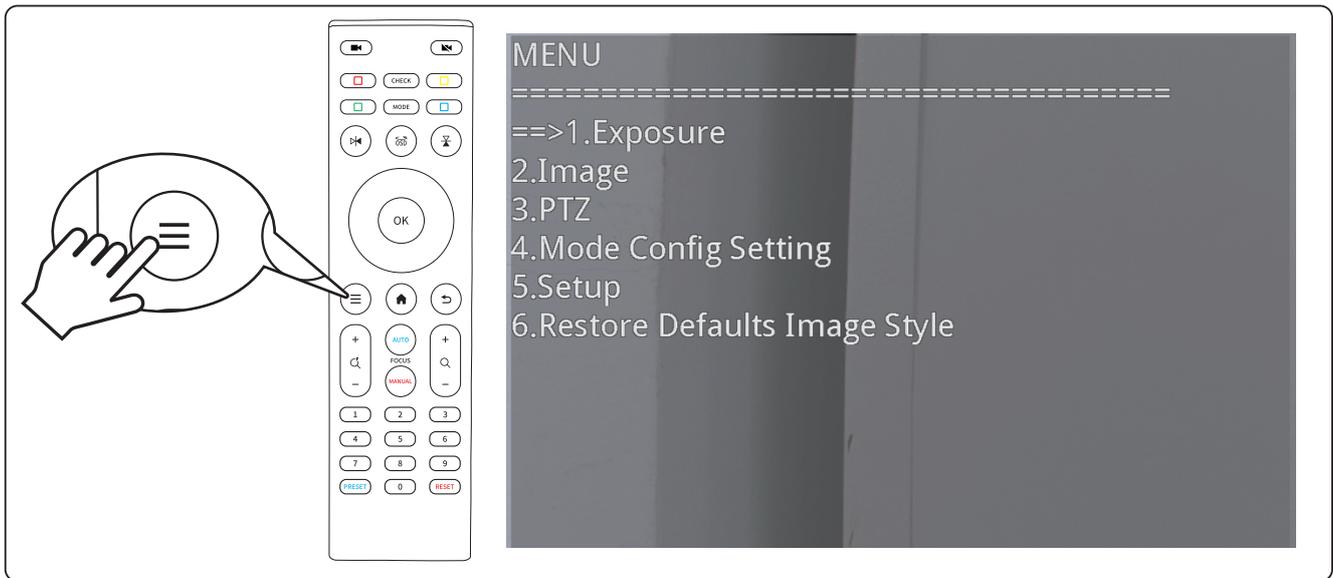
After connecting with the laptop/PC, we can set the default camera on the VC platform. For example:

In Teams: More--Device setting--Camera. Click the drop menu, and then select V520D.



## 3.4.2 Operation by remote control

Use the menu key go to the OSD menu:



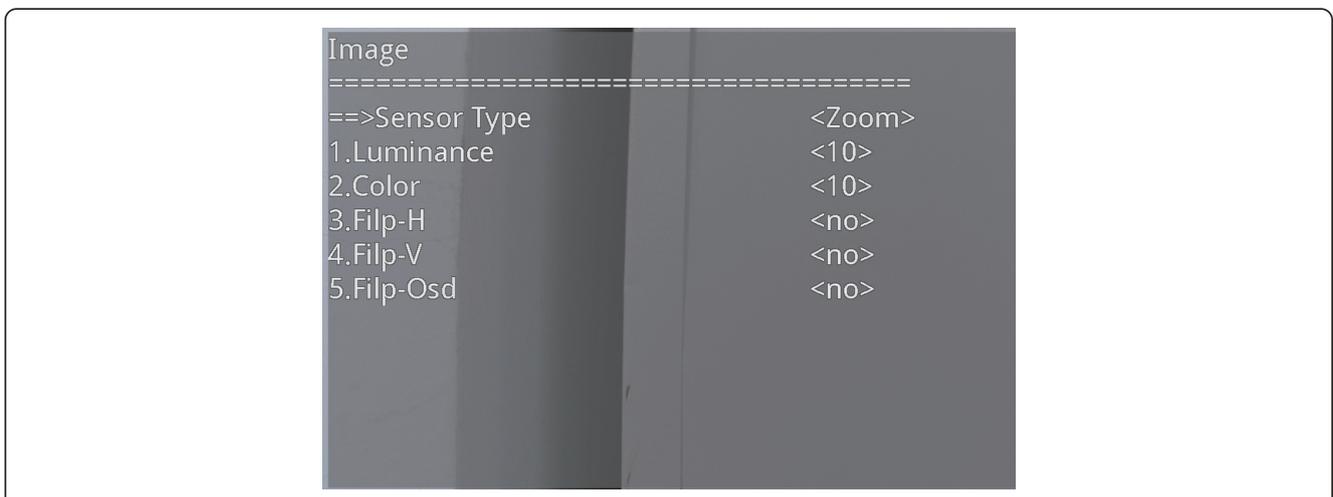
### 3.4.2.1 Exposure

Adjust the image frequency: 50Hz/60Hz

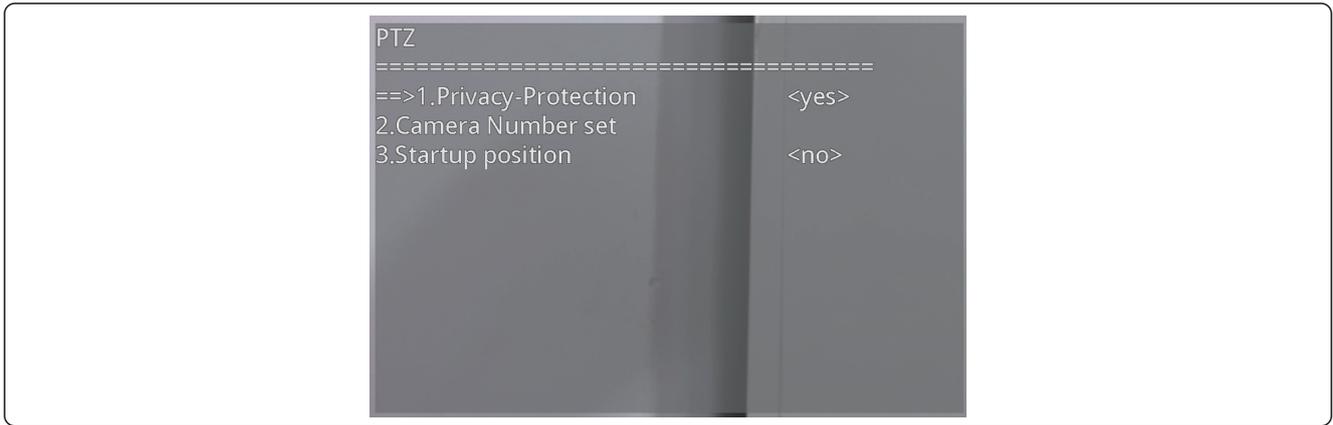


### 3.4.2.2 Image

Use the left and right buttons to adjust the image effect of the camera, including brightness, color, image horizontal/vertical flip, OSD flip. Switch the camera that needs to be adjusted by sensor type: Zoom for PTZ lens and Fixed for panoramic lens



### 3.4.2.3 PTZ

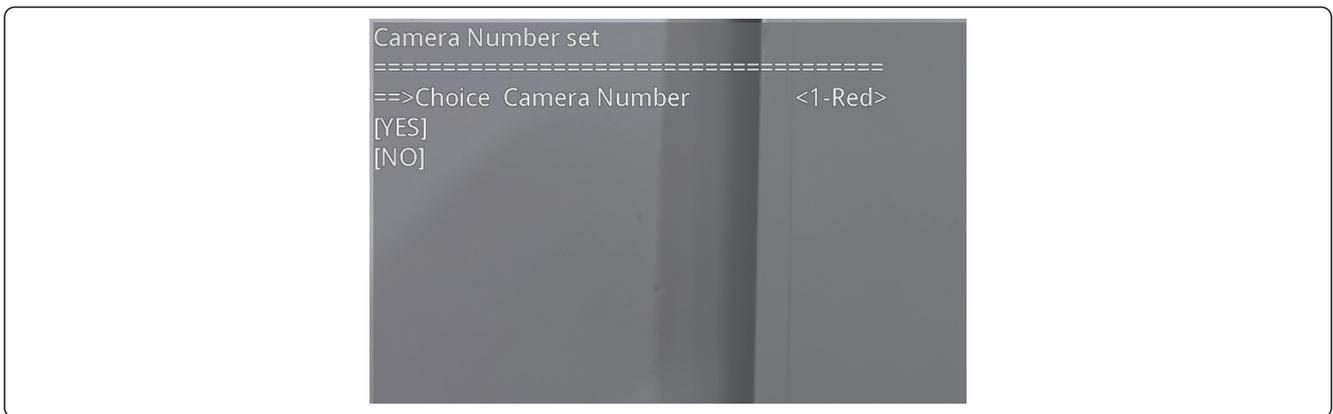


#### Privacy Protection:

When this feature is enabled, the PTZ lens will turn to the back when video is not enabled.

#### Camera number settings:

Switch the camera controlled by this remote control. The device can only be controlled through the remote control when the camera position is the same as the camera position on the remote control (the color needs to be the same).



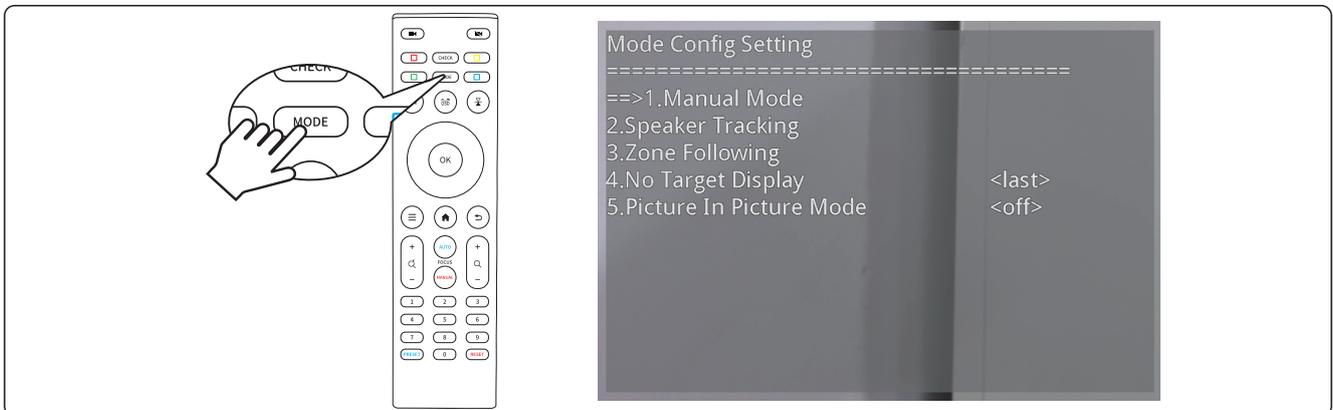
#### Startup Position:

Turn on/off the device automatically turns to the preset position 1 after power-on

### 3.4.2.4 Camera Mode

#### Mode Config Setting:

We can configure different video functions-Manual/Speaker Tracking/Zone Following/No target display/PIP modedisplay/PIP mode



Press "Mode" to switch different video functions-Manual/Panorama/Auto Framing/Speaker Tracking/Zone Following, which will show in the image.

### 3.4.2.4.1 Manual Mode

Under the Manual mode, we can control the PTZ lens pan/tilt/zoom and focus functions (Please refer to the remote control button description in the previous section)

#### Presets

Under the Manual mode, we can set 255 presets by using the remote control. (Make sure that the firmware is the latest one to support 255 presets)

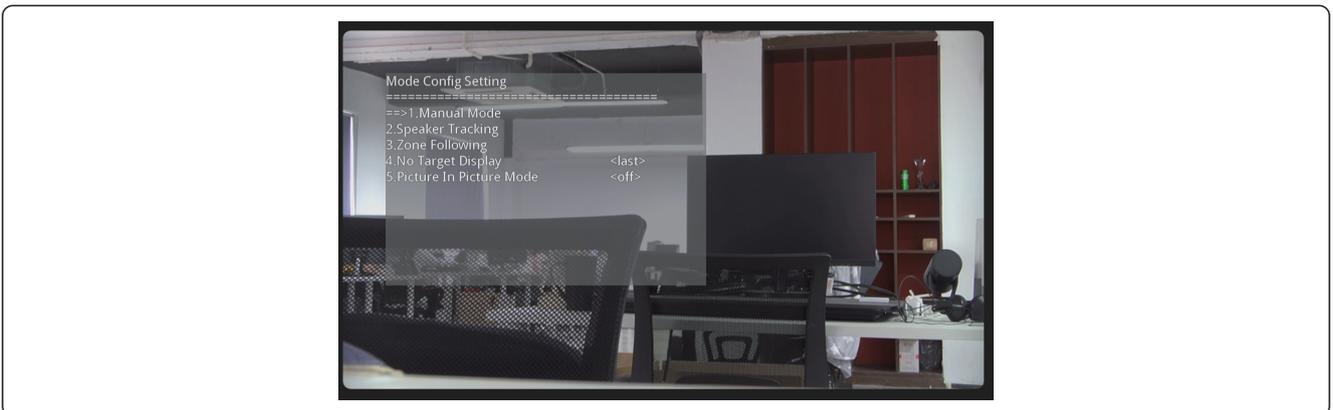
Step1, switch the camera mode to "Manual Mode".

There are 2 ways switch to "Manual Mode":

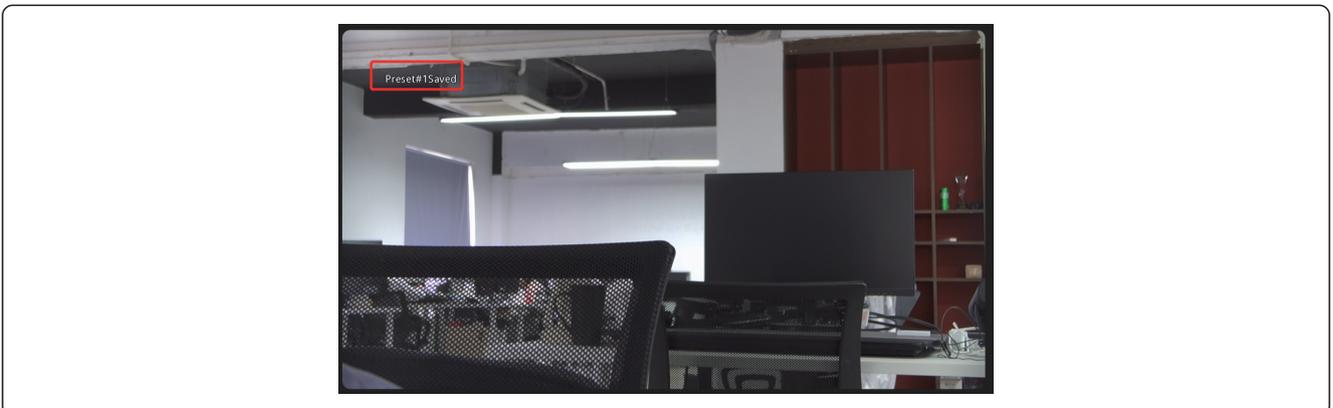
1, Press the "Mode" key on the remote control, until it shows "Manual" on the image.



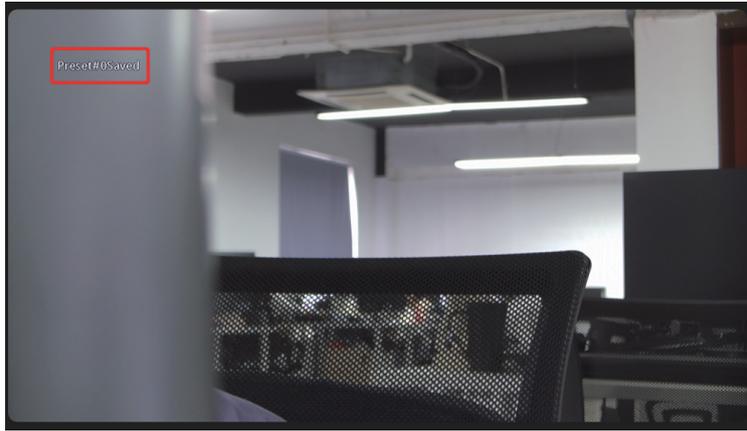
2, Use OSD manual, Press the "menu" key. Then select "Mode Config setting", choose "Zone Following" to switch the camera mode.



Step2, use the pan/tilt/zoom function to make the PTZ lens focus on the position you want. Press "PRESET" and then press "1" and "OK" to set the first preset.

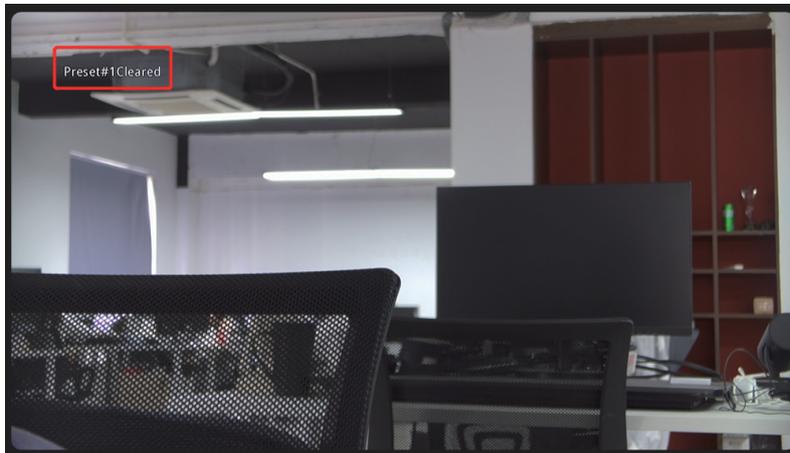


Step3, repeat step2 to set preset 2,3,4,...255. (ex. when set the 16th preset, use "1" and "6", then press"OK").



Step4, after the preset settings are finished, press the corresponding number and then press "OK"to call the corresponding preset.

We can also cancel the corresponding presets. Press "RESET" and then press the corresponding numeric button to cancel the corresponding preset.

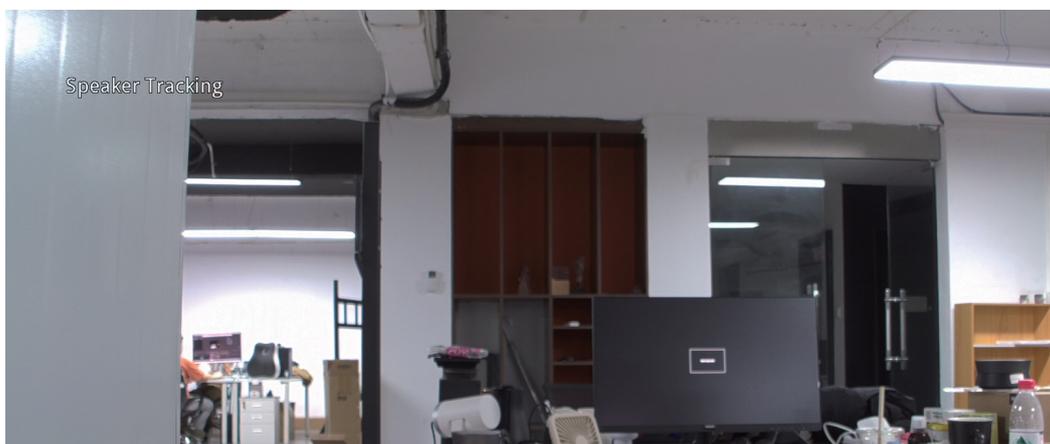


#### 3.4.2.4.2 Speaker Tracking

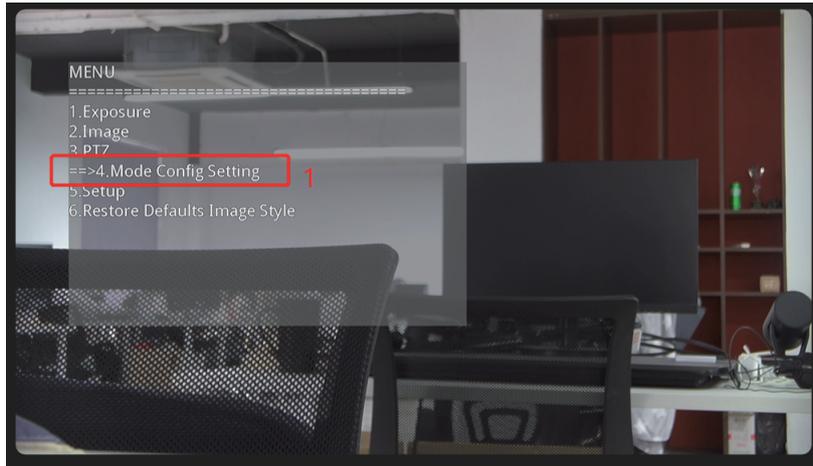
With the help of face detection and DOA (direction of arrival) technology, V520D can track the person who speaks and automatically focus on the speaker.

There are two ways to switch the camera to speaker tracking mode:

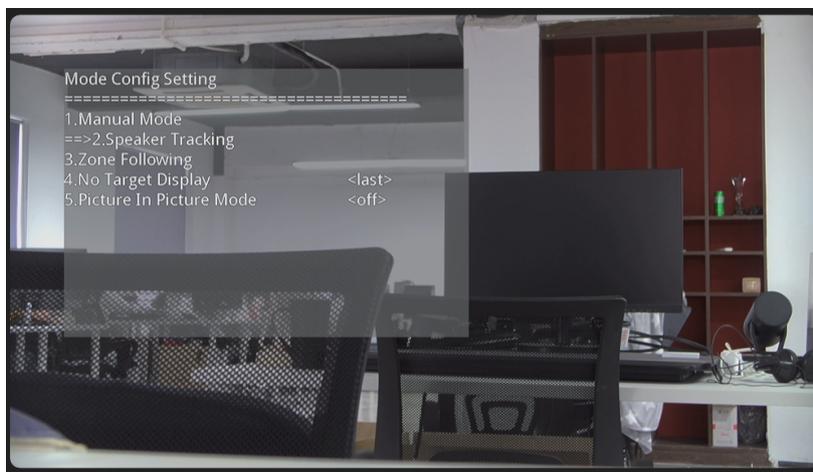
1, Press the "Mode" key on the remote control, until it shows "Speaker tracking" on the image.



2, Use OSD manual, Press the "menu" key



Then select "Mode Config setting", choose "Speaker Tracking" to switch the camera mode.

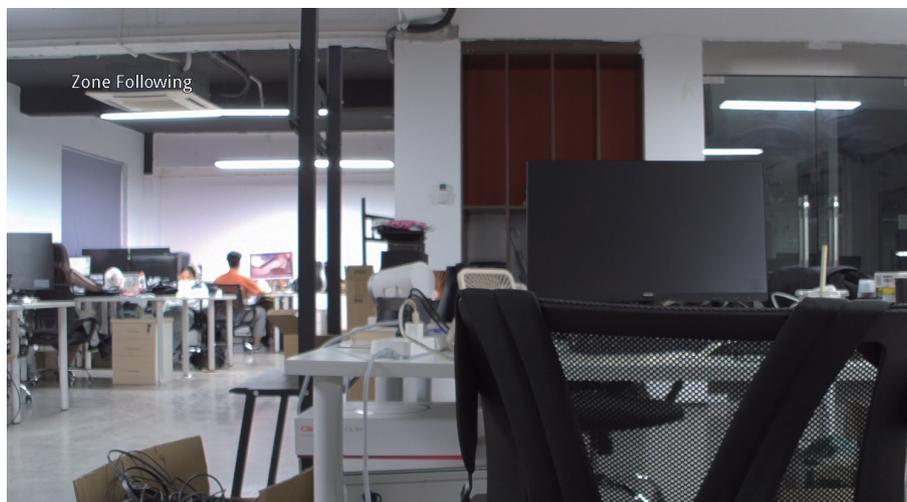


### 3.4.2.4.3 Zone Following

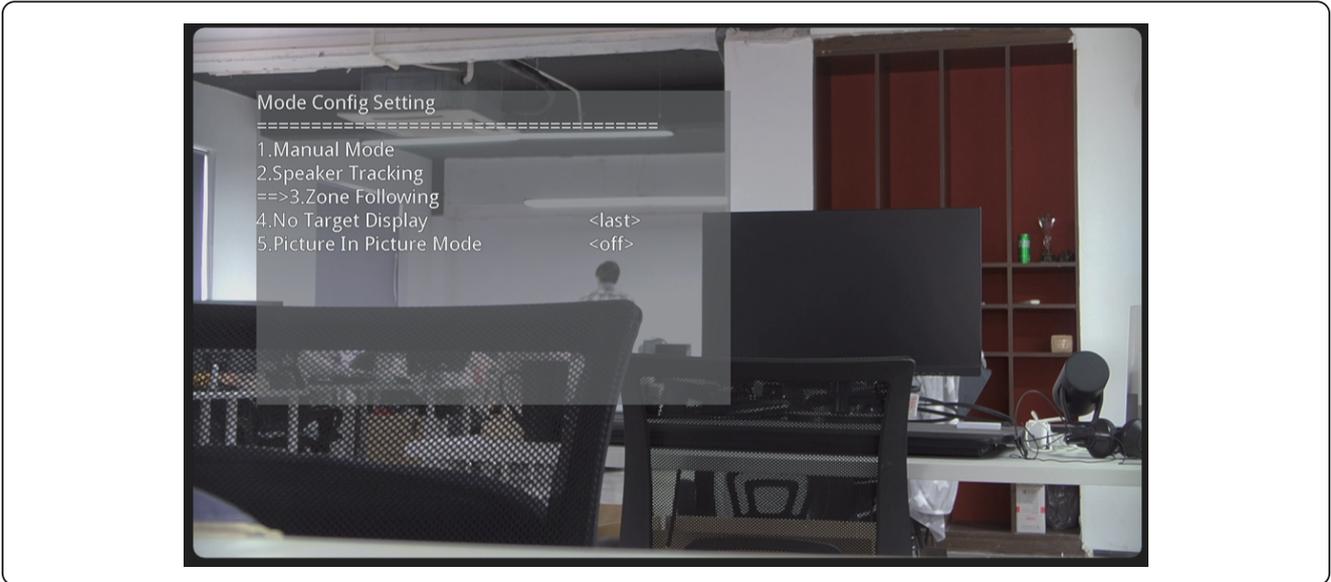
Zone following feature mainly ensures V520D PTZ camera follows the speaker in the delimited area and makes sure the speaker is at the center of the frame.

Just like the speaker tracking mode, there's also 2 ways to switch the mode:

1, Press the "Mode" key on the remote control, until it shows "Zone Following" on the image.



2, Use OSD manual, Press the "menu" key. Then select "Mode Config setting", choose "Zone Following" to switch the camera mode.



#### 3.4.2.4.4 Auto-framing

By using the Auto-framing function, V520D automatically moves and adjusts the lens to comfortably frame meeting participants in the center of the image.

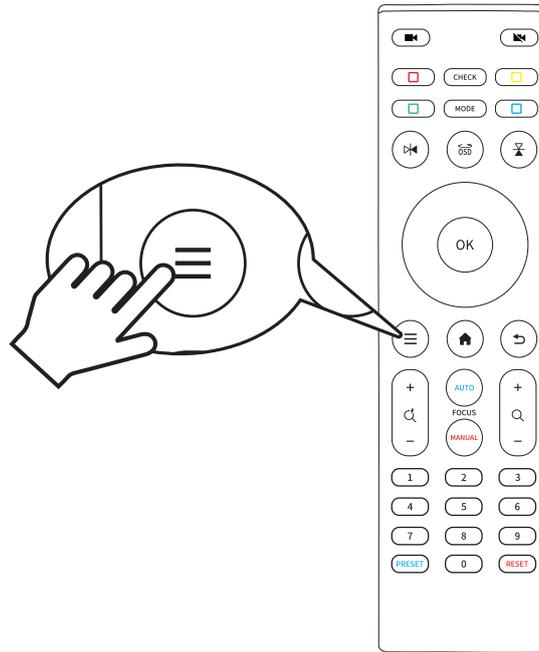
Press the "Mode" key on the remote control, until it shows "Auto Framing" on the image.



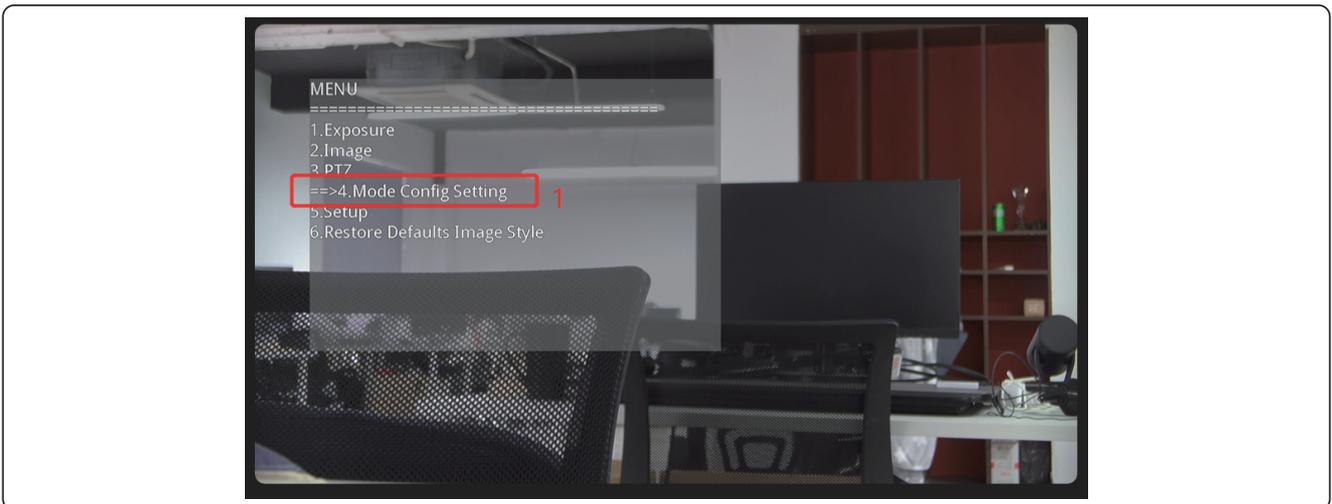
### 3.4.2.4.5 PIP Mode(Picture in Picture)

Nearity V520D is designed with a panoramic camera to detect participants in real-time and a PTZ camera to capture the best picture of everyone in the room.

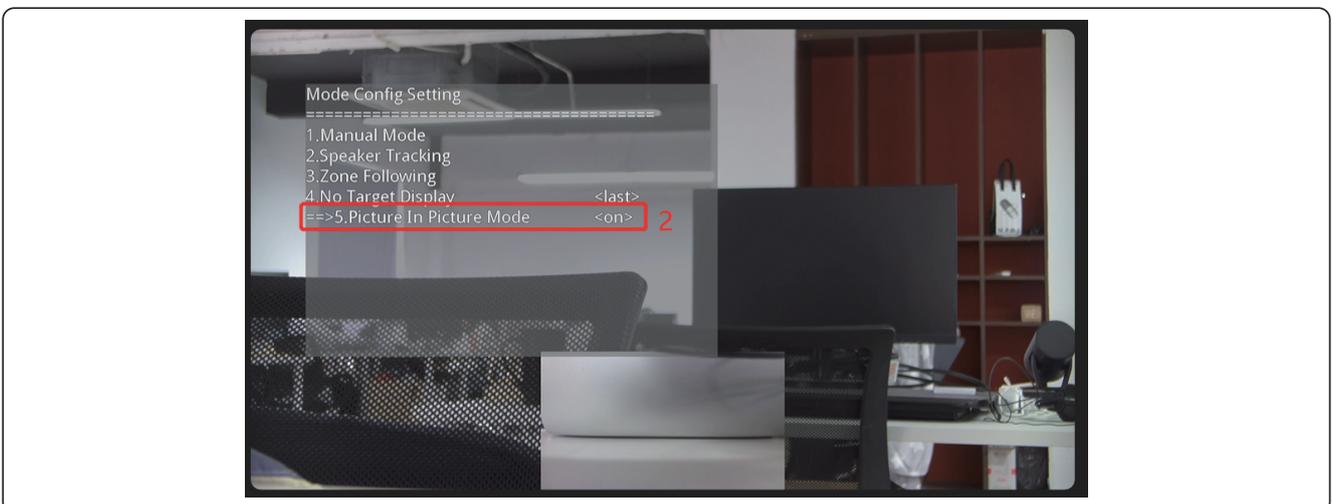
1. Access the menu by pressing here.



2. Choose 4. Mode Config Setting

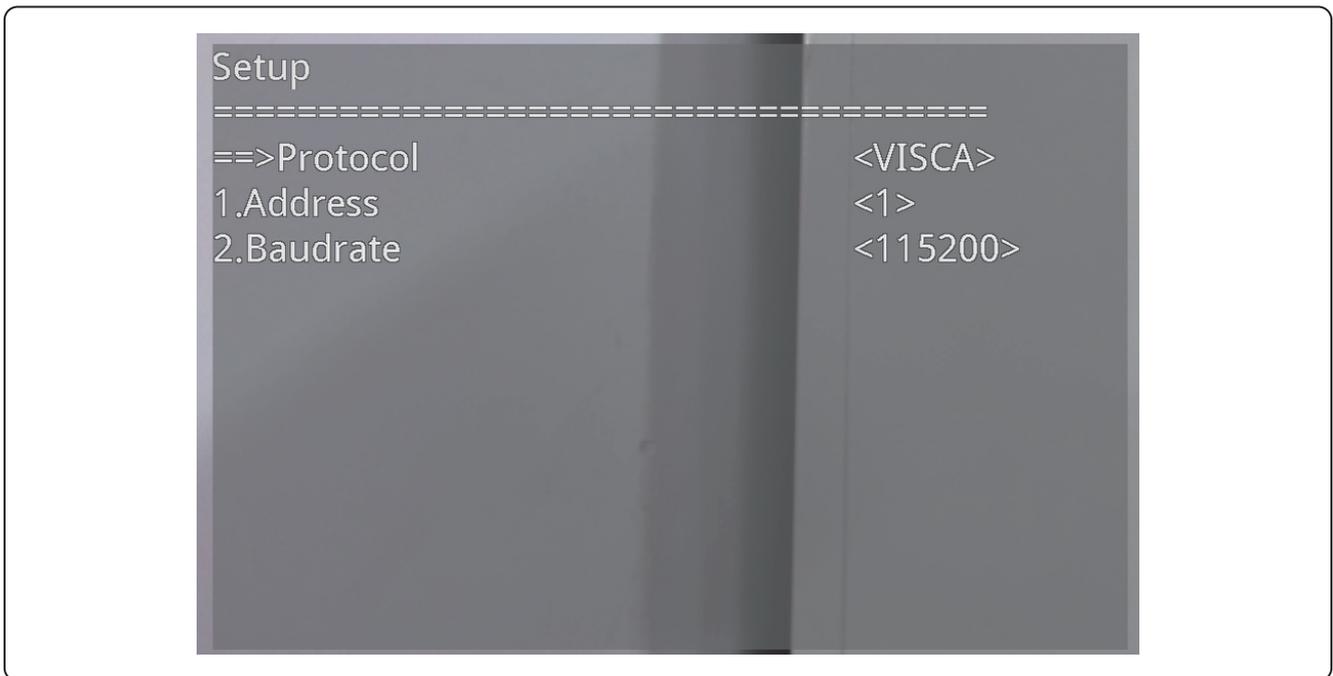


3. Select Picture In Picture Mode and then press the right arrow key to activate the mode.



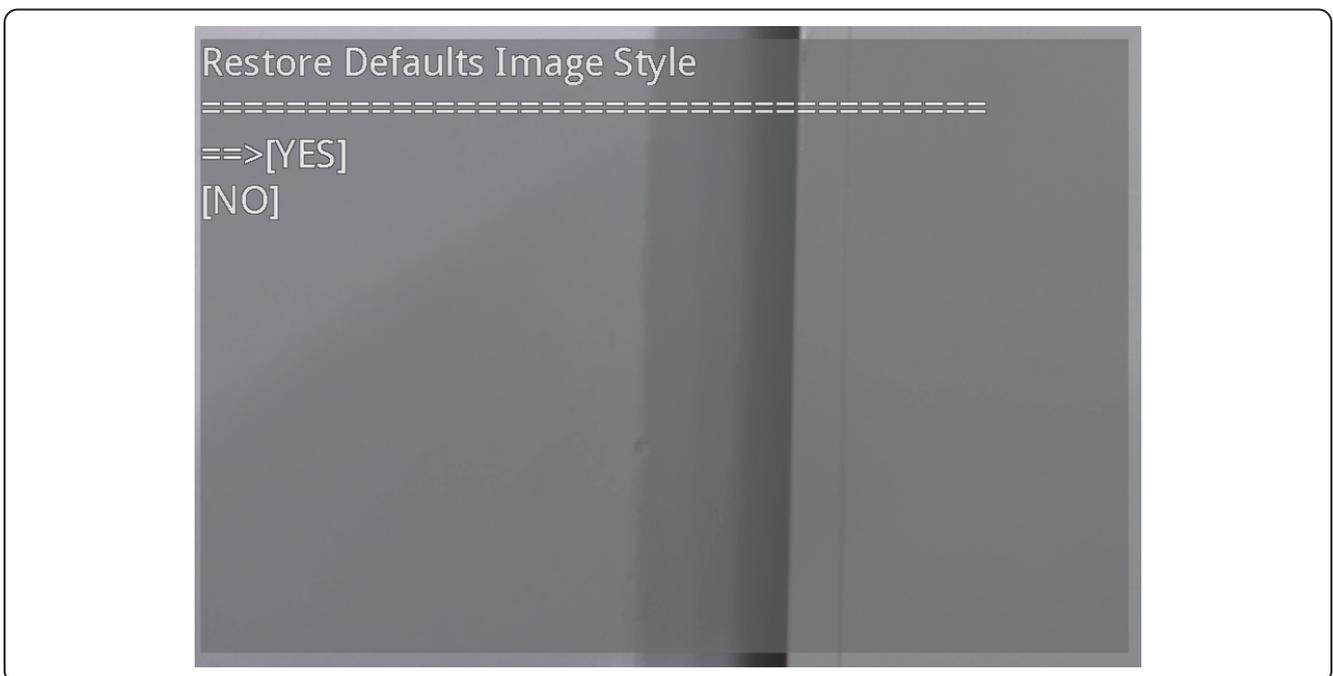
### 3.4.2.5 Setup

Set the protocol(Visca/Pelco-P/Pelco-D), address(1~7), and baudrate (1200/4800/9600/19200/38400/115200) of the current device



### 3.4.2.6 Restore Defaults Image Style

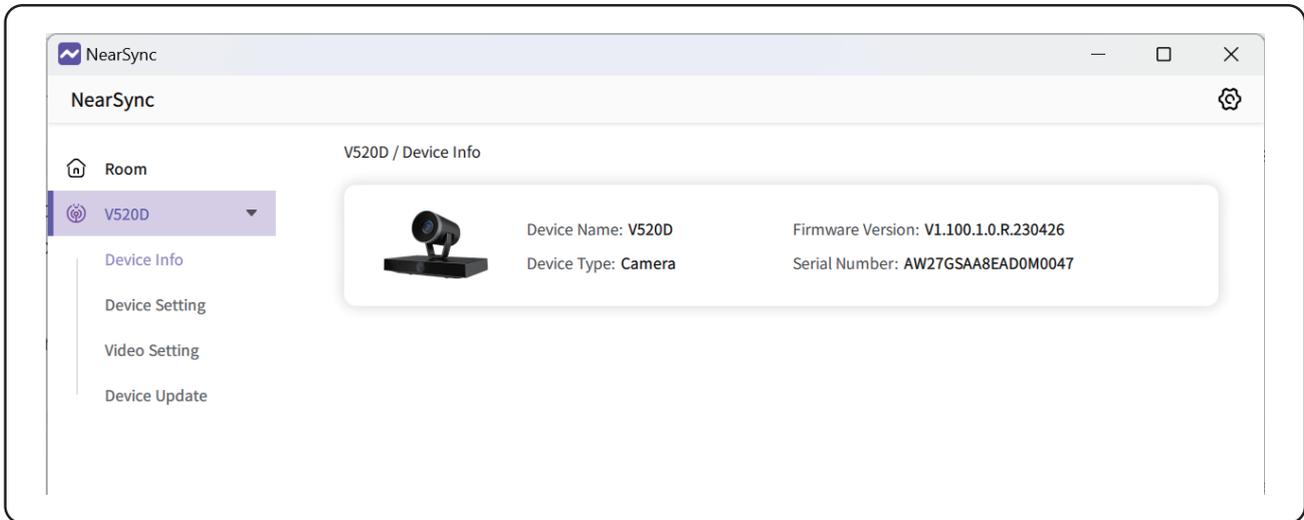
Enable/turn off to restore default image style



## ● 3.5 Nearsync Operation

### 3.5.1 Product information

After the device is connected to the computer via USB, the device manager automatically recognizes the device information

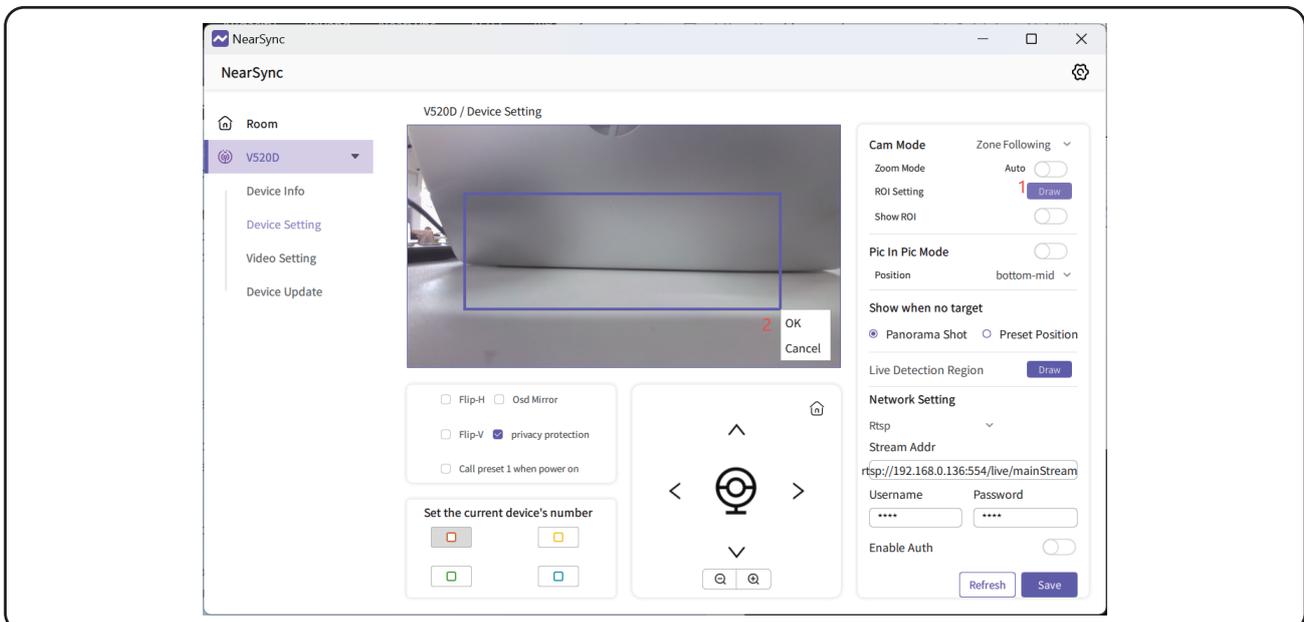


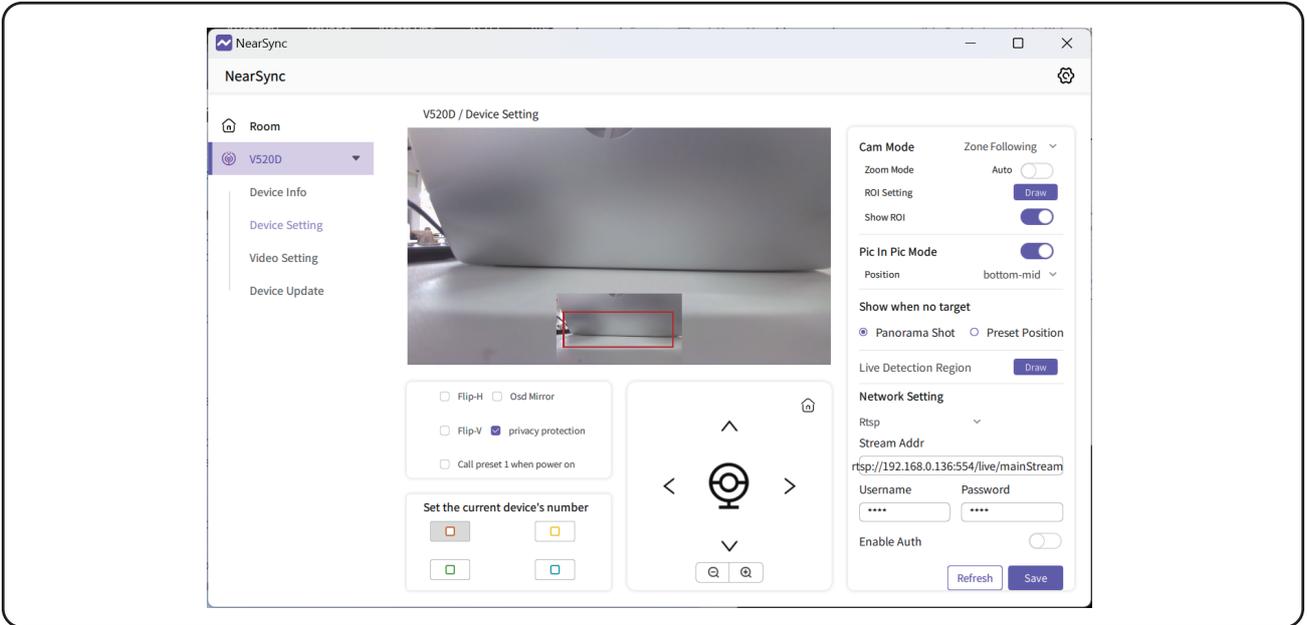
1. Device picture
2. Device information

### 3.5.2 Device Setting

Click "Device Setting" to enter the setting page. In this page, you can configure the device's video functions.

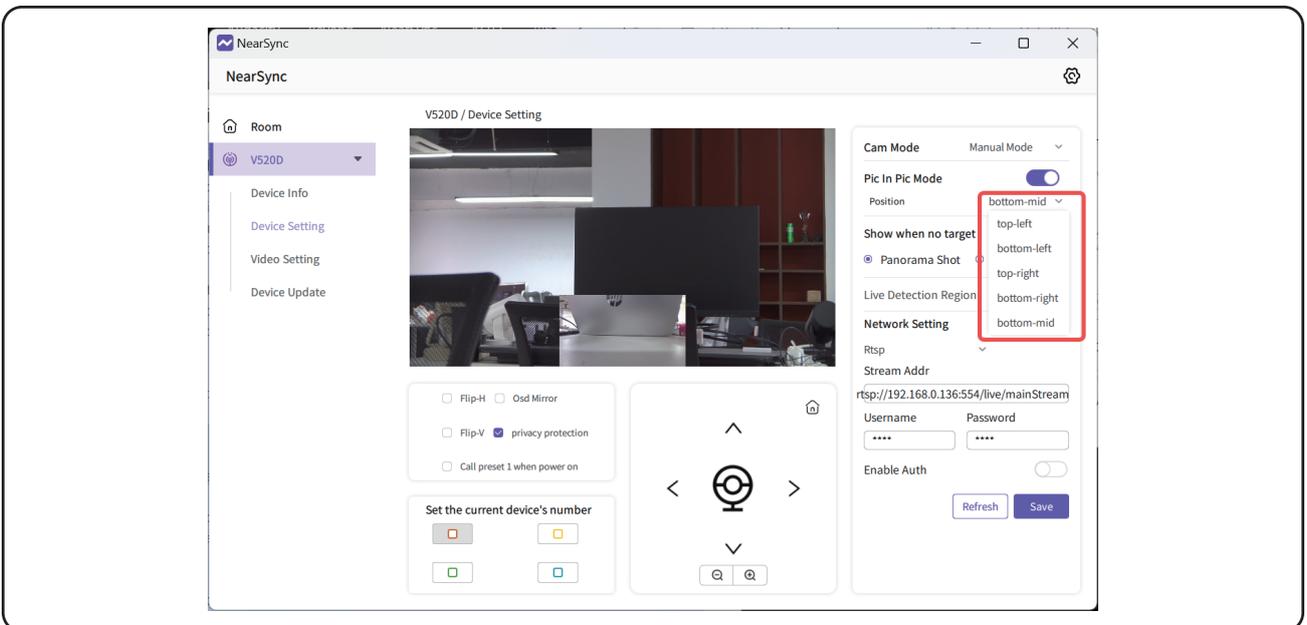
1. The PTZ lens image
2. Cam Mode:
  - a. Manual Mode, Panorama Mode, Auto Framing, Speaker Tracking, Zone Following
  - b. Under Zone Following Mode: Zoom mode-select Manual/Auto Mode (when select manual, the camera will not zoom automatically when the target moves), ROI Setting-Draw the tracking area, Show ROI-Show the drawing area in the Panoramic Lens image when using PIP mode.





### 3. Pic in Pic mode:

Position: top left, bottom left, top right, bottom right, or bottom middle of the screen



4. Show when no target: the camera image will go to-panorama screen, preset 1, keep the current position

5. Live Detection Region: Draw an area within the preview screen to improve detection distance and accuracy

6. Network setting

a. Visca Over IP Port: setting range 1024~65535

b. Network: Set the camera IP address

c. RTSP: config the stream address, user name and password for RTSP Streaming

7. Flip-H: Flip horizontally ON/OFF.

8. Osd Mirror: Flip OSD ON/OFF.

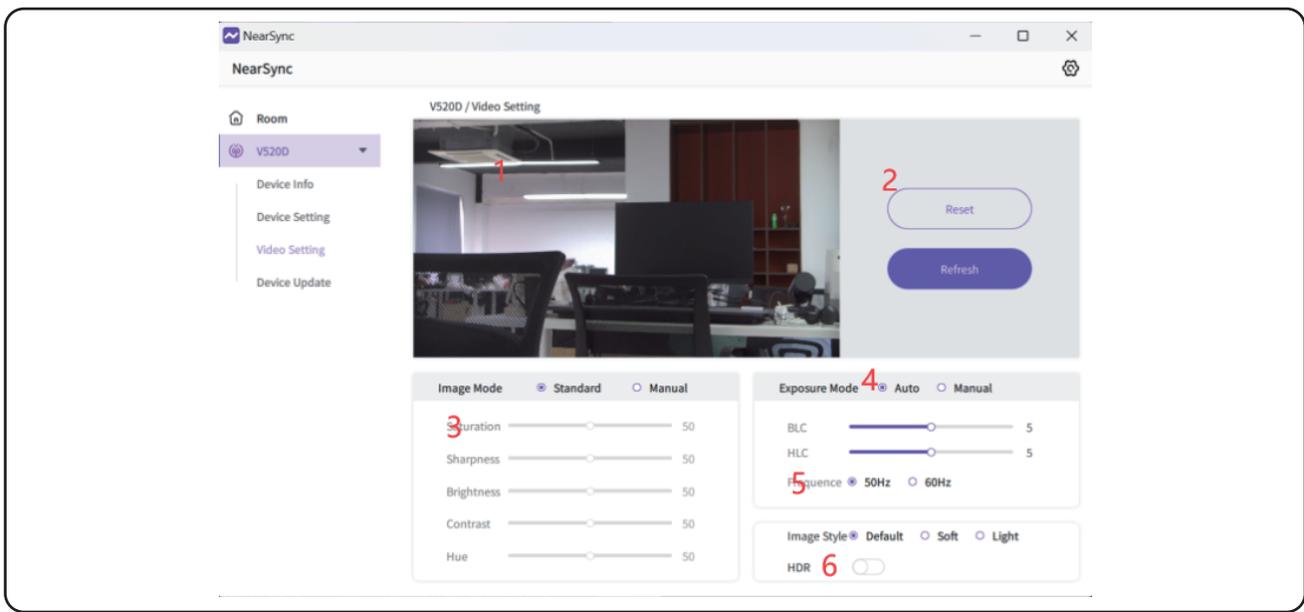
9. Flip-V: Flip vertically ON/OFF.

10. Privacy protection ON/OFF.

- 11.Line in to speaker track: connect the speaker source to avoid the wrong direction of speaker tracking.
- 12.Call up preset 1 when powered on
- 13.Set the current device's number: The four colors of red, yellow, green and blue correspond to the four buttons on the remote control
- 14.PTZ:Control pan/tilt rotation, image panorama(Home), image zoom in/out

### 3.5.3 Video Setting

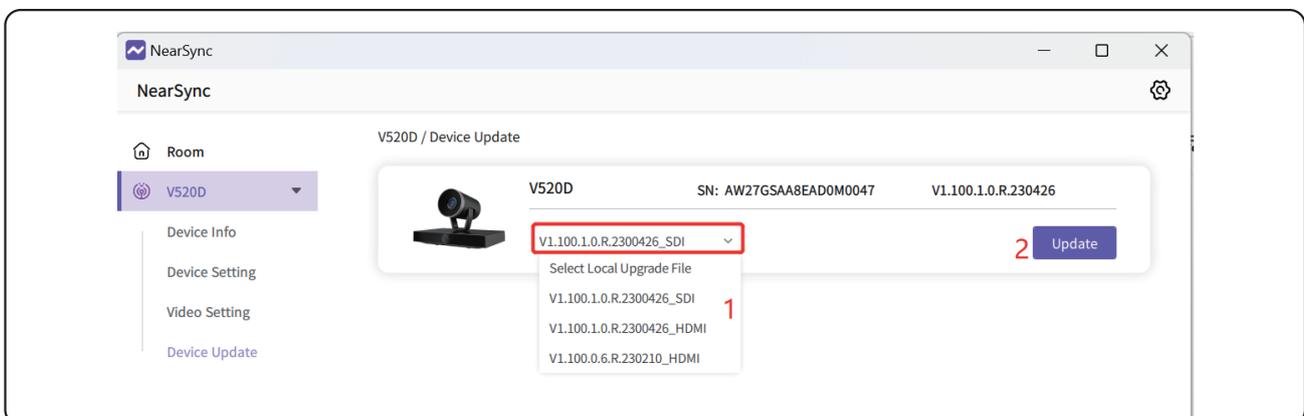
In this page, we can set the image parameters of the PTZ lens.



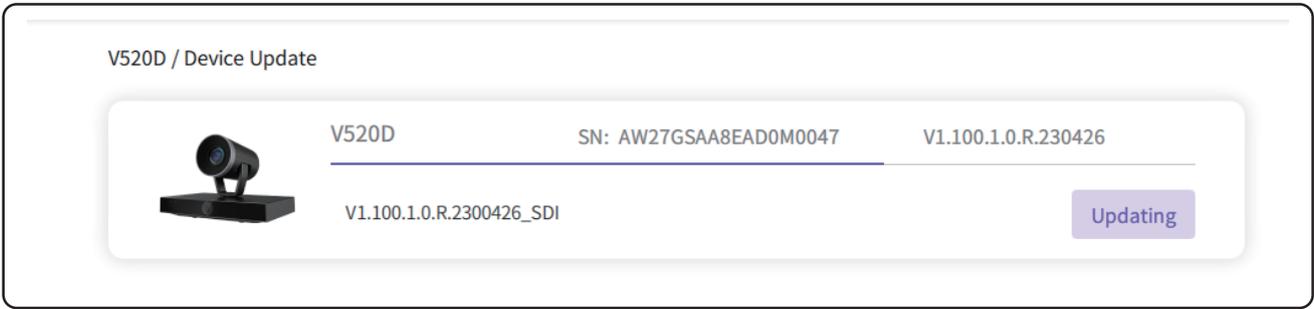
1. Preview
2. Reset image parameters, refresh the page
3. Adjust image: Saturation, sharpness, brightness, contrast, hue
4. Auto/Manual Exposure Mode
5. Switch flicker frequency 50/60Hz
6. Adjust image style: Default, soft, light or enable HDR

### 3.5.4 Upgrade Firmware

#### 3.5.4.1 Upgrade online



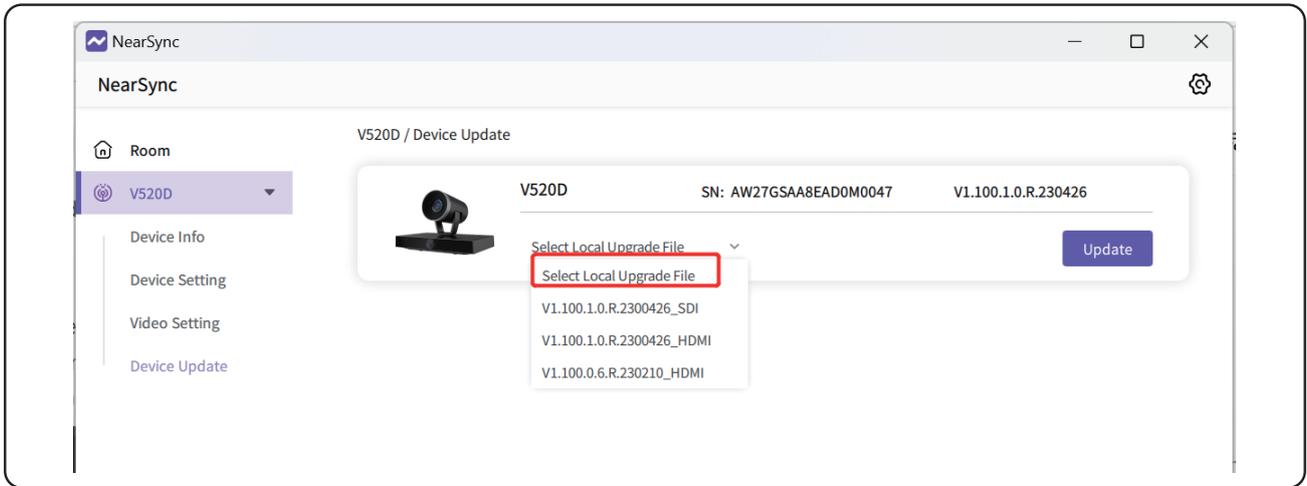
1. Select the firmware version you want to update from the drop down menu.
2. Click Update to start. And it will show the update process as follows:



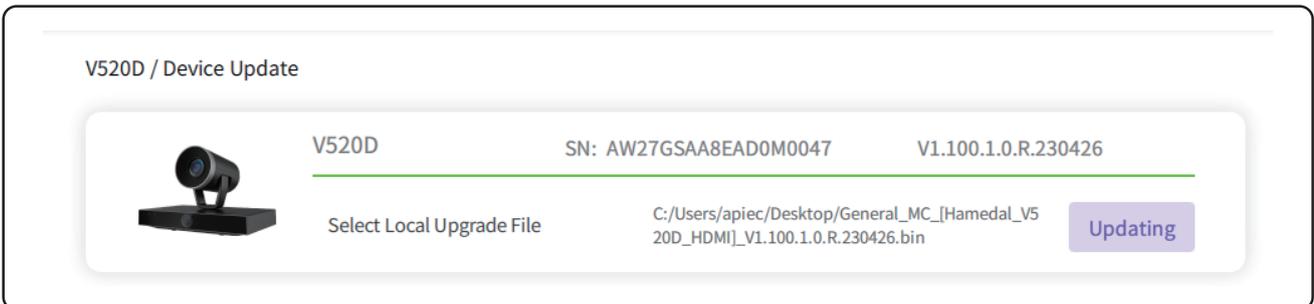
3. When updating finishes, the device will restart automatically.

### 3.5.4.2 Local update

Sometimes we need to customize the firmware version according to the current room environment, which should not be shown online. Ensure you've already get the firmware from our technical team before you start local update.



1. Click the Local update function
2. Choose the file on your PC/Laptop
3. Click Update to start. And it will show the update process as follows:



4. When updating finishes, the device will restart automatically.

## 4. Specification

	Technical Specifications
PTZ Lens Characteristics	Aperture F/1.8~2.6
	Sensor: SONY CMOS, 5MP
	Sensor: SONY CMOS, 5MP
	FOV(D): 80°
	FOV(H): 70°
	FOV(V): 40°
	Non-distortion lens
Panoramic Lens Characteristics	Aperture F/1.8
	Sensor: 1/2.9 inches CMOS, 2MP
	FOV(D): 120°
	FOV(H): 110°
	FOV(V): 70°
	Non-distortion lens
Video Characteristics	Anti-flickering
	Auto-exposure
	Automatic white balance
	3D noise suppression
	1080P video output
	Aspect ratio: 16:9
	YUV: max of 480P@30fps MJPEG: max of 1080P@30fps H264: max of 2160P@30fps
Video Features	Speaker tracking Zone following Auto-framing Picture in Picture(PIP)

PTZ Features	Picture in Picture(PIP)
	Pan speed: 1.7° ~ 100°/s
	Tilt speed: 0.7° ~ 28°/s
	4 position presets
	255 position presets
	Privacy protection supported
Power and Connectivity	Power supply DC12V/1.5A
	USB 2.0 Type-B
	USB 2.0 Type-C
	HDMI OUT
	HDMI OUT
	RS232 IN/ RS232 OUT/ RS485
	SDI OUT
	3.5mm line in
	3.5mm line out
Compatible OS	Windows/Mac/Linux
Physical Characteristics	Height: 166mm(6.5 inches) Width: 153mm (6 inches) Depth: 153mm(6 inches)
	Net weight: 1061g (37.43 oz)
	Color: Dark Gray
Optional Mounts	Tripod bracket / TV Bracket / Wall bracket
Packing List	1x V520D
	1x USB cable(B to A)
	1x Power adapter
	1x Remote control
	1x User manual

## 5. Caution

- Unauthorized removal and strong impact may cause damage to the device.
- The device should be kept away from high temperature environment, heat source, strong magnetic field, strong electric field.
- Do not immerse the device in water or other liquids. Keep in a dry, cool place.
- Be sure to fix the camera in case it falls out.
- Do not touch the surface of the lens or clean the product with a cotton swab or cotton cloth, use a non-abrasive cleaner to remove dirt from the product or the surface of the lens, and avoid using any corrosive solutions.

## 6. FAQ

### **Q: Can we use different video functions simutanously?**

A: PIP mode can be used when we use Speaker Tracking and Zone Following. But cannot be used when Auto-framing. We can only use one of these three modes: Speaker tracking, Zone-following, and Auto-framing.

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### **Q: Is the remote control one-to-one designed?**

A: No. The remote control can be used for all Nearity PTZ modes. And one remote control can control up to 4 PTZs. You can use Device Manager to set numbers associated with each camera, and then select which camera you would like to control using the remote. The default binding setting is Off. If you don't do any binding, no matter if you press camera 1 or 2, 3, 4 button on the remote control, you can control all the Nearity PTZs around you.

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### **Q: How many people will be tracked when using the zone-following mode?**

A: After the zone is setting, the V520D will track the first person that appeared in the drawing zone. Until the person moves out of the zone. It will track the next person in the zone.

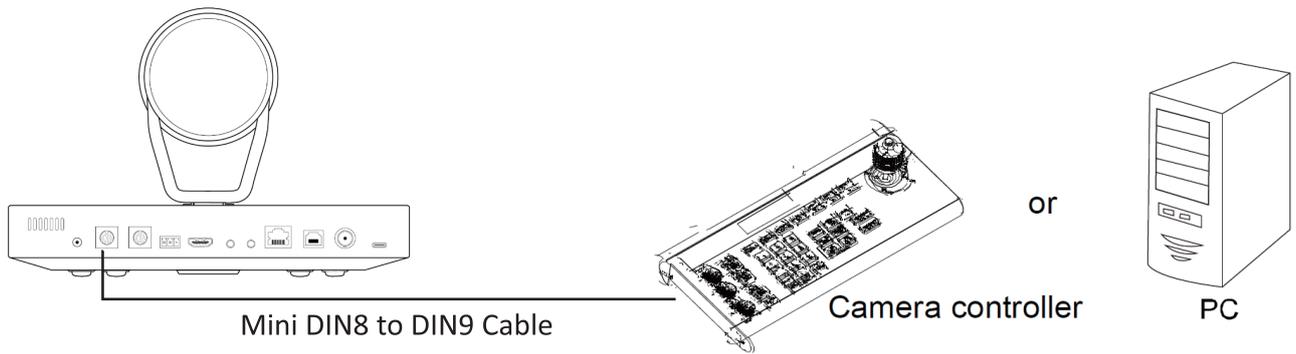
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### **Q: Can V520D PTZ connect external micphones to expand the pickup distance?**

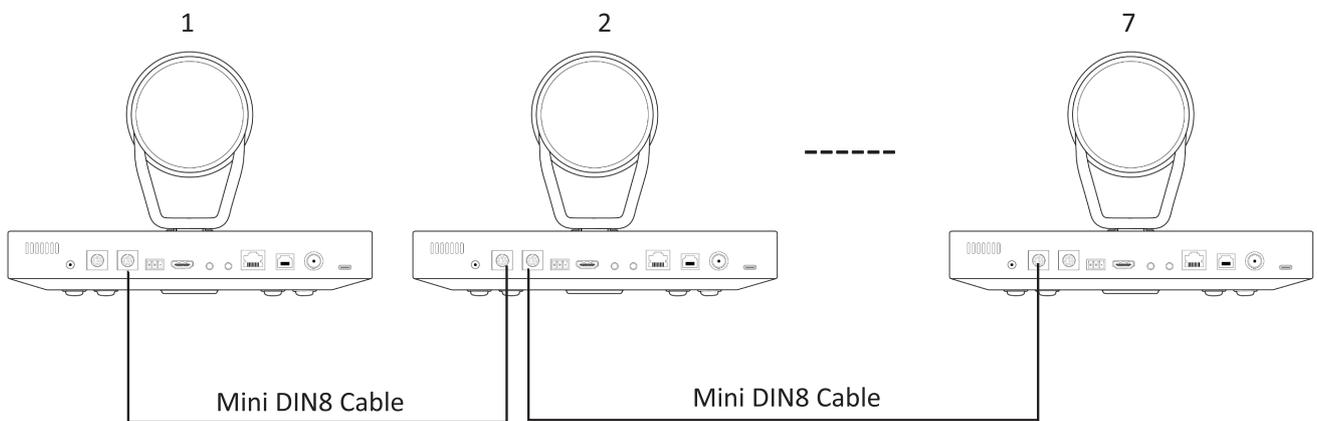
A: No. The V520D is not designed as a sound pickup device. The microphone-array is only for voice detection and works in speaker tracking mode. And V520D cannot support audio processing, so it cannot connect to external micphones.

# RS232 Connction

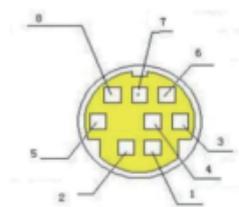
The RS232 IN port on the device side is connected to the RS232 port of the control device/keyboard



The connection cable needs to be connected from the RS232 Out of the device to the RS232 IN port of the next device (note that this series connection line needs the cross wire of RS232)

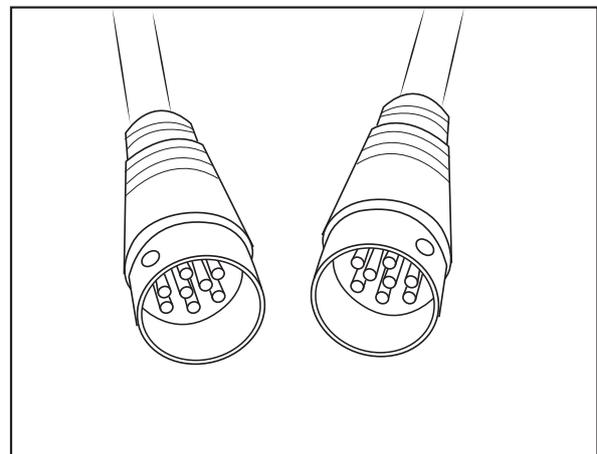
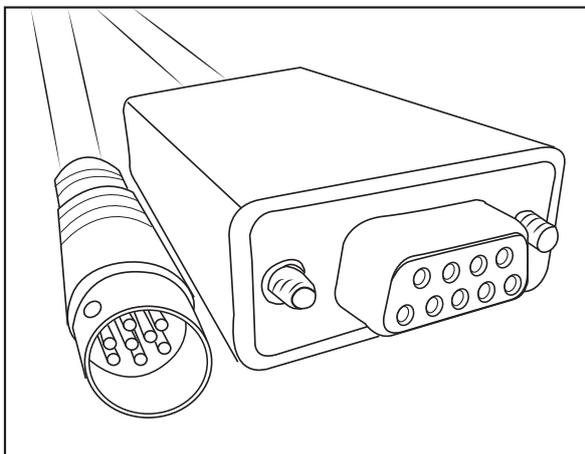
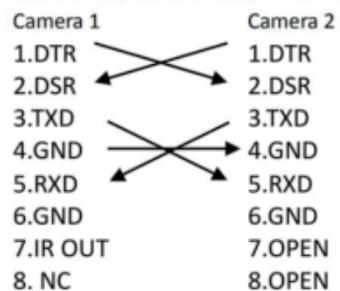


## Interface definition



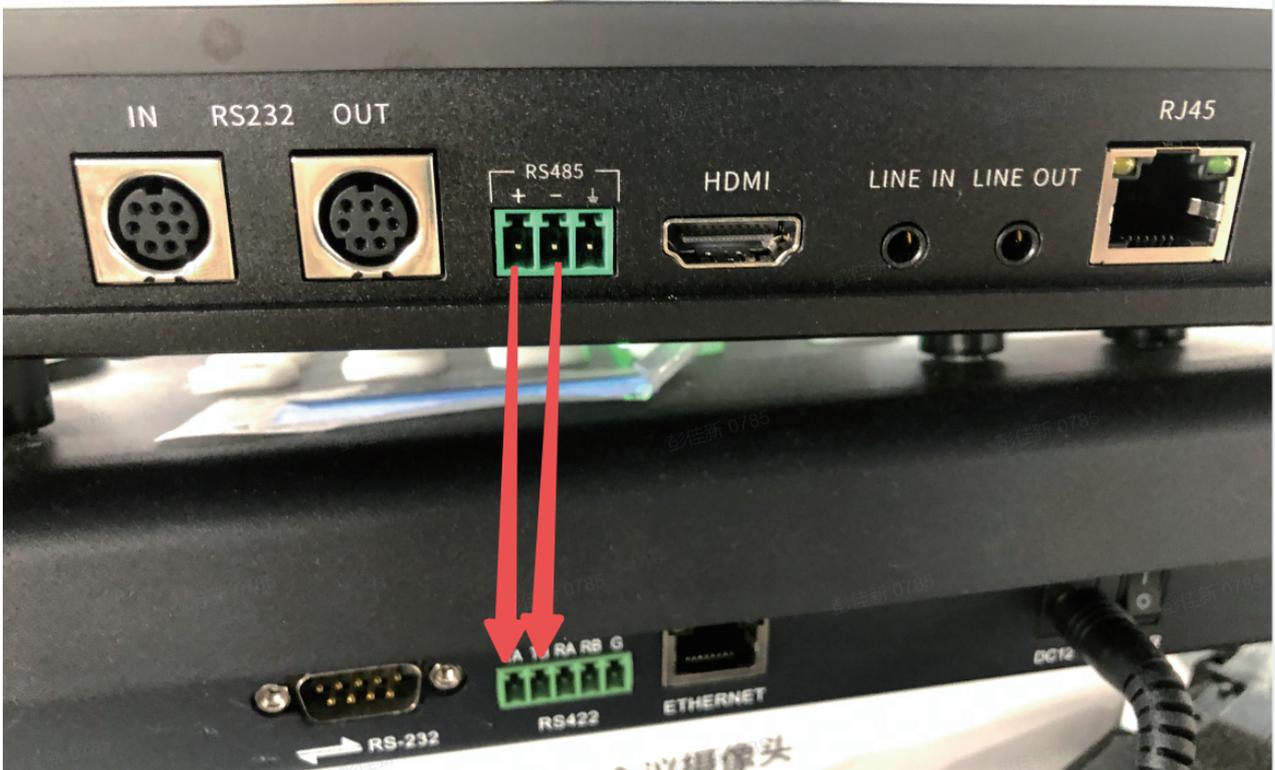
NO.	Port	Definition
1	DTR	Data Terminal Ready
2	DSR	Data Set Ready
3	TXD	Transmit Data
4	GND	System Ground
5	RXD	Receive Data
6	GND	System Ground
7	IR OUT	IR Commander Signal
8	NC	No Connection

### Camera cascade connection method



## RS485 Connection

It can be connected to the positive and negative correspondence of the control terminal/keyboard, as shown in the figure below, without grounding



## NDI Configuration

NDI authorization

Before using NDI, please provide the SN of the device to our sales staff. The sales staff will contact the headquarters for device authorization

- 1, In the NDI Authorization tool, select the name of the device to be authorized.
- 2, Get the NDI info
- 3, NDI Authorization confirmation



Make sure the camera and PC are on the same LAN and use the NDI tool to get the stream.  
Camera Default IP: 192.168.0.202

