iCam P20V/ P20VN

20x Zoom PTZ Camera

User Manual V1.0

CONTENTS

1. HARDWARE

1.1 INTRODUCTION

The **iCam P20V/ P20VN** 4K60 Dual-Cam AI PTZ Camera is equipped with 4K CMOS sensor and UHD lens, max lossless optical zoom up to 20x, suitable for long distance shot for UHD video giving super clarity, color and details. The variety of built-in AI algorithm such as auto frame, lecturer tracking, gesture control eliminates complicated manual operations and thus let you focus on your creation. The camera supports various network protocols such as NDI HX3 **(iCam P20VN)**, SRT etc, and providing more flexible and efficient transmission. The features of POE and Web UI make the setup, setting and operation much easier.

1.2 FEATURES

4KP60, UHD Video Output
The camera is equipped with UHD CMOS sensor, with 8.46MP, which can output 4KP60 UHD image pictures with excellent details, great colors and smooth videos. Meanwhile, the camera also supports the commonly used P59.94/P29.97 frame rate in broadcasting industries.

Max 20x Optical Zoom
The PTZ camera features a high-quality UHD lens and up to 20x lossless optical zoom, enabling it to meet the needs of capturing large scenes while recording clearer details from long distances.

Smart AI Function
This camera comes with AI functions such as auto framing, lecturer tracking, and gesture control. It not only significantly enhances the stability of tracking but also can adapt to complicated scenarios.

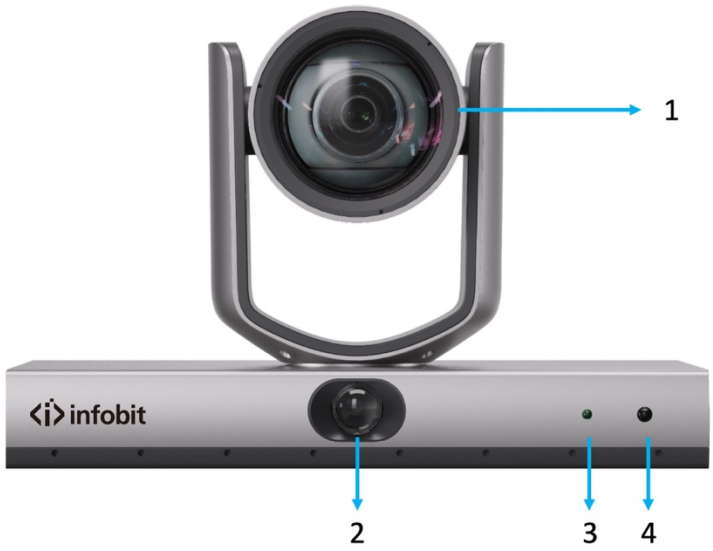
NDI HX3, SRT
The camera supports NDI HX3, SRT protocols. Video can be streamed directly from a camera to an online streaming server, and can be transmitted more securely, with lower latency. *(**Note:** the iCam P20VN with NDI)*

Built-in Web UI
With the camera's built-in Web UI function, no additional software is required, and it is compatible with main operating systems and browsers. Users can easily setup, control the PTZ and preview the video.

Dual Cam Design
Dual-lens design with Tracking cam and Full view cam. The camera supports specific tracking and panoramic shooting, providing intelligent, smooth, and precise tracking.

1.3 PORTS

1.3.1 FRONT PANEL



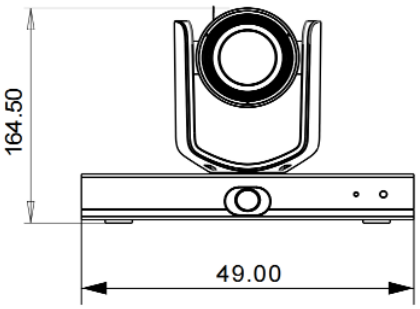
1	Camera Module	3	Power Indicator
2	Full View Camera	4	IR Indicator

1.3.2 REAR PANEL

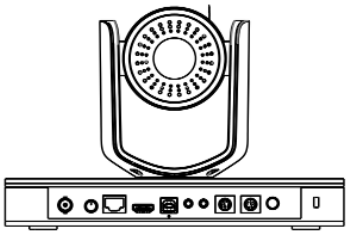
1	3G-SDI	6	Reference Audio
2	SW (DIP Switch)	7	Line IN
3	LAN	8	RS232-In
4	HDMI Out	9	RS232-Out
5	USB 2.0	10	Power IN

1.3.3 DIMENSIONS

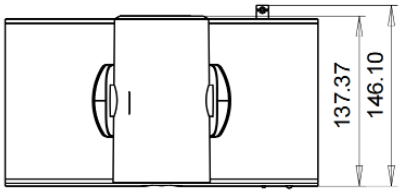
(In mm.)



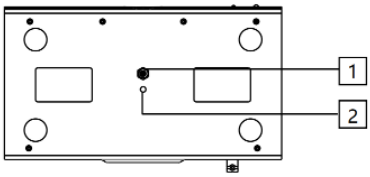
Front View



Rear View



Top View



Bottom View (1: Mounting Hole, 1/4-20UNC; 2: Location Hole, Φ5mm)

1.4 SPECIFICATION

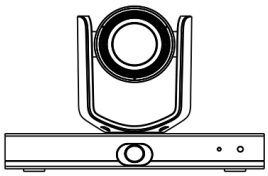
Models	**iCam P20V**	**iCam P20VN**
Close-up Camera		
Image Sensor	1/2.8" CMOS, 8.46MP	
Optical Zoom	20 Optical; 16x Digital	
Focal	f=5.2mm ~106mm	
Iris	F1.6 ~ F3.5	
HFOV	56.5° ~ 2.8°	
Distortion Correction	Support	
NDI	Not support	**Support**
Full View Camera		
Image Sensor	1/2.8" CMOS, 8.46MP	
Focal	f=2.8mm	
Iris	F2	
FOV	H：94° V：62°	
Image Parameters		
Image Style	One-click switching between multiple image styles	
Noise Reduction	2D & 3D DNR	

Shutter Speed	1/25s ~ 1/10,000s
Gain	Auto, Manual
White Balance	Auto, Manual, Indoor, Outdoor, Auto Tracking, Static Color Temperature, One push, Follow the full view.
BLC	Support
WD	Support
Exposure Mode	Auto, Manual, Shutter Priority, Brightness Priority, Iris Priority, Auto Tracking, Follow the full view.
Metering Mode	Top, Bottom, Center, Average, Left, Right.
SNR	≥50dB
Parameter Adjustment	Image parameters of close-up and full views can be adjusted independently
Image Flip	Horizontal mirroring, Vertical flipping
PTZ	
Horizontal	-130° ~ +130°； 0.1° ~ 80°/s
Vertical	-30° ~ +90°； 0.1° ~ 60°/s
Software Function	
Preset Position Freezing	Support
PIP	Supports picture-in-picture function for both close-up and full-views PIP position: top-left, bottom-left, top-right, and bottom-right.
OSD	Customized overlay of OSD character
WebUI	Supports full-life cycle O&M operations including remote device configuration, firmware upgrade, reboot and reset via WebUI.
Software Upgrade	1. USB upgrade, supporting Windows and Mac systems. 2. WEB upgrade, Supports Edge, Chrome, Safari and other major browsers 3. Network MgrTools Updated: Supports Windows & Mac
Powerful AI	
Lecturer Tracking	1. Supports everywhere tracking, zone tracking, and selected target tracking 2. Supports adjustable target tracking aspect ratio (Full body, half body, close-up) 3. Supports setting the target position of the image (left, middle, right) 4. Supports the setting of blocking areas and preset areas 5. Support switching target and adjustable body size by remote control 6. Gesture Control
Auto Framing	Multi-person framing (framing within designated zone) Support people counting
Custom Tracking Area	Supports customizing any image area as the tracking region and eliminating interference in complex scenes.
Interfaces	

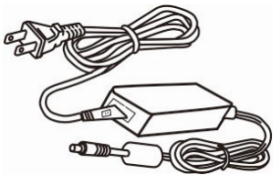
HDMI	1-channel HDMI 2.0, switchable close-up & full-view output 1. Audio: PCM, 48K, dual channel. 2. HFR Off: 3840*2160@30/25fps; 1920*1080@60/50/30/25fps; 1280*720@60/50/30/25fps; HFR On (Only close-up View): 3840*2160@60/50/30/25fps; 1920*1080@60/50/30/25fps; 1280*720@60/50/30/25fps; 3. i-frame resolutions: 1080i @60/59.94/50fps; 4. Broadcast TV resolutions: 2160*3840@59.94/29.97fps; 1920*1080@59.94/29.97fps; 1280*720@59.94/29.97fps
HDBaseT (Optional)	One channel of HDBaseT, support output audio; Video resolution and format consistent with HDMI
3G-SDI	One channel of 3G-SDI, switchable close-up & full-view output 1. HFR Off: 1920*1080@60/50/30/25fps; 1280*720@60/50/30/25fps; HFR On (Only close-up View): 1920*1080@60/50/30/25fps; 1280*720@60/50/30/25fps; 2. i-frame resolutions: 1080i @60/59.94/50; 3. Broadcast TV resolutions: 1920*1080@59.94/29.97fps; 1280*720@59.94/29.97fps;
Network	1-channel RJ-45 interface, supporting 10M/100M/1000M adaptive Ethernet. 1. Video formats: H.264/H.265 2. Video resolutions: Output with close-up view and full-view: Supports close-up/full-view output switching, 2160*3840@30/25fps; 1920*1080@60/50/30/25fps; 1280*720@60/50/30/25fps; 640x360@60/50/30/25fps; Only output close-up view: 2160*3840@60/50/30/25fps; 1920*1080@60/50/30/25fps; 1280*720@60/50/30/25fps; 640x360@60/50/30/25fps; 3. Network protocols: RTSP, RTMP(S), Visca Over IP, ONVIF, SRT, NDI HX3, Dante AV-H, TCP, UDP; 4. Audio compression: AAC, G.711 5. Supports multi-stream output. 6. Supports Web UI, HTTP API
USB	1-channel USB 2.0 Type-B 1. Audio output: UAC 2. UVC 1.1 protocol. 3. UVC video formats: H.264/H.265/MJPEG; 4. UVC output: 3840*2160@30/25fps; 1920*1080@30/25fps; 1280*720@30/25fps; 640x360@30/25fps;
Audio	1-channel LINE IN, 3.5mm; support ACC, G.711;
REF	1-channel REF, Reserved
Control	1-channel RS-232 IN, 1-channel RS-232 OUT; Support daisy chain
Power	Input: 100-240V, 50-60Hz, output: DC 12V, 1.5A, < 18W
General	
Preset Number	256
Indicator Light	Power Indicator
IR Remote Control	Supported
Installation Method	Upright, Inverted

Control Protocol	VISCA / PELCO-P / PELCO-D
Operating Environment	Temperature: 0°C~+40°C; Humidity: 10%RH~90%RH
Storage Environment	Temperature: -20°C~+60°C; Humidity: 10%RH ~95%RH
Dimensions (L*W*H)	245mm*145mm*165mm
Weight	1.8kg

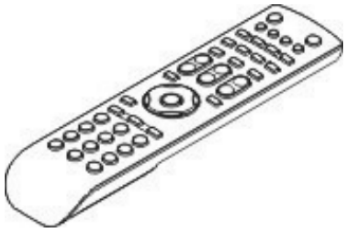
1.5 PACKAGING LIST



Camera 1x



Power Adapter 1x (EU, US, AU)



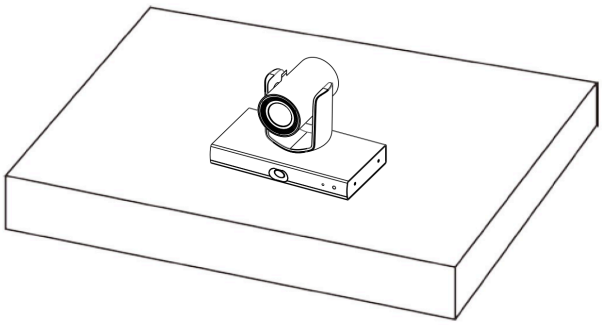
Remote Control 1x

RS-232 cable 1x

2. INSTALLATION

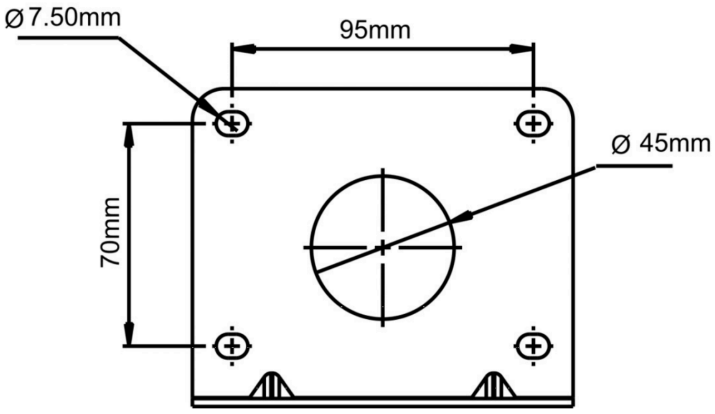
2.1 DESKTOP MOUNT

Put the camera on a flat surface. In case the camera must be placed on an inclined surface, make sure the angle of inclination is less than 15 degrees to ensure proper pan /tilt operation.

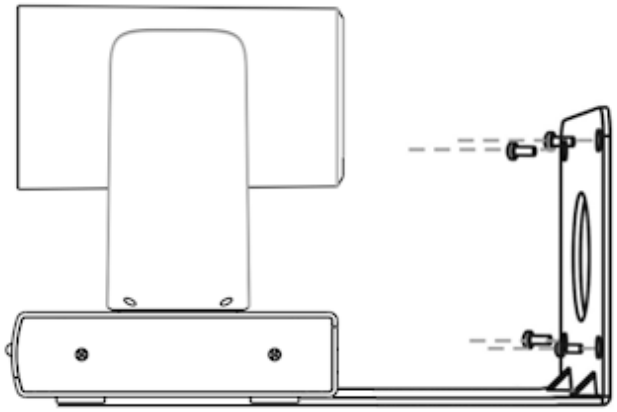


2.2 WALL MOUNT

According to diameter and position of the 4 installation holes (As shown below) on the bracket, drill 4 holes on the wall and fix the bracket onto the wall by using 4 screws which needs to be prepared by the users.



Use inch screws to fix the camera on the bracket, fix the limit screw according to actual requirement, and make sure the camera is tightly fixed onto the bracket before your hands leave the camera.



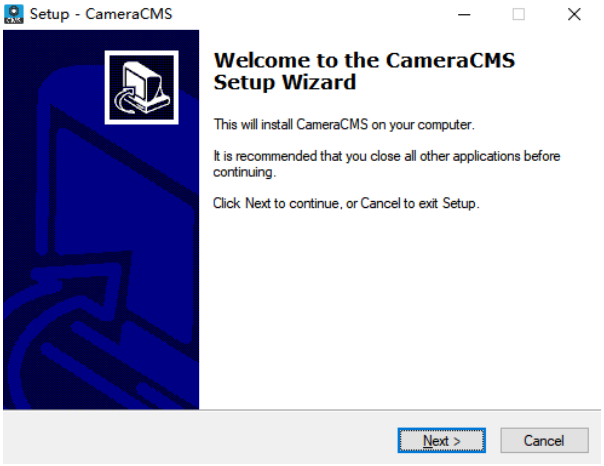
3. SOFTWARE CONTROL

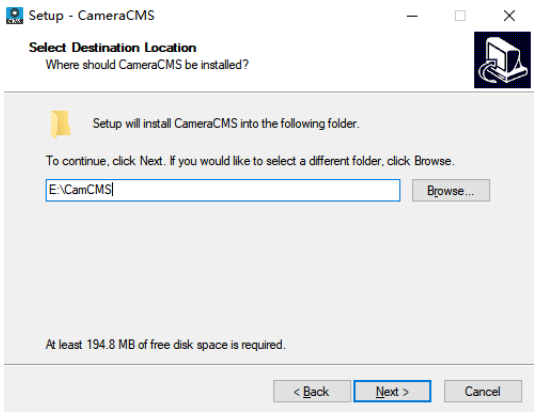
3.1 DOWNLOAD SOFTWARE

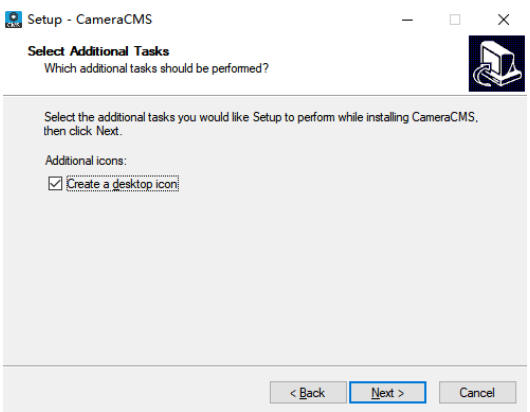
Scan below QR corde to download the CameraCMS control software: (or visit website: https://infobittech.sharepoint.com/:u:/s/InfobitProducts/IQCjUWlgVIDnT7QYiMMwNeCoAZlukn6l4vFYpHc0S5ilF6g?e=2OXxyx)

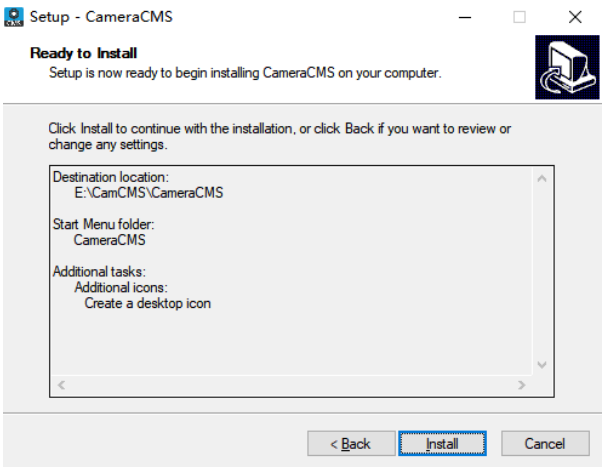
3.2 INSTALL THE CAMERACMS

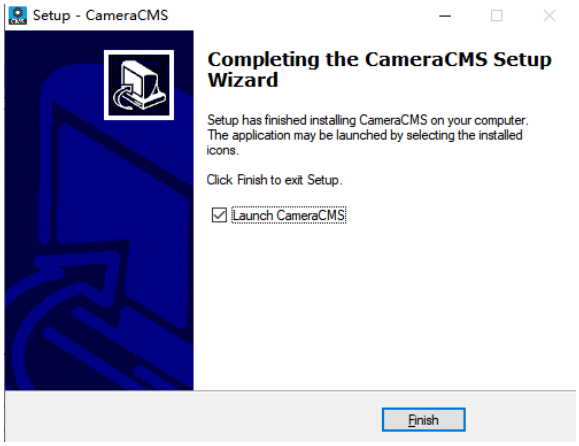
After the download is complete, double-click to open the installation package. Select your preferred installation language, then follow these steps in order: click OK → click Next → select the installation directory and click Next → select the Start Menu folder and click Next → choose additional tasks and click Next → click Install → click Finish. The CameraCMS client interface will then appear.



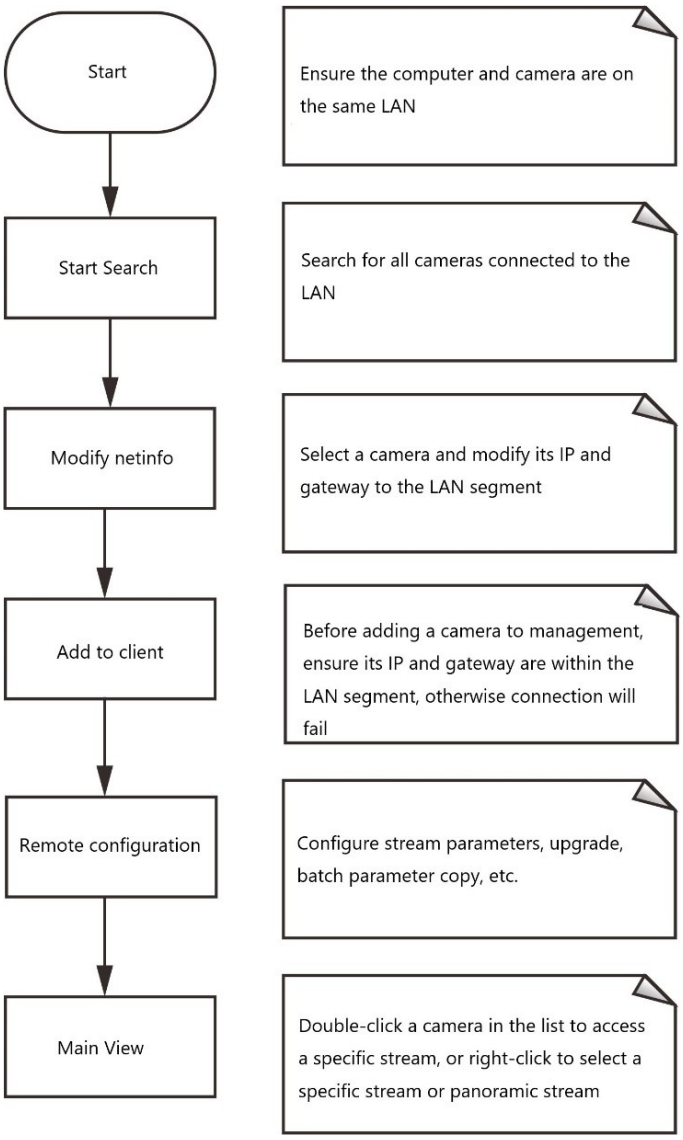




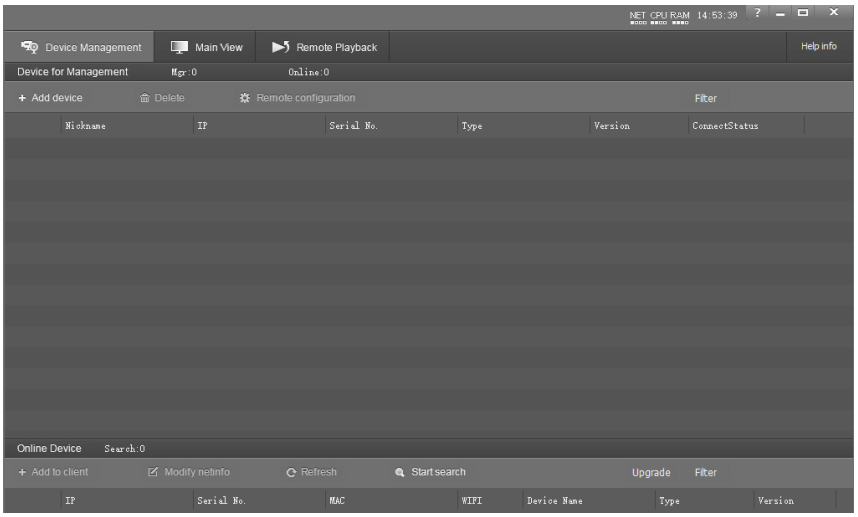




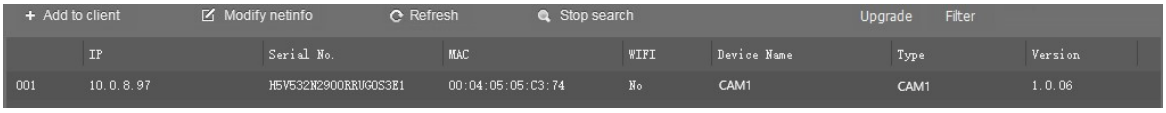
3.3 SEARCH AND ADD CAMERAS



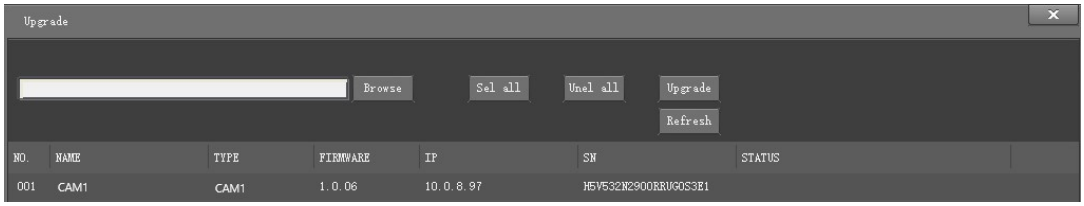
Install and launch the client software on your PC, then enter the **Device Management** interface as shown in the figure below:



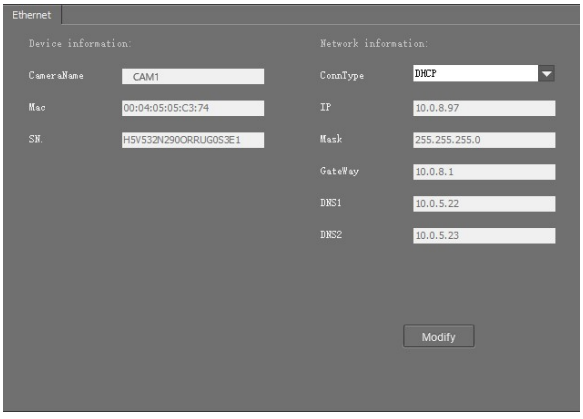
If the device is in the same LAN as the PC, click **Start Search** under Online Devices to search for cameras in the local network. Click **Filter** to enter the IP address, serial number, device name, model or version for searching, as shown in the figure below:



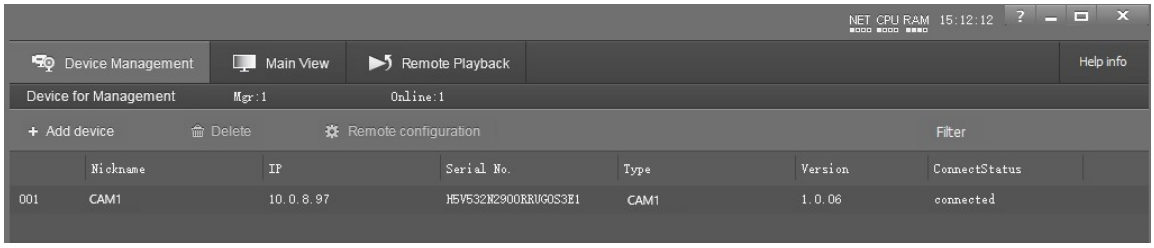
To perform batch upgrades for multiple cameras, select **multiple devices** in the list, choose the upgrade file path for the camera program, and click **Upgrade** to complete the process.



To modify the **network settings**, select the device first, choose the corresponding network adapter under **"Modify Network Information"**, enter the IP address, subnet mask, gateway and other relevant details, and click to apply the network parameter settings.

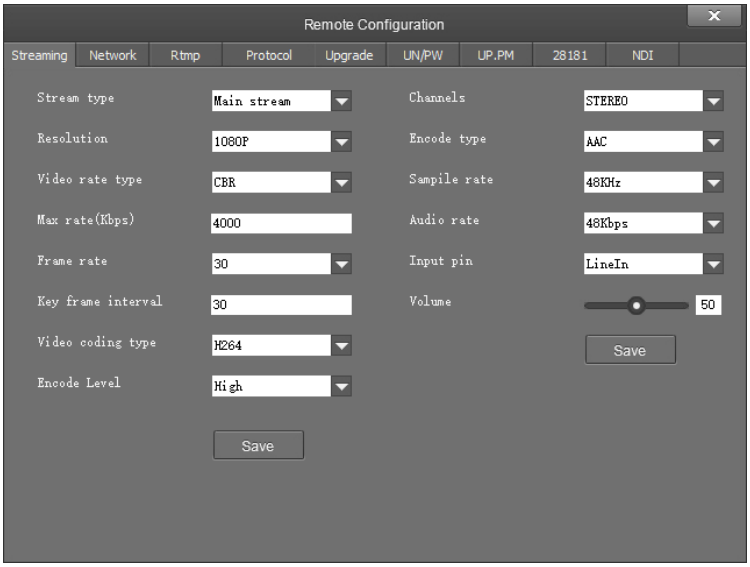


To control cameras in the search list and view live videos, select the corresponding device and change its IP to an address within the local network segment. Then click + Add to Management to move the device to the Managed Devices list, as shown in the figure below. For cameras on the wide area network, add them directly via **WAN Access.**



3.4 REMOTE CONFIGURATION

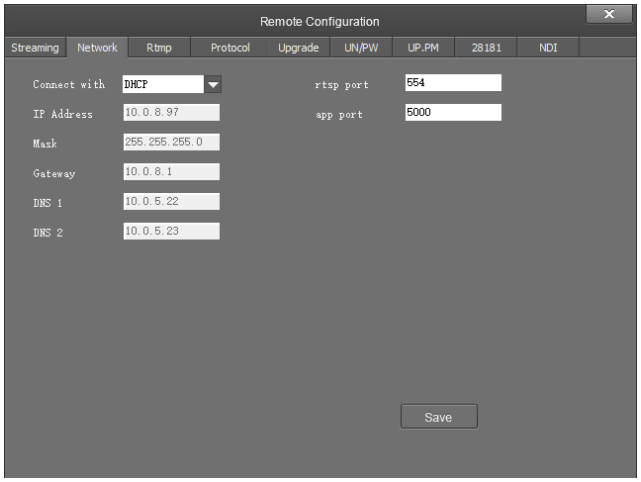
To select the corresponding camera in the managed devices, click **Configuration** on the menu bar to upgrade the camera and configure other network parameters.



- **Stream type:** Supports setting video parameters for mainstream and sub stream. The supported streams vary by device.
- **Resolution:** Supports 4K, 1080P, HD720P, and 640*360. The choice depends on the customer's video clarity requirements and device capabilities. Higher resolution requires higher network bandwidth.
- **Video rate type:** Supports Constant Bit Rate (CBR) and Variable Bit Rate (VBR).
- **Frame rate:** Indicates the number of video frames per second.
- **Key frame interval:** The number of frames between two consecutive key frames. A larger interval results in smaller bit rate fluctuations but lower image quality, while a smaller interval increases fluctuations but improves image quality. It is recommended to use the default value.
- **Video coding type:** Supports H264 and H265. The actual supported coding type depends on the specific device model.
- **Encode Level:** Supports Base, Main, and High levels.
- **Channels:** The current device supports STEREO.
- **Encode type:** Indicates the audio encoding type supported by the device. Currently, only AAC is supported. When setting this, the sample rate and audio bit rate must also be configured.
- **Sample rate:** Supports 48KHz.

- **Audio rate:** Supports 48Kbps, 64Kbps, 96Kbps, and 128Kbps.
- **Audio input:** Indicates the audio input method. The current device uses LineIn.
- **Volume:** Drag the slider to adjust the volume. The input range is 0 to 100.

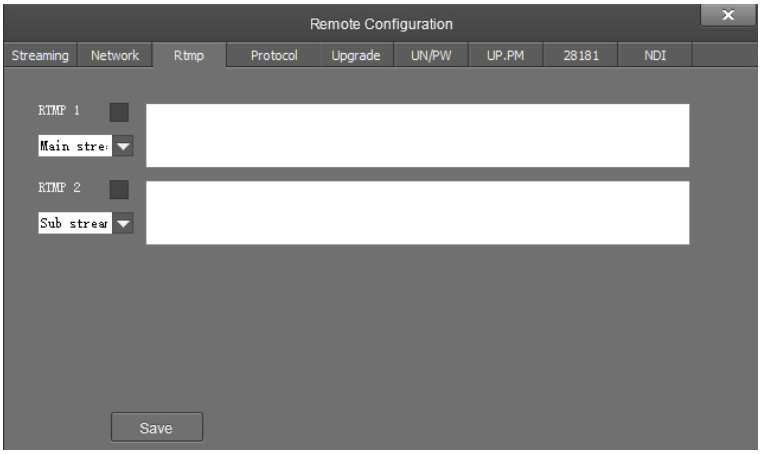
3.5 NETWORK



- **Connect with:** Supports Static IP and DHCP. Select according to the actual situation.
- **IP Address:** Enter an unused IP address within the network.
- **Mask:** Use the same parameters as other PCs on the network.
- **Gateway:** Use the same parameters as other PCs on the network.
- **DNS 1 (Preferred DNS Server):** Should be the same as other PCs on the local network.
- **DNS 2 (Alternate DNS Server):** Used when the preferred DNS server is unavailable.
- **Ports:** Includes the RTSP port (streaming port) and the app port (for SDK connection). Both can be customized.
- **RTSP port** range is 3479–7999 and 554, with a default of 554.
- **App port** range is 3479–7999, with a default of 5000.

After completing the settings, click Save to store the configuration.
The network camera will connect to the network based on the above settings.

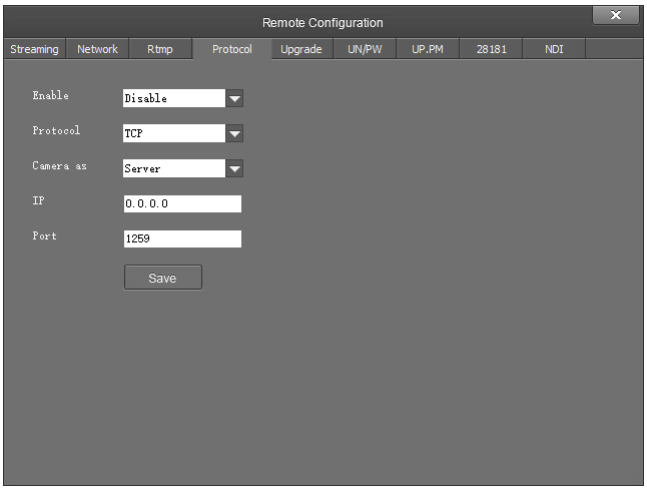
3.6 RTMP



RTMP1 and **RTMP2** can select either the main stream or the sub-stream for pushing streams.

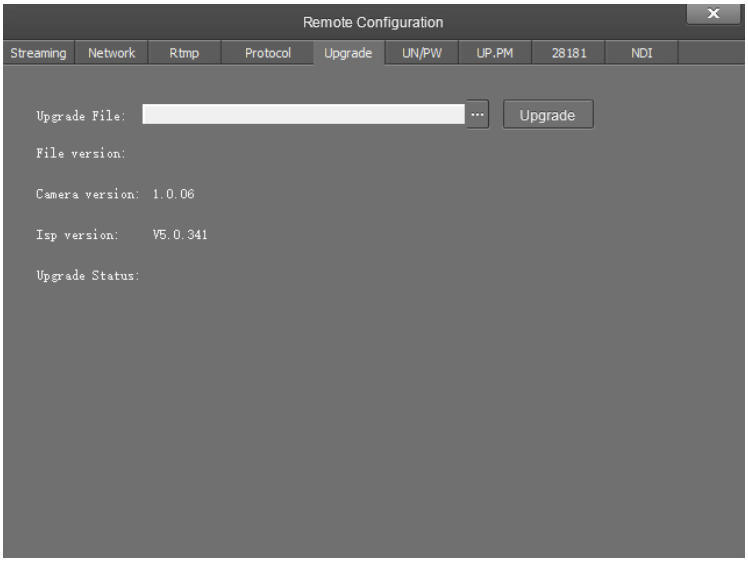
Currently supports commonly used RTMP servers, such as Red5, Nginx, crtmpserver, FMS, and Wowza.

3.7 PROTOCOL



- **Enable:** Used to enable or disable this function.
- **Protocol:** Can be set to TCP or UDP.
- **Camera as:** Used to select Client or Server mode.
- **IP:** When acting as a client, enter the target IP address for transparent transmission; when acting as a server, the IP address can be left blank.
- **Port:** Set the transparent transmission port within the range of 1 to 65535.

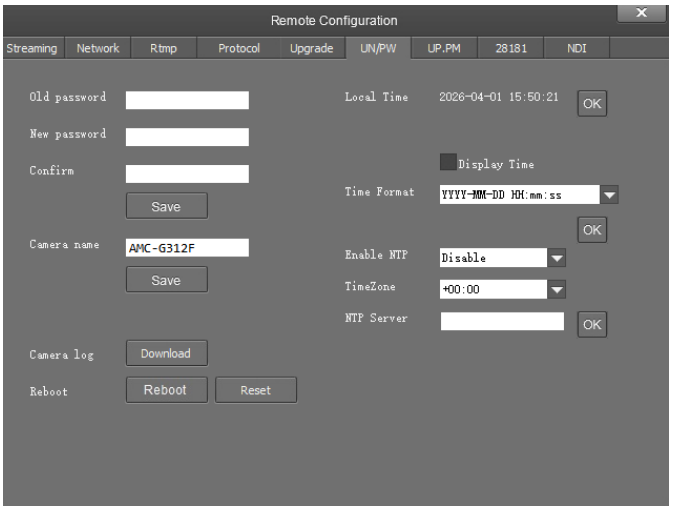
3.8 UPGRADE



Click the Upgrade menu to enter the camera upgrade page, as shown in the figure.
The prerequisite for camera upgrade is to obtain the relevant upgrade file from the software developer.
After obtaining the upgrade file, click "..." in the camera program file path to select the upgrade file.
Click Upgrade to start the upgrade process

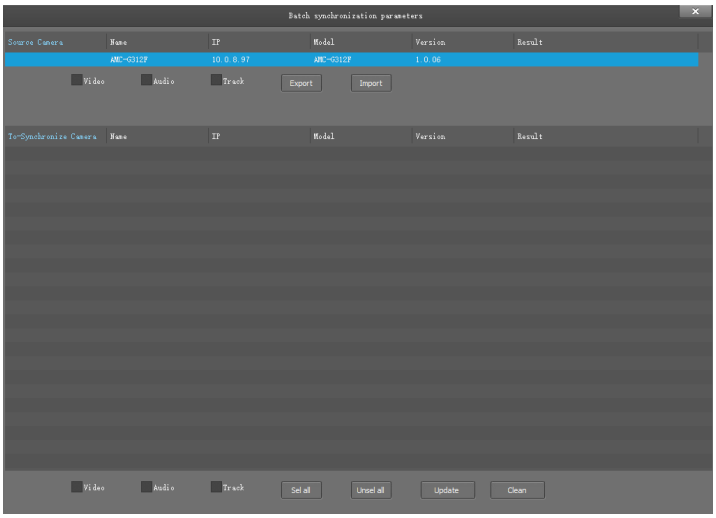
(Note: Do not power off the camera during the upgrade).
After the upgrade is completed, the device will automatically restart.

3.9 UN/PW



Password Settings: If a password is set for the camera, only by entering the correct password can you connect to the camera and view its audio and video.
Reboot: Reboots the camera.
Device Name: Sets the name of the camera. Click Save to store it.
Time Configuration:
a) Synchronize with local time;
b) Whether to display time information on CMS video and the display format;
c) NTP (Network Time Protocol) configuration.

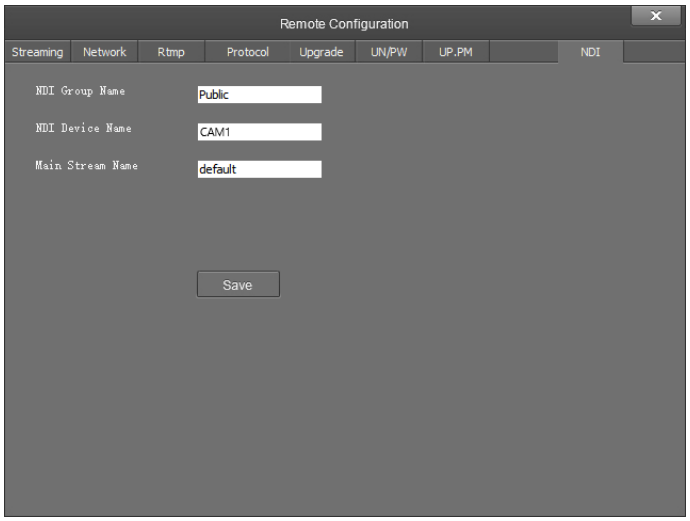
3.10 UP.PM



Select the currently managed and unselected devices of the same model to be synchronized, then check any one or multiple options among **Video Parameters**, **Audio Parameters**, and **Tracking Parameters**. After clicking **Sync Parameters**, the selected devices will have their parameters synchronized with the source device.

- **Parameter Import / Parameter Export:** These operations apply only to the source device. Camera parameters can be exported to a file, and parameters can also be imported from a file into the camera.
- **Batch Synchronization:** Allows batch synchronization of parameters for multiple devices of the same model in the list.

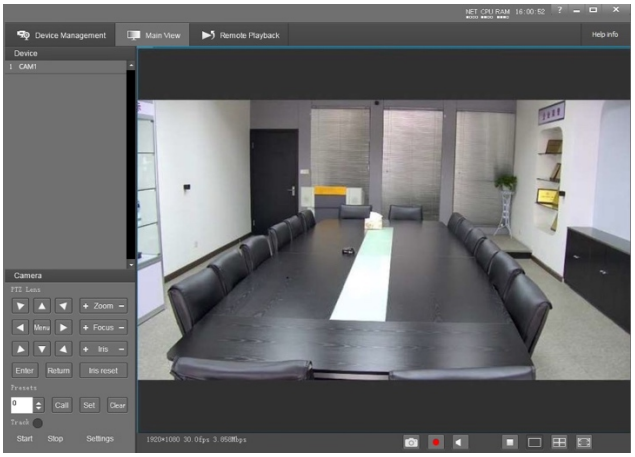
3.11 NDI



- **NDI Group Name:** The default name is Public, which is used for grouping management and permission control of NDI devices.
- **NDI Device Name:** The unique identifier of the camera in the NDI network, which will be displayed on the receiving end (such as OBS, vMix, NDI Studio).
- **Main Stream Name:** The default stream name is default, which is the identifier of the camera's main video stream. The same device can output multiple streams (such as main stream and sub stream). The main stream is usually the main video signal with high resolution and high frame rate.

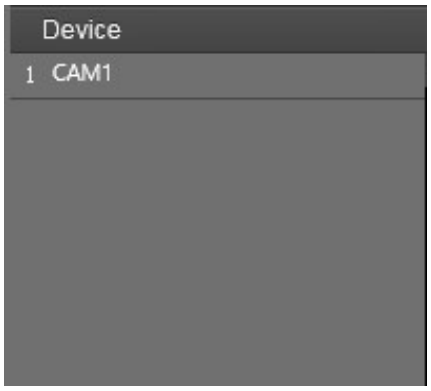
3.12 MAIN VIEW

Click **"Main View"** to enter the camera control and video preview interface, as shown in the figure below:



The interface mainly consists of three parts: **Device List**, **Device Control**, and **Main View**.

- **Device List:** Displays all online cameras added to "Device".

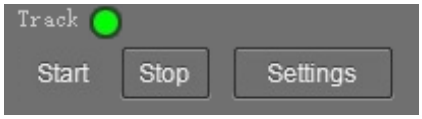


- **Main View:** Double-click a device in the device list to display its main stream in the video preview window. Alternatively, right-click the selected device in the device list and choose Main Stream or Sub-stream to display. The video preview interface can be toggled between quad-view and single-view modes. In quad-view mode, click to select a specific screen, then click the switch icon in the lower-right corner to display the selected screen in single large view.
- **Recording:** Default storage path: {APP}\ save_video folder.
- **Device Control:** Allows control of the selected camera in the device list.

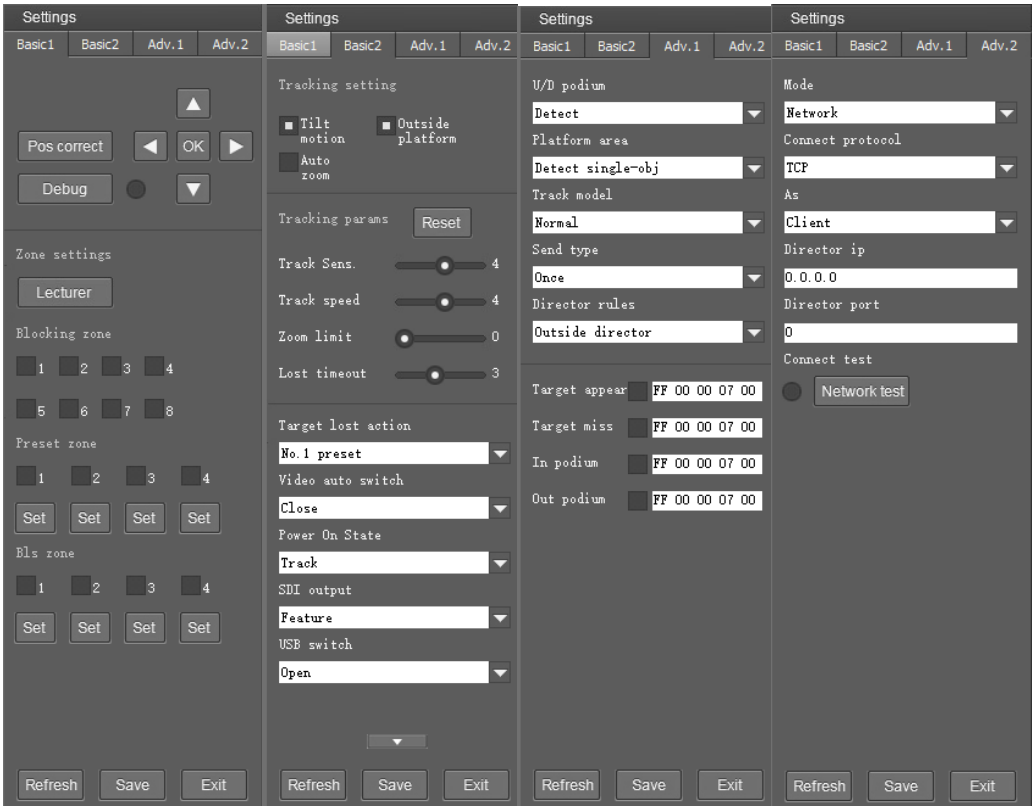
3.13 TRACKING MODULE

Tracking Type: Four modes are available: **Tracking**, **Students locating**, **Framing** and **Everywhere Tracking**.
Note: Tracking types can be switched via Menu > Camera in CMS.

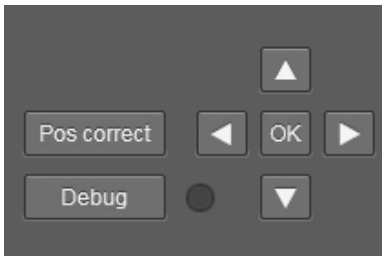
Tracking Settings:
- **Start:** Enable auto tracking, equivalent to calling Preset 80.
- **Stop:** Disable auto tracking, equivalent to calling Preset 81.
- **Settings:** Click the parameter setting button to open the tracking parameter configuration interface of the corresponding camera.



Settings: Click the Settings button to enter the parameter configuration interface.



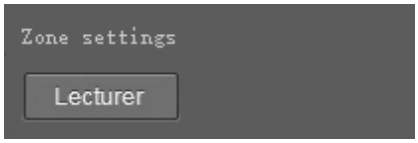
Basic 1:
Position Correction: Manually align the crosshairs in the panoramic view and close-up view to unify the viewing angles of the two lenses and improve tracking accuracy.
Debug Switch: Used to enable or disable the head tracking box and motion detection box in the panoramic view.



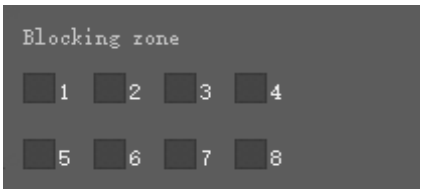
Users shall set the podium area, and configure shielding areas for interference sources within it, such as projection screens, electronic whiteboards and TV screens.

The camera can keep tracking the target after it leaves the podium, so the podium is defined as the priority tracking area. When the camera follows a target out of the podium and another moving target appears in the podium area, the close-up camera will return to the podium and track the target there first.

The upper boundary of the podium area is generally set along the top edge of the blackboard (at least higher than the top of the teacher's head standing on the podium), and the lower boundary is set above the heads of students in the front row.



Blocking zone: A maximum of 8 shielding areas can be set, which are displayed in red frames. Each shielding area can be disabled individually. Moving objects within the shielding areas will not be detected or tracked by the panoramic camera, while the close-up camera can still track the teacher's head.



Preset zone: Used to define valid areas for presets, displayed in blue frames. Up to 4 preset areas can be configured, and each can be disabled separately. When a tracking target enters a preset area of the panoramic camera, the close-up camera will activate the corresponding preset position.

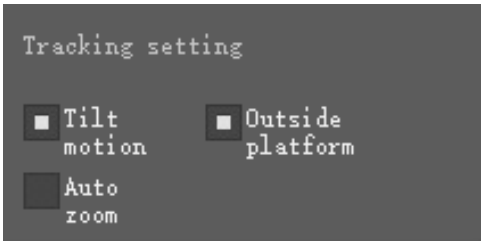
Bls zone: It defines the valid area for writing detection and is displayed in yellow frames. Up to 4 writing areas can be set, and each can be disabled individually. When a tracked target enters the writing area of the panoramic camera, the close-up camera will trigger the corresponding preset position.

Basic 2:
Tracking Setting

- **Vertical Movement:** When enabled, the close-up lens automatically adjusts its vertical position according to the target's height during tracking. When disabled, tracking is maintained at the height of Preset 1 all the time.

It is recommended to disable this function if the teacher does not leave the podium during class.

- **Tracking Outside Podium Area:** This option controls whether to continue tracking when the target moves out of the defined podium area.
- **Auto Zoom:** The camera automatically adjusts the focal length based on the target's distance and size, keeping the target at an appropriate size and clarity in the frame.

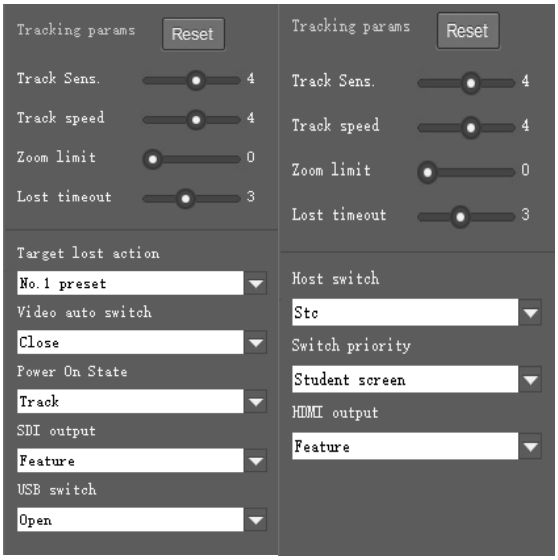


Tracking Parameters

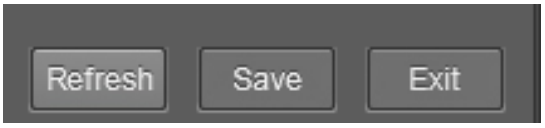
- **Tracking Sens.:** Determines the movement range that triggers tracking of the close-up lens. Higher sensitivity means minor movements of the target will activate the close-up lens.
- **Tracking Speed:** Refers to the pan-tilt speed of the camera during tracking.
- **Loss Timeout:** The waiting duration before the camera performs the loss action after the target disappears (return to Preset 1 or Preset 0). This setting prevents pan-tilt shaking caused by temporary target loss.
- **Zoom Limit:** Ranges from 0 to 7. A higher value makes the tracked subject appear larger and closer in the frame.
- **Target Lost Action:** The action executed by the close-up camera after waiting for the loss timeout when the target is lost.
- **Video Auto Switch:** The camera supports automatic video switching.

1. If set to Panoramic Channel or Close-up Channel, and Podium Entry/Exit Detection (in advanced parameters) is set to Disabled: the network stream automatically switches between close-up and panoramic views as the target appears or disappears.
2. If Podium Entry/Exit Detection is set to Enabled: the network stream switches between the two views when the target enters or leaves the podium.
3. If set to Off: the network stream outputs a fixed view all the time.

- **Power on State:** Options: Tracking / Non-tracking. Default: Non-tracking.
- **SDI Output:** Supports output of close-up view or panoramic view.
- **USB switch:** Enables or disables switching for the USB video stream.
- **Host switch:** Options: Hen Box, Teacher Device, Student Device. Specifies the device for switching network and USB video streams.
- **Switching Priority:** Select Student View Priority or Teacher View Priority.
- **HDMI Output:** Supports output of close-up view or panoramic view.



Save current configuration, refresh interface or exit current interface.



Adv.1:

- **U/D podium:** Enables or disables detection of the teacher entering and leaving the podium, and sends corresponding switching signals.
- **Platform Area:** Sets whether to detect a single target or multiple targets on the podium, and sends corresponding switching signals.

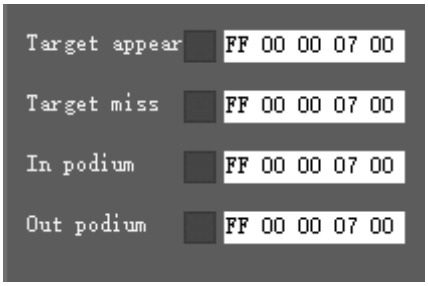
Tracking Model:

1. **Normal:** The close-up camera tracks the target continuously, with no signals sent during tracking.
2. **Move-rest:** The close-up camera keeps tracking the target. Signals are triggered whenever the camera starts or stops moving. This allows the recording device to switch to the panoramic view when the camera moves, and to the close-up view when the camera stays static.

- **Send type:** Two options are available: Send Once Only and Send Continuously.
- **Director Rules:** The teacher device is equipped with built-in switching rules. When the built-in rules are enabled, the student device will not output external switching signals and no related configuration is required. The devices communicate via the switch, and the teacher device uniformly outputs signals based on the built-in rules and priorities.

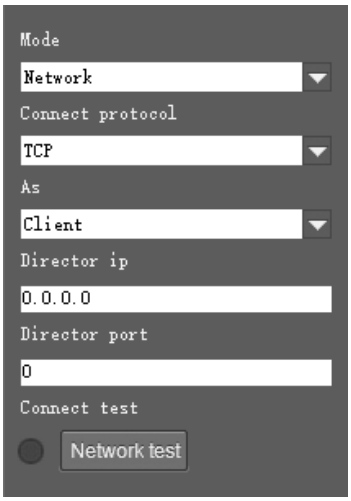
In the built-in switching rules, student images have higher priority than teacher images. When the teacher is detected leaving the podium, the Teacher Panoramic signal will be sent. When the teacher is out of view, the Student Panoramic signal will be sent. If a single student stands up, the Student Close-up signal will be sent. If multiple students stand up, the Student Panoramic signal will be sent. External switchers can switch video streams directly according to these signals without configuring additional switching rules or priorities.

When the built-in switching rules are disabled, both the student device and teacher device will output custom switching signals set by users. Users can switch video streams based on their own switching rules and priorities. Each switching signal consists of a maximum of 10 bytes. Each byte is represented by a hexadecimal number and separated by spaces.

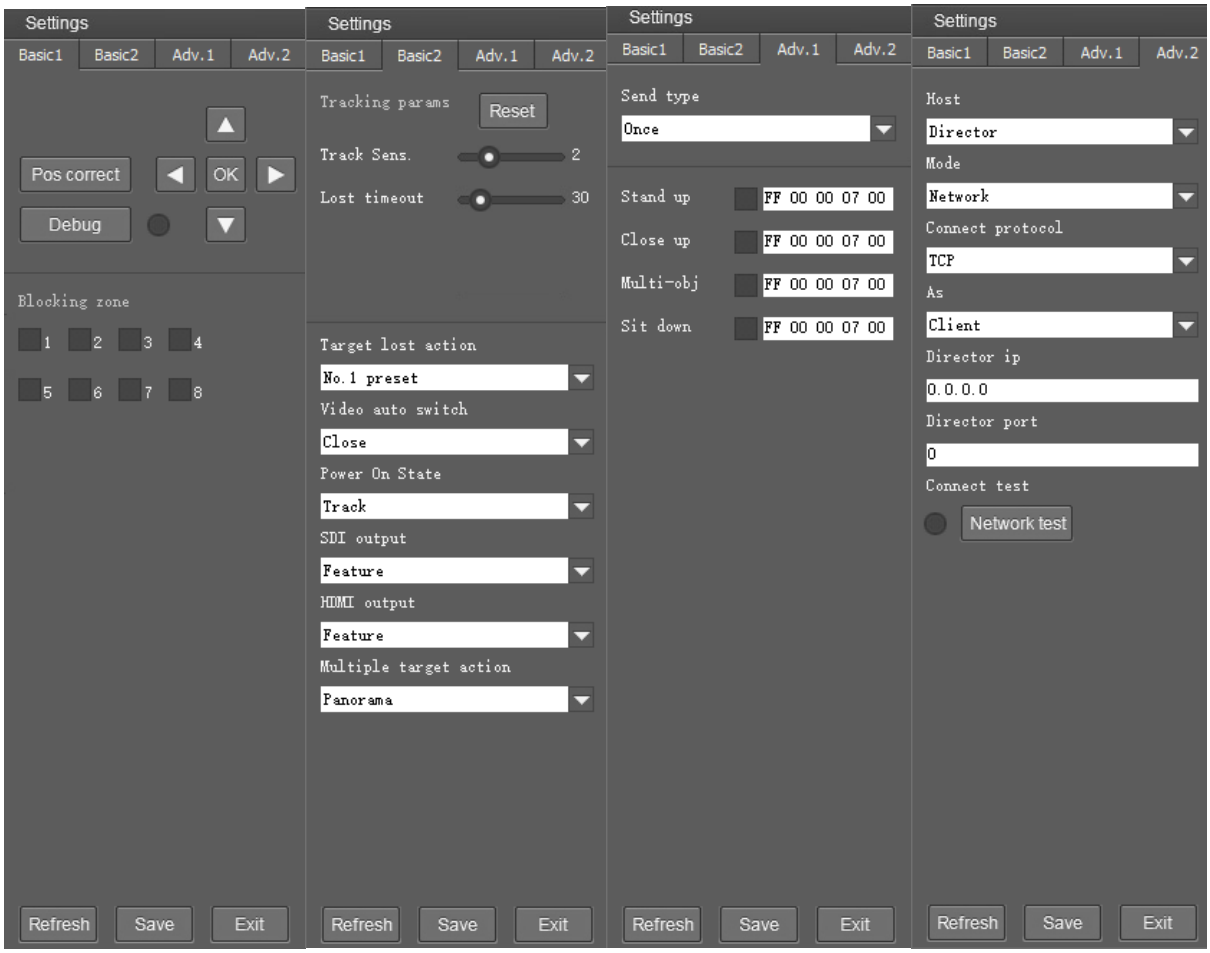


Adv.2:

- **Mode:** Select to transmit switching signals via network or serial port.
- Connection Protocol: Available options: TCP or UDP (valid only when network transmission is selected).
- **As:** When using network transmission, set the teacher device as a client to actively connect to the switcher, or as a server to accept connection requests from the switcher.
- **Director IP & Port:** Configure the IP address and port number of the switcher (required for network transmission).



Students locating Settings



- **Basic 1**

  Function description for Student Positioning Mode (Basic 1). Refer to the Tracking Mode above for details.

- **Basic 2**

  1. **Track Sens.:** It refers to the movement range threshold for detecting students standing up. The default value is 2.
  2. The lower the installation height of the device, the lower the sensitivity should be set; the shorter the average height of students, the higher the sensitivity should be set.
  3. A higher sensitivity increases the risk of false detections, while a lower sensitivity raises the probability of missed detections.

- **Lost Timeout**

It defines the duration after which the camera will determine a student has sat down if they remain standing. This function is designed to address cases where a student leaves after standing or false detections occur, preventing the camera from staying locked on an incorrect position.

- **Target Lost Action**

This option sets the behavior of the close-up camera when all students are seated and no one is standing. You may select Return to Preset 1 or Stay in Current Position.

- **Multi-target Action**

When multiple standing persons are detected, the close-up camera can either switch to the panoramic view or keep the close-up view covering all standing persons.

- **Video Auto Switch**

This camera supports automatic video switching.

1. If set to Panoramic Channel or Close-up Channel: The corresponding stream will automatically output close-up video when a student stands up. When multiple persons stand or all students sit down, the stream will switch to panoramic video.
2. If set to Off: The stream will continuously output video in a fixed view.

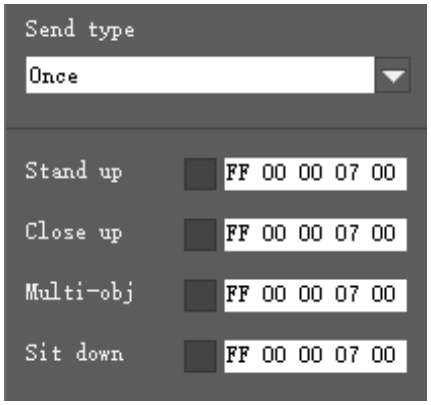
- **Adv.1**

1. **Stand up:** Triggered when a standing student is detected. Since the smart PTZ camera only stays in close-up for a short time, set this parameter the same as the Close-up In-place Code below.
2. **Close up:** Same setting as Student Standing.
3. **Multi-obj:** Triggered when multiple standing targets are detected.
4. **Sit down:** Triggered when all targets are seated and no one remains standing.

a) First check the options to be configured: Target Standing, Close-up In-place, Multiple Targets and Target Seated, then set the corresponding switching codes. Each switching code consists of a maximum of 10 bytes. Each byte is expressed in hexadecimal format and separated by spaces.

b) As shown in the figure above: when close-up is in place, the camera outputs a 7-byte hexadecimal code: ff 00 00 07 00 08 0f; when all targets are seated, it outputs the code: ff 00 00 07 00 0a 11.

5. **Send Type:** Two options are available for switching codes: Send Once Only and Send Continuously.



- **Adv.2**
- **Host**

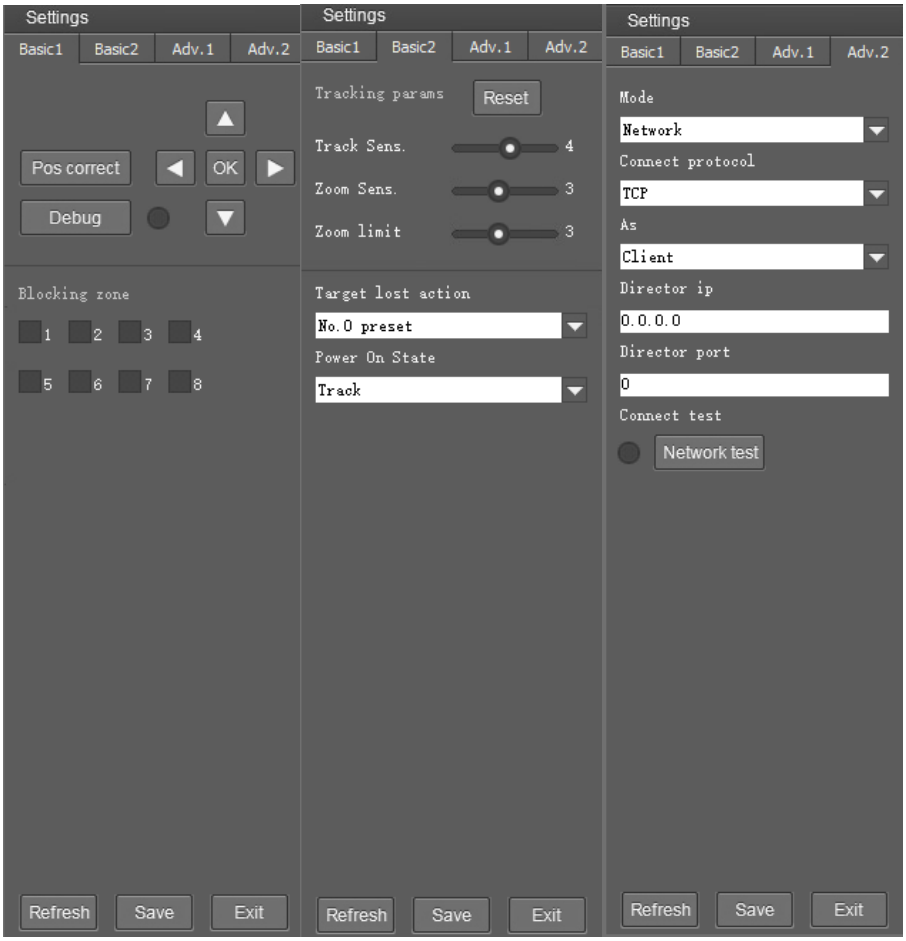
1. If a teacher terminal is deployed in the system, select Teacher Terminal as the host. All switching codes from student terminals will be transmitted externally via the teacher terminal uniformly. Only the IP address of the teacher terminal can be configured below, and other parameters are fixed and non-editable.
2. If the system operates independently without connecting to a teacher terminal, select Switcher as the host. The relevant parameters are described as follows:

- **Code Sending Mode:** Specify whether switching codes are transmitted via network or serial port.
- **Connection Protocol:** When network is selected for the code sending mode, choose TCP or UDP as the network connection type.
- **Student Terminal Role:** For network transmission, define whether the student terminal acts as a client to actively connect to the switcher, or as a server to wait for connection from the switcher.
- **Switcher IP & Port:** Configure the IP address and port of the switcher when the host is set to Switcher.
- **Network Test:** Available for TCP connections only. Use this function to verify the connection status between the student terminal and the host.

Framing Mode

Note: Refer to the above description of Tracking Mode for details about Full-scene Tracking.

Frame Selection Mode
Parameter Configuration

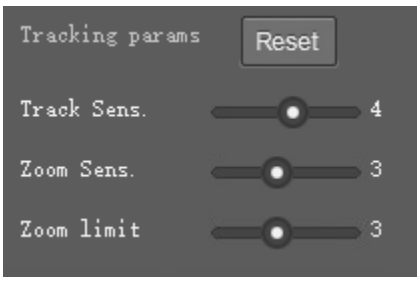


- **Basic 1**

  Note: Refer to the function description of Tracking Mode.

- **Basic 2**

Lens Adjustment Frequency: During target tracking, a higher frequency makes the lens more sensitive to slight target movements and enables timely tracking. A lower frequency results in slower response to minor movements and may fail to initiate tracking.



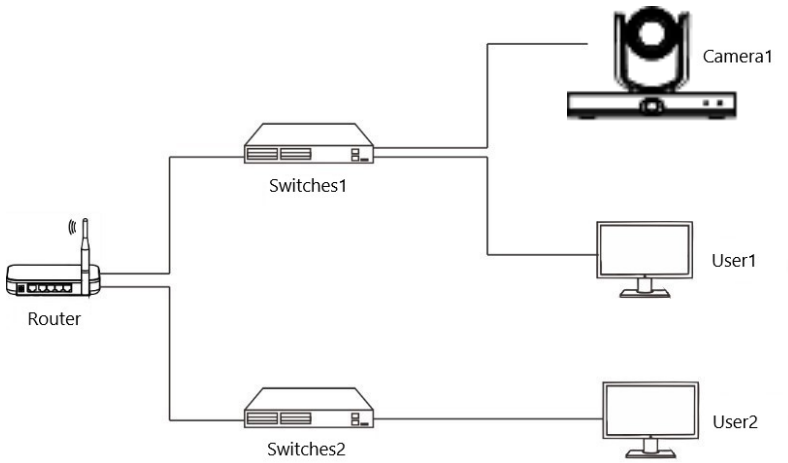
- Adv.2

Note: Refer to the relevant description in Tracking Mode.

3.14 NETWORK CONNECTION

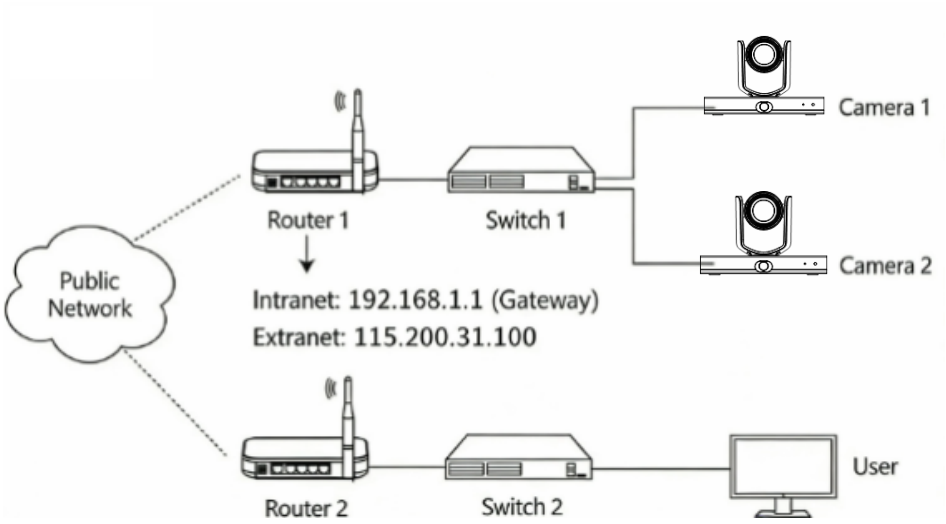
Connect the network camera to the network via a standard Ethernet cable, then power it on.

LAN Access



As shown in the figure above, the camera, User 1 and User 2 are connected to the same router, forming a local area network (LAN). As long as the camera is on the same LAN as the user's computer, refer to the Client User Manual and search for online devices to locate all cameras within the LAN.

WAN Access



As shown in the figure, the user and the camera are connected to different routers, which constitutes a wide area network (WAN). The client cannot automatically discover the camera as it does in a LAN. Access is available if the following three requirements are met:

1. The camera is configured with a static IP address.
2. The router in the camera's LAN supports port mapping.
3. The router in the camera's LAN has a fixed public IP address.

Follow the steps below for network configuration to access the camera via the client.

- **Step 1: Set the LAN IP of the camera**

1. Connect your PC to the LAN of Router 1 where the camera is located. Refer to the LAN Usage

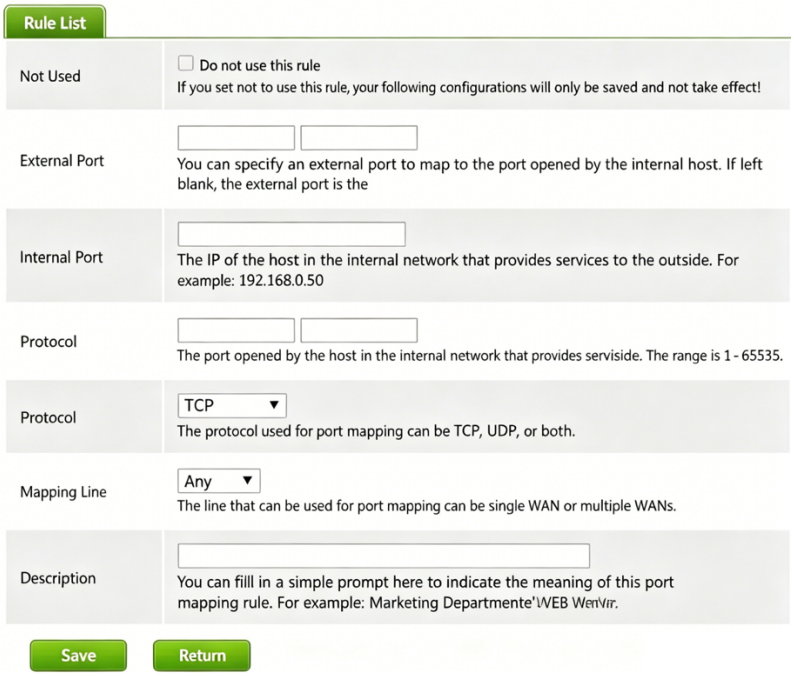
instructions, search for the camera via the client and add it to the device list. Modify the camera IP to match the network segment of Router 1.

2. For example, if the gateway (LAN IP of Router 1) is 192.168.1.1, set the camera IP to 192.168.1.179, 192.168.1.180 or other available addresses within the same segment.

- **Step 2: Configure router port mapping**

Keep your PC connected to the LAN of Router 1. Log in to the router configuration page (administrator privileges for Router 1 are required), then navigate to the Port Mapping page as shown below.

1. Do not check Disable this rule.
2. Enter any number between 1 and 65535 in the first box of External Port. Port numbers above 10000 are recommended to avoid conflicts, e.g. 10200.
3. Fill in the camera's IP address (e.g. 192.168.1.179) in the Internal IP field.
4. Enter the fixed internal port 5000 for all cameras in the first box of Internal Port.
5. Keep the default settings for Protocol and Mapping Link.
6. You may add a remark in the Description field, such as Port Mapping for Camera 1.

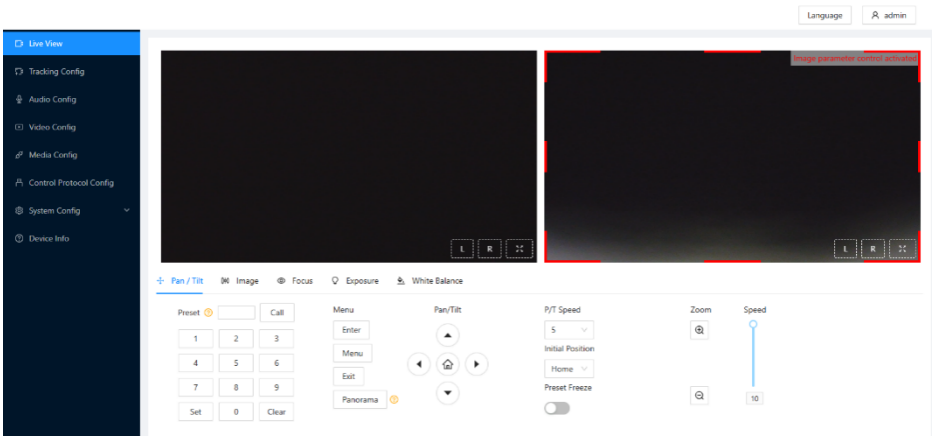


- **Step 3:**
- If the public IP of Router 1 is, for example, 115.200.31.100, after completing Steps 1 and 2 above, users on Router 2 (i.e., on the WAN) can access Camera 1 using the IP address 115.200.31.100 and port 10200. In the WAN, Camera 1 is uniquely mapped to the combination of (IP: 115.200.31.100 + Port: 10200).
- For Camera 2, you can use a different external port, such as 10320, so that Camera 2 is uniquely mapped to (IP: 115.200.31.100 + Port: 10320).
- In the Managed Devices section of the CameraCMS client software, click + Add, then enter the IP address 115.200.31.100, port 10200, and other required information to access and control Camera 1.

4. WEB GUI

4.1 LOGIN & MAIN SCREEN

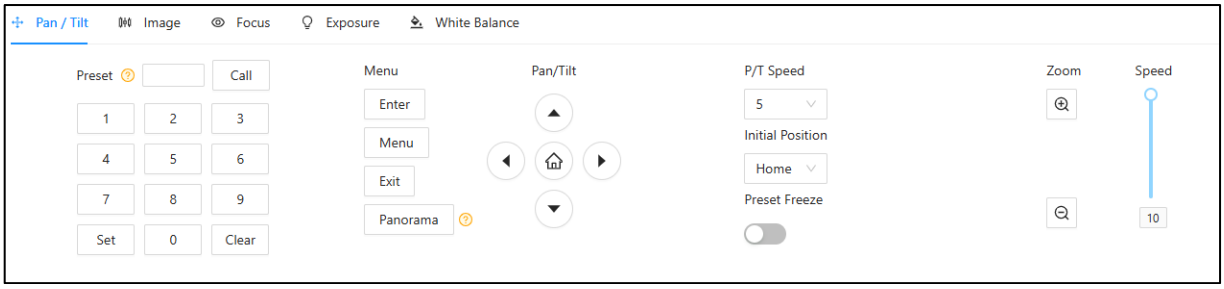
Default IP: 192.168.1.180. **Username:** admin, **Password:** admin123.



Live View

Note: *The live view includes close-up and panoramic modes. Image, exposure, and white balance settings can be adjusted independently for each mode by selecting the corresponding view.*

4.2 PAN/ TILT



■ Menu
Menu: Display the menu interface.
Enter: View or adjust menu settings.
Exit: Exit the menu interface.
Panorama: Call preset 0.

■ Pan/Tilt

In menu mode, use ▲ or ▼ buttons to select menu items, or ◀ or ▶ to change setting options.
In non-menu mode, press the arrow buttons to perform pan and tilt operations.

■ HOME: ⌂

In menu: Confirm the menu option.
Outside menu: Pan/tilt returns to the home position.

■ P/T Speed

Set the camera movement speed level. The higher the level, the faster the speed.

■ Initial Position

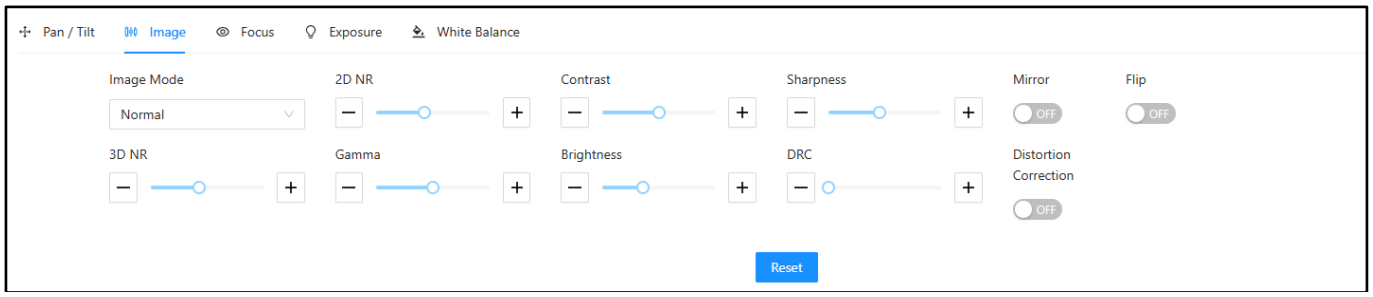
The initial position after the camera is powered on. Can be set to Center or Preset 1–3.

■ **Preset Freeze**
The PTZ rotation process is not displayed on the screen when calling a preset point.

■ **Zoom**
Enlarge the image, Reduce the image;

■ **Speed**
The larger the value, the greater the zoom range when the target walks off the podium.

4.3 IMAGE



■ **White Balance**
Adjusts color temperature to restore true colors.

■ **Image Mode**
Preset picture modes such as Normal, Soft, and Vivid.

■ **2D NR**
Reduces static noise. Higher values reduce static noise but sacrifice image details.

■ **3D NR**
Reduces dynamic noise. Higher values reduce dynamic noise but may cause motion blur.

■ **Contrast**
The ratio between the brightest and darkest areas of the image. A higher ratio results in richer color gradations and clearer images.

■ **Gamma**
Adjusts the brightness value of the image. A lower gamma value brightens the image; a higher gamma value darkens it.

■ **Brightness**
Adjusts the overall brightness level of the image.

■ **Sharpness**
Adjusts image clarity and edge definition. Higher sharpness enhances detail contrast but may cause distortion if set too high.

■ **DRC**

Enables the camera to capture details in both dark and bright areas under strong light contrast, preventing overexposed or underexposed footage.

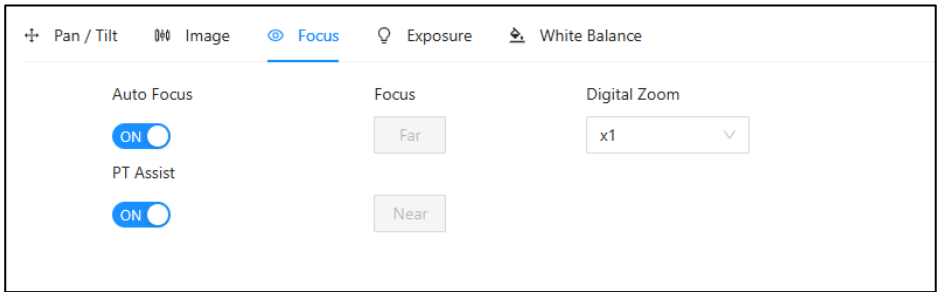
■ **Mirror**
Flips the camera image 180° horizontally.

■ **Flip**
Flips the camera image 180° vertically.

■ **Distortion Correction**
Corrects distortion in images or videos.

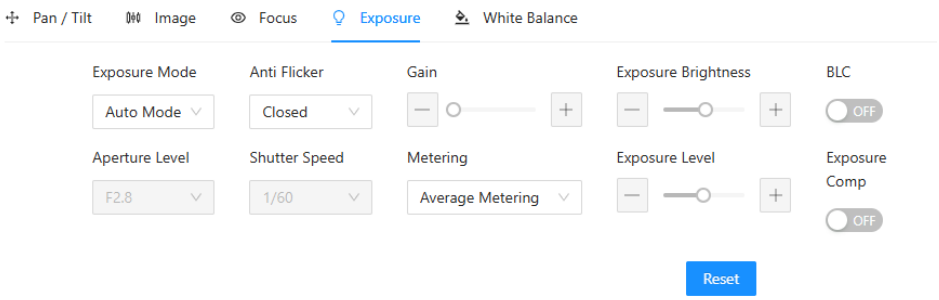
■ **Reset**
Restores all image parameters to their default values.

4.4 FOCUS



■ Auto Focus
When auto focus is disabled, you can select "Near Focus" or "Far Focus".
■ PT Assist
The camera automatically focuses during pan, tilt, and zoom operations.
■ Digital Zoom
When optical zoom reaches its maximum, enable/disable digital zoom to further magnify the image.

4.5 EXPOSURE



■ **Auto Mode**
Gain, shutter speed, and aperture are automatically adjusted by the camera according to environmental conditions.

■ **Manual Mode**
Manually adjust the sensitivity (gain), electronic shutter speed, and aperture.

■ **Shutter Priority**
Manually adjust the electronic shutter speed; sensitivity and aperture are adjusted automatically.

■ **Aperture Priority**
Manually adjust the image aperture level.

■ **Brightness Priority**
Manually adjust the image brightness.

■ **Anti-Flicker**
An exposure control mode used by the camera to address light flickering issues.

■ **Metering**
Includes Average Metering, Center Metering, Top Metering, Bottom Metering, Left Metering, and Right Metering. Used to control exposure.

■ **Gain**
Improves image brightness.

■ **Exposure Brightness**
Controls the overall brightness of the image, aiming to make target details clearly visible.

■ **BLC**
Used to compensate for backlight issues in high-contrast scenes.

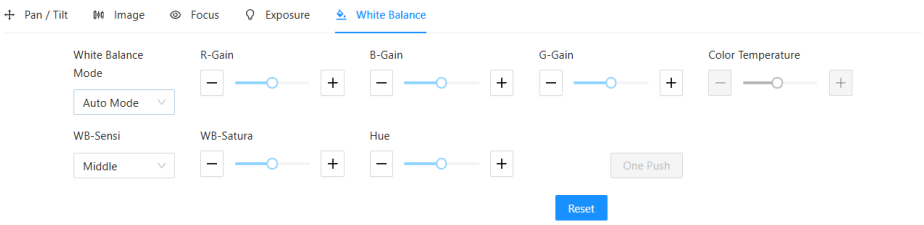
■ **Aperture Level**
When the shutter speed remains unchanged, a lower aperture value (larger aperture opening) results in a brighter image and shallower depth of field (more obvious background blur); conversely, a higher aperture value (smaller aperture opening) results in a darker image and deeper depth of field (higher sharpness of both foreground and background).

■ **Shutter Speed**
Refers to the speed at which the shutter opens and closes when the camera captures an image. It determines the sharpness of moving subjects in the image as well as the exposure brightness.

■ **Exposure Level**
The higher the value, the brighter the image; the lower the value, the darker the image.

■ **Reset Parameters**
Restores all parameters to their default values.

4.6 WHITE BALANCE



■ **White Balance Mode**
Switch white balance mode. Options include Auto / Manual / Auto Tracking / One Push / Static Color Temperature.

■ **R-Gain / B-Gain / G-Gain**
Adjust the brightness of each color channel to balance the image. In Manual white balance mode, adjust these values to balance the three channels.

■ **WB-Sensi**
Controls how quickly the auto white balance responds to changes in light sources.

■ **WB-Satura**
Controls the color intensity. Higher values make the image more vivid; lower values make it closer to black and white.

■ **Hue**
Adjusts the red-green balance of the image. A middle value (e.g., 7) is neutral. Lower values shift toward green; higher values shift toward red.

■ **Color Temperature**
Sets the warm or cool tone of the image.

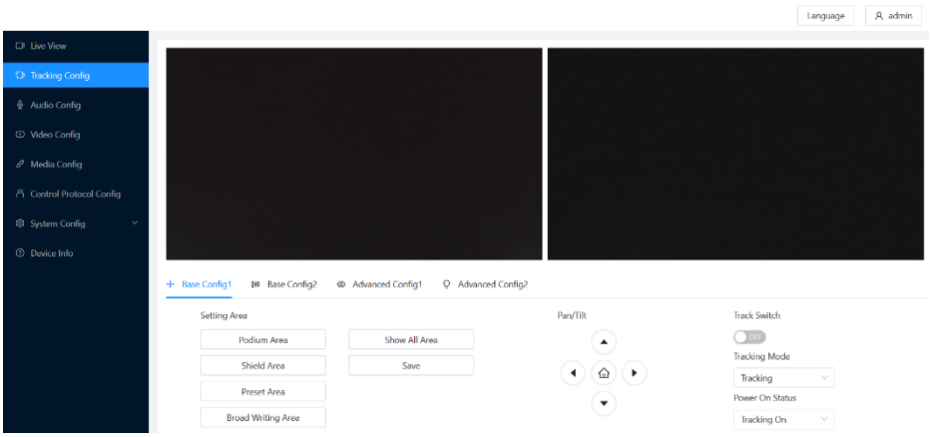
■ **One Push**
One push white balance.

4.7 TRACKING

Tracking Type: Four options are available: **Tracking**, **Student locating**, **Framing** and **Everywhere Tracking**. The camera needs to be restarted when switching modes.

4.7.1 TRACKING

A. Base Config1



■ Tracking Switch
Enable or disable tracking function.

■ Settings Area

■ Podium Area
1. You must configure the platform area, and set mask areas for interference sources within it, such as projection screens, interactive whiteboards and TV screens.
2. The platform is defined as the priority tracking area since the camera can keep tracking after the target leaves the platform. If another moving target appears in the platform area while the camera tracks a target outside, the close-up camera will return to the platform and track the target inside preferentially.
3. The upper boundary of the platform area is generally set to the top edge of the blackboard (at least higher than the teacher's head standing on the platform), and the lower boundary is set above the heads of the front-row students.

■ Shield Area
A maximum of 8 mask areas can be set, displayed in red frames. Each mask area can be disabled individually. Moving objects within mask areas will not be detected or tracked by the panoramic camera, while the close-up camera can still track the teacher's head.

■ Preset Area
Set valid areas for presets, displayed in blue frames. Up to 4 preset areas are supported, and each can be disabled individually. When a tracked target enters a preset area of the panoramic camera, the close-up camera will call up the corresponding preset position.

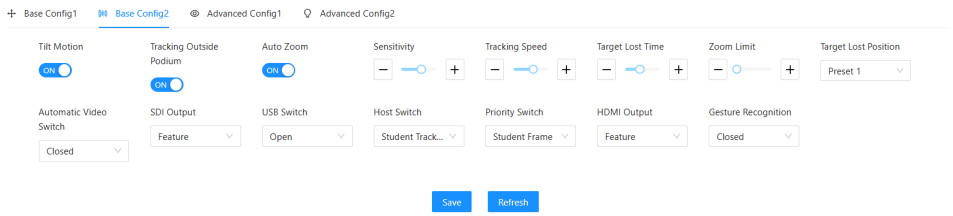
■ Broad Writing Area
Set valid areas for writing detection, displayed in yellow frames. Up to 4 writing areas are supported, and each can be disabled individually. When a tracked target enters a writing area of the panoramic camera, the close-up camera will call up the corresponding preset position.

■ Show All Area
Display all configured area frames.

■ Save
Save current configurations.

■ Power-on Default Status
Set tracking to be enabled or disabled by default upon device startup.

B. Base Config2



■ Tilt Motion

1. When enabled, the close-up view automatically adjusts vertically according to the target's height during tracking. When disabled, tracking is maintained at the height of Preset 1.
2. If the teacher stays on the platform during class, it is recommended to disable Vertical Movement.

■ Tracking Outside Platform

Determines whether tracking continues when the target moves out of the defined platform area.

■ Auto Zoom

The camera automatically adjusts focal length based on the target's distance and size to keep the target properly sized and clear in the frame.

■ Sensitivity

Defines the movement range that triggers tracking of the close-up view. Higher sensitivity activates tracking for minor target movements.

■ Tracking Speed

Sets the PTZ movement speed during tracking.

■ Target Lost Time

The waiting period before the camera performs the target loss action (return to Preset 0 or Preset 1) after the target disappears. This prevents PTZ shaking caused by temporary target loss.

■ Zoom Limit

A higher value makes the tracked subject appear larger and closer in the frame.

■ Target Loss Position

Select Preset 0, Preset 1 or current position as the position when the target is lost.

■ Automatic Video Switch

The camera supports automatic video switching. When set to Panoramic Channel or Close-up Channel and On/Off Platform Detection is disabled in advanced settings, the network stream automatically switches between close-up and panoramic views as the target appears or disappears. When detection is enabled, the stream switches based on the target moving on or off the platform. When set to Off, a fixed view is always output.

■ SDI Output

Select close-up view or panoramic view for SDI output.

■ USB Switch

Enable or disable video stream switching for USB output.

■ Host Switch

Select Hen box, teacher device or student device for stream switching, including network stream and USB

stream.

■ **Priority Switch**
Select student view priority or teacher view priority.

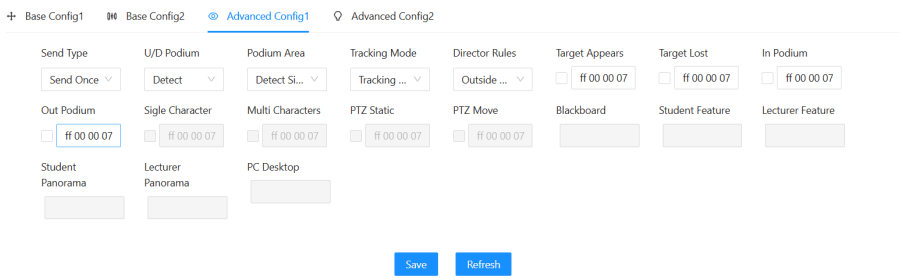
■ **HDMI Output**
Select close-up view or panoramic view for HDMI output.

■ **Gesture Recognition**
When enabled, the system locks onto the person making gestures.

■ **Save**
Save current configurations.

■ **Refresh**
Refresh current configurations.

C. Advanced Config1



■ **Code Sending Type**
Two options are available: Send Once Only and Keep Sending.

■ **On/Off Platform**
Enable or disable detection of the teacher's movements on and off the platform and send corresponding switch codes.

■ **Platform Area**
Set to detect a single target or multiple targets on the platform and send corresponding switch codes.

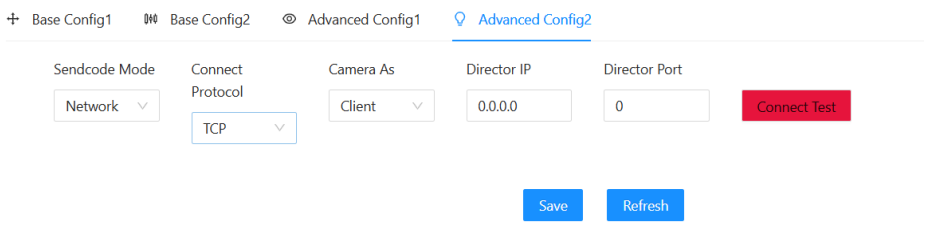
■ **Tracking Mode**
Follow Mode means the close-up camera tracks the target continuously without sending codes. Motion-Static Mode means the camera tracks the target and sends codes when it starts or stops moving. This allows the recorder to switch to the panoramic view while the camera is moving and to the close-up view when the camera is stationary.

■ **Broadcast Rules**
The teacher device has built-in broadcast rules. If internal rules are enabled, the student devices will not send external switch codes. They communicate with the teacher device via the switch, and the teacher device sends codes uniformly based on internal rules and priorities.

■ **In internal broadcast rules**
student view has higher priority than teacher view. When the teacher steps off the platform, the Teacher

Panorama code is sent. When the teacher is out of view, the Student Panorama code is sent. Send the Student Close-up code when one student stands up, and the Student Panorama code when multiple students stand up. External switchers can switch video streams directly according to these codes without configuring extra rules and priorities. If internal broadcast rules are disabled, both teacher and student devices send custom switch codes as configured. Users may switch video streams following their own broadcast rules and priorities. Each switch code contains no more than 10 bytes. Each byte is presented in hexadecimal format and separated by spaces.

D. Advanced Config2



■ Sendcode Mode
Select to send switch codes via network or serial port.

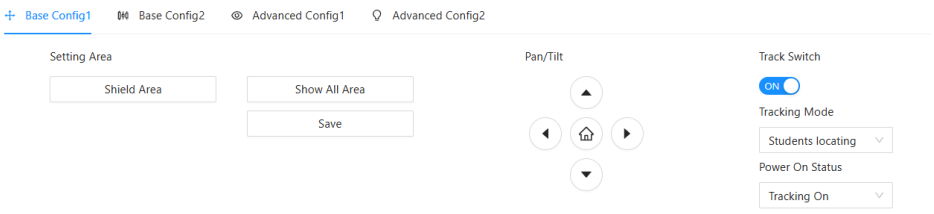
■ Connection Protocol
When network transmission is selected, choose TCP or UDP as the network protocol.

■ Camera As
For network transmission, set the camera as client to actively connect to the switcher, or as server to wait for connection from the switcher.

■ Director IP & Port
Configure the IP address and port of the switcher when using network transmission.

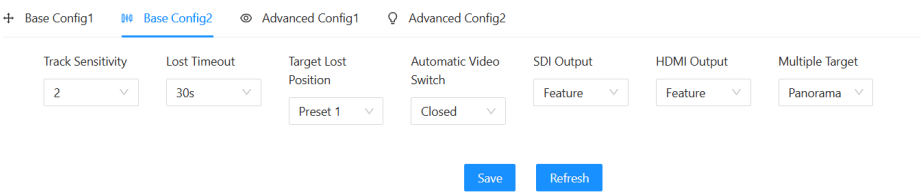
4.7.2 STUDENT TRACKING

A. Base Config1



Note: *refer to 4.7.1 Tracking A. Basic Config1*

B. Base Config2



■ Track Sensitivity
It refers to the movement range for detecting students standing up. The default value is 2. Generally, a lower mounting height requires lower sensitivity, while a shorter average height of students requires higher sensitivity. Higher sensitivity leads to more false detections, and lower sensitivity results in more missed detections.

■ Lost Timeout
It sets the duration after which the camera determines a standing student has sat down if no movement is detected. This prevents the camera from staying at an incorrect position due to students leaving after standing or false detection.

■ Multiple Target
When multiple standing students are detected, set the close-up camera to switch to panoramic view or display a close-up view of all standing students.

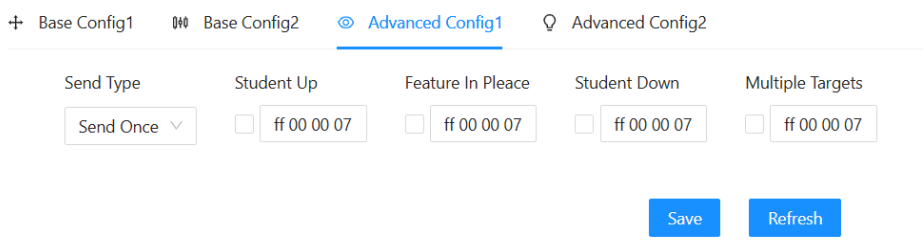
■ Automatic Video Switch
This camera supports automatic video switching. When set to Panoramic Channel or Close-up Channel, the corresponding stream outputs close-up view once a standing target is detected, and switches to panoramic view when multiple targets stand up or all targets sit down. When set to Off, the stream always outputs a fixed view.
Target Loss Position: When the target is lost during tracking, select Preset 1 or keep the current position as the target loss position.

■ Target Lost Position
When the target is lost during tracking, select Preset 0, Preset 1 or keep the current position as the target loss position.

■ SDI Output
Output close-up view or panoramic view via SDI.

■ HDMI Output
Output close-up view or panoramic view via HDMI.

C. Advanced Config1



■ Student Standing
Triggered when a standing student is detected. Since the smart cloud camera only keeps close-up for a short time, set the same code as Close-up Ready.

■ **Close-up Ready**
Same setting as Student Standing.

■ **Multiple Targets**
Triggered when multiple standing targets are detected.

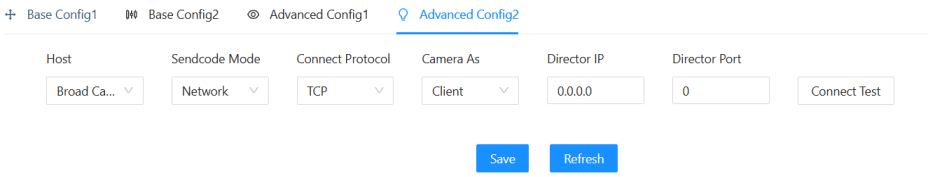
■ **Student Seated**
Triggered when all targets are seated and no one is standing.

■ **First check the items to be configured**
Target Standing, Close-up Ready, Multiple Targets, Target Seated, then set the corresponding switching codes. Each code supports a maximum of 10 bytes. Each byte shall be expressed in hexadecimal format and separated by spaces.

■ **As shown in the figure above**
when close-up is ready, the camera outputs the 7-byte hexadecimal code ff 00 00 07 00 08 0f; when all students are seated, it outputs ff 00 00 07 00 0a 11.

■ **Transmission Mode**
Two options are available: Send Once and Send Continuously.

D. Advanced Config2



■ **Host**
If a teacher device is deployed in the system, select Teacher Device as the host. All switch codes from student devices will be forwarded externally via the teacher device. Only the IP address of the teacher device can be configured, and other parameters are locked. If the device is used independently without a teacher device, select Switcher as the host.

■ **Sendcode Mode**
Send switch codes via network or serial port.

■ **Connection Protocol**
Select TCP or UDP when network transmission is enabled.

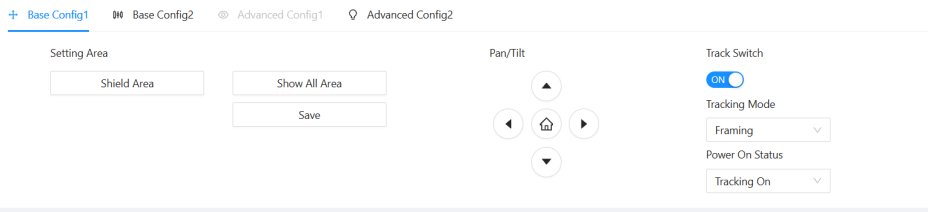
■ **Student Device Role**
For network transmission, set the student device as a client to actively connect to the switcher, or as a server to accept connections from the switcher.

■ **Switcher IP & Port**
Configure the IP address and port of the switcher when the host is set to Switcher.

■ **Connection Test**
Check the connection status between student device and host when TCP is selected.

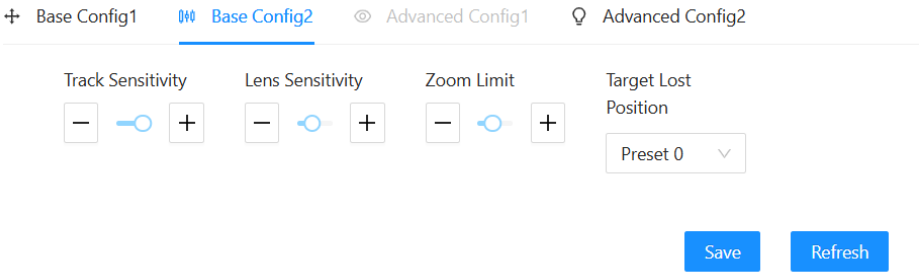
4.7.3 FRAMING

A. Base Config1



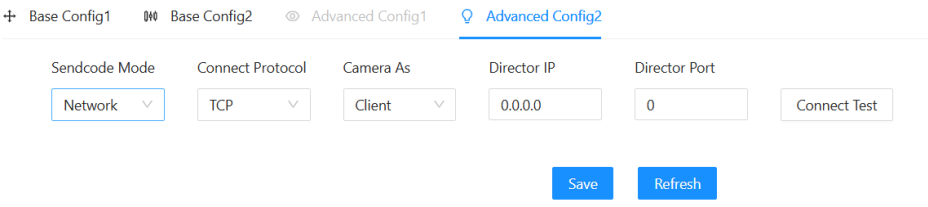
Note: *refer to 4.7.1 Tracking A. Basic Config1*

B. Base Config2



■ Len Sensitivity
During target tracking, a higher frequency makes the lens more sensitive to slight movements and ensures timely tracking. A lower frequency results in slower response to minor movements and may fail to trigger tracking.

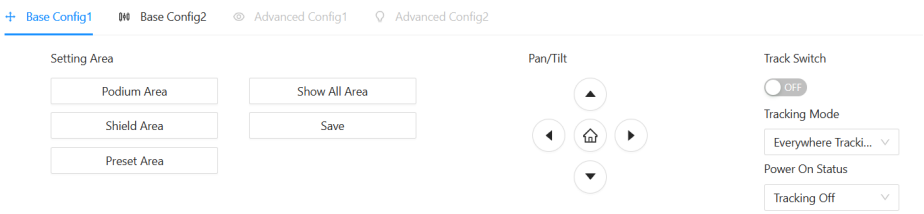
C. Advanced Config2



Note: *refer to 4.7.1 Tracking D. Advanced Config2*

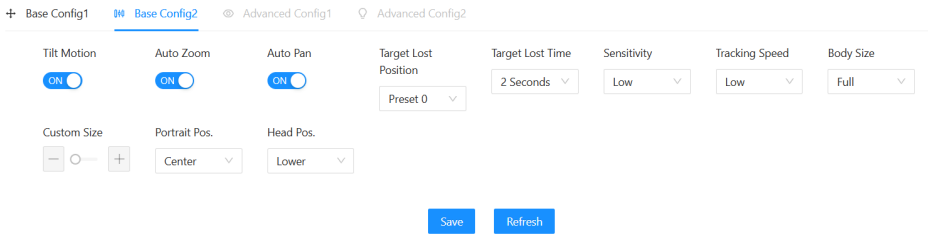
4.7.4 EVERYWHERE TRACKING

A. Base Config1



Note: *refer to 4.7.1 Tracking A. Basic Config1*

B. Base Config2



■ **Body Size**
Default - Full Body; Options: Full / Upper Body / CloseUp / Customized

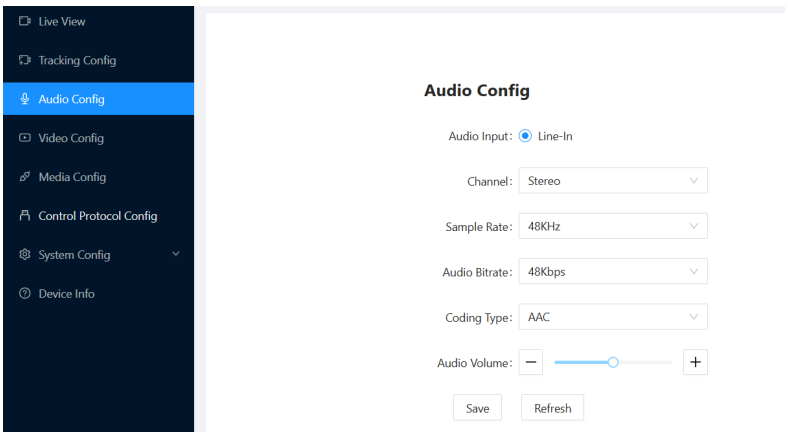
■ **Custom Figure Size**
Range 0-300. Manually set the figure size.

■ **Portrait Pos.**
Default - Center; Options: Left / Center / Right

■ **Head Pos.**
Default - Middle; Options: High / Middle / Low

■ **Target Lost Position**
Preset 0, Preset 1, Home, Stay in Place

4.8 AUDIO CONFIG



■ **Audio Source**
Supports Line-In.

■ **Channel**
The number of independent audio channels. Stereo is available.

■ **Sample Rate**
Number of audio samples per unit time. 48KHz is supported.

■ **Audio Bitrate**
Data volume transmitted per second. Higher bitrate delivers better audio quality, and vice versa.

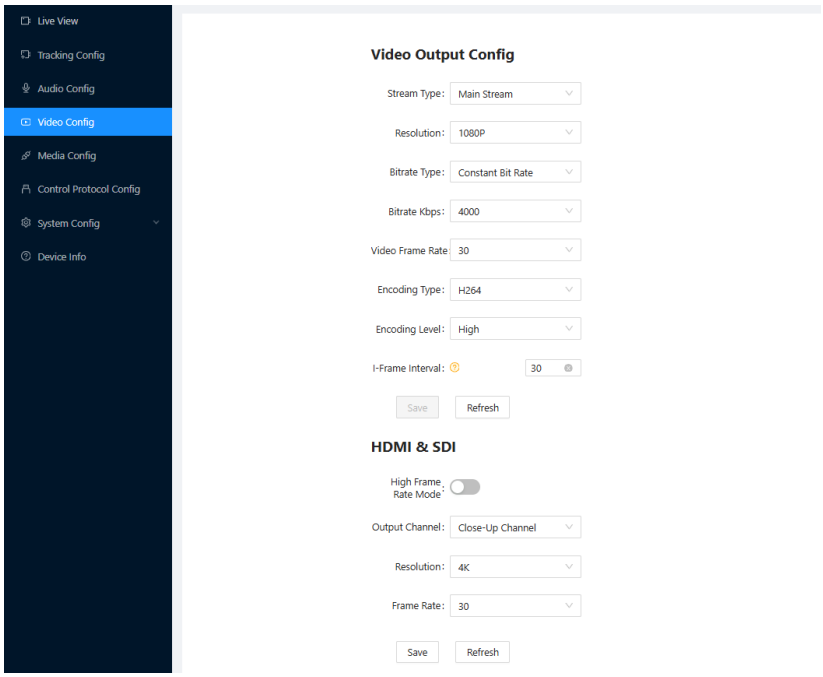
■ **Coding Type**
AAC encoding is available.

■ **Audio Volume**
Adjust audio volume. Range: 0~100.

■ **Save**
Save current configurations.

■ **Refresh**
Update current configurations.

4.9 VIDEO CONFIG



■ **Stream Type**
Configure video parameters for main stream, sub stream and third stream. Supported streams vary by device model.

■ **Resolution**
Optional resolutions include 4K, 1080P (19201080), HD720P (1280720) and 640*360. Select according to image quality requirements and device performance. Higher resolution requires greater network bandwidth.

■ **Bitrate Type**
Variable Bitrate or Constant Bitrate.

■ **Bitrate Kbps**
Available values: 2000, 4000, 6000, 8000, 10000, 12000.

■ **Video Frame Rate**
Number of frames per second for video.

■ **Encoding Type**
Supports H.264 and H.265.

■ **Encoding Level**
Select Base, Main or High.

■ **I-Frame Interval**
Range 1 to 255.

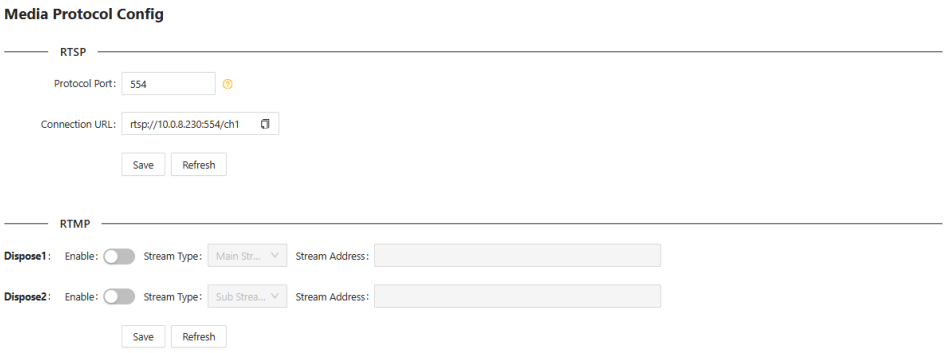
■ **HDMI & SDI**
High Frame Rate Mode: Enable to activate the maximum frame rate.

■ **Output Channel**
Close-up or Panoramic channel.

■ **Resolution**
4K, 1080P, 1080I, 720P.

■ **Frame Rate**
50/30/29.97/25

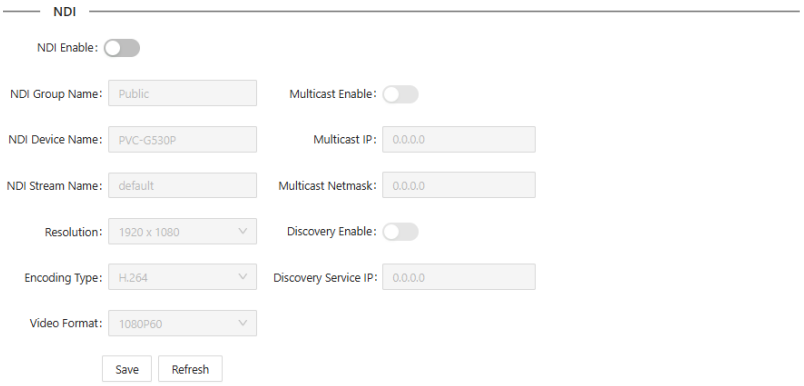
4.10 MEDIA CONFIG



■ **Stream Protocol Configuration**
Supports RTSP and RTMP Up to 2 RTMP streaming services are available. Enable the switch first, then select main stream or sub stream for video output.

■ **Stream URL**
Server address for real-time audio and video transmission.

4.11 NDI



■ **NDI Protocol**
Enable or disable this function. Customize NDI device name, stream name and group name.

■ **Resolution**
Only 1920×1080 is supported.

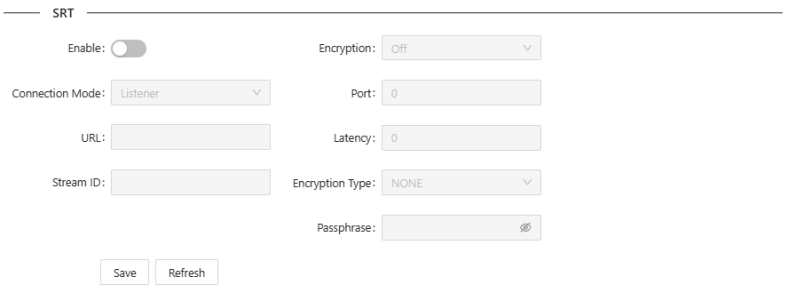
■ **Encoding Type**
Only H.264 is supported.

■ **NDI Multicast**
Enable or disable. It delivers data to specific group members via multicast technology.

■ **Multicast NetMask**
Default value: 255.255.255.0.

■ **NDI Discovery Service IP**
Start or disable the service. It adopts a network communication mode to send data packets from one source to multiple destinations.

4.12 SRT



■ **SRT Protocol**
Two independent SRT stream channels are available. Enable the switch before configuration.

■ **Connection Mode**
Listener and Caller modes are supported. For Caller mode, enter the destination host IP, port (default: 5200) and stream ID. No destination IP is required for Listener mode.

■ **Encryption / Encryption Type**

■ **Encryption:** Enable or disable.

■ **Encryption Type**
Select AES128, AES192 or AES256. AES encryption ensures transmission security.

■ **Password**
Enter the password for SRT stream.

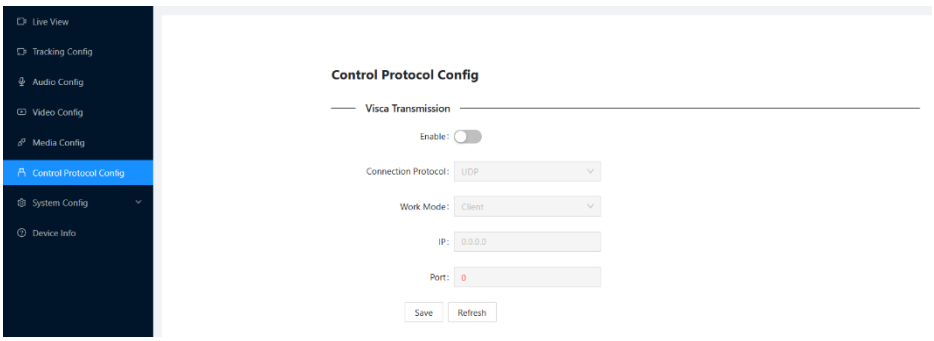
■ **Latency**
Set the latency of SRT stream in milliseconds.

■ **Connection URL**
Automatically generated, no manual modification required.
srt://IP:port?mode=caller&latency=latency_value&pbkeylen=AES_key_length&streamid=stream_id

■ **Save**
Save current configurations.

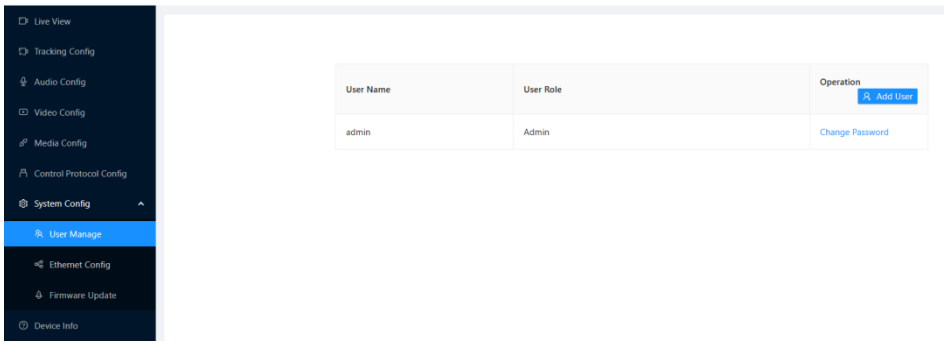
■ **Refresh**
Refresh current configurations.

4.13 CONTROL PROTOCOL CONFIG



■ **Control Protocol Config**
Supports TCP and UDP connections. Server and Client modes are available. IP address can be configured when Client mode is selected. The port number shall range from 2 to 65534. Do not use occupied ports.

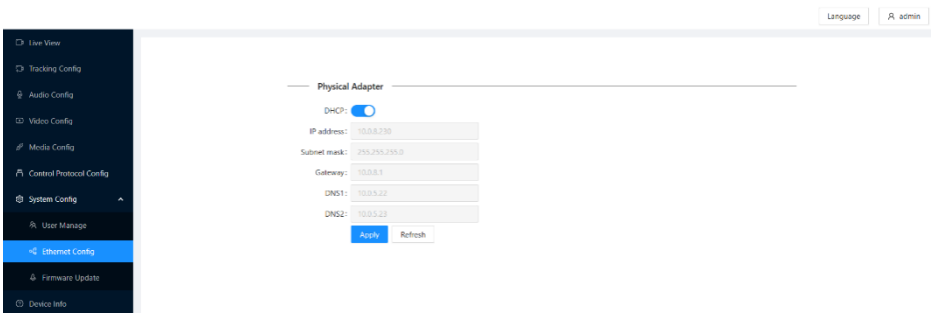
4.14 USER MANAGE



■ **Add User**
Add a new user, with options of Guest and Regular User.

■ **Change Password**
Administrators can reset passwords for regular users directly without entering the old password. To change the administrator password, the original password is required. The default administrator account admin cannot be deleted.

4.15 ETHERNET CONFIG



■ **DHCP**
Manual configuration is available when DHCP is disabled.

■ **IP Address**
Enter the IP address for the camera.

■ **Subnet Mask**
Use the same subnet mask as other devices on the network.

■ **Gateway**
Enter the gateway IP address.

■ **DNS 1**

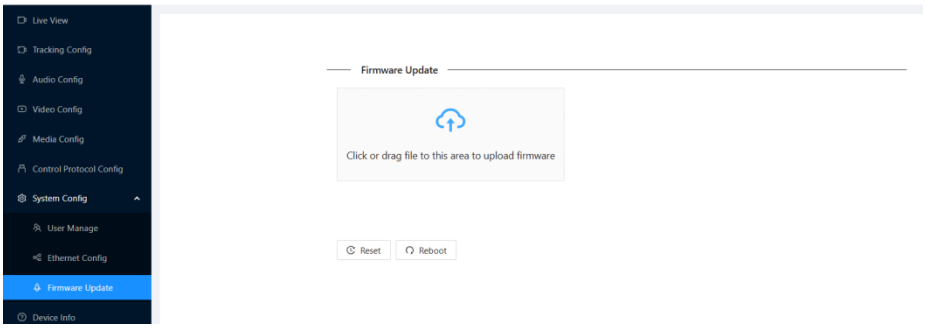
Primary DNS server, consistent with other PCs in the LAN.

■ **DNS 2**
Secondary DNS server, used when DNS 1 is unavailable.

■ **Apply**
Activate current settings.

■ **Refresh**
Reload current configurations.

4.16 FIRMWARE UPDATE



■ Click to select and **load** the firmware file, then click Confirm to start the upgrade. Do not power off the camera during the process. The camera will restart automatically after completion.

■ **Reset**
Supports configuration export, configuration import and factory default restoration. Configurations can be used for backup or analysis.

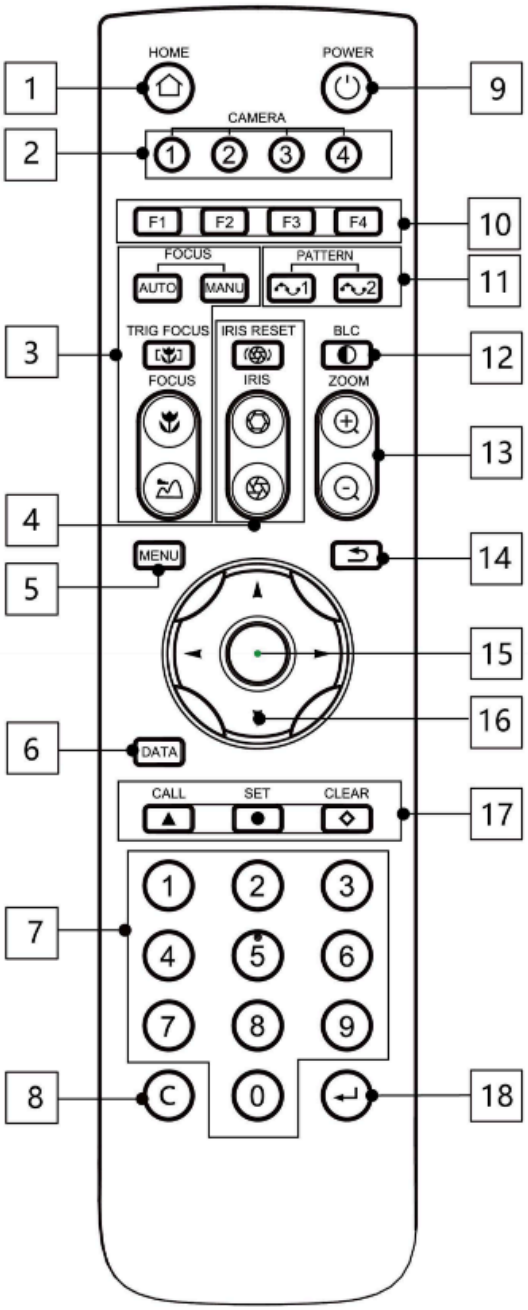
4.17 DEVICE INFO

■ **Device Information**
Displays device name, device type, firmware version, network adapter and other related information.

4.18 NETWORK CONNECTION

Refer to 3.14 Network Connection

5. IR REMOTE



1 Home
Press “HOME” button, camera moves to initial position.

2 Camera Selection Button
Used to switch among 4 cameras, press 1-4 number buttons to control cameras with 1-4 addresses respectively.

(For example, press 1 to control the camera with address 1.)

3 Focus
Press “AUTO” button to switch to Auto Focus, press “MANU” button to switch to Manual Focus mode.

“ " button to Focus Near

“ ” button to Focus Far

“ ” button to Auto Focus once every time it is pressed, then switch back to Manual Focus mode.

4 Iris

Press “ " button to reset iris (image brightness) value to default. “ ” button to Iris Open (brighter image), “ ” button to Iris Close (darker image).

5 Menu
Press “MENU” button to enter/exit menu.

6 Data
Switch preset prompt, turned on by default.

7 Number keys
Long press remote control numeric key (0-9) to set a preset, short press to call a preset.

8 Cancel
Reserved.

9 Power
After the camera has been connected to power source, press this button to turn on /off the camera.

10 Reserved buttons (F1, F2, F3, F4)
F1 tracking on/off.
F2 full Body.
F3 half Body.
F4 close Body.

11 Pattern Reserved. **12 BLC** Used to open / close back light compensation. **13 Zoom** Used to adjust zooming times. “⊕” button to zoom in. “⊖” button to zoom in. **14 Back** Press “ ⮌ ” button to go back to previous menu. **15 OK** In None-menu status: press this button to switch among pan / tilt control speeds. In Menu status: get into relative menu option after it has been selected.	**16 Direction Menu Operation** In None-menu status: press these four buttons to pan left/right and tilt up/down. In Menu status: ▲or▼ button to select among menu options, ◄ or ► to change option /value. **17 Preset Setting** “▲” button, reserved. “●” button, reserved. “◆” button to clear a preset. **18 Enter** Reserved.

6. WARRANTY AND SERVICE

Dear users, please read the following product service regulations carefully to ensure you receive quality services.

Our company provides limited warranty and lifelong maintenance services.

1. The limited warranty period is 36 months starting from the product delivery date. Within the warranty period, faulty products are eligible for free repair service. Users need to deliver or send the products to our company for maintenance. Failures caused by improper use, human damage or force majeure are not covered by the warranty.

2. After the 36-month limited warranty expires, lifelong maintenance will be provided on a paid basis.