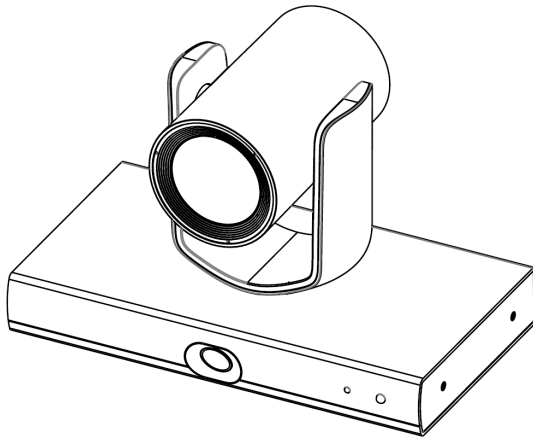


VitBest

CVA-HUN4K

Lecturer Tracking Camera

User Manual V1.0







Please read this manual carefully before using the device and keep it for future reference.

COPYRIGHT INFORMATION

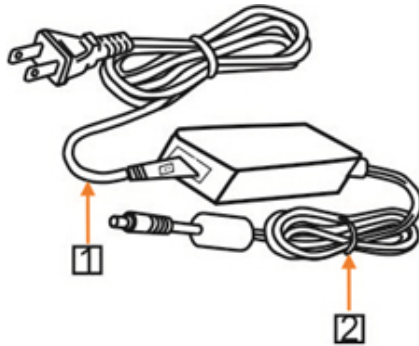
- Copying, reproducing or transmitting this file is not allowed if no written permission is provided. This file can be copied as a backup only after you purchase this product.
- In order to keep improving products, product specifications under this manual are subject to change without prior notice. This file is subject to change without prior notice.
- To fully explain or describe how this product should be used, this manual may refer to names of other products or companies without any intention of infringement.
- Disclaimer of warranties: Our company is neither responsible for any possible technical, editorial errors or omissions, nor responsible for any incidental or related damages arising from providing this file, using, or operating this product.

SYMBOLS INSTRUCTION

| Symbol | Instructions |
|--|---|
|  Explanation | To represent the supplement and explanation of the text. |
|  Note | To remind the user of some important operations or to prevent the potential injury and property damage. |
|  Warning | To indicate a potential risk that, if not avoided, may result in injury accidents, equipment damage or business interruption. |
|  Dangerous | To indicate a high potential risk that, if not avoided, may result in a significant risk of death or injury. |

SAFETY NOTES

- During the installation of this camera, please read this manual carefully and operate strictly in accordance with the installation instructions. Keep this manual for future reference.
- Before powering on the camera, please check the power carefully. Make sure that you are using the right power source.
- Place the power cable in a place that is not easily accessible. Do not stack any objects on the power cable, protect the cable, especially the connection must be fully and securely contacted.
- Do not run the camera beyond the specified temperature and humidity. The working temperature range is between 0°C ~ +40°C. The working humidity range is between 10%RH~90%RH.
- For safety, foreign matter is prevented from entering the device, do not splash the corrosive liquid onto the camera.
- When transporting, avoid violent shake or strong force to the camera.
- Do not disassemble the camera without authorization. If the camera is damaged, please contact professional maintenance personnel for repair.
- Avoid pointing the camera at objects with strong light, such as the sun etc.
- When cleaning the camera, please use soft cloth. If the camera is very dirty, wipe it off gently by a soft cloth moistened with a weak solution of water or a neutral kitchen detergent. Wring out all liquid from the cloth before wiping the camera, then wipe away all remaining dirt with a soft, dry cloth. Use lens cleaning paper to clean the lens.



Warning

1. If power cable needs to be extended, please extend the power cable from the part 1 on above picture (220V/110V), do not extend from part 2 on above picture (DC12V), otherwise it will cause unexpected damage to the device.
2. This product has the function of video monitoring and recording, please avoid using it infringing on the privacy of others!
3. Please confirm the installation and use within the scope permitted by local laws!

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1. QUICK GUIDE

- The camera can be accessed and controlled via the following ways;
- Application software CameraCMS: tracking setting, camera search and control, network setting;
- VLC: preview images of camera's streams;
- ONVIF: version 2.1 supported; Name: admin; None Initial password;
- Network pass-through: recommended connection mode with lecture recording device.

1.1. Application Software

Refer to detailed instructions of this user manual.

1.2. Rtsp

- Make sure PC and the camera are in the same LAN;
- Two channels for streaming url: rtsp://IP/chx, x=1, 2, streaming 1 for tracking camera image, streaming 2 for full view camera image;
- IP address is acquirable through CameraCMS, default rtsp port is 554.

1.3. Network Pass-through

On the tracking parameters setting page, the IP address, port and connection protocol (TCP/UDP) of the lecture recording device can be configured. After connected, the camera can be controlled by standard VISCA protocol. The tracking status code of the camera is also returned to the lecture recording device if needed through the same connection as raw data. Lecture recording device can achieve audio & video of the camera through rtsp or rtmp.

2. PRODUCT INTRODUCTION

The lecturer tracking camera adopts the most advanced face and motion detection technology, it can lock and track moving target; it can realize smooth tracking performance automatically; it can precisely lock the moving target in the center of the image.

The camera can be set and controlled by lecture recording device through Ethernet and RS232 port. At the same time, network video and digital video from the camera can be obtained.

With stability, easy-to-use and excellent performance, this kind of system is widely used in electronic classroom, distance learning, technical training and video conferencing room, etc.

2.1. Characteristics and Functions

2.1.1. Features

- Built-in industry-leading human body detection and lock tracking image algorithm, no need to have external tracking device or auxiliary camera;
- Integrated design, up to 4KP30 output;
- The camera can adjust automatically as per height of lecturer;
- The camera can track lecturer all around the classroom, even if lecturer walks into student's area;
- Excellent locking and anti-interference performance: the camera keeps tracking on the object even the object is stationary for a long period. Other moving objects and video from projectors do not interfere the tracking performance;
- Support 3G-SDI (optional), HDMI, Ethernet and USB2.0 video output interface;
- Support UVC/UAC protocol;
- Support remote control and RS-232 control.

2.1.2. Intelligent Tracking

- With smooth tracking performance, the target's small movement and hand movements will not affect the tracking effect, and tracking sensitivity is adjustable;
- The camera can track both horizontally and vertically, always keep the image clear;
- Automatically adjusts zoom during tracking according to the distance of target and gives appropriate image;
- Perfect tracking performance, suitable for different shapes and sizes classroom and lecture theatre;
- Intelligent exposure function, completely avoid the issue of the tracked target being too dark when moving into projector area or other strong light background.

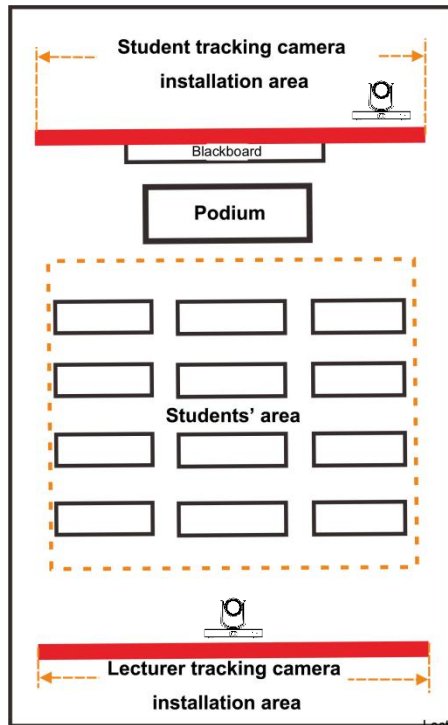
2.1.3. IP Capability

- H.264/H.265 video compression;
- Support two streams of images.

2.1.4. Simple Configuration

- Set tracking zone and blocking zones with the mouse box on the network video;
- Through the parameter setting interface, it is possible to customize the switching codes such as target appearance, loss, etc;
- User-friendly pages and simple parameter settings, easy to install and use.

3. SUGGESTED INSTALLATION



Lecturer tracking camera:

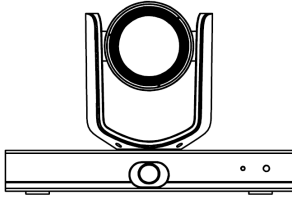
Recommended installation height: 2.4 meters, 8 meters away from the podium, and as close as possible to the central line of the classroom to achieve the best tracking camera effect.

The camera installation height range is 2-3 meters, and the distance range from the podium is 5-10 meters.

4. PRODUCT COMPONENTS

4.1. Lists of Parts & Accessories

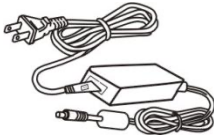
When you open the box, check all accessories according to the packing list.



Camera x1



Remote Controller x1

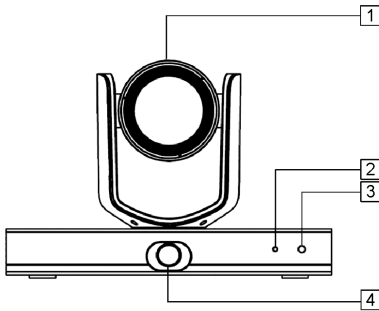


Power Adapter x1

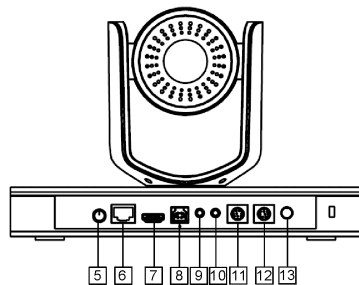


RS-232 cable x1

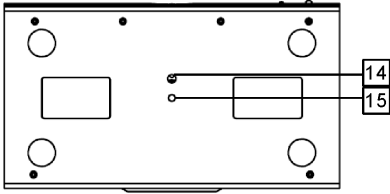
4.2 Main Parts & Interfaces



Front



Rear



Bottom

| No. | Interface | No. | Interface |
|-----|-------------------------------|-----|---------------------------|
| 1 | Camera Module | 9 | REF |
| 2 | Power/Communication Indicator | 10 | Audio |
| 3 | Remote Controller Indicator | 11 | RS-232IN |
| 4 | Full-view camera | 12 | RS-232OUT |
| 5 | DIP Switch | 13 | Power (DC12V) |
| 6 | Network | 14 | Mounting Hole, 1/4-20UNC |
| 7 | HDMI | 15 | Locating Hole, Φ 5mm |
| 8 | USB2.0 | | |

DIP Switch Settings

Before using the camera, relevant settings should be made through the DIP switch. This camera has a 16-bit DIP switch, as shown in the figure:



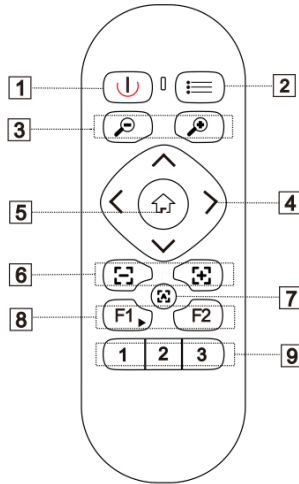
The 0~B bits of the DIP switch are used to set 8 different video formats; the C~E bits are reserved; the F bits are used for video format customization:

| SW | | | |
|----|---------|---|--------|
| 0 | 1080P60 | 8 | --- |
| 1 | 1080P50 | 9 | --- |
| 2 | 720P60 | A | --- |
| 3 | 720P50 | B | --- |
| 4 | 1080P30 | C | --- |
| 5 | 1080P25 | D | --- |
| 6 | 4KP25 | E | --- |
| 7 | 4KP30 | F | Custom |

 **Note**

After changing the DIP settings, the camera needs to be powered off and restarted to make the settings take effect.

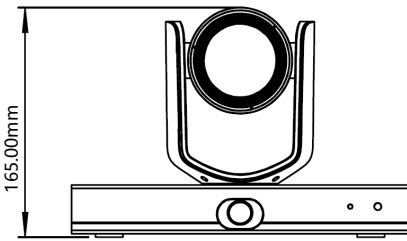
4.3. Remote Controller



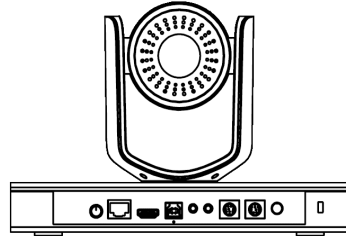
| No. | Name | Description |
|-----|-----------------------------------|---|
| 1 | Power | Turn on/off the camera |
| 2 | Menu | Turn on/off OSD menu |
| 3 | Zoom | ⊕- button to zoom in ⊖- button to zoom out |
| 4 | Direction / Menu Operation | In Menu status: ▲ or ▼ button to select among menu options, ◀ or ▶ to change option / value. In None-menu status, press these four buttons to control camera's pan (left/right) and tilt (up/down). |
| 5 | HOME | In Menu status: save menu operation. In None-menu status: Press HOME button, camera will move to initial position. |
| 6 | Focus | [-] button to Focus Near [+] button to Focus Far |
| 7 | Auto Focus | [A]-Auto focus, button to let the camera automatically adjust the focus. |
| 8 | F1/F2 | F1: Press for 5 seconds to set IR address of camera; short press to enable tracking. F2: Short press to disable tracking. |
| 9 | Number Keys | Long press to set preset, short press to call the preset. |

5. INSTALLATION & CONNECTION INSTRUCTION

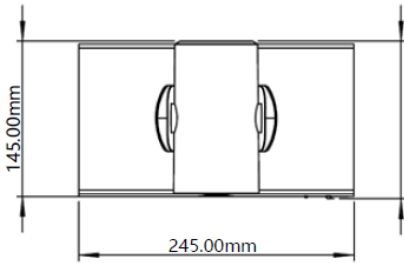
5.1. Overall Dimension



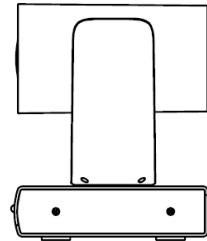
Front



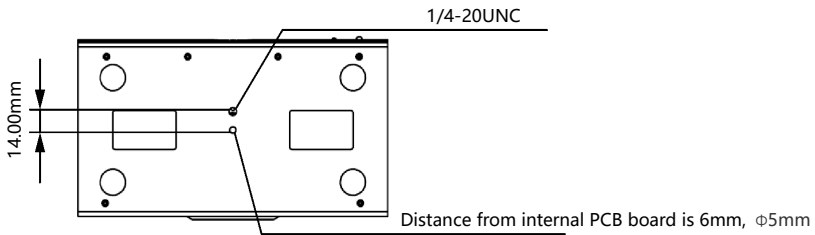
Rear



Top



Side



Bottom

5.2. INSTALLATION INSTRUCTIONS

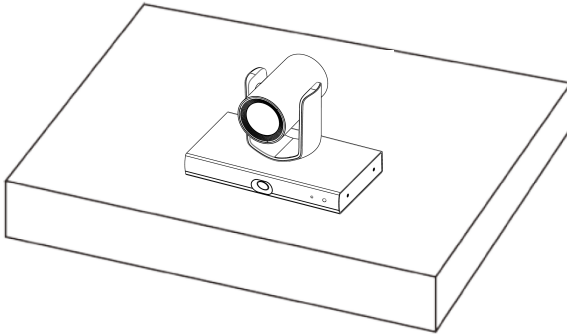
The camera has 2 installation types: desktop or wall installation (optional) .

Note

- Before installing, make sure there is enough space to install the camera and its parts;
- Make sure the installed place is strong and safe enough to hold the camera and relative parts, it is suggested that the installed place can withstand 4 times the weight of the camera and its relative parts.

5.2.1 Desktop Mount Installation

1. Put the camera on a flat surface. If the camera has to be placed on an inclined surface, make sure the cline angle is less than 15 degrees to ensure proper pan /tilt operation.

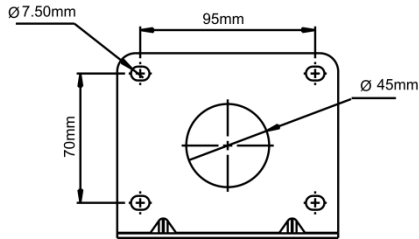


Note

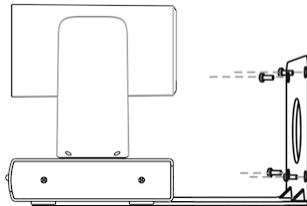
- Take effective measures to avoid camera from dropping;
- Do not grab the camera head when carrying;
- Do not rotate the camera head with hand. It may cause malfunction to the camera.

5.2.2. Wall Mount Installation (Optional)

1. 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 (M6*60) which should be prepared separately.



2. 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.



6. APPLICATION SOFTWARE INSTALLATION & INSTRUCTION

6.1 Software Installation

Take out Disc from the camera package, install "CameraCMS" from the disc on your PC, turn on "CameraCMS", connect and add camera to the management device list, and enter into the main interface. Select one of the cameras to proceed with following settings:

6.1.1. Tracking Settings



Start: enable tracking, same as calling preset 80 from CMS software to turn on tracking;

Stop: disable tracking, same as calling preset 81 from CMS software to turn off tracking;

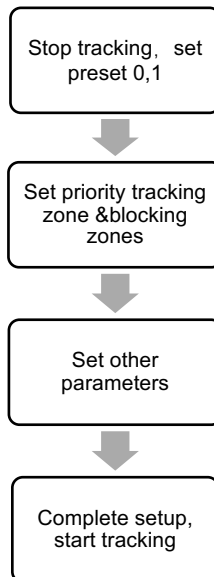
Settings: Click this button to get into detailed tracking parameters interface for configuration;

Once this button is clicked, main stream will automatically switch from tracking camera to full view camera. Once configuration is completed, main stream will return to tracking camera again.

6.2. Camera Settings

6.2.1. Lecturer Tracking Camera

6.2.1.1 Setting Process

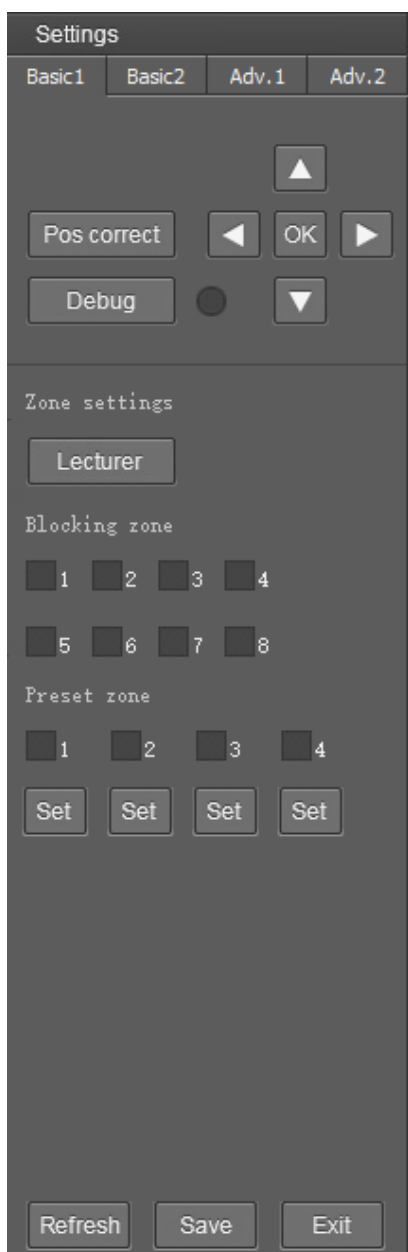


Preset 1: preset 1 is the position where tracking starts, preferred to be set at lecturing area (where lecturer usually moves in front of the room); to configure it, move the camera's Pan/Tilt/Zoom to put the lecturer in the appropriate size and position in the image, then set it as preset 1. In some other cases, the preset 1 is also useful: after camera finishes calibration, it will sit at preset 1; once camera loses the tracking object, it can be configured to move to preset 1; when the camera starts auto zooming, its zooming times is also based on preset 1's zooming times.

Preset 0: can be configured to the position where camera will move to once it loses tracked objects, recommended to set at a full view image of the lecturing area.

6.2.1.2 Main Control Interface

Click **Settings** to enter the parameters setting interface



Settings

Basic1 Basic2 Adv.1 Adv.2

U/D podium
 Detect

Platform area
 Detect single-obj

Track model
 Normal

Send type
 Once

Director rules
 Outside director

Target appear FF 00 00 07 00

Target miss FF 00 00 07 00

In podium FF 00 00 07 00

Out podium FF 00 00 07 00

Refresh Save Exit

Settings

Basic1 Basic2 Adv.1 Adv.2

Mode
 Network

Connect protocol
 TCP

As
 Client

Director ip
 0.0.0.0

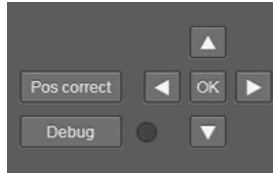
Director port
 0

Connect test
 Network test

Refresh Save Exit

6.2.2. Basic Parameters Setting

6.2.2.1 Debug



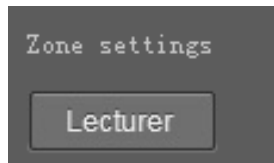
Enable and disable display current status of face detection in full-view camera.

Pos correct: it can be adjusted if the target is not always in the middle of the image when camera is in tracking mode,.

Warning

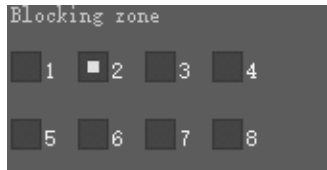
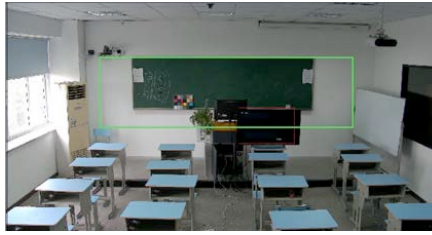
- The camera has been debugged before leaving the factory and is suitable for most classrooms, do not use the pos correct function frequently.

6.2.2.2. Zone Setting



Lecturing area is recommended to set as tracking zone because camera can continue tracking after target leaves the podium and walks around classroom, if there are other target moves into the lecturing area then, the tracking camera will return to the lecturing area and track the new target accordingly.

Upper edge of the blackboard (at least higher than the head of the teacher standing on the platform) is recommended to set as the upper boundary of the tracking zone, and the lower boundary of the tracking zone should be set as higher than the head of the first row of students, typical example of zone setting is shown in the green box below:



Blocking zones: To set blocking zones for interference sources (such as the projection screen, electronic whiteboard, and TV screen) in the lecturing area.

there are 8 blocking zones shown in green rectangle, they can be configured independently. The moving objects inside the blocking zones of the full-view camera will not be detected and tracked while the tracking camera still tracks the lecturer.

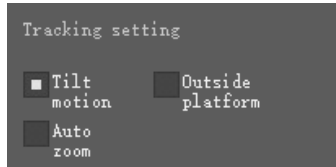
 **Note**

- Blocking zones should be configured inside the tracking zone to take effect.



Preset zone: configure presets for preset tracking, totally 4 presets could be configured. Every preset can be cancelled separately. After presets are configured, once target moves into every preset zone, the tracking camera moves to relative preset and gives close-up view of this zone, this feature is especially useful when there are more than one target show up in the lecturing area.

6.2.2.3 Tracking Setting



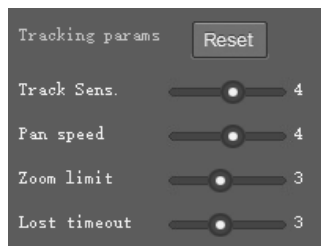
Tilt Motion: when it's enabled, the camera will automatically adjust tilt angle during tracking. When it's disabled, the camera will track as per the tilt angle of preset 1.

If the lecturer does not walk into the student area, it's suggested to disable auto zoom and tilt motion.

Auto zoom: when it's enabled, during tracking, the camera will auto zoom in or out. When it's disabled, the zoom during tracking will be based on preset 1.

Outside platform: when it's enabled, the camera will still track if the object is outside the tracking zone.

6.2.2.4. Tracking Parameters



Track Sens: set sensitivity of tracking based on speed of movement, if value is big, camera tracks at minor movement.

Pan Speed: set pan speed for tracking;

Zoom Limit: Higher value enables higher zoom times;

Lost Timeout: Lost timeout refers to the waiting time for the camera to execute the target loss action after the target is lost (return to preset 1 or return to preset 0).



Target lost action: used to define the action to be performed if the camera loses the tracked object for a period of time.

Power On State: the action to be performed when the camera is powered on.

6.2.3. Senior Parameters Setting

6.2.3.1 Senior Parameters Setting



U/D podium: decide whether to detect the teacher's movement up and down the podium, and issue the corresponding switching code;

Platform area: decide whether to detect only a single target or multiple targets on the podium, and issue the corresponding switching code;

Track model: "Normal" means that the tracking camera follows the target all the time, and will not issue a code during the process; "Move-rest" means that the tracking camera follows the target all

the time, and once the camera moves or stops during tracking, it will send a code to recorder for switching to panorama image when the camera is moving, and switching to close-up image when the camera is stationary.

Send type: The sending type of switching code can be selected in two ways: "send only once" and "send all the time".

Director rules: The lecturer camera has internal switching rules when working with student camera, the student camera is the priority, and the lecturer camera is the second. When it is detected that the teacher has stepped off the podium, the "Panorama image to the teacher" code will be issued, and if camera lose the teacher, the "Panorama image to the students" code will be issued. When a single student is standing, the "Close-up image to the student" code is issued. When there are multiple students standing, the "Panorama image to the students" code is issued.

When the internal switching rules are not used, both the student camera and the lecturer camera issue codes according to the user-customized switching code input by the user, and the user can switch each channel of video according to their own director rules and priorities. Each switch code should not exceed 10 bytes, and each byte is represented by hexadecimal numbers and separated by spaces.

| | |
|---------------|---|
| Target appear | <input type="text" value="FF 00 00 07 00"/> |
| Target miss | <input type="text" value="FF 00 00 07 00"/> |
| In podium | <input type="text" value="FF 00 00 07 00"/> |
| Out podium | <input type="text" value="FF 00 00 07 00"/> |

| | | | |
|--------------------------------------|--------|-------|-------|
| Basic1 | Basic2 | Adv.1 | Adv.2 |
| Mode | | | |
| <input type="text" value="Network"/> | | | |
| Connect protocol | | | |
| <input type="text" value="TCP"/> | | | |
| As | | | |
| <input type="text" value="Client"/> | | | |
| Director ip | | | |
| <input type="text" value="0.0.0.0"/> | | | |
| Director port | | | |
| <input type="text" value="0"/> | | | |
| Connect test | | | |
| <input type="radio"/> Network test | | | |

Mode: choose to send returning codes via network or RS232 interface;

Connect Protocol: once “Network” is chosen as “Mode”, choose TCP or UDP as communication protocol;

As: once “Network” is chosen as “Mode”, choose “Client” to actively communicate with recorder, choose “Server” to await to be communicated from recorder;

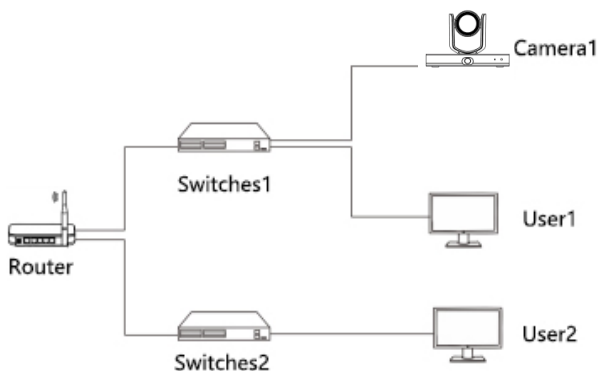
Director IP: once “Network” is chosen as “Mode”, configure recorder’s IP address and Port at these two frames.

7. DEVICE MANAGERMENTS

7.1. Network Connection

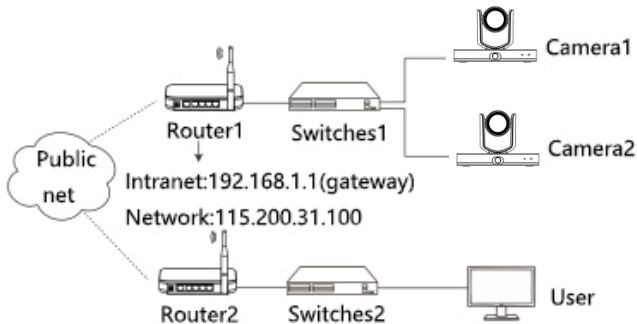
Connect camera to network with an Ethernet cable, power on the camera.

7.1.1 LAN Connection



Please refer to the above diagram, user1 and user 2 are in the same router, they are considered as in the same LAN, connect the camera to the same LAN as where the PC is, and refer to below instructions as how to use the application software, then the camera can be found and connected from the online device list.

7.1.2. WAN Connection



Please refer to the above diagram, user PC and the camera are in different routers, they are considered as in a WAN, in this condition, Client can't search and find the camera automatically. Client can still access the camera once below three conditions are satisfied.

Condition1: Set camera's IP address as static IP address

Set camera's IP address in LAN: connect user PC to the LAN (Router 1) where the camera is connected according to LAN connection instructions, use application software CamCMS to search and find the camera, then add it to manage; then set camera's IP address in the same network segment as the router 1. Camera's gateway is usually set at Router 1's LAN IP address, for example, 192.168.1.1, then camera's IP address can be set as for example 192.168.1.179 or 192.168.1.180 as long as they are in the same network segment.

Condition2: Router of the LAN where camera is connected supports Port Mapping

Router Port Mapping: User's PC logs into router configuration menu, gets into "Port Mapping" (router management authorization may be required); refer to below picture, DO NOT tick "Do not apply this rule", from first frame under "External port", input any number from 1~65535, but preferred to be set at more than 10000 like 10200 so there will be less port conflict possibility. From "Internal IP", input the camera1's IP address 192.168.1.179, from first frame of "Internal Port", input 3478, (all cameras use this same port number). "Protocol" and "Mapping Line" can be default, from "Note", input "Camera 1's mapping port" or something to understand.

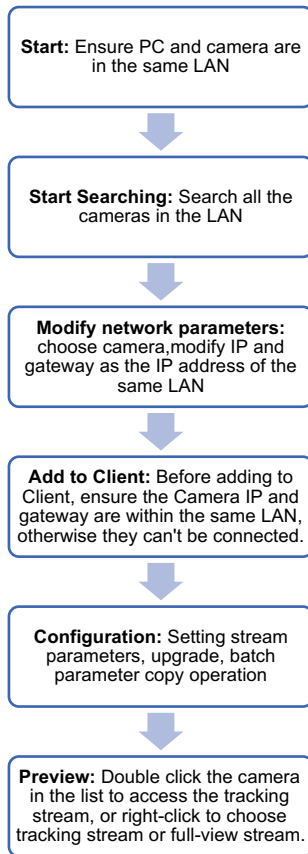
| List of rules for port mapping | |
|--------------------------------|---|
| Not applied | <input checked="" type="checkbox"/> Do not apply this rule If disabled, the following configuration will only be saved but will not applied. |
| External port | Input an external port to be mapped to an open port of an internal host. If left blank, the external port is identical to the internal port. The range is between 1 and 65535 |
| Internal IP | The IP address of the internal host that provides external service. For example: 192.168.0.50 |
| Internal port | The open port of the internal host that provides external services. The range is between 1 and 65535 |
| Protocol | TCP The protocol used for port mapping can be TCP, UDP or both. |
| Mapping line | Any The line used for port mapping can be single WAN or multi WAN |
| Note | A short note to describe this mapping rule could be added. For example: The WEB server for marketing Department. |

Condition3: Router of the LAN where camera is connected has fixed public IP address

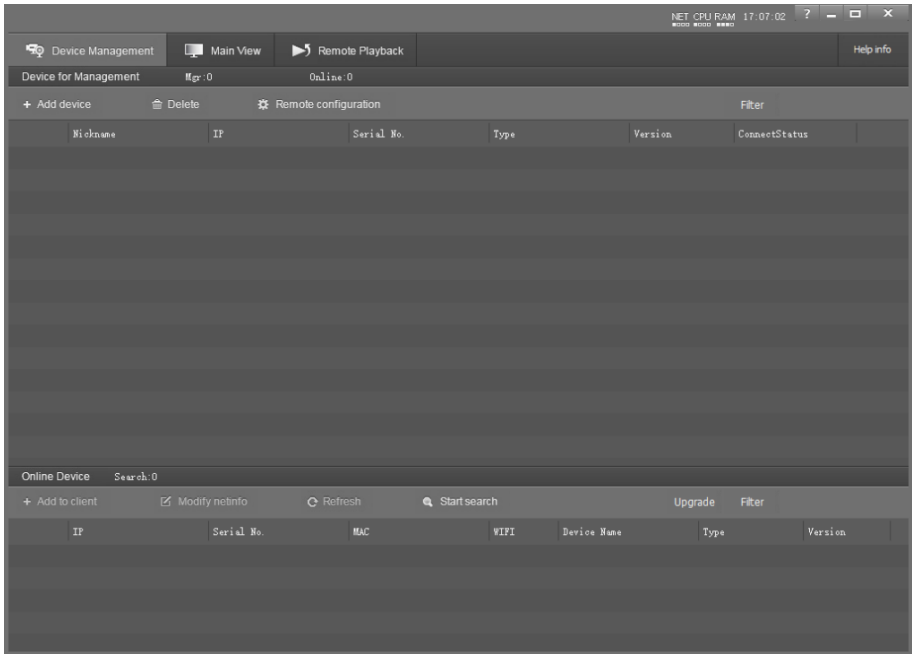
Extranet access: Router 1's public IP address is 115.200.31.100, for example, go through the above steps one and two, WAN users under router 2 can access camera 1 through IP address 115.200.31.100 + port 10200. Then, in WAN, the mapping of camera 1 and (IP 115.200.31.100 + port 10200) is established. Camera 2 can use another external port such as 10320, so mapping of camera 2 with (IP 115.200.31.100 + port 10320) is established. In the "Managed Device" of the application software CameraCMS, click "+ Add", enter the IP address 115.200.31.100 and port 10200 and other information, then the camera 1 can be accessed and controlled.

7.2. Search and add the camera

CameraCMS setup process:



Install and open the application software in PC, enter the Device Management interface, as shown below:



If the camera and PC are in the same LAN, click “Start Search”, then searching starts and all online devices will be listed, as the picture shown below:

| Online Device Search: 14 | | | | | | | |
|--------------------------|-------------|--|----------------------------------|--------------------------------------|----------------|----------|--------|
| + Add to client | | <input checked="" type="checkbox"/> Modify netinfo | <input type="checkbox"/> Refresh | <input type="checkbox"/> Stop search | Upgrade Filter | | |
| IP | Serial No. | MAC | WiFi | Device Name | Type | Version | |
| 001 | 10.0.3.177 | 32E020R2SP06QV86K3J4 | 00:04:05:08:FE:D9 | No | Camera 1 | Camera 1 | 5.1.54 |
| 002 | 10.0.3.106 | I4V672H2ED0TQV10ED80 | 00:04:05:01:88:69 | No | Camera 2 | Camera 2 | 2.2.02 |
| 003 | 10.0.3.196 | U523B502UD0SQV70L4B4 | 00:04:05:0F:6F:35 | No | Camera 3 | Camera 3 | 2.2.02 |
| 004 | 10.222.2.21 | 70C382H22E0IQV35F055 | 00:04:05:02:0F:8B | No | Camera 4 | Camera 4 | 2.2.01 |
| 005 | 10.0.3.191 | N12337P2W10WQVJ1J5U5 | 00:04:05:07:A4:D1 | No | Camera 5 | Camera 5 | 2.1.29 |

If batch upgrade is performed for multiple cameras, select multiple devices in the list first, then select the upgrade file in the camera program file path, click “Update” and then batch upgrade is completed.

| Online Device Search: 14 | | | | | | | |
|--------------------------|------------|--|----------------------------------|--------------------------------------|----------------|----------|--------|
| + Add to client | | <input checked="" type="checkbox"/> Modify netinfo | <input type="checkbox"/> Refresh | <input type="checkbox"/> Stop search | Upgrade Filter | | |
| IP | Serial No. | MAC | WiFi | Device Name | Type | Version | |
| 001 | 10.0.3.177 | 32E020R2SP06QV86K3J4 | 00:04:05:08:FE:D9 | No | Camera 1 | Camera 1 | 5.1.54 |

In Modify Network parameter, first choose the device and check information in “Modify Network”, input the IP address, Mask, Gateway, finally click “Modify”.

✕

Ethernet

Device information:

CameraName:

Mac:

SN:

Network information:

ConnType:

IP:

Mask:

GateWay:

DNS1:

DNS2:

To control and preview a camera, first choose the device, modify its IP address as the IP address of the same LAN, then click “Add to Client” as the picture shown below:

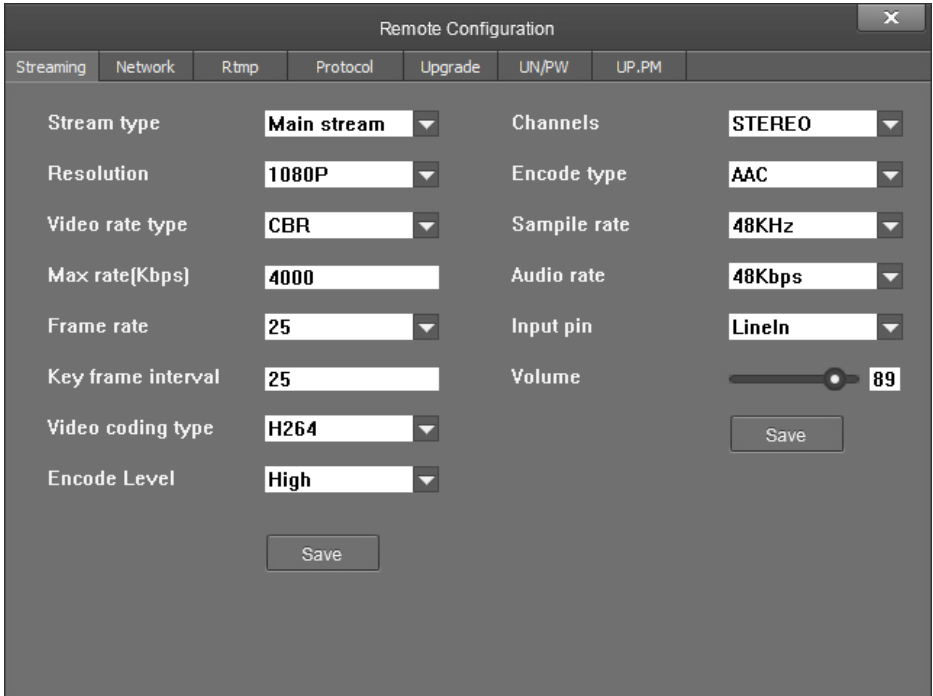
| Online Device | | Search: 14 | | | | | | | |
|-----------------|-------------|----------------------|-------------------|-----------|-------------|---------------|---------|----------------|--|
| + Add to client | | ☑ Modify netinfo | | 🔄 Refresh | | 🛑 Stop search | | Upgrade Filter | |
| | IP | Serial No. | MAC | WiFi | Device Name | Type | Version | | |
| 001 | 10.0.3.177 | 32K20202SFD6QUN6K3T4 | 00:04:05:08:FE:D9 | No | Camera 1 | Camera 1 | 5.1.54 | | |
| 002 | 10.0.3.106 | I4V672H2BD0TQU10XD80 | 00:04:05:01:88:69 | No | Camera 2 | Camera 2 | 2.2.02 | | |
| 003 | 10.0.3.196 | U5238502UD0SQU70LAR4 | 00:04:05:0F:6F:35 | No | Camera 3 | Camera 3 | 2.2.02 | | |
| 004 | 10.222.2.21 | 70C382H22R01QU35F055 | 00:04:05:02:0F:88 | No | Camera 4 | Camera 4 | 2.2.01 | | |
| 005 | 10.0.3.191 | N12337P2W10QUJ1J5U5 | 00:04:05:07:A4:D1 | No | Camera 5 | Camera 5 | 2.1.29 | | |

Add the camera in the WAN according to the “WAN Connection” instructions.

7.3. Configuration

Choose the camera in the device list, click “Configuration” in the menu to upgrade and configure other network parameters.

7.3.1. Streaming



The screenshot shows a 'Remote Configuration' window with a 'Streaming' tab selected. The window contains various settings for video and audio streaming, each with a dropdown menu or a text input field. The settings are as follows:

| Parameter | Value |
|--------------------|-------------|
| Stream type | Main stream |
| Resolution | 1080P |
| Video rate type | CBR |
| Max rate(Kbps) | 4000 |
| Frame rate | 25 |
| Key frame interval | 25 |
| Video coding type | H264 |
| Encode Level | High |
| Channels | STEREO |
| Encode type | AAC |
| Sample rate | 48KHz |
| Audio rate | 48Kbps |
| Input pin | LinIn |
| Volume | 89 |

There are two 'Save' buttons: one at the bottom center and one at the bottom right of the configuration area.

- Stream type: set the parameters of main stream and sub stream. Different devices support different streams;
- Resolution: set among 1080P(1920*1080), HD720P(1280*720), 640*360, 4K, choose resolutions based on actual requirements and capability of device. The higher the resolution is, the better network requirements will be needed;
- Video rate type: set CBR or VBR;
- Frame rate: refers to the number of frames per second of video;
- Key frame Interval: configure the number of frames between the two key frames. The larger the key frame interval is, the smaller the fluctuation of the byte will be, but the image quality is relatively poor. Vice versa, the larger the fluctuation of the byte will be, the higher the image quality will be. Default values are recommended;

- Video coding type: choose H.264 or H.265;
- Encode Level: choose from Base, Main and High;
- Channels: Support STEREO;
- Encode type: Only support AAC, set sampling rate and Audio rate at the same time;
- Sample rate: 48KHz;
- Audio rate: choose from 48Kbps, 64Kbps, 96Kbps, 128Kbps;
- Input pin: choose the type of audio input;
- Volume: pull the volume bar to set the volume, range is 0~100.

7.3.2. Network

Remote Configuration

Streaming Network Rtmp Protocol Upgrade UN/PW UP/PM

Connect with **DHCP** rtsp port **554**

IP Address **10.0.3.40** app port **5000**

Mask **255.255.255.0**

Gateway **10.0.3.1**

DNS 1 **192.168.3.1**

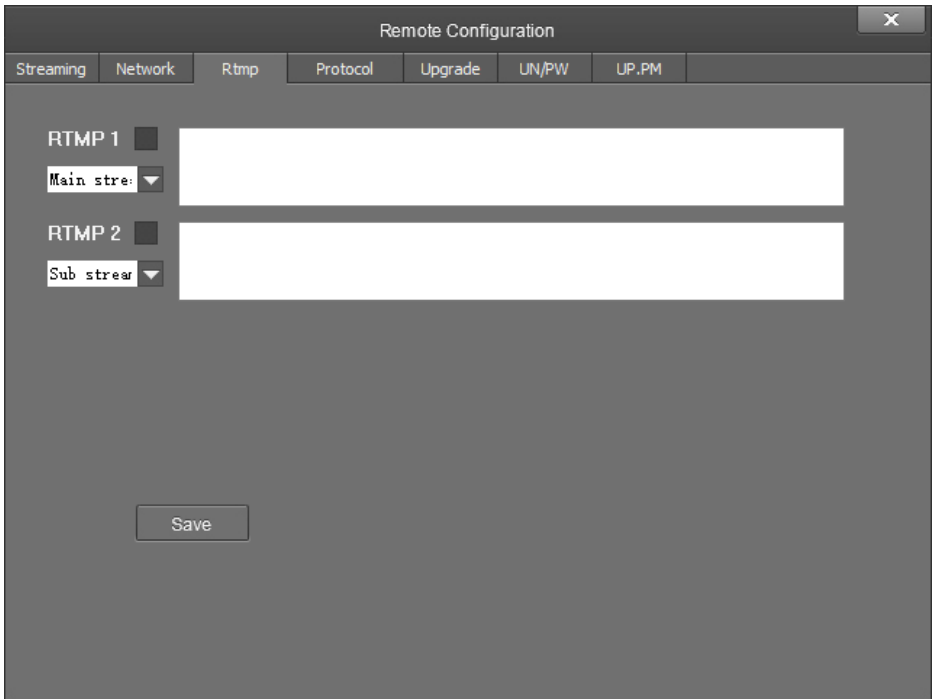
DNS 2 **114.114.114.1**

Save

- Connect with: please choose from Static IP or dynamic IP address;
- IP Address: input unused IP address on the network;
- Mask: same as those used by other PC's on the network;
- Gateway: input gateway IP address;
- DNS 1: server-prior, same as other PC's on the LAN;

- DNS 2: It will be used in case DNS1 server is not working;
- Port: streaming port (RTSP) and application port (SDK connection) can be configured. The range of stream ports is 3479~7999 and 554, default is 554. The range of application ports is 3479~7999, default is 5000;
- Click the “Save” button after setting is completed;
- Camera will connect to Ethernet after above-mentioned operations.

7.3.3. RTMP



In RTMP1 and RTMP2, main stream, sub stream can be chosen to stream.

Support common RTMP servers, such as red5, nginx, crtmpserver, fms, wowza.

7.3.4. Transparent Transmission

The screenshot shows a 'Remote Configuration' window with a dark grey background. At the top, there is a title bar with a close button (X) on the right. Below the title bar is a navigation menu with tabs: 'Streaming', 'Network', 'Rtmp', 'Protocol', 'Upgrade', 'UN/PW', and 'UP.PM'. The 'Protocol' tab is currently selected. The main area contains the following settings:

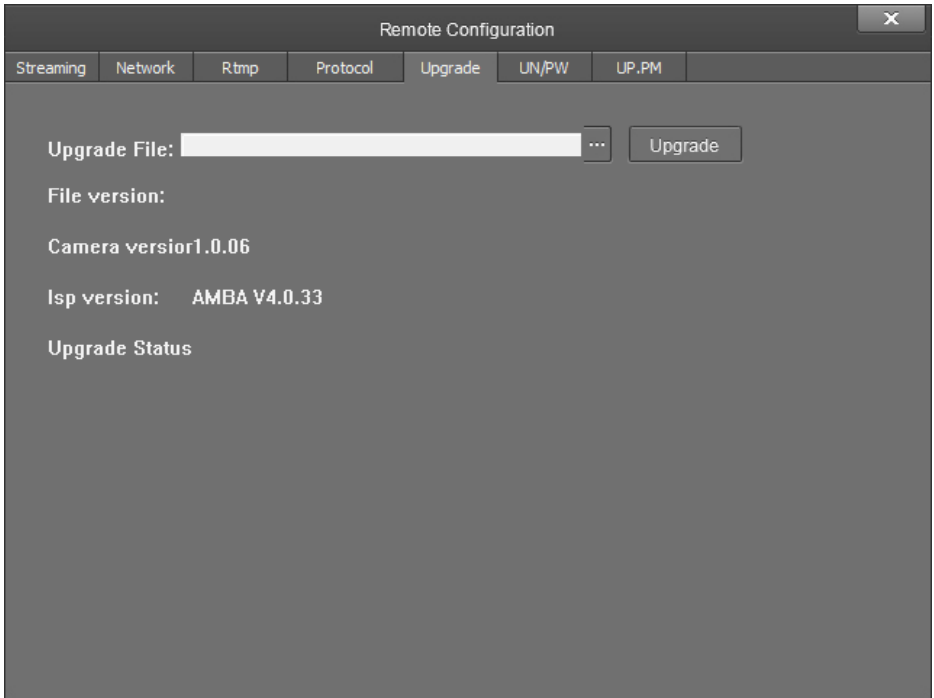
- Enable:** A dropdown menu set to 'Disable'.
- Protocol:** A dropdown menu set to 'UDP'.
- Camera as:** A dropdown menu set to 'Client'.
- IP:** A text input field containing '0.0.0.0'.
- Port:** A text input field containing '0'.

At the bottom of the settings area, there is a 'Save' button.

Functions:

1. Transparent transmission of VISCA PTZ control commands;
 2. Transmit camera status code;
- Enable / Disable: enable / disable transparent transmission;
 - Protocol: choose TCP or UDP protocols;
 - Camera as: choose Client or Server;
 - IP: when the camera is set as client, the IP address of the transmitted camera is needed. When the camera is set as server, the IP address can be left as black;
 - Port: choose from 1-65535 as transparent transmission port.

7.3.5. Upgrade



■ Camera Update

Click "Upgrade" menu to enter the main interface, as the picture shown above.

Click to search and load the updating firmware, then click "Upgrade" to start upgrading. Do not power off the camera during upgrading. After upgrading is completed, camera will reboot.

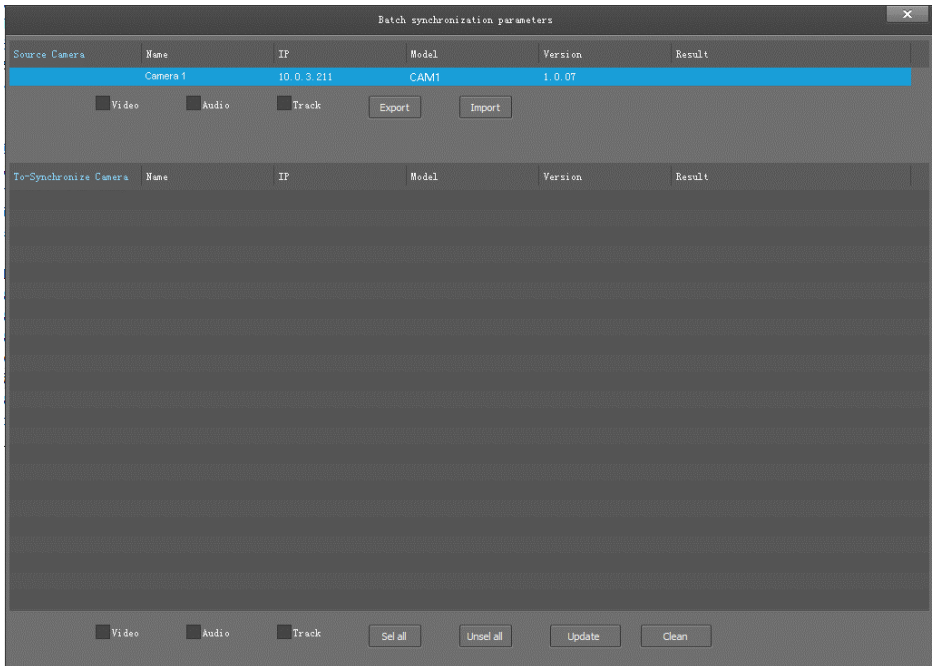
7.3.6. Setting

The screenshot shows a 'Remote Configuration' window with a close button (X) in the top right corner. Below the title bar is a navigation bar with tabs: Streaming, Network, Rtmp, Protocol, Upgrade, UN/PW, UP, PM, and an unlabeled tab. The 'UN/PW' tab is selected. The main area contains several settings:

- Password settings:** 'Old password', 'New password', and 'Confirm' fields, each with a 'Save' button below it.
- Camera name:** 'Camera nam' field with the value 'CAM1' and a 'Save' button below it.
- Time settings:** 'Local Time' (2022-03-25 10:04:!!) with an 'OK' button; 'Display Time' checkbox (checked); 'Time Format' dropdown (YYYY-MM-DD HH:mm:ss) with an 'OK' button.
- NTP settings:** 'Enable NTP' dropdown (Disable); 'TimeZone' dropdown (+08:00); 'NTP Server' field (pool.ntp.org) with an 'OK' button.
- Reboot/Reset:** 'Reboot' label with 'Reboot' and 'Reset' buttons.

- Password setting: when a password is required, the camera can be accessed only after a correct password is input;
- Maintenance: Reboot or Reset;
- Camera nam: set the camera name, click “Save”;
- Time setting;
 - a. Synchronize local time;
 - b. Show time or not on the CMS video and set the time format;
 - c. NTP Server setting.

7.3.7. Sync parameters



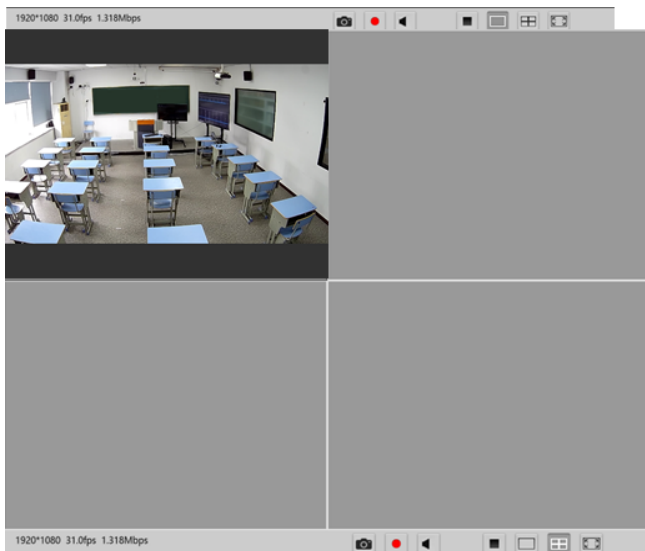
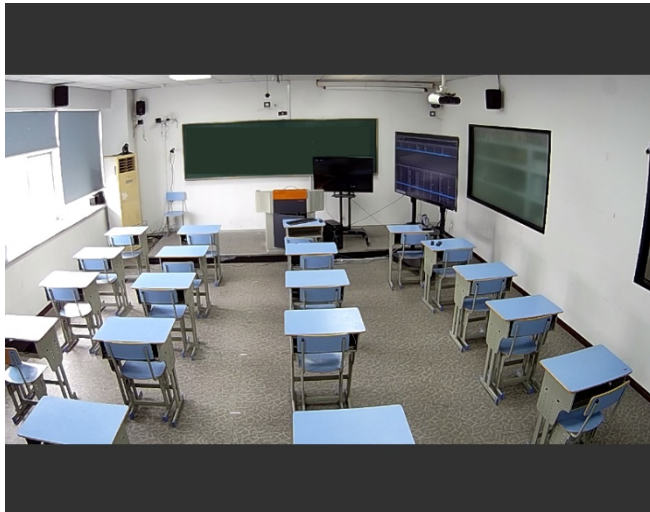
Select the camera to be synchronized of the same model which are currently managed and unselected, and then click any option or multiple options among the video, audio and track. After clicking the "Update", the current camera to be synchronized will be synchronized with the Source camera parameters.

- Import, Export: only operate on the source camera, the camera parameters can be exported to the file, or the parameters be imported into the camera from the file.
- Update: only operate on the camera to be synchronized.

8. PREVIEW

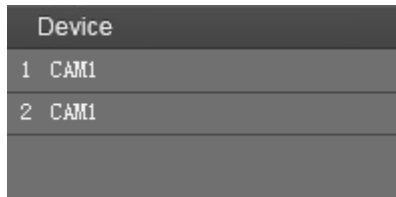
8.1. Main View Introduction

Click [Main View](#) to get into camera control and preview part as below.



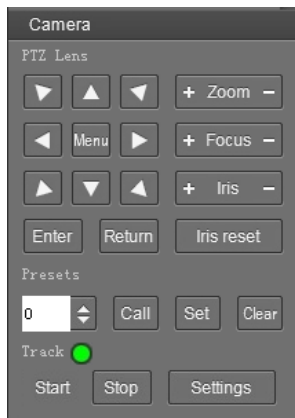
The interface consists of the following three parts: Device List, Device control and Video preview.

- Device List: Displays all online cameras added to Device Management.



| Device | |
|--------|------|
| 1 | CAM1 |
| 2 | CAM1 |

- Device Control: get control of the selected camera (camera name in blue)



- Video Preview: double click the camera in the list, main camera stream will be displayed in the preview window; or right click the selected camera from the left column to get its main or substream video. Video preview mode can be single video or four video's, when in four video's mode, select one of the video then choose the bottom right icon to enlarge this selected video to a big single window.

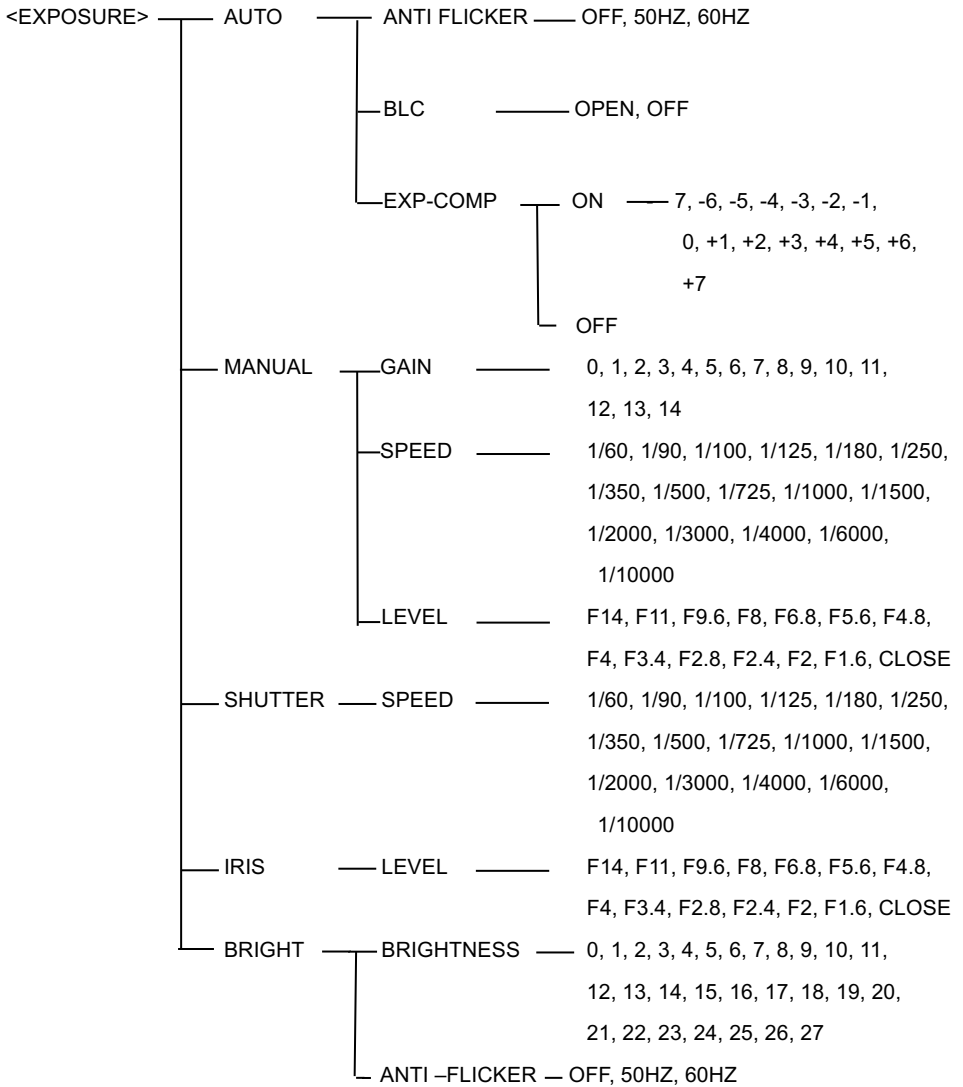
- Video: Default storage path: { APP } | save video file.


9. MENU SETTINGS

Press **MENU** button to enter / exit menu. Press the **Enter** button to get into the menu, press the back button to return to previous menu, and press the directional buttons to change menu options.

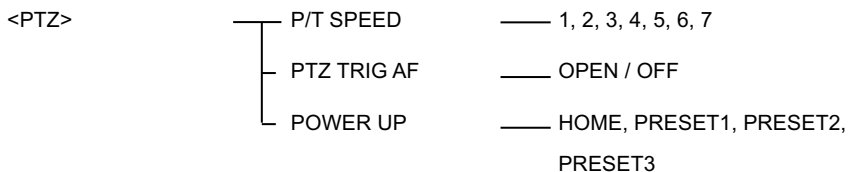
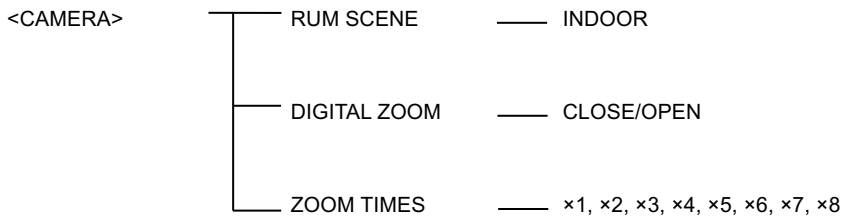
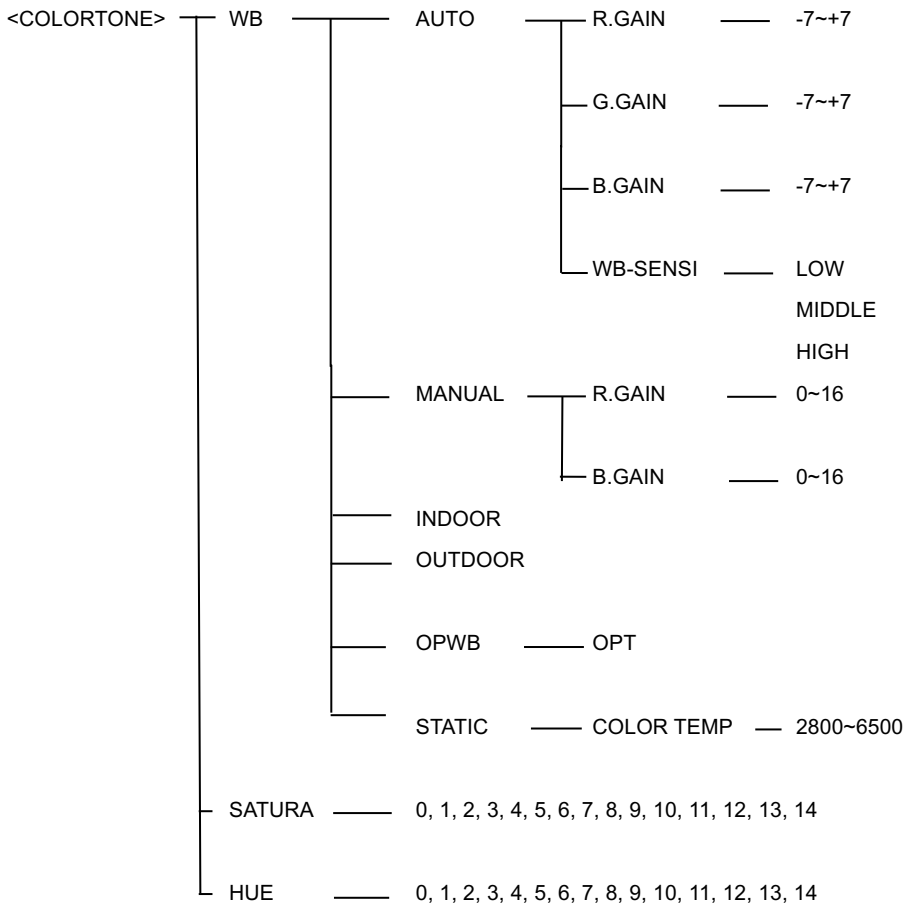
9.1. Menu Structure

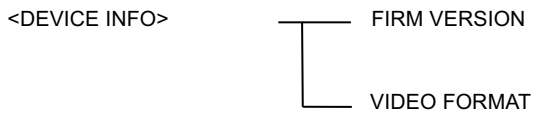
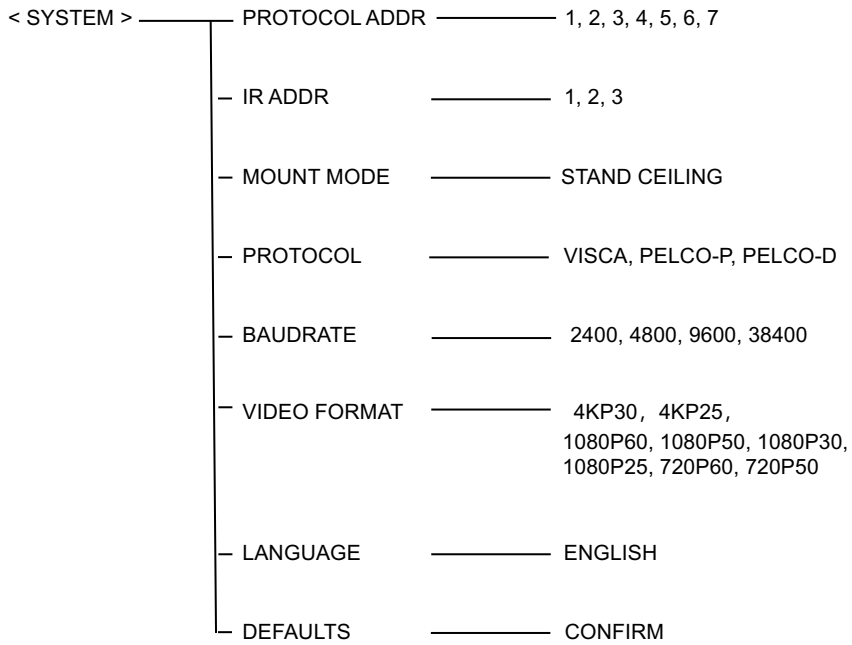
| | | | |
|---------|------------|----|--|
| <IMAGE> | SHARPNESS | —— | 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 |
| | BRIGHTNESS | —— | 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 |
| | CONTRAST | —— | 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 |
| | GAMMA | —— | 0, 1, 2, 3, 4 |
| | 2DNR | —— | 0, 1, 2, 3, 4, 5, 6, 7 |
| | 3DNR | —— | 0, 1, 2, 3, 4, 5, 6, 7 |
| | DRC | —— | 0, 1, 2, 3, 4, 5 |
| | MIRROR | —— | ON, OFF |
| | FLIP | —— | ON, OFF |



 **Notes**

The shutter speed in this exposure parameter takes 30/60 FPS for reference.





9.2 Menu Explanation

1. Press **MENU** button to enter / exit menu.
2. Press ▲ or ▼ button to select among menu options, when the font is enlarged, it indicates the menu has been selected, press **ENTER** button to get into this menu.
3. Press ◀ or ▶ to change value

| Type | Options | Functional description |
|--------------|------------|--|
| IMAGE | SHARPNESS | Used to adjust the sharpness of image and acutance of image edge. The sharpness is increased and the contrast of details in the image plane is higher, making it look clearer. If the sharpness value is too high, it may cause the image distortion. |
| | BRIGHTNESS | Used to adjust the brightness of the image. |
| | CONTRAST | Refers to the ratio between the lightest and darkest areas of the image. The larger the ratio is, the more gradation levels from black to white will be, resulting in richer colors, clearer and more eye-catching images, and brighter and more gorgeous colors. Low contrast, on the other hand, will make the whole picture gray. |
| | GAMMA | Used to adjust the brightness value of the image, the lower the gamma value is, the brighter the image will be, the higher the gamma value is, the darker the image will be. |
| | 2DNR | When the camera shows color image, it is advised to disable the digital noise reduction function; otherwise, the image acutance will be affected. |
| | 3DNR | By comparing several adjacent frames of images, the noise wave is automatically filtered out, so that the image noise is significantly reduced, the image is more thorough, the picture is more pure and delicate. The higher the level of noise reduction is, the more delicate |

| | | |
|------------------|---------------|---|
| | | the picture quality will be, the smaller the shaking feeling is. The lower the level of noise reduction is, the more blurred the picture quality will be, the greater the feeling of jitter is. |
| | DRC | It refers to the adaptability of the camera to strong light, specifically to the range of brightness (contrast) and color temperature (contrast). |
| | MIRROR | The camera image flips 180° horizontally. |
| | FLIP | The camera image flips 180° vertically. |
| EXPOSURE | EXPOSURE MODE | Switch from exposure modes. |
| | BLC | The camera lens can automatically compensate the brightness of darker targets under strong light background. Adjust the lighting of the bright background, so as to obtain a clear image, to avoid the background brightness caused by the whole picture a bright, but the target is indistinguishable because of the darkness. |
| | EXP-COMP | Display levels when exposure compensation Settings are on. |
| COLORTONE | WHITE BALANCE | Switch the white balance mode. |
| | SATURATION | Refer to the purity and brightness of the image color. The higher the saturation is, the brighter the color effect is. Vice versa, the lower the saturation is, the more the effect tends to be black and white. |
| | TONE | Used to adjust the overall tendency of the color of an image, causing the color to rotate. |
| CAMERA | RUM SCENE | Used to set the scene suitable for the best camera shooting effect. |
| PTZ | P/T SPEED | Set the camera speed level. The higher the level is, the faster the speed will be. |
| | PTZ TRIG AF | Focus automatically when the camera pans, tilts and zooms. |
| | POWER UP | The action performed before the camera receives a |

| | | |
|--------------------|---------------|--|
| | | control command when it powers on. |
| SYSTEM | PROTOCOL ADDR | Change the camera address by software without setting the camera address through dip switch. |
| | IR ADDR | Set the IR remote address of the camera. |
| | MOUNT MODE | The camera image flips 180° vertically. |
| | PROTOCOL | Set the current control protocol of the camera. |
| | BAUDRATE | View and set the current baud rate of the camera. |
| | VIDEO FORMAT | View and set the video format of the camera. |
| | TRACK TYPE | View and set the tracking mode of the camera. |
| | LANGUAGE | View and set the language of the camera. |
| | DEFAULTS | Used to restore all menu parameter settings to factory default settings. |
| | NETWORK | View and set the current network of the camera. |
| DEVICE INFO | FIRM VERSION | Displays the firmware version of the current camera. |
| | VIDEO FORMAT | View the video format of the current camera. |

10. TECHNICAL SPECIFICATIONS

| Tracking Camera | |
|-------------------------|--|
| Image Sensor | SONY 1/2.8" 4K CMOS, 8.46 megapixel |
| Focal Lens | f=3.4mm-40.3mm |
| Iris | F1.8 (Wide) ~ 3.6 (Tele) |
| Optical Zoom | 12x |
| Digital Zoom | 8x |
| Angle of view | 81°~7.6° |
| Focus | Auto, Manual, PTZ Trigger, One Push Trigger |
| Min. Illumination | 10lux |
| Shutter | 1/1~ 1/10,000 sec |
| Gain | Auto/Manual |
| White Balance | Auto, One Push, Manual, Static color temperature |
| Exposure | Auto, Manual, Iris Priority, Shutter priority, Brightness Priority |
| S/N Ratio | ≥50dB |
| Menu | English |
| Full-view Camera | |
| Image Sensor | SONY 1/2.8" 4K CMOS, 8.46 megapixel |
| White Balance | Auto |
| Exposure | Auto |
| Lens | Fixed, 2.8mm |
| Angle of view | Horizontal:95°, Vertical:62° |
| PTZ | |
| Pan Range | -130°~+130° |
| Tilt Range | -30°~+90° |
| Pan Speed | 0.2°~80°/s |
| Tilt Speed | 0.2°~80°/s |
| Flip | Support |
| Preset Number | 64 |
| Interface | |

| | |
|---------------------|--|
| HDMI | HDMI 2.0 Output; Video resolution 4KP30/P25, 1080P60/P50/P30/P25, 720P60/P50 |
| Network | RJ45 (10/100M/1000M) interface, optional POE; Video format: support H.264, H.265 Close-up video resolution: 4KP30/P25, 1080P30/P25, 720P30/P25, 360P30/P25 Panoramic video resolution: 4KP30/P25, 1080P30/P25, 720P30/P25, 360P30/P25 |
| USB | 1XUSB2.0 1.UVC Protocol: UVC1.0; 2.UVC video compression support H.264/MJPEG; Video resolution 4KP30/P25, 1080P30/P25, 720P30/P25, 360P30/P25 |
| 3G-SD I | 1X3G-SDI; Video resolution: 1080P60/P50/P30/P25, 720P60/P50 |
| Audio interface | 1XLINE IN, 3.5mm |
| Control interface | 1XRS-232 IN, 1XRS-232 OUT |
| DIP Switch | Rotary DIP switch to define video format |
| Power supply | DC12V |
| General | |
| Control protocol | VISCA |
| Power Consumption | < 18W |
| Working environment | Working Temp: 0°C ~ + 40°C; Working humidity: 10%RH ~ 90 %RH |
| Dimensions | 245mm×145mm×165mm |
| Weight | 1.8kg |
| Color | Gray |

11. AFTER-SALES SERVICE

Dear users, in order to ensure that you fully enjoy our quality service, please read the following product service articles carefully.

Limited warranty and lifetime maintenance services are provided.

1. Limited warranty period is 12 months from the date products leaving factory. During the limited warranty period, you will enjoy free service of repair service expect caused by man-made malfunction.

2. Outside the limited warranty period of 12 months, damaged products need be paid for their repair service.

Maintenance response time

1. 24-hour response service will be provided from the day defective products been sent back.

2. To ensure timely response or repair service, before sending defective product(s) back, please contact relevant sales person in advance and then send the product(s) back according to returning instructions provided.