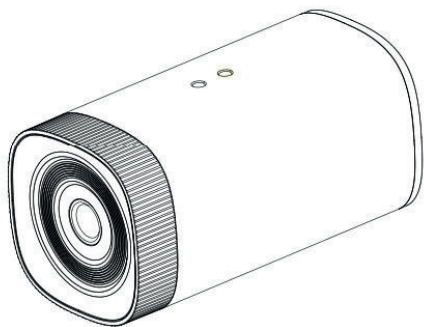


hameco

Educational Auto Tracking EPTZ Camera



HV-100E User Manual

ATTENTIONS

This manual introduces functions, installations and operations for this camera in details. Please read this manual carefully before installation and use.

1. Cautions

- 1.1 Avoid damage to product caused by heavy pressure, strong vibration or immersion during transportation, storage and installation.
- 1.2 Housing of this product is made of organic materials. Do not expose it to any liquid, gas or solids which may corrode the shell.
- 1.3 Do not expose the product to rain or moisture.
- 1.4 To prevent the risk of electric shock, do not open the case. Installation and maintenance should only be carried out by qualified technicians.
- 1.5 Do not use the product beyond the specified temperature, humidity or power supply specifications.
- 1.6 Wipe it with a soft, dry cloth when cleaning the camera lens. Wipe it gently with a mild detergent if needed. Do not use strong or corrosive detergents to avoid scratching the lens and affecting the image.
- 1.7 This product contains no parts which can be maintained by users themselves. Any damage caused by dismantling the product by user without permission is not covered by warranty.

2. Electrical Safety

Installation and use of this product must strictly comply with local electrical safety standards. The power supply of the product is $\pm 12V$, the max electrical current is 2A.



3. Install

- 3.1 Do not rotate the camera head violently, otherwise it may cause mechanical failure;
- 3.2 This product should be placed on a stable desktop or other horizontal surface. Do not install the product obliquely, otherwise it may display inclined image.
- 3.3 Ensure there are no obstacles within rotation range of the holder.
- 3.4 Do not power on before completely installation.

4. Magnetic Interference

Electromagnetic fields at specific frequencies may affect the video image. This product is Class A. It may cause radio interference in household application. Appropriate measure is required.

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1. PRODUCT OVERVIEW

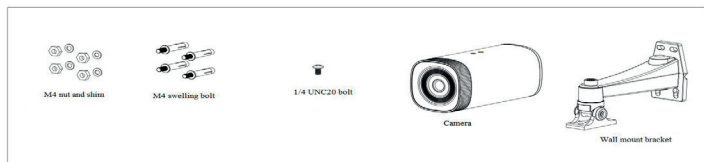
1.1 System introduction

Educational tracking camera system is mainly composed of the teacher tracking camera and student tracking camera. The video camera integrates with industry leading 4K ultra-definition imaging technology, image encoding and decoding technology, video analysis technology and electronic PTZ control technology, and realizes a single camera to output close-ups main stream, close-up sub-stream, panoramic main stream, panoramic sub-stream and blackboard stream at the same time. Built-in high-speed processor and advanced image processing and analysis algorithm, the camera can track and detect accurately and quickly, and fully meet the requirements of various scenes of teaching recording and remote interactive teaching.

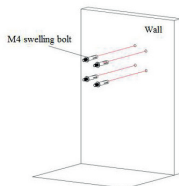
1.2 Main Features

- **Intelligent lecturer tracking:** Built-in leading image recognition and tracking algorithm, without any auxiliary positioning camera or tracking host, it can also track the target stably, accurately and quickly.
- **Strong anti-interference ability:** Once the tracking target is locked, it will be free of disturbances of other moving objects or projectors etc.
- **Smooth tracking:** The sensitivity of action can be adjusted and it will not be affected by target's unobvious movement or gestures.
- **Strong environmental adaptability:** The tracking performance is not affected by classroom's size, shape or seats layout.
- **Ultra-wide dynamic exposure function:** avoids the problem of darkening of tracking targets under strong light backgrounds such as projectors.
- **Multiple tracking modes:** support real-time tracking, movie, area tracking multiple tracking mode switching;
- **Ultra HD:** 1/2.8 inch high quality 4K CMOS sensor; support 1080P@30fps/25fps image output.
- **Wide view angle and distortion-free lens:** Using ultra wide-angle, distortion-free camera; supports 3X digital zoom and EPTZ control at the same time;
- **Low noise and high SNR:** Low-noise CMOS effectively guarantees the ultra-high signal-to-noise ratio of the camera video, even in the case of ultra-low illumination, still keeping the picture clean and clear;
- **Multiple video compression:** USB supports H264, MJPG, YUY2, NV12 video compression formats, and the network supports H.264, H.265 video compression formats;
- **Multiple video outputs:** Support HDMI, USB3.0 and LAN (Gigabit);
- **Multiple streams:** Support five streams, simultaneously output close-up main stream, close-up sub-stream, panoramic stream, panoramic sub-stream and blackboard writing stream;
- **POE support:** A single network cable can support power, control, and video output simultaneously, thus simplifying wiring installation.
- **Multiple installation:** Wall mount and in-ceiling mount for options.
- **Network control interface:** Controlling via Network can meet different deployment of various scenarios.
- **Wide application:** Lecturer capture, remote interactive teaching etc.

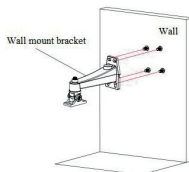
1.3 Mounting Brackets



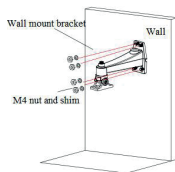
STEP 1



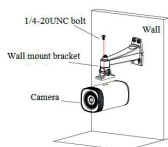
STEP 2



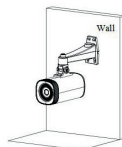
STEP 3



STEP 4



FINISH



2. INTERFACE INTRODUCTION

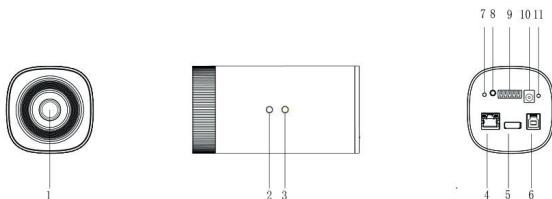
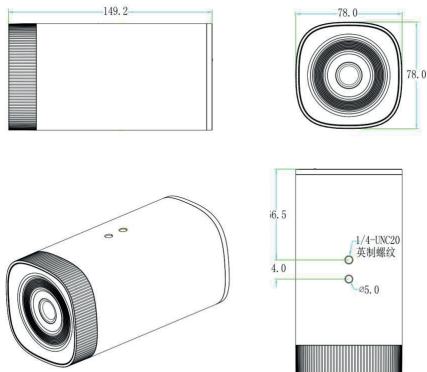


Figure 1.1 Product Interface

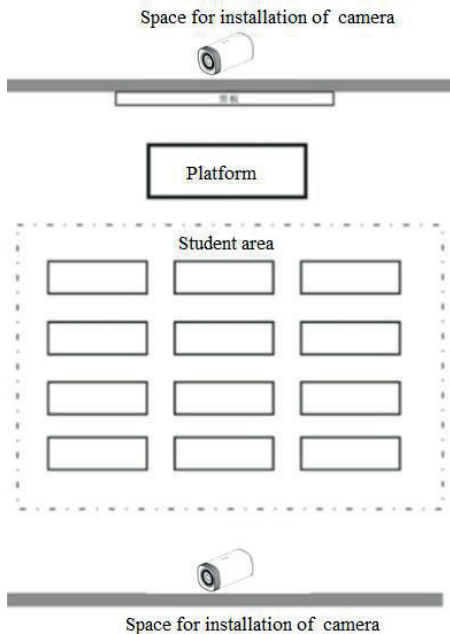
- | | | |
|------------------------|-------------------------|---------------------|
| 1. Camera Lens | 5.HDMI output Interface | 9. RS232/ RS485 |
| 2. Position Fixed Hole | 6. USB3.0 Interface | 10. Power Interface |
| 3. Tripod Screw Hole | 7. Reset button | 11. Power Indicator |
| 4. LAN Interface | 8. LAN-IN | |

3. DIMENSION



4. SYSTEM CONNECTION

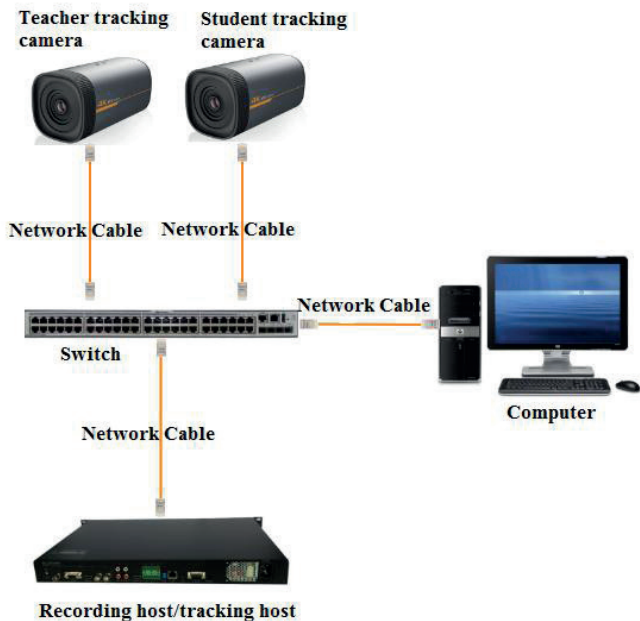
4.1 Installation Layout



Teacher tracking camera is installed at place 1.6-2.1m from ground (distance from panoramic lens to ground), and the distance from the blackboard is 5-9m. Teacher tracking camera should be installed near central axis of the classroom as much as possible to get the best result of tracking camera shooting. (Support ceiling mounting)

4.2 System Wiring

The teaching tracking camera products provide a smart camera solution for education information field, and customers can select all or some products as needed. Different combinations of products meet the demands of customers' in various scenarios.



5. IE LOGIN AND TRACK SETUP PROCESS

5.1 Connecting Mode

Direct connection: Connect the camera via network cable to external Internet access of the PC Internet

Connection mode: Connect the camera to Internet by Router or Switch and user can log in the device by browser.

Note: Please do not put the power and network cable in places where can be easily touched to prevent video quality lowered by unstable signal transmission due to poor contact of 8 cables.

The computer must have the network segment where the camera IP address belong to. The device will not be accessible if without the segment. I.E. The camera default IP address is 192.168.5.163, then segment 5 must be added in the computer. Specific steps are as below:

Firstly open the window of Local Area Connection Properties on computer, select the "Internet protocol version 4(TCP/IPv4)" as shown by picture on the left. Double click or click the property "Internet" protocol version 4 (TCP/IPv4) to enter into the Internet Protocol Version 4(TCP/IPv4) Properties window, select "Advanced" to enter into the Advanced TCP/IP Setting and add IP and subnet mask in the IP browser as picture shown below. Click the "Confirm" to finish the adding of IP segment. User can add the corresponding network segment according to the revised IP address of the camera.

Note: The IP address to be added cannot be same with that of other computers or devices.

The existence of this IP address needs to be verified before adding.

To verify whether the network segment has been successfully added, click the "Start" and select "Operation" to input cmd, then click OK and open DOS command window, type ping 192.168.5.26, press Enter key to display information shown below, which means network segment adding is succeeded.

```
C:\Users\qq214>ping 192.168.5.26

Pinging 192.168.5.26 with 32 bytes of data:
Reply from 192.168.5.26: bytes=32 time<1ms TTL=128
Reply from 192.168.5.26: bytes=32 time=1ms TTL=128
Reply from 192.168.5.26: bytes=32 time<1ms TTL=128
Reply from 192.168.5.26: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.5.26:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\Users\qq214>
```

To verify whether the network segment has been successfully added, click the “Start” and select “Operation” to input cmd, then click OK and open DOS command window, type ping 192.168.5.26, press Enter key to display information shown below, which means network segment adding is succeeded.

```
C:\Users\qq214>ping 192.168.5.163

Pinging 192.168.5.163 with 32 bytes of data:
Reply from 192.168.5.163: bytes=32 time=2ms TTL=64
Reply from 192.168.5.163: bytes=32 time=1ms TTL=64
Reply from 192.168.5.163: bytes=32 time<1ms TTL=64
Reply from 192.168.5.163: bytes=32 time=4ms TTL=64

Ping statistics for 192.168.5.163:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 4ms, Average = 1ms

C:\Users\qq214>_
```

5.2 IE Login

1,Web Client Login

Input the IP address 192.168.5.163 of the device in the address filed of browser and click Enter button to enter into Web Client login page as below picture. User can login as administrator and normal user. If login as administrator (Default User name/Password: admin), users can preview, playback, configuration and cancel in the Web Client; If login in as normal user (Default User name/Password: user1 or user2), users can only preview, playback and logout, no option for configuration.

Note: Web access support browsers: IE, 360 browsers, and other conventional browsers.

Language Selection: click Chinese/English in the upper right corner of the login page to select the language type of the web interface.

5.3 IE Preview

After successful login into the management interface, it enter the video preview interface. In the preview screen, users can control PTZ, zoom, focus, video capture, sound, focus, full screen and set the preset position, run, delete and other operations.

1) Login as administrator

User name, password the default admin PTZ control can be carried out, zoom, focus, video capture, sound, zoom, full screen and set the preset position, run, and delete; you can preview, playback, configuration, log off.

2) Login as normal user

Default User name/password: user1 or user2 PTZ control can be carried out, zoom, focus, video capture, sound, zoom, full screen and set the preset position, run, and delete; you can preview, playback and logout.

NOTE: There are no configuration rights for normal user login.

5.4 IE Configuration

Click Configuration to enter into the device parameters setting page.

There are the following options: audio configuration, video configuration, network configuration and system configuration, detailed description see the following table.

Menu	Explanation
Audio configure	Including audio compressing format, sampling frequency, sampling precision, compressing code rate settings etc.
Video configure	Including video encoding, stream release, RTP broadcasting ,video parameters, character-overlapping, character size, video output setting etc.
Network configure	Including basic parameters, Ethernet, DNS, GB28181, wireless network setting etc.
System configure	Including equipment property, system time, user management, version update, reset, reboot device settings etc.

5.4.1 Audio Configuration

Switch: Choose to enable the audio or not. (default: off)

Compressing Format: Set audio compressing format and the device will reboot automatically after change (default MP3, AAC, G.711A optional)

Sampling Frequency: Set sampling frequency and the device will reboot automatically after change (default 44100, 8000, 16000, 32000 and 48000 optional)

Sampling Precision: Set sampling precision (default 16bits)

Compressing Code Rate: Set audio compressing code rate (default 64bits, 32, 48, 96, 128bits optional)

Channel type: Set channel type (default mono, stereo optional)

Input Volume: Set the input volume (default 2, 1-10 optional) Click "Save", it will remind "Enable has changed. Restart the device to take effect after the success of the save.", then please reboot the camera to make new setting effect.

5.4.2 Video Configuration

1) Video Encoding

Code stream: Different video output mode setting, use different streams. (close-up main stream, close-up sub-stream, panoramic main stream, panoramic sub-stream, and broadcast code stream)

Compression Format: Set the video compression format, save and reboot to take it effect (main / secondary stream default: H.264, H.265 optional)

Profile: Set Profile mode (default HP, BP, MP optional)

Video Size: Set video image resolution, save and reboot to take it effect (close-up main stream default 1920*1080, 1280*720, 640*480 optional; close-up sub-stream default 320*180, 320*240,640*360, 640*480, 1280*720 optional; panoramic main stream default 1920*1080,1280*720, 640*480 optional; panoramic sub-stream default 320*180, 320*240,640*360,640*480,1280*720 optional; broadcast code stream 1920*1080,1280*720,640*480 optional)

Stream Rate control: Set rate control mode, save and reboot to take it effect (close-up main stream, close-up sub-stream, panoramic main stream, panoramic sub-stream and blackboard code stream default variable bit rate, fixed rate is for option).

Image Quality: Set the image quality, image quality can be changed only when rate control is variable bit rate,(main stream defaulted is best, secondary stream default is better, there are best,better, good, bad, worse, worst for options).

Rate (Kb / s): Set the video bit rate (close-up main stream default 4096Kb/s, 64-40960Kb/s optional; close-up sub-stream default 512Kb/s, 64-40960Kb/s optional; panoramic main stream default 4096Kb/s, 64-40960Kb/s optional; panoramic sub-stream default 512Kb/s, 64-40960Kb/s optional; and broadcast code stream default 4096Kb/s, 64-40960Kb/s optional).

Frame rate (F/S): Set the video frame rate (close-up main stream, close-up sub-stream, panoramic main stream, panoramic sub-stream, and broadcast code stream default 25F/S, main stream 5-30F/S optional).

Key frame interval: Set the key frame interval (close-up main stream, close-up sub-stream, panoramic main stream, panoramic sub-stream, and broadcast code stream default 100F, main stream 1-150F optional).

Key frame minimum QP: Set the key frame minimum QP (default 20, 10-51 optional)

Stream Name: When streaming via rtsp or rtmp, user can modify stream name. close-up main stream(- default live/av0), close-up sub-stream(default live/av1), panoramic main stream(default live/av2), panoramic sub-stream(default live/av3), and broadcast code stream(default live/av4).

Click the "Save" button to display the "saved successfully" message, then settings take effect.

2) Stream Release

Stream: You can set any stream release of close-up main stream, close-up sub-stream, panoramic main stream, panoramic sub-stream, and guide stream

Switch: To turn on/off close-up main stream, close-up sub-stream, panoramic main stream, panoramic sub-stream and blackboard code stream.

Protocol: Set protocol (default RTMP protocol, RTSP, SRT are optional)

Host Port: server port number (default 1935, 0-65535 optional)

Host Address: server IP addresses (default 192.168.5.11)

Stream Name: choose a different stream name (live / av0, live / av1, live/av2, live/av3, live/av4 optional).

User: Set the user name.

Password: Set the password.

Click on the "Save" button to display the "Save successful" message, then settings take effect.

SRT Password: Set SRT stream password

SRT password length: set the length of SRT stream password

3) RTP Broadcasting

Stream: Set any of the close-up main stream, close-up sub-stream, panoramic main stream, panoramic sub-stream, guide stream, multicast or unicast

Switch: To turn on/off close-up main stream, close-up sub-stream, panoramic main stream, panoramic sub-stream and blackboard code stream.

Protocol: Set multicast protocol (default RTP multicast, TS multicast, UDP unicast, TCP unicast optional)

Address: Default 224.1.2.3. It can be edited.

Port: Main Stream Default Port: close-up main stream default 4000 close-up sub-stream default 4002 panoramic main stream default 4004 panoramic sub-stream default 4006 broadcast code stream default 4008.

Visit: Address comes up after setting. Eg ; rtp://224.1.2.3:4000; udp://@224.1.2.3:4000

4) Video Parameters

a. Exposure: Exposure mode, exposure compensation, back light compensation, anti-flicker, gain limit, wide dynamic, shutter speed, aperture value and brightness can be set.

Exposure Mode: Set the exposure mode (the default automatic, manual, shutter priority, aperture priority, Brightness priority optional)

Exposure compensation: Exposure compensation setting is active when it is auto status (default is off).

Exposure compensation value: Set the exposure compensation value, valid when it is set for auto (default 0, -7 to 7 optional).

BLC: Set back light compensation, valid when it is auto status (default is off).

Anti-flicker: Set up anti-flicker mode, valid when status of automatic, aperture or brightness priority (default 50Hz, closed, 60Hz optional).

Gain limit: set the gain limits, only valid when exposure mode is automatic, aperture/brightness priority.(default 4, 0-15 optional).

Dynamic range: Set the dynamic range (default off, 1-8 optional).

Shutter speed: Active when it is status of manual or shutter-priority (default 1/50 1/25 1/30 1/50 1/60 1/90 1/100 1/120 1/180 1/250 1/350 1/500 1/1000 1/2000 1/3000 1/4000 1/6000 1/10000 optional).

Aperture value: Set the aperture value, active when it is status of manual or aperture-priority (default close, F1.8, F11, F9.6, F8.0, F6.8, F5.6, F4.8, F4.0, F3.4, F2.8, F2.4, F2.0 optional).

Brightness: Set the brightness value, active when it is a state of brightness priority (default 11, 0-23 optional).

Gain: Set the gain value, only valid when the exposure mode is manual and shutter priority (default 1,0-20 optional)

b. Color: White balance, saturation, color, white balance, sensitivity, color temperature, gain red and blue gain can be set.

White balance modes: Set the white balance mode (the default automatic, 2400K-7100K, manual, One-push optional).

Note: Click the “Correction” button when selected the One-push white balance mode.

Red fine-tuning: default 0, -10~10 (only available in automatic mode)

Blue fine-tunable: default 2, -10~10 (only available in automatic mode)

Saturation: Set the saturation (default 36, 0-127 optional).

Chroma: Set the chroma (default 4, 0-8 optional).

White balance sensitivity: Set the white balance sensitivity (default is high, medium, low for options)

Red Gain: Set the red gain, effective when it is manual (default 36, 0-255 optional).

Blue Gain: Sets the Blue gain, effective when it is manual (default 36, 0-255 optional).

c. Image: Brightness, contrast, sharpness, black and white mode, the gamma curve, Horizontal Flip and Vertical Flip can be set.

Brightness: Set the brightness (default 50, 0-100 optional).

Contrast: set the contrast (default 50, 0-100 optional).

Sharpness: Set the sharpness value (default 4, 0-15 optional).

Black and white mode: Set black and white mode (default color, black/white optional).

Gamma: Gamma value setting (default, 0.45, 0.50, 0.55, 0.63 optional).

Ultra-low illumination: default off

d. Noise Reduction: 2D noise reduction, 3D noise reduction

2D Noise Reduction: Set 2D noise reduction level (default off, 1-8 optional).

3D Noise Reduction: Set 3D noise reduction level (default 2 and 1-8, Off optional).

e. Style: select the picture style (default, standard, clear, bright, soft and USB optional)

Note: Click “Refresh” to make revision of any video parameters of a, b, c, d, e effective.

4) Character-Overlapping

Display date and time: Set whether to display the time and date (default display).

Display Title: Set whether to display the title (default display).

Font Color of Time: Set font color of time and date (default white, black, yellow, red, and blue optional).

Font Color of Title: Set font color of title (default white, black, yellow, red, and blue optional).

Moving characters: Set the display position of moving date, time and title, click on the “up, down, left, right” buttons to move the corresponding character position.

Title Content: Set title content (default CAMERA1).

Time Content: Set time content (default 1970/01/10 05:36:00)

Click on the “Save” button and display the “Save successful” message, then valid

5) Character Size

Main stream character size: Set the character size of the display, the device will restart automatically after changed and saved (default 48, 28-200 optional)

Secondary stream character size: Set the character size of the display, the device will restart automatically after changed and saved (default 48, 28-200 optional)

Click on the “Save” button to display “Parameter saved successfully” message, set to take effect.

6)Video output

Output format can be checked by on/off (default off)

Output format: 1080P30, 1080P25, 1080I60, 1080I50, 720P60, 720P50

Click on the “Save” button, it will be valid when display “Save successful”.

5.4.3 Network Configuration

1) Network port

Data port: set the data port, the device will restart automatically after changed (default 3000, 0-65535 optional)

Web Port: Set Web port, the device will restart automatically after changed (default is 80, 0-65535 is optional)

Onvif Port: Set Onvif port, the device will restart automatically after changed (default 2000, 0-65535 optional)

Soap Port: Set Soap port (default 1936, 0-65535 optional)

RTMP Port: Set RTMP port (default 1935, 0-65535 optional)

RTSP Port: Set RTSP port, the device will restart automatically after changed (default 554, 0-65535 optional).

Visca Port: Set Visca port, the device will restart automatically after changed (default 1259,0-65535 optional).

WebSocket port: Set the WebSocket port, change and save it and restart the device to take effect (default 8088, 0-65535 optional)

Click on the “Save” button, it will be valid when display “Save successful”.

RTSP Obtaining method: rtsp:// device IP address: 554 / live / av0 (av0 close-up main stream, av1 close-up sub-stream, av2 panoramic main stream, av3 panoramic sub-stream, av4 broadcast code stream.)

RTMP Obtaining method: rtmp:// device IP address:1935/live/ av0 (av0 close-up main stream,

av1 close-up sub-stream, av2 panoramic main stream, av3 panoramic sub-stream, av4 broadcast code stream.)

2) Ethernet parameters

DHCP: Enable or disable obtain IP automatically can be set. Save changes and reboot the device to takes effect (default: OFF)

IP Address: Set the IP address, save changes and reboot the device to takes effect (default 192.168.5.163). Note: This IP address is the same with the one used to login Web page.

Subnet Mask: Set the subnet mask (default 255.255.255.0).

Default Gateway: Set the default gateway (default 0.0.0.0).

Physical Address: Set the physical address (the parameter is read-only but can not be modified). Click on the "Save" button, it will be valid when display "Save successful". (Note: To prevent IP conflicts When modify)

3) DNS parameters

Preferred DNS server: set the preferred DNS server. (Default 0.0.0.0).

Alternate DNS server: Alternate DNS server settings. (Default 0.0.0.0).

Click on the "Save" button, it will be valid when display "Save successful".

4) GB28181

Switch: set whether open GB28181, can check

Time Synchronization: whether synchronization time is set, you can check

Stream Type: stream type setting (the default main stream, secondary stream optional)

Sign effective time (in seconds): 3600 Range 5-65535

Heartbeat time (seconds): 60 Range 1-65535

Register ID: 34020000001320000001

Register User name: IPC

Register Password: 12345678

Equipment ownership: Users can add their own

Administrative regions: Users can add their own

Alarm Zone: Users can add their own

Equipment installation address: Users can add their own

Local SIP Port: 5060 Range 0-65535

GB28181 Server Address: IP address of the computer

Server SIP Port: 5060 Range 0-65535

Server ID: 34020000002000000001

Click on the "Save" button, it will be valid when display "Save successful".

5) SRT

SRT port: Set the SRT port, change and save and restart the device to take effect (default 9000, 0-65535 optional)

SRT password: Set the SRT password, change and save it and restart the device to take effect (the default is empty, the password is between 10-80 characters)

SRT password length: Set the length of the SRT password, change and save it and restart the device to take effect (default 0, 16, 24, 32 optional)

5.4.4 System Configuration

1) Device Properties

Device Name: Set the device name (the default Camera1, user can add their own).

Device ID: Set the device ID (default 1, Read-Only).

System Language: Set the system language (default Simplified Chinese, English optional).Need to re-login after modify and save the setting.

Click on the "Save" button, it will be valid when display "Save successful".

2) System Time

Date Format: Set the date format (YYYY-MM-DD default That year - month - day, MM-DD-YYYY namely Month - Day - Year, DD-MM-YYYY date - month - year Optional).

Date separator: set the date separator (default '/', ':' Optional).

Time Zone: Set the time zone (default East eight districts, other time zones optional).

Time Type: Set the time types (default 24 hours, optional 12 hours).

Time setting: Set time mode (to choose the computer time synchronization, NTP server time synchronization, or set manually).

Computer Time: Set the computer synchronization valid.

Update interval: Set the NTP server automatic updated time interval. Valid after setting NTP server synchronization (default one day, 2-10 days Optional).

NTP server address or domain name: Set NTP server address or domain name (default time.nits.gov). Valid after setting NTP server synchronization.

NTP Server Port: Sets the NTP server port (default 123).Valid after setting NTP server synchronization.

Set the time manually, Effective when set manually.

Click on the "Save" button, it will be valid when display "Save successful".

3) User Management

Select users: Set the user type (the default administrator, Common User 1, Common User 2 optional)

User name: set the user name (Select User Administrator default admin; select a common user1 default user1; to select a common user 2 default user2; user can modify their own)

Password: Set a password (Select User Administrator default admin; select a common user1 default user1; to select a common user 2 default user2; user can modify their own)

Password confirmation: Confirm the input passwords are the same or not.

Click on the "Save" button to display the "Save successfully" message, then the set is to take effect.

Please note the case-sensitivity of the user name and password.

If login page by a common user's name and password, one does not have configuration privileges but can only operate to preview, playback, logout.

4) Version upgrade

Users only read the version information above which is consistent with the menu version but can not modify. Different types of the machine has different information.

Update file: Click "Browse ..." installation, to select the upgrade file in the pop-up window.

Click on the “Upgrade” button, the upgrade dialog will appear, the device will reboot automatically after update successfully.

(Note: Make sure the power and network is keeping connected during the process, or the upgrade will fail)

Note: After the version upgrade is complete, you need to restore factory defaults; a. through web to restore the factory default configuration; b. through the recovery menu; c. remote control shortcut * # 6;

Choose one of the above three ways. The IP account and password of mode a are also restored to default.

5) Restore factory setting

Click on pop-up “Restore Factory Defaults” button and choose “yes” or “no”, then the device will restart automatically and restore factory setting.

6) Reboot

Click on the pop-up “Reboot” button and choose “yes” or “no”, then the device will restart automatically.

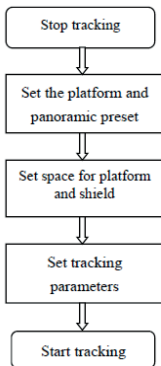
5.5 Logout

Point “Logout” pop-up “Confirmation” dialog; select “Yes” or “No”, choose “Yes” to exit the current page and return to the user login interface again.

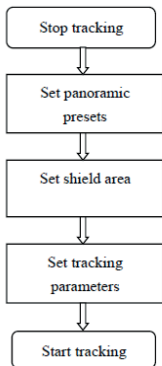
5.6 Configure Tracking Parameter

Set up process

The setup process of teacher tracking



The setup process of student tracking



5.6.1 Teacher Tracking Configuration

The following instructions are given in accordance with the setup flowchart. The main interface of teacher tracking configuration is shown in Figure 5.6-1

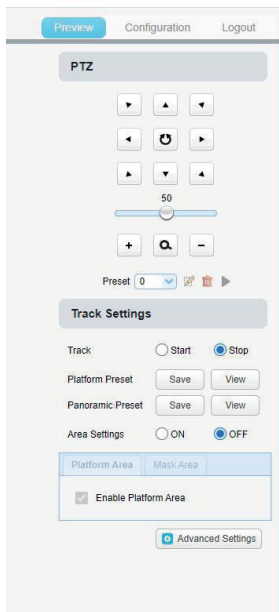


Figure 5.6-1 Operation interface

1. Click stop tracking
2. Preset setting of the platform

The operation interface for setting the preset position is shown in Fig. 5.6-2. By controlling the position and ZOOM value of the PTZ, the camera Angle and position are adjusted to the preset position and saved. The description of the preset position of the podium is as follows.



Figure 5.6-2 Operation interface

Platform preset: Control teacher tracking camera to make platform (we suggest that teachers stand in the middle of platform, if any) get desired visual result in camera image, then click and save platform preset. During normal tracking, size of teacher's image in the picture uses Platform preset as a reference. When tracking target disappears, it can select close-up lens to go back to platform preset.

3. Panoramic preset setting

The operation interface for setting the preset position is shown in Fig. 5.6-3. By controlling the position and ZOOM value of the PTZ, the camera Angle and position are adjusted to the preset position and saved. The panoramic preset settings are described below

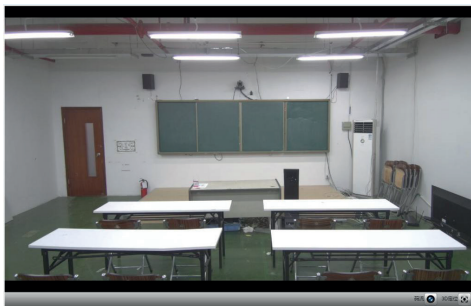


Figure 5.6-3 Operation interface

Panoramic preset: Control teacher tracking camera to allow camera to have almost a panoramic of the classroom (or any position). When tracking target disappears, it can select close-up lens to go back to panoramic position.

4. Area settings (ON: show the mask area; OFF: hide the mask area)

5. Platform area: It is the area tracked once close-up lens start up tracking. It is blackboard area on platform generally so as to ensure that when teacher is on platform, his upper body is displayed within setting area, and it will not exceed lower margin of platform area when students in the first row sit down. See Figure 5.6-4.

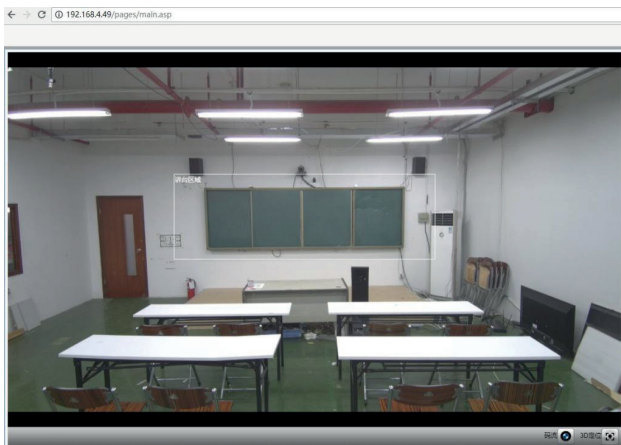


Figure 5.6-4 Operation interface

6. Mask area: Mask area is usually the area which may impact result of teacher tracking, such as places which may have dynamic changes such as TV, projector, doors and windows. See Figure 5.6-5:

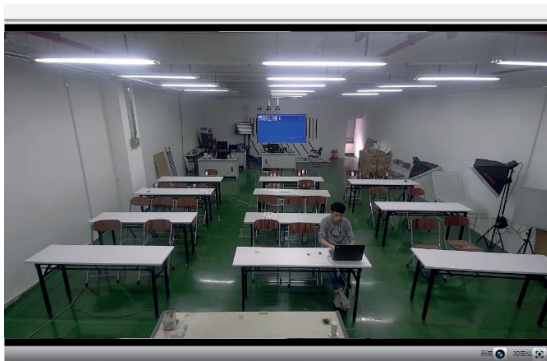


Figure 5.6-5 Operation interface

7. Advanced settings

Target lost: This feature is to make sure that when the target lost, lens will return to the assigned preset. It has 2 modes for option: panoramnic preset and close-up preset.

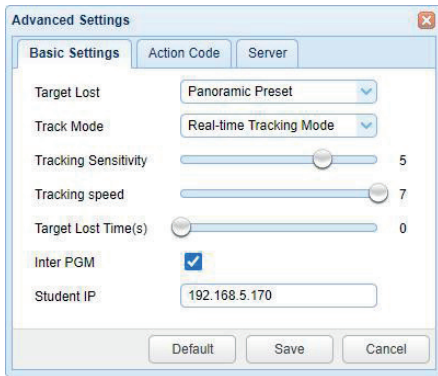


Figure 5.6-6 Operation interface

Track mode (Three for option):
 Real-time Tracking Mode
 Movie Mode
 Area Tracking Mode

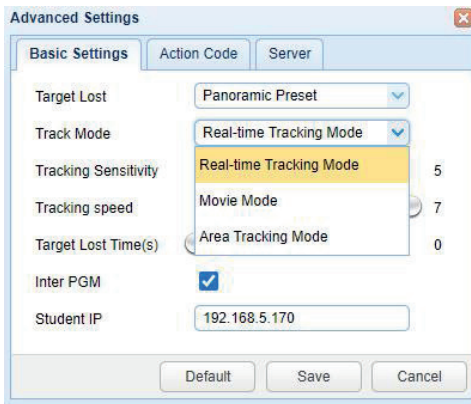


Figure 5.6-7 Operation interface

Tracking sensitivity: It means in teacher tracking mode, how much the action range is required to trigger tracking camera when the tracking target changes from stationary state to motion state. The higher the action sensitivity, the smaller movement of tracking target that will trigger camera's tracking motion.

Tracking speed: It means speed of tracking camera for horizontal tracking.

Target lost time(s): It means how much time is required (0s by default) for tracking camera to perform "target lost action" when target is lost (default: return to panoramic preset).

Inter PGM: It is chosen default.

Student IP address: Fill in the IP of the student tracking camera here. When the director stream is obtained, the close-up of the teacher tracking camera and the panoramic switch of the student tracking camera can be realized.

5.6.2 Student Tracking Configuration

The following instructions are given in accordance with the setup flowchart. The main interface of student tracking configuration is shown in Figure 5.6-8.

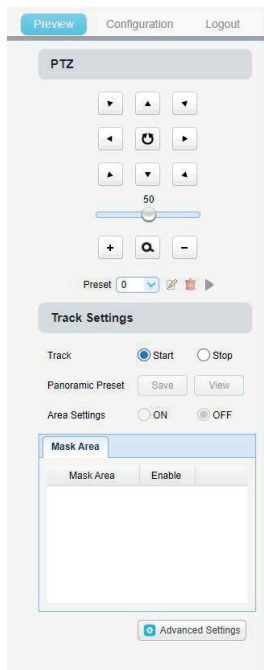


Figure 5.6-8 Operation interface

P.S. For student tracking, mask area setting is the only configuration that needs to be done. Turn the camera faced to the students, click “Start”, no other configuration is needed.

1. Click “Stop” tracking
2. Panoramic preset configuration

The operation interface for setting the preset position is shown in Figure 5.6-9. By controlling the position and ZOOM value of the PTZ, the camera angle and position are adjusted to the preset position and saved. The panoramic preset settings are described below.

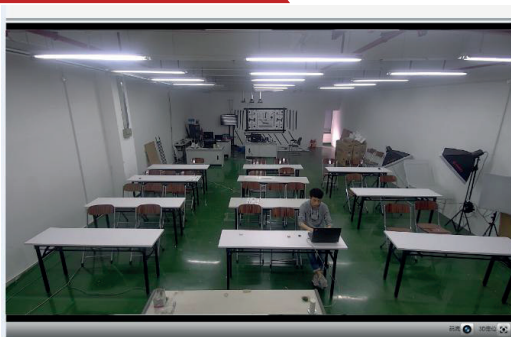


Figure 5.6-9 Operation interface

Panoramic preset: Control student tracking camera to allow camera to have almost a panoramic view of classroom (or any position). When tracking target disappears, it can select to go back to panoramic position.

3. Area settings (ON: show the mask area; OFF: hide the mask area)

4. Mask area: Mask area is usually the area which may impact result of teacher tracking, such as places which may have dynamic changes such as TV, projector, doors and windows. See Figure 5.6-10:

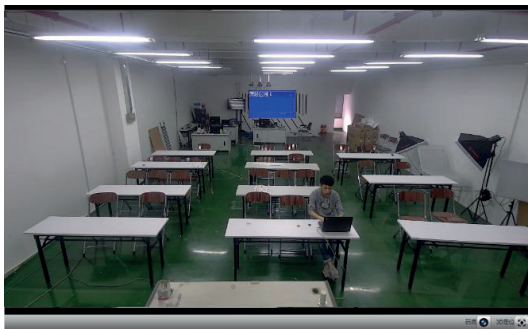


Figure 5.6-10 Operation interface

5. Advanced settings

Target lost: This feature is to make sure that when the target lost, lens will return to the assigned preset. The preset position can be selected in one of two modes: maintain original position or panoramic preset position.

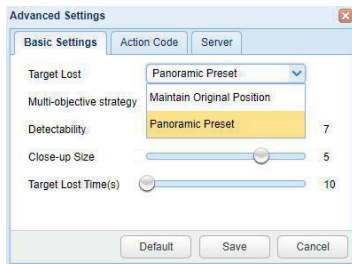


Figure 5.6-11 Operation interface

Multi-objective strategy: When detects multi-tragets, can choose “Close-up” or “Panoramic”.

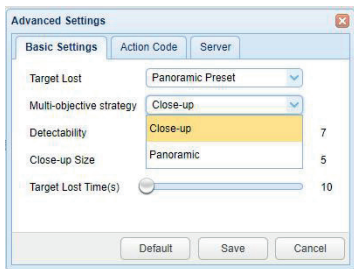


Figure 5.6-12 Operation interface

Detectability: It means in student tracking mode, how much the action range is required to trigger tracking camera when the tracking target changes from sit down state to stand up state. The higher the action sensitivity, the smaller movement of tracking target that will trigger camera's tracking motion.

Student close-up size: It means in student tracking mode, the proportion of close-up image size.

Target lost time(s): It means how much time is required (60s by default) for tracking camera to perform “target lost action” when target is lost (default: return to panoramic preset).

For the setting of the action code, see the chapter “6. Recording and broadcasting host connection instructions”.

For the setting of the server, please refer to the chapter “6. Recording host connection instructions”

After completing the relevant settings, you need to click Save. According to specific scenarios and customer needs, you can enter the advanced parameter section multiple times to modify the configuration values to achieve the best results.

6. DESCRIPTION OF RECORDING AND BROADCASTING HOST

6.1 Auto Tracking Control

The recording and broadcasting host sends command by LAN network port and controls automatic tracking motion of teacher tracking camera. In auto tracking mode, it does not allow control the pan rotation or zoom by the control interface from the browser or remote control; in stop auto tracking mode, it is allowed.

1. Network receiving address

Teacher auto tracking camera default IP is: 192.168.5.163.

2. Command

Action	Command
Start teacher tracking	0x810x0A 0x08 0x01 0x020xFF
Stop teacher tracking	0x81 0x0A 0x08 0x01 0x03 0xFF

6.2 Action Code Docking

Tracking status of teacher tracking camera will be feedback to recording and broadcasting host in real time via network (UDP transmission mode) in the action code form.

1. Configuration of recording and broadcasting host address

If recording and broadcasting host uses LAN to receive action code, then it needs to configure host address by web browser. Click **Advanced settings** -> **Server**, as shown below:

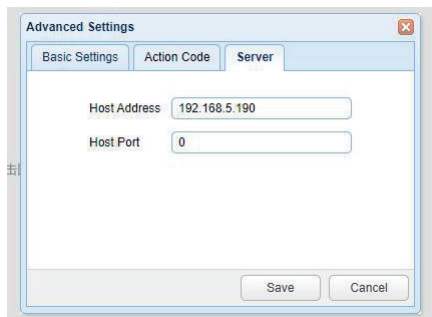


Figure 6.2-1 Operation interface

2. Configuration of action code

Modify action code as needed via web browser. Click Advanced settings -> action code; After modification, click save, as shown below:

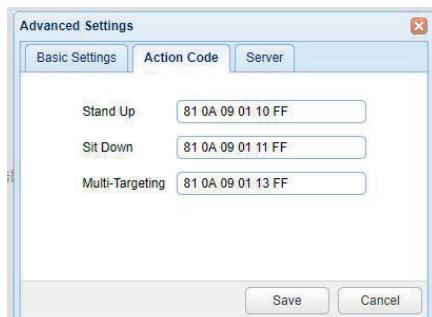


Figure 6.2-2 Operation interface

7. TECHNICAL PARAMETER

Model Number	Teacher Tracking	Camrea Student	Tracking Camera
Camera/ Lens Parameters			
Image Sensor	1/2.8 inch High Quality 4K CMOS Sensor		
Effective pixels	8.28 megapixel, 16: 9		
Video Format	HDMI Interface 1080P30 1080P29.97 1080P25 720P29.97 U3 Interface: MJPG/H264 1920*1080/1600*896 /1280*720 /1024*576 /960*540 /800*600 /800*448 /720*576/720*480 /640*480 /640*360 /480*270 /352*288 /320*240@30/25/20/15/10/5fps YUY2/NV12 1920*1080 /1280*720 /1024*576 /800*600 /800*448 /640*480 /640*360 /480*270 /320*180@30/25/20/15/10/5fp USB3.can be compatible with USB2.0 output		
View Angle	51.6° D /45.5° H /26.5° V	95° D /83°(H)/46°(V)	
Focus	f=6.8mm	f=3.24mm	
Aperture	F2.5	F2.10	
Digital Zoom	3X		
Minimum Illumination	0.1Lux(F1.8, AGC ON)		
DNR	2D&3D DNR		
White Balance	Auto / Manual/ One Push/ Specified color temperature 2400K-7100K, step length is 100		
Focus	Fixed		
Exposure	Auto/Manual/Shutter priority/Brightness priority		
BLC	ON/ OFF		
DNR	>50dB		

Input/Output Interface	
Video Interfaces	1xHDMI interface 1xUSB interface 1xLAN interface:10M/100M/1000M adaptive Ethernet port support POE
Video Compression Format	H.264,H.265,MJPEG,YUY2,NV12
Audio Input Interface	Double track 3.5mm linear Input
Audio Compression Format	AAC,MP3,G.711A
Network protocol	RTSP,RTMP,ONVIF,GB/T28181
Control Interface	RS232,RS485,LAN
Communication Protocol	VISCA, Pelco-D, Pelco-P, support baud rate 115200/38400/9600/4800/2400; Support VISCA Control Protocols
Power Interface	DC12V

Other Parameter		
Input Voltage	Power Adapter	12V
Input Current	Power Adapter	0.42A(max)
	POE Supply	0.104A(max)
Power Consumption	5W(max)	
Stored Temperature	-10 C°~+60 C°	
Stored Humidity	20% ~ 95%	
Working Temperature	-10 C°~+50 C°	
Working Humidity	20% ~ 80%	
Dimension WXHXD	149.2mm×78mm×78mm	
Weight	Around 0.53kg	
Application	Indoor	
Accessory	Power adapter, USB3.0 cable, User Manual, Warranty card, Packing list	

8. MAINTENANCE AND TROUBLESHOOTING

8.1 Camera Maintenance

- 1) Please power off the camera and disconnect the power adapter and socket, if it's not used for a long run.
- 2) Use soft cloth or tissue to clean the camera cover.
- 3) Wipe it with a soft, dry cloth when cleaning the camera lens. Wipe it gently with a mild detergent if needed. Do not use strong or corrosive detergents to avoid scratching the lens and affecting the video quality.

8.2 Troubleshooting

1) No video output

- a. Check whether the camera power supply is connected, the voltage is normal, the power indicator is lit.
- b. Whether the machine could do self-check after restarted.
- c. Check whether the bottom of the DIP switch is the normal operating mode (see Table 2.2 and Table 2.3)
- d. Check whether the video output cable or video display is normal

2) No image sometimes

- a. Check whether the video output cable or video display is normal

3) Video dithering when zoom-in or zoom-out

- a. Check whether the camera installation position is solid
- b. Whether there is shaking machine or objects around the camera

4) Serial port not works

- a. Check whether the camera serial device protocol, baud rate, address is consistent
- b. Check whether the control cable is connected properly
- c. Check whether the camera working mode is the normal operating mode

5) Web pages cannot log in

- a. Check if the camera outputs video normally by connecting directly to the screen.
- b. Check whether the network cable is connected properly (Ethernet port yellow light flashes to indicate normal network cable connection)
- c. Check whether your computer is added the segment and the segment is consistent with the IP address of the camera
- d. Click "Start" and select "Run" and then type "cmd" in the computer; Click "OK" then turn on a DOS command window to enter ping 192.168.5.163. Press the Enter key to appear message as follows: Description network connection is normal.

```
C:\Users\qq214>ping 192.168.5.163

Pinging 192.168.5.163 with 32 bytes of data:
Reply from 192.168.5.163: bytes=32 time=2ms TTL=64
Reply from 192.168.5.163: bytes=32 time=1ms TTL=64
Reply from 192.168.5.163: bytes=32 time<1ms TTL=64
Reply from 192.168.5.163: bytes=32 time=4ms TTL=64

Ping statistics for 192.168.5.163:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 4ms, Average = 1ms

C:\Users\qq214>_
```

PRODUCT DISPOSAL

Safety

For your own safety, this product should only be used with CE and RoHS approved equipment. Using this headset with non-approved equipment would void the warranty of this product.

Disposal of your product

Municipal waste stream. Old appliances must be collected separately in order to optimise the recovery and recycling of the materials to reduce the impact on human health and the environment. The crossed out "wheeled bin" symbol on the product reminds you of your obligation that when you dispose of the appliance, it must be separately collected. Consumers should contact their local authority or retailer for information concerning the correct disposal of their old appliance.

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Declaration of conformity:

This product is in conformity with the relevant EU harmonisation legislation.

