

# 4K ePTZ Camera

79068-AT2 User Manual

## 4K ePTZ Camera

**Auto-Tracking Camera w/ Electronic PTZ (ePTZ)**



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**Version: 79068-AT2\_2022V1.0**

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### Preface

Read this user manual carefully before using the product. Pictures shown in this manual are for reference only. Different product model specifications may vary.

This manual is only for operation instruction, please contact the local distributor for maintenance assistance. The functions described in this version were updated April, 2022. In order to continue improving the product, we reserve the right to make function or parameter changes without notice or obligation. Please refer to the dealers for the latest details.

### FCC Statement

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation.

Operation of this equipment in a residential area is likely to cause interference, in which case the user at their own expense will be required to take whatever measures may be necessary to correct the interference.

Any changes or modifications not expressly approved by the manufacture would void the user's authority to operate the equipment.



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### Safety Precautions

To ensure the best performance from the product, please read all instructions carefully before using the device. Save this manual for further reference.

- Unpack the equipment carefully, and save the original box and packing material for possible future shipment
- Follow basic safety precautions to reduce the risk of fire, electrical shock, and injury
- Do not dismantle the housing or modify the module (electrical shock or burn hazard)
- Using supplies or parts not meeting the products' specifications may cause damage, deterioration, or malfunction
- Refer all servicing to qualified service personnel
- To prevent fire or shock hazard, do not expose the unit to rain or moisture, or install this product near water
- Do not put any heavy items on the product's power cable
- Do not remove the housing of the device, as opening or removing the housing may expose you to dangerous voltages or other hazards
- Install the device in a place with sufficient ventilation to avoid damage caused by overheating
- Keep the module away from liquids
- Spillage into the housing may result in fire, electrical shock, or equipment damage. If an object or liquid falls or spills on to the housing, unplug the module immediately.
- Do not twist or pull by force ends of the optical cable. It can cause malfunction.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- Unplug the power cord when left unused for a long period of time
- Information on disposal for scrapped devices: do not burn or mix with general household waste, please treat them as normal electrical wastes

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### 1. Product Overview

#### 1.1 System Introduction

The 79068-AT2 is a 4K, auto-tracking, electronic Pan-Tilt-Zoom (ePTZ) camera. With an ultra-wide lens, the 79068-AT2 captures a 4K image and dynamically selects a window from within the larger image to output, allowing it to perform incredibly smooth, natural tracking without any PTZ motors. The camera is perfect for any room size, light level, or orientation, with multiple tracking modes and efficient noise reduction technology. The camera supports USB 3.0, HDMI, and Gigabit LAN video outputs. The 79068-AT2 also supports PoE for transmitting power, control, and video over a single network cable.

With a compact design and no PTZ motors, the 79068-AT2 is a robust, versatile auto-tracking camera with excellent performance, ideal for any space.

#### 1.2 Features

- Smooth, intelligent auto-tracking with multiple tracking modes
- Strong anti-interference for reliable, consistent tracking once locked on to a target
- Mount anywhere with ePTZ (no motors/movement needed)
- Exceptional image quality with 4K image sensor and 1080p @ 30hz resolution output
- Ultra-wide dynamic exposure avoids target darkening in brightly-lit spaces
- Supports USB 3.0, HDMI, and Gigabit LAN video outputs
- Controllable via RS232/485/Network using limited VISCA protocol
- Can be powered via included 12V adapter or PoE
- Instant preset viewing without movement

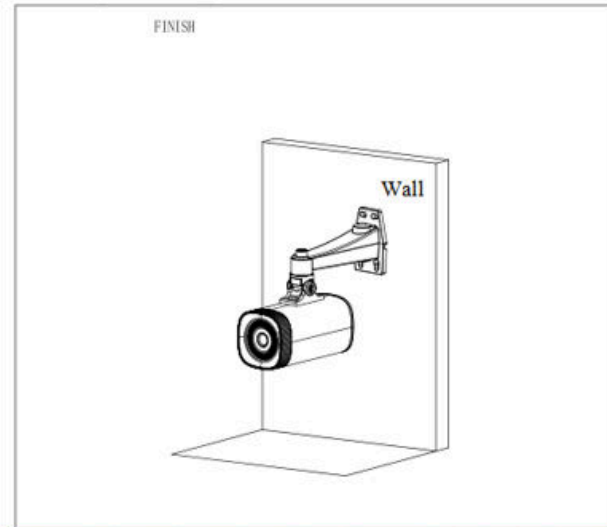
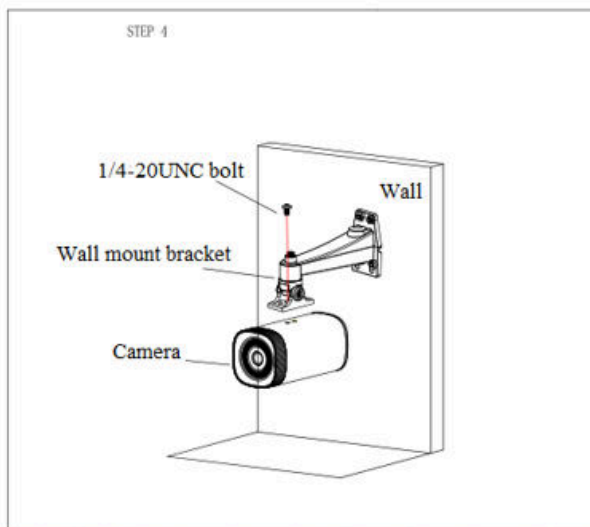
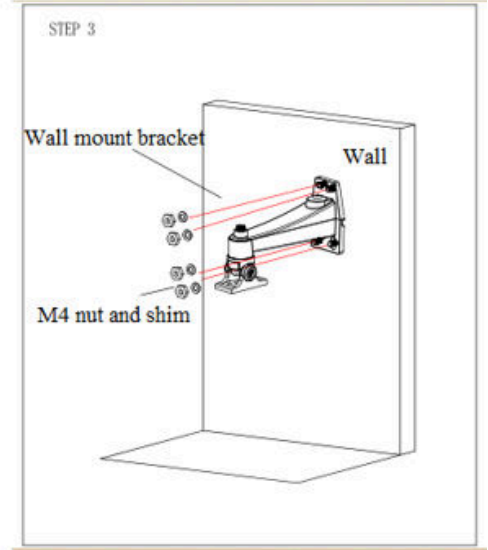
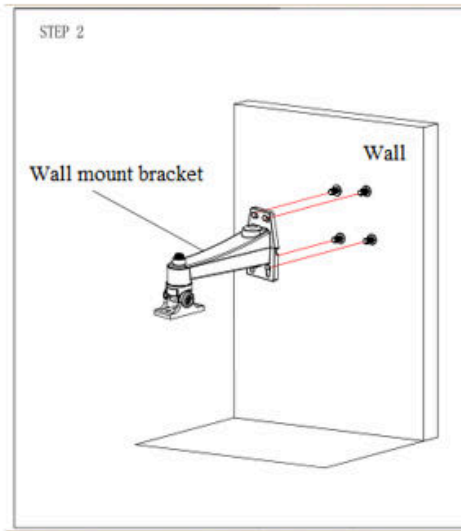
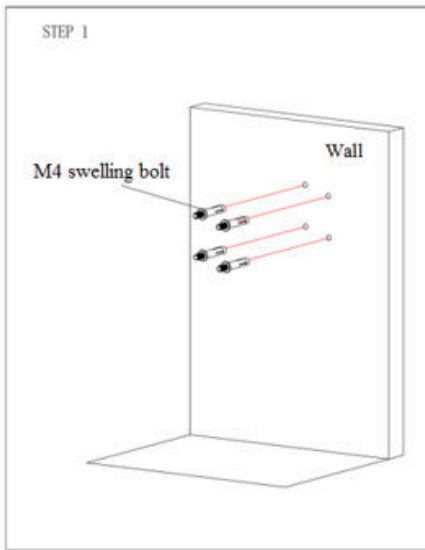
**Note:** Please contact your distributor immediately if any damage or defect in the components is found.

#### 1.3 Mounting Brackets



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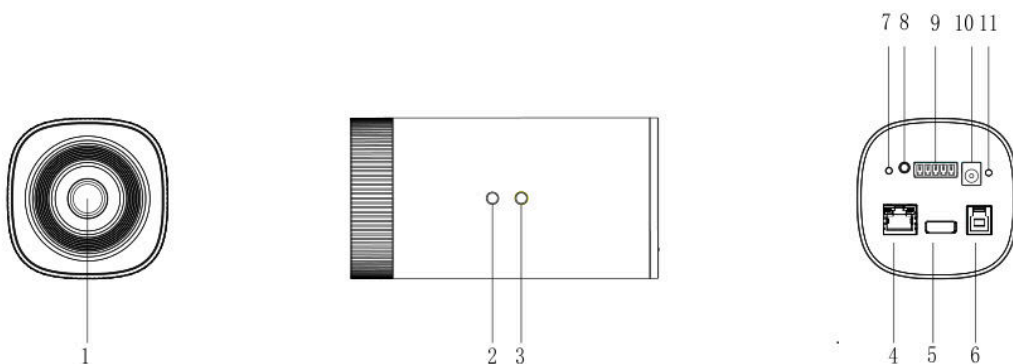
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### 2. Interface

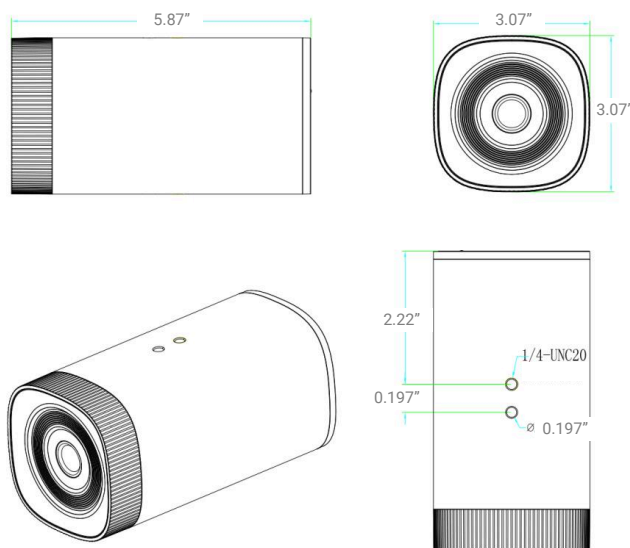


- 1. Camera Lens
- 2. Tripod Screw Hole
- 3. Tripod Screw Hole
- 4. LAN Interface

- 5. HDMI Interface
- 6. USB 3.0 Type-B Interface
- 7. Reset Button
- 8. Audio Input

- 9. RS232/485
- 10. Power Interface
- 11. Power Indicator

### 3. Dimensions



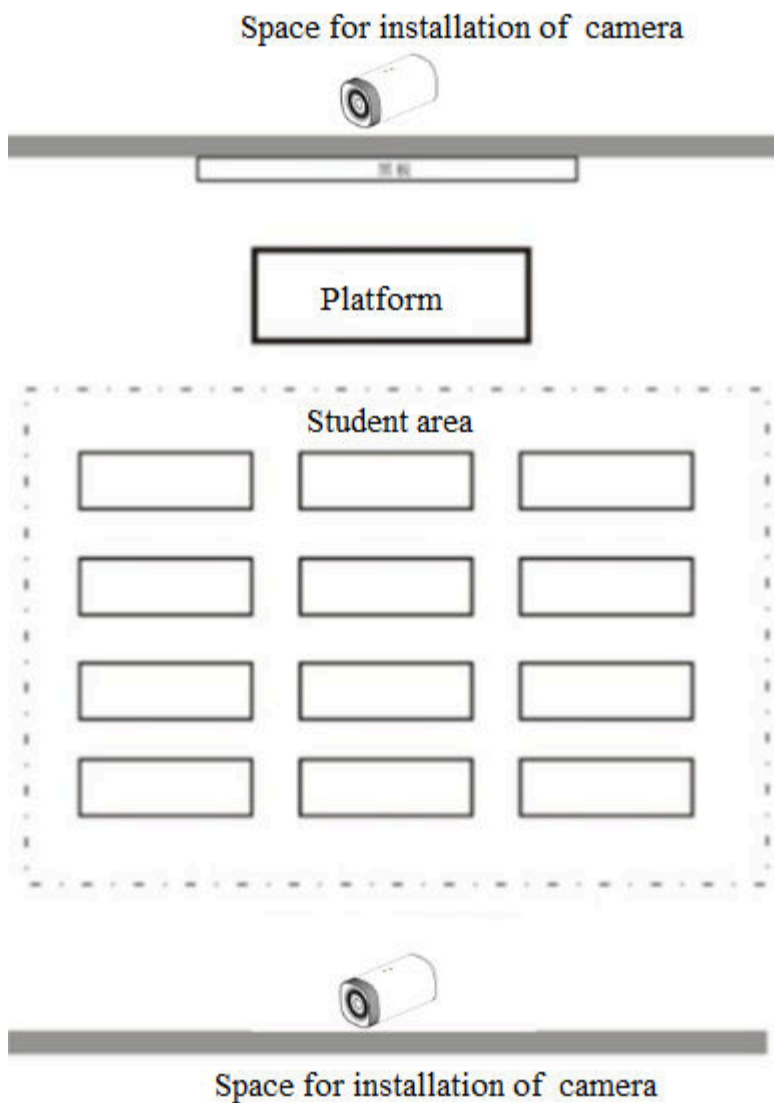


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### 4. System Connection

#### 4.1 Installation Layout

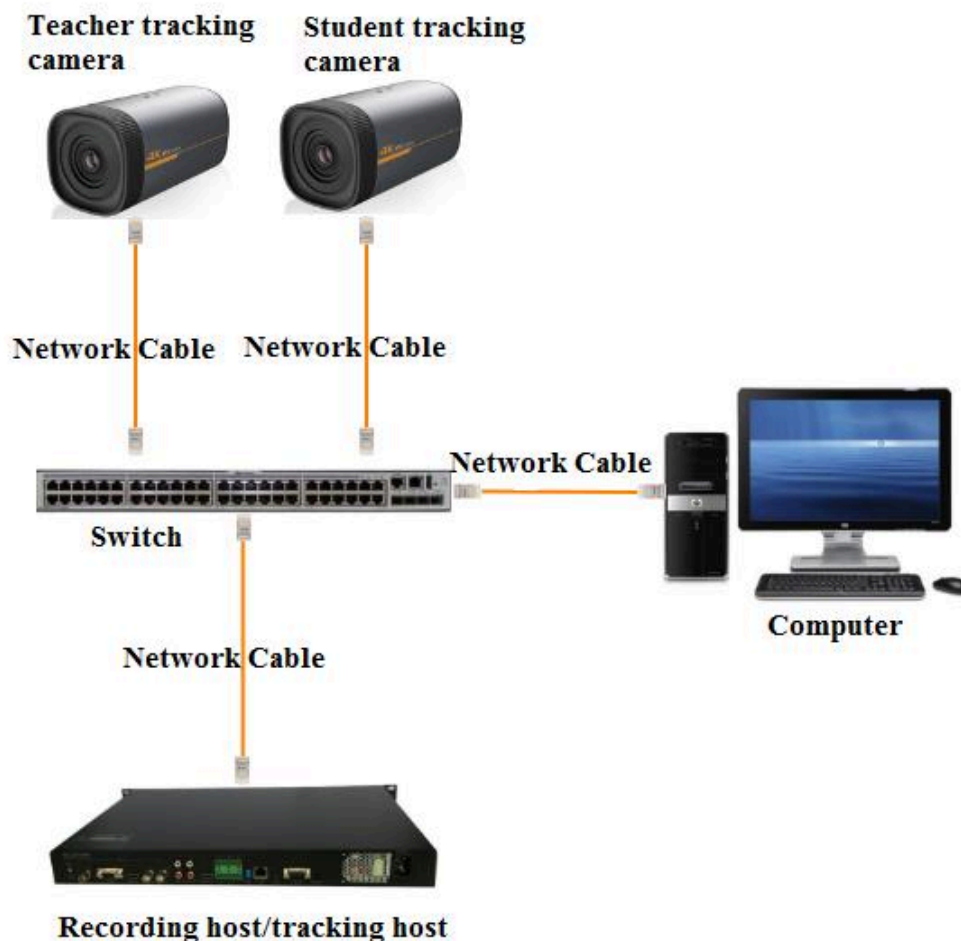


The instructor tracking camera should be installed at a height of 5'-7' (from panoramic lens to ground), 16'-20' from the blackboard. For best tracking performance, the camera should be installed as near as possible to the center of the room.

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### 4.2 System Wiring



## 5. IE Login and Track Setup Process

### 5.1 Connection Mode

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

**Internet connection mode:** Connect the camera to the Internet via a router or network switch; users can then log into the device using a web browser

**Note:** To prevent reduced video quality and unstable signal transmission, **DO NOT** put the power and network cables in places where they can be easily touched

The computer must have the network segment the camera IP address belongs to. The camera will not be accessible via the network if the computer is not set to the same segment (i.e. since the camera's default IP address is 192.168.5.163, then segment 5 must be added in the computer).

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Specific steps are as below:

First, open the Local Area Connection Properties window on the computer, then select “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 Settings, and add the IP address and subnet mask in the IP browser. Click “Confirm” to finish adding the IP segment.

**Note: The IP address to be added cannot be the same as that of any other computers or devices. Verify that no other devices are using the IP address **BEFORE** adding it to avoid network conflicts.**

To verify whether the network segment has been successfully added, click “Start” and search for “cmd” to open the Command Prompt window. Type “ping 192.168.5.26” and press Enter. If the windows displays information as shown below, the network segment was added successfully.

```
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>
```

Users can verify the network connection of the camera using the steps mentioned above after it finishes its self-check. If the IP is set to its default, open the Command Prompt window, input “ping 192.168.5.163”, then press Enter. If the settings are correct, you will see the message below.

```
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>.
```

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### 5.2 IE Login

Enter the IP address of the camera (192.168.5.163) into the address field of a web browser and hit Enter to open the Web Client login page. Users can log in as an administrator or a normal user. If logged in as an administrator, users can preview, playback, configure, and cancel in the Web Client; If logged in as a normal user, users can only preview, playback, and logout; normal users cannot configure the camera.

**Note:** Web access supports all 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 successfully logging into the web interface, a video preview window is shown. In the preview screen users can control PTZ, zoom, focus, video capture, sound, full screen, and other operations, as well as set, run, and delete presets.

#### 1) Log in as administrator

Default Username/Password: admin

Administrators can preview, playback, configure settings, set, run, and delete presets, log off, and control PTZ movement, zoom, focus, video capture, sound, and full-screen.

#### 2) Log in as normal user

Default Username/Password: user1 OR user2

Normal Users can preview, playback, set, run, and delete presets, log off, and control PTZ movement, zoom, focus, video capture, sound, and full-screen.

**NOTE:** Normal users cannot configure camera settings.

### 5.4 IE Configuration

Click Configuration to open the Device Parameters settings page

Options include audio configuration, video configuration, network configuration, and system configuration (see below table for detailed descriptions).

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

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### 5.4.1 Audio Configuration

**Switch:** Enable/Disable the audio output (Default: Disabled)

**Compressing Format:** Set audio compression format (device will reboot automatically after change) (Default: MP3; AAC, and G.711A optional)

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

**Sampling Precision:** Set sampling precision (Default: 16 bits)

**Compressing Code Rate:** Set audio compression code rate (Default: 64 bits; 32, 48, 96, and 128 bits optional)

**Channel type:** Set channel type (Default: mono; stereo optional)

**Input Volume:** Set the input volume (Default: 2; 1-10 optional)

Click "Save" and the web GUI will display the message "Enable has changed. Restart the device to take effect after the success of the save." Once this message is displayed, reboot the camera to apply the new settings.

### 5.4.2 Video Configuration

#### 5.4.2.1 Video Encoding

**Code Stream:** Different video output modes 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 apply changes) (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 apply changes)

**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:** Default 1920\*1080; 1280\*720, 640\*480 optional)

**Stream Rate Control:** Set rate control mode for close-up main stream, close-up sub-stream, panoramic main stream, panoramic sub-stream and blackboard code stream (Default: variable bit rate; fixed rate optional)

**Image Quality:** Set the image quality (image quality can be changed only when rate control is set to "variable bit rate") (Main Stream Default: Best; Secondary Stream Default: Better; best, better, good, bad, worse, and worst optional)

**Rate (kbps):** Set the video bit rate

**Close-up Main Stream Default:** 4096 kbps; 64 ~ 40960 kbps optional

**Close-up Sub-Stream Default:** 512 kbps; 64 ~ 40960 kbps optional

**Panoramic Main Stream Default:** 4096 kbps; 64 ~ 40960 kbps optional

**Panoramic Sub-Stream Default:** 512 kbps; 64 ~ 40960 kbps optional

**Broadcast Code Stream Default:** 4096 kbps; 64 ~ 40960 kbps optional

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**Framerate (fps):** Set the video framerate (Default: 25 fps; 5 ~ 30 fps optional)

**Keyframe Interval:** Set the key frame interval (Default: 100F; 1 ~ 150F optional)

**Keyframe Minimum Quantizer (QP):** Set the keyframe minimum QP (Default: 20; 10 ~ 51 optional)

**Stream Name:** When streaming via rtsp or rtmp, users can modify the 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"

**Broadcast Code Stream:** Default "live/av"

Click the "Save" button to display the "Saved Successfully" message, then the new settings will take effect.

### 5.4.2.2 Stream Release

*Applies to Close-up Main Stream, Close-up Sub-Stream, Panoramic Main Stream, Panoramic Sub-Stream, and Guide Stream*

**Switch:** Turn the Close-up Main Stream, Close-up Sub-Stream, Panoramic Main Stream, Panoramic Sub-Stream, or Blackboard Code streams on or off

**Protocol:** Set network streaming protocol (Default: RTMP; RTSP, SRT optional)

**Host Port:** Server port number (Default: 1935; 0 ~ 65535 optional)

**Host Address:** Server IP address (Default: 192.168.5.11)

**Stream Name:** Set the stream name ("live/av0", "live/av1", "live/av2", "live/av3", and "live/av4" optional)

**User:** Set the username

**Password:** Set the password

Click the "Save" button to display the "Save Successful" message, then the new settings will take effect

**SRT Password:** Set the SRT stream password

**SRT password length:** Set the length of the SRT stream password

### 5.4.2.3 RTP Broadcasting

*Applies to Close-up Main Stream, Close-up Sub-Stream, Panoramic Main Stream, Panoramic Sub-Stream, Guide Stream, Multicast, and Unicast*

**Switch:** Turn the Close-up Main Stream, Close-up Sub-Stream, Panoramic Main Stream, Panoramic Sub-Stream, or Blackboard Code streams on or off

**Protocol:** Set multicast protocol (Default: RTP multicast; TS multicast, UDP unicast, and TCP unicast optional)

**Address:** Default: 224.1.2.3 (can be edited)

**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

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**Visit:** Address comes up after setting. (e.g. "rtp://224.1.2.3:4000" or "udp://@224.1.2.3:4000")

### 5.4.2.4 Video Parameters

#### a. Exposure:

**Exposure Mode:** Set the exposure mode (Default: Automatic; Manual, Shutter Priority, Aperture Priority, and Brightness Priority optional)

**Exposure Compensation:** Exposure compensation is active when Auto Mode (Default: Off)

**Exposure Compensation Value:** Set the exposure compensation value, valid when in Auto Mode (Default: 0; -7 ~ 7 optional)

**Back-Light Compensation (BLC):** Set back light compensation, valid when in Auto Mode (Default: Off)

**Anti-Flicker:** Set up anti-flicker mode, valid when in Auto or Aperture/Brightness Priority Mode (Default: 50Hz, closed; 60Hz optional)

**Gain Limit:** Set the gain limits, valid when in Auto or Aperture/Brightness Priority Mode (Default: 4; 0 ~ 15 optional)

**Dynamic Range:** Set the dynamic range (Default: Off; 1 ~ 8 optional)

**Shutter Speed:** Active when in Manual or Shutter Priority Mode (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, or 1/10000 optional)

**Aperture Value:** Set the aperture value, valid when in Manual or Aperture-Priority Mode (Default: close; F1.8, F11, F9.6, F8.0, F6.8, F5.6, F4.8, F4.0, F3.4, F2.8, F2.4, or 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 Mode:** Set the white balance mode (Default: automatic; 2400K ~ 7100K, Manual, and One-Push optional).

*Note: Click the "Correction" button when One-Push White Balance Mode is selected*

**Red fine-tuning:** Default: 0; -10 ~ 10 optional (only available in automatic mode)

**Blue fine-tunable:** Default: 2; -10 ~ 10 optional (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: High; medium, low optional)

**Red Gain:** Set the red gain, valid when in Auto Mode (Default: 36; 0 ~ 255 optional)

**Blue Gain:** Sets the Blue gain, valid when in Auto Mode (Default: 36; 0 ~ 255 optional)

#### c. Image:

**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:** Enable/disable black and white mode (Default: Color; Black/White optional)

**Gamma:** Gamma value (Default: 0.45; 0.50, 0.55, and 0.63 optional)

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**Ultra-Low Illumination Mode:** Default: Off

### d. 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; 1 ~ 8 and Off optional)

### e. Style

**Picture Style:** Select the picture style (Default, Standard, Clear, Bright, Soft and USB optional)

*Note:* Click "Refresh" to apply changes to video parameters a, b, c, d, e

### 5.4.2.5 Title and Time Content

**Display Date and Time:** Select whether to display the time and date (Default: Display)

**Display Title:** Select 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 position of the date, time and title (Click on the "up", "down", "left", and "right" buttons to move the characters in the corresponding direction)

**Title Content:** Set the title (Default: CAMERA1)

**Time Content:** Set the time (Default: 1970/01/10 05:36:00)

Click the "Save" button to display the "Save Successful" message, then the new settings will take effect

### 5.4.2.6 Character Size

**Main Stream Character Size:** Set the character size of the display (Default: 48; 28 ~ 200 optional)

**Secondary Stream Character Size:** Set the character size of the display (Default: 48; 28 ~ 200 optional)

Click the "Save" button to display the "Save Successful" message, then the new settings will take effect (device will reboot automatically after settings are saved)

### 5.4.2.7 Video Output

**Output Format:** Default: Off; On optional

**Output Format:** 1080P30, 1080P25, 1080I60, 1080I50, 720P60, or 720P50 optional

Click the "Save" button to display the "Save Successful" message, then the new settings will take effect

## 5.4.3 Network Configuration

### 5.4.3.1 Network Port

**Data Port:** Set the data port (Default: 3000; 0 ~ 65535 optional)

**Web Port:** Set the Web port (Default: 80; 0 ~ 65535 optional)

**Onvif Port:** Set the Onvif port (Default: 2000; 0 ~ 65535 optional)



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**Soap Port:** Set the Soap port (Default: 1936; 0 ~ 65535 optional)

**RTMP Port:** Set the RTMP port (Default: 1935; 0 ~ 65535 optional)

**RTSP Port:** Set the RTSP port (Default: 554; 0 ~ 65535 optional)

**Visca Port:** Set the Visca port (Default: 1259; 0 ~ 65535 optional)

**WebSocket port:** Set the WebSocket port (Default: 8088; 0 ~ 65535 optional)

Click the "Save" button to display the "Save Successful" message, then the new settings will take effect (device will reboot automatically after settings are saved)

**RTSP Obtaining Method:** `rtsp://[Camera IP Address]:554/live/[Stream, ID]`

**[Stream ID]** = "av0" for Close-up Main Stream, "av1" for Close-up Sub-Stream, "av2" for Panoramic Main Stream, "av3" for Panoramic Sub-Stream, and "av4" for Broadcast Code Stream)

**RTMP Obtaining Method:** `rtmp://[Camera IP Address]:1935/live/[Stream ID]`

**[Stream ID]** = "av0" for Close-up Main Stream, "av1" for Close-up Sub-Stream, "av2" for Panoramic Main Stream, "av3" for Panoramic Sub-Stream, and "av4" for Broadcast Code Stream)

### 5.4.3.2 Ethernet Parameters

**DHCP:** Enable/disable whether to obtain an IP address automatically (Default: Off)

**IP Address:** Set the static IP address (Default: 192.168.5.163)

**Note:** This IP address is the same one used to log in to the Web GUI

**Subnet Mask:** Set the subnet mask (Default: 255.255.255.0)

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

**MAC Address:** The camera's MAC address is read-only and cannot be modified

Click the "Save" button to display the "Save Successful" message, then the new settings will take effect (device will reboot automatically after settings are saved)

### 5.4.3.3 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 the "Save" button to display the "Save Successful" message, then the new settings will take effect

### 5.4.3.4 GB28181

**Switch:** Select whether to use the GB28181 IP communication standard

**Time Synchronization:** Select whether network time is synchronized

**Stream Type:** Select stream type (Default: Main Stream; Secondary Stream optional)

**Sign effective time (in seconds):** Default: 3600; 5 ~ 65535 optional

**Heartbeat time (seconds):** Default: 60; 1 ~ 65535 optional

**Register ID:** 34020000001320000001

**Register User name:** IPC

**Register Password:** 12345678

**Equipment ownership:** Can be entered by user

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**Administrative regions:** Can be entered by user

**Alarm Zone:** Can be entered by user

**Equipment installation address:** Can be entered by user

**Local SIP Port:** Default: 5060; 0 ~ 65535 optional

**GB28181 Server Address:** IP address of the computer

**Server SIP Port:** Default: 5060; 0 ~ 65535 optional

**Server ID:** 34020000002000000001

Click the "Save" button to display the "Save Successful" message, then the new settings will take effect

### 5.4.3.5 SRT

**SRT port:** Set the SRT port (Default: 9000; 0 ~ 65535 optional)

**SRT password:** Set the SRT password (Default: None; the password can be between 10 ~ 80 characters)

**SRT password length:** Set the length of the SRT password (Default: 0; 16, 24, and 32 optional)

## 5.4.4 System Configuration

### 5.4.4.1 Device Properties

**Device Name:** Set the device name (Default: Camera1)

**Device ID:** Device ID is read-only and cannot be modified (Default 1)

**System Language:** Set the system language (Default: Simplified Chinese; English optional)

Click the "Save" button to display the "Save Successful" message, then the new settings will take effect

### 5.4.4.2 System Time

**Date Format:** Select the date format (Default: YYYY-MM-DD; MM-DD-YYYY and DD-MM-YYYY optional)

**Date Separator:** Select the date separator (Default: "/"; "." and "-" optional)

**Time Zone:** Select the time zone (Default: East Eight Districts)

**Time Type:** Select whether to display 12- or 24-hour times (Default: 24 hours; 12 hours optional)

**Time Setting:** Choose whether to set the camera time according to connected computer time, the NTP time server, or manually

**Computer Time:** Enable/disable whether to synchronize clock with a connected computer's time

**Update interval:** Set how frequently to synchronize time with the NTP server (Default: 1 day; 1 ~ 10 days optional) (Valid when set to NTP time server synchronization)

**NTP server address or domain name:** Set NTP server address or domain name (Default: time.nits.gov) (Valid when set to NTP time server synchronization)

**NTP Server Port:** Sets the NTP server port (Default: 123) (Valid when set to NTP time server synchronization)

Click the "Save" button to display the "Save Successful" message, then the new settings will take effect

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### 5.4.4.3 User Management

**Select Users:** Set user type (Default: Administrator; Common User 1 and Common User 2 optional)

**Username:** Set the username (Administrator Default: admin; Common User 1 Default: user1; Common User 2 Default: user2)

**Password:** Set the password (Administrator Default: admin; Common User 1 Default: user1; Common User 2 Default: user2)

**Password Confirmation:** Confirm the entered password before applying changes

Click the "Save" button to display the "Save Successful" message, then the new settings will take effect

**Note:** *The username and password are case-sensitive*

**Note:** *Users do not have permission to modify camera settings when logged in as a common user*

### 5.4.4.4 Version Upgrade

Version information is read-only and cannot be modified. Different camera models have different information.

To update version, click "Browse ..." and navigate to the upgrade file in the pop-up window. Click on the "Upgrade" button and the upgrade dialog will appear. The device will reboot automatically after the update has completed successfully.

**Note:** *Make sure the camera is not disconnected from power or network during the upgrade process, or the upgrade will fail*

**Note:** *After the version upgrade is complete, you need to restore factory defaults through:*

1. Web GUI
2. Through the recovery menu
3. Remote control shortcut: \* # 6

*IP address and password for accessing web GUI will also be restored to default*

### 5.4.4.5 Restore Factory Setting

Click on "Restore Factory Defaults" and choose "Yes", then the device will restart and restore factory default settings

### 5.4.4.6 Reboot

Click on "Reboot" and choose "Yes", then the device will restart

## 5.5 Logout

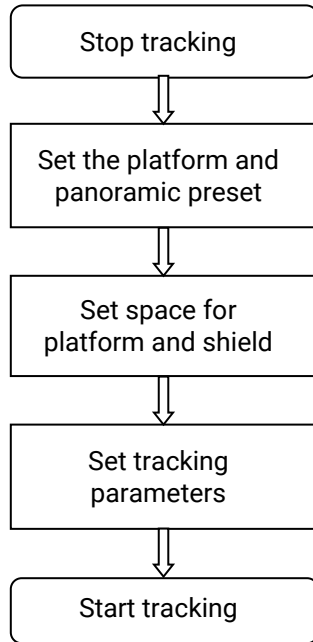
Click on "Logout", then click "Yes" to exit the current page and return to the user login interface again.

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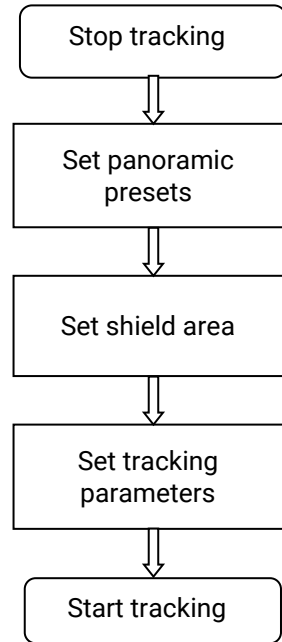
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### 5.6 Configure Tracking Parameters

#### Instructor Tracking Set-Up Process



#### Student Tracking Set-Up Process



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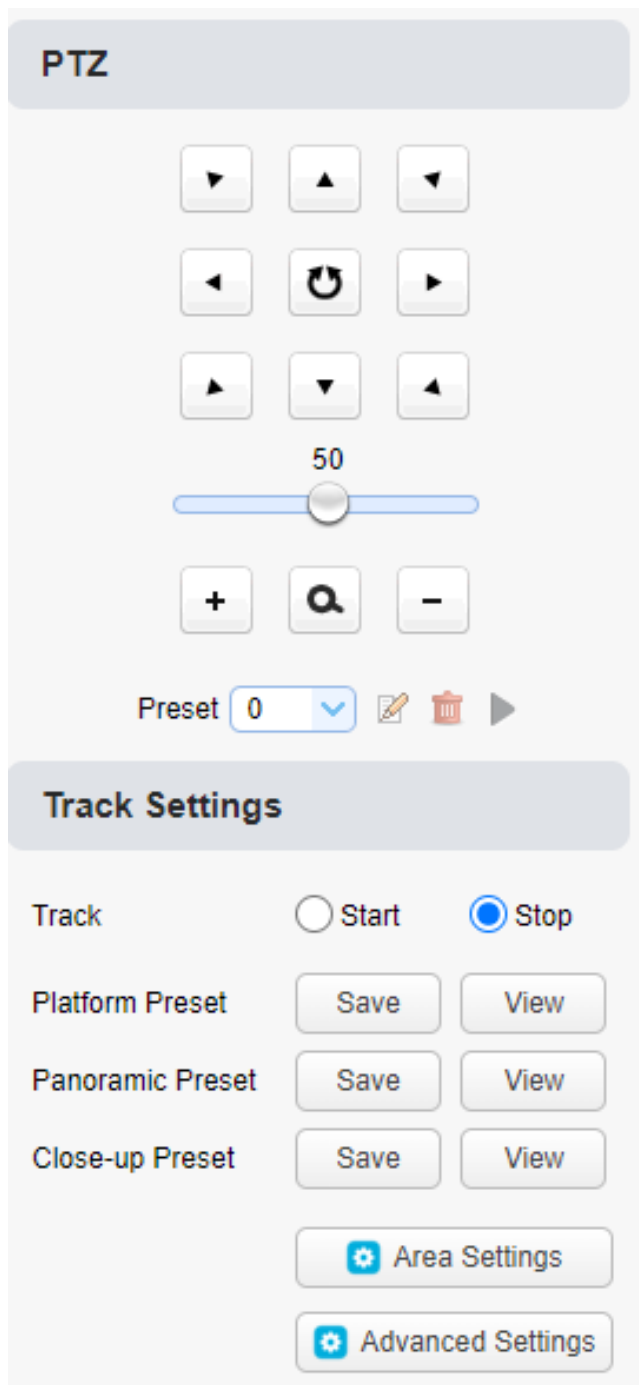
### 5.6.1 Teacher Tracking Configuration

There are three preset positions used by the camera for tracking:

**Platform Preset** – Selected by the camera when a person is detected in the tracking area

**Panoramic Preset** – Selected by the camera when the tracking is lost. Located in Advanced Settings.

**Close-up Preset** – Selected by the camera when the tracking is lost. Located in Advanced Settings.



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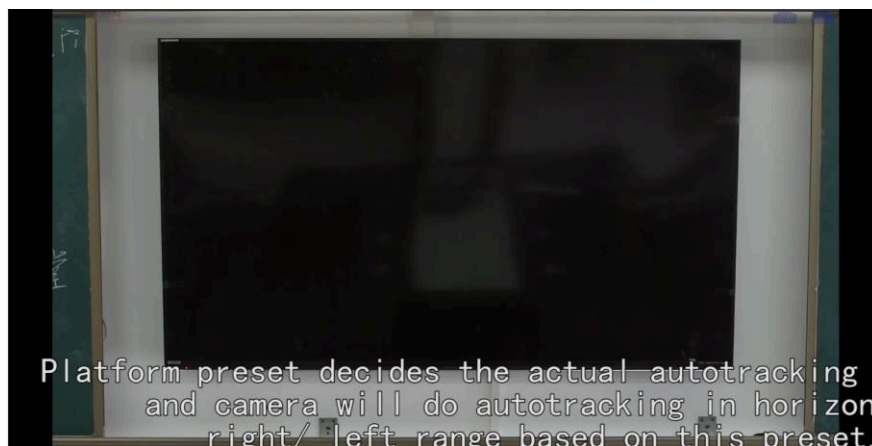
## 79068-AT2 User Manual

### 1. Stop Tracking

### 2. Set Platform Preset

This is the camera preset for the starting position of the platform area. Once a person is detected in the defined platform area, the camera switches to this preset and starts tracking, and will follow the person horizontally as long as they are detected in this area.

Position the camera with a clear view of the platform or stage (for reference, have someone stand in the middle of the platform) and then save by clicking the Platform Preset Save button. During normal tracking, the size of the teacher's image in the picture will use this preset as a reference. When the tracking target is lost, the camera goes to the Target Lost preset set in Advanced Settings.



### 3. Set Panoramic Preset

Use this setting to define the position of the Panoramic preset for the Target Lost setting in Advanced Settings.

Position the camera to get a wide area view of the instructor and click the Panoramic Preset Save button.



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### 4. Set Close-up Preset

Use this setting to define the instructor's desk position during target lost. The camera will go to this preset by selecting Close-up Preset in Target Lost located in Advanced Settings when target is lost.



### 5. Area Settings

Select Area Settings to define the area of the platform and mask areas.

### 6. Configure Platform Area

This region defines the tracking area of the instructor. Drag a box around the region where the instructor's torso will appear in the camera's view. Ensure that the heads of students or audience members are not in this area.



### 7. Mask Area

Mask Areas are areas which may impact the teacher tracking, especially places that have dynamic changes such as TVs, projectors, doors, and windows. To create a mask, click the Advanced Settings button and then Mask Area. Click-on the Mask Area # until it is highlighted as yellow. Define the Mask region (by dragging a box around the area in the camera's view) and click on it again. Enable the mask areas and test; the mask area should now be excluded from the camera's auto-tracking.

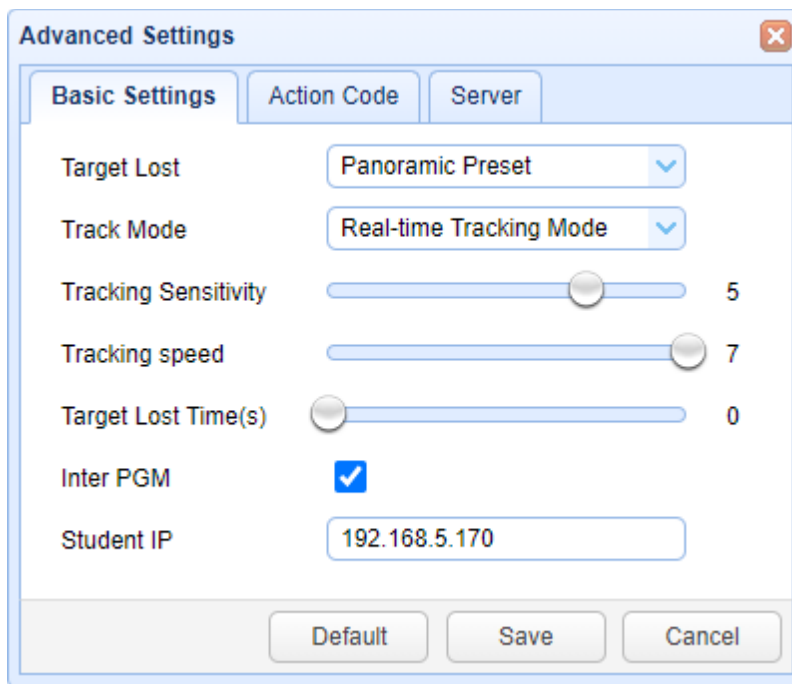
Platform Area	Mask Area																						
	<table border="1"><thead><tr><th>Mask Area</th><th>Enable</th></tr></thead><tbody><tr><td>Mask Area 1</td><td><input type="checkbox"/></td></tr><tr><td>Mask Area 2</td><td><input type="checkbox"/></td></tr><tr><td>Mask Area 3</td><td><input type="checkbox"/></td></tr><tr><td>Mask Area 4</td><td><input type="checkbox"/></td></tr><tr><td>Mask Area 5</td><td><input type="checkbox"/></td></tr><tr><td>Mask Area 6</td><td><input type="checkbox"/></td></tr><tr><td>Mask Area 7</td><td><input type="checkbox"/></td></tr><tr><td>Mask Area 8</td><td><input type="checkbox"/></td></tr><tr><td>Mask Area 9</td><td><input type="checkbox"/></td></tr><tr><td>Mask Area 10</td><td><input type="checkbox"/></td></tr></tbody></table>	Mask Area	Enable	Mask Area 1	<input type="checkbox"/>	Mask Area 2	<input type="checkbox"/>	Mask Area 3	<input type="checkbox"/>	Mask Area 4	<input type="checkbox"/>	Mask Area 5	<input type="checkbox"/>	Mask Area 6	<input type="checkbox"/>	Mask Area 7	<input type="checkbox"/>	Mask Area 8	<input type="checkbox"/>	Mask Area 9	<input type="checkbox"/>	Mask Area 10	<input type="checkbox"/>
Mask Area	Enable																						
Mask Area 1	<input type="checkbox"/>																						
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Mask Area 7	<input type="checkbox"/>																						
Mask Area 8	<input type="checkbox"/>																						
Mask Area 9	<input type="checkbox"/>																						
Mask Area 10	<input type="checkbox"/>																						

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### 8. Advanced Settings

**Target lost:** This setting has three options: Panoramic Preset, Platform Preset and Close-up Preset. Choose the preset to view when the camera loses its tracking target.



#### Tracking Modes:

*Real-Time Tracking Mode*

*Movie Mode*

*Area Tracking Mode*

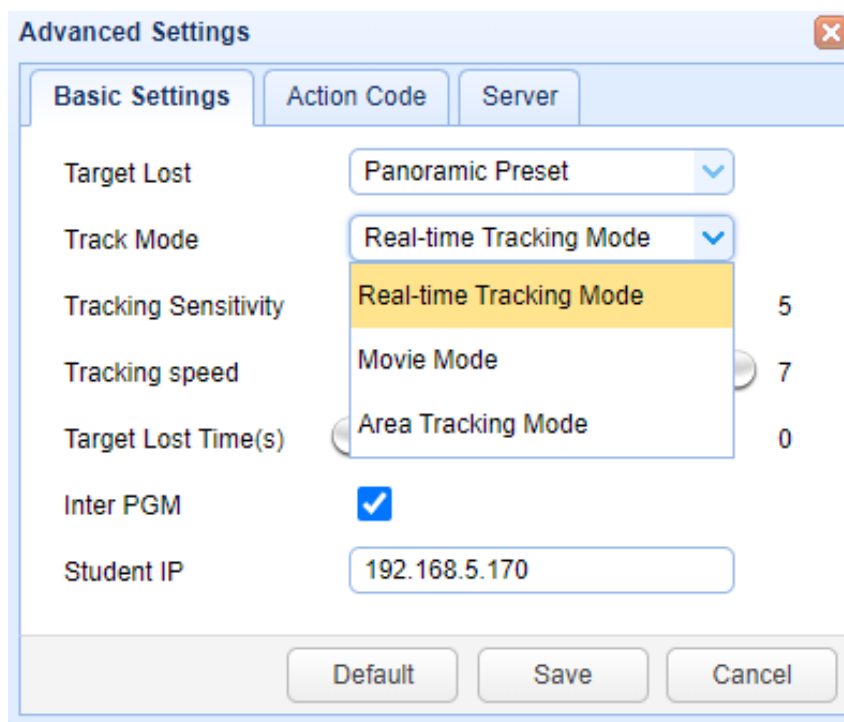
**Tracking Sensitivity:** This setting dictates the amount of action required to trigger the camera's tracking. Increasing this setting will cause the camera to identify and react to smaller movements while tracking.

**Tracking speed:** How quickly the camera will move while tracking

**Target lost time:** How much time is required (0s by default) after the tracking target is lost before the camera calls its Target Lost preset

**Inter PGM:** Enabled by default

**Student IP address:** Not used; leave blank





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### 6. Description of Recording and Broadcasting Host

#### 6.1 Auto Tracking Control

The recording and broadcasting host sends a command to a network server when certain conditions are met by the tracking camera. In auto-tracking mode, the camera cannot receive any control commands. To control the camera's pan, rotation, or zoom manually via the web GUI or remote control, auto-tracking must be stopped.

##### 1. Network Receiving Address

The auto tracking camera's default IP address is 192.168.5.163

##### 2. Command

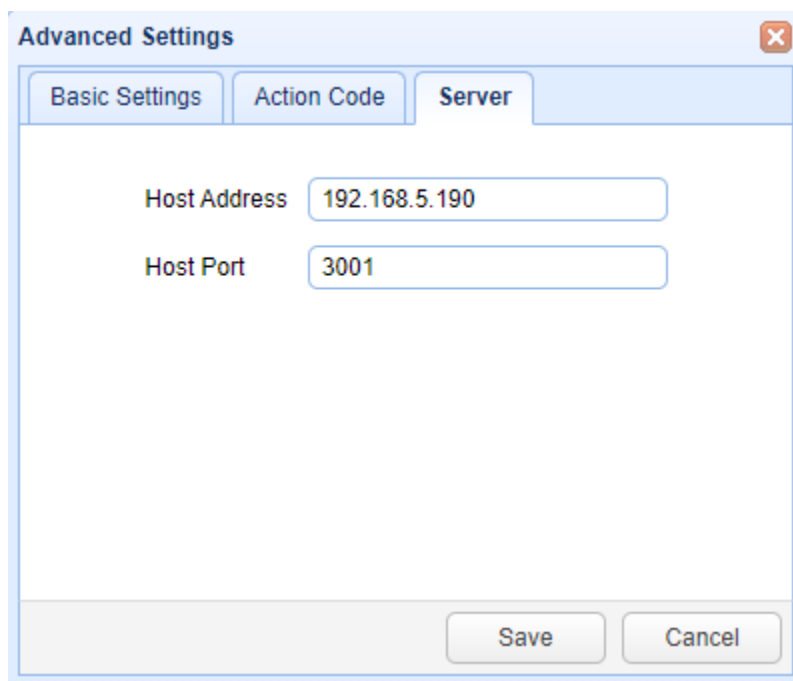
Action	Command
Start teacher tracking	0x810x0A 0x08 0x01 0x020xFF
Stop teacher tracking	0x81 0x0A 0x08 0x01 0x03 0xFF

#### 6.2 Action Code Docking

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

##### 1. Configuration of Recording and Broadcasting Host Address

If the recording and broadcasting host uses a LAN connection to receive action code, then the user needs to configure the host address via a web browser. Click **Advanced Settings** -> **Server**, as shown below, then enter the Host Address and Host Port number.



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### 2. Configuration of Action Code

Users can modify action codes as needed via a web browser. Click **Advanced Settings -> Action Code**, and enter the desired code for each condition. After modification, click the Save button.

Condition	Action Code
Target Lock	81 0A 09 01 00 FF
Target Lost	81 0A 09 01 01 FF
Down From Platform	81 0A 09 01 02 FF
Up to Platform	81 0A 09 01 03 FF
Teacher Move	81 0A 09 01 05 FF
Teacher Stop	81 0A 09 01 06 FF

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### 7. Serial Communication Control

Under normal working conditions, the camera can be controlled through RS232/RS485 interface or VISCA protocols. RS232C serial parameters are as follows:

**Baud Rate:** 9600 bits / sec

**Start Bit:** 1

**Data Bits:** 8

**Stop Bit:** 1

**Parity:** None.

**IP Port:** 1259 – Can be set in camera

#### 7.1 VISCA Protocol Command List

The VISCA commands for this camera are limited.

In Auto-Tracking mode the camera cannot accept any control commands. To control the camera, auto-tracking must be stopped.

##### 7.1.1 Camera Return Commands

ACK/Completion Message		
	Command packet	Note
ACK	90 40 FF	Returned when the command is accepted.
Completion	90 50 FF FF	Returned when the command has been executed.

##### 7.1.2 Camera Control Commands

Command	Function	Command Packet	Note
Zoom	Stop	81 01 04 07 00 FF	
	Tele (Standard)	81 01 04 07 02 FF	
	Wide (Standard)	81 01 04 07 03 FF	
	Tele (Variable)	81 01 04 07 2p FF	<b>p = 0</b> (low) ~ <b>F</b> (high)
	Wide (Variable)	81 01 04 07 3p FF	
	Direct	81 01 04 47 0p 0q 0r 0s FF	<b>pqrs:</b> Zoom Position
Pan/Tilt	Up	81 01 06 01 <b>VV WW</b> 03 01 FF	<b>VV:</b> Pan speed 0x01 (low speed) to 0x18 (high speed)
	Down	81 01 06 01 <b>VV WW</b> 03 02 FF	
	Left	81 01 06 01 <b>VV WW</b> 01 03 FF	
	Right	81 01 06 01 <b>VV WW</b> 02 03 FF	<b>WW:</b> Tilt speed 0x01 (low speed) to 0x14 (high speed)
	Up left	81 01 06 01 <b>VV WW</b> 01 01 FF	
	Upright	81 01 06 01 <b>VV WW</b> 02 01 FF	

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Command	Function	Command Packet	Note
	Down Left	81 01 06 01 <b>VV WW</b> 01 02 FF	<b>YYYY</b> : Pan Position <b>ZZZZ</b> : Tilt Position
	Down Right	81 01 06 01 <b>VV WW</b> 02 02 FF	
	Stop	81 01 06 01 <b>VV WW</b> 03 03 FF	
	Absolute Position	81 01 06 02 <b>VV WW</b> 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF	
	Relative Position	81 01 06 03 <b>VV WW</b> 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF	
	Home	81 01 06 04 FF	
	Reset	81 01 06 05 FF	
Presets	Reset	81 01 04 3F 00 <b>pq</b> FF	<b>pq</b> : Memory Number (0 to 254) Corresponds to 0 to 9 on the Remote Control
	Set	81 01 04 3F 01 <b>pq</b> FF	
	Recall	81 01 04 3F 02 <b>pq</b> FF	
Flip Horizontal	On	81 01 04 61 02 FF	
	Off	81 01 04 61 03 FF	
Flip Vertical	On	81 01 04 66 02 FF	
	Off	81 01 04 66 03 FF	
Tracking	On	81 0A 01 02 FF	
	Off	81 0A 01 03 FF	
Back Light	On	81 01 04 33 02 FF	Back Light Compensation
	Off	81 01 04 33 03 FF	

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### 8. Technical Parameter

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

<b>Input/Output Interfaces</b>	
<b>Video Interfaces</b>	1x HDMI (19-pin, Female) 1x USB (USB 3.0, Type-B, Female) 1x LAN (RJ45, Female, 10M/100M/1000M, supports PoE)
<b>Video Compression Format</b>	H.264, H.265, MJPEG, YUY2, NV12
<b>Audio Input Interface</b>	Double track 3.5mm linear Input
<b>Audio Compression Format</b>	AAC, MP3, G.711A
<b>Network Protocol</b>	RTSP, RTMP, ONVIF, GB/T28181

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<b>Control Interface</b>	RS232, RS485, LAN (Port 1259)
<b>Communication Protocol</b>	VISCA support baud rate 9600
<b>Power Interface</b>	DC12V

Other Parameters		
<b>Input Voltage</b>	Power Adapter	DC 12V
	POE Supply	DC 48V
<b>Input Current</b>	Power Adapter	0.42A (max)
	POE Supply	0.104A (max)
<b>Power Consumption</b>	5W (max)	
<b>Storage Temperature</b>	14 ~ 140°F (-10 ~ 60°C)	
<b>Storage Humidity</b>	20 ~ 95%	
<b>Working Temperature</b>	14 ~ 122°F (-10 ~ 50°C)	
<b>Working Humidity</b>	20 ~ 80%	
<b>Product Dimensions</b>	5.87" (149.2mm) x 3.07" (78mm) x 3.07" (78mm)	
<b>Product Weight</b>	1.17lbs. (0.53kg)	

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### 9. Maintenance and Troubleshooting

#### 9.1 Camera Maintenance

1. Power off the camera and disconnect from power if it will not be used for an extended period
2. Use a soft cloth or tissue to clean the camera cover
3. Use a soft, dry cloth when cleaning the camera lens. Wipe gently with a mild detergent if needed. Do not use strong or corrosive detergents to avoid scratching the lens and affecting the video quality.

#### 9.2 Troubleshooting

Problem	Solution
No video output	<p>Check whether the camera's power supply is connected, whether the voltage is normal, and whether the power indicator light is lit</p> <p>Check whether the camera is able to complete its self-check after being rebooted</p> <p>Check whether the video cable and display being used are working normally</p>
Intermittent or inconsistent video output	<p>Check whether the video cable and display being used are working normally</p>
Video dithering when zooming in or out	<p>Check whether the camera is installed on a steady surface, away from vibrations and moving people or objects</p>
Serial port does not work	<p>Check whether the serial device protocol, baud rate, and address are all set correctly</p> <p>Check whether the serial cable is connected properly</p> <p>Check whether the camera is in its normal operating mode</p>
Cannot connect to the camera via the web GUI	<p>Check whether the camera outputs video normally by connecting directly to a display</p> <p>Check whether the network cable is connected properly (a yellow light on the Ethernet port will flash to indicate a normal network connection)</p> <p>Check whether the computer has the correct network segment added per the IP address of the camera</p> <p>Open a Command Prompt window on the computer, and ping the camera's IP address (see <b>§5.1 Connection Mode</b> for details)</p>

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