



# **1080P HDMI/NDI/SDI/USB PTZ IP STREAM CAMERA (User Manual V1.0)**



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**Please feel free to contact us if you have any questions.**

**Please Note:** Only NDI version cameras have NDI function, other version cameras don't have NDI function.



## Copyright

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## Notice

Product specifications and information which were referred to in this document are for reference only. We may change, delete, or update any content at any time and without prior notice.

## FCC NOTICE (Class A)



This product complies with Part 15 of the FCC Rules. The operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.



Note

This product 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 residential installation. 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. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

## Class A ITE

Class A ITE is a category of all other ITE which satisfies the class A ITE limits but not the class B ITE limits. Such equipment should not be restricted in its sale but the following warning shall be included in the instructions for use:



Warning

Operating this equipment in a residential environment may cause radio interference.

## European Community Compliance Statement (Class A)



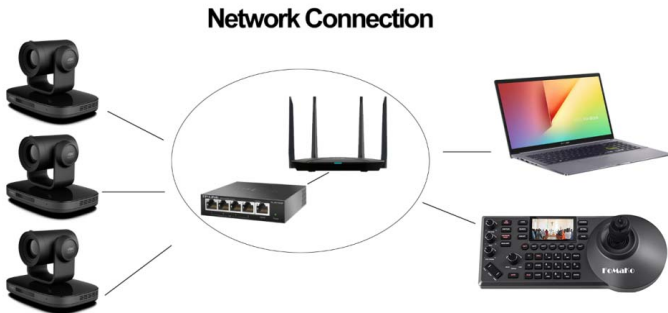
This product is herewith confirmed to comply with the requirements set out in the Council Directives on the Approximation of the laws of the Member States relating to Electromagnetic Compatibility Directive 2014/30/EU.



# Quick Start

## ◆ Add Cameras to Your Network

Please do the connections as the following. You must have a router in your network, then router will assign IP address for the cameras automatic. If you don't have router in your network, cameras can't get IP address from your network.



Camera's screen will show its IP address, you can visit camera's webpage by camera's IP address.

**Tips:** When you login the camera's webpage, you'd better change the IP from "Dynamic IP Address" to "Fixed IP Address", then camera will keep currently IP or when camera rebooted, router rebooted, router will assign a new IP address for the camera.

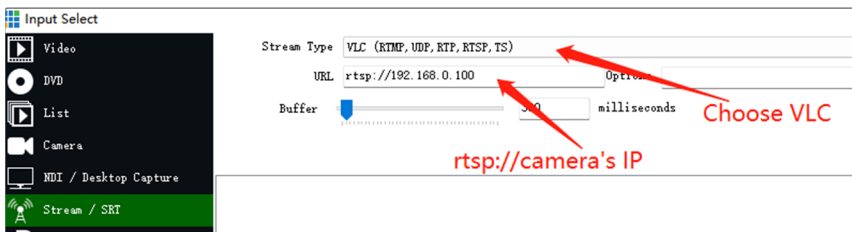
## ◆ Visit Camera's Webpage

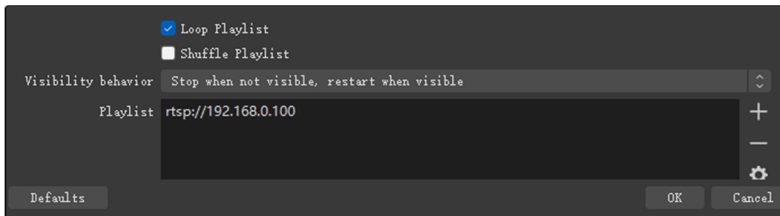
Please use web browser such as: Google Chrome, Firefox or Safari to Visit camera's IP address

**User name:** admin    **Password:** admin

## ◆ IP Streaming to Vmix or OBS

Tips: recommend to use VLC streaming in Vmix and OBS, it has lower latency.





If you want to use normal RTSP stream:

RTSP UDP Stream URL: `rtsp://192.168.0.100:554/1`

Please note, you need change the IP address to your camera's IP address.

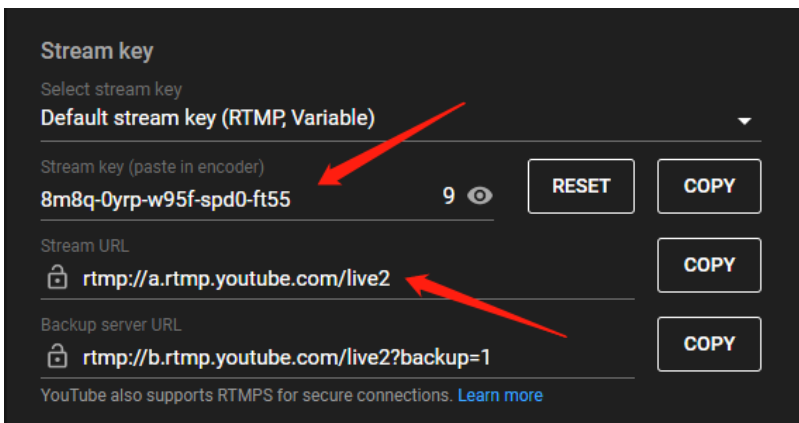
### ◆ **IP Steam to YouTube or Facebook**

YouTube, Facebook or other live broadcast platforms will supply Stream URL(server URL) and stream key for you.

#### **Example for YouTube:**

**Stream URL:** `rtmp://a.rtmp.youtube.com/live2/`

**Stream Key:** `8m8q-0yrp-w95f-spd0-ft55`



Now go to camera's webpage -> network -> RTMP Settings.

input the RTMP stream URL:

`rtmp://a.rtmp.youtube.com/live2/8m8q-0yrp-w95f-spd0-ft55`

(Format: Stream URL/Stream Key)

Save and reboot the camera, camera will stream to YouTube.

## RTMP(S) Settings

First Stream ☒ On ☐ Off ☒ Video ☒ Audio

MRL

Second Stream ☐ On ☒ Off ☐ Video ☐ Audio

MRL

### Example for Facebook:

**Server URL:** <rtmps://live-api-s.facebook.com:443/rtmp/>

**Stream Key:** FB-117626344422167-0-AbzhlyyXbQGNT47w

### Streaming software setup

Copy and paste the stream key into your streaming software.

**Stream key**

Copy Reset

Once you start to preview the broadcast you have up to 5 hours to go live.

**Advanced Settings**

**Persistent stream key**  
This can be reused every time you go live. You can only broadcast one live video at a time with your persistent stream key. ☒

**Backup stream**  
Once a backup stream is added to your live video, it cannot be removed. It will not affect your stream if you choose not to use it. ☐

**Server URL**

Copy Ingest URLs

This may be referred to as "URL" or "Address" in your streaming software.

Now go to camera's webpage -> network -> RTMP Settings.

input the RTMP stream URL:

<rtmps://live-api-s.facebook.com:443/rtmp/FB-117626344422167-0-AbzhlyyXbQGNT47w>

(Format: [Stream URL](#)/[Stream Key](#))

## RTMP(S) Settings

First Stream ☒ On ☐ Off ☒ Video ☒ Audio

MRL

Second Stream ☐ On ☒ Off ☐ Video ☐ Audio

MRL

Save and reboot the camera, it will stream to Facebook.

## ◆ **Connect Camera to Controller Keyboard**

Some information you need:

**User Name:** admin    **Password:** admin

**Sony Visca port:** 52381    **IP Visca UDP port:** 1259

**IP Visca TCP port:** 5678    **Onvif Port:** 2000

We recommend to use Visca over IP(Sony Visca)control protocols,this protocol is more steady and work better.

Let's use FoMaKo KC608 Pro IP controller for example:

- (1) Connection: Camera and the IP controller must be in the same LAN (connect to the same router/switch by network cable)
- (2) Router will assign IP addresses for camera and controller
- (3) Press "search" button on controller joystick, the camera's IP will list on the screen
- (4) Choose "Visca over IP" ,step by step you can assign the camera to shortcut key "CAM 1~7"
- (5) Press the shortcut key which just assigned, now you can control the camera.

**(Due to issues with LAN settings, you may encounter issues when adding the camera to the controller. Please contact us for assistance.)**

If you need more supports, please contact us at: [ivan@fomako.net](mailto:ivan@fomako.net), normally, we can reply you within 12 hours.

FoMaKo Supports Team



# AI Tracking Guide

## 1. Turn on tracking

### 1.1 Single scenario

Press the **F3** on the remote control to start a trace.

When there is only one person in the scenario, press the F3 key (Figure I) on the remote control to start a trace, the camera will lock the target for tracking directly.

The screen is shown as the following figure, the tracking program starts successfully. (Figure II)

When the camera finds that the target is lost, it will stand still at the position where the target is lost for 6 seconds and then return to preset position 1. It will automatically enter the tracking state until the target appears again.

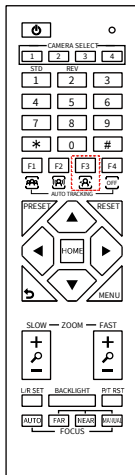


Figure I

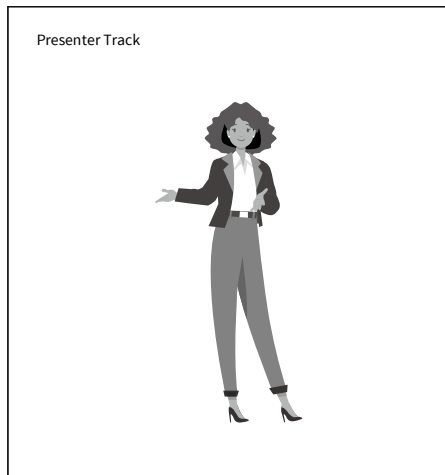


Figure II

### 1.2 Multiplayer scenario

Press the **F3** on the remote control to start a trace.

If there are multiple people in the scenario, press the F3 key (Figure I) on the remote control to start a trace, a green wireframe will appear on the screen (Figure III) to indicate the tracking target. Select the object to be tracked and press the home key to start tracking. Then the green wireframe disappears, and the screen is shown as the following figure, the tracking program starts successfully. (Figure IV)

If change a target is needed during Multi people tracking process, Press the left and right buttons on the remote control is help.

When the camera finds that the target is lost, it will stand still at the position where the target is lost for 6 seconds and then return to preset position 1. It will automatically enter the tracking state until the target appears again.

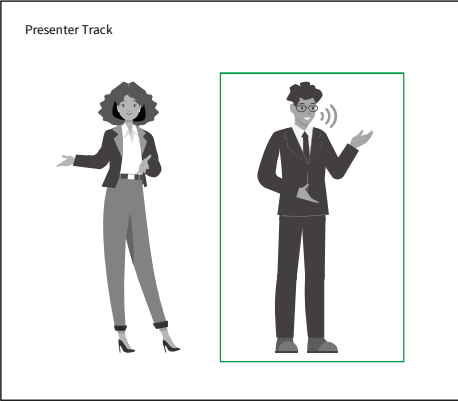


Figure III

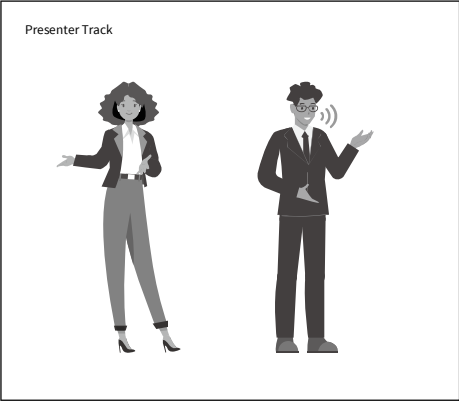


Figure IV

2. Turn off tracking

In the tracking state, press the F4 to exit tracking mode.

When you are willing to end the tracking, press the F4 key (Figure V) on the remote control to exit tracking mode. After tracking, the camera will return to home position, the screen is shown as the following figure, the tracking program exits successfully. (Figure VI)

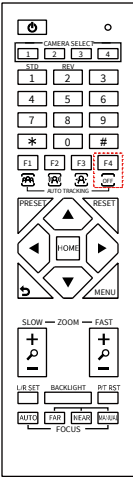


Figure V

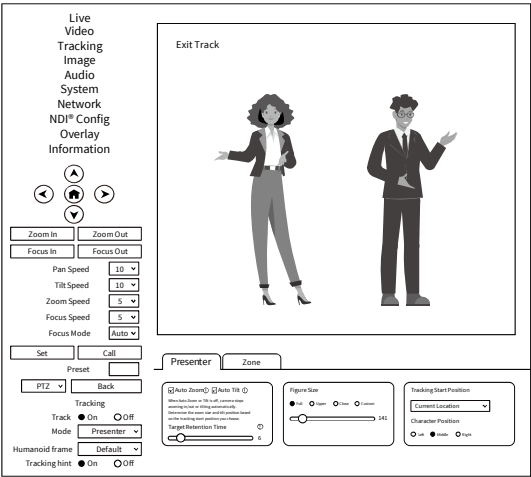


Figure VI

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### 1 Safety Precautions

- During the installation and use of the equipment, all electrical safety regulations of the country and region of use must be strictly observed.
- Please use the power adapter that comes standard with this product.
- Please do not connect multiple devices to the same power adapter (exceeding the capacity of the adapter may generate excessive heat or cause a fire).
- Do not rotate head of the camera by hand, otherwise it may cause mechanical failure.
- When installing this product on a wall or ceiling, secure the device securely. When installing, make sure that there are no obstacles within the rotation range of the gimbal; do not turn on the power until all installations are completed.
- To avoid heat build-up, keep ventilation around the device smooth.

- If the device emits smoke, smells, or makes noises, please turn off the power immediately and unplug the power cord, and contact the dealer in time.
- This device is not waterproof, please keep the device dry.
- This product has no user serviceable parts, damage caused by disassembly by the user is not covered by the warranty.



Notice

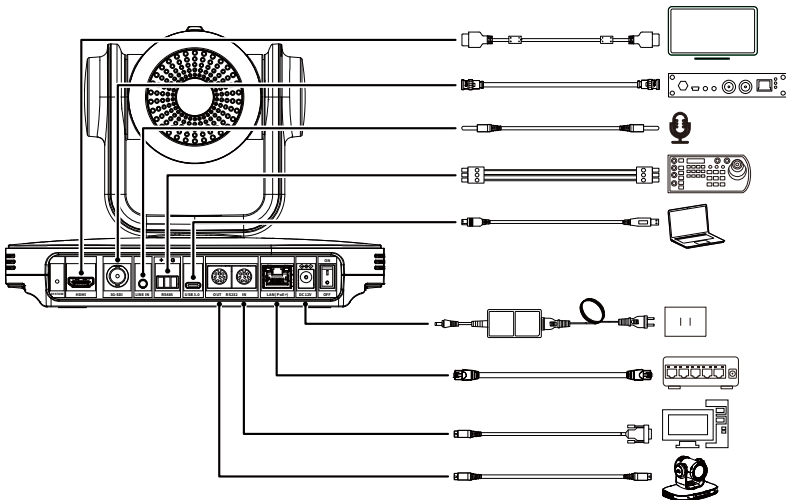
Specific frequencies of electromagnetic field may affect the image of the camera!

### 2 Pack List

Name	Quantity
Camera	1
Remote Control	1
Power Adapter	1
Power Cable	1
RS232 Cable	1
User Manual	1

### 3 Product Connection

1) Please check connections are correct before starting.



Note

The schematic diagram is for reference only. Please refer to the actual application scenario for product connection.

- 2) After the camera is powered on, it starts to initialize, right up to the limit position, and then both horizontal and vertical go to the middle position, the motor stops running, and the initialization is completed.

(Note: If preset 0 is saved, PTZ will be move to preset 0)

4 About Product

4.1 Features

● 60.7° Wide-angle Lens + 30x Optical Zoom

60.7° high-quality ultra-wide-angle lens, optical zoom up to 30x, support 8x digital zoom.

● 1080P Full HD

Using 1/2.8-inch high-quality HD CMOS sensor with effective 2.07 million pixels, it can achieve high-quality images with a maximum resolution of 1920x1080.

● New ISP Image Processing Algorithm

The new generation of ISP image processing algorithm provides more complete white balance and automatic exposure functions, which significantly improves the image output performance of the camera, and the imaging effect is also better. Widely used in education recording and broadcasting, distance education, video conferencing, live broadcasting, broadcasting and other industries.

● Upgraded AI Technology

Using upgraded AI technology, through face recognition, it can accurately determine the location of people, realize automatic tracking and automatic frame selection.

● Leading Auto Focus Technology

Using advanced focusing algorithm, the lens can focus quickly, accurately and stably.

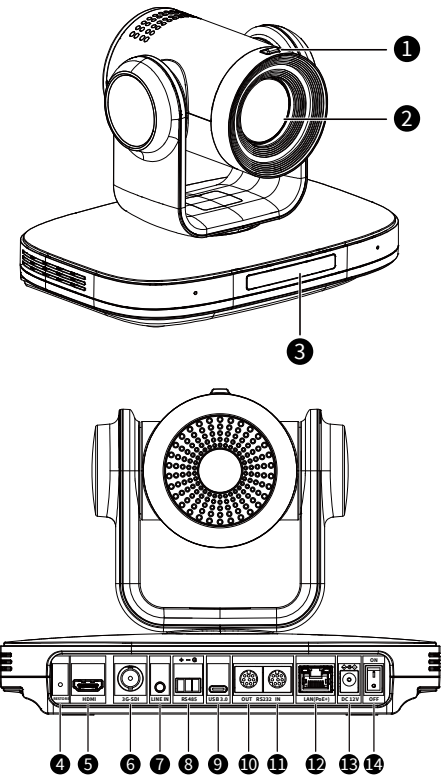
● Multiple Interfaces

Support HDMI and SDI interface, effective transmission distance of SDI is up to 150 meters (1080P60). HDMI, SDI, LAN can output three HD digital signals at the same time.

● Remote Control

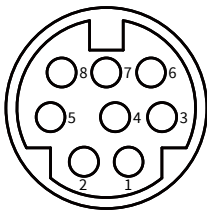
Through the RS232 and RS485 serial ports, the camera can be controlled remotely.

4.2 Interface and Switch



No.	Name
1	TALLY Indicator
2	Lens
3	Display Screen
4	RESTORE Key
5	HDMI Interface
6	3G-SDI Interface
7	LINE IN Interface
8	RS485 Interface
9	USB 3.0 Interface
10	RS232 OUT Interface
11	RS232 IN Interface
12	LAN(PoE+) Interface
13	DC 12V Interface
14	Power Switch

4.3 RS232 Interface



No.	Function	No.	Function
1	DTR	5	RXD
2	DSR	6	GND
3	TXD	7	IR OUT
4	GND	8	NC

Correspondence between RS232 and DB-9:

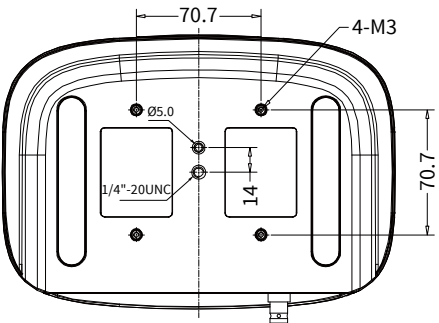
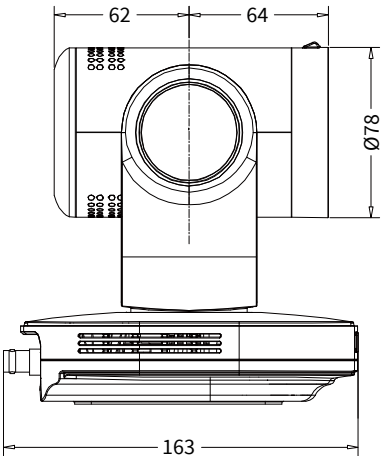
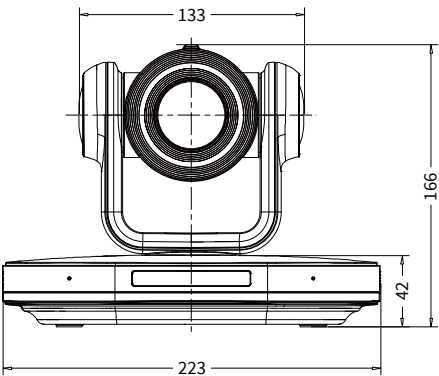
RS232	DB-9
1.DTR	1.CD
2.DSR	2.RXD
3.TXD	3.TXD
4.GND	4.DTR
5.RXD	5.GND
6.GND	6.DSR
7.IR OUT	7.RTS
8.NC	8.CTS
-	9.RI

Correspondence between RS232 and Mini DIN:

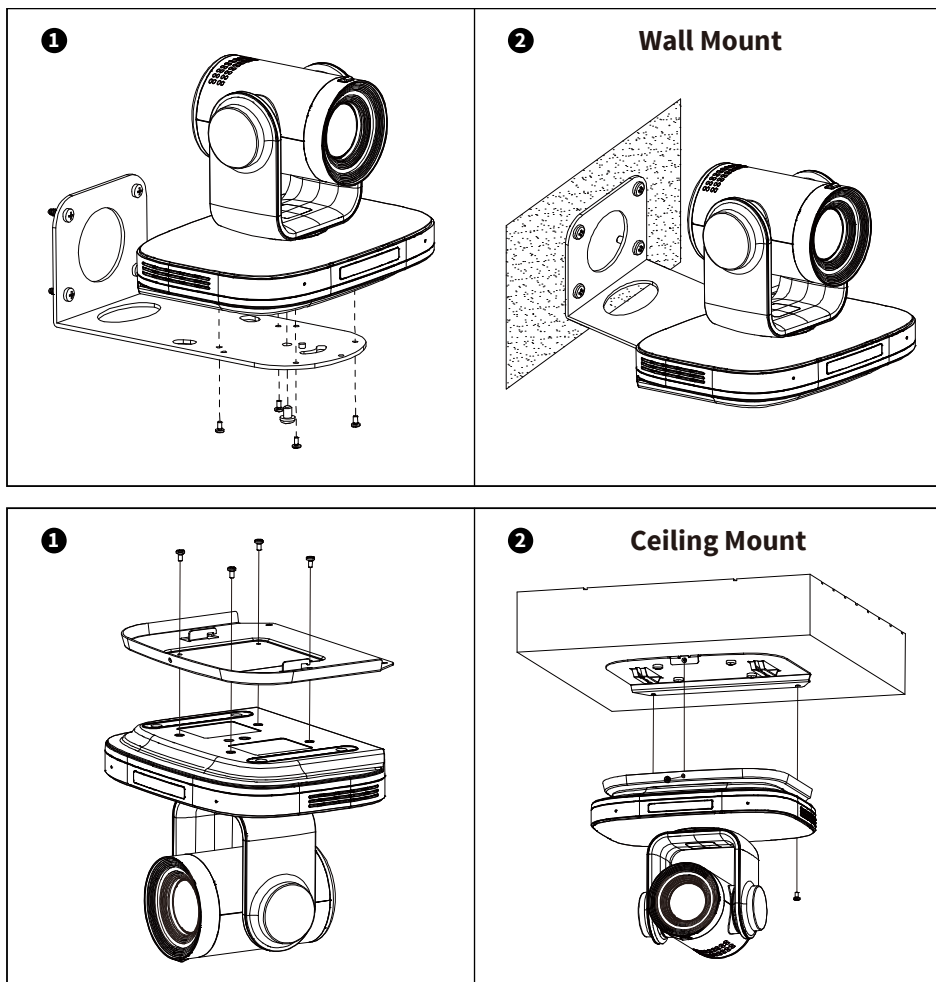
RS232	Mini DIN
1.DTR	1.DTR
2.DSR	2.DSR
3.TXD	3.TXD
4.GND	4.GND
5.RXD	5.RXD
6.GND	6.GND
7.IR OUT	7.NC
8.NC	8.NC

4.4 Dimension

Unit: mm



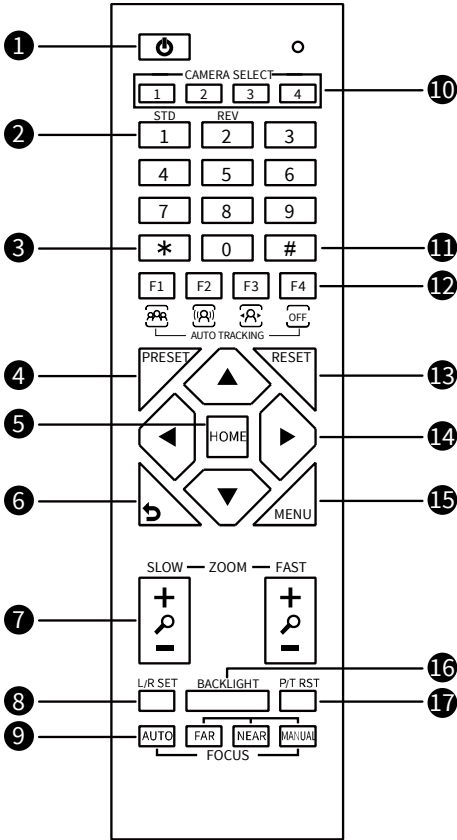
## 4.5 Installation



Note

The above installation diagram is for reference only, please refer to actual product for the installation accessories.

4.6 Remote Control



Key Description	
1. <b>⏻ (Standby) Key</b>	Press to enter standby mode
2. <b>Number Keys</b>	To set preset or call preset
3. <b>* Key</b>	Use with other keys
4. <b>PRESET Key</b>	Set preset: Successively press [PRESET] + Number key (0-9)
5. <b>HOME Key</b>	Confirm selection or press to turn PTZ back to the middle position
6. <b>↶ (Return) Key</b>	Press to return to the previous menu

7. <b>ZOOM Keys</b>	<ul style="list-style-type: none"><li>● SLOW: Zoom In [+] or Zoom Out [-] slowly</li><li>● FAST: Zoom In [+] or Zoom Out [-] fast</li></ul>
8. <b>L/R SET Key</b>	<ul style="list-style-type: none"><li>● Standard: Simultaneously press [L/R SET] + [1]</li><li>● Reverse: Simultaneously press [L/R SET] + [2]</li></ul>
9. <b>FOCUS Keys</b>	Auto/Manual/Far-end/Near-end focus
10. <b>CAMERA SELECT Keys</b>	Press to select and control the camera
11. <b># Key</b>	Use with other keys
12. <b>Auto Tracking Keys</b>	[F1]: Frame Track [F2]: Zone Track [F3]: Presenter Track [F4]: Exit Track
13. <b>RESET Key</b>	Clear preset position: Successively press [RESET] + Number key (0-9)
14. <b>PTZ Control Keys</b>	PTZ moved according to the arrow indicates
15. <b>MENU Key</b>	Enter OSD menu or back to the previous menu
16. <b>BACKLIGHT Key</b>	Backlight ON/OFF: Press repeatedly to enable or disable the backlight compensation <ul style="list-style-type: none"><li>● Effective only in auto exposure mode</li><li>● If there is a light behind the subject, the subject will become dark, press the backlight key to enable the backlight compensation. Press again to disable this function.</li></ul>
17. <b>P/T RST (PTZ Reset) Key</b>	Press to preset Pan/Tilt self-test
<b>Shortcut Set</b>	
Successively press [#] + [*] + [F4]: Enable or disable the Image Freeze	
Successively press [*] + [#] + [1]: OSD menu default English	
Successively press [*] + [#] + [3]: OSD menu default Chinese	
Successively press [*] + [#] + [4]: Display current IP address	
Successively press [*] + [#] + [6]: Quickly recover the default	
Successively press [*] + [#] + [8]: Check the camera version	
Successively press [*] + [#] + [9]: Quickly set up inversion	
Successively press [*] + [#] + [MANUAL]: Restore to default IP address	



## 5 AI Tracking

### 5.1 Web Control

#### ● Speaker (Presenter)/Human Tracking

By modifying web interface parameters, different close-up ratios can be obtained, and tracking can be set on/off, so as to display areas and character positions. If necessary, you can also choose whether to display tracking related prompt information.

The operation steps are as follows:

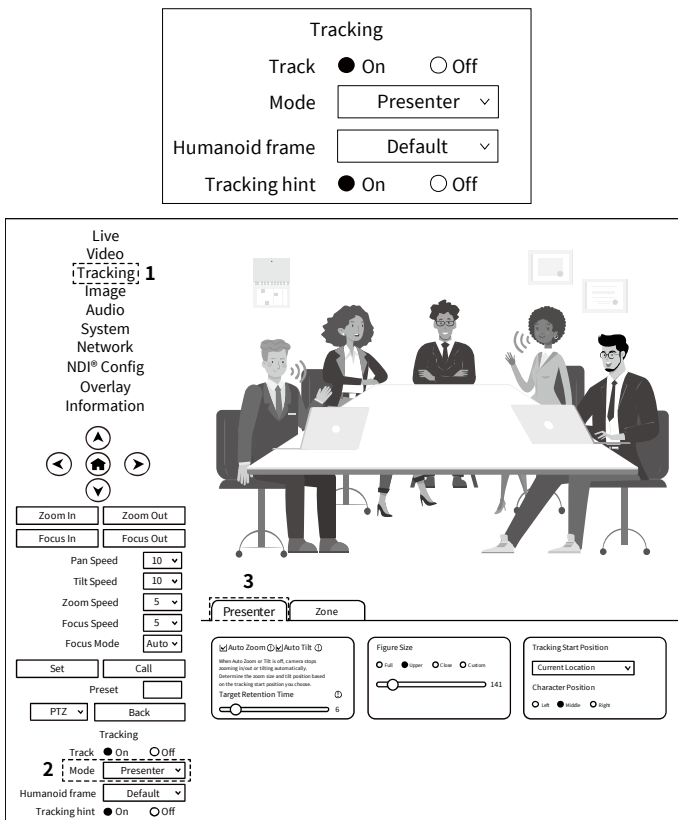
**Step 1** Entering the camera IP address (192.168.100.88) in the browser prompts a login interface.

Input the username (admin) and password (admin) to access the camera WEB interface.

http://192.168.100.88

**Step 2** Enter the “Tracking” option, select speaker mode “Presenter”, and set the tracking parameters in the “Track Off” state.

Tracking Mode: Speaker (Presenter)/Area (Zone). The default is Presenter Mode.



**Step 3** Set the Target Retention Time, the default value is 6 seconds.

The screenshot shows the 'Presenter' tab of the control panel. On the left, there are controls for Zoom Speed (set to 5), Focus Speed (set to 5), and Focus Mode (set to Auto). Below these are buttons for 'Set', 'Call', 'Preset', 'PTZ' (a dropdown menu), and 'Back'. Further down are 'Tracking' controls with 'Track' (On/Off), 'Mode' (Presenter), 'Humanoid frame' (Default), and 'Tracking hint' (On/Off). The main area has two tabs: 'Presenter' and 'Zone'. Under 'Presenter', there are checkboxes for 'Auto Zoom' and 'Auto Tilt', both of which are checked. A text box explains that when either is off, the camera stops moving. Below this is a 'Target Retention Time' slider set to 6 seconds. To the right is a 'Figure Size' section with radio buttons for 'Full', 'Upper', 'Close', and 'Custom' (selected), and a slider set to 141. On the far right is a 'Tracking Start Position' section with a 'Current Location' dropdown and 'Character Position' radio buttons for 'Left', 'Middle' (selected), and 'Right'.

**Auto Zoom:** Usually remains the default. When “Auto Zoom” is turned off, the camera lens can still move, but can only maintain the current magnification and cannot zoom.

**Auto Tilt:** Usually remains default. When “Auto Tilt” is turned off, the camera lens can only move horizontally.

**Target Retention Time:** can remain default. It is an important function to set how long it takes for the camera lens to stay at current position or return to preset position 1 after the tracking target is lost. The modification here takes effect immediately.

**Step 4** Select the desired close-up effect.

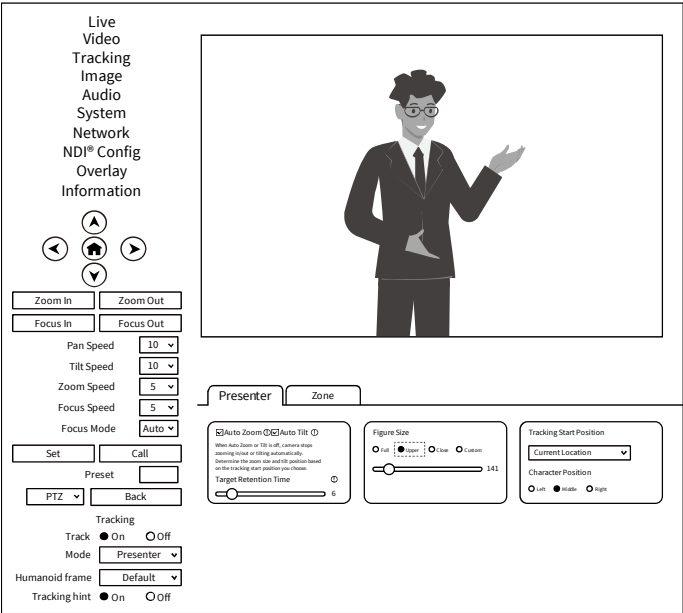
#### ● Figure Size

By selecting different modes, users can customize the proportion of characters in the close-up screen, which is a very important feature. The modification here takes effect immediately.

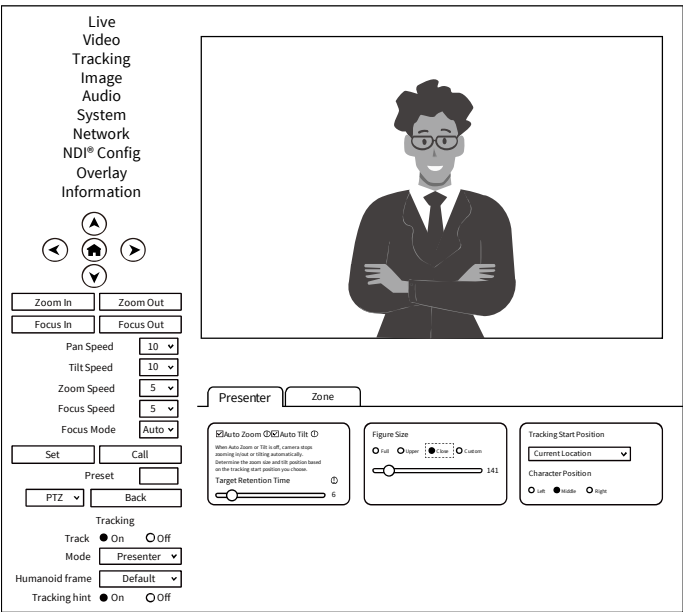
**Full:** The close-up image includes tracking the entire body of the target, as shown in the following figure.

This screenshot shows the same control panel as before, but with the 'Figure Size' set to 'Full'. The main video window now displays a full-body view of a man in a suit holding a laptop and waving. The 'Figure Size' radio buttons show 'Full' selected. The other settings, including 'Auto Zoom', 'Auto Tilt', 'Target Retention Time', and the 'Tracking' controls, remain the same as in the previous screenshot.

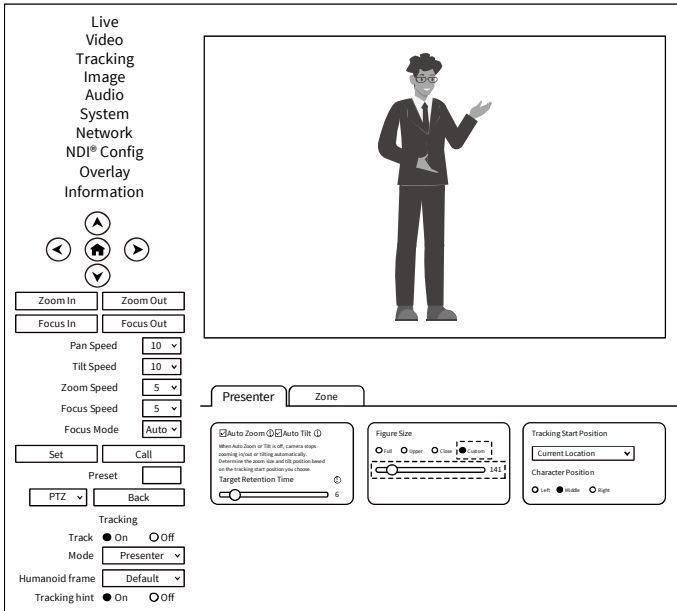
**Upper:** The close-up image includes tracking the target above the knee, as shown in the following figure.



**Close:** The close-up image includes tracking the target above the waist, as shown in the following figure.



**Custom:** Adjust the tracking target proportion size.



Note

If the proportion set is large, the proportion of the tracking target in the camera screen will also increase. When the tracking target moves rapidly, the camera may not keep up.

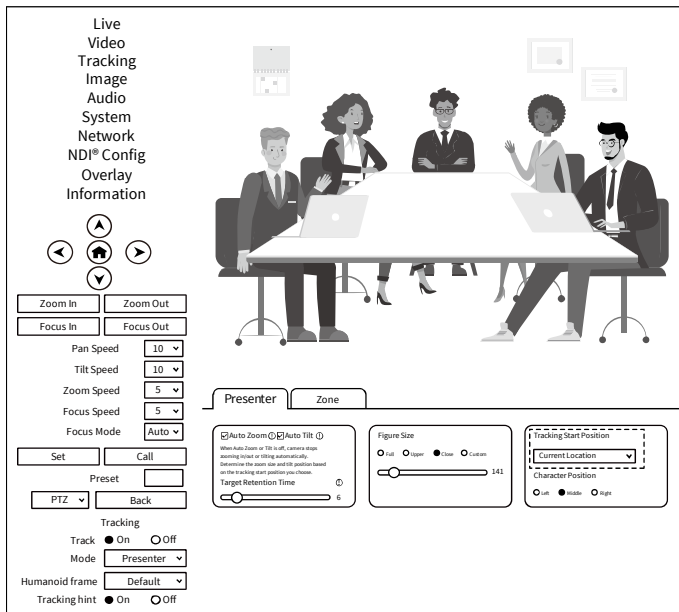
### ● Tracking Start Position

The user can choose the position of the camera lens when starting and stopping tracking.

**Two Mode:** Current Location/Preset 1

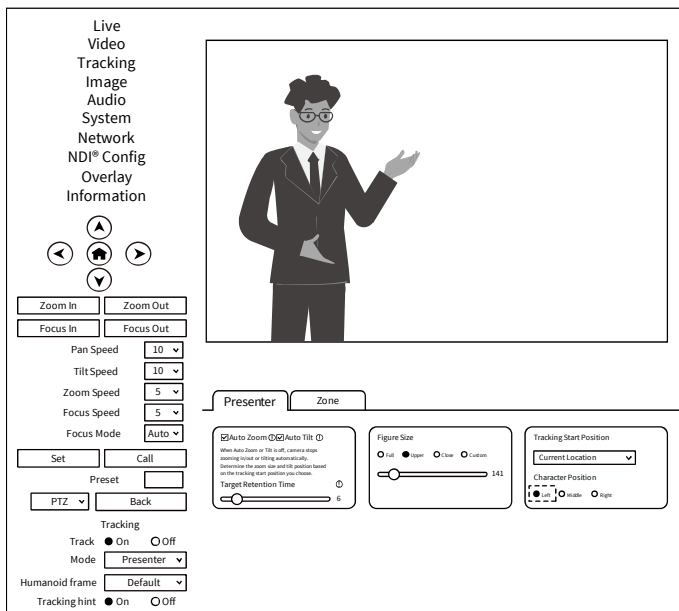
If you choose “Current Location”, the camera position when tracking is turned on is the current position; Similarly, the camera position when stopping tracking will also stop at the current position.

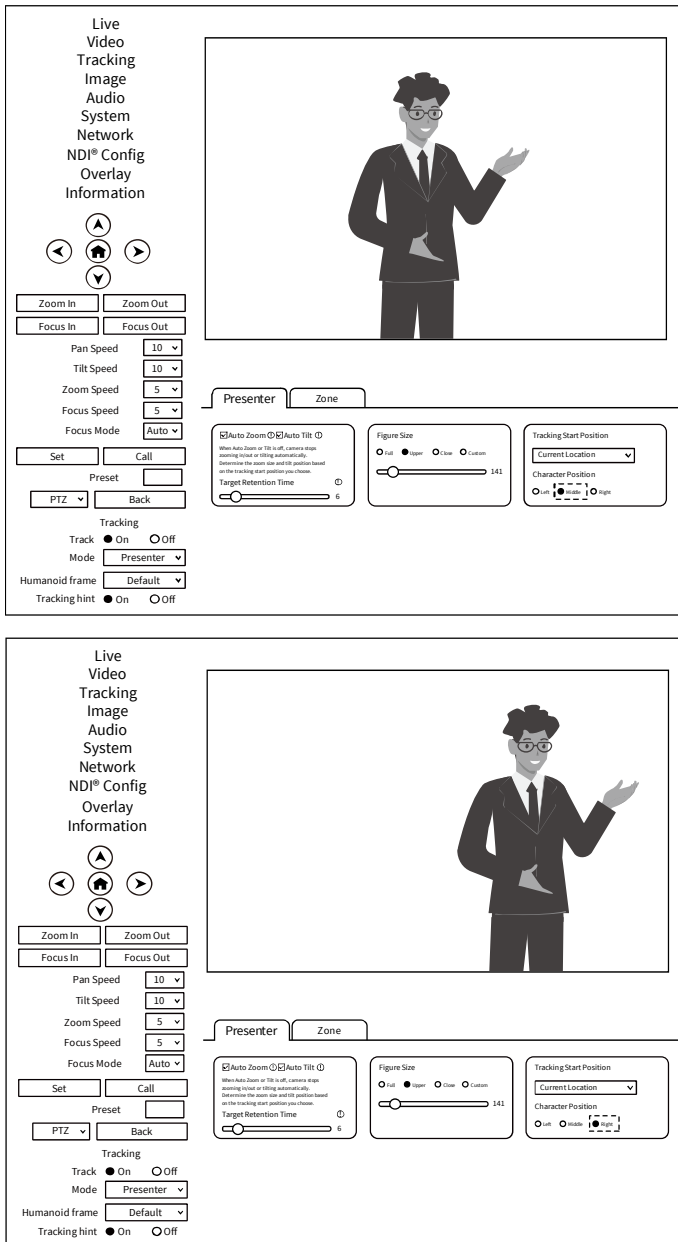
If you choose “Preset 1”, you need to set an additional preset position for the camera. When tracking is turned on, the camera will first move to Preset 1. If someone enters the video screen at this time, the camera will automatically track. When the tracking target is lost (exceeding the timeout), the camera will automatically move to Preset 1.



## ● Character Position

**Character Position:** defaults to median. Left or right can be selected by oneself, and this function is mostly used for live streaming scenes.

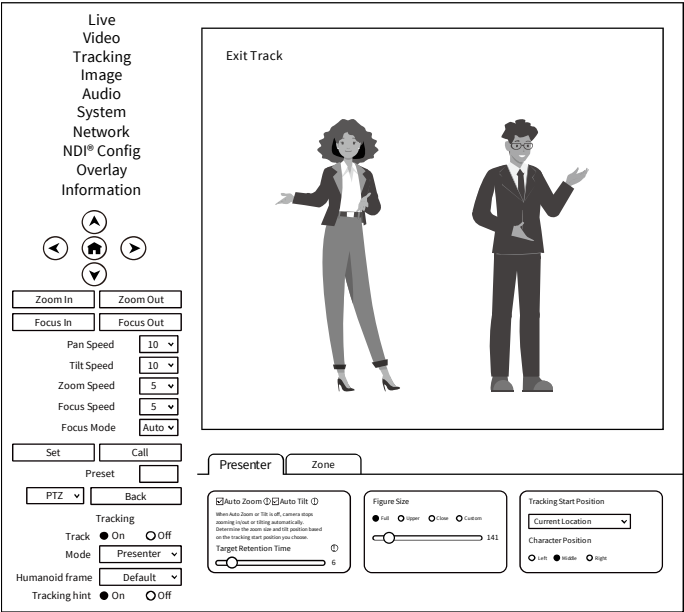




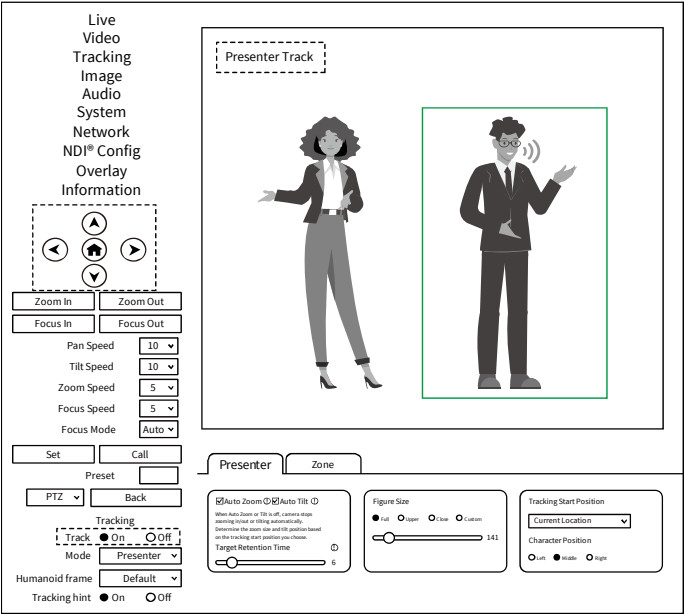
**Step 5** According to the requirements of the application scenario, you can choose whether to require “Humanoid frame” and “Tracking hint”.

Used in live streaming scenarios, it is often not opened for temporary adjustments during live streaming.





**Step 6** Turn on tracking, press the arrow keys to select the tracking target, and then press Home to confirm.





### ● Area Tracking (Zone)

**Function:** Divide the frequently active areas of the tracking target into several areas (A, B, C, D) as needed, and set corresponding preset positions and save them. When the tracking target enters this area, the camera will automatically call the preset position corresponding to the area to achieve tracking.

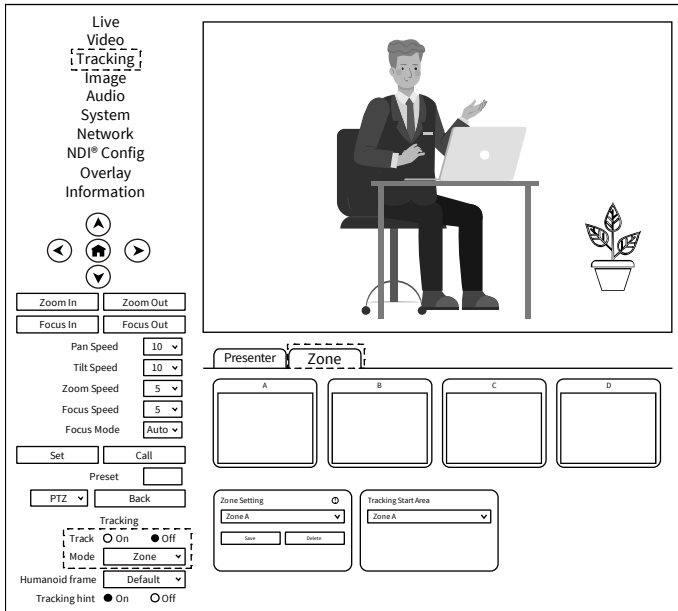
#### Operation Method:

**Step 1** Entering the camera IP address (192.168.100.88) in the browser prompts a login interface.

Input the username (admin) and password (admin) to access the camera WEB interface.

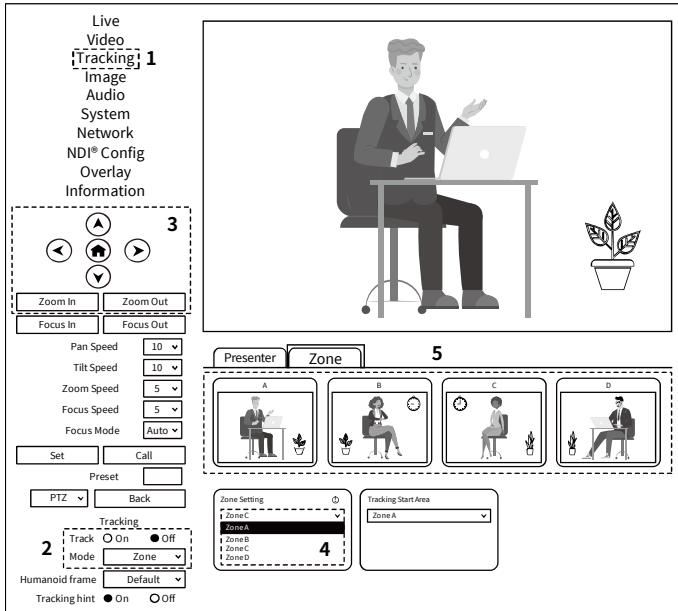
`http://192.168.100.88`

**Step 2** Enter the “Tracking” page and select “Zone”. In the track off state, set the tracking parameters.



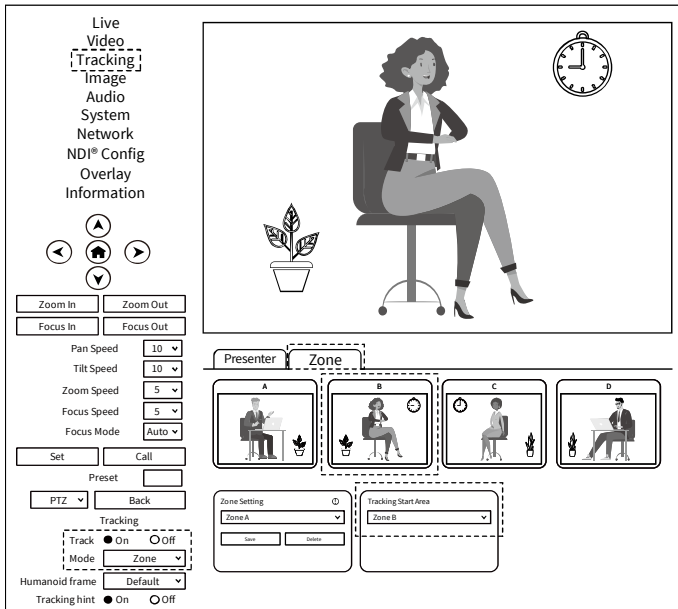
**Step 3** Use the web interface's directional keys and Zoom In/Out to adjust the lens position, and set multiple preset positions such as Zone A successively, and click “Save”.

The number of preset positions to be used in actual application scenarios can be considered by users themselves, but currently the maximum is 4. If the settings are incorrect, you can delete or reset them.



### ● Tracking Start Area

**Tracking Start Area:** You can select any Zone position as the tracking start or end position. When tracking is turned on, the camera will first move to this Zone position. If someone enters the video screen at this time, the camera will automatically track. When the tracking target is lost, the camera will automatically move to this Zone position.



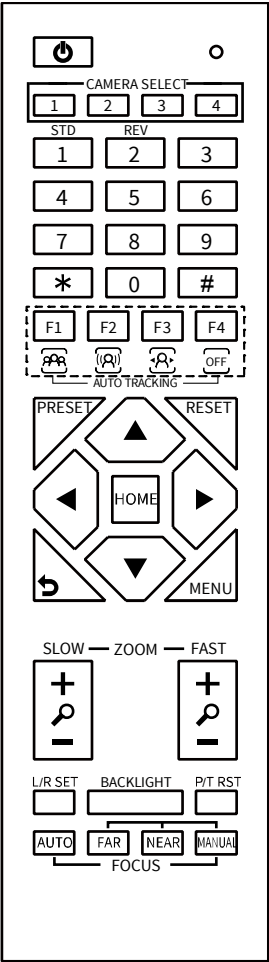
5.2 Remote Control

[F1]: Frame Track

[F2]: Zone Track

[F3]: Presenter Track

[F4]: Exit Track



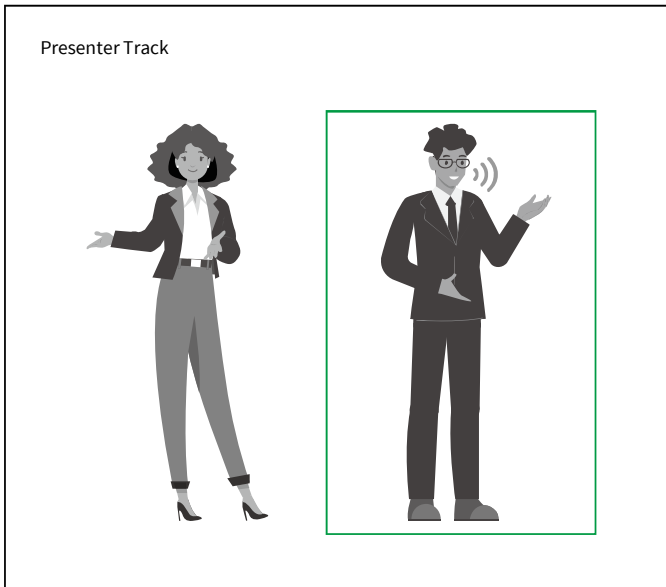
### 5.3 Target Selection

- **Single Person Scenario**

When there is only one person in the scene, enabling tracking through the web or remote control will directly enable tracking and track the target.

- **Multi Person Scenario**

If there are multiple people in the scene, after turning on tracking, you need to manually select the tracking target. You can use the left and right keys on the remote control or WEB to select the tracking target, and then press the HOME key on the remote control or WEB to turn on tracking and select the target. If the tracking target is not selected, the camera will automatically select the person closest to the center of the image as the tracking target.



## 6 Troubleshooting

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### Image

- The monitor shows no image
  - 1) Ensure that the camera power supply is connected, the voltage is normal, and the power indicator is always on.
  - 2) Turn off the power switch to check that the camera is self-testing.
  - 3) Ensure the cable of video platform and TV that in correct connection.
- Image jitters after the camera is properly connected
  - 1) Ensure that the camera installation is in stable position.
  - 2) Check that any vibrating machinery or object near the camera.
- There is no video image in browser

That do not support IE browser and IE core browser, it is recommended to use Google, Firefox and Edge browsers. The camera video image will be displayed normally.

- Unable to access camera through the browser
  - 1) Using PC to access the network to test that the network access can work properly to eliminate the network fault caused by cable and PC virus until the PC and camera can ping each other.
  - 2) Disconnect the network, connect camera with PC separately and reset the IP address of PC if necessary.
  - 3) Ensure that the IP address, subnet mask and gateway settings is correct.
  - 4) Check that the MAC address is conflicts.
  - 5) Check that the web port is modified, the default setting is 80.
- Forget the IP address or login password

The default IP address is: 192.168.100.88;

The default username and password are: admin.

### Control

- Remote control does not work
  - 1) Check and replace with new batteries.
  - 2) Ensure that the camera working mode is correct.
  - 3) Ensure that the address key of remote control can match the camera.
- Serial port cannot control
  - 1) Ensure that the protocol, address and bit rate of the camera are consistent.
  - 2) Ensure that the control cable is properly connected.







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