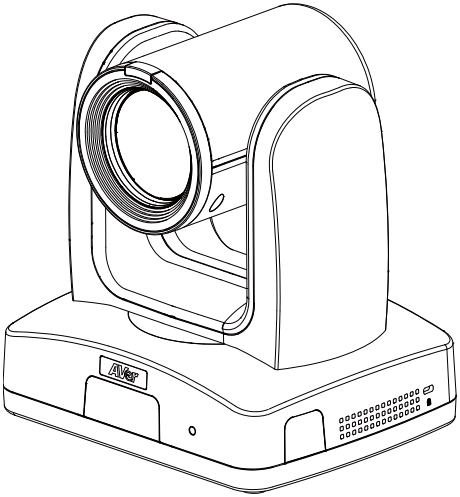
www.aver.com



AI Auto Tracking PTZ Camera

TR311V2 / TR313V2

User Manual

Federal Communications Commission Statement

NOTE: This equipment 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 when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radiofrequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with part 15 of the FCC Rules.
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.

Warning - This is a class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

This Class A digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Caution

Risk of explosion if battery is replaced by an incorrect type.
Dispose of used batteries in a safe and proper manner.

Remote Control Battery Safety Information

- Store batteries in a cool and dry place.
- Do not throw away used batteries in the trash. Properly dispose of used batteries through specially approved disposal methods.
- Remove the batteries if they are not in use for long periods of time. Battery leakage and corrosion can damage the remote control. Dispose of batteries safely and through approved disposal methods.
- Do not use old batteries with new batteries.
- Do not mix and use different types of batteries: alkaline, standard (carbon-zinc) or rechargeable (nickel-cadmium).
- Do not dispose of batteries in a fire.
- Do not attempt to short-circuit the battery terminals.

DISCLAIMER

No warranty or representation, either expressed or implied, is made with respect to the contents of this documentation, its quality, performance, merchantability, or fitness for a particular purpose. Information presented in this documentation has been carefully checked for reliability; however, no responsibility is assumed for inaccuracies. The information contained in this documentation is subject to change without notice.

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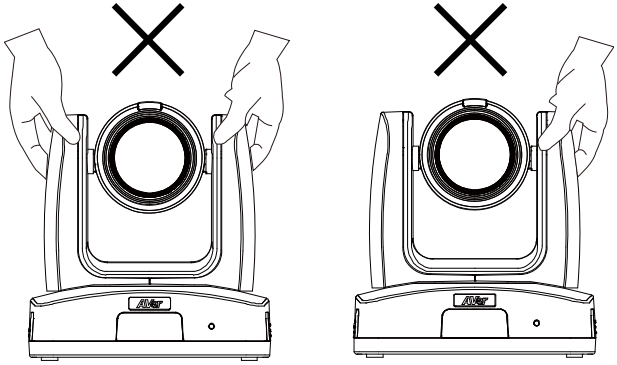
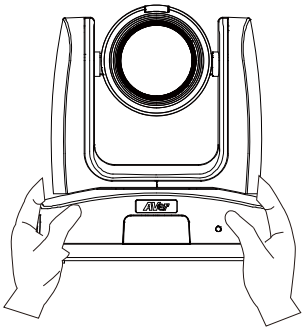
WARNING

- To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture. Warranty will be void if any unauthorized modifications are done to the product.
- Do not drop the camera or subject it to physical shock.
- Use the correct power supply voltage to avoid the damaging camera.
- Do not place the camera where the cord can be stepped on as this may result in fraying or damage to the lead or the plug.
- Hold the bottom of the camera with both hands to move the camera. Do not grab the lens or lens holder to move the camera.



OK

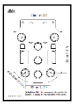


Contents

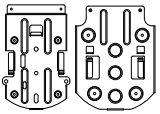
Package Contents

Package Contents

Camera Unit

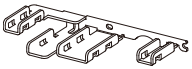


Drilling Paper



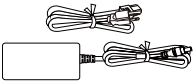
Ceiling Mount Bracket (x2)

Quick Start Guide



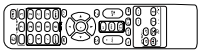
Cable Fixing Plate

M2 x 4mm Screw (x3)



Power Adapter & Power Cord

1/4”-20 L=6.5mm Screw (x2)

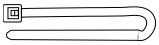


Remote Control

M3 x 6mm Screw (x3)

DIN8 to D-Sub9 Cable

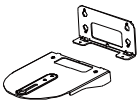
RS232 In/Out Y Cable



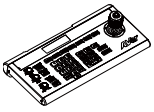
Cable Ties (x4)

*The power cord will vary depending on the standard power outlet of the country where it is sold.

Optional Accessories



Wall Mount Bracket

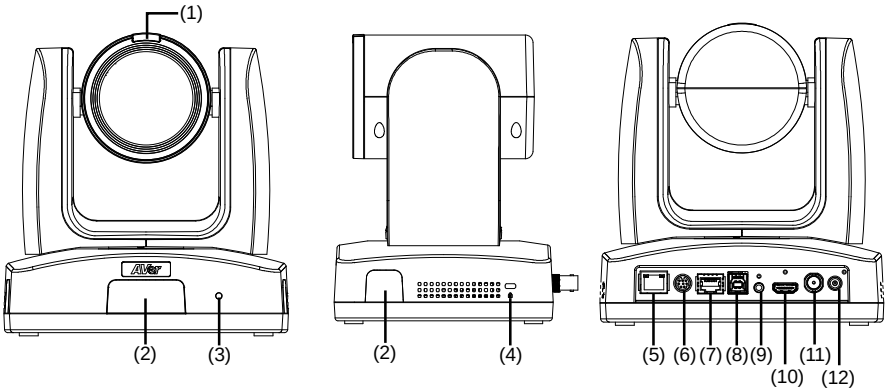


Camera Controller (CL01)

* For detail on optional accessories, consult your local dealer.

Product Introduction

Overview



(1) Tally Lamp	(5) PoE+ IEEE 802.3AT	(9) Audio In*
(2) IR Sensor	(6) RS232 Port	(10) HDMI Port
(3) LED Indicator	(7) RS422 Port	(11) 3G-SDI**
(4) Kensington Lock	(8) USB 3.0 Port (Type B)	(12) DC Power Jack

*Line input level: 1Vrms (max.).

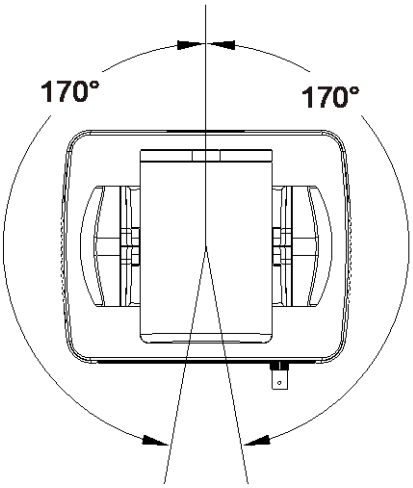
*Mic input level: 50mVrms (max.); Supplied voltage: 2.5V

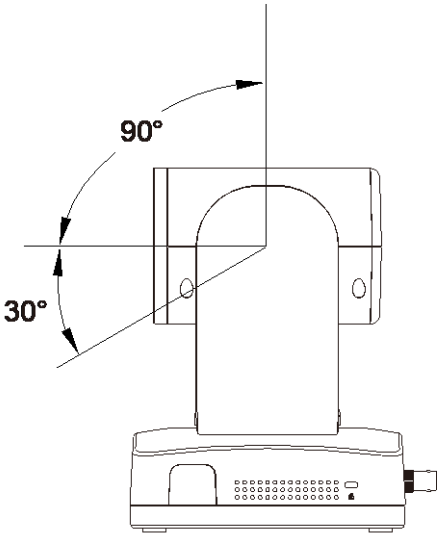
**The model names with “H” do not have this feature.

LED Indicator

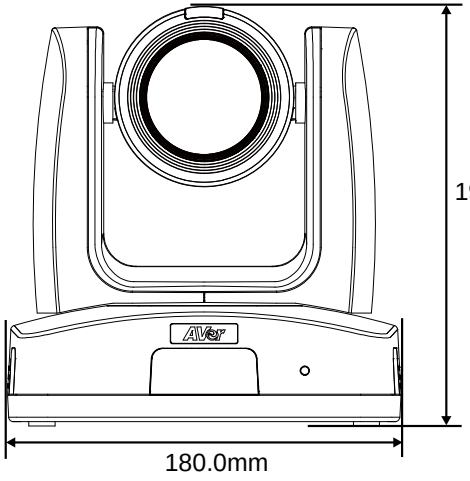
LED	Status
Blue (Blinking)	Auto Tracking On
Blue (Solid)	Normal Operation
Red (Blinking)	FW Updating
Orange (Blinking)	Camera Initialization
Orange (Solid)	Standby

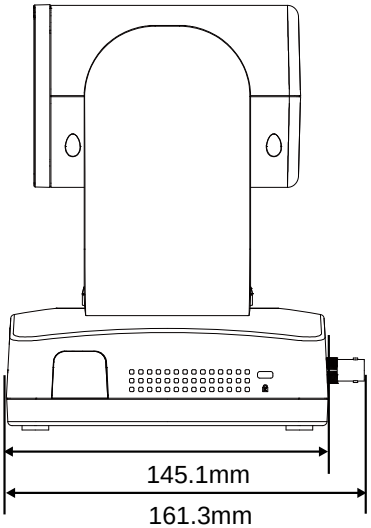
Pan and Tilt Angle



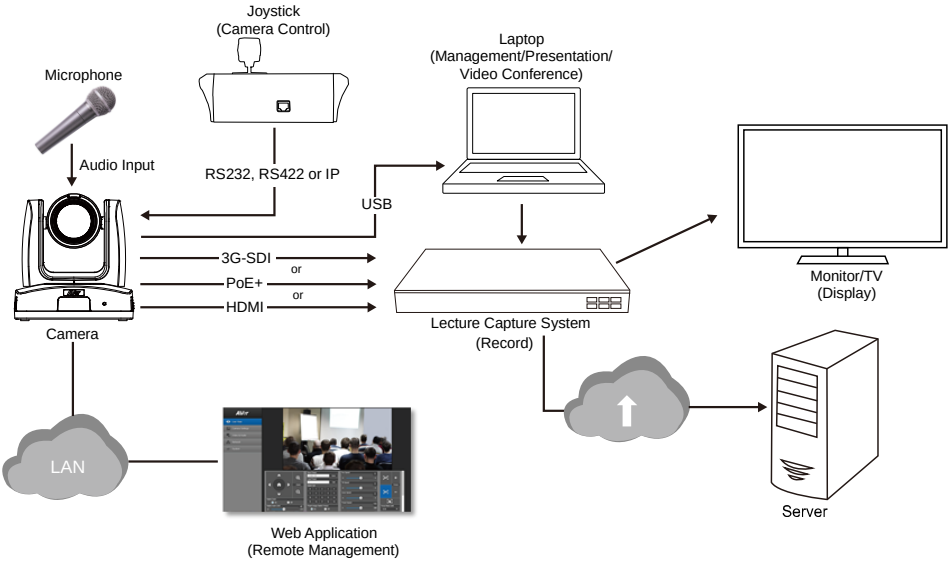


Dimension





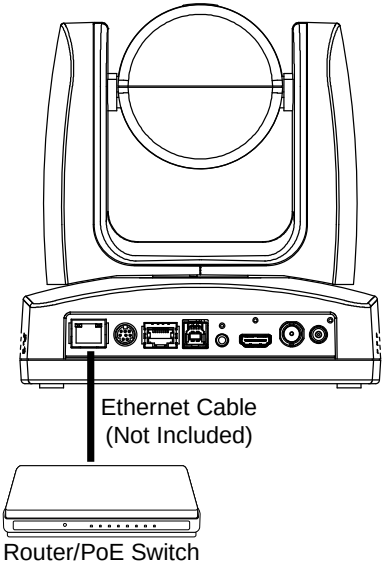
Device Connection



PoE Connection

Connect the camera to the router or switch through the PoE+ port.

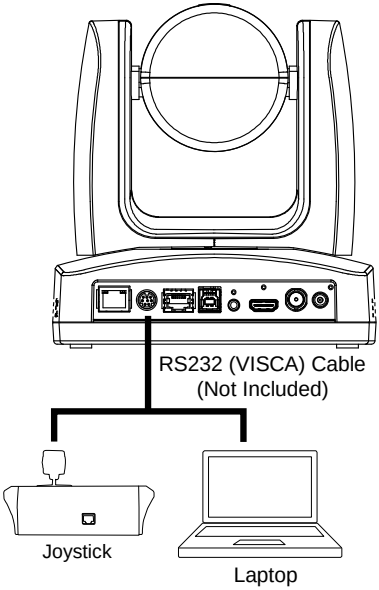
[Note] Only support IEEE 802.3AT PoE+ standard.



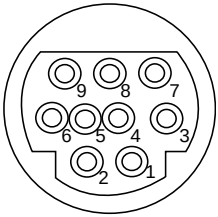
RS232 and RS422 Connection

Connect through the RS232 or RS422 for camera control.

■ **RS232**

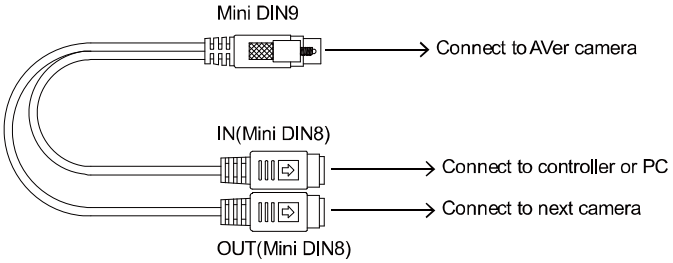


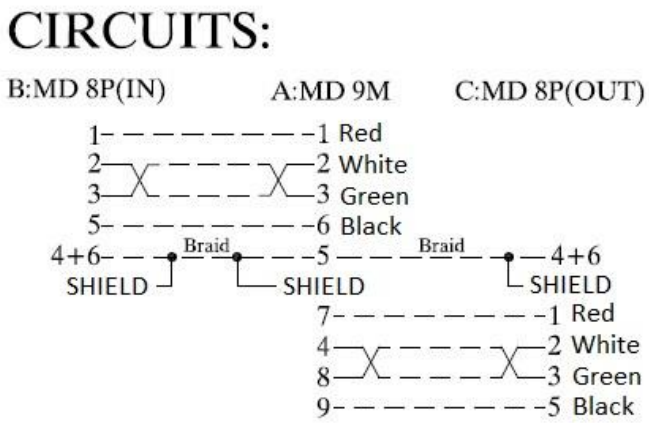
● **RS232 Port Pin Definition**



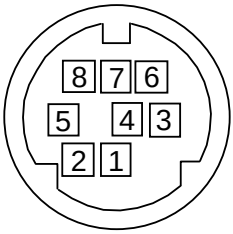
Function	Mini DIN9 PIN #	I/O Type	Signal	Description
VISCA IN	1	Output	DTR	Data Terminal Ready
	2	Input	DSR	Data Set Ready
	3	Output	TXD	Transmit Data
	6	Input	RXD	Receiver Data
VISCA OUT	7	Output	DTR	Data Terminal Ready
	4	Input	DSR	Data Set Ready
	8	Output	TXD	Transmit Data
	9	Input	RXD	Receiver Data
	5	Input	I/O	Detect DIN8/DIN9
---	Shield	---	GND	Ground

● **RS232 mini DIN9 to mini DIN8 Cable Pin Definition**



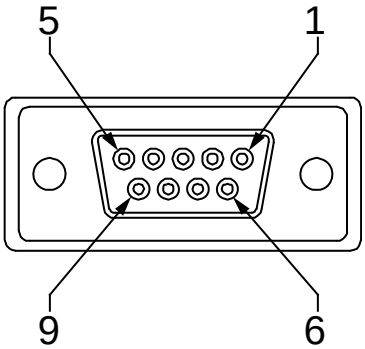


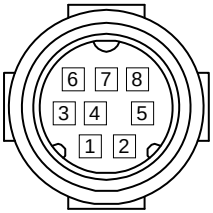
Mini DIN8 Cable Pin Definition

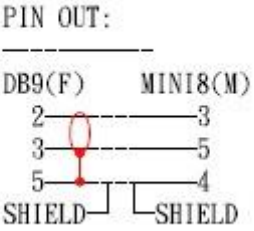


No.	Signal
1	DTR
2	DSR
3	TXD
4	GND
5	RXD
6	GND
7	NC
8	NC

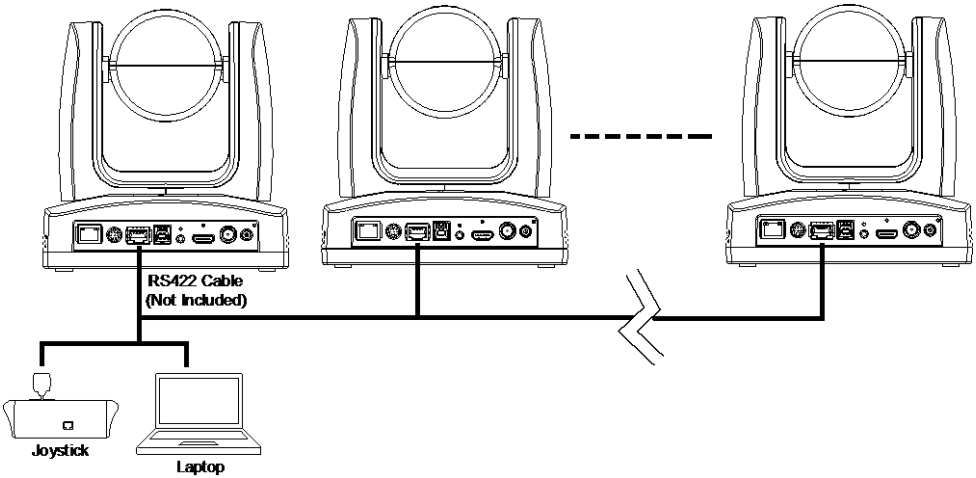
● **Din8 to D-Sub9 Cable Pin Definition**



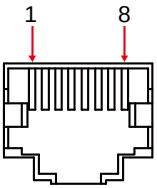




■ **RS422**

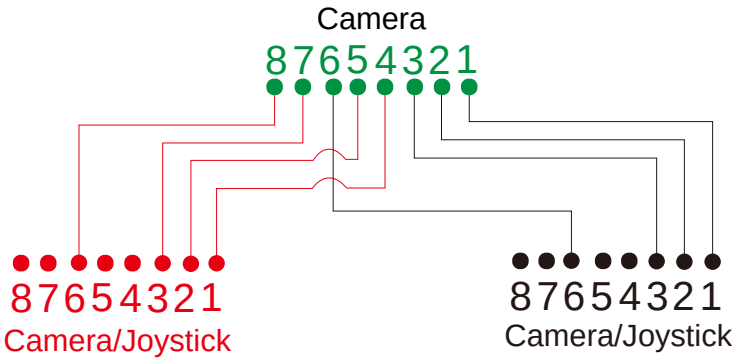


[Note] Use cat5e splitter for multi-camera connection.



RS422 Pin			
No.	**Pin**	**No.**	**Pin**
1	TX-	5	TX+
2	TX+	6	RX+
3	RX-	7	RX-
4	TX-	8	RX+

Cat5e splitter pin assignment:

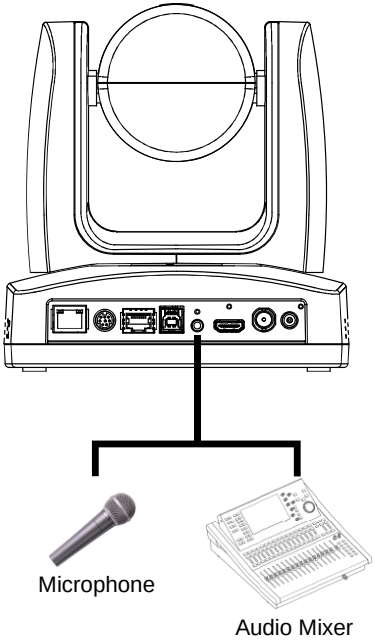


Audio Input Connection

Connect the audio device for audio receiving.

[Note]

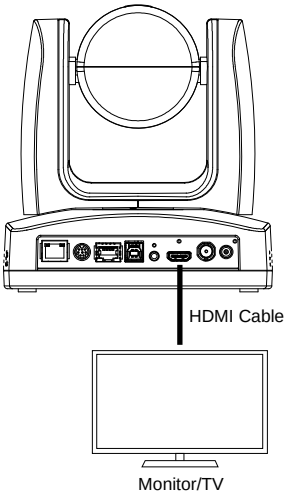
- Line input level: 1Vrms (max.).
- Mic input level: 50mVrms (max.); Supplied voltage: 2.5V.



Video Output Connection

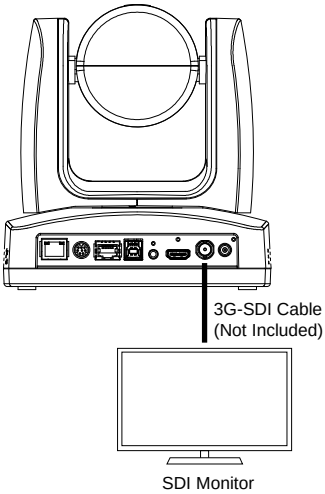
■ **HDMI**

Use the HDMI cable to connect with monitor or TV for video output.



■ **3G-SDI**

Connect to 3G-SDI monitor for video output.

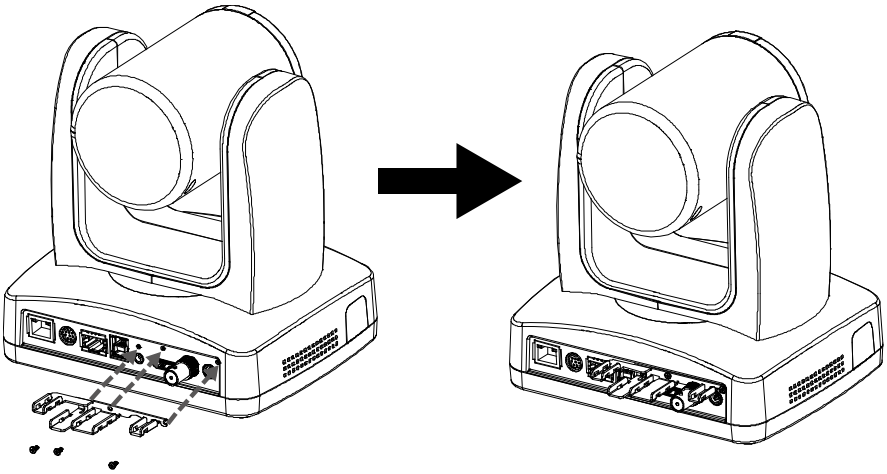


[Notes]

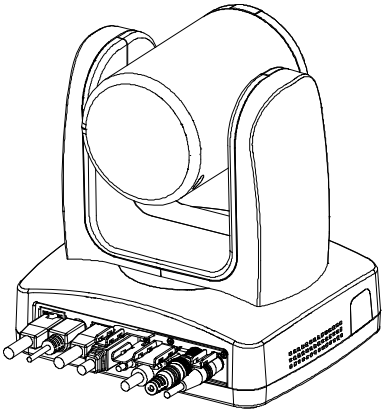
- HDMI and 3G-SDI monitors can be connected to camera and output live video simultaneously; Assuming HDMI monitor is well connected before the camera turned on, the OSD menu will be displayed on HDMI monitor in default.
- The model names with “H” do not have 3G-SDI.

Cable Fixing Plate Installation

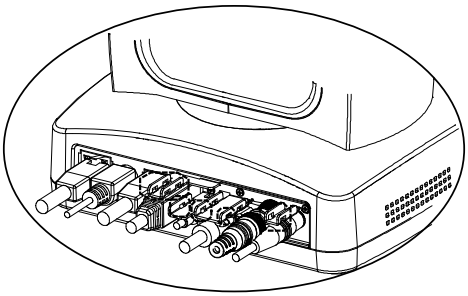
1. Secure the cable fixing plate to the camera with 3 M2 x 4mm screws (included in the package).



2. Plug in cables.

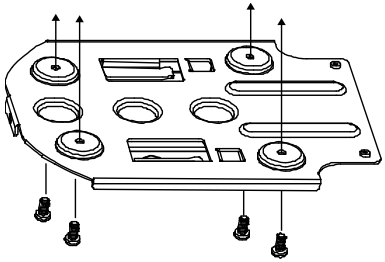


3. Use 4 cable ties to secure the cables and cable fixing plate.

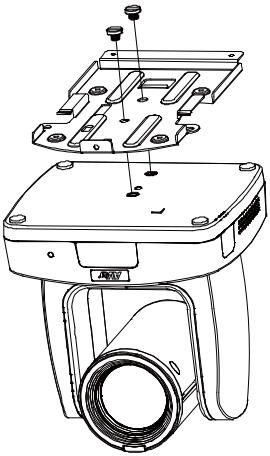


Ceiling Mount Installation

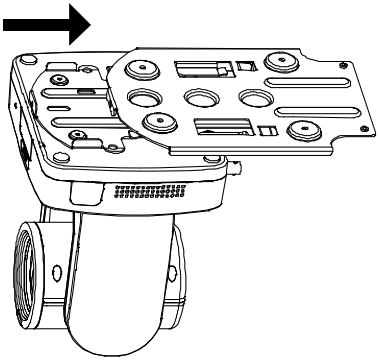
1. Secure the mount bracket on the ceiling.
   Screw: 4 screws, M4 x 10mm (Not Included in the package)



2. Install the mount bracket on the camera.
   Screw: 2 screws, 1/4"-20 L=6.5mm (Included in the package)

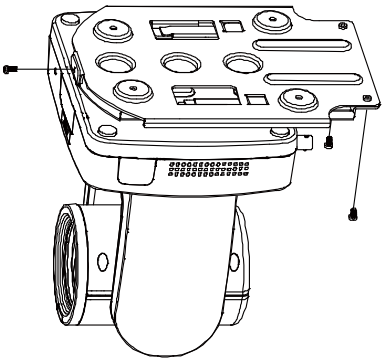


3. Slide the mount bracket with the camera into the mount bracket which secured on the ceiling.



[Note] Connect necessary cables after sliding the camera into the mount bracket.

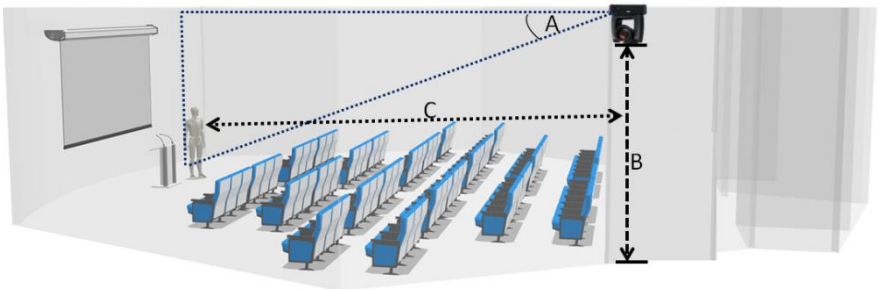
4. Secure the camera with screws.
   Screw: 3 screws, M3 x 6mm (Included in the package)

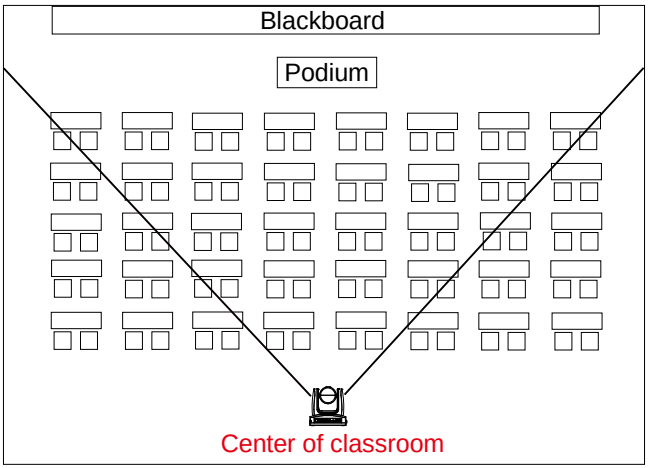


Camera Installation

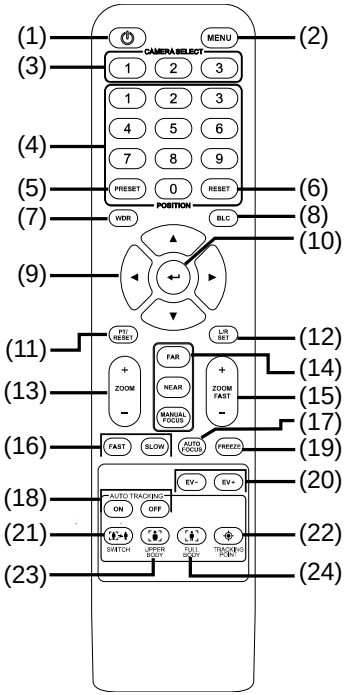
- **Angle A**: less than 45°
- **Height B**: 2~3m from floor
- **Distance C**: longer than 3m away from podium
- **Position**: center of classroom
- **Distance between the camera and tracking target (presenter):**

Optical zoom ratio ability	Upper body size	Full body size
12X	3~16m	3~28m
30X	3~44m	3~76m





Remote Control



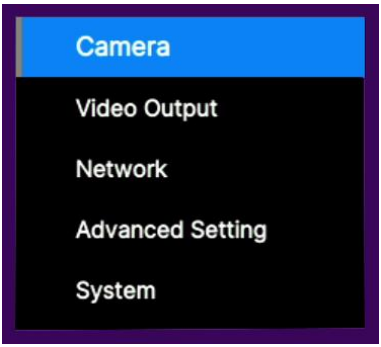
Name	Function
(1) Power	Turn the unit on/standby.
(2) Menu	Open and exit the OSD menu.
(3) Camera Select	CAM1 to CAM3 button Select a camera to operate.
(4) Numeric Pad	■ Use for setting the preset position 0~9. ■ Press number button (0~9) to move the camera to pre-configured preset position 0~9.
(5) Preset	Press “**Preset**” + “**Number button (0~9)**” to set the preset position.
(6) Reset	Press “**Reset**” + “**Number button (0~9)**” to cancel pre-configured preset position.
(7) WDR	Turn on/off WDR function.
(8) BLC	Turn on/off backlight compensation.
(9) ▲, ▼, ◄, & ►	Pan and tilt the camera.
(10) Enter	Access the OSD menu, confirm the selection or make a selection in OSD menu.
(11) PT Reset	Reset the Pan-Tilt position.
(12) L/R DIR	Left and right orientation setting. - Press “**L/R DIR**” + “**1**” button to reset setting. - Press “**L/R DIR**” + “**2**” button to move to opposite direction.

Name	Function
(13) Zoom +/-	Zoom in/out slowly.
(14) MF/Far/Near	Enable manual focus. Use Far/Near to adjust the focus.
(15) Zoom Fast +/-	Zoom in/out fast.
(16) Pan-tilt Fast/Slow	Pan-Tilt speed adjustment.
(17) AF	Auto focus.
(18) Auto Tracking	Auto Tracking on/off.
(19) Freeze	Freeze the live image.
(20) EV +/-	■ Short press to adjust EV level. ■ Long press EV+ to turn on RTMP. ■ Long press EV- to turn off RTMP.
(21) Switch	Change presenter.
(22) Tracking Point	When presenter enters this area, the camera will return tracking point.
(23) Upper Body	Presenter's size on screen is upper body.
(24) Full Body	Presenter's size on screen is full body.

Set Up the Camera

OSD Menu

Press MENU button on the remote control to call out the OSD menu and use ▲, ▼, ◀, ▶ and ↵ button to operate the OSD menu.



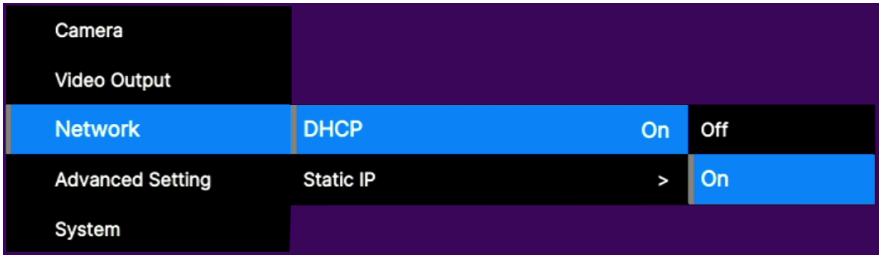
Set Up IP Address of the Camera

Static IP

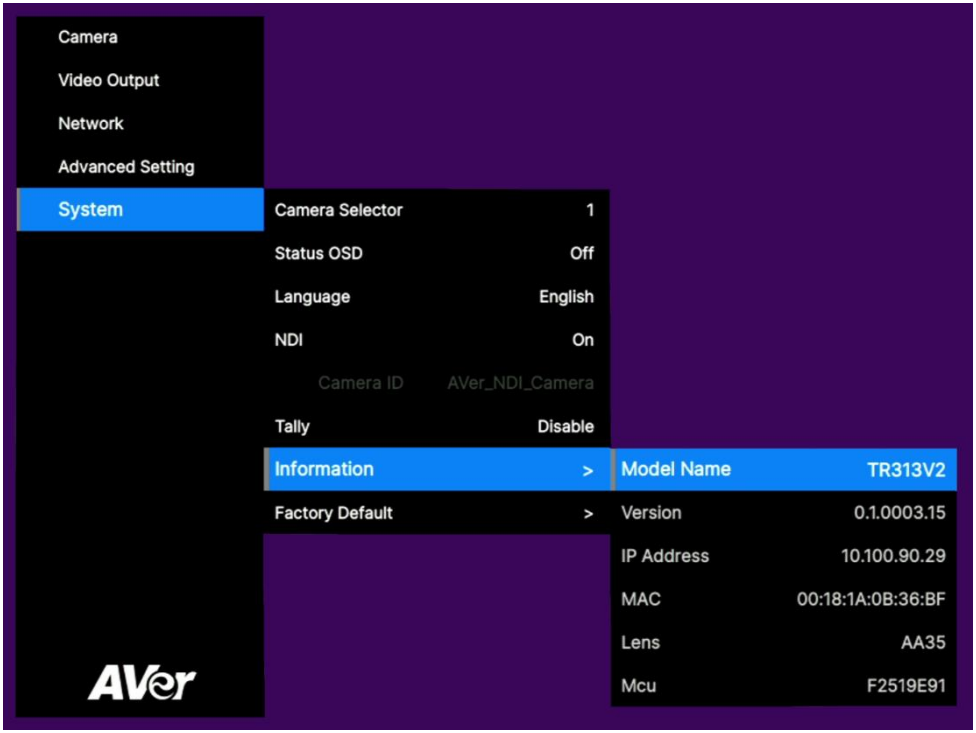
1. Press MENU button on the remote control to call out OSD menu.
2. Go to **Network** > **Static IP**.
   [Note] Turn the DHCP off before setting up static IP (**Network** > **DHCP** > **OFF**).
3. Select the **IP Address**, **Gateway**, **Netmask**, and **DNS** to configure. Press ↵ and use ◀, ▶, number pad to enter the data.

DHCP

1. Press (MENU) button on the remote control to call out OSD menu.
2. Go to **Network** > **DHCP** > **On**.



3. After turning the DHCP on, the user can go to **System** > **Information** to view IP address.



OSD Tree

Camera

Set up camera parameters – Exposure Mode, White Balance, Pan Tilt Zoom, Noise Reduction, Saturation, Contrast, Sharpness, Mirror, and Flip.

Camera	Exposure Mode	
	Full Auto	Exposure Value/Gain Limit Level/Slow Shutter
	Shutter Priority	Exposure Value/Shutter Speed/Gain Limit Level
	Iris Priority	Exposure Value/Iris Level/Gain Limit Level/Slow Shutter
	Manual	Shutter Speed/Iris Level/ Gain Level
	Bright	0 - 31
	White Balance	Auto/Indoor/Outdoor/One push/Manual
	R Gain	0~255
	B Gain	0~255
	Pan Tilt Zoom	Preset Speed/Digital Zoom/Digital Zoom Limit/Pan/Tilt Slow
	Noise Reduction	Off/Low/Medium/High
	Saturation	0~10
	Contrast	0~4
	Sharpness	0~3
	Mirror	Off/On
	Flip	Off/On

Video Output

Select video resolution (2160p is supported on TR313V2 and TR331V2 only).

Priority Mode	2160p/1080p				
Frequency	50 Hz/59.94 Hz/60 Hz				
Resolution	2160P/30	2160P/29.97	1080P/60	1080P/59.94	1080P/30
	1080P/29	1080I/60	1080I/59	720P/60	720P/59.94
	2160P/25	1080P/50	1080P/25	1080I/50	720P/50

Network

Set up IP mode – DHCP or static IP.

Network	DHCP	Off/On
	Static IP	IP Address
		Gateway
		Mask
		DNS

Advanced Setting

Advanced Setting	Audio	
	Input Type	Mic in/Line in
	Auto Gain Control	Off/On
	Noise Suppression	Off/Low/Normal
	Audio Volume	0~10
	Control	
	Serial Port	RS232/RS422
	Protocol	VISCA/PELCO D/ PELCO P
	Camera Address	1~7
	Baud Rate	2400/4800/9600/38400
	Tracking	Off/On
	Tracking Mode	Presenter/Zone/Hybrid

System

- **Status OSD:** Enable/disable Preset status (Save Preset, Call Preset, Cancel Preset) display on the screen.
- **Camera Selector:** Set the camera ID 1~3 for using remote control on multiple cameras control (also see (3) Camera Select in Remote Control section).
- **NDI:** Enable/disable NDI function.
- **Tally:** Enable tally function.

System	Camera Selector	1~3
	Status OSD	Off/On
	Language	English/繁體中文
	NDI	Off/On
	Tally	Disable/Enable
	Information	Model Name/Version/IP Address/MAC/Lens/Mcu
	Factory Default	Off/On

Web Setup

Connect the camera from a remote site through the internet.

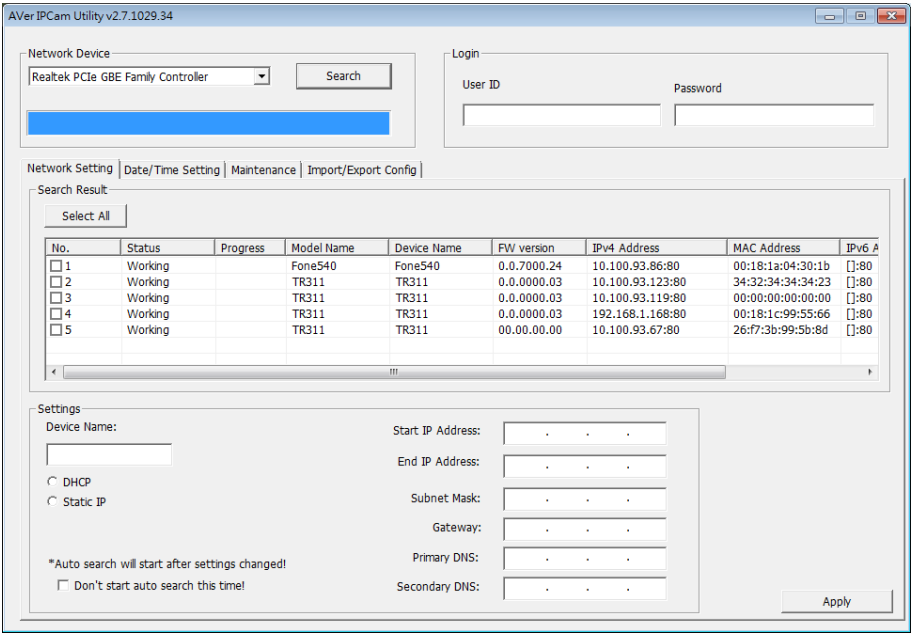
Using the AVer IPCam Utility to Find the Camera

To find the IP address of your cameras, you can execute the IPCam Utility installer. Follow below steps to find the IP address of the camera.

1. Download the IPCam Utility from https://www.aver.com/download-center .
2. Run the IPCam Utility
3. Click **Search**, and all available devices will be listed on the screen.
4. Select a camera from the list.
5. The corresponding fields of IP address will display.
6. Double-click on the IP address of the camera from the list to connect to the camera through the browser.

[Note] If IPCam utility cannot find the camera, please check following:

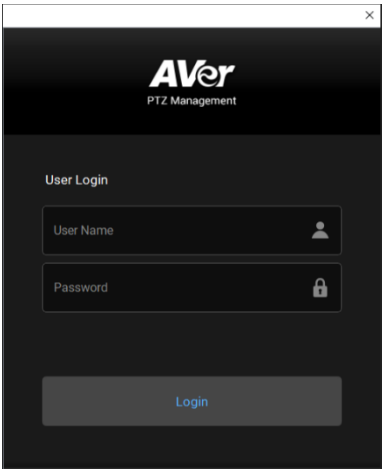
1. Please make sure the Ethernet connection of camera is well connected.
2. The camera and PC (IPCam Utility) are in the same LAN segment.



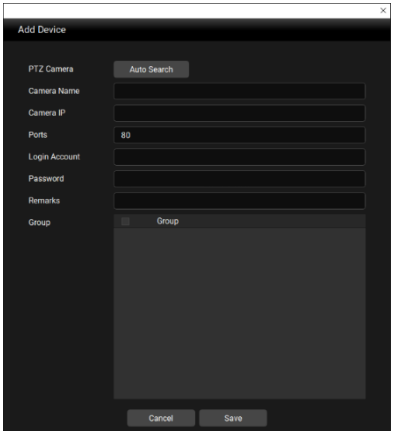
Using AVer PTZ Management Software to Find the Camera

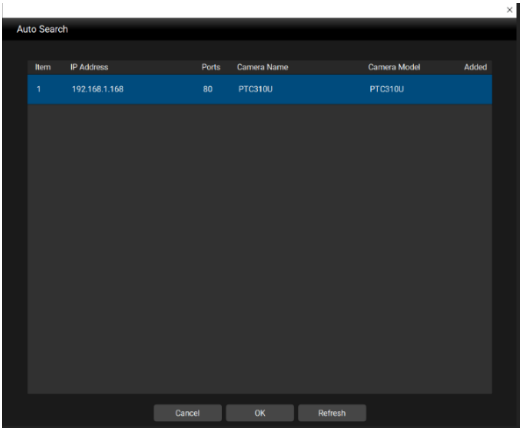
To find the IP address of your cameras, you can download then install AVer PTZ Management Software. Follow below steps to find the IP address of the camera.

1. Download the AVer PTZ Management software from https://www.aver.com/download-center
2. Download the Windows program and install it.
3. After setting up the user ID and password, log in to the software (default User Name/Password: admin/admin).



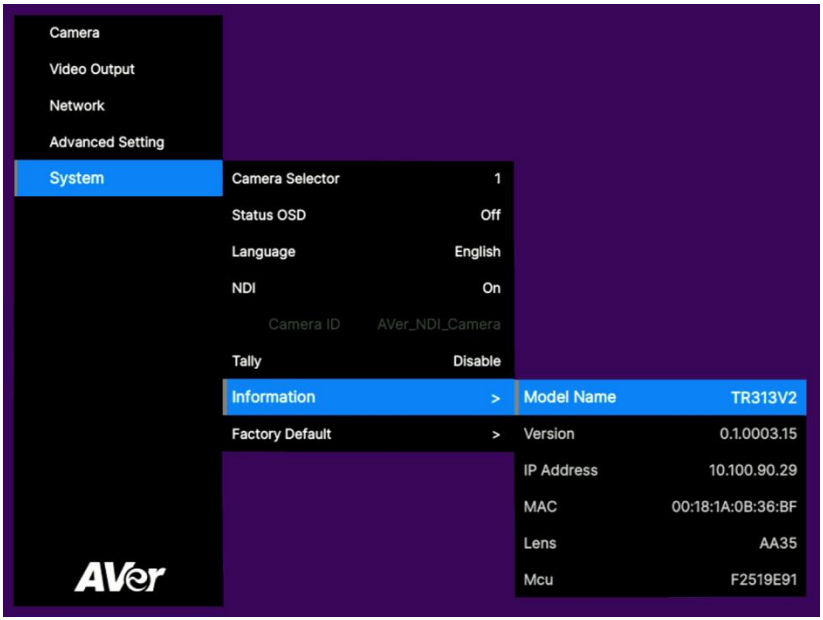
4. Select **Setup**, **Add** and then **Auto Search**.



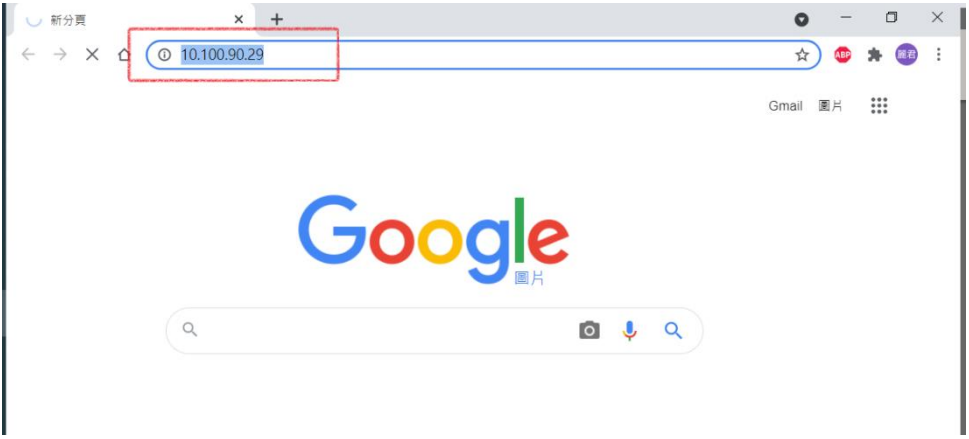


Make a Connection to the Camera via Browser

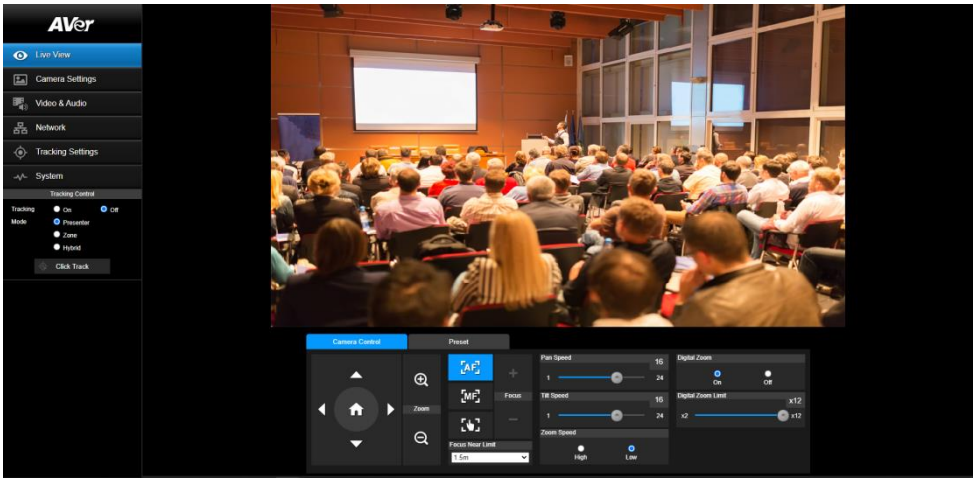
1. Find the IP address of the camera. Call out OSD menu and select **System** > **Information**. Or use AVer IPCam utility to find the IP address of the camera.



2. Open the browser and enter the IP address of the camera. The PC/laptop is required an internet access.

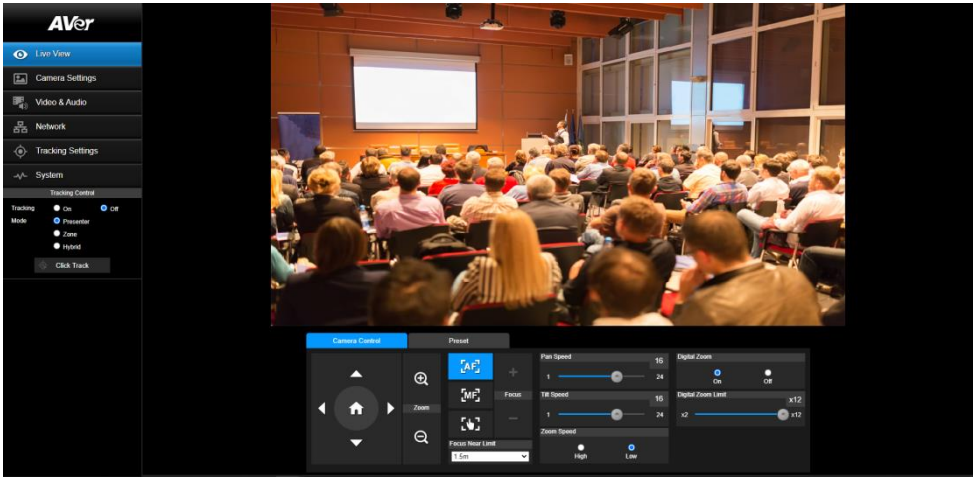


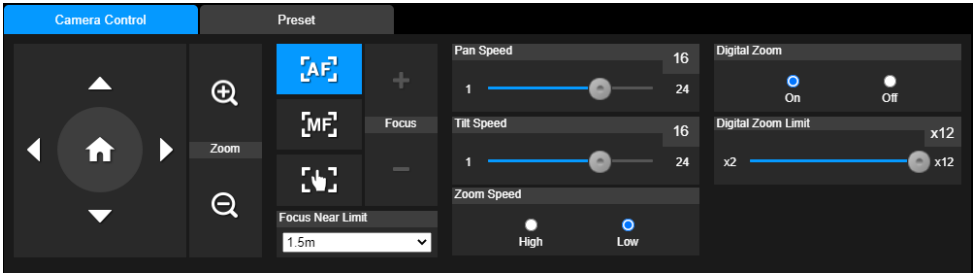
After connecting to the camera, enter the user account and password (default is **admin**/**admin**) to log in Web.

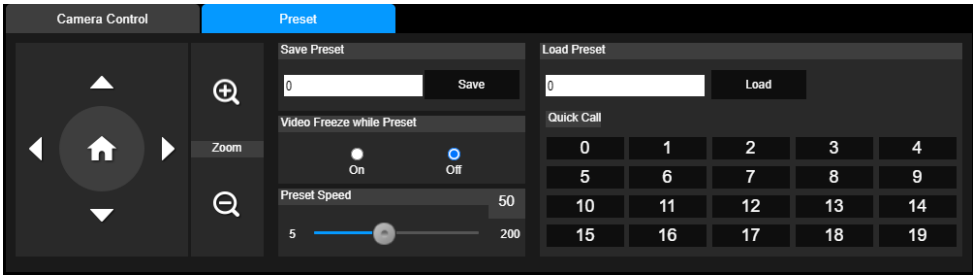


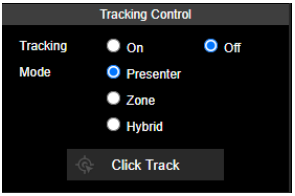
Live View

In live view page, the user can set up camera control (camera direction control, zoom in/out, focus, pan/tilt/zoom speed), preset setting, and tracking control (on, off, tracking mode, click track).





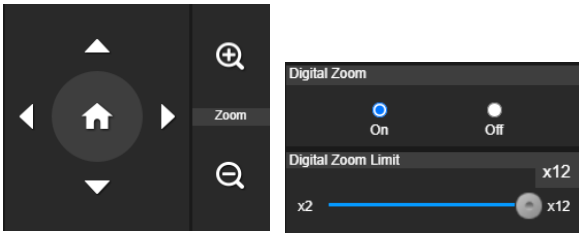




Pan-Tilt-Zoom Control

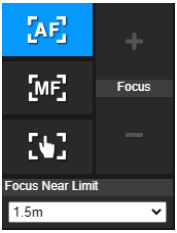
In Camera Control tab, use , , , and to adjust the camera view position and use and to zoom. Select to go back to default position.

Digital Zoom: Enable/disable digital zoom function. Move the scroll to adjust the limit of digital zoom.



Focus

Switch to auto (AF) or manual (MF) focus. The manual focus use “+” and “–” to adjust focus. Press “+” to adjust focus to the far end and focusing on a far subject; press “-” to adjust focus to near end and focusing on a near subject.

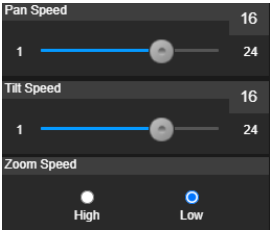


One push focus ( ): Click the button to adjust lens focus automatically once.

Focus Near Limit: Set the focus distance limit.

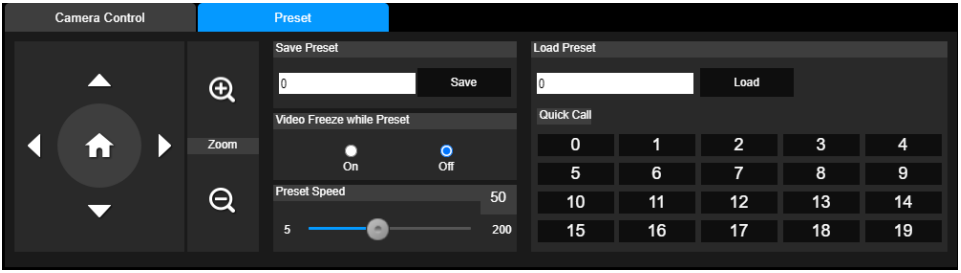
Manual Pan-Tilt-Zoom Speed Adjustment

Adjust the speed of manual Pan-Tilt-Zoom. There are totally 24 levels for manual pan-tilt speed adjustment and 2 levels (Low/High) for zoom speed adjustment.



Preset Setting

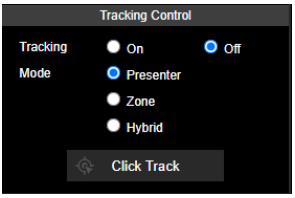
Set up preset position and view preset position.



1. Select the **Preset** tab in live view page.
2. Use , , , and to adjust camera view position and use and to zoom.
3. Enter preset position number (0~255) in **Save Preset** column and select **Save** to save the position.
4. To call the preset position, enter a preset number (0~255) in **Load Preset** column or select the preset number (0~19) from **Quick Call** section. (Recalling preset will disable auto tracking.)
5. **Video Freeze with Preset:** Turn On/Off the screen view freeze function. When **Video Freeze with Preset** is on, during the preset operation, the screen will freeze until the operation is done.
6. **Preset Speed:** Adjust the preset speed.

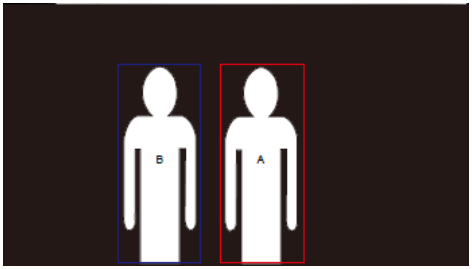
Tracking Control

Enable/disable tracking function, select tracking mode, and operate one-click tracking function.

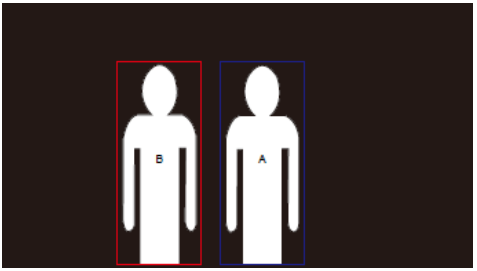


- **Tracking Mode** (Tracking mode setup refer to Tracking Settings section)
  - **Presenter:** Enable tracking function and select Presenter mode. Camera will start tracking when human shows on camera if human goes away and camera will return tracking point.
  - **Zone:** Enable tracking function and select Zone mode. Camera will start tracking when object is moving between the preset tracking block area.
  - **Hybrid:** Enable tracking function and select Hybrid mode. This mode allows the user to use Presenter and Zone modes at the same time. When the presenter enters selected preset points, it will change to Zone position. When the presenter leaves the preset points, camera will follow presenter to do Auto Tracking function.

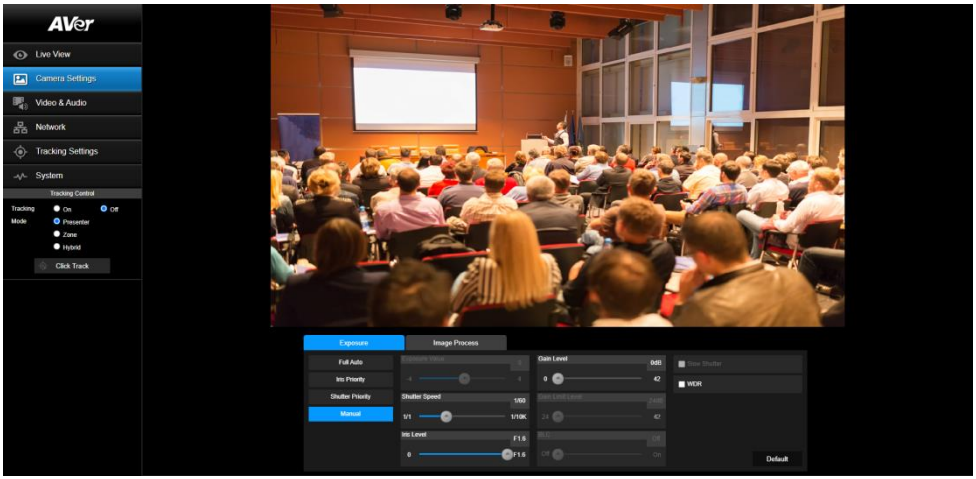
- **Click Track** function: allows user to change tracking object while auto tracking.
  1. Select **Click Track** button. A red frame is targeted on the tracking object and a blue frame is targeted on another object on the live screen.



  2. Click the object. When frame changes to red, the tracking object is changed to the selected one.

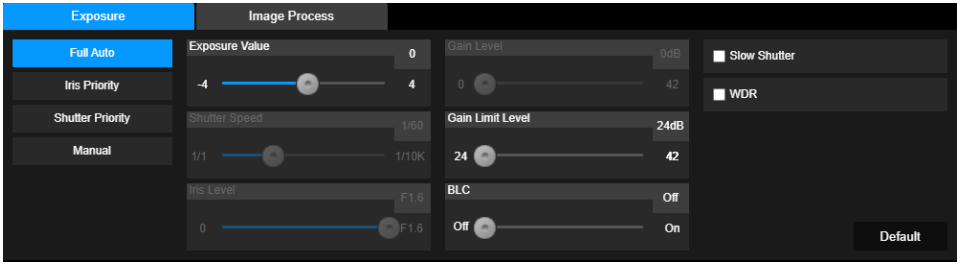


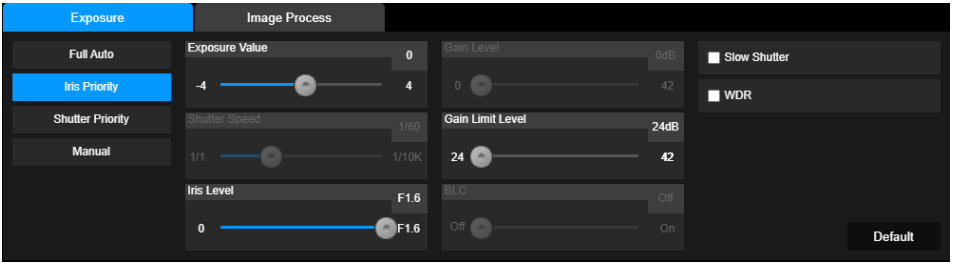
Camera Settings

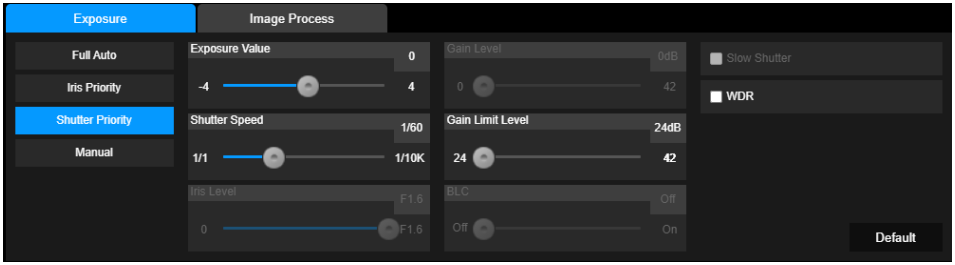


Exposure

In **Exposure** tab of **Camera Settings** page, set up the Exposure type – Full Auto, Iris Priority, Shutter Priority, or Manual.







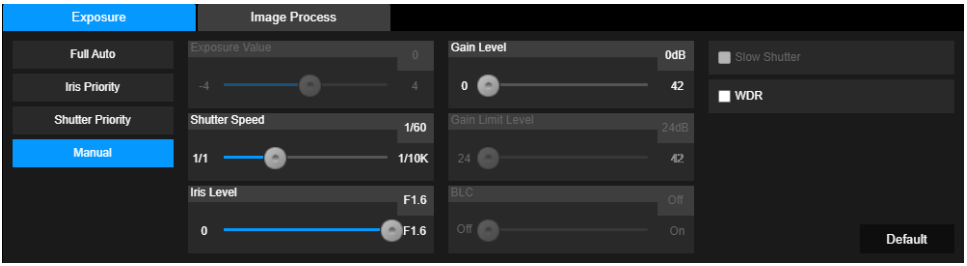
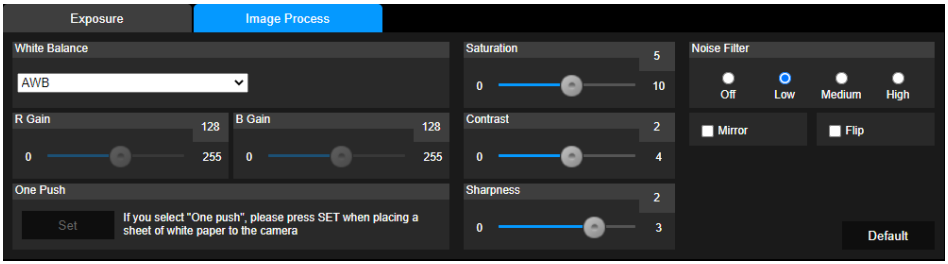


Image Process

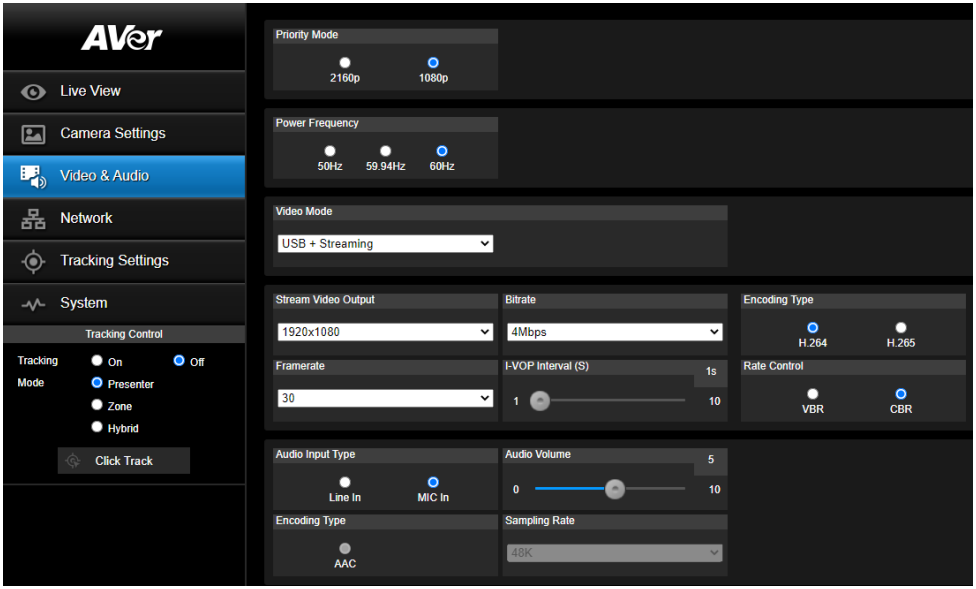
Select the **Image Process** tab in **Camera Settings** page.

Set up the White Balance, Saturation, Contrast, Sharpness, Noise Filter, Mirror, and Flip.



Video & Audio

In **Video & Audio** page, user can setup the following functions:



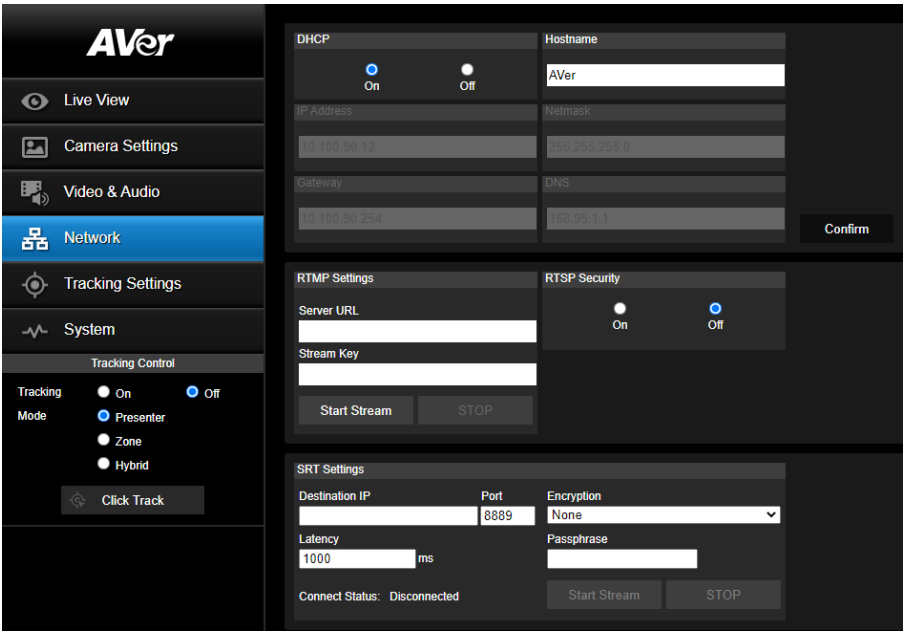
- **Priority Mode: 2160p** or **1080p**.
- **Power Frequency: 50Hz**, **59.94Hz**, or **60Hz**.
- **Video Mode: Stream Only**, **USB Only**, or **USB + Streaming.** The frame rate is up to 60fps if **Stream Only** or **USB Only** is selected. The frame rate is up to 30fps if **USB + Streaming** is selected.
- **Stream Video Output:** Select video output resolution – **3840x2160**, **1920x1080**, **1280x720**, **960x540**, **640x480**, or **640x360**.
- **Bitrate: 512kbps**, **1Mbps**, **2Mbps**, **4Mbps**, **8Mbps**, **16Mbps**, **32Mbps**, or **Auto**.
- **Encoding Type: H.264** or **H.265**.
- **Framerate:** Select framerate of the camera – **1**, **5**, **15**, **20**, **30**, or **60** for power frequency 59.94Hz or 60Hz; **1**, **5**, **15**, **20**, **25**, or **50** for power frequency 50Hz.
- **I-VOP Interval (S):** Move scroll bar to set the value – **1s** to **10s**.
- **Rate Control**: **VBR** or **CBR**.
- **Audio Input Type: Line In** or **MIC In**.
- **Audio Volume**: Move scroll bar to set the volume value – **0** to **10**.
- **Encoding Type: AAC**
- **Sampling Rate: 48K**.

Get 4K (2160p) Output

1. Make sure that your HDMI monitor and cable support 4K (HDMI 2.0 or above). Select 2160p for Priority Mode via either web or OSD menu. Select 2160p/30 resolution at OSD menu to get 4K HDMI output. (3G-SDI does not support 4K.)
2. Select “**USB Only**” for Video Mode to get 4K USB output (live stream will be off).
3. Select “**Stream Only**” for Video Mode to get 4K live stream output (USB will be disabled).

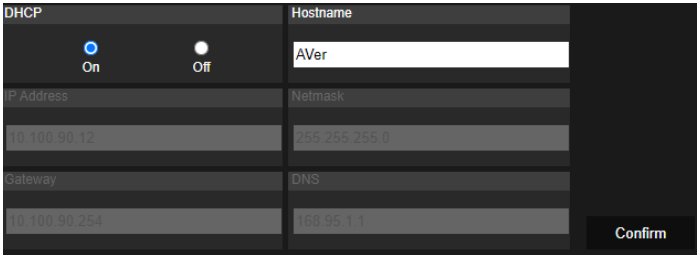
Network

Hostname: To change the display of Hostname, allow to name the camera in other device e.g. IP Router. The default Hostname of camera is AVer.



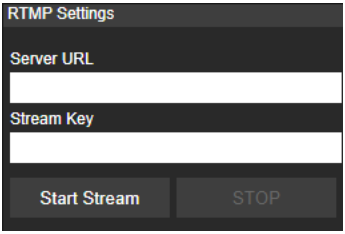
DHCP

Set up IP address of camera – DHCP or static IP, Netmask, Gateway, and DNS. After setting, select **Confirm** to apply settings.



RTMP Settings

Set up for uploading the camera's live view to the broadcasting platform (e.g. YouTube).



Refer to the instruction of broadcasting to get the RTMP server URL and stream key from the broadcasting platform and enter in **Server URL** and **Stream Key** columns.

Select **Start Stream** to begin uploading the live video of the camera to the broadcasting platform.

Select **STOP** to stop uploading the video.

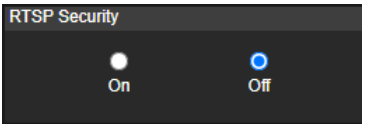
RTSP Security

To use RTSP player to connect to the camera, please enter the following RTSP URL in your application such as VLC, PotPlayer or Quick Time.

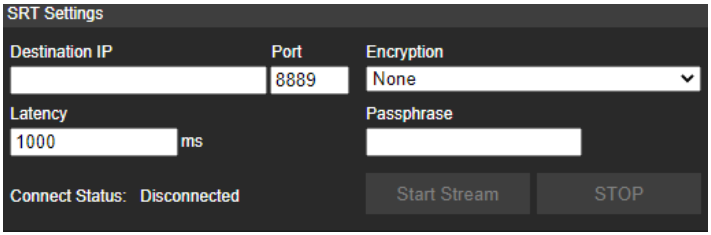
"rtsp://IP address of camera/live_st1"

For example: rtsp://192.168.1.168/live_st1

Enable/disable RTSP security function if needed. (When RTSP Security is on, the RTSP stream ID/Password will be synced to the web login User name/ Password.)

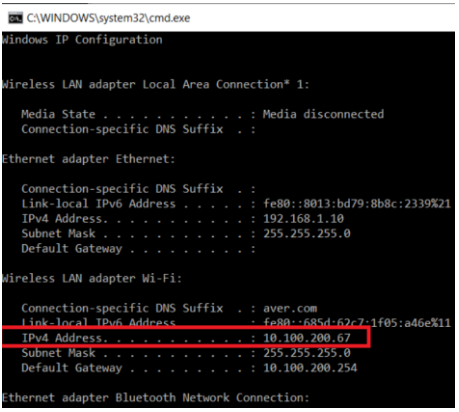


SRT Settings

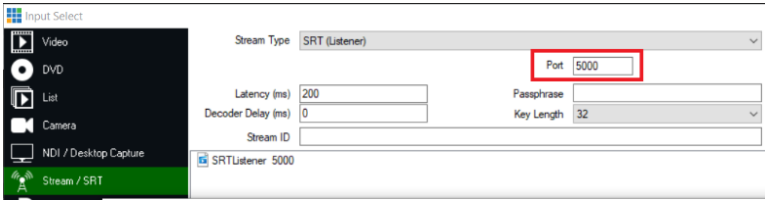


Example 1 vMix:

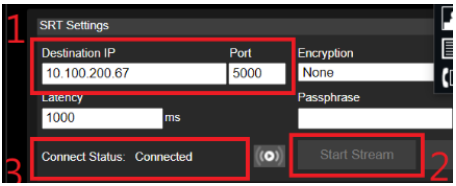
Set the workstation and the TR300V2 camera in the same network. Check the workstation's IP address (Destination IP). Example:



Select SRT (Listener) from Stream Type in vMix Input Select window.



Enter the information into the SRT Settings TR300V2 web interface, then click on "Start Stream", Connect Status shows "Connected".



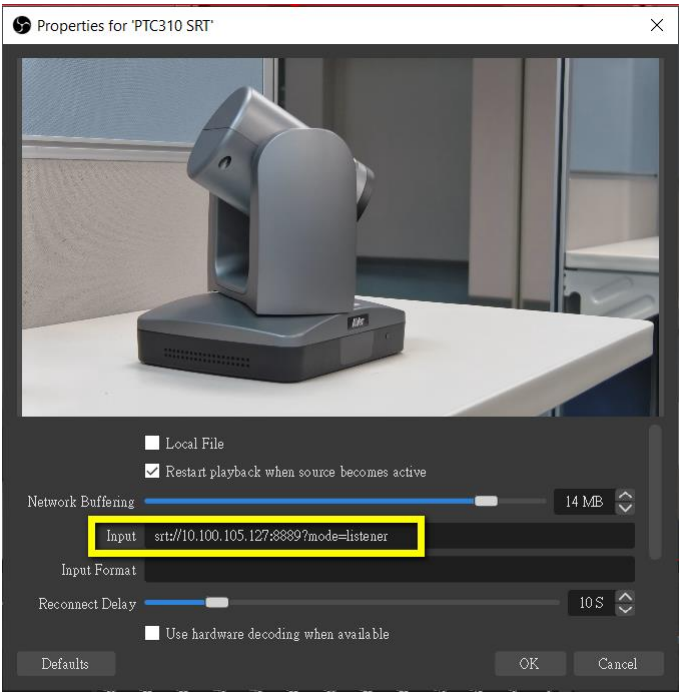
Example2 OBS (Open Broadcaster Software):

Set the workstation and the TR300V2 camera in the same network. Check the workstation's IP address (Destination IP). Example:

```
Connection-specific DNS Suffix  . : aver.com
Link-local IPv6 Address . . . . . : fe80::f1dc:bcda:87bd:ac1e%12
IPv4 Address. . . . . . . . . . . : 10.100.105.127
Subnet Mask . . . . . . . . . . . : 255.255.255.0
Default Gateway . . . . . . . . . : 10.100.105.254
```

Open OBS, add a scene, add a source, enter srt://Work Station IP:port?mode=listener

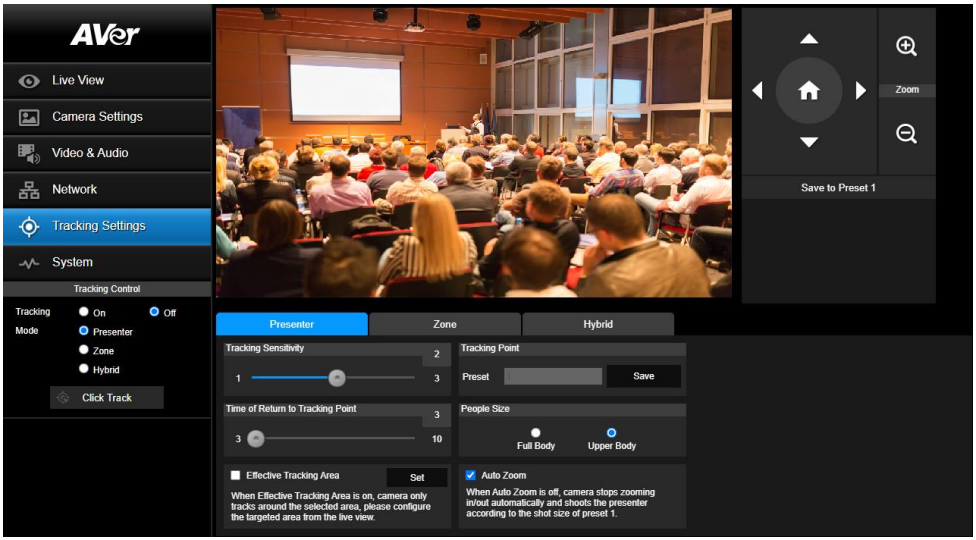
Example: srt://10.100.105.127:8889?mode=listener



[Note] If there is no image, please try right click on the source->Transform->Fit to screen to re-scale image.

Tracking Settings

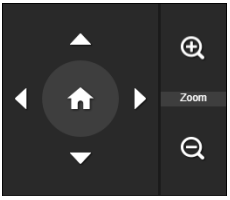
Set up Tracking mode – Presenter, Zone, and Hybrid mode.



Presenter Mode

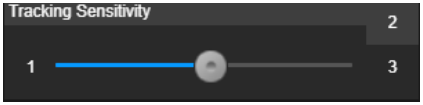
Camera will start tracking when object enters the tracking point (preset point).

1. Use , , , , and to adjust the camera to tracking point (preset position).



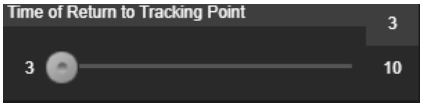
2. Then, select **Save to Preset 1** to save the tracking point.

3. **Tracking Sensitivity:** Set the sensitive level of tracking. Move bar to set the value. The current value is displayed at upper right corner.

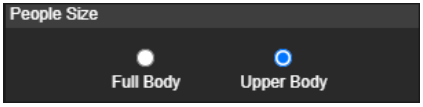


4. **Tracking Point**: When losing tracking target and going back to Tracking Point.

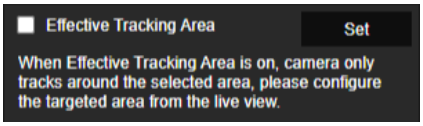
5. **Time of Return to Tracking Point:** Set the idle time for camera return to tracking point. Move bar to set the value. The current value is displayed at upper right corner.

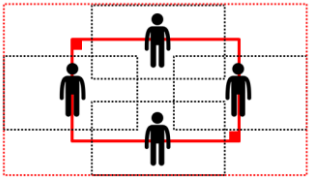


6. **People Size:** Select the people in full or half size while tracking.



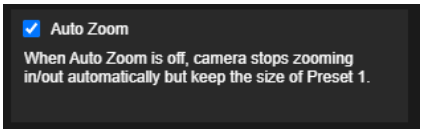
7. **Effective Tracking Area**: When Effective Tracking Area function is on, camera only tracks around the selected area. Check the box to turn on the Effective Tracking Area function then click Set to configure the targeted area in the live view. Move the upper left corner and the lower right corner of the red solid frame to define the targeted area.





[Note] The position of the red solid frame corresponds to the central position of the presenter. The black dotted frames represent the tracking areas for different positions of the presenter. Therefore, the red dotted frame is the actual effective tracking area of the red solid frame.

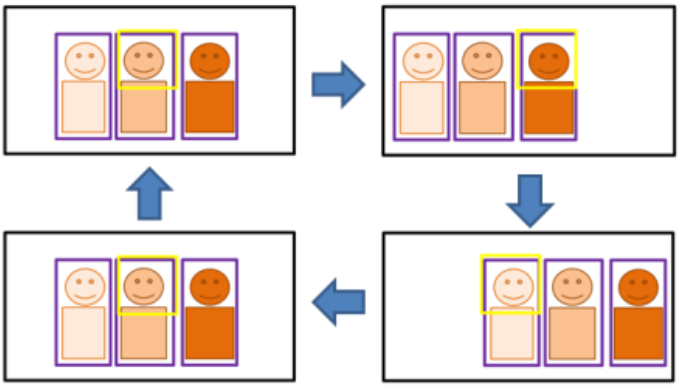
8. **Auto Zoom**: When Auto Zoom is off, camera stops zooming in/out automatically but keep the size of Preset 1.



[Note]

Quick Set up for Presenter Mode

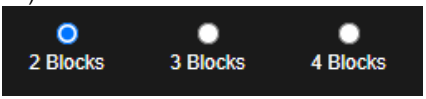
1. Use IR remote to adjust the camera view properly then save to preset1 as the initial position.
2. Press tracking “On” button on IR remote, here you go!
3. Press “UPPER BODY” key to get closer view (up to 60% body), or FULL BODY to see entire presenter in the view.
4. Press “Switch” key to switch between presenters. Initially the camera tracks the one who is in the center of view. Every switch follows the sequence: left to right, then back to far left one in the camera view (see picture below). To see which presenter is being tracked, press numeric key ”7” for seven times to call/cancel engineering mode while tracking, you will see purple boxes shown on all human-outline objects, and who under yellow box is being tracked.



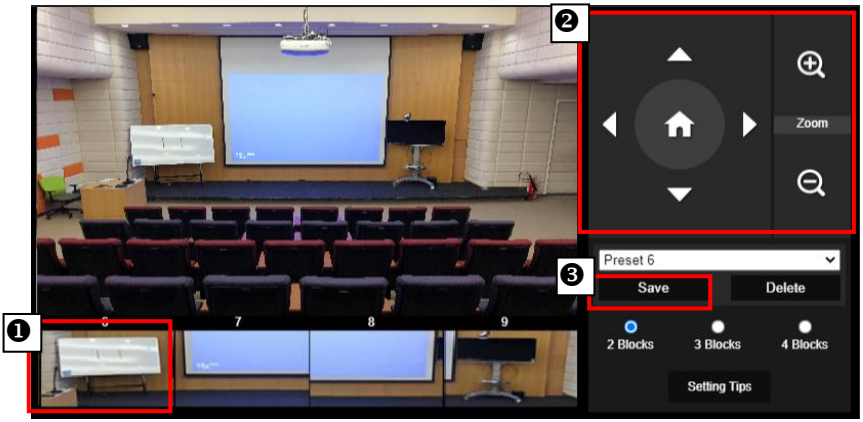
Zone Mode

Set up the block area for the camera to detect object and follow the object when the object is in block area that user has set.

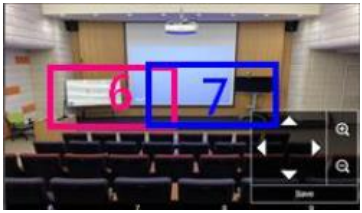
1. Select the **Blocks** (2, 3, or 4). Each block is corresponding to one preset position. The maximum is 4 blocks (4 preset positions).

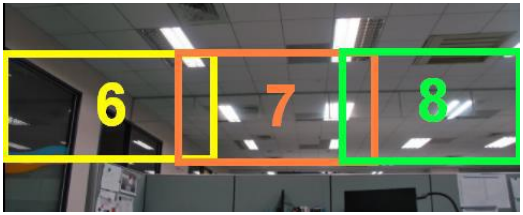


2. Select the block and set the preset positions in order (preset 6 to preset 9). Use , , , , and to move the camera to wanted position and select “**Save**” to save the preset position. And, a snapshot of the preset image will show at corresponding image display box. Repeat the step to set another preset position.



[Note] Set each preset overlapping the next preset view (one man width overlap), no or less zoom between presets. Examples below:

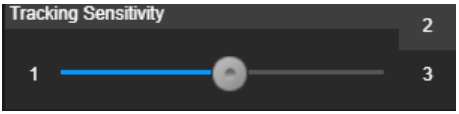




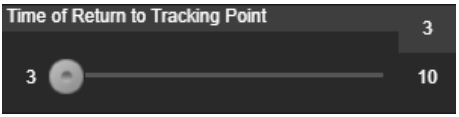
[Note] Set the preset view to clearly see the preseter at least complete half body (60% upper body) to ensure tracking accuracy, make sure there is no any other human-outline poster/TV/moniter in the background.

Preset for Zone Mode, Example:

3. **Tracking Sensitivity:** Set the sensitive level of tracking. Move bar to set the value. The current value is displayed at upper right corner.



4. **Time of Return to Tracking Point:** Set the idle time for camera return to tracking point. Move bar to set the value. The current value is displayed at upper right corner.



[Note]

Quick setup for zone mode

2 blocks initially selected and preset 6 is the initially start position. However, if you prefer 3 or 4 blocks for Zone mode tracking and prefer another preset as start position, go to web setting.

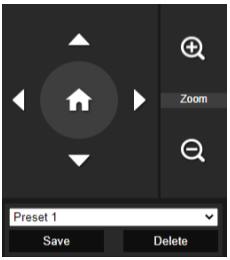
1. Use IR remote to adjust the camera view properly then save to preset6, preset7.
2. Long press “Tracking Point” to switch tracking mode from Presenter Mode to Zone Mode (the hotkey supported at firmware v0.0.0000.21 or later).
3. Press “ON”, here you go!

Hybrid Mode

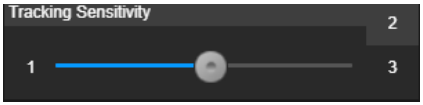
This function allows the user to use two types of tracking modes: “Presenter mode” and “Zone mode” at the same time. When the presenter enters selected preset points, it will change to Zone position; when the presenter leaves the preset points, camera will follow presenter to do Auto Tracking function.

1. Mix two tracking modes “Presenter” and “Zone” at the same time. For Hybrid mode, do not set Zone preset points overlapping or close to each other. It is recommended to leave some distance between Zone preset points.

2. Use direction control panel to move the camera to desired position and select “save” to save the preset position. And, a snapshot of the preset image will show at corresponding image display box. Select preset position and select “Delete” to delete the saved preset position (Preset 10, 11, 12, and 13).

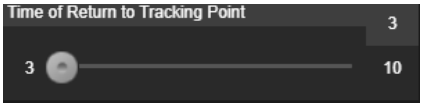


3. **Tracking Sensitivity:** Set the sensitive level of tracking. Move bar to set the value. The current value is displayed at upper right corner.

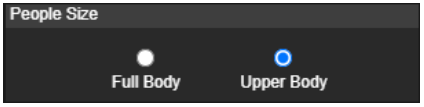


4. **Tracking Point**: When losing tracking target and going back to Tracking Point.

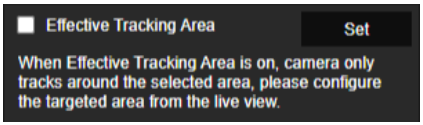
5. **Time of Return to Tracking Point:** Set the idle time for camera returning to tracking point. Move bar to set the value (in seconds). The current value is displayed at upper right corner.

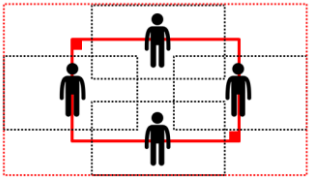


6. **People Size:** Select the people in full or half size while tracking.



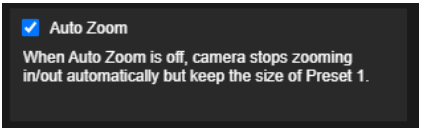
7. **Effective Tracking Area**: When Effective Tracking Area function is on, camera only tracks around the selected area. Check the box to turn on the Effective Tracking Area function then click Set to configure the targeted area in the live view. Move the upper left corner and the lower right corner of the red solid frame to define the targeted area.





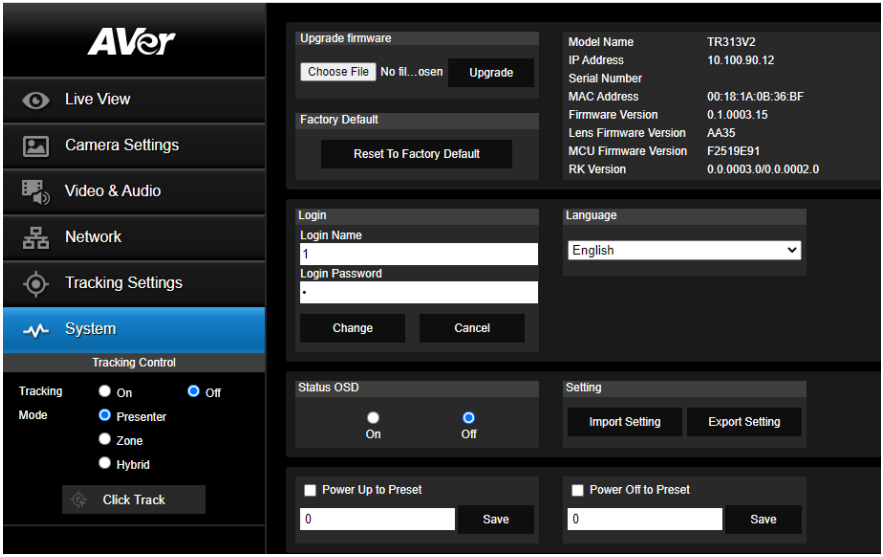
[Note] The position of the red solid frame corresponds to the central position of the presenter. The black dotted frames represent the tracking areas for different positions of the presenter. Therefore, the red dotted frame is the actual effective tracking area of the red solid frame.

8. **Auto Zoom**: When Auto Zoom is off, camera stops zooming in/out automatically but keep the size of Preset 1.



System

The system information of camera is displayed in this page, including Model Name, IP Address, Serial Number, MAC Address, Firmware Version, Lens Firmware Version, MCU Firmware Version, and RK Version.



- **Upgrade firmware:** Follow below steps to upgrade the firmware.
  1. Download the newest firmware from https://www.aver.com/download-center/ .
  2. Connect to the camera through the browser.
  3. Select **System** > **Upgrade firmware** > **Choose File**.
  4. Select the firmware and select the **Upgrade** button.
  5. After updating, refresh the browser.
- **Factory Default:** Clear all values and reset the camera back to factory default values.
- **Login**: The default login name and password are **admin/admin**. To change the login name and password, enter the new login name and password and select the **Change** button.
- **Language:** Change the Web UI language.
- **Status OSD:** Enable/disable Preset status (Save Preset, Call Preset, Cancel Preset) displayed on the screen.
- **Setting:** Import/Export setting.
- **Power Up to Preset:** To move the camera to specific preset point after camera is power up, enter the preset number in the column, click **Save** button, and check **Power Up to Preset**.
- **Power Off to Preset:** To move the camera to specific preset point before camera is power off, enter the preset number in the column, click **Save** button, and check **Power Off to Preset**.

VISCA RS232 Command Table

Command Set	Command	Command Packet	Comments
CAM_Power	On	8x 01 04 00 02 FF	Power ON/OFF
	Off	8x 01 04 00 03 FF	
CAM_Zoom	Stop	8x 01 04 07 00 FF	
	Tele(Variable)	8x 01 04 07 2p FF	p=0 (Low) to 7 (High)
	Wide(Variable)	8x 01 04 07 3p FF	
CAM_Focus	Stop	8x 01 04 08 00 FF	
	Auto Focus	8x 01 04 38 02 FF	
	Manual Focus	8x 01 04 38 03 FF	
	One Push	8x 01 04 18 01 FF	
	Direct	8x 01 04 47 0p 0q 0r 0s FF	pqrs: Zoom Position
CAM_WB	Auto	8x 01 04 35 00 FF	Normal Auto
	ATW	8x 01 04 35 04 FF	
	Indoor	8x 01 04 35 01 FF	
	Outdoor	8x 01 04 35 02 FF	
	One Push WB	8x 01 04 35 03 FF	One Push WB mode
	Manual	8x 01 04 35 05 FF	Manual Control mode
	One Push	8x 01 04 10 05 FF	One Push WB Trigger
CAM_RGain	Up	8x 01 04 03 02 FF	Manual Control of R Gain
	Down	8x 01 04 03 03 FF	
CAM_Bgain	Up	8x 01 04 04 02 FF	Manual Control of B Gain
	Down	8x 01 04 04 03 FF	
CAM_AE	Full Auto	8x 01 04 39 00 FF	Automatic Exposure mode
	Manual	8x 01 04 39 03 FF	Manual Control mode
	Shutter Priority	8x 01 04 39 0A FF	Shutter Priority Automatic Exposure mode
	Iris Priority	8x 01 04 39 0B FF	Iris Priority Automatic Exposure mode
	Bright	8x 01 04 39 0D FF	Bright Mode (Manual control)
CAM_Shutter	Up	8x 01 04 0A 02 FF	Shutter Setting
	Down	8x 01 04 0A 03 FF	
CAM_Iris	Up	8x 01 04 0B 02 FF	Iris Setting
	Down	8x 01 04 0B 03 FF	
CAM_Gain	Up	8x 01 04 0C 02 FF	Gain Setting
	Down	8x 01 04 0C 03 FF	
CAM_Bright	Up	8x 01 04 0D 02 FF	Bright Setting
	Down	8x 01 04 0D 03 FF	
	Up	8x 01 04 0E 02 FF	Exposure Compensation Amount Setting
	Down	8x 01 04 0E 03 FF	
CAM_Backlight	On	8x 01 04 33 02 FF	Back Light Compensation ON/OFF
	Off	8x 01 04 33 03 FF	
CAM_Preset	Reset	8x 01 04 3F 00 pp FF	pp: Preset Number 0x00~0xFF
	Set	8x 01 04 3F 01 pp FF	
	Recall	8x 01 04 3F 02 pp FF	
CAM_Menu	On/Off	8x 01 06 06 10 FF	Display ON/OFF
Pan-tilt Drive	Up	8x 01 06 01 VV WW 03 01	VV: Pan speed setting 0x01 (low speed) to 0x18 (high speed) WW: Tilt speed setting 0x01 (low speed) to 0x18 (high speed)
	Down	8x 01 06 01 VV WW 03 02	
	Left	8x 01 06 01 VV WW 01 03	
	Right	8x 01 06 01 VV WW 02 03	
	UpLeft	8x 01 06 01 VV WW 01 01	
	UpRight	8x 01 06 01 VV WW 02 01	
	DownLeft	8x 01 06 01 VV WW 01 02	
	DownRight	8x 01 06 01 VV WW 02 02	
	Stop	8x 01 06 01 VV WW 03 03	
	Home	8x 01 06 04 FF	
	Reset	8x 01 06 05 FF	
Absolute Position (v26 or above)		8x 01 06 02 VV WW 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF	VV: Pan speed setting 0x01 (low speed) to 0x18 (high speed) WW: Tilt speed setting 0x01 (low speed) to 0x18 (high speed) YYYY: Pan Position 8A14 to 762C (CENTER 0000) ZZZZ: Tilt Position 468B to E898 (Image Flip: OFF) (CENTER 0000)
CAM_Wdr	On	8x 01 04 3D 02 FF	Wdr ON/OFF
	Off	8x 01 04 3D 03 FF	
CAM_MenuEnter		8x 01 7E 01 02 00 01 FF	Enter Submenu
Tally Lamp ON		8x 01 7E 01 0A 00 02 FF	
Tally Lamp OFF		8x 01 7E 01 0A 00 03 FF	
Freeze	Freeze On	81 01 04 62 02 FF	Freeze On Immediately
	Freeze Off	81 01 04 62 03 FF	Freeze Off Immediately
	Preset Freeze On	81 01 04 62 22 FF	Freeze On When Running Preset
	Preset Freeze Off	81 01 04 62 23 FF	Freeze Off When Running Preset
Auto Tracking	On	8x 01 04 7D 02 FF	Auto tracking ON/OFF
	Off	8x 01 04 7D 03 FF	
CAM_Memory Special	Set	8x 01 04 3F 01 pp FF	pp: 0x00 To 0xFF normal preset pp: 0x5F => Trun on OSD menu pp: 0xA0 => Full Body pp: 0xA1 => Upper Body pp: 0xA2 => Tracking Point pp: 0xA3 => Switch pp: 0xA4 => Presenter mode (support with v25 or newer firmware) pp: 0xA5 => Zone mode (support with v25 or newer firmware)

Inquiry Command	Command Packet	Reply Packet	Comments
CAM_PowerInq	8x 09 04 00 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_WBModeInq	8x 09 04 35 FF	y0 50 00 FF	Auto
		y0 50 01 FF	In Door
		y0 50 02 FF	Out Door
		y0 50 03 FF	One Push WB
		y0 50 04 FF	ATW
		y0 50 05 FF	Manual
CAM_RGainInq	8x 09 04 43 FF	y0 50 00 00 0p 0q FF	pq: R Gain
CAM_BGainInq	8x 09 04 44 FF	y0 50 00 00 0p 0q FF	pq: B Gain
CAM_AEModeInq	8x 09 04 39 FF	y0 50 00 FF	Full Auto
		y0 50 03 FF	Manual
		y0 50 0A FF	Shutter Priority
		y0 50 0B FF	Iris Priority
		y0 50 0D FF	Bright
CAM_ShutterPosInq	8x 09 04 4A FF	y0 50 00 00 0p 0q FF	pq: Shutter Position
CAM_IrisPosInq	8x 09 04 4B FF	y0 50 00 00 0p 0q FF	pq: Iris Position
CAM_GainPosInq	8x 09 04 4C FF	y0 50 00 00 0p 0q FF	pq: Gain Position
CAM_BrightPosInq	8x 09 04 4D FF	y0 50 00 00 0p 0q FF	pq: Bright Position
CAM_ExpCompPosInq	8x 09 04 4E FF	y0 50 00 00 0p 0q FF	pq: ExpComp Position
CAM_FocusModeInq	8x 09 04 38 FF	y0 50 02 FF	Auto Focus
		y0 50 03 FF	Manual Focus
CAM_FocusPosInq	8x 09 04 48 FF	y0 50 0p 0q 0r 0s FF	pqrs: Focus Position
CAM_ZoomPosInq	8x 09 04 47 FF	y0 50 0p 0q 0r 0s FF	pqrs: Zoom Position

Visca over IP Settings

VISCA over IP

PORT

Internet protocol	IPv4
Transport protocol	UDP
Port address	52381

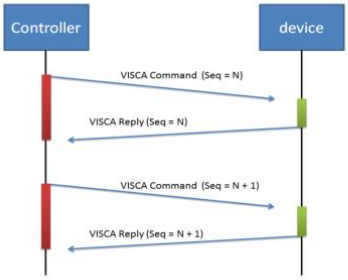
FORMAT

	byte 0	byte 1	byte 2	byte 3	byte 4	byte 5	byte 6	byte 7	byte8 ~~~ byte23
func	Payload type		Payload length		Sequence number				Payload (1 to 16 bytes)
data	Value1	Value2	1~16 (0x0001~0x0010)		0X00000000 ~ 0XFFFFFFFF				VISCA Packet (see page VISCA)

Payload type

Name	Value1	Value2	Description
VISCA command	0x01	0x00	Stores the VISCA command.
VISCA inquiry	0x01	0x10	Stores the VISCA inquiry.
VISCA reply	0x01	0x11	Stores the reply for the VISCA command or VISCA inquiry

Sequence number



Sequence number = N

CGI Command

CGI List for Video Transmission					
CGI item name	URL	Command	Parameter Name	Parameter value	Description
Get JPEG	/snapshot				1280x720 jpg

Get RTSP stream	rtsp://ip/live_st1				

CGI List for Camera Control					
CGI item name	URL	Command	Parameter Name	Parameter value	Description
up start	/cgi-bin?SetPtzf=	1,0,1&(random)			
up end	/cgi-bin?SetPtzf=	1,0,2&(random)			
down start	/cgi-bin?SetPtzf=	1,1,1&(random)			
down end	/cgi-bin?SetPtzf=	1,1,2&(random)			
left start	/cgi-bin?SetPtzf=	0,1,1&(random)			
left end	/cgi-bin?SetPtzf=	0,1,2&(random)			
right start	/cgi-bin?SetPtzf=	0,0,1&(random)			
right end	/cgi-bin?SetPtzf=	0,0,2&(random)			
zoom_in start	/cgi-bin?SetPtzf=	2,0,1&(random)			
zoom_in end	/cgi-bin?SetPtzf=	2,0,2&(random)			
zoom_out start	/cgi-bin?SetPtzf=	2,1,1&(random)			
zoom_out end	/cgi-bin?SetPtzf=	2,1,2&(random)			
set preset:	/cgi-bin?ActPreset=	1,N&(random)			N : position
load preset:	/cgi-bin?ActPreset=	0,N&(random)			N : position

CGI List for Various Settings					
CGI item name	URL	Command	Parameter Name	Parameter value	Description
exposure value	/cgi-bin?Set=	img_expo_expo,3,N&(random)	value	1 ~ 9	N : value
saturation	/cgi-bin?Set=	img_saturation,3,N&(random)	value	0 ~ 10	N : value
contrast	/cgi-bin?Set=	img_contrast,3,N&(random)	value	0 ~ 4	N : value
Tracking on:	/cgi-bin?Set=	trk_tracking,3,1&(random)			
Tracking off:	/cgi-bin?Set=	trk_tracking,3,0&(random)			

Tracking Presenter Mode:	/cgi-bin?Set=	trk_mode,3,1&(random)			
Tracking Zone Mode:	/cgi-bin?Set=	trk_mode,3,2&(random)			

Specification

TR311V2

Camera	
Image Sensor	1/2.8” 1080p Exmor CMOS
Effective Picture Elements	2 Megapixels
Output Resolutions	Auto 1080p/60, 1080p/59.94, 1080p/50, 1080p/30, 1080p/29.97, 1080p/25, 720p/60, 720p/59.94, 720p/50, 720p/30, 720p/29.97, 720p/25
Minimum Illumination	0.5 lux (IRE50, F1.6, 30fps)
S/N Ratio	≥ 50 dB
Gain	Auto, Manual
TV Line	900 (Center)
Shutter Speed	1/1 s to 1/10,000 sec
Exposure Control	Auto, Manual, Bright mode, Priority AE (Shutter, IRIS), BLC, WDR
White Balance	Auto, ATW, Indoor, Outdoor, One push, Manual
Optical Zoom	12X
Digital Zoom	12X
Viewing Angles	DFOV : 78° (Wide) to 7° (Tele) HFOV : 70° (Wide) to 6° (Tele) VFOV : 42° (Wide) to 3° (Tele)
Focal Length	f = 3.9 mm (Wide) to 46.8 mm (Tele)
Aperture (Iris)	F = 1.6 (Wide) to 2.8 (Tele)
Minimum Working Distance	0.3 m (Wide), 1.5 m (Tele)
Camera	
Pan / Tilt Angles	Pan : ±170°, Tilt : +90° / -30°
Pan / Tilt Speed (Manual)	Pan : 0.1° to 100° / sec, Tilt : 0.1° to 100° / sec
Preset Speed	Pan : 200° / sec, Tilt : 200° / sec

Preset Positions	10 (IR), 255 (RS-232)
Camera Control - Interface	RS-232 (DIN8), RS-422 (RJ45), IP
Camera Control - Protocols	VISCA / PELCO-D (RS-232 / RS-422 / IP), CGI (IP)
Image Processing	Noise Reduction (2D / 3D), Flip, Mirror
Power Frequency	50 Hz, 60 Hz
AI Auto Tracking Functions	
Tracking Mode	Presenter Mode, Zone Mode, Hybrid Mode
Audio	
Channel	2ch Stereo
Codec	AAC-LC(48K)/PCM(8K)
Sample Rate	48 KHz
Interface	
Video Outputs	3G-SDI, HDMI, IP, USB
Audio Outputs	3G-SDI, HDMI, IP, USB
Audio Inputs	MIC in, Line in
General	
Power Requirement	AC 100 - 240V to DC 12V/2A and above
Power Consumption	18W
PoE	PoE+
Dimensions (W x D x H)	W180*D145*H192mm
Net Weight	2.0 (±0.1) kg
General	
Application	Indoor
Tally	Yes
Security	Kensington Slot
Remote Control	Infrared
Operating Conditions	Temperature : 0 °C to +40 °C ; Humidity : 20% to 80%

Storage Conditions	Temperature : -20°C to +60°C ; Humidity: 20% to 95%
IP Streaming	
Resolution	1080p 60fps
Network Video Compress Formats	H.264, H.265, MJPEG
Maximum Frame Rate	1080p 60fps
Bit-rate Control Modes	VBR, CBR (selectable)
Range of Bit-rate Setting	512 Kbps to 32 Mbps
Network Interface	10 / 100 / 1000 Base-T
Multi-stream Capability	2 (RTSP / Web Page), 1080p 60fps (max.)
Network Protocols	IPv6, IPv4, TCP, UDP, ARP, IMCP, IGMP, HTTP, DHCP, RTP / RTCP, RTSP, RTMP, VISCA over IP
NDI® | HX Capability	No
USB	
Connector	USB 3.0
Video Format	MJPEG
Maximum Video Resolution	1080p
USB Video Class (UVC)	UVC 1.1
USB Audio Class (UAC)	UAC 1.0
Web UI	
Live Video Preview	Yes
Camera PTZ Control	Pan, Tilt, Zoom, Focus, Preset Control
Camera / Image Adjustment	Exposure, White Balance, Picture
Network Configuration	DHCP, IP Address, Gateway, Subnet Mask, DNS
Software Tools	
Device IP Searching, Configuration Tool	Support Windows® 7 or later

Warranty	
Camera	3 Years
Accessories	1 Year

Specifications are subject to change without prior notice.

TR313V2

Camera	
Image Sensor	1/2.8” 4K Exmor CMOS
Effective Picture Elements	8 Megapixels
Output Resolutions	Auto 4K/30, 4K/29.97, 4K/25, 1080p/60, 1080p/59.94, 1080p/50, 1080p/30, 1080p/29.97, 1080p/25, 720p/60, 720p/59.94, 720p/50, 720p/30, 720p/29.97, 720p/25
Minimum Illumination	0.5 lux (IRE50, F1.6, 30fps)
S/N Ratio	≥ 50 dB
Gain	Auto, Manual
TV Line	1400 (Center)
Shutter Speed	1/1 s to 1/10,000 sec
Exposure Control	Auto, Manual, Bright mode, Priority AE (Shutter, IRIS), BLC, WDR
White Balance	Auto, ATW, Indoor, Outdoor, One push, Manual
Optical Zoom	12X
Digital Zoom	12X
Sensor Zoom	2X
Viewing Angles	DFOV : 78° (Wide) to 7° (Tele) HFOV : 70° (Wide) to 6° (Tele) VFOV : 42° (Wide) to 3° (Tele)
Focal Length	f = 3.9 mm (Wide) to 46.8 mm (Tele)
Aperture (Iris)	F = 1.6 (Wide) to 2.8 (Tele)
Minimum Working Distance	0.3 m (Wide), 1.5 m (Tele)
Pan / Tilt Angles	Pan : ±170°, Tilt : +90° / -30°
Pan / Tilt Speed (Manual)	Pan : 0.1° to 100° / sec, Tilt : 0.1° to 100° / sec

Camera	
Preset Speed	Pan : 200° / sec, Tilt : 200° / sec
Preset Positions	10 (IR), 255 (RS-232)
Camera Control - Interface	RS-232 (DIN8), RS-422 (RJ45), IP
Camera Control - Protocols	VISCA / PELCO-D (RS-232 / RS-422 / IP), CGI (IP)
Image Processing	Noise Reduction (2D / 3D), Flip, Mirror
Power Frequency	50 Hz, 60 Hz
AI Auto Tracking Functions	
Tracking Mode	Presenter Mode, Zone Mode, Hybrid Mode
Audio	
Channel	2ch Stereo
Codec	AAC-LC(48K)/PCM(8K)
Sample Rate	48 KHz
Interface	
Video Outputs	3G-SDI, HDMI, IP, USB
Audio Outputs	3G-SDI, HDMI, IP, USB
Audio Inputs	MIC in, Line in
General	
Power Requirement	AC 100 - 240V to DC 12V/2A and above
Power Consumption	18W
PoE	PoE+
Dimensions (W x W x H)	W180*D145*H192mm
Net Weight	2.0 (±0.1) kg
Application	Indoor
Tally	Yes
Security	Kensington Slot

General	
Remote Control	Infrared
Operating Conditions	Temperature : 0 °C to +40 °C ; Humidity : 20% to 80%
Storage Conditions	Temperature : -20°C to +60°C ; Humidity: 20% to 95%
IP Streaming	
Resolution	4K 30fps
Network Video Compress Formats	H.264, H.265, MJPEG
Maximum Frame Rate	4K 30fps or 1080p 60fps
Bit-rate Control Modes	VBR, CBR (selectable)
Range of Bit-rate Setting	512 Kbps to 32 Mbps
Network Interface	10 / 100 / 1000 Base-T
Multi-stream Capability	2 (RTSP / Web Page), 1080p 60fps (max.)
Network Protocols	IPv6, IPv4, TCP, UDP, ARP, IMCP, IGMP, HTTP, DHCP, RTP / RTCP, RTSP, RTMP, VISCA over IP
NDI® | HX Capability	No
USB	
Connector	USB 3.0
Video Format	MJPEG, YUV
Maximum Video Resolution	2160p
USB Video Class (UVC)	UVC 1.1

Web UI	
Live Video Preview	Yes
Camera PTZ Control	Pan, Tilt, Zoom, Focus, Preset Control
Camera / Image Adjustment	Exposure, White Balance, Picture
Network Configuration	DHCP, IP Address, Gateway, Subnet Mask, DNS
Software Tools	
Device IP Searching, Configuration Tool	Support Windows® 7 or later
Warranty	
Camera	3 Years
Accessories	1 Year

Specifications are subject to change without prior notice.