

Professional PTZ Camera
TR310/TR311HN
TR311/TR313/TR333
User Manual



FCC NOTICE (Class A)



This device 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 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 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 - 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.

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.

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 to correct this interference.

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.

In no event will AVer Information Inc. be liable for direct, indirect, special, incidental, or consequential damages arising out of the use or inability to use this product or documentation, even if advised of the possibility of such damages.

TRADEMARKS

“AVer” is a trademark owned by AVer Information Inc. Other trademarks used herein for description purpose only belong to each of their companies.

COPYRIGHT

©2018 AVer Information Inc. All rights reserved.

All rights of this object belong to AVer Information Inc. Reproduced or transmitted in any form or by any means without the prior written permission of AVer Information Inc. is prohibited. All information or specifications are subject to change without prior notice.

NOTICE

SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE. THE INFORMATION CONTAINED HEREIN IS TO BE CONSIDERED FOR REFERENCE ONLY.

Remote Control Battery Safety Information

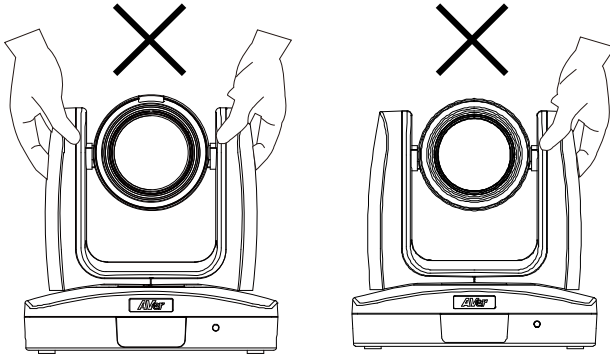
- Store batteries in a cool and dry place.
- Do not throw away used batteries in the trash. Properly dispose of used batteries through specially approved disposal methods.
- Remove the batteries if they are not in use for long periods of time. Battery leakage and corrosion can damage the remote control. 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.

CAUTION

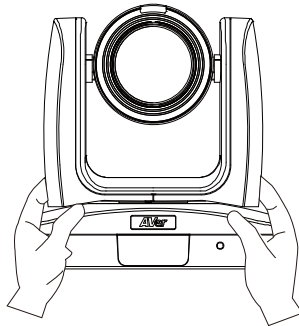
- Risk of explosion if battery is replaced by an incorrect type.
- Dispose of used batteries in a safe and proper manner.

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	1
Product Introduction	2
Overview	2
LED Indicator	2
Pan and Tilt Angle	3
Dimension	3
Device Connection	4
Video Output Connection	5
RS232 and RS422 Connection	6
Audio Input Connection	10
PoE Connection	11
Remote Control	14
Setup the Camera	16
OSD Menu	16
Setup IP Address of the Camera	16
Static IP	16
DHCP	17
OSD Tree	18

Camera.....	18
Advanced Setting	19
Video Output	19
Network	19
System.....	20
Web Setup.....	21
Using the AVer IPCam Utility to Find the Camera	21
Make a Connection to the Camera via Browser	22
Live View	23
Pan-Tilt-Zoom Control.....	23
Focus.....	24
Manual Pan-Tile-Zoom and Preset Speed Adjustment	24
Preset Setting.....	25
Tracking Control	25
Click Tracking Function.....	26
Camera Settings.....	27
Exposure.....	27
Image Process	27
Video & Audio	28

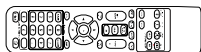
Setup NDI Function	29
Network.....	31
RTMP Setting.....	31
Using RTSP Connect to Camera.....	32
Tracking Setting.....	33
Presenter Mode.....	33
Zone Mode.....	34
System	36
Upgrade Firmware.....	37
RS232 Command Table	38
Specification	43
TR310	43
TR313	54
TR330	58

Package Contents

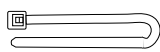
Package Contents



Camera unit



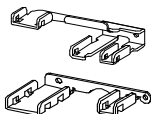
Remote control



Cable ties(x5)



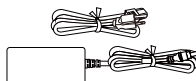
Quick Guide



Cable Fixing plates(x2)



M2 x 4mm Screw(x4)



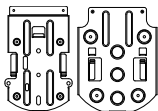
Power adapter & Power cord



1/4"-20L=6.5mm Screw(x3)

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

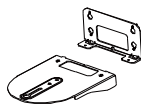
Optional accessory



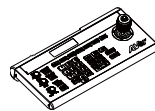
Ceiling mount bracket(x2)



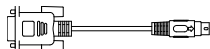
M3 x 6mm Screw(x3)



Wall mount bracket



Camera Controller (CL01)



Din8 to D-Sub9 Cable

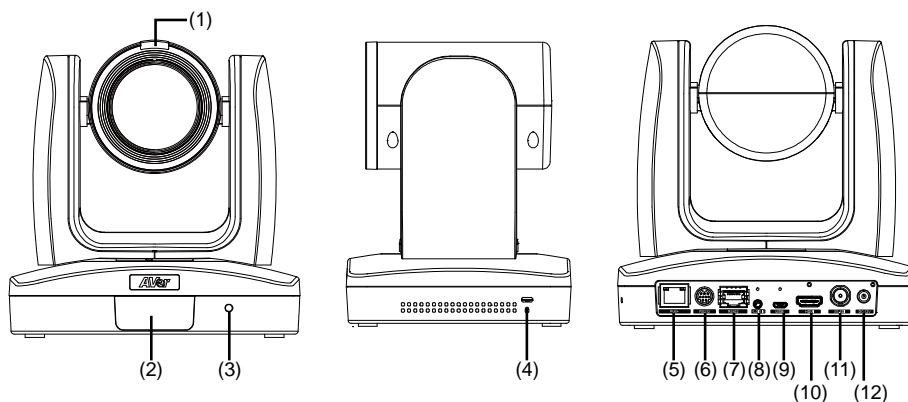


RS232 In/Out Y Cable

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

Product Introduction

Overview



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

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

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

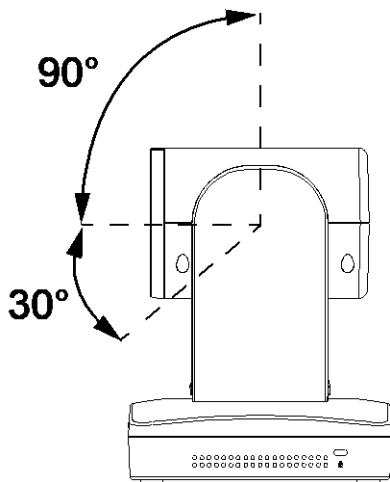
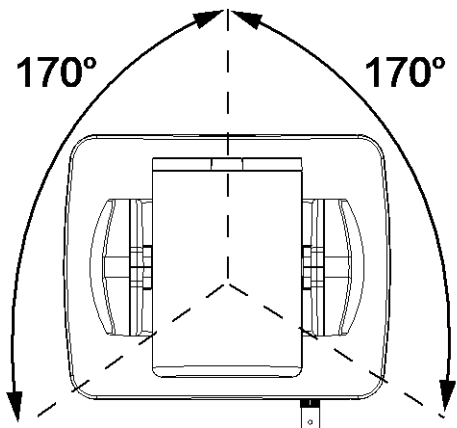
*1: This feature(Tally) is not supported on TR310.

*2: This feature(3G-SDI) is not supported on TR310&TR311HN.

LED Indicator

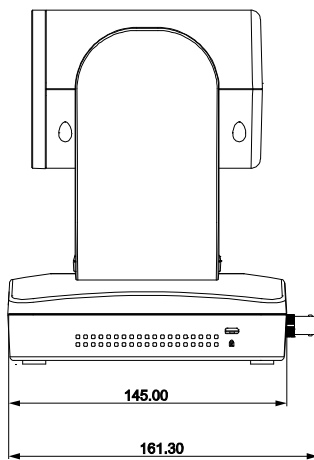
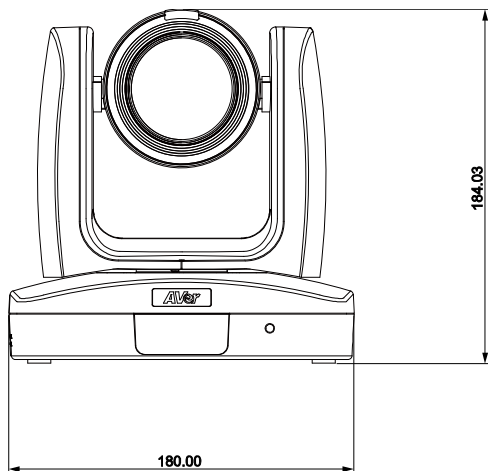
LED	Status
Blue(Solid)	Normal Operation
Orange(Blinking)	Camera Initialization
Orange (Solid)	Standby
Red(Blinking)	FW Updating

Pan and Tilt Angle

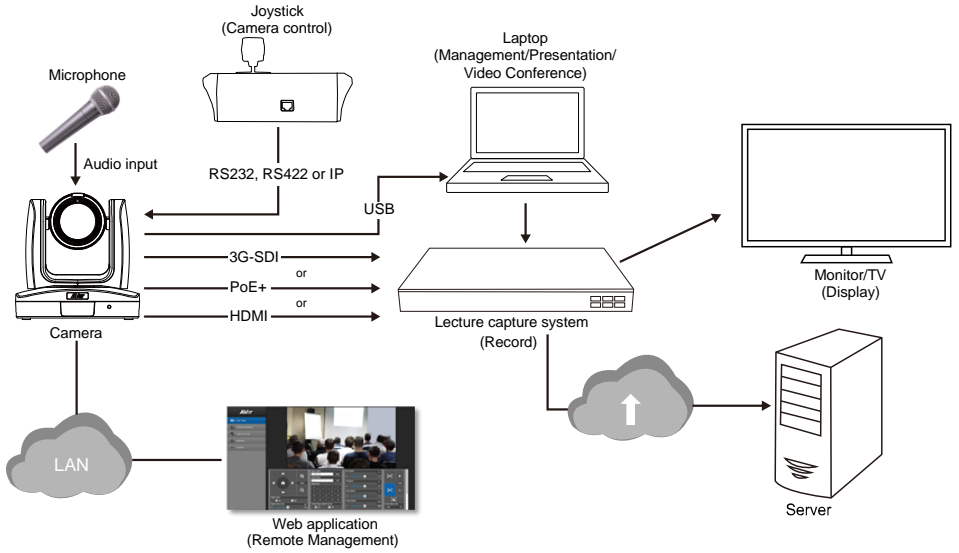


Dimension

Unit: mm



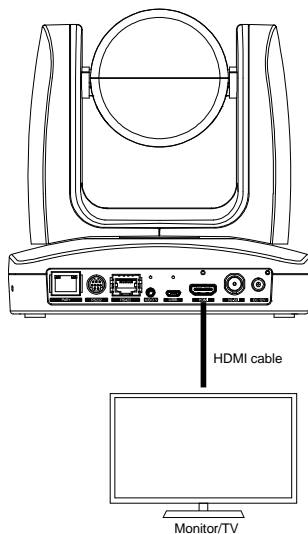
Device Connection



Video Output Connection

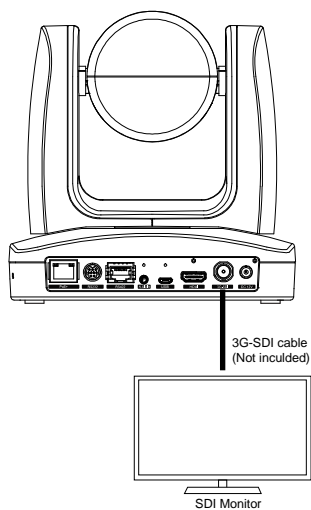
■ HDMI

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



■ 3G-SDI

Connect to 3G-SDI monitor for video output.

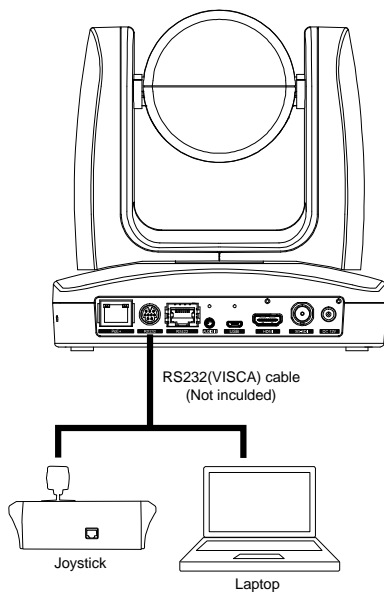


[Note] HDMI and 3G-SDI monitors can be connected to camera and output live video simultaneously; Assuming HDMI monitor is well connected before the camera turned on, the OSD menu will be displayed on HDMI monitor in default.”

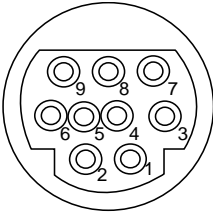
RS232 and RS422 Connection

Connect through the RS232 or RS422 for camera control.

■ RS232

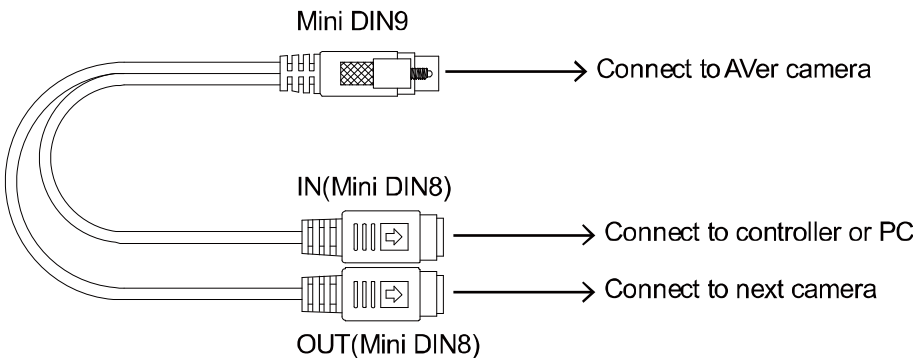


● **RS232 Port Pin Definition**

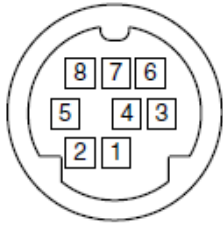


Function	Mini DIN9 PIN #	I/O Type	Signal	Description
VISCA IN	1	Output	DTR	Data Terminal Ready
	2	Input	DSR	Data Set Ready
	3	Output	TXD	Transmit Data
	6	Input	RXD	Receiver Data
VISCA OUT	7	Output	DTR	Data Terminal Ready
	4	Input	DSR	Data Set Ready
	8	Output	TXD	Transmit Data
	9	Input	RXD	Receiver Data
	5	---	---	Not connect

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

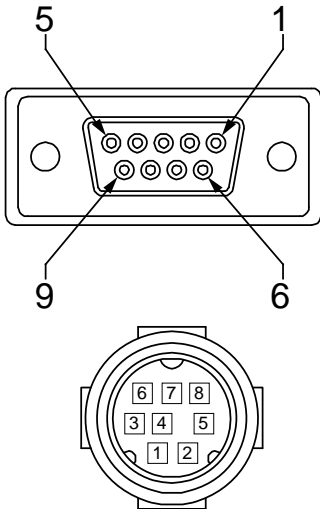


Mini DIN8 Cable Pin Definition

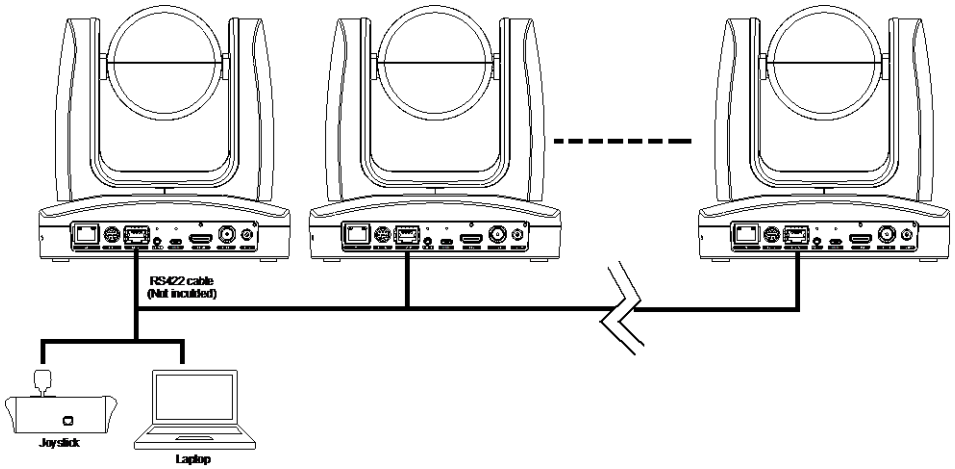


No.	Signal
1	DTR
2	DSR
3	TXD
4	GND
5	RXD
6	GND
7	NC
8	NC

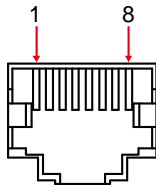
● Din8 to D-Sub9 Cable Pin Definition



■ RS422

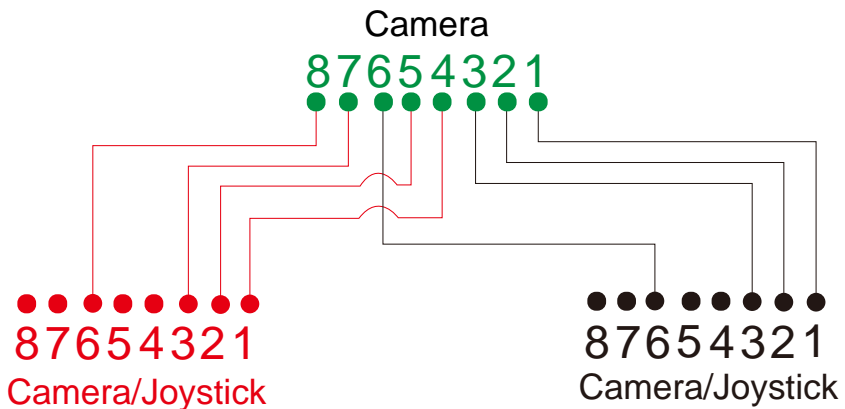


[Note] Use cat5e splitter for multi-camera connection.



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:

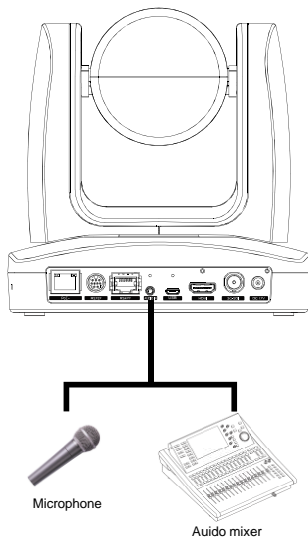


Audio Input Connection

Connect the audio device for audio receiving.

[Note]

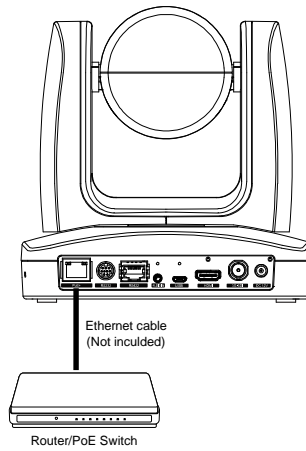
- Line input level: 1Vrms (max.).
- Mic input level: 50mVrms (max.); Supplied voltage:2.5V.



PoE Connection

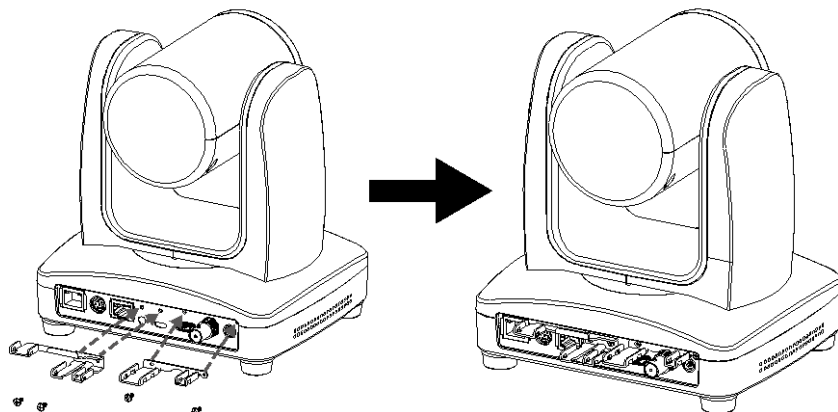
Connect the camera to the router or switch through the PoE+ port.

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

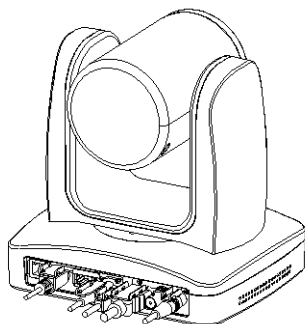


Install Cable Fixing Plate

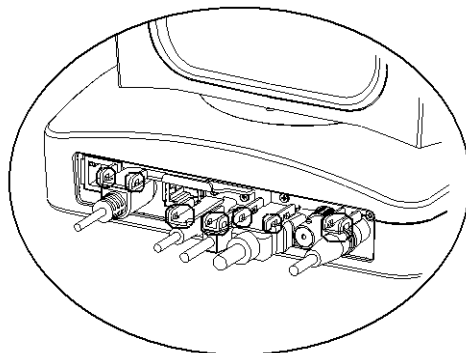
- ① Secure the cable fixing plate to the camera with screws.
Screw: 4screws, M2 x 4mm(Included in the package)



- ② Plug-in cables.

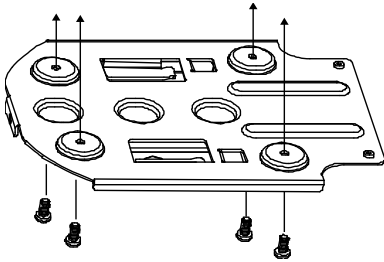


- ③ Using cable ties to secure the cable and cable fixing plate.

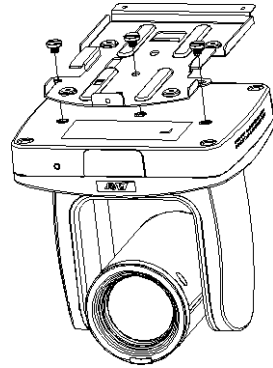


Ceiling installation

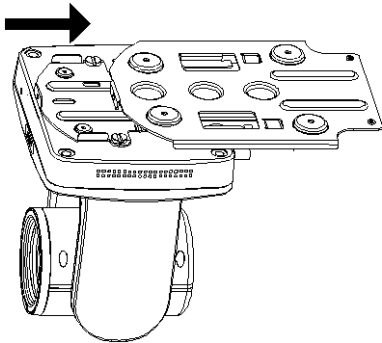
1. Secure the mount bracket on the ceiling.
Screw: 4 screws, M4 x 10mm(Not Included in the package)



2. Install the mount bracket on the camera.
Screw: 3 screw , 1/4"-20 L=6.5mm(Included in the package)

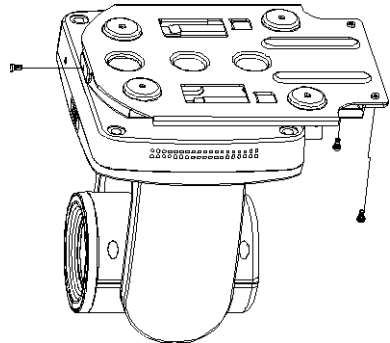


3. Slide the mount bracket with the camera into the mount bracket which secured on the ceiling.

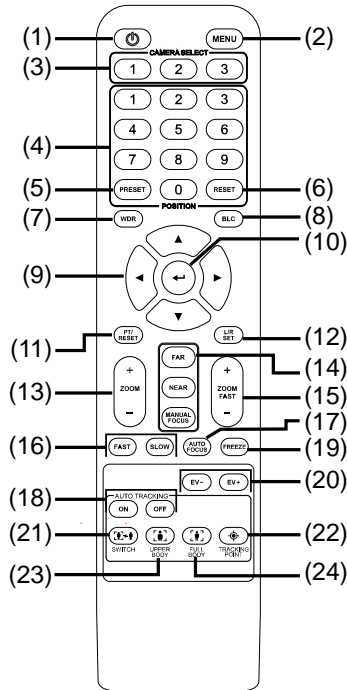


[Note] Connects necessary cables after sliding the camera into the mount bracket.

4. Secure the camera with screws.
Screw: 3 screws, M3 x 6mm(Not Included in the package)



Remote Control



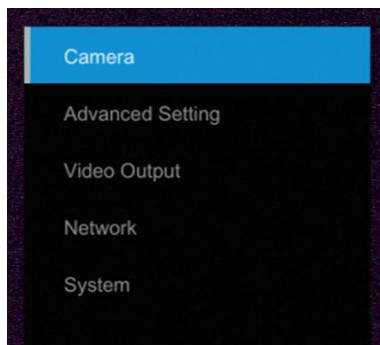
Name	Function
(1) Power	Turn the unit on/standby.
(2) Menu	Open and exit the OSD menu.
(3) Camera Select	CAM1 to CAM3 button Selects a camera to operate.
(4) Numeric Pad	<ul style="list-style-type: none"> ■ Use for setting the preset position 0~9. ■ Press number button (0~9) to move the camera to pre-configure 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-configure preset position.
(7) WDR	Turn on/off WDR function.
(8) BLC	Turn on/off backlight compensation
(9) ▲, ▼, ◀, & ▶	Pan and tilt the camera.
(10) Enter	When open the OSD menu and Confirm the selection or make a selection in OSD menu.
(11) PT Reset	Reset the Pan-Tilt position.

Name	Function
(12) L/R DIR	Left and right orientation setting. - Press " L/R DIR " button + number button " 1 " to set the direction of the camera movement opposite to that indicated by the arrow of the ◀/▶ buttons. - Press " L/R DIR " button + number button " 2 " to set the direction of the camera movement same as the arrow of the ◀/▶ buttons.
(13) Zoom +/-	Zoom in/out slow.
(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 +/-	EV level adjustment.
(21) Switch	Change presenter.
(22) Tracking Point	When presenter enters this area, the camera will start tracking.
(23) Upper Body	Presenter's size on screen is upper body.
(24) Full Body	Full body Presenter's size on screen is Full body.

Setup the Camera

OSD Menu

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



Setup IP Address of the Camera

Static IP

1. Press **MENU** button on the remote controller to call out OSD menu.
2. Go to **Network > Static IP**.

[Note] Turn the DHCP off before setup static IP (Network > DHCP > Off).

3. Select the **IP address, Gateway, Mask, and DNS** to configure. Press **↵** and use ◀, ▶, number pad to enter the data.

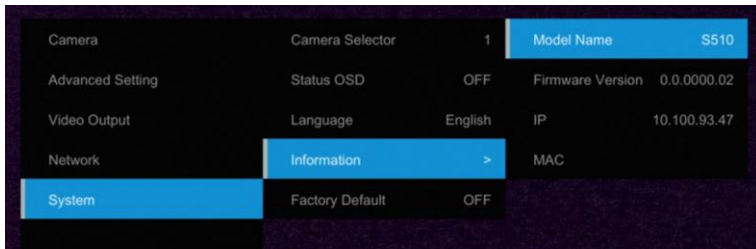


DHCP

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



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



OSD Tree

Camera

Setup camera parameters – Exposure mode, White balance, Pan-Tilt Zoom, Noise reduction, Frequency, 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	Iris Level/Shutter Speed/Gain Level
	Bright	0 - 31
	White Balance	Auto/AWT/Indoor/Outdoor/One Push/Manual [Note] AWB auto range is about 3500K color temperature, when the color temperature is less than 3500K, please use AWT.
	R Gain	0~255
	B Gain	0~255
	Pan Tilt Zoom	Pan/Tilt Slow /Preset Speed/Digital Zoom/Digital Zoom Limit
	Noise Filter	OFF/Low/Medium/High
	Saturation	0~10
	Contrast	0~4
	Sharpness	0~3
	Mirror	OFF/ON
	Flip	OFF/ON

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	
	Type	RS232/RS422
	Protocol	VISCA/Pelco-P/ Pelco-D
	Camera Address	1~7
	Baud Rate	2400/4800/9600/38400
	Tracking	ON/OFF

Video Output

Select video resolution.

Priority Mode	2160P/1080P			
Frequency	50Hz/59.94Hz/60Hz			
Video Format	2160p/30	2160p/29.97	2160p/25	1080p/60
	1080p/59.94	1080p/30	1080i/60	1080i/59.94
	720p/60	720p/59.94	1080p/50	1080p/25
	1080i/50	720i/50		

Network

Setup IP mode – DHCP or static IP.

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

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 controller on multiple cameras (also see [\(2\) Camera select](#) in Remote Control chapter).
- **NDI:** Enable/disable NDI function. For detail setting refer to [Setup NDI Function](#) chapter. Note NDI is only included in select camera model. You can upgrade to NDI by contacting AVer to purchase an activation license key.
- **Tally:** Turn the tally on or off.

System	Camera Selector	1~3
	Status OSD	OFF/ON
	Language	English/繁中
	NDI	OFF/ON
	Tally	Disable/Enable
	Information	Model Name/Firmware Version/IP /MAC
	Factory Default	OFF/ON

Web Setup

Connect the camera from a remote site through the internet.

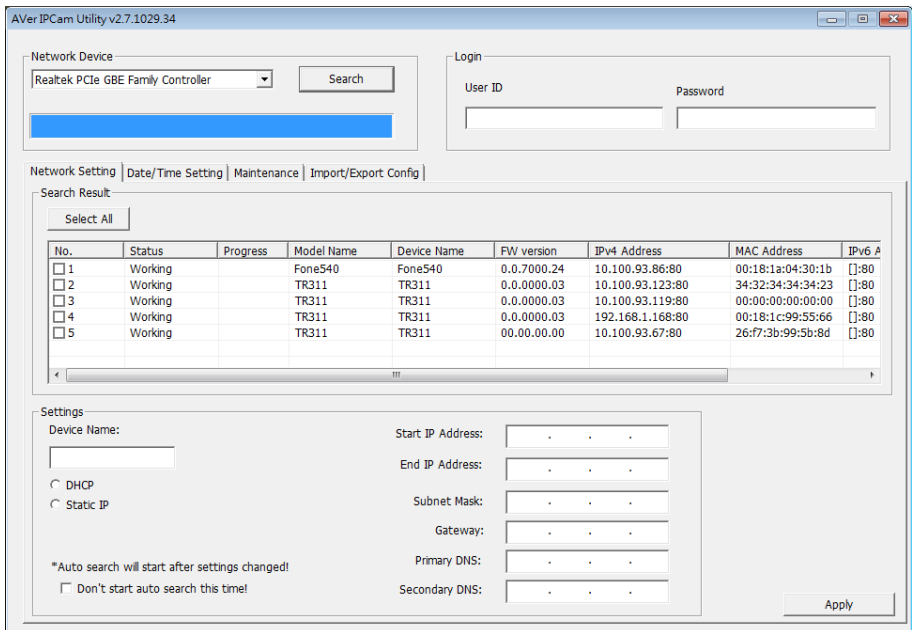
Using the AVer IPCam Utility to Find the Camera

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

1. Download the IPCam Utility from <http://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 can connect to the camera through the browser.

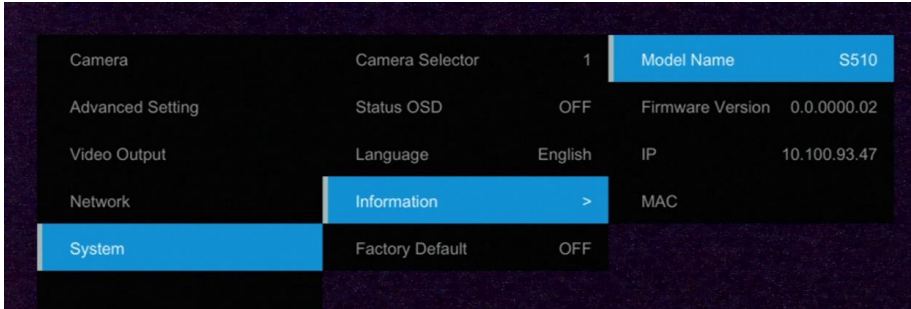
[Note] If IPCam utility cannot find the camera, please check following:

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.

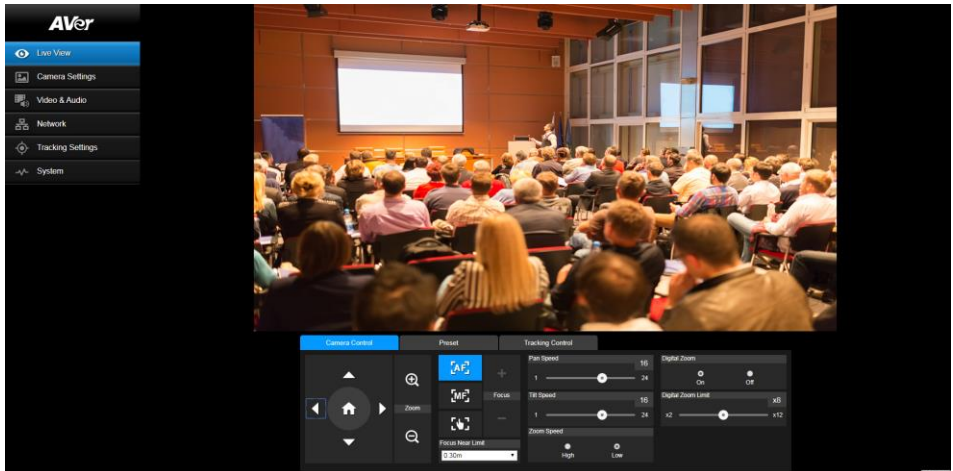


Make a Connection to the Camera via Browser

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 login Web.










Live View

In live view, the user can setup Camera Control (zoom in/out, focus, camera direction control), Preset setting, and Tracking Control(on, off, tracking mode).

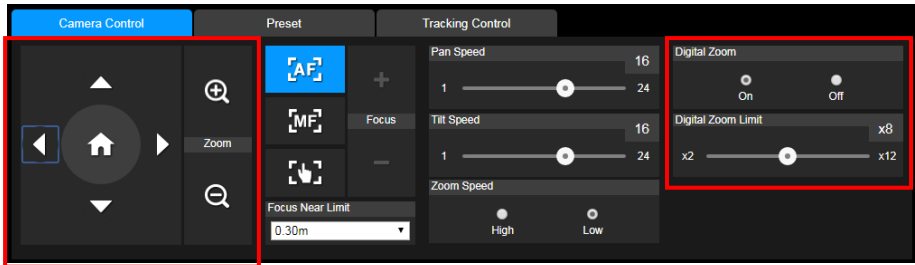


Pan-Tilt-Zoom Control

To operate the PTZ Camera motion.

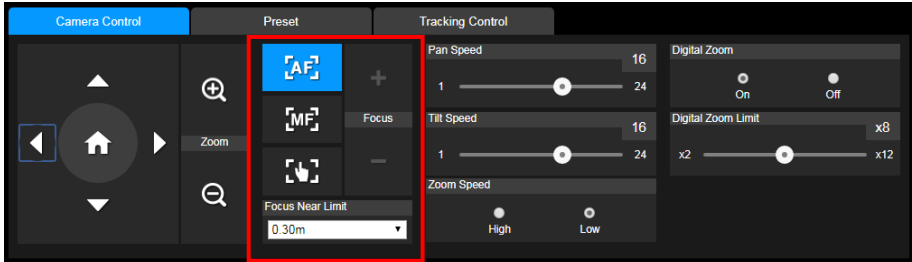
Use , , , and  to adjust the camera view position and use  and  to zoom. Select  to back to default position.


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.



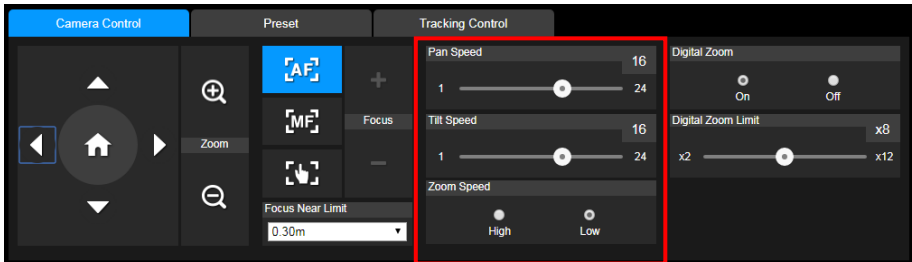
One push focus (): By clicking the button to adjust Lens focus automatically once.

Focus Near Limit: Set the focus distance limit.

Manual Pan-Tilt-Zoom and Preset Speed Adjustment

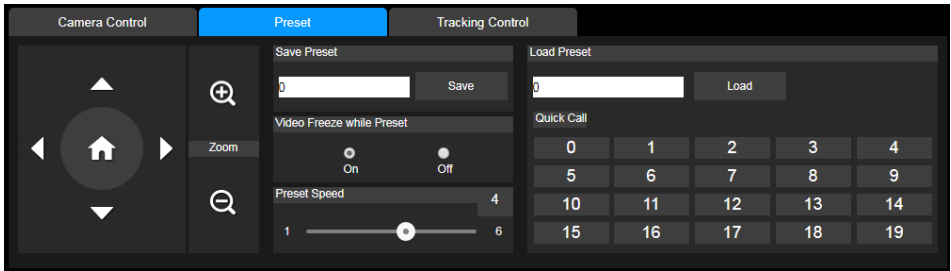
Adjust the speed of manual Pan-Tilt-Zoom and Preset operation. Enable/Disable the slow mode for manual pan-tilt operation. There are totally 24 levels for manual pan-tilt speed adjustment and 2 levels (Low/High) for zoom speed adjustment. There are 5 levels for preset speed adjustment.





- **Pan/Tilt Slow:** When this option is set to ON, the maximum speed of manual pan-tilt operation is 40°/sec; when this option is set to Off, the maximum speed of manual pan-tilt operation is 100°/sec.



Preset Setting

Setup preset position and view preset position.

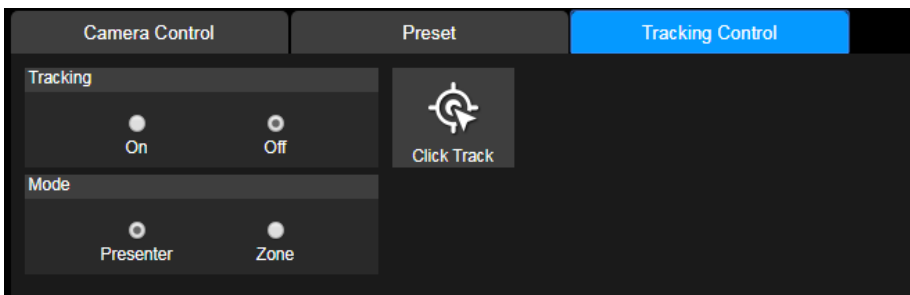


1. Select the “Preset” tab in live view interface.
2. Use , , , and  to adjust camera view position.
3. Enter preset position number (0~255) in **Save Preset** column and select “**Save**” to save the position.
4. To call the preset position, enter a preset number (0~255) in **Load Preset** column or select the preset number (0~19) from **Quick Call** section.
5. **Video Freeze with Preset:** 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.

Tracking Control

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

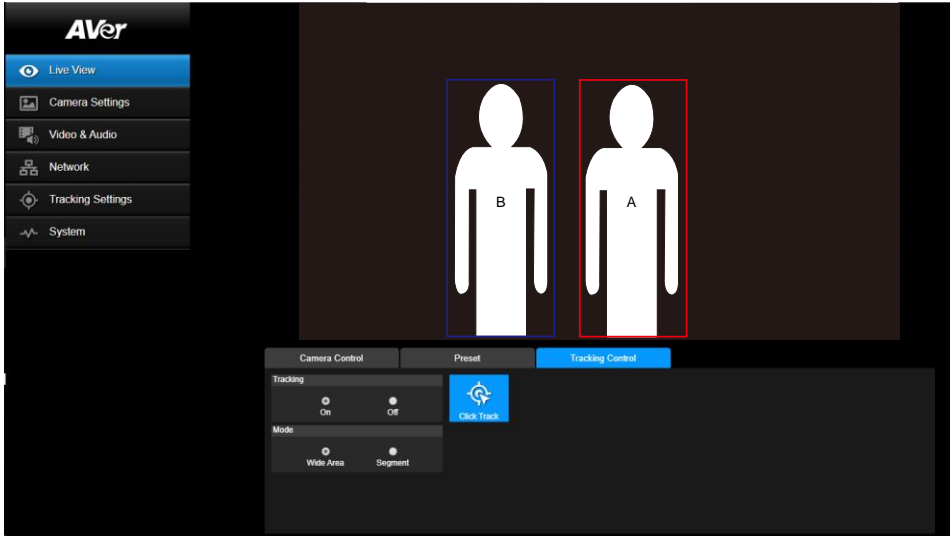
- Tracking mode(Tracking mode setup refer to [Tracking Settings](#) section)
 - **Presenter:** Camera will start tracking when subject enters the tracking point (preset point) and the face of the subject is detected.
 - **Zone:** Camera will start tracking when subject is moving between the preset tracking block area.



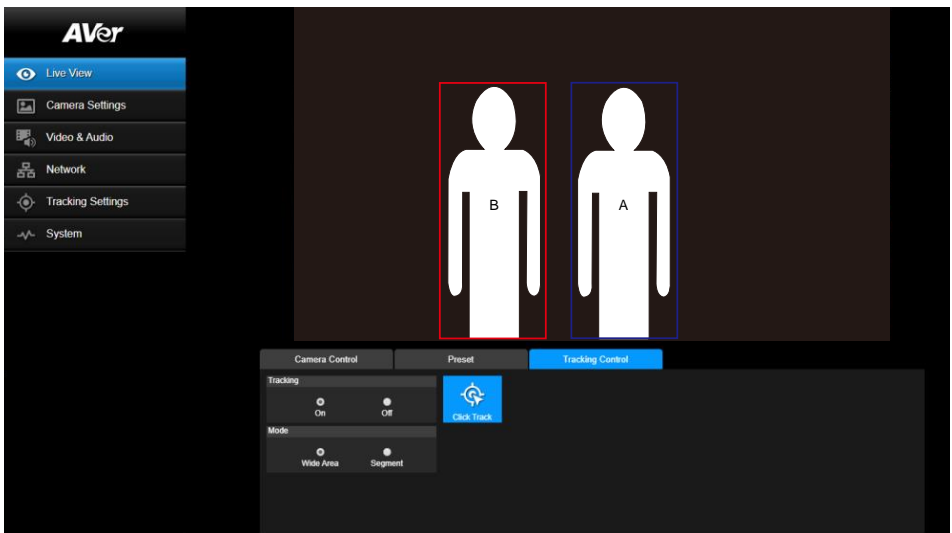
Click Tracking Function

This function allows user to change tracking object with auto tracking still enabled.

1. Select **Click Track** button. A red frame appears on the tracking subject and a blue frame appears on other subjects that walked into the video view.



2. Click on another subject with blue frame and when the frame changes to red; auto tracking will therefore apply to that subject.



Camera Settings

Exposure

Setup the exposure type -- Full auto, Iris priority, Shutter priority, or manual.

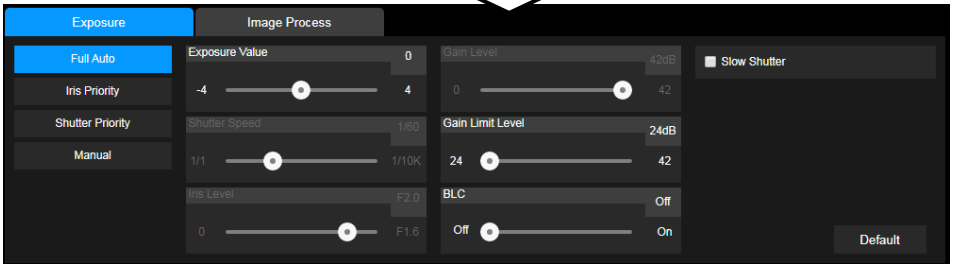
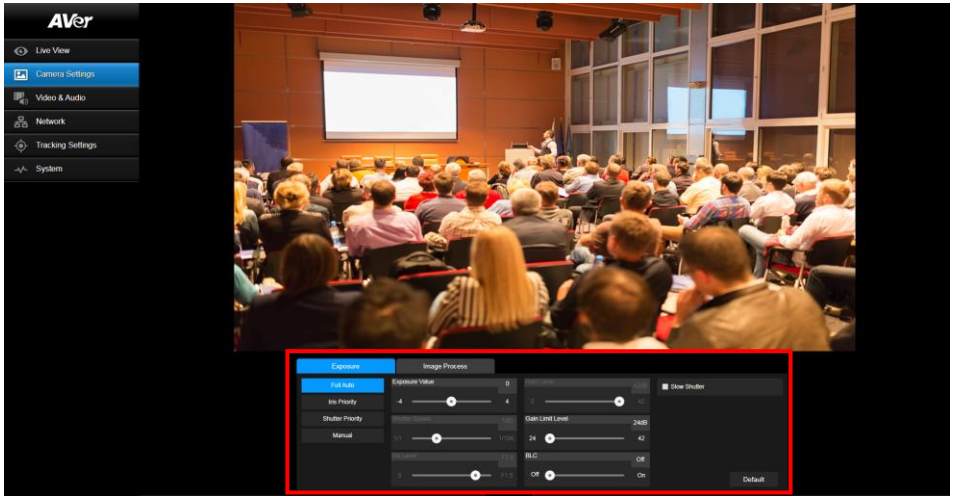
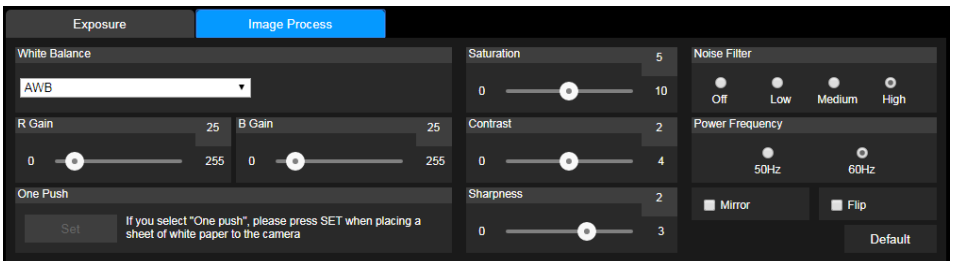


Image Process

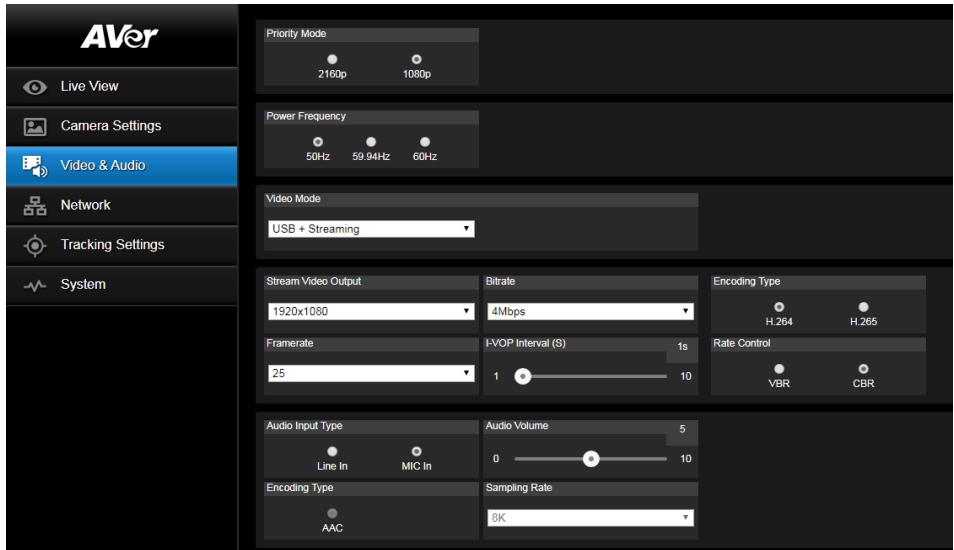
Setup the white balance, saturation, contrast, sharpness, noise filter, power frequency, flip, and mirror. Select the "Image Process" tab in camera setting interface.



Video & Audio

The user can setup Video Mode, Video output, Framerate, Bitrate, I-VOP internal, Encode type, Rate control, Audio input type, Audio volume, and Sampling Rate.

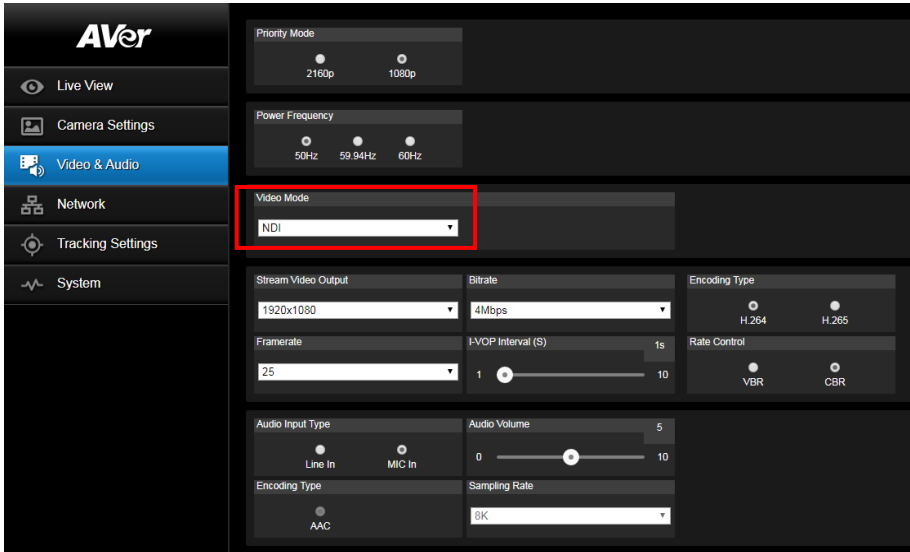
Video mode in the stream only, the frame rate is up to 60fps and in USB+ Streaming mode is up to 30fps.



Setup NDI Function

(* Remark: NDI license please consult with AVer.)

1. Enable NDI mode by selecting “**NDI**” as video mode in Video & Audio page. To disable the NDI function, select other mode. The camera will reboot after selecting NDI mode.

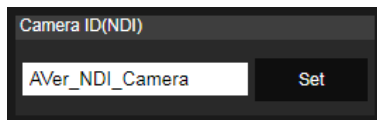


2. User can setup the following functions:
 - **Stream Video Output:** Select video output resolution.
 - **Framerate:** Select framerate of the camera.
 - **Encoding Type:** Select encoding type – **H.264** or **H.265**.
 - **Sampling Rate:** Select sampling rate value.
 - **Audio Input Type:** select audio input type – **Line In** or **MIC In**.
 - **Bitrate:** Select bitrate value – **521kbps**, **1Mbps**, **2Mbps**, **4Mbps**, **8Mbps**, **16Mbps**, **32Mbps**.
 - **I-VOP interval(S):** Move scroll bra to set the value – **1s** to **10s**.
 - **Audio Volume:** Move scroll bra to set the volume value – **0** to **10**.
 - **Rate control:** select the rate control type – **VBR** or **CBR**.

3. Set the identity name for display on NDI interface. Select **System > Camera ID(NDI)**. Enter the name as user wanted. The maximum character is 10. After entering the name, select the **Set** button to save and manually restart the PTZ camera for the settings to take effect.

The following characters can be displayed for camera ID:

Numeric characters	0123456789
Alphabetical characters (upper and lower cases)	ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz
Symbols	! @ # \$ % ^ & * () , . \ ; : ' + = < > ? [] { } - _ ` ~ \ /

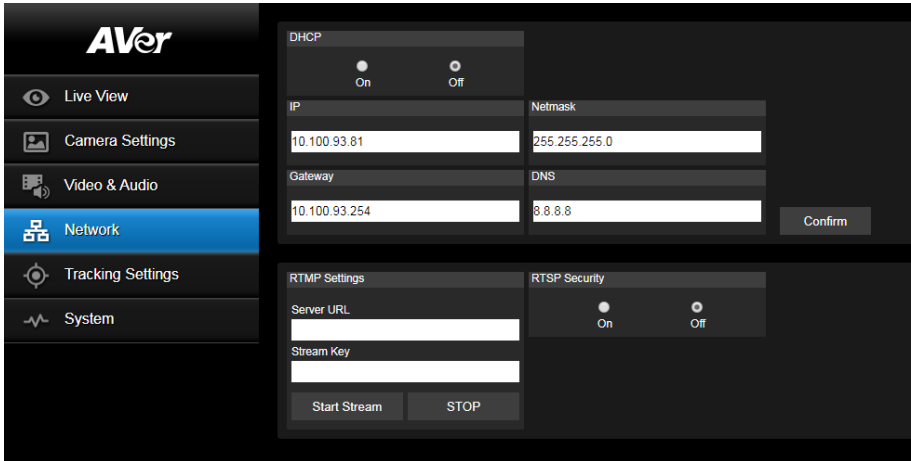


Camera ID(NDI)

AVer_NDI_Camera Set

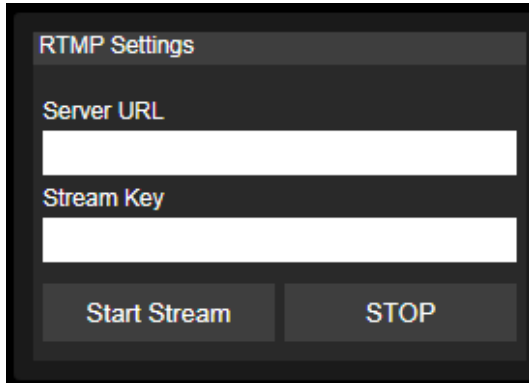
Network

Setup IP address of camera – DHCP or static IP, netmask, gateway, and DNS. After setting, select “Confirm” to apply settings.



RTMP Setting

Setup for uploading the camera's live view to the broadcasting platform (ex: Youtube).



Get the RTMP server URL and stream key from the broadcasting platform and enter in “**Server URL**” and “**Stream key**” column.

Select “**Start stream**” to begin uploading the live video of the camera to the broadcasting platform.

Select “**Stop**” to stop uploading the video.

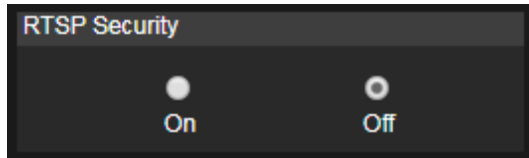
[Note] To get the RTMP server URL and stream key, please refer to the instruction of broadcasting.

Using RTSP Connect to Camera

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

["rtsp://IP address of TR310/313/333/live_st1"](rtsp://IP address of TR310/313/333/live_st1)

Enable/disable RTSP security function if needed.









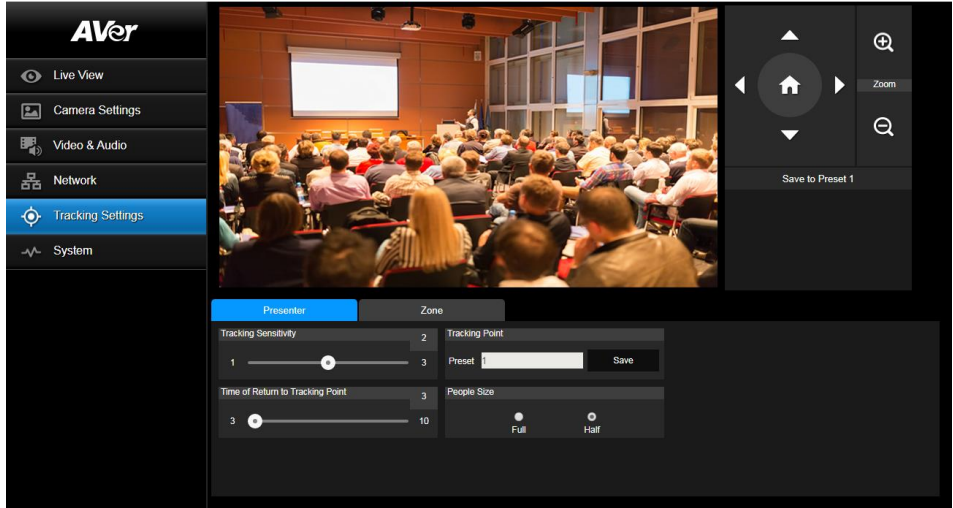
Tracking Setting

Setup Tracking mode – Presenter or Zone mode.

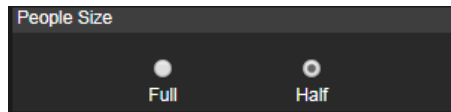
Presenter Mode

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

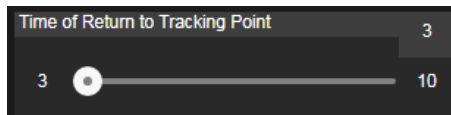
1. Use , , , ,  and  to adjust the camera to tracking point (preset position).
2. Then, select **Save to Preset 1** to save the tracking point.



3. **People Size:** Select the people in full or half size while tracking. In the video view, if you can see the subject from head to toe select "Full". Otherwise select "Half".



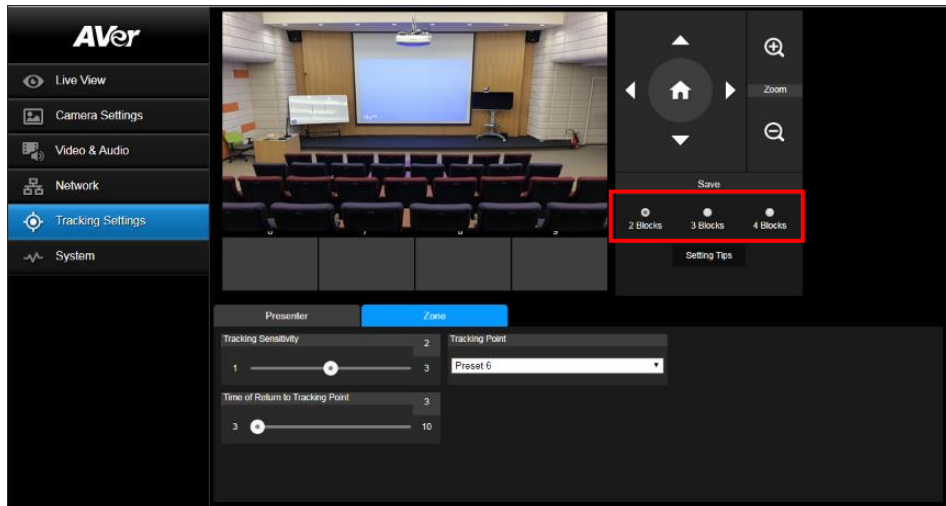
4. **Time of Return to Tracking Point:** Set the idle time for camera to return to tracking point. Move bar to set the value. The current value is displayed in the upper right corner.









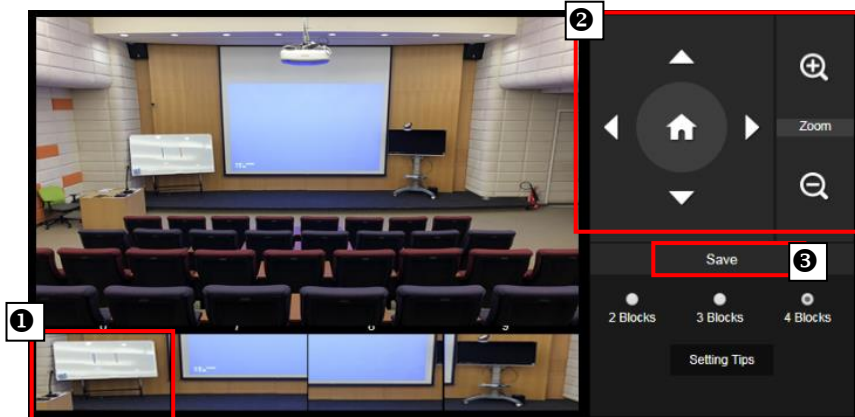
Zone Mode

Setup the block area for the camera to detect the subject. Camera will trigger the right preset depending on where the subject is at any moment. Please make sure you don't zoomed in too much so that subject can still be detected either half body or full body.

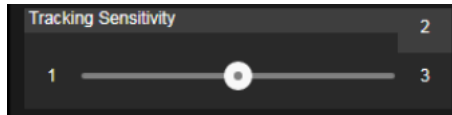
1. Select the **Blocks** (2, 3, or 4). Each block is corresponding to one preset position. The maximum is 4 blocks (4 preset positions). Start from left to right and make sure you don't overlap the preset too much per position.



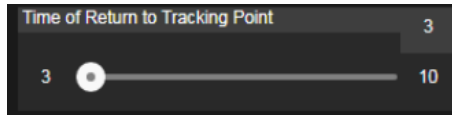
2. Select the block and Set the preset positions in order (preset 6 to preset 9). Use , , , ,  and  to move the camera to wanted position and select "Save" to save the preset position. And, a snapshot of the preset image will show at the corresponding image display box. Repeat the step to set another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



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



System

- **System information:** It displays **Model Name, IP Address, Serial Number, MAC Address** and **Firmware Version**.
- **Factory Default:** Reset the camera back to factory default value.
- **Login in:** The default login in name and password are **admin/admin**. User can change if needed.
- **Status OSD:** Enable/disable Preset status (Save Preset, Call Preset, Cancel Preset) display on the screen.
- **Language:** Change the Web UI language.
- **Camera ID (NDI):** Set the camera ID as identification for NDI function. To setup NDI function, please refer to [NDI Function](#) section.
- **NDI Activation:** Enter the NDI key to activate the NDI function on your camera. Please contact AVer(www.averusa.com) to purchase the key from your local dealer.

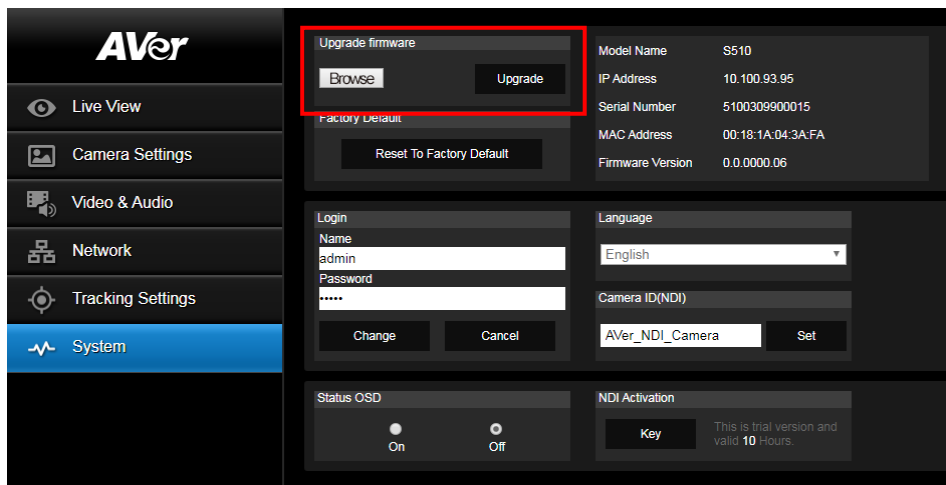
The screenshot displays the AVer camera web interface. On the left is a navigation menu with the following items: Live View, Camera Settings, Video & Audio, Network, Tracking Settings, and System (highlighted in blue). The main content area is titled 'System' and contains several configuration sections:

- Upgrade firmware:** Includes 'Browse' and 'Upgrade' buttons.
- Factory Default:** Includes a 'Reset To Factory Default' button.
- Model Information:** A table displaying:

Model Name	S510
IP Address	10.100.90.54
Serial Number	5200123400005
MAC Address	00:18:1A:00:12:34
Firmware Version	0.0.0000.12
- Login:** Includes fields for 'Login Name' (containing '1') and 'Login Password' (with a masked password), and 'Change' and 'Cancel' buttons.
- Language:** A dropdown menu currently set to 'English'.
- Camera ID (NDI):** Includes a text field with 'AVer_NDI_Camera' and a 'Set' button.
- Status OSD:** Two radio buttons, 'On' (selected) and 'Off'.
- NDI Activation:** Includes a 'Key' input field and a note: 'Input activation key to enable trial (7 days)'.

Upgrade Firmware

1. Download the newest firmware from <http://www.averusa.com>
2. Connect to the camera through the browser.
3. Select **System** > **Upgrade** firmware > **Browse**.
4. Select the firmware and select the “**Upgrade**” button.
5. After updating, refresh the browser.



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	p=0 (Low) to 7 (High)
	Tele(Variable)	8x 01 04 07 2p FF	
	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	
CAM_ExpComp	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 0p FF	p: Memory Number (=0 to 5)
	Set	8x 01 04 3F 01 0p FF	Corresponds to 1 to 6 on the Remote Commander.
	Recall	8x 01 04 3F 02 0p 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	
	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	

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	
Auto Tracking	On	8x 01 04 7D 02 FF	Auto tracking ON/OFF
	Off	8x 01 04 7D 03 FF	
CAM_PowerInq	8x 09 04 00 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_WBModelInq	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_FocusModelInq	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

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?SetPtfz=	1,0,1&(random)			
up end	/cgi-bin?SetPtfz=	1,0,2&(random)			
down start	/cgi-bin?SetPtfz=	1,1,1&(random)			
down end	/cgi-bin?SetPtfz=	1,1,2&(random)			
left start	/cgi-bin?SetPtfz=	0,1,1&(random)			
left end	/cgi-bin?SetPtfz=	0,1,2&(random)			
right start	/cgi-bin?SetPtfz=	0,0,1&(random)			
right end	/cgi-bin?SetPtfz=	0,0,2&(random)			
zoom_in start	/cgi-bin?SetPtfz=	2,0,1&(random)			
zoom_in end	/cgi-bin?SetPtfz=	2,0,2&(random)			
zoom_out start	/cgi-bin?SetPtfz=	2,1,1&(random)			
zoom_out end	/cgi-bin?SetPtfz=	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

TR310

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	0.4 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	10X
Digital Zoom	12X
Sensor Zoom	2X
Viewing Angles	DFOV : 78° (Wide) to 9° (Tele) HFOV : 70° (Wide) to 8° (Tele) VFOV : 42° (Wide) to 5° (Tele)
Focal Length	f = 3.9 mm (Wide) to 39 mm (Tele)
Aperture (Iris)	F = 1.6 (Wide) to 3.0 (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
Audio	
Channel	2ch Stereo
Codec	AAC (48 / 44.1 / 32 / 24K), G.711, PCM (8K)
Sample Rate	48 KHz
Interface	
Video Outputs	HDMI, IP, USB
Audio Outputs	HDMI, IP, USB
Audio Inputs	MIC in, Line in
General	
Power Requirement	AC 100 - 240V to DC 12V/2A or above
Power Consumption	18W
PoE	PoE+
Dimensions (W x D x H)	W180*D145*H183.5mm
Net Weight	1.7 (±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, ICMP, IGMP, HTTP, DHCP, RTP / RTCP, RTSP, RTMP, VISCA over IP
NDI® HX Capability	Yes (optional)
USB	
Connector	USB 3.0
Video Format	MJPEG
Maximum Video Resolution	1080p
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

TR311HN

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	0.4 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
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)
Camera	
Pan / Tilt Angles	Pan : $\pm 170^\circ$, Tilt : $+90^\circ / -30^\circ$
Pan / Tilt Speed (Manual)	Pan : 0.1° to $100^\circ / \text{sec}$, Tilt : 0.1° to $100^\circ / \text{sec}$
Preset Speed	Pan : $200^\circ / \text{sec}$, Tilt : $200^\circ / \text{sec}$
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
Audio	
Channel	2ch Stereo
Codec	AAC (48 / 44.1 / 32 / 24K), G.711, PCM (8K)
Sample Rate	48 KHz
Interface	
Video Outputs	HDMI, IP, USB
Audio Outputs	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*H183.5mm
Net Weight	1.7 (± 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, ICMP, IGMP, HTTP, DHCP, RTP / RTCP, RTSP, RTMP, VISCA over IP
NDI® HX Capability	Yes
USB	
Connector	USB 3.0
Video Format	MJPEG
Maximum Video Resolution	1080p
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

TR311

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	0.4 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
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)

Camera	
Pan / Tilt Angles	Pan : $\pm 170^\circ$, Tilt : $+90^\circ / -30^\circ$
Pan / Tilt Speed (Manual)	Pan : 0.1° to $100^\circ / \text{sec}$, Tilt : 0.1° to $100^\circ / \text{sec}$
Preset Speed	Pan : $200^\circ / \text{sec}$, Tilt : $200^\circ / \text{sec}$
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
Audio	
Channel	2ch Stereo
Codec	AAC (48 / 44.1 / 32 / 24K), G.711, 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*H183.5mm
Net Weight	1.7 (± 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, ICMP, IGMP, HTTP, DHCP, RTP / RTCP, RTSP, RTMP, VISCA over IP
NDI® HX Capability	Yes (optional)
USB	
Connector	USB 3.0
Video Format	MJPEG
Maximum Video Resolution	1080p
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

TR313

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	0.4 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
Audio	
Channel	2ch Stereo
Codec	AAC (48 / 44.1 / 32 / 24K), G.711, 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*H183.5mm
Net Weight	1.7 (±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, ICMP, IGMP, HTTP, DHCP, RTP / RTCP, RTSP, RTMP, VISCA over IP
NDI® HX Capability	Yes (optional)
USB	
Connector	USB 3.0
Video Format	MJPEG
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

TR333

Camera	
Image Sensor	1/2.5" 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	2.7 lux (IRE50, F1.5, 30fps)
S/N Ratio	≥ 50 dB
Gain	Auto, Manual
TV Line	1400 (Center)
Shutter Speed	1/1 to 1/32,000 sec
Exposure Control	Auto, Manual, Priority AE (Shutter, IRIS), BLC, WDR
White Balance	Auto, Manual
Optical Zoom	30X
Digital Zoom	12X
Sensor Zoom	2X
Viewing Angles	DFOV : 75° (Wide) to 3° (Tele) HFOV : 68° (Wide) to 2.8° (Tele) VFOV : 40° (Wide) to 1.6° (Tele)
Focal Length	f = 4.8 mm (Wide) to 144 mm (Tele)
Aperture (Iris)	F = 1.5 (Wide) to 3.4 (Tele)
Minimum Working Distance	1.5 m to Infinity
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	Auto, 50 Hz, 60 Hz
AI Auto Tracking Functions	
Tracking Mode	Presenter Mode, Zone Mode
Audio	
Channel	2ch Stereo
Codec	AAC-LC (48 / 44.1 / 32 / 24K), G.711, PCM (8K)
Sample Rate	48 / 44.1 / 32 / 24 / 16 / 8 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*H183.5mm
Net Weight	1.7 (±0.1) kg
Application	Indoor
Tally	Yes
Security	Kensington Slot
Remote Control	Infrared

General	
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, ICMP, IGMP, HTTP, DHCP, RTP / RTCP, RTSP, RTMP, VISCA over IP
NDI® HX Capability	Yes (optional)
USB	
Connector	USB 3.0
Video Format	MJPEG
Maximum Video Resolution	2160p
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