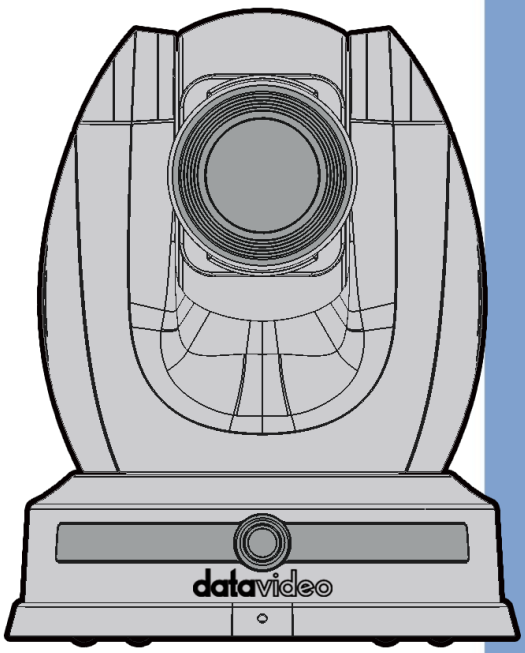
datavideo



HD 30X TRACKING PTZ CAMERA

PTC-155

Instruction Manual

www.datavideo.com

Table of Contents

Disclaimer of Product and Services

The information offered in this instruction manual is intended as a guide only. At all times, Datavideo Technologies will try to give correct, complete and suitable information. However, Datavideo Technologies cannot exclude that some information in this manual, from time to time, may not be correct or may be incomplete. This manual may contain typing errors, omissions or incorrect information. Datavideo Technologies always recommend that you double check the information in this document for accuracy before making any purchase decision or using the product. Datavideo Technologies is not responsible for any omissions or errors, or for any subsequent loss or damage caused by using the information contained within this manual. Further advice on the content of this manual or on the product can be obtained by contacting your local Datavideo Office or dealer.

FCC Compliance Statement

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.

Warnings and Precautions

1. Read all of these warnings and save them for later reference.
2. Follow all warnings and instructions marked on this unit.
3. Unplug this unit from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning.
4. Do not use this unit in or near water.
5. Do not place this unit on an unstable cart, stand, or table. The unit may fall, causing serious damage.
6. Slots and openings on the cabinet top, back, and bottom are provided for ventilation. To ensure safe and reliable operation of this unit, and to protect it from overheating, do not block or cover these openings. Do not place this unit on a bed, sofa, rug, or similar surface, as the ventilation openings on the bottom of the cabinet will be blocked. This unit should never be placed near or over a heat register or radiator. This unit should not be placed in a built-in installation unless proper ventilation is provided.
7. This product should only be operated from the type of power source indicated on the marking label of the AC adapter. If you are not sure of the type of power available, consult your Datavideo dealer or your local power company.
8. Do not allow anything to rest on the power cord. Do not locate this unit where the power cord will be walked on, rolled over, or otherwise stressed.
9. If an extension cord must be used with this unit, make sure that the total of the ampere ratings on the products plugged into the extension cord do not exceed the extension cord's rating.

10. Make sure that the total amperes of all the units that are plugged into a single wall outlet do not exceed 15 amperes.
11. Never push objects of any kind into this unit through the cabinet ventilation slots, as they may touch dangerous voltage points or short out parts that could result in risk of fire or electric shock. Never spill liquid of any kind onto or into this unit.
12. Except as specifically explained elsewhere in this manual, do not attempt to service this product yourself. Opening or removing covers that are marked “Do Not Remove” may expose you to dangerous voltage points or other risks, and will void your warranty. Refer all service issues to qualified service personnel.
13. Unplug this product from the wall outlet and refer to qualified service personnel under the following conditions:
    a. When the power cord is damaged or frayed;
    b. When liquid has spilled into the unit;
    c. When the product has been exposed to rain or water;
    d. When the product does not operate normally under normal operating conditions. Adjust only those controls that are covered by the operating instructions in this manual; improper adjustment of other controls may result in damage to the unit and may often require extensive work by a qualified technician to restore the unit to normal operation;
    e. When the product has been dropped or the cabinet has been damaged;
    f. When the product exhibits a distinct change in performance, indicating a need for service.

Warranty

Standard Warranty

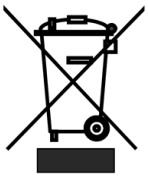
- Datavideo equipment are guaranteed against any manufacturing defects for one year from the date of purchase.
- The original purchase invoice or other documentary evidence should be supplied at the time of any request for repair under warranty.
- The product warranty period begins on the purchase date. If the purchase date is unknown, the product warranty period begins on the thirtieth day after shipment from a Datavideo office.

- All non-Datavideo manufactured products (product without Datavideo logo) have only one year warranty from the date of purchase.
- Damage caused by accident, misuse, unauthorized repairs, sand, grit or water is not covered under warranty.
- Viruses and malware infections on the computer systems are not covered under warranty.
- Any errors that are caused by unauthorized third-party software installations, which are not required by our computer systems, are not covered under warranty.
- All mail or transportation costs including insurance are at the expense of the owner.
- All other claims of any nature are not covered.
- All accessories including headphones, cables, and batteries are not covered under warranty.
- Warranty only valid in the country or region of purchase.
- Your statutory rights are not affected.

Three Year Warranty

- All Datavideo products purchased after July 1st, 2017 are qualified for a free two years extension to the standard warranty, providing the product is registered with Datavideo within 30 days of purchase.
- Certain parts with limited lifetime expectancy such as LCD panels, DVD drives, Hard Drive, Solid State Drive, SD Card, USB Thumb Drive, Lighting, PCIe Card are covered for 1 year.
- The three-year warranty must be registered on Datavideo's official website or with your local Datavideo office or one of its authorized distributors within 30 days of purchase.

Disposal



For EU Customers only - WEEE Marking

This symbol on the product or on its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

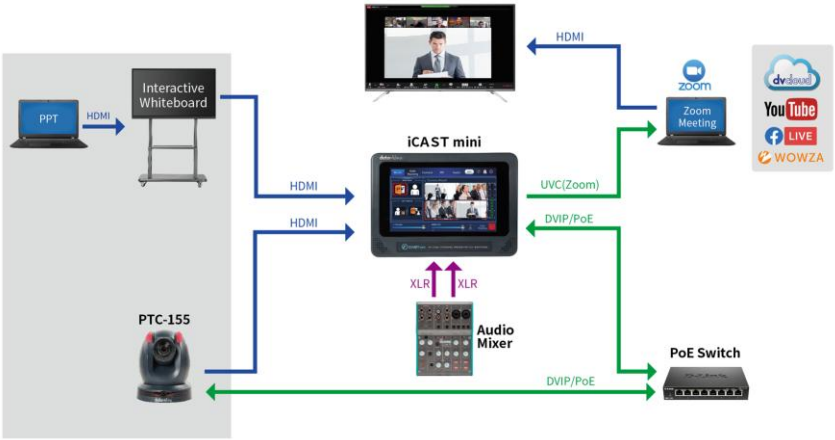
1. Product Overview

The PTC-155 series HD 30x Tracking PTZ Camera incorporates a 1/2.8” CMOS sensor, enabling superior 1080p Full HD video output. It boasts a 30x optical zoom, complemented by a 16x digital zoom and offers multiple output interfaces like 3G-SDI, HDMI and IP streaming. Elevate your remote video production effortlessly with the PTC-155 series—a clear frontrunner for enhanced capabilities.

Features

- 1080p50/59.94/60 PTZ camera
- 30x Optical Zoom, 16x Digital Zoom
- Full HD Video interfaces: HDMI, 3G-SDI, and H.264/H.265 Streaming.
- RS-232/RS-422 Serial Port Control
- External audio input: 3.5mm MIC in/Line in
- Friendly web UI

2. System Diagram



3. Location and Function of Parts

Front

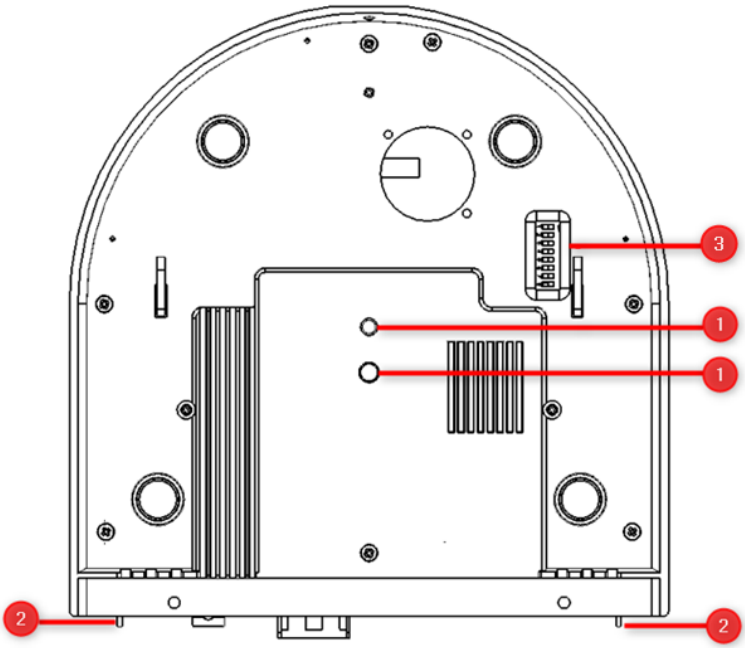
1	**Tracking Lens** Built-in 1/2.8” 2.14M Pixel CMOS Full HD color camera with white balance control, backlight compensation, automatic gain, etc.
2	**Tally LED** Tally lamp will be turned ON upon receiving the ON signal.
3	**Sensor for Remote Control** Remote control IR receiver
4	**wide-angle panoramic lens** As long as the person you want to track appears in the frame captured by the wide-angle panorama lens, the tracking lens will not lose track of the target.

Rear

1	**Power Input** DC in socket connects the supplied 12V PSU. The connection can be secured by screwing the outer fastening ring of the DC In plug to the socket.
2	**3G-SDI OUT** The **3G-SDI OUT** allows you to connect an external monitor via an SDI cable.

3	**UVC OUT** This interface allows you to connect the PTC-155 to your laptop or PC by a USB type C to USB type A adapter cable for adopting the image which is shot by the camera to be the image source of the conference software such as Zoom to fulfill the online-teaching or live-conferencing applications.
4	**HDMI OUT** The **HDMI OUT** allows you to connect an external HDMI monitor via an HDMI cable.
5	**Micro SD Card Slot** This interface is reserved for future use.
6	**MIC IN/LINE IN** The 3.5mm audio input receives external audio. **Note: Use the *OSD Menu* or *Web UI* to switch between MIC IN and LINE IN.**
7	**RS-232/RS-422 Interface (RJ-45)** The RS-232/RS-422 interface is designed to connect an external RS-232/RS-422 device using a custom Ethernet cable. See the section on ***RS-232/RS-422*** for wiring pinouts.
8	**NDI HX3/DVIP/LAN Interface** The DVIP interface is a protocol designed by Datavideo to allow the user to access the camera's Web UI by simply connecting a PC to the camera using a standard Ethernet cable. See ***Network Connection*** for establishing connection and ***Web User Interface*** for accessing the camera's internal settings. The **NDI HX3** interface allows the user to access the camera's internal settings by simply connecting a PC with NewTek's "**NDI Studio Monitor**" installed to the camera with an Ethernet cable. Alternatively, you can connect the camera and your PC to the same network so that as soon as the camera is powered ON, you will immediately see the camera video appear in NDI Studio Monitor as well as other NDI compatible receiving devices. See ***Network Connection*** for establishing connection and ***Web User Interface*** for accessing the camera's internal settings. The LAN interface allows users to stream the images captured by the camera to the desired online streaming platform. This interface supports PoE+ (IEEE 802.3at) to power up PTC-155.

Bottom



1	**Tripod Screw Hole** allows the user to mount the camera on the tripod.
2	**For Safety Rope** Ties safety ropes for securing the camera to the ceiling**.**

3

DIP Switch

The DIP Switch allows the user to set the camera's VISCA ID, select the video resolution, and configure how the video format (or resolution) can be selected. See the following table for corresponding settings:

DIP SW 1/2/3	VISCA ID
(1,2,3) = (1,0,0)	VISCA-ID 1
(1,2,3) = (0,1,0)	VISCA-ID 2
(1,2,3) = (1,1,0)	VISCA-ID 3
(1,2,3) = (0,0,1)	VISCA-ID 4
(1,2,3) = (1,0,1)	VISCA-ID 5
(1,2,3) = (0,1,1)	VISCA-ID 6
(1,2,3) = (1,1,1)	VISCA-ID 7
DIP SW 4	**Remote Control Protocol**
(4) = (Reserved)	
DIP SW 5/6/7	**Resolution**
(5,6,7) = (0,0,0)	1920 x 1080P 60
(5,6,7) = (0,1,1)	1920 x 1080P 59.94
(5,6,7) = (1,1,1)	1920 x 1080P 50
(5,6,7) = (1,0,0)	1920 x 1080p 30
(5,6,7) = (0,0,1)	1920 x 1080p 29.97
(5,6,7) = (1,0,1)	1920 x 1080p 25
(5,6,7) = (0,1,0)	1280 x 720p 59.94
(5,6,7) = (1,1,0)	1280 x 720p 50
DIP SW 8	**Video Format (Resolution) Selection Means**
1	DIP switch
0	OSD Menu

4. Installation Instructions

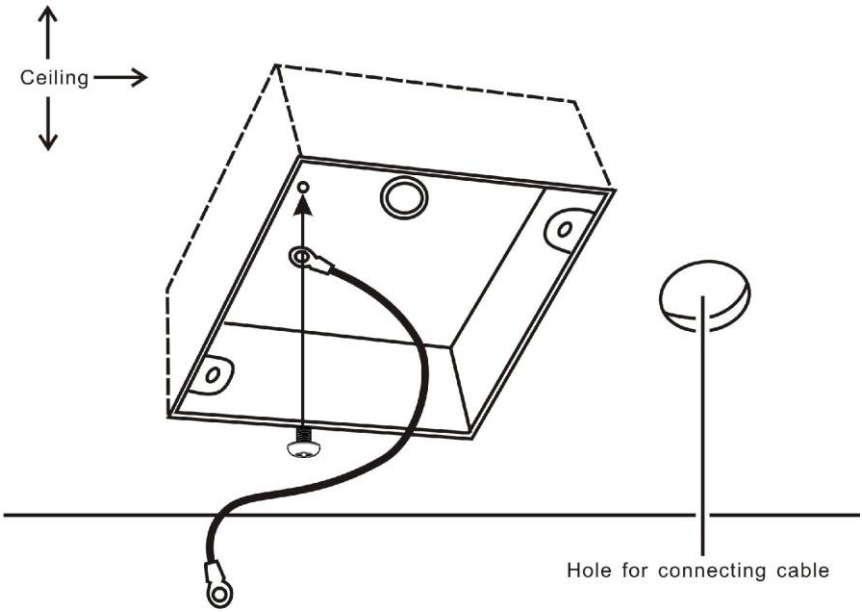
Note: Only mount the bracket on formwork or concrete surface. Do NOT mount the bracket on plasterboard.

Step 1 – DIP Switch Setting

Enable Flip-H and Flip-V.

Step 2 – One End of Retaining Wire

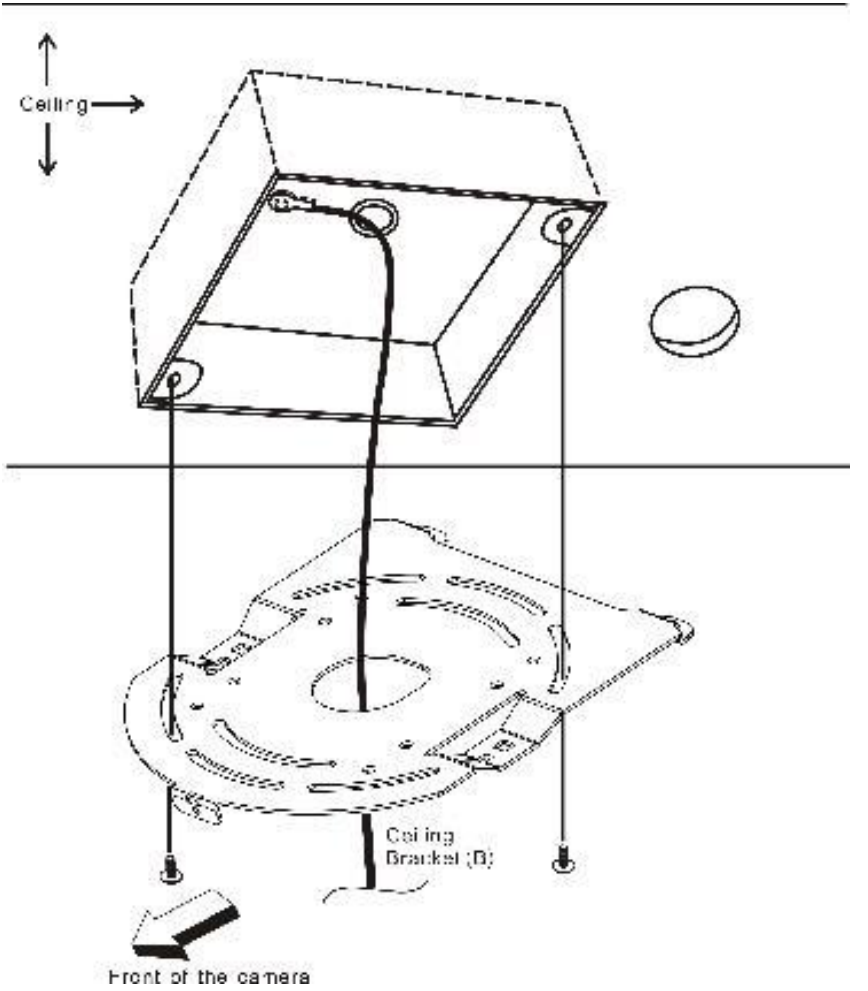
Attach the retaining wire to the junction box mounted on the ceiling by screwing one end of the retaining wire into a screw hole in the junction box with a screw (not supplied) as shown in the diagram below.



Step 3 – Ceiling Bracket (B)

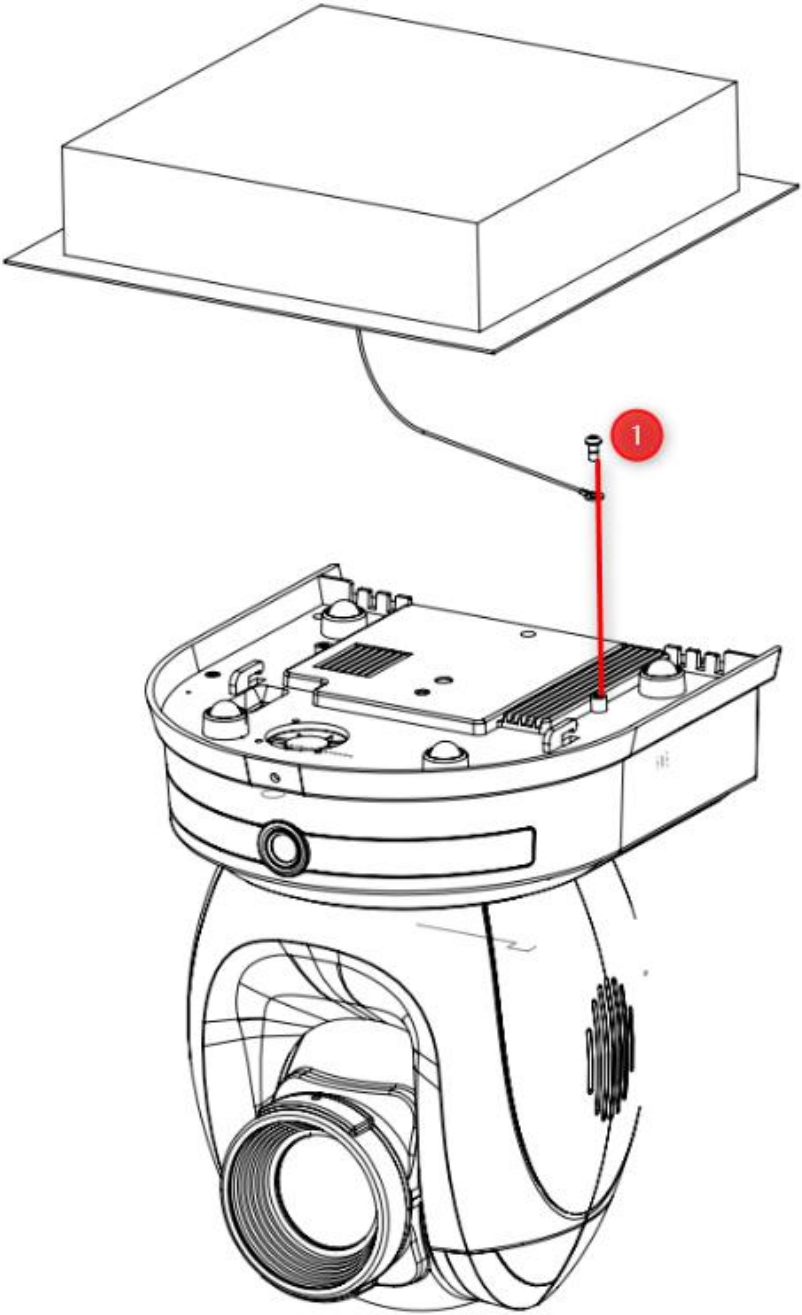
Again, as illustrated in the diagram below, screw a ceiling bracket (B) into the junction box mounted on the ceiling.

Make sure the screw holes of the ceiling bracket (B) are aligned with the holes on the junction box.

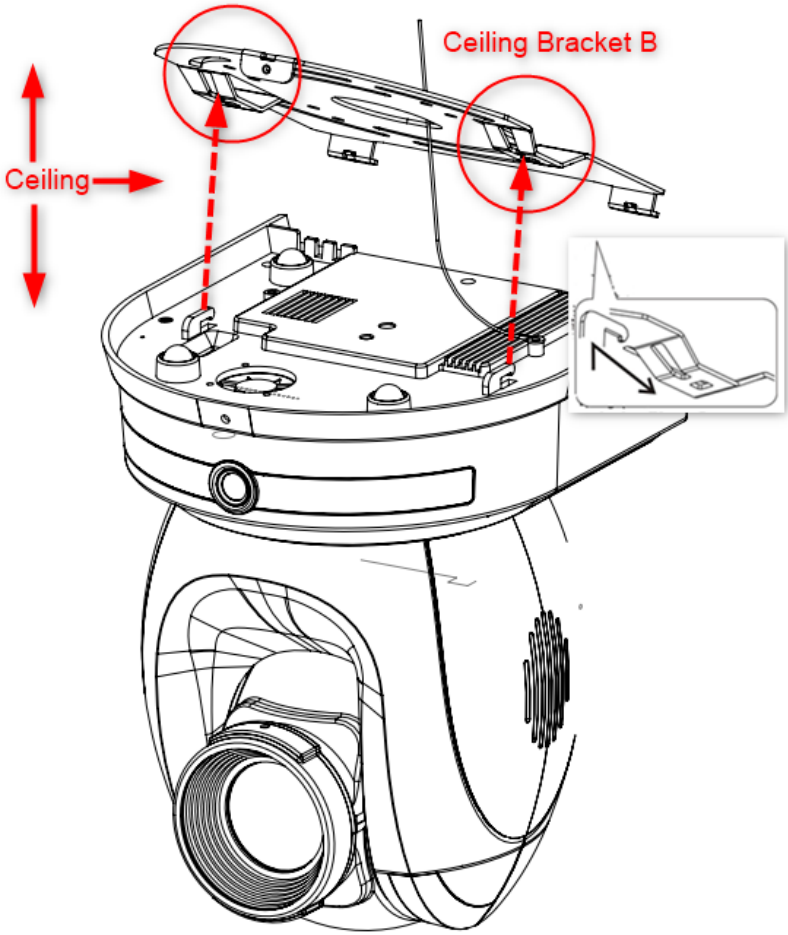

Ceiling
Ceiling Bracket (B)
Front of the camera

Step 4 – Ceiling Mount (B) and Camera

- Secure the safety steel cable of the ceiling mount (B) to the bottom of the camera using a screw.
- Ensure the screw is positioned as shown in the diagram.
- Insert the screws into their corresponding holes in numerical order.
- Attach the other end of the steel cable to screw hole number 1 as shown in the diagram.
- Tighten one screw securely.

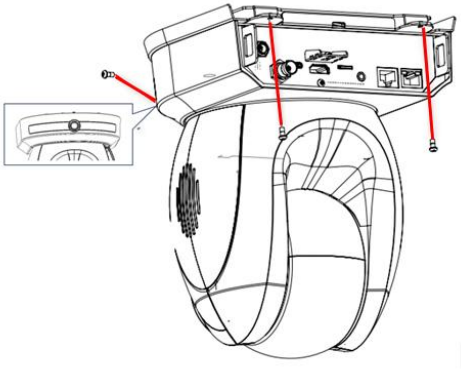

1

Step 5 – Secure the camera to the ceiling



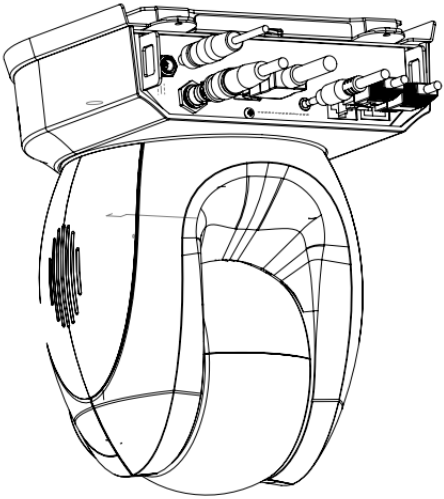
Step 6 – Screw to Secure Camera

Secure the camera by screwing three screws into the corresponding screw holes as shown in the diagram below.



Step 7 – Cable Connection

Connect the cables to the connectors located on the rear of the camera.



5. Network Connection

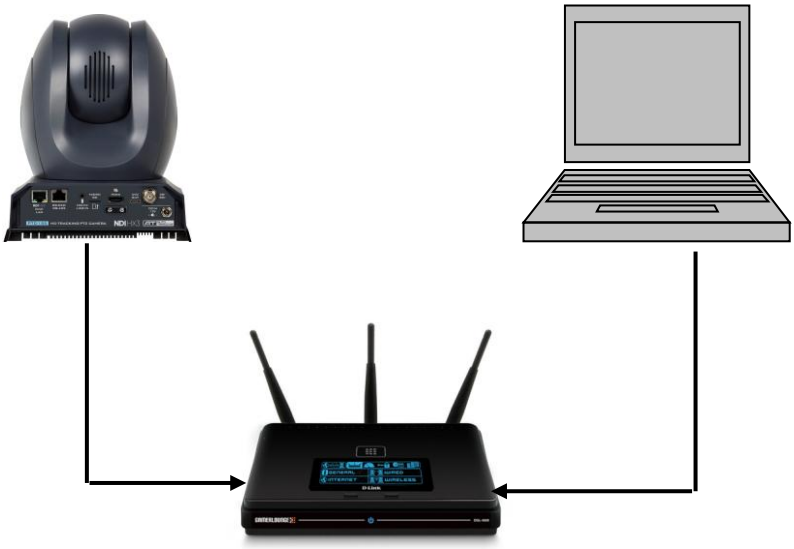
The Ethernet port on the back panel of your PTC-155 allows you to connect a PC/laptop to the camera with a static or dynamic IP address. To access and modify these network settings, you will need to log in to the camera's web interface.

If this is your first time using the device, please note that the camera's default connection mode is DHCP.

In this chapter, we will show you how to use the web UI to configure DHCP and Static IP modes in two separate sections.

DHCP Mode

Dynamic Host Configuration Protocol (DHCP) is a network protocol that enables a server to allocate an IP address to a DHCP client device from defined IP address pools configured for a given network. An example DHCP server setup is illustrated in the diagram below.

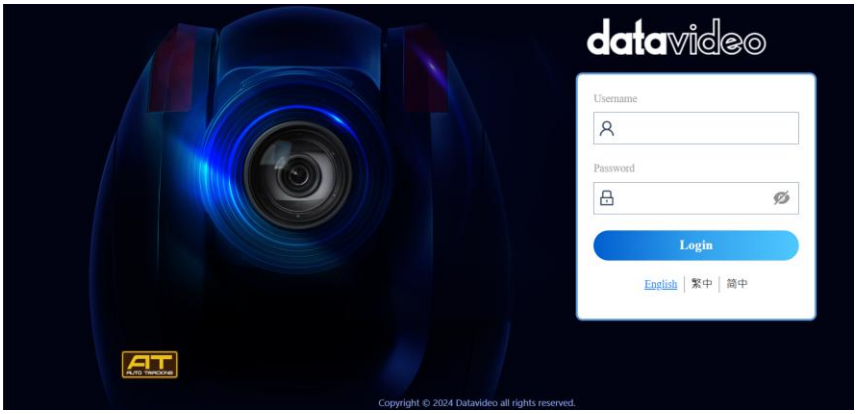


After connection has been successfully established, on your PC/laptop, use DVIP Configuration Tool to search for the camera's IP address. If you are new to DVIP, see the ***DVIP*** section for more descriptions of the tool.

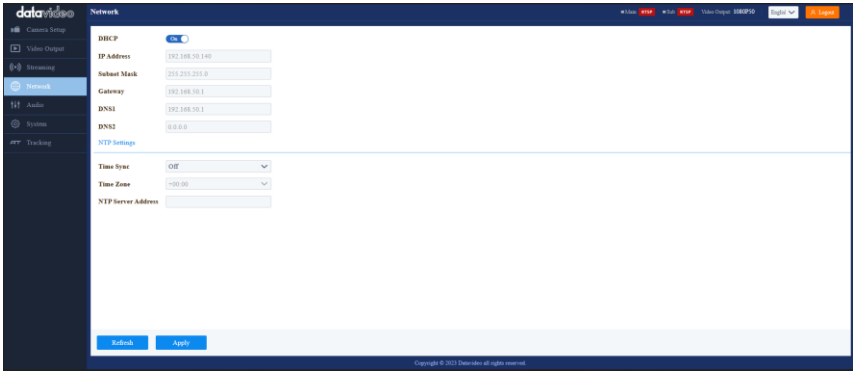
Open a web browser and in the address bar, enter the camera's IP address then press the **ENTER** key which should take you to the login page of the web interface.

The default login credentials are:

- User Name: admin
- Password: admin



Once you are logged in, open the Network page to modify the network settings accordingly.



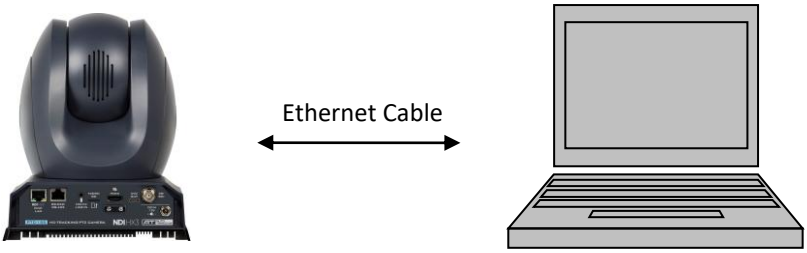
Static IP

A static IP address is a fixed address manually assigned to PTC-155. First disable DHCP mode then enter an IP address for the camera, as well as the subnet mask and the gateway IP.

Note: Never assign an address that ends in .0 or .255 as these addresses are typically reserved for network protocols. An address to the very start of the IP pool is also not recommended as it is always reserved for the router.

After you've configured the camera's static IP mode, click the "Apply" button to save the new settings then reboot PTC-155.

Now set up direct connection between the camera and your PC/laptop as depicted in the diagram below; remember to manually assign an IP address to your PC/laptop. The first three octets of the IP addresses should be the same.



DVIP

DVIP is an Ethernet-based protocol designed by Datavideo to connect a network of Datavideo devices. DVIP Configuration Tool is a special network configuration software tool designed for DVIP device search on the same network and configuring device network settings such as Hostname, DHCP mode, IP address, subnet mask, gateway IP, and primary and secondary DNS.

Depending on your operating system, download DVIP Configuration Tool from the respective sites listed as follows:

PC: https://www.microsoft.com/en-us/p/dvip-network-config/9p6gtz839k6s?activetab=pivot%3Aoverviewtab

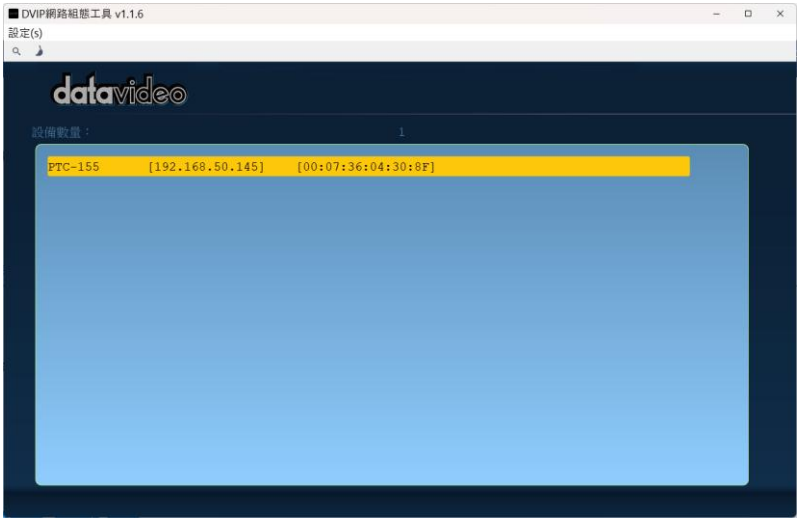
Android: https://play.google.com/store/apps/details?id=com.datavideo.dvipnetconfig&hl=en_US

iOS: https://itunes.apple.com/tw/app/dvip-network-config/id1177895983?mt=8

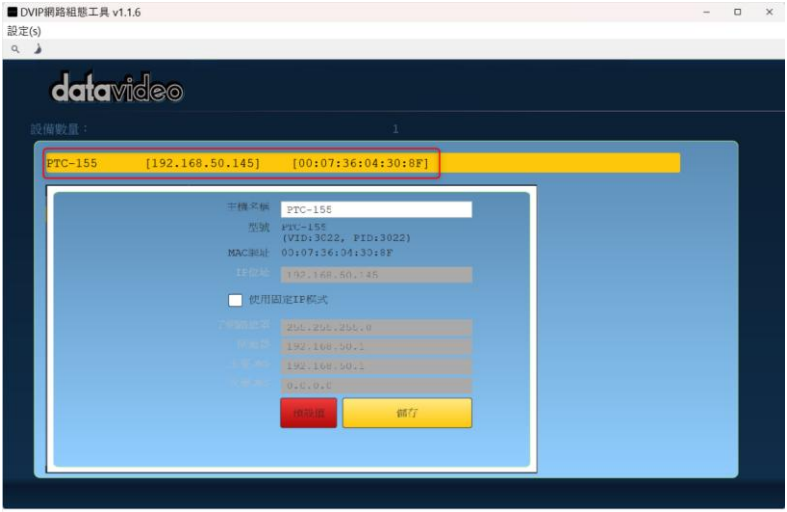
After you've installed the DVIP Network Configuration Tool, follow the steps outlined below to scan for online DVIP devices and configure their corresponding settings.

Step 1: Open the DVIP Network Configuration Tool then select your PC or laptop's network interface card from the drop-down menu in the pop-up window as shown in the diagram below.

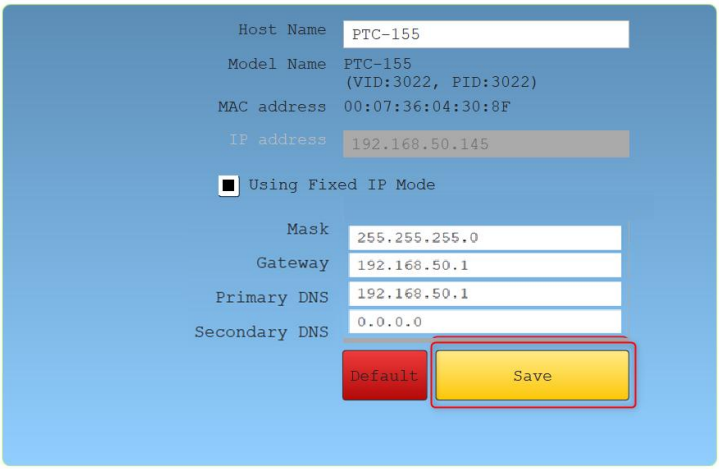
Step 2: The DVIP Network Configuration Tool interface is shown below and you should see a list of the connected cameras.



Step 3: Click one of the connected cameras to show the device information and its network settings in the pop-up window shown in the diagram below.



Step 4: You are allowed to change the device name in the Host Name field and modify the device's network settings accordingly. Click the Save button to confirm the change. To reset, simply click the Default button.



6. Basic Setup

Power-On Initialization

As shown in the diagram below, after you plug in the power cord, the tally light in the front, depending on your tally setting, will start flashing red, green or a mix of both and will be OFF as soon as the power-on initialization is complete. Please note that the power-on initialization should not take more than 45 seconds before the camera image is shown on the connected monitor. If this is your first time using the camera, the camera head should be at the HOME position with the lens facing front. If the camera has been used before, the camera head should be at the position right before the camera is shut down the last time.

Note: Use the *OSD menu* or *web UI* to select the tally light color.

Connect the DC 12 V power adapter

Video Output

You are allowed to view the camera video via **NDI HX3/DVIP/LAN**, **HDMI OUT** and **3G-SDI OUT.**

NDI HX3/DVIP/LAN Port

NDI and DVIP are Ethernet-based protocols for bidirectional video and audio transmission. Both provide low latency and real time video transmission making it an ideal solution for any live productions.

See ***Network Connection*** for detailed network information if you are new to NDI and DVIP.

Follow the instructions below to view the camera video on the web user interface.

Connect the PTC-155 camera to your PC/Notebook PC over a network

1. With Ethernet cables, establish connection between the PTC-155 and a PC/Notebook via a router.
   Note: The PTC-155's default connection mode is DHCP.
2. On the PC/Notebook, open the DVIP Network Configuration Tool and search for the PTC-155 then on a web browser, enter the camera's IP address into the address bar.
3. On the login page, enter the default username and password which are admin/admin respectively.
4. Once logged in, you should be able to see a preview window on which the video is shown.

Connect the PTC-155 camera directly to your PC/Notebook PC

1. While still connected to the PTC-155 via a router in DHCP mode, open the camera's web UI on the PC/Notebook then the network page.
2. Disable DHCP then enter a static address in the **IP Address** textbox. Remember to enter a network mask and the rest are simply optional.
3. Do the same thing to your PC/Notebook. Make sure both IP addresses have the same first three octets.
4. Now connect the PTC-155 directly to the PC/Notebook using an Ethernet cable.
5. On your PC/Notebook, open the web browser and enter the camera's static IP address into the address bar.

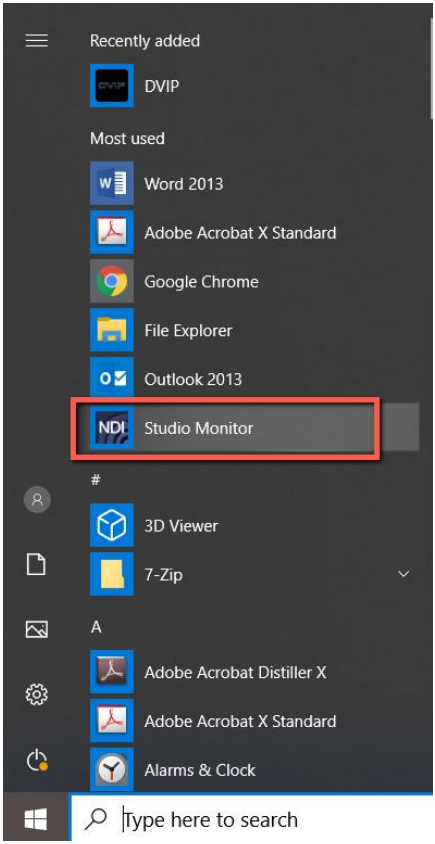
6. On the Login page enter the default username and password which are admin/admin respectively.
7. Once logged in, you should be able to see a preview window on which the video is shown.

NDI Studio Monitor

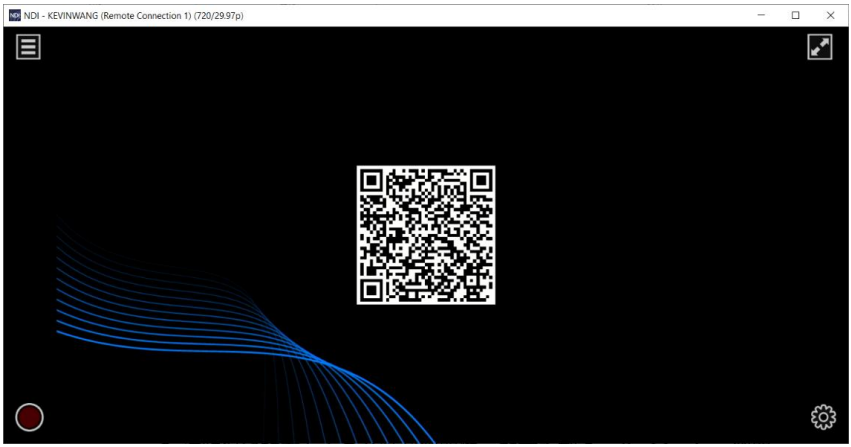
In addition to the PTC-155's web UI, the NDI Studio Monitor is another alternative to view the camera video.

Before connecting to the PTC-155, the NDI Studio Monitor must be installed on your PC/Notebook. You can download the latest version from NewTek's official NDI website https://www.ndi.tv/.

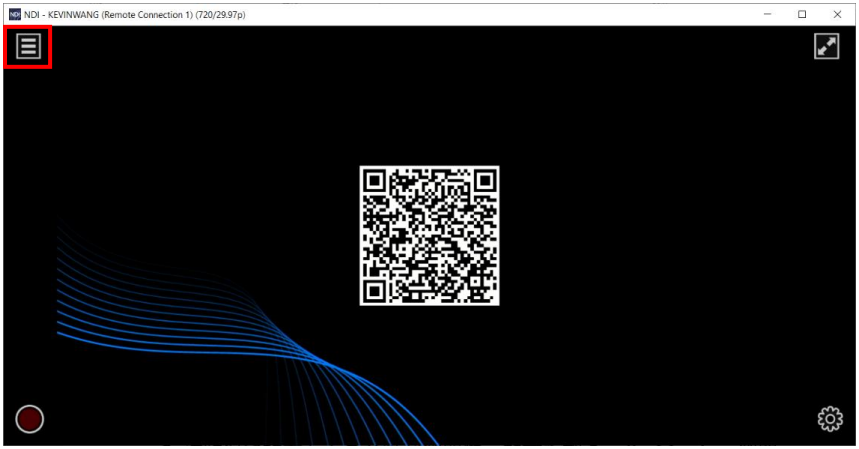
After the installation is complete, click "Start" then select Studio Monitor to open the NDI Studio Monitor.



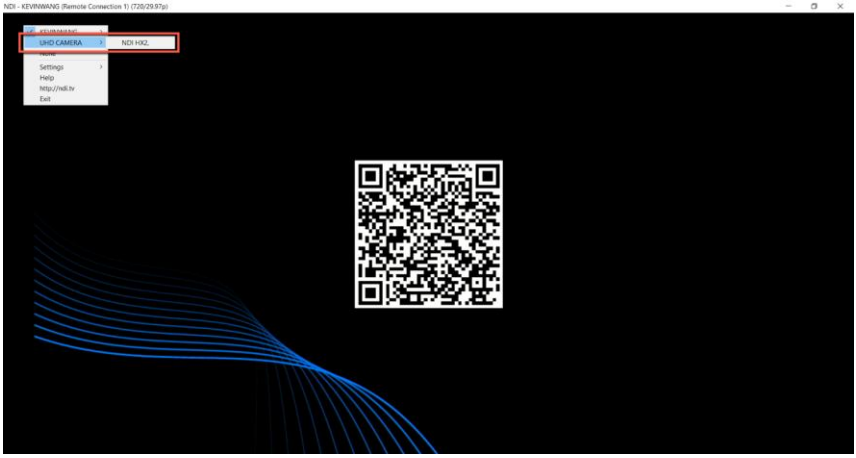
The NDI Studio Monitor interface is shown below.



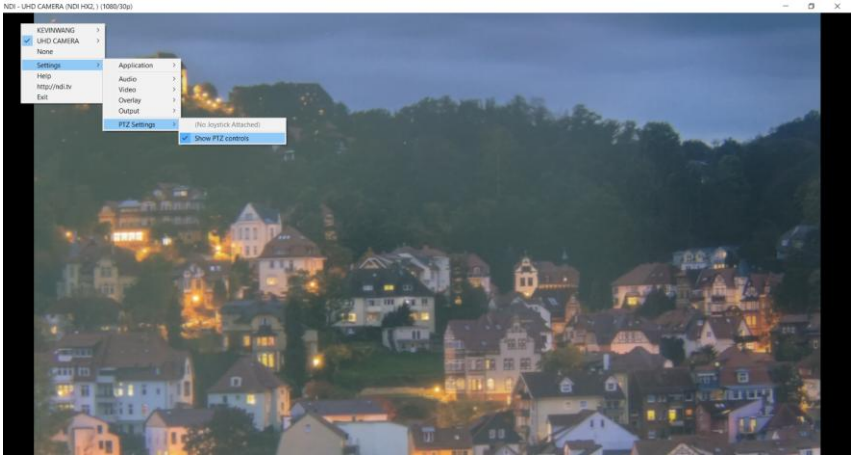
Click the menu icon located at the top left corner of the interface to open a pop-up menu. You can also right click anywhere on the interface to open the menu.



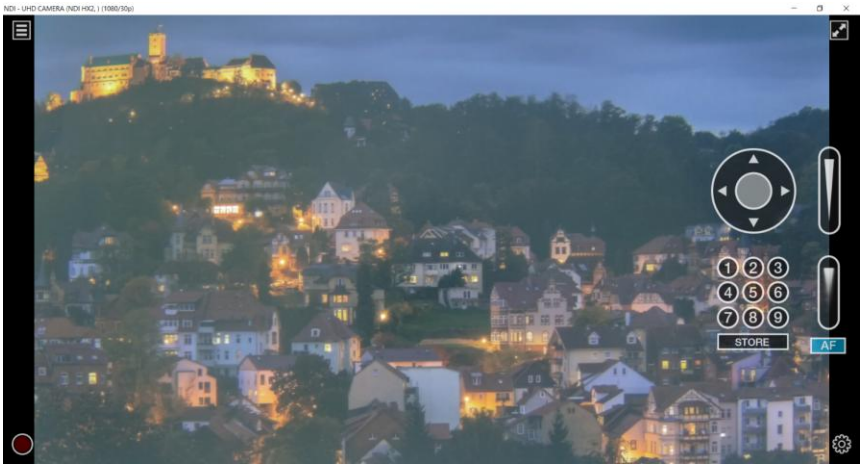
Click the PTC-155 camera detected by the NDI Studio Monitor to view the camera video.



To enable the virtual PTZ joystick on the interface, right click on the interface, then follow the menu path Settings->PTZ Settings->Show PTZ Controls.



In addition to panning and tilting the camera, you can also enable auto focus, adjust the zoom, and save and recall presets.



Note: If you have encountered problems when installing or using the NDI Studio Monitor, please visit NewTek's official NDI website https://www.ndi.tv/ or contact NewTek's Technical Support Team.

HDMI Video OUT

Connect the HDMI OUT to an external monitor using an HDMI cable.

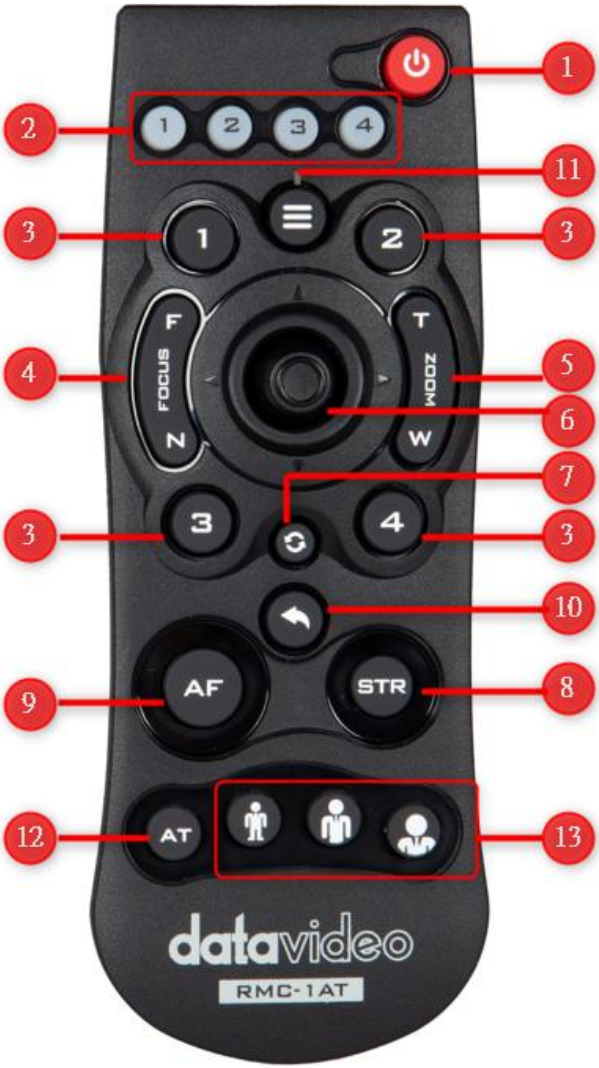
3G-SDI Video Output

Connect the 3G-SDI OUT to an external monitor using an SDI cable.

7. IR Remote Control and On-Screen Menu

Chapter 7 provides an overview of remote control functions and the OSD menu.

IR Remote Control



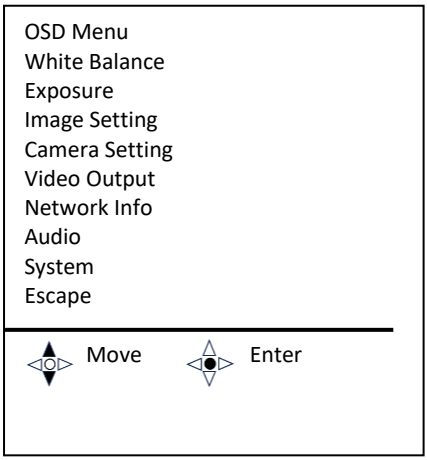
No	Function Keys	Descriptions
1		**Power Button** Press to switch between **Standby** and **Operation** modes. **Note: The power consumption in Standby Mode is approximately half of the power consumption in Operation Mode.**
2		**Camera Select Keys 1-4** In a multi-camera environment, use the camera select keys (CAM1 – CAM4) to navigate between the four cameras.
3		**Preset Keys 1 – 4** Use the preset keys to save and recall PTZ settings. **Saving to the Preset Key:** First configure the camera's focus, zoom, pan and tilt settings, then press the STR key followed by one of the preset keys to save to the selected preset. **Recalling the Preset:** Simply press one of the preset keys to load the settings saved therein.
4		**Focus Button** Auto focus will be disabled as the Focus button (either F or N) is pressed. Press F to focus on a far object and N to focus on a near object. Note: You can also adjust the focus using the web UI. See ***Focus*** for more details.

No	Function Keys	Descriptions
5		**Zoom Button** The zoom function adjusts the size of the image. Press T (telephoto lens) to zoom in on a subject from far away and W (wide-angled lens) to zoom out. Note: You can also adjust the zoom using the web UI. See ***Zoom*** for more details.
6		**PT Joystick** Use the joystick to pan and tilt the camera head. Press the up and down arrow keys to tilt; press the left and right arrow keys to pan. While the OSD menu is opened, press the up and down keys to move between options. Press the right and left keys to toggle between values. Press the center button to enter a sub menu or confirm a selection. To exit a sub menu, press the MENU or Back button.
7		**Reset IP Button** Press and hold for about 3 seconds to reset the camera's network settings to DHCP. **Note: If there is no DHCP server on your network, the camera will use static IP to connect after the reset. The default IP address is 192.168.100.100.**
8		**STR Button** Use the **STR button** along with the preset keys to save the PTZ settings. See **Preset Keys 1 – 4** for more information.
9		**AF Button** Press to enable Auto Focus.

No	Function Keys	Descriptions
10		**Back Button** Press to return the camera head to its default position. When the OSD menu is opened, press to return to the previous item on the menu.
11		**MENU Button** Press the “MENU” button to open the OSD menu on the connected monitor. See ***OSD Menu*** for descriptions of various menu options.
12		**AT Button** Press to enable auto-tracking. **Note: Once auto-tracking is enabled, the message “Start Tracking” should appear on the monitor showing the camera video. See *Auto-Tracking* for various relevant settings.**
13		**Auto-Tracking Mode Selection Buttons** From left to right, these three buttons select, in the respective order, full body, half body and close-up framing.

OSD Menu

On-Screen Menu allows the user to modify various camera settings. Press **[MENU]** on the **remote control** to open the on-screen menu as shown below.



The table below summarizes the main option items and their sub-options.

	Main Options								
	White Balance	**Exposure**	**Image Setting**	**Camera Setting**	**Video Output**	**Network Info**	**Audio**	**System**	**Escape**
Sub-Options	R-Gain	Exposure	Contrast	Digital Zoom	Video Output	Net Mode	Audio In	Protocol Addr	
	G-Gain	Anti Flicker	Brightness	Pan Reverse	Escape	IP Address	Escape	Ir Addr	
	B-Gain	Backlight Comp	Sharpness	Tilt Reverse		Net Mask		Protocol	
	WB-SENSI	Expcomp	Gamma	Escape		Gateway		Baudrate	
	Saturation	Level	2DNR			DNS 1		Track Mode	
	Hue	Escape	3DNR			DNS 2		Com Mode	
	ONE PUSH		DRC			Escape		Language	
	COLOR TEMP.		Mirror			Confirm		Firmware	
	Escape		Flip					Factory Default	
			Escape					Escape	

Details of all options in the on-screen menu are listed in the table below.

Main Menu	Sub Menu	Options		Descriptions
White Balance	WB	Auto	R-Gain	This is the White Balance Mode, please see White Balance
			G-Gain	
			B-Gain	
			WB-SENSI	
			Saturation	
			Hue	
			Escape	
		Manual	R-Gain	
			B-Gain	
			Saturation	
			Hue	
			Escape	
		OPWB	ONEPUSH	
			Saturation	
			Hue	
			Escape	
		Static	COLOR TEMP.	
			Saturation	
			Hue	
			Escape	
	R-Gain	Auto WB	+7 to -7, Step Size:1	Fine-tune the red gain. See also White Balance.
		Manual WB	0 to 255, Step Size:1	
	G-Gain	+7 to -7, Step Size:1		Fine-tune the green gain, see White Balance
	B-Gain	Auto WB	+7 to -7, Step Size:1	Fine-tune the blue gain, see White Balance
		Manual WB	0 to 255, Step Size:1	
	WB-SENSI	Medium		White Balance Sensitivity, see White Balance
		High		
		Low		
	Saturation	0-14, Step Size:1		Saturation, see White Balance
	Hue	0-14, Step Size:1		For Hue, see White Balance

Main Menu	Sub Menu	Options		Descriptions
	ONE PUSH	Press [OK] Key		One-push White Balance, see White Balance
	COLOR TEMP.	2800-6500, Step Size:100		Color temperature, see White Balance
	Escape			
Exposure	Exposure	Auto	Anti Flicker	Exposure modes: There are Auto/Manual/Shutter Priority/Iris Priority/Brightness Priority modes, etc. See Exposure
			Backlight Comp	
			Expcomp	
			Escape	
		Manual	Gain	
			Shutter	
			Iris	
			Escape	
		Shutter	Shutter	
			Escape	
		Iris	Iris	
			Escape	
		Bright	Brightness	
			Anti Flicker	
			Escape	
	Anti Flicker	Off		Anti-Flicker, see Exposure
		50Hz		
		60Hz		
	Backlight Comp	On		Backlight Comp, see Exposure
		Off		
	Expcomp	On		Expcomp, see Exposure
		Off		
	Level	0 – 7; Step Size: 1		Exposure Level: range 0-7, step size: 1
	Gain	0-14, Step Size: 1		Gain Level, see Exposure
	Speed	NTSC Shutter	PAL Shutter	Shutter Speed, see Exposure
		1/60	1/50	
		1/90	1/75	
		1/100	1/100	
		1/125	1/120	
		1/180	1/150	
		1/250	1/215	

Main Menu	Sub Menu	Options		Descriptions
		1/350	1/300	
		1/500	1/425	
		1/725	1/600	
		1/1000	1/1000	
		1/1500	1/1250	
		1/2000	1/1750	
		1/3000	1/2500	
		1/4000	1/3500	
		1/6000	1/6000	
		1/10000	1/10000	
	Shutter	F14		IRIS value, see Exposure
		F11		
		F9.6		
		F8		
		F6.8		
		F5.6		
		F4.8		
		F4		
		F3.4		
		F2.8		
		F2.4		
		F2		
		F1.6		
		Close		
	Brightness	0-27, Step Size: 1		Brightness, see Basic image settings
	Escape			
Image Setting	Contrast	0 – 14; Step Size: 1		Contrast, see Basic image settings
	Brightness	0 – 14; Step Size: 1		Brightness, see Basic image settings
	Sharpness	0 – 11; Step Size: 1		Sharpness, see Basic image settings
	Gamma	0 – 4; Step Size: 1		Gamma, see Basic image settings
	2DNR	0 – 7; Step Size: 1		2DNR, see Basic image settings
	3DNR	0 – 7; Step Size: 1		3DNR, see Basic image settings

Main Menu	Sub Menu	Options	Descriptions
	DRC	0 – 5; Step Size: 1	DRC, see Basic image settings
	Mirror	Off	Mirror, see Advanced Image Settings
		On	
	Flip	Off	Image Flip
		On	
	Escape		
Camera Setting	Digital Zoom	Off	Digital Zoom ON/Off Switch
		On	
	Zoom Times	X1-x16, Step Size: 1	Digital Zoom Ratio
	Pan Reverse	Off	Turn on this Pan Reverse switch, and the camera's horizontal movement direction will be opposite to the joystick operation on the remote control.
		On	
	Tilt Reverse	Off	Turn on this Tilt Reverse switch, and the camera's vertical movement direction will be opposite to the joystick operation on the remote control.
		On	
	Escape		
Video Output	Video Output	1080p59.94	For output resolution, see Video Output
		1080p29.97	
		720p59.94	
		1080p60	
		1080p50	
		720p60	
		720p50	
		1080p30	
		1080p25	
	Escape		
Network Info	Net Mode	DHCP	For Network Mode, see Network
		Static IP	
	IP Address		For IP Address, see Network
	Net Mask		For Net Mask, see Network
	Gateway		For Gateway, see Network
	DNS1		

Main Menu	Sub Menu	Options	Descriptions
	DNS2		
	Escape		
	Confirm		Confirmation
Audio	Audio In	Line In	For Audio Input sources, see Audio
		External MIC	
	Escape		
System	Protocol Addr	1-7	Protocol Address
	Ir Addr	1-4	IR Address
	Protocol	VISCA	Protocol
		Pelco-D	
		Pelco-P	
	Baudrate	38400	Baudrate
		2400	
		4800	
		9600	
	Track Mode	Presenter	Presenter Mode
	Com Mode	RS-232 IN	For Communication Standard, see System
		RS-422 IN	
	Language	English	For Language, see System
		Traditional Chinese	
		Simplified Chinese	
	Firmware		For Firmware, see System
	Factory Default	Yes	Factory Default
		No	
	Escape		
Escape			

8. Web User Interface

The web based user interface allows you to set and control your PTC-155 devices. On any browser, enter the camera's IP address then hit the Enter key, after which you should be taken to the login page. The default login credentials are admin/admin. Please note that the password can be changed later.

Please note that in order to access the web UI, your PC needs to be connected to the camera via the DVIP interface. See ***Network Connection*** to connect.

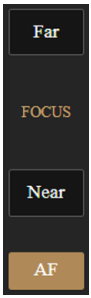
Camera Control

Once logged in to the web UI, you will be able to find the control panel shown below in ***Camera Setup*** and ***Tracking***.

The preview window is located on the left side of the control panel and allows you to preview the live image from the camera. Click the "L" button to rotate the preview screen to the left, click the "R" button to rotate the preview

screen to the right, and click the zoom button  to switch the preview screen to full screen

On the right half, you will find various camera control options described as follows:



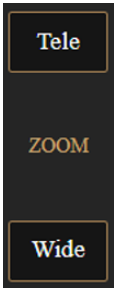
Focus

You can focus on objects at varying distances by adjusting its focal length to bring both near and far subjects into sharp focus. Click **Far** to focus on a far object and **Near** to focus on a near object.

You can also enable **Auto Focus** by clicking the **AF** button, allowing the camera to automatically set the focus on the center of the image.

Zoom

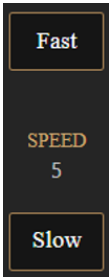
The zoom function adjusts the size of the image. Click Tele (telephoto lens) to zoom in on a subject from far away and Wide (wide-angled lens) to zoom out.



Pan and Tilt

Use the up/down arrows to tilt the camera head up and down and the left/right arrows to pan the camera head left and right. You can simply hover the mouse cursor over these arrow buttons.

Speed



Click the **Fast/Slow** buttons to increase/decrease the pan, tilt and zoom speed.

AT

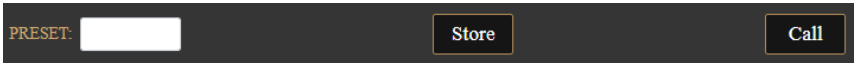
Click the **AT** button to enable auto-tracking. Auto-tracking detects motion of objects and use the PTZ to follow it. See ***Tracking*** for in-depth setup.

Home

Click the **Home** button to return the PTZ position to the default settings.

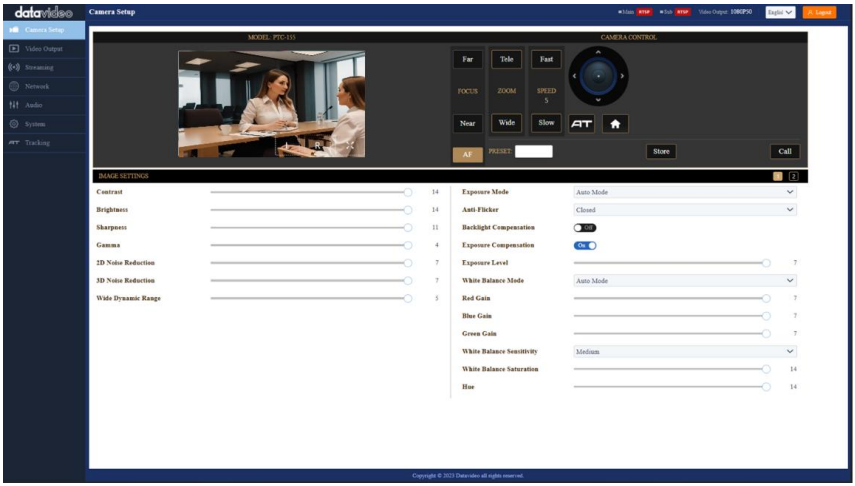
Presets

There are 255 memory presets where you can save the PTZ and focus settings to. First enter a preset number (0 – 254) in the **PRESET** textbox then click the **Store** button to save the current PTZ and focus settings to the selected preset position. To access a preset position, simply enter the number in the **PRESET** textbox then click the **Call** button.



Camera Setup

In Camera Setup, you will be able to find various settings for the camera video. These options will be described in detail in this section.



Basic Image Settings (Page 1)

Contrast

Adjust image contrast from 0 – 14.

Brightness

Adjust image brightness from 0 – 14.

Sharpness

Adjust image sharpness from 0 – 11.

Gamma

Gamma can be adjusted from 0 to 4.

2D NR

The adjustable range of 2D NR is 0–7.

3D NR

3D NR can be adjusted from 0 to 7.

DRC

DRC can be adjusted from 0 to 5.

Exposure (Page 1)

Exposure modes are listed as follows:

Auto Mode – Fully automatic settings for shutter speed and aperture with ability to adjust gain, dynamic range, backlight and anti-flicker.

Manual Mode – Full iris, shutter speed and range control

Shutter Priority– The camera will measure light and automatically set the aperture based on the selected shutter speed.

IRIS Priority– The camera will measure light and automatically set the shutter speed based on the selected iris opening (aperture).

Brightness Priority – Manual adjustment of the brightness level.

Please note that every exposure mode has different settings. The table below summarizes the correlated settings of all exposure modes.

	Auto Mode	Manual Mode	Shutter Priority	IRIS Priority	Brightness Priority
Anti Flicker	√				√
Backlight Compensation	√				
Exposure Compensation	√				
Exposure Level	√				
Gain		√			
Shutter Speed		√	√		
Iris Level		√		√	
Exposure Brightness					√

Anti-Flicker

To avoid video flicker, you can set your camera flicker frequency to **50 Hz** or **60 Hz**. Adjustable when **exposure mode** is set to **Auto** and **Brightness Priority**

Backlight Compensation

This is the Backlight Compensation Mode, which, when enabled, optimizes exposure for backlight.

Accessible when **Exposure Mode** is set to **Auto**.

Exposure Compensation

This is the **Exposure Compensation Mode**, which, when enabled, corrects brightness of an image whose exposure is already automatically adjusted.

Accessible when **Exposure Mode** is set to **Auto**.

Exposure Level

This option allows you to adjust the level of exposure compensation, which can be adjusted from -7 to +7. It can be adjusted when **exposure mode** is set to **Auto**.

Gain

The Gain can be adjusted from 0 to 14.

Accessible when **Exposure Mode** is set to **Manual**.

Shutter Speed

Please refer to your selected frame rate and choose the shutter speed from the drop-down menu.

Frame Rate	Shutter
25p	1/50、1/75、1/100、1/120、1/150、1/215、1/300、1/425、1/600、1/1000、1/1250、1/1750、1/2500、1/3500、1/6000、1/10000
30p	1/60、1/90、1/100、1/125、1/180、1/250、1/350、1/500、1/725、1/1000、1/1500、1/2000、1/3000、1/4000、1/6000、1/10000
50p	1/50、1/75、1/100、1/120、1/150、1/215、1/300、1/425、1/600、1/1000、1/1250、1/1750、1/2500、1/3500、1/6000、1/10000
60p	1/60、1/90、1/100、1/125、1/180、1/250、1/350、1/500、1/725、1/1000、1/1500、1/2000、1/3000、1/4000、1/6000、1/10000

Accessible when **Exposure Mode** is set to **Manual** and **Shutter Priority**.

IRIS Level

The Iris drop-down menu allows you to select the iris setting from the list below:

F1.6, F2, F2.4, F2.8, F3.4, F4, F4.8, F5.6, F6.8, F8, F9.6, F11.0, F14, Closed

Accessible when **Exposure Mode** is set to **Manual** and **IRIS Priority.**

Exposure Brightness
You can adjust the Exposure Brightness from the slider.

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27

Accessible when **Exposure Mode** is set to **Brightness Priority**.

White Balance (Page 1)

Auto: When Auto is chosen, you are allowing the camera to constantly read the tones in your scene and set the brightest part of your image as the white point. You will be allowed to fine tune red and blue gains in this mode.

Manual: In this mode, you will be allowed to manually set the camera's white balance by adjusting red, blue and green gains.

One-Key White Balance: One time auto white balance.

Color Temperature: Select Color Temperature if you would like to manually adjust color temperature.

Red Gain
The fine adjustment range for Red Gain is **-7 to 7 (in Auto White Balance Mode) or 0-255 (in Manual White Balance Mode)**.

Accessible when **White Balance** is set to **Auto** and **Manual**.

Blue Gain
The fine-tuning range for blue gain is **-7 to 7 (in Auto White Balance Mode) or 0-255 (in Manual White Balance Mode)**.

Accessible when **White Balance** is set to **Auto** and **Manual**.

Green Gain
The fine-tuning range for blue gain is **-7 to 7 (in Auto White Balance Mode).**

Accessible when **White Balance** is set to **Auto**.

White Balance Sensitivity

The white balance sensitivity can be adjusted to **low**, **medium** or **high**.

White Balance Saturation

The white balance saturation adjustment range is **0 to 14**.

Hue

The Hue adjustment range is **0 to 14**.

One-Key White Balance

When **One-Key White Balance mode** is selected, press the **One-push Trigger** button to trigger **One-Key White Balance mode.**

Color Temperature

Color temperature measures the physical property of light in Kelvin (K), ranging from 2800K to 6400K with a step size of 100. It varies between different light sources.

The following table is a rule-of-thumb guide to the correlated color temperature of some common light sources.

Color Temperature	Light Source
1000 – 2000 K	Candlelight
2500 – 3500 K	Tungsten Bulb (household variety)
3000 – 4000 K	Sunrise/Sunset (clear sky)
4000 – 5000 K	Fluorescent Lamps
5000 – 5500 K	Electronic Flash
5000 – 6500 K	Daylight with Clear Sky (sun overhead)
6500 – 8000 K	Moderately Overcast Sky
9000 – 10000 K	Shade or Heavily Overcast Sky

Accessible when **Color Temperature** is selected.

Advanced Image Settings (Page 2)

Mirror

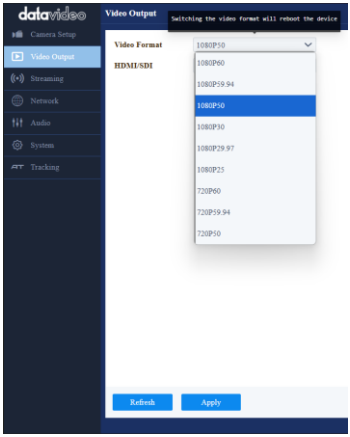
The Mirror function (Flip-H) flips the camera video image horizontally, and the Flip function (Flip-V) does it otherwise. You can turn either or both of them on. Select the right combination from the drop-down menu.

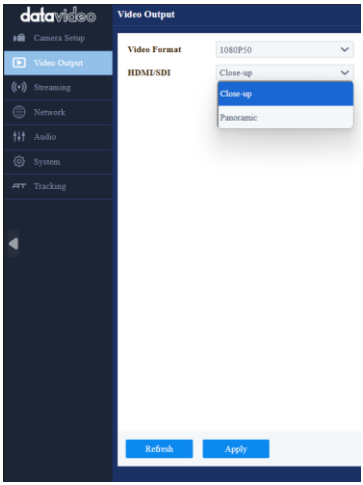
- Close
- Mirror
- Flip
- Mirror & Flip

Video Output

The video output interface is shown in the image below. You can select your desired resolution from the **Video Format** dropdown menu. Then, choose either the **panoramic view (captured by the panoramic camera on the PTC-155 base**) or the **close-up view (captured by the PTC-155 PTZ main camera**) from the **HDMI/SDI** dropdown menu. Click the "**Apply**" button and re-login to the Web UI to output the selected panoramic or close-up view to the connected external monitor.

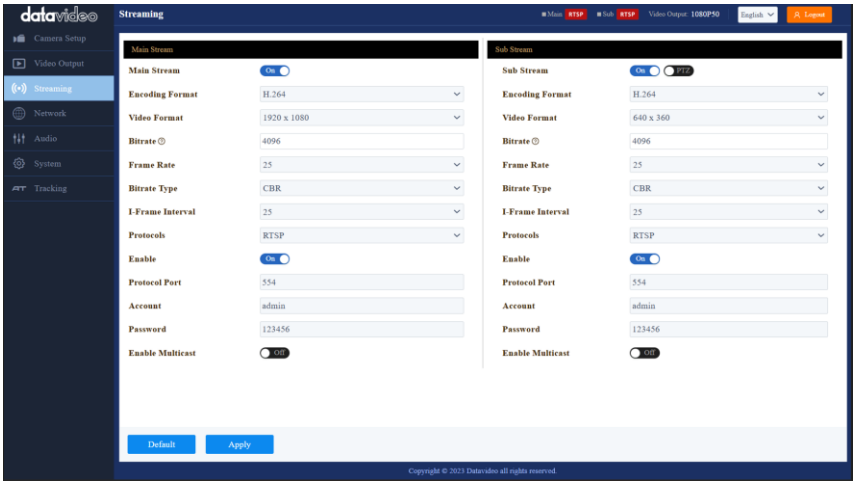
Please note that once you select either the panoramic or close-up view, both the HDMI and SDI ports of the camera will simultaneously display the same selected view.





Stream

In this section, we will first show you all common streaming setup options then the settings specific to the respective streaming protocols.



Main Stream Switch

Click On to enable or stop the main stream.

Sub Stream Switch

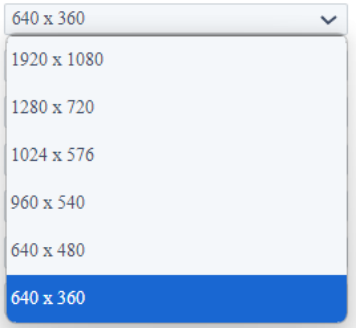
Click On to enable or disable the sub stream. Click PTZ again to switch between the panoramic or close-up view captured by the camera.

Encoding Format

First select either the H.264 or H.265 video codec after you've turned on the streaming server (main or sub).

If you're working with high-resolution video formats such as 4K and 8K, H.265 is the better choice due to its improved compression efficiency. However, if you're working with older devices or platforms that may not support H.265, or if you're streaming video over a limited bandwidth connection, H.264 may be the better option.

Video Format



Adjusting the image size is a critical step of encoder setup. It is best to either match your original video source or scale it down. For example, capture at HD 720 and stream at HD 720. Or capture at 4K 2160 and stream at Full HD 1080.

You should never be scaling up and streaming at a higher resolution than your original video source. For example, it does not make sense to capture at 720 and stream at 1080. Note that you will also have no gain in quality and you are using more bandwidth than is necessary for your viewers.

You should also be aware that higher resolutions require greater processing power to encode the stream. Attempting too high of a resolution on too little processing power can result in degraded image quality and corrupted or interrupted streams or recordings.

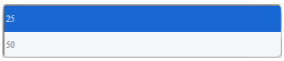
Bitrate

Enter the desired video bitrate for your video stream. The recommended video bitrates to use are listed as follows:

- 4,500 to 6,000 kbps for full HD videos with a high frame rate (1080p, 60fps)
- 3,500 to 5,000 kbps for full HD videos with a standard frame rate (1080p, 30fps)

- 3,500 to 5,000 kbps for HD videos with a high frame rate (720p, 60fps)
- 2,500 to 4,000 kbps for HD videos with a standard frame rate (720p, 30fps)

Frame Rate



Select a frame rate from the drop-down menu for video streaming. Note that frame rates should always match the frame rate of the video source.

Bitrate Type

There are two different bitrate types: CBR (constant) and VBR (variable). CBR is best for live streaming encoding and VBR is best for on-demand videos.

I-Frame Interval

The I-frame interval in video encoding determines how often complete frames, called keyframes, are inserted into a video sequence. For live stream, a two-second I-frame interval is optimal, so if your frame rate is 30 fps, the I-frame interval would be every 60 frames.

Note: A short I-frame interval can result in stuttered playback.

Protocols

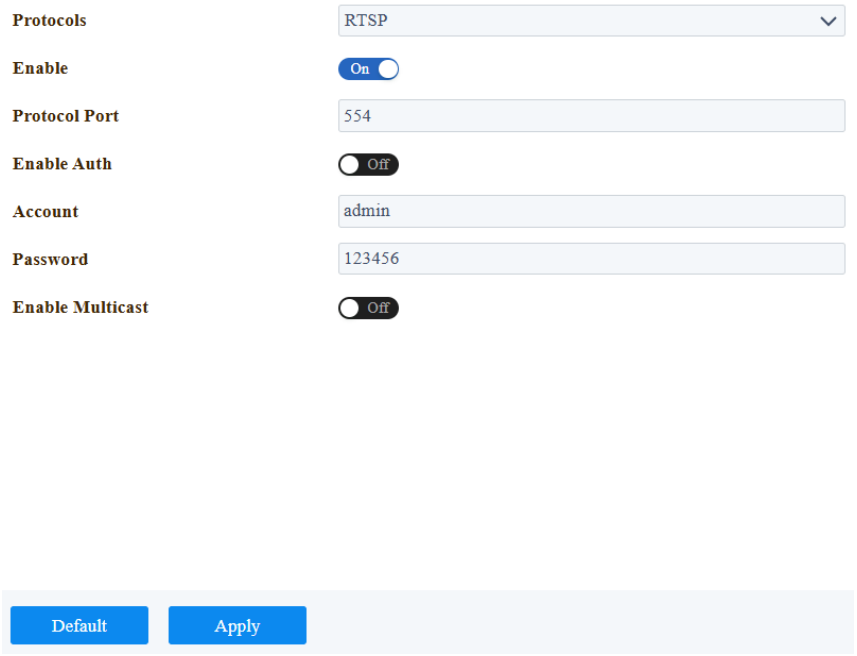
Each streaming server offers the user multiple stream types. There are **RTSP**, **RTMP(S)**, **SRT, NDI** and **ONVIF**.

Please note that when streaming, the server converts video into data, which are sent across an IP network. High bitrates consume more bandwidth across the IP network. In a gigabit office LAN, high bitrates may not be a concern and Speed/Bandwidth is therefore not a limitation.

If your available bandwidth is limited, you should reduce both your resolution and your bitrate accordingly. A good rule of thumb is for the bitrate of your stream to use no more than 50% of your available upload bandwidth capacity on a dedicated line. For example, if the result you get from a speed test shows that you have 20Mbps of upload speed available, your combined audio and video bitrate should not exceed 10Mbps.

RTSP

RTSP (Real-Time Streaming Protocol) is a network protocol designed to transfer video over a network or to the internet with an easy-to-use link.

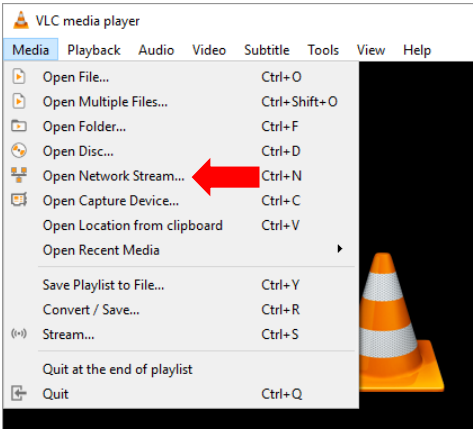


Enable: Click this switch to enable or disable the RTSP streaming protocol.
Protocol Port: The default RTSP port number is 554.

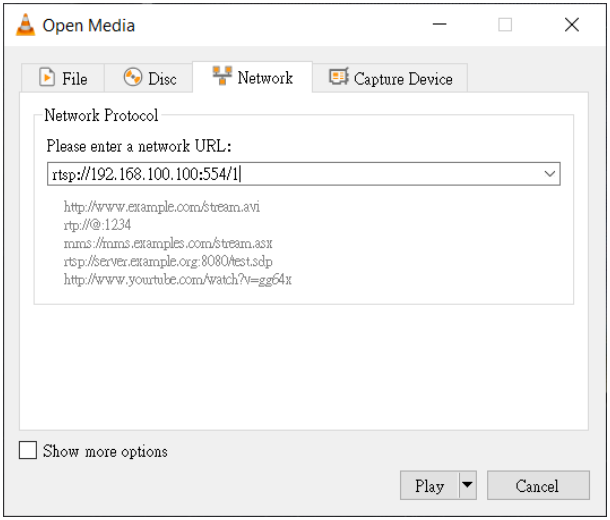
Enable Auth: When authentication is enabled, playing the RTSP stream requires entering the RTSP stream username and password on the player side, such as VLC Player, to successfully view the RTSP stream. The default “Account” is **admin**, and the default “Password” is **123456**.

Account: Enter your RTSP streaming account in this field. The default is "admin."
Password: Enter your RTSP streaming password in this field. The default is "123456."
Enable Multicast: Click this switch to enable or disable multicast.
Press the "**Apply**" button to save the selected settings, or press the "**Default**" button to restore factory default settings.

It is recommended to use VLC media player to view an RTSP live stream. Open VLC on your PC, then click "**Media**" → "**Open Network Stream**".

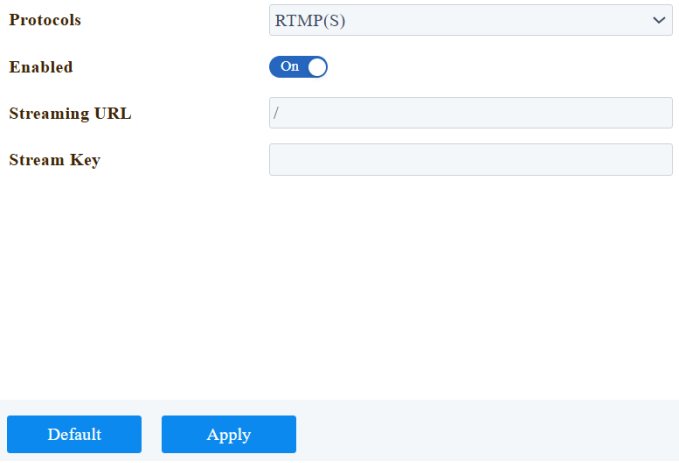


On the window that opens, enter **rtsp://IP address:554/channel number** as shown in the diagram below then click **Play** to start viewing.



RTMP(S)

Real-Time Messaging Protocol (RTMP) is a communication protocol for streaming audio, video and data over the Internet. Use the guide in this section to learn about streaming live media and publishing streams.



After selecting the “RTMP(S)” protocol in the “Protocol” drop-down menu, you will see the following options:

Enabled switch: Click to enable/disable the RTMP(S) stream, and then press the “Apply” button to enable/disable the RTMP(S) stream.

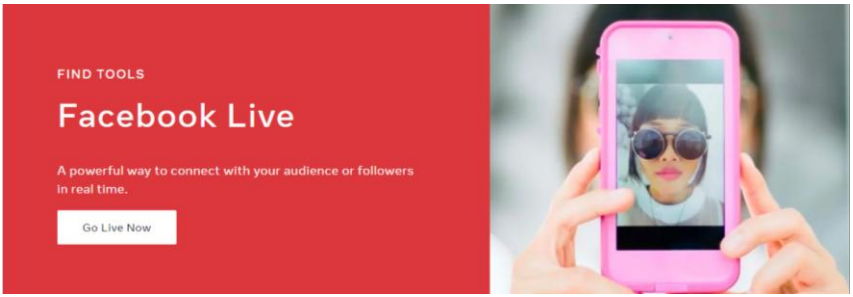
Stream URL: Enter the RTMP link, i.e. the link for publishing the camera image, in the text box. You can obtain this link (Server URL) from the live streaming platform.

Stream key: Enter the stream key (Stream Name) you obtained from the streaming platform in this field.

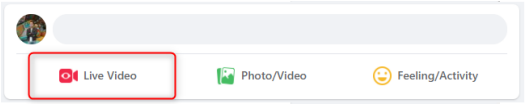
See the examples below to set up an **RTMP(S)** stream to **Facebook** and **Youtube**. Please note that Facebook Live limits each stream to 8 hours.

Facebook

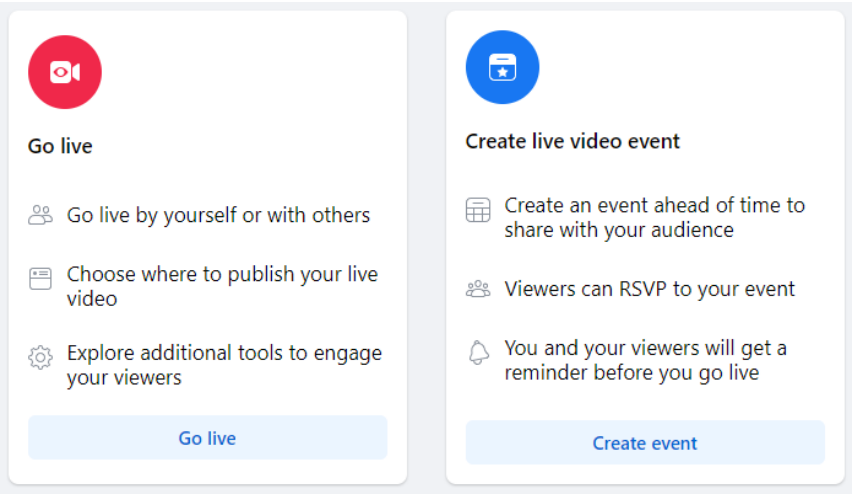
1. Open Facebook Live by clicking the link below then click “Go Live Now”.
https://www.facebook.com/formedia/solutions/facebook-live



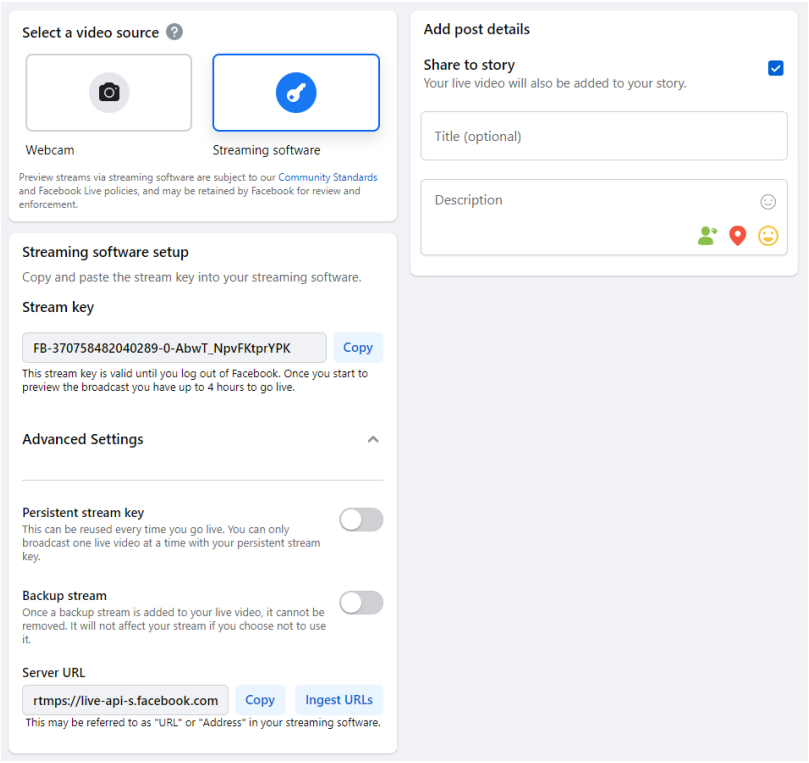
Please note that you can also link to Facebook Live from your Facebook Personal Page or Facebook Fan Page by clicking “Live Video” as depicted on the right.



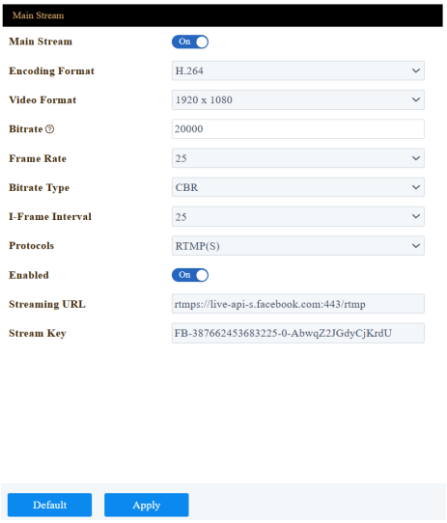
2. Select “Go live”.



3. Select “Streaming software” where you will be able to find the server URL and the stream key. If you’d like, you can also enter the title and descriptions about this live stream.



4. Go back to the camera's web UI and as depicted in the diagram on the right, Enter "Server URL" in the Streaming URL textbox and then enter "Stream Key" in the Stream Key textbox. In this example, we use the link retrieved at step 3, which is **rtmps://live-api-s.facebook.com:443/rtmp/FB-387662453683225-0-AbwqZ2JGdyCjKrdU**.

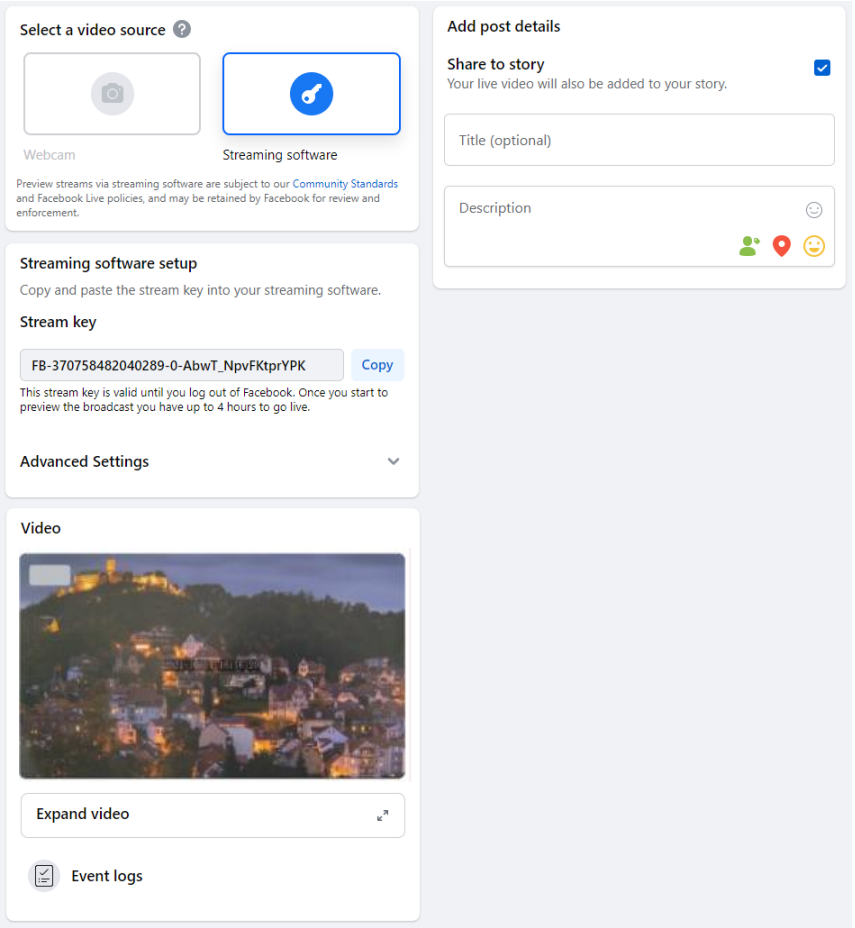


5. Click the **Apply** button to activate the RTMP video stream. Make sure both audio and video are enabled.

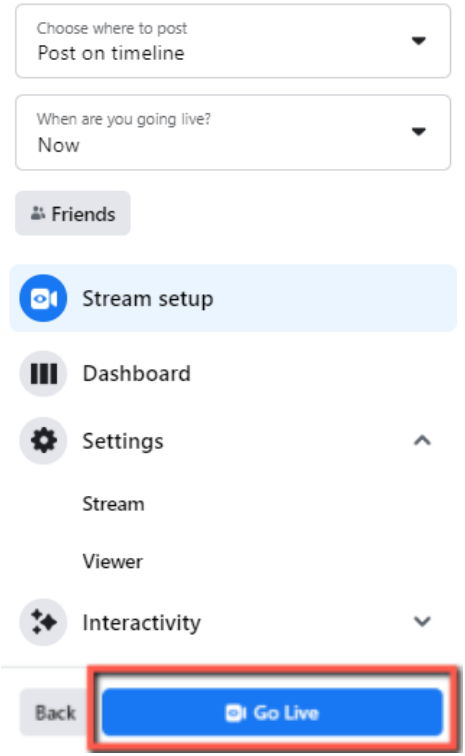
The RTMP video stream is successfully activated when you see “apply success” appear at the bottom of the UI.

At the top right corner of the web UI, you should see that the main stream channel is now switched to RTMP(S) mode.

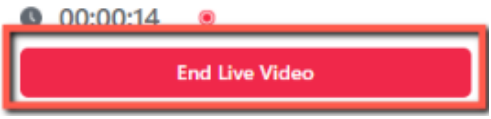
6. As shown in the diagram below, you can also preview the live camera video on Facebook Live.



7. Before you activate the live stream on Facebook, on the left pane of Facebook Live, choose where and when you want to post your live video as well as the audience. Lastly, click the “Go live” button to start livestreaming of your camera video on Facebook.



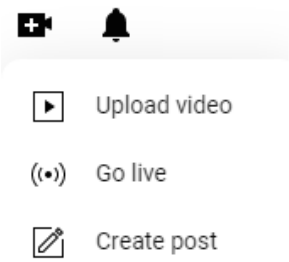
8. To end the live stream, simply click “End Live Video”.



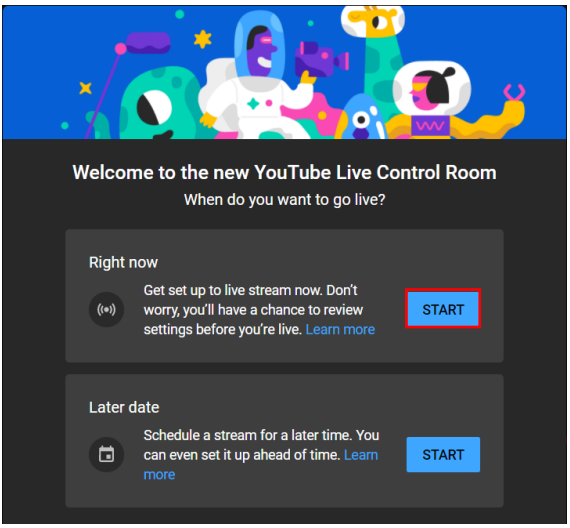
Youtube

1. Open the Youtube Live Control Room by clicking the link below:
   https://www.youtube.com/live_dashboard

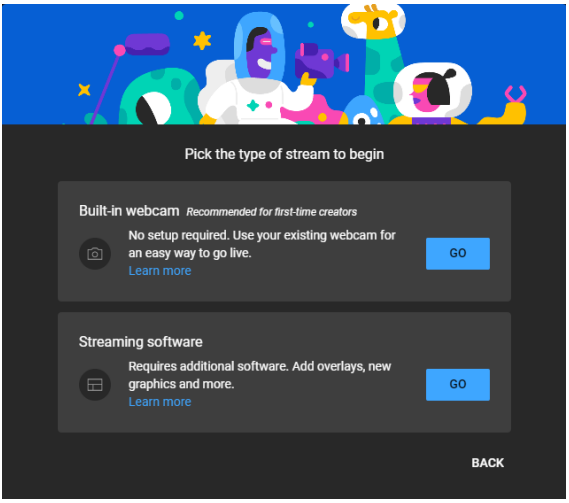
   Alternatively, log in to your Youtube account, locate and click the camera icon at the top right corner, then select “Go live”.



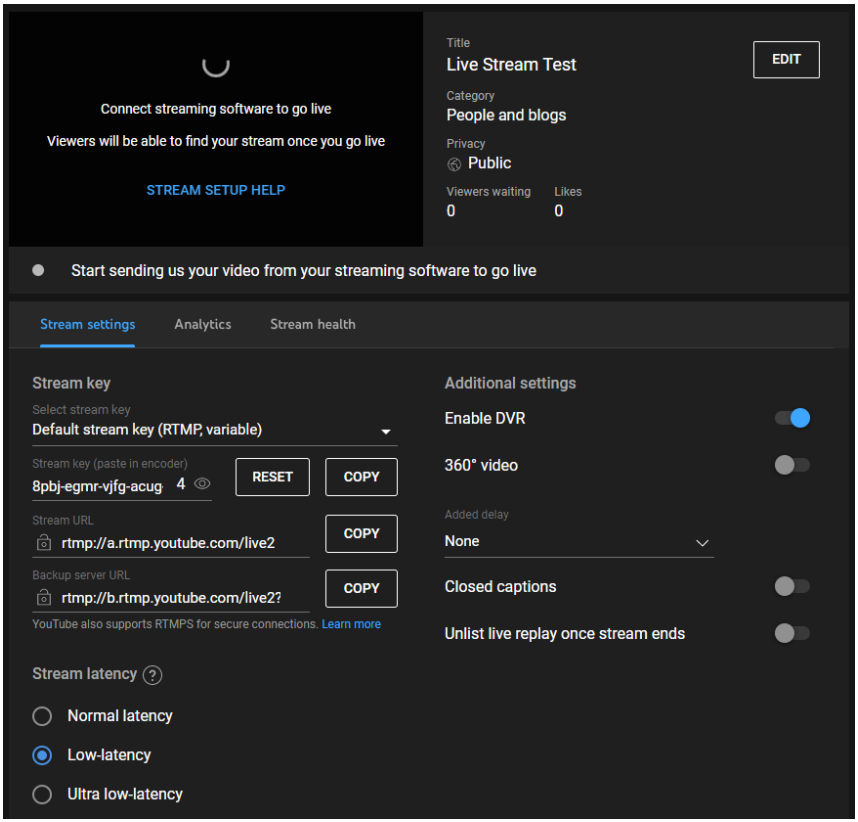
2. If this is your first time using **Youtube Live Control Room**, select "**Right Now**" on the pop-up prompt.



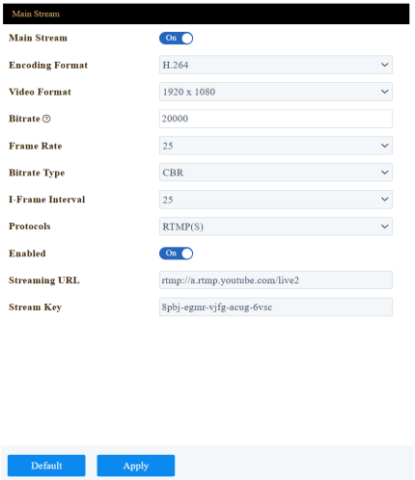
3. Select **Streaming Software**.



4. You will be able to find the server URL and the stream key in **Stream settings** pane of the Youtube Live Control Room. If you'd like, you can also click **Edit** to modify the stream information such as title and descriptions.



5. Please go back to the Web UI of the camera which is shown as the right diagram. Enter “Stream URL” in the Stream Address textbox and then enter “Stream Key” in the Stream Key textbox. This example uses the link obtained in step 4, i.e. **rtmp://a.rtmp.youtube.com/live2/8pbj-egmr-vjfg-acug-6vsc**

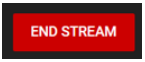


6. Click the **Apply** button to activate the RTMP video stream. Make sure both audio and video are enabled.

The RTMP video stream is successfully activated when you see “Apply Success” appear at the bottom of the UI.

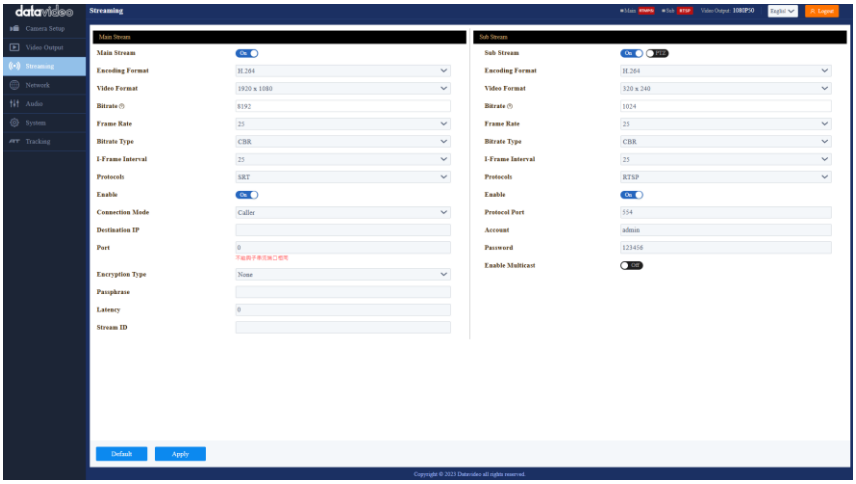
At the top right corner of the web UI, you should see that the main stream channel is now switched to RTMP(S) mode.

7. To end the live stream, simply click “**END STREAM**” which can be found at the top right corner of the Youtube Live Control Room.



SRT

Read this section to learn how to establish a link between SRT source and destination devices.



Caller and listener modes work together to establish the SRT link between source and destination devices. It is arbitrary to set one device to listener mode and the other to caller mode. Either can be the source device.

Common SRT parameters are described as follows:

Destination IP: If you select Caller mode, this field allows you to enter the IP address of the connected device (i.e., PTC-155).

Port: Range is 1024 to 65535; default is 9000.

Encryption Type: Options are 128/192/256 bit end-to-end AES encryptions to ensure that content is protected during streaming.

Passphrase: Enter a passphrase of 10 to 30 characters.

Please note that your stream is not encrypted by default. The encryption and the passphrase must be the same at both sender and receiver ends.

Latency: This sets the maximum buffer size for managing SRT packets; the value ranges from 20 to 8,000 ms. The default is 120 ms.

Stream ID: Enter a name for your video stream.

If Caller is selected, enter the IP address of the destination device (decoder) in the **Destination IP** field. If your SRT stream destination is a CDN or media server, the IP address and the port number should be provided by the service provider.

If Listener is selected, **FEC**, also known as forward error correction, will be provided. It is a technique used for packet loss recovery. Select an FEC rate from the drop-down menu.

In the next two sections, we will show you how to establish an SRT link between the PTC-155 and a PC.

Install the vMix Software

Download and install the vMix software: https://www.vmix.com/

SRT Stream Setup on PTC-155 and vMix

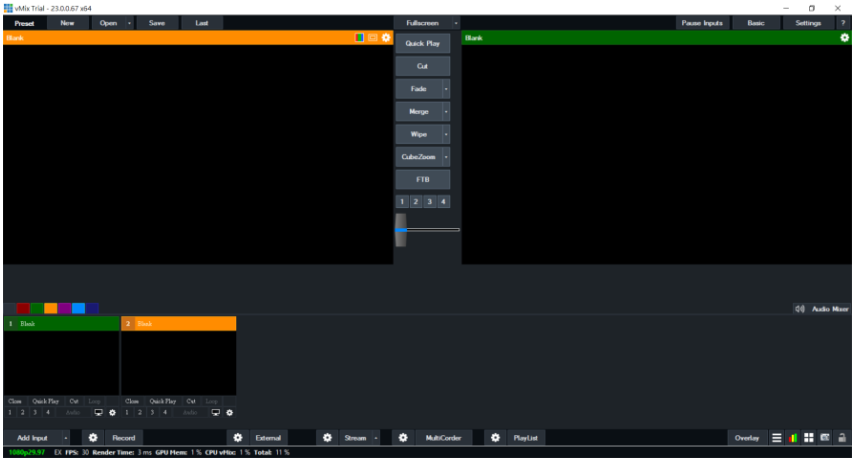
The PTC-155/vMIX connection is bidirectional. Regardless of the caller-listener setup, either end can be the camera video source.

PTC-155 set to the Listener Mode

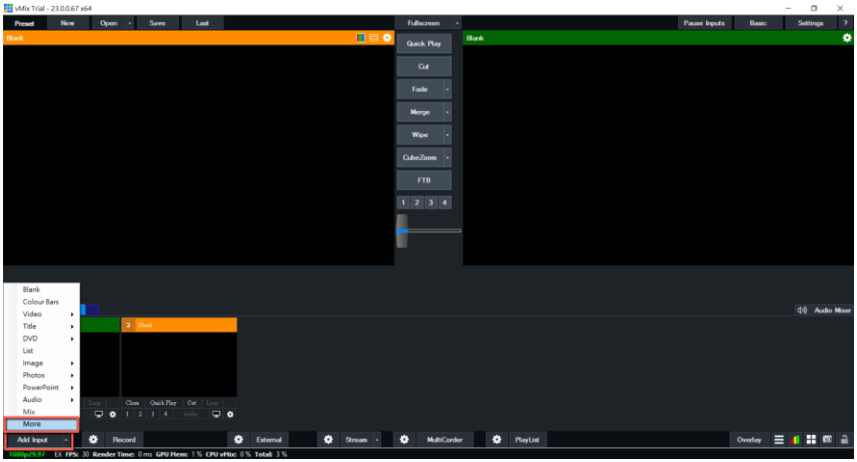
Open the web UI of the PTC-155 then the **Stream** page. Select **SRT** from the **Protocols** pull-down menu then set **Connection Mode** to **Listener**. Use the default **SRT port** (9000). If necessary, you can set up **Encryption Type** and a 10 digit **passphrase** for an SRT stream.

Lastly, click the **Apply** button to activate the SRT stream.

On the PC or laptop where the vMIX is installed, click Start Menu → vMix(x64) and you should see the interface below after the vMIX is opened.

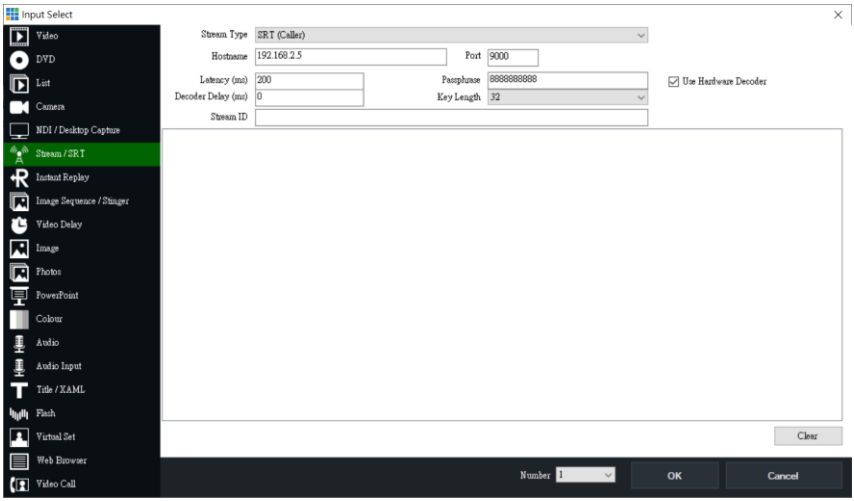


Click “Add Input” then “More”.

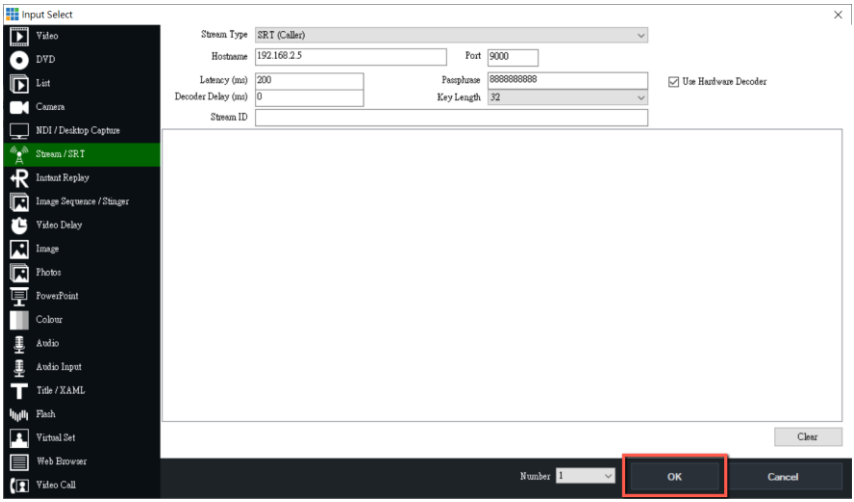


On the Input Select window, click “Stream/SRT” then select “SRT Caller” from the “Stream Type” drop-down menu. After that, enter the following into the respective fields.

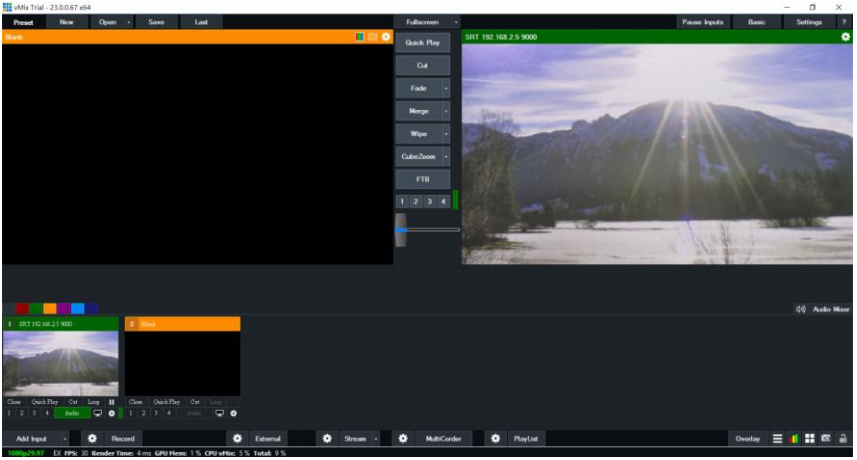
- Hostname: 192.168.1.198 (The IP address of your connected device. In this case, it is the PTC-155)
- Port: 9000
- Passphrase: 1234567890 (The password set previously on the PTC-155’s Web UI)
- Key length: 32



Click the “OK” button.



The PTC-155 camera video is now successfully streamed to the vMix via SRT.



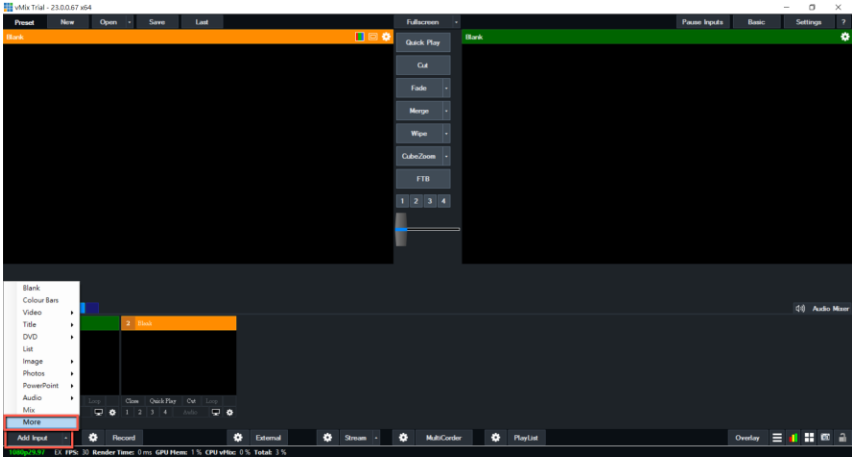
PTC-155 set to the Caller Mode

Open the web UI of the PTC-155 then the **Stream** page. Select **SRT** from the **Protocols** pull-down menu then set **Connection mode** to **Caller**. Enter the IP address of the PC/laptop on which the vMIX is installed. Use the default **SRT port** (9000). If necessary, you can set up **Encryption Type** and a 10 digit **passphrase** for an SRT stream.

Lastly, click the **Apply** button to activate the SRT stream.

On the PC or laptop where the vMIX is installed, click Start Menu → vMix(x64) and you should see the interface below after the vMIX is opened.

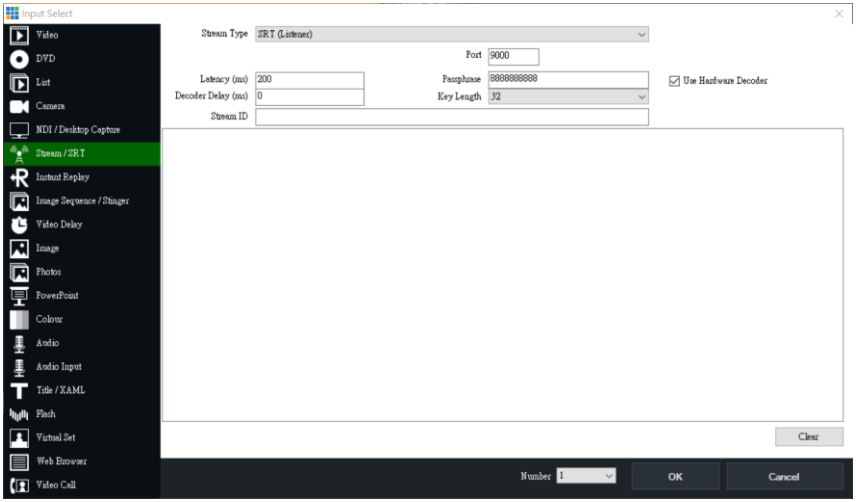
Click “Add Input” then “More”.



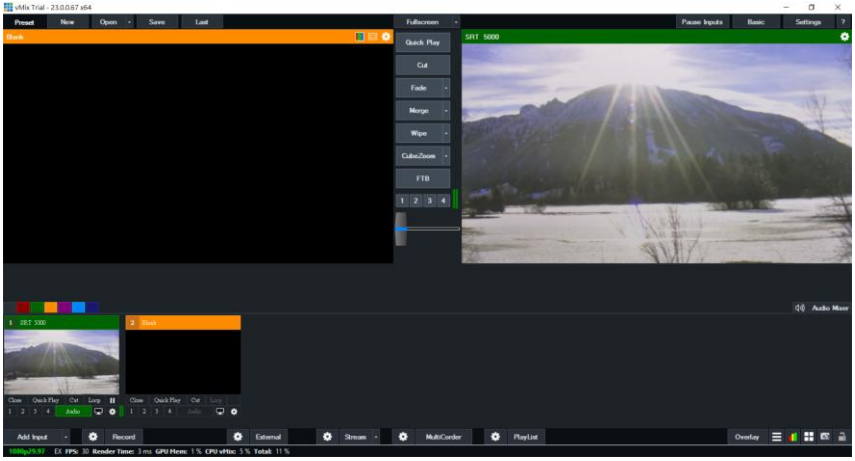
On the Input Select window, click “Stream/SRT” then select “SRT Listener” from the “Stream Type” drop-down menu. After that, enter the following into the respective fields.

- Port: 9000
- Passphrase: 1234567890 (Password for Stream Encryption)
- Key length: 32

Click the “OK” button.

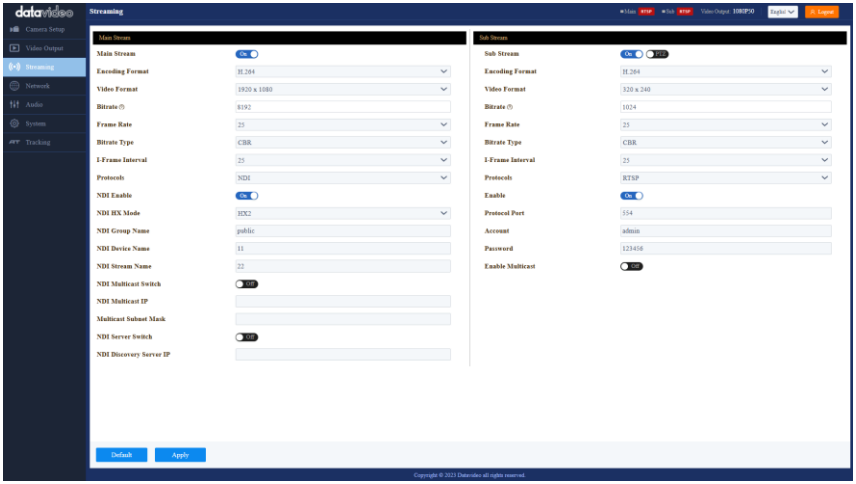


The PTC-155 camera video is now successfully streamed to the vMix via SRT.



NDI (NDI-Enabled Cameras Only)

NDI is a network protocol that enables real-time bi-directional delivery of audio and video over standard networks.



NDI Enable

Please tap this switch to turn on or turn off the NDI function.

NDI HX Mode

The NDI HX Mode pull-down menu allows you to select a compression option. The options are listed as follows:

- HX2
- HX3

NDI Group Name

Use an NDI Group Name for security and organization purposes so that unauthorized users on the network will not be able to access the camera. If you would like to assign your PTC-155 to an NDI group, enter the name of the group in the textbox. The default name is public.

NDI Device Name

If there are multiple NDI devices connected to the local network, you can name your PTC-155 device for easy identification. The default name is 155.

NDI Stream Name

This is the Stream Name for the NDI streaming.

NDI Multicast Switch

If you want the PTC-155 to join a multicast group, set this option to On.

NDI Multicast IP

Enter a multicast IP address in the text box.

Multicast Subnet Mask

Enter the multicast subnet mask in the text box.

NDI Server Switch

An NDI Discovery server operates as a centralized registry of NDI sources. Set this option to ON if you would like to connect to one.

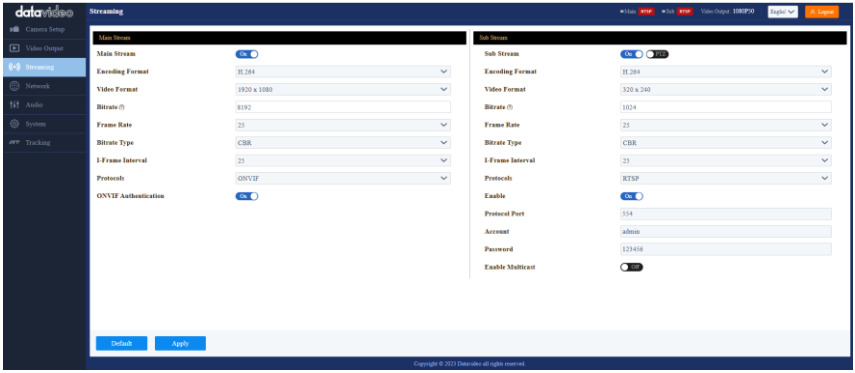
NDI Discovery Server IP

Enter the NDI Discovery Server IP address in the text box.

ONVIF

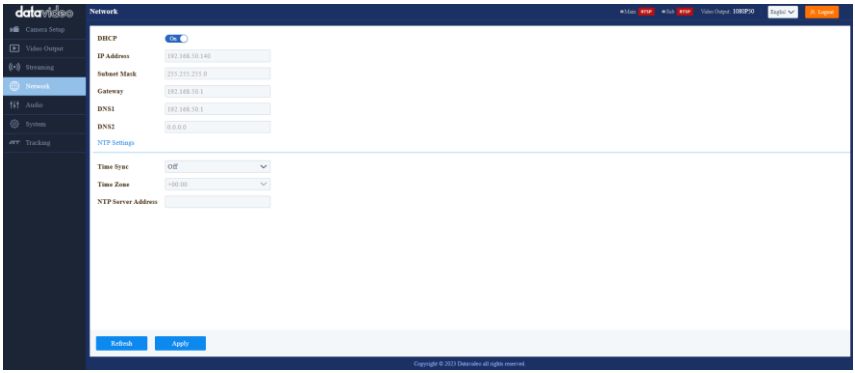
Enable ONVIF (Open Network Video Interface Forum) to make your PTC-155 ONVIF compliant in order to allow interoperability with devices from other manufacturers.

Note: All ONVIF-enabled devices need to be connected to the same network.



Network

The PTC-155 uses DHCP to obtain an IP address over an Ethernet-based network by default. You can also configure the device to use a static IP address. In this section, we will show you how.



Network Settings

First turn DHCP off then fill in the following fields.

IP Address: Enter a static IP address.
Subnet Mask: Also known as the subnet mask.
Gateway: Enter a gateway IP.

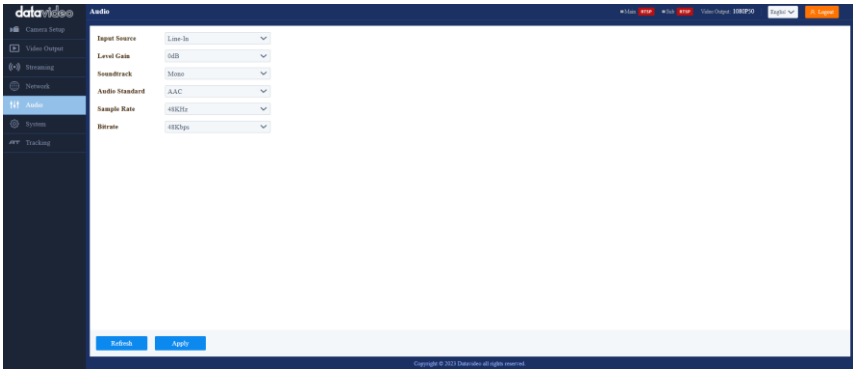
You can also enter IP addresses of the DNS1 and DNS2 servers. They are however optional. The device's MAC address is shown below.

NTP Settings

NTP settings are configured manually. First select a time zone from the Time Zone drop-down menu then enter the domain name of your NTP server. The default NTP server is time.google.com.

Audio

You can connect an audio source to the PTC-155. Configure the MIC IN/LINE IN port on the Audio page.



Audio Input

Select between Line IN and MIC IN.

Level Gain

You can select the desired Audio Gain from the drop-down menu, with a choice of -6dB, 0dB, and 6dB.

Soundtrack

Set the audio output to Mono or Stereo.

Please note, if Mono is selected, then for a stereo audio source, the left audio channel will be replicated onto the right audio channel. On the contrary, if the audio source is mono, only the left audio channel can be heard.

Audio Standard

The default audio standard is AAC.

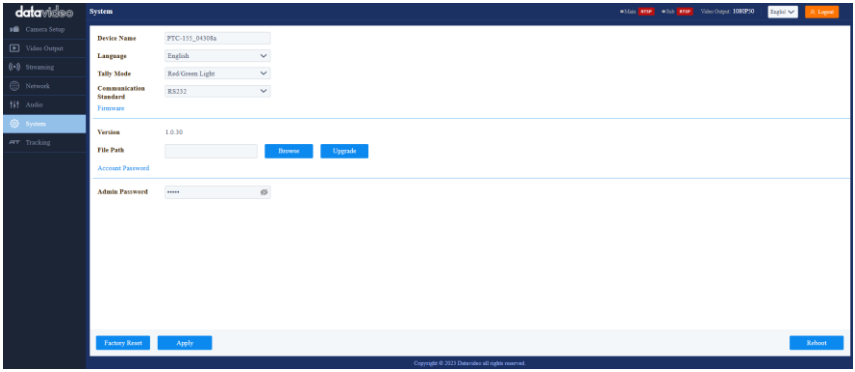
Sample Rate

You can set the input audio sample rate to 48 kHz.

Bitrate

Select a bitrate (48K, 64K, 96K and 128K) for your audio input.

System



General

Device Name

Enter a name for your camera.

Language

Select a preferred language for the web UI.

Tally Mode

Enable the tally light by selecting either green or red. You can also select dual color mode (Red/Green). To disable the tally light, simply select OFF.

Red: The red tally light indicates that the camera is live (enabled for the program channel) and currently being used for the broadcast. It signals to the camera operator and talent that they are actively being recorded or broadcasted.

Green: The green tally light signifies that the camera is on standby (enabled for the preview channel). It indicates to the camera operator and talent that the camera will be the next in use for the broadcast.

Communication Standard

You can select RS-232 or RS-422 to be the way for remote controlling from the drop-down menu.

Firmware

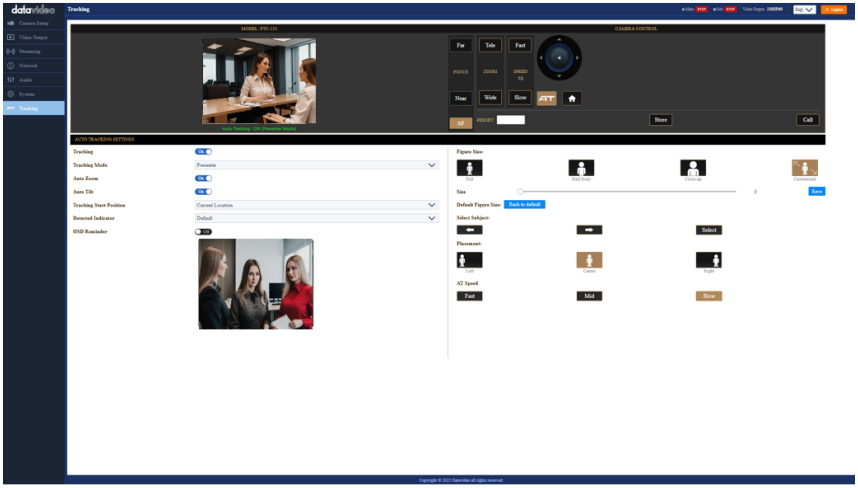
The current version of firmware installed will be shown here. To update the firmware, click the **Browse** button to search for the latest firmware file saved on the PC's hard disk. Click the **Update** button after the file is uploaded.

Account Password

View and change the current password here.

Tracking

Configure the auto-tracking function on this page.



Tracking

Please tap this option to turn on or turn off the Auto-Tracking function.

Tracking Mode

The default tracking mode is the Presenter Mode, the PTC-155 will start tracking as soon as a presenter is on the stage or in the camera view and stops when the presenter leaves the stage.

Auto Zoom

Enable auto zoom so that the camera zooms in/out automatically when the presenter is tracked.

Auto Tilt

Enable auto tilt so that the camera tilts automatically when the presenter is tracked.

Tracking Start Position

This option allows you to select the auto-tracking start position for the PTC-155.

Please choose from the dropdown menu between the current position or a preset location (Preset1–Preset254).

Detected Indicator

This detection indicator light option allows a red tracking frame to appear around the detected face when the PTC-155's auto-tracking function is enabled and the wide-angle panoramic camera at the bottom front detects a tracked person's face.

Please note that the tracking frame will only appear in the wide-angle panoramic camera preview window under AT Tracking > OSD Reminder Toggle in the PTC-155 Web UI.

You can choose from three options in the drop-down menu: Default, On, and Off.

- If Default or On is selected, a red frame will appear in the wide-angle panoramic camera preview window when a face is detected.
- If Off is selected, the red frame will not appear even when a face is detected.

OSD Reminder

When OSD reminder is enabled, you will see the following message prompt when auto-tracking is turned ON.

Panoramic preview window

The panoramic preview window is located below the OSD Reminder. This panoramic preview window displays the panoramic view captured by the panoramic lens at the front of the base of the PTC-155 camera. Once the

tracked target is within the view captured by this panoramic lens, it will not be lost by the tracking lens.

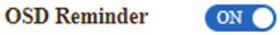


Figure Size

You can track **full body**, **half body** or **close-up** of the presenter.

Select **Customized** if you would like to customize the tracking profile. Use the **Size** slider to adjust between 0 and 300. Use a smaller value if you would like track a closer view and use a larger value otherwise. Click the **Save** button to confirm.

To reset, simply click the **Back to default** button.

Select Subject

When there are multiple targets, you can use the right and left arrow keys to switch between them. Click the **Select** button to confirm selection of the target.

Placement

As shown in the diagram below, you can keep the target to the left, in the center or to the right of the image while the camera tracks it.

Placement:


Left


Center


Right

AT Speed

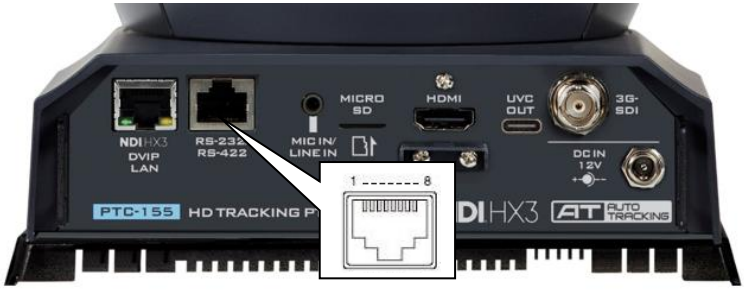
You can set the auto-tracking speed to **slow**, **medium (mid)** or **fast**.

9. Remote Control

In addition to using the Ethernet port for remote control, you can also connect external controllers to the PTC-155 via the RS-232/RS-422 interface or Wi-Fi.

RS-232/RS-422

You can connect your PC or any keyboard controllers to the RS-232/RS-422 remote port to control your PTC-155. Use an Ethernet cable and make your own cable using the pinout information provided in this section.

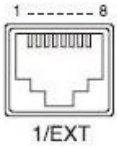


The RS-422 pinouts are shown below.

RMC-180 Controller (RJ-45 Port)				PTC-155 Camera (RS-422 Port)		
GND	1	White/Orange	GND	White/Orange	1	GND
NC	2	Orange		Orange	2	NC
TX-	3	White/Green	→	White/Green	3	RX-
RX-	4	Blue	←	Blue	4	TX-
RX+	5	White/Blue	←	White/Blue	5	TX+
TX+	6	Green	→	Green	6	RX+
NC	7	White/Brown		White/Brown	7	NC
NC	8	Brown		Brown	8	NC
1 ------- 8 1/EXT				1 ------- 8 1/EXT		

The RS-232 pinouts are shown below.

PTC-155 Camera (RS-232 Port)		
GND	1	White/Orange
NC	2	Orange
NC	3	White/Green
NC	4	Blue
TX	5	White/Blue
RX	6	Green
NC	7	White/Brown
NC	8	Brown



Firmware Update

Datavideo usually releases new firmware containing new features or reported bug fixes from time to time. Customers can either download the firmware as they wish or contact their local dealer or reseller for assistance.

This section outlines the firmware upgrade process which should take ***approximately few minutes to complete***.

The existing settings should persist through the *firmware upgrade process, which should not be interrupted once started* as this could result in a non-responsive unit.

Ethernet Port

The DVIP port allows you to update the firmware from a remote location. You should connect the PTC-155 and your PC to a DHCP server. In the procedure outlined below, we assume you will be connecting in DHCP mode.

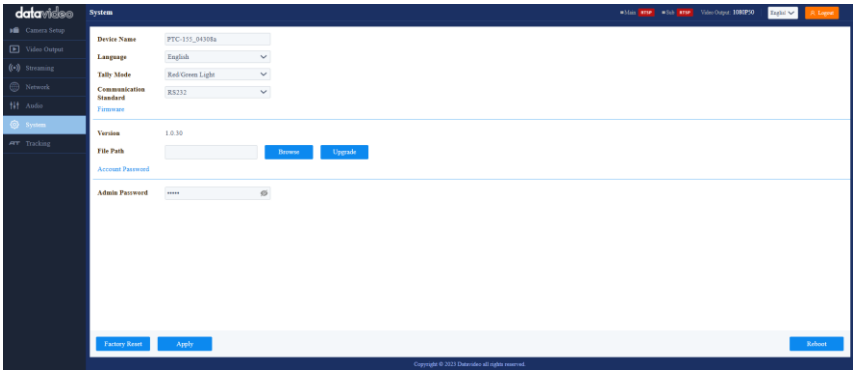
You can establish direct connection if you are using a static IP address.

Requirements

- PTC-155 Unit
- A PC/Laptop
- Latest firmware downloaded from https://www.datavideo.com/product/PTC-155
- Ethernet Cables and a router if the camera is set to DHCP

Procedure

1. With Ethernet cables, establish connection between the PTC-155 and a PC/Notebook via a router.
   Note: The PTC-155's default connection mode is DHCP.
2. Unzip the downloaded file in which you should find the latest firmware file.
3. Open a web browser and enter the camera's IP address in the address bar.
4. On the web user interface that opens, click **System** then locate **Firmware** where the current version of firmware installed will be shown here.



5. To update the firmware, click the **Browse** button to search for the latest firmware file saved on the PC's hard disk.
6. Click the **Update** button after the file is uploaded.

10. Frequently-Asked Questions

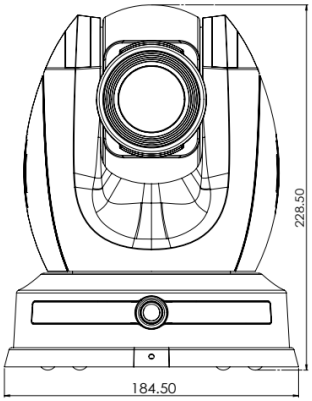
This section describes problems that you may encounter while using PTC-155. If you have any questions, please refer to related sections and follow all suggested solutions. If problem still exists, please contact your distributor or the service center.

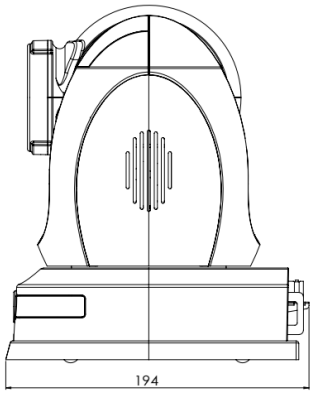
No.	Problems	Solutions
1.	What are important points for product maintenance?	1. If the camera will not be used for a long time, please unplug the 12V DC power plug, and remove AC power adapter from AC outlet. 2. Use soft cloth or tissue to clean the camera. 3. After washing the camera lens, dry it with a soft dry cloth. Use a neutral detergent rather than acidic or corrosive detergents to clean the lens.
2.	There is no output video.	1. Check that your power is properly connected. This is indicated by the power LED. 2. Make sure the camera is switched ON with no issues. 3. Check your video cable connection.
3.	I have seen image jitter while zooming in or out.	1. Make sure the camera is properly mounted. 2. Make sure that machines that could cause vibration are not in proximity of the camera.
4.	The camera's web UI cannot be opened using the IE browser.	Microsoft permanently disabled the Internet Explorer browser. Use other browsers such as Google Chrome, Safari and Microsoft Edge.
5.	The remote control is not working.	1. Try setting the camera to CAM1 and try again. 2. Make sure the remote control's battery is fully charged. 3. Check your device working mode. 4. Make sure the OSD menu is closed.
6.	The serial port is not working properly.	1. Make sure your baud rate and device address are correct. 2. Check your device working mode.

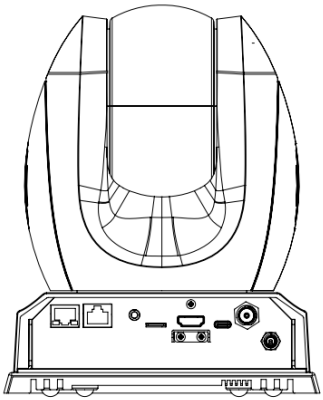
		3. Make sure the OSD menu is closed as the serial port is disabled if the OSD menu is active.
7.	I cannot log in to the Web UI.	1. Check your Ethernet connection. 2. Check your network settings such as IP address.
8.	How can I fix the random flickering on the Web UI preview screen?	Please update your web browser to the latest version.

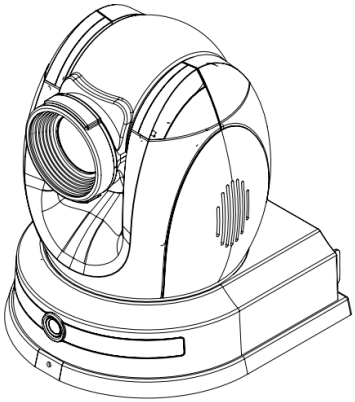
11. Dimensions

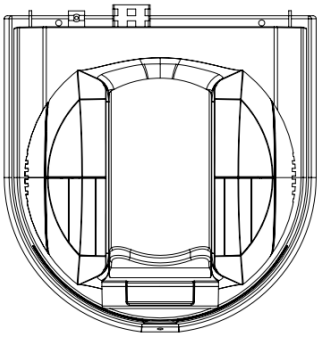
Unit: mm











12. Specifications

Camera Parameters	
Product Name	HD 30X Tracking PTZ Camera
Video Format	1080p60/59.94/50/30/29.97/25 720p60/59.94/50
Image Sensor	1/2.8" CMOS
Effective Pixels (approx.)	2.14 Mega Pixels
S/N Ratio	≥50dB
Min. Illumination	0.5 Lux @ (F1.8, AGC ON)
Electronic Shutter	1/25s ~ 1/10000s
Zoom Ratio	30x Optical Zoom 16x Digital Zoom
Effective Zoom Ratio	27.35x
Gamma	N/A
Iris Control	Auto / Manual
Digital Noise Reductions	2D/3D
On-Screen Display (OSD)	English Simplified Chinese Traditional Chinese
White Balance	Auto OnePush Manual Color Temperature
AGC / Gain Control	Yes
HDR/WDR	N/A
Mirror / Flip Image	Yes
Focus Mode	Auto / Manual
Panning / Tilting Range	Pan: 300° Tilt: +130° to -15°
Panning / Tilting Speed	Pan: 0.1~ 60°/Sec Tilt: 0.1° to 30°/sec
Preset	255 Positions

Focal Length	f = 5.5mm (wide) to 150.43 mm (tele) F1.66(Wide) ～ F4.99 (Tele)
Field of View (Horizontal, Wide)	Main: 54° Panorama: 86°
Image Compensation	Backlight compensation
Input /Output Interfaces	
Video Output	HDMI 1.3 x1 3G-SDI x1 UVC output x1 10/100M RJ45 (PoE) x1
Audio Input	3.5mm x1 (line in/mic in)
Tally LED	Yes
Lens Filter	N/A
Control Protocol	Pelco-D, Pelco-P, VISCA, VISCA over IP, NDI, DVIP, ONVIF
Remote Control Interface	IR Web UI RS-422/RS-232 (RJ-45) DVIP NDI
Video Compression Format	H.264/H.265/MJPEG
Audio Compression Format	AAC G711
Audio Bitrate	96Kbps, 128Kbps
Streaming Protocols	RTSP, RTMP(S), ONVIF, Multicast, SRT, NDI|Hx3
First Stream Supported Resolution	1920x1080 1280x720 1024x576 960x540 640x480 640x360
Second Stream Supported Resolution	720x480 640x360 640x480 320x240

Video Bitrate	32Kbps ~ 20Mbps (First Stream) 32Kbps ~ 5Mbps (Second Stream)
Video Bitrate Mode	VBR CBR
Encoding Frame rate	50Hz: 1-50fps 60Hz: 1-60fps
POE	IEEE 802.3at
F/W Update	Via Web UI
IR Control	Yes
Camera Control Unit	RMC-2P RMC-180 series RMC-300 series PTZ View Assist APP
Tripod Mount	1/4-20 UNC
Optional Accessories	WM-1 WM-10 WM-11
Color	Dark Blue/White
Dimensions (LxWxH)	184(W) x 228.5(H) x 194(D)
Weight	2.7 kg
Operating Temp. Range	0~40 °C
Power	DC 12V 19W
What's in the Box	1 x PTC-155 product 1 x IR remote controller 1 x Ceiling mount bracket -B 3 x Ceiling mount bracket screw M3*4mm 1 x DC 12V Power Adaptor 1 x Safety cable

Note

Service & Support

It is our goal to make your products ownership a satisfying experience. Our supporting staff is available to assist you in setting up and operating your system. Please refer to our web site www.datavideo.com for answers to common questions, support requests or contact your local office below.

Please visit our website for latest manual update.

www.datavideo.com/product/PTC-155

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