PTZOptics Studio Pro

Product Manual

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Studio Pro

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Studio Pro Quick Start Guide

Setting up your PTZOptics camera is fast and easy with the setup cards below. Each card provides clear, step-by-step instructions to help you connect, configure, and power your camera in minutes. Simply follow the cards in order to get your camera up and running.

POWER

STREAMING

NETWORKING

PRESETS

Part Number

The Studio Pro is available in a gray 12X Optical Zoom model.

- PT-STUDIOPRO

Packing List

- Studio Pro Camera
- AC Power Supply
- USB A-C Cable
- Quick Start Guide
- IR Remote
- LED Panel Light
- 2 AAA Batteries
- Lens Cap
- Cold Shoe Tilt Mount

Features

Features

Video Templates: Select the best performance IP video streams for your project with easily selectable video templates for NDI and IP streaming.

White Balance Modes: Adjusts the color balance in your images, specifically focusing on the color white. Different lighting conditions can change the color of white, which may alter other colors in the image. White balance modes can help correct for various types of lighting, such as sunlight, shade, tungsten, and fluorescent,

Exposure Modes: The camera offers several exposure modes to help you determine the correct combination of aperture, shutter speed, and gain to achieve the perfect exposure. Different modes include manual (where you control everything), auto (the camera decides), or other modes that allow control over one aspect (like shutter priority, where you control the shutter speed and the camera handles the rest)

On-Camera Firmware Updates: You can update the camera’s firmware directly from the camera itself. Firmware is the low-level software that controls the camera's hardware. Being able to update it directly on the camera simplifies the process and ensures you can easily have the latest features and bug fixes.

Profiles: Adapt to different shooting situations quickly using your own custom profiles. For example, you might have one profile for indoor shooting, another for outdoor shooting, and another for low-light conditions. A profile can save settings such as white balance, exposure, and frame rate, among others.

Simple Network Discovery: Trouble-free discovery of any connected PTZOptics camera on your network. PTZOptics cameras can be found by entering http://ptzoptics.local into any web browser. You can then change your camera’s IP address or set a custom camera ID. For example, you could set your camera’s ID to “mycamera.local”. Enter that into a web browser and you’re there.

NTP for NDI sync: Network Time Protocol (NTP) is a networking protocol for clock synchronization between computer systems over packet-switched, variable-latency data networks. This can be used to ensure that the timestamps on the Network Device Interface (NDI) streams from your cameras are accurate and synchronized, ensuring that your video streams are in sync with each other and with any other networked devices.

Multicast/Unicast: Data transmission over a network. In multicast, data is sent simultaneously to multiple recipients. In unicast, data is sent from a single sender to a single receiver. Depending on your network setup

and the requirements of your video stream. Choose what works for you.

1080p HD: Next-generation SONY UHD CMOS sensor for shooting high-quality video at 60 FPS, with the flexibility to adjust numerous other resolutions and frame rates.

HDMI 2.0: HDMI 2.0 can directly output 4K uncompressed digital video.

Low Light: CMOS image sensor with ultra-high SNR can reduce image noise in low light.

3D Noise Reduction: Produces a clean, clear image even in low light with a signal-to-noise ratio as high as 55db.

Multiple Interfaces: Simultaneous Output Combinations: HDMI 2.0, plus IP Video [RTMP(S), SRT, RTSP, RTP] and either USB 3.0 or NDI HX 3 as outputs.

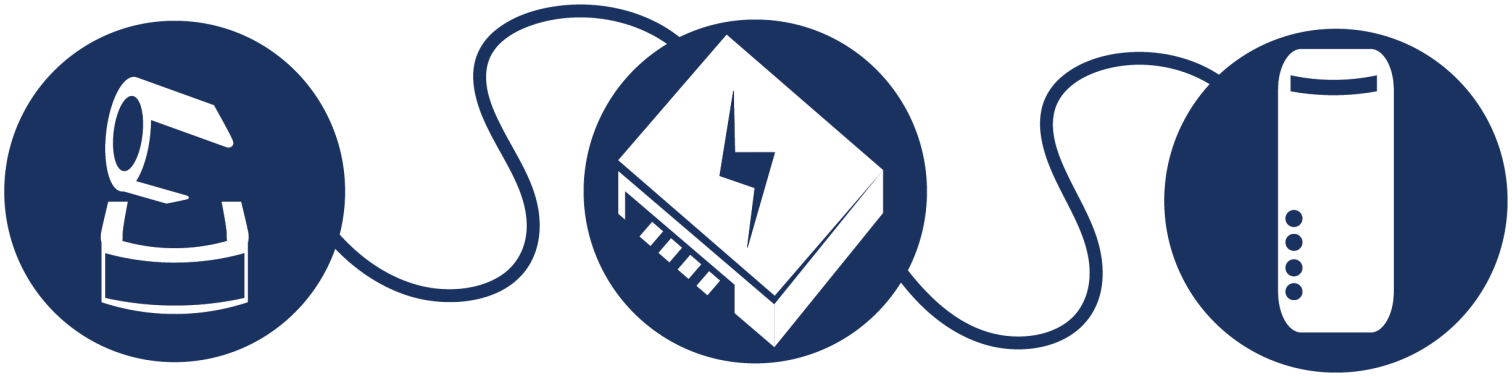
Multiple Control Options: Controllable via IR remote, network connection, and the USB port.

Power

The **Studio Pro** can be powered using the included **power supply** or **Power over Ethernet**. Please make sure all connections are secure when using either method.

When the camera is turned on, it will perform a short startup sequence going through its full range of motion.

> **NOTE**
>
> Power over Ethernet, or PoE, provides power and network connection. To power your camera over Ethernet, you will need a PoE source that supports PoE (802.3af). We recommend connecting your camera to the switch for peak performance using Cat 6 cabling or better. See the example of a power over Ethernet connection below.



Camera **Power Over Ethernet Switch** **Computer**

Camera Startup

PTZOptics cameras perform a short startup sequence going through their full range of motion when powered on. **(Stationary cameras or box cameras will also perform a startup sequence, going through their full zoom range.)**

When the sequence is complete, the camera will stop and return to preset 0, as long as you've previously set preset 0, or the Home position.

Device Powering Options

Product	Power Supply	Power Consumption	Power Over Ethernet Type
Move 4K	JEITA type (DC IN 12V)	Max 2.0A	PoE+ (802.3at)
Move SE	JEITA type (DC IN 12V)	Max 2.0A	PoE (802.3af)
Link 4K	JEITA type (DC IN 12V)	Max 2.0A	PoE+ (802.3at)
Studio Pro	JEITA type (DC IN 12V)	Max 2.0A	PoE (802.3af)
Studio 4K	JEITA type (DC IN 12V)	Max 2.0A	PoE (802.3at)
Studio SE	JEITA type (DC IN 12V)	Max 2.0A	PoE (802.3at)
SimplTrack3	JEITA type (DC IN 12V)	Max 1.0A	PoE (802.3af)
PT-SUPERJOY-G1	JEITA type (DC IN 12V)	Max 0.5A	PoE (802.3af)
PT-JOY-G4	JEITA type (DC IN 12V)	Max 0.5A	PoE (802.3af)

Connections


8
9
Capacity:2000mAh
3000K~6000K
Made in China
10
12

Studio Pro Connection List

1. HDMI Output
2. USB 2.0 LED Light Connection
3. USB C 3.0 Output
4. Horizontal & Vertical Image Flip
5. Mic Input 3.5mm

6. LAN NDI
7. DC 12V Power
8. LED USB C Port
9. Color Temp Dial
10. Dimmer Dial
11. LED Power Button
12. Cold Shoe Tilt Mount

Serial Connection Guide

Serial refers to the RS-232 and RS-485 connections from the camera to a joystick controller using the same connection.

RS-232 Overview

This uses an 8 Pin Mini-Din connector.

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

Initial Connection

Camera	Windows DB-9	Connection Direction
1. DTR	CD	Camera DTR to Windows DTR & CD to none
2. DSR	RXD	Windows TDX to Camera DSR
3. TXD	TXD	Camera TDX to Windows RXD
4. GND	DTR	Camera GND to Windows GND
5. RXD	GND	Two way from Camera RXD to Windows TDX
6. Unused	DSR	None
7. Unused	Unused	None
8. Unused	Unused	None
9. Unused	Unused	None

Daisy Chain Control Connection

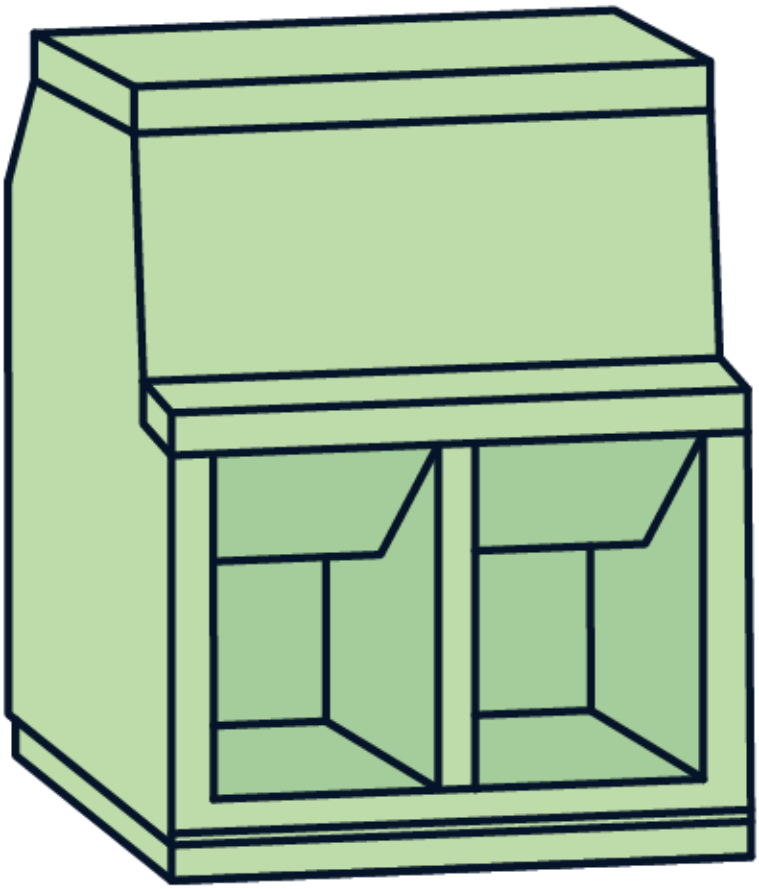
Camera	Mini DIN	Connection Direction
1. DTR	DTR	Camera DTR to Windows DSR & CD to none
2. DSR	DSR	Windows DTR to Camera DSR
3. TXD	TXD	Camera TDX to Windows RXD
4. GND	GND	Two way from Camera GND to Windows GND
5. RXD	RXD	Windows TDX to Camera RXD
6. Unused	Unused	None
7. Unused	Unused	None

Camera	Mini DIN	Connection Direction
8. Unused	Unused	None

RS-232 Parameters

- **Baud Rate:** 2400, 4800, 9600 or 38400 bps
- **Start Bit:** 1 bit
- **Data Bit:** 8 bits
- **Stop Bit:** 1 bit
- **Parity Bit:** None

RS-485 Overview



The left phoenix connector port is Positive (+)The right phoenix connector port is Negative (-).

The camera can be controlled via RS-485, Half-duplex mode, with support for VISCA, Pelco-D, or Pelco-P protocol.

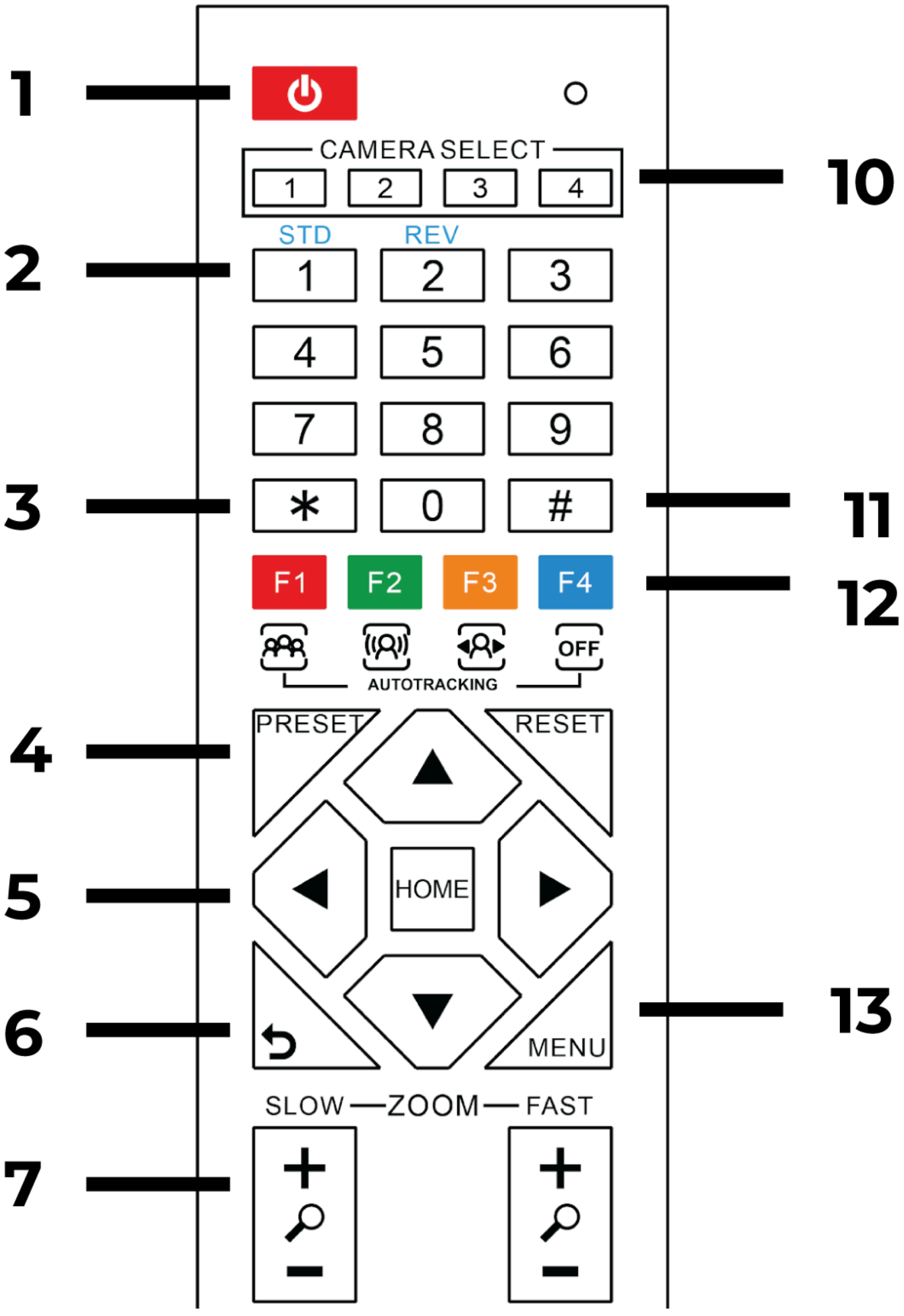
RS-485 Parameters

- **Baud rate:** 2400/4800/9600/38400;
- **Starting position:** 1 bit
- **Data bit:** 8 bits
- **Stop bit:** 1 bit
- **Check digit:** None

> **NOTE**
>
> To utilize an RS-485 connection, you will need an unterminated two-conductor cable

1. Connect the positive (red) wire to the camera’s positive phoenix connector port (left).
2. Connect the negative (black) wire to the camera’s negative phoenix connector port (right).
3. Connect the positive and negative wires to the positive and negative ports on your joystick controller.
    - To connect multiple cameras, you have the option to connect via daisy-chain or home run.
4. In either method, multiple wires will be connected to a single phoenix connector port

IR Remote


1
2
3
4
5
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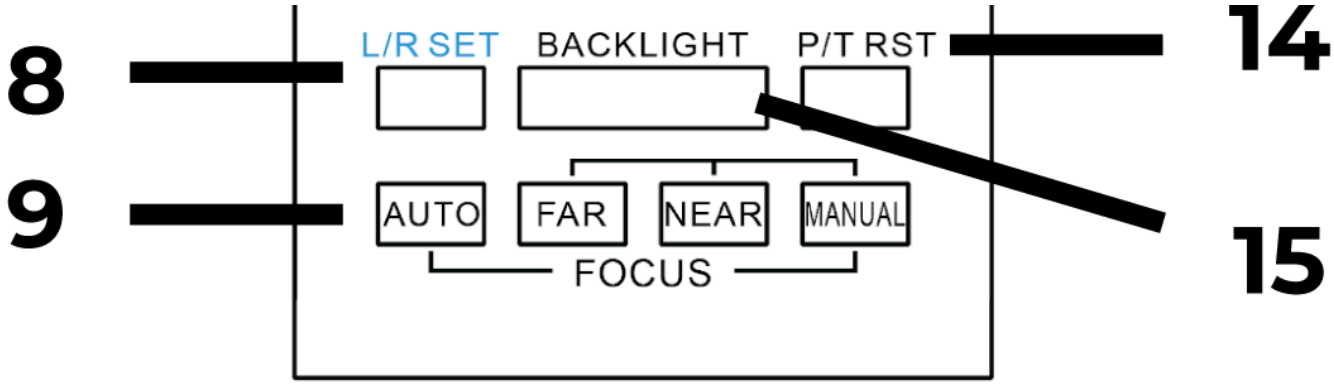
7
10
11
12
13
CAMERA SELECT
1
2
3
4
STD
REV
1
2
3
4
5
6
7
8
9
*
0
#
F1
F2
F3
F4
OFF
AUTOTRACKING
PRESET
RESET
HOME
MENU
SLOW
ZOOM
FAST



PTZOptics IR Remote Button Descriptions

1. **Standby Button** Press this button to enter standby mode. Press it again to enter normal mode.

> **INFO**
>
> Power consumption in standby mode is approximately half of the normal mode.

2. **Number Keys** Press to set or call preset camera position or input a number.

3. **Star Sign Button** Used predominantly when calling shortcuts.

4. **Set / Clear Presets** To Set a Preset (save a camera position and image settings), press **[PRESET]** + any number zero through nine. To Clear a Preset (erase a camera position), press **[RESET]** + any number zero through nine. To erase all presets, press **[*]** + **[#]** + **[RESET]**

5. **Pan / Tilt Control Buttons** Press the **[LEFT or RIGHT]** arrow to pan. Press the **[UP or DOWN]** arrow to tilt. Press the **[HOME]** button to return the camera to the factory default front facing home position.

6. **Return Button** Press the **[RETURN]** button to go back to a previous menu within the on screen display (OSD).

7. **Zoom Buttons** Press **[+]** to zoom in (Slow and fast speed). Press **[-]** to zoom out (Slow and fast speed).

8. **L / R Set Buttons** Set the Left & Right directional buttons for the remote. Press the following buttons simultaneously. Press **[L/R SET]** + **[1]**: Buttons function normally. Press **[L/R SET]** + **[2]**: Buttons function inverted.

9. **Focus Buttons** Pressing **[AUTO]** tells the camera to focus the image on the center object. Pressing **[Manual]** switches the camera to manual focus mode. Press **[FAR]** to focus on a far object. Press **[NEAR]** to focus on a near object.

10. **Camera Select Buttons** Press **1**, **2**, **3**, or **4** to select the corresponding camera. Cameras must be set to the corresponding IR address to be controlled by the remote. to do this, press **[*]** + **[#]** + **[F1]** for Camera 1, **[F2]** for Camera 2, **[F3]** for Camera 3, and **[F4]** for Camera 4.

11. # **Button** For multiple functions. Typically used when calling shortcuts.

12. **Multi-Function Buttons**

    Function 1: Auto-Tracking Control

    - **[F1]**: Enable video-based auto-framing (Non-functional)
    - **[F2]**: Enable audio-based auto-tracking (Non-functional)
    - **[F3]**: Enable video-based auto-tracking
    - **[F4]**: Disable auto-tracking

    Function 2: For setting camera IR address. Press these 3 keys one after another to set the camera IR address as follows:

    - **[*]** > **[#]** > **[F1]**: Address 1
    - **[*]** > **[#]** > **[F2]**: Address 2
    - **[*]** > **[#]** > **[F3]**: Address 3
    - **[*]** > **[#]** > **[F4]**: Address 4

    Function 4: Image Freeze

    - **[#]** > **[*]** > **[F4]**: Freeze the video feed. Repeat to unfreeze.

13. **Menu Button** Press **[MENU]** to open the camera's On Screen Menu (OSD). Press **[MENU]** again to close the OSD.

14. **P / T RST Button** Perform camera self-calibrate pan and tilt movement.

15. **Backlight Button** Use to enable or disable backlight compensation. Note: Only effective in auto exposure mode. Note: If there is light behind the subject, they may appear darker. In this case, use Backlight Compensation to enhance image.

> **NOTE**
>
> Although this remote can be used to control both PTZOptics Pan Tilt Zoom cameras and PTZOptics Studio Cams, the **P / T RST Button** will not self-calibrate Studio Cams.

Shortcut list

- `[#]` > `[*]` > `[F1]`: Increase the IR Remote’s control speed by 0% (Not applicable for Studio 4K, Studio SE, or Studio Pro cameras)
- `[#]` > `[*]` > `[F2]`: Increase the IR Remote’s control speed by 10% (Not applicable for Studio 4K, Studio SE, or Studio Pro cameras)
- `[#]` > `[*]` > `[F3]`: Increase the IR Remote’s control speed by 20% (Not applicable for Studio 4K, Studio SE, or Studio Pro cameras)
- `[*]` > `[#]` > `[9]`: Quickly set mount mode (flip / normal)
- `[#]` > `[*]` > `[7]`: OnePush White Balance Trigger
- `[*]` > `[*]` > `[F3]`: Toggle the HDMI / SDI output
- `[#]` > `[*]` > `[F4]`: Freezes the video feed. Repeat to unfreeze.
- `[*]` > `[#]` > `[6]`: Quickly restore default settings
- `[*]` > `[#]` > `[8]`: Show the camera firmware version
- `[*]` > `[#]` > `[4]`: Show camera’s IP address

OSD

Main Menu

Press the [Menu] button to display the OSD Menu. Use the arrow keys to navigate the OSD menu, the [Home] button to make selections, and the [Return] button to go back.

Opening the On-Screen Display, provides the list of sub-menus seen below.

1. Exposure
2. Color
3. Image
4. Focus
5. Noise Reduction
6. Setup
7. Communication Setup
8. Information
9. Restore Default

Exposure

Function	Default Setting
1. Mode	Auto
2. ExpCompMode	On
3. ExpComp	-1
4. Gain Limit	5
5. Meter	Average
6. Backlight	Off

Function	Default Setting
7. DRC	1
8. Anti-Flicker	60Hz

(Exposure) Mode: Auto, Manual, SAE (Shutter Automatic Exposure), AAE(Aperture Automatic Exposure), Bright

Exp-CompMode: On, Off (Effective only in Full Auto mode)

Exp-Comp: -7 ~ +7 (This option is only available while ExpCompMode is On).

Backlight: Toggle Backlight Compensation. On, Off (This option is only available in Full Auto mode).

Gain Limit: 0 ~ 15 (This option is only available in Full Auto, AAE, Bright mode).

Anti-Flicker: Off, 50Hz, 60Hz (Effective only in Full Auto, AAE, Bright mode).

Iris: F1.8, F2.0, F2.4, F2.8, F3.4, F4.0, F4.8, F5.6, F6.8, F8.0, F9.6, F11.0, Close (Effective only in Manual, AAE mode).

Meter: Average, Center, Smart, Top. (Available only in Full Auto, SAE, AAE, & Bright)

Shutter: 1/30, 1/60, 1/90, 1/100, 1/125, 1/180, 1/250, 1/350, 1/500, 1/750, 1/1000, 1/1500, 1/2000, 1/3000, 1/4000, 1/6000, 1/10000 (Effective only in Manual, SAE mode).

Gain: 0 ~ 7 (This option is only available in Manual mode).

DRC: 0 ~ 8

Meter Region (Unavailable in Manual Mode): Calculate where the camera will prioritize auto-exposure. Choose between Average, Center, Smart, or Top.

- Average: Calculates entire image.
- Center: Calculates from the center of the image.
- Top: Calculates the top of the image.
- Smart: Calculates the entire image and finds the best location.

Color

Function	Default Setting
1. WB Mode	Auto
2. AWB Sens	Low
3. RG Tunning	0
4. BG Tunning	-3
5. Saturation	90%
6. Hue	5

WB Mode: Auto, Indoor, Outdoor, One Push, Manual, VAR

R Gain: Camera Red Gain value. Options include: 0 ~ 255 (Only available in Manual modes)

B Gain: Camera Blue Gain value. Options include: 0 ~ 255 (Only available in Manual modes).

ColorTemp: 2500K ~ 8000K (Only Available in VAR mode).

RG Tuning: -10 ~ +10 (Only Available in Auto, One Push, VAR mode).

BG Tuning: -10 ~ +10 (Only Available in Auto, One Push, VAR mode).

Saturation: Camera Saturation value. Options include: 20% - 200%

Hue: Camera Hue value. Options include: 0 ~ 14

Image

Function	Default Setting
1. Luminance	5
2. Contrast	6

Function	Default Setting
3. Sharpness	8
4. B&W Mode	Off
5. Flip-H	Off
6. Flip-V	Off
7. Gamma	EXT
8. Image Style	Default

Luminance: Brightness value. Options include: 0 ~ 14

Contrast: Contrast value. Options include: 0 ~ 14

Sharpness: Sharpness value. Options include: Auto, 0 ~ 11

B&W Mode: Toggle Black & White mode. Options include: On, Off

Flip-H: Flip image horizontally. Options include: On, Off

Flip-V: Flip image vertically. Options include: On, Off

Gamma: Adjust the gamma levels to better capture details in both bright and dark areas without overexposing highlights or underexposing shadows. Options include: Default, .45, .5, .56, .63, EXT

Image Style: Options include: Default, Face, Jewelry

Focus

Function	Default Setting
1. D-Zoom Limit	Off
2. Display Info	On

Function	Default Setting
3. Image Freeze	Off
4. Pre Zoom Speed	5

D-Zoom Limit: Off, 2x, 4x, 8x, 16x

Display Info: On, Off

Image Freeze: On, Off

Pre Zoom Speed: The speed at which the camera moves to a preset: 0 ~ 7

Noise Reduction

Adjusts the levels of digital noise reduction.

Function	Default Setting
1. 2D NR	4
2. 3D NR	6

2D NR (2D Noise Reduction): Auto, or 1~5

3D NR (3D Noise Reduction): Auto, or 1~5

Setup

Function	Default Setting
1. Language	English
2. Video Setting	

Function	Default Setting
3. Audio Setting	
4. Focus Setting	
5. Communication Setup	

Language: Options include: English, Chinese

Video Setting: Enters Sub Menu:

- **VO Switch:** Switch the video output between HDMI or SD.
- **DVI Mode:** Turn DVI Mode On or Off.
- **Format Mode:** Choose OSD, 50HZ, or 60Hz
- **Video Format:** Options Below:
  - 1080P25 (HDMI+SDI)
  - 1080P29.97 (HDMI+SDI)
  - 1080P30 (HDMI+SDI)
  - 1080I50 (HDMI)
  - 1080P50 (HDMI+SDI)
  - 1080I59.94 (HDMI)
  - 1080P59.94 (HDMI+SDI)
  - 1080I60 (HDMI)
  - 1080P60 (HDMI+SDI)
  - 720P29.97 (HDMI+SDI)
  - 720P30 (HDMI+SDI)
  - 720P50 (HDMI+SDI)
  - 720P59.94 (HDMI+SDI)
  - 720P60 (HDMI+SDI)

Audio Settings: Enters Sub Menu:

- Audio Source: Mic, Line In (3.5mm), Disable
- Input Volume: 0dB to 24dB in increments of 3
- Line Out Volumet: 0dB, 1.5dB, 3dB, 4.5dB, 6dB, 7.5dB, 9dB, 10.5dB, 12dB

Focus Settings: Enters Sub Menu:

- ToF (Time of Flight) Focus: On or Off
- AF-Sense: Low, Normal, High
- AF-Zone: Center, Top, Bottom, Front
- AF Limit: Choose distance in meters, Off, or Infinite
- Focus Lock: Lock or Unlock

Communication Setting

Function	Default Setting
1. Protocol	VISCA
2. V_Address	1
3. V-AddrFix	Off
4. Net Mode	Serial
5. Baudrate	9600

Protocol: Control protocol Options include: VISCA, PELCO-D, & PELCO-P

V_Address: VISCA protocol camera address Options include: 1 ~ 7

V-AddrFix: When enabled, the Visca address will not change. Options include: Off, On

Net Mode: Control type Options include: Serial, Parallel

Baudrate: Baudrate control speed Options include: 2400, 4800, 9600, 38400

- **P_D_Address:** Pelco-D protocol address Options include: 0 ~ 254
- **P_P_Address:** Pelco-P protocol address Options include: 0 ~ 31

Information

Function	Default Setting
1. Version	8.1.88
2. Model	P11.HI
3. Date	2025-01-09
4. AF Version	14.4.55
5. Video Format	1080P60

Version: Displays firmware version

Model: Displays the camera model version

Date: Displays the date

AF Version: Displays the current Auto Focus implementation **Video Format:** Displays the current video format

Restore Default

Function	Default Setting
1. Yes	
2. No	

> **NOTE**
>
> Press the [Enter] button to confirm. All camera parameters will return to default, including IR remote & VISCA Addresses.

Networking

Discovering Your Network

Windows

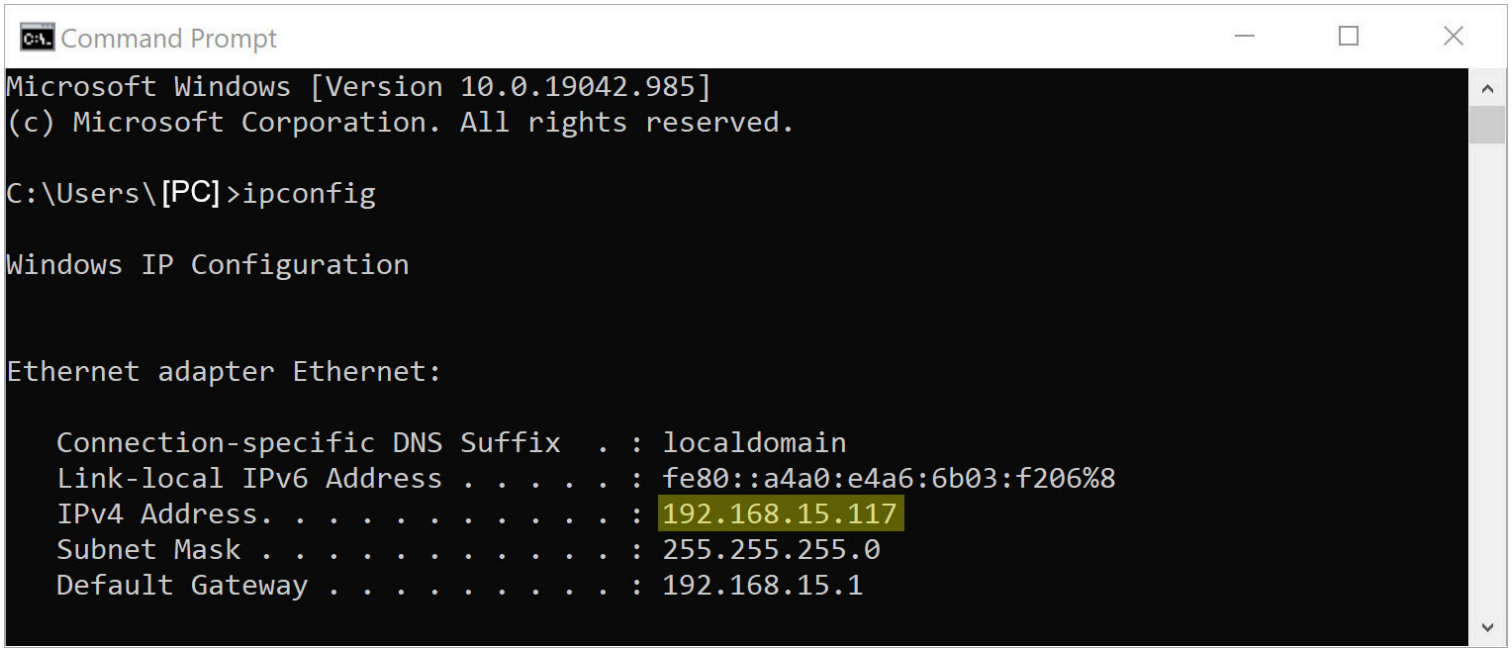
1. Open the Start menu and type “CMD” into the search bar.

2. Once the Command Prompt is open, type in “ipconfig” and press the Enter key.

3. Scroll down to the section titled “Ethernet adapter Ethernet” or “Ethernet adapter Wireless Network Connection”.

4. Locate the “IPv4 Address” in that section. This is your computers local IP address.

5. In the example below, the PC’s local address is “192.168.15.117”, making the network range “192.168.15.xxx”.

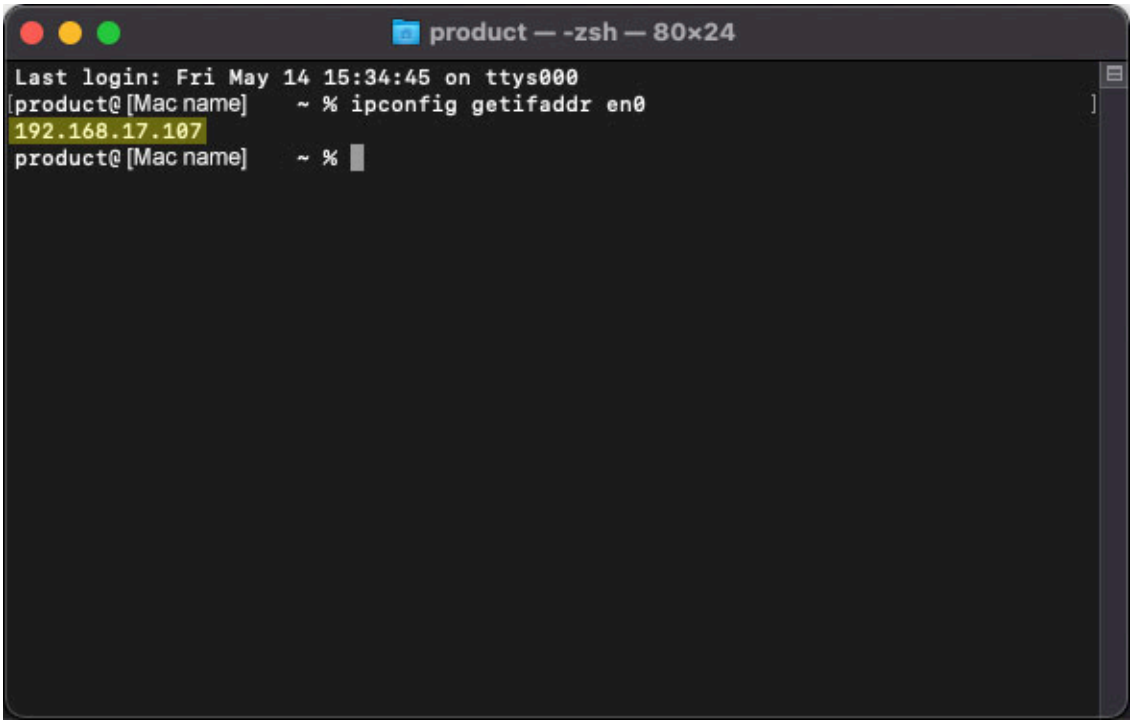


Mac

1. Open a new Finder window and go to the Applications folder.

2. Open the Utilities folder and select the Terminal program.

3. Once the Terminal program is open, type in “ipconfig getifaddr en0” and press the Enter key.



Finding the Camera’s IP Address

Method 1: Use a Internet browser and type in “http:// ptzoptics.local/” to reach the camera’s web interface. You will be prompted to set up a username and password. Once logged in, click on the Network Settings tab to make adjustments to the camera’s network settings.

Method 2: Run an HDMI cable from the camera to a display. Use the IR remote shortcut **[*]** > **[#]** > **[4]** to display the camera’s IP address.

> **NOTE**
>
> If you are setting up multiple cameras, it’s recommended to do so one at a time.

> **TIP**
>
> Assign a unique Device ID to each camera from the Web UI’s Device Info tab. This will allow you to reach each camera’s web interface without needing to memorize an IP address. For example, “http://cameraOne.local” and “http://cameraTwo.local”.

Network Joystick Connection

PTZOptics carries two joysticks, the **PT-SUPERJOY-G1**, and the **PT-JOY-G4**, that can be used to control a camera via a network connection.

Steps

1. Ensure the camera and the PTZOptics IP joystick are connected to the same network.

2. Press the **[SETUP]** button on your joystick, and select option one (1) “Network Device” for IP.

3. Fill in the Network Device field to connect the camera. The fields are as follows:

    - **Channel**: (For SuperJoy users enter 1 ~ 9 in the **Group** field) Joystick Camera Address [CAM ID] Options include 1 - 255.
    - **Protocol Select**
        - **PT-JOY-G4 Protocol Options**:
          VISCA (UDP), VISCA (TCP), Sony VISCA (UDP), ONVIF.
        - **PT-SUPERJOY-G1 Protocol Options**:
          VISCA (UDP), VISCA (TCP), Sony VISCA (UDP), ONVIF. NDI, & Panasonic Control
    - **IP**: Enter the Camera IP Address Here
    - **Ctrl Port**: Enter the camera control port.

4. Once the above fields are filled, press the **[ENTER]** button to save the camera to the controller.

Control Port Numbers

- **UDP** 1259
- **TCP** 5678
- **Sony VISCA Protocol** 52381

> **TIP**
>
> One way to find the camera's control port number is to go to its web user interface.
>
> Type the camera's IP address into a web browser and log in using your credentials.
>
> Click the Control tab, then click the Ports tab below. Here, you can see the available control protocols.

Resetting the Camera's IP Address Using the IR Remote

Press the following buttons in the order shown below:

[*] > **[#]** > **[MANUAL]**

This will resets IP information to default.

> **NOTE**
>
> The default mode is DHCP.

Use one of the following codes with the IR remote to assign a specific IP address to your camera.

Input Sequence	IP Address
[#] > [*] > [#] > [1]	192.168.100.81
[#] > [*] > [#] > [2]	192.168.100.82
[#] > [*] > [#] > [3]	192.168.100.83
[#] > [*] > [#] > [4]	192.168.100.84
[#] > [*] > [#] > [5]	192.168.100.85
[#] > [*] > [#] > [6]	192.168.100.86
[#] > [*] > [#] > [7]	192.168.100.87
[#] > [*] > [#] > [8]	192.168.100.88
[#] > [*] > [#] > [9]	192.168.100.89
[#] > [*] > [#] > [0]	192.168.100.80

Video

Choosing a Resolution & Frame Rate

We recommend setting the resolution and frame rate before getting started. To do this, turn the yellow System Select dial on the back of the camera to the desired setting.

Dial Position	HDMI	Dial Position	SDI
0	1080p 60	0	1080p 60
1	1080p 50	1	1080p 50
2	1080i 60	2	1080i 60
3	1080i 50	3	1080i 50
4	1080p 30	4	1080p 30
5	720p 60	5	720p 60
6	1080p 29.97	6	1080p 29.97
7	1080i 59.94	7	1080i 59.94
8	1080p 59.94	8	1080p 59.94
9	720p 59.94	9	720p 59.94
A	2160p 29.97	A	1080p 29.97
B	2160p 59.94	B	1080p 59.94
C	2160p 25	C	1080p 25

Dial Position	HDMI	Dial Position	SDI
D	2160p 30	D	1080p 30
E	2160p 50	E	1080p 50
F	2160p 60	F	1080p 60

Streaming

NDI® HX3 Connection

The NDI HX3 connection allows you to connect and control the camera through any NDI compatible hardware or software on a Local Area Network. Once the camera is setup on a LAN, you can utilize the NDI HX3 connection.

NDI Setup

1. Download and install the latest NDI Tools from NDI Tools
2. This camera's NDI settings can be configured from the camera's web interface in the NDI settings tab.
3. Select the camera within the NDI compatible device. The NDI feed will utilize the camera's device-friendly name.

> **INFO**
>
> Vizrt NDI®, NDI 4, 5, 6. NDI HX, NDI HX2, and NDI HX3 are all registered trademarks by Vizrt. Please note that your NDI License key is non-transferable.

RTMP Streaming

The Studio Pro camera can send two RTMP(S) streams. To use your camera with an RTMP stream, you will need a Stream URL & Stream Key, from a CDN or from the social network to which you want to stream.

Steps

1. Once you have the Stream URL & Stream Key, log into Web UI.
2. Navigate to the Streaming Settings page. In the RTMP(S) Settings section, enter the Stream URL & Stream Key you received from the CDN or social network.
3. Ensure you turn your RTMP stream **"On"** by enabling the appropriate stream, and click the **Apply** button.

RTSP Streaming

The Studio Pro camera is able to send an RTSP stream for viewing video through a LAN.

Using VLC or another RTSP enabled video program, type the following string into your network streaming section:

- **Stream 1 (HD)**:
    - rtsp://[IP ADDRESS]:554/1
- **Stream 2 (SD)**:
    - rtsp://[IP ADDRESS]:554/2

If you do not know the IP address of your camera, refer to the Finding the Camera's IP Address section.

Presets

Setting & Calling Presets

Steps

Step 1. Lighting: Before adjusting the camera’s settings and saving presets, it is extremely important that you are satisfied with the lighting in the area you plan to operate the camera.

> **TIP**
>
> The easiest lighting to work with, is often referred to as “flat lighting”, meaning the lighting is as evenly dispersed as possible throughout the scene.

Step 2. Default: We recommend setting all of the camera’s image settings, exposure settings, color settings, and focus settings to default before setting up presets. The default settings can be found in the On-Screen Display section of this menu. To set the camera's image settings to their defaults, use the Restore Default menu in the on-screen display, or set them to default in the camera's Web UI.

> **NOTE**
>
> Saving a preset saves the camera position as well as all the image settings it had at that exact time.
>
> When zooming the camera, all image settings will stay set to their last applied saved values unless the camera is in automatic modes such as auto-exposure.

Step 3. Preset Zero: With all the image settings defaulted, the first preset to establish is Preset Zero. This preset, will essentially serve as the baseline reference point.

Follow the steps below to establish preset zero.

1. Zoom the camera all the way out and point it at the center-most location in the scene.

2. Adjust any of the camera’s image settings until satisfied with the look/style of the image.

3. Press [PRESET] then [0] using the IR Remote.

4. Preset zero is now saved.

Step 4. Standard Presets: These presets can be assigned to any number between 1 and 254.

1. Begin by calling preset zero.

> **TIP**
>
> Its recommended to take a screenshot of preset zero to help color match new presets or camera shots from different cameras.
>
> Its also helpful to pull the camera's video feed into live streaming software such as Vmix or OBS for viewing and comparision. To properly compare image quality, ensure you are using the same monitor or screen.

2. Move the camera into the position intended to save as a preset.

3. Compare the new preset position with preset zero to ensure they match. Most of the time they will not be an exact match, because different areas have different lighting that requires different settings.

4. Make adjustments to the image settings to color match with preset zero.

Step 5. Save the Preset:

Keep the Studio Pro on the current firmware and use the changelog to verify what changed before you update.

UPDATE PATH

Firmware Instructions

Follow the step-by-step upgrade flow for the Studio Pro web interface.

Open instructions

RELEASE HISTORY

Firmware Changelog

Open the shared markdown release notes file that the team can extend by prepending new sections.

View changelog

Latest Firmware Files

Studio Pro Firmware

Download firmware image

Instructions

Upgrading Your G3 Camera's Firmware

Steps

- **1.** Login to your camera's web interface by typing in its IP address or .local address. For example http://ptzoptics.local

> **IMPORTANT**
>
> If this is your first time logging in, you will be prompted to create a username and password.

- **2.** Once logged in, go to the **System Settings** page.
- **3.** Click on the **Check Firmware** button. If your firmware is not up to date, you will receive a pop-up notification that says, "Your firmware is out of date!". If it is up to date, the pop-up will read, **"Your firmware is up to date!"
- **4.** If you received the, **"Your firmware is out of date!"** notification, click the **Apply** button.
- **5.** You may be prompted to download multiple files. Click **"Allow"** to download the firmware and changelog files.
- **6.** You may be prompted to approve the download. Click the **Keep** button on the changelog to approve the download.
- **7.** Click the arrow to reveal the Advanced section of System Settings.
- **8.** Click the **Select File** button.
- **9.** Navigate to the Download folder and select the *.img firmware file.
- **10.** Click the **Apply** button to upload the firmware to the camera.
- **11.** A notification will popup informing you the firmware has been uploaded and will take a few minutes to complete. It may take some time for the notification to pop up, so do not attempt to reboot the camera or

exit the page.

- **10.** After 3 ~ 6 minutes, the firmware upgrade process will be complete. Reload the web interface to reveal the new features.
- **11.** Once logged in, press Shift + Ctrl + R to refresh the Web UI without cookies / cache.
- **12.** Navigate to the Device Information Page under Camera Config. The Firmware Version field will show the latest SOC version.

Studio Pro Release Notes

Updates on new features, fixes, and known issues for the Studio Pro.

Current Firmware Files

Studio Pro Firmware

Download firmware image

02/27/2025

Studio Pro - v9.0.41

New Features and Bug Fixes

- Improved network security. Guest Login is disabled by default and can be enabled on the System Settings page.
- Implemented HTTP Authentication: Added Digest Authentication to protect API routes enabled by default.
- Removed the ability to change the Focus parameters when logged in as a Guest user.
- Removed OSD access in the web interface when logged in as a Guest user.

Known Issues

- Guest Access Focus Controls: Focus controls are currently missing from the Guest Access login.
- When RTMP streaming to YouTube using camera video templates, bitrate errors may occur. Resolution: Adjusting the camera's video settings to align with YouTube's video requirements will improve streaming stability and functionality.
- The NTP service address cannot be set within the `100` subnet (for example, `192.168.100.10`) through the web interface.

06/23/2023

Studio Pro - v9.0.39

New Features and Bug Fixes

- Added more Information symbols to the web interface.
- Added VISCA commands to toggle RTMP On / Off.

```
Stream 1:
81 0A 11 A8 1p FF
p=2: On
p=3: Off

Stream 2:
81 0A 11 A8 2p FF
p=2: On
p=3: Off
```

- Corrected the behavior of the SRT Stream ID field.

06/09/2023

Studio Pro - v9.0.38

New Features and Bug Fixes

- Change NDI Config to NDI Settings.
- Added Video Templates dropdown to the NDI Settings page.
- Added VISCA Inquiry commands.
- Enabled ONVIF by default.

05/16/2023

Studio Pro - v9.0.33

New Features and Bug Fixes

- Corrected the camera’s USB PID.
- Fixed bugs that caused an incompatibility issue with the CMP.

04/18/2023

Studio Pro - v9.0.31

New Features and Bug Fixes

- Initial camera firmware.

Technical Specs

Technical Specifications

Feature	Specification
Resolution & Frame Rate HDMI	• **1920x1080p** - 60 / 50 / 30 • **1280x720p** - 60 / 50
Lens	1/2.8”, CMOS
Image Sensor	2.13MP, Effective Pixels: 2.07MP
Optical Lens Focal Length (Zoom)	**(12X)** f = 4.4mm ~ 52.8mm, F1.8 ~ F2.6
Optical Lens Field of View Horizontal & Vertical	H 6.9° ~ 72.5°, V 3.9° ~ 44.8°
Display Field of View	80.2°
Min Lux	0.5 Lux @ (F1.8, AGC ON)
Shutter	1/30s ~ 1/10000s
Presets	255 Presets
Preset Accuracy	0.1^{0}
Image Flip, Mirror, and Freeze	Supported
Scanning Mode	Progressive

Physical Specifications

Feature	Specification
Material	Aluminum, Plastic
Color	Gray

Feature	Specification
Dimensions(L x W x H)	5.55” L x 3.03” W x 4.21” H, 141mm L x 77mm W x 107mm H
Weight	1.74 lbs 0.70 kg
Working Environment	Indoor
Humidity Range	10% - 80%
Operating Temperature	14°F ~ 104°F (-10°C ~ 40°C)
Storage Temperature	-40°F ~ 140°F (-40°C ~ 60°C)

Connections

Feature	Specification
RJ45	10/100/1000M Adaptive Ethernet Port
HDMI	Version 1.4b
USB	3.0 Type C
UVC Version Supported:	UVC 1.1
USB Video Output	YUY2 YUY2: Max resolution: 1920x1080p@30
	MJPEG: Max resolution: 1920x1080p@60
	H.264 AVC & SVC: Max resolution: 1920x1080p@30
	H.265: Max resolution: 1920x1080p@30 (RSTP/NDI HX3 only)
Audio Interface	3.5mm Line level Input
IR	4x IR Addresses, Max distance 30ft / 9m

Feature	Specification
Power Supply	JEITA type (DC IN 12V) / PoE (802.3af)
Current Consumption	Max 1.0A

IP Video Specifications

Feature	Specification
Video Compression	H.264 / H.265 / MJPEG / YUY2 (H265 HEVC via RTSP/NDI HX3 only)
First Video Stream Resolutions	1920x1080, 1280x720, 640x480, 640x360
Second Video Stream Resolutions	1280x720, 1024x576, 720x576(50Hz support), 720x480(60Hz support), 720x408, 640x360, 480x270, 320x240, 320x180
Video Bitrate	**First Stream:** 32kbps ~ 81920kbps, **Second Stream:** 32kbps ~ 20480kbps
Bitrate Type	Constant Bit Rate (CBR), Variable Bit Rate (VBR)
Frame Rate	50Hz: 1 ~ 50 fps. 60Hz: 1 ~ 60 fps
Audio Compression	AAC
Audio Bit Rate	96kbps, 128kbps
Supported Protocols	TCP/IP, UDP, HTTP, RTSP, RTMP/RTMPS, ONVIF, SRT,Multicast, etc.

Compliance

The Studio Pro is an NDAA Compliant camera.

Covered by one or more claims of the HEVC patents listed at patentlist.accessadvance.com


HEVC Advance™
Covered by patents at patentlist.accessadvance.com