

BirdDog | X120



USER GUIDE

March 2026

NDI

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- NDI® is a registered trademark of NewTek, Inc.

Important Information

Legal Notice

To ensure account security, please change the password after your first login. You are recommended to set a strong password (no less than eight characters).

The contents of this document are subject to change without prior notice. Updates will be added to the new version of this manual. We will readily improve or update the products or procedures described in the manual.

Best effort has been made to verify the integrity and correctness of the contents in this document, but no statement, information, or recommendation in this manual shall constitute formal guarantee of any kind, expressed or implied. We shall not be held responsible for any technical or typographical errors in this manual.

The product appearance shown in this manual is for reference only and may be different from the actual appearance of your device. Due to uncertainties such as physical environment, discrepancy may exist between the actual values and reference values provided in this manual.

Use of this document and the subsequent results shall be entirely on the user's own responsibility.

Warnings

- If the product does not work properly, please contact your dealer. Never attempt to disassemble the camera yourself. (We will not assume any responsibility for problems caused by unauthorized repair or maintenance.)
- This installation should be made by a qualified service person and should conform to all the local codes.
- When shipping, the camera should be packed in its original packaging.
- Ensure the power supply voltage is correct before using the camera.
- Do not drop the camera or subject it to physical shock.
- If the camera will not be used for an extended period of time, attach the lens cap to protect the lens.
- Do not aim the camera lens directly at the sun. This may cause irreversible damage to the camera.



Maintenance Precautions

- If there is dust on the front glass surface, remove the dust gently using an oil-free brush or a rubber dust blowing ball.
- If there is grease or a dust stain on the front glass surface, clean the glass surface gently from the center outward using anti-static gloves or an oil-free cloth. If the grease or the stain still cannot be removed, use anti-static gloves or an oil-free cloth dipped with detergent and clean the glass surface gently until it is removed.
- Do not use organic solvents, such as benzene or ethanol when cleaning the front glass surface.

Regulatory Compliance

FCC Part 15

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential/commercial installation/environment.

This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

- This device may not cause interference.
- This device must accept any interference, including interference that may cause undesired operation of the device.
- This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with 20 cm between the radiation and your body.
 - IC 5150-5250 MHz restricted to indoor use only statement.
 - Operations in the 5.15-5.25GHz band are restricted to indoor usage only.

LVD/EMC Directive

This product complies with the European Low Voltage Directive 2006/95/EC and EMC Directive 2004/108/EC.



Welcome to BirdDog!

Thank you for purchasing your X120 camera. If you have any questions regarding the camera, please contact your authorized dealer.

Our website also has a [User Stories](#) page to help inspire you to get the most out of your camera.

Using This Manual

Your X120 is a powerful and sophisticated device, so please read this manual before use and retain for future reference.

If you are new to the world of NDI® or BirdDog cameras, begin with the [Quick Start Guide](#). This will give you a good introduction to the setup of your new camera.

Tip

When viewing the diagrams in this manual, use the zoom controls in your browser or PDF reader to reveal more detail.

First Step

Firmware Upgrade

Before you use your new X120, it's a good idea to upgrade to the latest firmware. We are always adding new features and improving the performance of our products, so installing the latest firmware will provide you with the best user experience.

To upgrade the firmware, please follow the **Firmware Upgrade Instructions** located in your firmware download folder and perform upgrade process.

The latest firmware files are available for download here: [Firmware Updates](#)

We're Invested In Your Success

We pride ourselves on being approachable and easily contactable. We'd love to hear from you.

Dan Miall

Co-Founder and CEO
dan@bird-dog.tv



BirdDog X120 Overview

Core Features

The X120 is the world's first NDI® HX Wi-Fi Production PTZ. Features are as follows:

- **Resolution:** Up to 1080P60.
- **Lens:** 5.2-104mm, 49mm filter ring.
- **Zoom:** Optical 20X Digital: 16X.
- **Shutter Speed:** 1/1 – 1/10,000 sec.
- **Video Format Support:** 1080p 60, 59.94, 50, 29.97, 25; 720p 60, 59.94, 50, 29.97, 25.
- **Video Output:** NDI® HX2 and HX3, 3G – SDI, HDMI and USB-C (UVC/UAC)
- **Power:** DC 12V, PoE+(IEEE802.3at).
- **Network Interface:** WiFi 5, 1GbE.
- **PTZ:** ±350-degree continuous pan, ±120-degree continuous tilt.
- Bi-colour full 360 degree viewable Mohawk Tally display.
- Rear camera illuminated numbering system.
- Onboard OLED display: 5-line, RGB color.
- 128 presets, Speed up to 150 degrees/sec.
- Standard mounting and ceiling mounting with E-Flip function.
- Control protocols include RS-232 control, RS-422/485 control, VISCA-over-IP, NDI® Control, IR Remote Controller.
- Presets store camera directions and image parameters. (Up to 6 presets on remote controller or 128 presets via protocol programming).
- Image parameter setting restore with presets and quick access operation.



Welcome to the Future

What is NDI®?

Your new X120 camera has been designed to support the cutting edge NDI® video transmission standard.

NDI® (Network Device Interface) is a high-quality, low-latency, frame-accurate standard that enables compatible devices to communicate, deliver, and receive high definition video over your existing Gigabit Ethernet network.

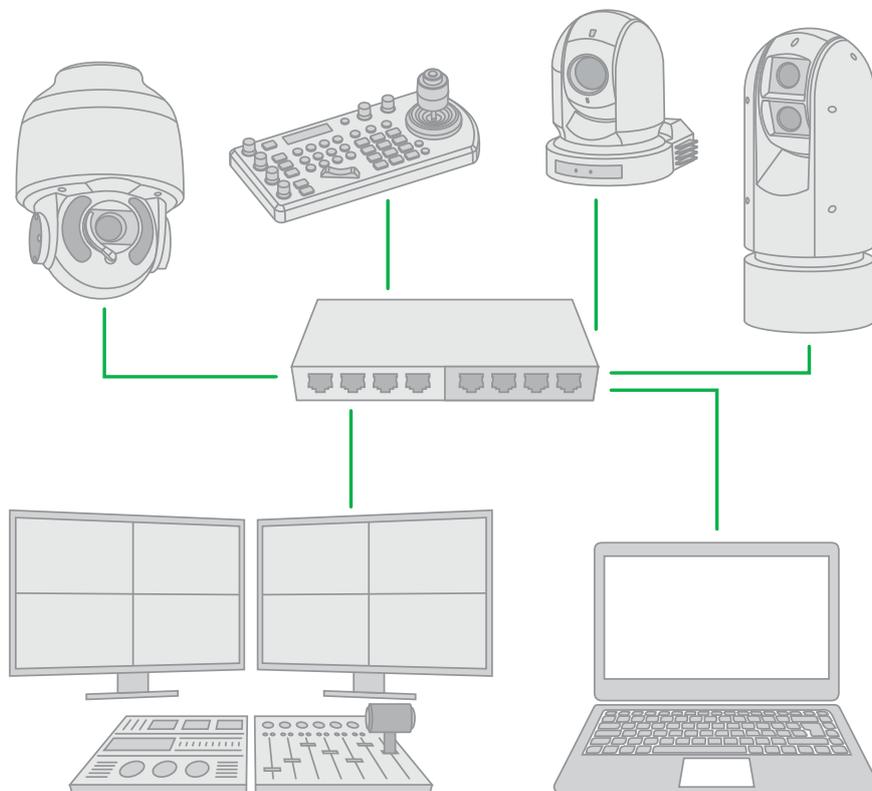
Operating bi-directionally, NDI® devices can be auto-detected, powered and controlled over the same Ethernet cable used to send the video and audio. If you have a Gigabit network, you have the potential for a streamlined, interconnected, video production environment.

With the introduction of NDI® 5, you can now securely share network sources between remote sites anywhere in the world – on a single network port. Even a smartphone can be a NDI® source.

Transitioning to NDI® can also occur gradually. Existing SDI or HDMI signals can easily be converted to an NDI® stream and piped where required on your network and converted back only at the necessary endpoints.

BirdDog has been on the NDI® journey since the very beginning, and your new NDI® HX Wi-Fi capable X120 is just one of our products designed to take advantage of the features and potential of NDI®.

For more information on NDI®, please refer to this [page](#) on our website.





What's in the Box?

NOTE: There are three models of X120 camera with different color scheme and features.



1 x BirdDog X120



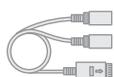
1 x IR Remote Controller
(3V CR2032 Coin Lithium Battery Required)



1 x camera Power Adaptor



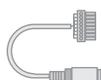
1 x bag of Camera Mounting Screws and Tally
Light Number Inserts



1 x USB to 3.5mm Audio Cable

Optional Accessories

Depending on your requirements, you may need to purchase these optional accessories. Please browse to this [page](#) on our website for all your accessory needs.



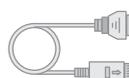
RS232 8 pin mini DIN to Phoenix terminal block



Wall Mount



Ceiling Mount



RJ45 to RS422 adaptor cable



Quick Start Guide

If you are new to the world of NDI® or BirdDog cameras, please follow this quick start guide to become familiar with the basic setup of your new camera. You can also view a similar online [video](#).

Be sure to check the many helpful product videos on our YouTube [page](#).

Basic Connections

Power

To start using your new camera, you'll have to decide how you are going to power the device. You have two choices. You can use PoE+ (Power over Ethernet) or, if your network doesn't support PoE+, you can use the included 12VDC power adaptor. If available, PoE is the easier choice, since you can use the same Ethernet cable to power and control the camera, as well as send the video. For the purposes of this quick start guide, we'll use the power adaptor, so plug the jack into the 12VDC power port on the back of the camera.

Network

Since we're supplying power via the adaptor, the NDI®/PoE Ethernet connection will be used purely for NDI® video. Let's keep things simple and plug an Ethernet cable directly from your computer into the camera NDI®/PoE Ethernet port.

Power Up

Once you've made the power and Ethernet connections, turn on the adapter power. When first powered up, the camera will perform its initialization routine by rotating to the left and then centering again. When this is finished, the indicator light on the front of the camera will display green (and occasionally amber) and the camera is ready to be accessed.

Computer, say hello to the X120

Since we're connecting your camera directly to your computer, we need to configure the network settings of your computer to allow communication with the camera.

Navigate to the Network Properties in your computer preferences and make the following settings.

The screenshot shows a network configuration window with a green border. It contains two radio buttons at the top: 'Obtain an IP address automatically' (unselected) and 'Use the following IP address:' (selected). Below this are three input fields: 'IP address:' with the value '192 . 168 . 100 . 123', 'Subnet mask:' with the value '255 . 255 . 255 . 0', and 'Default gateway:' with the value '192 . 168 . 100 . 1'.

Select **Use the following IP address:** and enter an IP address. The default IP address of the camera is 192.168.100.100, so we need to enter an address where the first three numbers are the same as the camera IP address, i.e., 192.168.100 but the last number is different, in the range of 0 - 255, that is not currently assigned. Usually numbers less than 200 are more likely to be available. The subnet mask can be set as shown.

The X120 and the computer are now configured on the same subnet and should be able to communicate with each other.



Basic Configuration

NDI® Tools

NDI® Tools is a free suite of applications designed to introduce you to the world of IP video and is available [here](#).

Once installed, launch the Studio Monitor (Video Monitor, if using a Mac) application. This simple application allows you to view all NDI® sources on your network. Right click on the Studio Monitor window to view your camera as an NDI® source. In the example to the right, three cameras and a desktop computer are shown as NDI® sources.

Tip

By default, the displayed sources have names that include the last five digits of your camera MAC address which is displayed on the bottom of the camera.

Clicking on your camera in the source list will display the image from your camera with the default automatic settings.



The BirdUI

The screenshot displays the BirdUI web interface with the following sections:

- System Utilization:** A circular progress indicator shows 75% utilization.
- Network Status:** Ethernet Status: Not Connected; Wi-Fi Status: Connected; Preferred NIC: Wi-Fi.
- Wi-Fi Network:** BD-Office 2.4GHz.
- Status:** NDI Video Stream Name: CAM; Video Format: 1080p59.94; Audio Status: Mute.
- Stream Info:** Video Resolution: 1920x1080; Video Frame Rate: 59.94; Video Sample Rate: 4:2:2; Audio Channels: 2; Audio Sample Rate: 48000; Average Bitrate: 134Mbps; Genlock Status: Not Active; Network Mode: RUDP; Streaming Protocol: NDI HX.
- System Details:** System Name: birddog-newHX-x120; Eth. IP Address: 192.168.100.100; Firmware Version: BirdDog_X1201.0.2; MCU Version: 8; Wi-Fi IP Address: 192.168.100.5; Network Config Method: DHCP; Status: Active; MAC address: e8:eb:1b:49:a6:78.
- Device Restart:** A button labeled RESTART.
- System Reboot:** A button labeled REBOOT.

BirdDog cameras have a web interface (BirdUI) that is displayed by your computer browser and can be used to configure your camera remotely.

1. Click on the gear icon on the bottom right of the Studio Monitor window.
2. In the displayed window, type the default password 'birddog' (all lower case) and click the OK button. The Dashboard window is displayed.

The Dashboard shows important basic camera settings. For now, check that the displayed Status is Active and take note of the frame rate that is currently output from the camera (displayed under NDI® connection info). This frame rate should be set identically for all cameras according to the requirements of your production. Let's see how to change this and other important camera settings.



NDI Encode Settings

Bitrate Management

Because you're sending NDI® video over your computer network, you may need to be mindful of the amount of bandwidth your video will consume. By setting Bitrate Management to NDI MANAGED, the target bitrate will be set in accordance with the NDI® standard. This will achieve an optimum balance between bandwidth consumption and video quality. In this mode, the video bitrate will be around 120–140 Mbps. If you do opt for Manual management, you may select a target bitrate within a range of 60–360 Mbps. Do this with care, as the actual bitrate may be greater, straining the capacity of the network and the receiving device, and lower settings may result in reduced image quality.

NDI Video Format

Here you can set the frame rate of the camera to match that of your production. All cameras should be set to the same frame rate.

NDI Group

NDI® supports **Grouping** which allows you to hide the visibility of video sources to viewers that are not part of the group. If disabled, the video source is public and viewable by any receiver on your network.

Stream Name

Give the output video stream of the camera a memorable name to make identification easier on NDI® receiving devices.

NDI Audio

You can choose to embed audio from the audio input connector into the NDI® stream or mute it.

NDI Failover Source

If the selected HDMI source is interrupted for any reason, the X120 can automatically switch to a pre-determined alternative NDI® source. Select an available NDI® source for the failover function from the *Available NDI® sources* dropdown list. Pressing the Refresh button will add new sources to the list, whereas pressing Reset will populate the list with only active NDI® sources. Click the Apply button to apply your failover source change.



Ethernet Network Configuration

Network Details			
Configuration Method	<input type="radio"/> STATIC <input checked="" type="radio"/> DHCP	DHCP Timeout	<input type="text" value="20"/>
IP Address	<input type="text" value="192.168.2.132"/>	DHCP Fallback IP Address	<input type="text" value="192.168.100.100"/>
Subnet Mask	<input type="text" value="255.255.255.0"/>	DHCP Fallback Subnet Mask	<input type="text" value="255.255.255.0"/>
Gateway Address	<input type="text" value="192.168.2.1"/>	BirdDog Name	<input type="text" value="zoom-p120"/> <input type="text" value="local"/>
<input type="button" value="APPLY"/>			

For the final part of this quick start guide, let's set up the network configuration of your camera so it can work with your wider network.

Most computer networks provide for both automatic and manual configuration of network devices and the X120 can accommodate both.

Static or DHCP

Here you can set the network configuration to either DHCP (default) or Static. DHCP simplifies the management of IP addresses on networks. No two hosts can have the same IP address, so assigning them manually can potentially lead to errors. If your network is set up for DHCP, this is generally the best configuration to choose.

If you do choose to go with a Static IP address, you'll need to add the IP Address, Subnet Mask and Gateway Address information according to the requirements of your network.

DHCP Timeout, Fallback IP address, Fallback Subnet Mask

You can set the timeout period during which the X120 will look for a DHCP IP address. After this period, the camera will default to the designated fallback IP address.

This can be useful if you use your camera in other network environments. For example, if a DHCP server is available in your normal office or studio application, the camera will use the DHCP supplied IP address. If you then use the camera in another application without a DHCP server, your camera will always default to the known fallback IP address.

BirdDog Name

You can give your camera a meaningful name to make identification easier when viewing NDI® sources on a receiver such as a TriCaster, vMix or Studio Monitor. Be sure to make the name unique, as no two devices on the network should have the same name. The name can be any combination of 'a-z, 0-9, and -'.

After renaming your camera, navigate back to the Dashboard and click REBOOT DEVICE. The camera will re-initialize and you'll be good to go.

NOTE: Your computer will need to have 'Bonjour' services loaded in order to access the unit via its user defined name. Apple devices come pre-installed with Bonjour, while Windows devices need a plugin available from [here](#).



Wi-Fi Network Configuration

Wi-Fi: **ON** OFF

SSID:

- WiFi Network Name 01
- BirdDog Office 2.4GHz**
- WiFi Network Name 03
- WiFi Network Name 04
- WiFi Network Name 05
- WiFi Network Name 06
- WiFi Network Name 07

Set selected SSID as favourite

Configuration Method: **DHCP** STATIC

IP Address: 192.168.100.5

Subnet Mask: 255.255.255.0

Gateway Address: 192.168.100.1

DHCP Timeout: 20s

DHCP Fallb. IP Address: 192.168.100.100

SHCP Fallb. Sub. Mask: 255.255.255.0

BirdDog Name: BirdDog-00122.local

APPLY

1. Select the **Wi-Fi Network** tab.
1. Click the Wi-Fi **On** button to enable Wi-Fi operation.
2. Select your network.
3. Complete the rest of the Wi-Fi configuration as for **Ethernet Network Configuration** above.
4. Click the **Apply** button to save your changes.

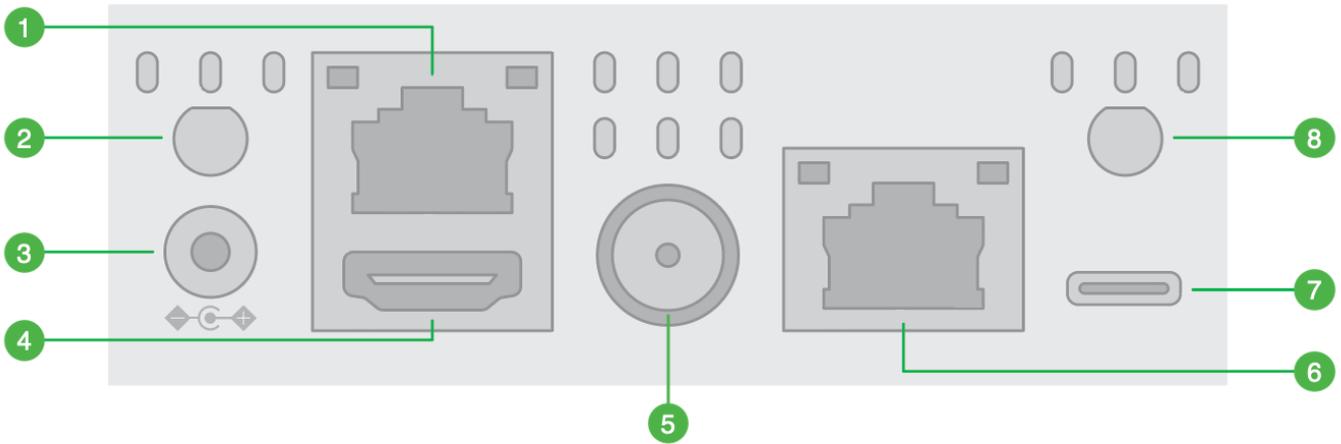
You're Done!

That concludes our quick start guide for the X120. Your camera has many other features, so to get the most out of your camera, please review the rest of this manual.

To learn about more advanced camera options, such as exposure, white balance and colour management, please refer to [here](#) in this manual.



Camera Connections



1. NDI® HX Ethernet Port

For NDI® HX output. Supports PoE+(IEEE802.3at)

2. Wi-Fi Antenna

3. 12V DC Power Port

Connect the supplied DC power adaptor.

4. HDMI Output

5. 3G-SDI Output

6. RS-232/422 Control Port (RJ45)

RJ45 to RS-232/422 convertor cable is provided.

7. USB-C Port

For USB video

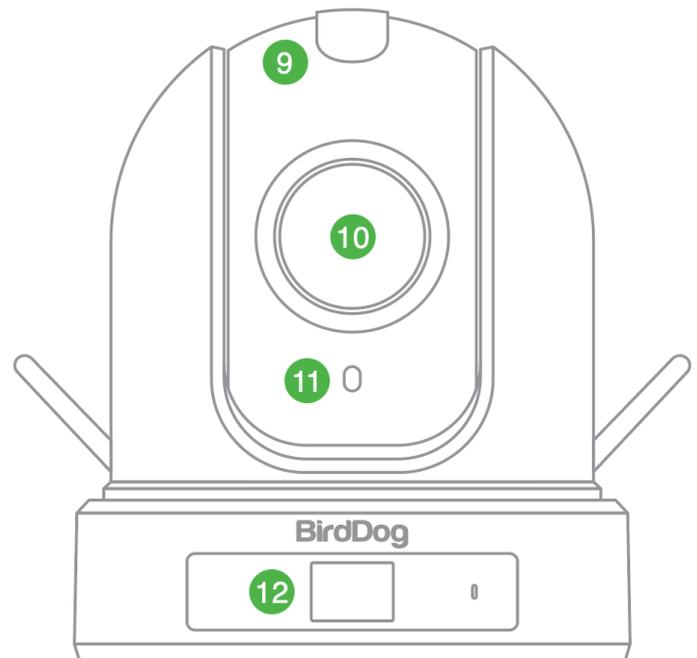
8. Wi-Fi Antenna

9. Tally Light

10. Lens

20x zoom lens.

11. Power LED Indicator





Turns green when the camera is connected to power outlet. When the power is turned on, it takes about 15 to 30 seconds to display the image after LED turns on. Flashes orange when the camera receives commands from the infrared remote controller.

12. OLED Display

Displays camera host name, Ethernet IP address and Wi-Fi IP address.

```
BirdDog X120
Ethernet
192.168.1.120
Wi-Fi
192.168.2.120
```

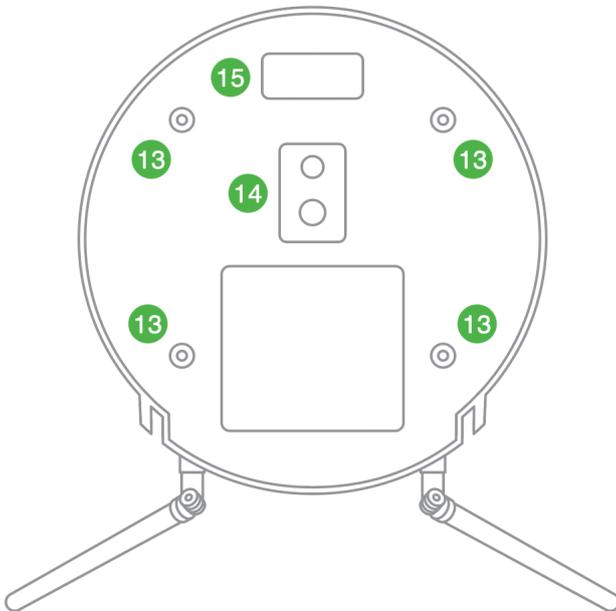
13. Fixed Mounting Holes

For original wall/ceiling mount bracket

14. Tripod mounting holes

15. Base DIP Switch

Used for setting the camera configuration. For details, refer to [Setting the DIP Switch](#).





Remote Controller

1. Power

- Power ON the camera to turn the camera in operation status.
- Power OFF the camera to turn the camera in standby status.
- When the camera is powered OFF, the camera turns to the back and would be on standby mode.
- When the camera is powered ON, the camera turns to the front.
- Powering the camera ON/OFF would not restart the camera.

2. Camera IR ID Selector for Remote Control.

3. AI Features, available when AI button (13#) is pressed. (Not activated).

4. Positioning Function and Number Buttons

- Preset Position Calling and Setting

5. Value adjusting + for Feature Item NO.11.

6. Preset button, to set preset position.

7. Zoom. Telescope and Wide with slow speed.

8. Auto Framing. (Not activated).

9. Direction Control

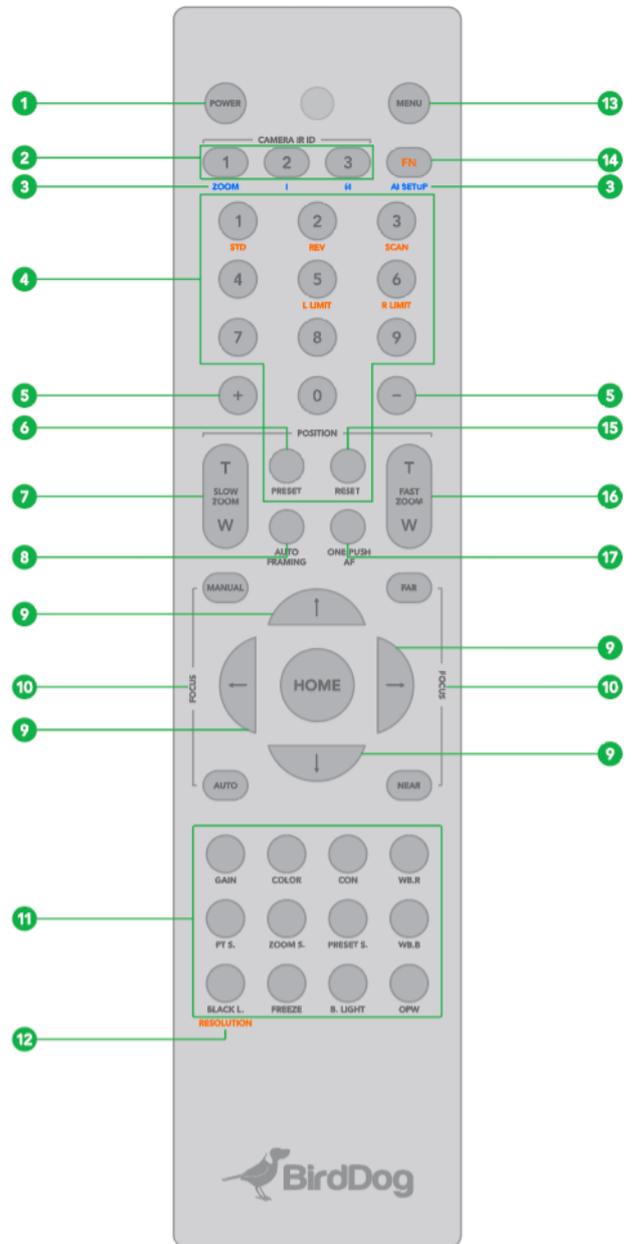
- PAN-TILT direction control
- OSD menu navigator
- HOME: Home position, confirm button, Enter button.

10. FOCUS

- Manual Focus, Far, Near
- Auto Focus

11. Features Direct Control, work with Value Adjust key + and – to make the feature adjustments.

- Gain, Image gain adjustments
- Color, Image color saturation adjustments
- Con., Image contrast adjustments
- WB.R, Image White Balance Red adjustments
- PT S., Pan/Tilt Speed adjustments





- Zoom S., Zoom Speed adjustments
- Preset S., Preset Speed adjustments
- WB.B, Image White Balance Blue adjustments
- Black L., Image Black Level adjustments
- Freeze, To get a frozen image.
- B Light, Back Light compensation
- OPW, One Push White Balance

12. Video Format Switching, Work under Fn button.

- You can change the video format by keep pressing the button. (When video format is changed, the camera would restart and the screen turns black for few seconds.)

13. MENU, On screen menu display ON/OFF

14. FN Function Mode key

- Press and hold the Fn key, and press one of the function buttons that printed in color brown.

15. Reset button, to cancel preset that has been set.

16. Zoom. Telescope and Wide with fast speed.

17. **One Push AF** - Press once to focus.

NOTE Battery not included with remote controller.

Using the IR Controller

Pan/Tilt and Zoom Operation

Panning and Tilting

1. Press the POWER switch.

The camera will turn on and perform the pan/tilt reset operation automatically.

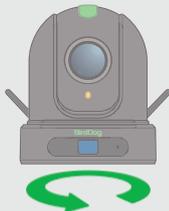
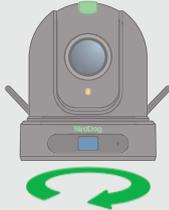
2. Press the arrow button to pan or tilt the camera.

While checking the picture on the screen, press the desired arrow button.

- To move the camera in short increments, press the button just for a moment.
- To move the camera in long increments, press and hold the button.
- To move the camera diagonally, press the "← , →" button while holding down the "↑, ↓" button.
- Restore to starting position, press the HOME button.



- If the camera moves in a different direction from the one that you intended, be aware that the camera is set so that the image output from the camera is rotated toward the right whenever you press the "→" button.
- To face the camera toward the opposite direction:
You might wish to face the camera towards the opposite direction from that of the button you pressed, for example, when you change the direction of the camera while checking the picture on the screen. In such a case, press and hold the Fn key, then press the 2 (REV) button.
- To reset the setting, press and hold the Fn key, then press the 1 (STD) button.

Arrow Button	Movement of the Camera	Setting
		While holding down FN Press 1 STD
		While holding down FN Press 2 REV

NOTE: The above setting only changes the signal emitted from the infrared remote controller, and does not change the setting of the camera itself. Therefore, repeat the setting for each infrared remote controller if you are using more than one infrared remote controller.

When the STANDBY lamp is blinking

If the camera is moved forcibly, or a finger or other object interferes with camera movement, the camera may fail to memorize the pan/tilt position.

Press the PAN-TILT RESET button to reset the pan/tilt position.

Zooming

Button (Slow Zoom) [T] – Zoom-IN and [W] – Zoom-OUT slowly
Button (Fast Zoom) [T] – Zoom-IN and [W] – Zoom-OUT quickly

Operating Multiple Cameras with IR Controller

1. Set the DIP Switch on the rear panel of the camera to the number of camera you want to operate to 1, 2 or 3. (See DIP Switch setting instruction).
2. Press one of the Camera IR ID button on the IR remote controller, the button will be illuminated, that means the camera that is set to IR ID Number will respond to the IR controller.
3. Always firstly check if the IR ID is set correctly same as the IR ID set on the camera when the camera is not responding to the IR controller. Then, you can operate the camera(s) specified by number. Every time you operate the camera(s) using the IR remote controller, the Camera IR ID button pressed in step 2 flashes.



Adjusting the Camera Focus

Focusing on a Subject

Focusing the camera on a subject automatically: Press the AUTO button. The camera focuses on the subject at the center of the screen automatically.

Focusing the camera on a subject manually: After pressing the MANUAL button, press either the FAR or the NEAR button to have the camera focus on the subject.

Shooting with Back Lighting: When you shoot a subject with a light source behind it, the subject becomes dark. In such a case, press the BACK LIGHT button. To cancel the function, press the BACK LIGHT button again.

NOTE The BACK LIGHT function is effective if MODE is set to FULL AUTO in the EXPOSURE menu of the camera.

Using Presets

Memory (Preset)

Using the preset function, nine sets of camera shooting conditions can be stored and recalled. Nine sets of camera shooting conditions can be stored and recalled by using remote controller. Up to 128 presets are possible via protocol programming. This function allows you to achieve the desired status instantly, even without adjusting the following items each time.

- Pan/Tilt Position
- Zoom Position
- Focus Auto/Manual
- Focus Position
- AE Mode
- Shutter control parameters
- Bright Control
- Iris control parameters
- Gain control parameters
- Exposure Compensation On/Off
- Exposure Level
- Backlight Compensation On/Off
- White Balance Mode
- R/B Gain
- Aperture Control
- WD Parameter

The settings stored using this function are recalled when the power is turned on.

1. Press the PAN-TILT RESET button to reset the pan/ tilt position.
2. Adjust the position, zooming, focusing and backlighting of the camera.

While holding down the PRESET button, press any of the POSITION buttons, 1 to 9, in which you want to store the settings.

Recalling the stored settings

Press any of the POSITION buttons, [1] to [9], in which you have stored the settings.

Cancelling the preset memory

While holding down the RESET button, press the POSITION button from which you want to cancel the settings.

NOTES:

- When the power is turned on, the camera starts with the settings stored in POSITION 1.
- If you want to retain the previous pan and tilt positions, etc. before the power is turned off and turned on again, store those positions in POSITION 1.
- When you are storing or cancelling the settings in one POSITION, you cannot call up, store or cancel the settings in another POSITION.
- When the menu is displayed on the screen, you cannot perform the operation for storing, recalling, or cancelling the setting. Be sure to return to the normal display before starting these operations.



Adjusting the camera

Adjusting the camera, including camera image parameter (Gain, Color, Contrast, White Balance (Red & Blue), Black Level), camera speed (Pan/Tilt speed, zoom speed and preset speed), as well as Freeze, Back Light and One Push White Balance.

Gain-Adjust Gain

Press Gain button, then press "+" or "-" button to adjust the Gain value. After done, press other button in this area.

Color-Adjust Color

Press Color button, then press "+" or "-" button to adjust the Gain value. After done, press other button in this area.

CON-Adjust Contrast

Press CON button, then press "+" or "-" button to adjust the Contrast value. After done, press other button in this area.

WB.B-Adjust White Balance (Red)

Press WB.R button, then press "+" or "-" button to adjust the White Balance Red color value. After done, press other button in this area.

WB.B-Adjust White Balance (Blue)

Press WB.B button, then press "+" or "-" button to adjust the White Balance Blue color value. After done, press other button in this area.

PT S.-Adjust Pan/Tilt Speed

Press PT S button, then press "+" or "-" button to adjust Pan/Tilt speed value. After done, press other button in this area.

Zoom S.-Adjust Zoom Speed

Press Zoom S button, then press "+" or "-" button to adjust zoom speed value. After done, press other button in this area.

Preset S.-Adjust Preset Speed

Press Preset S button, then press "+" or "-" button to adjust preset speed value. After done, press other button in this area.

Black L.-Adjust Black Level

Press Black L button, Black L button light will on, then press "+" or "-" button to adjust black level value. After done, press other button in this area.

B.Light-Adjust Back Light

Press B Light button, B Light button light will on, then press "+" or "-" button to adjust back light value. After done, press other button in this area.

Freeze-Set Freeze

Press Freeze button, Freeze button light will on, the camera image will be frozen, press Freeze button again, Freeze button light will off, and camera image will back to normal.

OPW-Set One Push Whit Balance

Press OPW button, OPW button light will on, camera will be automatically readjusted white balance.

NOTE

When you select the OPW (One Push White Balance), perform the following operations:

1. Place an image of white subject (For example, a sheet of white paper) in the center of the screen.
2. Press the OPW button of the infrared remote controller. The one-push white balance adjustment is activated.



Fn Mode Key

Press and hold the **Fn** key, then press one of the function buttons that printed in color brown to have extra feature settings.

REV

To face the camera toward the opposite direction, press and hold the **Fn** key, then press 2 (REV) button.

STD

To reset the setting that configured in REV step, press and hold the **Fn** key, then press 1 (STD) button.

Scan

To set the camera in scan mode, press and hold the **Fn** key, then press 3 (Scan) button. Press one more time to stop the scanning.

Left Limit

To set the leftmost position that the camera can pan to. Use the arrow keys to turn the camera to the leftmost position you want to set, press and hold the **Fn** key, then press 5 (Left Limit) button, the left limit position has been set. When the camera is turned to the left and reach the left limit position, the camera will stop.

Right Limit

To set the rightmost position that the camera can pan to. Use the arrow keys to turn the camera to the rightmost position you want to set, press and hold the **Fn** key, then press 6 (Right Limit) button, the right limit position has been set. When the camera is turned to the right and reach the right limit position, the camera will stop.

Resolution

To change the video resolution, press and hold **Fn** key, then press the Resolution button to populate a menu where you can switch resolutions.

Changing Video Resolutions

- Press and hold **Fn** button, then press the **Resolution** button to populate a menu where you can switch resolutions.
- Use the arrow keys to navigate.
- Press **Home** to select.
- Screen will show 'CHANGING...'
- Press **Menu** to exit.



Powering the X120

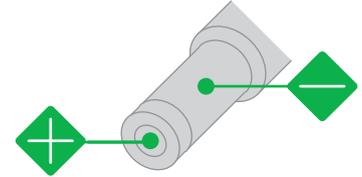
The X120 can be powered in two ways.

- **PoE+ (Power over Ethernet)**

PoE+ is a convenient way to power the X120 as it allows both data and power to be sent through the same standard Ethernet cable. The network switch must support PoE+ (802.3at).

- **DC Connection**

Located at the rear of the X120 is a 12VDC connection port. Use only the DC power adaptor (JEITA type4) supplied with the unit.



WARNING

Do not attempt to manually move the camera head when the device is powered up. Doing so may damage the camera.

Video Output

The camera can simultaneously output HDMI, SDI and either NDI® HX or USB (UVC) video.

NDI® HX Signal

1. Connect the camera to the network using a CAT5e/CAT6 network cable or via Wi-Fi.
2. You'll need to use web browser on a connected computer for camera configuration.
3. To obtain and configure NDI® HX video, please refer to [NDI Network Settings](#).

HDMI Signal

1. Connect the camera to a HD monitor/TV using HDMI cable.
2. Turn on the camera. After initialization, video will display on the monitor.
3. Information of the camera initial setting status will display on the monitor for 5 seconds.
4. You can set the displayed video format in the camera System menu.

SDI Signal

1. Connect your camera to the SDI Device/display with an SDI cable.

USB Video Signal

1. Connect the camera to your USB device/display with a type C cable.



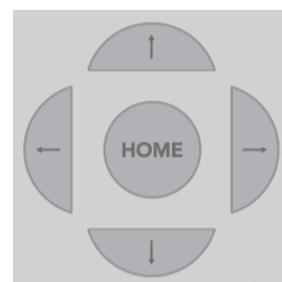
Using the Camera Menus

You can use the infrared remote controller to change camera settings while viewing the On Screen Display (OSD) menus on a connected monitor. The OSD is viewable over NDI[®], SDI or HDMI.

However, the [Web Configuration Panel](#) (BirdUI) affords greater control of your camera with more parameters as well as allowing remote adjusting of camera settings over NDI[®], and is the recommended method of adjusting your camera.

This section explains how to navigate the menus. The menu parameters may vary according to the different product model numbers.

1. To display the main menu, press the MENU button on the supplied infrared remote controller. The main menu is displayed.
2. Use the "↑, ↓" buttons to navigate between main menu items. For example, clicking the "↓" button once will move the cursor to the item below.
3. To enter the sub menu of a selected item, click either the "→" button or the HOME button. In the example below, we are navigating between two sub menus of the Exposure main menu. Sub menus can also be navigated vertically to select sub menu items.
4. Once you've navigated to a setting value, use the "←, →" buttons to increment or decrement the value.
5. Press the MENU button to exit the menus.



NOTE When you are operating the menu using the infrared remote controller, you cannot set IR- RECEIVE in the SYSTEM menu to OFF. To set IR- RECEIVE to OFF, use the appropriate VISCA command.

Camera Menus

Exposure Menu

The Exposure menu sets items related to exposure.

Mode

Full Auto: The exposure is adjusted automatically using the value set for EX-COMP.

Manual: Allows manual adjustment of the GAIN, shutter speed (SPEED) and iris (IRIS).

Iris Pri: Iris Priority mode. This mode allows you to set a fixed IRIS with exposure achieved by automatic setting of SPEED and GAIN.

Shutter Pri: Shutter Priority mode. This mode allows you to set a fixed shutter SPEED with exposure achieved by automatic setting of IRIS and GAIN.

Gain

Select the gain.

Speed

Select the shutter speed.

Iris

Select the iris setting.



Ex-Comp Level (Exposure compensation)

When MODE is set to FULL AUTO setting EX-COMP LEVEL allows you take make manual adjustments of the image's brightness by manually increasing or decreasing exposure.

Smart Exposure

In all modes you can choose Smart Exposure which uses a analytical engine to help set facial exposure.

White Balance Menu

WB Mode (White balance mode)

Auto: This mode computes the white balance value output using color information from the entire frame with a range of values from 2500K to 7500K. This mode is the default setting.

Indoor: Sets the color temperature to 3200K.

Outdoor: Sets the color temperature to 5800K.

OPW (One push white balance): The One Push White Balance mode is a fixed white balance mode that may be automatically readjusted only at the request of the user (One Push Trigger), assuming that a white subject, in correct lighting conditions can occupying more than 1/2 of the image. One Push White Balance data is lost when the power is turned off. If the power is turned off, you'll need to reset One Push White Balance.

To select OPW:

1. Place a white subject (i.e., sheet of white paper) in the center of the frame.
2. Press the remote controller HOME button to activate the one-push white balance adjustment.

ATW (Auto tracking white balance): Auto Tracking White balance (2000K to 10000K), allows the camera to adjust the white balance according to the temperature of the light source illuminating the subject.

User: This is a mode that enables you to manually set the control of Red and Blue gain up to 256 steps.

SVL (Sodium Vapor Lamp): This is a white balance mode specifically for the orange sodium vapor lamps.

Manual: Allows manual setting of the color temperature.

White Balance Sensitivity

Sets the sensitivity of the camera's reaction to detected colour changes in a scene.

R, G, B Tuning

This option adjusts the temperature or phase of Red, Green and Blue.

Color Temperature

Sets the color temperature of the image in degrees Kelvin.

R, B Gain

Sets the intensity of red and blue colors in the image.

Picture Menu

Sharpness

Adjusts the picture sharpness.

2D /3D NR

2D Noise Reduction is a method of reducing noise within an image by comparing the image from frame to frame, removing variations that do not appear in each frame.



Flip
Flips the image upside down for ceiling mounted cameras. Select from upright mode (OFF) or ceiling mount (ON).

Mirror
Displays a mirror image of the video image.

Hue
Adjusts the color phase.

Saturation
Adjusts the color saturation.

Contrast
Adjust the contrast level. The smaller the value lowers the contrast.

Effect (Picture Effect)
Select from Monochrome Image (ON) or Color image (Off).

Style
You can choose a preset that will combine various Picture parameters for different results. Experiment!

Bright
The bright control function adjusts both gain and iris using an internal algorithm, according to a brightness level set by the user. Exposure is controlled by gain when dark, and by iris when bright. As both gain and iris are fixed, this mode is used when exposing at a fixed camera sensitivity. When switching from Full Auto or Shutter Priority Mode to Bright Mode, the current status will be retained for a short period of time.

HLC Mode (Highlight Light Compensation)
HLC attempts to adjust AE and AF to compensate for high intensity spot lights aimed toward the camera lens.

Backlight Com.
When the background of the subject is too bright, or when the subject is too dark due to shooting in the AE mode, back light compensation can help make the subject better exposed.

WDR (Wide dynamic range mode)
The WDR feature is available on certain product models. The camera adjusts the image brightness for both the extreme dark and bright areas of the image.

Noise Reduction
Can reduce the level of image noise.

De-flicker
Turning this on can help reduce the image flicker that can occur if the camera frame rate is different to the frequency of the local electricity supply that is powering the scene lighting.

Gamma
Adjusts the gamma of the image.

Lens Menu

Zoom Ratio OSD
Determines whether the zoom ratio displays on screen.

AF Sensitivity
When set to HIGH, autofocus response will be fast and suited for frequently moving subjects. When set to LOW, the autofocus response is slowed which can improve the stability of the focus in low light conditions.



MF Speed

Choose between eight manual focus speeds.

Near Limit

You can set the camera to ignore focusing on subjects that are closer than a designated distance.

AF Mode

Choose between Auto, Manual and One Push focus modes.

AF Area

Set the area of the frame that will influence auto focussing.

Smart Exposure

Smart Focus uses a analytical engine to help set facial focus on human subjects.

Pan Tilt Zoom Menu

Adaptive PT

When set to ON, P/T speed are adaptive to the zoom range. For example, the higher zoom ratio you use, the slower the speed of P/T.

P/T Speed

Adjusts the speed that the camera pans and tilts when it is controlled using the remote controller.

Pan Direction

Camera horizontal Left and right orientation setting. Options are Normal or Invert.

Tilt Direction

Camera tilt up and down orientation setting. Options are Normal or Invert.

System Menu

Pelco ID

When using RS485 (PELCO P/D) control, set Camera ID to the controlled address. This value is from 001–255.

VISCA ID

Set the VISCA ID to match the PTZ Keyboard or controller you are using.

Comm Type

Set the Control COMM Port type.

Baud Rate

Set the Baud Rate to the same Baud Rate as the PTZ Keyboard you are using.

IR-Receive (Infrared Signal Reception)

When this is set to OFF, the camera does not receive the signal from the infrared remote controller. Be sure to keep it set to ON when you use the infrared remote controller. Note that you cannot set IR-RECEIVE to OFF when you operate the menu using the infrared remote controller. To set it to OFF, use the appropriate VISCA controller.

Display Info

When this item is set to ON, the camera configuration is displayed for approx. 3 seconds on the screen when the camera is powered on or rebooted.



Color Space

Set the HDMI output color space.

Video Format

You can change the camera video format. Depending on the video client software you are using, some video software may need to be restarted to obtain the new video format.

NOTE: The camera video format can also be changed by setting the DIP switch on the base of the unit.

MCU FW

Software Version that is currently running on the camera, you may need this information for technical support.

Factory Reset

Select this item to set camera back to the factory default setting. Press the HOME button on the remote control to confirm. All user settings for the camera will be deleted.

Video Parameters

When set to ON, the value of the settings will be displayed on screen when you use remote controller to adjust the camera image parameters using the direct adjust buttons "+" or "-" with the feature keys on the remote controller.

Tally Mode

Select ON to enable the camera Tally lights.

Status Menu

Various current settings are displayed for convenient quick reference.



Web Configuration Panel

The web configuration panel (BirdUI) offers remote access to the settings of the X120. It also allows you to apply firmware updates to your camera.

Access via a web browser (URL)

The X120 is configured to automatically receive a network IP address from the computer network via DHCP (Dynamic Host Configuration Protocol). Most corporate, education and home networks have a DHCP server present on the network to allow this to occur. Usually your Internet Router provides this.

If the X120 receives an IP address automatically from this server (DHCP), the IP address can be discovered in several ways, including BirdDog Central Lite software available from [here](#).

NOTE: Your computer will need to have 'Bonjour' services loaded in order to access the unit via it's user defined name. Apple devices come pre-installed with Bonjour, while Windows devices need a plugin available from [here](#).

Accessing the X120 on a network without a DHCP server

Some standalone or private networks may not have a DHCP server. After 30 seconds of waiting for an automatically assigned IP address, the X120 will reassign to the designated fallback address (the default is 192.168.100.100).

In order to access the BirdUI on a network which is configured to a different subnet, change your computers IP address to match the BirdDog unit. Once you gain access to the BirdUI, choose your IP address to match the rest of the devices on your network.

For instructions on setting your computer's IP address, please consult your computer operating system manual or IT support resources.

Password Management

Once you direct your web browser to the BirdUI you will be presented with the Dashboard. To make changes to any settings, you'll need to log in.

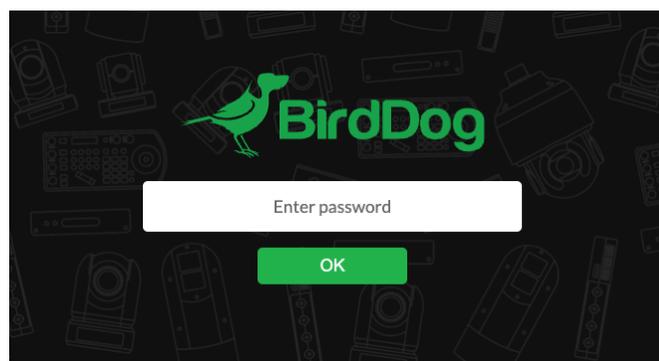
Default Password

The BirdUI is secured by a user-selectable password. The default password is: **birddog** (one word, lower case).

Password Reset

To change the password simply login using the default password, navigate to the Network tab in the BirdUI, and select Change Password.

It is recommended to change this password in a network environment where the X120 is shared with other users (e.g. not private). By entering this password, the user is granted full access to the X120 configuration settings and could interrupt a live program.





BirdUI Layout

The BirdUI is organized into the following panels:

3. Dashboard

Overall view of important information such as the network connection type and video stream format and resolution.

4. Network

General network settings such as DHCP IP Address details, timeout fall-back address and camera network name, as well as NDI® specific network settings

5. System

System admin functions such as updates, password change, designation of group access and camera reboot.

6. AV Setup

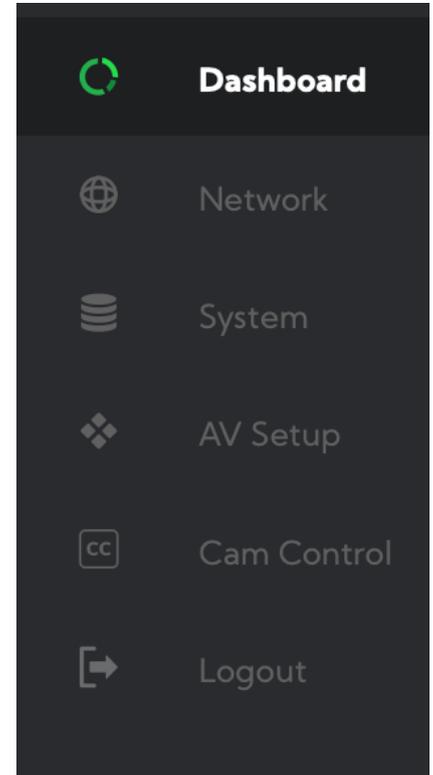
Full NDI® encode management and audio settings.

7. Cam Control

Exposure, white balance, picture and color settings and Scopes.

8. Logout

BirdUI logout.





Dashboard

The Dashboard displays an overall view of important information.

The dashboard for BirdDog PTZ X120 displays the following information:

- 1. Device Mode/Source Status/Wi-Fi Strength:** Device Mode: Encode, Source Status: Streaming NDI, Wi-Fi strength indicator.
- 2. System Utilization:** 75% CPU utilization.
- 3. Connection Status:** Ethernet Status: Not Connected, Wi-Fi Status: Connected, Preferred NIC: Wi-Fi.
- 4. WiFi Network:** BD-Office 2.4GHz.
- 5. Status:** NDI Video Stream Name: CAM, Video Format: 1080p59.94, Audio Status: Mute.
- 6. Stream Info:** Video Resolution: 1920x1080, Video Frame Rate: 59.94, Video Sample Rate: 4:2:2, Audio Channels: 2, Audio Sample Rate: 48000, Average Bitrate: 134Mbps, Genlock Status: Not Active, Network Mode: RUDP, Streaming Protocol: NDI HX.
- 7. System Details:** System Name: birddog-newHX-x120, Eth. IP Address: 192.168.100.100, Firmware Version: BirdDog_X1201.0.2, MCU Version: 8, Wi-Fi IP Address: 192.168.100.5, Network Config Method: DHCP, Status: Active, MAC address: e8:eb:1b:49:a6:78.
- 8. Device Restart:** RESTART button.
- System Reboot:** REBOOT button.

1. Device mode/Source Status/Wi-Fi Strength

Encode or Decode. For the X120 this is fixed at Decode.

2. System Utilization

Current computer system CPU utilization.

3. Connection Status

WiFi and Ethernet connection status and the preferred network interface.

4. WiFi Network

WiFi Network name and strength.

- **Full:** > -30dBm
- **Good:** between 30dBm and -50dBm
- **Medium:** between -50dBm and -67dBm
- **Poor:** between -67dBm and -90dBm
- **No signal:** <-90dBm



FULL



GOOD



MEDIUM



POOR



NO SIGNAL



OFF



5. Status

- a. NDI Video Stream Name.
- b. Selected video format.
- c. NDI audio status as set.

6. Stream Info

- a. Video resolution as set. Number of audio channels of the camera.
- b. Video frame rate as set. The audio output sample rate of the camera.
- c. Video chroma subsample rate and average NDI® bitrate of the camera. The X120 has a fixed chroma subsample rate.
- d. Streaming protocol. Select from NDI or NDI HX.

7. System Details

- a. System name as set.
- b. Network details as set.
- c. Online status of the camera.
- d. current firmware and MCU version of the camera.
- e. Ethernet and WiFi IP address and camera MAC address.
- f. Network Configuration Method (preferred transmission method).

8. Device Restart and System Reboot

Click the Device Restart button to restart the NDI® stream. This may be necessary after changing key image settings e.g., resolution. Click the Reboot button to perform a camera reboot.

Network

Ethernet Network tab

Configuration Method	<input type="radio"/> STATIC <input checked="" type="radio"/> DHCP	DHCP Timeout	<input type="text" value="20"/>
IP Address	<input type="text" value="192.168.2.132"/>	DHCP Fallback IP Address	<input type="text" value="192.168.100.100"/>
Subnet Mask	<input type="text" value="255.255.255.0"/>	DHCP Fallback Subnet Mask	<input type="text" value="255.255.255.0"/>
Gateway Address	<input type="text" value="192.168.2.1"/>	Birddog Name	<input type="text" value="zoom-p120"/> .local
<input type="button" value="APPLY"/>			

Configuration Method

Here you can set the network configuration to either DHCP (default) or Static. DHCP simplifies the management of IP addresses on networks. No two hosts can have the same IP address, so assigning them manually can potentially lead to errors. If your network is set up for DHCP, this is generally the best configuration to choose.



If you do choose to go with a Static IP address, you'll need to add the IP Address, Subnet Mask and Gateway Address information according to the requirements of your network.

DHCP Timeout, Fallback IP address, Fallback Subnet Mask

You can set the timeout period during which the X120 will look for a DHCP IP address. After this period, the camera will default to the designated fallback IP address.

This can be useful if you use your camera in other network environments. For example, if a DHCP server is available in your normal office or studio application, the camera will use the DHCP supplied IP address. If you then use the camera in another application without a DHCP server, your camera will always default to the known fallback IP address. NOTE: Do not set the fallback IP address the same as the camera IP address. It is recommended to keep the fallback IP address.

BirdDog Name

You can give your camera a meaningful name to make identification easier when viewing NDI® sources on a receiver such as a TriCaster, vMix or Studio Monitor. Be sure to make the name unique, as no two devices on the network should have the same name. The name can be any combination of a-z, 0-9, and '- '.

After renaming your camera, navigate back to the System menu and click the REBOOT button. The camera will re-initialize and you'll be good to go.

Wi-Fi Network tab

Wi-Fi	ON	OFF	Configuration Method	STATIC	DHCP
SSID:	<ul style="list-style-type: none">WiFi Network Name 01BirdDog Office 2.4GHzWiFi Network Name 03WiFi Network Name 04WiFi Network Name 05WiFi Network Name 06WiFi Network Name 07		IP Address	192.168.100.5	
			Subnet Mask	255.255.255.0	
			Gateway Address	192.168.100.1	
			DHCP Timeout	20s	
			DHCP Fallb. IP Address	192.168.100.100	
			SHCP Fallb. Sub. Mask	255.255.255.0	
			BirdDog Name	BirdDog-00122	.local
	Set selected SSID as favourite <input checked="" type="checkbox"/>				APPLY

Wi-Fi

Turn the WiFi on or off.

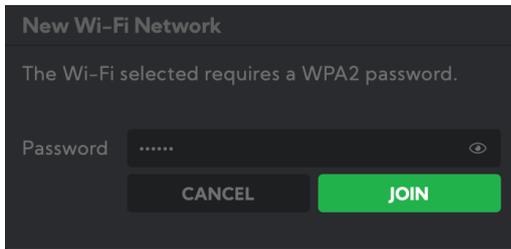
SSID

- WiFi Network Name 01
- BirdDog Office 2.4GHz**
- WiFi Network Name 03

- Select the network from the list of SSIDs (network names). The selected network is identified in blue.
- Click the cross to remove a network from the list.

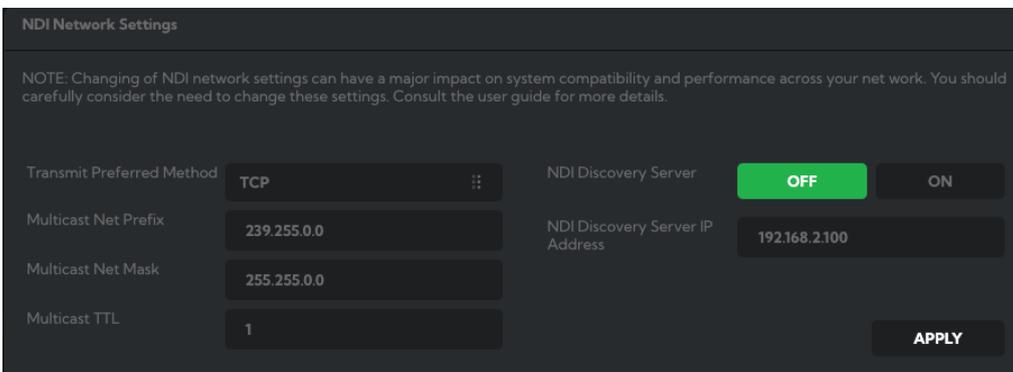


- c. A lock icon denotes a password protected network. If selected, you'll be prompted for a password.



The other settings are same as above for the **Ethernet Network** tab.

NDI Network Settings



The X120 operates with the latest NDI® Libraries. There are several options to configure the X120 behavior in an NDI® network. Each configuration has its benefits, however it is recommended to utilize the default TCP transmit method unless you have reason to change.

Preferred Transmit Method

TCP

TCP is the default method of transmission for NDI®. It operates well within local networks with predictable latency and limited jitter. BirdDog recommends that TCP be used for typical applications, and only using alternative transports for specific reasons.

UDP

UDP is recommended for networks where there is extended latency from one end to the other. The nature of UDP means that it does not receive a confirmation of each packet being successfully received – vastly improving performance on busy networks. UDP can have some consequences if there are other issues on the network such as jitter or lost packets as it will not inherently re-sent a lost packet.

R-UDP (Reliable UDP)

This protocol bridges the performance of TCP and UDP. Compared to TCP, it reduces overall network load (allowing more NDI® streams) by not requiring every packet to be 'acknowledged' by every receiver – has error correction built in for smoothness and reliability.



Multicast

Multicast is especially useful for use-cases that require a single source to be received on multiple receivers simultaneously. Utilizing Multicast offloads the distribution of the NDI® A/V packets from the X120 to the network infrastructure. You should take care to ensure your network is specifically configured to support Multicast as using it on an ill-prepared network can create unintended network problems.

NDI Discovery

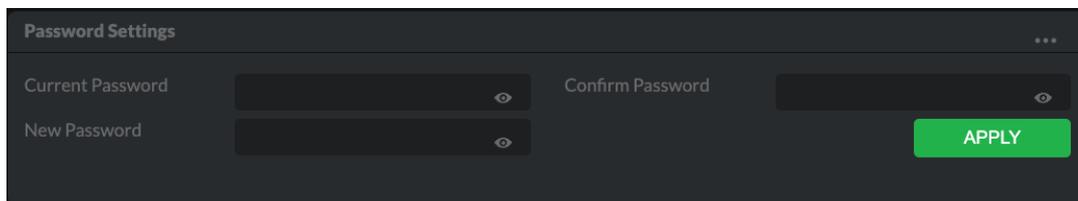
If you choose to use a NDI® discovery server, you can configure it in this tab. By default, NDI® utilizes mDNS (multicast Domain Name System) to create the zero configuration environment for discovery. Unless the network is specifically configured to not allow mDNS, NDI® sources will be discovered.

The NDI® discovery service is designed to replace the automatic discovery NDI® uses with a server that operates as an efficient centralized registry of NDI® sources that requires much less bandwidth. Multiple servers can be specified for failover redundancy. NDI® discovery server also helps with location of devices that reside on different subnets. The NDI® Discovery Server is available in the free [NDI SDK](#).

1. If you are using one or more NDI® Discovery Servers, click the ON button.
2. Enter a comma delimited list of the IP address(es) of your NDI® Discovery Server(s).
3. Click the APPLY button to save your changes.

System

Password Settings



The screenshot shows a dark-themed 'Password Settings' dialog box. It contains three input fields: 'Current Password', 'New Password', and 'Confirm Password'. Each field has a small eye icon to its right, indicating a password toggle. A green 'APPLY' button is located to the right of the 'New Password' field.

The BirdUI is secured by a user-selectable password. To make changes to any settings, you'll need to log in. The default password is **birddog** (one word, lower case). It is recommended that the default password be changed, since the BirdUI grants full access to the camera configuration settings.

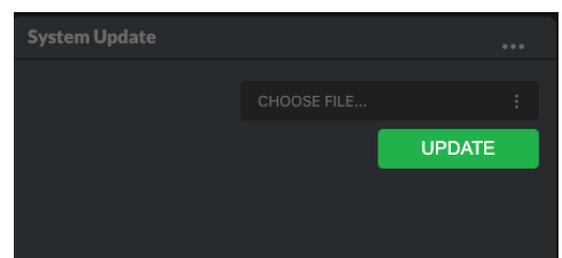
You can change the password in the Password Settings tab.

1. Enter the current password.
2. Enter the new password. It is recommended that you change this password to retain administration rights to prevent unauthorized changes in a network environment where PTZ Keyboard is shared with other users (e.g. not private). Confirm the new password and click the APPLY button.

System Update

We are always adding new features and improving the performance of our products, so installing the latest firmware will provide you with the best user experience.

To upgrade the firmware, [download the firmware](#) and follow the **Firmware Upgrade Instructions** located in the download folder.



The screenshot shows a dark-themed 'System Update' dialog box. It features a 'CHOOSE FILE...' button with a dropdown arrow on its right side. A green 'UPDATE' button is positioned to the right of the file selection area.

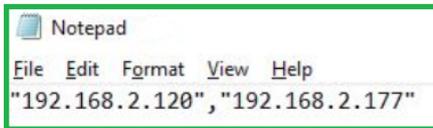
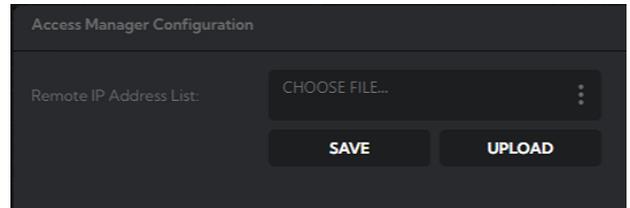


Access Manager Configuration

Remote IP List

By default, NDI® devices are visible to each other only when they're on the same VLAN. If you want visibility or control of a device on a different VLAN, you need to add it's address manually as a Remote IP. You can upload and save Remote IP Lists for sharing with other cameras. To upload a list:

1. Click the CHOOSE FILE button to load your Remote IP List in UTF-8 encoded string format.
2. Click the UPLOAD button. Do not upload a blank list.

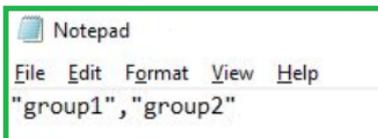
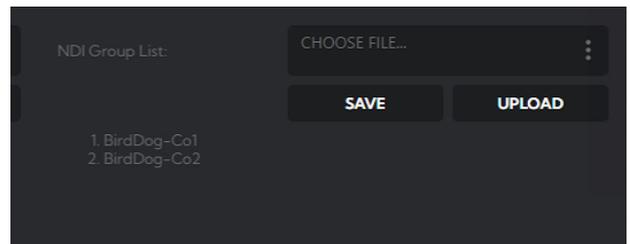


NDI Group List

Set the NDI® group list. NDI® groups allow you to restrict communication to only devices that belong to the same NDI® group. NDI® Groups can be very useful in larger environments to control visibility and access amongst various groups. You can upload and save NDI Group Lists for sharing with other cameras. Groups also need setting up in NDI Access Manager, available in [NDI Tools](#).

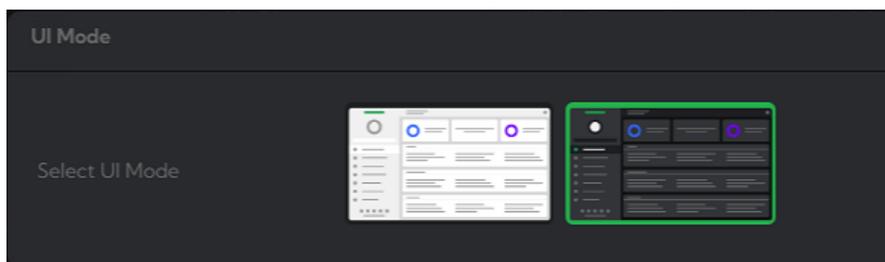
To upload a list:

1. Click the CHOOSE FILE button to load your NDI® Group List in UTF-8 encoded string format.
2. Click the UPLOAD button. Do not upload a blank list.



UI Mode

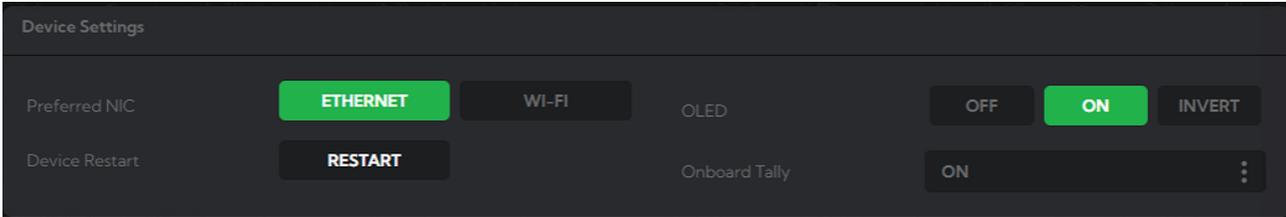
Click on an icon to choose your desired UI colour scheme.





AV Setup

Device Settings



Preferred NIC

Although you may have Ethernet and WiFi both enabled, you can set the preferred NIC for streaming. However, both networks remain available for control, BirdUI and API use.

OLED

Off/On: Enables or disables the camera OLED display.

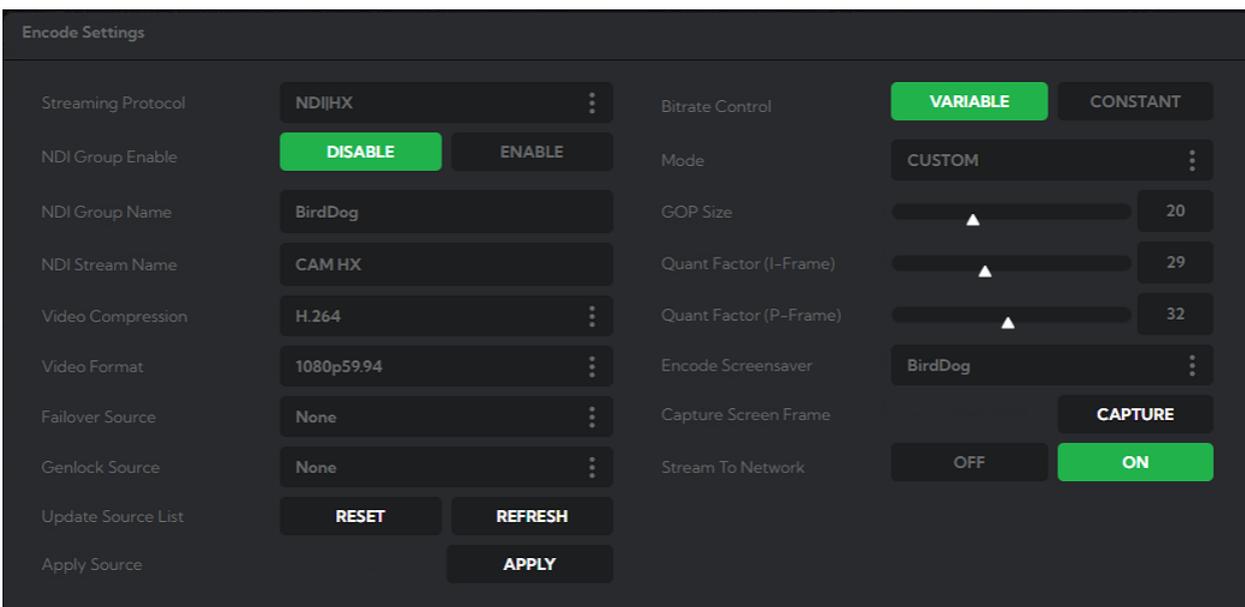
Invert: Inverts the display for use during inverted camera mounting.

Onboard Tally

You can choose to enable or disable the onboard Tally light.

Encode Settings

Select from either NDI HX or UVC USB for the streaming protocol. You can also choose to disable the NDI HX output stream.





Streaming Protocol

Select NDI HX or UVC as the streaming protocol. NDI HX is a lower bandwidth version of full NDI® and you can choose to use either H.264 or H.265 video compression to reduce the required network bandwidth. Choose UVC for applications where standard webcam video is required.

NDI Groups

NDI® supports **Grouping** which allows you to hide the visibility of video sources to viewers that are not part of the group. If disabled (default), the video source is public and viewable by any receiver on your network. Click on the field and type a group name. Receivers can then scan for, and select your group.

NDI Stream Name

You can give the camera NDI® output stream a meaningful name to make identification easier on any NDI®-capable receiver, particularly on networks where there are a large number of NDI® streams.

Video Compression

Select either the H.264 or H.265 codec.

Video Format

The X120 is capable of outputting independent video formats for both NDI® HX and SDI/HDMI. This setting affects only the NDI® video output. Please note that the video rate you select here must be of the same family as the SDI/HDMI video output, for example, 720p50 aligns with 1080i50/1080p50 but will not co-exist with any 29.97/30 fps based camera setting.

NDI Failover Source

NDI® has a failover function where you can designate an alternate camera or NDI® source for the receiver, should this camera become disconnected or otherwise unavailable on the network. Click on the Available NDI Sources field to select your alternate source.

Genlock Source

Click the dropdown to select the NDI genlock source.

Update Source List

Pressing the REFRESH button will add new sources to the list, whereas pressing the RESET button will populate the list with only active NDI® sources. Click the APPLY button to apply your failover source change.

Bitrate Control

Variable

Encodes the stream segments at different bitrates according to their complexity. Capable of producing higher quality streams but takes longer to process data, leading to higher latency and quality can be less consistent. When Variable is selected, you can choose settings for the I-frame or P-frame Quant Factor.

Constant

Encodes the stream at a single, set bitrate. Can be more suitable for mobile delivery and result in more reliable audio quality. When Constant is selected you can adjust the target bitrate.

Mode

To accommodate the available bandwidth, you can choose from three bitrate control presets – Low, Medium, High and Ultra. The fifth selection, Custom, allows you to manually adjust the settings.

GOP Size

Sets the number of frames between two consecutive I-frames in the temporal compression scheme of h.264.

Quant Factor

Sets the level of I-frame or P-frame quantisation during video compression. Higher values result in higher compression but reduced image quality.



Bitrate

Set the desired target bitrate for constant bitrate control. Higher bitrates result in a higher quality stream.

Encode Screensaver

Assign a captured frame, black frame, or BirdDog logo as a screensaver.

Capture Screensaver Frame

Click the CAPTURE button to capture the current frame for use as a screensaver.

Stream to Network

You can choose to disable the NDI HX output stream.

Cam Control

Camera Control Tab

Menu On / Off

To adjust cameras settings via the OSD (On Screen Display), click the Menu ON/OFF button.

The OSD is visible on both the NDI® output and SDI/HDMI, and can also be accessed via the included remote control. Since it uses the same controls for menu navigation, PTZ control of the camera movement will not be possible until the OSD menu is closed again.

Zoom

Click the TELE button to zoom in and the WIDE button to zoom out.

Focus Mode

Select between Auto and Manual focus modes.

Focus

Click the IN button to focus on nearer subjects and the OUT button to focus on subjects further from the camera.

Speed Control

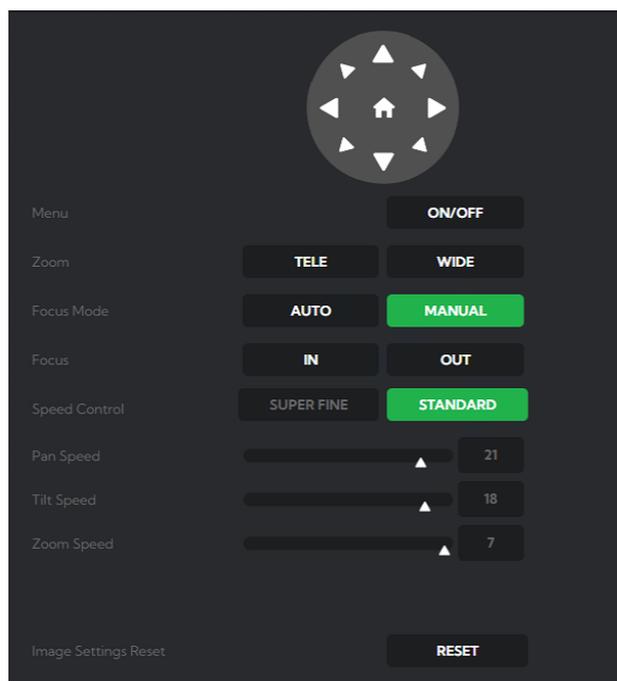
Allows selection of either a **Superfine** or **Standard** setting for the joystick. Superfine provides less coarsely quantised movement resulting in more precise control.

Pan / Tilt / Zoom Speed

When controlling the X120 over NDI® you can individually set the maximum speed of PTZ movements. Higher numbers produce faster and more sensitive movements of the camera.

Image Settings Reset

Click this button to reset all image settings to their factory default.





Preset Tab

To save a Preset select a number, make your desired changes, click the Save button and then click a Preset number. To recall a Preset, click the Preset number. You can save two separate and different types of Presets:

BirdDog: Saves only PTZ information with the Preset.

Camera: If System/Preset Memory is enabled in the camera Menu via the OSD, image parameters such as picture, white balance, exposure, focus mode, zoom positions will also be saved with the Preset.

Exposure Tab

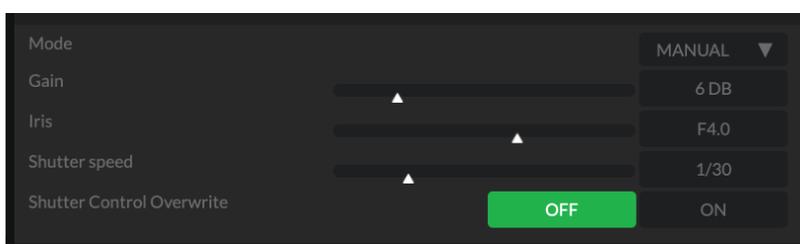
Mode

Full Auto: The exposure is adjusted automatically using the values set for EXPOSURE COMPENSATION.

Manual: Allows manual adjustment of the GAIN, IRIS and SPEED (shutter speed).

Shutter Priority: The shutter speed can be set freely by the user, and the iris and gain are set automatically, according to the brightness of the subject. The exposure is adjusted automatically using the values manually set for SPEED (shutter speed), GAIN and EXPOSURE COMPENSATION.

Iris Priority: The iris can be set freely by the user. The gain and shutter speed are set automatically according to the brightness of the subject. Use the Gain Limit control to restrict the amount of automatic gain.



In all modes you can choose Smart Exposure which uses an analytical engine to help set facial exposure.

Gain

Select the gain from 0–30dB.

Iris

Select the iris from CLOSE – F1.8.

Shutter Speed

When video format is set to 720P25, 1080P50, 1080P25 or 720P50 shutter speed can be selected from the following:

- 1/1, 1/2, 1/3, 1/6, 1/12, 1/25, 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, 1/10K.

When video format is set to 720P30, 1080P29.97, 720P59.94, 1080P59.94, 1080P30, 1080P60 or 720P60, shutter speed can be selected from the following:

- 1/1, 1/2, 1/4, 1/8, 1/15, 1/30, 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, 1/10K.

Shutter Control Overwrite

You can set an optional shutter speed for use when monitor screens are visible in the camera image. Click the ON button to activate the Shutter Speed Overwrite shutter speed value.

Exposure Compensation

When MODE is set to FULL AUTO, SHUTTER PRI or IRIS PRI, setting EXPOSURE COMPENSATION to ON allows exposure compensation levels to be set.



White Balance Tab

Cam White Balance

Auto: This mode computes the white balance value output using color information from the entire frame with a range of values from 2500K to 7500K. This mode is the default setting.

Indoor: Sets the color temperature to 3200K.

Outdoor: Sets the color temperature to 5800K.

OPW (One Push White Balance): The One Push White Balance mode is a fixed white balance mode that may be automatically readjusted only at the request of the user (One Push Trigger), assuming that a white subject, in correct lighting conditions can occupying more than 1/2 of the image. One Push White Balance data is lost when the power is turned off. If the power is turned off, you'll need to reset One Push White Balance.

To select OPW:

1. Place a white subject (i.e., sheet of white paper) in the center of the frame.
2. Press the remote controller HOME button to activate the one-push white balance adjustment.

ATW (Auto Tracking White Balance): Auto Tracking White balance (2000K to 10000K), allows the camera to adjust the white balance according to the temperature of the light source illuminating the subject.

User: This is a mode that enables you to manually set the control of Red and Blue gain up to 256 steps.

Manual: Allows manual setting of the color temperature.

SVL (Sodium Vapor Lamp): This is a white balance mode specifically for the orange sodium vapor lamps.

White Balance Sensitivity

Sets the sensitivity of the camera's reaction to detected colour changes in a scene.

R, G, B Tuning

This option adjusts the temperature or phase of Red, Green and Blue.

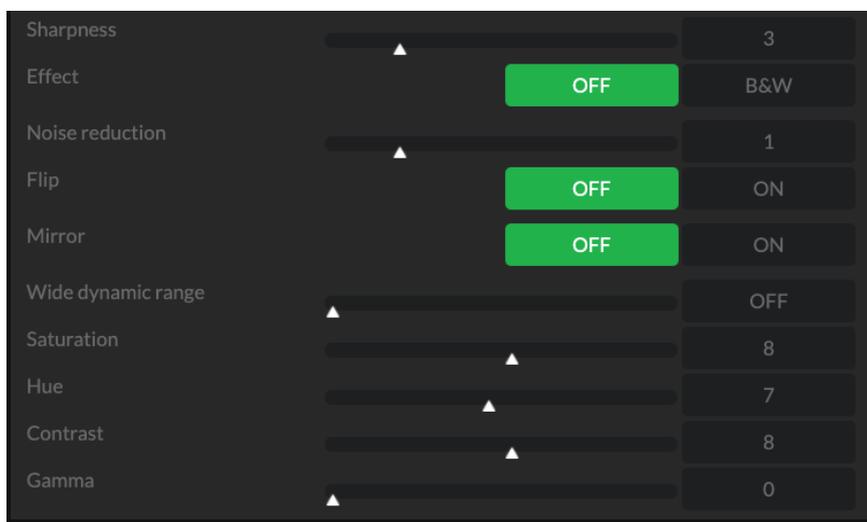
Color Temperature

Sets the color temperature of the image in degrees Kelvin.

R, B Gain

Sets the intensity of red and blue colors in the image.

Picture Tab





Sharpness

Adjusts the picture sharpness value from 0 to 15.

Effect

Select from Monochrome Image (B&W) or Color image (OFF).

Noise Reduction

Can reduce the level of image noise. Select from 6 levels – OFF, 1 – 5 (MAX).

Flip

Flips the image upside down for ceiling mounted cameras. Select from upright mode (OFF) or ceiling mount (ON).

Mirror

Displays a mirror image of the video image.

WDR (Wide dynamic range mode)

The WDR feature is available on certain product models. The camera adjusts the image brightness for both the extreme dark and bright areas of the image.

Saturation

Adjusts the intensity of colours in the image from a range of 1–15.

Hue

Adjusts the color phase from 1–15.

Contrast

You can adjust the contrast level in the range from 0 (00h) to 255 (FFh). The initial setting is 128 (80h). The smaller the value lowers the contrast.

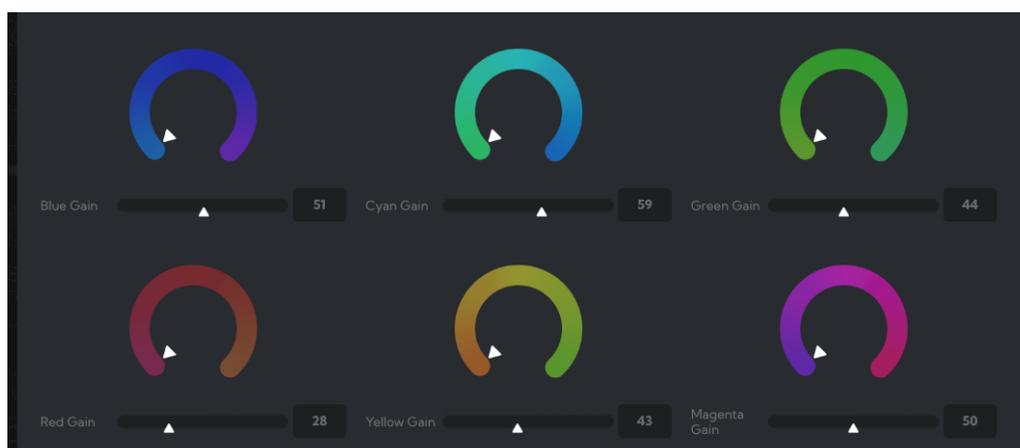
Gamma

Adjusts the gamma of the image from 0 to 1.

Colour Matrix Tab

The Color Matrix features 64 levels of adjustment of Gain (Intensity) across six color sections, Red, Green, Blue, Cyan, Magenta and Yellow, and allows individual fine-tuning of each of these without affecting the response of other color components.

You can also view an online [video](#) that covers this section.



Colour Gain

The Gain control of each colour component defines how intense that colour is represented in the image. The default level (32) is a moderate gain which shows an even bias between all pixels that contain the colour. For example, a dark red with have the red component shown as vividly as a bright red, this generally gives a balanced look to your colour representation.



Increasing the gain value will add additional intensity to all parts of the image pertaining to this colour. For example, if you increase the Red gain value to 64, all pixels that are red in the image will display more intensity compared to other colours in the image resulting in a more vivid representation of this colour.

Conversely reducing the colour gain will reduce intensity of the target colour. This can be useful in some lighting conditions where certain colours appear over saturated to the camera.

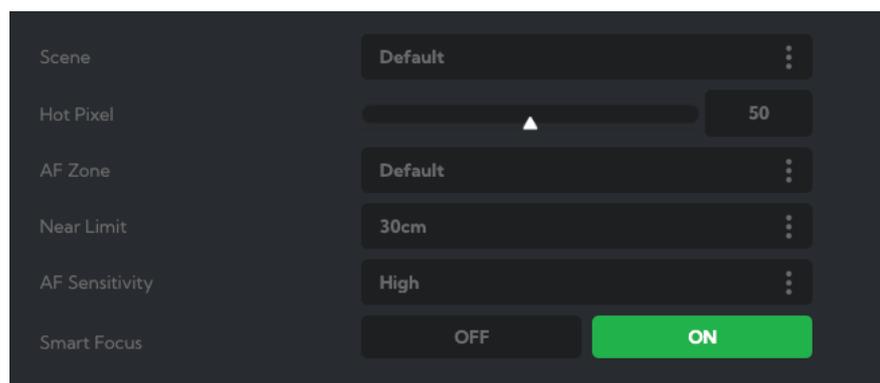
Using a Colour Chart

It is recommended to utilise a colour chart or colour chip chart when adjusting the Colour Matrix controls. These charts are available readily and have colour chips for each of the colours that the camera can adjust. By utilising a colour chip chart you are more easily able to see the impact of any adjustment you are making.



Using a colour chip chart such as the Datacolor SpyderCheckr can be beneficial to fine-tuning adjustments in the X120 Colour Matrix.

Advanced



Scene

You can choose a preset that will combine various Picture parameters for different results. Experiment!

Hot Pixel

You can reduce the visibility of any hot pixels by adjusting this slider. The overall image clarity may be affected at extreme settings.

AF Zone

Set the area of the frame that will influence auto focussing.

Near Limit

You can set the camera to ignore focusing on subjects that are closer than a designated distance.

AF Sensitivity

When set to HIGH, autofocus response will be fast and suited for frequently moving subjects. When set to LOW, the autofocus response is slowed which can improve the stability of the focus in low light conditions.

Smart Focus

Smart Focus uses a analytical engine to help set facial focus on human subjects.



Receiving NDI® Video

There are many applications that support receiving the NDI® signal that the X120 produces. Each application will vary slightly on how you choose your source.

NewTek Studio Monitor

NDI® Tools is a free suite of applications designed to introduce you to the world of IP video and is available [here](#).

The included Studio Monitor application allows you to monitor many NDI® sources on a standard Windows computer. Once Studio Monitor is launched on your computer, simply right click anywhere in the interface and select your camera from the dropdown list.

Once connected to the X120, a gear icon is displayed on the bottom right-hand side of the video display providing shortcut access the X120 BirdUI.

NewTek TriCaster Series

NewTek TriCaster series devices allow several NDI® sources to be received simultaneously, the amount of simultaneous connections varies by what model TriCaster you have. Consult your TriCaster user manual to determine how many connections are available on your device.

To select the X120 as a source on your TriCaster, click on the configuration gear icon below your desired source location which will then display the Input Setting dialog. Select your X120 source from the dropdown list.

Once connected to the X120, a configuration gear icon displays next to the source dropdown window that provides shortcut access the X120 BirdUI.



NDI® Camera Control

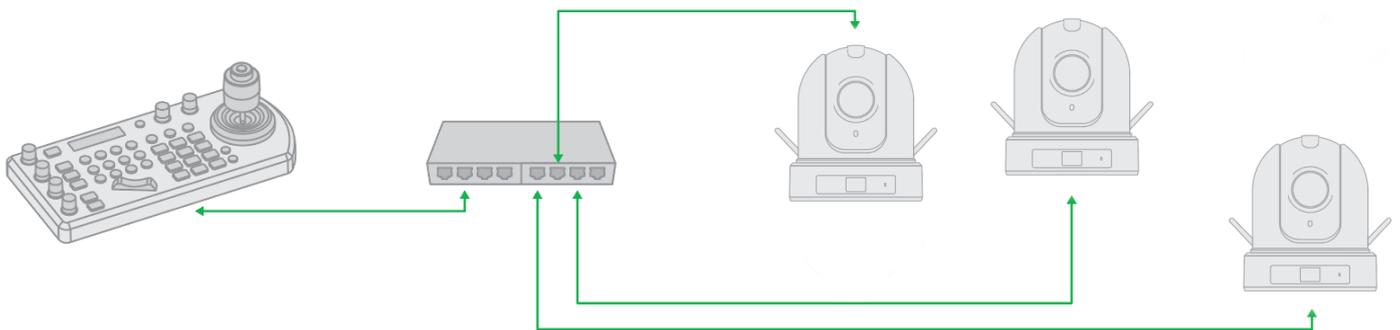
The easiest way to control your camera is via the BirdDog PTZ Keyboard!

BirdDog PTZ Keyboard supports NDI®, NDI®|HX, Visca over IP, RS422, and RS232. By harnessing BirdDog's next generation NDI® and IP technology, it's never been easier to discover, connect, and control your PTZ cameras.

IP Connection

IP Port to Network Switch

1. Connect the camera NDI® Ethernet port to a port in a Ethernet switch on your network or via Wi-Fi. The switch must provide PoE+ if you are not using the power adaptor.
2. Connect the PTZ Keyboard's IP port to a port on the Ethernet switch (or other connected switch on the same network subnet).
3. [Login](#) to the web interface (BirdUI) of the camera and PTZ Keyboard to configure the appropriate settings.



Remote Controller

You can use the supplied remote controller to control your camera. For instructions on use, please refer [here](#).



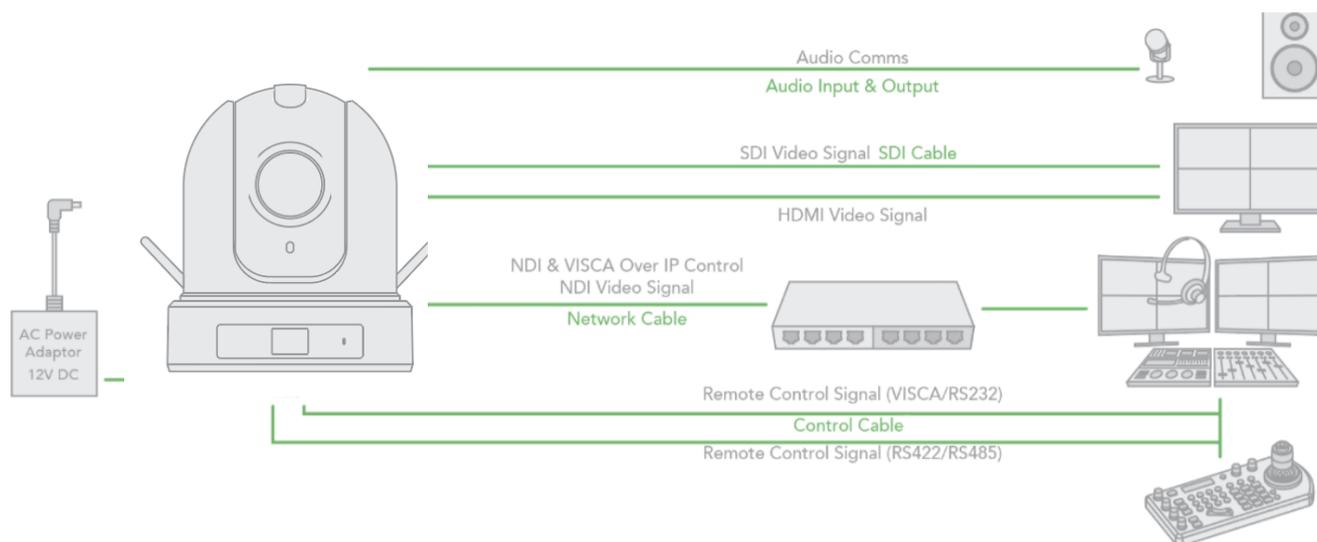
Controlling Your Camera Via Other Protocols

The X120 also supports control via VISCA-over-IP, RS-232 and RS-422/485. This section details how to configure control under these protocols.

When the camera is connected to a computer and joystick keyboard with a VISCA cable (cross type, RS-232), you can operate the camera with the computer and the joystick keyboard.

When the camera is connected to a joystick keyboard a control cable (cross type, RS-422/485), you can operate the camera's pan, tilt, zoom with the joystick keyboard.

In this connection configuration, a HDMI cable, SDI video cable, data cable and network cable is required. To obtain these third-party components or accessories, consult the dealer where you bought your camera.



Camera Initial Setting Status Information

Upon bootup, the following information of the camera initial setting status will display on the monitor for 5 seconds.

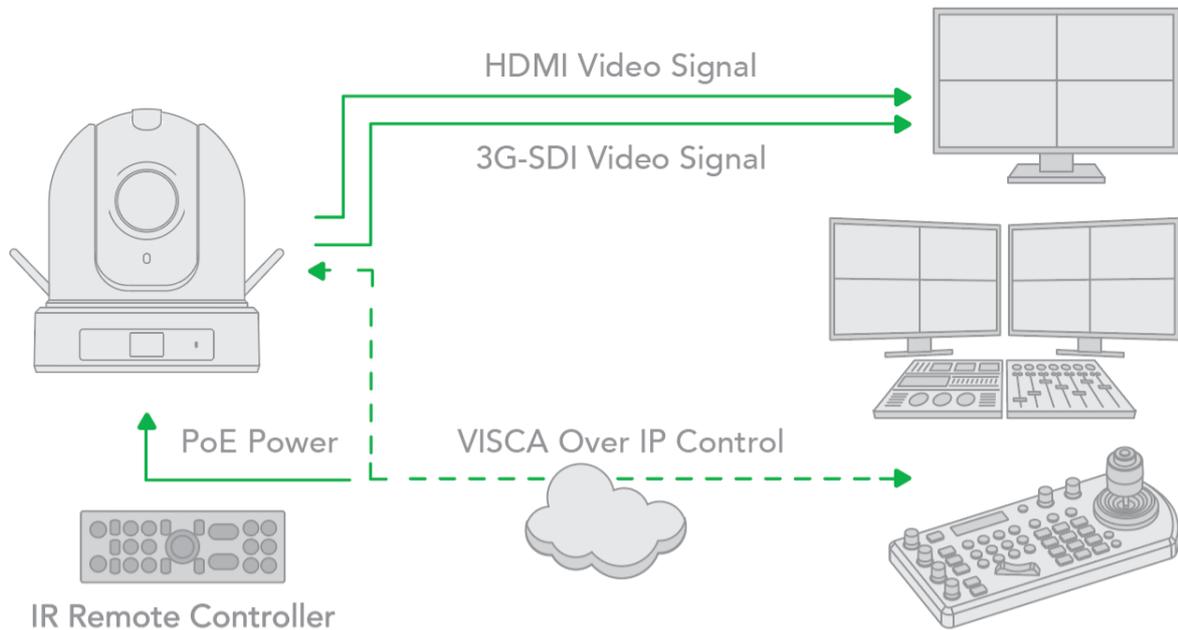
1. Camera PELCO ID for RS-485 control.
2. Camera ID for IR Remote Controller.
3. IR remote control signal receive current setting.
4. Baud Rate current setting.
5. Control COMM Port current setting.
6. Video format current setting.
7. HDMI current setting.
8. Model number.
9. Firmware version.

CAMERA STATUS INFO DISPLAY	
PELCO ID	001
IR ID	01
IR-RECEIVE	ON
BAUD RATE	9600
COMM TYPE	422
FORMAT	1080p29.97
HDMI OUT	YUV
MODEL TYPE	EYES P200
SV	V0B1100S36[...]



VISCA over IP Control

With VISCA over IP, you can control the camera using the VISCA protocol on a controller equipped with IP communication capabilities via LAN.



VISCA over IP communication specifications:

- Interface: RJ-45 10 / 100 / 1000 Mbps
- Interface protocol: IPv4
- Transport protocol: UDP
- IP address: 192.168.100.100 By default
- Port: 52381

Controlling via VISCA over IP

1. Connect the network port on the camera to the network switch.
2. Set the IP address and other network information appropriately to communicate on your network.
3. Connect the VISCA over IP compatible controller to the network.
4. Configure the controller to access the camera's IP address and VISCA over the IP port.
5. The IP port within on your control must be set to 52381 to communicate with the camera.
6. Select the VISCA protocol on your IP control device.



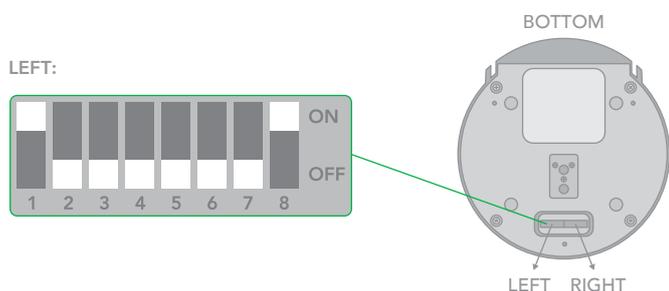
Setting the DIP Switch

The camera DIP switch is located on the camera base. Turn off power to the camera before changing the switch settings. Power on the camera to have the new DIP switch setting activated.

NOTE: The camera OSD and DIP settings override each other. Whichever was the last to be changed will be used by the camera when it boots.

Switch 1 (left side switch in the orientation below)

Default Setting: ON, OFF, OFF, OFF, OFF, OFF, OFF, ON.



1. Bit 1~3: Camera Address setting for VISCA protocol

1	2	3	VISCA Address
ON	OFF	OFF	1
OFF	ON	OFF	2
ON	ON	OFF	3
OFF	OFF	ON	4
ON	OFF	ON	5
OFF	ON	ON	6
ON	ON	ON	7

2. Bit 4: Video Output/Video Color Space

When using HDMI output to display on HDMI device, set the DIP switch B4 to OFF. When using HDMI to DVI converter to have DVI video output, set the DIP switch B4 to ON.

4	Colour Space Setting
OFF	YUV Output
ON	RGB Output

3. Bit 5: Reserved

4. Bit 6: RS-232/RS-422

6	Control Mode
OFF	RS-232
ON	RS-422

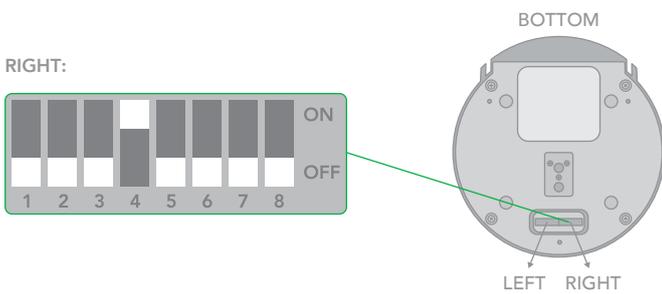


5. Bit 7~8: RS-232/RS-422 Baud Rate

7	8	Baud Rate Setting
OFF	OFF	2400 bps
ON	OFF	4800 bps
OFF	ON	9600 bps (Default)
ON	ON	38400 bps

Switch 2 (right side switch in the orientation below)

Default Setting: OFF, OFF, OFF, ON, OFF, OFF, OFF, OFF.



1. Bit 1~4: Video Resolution Setting. It is recommended to set this to the most frequently used resolution and thereafter use the BirdUI to make changes.

1	2	3	4	Video Resolution
OFF	OFF	OFF	OFF	1080i59.94
OFF	OFF	OFF	ON	1080p29.97
OFF	OFF	ON	OFF	720p59.94
OFF	OFF	ON	ON	1080p59.94
OFF	ON	OFF	OFF	Empty
OFF	ON	OFF	ON	1080i60
OFF	ON	ON	OFF	1080p30
OFF	ON	ON	ON	1080p60
ON	OFF	OFF	OFF	1080i50
ON	OFF	OFF	ON	1080p25
ON	OFF	ON	OFF	720p50
ON	OFF	ON	ON	1080p50
ON	ON	OFF	OFF	Empty
ON	ON	OFF	ON	Empty
ON	ON	ON	ON	720p60

2. Bit 5~6: Reserved

3. Bit 7~8: IR Remote Controller ID Setting

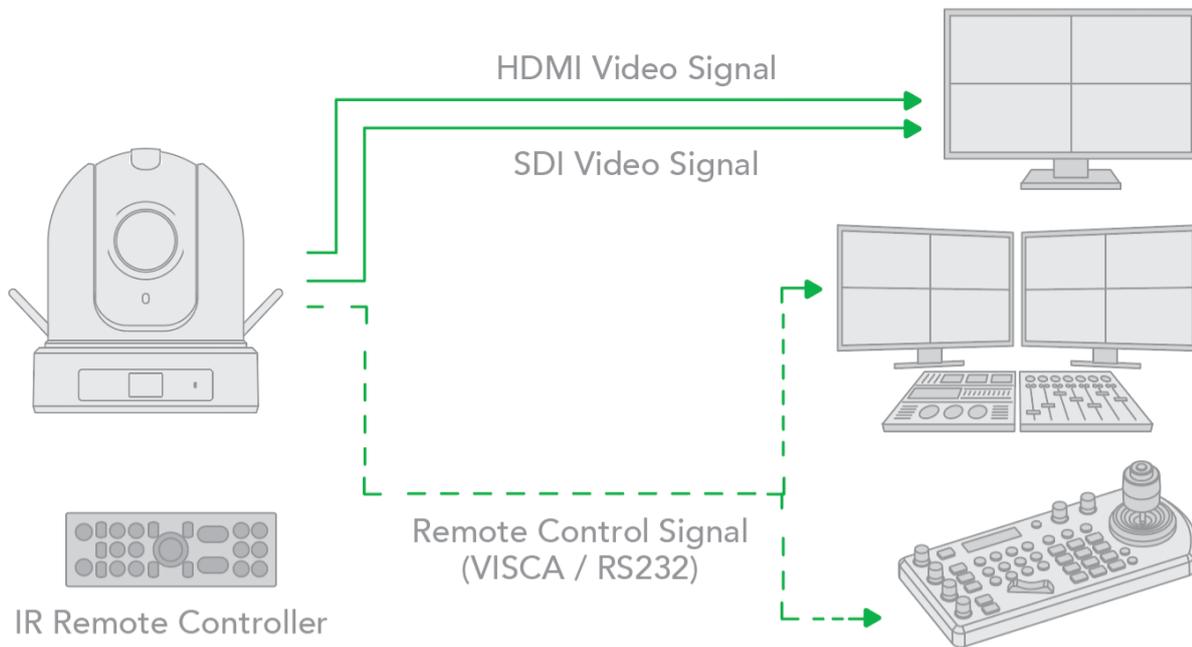
7	8	IR Remote Controller ID
OFF	OFF	1
ON	OFF	2
OFF	ON	3



Using RS-232 (VISCA)

You can use the RS-232 port to connect to optional controllers, such as a joystick control keyboard, or control PC station, to operate the camera, perform pan, tilt and zoom operations and to use the Preset function using the control buttons.

An application software that supports this unit is needed if you use a PC station.

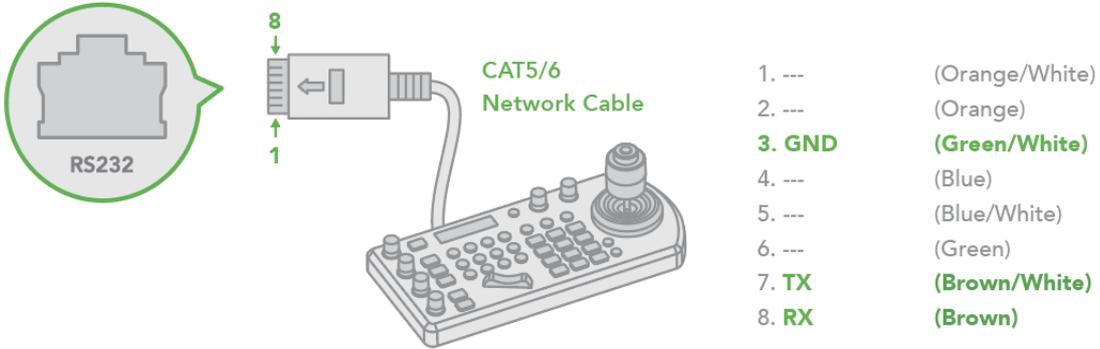


RS232 Connection

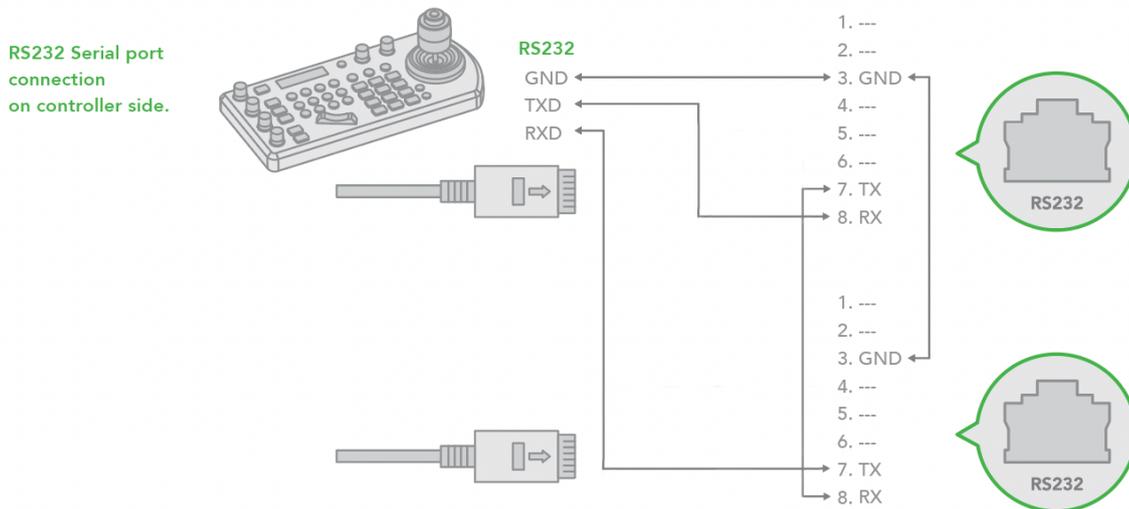
1. On the base DIP switch:
 - Set for RS232 control.
 - Set the Baud Rate to the same setting as the keyboard you are using.
 - Set the specific address for the controlled camera.
2. If you want to have the camera address to be automatically assigned by VISCA controller, set the camera DIP switch address to 0.
3. Reboot the camera by turning it Off and On after the DIP switch has been set up correctly.
4. Camera supports Daisy Chain connection up to 7 cameras.
5. Use the included RJ45 to RS232 (VISCA) cable. The controller must be VISCA compatible.



6. Or you can use CAT5/6 cable (T-568B standard pinout) to make an RS232 connection by following the pin definition below:



7. You can use RS232 to daisy chain multiple cameras with a standard RS232 serial port controller as below:



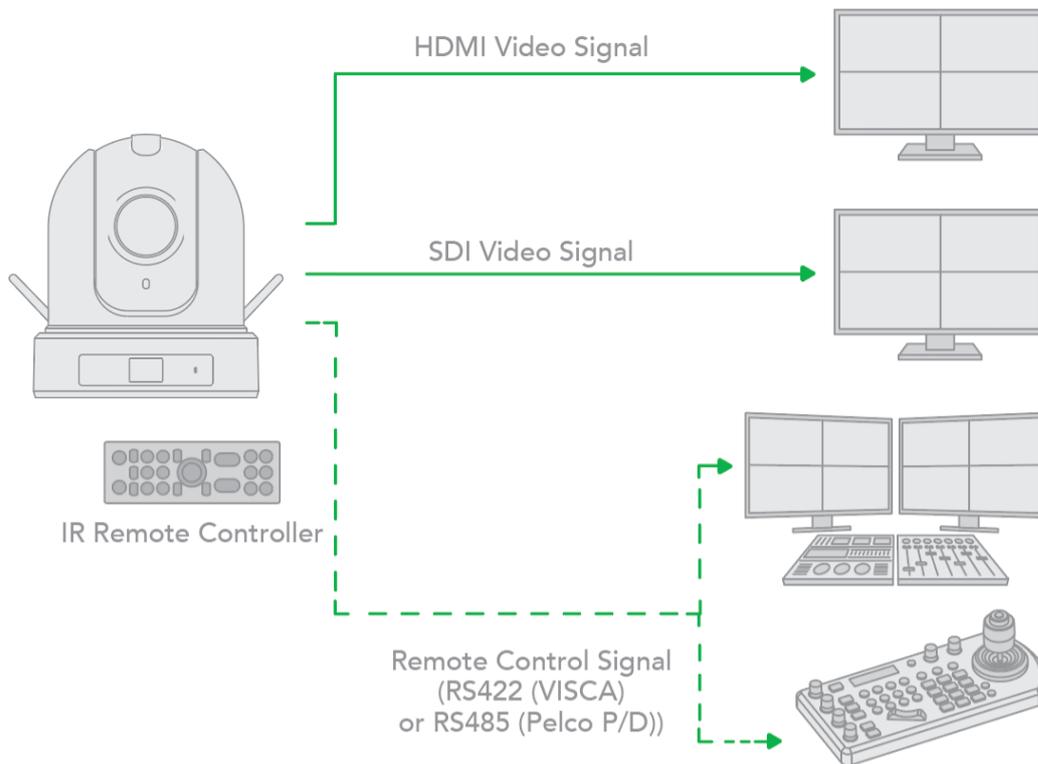


Using RS422(VISCA) / RS485 (PELCO P/D)

You can use the RS422/485 port connect to optional controllers, such as joystick control keyboard, control PC station, to operate the camera.

To perform pan/tilt and zoom operations using the joystick of the control keyboard, and to perform the Preset operation using the control buttons.

An application software that supports this unit is needed if you use PC station.



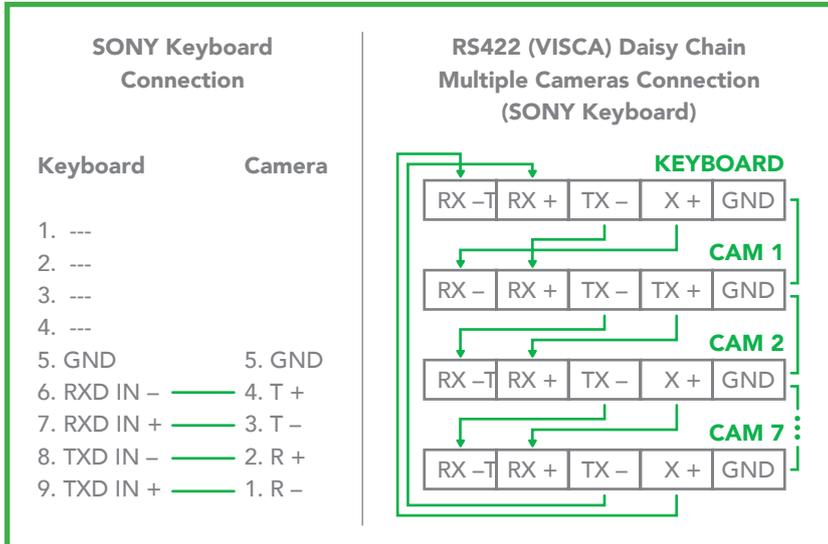
RS422 (VISCA) connection

1. On the base DIP switch:
 - Set for RS422 control.
 - Set the Baud Rate on the DIP switch to the same Baud Rate as the keyboard you are using.
 - Set the specific address for the controlled camera.
2. If you want to have the camera address to be automatically assigned by VISCA controller, set the camera DIP switch address to 0.
3. Reboot the camera by turning it Off and On after the DIP switch has been set.
4. Use the included RJ45 to RS422 cable. The controller must be VISCA compatible.
5. The camera supports Daisy Chain connection of up to 7 cameras.



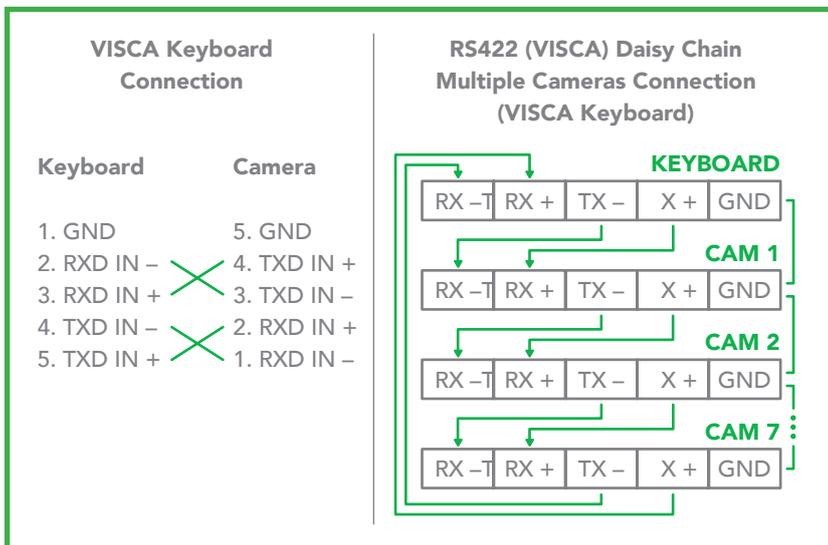
Sony Keyboard RS422 Connection

The connection of a SONY keyboard is different than other VISCA (non-Sony) keyboards. If using a SONY controller and Daisy Chaining multiple cameras via RS422 connection:



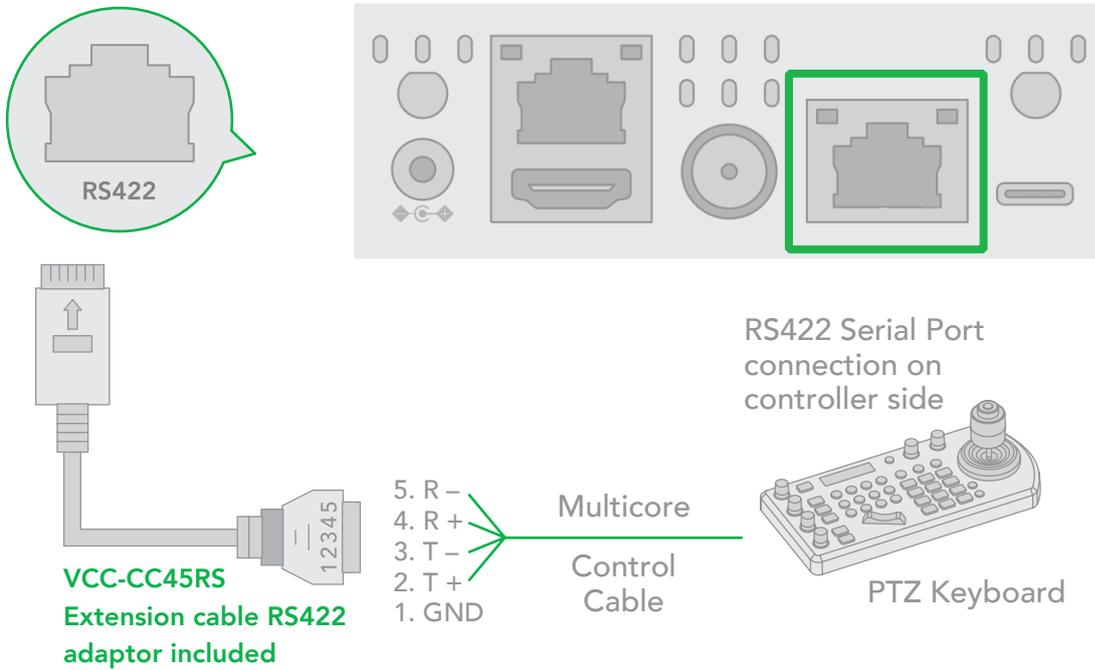
Non-Sony Keyboard RS422 Connection

Make an RS422 connection and RS422 Daisy Chain multiple cameras connection with non-Sony controller as below.

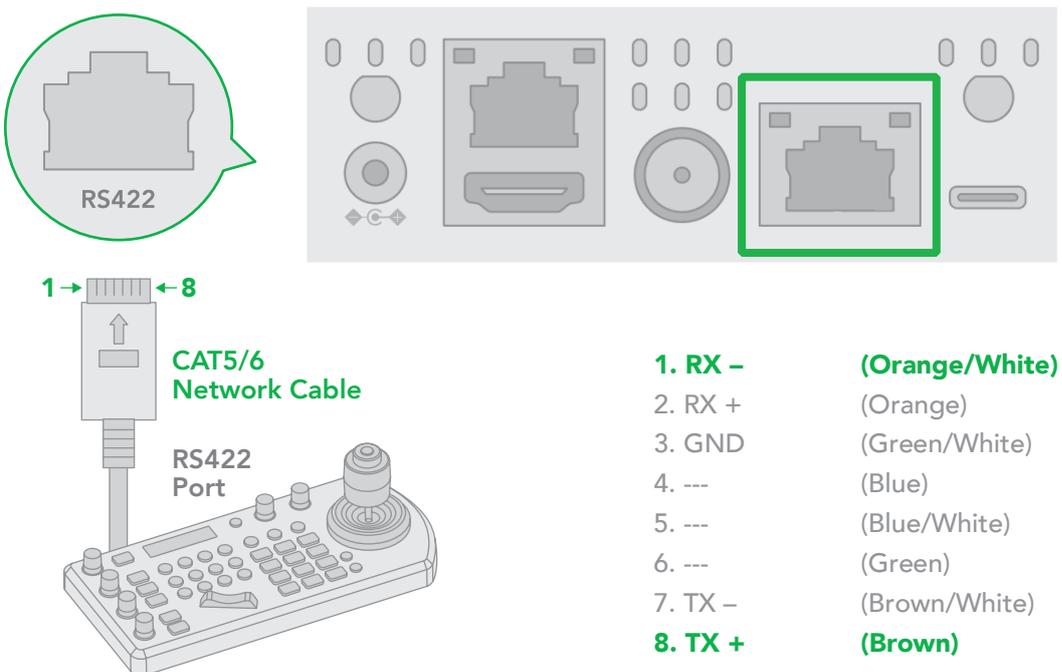




- a. Use the included RJ45 to RS422 cable with a Phoenix connector adaptor to make an RS422 connection for your control device.

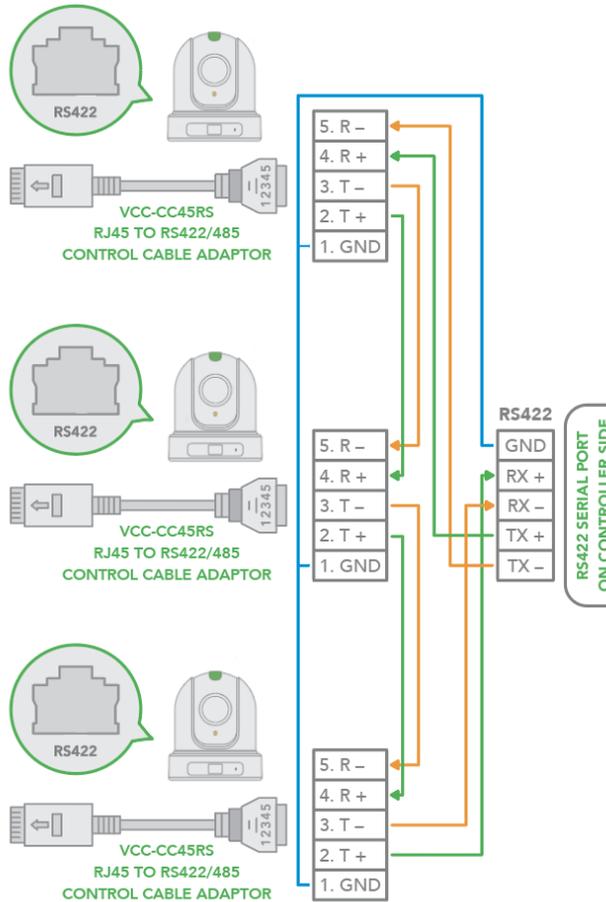


- b. You can use a CAT5/6 T-568B cable to make an RS422 direct connection between the camera and the controller by following the pin definition below.





- c. You can make a RS422 Daisy Chain multiple camera connection with an RS422 standard serial port controller.



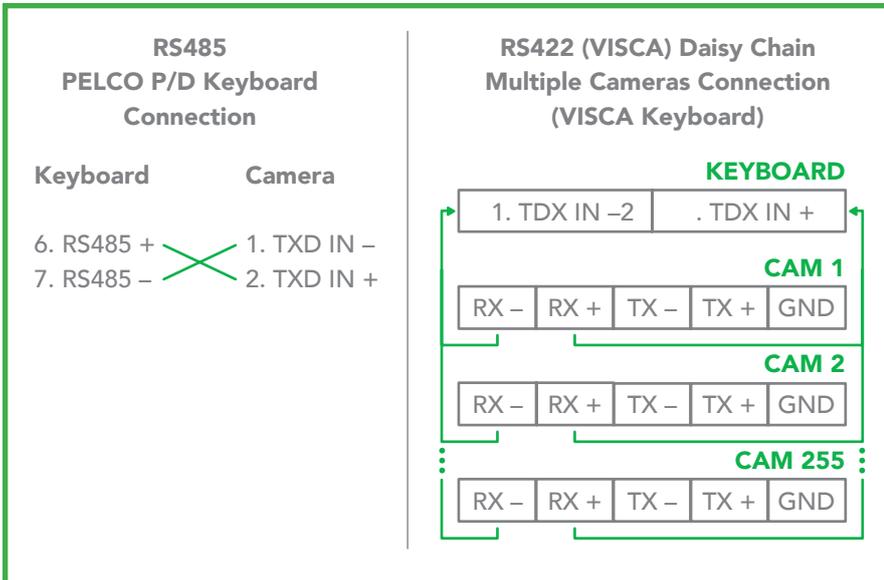
PELCO P/D Keyboard RS485 Connection

NOTE: Use RS422 ports for RS485 connection. Only use TX+ and TX- for a RS485 connection.

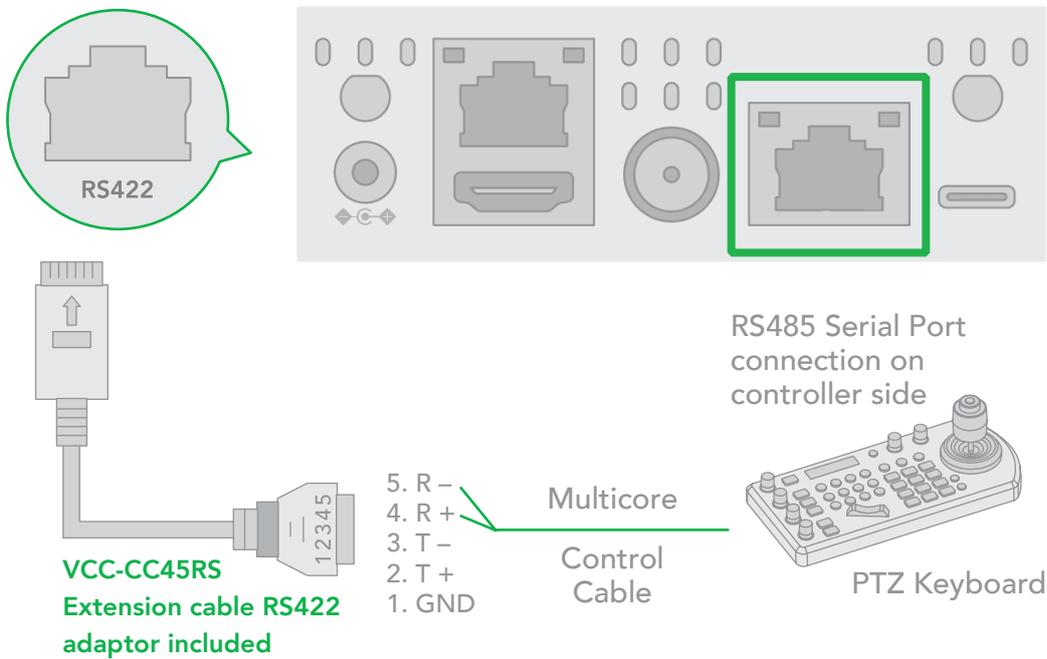
1. On the base DIP switch:
 - Set the RS422 control method.
 - Set the the Baud Rate to the same setting as the keyboard you are using.
2. Set the camera ID on the OSD menu by remote controller
3. Reboot the camera by turning it Off and On after the DIP switch has been set up correctly.
4. Use a PELCO P/D compatible keyboard.
5. Use preset 95# on the keyboard to display/exit the camera OSD menu.
6. Use the joystick and button "OPEN" or "CLOSE" to navigate OSD menu.
7. To operate keyboard, please refer to the user manual of the keyboard you are using.



PELCO RS485 Connection

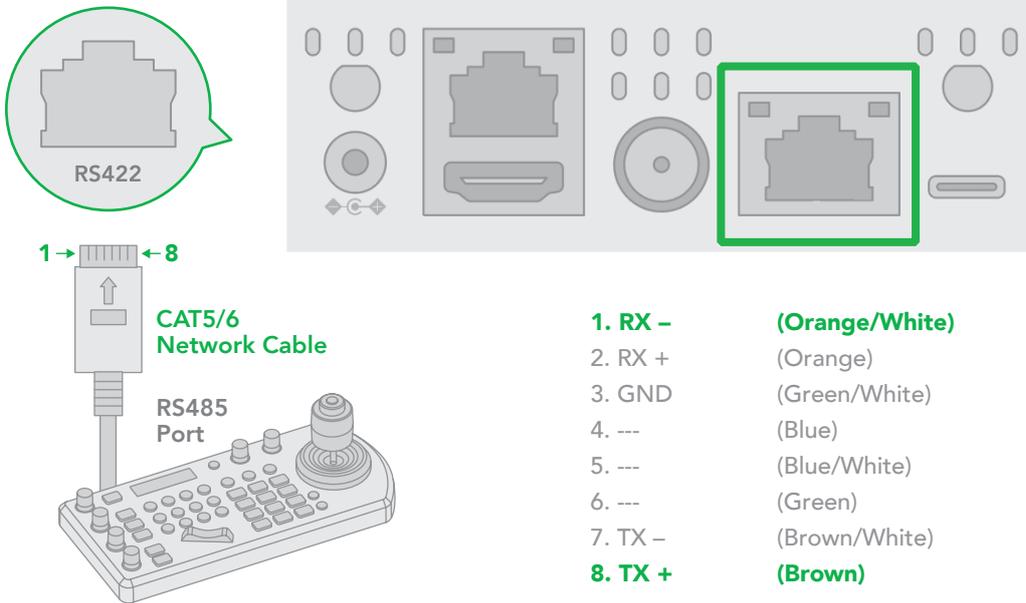


- a. Use the included RJ45 to RS422 cable with a Phoenix connector adaptor to make an RS485 connection for your control device.





- b. Use a CAT5/6 T-568B cable to make an RS485 connection between the camera and the controller by following the pin definition below.

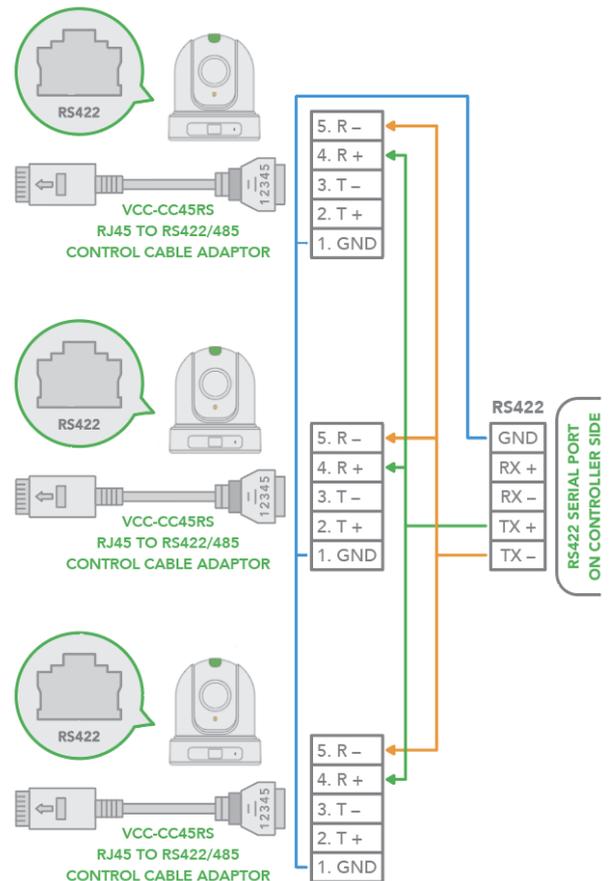


- c. Making connections for multiple cameras using RS485 standard serial port controller.

NOTE: For RS-232 VISCA control, the X120 supports daisy chain connection of multiple cameras.

For control details, refer to the operating instructions of your control keyboard/station software.

- You need to match the communication speed (Baud Rate) between the camera and the joystick controller.
- You cannot use the RS-232 connections while you are using the RS422/485 connection.





Operating Multiple Cameras using RS-232 and 422/485

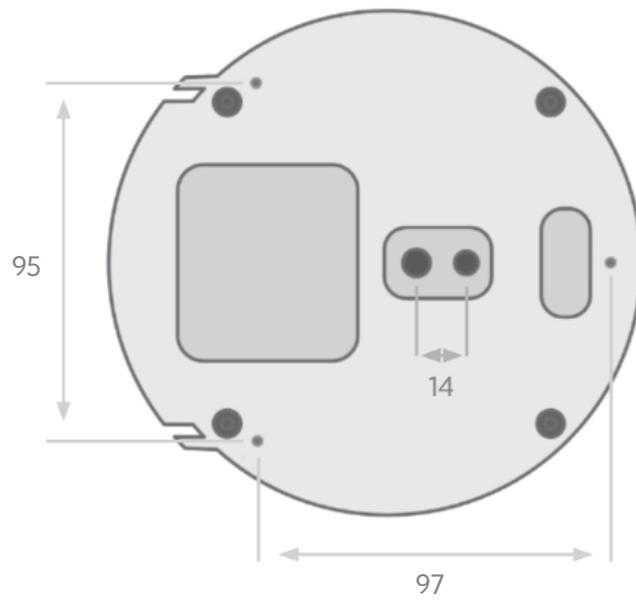
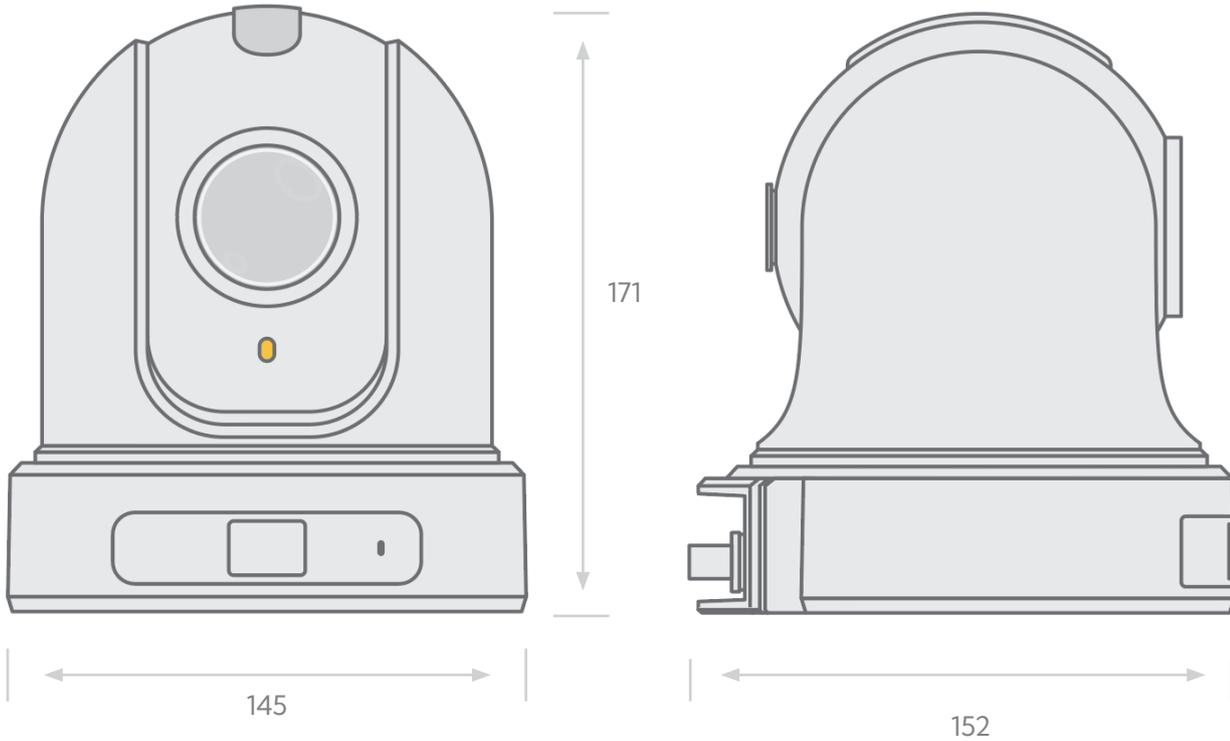
- Using RS-232 (VISCA), you can connect to 7 cameras
- Using RS-422 (VISCA), you can connect to 7 cameras.
- Using RS-485 (PELCO), you can connect to 255 cameras.
- Using RS-485 (PELCO), all camera addresses must be set up before the connection. You can set the camera address by operating OSD menu, or by setting the DIP switch on the bottom of the camera. In this case, you can use multiple control keyboards.



Camera Dimensions

Weight: 1.0 kg

Unit: mm





Glossary

Domain

A domain contains a group of computers that can be accessed and administered with a common set of rules. Domain can also refer to the IP address of a website on the Internet.

DNS

DNS (Domain Name System) is a system used by the Internet and private networks to translate domain names into IP addresses.

mDNS

mDNS (Multicast DNS) refers to the use of IP multicast with DNS to translate domain names into IP addresses and provide service discovery in a network that does not have access to a DNS server.

Ethernet

Ethernet, standardized as IEEE 802.3, refers to a series of technologies used to connect computers and other devices to a LAN (Local Area Network) or wide area network (WAN).

Firmware

Firmware is a class of software held in non-volatile memory that provides the low-level control for a device's hardware.

Gigabit Ethernet (GigE)

An Ethernet capable of transmitting data at a rate of a gigabit per second. A Gigabit capable Ethernet network is recommended for NDI® production workflows.

IP

IP (Internet Protocol) is the communications protocol for the Internet, many wide area networks (WANs), and most local area networks (LANs) that defines the rules, formats, and address scheme for exchanging datagrams or packets between a source computer or device and a destination computer or device.

LAN

LAN (Local Area Network) is a network that connects computers and devices in a room, building, or group of buildings. A system of LANs can also be connected to form a WAN (Wide Area Network).

Mbps

Mbps (Megabits per second) is a unit of measurement for data transfer speed, with one megabit equal to one million bits. Network transmissions are commonly measured in Mbps.

NDI®

NDI® (Network Device Interface) is a standard allowing for transmission of video using standard LAN networking. NDI® comes in two flavours, NDI® and NDI® HX. NDI® is a variable bit rate, I-Frame codec that reaches rates of around 140Mbps at 1080p60 and is visually lossless. NDI® HX is a compressed, long-GOP, H.264 variant that achieves rates around 12Mbps at 1080p60.

PELCO

PELCO is a camera control protocol used with PTZ cameras. See also VISCA.

PoE

Power over Ethernet

Port

A port is a communications channel for data transmission to and from a computer on a network. Each port is identified by a 16-bit number between 0 and 65535, with each process, application, or service using a specific port (or multiple ports) for data transmission. Port can also refer to a hardware socket used to physically connect a device or device cable to your computer or network.



PTZ

Pan, Tilt and Zoom.

RJ45

A form of standard interface commonly used to connect computers onto Ethernet-based local area networks (LAN).

RS422, RS485, RS232

Physical layer, serial communication protocols.

Subnet

Subnet or subnetwork is a segmented piece of a larger network.

Tally

A system that indicates the on-air status of video signals usually by the use of a red illuminated lamp.

TCP

TCP (Transmission Control Protocol) is a network communications protocol.

UDP

UDP (User Datagram Protocol) is an alternative protocol to TCP that is used when reliable delivery of data packets is not required.

VISCA

VISCA is a camera control protocol used with PTZ cameras. See also PELCO.

WAN

WAN (Wide Area Network) is a network that spans a relatively broad geographical area, such as a state, region, or nation.

White Balance

White balance (WB) is the process of ensuring that white objects and by extension, all colour, in your video are rendered accurately. Without correct white balance, objects in your video display unrealistic color casts.



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