BirdDog | P200

FULL NDI®. NO COMPROMISES.

USER GUIDE

NDI®

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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.
- Make sure the power supply voltage is correct before using the camera.
- Do not drop the camera or subject it to physical shock.
- Do not touch sensor modules with fingers. If cleaning is necessary, use a clean cloth with a bit of ethanol and wipe it gently. If the camera will not be used for an extended period of time, put on the lens cap to protect the sensor from dirt.
- Do not aim the camera lens at the strong light such as sun or incandescent lamp. The strong light can cause fatal 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 digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

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

This product complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

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 P200 camera. If you have any questions regarding the camera, please contact your authorized dealer or view our P200 Knowledge Base.

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

Using This Manual

Your P200 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 Getting Started With Your P200. This will give you a good introduction to the setup of your new camera.

Tip

You can use the controls in your browser or PDF reader to increase the page size when viewing the diagrams to reveal much more detail.

First Step

Firmware Upgrade

Before you use your new P200, it's a good idea to upgrade to the lastest 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

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

Dan Miall

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Eamon Drew

Co-Founder and CMO
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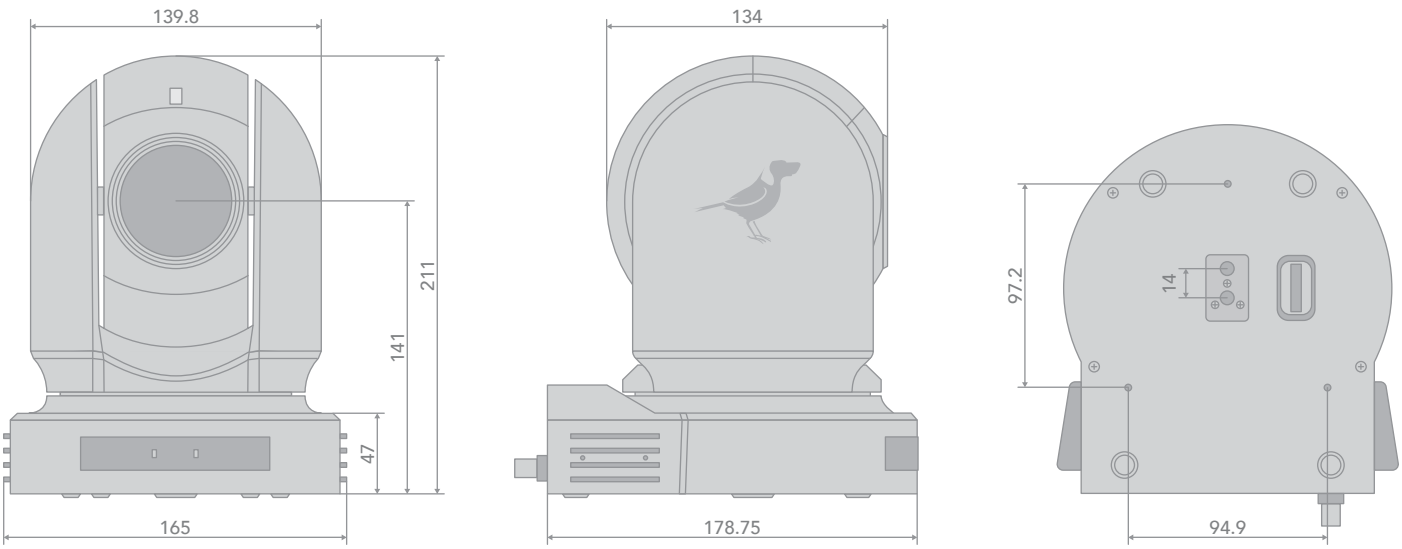
BirdDog P200 Overview

Camera Features

- Resolution: Up to 1080P60, 1080i59.94
- NDI® Resolution: Up to 1080P60, 1080P30
- Zoom: Optical 30X
- Image stabilizer and true WDR 130dB
- Video Output: HDMI, 3G-SDI, NDI®, CVBS simultaneously
- ±350-degree continuous pan, ±120-degree continuous tilt
- 128 presets, Speed up to 150 degrees/sec
- Standard mounting and ceiling mounting with E-Flip function
- Control supports 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
- Supports Audio input, Audio output with NDI® streaming.
- Power: DC 12V, PoE+(IEEE802.3at)
- Firmware upgrade via USB2.0 or IP.

Camera Dimensions

Unit: mm



Welcome to the Future

What is NDI?

Your new P200 camera has been designed from the ground up to support the cutting edge NDI™ video transmission standard.

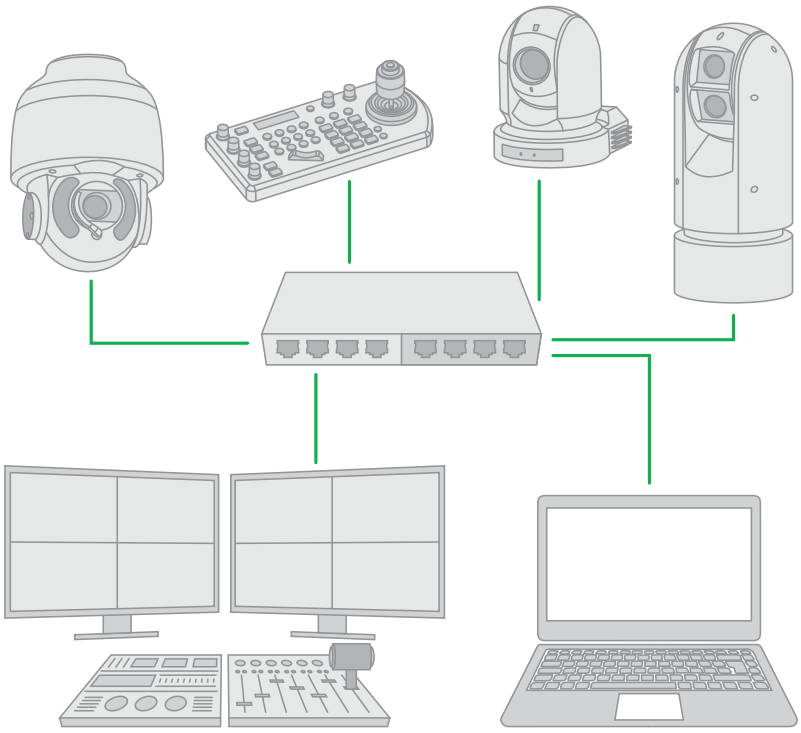
NDI (Network Device Interface) is a high-quality, low-latency, frame-accurate standard that enables compatible devices to communicate, deliver, and receive high definition video over your existing Giga-bit Ethernet network.

Operating bi-directionally, NDI devices can be auto-detected, powered and controlled over the same Ethernet cable used to send the video and audio to anywhere on a network. Even fill and key alpha channel information, as well as tally, can be sent over this same cable. If you have a Gigabit network, you have a now have the potential for a streamlined, interconnected, video production environment.

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 neccessary endpoints.

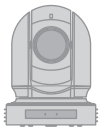
BirdDog has been on the NDI journey since the very beginning and your P200 is just one of our prod-ucts designed to take advantage of the features and potential of NDI.

For more information on NDI, please refer to this page on our website.



What's in the Box?

NOTE: The camera color may be white or black in colour depending on the item purchased.

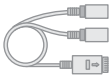


1x BirdDog Eyes P200

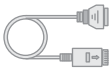
1x IR Remote Controller
(3V CR2032 Coin Lithium Battery Required)

1x Camera Power Adaptor & Power Cord

1x Bag of Mounting Screws



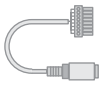
1x RJ45 to RS232 Extension Cable



1x RJ45 to RS422 Extension Cable

Optional Accessories

Depending on your requirements, you may need to purchase these optional accessories:



1x RS232 8 Pin Mini DIN
to Phoenix Terminal Block

1x Wall Mount

1x Ceiling Mount

Please browse to this page on our website for all your accessory needs.

Getting Started With Your P200

If you are new to the world of NDI or BirdDog cameras, please follow this quick start guide to become familar with the basic setup of your new camera. You can view this as an online video:

P200 Quick Start Guide Video

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.

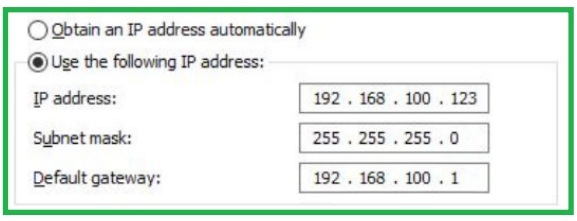
Power Up

Once you've made the power and Ethernet connections, turn on the adapter power. When first powered up, the camera will perform it's 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 occassionally amber) and the camera is ready to be accessed.

Computer, say hello to P200

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. 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 a different number, 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.



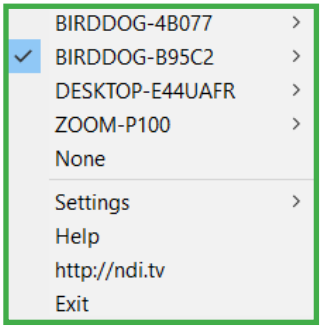
The P200 and the computer are now configured on the same subnet and should be able to communicate with each other.

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 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

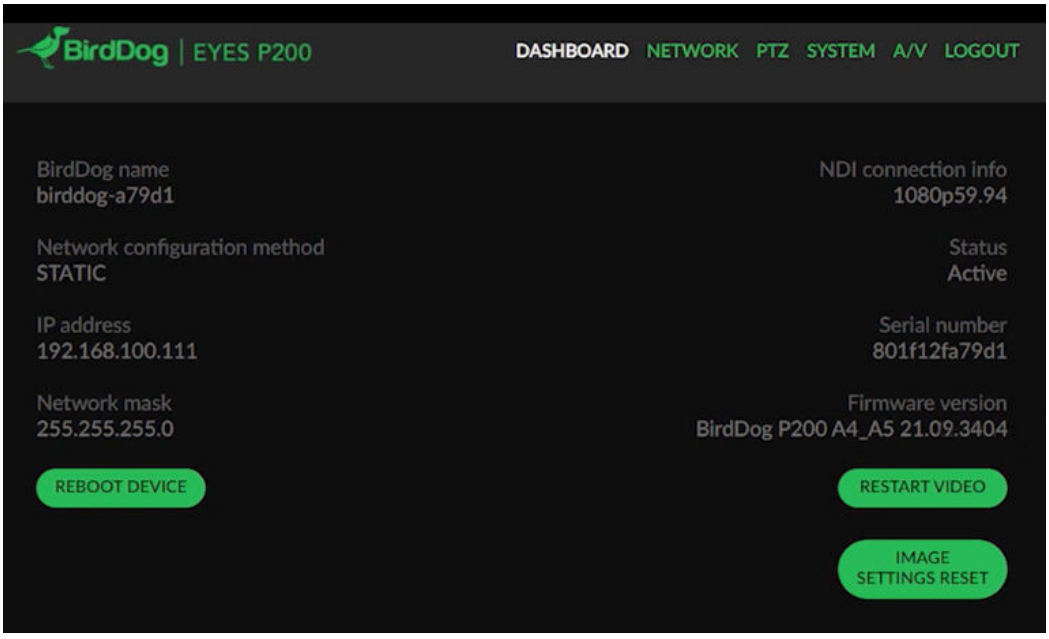
By default, the displayed sources have names that include the last five digits of your camera MAC address which is displayed on the bottom of the camera.

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

The Web UI

BirdDog cameras have a web interface (Web UI) that is displayed by your computer brower 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.

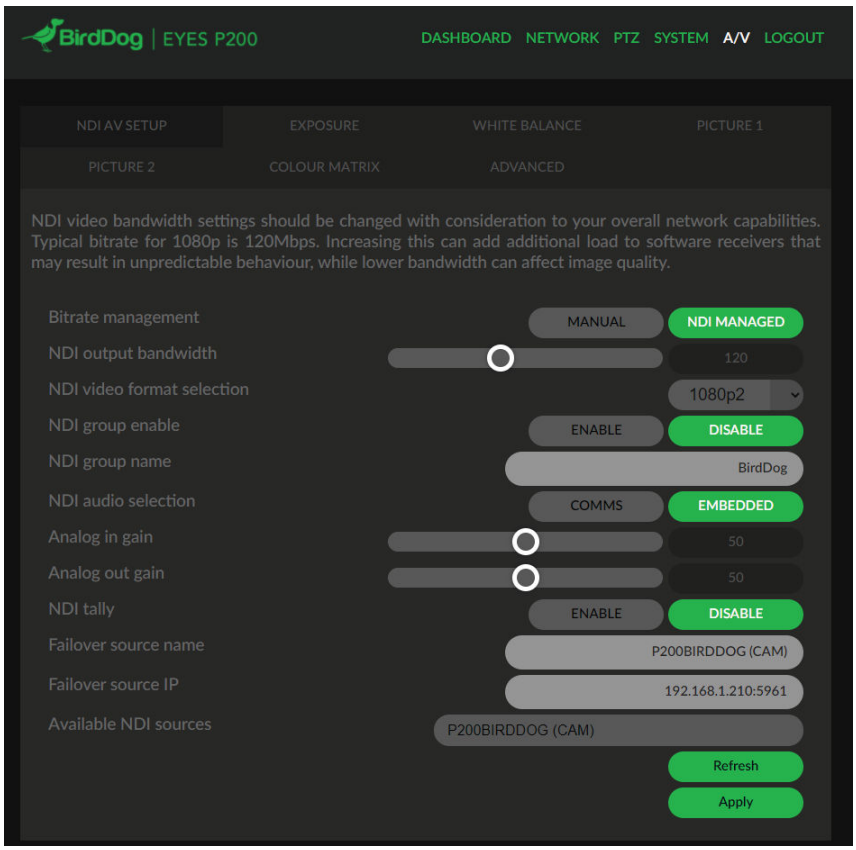


The Dashboard shows important basic camera settings. For now, check that the displayed Status is Active and take note of the frame rate that is currently output from the camera (displayed under

NDI connection info). In the example above, it is 59.94 fps. This frame rate should be set identically for all cameras according to the requirements of your production. Let's see how to change the this and other important camera settings.

A/V Settings

1. Click on the A/V menu and select NDI AV SETUP.



Bitrate Management

Because you're sending NDI video over your computer network, you may need to be mindful of the amount of bandwith 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 bandwith 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 bitrate within a range of 60–360 Mbps. Do this with care, as you will need to account for the capacity of the network and the receiving device.

NDI Video Format Selection

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.

NDI Audio Selection

If you have a microphone plugged into the Audio In jack on the back of your camera, you can choose whether to embed the audio as part of the primary NDI channel, or have it on a separate NDI channel for audio communication use. The Audio In and Out gain sliders allow you to fine tune your audio levels.

NDI Tally

The P200 supports tally and this setting determines whether the red light on the front of the camera will illuminate when the camera goes live on air.

NDI Failover Source

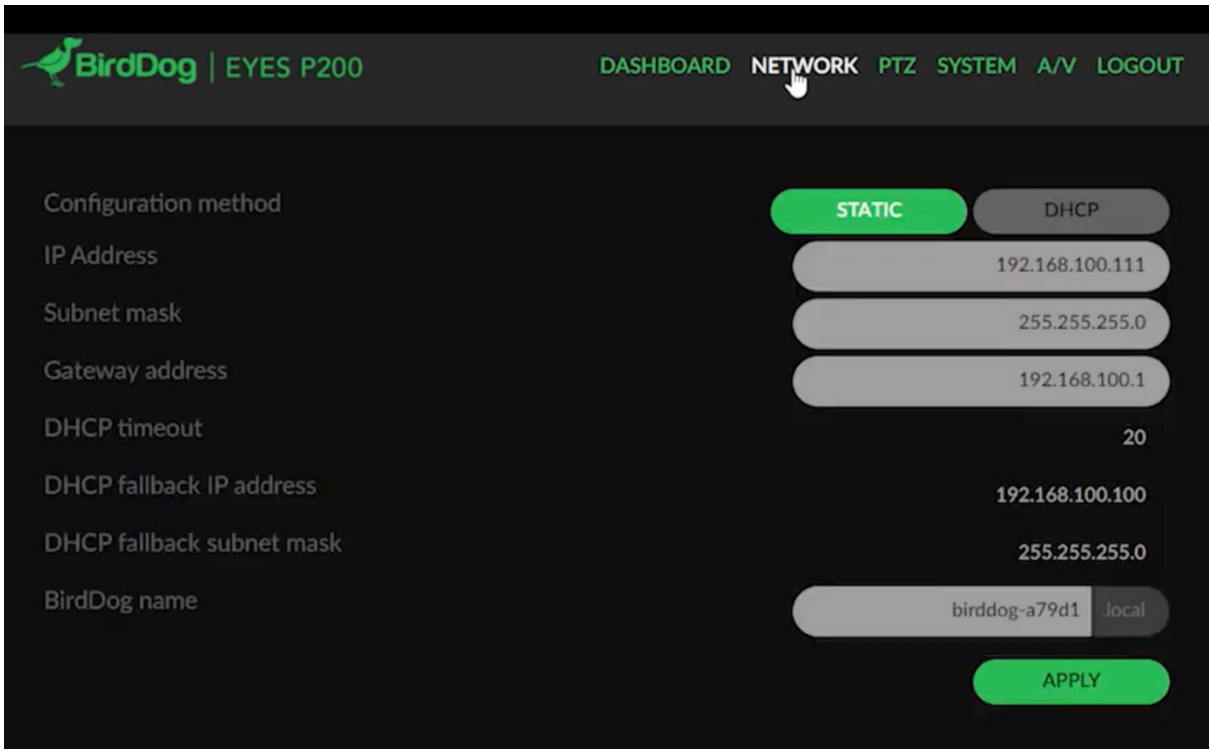
NDI has a failover function where you can designate an alternate camera or NDI source for the receiver, should this camera become disconnected or otherwise unavailable on the network. Click on the Available NDI Sources field to select your alternate source.

Network Configuration

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 P200 can accomodate both.

1. Click the NETWORK tab to display the camera network settings.



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 P200 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 fallover 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, 1-0, and '–'.

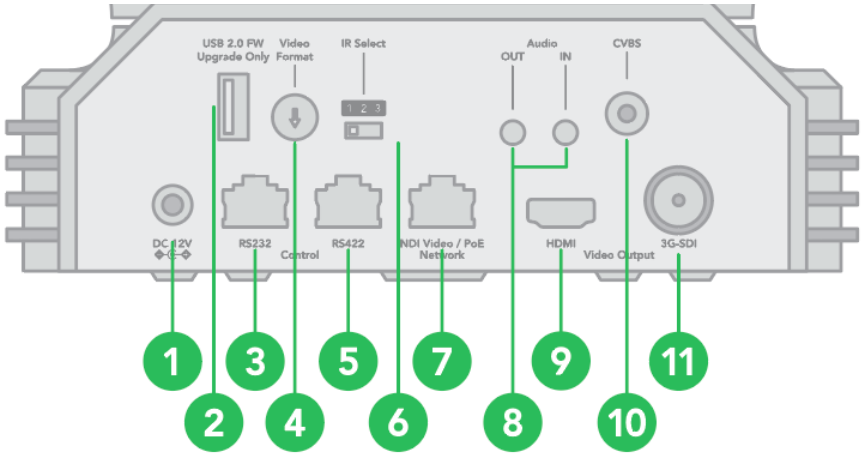
After renaming your camera, navigate back to the Dashboard and click REBOOT DEVICE. The camera will re-initialize and you'll be good to go.

You're Done!

That concludes our quick start guide for the P200. 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 configuration options, such as colour management, please refer to here in this manual.

Camera Connections



1. **12VDCPowerPort**

   Connect the supplied DC power adaptor and cord.

2. **USB 2.0 Port**

   For firmware upgrade only.

3. **RS232 Control Port (RJ45)**

   RJ45 to RS232 convertor cable is provided.

4. **Video Format Selector**

   For video format selection.

5. **RS-422 Control Port (RJ45)**

   RJ45 to RS422 convertor cable is provided.

6. **IR Remote ID Selector**

   Camera ID for IR remote controller.

7. **IP Network RJ45 Port**

   For VISCA over IP control and IP video streaming, with POE+(IEEE802.3at).

8. **Audio Output/Input**

   A microphone can be connected to the Audio IN port, which feeds audio into the camera.

   A speaker can be connected to the Audio OUT port, which will output any audio that is captured on the Audio In port. Refer to NDI AV Setup for more information about Audio capture.

9. **HDMI Port (HDMI 1.4)**

10. **CVBS Video Output**

11. **3G-SDI Video Output**

12. **IR Remote Controller Sensors**

    The sensors receive commands from infrared remote controller.

13. **Lens**

    This is a 30X magnification optical zoom lens.

14. **Power LED Indicator**

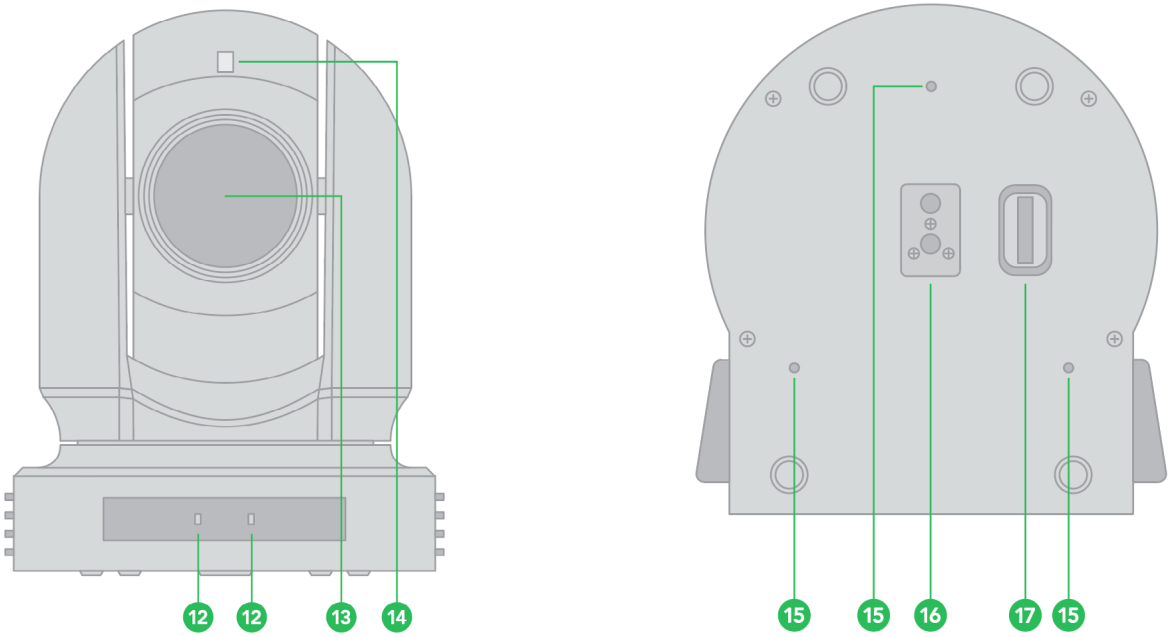
    The indicator displays green when the camera is connected to power outlet. When the power is turned on, it takes about 15 to 30 seconds to display the image after the LED displays.

15. **Fix Mounting Holes**

    For attaching to the wall/ceiling mount bracket.

16. **Tripod mounting holes**

    Bottom DIP Switch

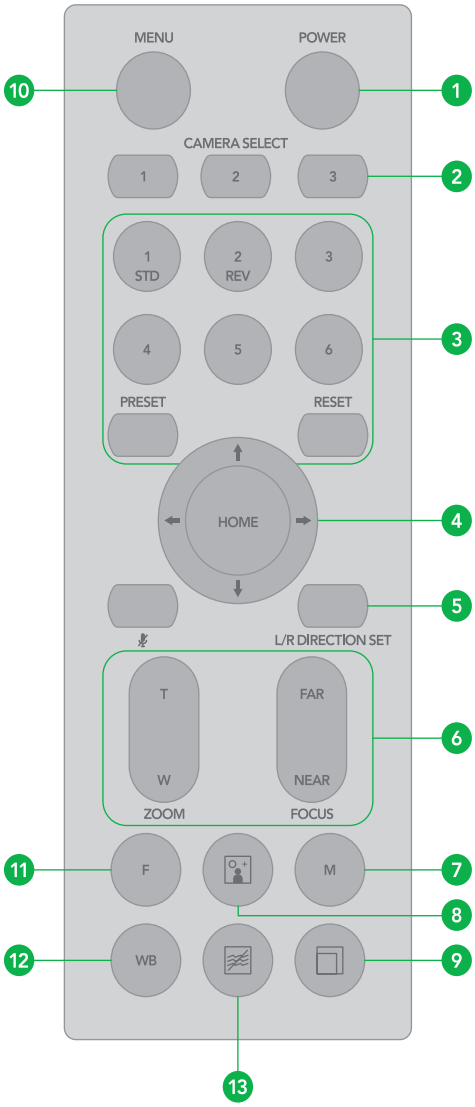


Remote Controller

1. **Power**
    - Power ON the camera to set the camera to operational status.
    - Power OFF the camera to set the camera to standby status.
    - When the camera is powered OFF, the camera turns to the rear.
    - When the camera is powered ON, the camera turns to the front.
    - Powering the camera ON/OFF would not restart the camera.

2. **Camera ID (Total 3) Selector**

3. **Preset Position (Total 6) Calling and Setting**



4. **PAN-TILT**
   - Pan and Tilt direction control.
   - HOME: Home position, Resolution reset.

5. **L/R Direction Set**
   - Left and right orientation setting.

6. **ZOOM/FOCUS**
   - Far – for objects further from the camera.
   - Near – for objects closer to the camera.

7. **Auto/Manual Focus**

8. **Back Light**

9. **Video Format Switching**
   - 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.)

10. **MENU**
    - On screen menu display ON/OFF.

11. **Fast/Slow Zooming Speed Switching**

12. **White Balance**
    - Change the White Balance setting by pressing the button.

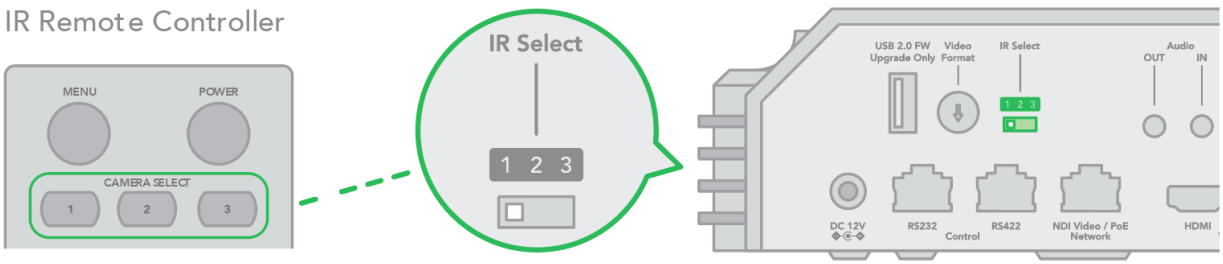
13. **De-Flicker**
    - When you find the video flicking, press the button once to eliminate the flickers.

NOTE:

- 3V CR2032 battery is not included with the remote controller.
- 3V CR2032 battery is not re-chargeable.

IR Remote Controller ID Setting

Set the IR SELECT switch on the back panel of the camera to 1, 2 or 3, to match the button on the controller that you wish to use.



Powering P200

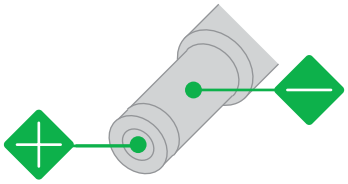
P200 can be powered by two ways.

PoE+ (Power over Ethernet)

PoE+ is a convenient way to power P200 as it allows both data and power to be sent through the same standard Ethernet cable. To take advantage of PoE+, the network switch must support PoE+ (802.3at) to provide the 18watts that the P200 requires.

DC Connection

Located at the rear of the P200 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.

Thermal Management

P200 has been engineered to be passively cooled and no fans are required. In order to achieve this the entire enclosure of P200 is designed to dissipate heat. The main processor is capable of operating up to 100° C / 212° F.

Various factors can affect how much heat the camera will produce, and it is normal for it to feel warm to the touch. In extreme circumstances (a hot day/direct hot sun) it is advised to power P200 via DC as this produces less heat than PoE.

Using the Camera Menus

You can use the infrared remote controller to change camera settings while observing the menus displayed on a connected computer screen.

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

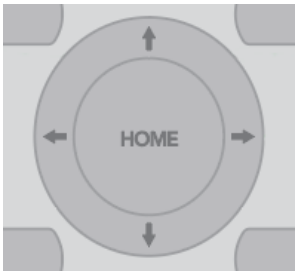
NOTE: You cannot perform pan/tilt operations while the menu is displayed.

1. To display the main menu, press the MENU button on the supplied infrared remote controller.

   The main menu is displayed.

OSD
▸ EXPOSURE
WHITE BALANCE
PICTURE 1
PICTURE 2
PAN TILT ZOOM
SYSTEM

2. Use the "↑, ↓" buttons to navigate between main menu items. For example, clicking the "↓" button once will move the cursor to the item below.



OSD	WHITE BALANCE MENU	
EXPOSURE	WB MODE	AUTO
▸ WHITE BALANCE		
PICTURE 1		
PICTURE 2		
PAN TILT ZOOM		
SYSTEM		

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.

OSD	EXPOSURE MENU: FULL AUTO	
▸ EXPOSURE	MODE	FULL AUTO
WHITE BALANCE	SLOW SHUTTER	OFF
PICTURE 1	S. SHUTTER LIMIT	1/4
PICTURE 2	AE RESPONSE	01
PAN TILT ZOOM	GAIN LIMIT	21.4dB
SYSTEM	EX COMP	OFF

OSD	EXPOSURE MENU: MANUAL	
▸ EXPOSURE	MODE	MANUAL
WHITE BALANCE	GAIN	12dB
PICTURE 1	GAIN LIMIT	21.4dB
PICTURE 2	SPEED	1/60
PAN TILT ZOOM	IRIS	F1.6
SYSTEM	HIGH SENSITIVITY	OFF

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.

Exposure Menu

The Exposure menu sets items related to exposure.

MODE

FULL AUTO: The exposure is adjusted automatically using the values set for SLOW SHUTTER, S. SHUTTER LIMIT, AE RESPONSE, GAIN LIMIT, and EX-COMP.

OSD	EXPOSURE MENU: FULL AUTO	
▸ EXPOSURE	MODE	FULL AUTO
WHITE BALANCE	SLOW SHUTTER	OFF
PICTURE 1	S. SHUTTER LIMIT	1/4
PICTURE 2	AE RESPONSE	01
PAN TILT ZOOM	GAIN LIMIT	21.4dB
SYSTEM	EX COMP	OFF

MANUAL: Allows manual adjustment of the GAIN, GAIN LIMIT, electronic shutter speed (SPEED), iris (IRIS), and HIGH SENSITIVITY.

OSD	EXPOSURE MENU: MANUAL	
▸ EXPOSURE	MODE	MANUAL
WHITE BALANCE	GAIN	12dB
PICTURE 1	GAIN LIMIT	21.4dB
PICTURE 2	SPEED	1/60
PAN TILT ZOOM	IRIS	F1.6
SYSTEM	HIGH SENSITIVITY	OFF

IRIS PRI: Iris Priority mode. This mode allows you to set a fixed IRIS with exposure achieved by automatic setting of SPEED, GAIN LIMIT, and EX-COMP.

OSD	EXPOSURE MENU: IRIS PRI	
▸ EXPOSURE	MODE	IRIS PRI
WHITE BALANCE	IRIS	F1.6
PICTURE 1	GAIN LIMIT	21.4dB
PICTURE 2		
PAN TILT ZOOM		
SYSTEM	EX COMP	OFF

SHUTTER PRI: Shutter Priority mode. This mode allows you to set a fixed shutter SPEED with exposure achieved by automatic setting of IRIS, GAIN LIMIT, and EX-COMP. When you select one from various exposure modes, some of the following setting items that are required for the selected mode will be displayed.

GAIN: Select the gain from the following:

- 0dB, 3.6 dB, 7.1 dB, 10.7 dB, 14.3 dB, 17.8 dB, 21.4 dB, 25 dB, 28.6 dB, 32.1 dB, 35.7 dB, 39.3 dB, 42.8 dB, 46.4 dB, 50 dB

GAIN LIMIT: The gain limit can be set at Full Auto, Shutter Priority, Iris Priority, Bright, Spot Exposure and Manual in AE mode. This is useful to limit the automatic setting of gain which can lead to excessive image noise at extreme settings.

HIGH SENSITIVITY: This function increases the max gain to allow bright output in darker environments. However, with a strong gain (up to 10×), the captured image will contain a lot of noise.

SPEED: When video format is set to 720P25, 1080P50, 1080i50, 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, 1080i59.94, 1080P29.97, 720P59.94, 1080P59.94, 1080I60, 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.

IRIS: Select the iris the following: CLOSE, F14, F11, F9.6, F8.0, F6.8, F5.6, F4.8, F4.0, F3.4, F2.8, F2.4, F2.0, F1.6.

SLOW SHUTTER: When set to "On," the slow shutter functions automatically in low light conditions. This setting is available only when the AE mode is set to "Full Auto." The default setting is Off.

S. SHUTTER LIMIT: With certain settings, in low light conditions, the shutter speed slows and the gain is increased. This function allows you to limit the shutter speed reduction. This helps prevent image shake when shooting a moving subject in low light conditions.

AE RESPONSE: The slow AE Response function allows you to reduce the exposure response speed. By default, optimum exposure can be obtained automatically within approx. 1 second. The slow AE response function allows you to lengthen this response time.

EX-COMP (Exposure Compensation): When MODE is set to FULL AUTO, SHUTTER PRI or IRIS PRI, setting EX-COMP to ON allows exposure compensation levels to be set from the following values:

- –10.5, –9, –7.5, –6, –4.5, –3, –1.5, 0, +1.5, +3, +4.5, +6, +7.5, +9, +10.5.

Setting the level to 0 disables exposure compensation. Level +10.5 is the brightest and –10.5 is the darkest compensation value. When EX-COMP is set to OFF, exposure compensation is disabled.

White Balance Menu

The WHITE BALANCE menu allows you to choose from several white balance modes.

OSD	WHITE BALANCE MENU	
EXPOSURE	WB MODE	AUTO
▸ WHITE BALANCE		
PICTURE 1		
PICTURE 2		
PAN TILT ZOOM		
SYSTEM		

WB MODE (White balance mode)

Select the white balance mode from the following:

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 (For example: A piece of white paper) in the center of the frame.
2. Press the HOME button of the infrared remote controller. The one-push white balance adjustment is activated.

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.

OSD	WHITE BALANCE MENU	
EXPOSURE	WB MODE	USER
▸ WHITE BALANCE	R GAIN	106
PICTURE 1	B GAIN	217
PICTURE 2		
PAN TILT ZOOM		
SYSTEM		

OUTDOOR AUTO: This is an auto white balance mode specifically for outdoors. It allows you to capture images with natural white balance in morning and evening light.

SL AUTO (Sodium Vapor Lamp Auto): This is an auto white balance mode that compensates for the orange light from sodium vapor lamps.

SL (Sodium Vapor Lamp): This is a fixed white balance mode specifically for sodium vapor lamps.

SLO AUTO (Sodium Vapor Lamp Outdoor Auto): This is an auto white balance mode specifically for outdoors, which is compatible with sodium vapor lamps.

Picture 1 Menu

OSD	PICTURE 1 MENU	
EXPOSURE	SHARPNESS	3
WHITE BALANCE	EFFECT	OFF
▸ PICTURE 1	NOISE REDUCTION	3
PICTURE 2	FLIP	OFF
PAN TILT ZOOM	MIRROR	OFF
SYSTEM	DE-FLICKER	OFF
	WDR	OFF
	COLOR	5
	HUE	6
	CONTRAST	128

SHARPNESS: Adjusts the picture sharpness value from 0 to 15.

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

NOISE REDUCTION: Can reduce the level of image noise. Select 6 levels from 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.

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.

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.

COLOR: 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.

Picture 2 Menu

OSD	PICTURE 2 MENU	
EXPOSURE	CHROMA	OFF
WHITE BALANCE	HLC MODE	OFF
PICTURE 1	BACKLIGHT COM.	OFF
▶ PICTURE 2	STABILIZER	OFF
PAN TILT ZOOM	STABLE ZOOM	OFF
SYSTEM	GAMMA	0

CHROMA: You can set the brightness from OFF, LOW, MID, HIGH in each mode of the variable gamma mode.

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: Compensates for strong scene backlighting that can otherwise lead to the subject being too dimly exposed when shooting in auto exposure mode.

STABILIZER: (Available on 30X zoom)
This function can reduce image blur caused by camera movement. The correction effect works best at vibration frequencies of around 10 Hz and may not be as effective in conditions of high frequency vibration. In such high frequency vibration conditions, turn the image stabilizer function off.
The image stabilizer function uses the digital zoom methodology and may result reduced angle of view and resolution.

STABLE ZOOM: (Available on 30X zoom) Stable Zoom uses the image stabilizer and a combination of the optical and digital zoom to achieve a smooth 24× zoom.

GAMMA: Adjusts the gamma of the image from 0 to 1.

Pan Tilt Zoom Menu

The Pan Tilt Zoom menu is used to select the pan/tilt/zoom mode.

OSD	PAN TILT ZOOM MENU	
EXPOSURE	ZOOM RATIO OSD	OFF
WHITE BALANCE	AF SEN	LOW
▸ PICTURE 1	MF SPEED	2
PICTURE 2	NEAR LIMIT	30cm
PAN TILT ZOOM	ADAPTIVE PT	ON
SYSTEM	P/T SPEED	3
	PRESET SPEED	5
	PAN DIR	NORMAL
	TILT DIR	NORMAL

ZOOM RATIO OSD: Determines whether the zoom ratio displays on screen.

AF SEN: When set to NORMAL, 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. Can be set in a range from OVER, 1cm, 11cm, 30cm, 80cm, 1.2m, 1.4m, 1.6m, 2.0m, 2.5m, 3.1m, 4.2m, 6m, 10m, 20m.

ADAPTIVE P/T: 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: The P/T Speed can be set from 0 to 5 (from low to high), when controlling using the remote controller.

PRESET SPEED: Set the preset recall movement speed from 0 to 5.

PAN DIR: Camera horizontal Left and right orientation setting, option: Normal/Invert.

TILT DIR: Camera tilt up and down orientation setting, option: Normal/Invert.

System Menu

OSD	SYSTEM MENU	
EXPOSURE	PELCO ID	001
WHITE BALANCE	IR-RECEIVE	ON
PICTURE 1	DISPLAY INFO	ON
PICTURE 2	PRESET MEMORY	ON
PAN TILT ZOOM	FACTORY RESET	
▸ SYSTEM	RELOAD PRESET 1	ON
	AUTO FOCUS	NORMAL
	FORMAT	1080p29.97
	SV	V0B1100S36[...]

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

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.

PRESET MEMORY: This feature allows you to save the image parameters to PRESET memory. Parameters such as picture, white balance, exposure, focus mode, zoom positions can be saved with the preset.

FACTORY RESET: Select this item to set camera back to the factory default setting. Press the HOME button to confirm the action. All user settings for the camera will be deleted.

RELOAD PRESET 1: When set to ON, preset 1 is set to the Home position. The camera goes to the Home position when it is powered on or reset.

AUTO FOCUS: Set the speed of auto-focusing from Low to Normal.

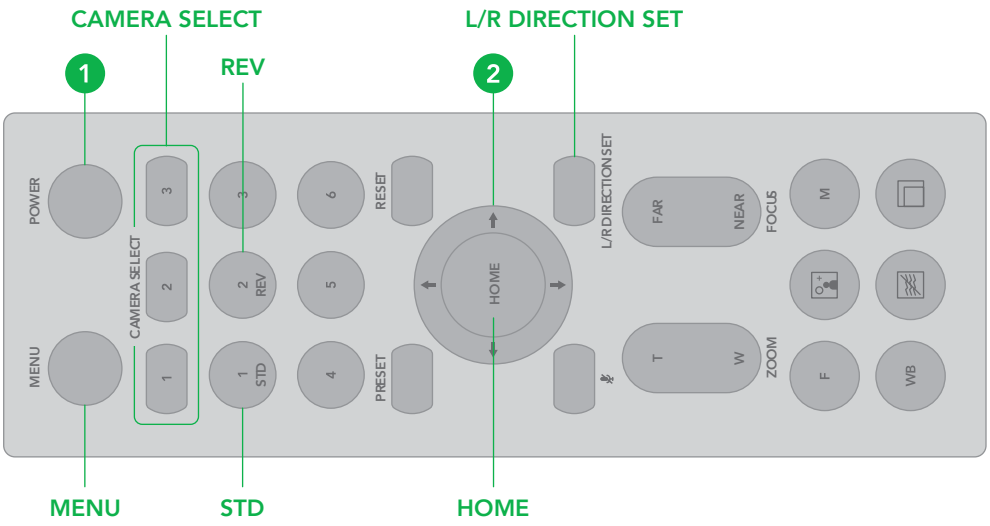
VIDEO FORMAT: You can change the camera video format. Select VIDEO FORMAT, press the "←" button to choose the video format, then press "→" (Pressing "→" button changes value on some product models) or HOME button to confirm. After confirmation, press the HOME button again to restore it. The camera will reboot by itself and the new video format is activated.

- You can cancel it by pressing the MENU button.
- Depending on the video client software you are using, some video software may need to be restarted to obtain the new video format. You can select from the following video formats:
  - 1080P:60/59.94/50/30/29.97/25, 1080I:60/59.94/50, 720P:60/59.94/50/30/25

  NOTE: The camera video format can also be changed by setting the rotary DIP switch at the back of the unit.

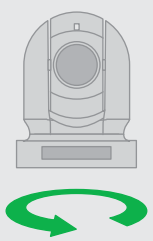
SV: Software Version Number that is currently running on the camera, you may need this information for technical support.

Controlling the Camera Using the Remote Controller



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.
3. To move the camera in short increments, press the button.
4. To move the camera in long increments, press and hold the button.
5. To move the camera diagonally, press the "← or →" button while holding down the "↑ or ↓" button.
6. Press the HOME button to return to the starting position
7. 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 set the remote to move the camera toward the opposite direction from that of the button you pressed, press the 2 (REV) button while holding down the L/R DIRECTION SET button.

Arrow Button	Movement of the Camera	Setting
		 L/R DIRECTION SET While holding down  2 REV Press

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.

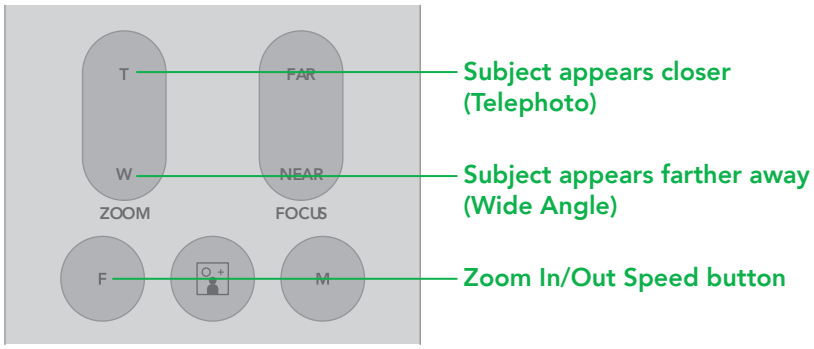
When the STANDBY lamp is blinking
If the camera is moved forcibly, for example, a finger or other object interferes with camera movement, the camera may fail to memorize the pan/tilt position. In this case, press the PAN-TILT RESET button to reset the pan/tilt position.

Zooming

Button [T]: Zoom In.

Button [W]: Zoom Out.

Button [F]: Fast / Slow toggle.



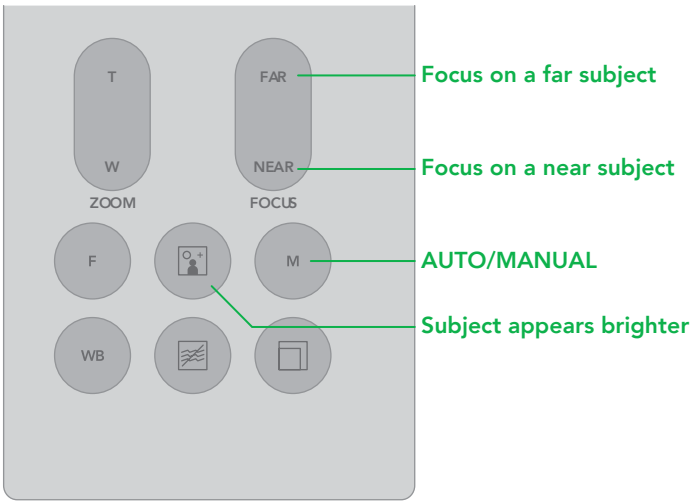
Focusing

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.



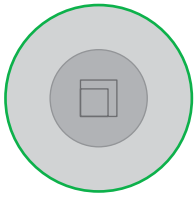
Shooting with Back Lighting

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.

Changing Resolution

1. Press the RESOLUTION button.
2. Use the arrow keys to navigate the displayed menu.
3. Press Home to select.
4. Screen will display 'CHANGING...''
5. Press Menu to exit.



Storing the Camera Settings in Memory Using Presets

Memory (Preset)

Using the preset function, six sets of camera shooting conditions can be stored and recalled. The six sets of camera shooting conditions can be stored and recalled by using remote controller. Up to 128 presets via protocol programming.

This function allows you to achieve the desired status instantly, even without adjusting the following items each time.

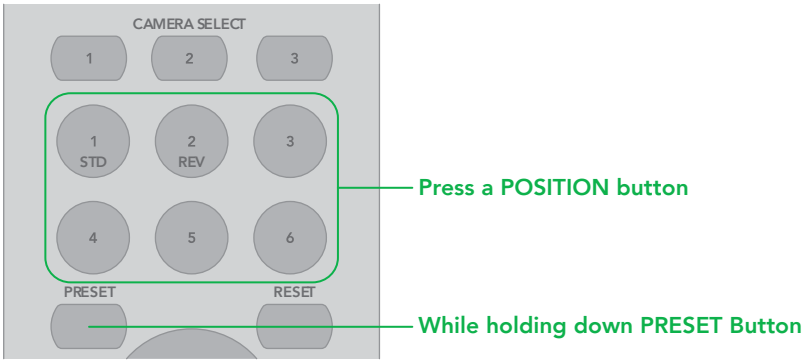
- Pan/Tilt Position
- Zoom Position
- Focus Auto/Manual
- Focus Position
- AE Mode
- Shutter control parameters
- Bright Control
- Iris control parameters
- Gain control parameters
- Exposure Compensation On/Off
- Exposure Level
- Backlight Compensation On/Off
- White Balance Mode
- R/B Gain
- Aperture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

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

1. Press the RESET button to reset the pan/tilt position.
2. Adjust the position, zooming, focusing and backlighting of the camera.
3. While holding down the PRESET button, press any of the POSITION buttons, 1 to 6, in which you want to store the settings.

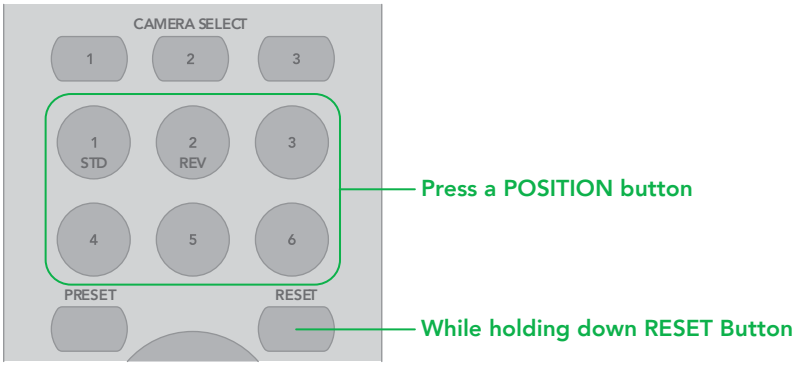
Recalling the stored settings

Press any of the POSITION buttons, 1 to 6, in which you have stored the settings.



Cancelling the preset memory

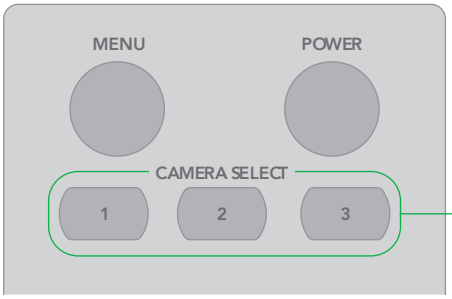
While holding down the RESET button, press the POSITION button from which you want to cancel the settings.



Note:

- When the power is turned on, the camera starts with the settings stored in POSITION 1, so if you want to retain the previous pan and tilt positions, 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.

Operating Multiple Cameras with the Infrared Remote Controller



1. Set the DIP switch on the base of the camera to the number of camera you want to operate – 1, 2 or 3. DIP switch setting instructions are printed on the camera base.
2. Press the CAMERA SELECT button on the infrared remote controller that corresponds to the number set in step.
3. You can now operate the camera(s) specified by number. Every time you operate the camera(s) using the infrared remote controller, the CAMERA SELECT button pressed in step 2 illuminates.

NDI Set Up

Web Configuration Panel

The web configuration panel (Web UI) allows you to alter key settings of P200, such as A/V settings, video frame rates, restarting the video processing engine, changing networking parameters, recalling PTZ presets and applying firmware updates.

Access via web browser (URL)

P200 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 P200 receives an IP address automatically from this server (DHCP), the IP address can be discovered in several ways, including BirdDog Central Lite available from: http://www.bird-dog.tv

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 here: support.apple.com/kb/dl999?locale=en_AU

Accessing P200 on a network without a DHCP server

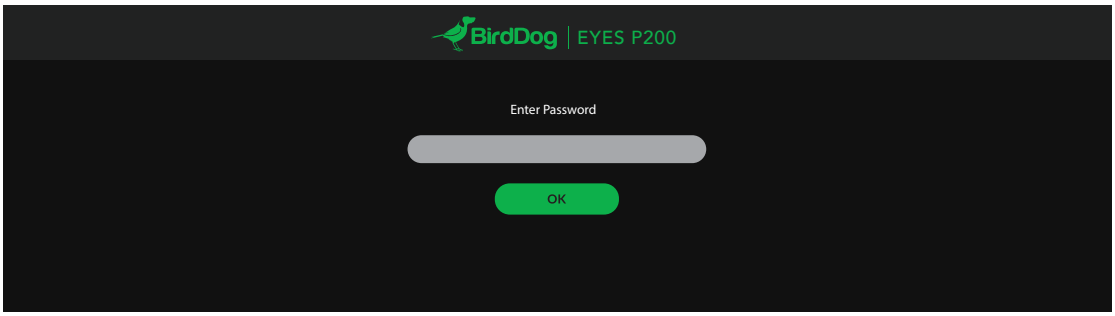
Some standalone or private networks may not have a DHCP server. After 30 seconds of searching for an automatically assigned IP address P200 will fall back to a default address which is: 192.168.100.100

In order to access the Web UI 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 Web UI, choose your IP address to match the rest of the devices on your network.

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

Password Management

Once you direct your web browser to the Web UI you will need to log in to change any settings.



Default Password

The Web UI is secured by a user-selectable password. The default password is:

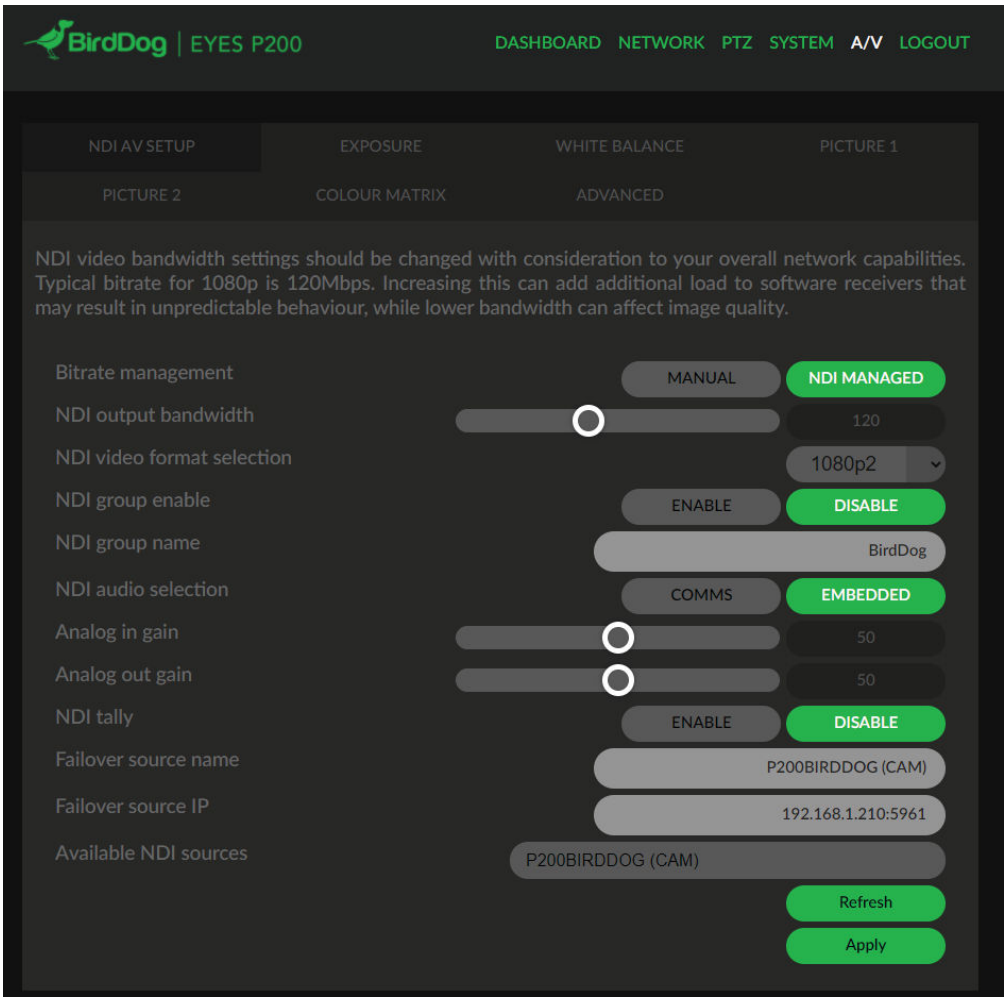
birddog (one word, lower case).

Password Reset

To change the password simply login using the default password, navigate to the network tab in the web interface, and select change password.

It is recommended to change this password in a network environment where P200 is shared with other users (e.g. not private). By entering this password, the user is granted full access to the P200 configuration settings and could interrupt a live program.

NDI AV Set Up



Bitrate Management

Birddog Devices allow you to set your target NDI output bitrate. This allows you to select a compression ratio that is more efficient for your networking infrastructure (lower bandwidth) or higher image quality for critical footage. The scale allows you to select the range of 60Mbps - 360Mbps.

By setting Bitrate Management to NDI MANAGED, the target bitrate will be set in accordance with the NDI® standard. By selecting MANUAL you are able to manually select a target bitrate. Select MANUAL with care, as you will need to account for the capacity of the network and the receiving device.

NDI Video Selection

P200 is capable of outputting independent video formats for both NDI 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 29.97/30fps based camera setting.

NDI Group Enable

NDI v 4.5x supports NDI groups. This allows you to set P200 to only announce it's availability to other devices that belong to the same NDI group. By default this setting is DISABLED. When enabled the receiver device needs to also be set to the same identical group name. Commonly this is done using the NDI Access Manager application provided by NewTek free of charge. NDI Groups can be very useful in larger environments to control visibility and access amongst various groups.

NDI Audio Selection

P200 has the ability to route the incoming audio from the 3.5mm audio input socket to either be embedded in the main NDI® stream, or to behave as an audio comms end-point. If you operate the BirdDog Comms application you can then use the P200 as an output for IFB communications.

Failover Source

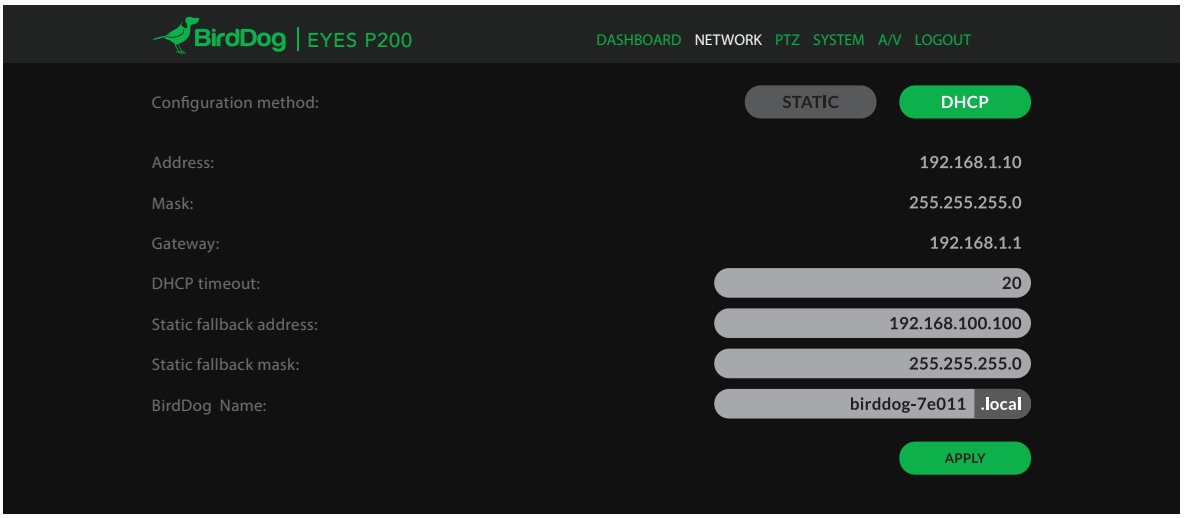
P200 can inform any receiving device of a failover scheme. This means if their BirdDog NDI stream is interrupted for any reason the receiver can automatically switch to a pre-determined alternative NDI stream. This is particularly useful for live 'on air' productions where there can be no risk of still frames or black being broadcast should any source no longer be available. Select an available NDI source for the failover function from the dropdown list in 'Available NDI sources'. You can update this list by pressing Refresh source list in the Chrome web browser.

Network Set Up and Device Naming

Device Naming

When P200 is first powered on, it defaults to the naming convention http://birddog-xxxxx.local/, where "xxxxx" is the last five digits of the MAC address of the P200.

Feel free to change the name, along with the network settings, to better suit your environment. To do this, log in to the Web UI and navigate to the network section.



IP Address Configuration

You can configure P200 to operate on the network with a dynamic (DHCP) IP address or a fixed address. For smaller networks DHCP networking is generally suitable, however larger networks with managed operations will often determine each device needs to have a dedicated, static IP address.

DHCP IP Address

DHCP is set as the network configuration by default for Mini.

Static IP Address

To enable a static IP address, change configuration method to static and fill in the details required in Address, Mask and Gateway. Particular attention should be paid to the Address and Mask fields as incorrect information entered will result in P200 not being visible on the network and a factory reset will be required in order to recover the unit.

IP Address Recovery

In the event that P200 is not visible on the network, the network has changed, or the static IP address details have been lost, reset the BirdDog back to its default settings by following the factory reset procedure.

BirdDog Name

You can name each P200 with a friendly name that makes sense for each production (camera 1, camera 2, etc). This name will appear on any NDI receiver when it looks for video on the network. The name must not include any special characters and can be any combination of 'a-z, 1-0, and –'. No uppercase characters are valid. We do recommend that you keep the birddog prefix as some devices and software will look for the birddog name. The name can be any combination of a-z, 1-0, and '–'. A name such as birddog-cam1 will work well.

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.

On NDI receiving devices, P200 will present as a source as when the unit is set to automatic input:

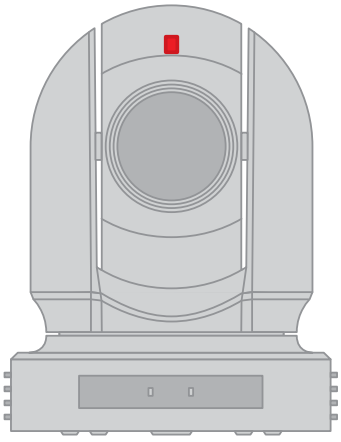
birddog-name [CAM]

Tally Support

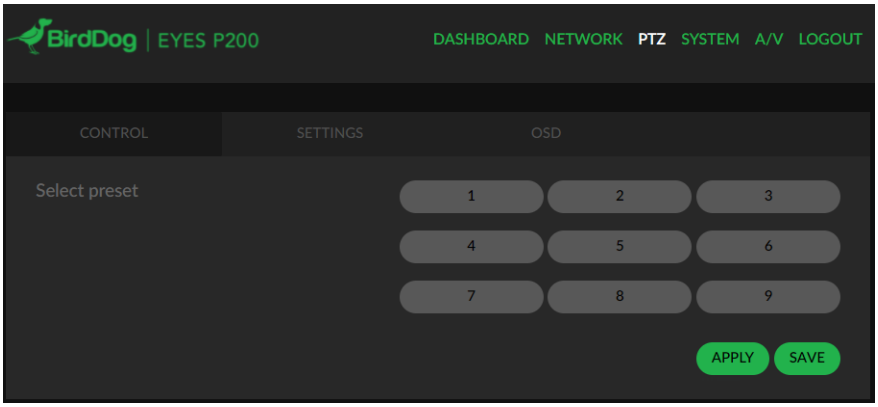
Onboard Tally

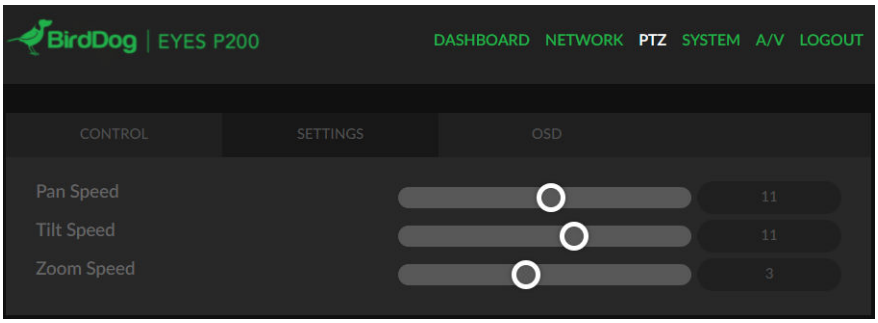
P200 supports Tally within the NDI protocol. Tally is a method of identifying which source is being used 'on air' at any particular time.

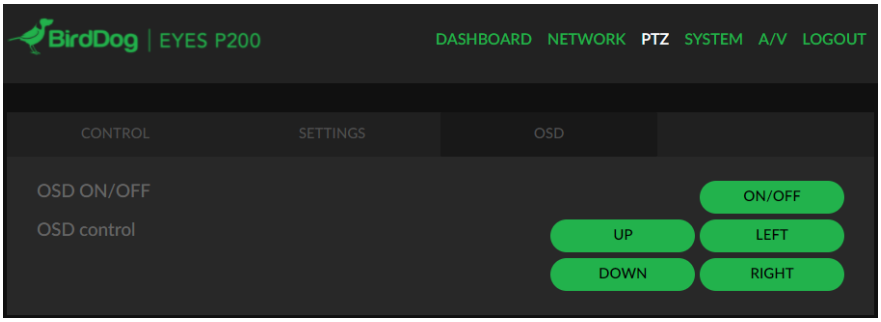
Whenever a P200 source is being used on the program output of an NDI compatible receiver that supports Tally metadata, the LED will light up red on the front of P200.



PTZ Set Up







Control

You are able to save and recall presets from the Dashboard using the Select Preset option. Simply press the Preset number you wish to recall or save followed by APPLY or SAVE.

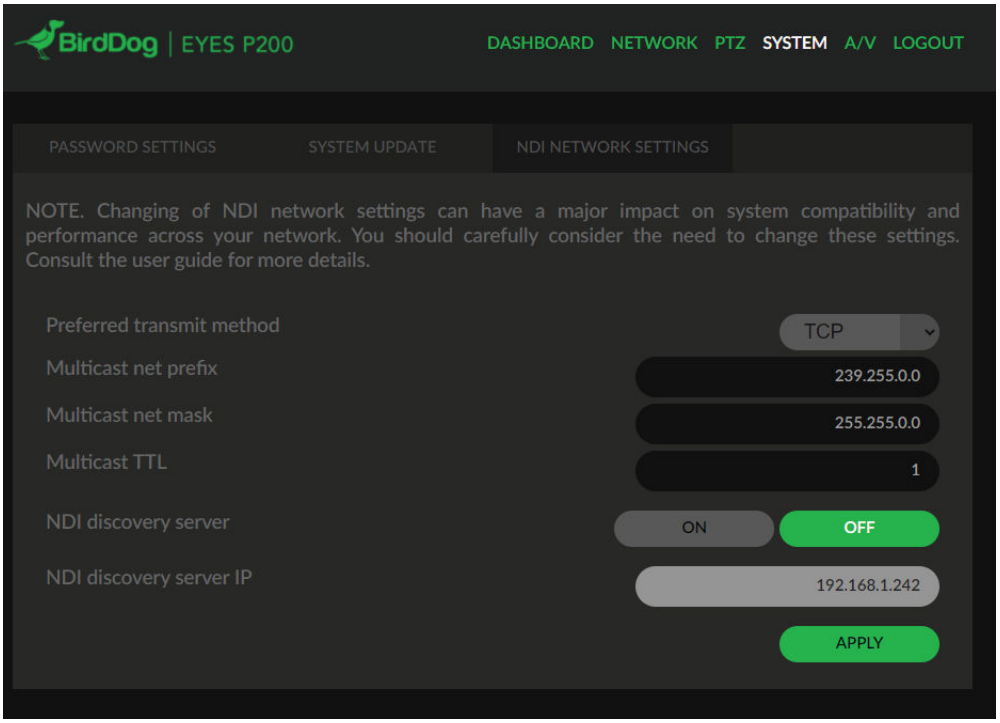
PT Max Speed

When controlling P200 over NDI you can limit the maximum speed of PTZ movements by affecting this option, the higher the number (18) the faster and more sensitive the movements will be on the camera.

OSD

To adjust all cameras settings press the OSD ON/OFF button to activate the OSD. The OSD is visible on both the NDI output and SDI/HDMI and can equally be accessed via the included remote control. Please take note that the PTZ will not operate normally (control of movement) until the OSD menu is closed again.

NDI Network Settings



P200 operates with the latest NDI Libraries. There are several options to configure P200 behaviour in an NDI network. Each configuration has its benefits, however it is recommended to utilise the default TCP transmit method unless you have reason to change.

Preferred Transmit Method

TCP

TCP is the default transmission method 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 need to receive a confirmation of each packet being received successfully – vastly improving performance on distance WANs. UDP can have some consequences f there are other issues on the network such as jitter or lost packets as it will not inherently re-sent a lost packet.

Multicast

Multicast is especially useful for use-cases that require a single source to be received on multiple receivers simultaneously. Utilising Muliticast offloads the distribution of the NDI A/V packets from the BirdDog Flex 4K to the network infrastructure. You should take care to ensure your network is spe-cifically configured to support Multicast as using it on an ill-prepared network can create unintended network problems.

MultiTCP

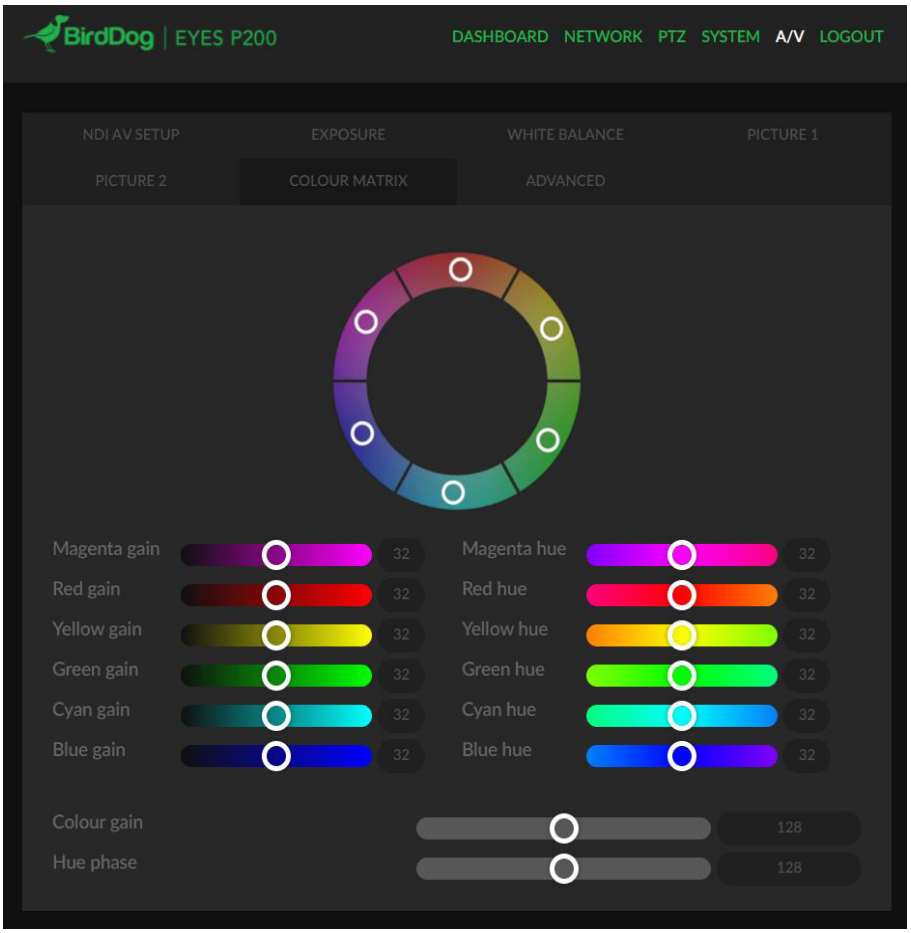
MultiTCP is a new NDI transport method that allows users to send NDI video over poor network to-pography such as WAN (Wide Area Networks) without experiencing issues such as packet loss and lost frames. In the past in order to send NDI video over a WAN the UDP transport was the only option available. UDP solved some issues of WAN applications by allowing the NDI video to travel without dropping masses of frames but results in dropped packets being missed which could cause unstable video. UDP also places more performance demands on devices sending and receiving the signal.

MultiTCP employs a new method of sending TCP packets whereby it opens a mass of TCP connections over the WAN and uses them in a 'round robin' manner, this allows each individual TCP connection enough time to acknowledge the receiving packet, confirm nothing is lost and prepare for the next one before it's sent the next TCP packet in the round robin. This is similar to a RAID setup in traditional storage.

Colour Matrix

P200 has a full colour matrix with individual saturation and hue control over Red, Green, Blue, Cyan, Yellow and Magenta, all with 64 levels of control.

You an view this and the following Image Enhancement section as an online video if you prefer.
https://www.youtube.com/watch?v=frhk2wNjuWk



Colour Matrix

The Colour matrix section allow you to fine-tune the cameras performance for individual colours across the spectrum.

You can see in this figure that the color spectrum is divided into six sections, theses being Red, Green, Blue, Cyan, Magenta and Yellow.

The Colour Matrix control allows individual fine-tuning of each of these colour sections without affecting the response of other colour components. The controls allow for adjustment of Gain (Intensity) and Hue (offset) of each colour.

Colour Gain

The Gain control of each colour component defines how intense that colour is represented in the image that is produced by the camera. The default level (32) is a moderate gain which shows an even bias between all pixels that contain the colour. I.e. 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.

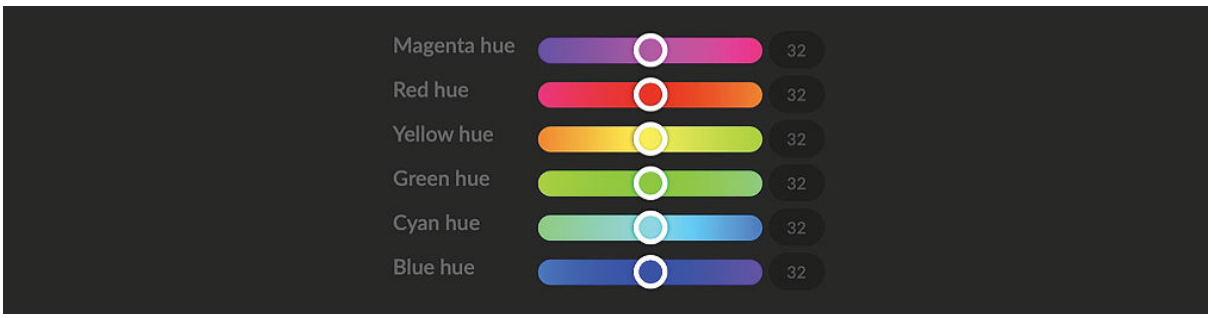
By increasing the gain value, the camera will add additional intensity to all parts of the image pertaining to this colour. For example, if you increase the Red gain value to 64 all pixels that are red in the image will have a boost of colour compared to other colours in the image resulting in a more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

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

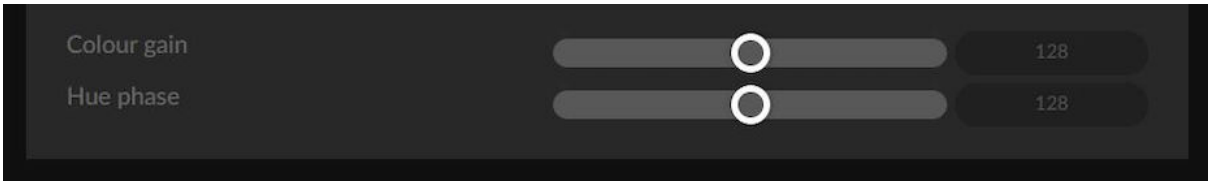
Colour Hue

The Colour Hue option adjusts the temperature or phase in which any colour is represented. When looking at the colour spectrum, beyond the true colour points for each of the main colour adjustments in the camera (Red, Green, Blue, Cyan, Magenta and Yellow there are areas where the colours transition to their neighbouring colour point.

P200 Colour Matrix controls allow you to adjust the colour offset in a negative (counter clockwise) or positive (clockwise) direction, effectively moving the cameras response to any colour towards its neighbouring colour transition point.

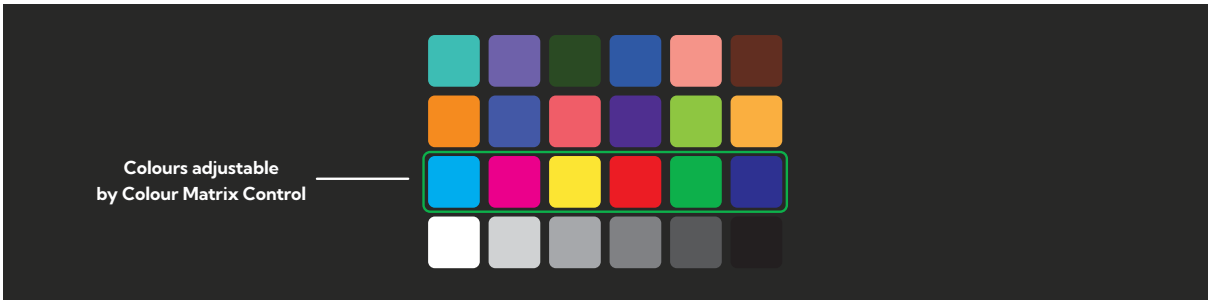


Adjusting individual colour Hue can assist dramatically in matching colour representation from the camera to true-to like colours or matching P200 to other cameras in your production. The Colour gain Hue phase can be also be adjusted globally. Moving the Colour gain and Hue phase sliders will adjust all of the values of the gain and hue sliders respectively.



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.

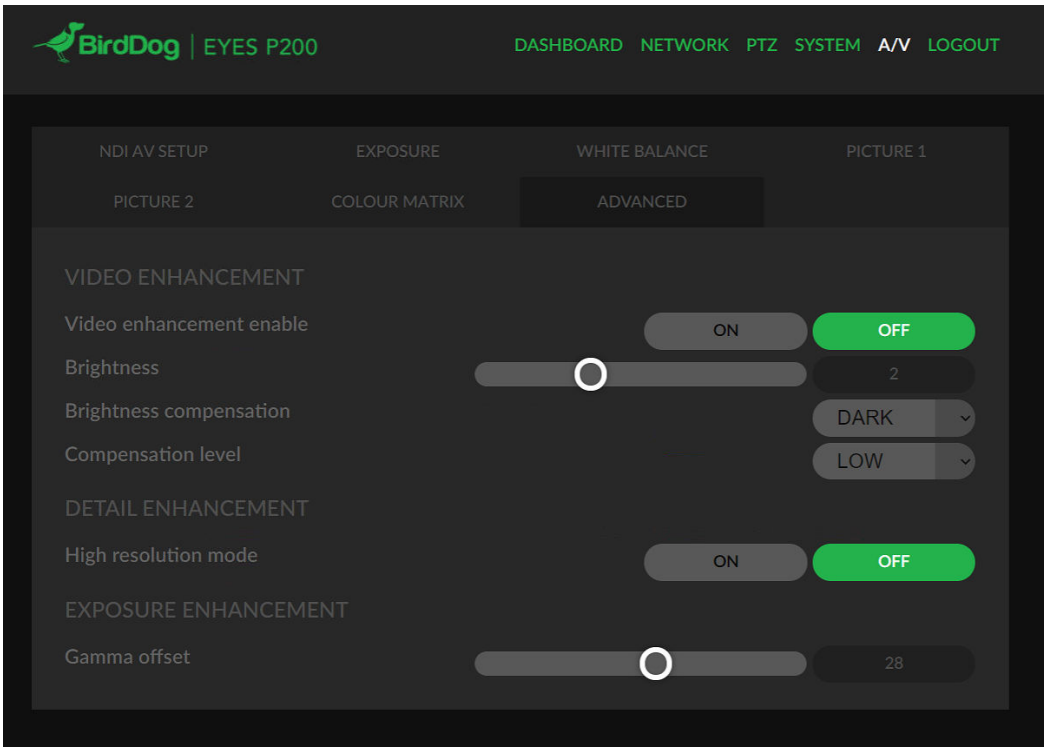


Using a colour chip chart such as the Datacolor SpyderCheckr can be beneficial to fine-tuning adjustments in the P200 Colour Matrix.

Image Enhancement

The image enhancement properties allow for adjustments and fine control of the cameras performance including video enhancement, detail enhancement and exposure enhancement.

Enabling video enhancement will attempt to adjust the amount of detail and gain for both the shadows and highlights of the image. This can result in a dramatically more balanced image. However, caution should be exercised as extreme settings can result in increased video noise in the shadows of the image.



Brightness

Adjusts the level of enhancement provided by the Video Enhancement function. A higher amount will result in more vivid images and more sensitivity in the shadows but can increase video noise produced by the camera.

Brightness Compensation

This setting informs the camera where your desired level of enhancement should be focused. If your image has large amounts of dark areas that need to be enhanced then set Brightness Compensation to Dark. If your image appears over exposed, set Brightness Compensation to Light.

Compensation Level

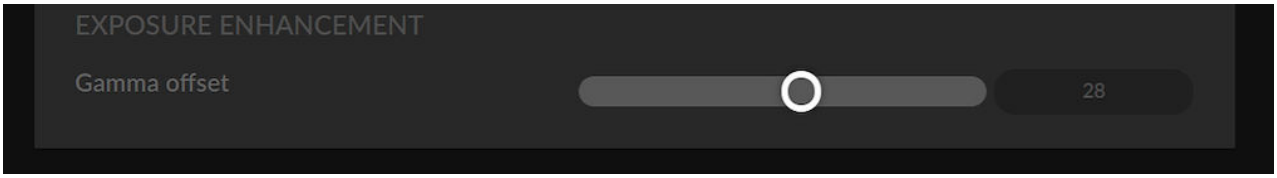
Adjusts the mask area for the camera to apply the Video Enhancement effect. By increasing the value from low to high, the camera will attempt to adjust a greater amount of the shadow or highlight area of the image.

Detail Enhancement

The Detail Enhancement section adjusts the definition of edges in the image and overall image sharpness.

Exposure Enhancement

Gamma offset adjusts the way the camera will handle the relationship between dark and light areas across the overall image. This can be represented as a positive or negative number. A negative or lower number places more bias towards the shadows giving more detail to the darker areas of the image. Moving Gamma offset towards positive will increase the bias towards brighter areas.



Receiving NDI Video

There are many applications that support receiving the NDI signal that P200 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 Mini from the drop-down list.

Once connected to the P200 you will notice a configuration cog appears on the bottom right-hand side of the video display that provides shortcut access the P200 Web UI.

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 P200 as a source on your TriCaster, click on the configuration cog below your desired source location, this will bring up the Input Setting dialog, select from the drop-down list your P200 source.

Once connected to P200, a configuration gear icon displays next to the source drop down window that provides shortcut access the P200 Web UI.

P200 Video Output

The camera can simultaneously produce SDI, HDMI and NDI® video output.

HDMI HD Video signal

Connect the camera to a HD monitor/TV using HDMI cable.

1. Turn on the camera, video will display on the monitor after running initializing.
2. Information of the camera initial setting status will display for 5 seconds.
3. You can set the video format of the camera to the one you want to display.

SDI Video Signal

The camera can simultaneously stream SDI video output with HDMI video output.

1. Connect SDI cable in between the camera your SDI Device/display.

IP Video Signal

The camera can simultaneously stream NDI® video output and SDI video output and HDMI video output.

1. Connect the camera to the network using Cat5/Cat6 network cable.
2. You need to have a web browser for product configuration.
3. PELCO address and Baud Rate setting on the camera must be as same as the setting on camera IP WEB interface.
4. To obtain NDI® video and configure NDI® video, please refer to NDI Set Up.

CVBS Video Signal

1. Connect CVBS cable in between the camera and your CVBS Device/display.

Camera Control

NDI

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

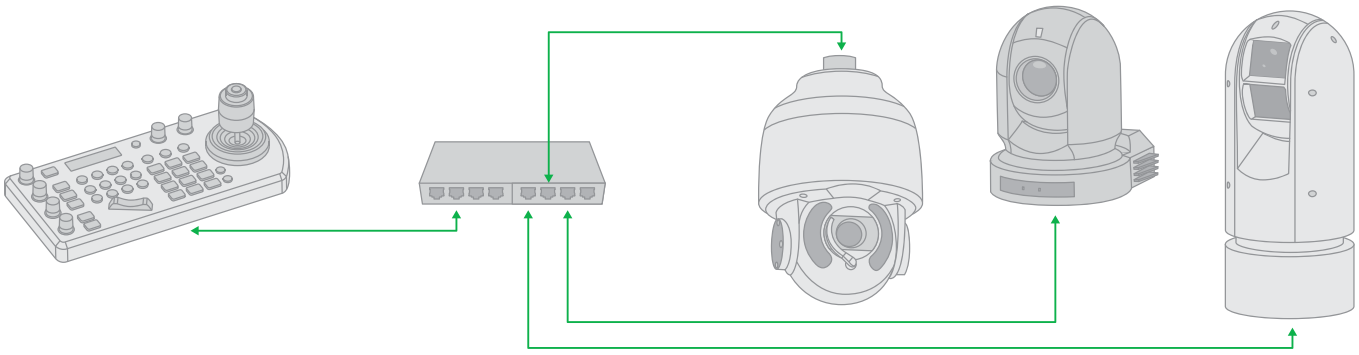
BirdDog PTZ Keyboard is a full featured PTZ Keyboard that supports NDI®, NDI|HX, Visca over IP, RS422, and RS232. By harnessing BirdDog's next generation NDI® and IP technology, it's never been easier to discover, connect, and control your PTZ cameras.

IP Connection

IP Port to Network Switch

- Used for logging in to web interface of PTZ Keyboard.
- Used to control the following PTZ protocols: NDI, VISCA over IP.

Connect the keyboard's IP port to a port on an Ethernet switch.



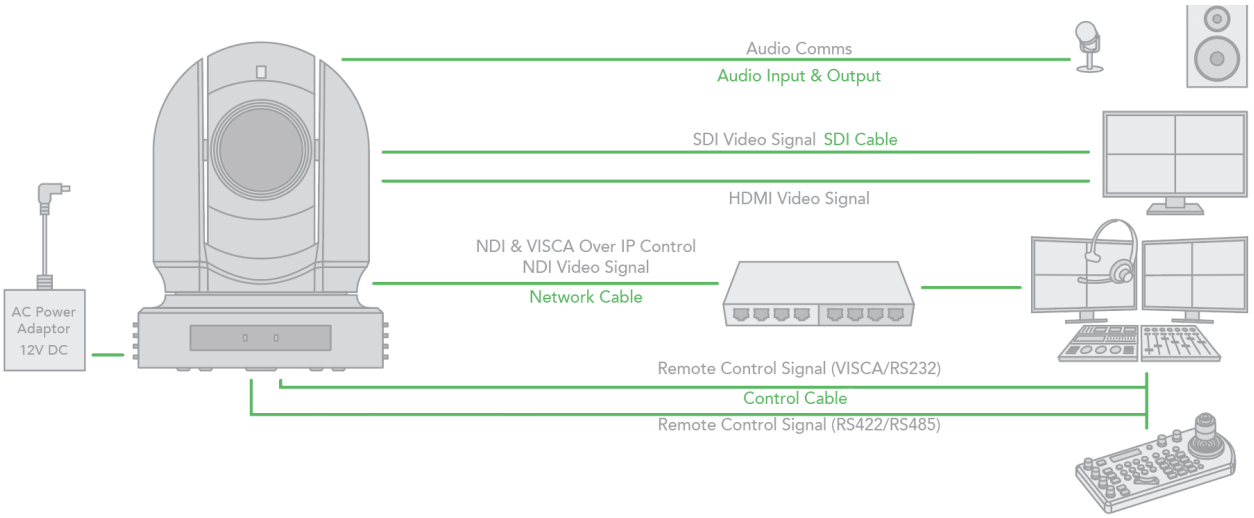
Controlling Your Camera Via Other Protocols

P200 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

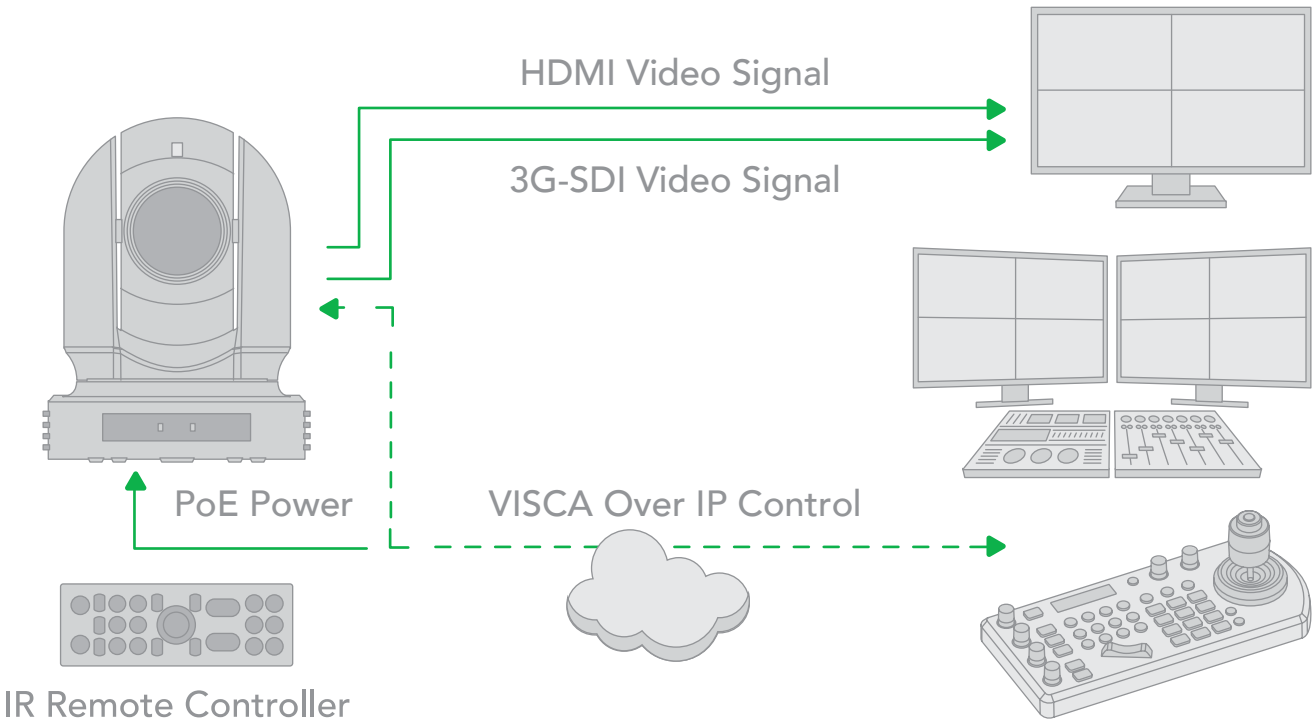
The following information of the camera initial setting status will display on the monitor for 5 seconds.

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 VISCA protocol on your IP control device.

DIP Switch Settings

The DIP switches are for setting the camera configuration for following items.

The Camera ID address and video resolution settings (below) can be also be set via the camera OSD menu. The camera can be set either using the OSD menu or DIP switches. They override each other – after the camera is turned on, the most recent setting is used.

1. Camera ID Address for RS-485 PELCO protocol.
2. Video output / Video color space.
3. RS-232 / RS-422/485 selection.
4. RS-232 / RS-422/485 baud rate.
5. Video resolutions selection.
6. IR remote controller ID.

Setting the DIP Switches

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

1. Bit 1~3: Camera Address setting for VISCA protocol
2. Bit 4: Video Output/Video Color Space
3. Bit 5: Reserved
4. Bit 6: RS-232/RS-422
5. Bit 7~8: RS-232/RS-422 Baud Rate

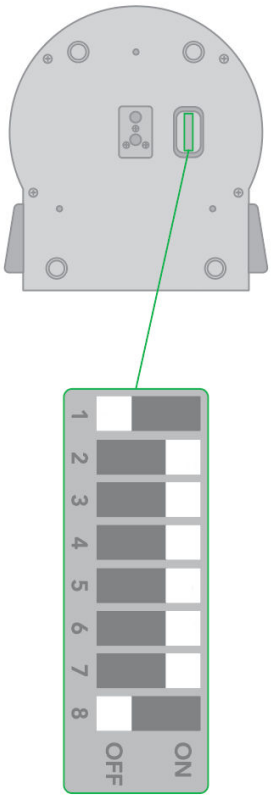
VISCA Address	1	2	3
1	ON	OFF	OFF
2	OFF	ON	OFF
3	ON	ON	OFF
4	OFF	OFF	ON
5	ON	OFF	ON
6	OFF	ON	ON
7	ON	ON	ON

Colour Space Setting	4
YUV Output	OFF
RGB Output	ON

MODE	5
Operation	OFF
Firmware Upgrade	ON

Control Mode	6
RS-232	OFF
RS-422	ON

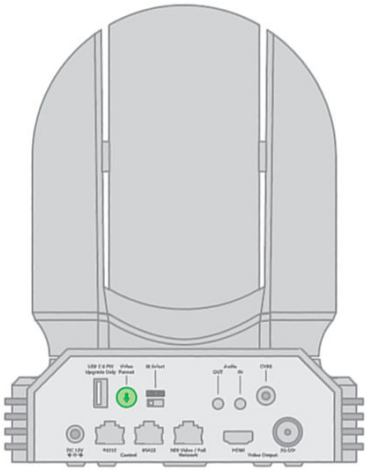
Baud Rate Setting	7	8
2400 bps	OFF	OFF
4800 bps	ON	OFF
9600 bps	OFF	ON
38400 bps	ON	ON



The Rear Panel Rotary DIP Switch

The rotary DIP switch selects the video format. Use small screw driver to turn the switch to the desired number or letter.

Numbers & Letters	Video Resolution
0	1080i 59.94
1	1080p 29.97
2	720p 59.94
3	1080p 59.94
4	1080p 50
5	1080i 60
6	1080p 30
7	1080p 60
8	1080i 50
9	1080p 25
A	720p 50
B	1080p 50
C	720p 25
D	720p 30
E	720p 60
F	-

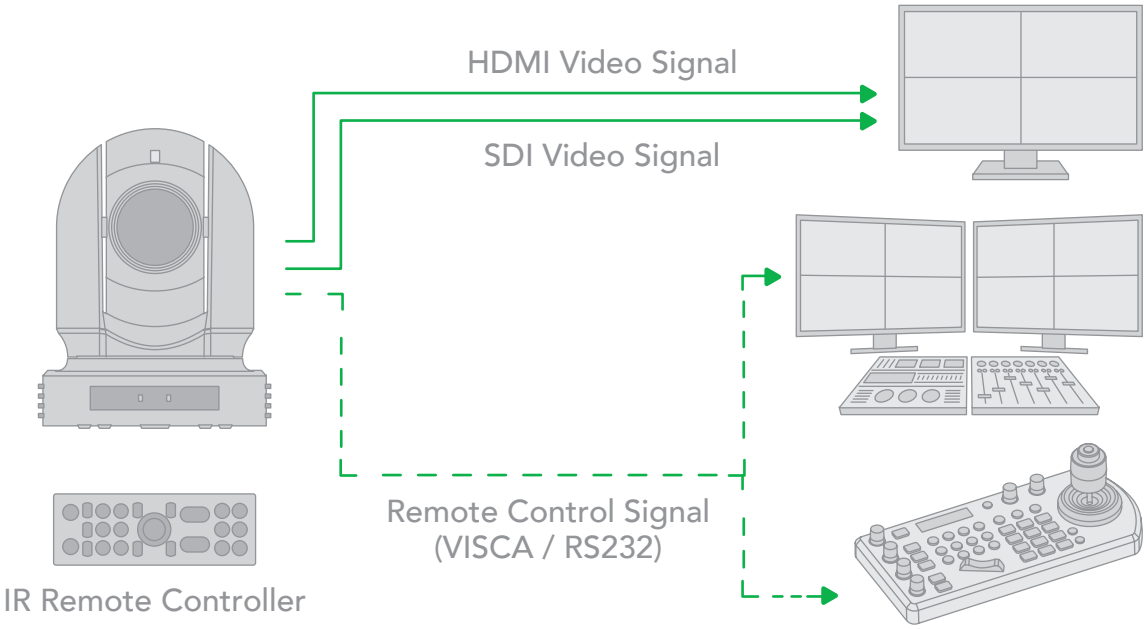


Using RS-232 (VISCA)

You can use the RS-232 port to connect to optional controllers, such as joystick control keyboard, control PC station, to operate the camera.

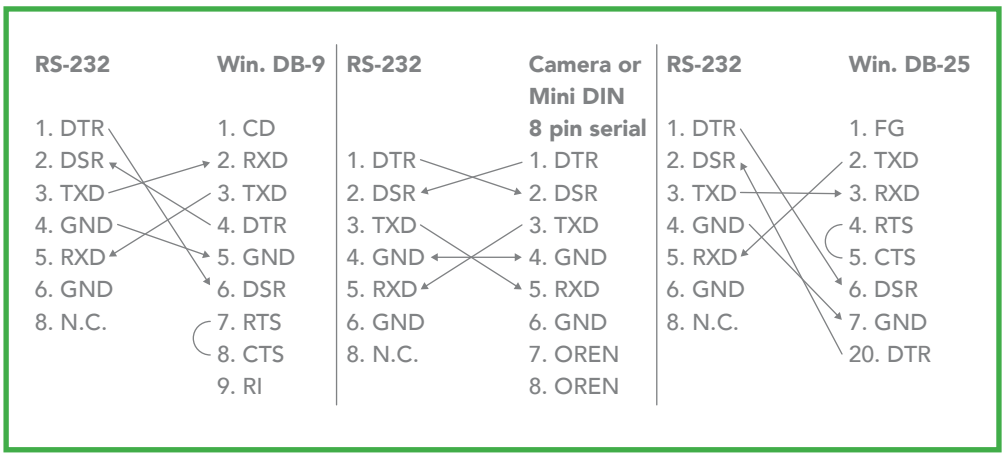
To perform pan/tilt and zoom operations using the joystick of the control keyboard, and to perform the Preset operation using the control buttons.

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

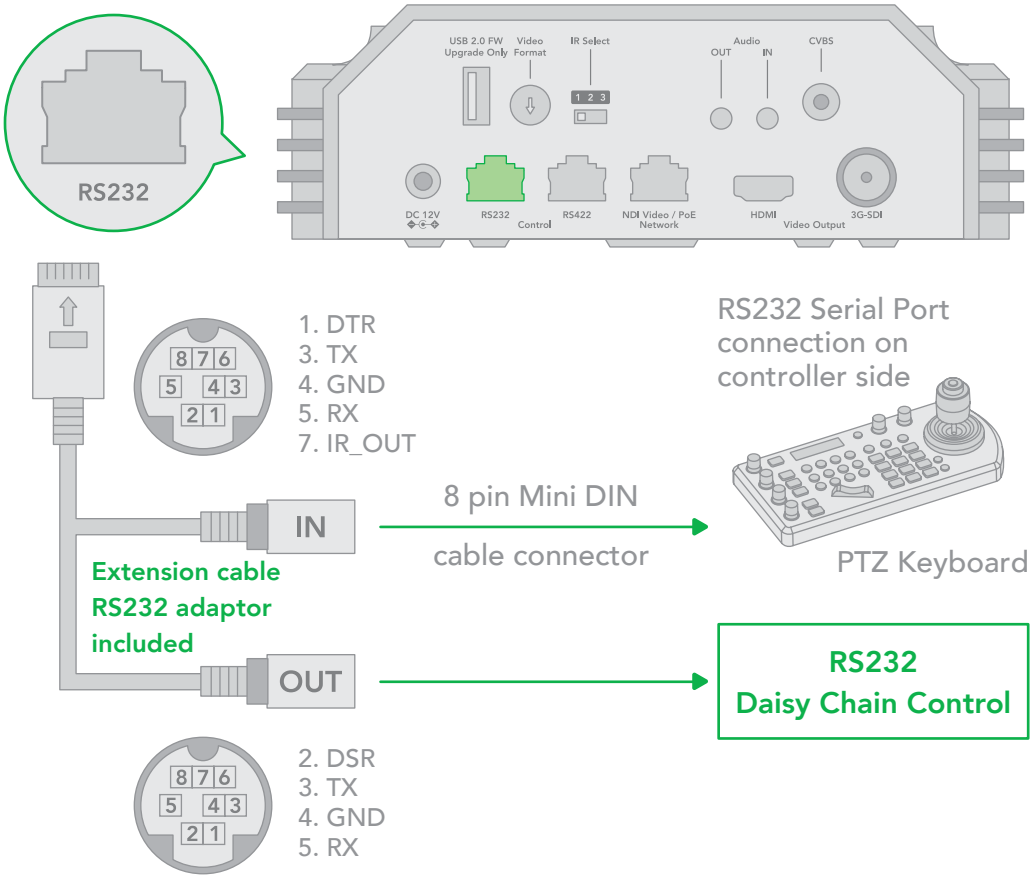


RS232 Connection

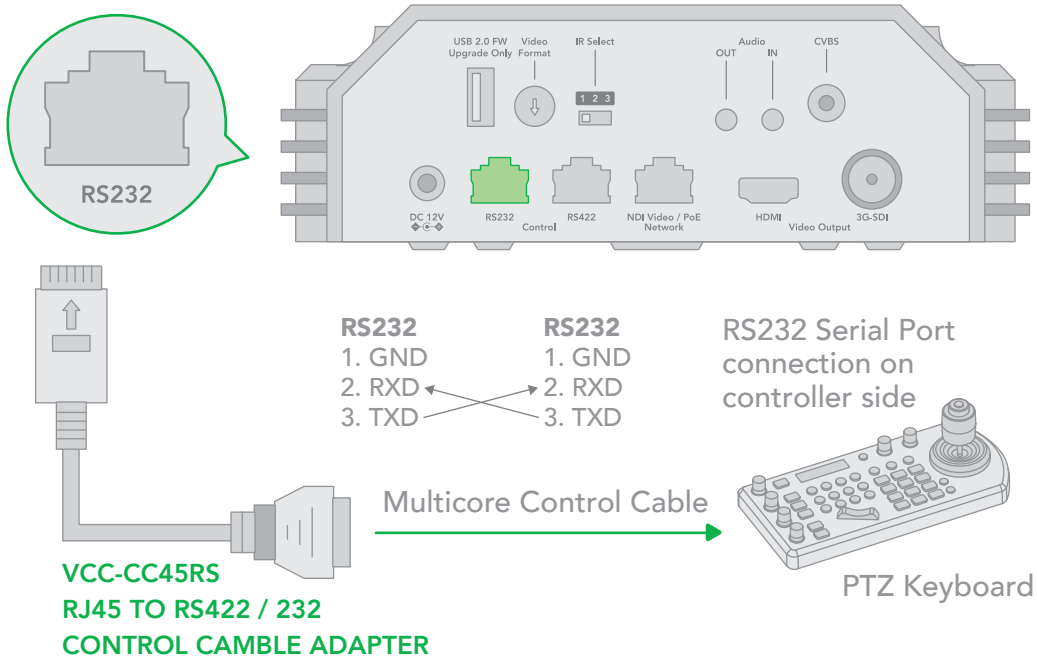
1. Set RS232 control method on the base DIP switch.
2. Set Baud Rate on DIP switch to the same as Baud Rate setting on the keyboard you are using.
3. Set specific camera address that you want to control the camera for on the base DIP switch.
4. If you want to have the camera address to be automatically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



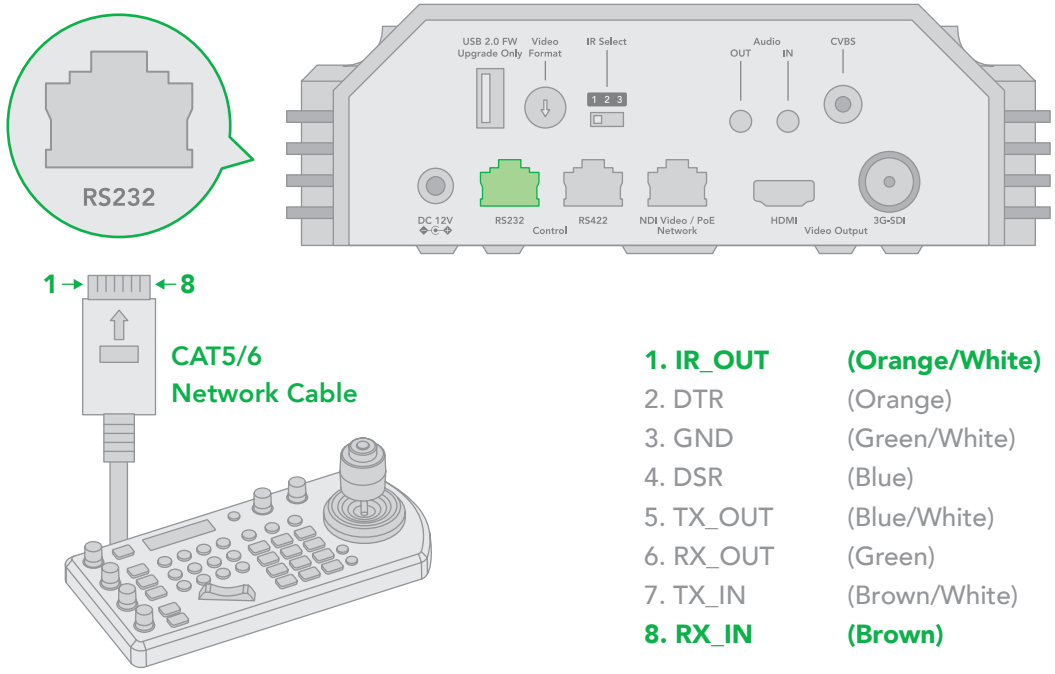
9. Use the included extension cable RJ45 to RS232 with an 8 pin Mini Din adaptor to make RS232 connection for your control device.



10. Use the included RJ45 to RS422/232 extension cables with a Phoenix terminal contact adaptor to make RS232 connection for your control device.

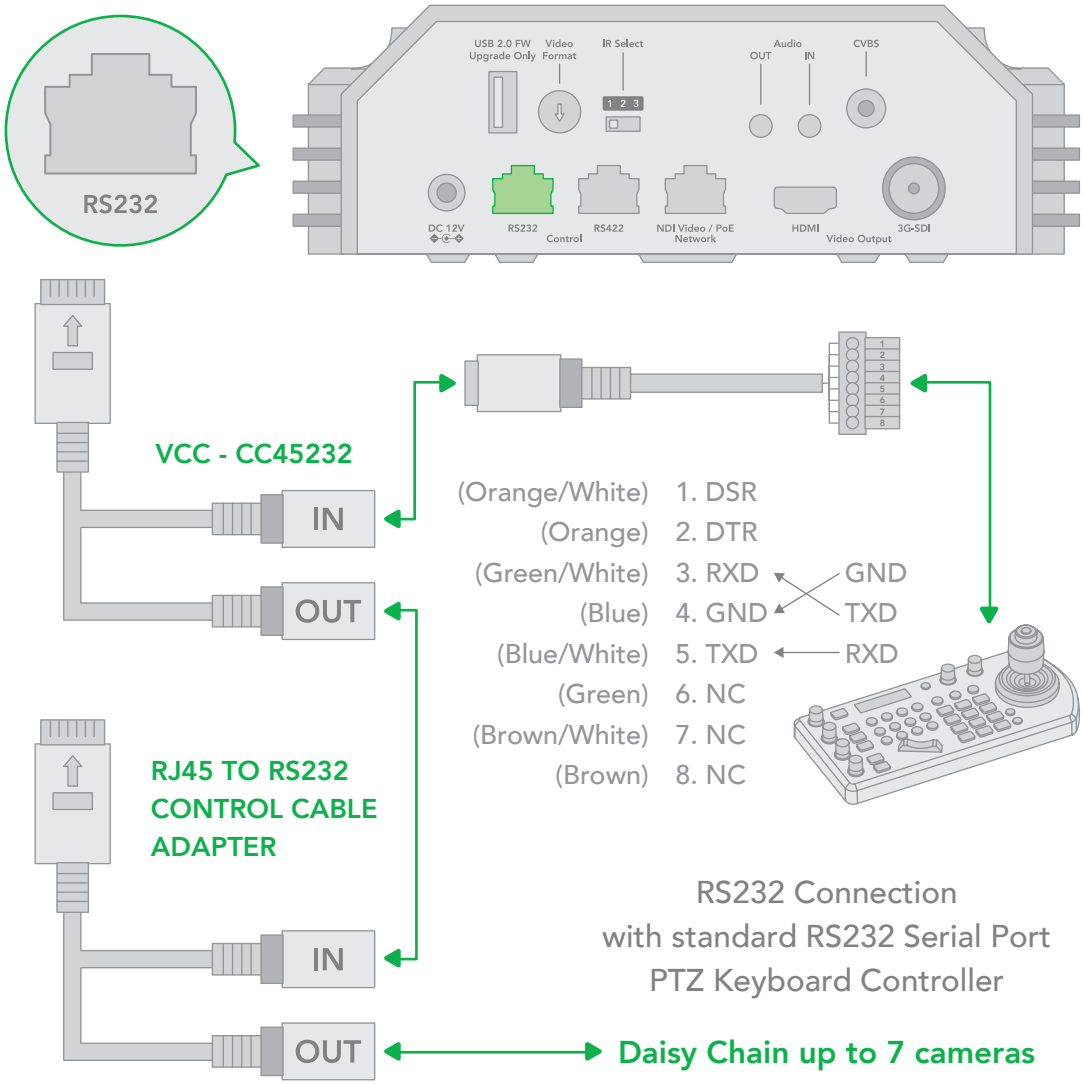


11. Use CAT5/6 network cable (T-568B standard pinout) to make RS232 connection by following the pin definition below:



1. IR_OUT	**(Orange/White)**
2. DTR	(Orange)
3. GND	(Green/White)
4. DSR	(Blue)
5. TX_OUT	(Blue/White)
6. RX_OUT	(Green)
7. TX_IN	(Brown/White)
8. RX_IN	**(Brown)**

12. Making a RS232 Daisy Chain multiple camera connection with standard RS232 serial port controller:

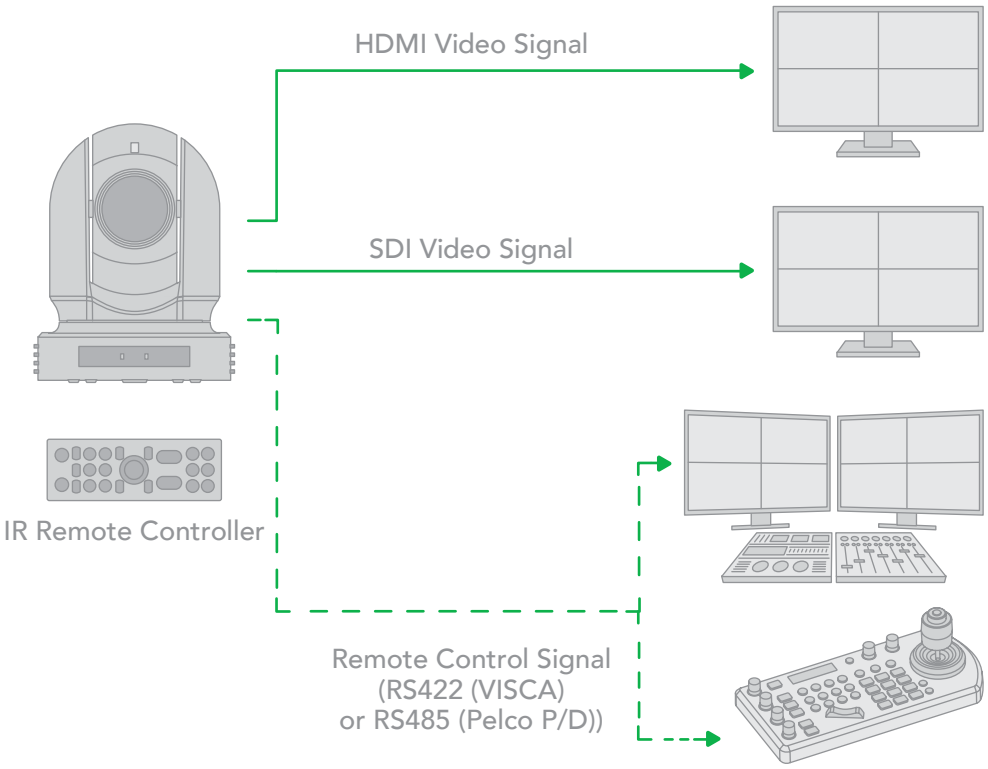


Using RS422(VISCA) / RS485 (PELCO P/D)

You can use 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.



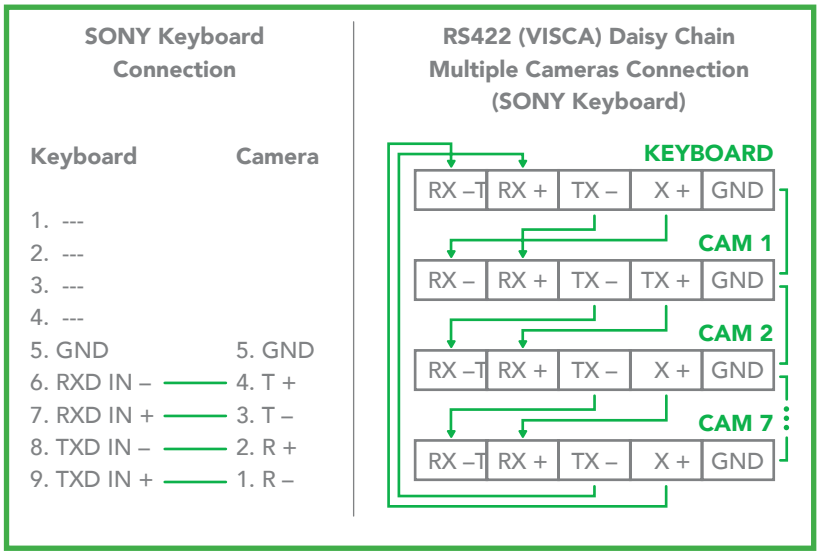
RS422 (VISCA) connection

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

The connection of a SONY keyboard is different than other VISCA (Non-Sony) keyboards.

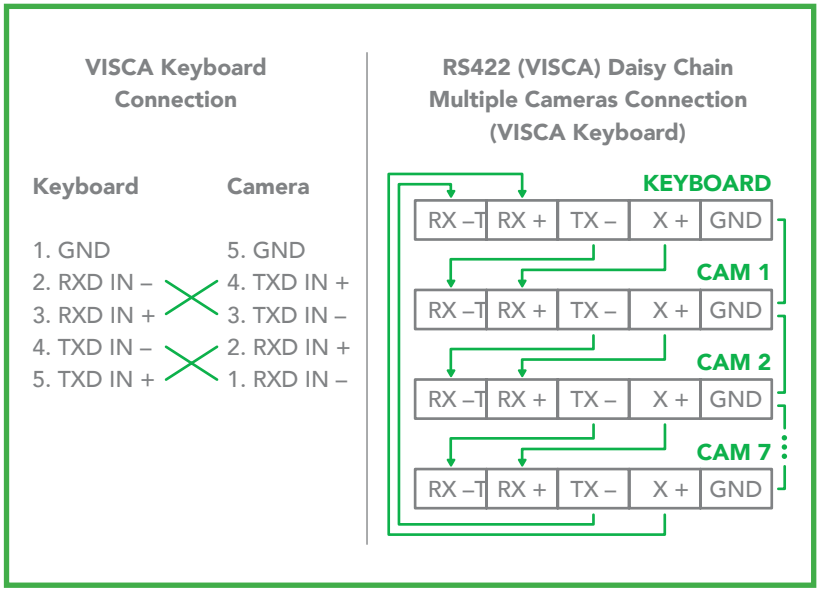
1. If using a SONY controller and Daisy Chaining multiple cameras via RS422 connection:

SONY Keyboard RS422 Connection

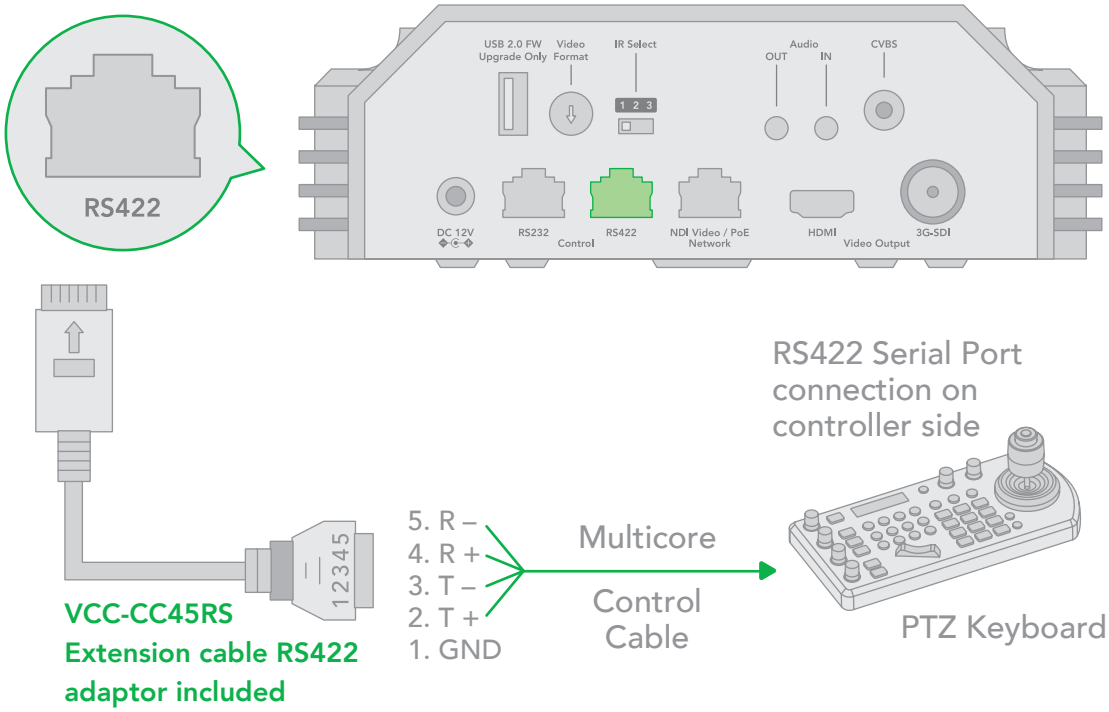


2. Make an RS422 connection and RS422 Daisy Chain multiple cameras connection with Non-Sony controller as below.

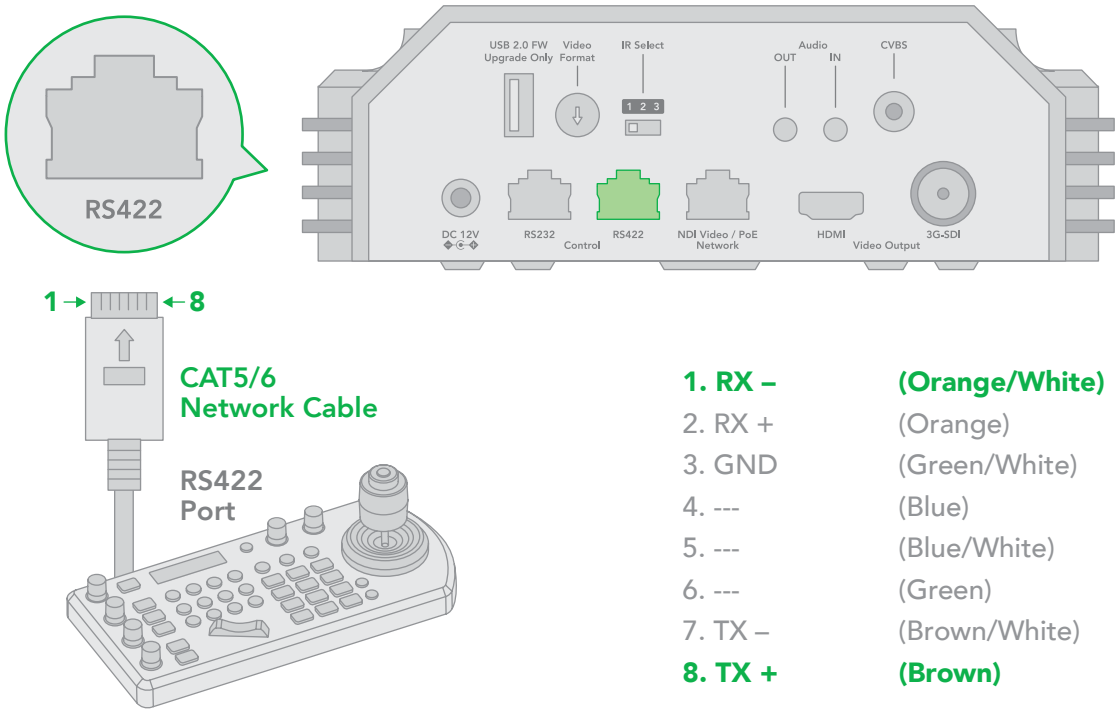
VISCA (Non-Sony) Keyboard RS422 Connection



3. Use the included RJ45 to RS422 extension cable with a Phoenix connecter adaptor to make RS422 connection for your control device.

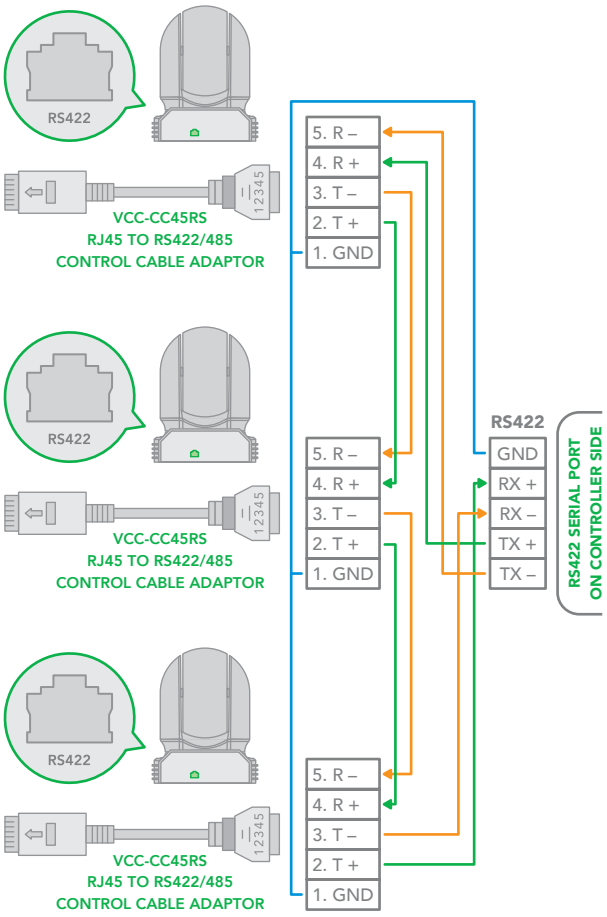


4. You can use a CAT5/6 T-568B Standard Ethernet cable direct connection between the camera and the controller to make an RS422 connection by following the pin definition below.



1. RX –	**(Orange/White)**
2. RX +	(Orange)
3. GND	(Green/White)
4. ---	(Blue)
5. ---	(Blue/White)
6. ---	(Green)
7. TX –	(Brown/White)
8. TX +	**(Brown)**

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



PELCO P/D Keyboard RS485 Connection

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

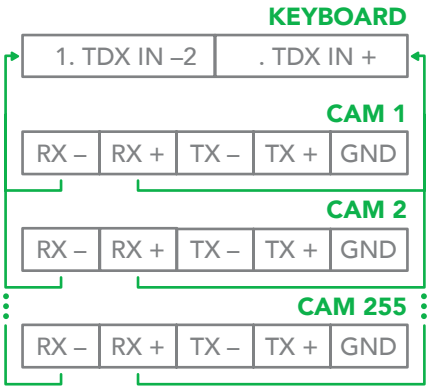
1. Set RS422 control method on DIP switch.
2. Set Baud Rate on DIP switch to the same as Baud Rate setting on the keyboard you are using.
3. Set the camera ID on OSD menu by remote controller
4. Reboot the camera by turning it Off/On after the DIP switch has been set up correctly.
5. Use PELCO P/D compatible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

PELCO RS485 Connection

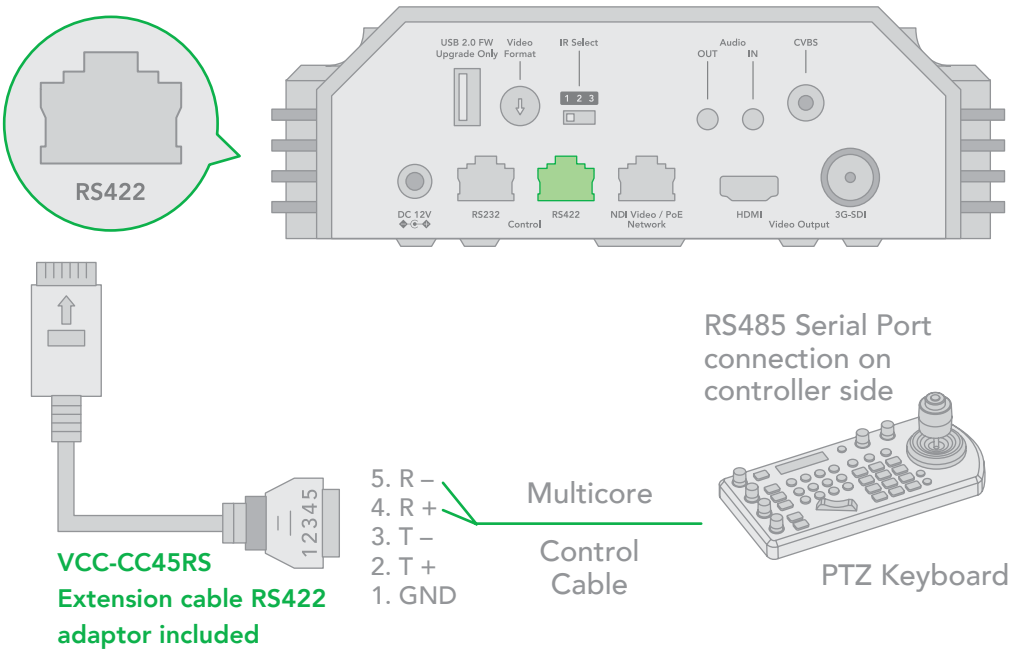
RS485
PELCO P/D Keyboard
Connection

Keyboard	Camera
6. RS485 +	1. TXD IN –
7. RS485 –	2. TXD IN +

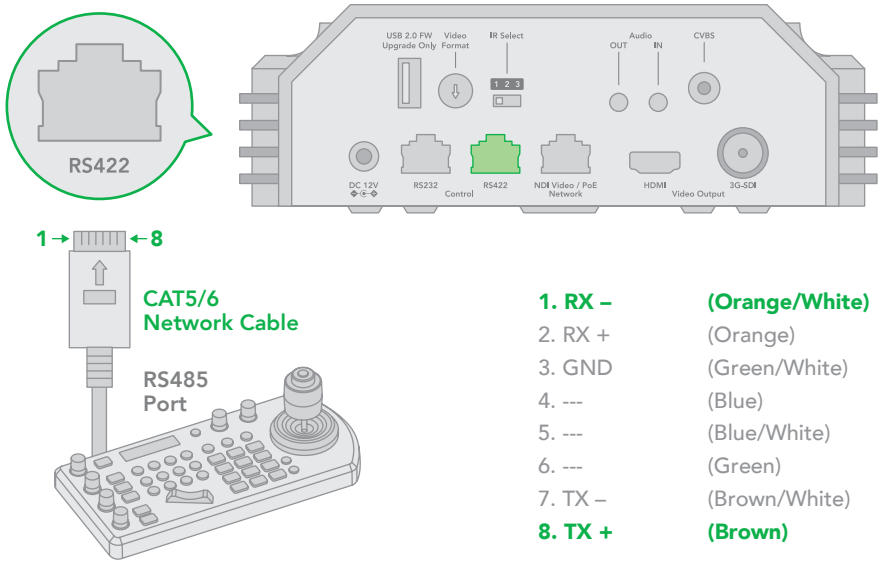
RS422 (VISCA) Daisy Chain
Multiple Cameras Connection
(VISCA Keyboard)



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



2. Use a CAT5/6 T-568B Standard Ethernet cable direct connect between the camera and the controller to make RS485 connection by following the pin definition below.



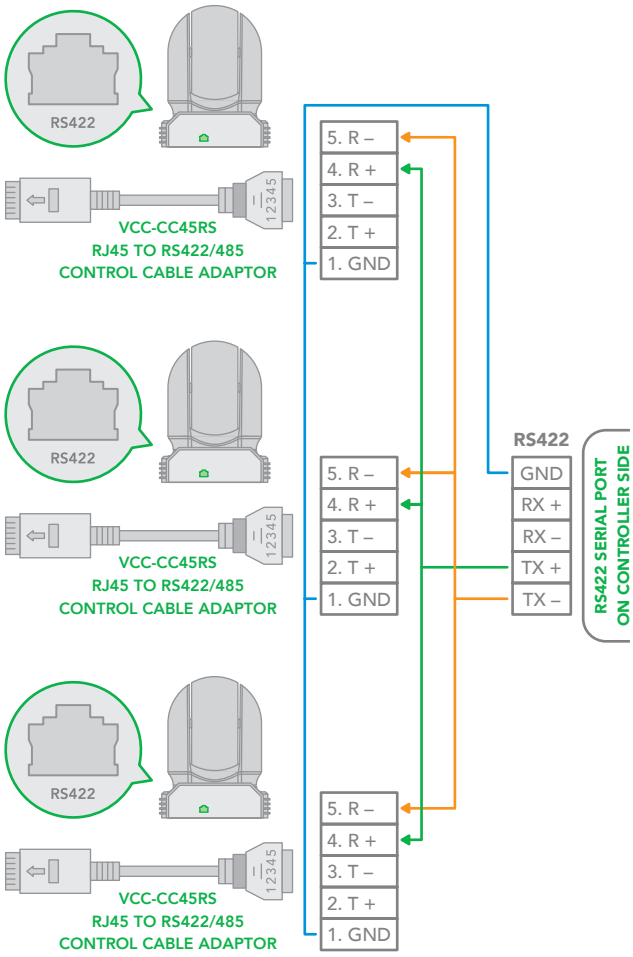
1. RX –	**(Orange/White)**
2. RX +	(Orange)
3. GND	(Green/White)
4. ---	(Blue)
5. ---	(Blue/White)
6. ---	(Green)
7. TX –	(Brown/White)
8. TX +	**(Brown)**

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

NOTE: For RS-232 VISCA control, P200 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.

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 frames 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 in 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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