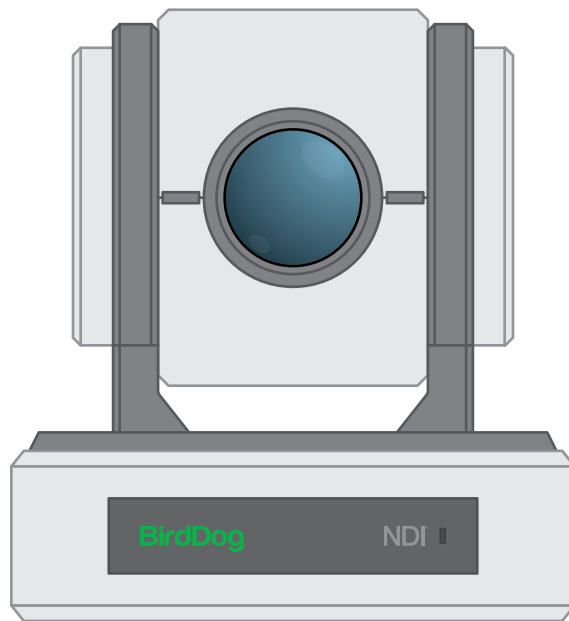




FULL NDI®. NO COMPROMISES.



USER GUIDE PART 1

Contents

IMPORTANT INFORMATION	4
WHAT'S IN THE BOX	5
Overview.....	5
Features	5
Camera Diagrams.....	6
Remote Controller.....	7
System Configuration.....	8
Obtain Video Signal	8
Audio IN / OUT.....	9
Camera Control Methods and System Configurations	9
Use the Infrared Remote Controller	9
Use RS-232 (VISCA).....	9
Use RS-422(VISCA) / RS485 (PELCO P/D).....	10
RS422 (VISCA) connection.....	10
PELCO P/D Keyboard RS485 Connection.....	12
Operating Multiple Cameras	13
VISCA over IP Control.....	13
DIP SWITCH SETTINGS	13
Adjusting and Setting with Menus	15
EXPOSURE Menu	15
WHITE BALANCE Menu	16
PICTURE1 Menu	17
PICTURE2 Menu	18
PAN TILT ZOOM Menu	18
SYSTEM Menu	19
Operation Using the Infrared Remote Controller.....	19
Pan/Tilt and Zoom Operation.....	19
Operating Multiple Cameras with the Infrared Remote Controller	20
Adjusting the Camera	20
Storing the Camera Settings in Memory — the Presetting Feature	21
Dimensions	22

Operating Instructions


Thank you for purchasing our product. If there are any questions, please contact your authorized dealer.

Before operating the unit, please read this manual thoroughly and retain it for future reference.

Copyright

Copyright 2019 BirdDog Australia all rights reserved. No part of this manual may be copied, reproduced, translated, or distributed in any form or by any means without prior consent in writing from our company.

Trademark Acknowledgement

 **BirdDog** and other BirdDog's trademarks and logos are the property of BirdDog Australia. Other trademarks, company names and product names contained in this manual are the property of their respective owners.

- Trademarks and Registered Trademark Acknowledgement
- Microsoft, Windows, ActiveX, and Internet Explorer are registered trademarks of Microsoft Corporation in the U.S. and/or other countries.
- HDMI, the HDMI logo and High-Definition Multimedia Interface are the trademarks or registered trademarks of HDMI Licensing, LLC in the United States and other countries.
- Other trademarks, company names and product names contained in this manual are the property of their respective owners.

IMPORTANT INFORMATION

Legal Notice

Attention:

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.



WARNING!

Installation and removal of the unit and its accessories must be carried out by qualified personnel. You must read all of the Safety Instructions supplied with your equipment before installation and operation.

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.



WEEE Directive–2002/96/EC

The product this manual refers to is covered by the Waste Electrical & Electronic Equipment (WEEE) Directive and must be disposed of in a responsible manner.



WHAT'S IN THE BOX

Note: The camera color may be in white or black per the item that is purchased.



1x BirdDog Eyes P100



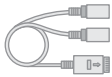
1x IR Remote Controller
(3V CR2032 Coin Lithium Battery Required)



1x Camera Power Adaptor & Power Cord

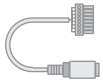


1x Bag of Mounting Screws



1x USB port to 3.5mm audio jack adapter

Accessories (Optional)



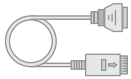
1x RS232 8 Pin Mini DIN
to Phoenix Terminal Block



1x Wall Mount



1x Ceiling Mount



1x RJ45 to RS422 Extension Cable

OVERVIEW

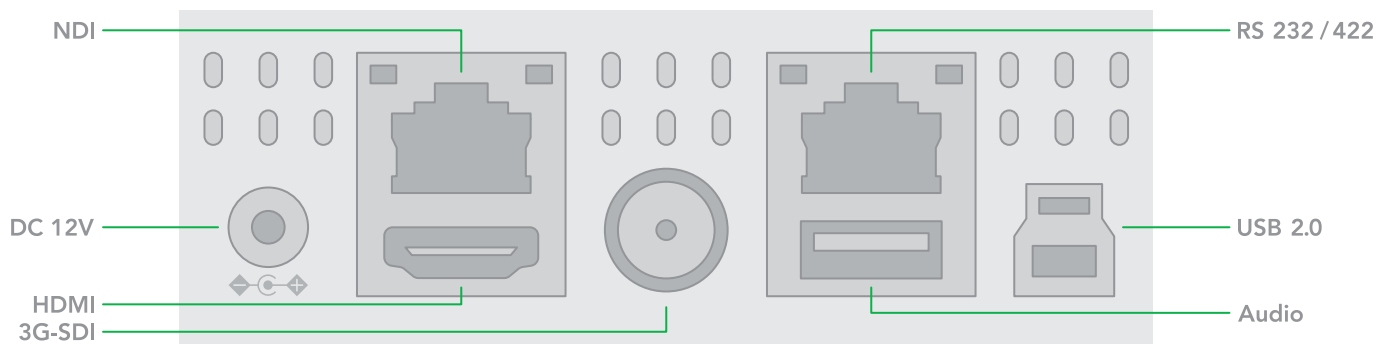
This user guide is suitable for the following models:

BirdDog Eyes P100

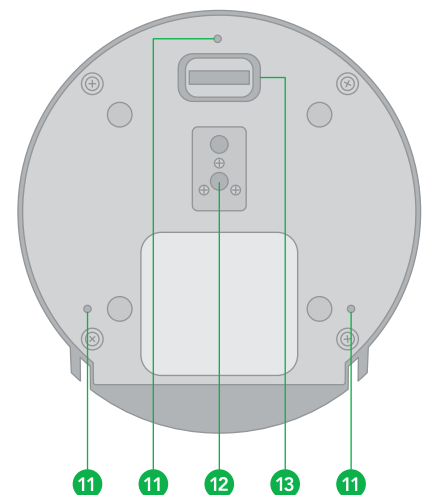
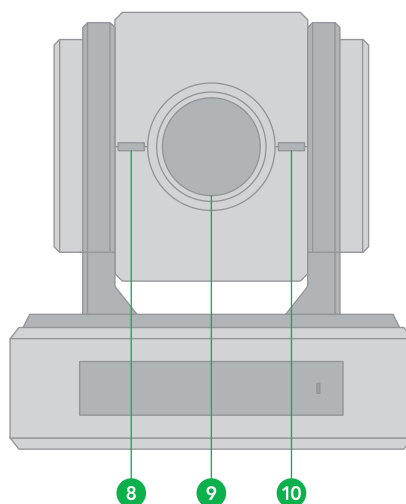
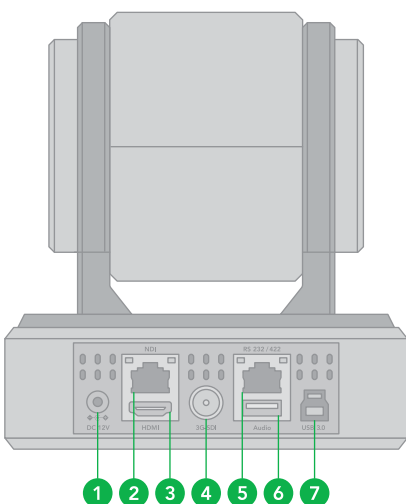
Features

- Resolution: Up to 1080P60, 1080i59.94
- NDI® Resolution: Up to 1080P60, 1080P30
- Zoom: Optical 10X
- 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, VIS-CA-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 Diagrams



- 1. 12V DC Power Port**
Connect the supplied DC power adaptor and cord.
- 2. NDI® Ethernet Port**
- 3. HDMI Port (HDMI 1.4)**
- 4. 3G-SDI Video Output**
- 5. RS-232/422 Control Port (RJ45)**
RJ45 to RS-232/422 convertor cable is provided.
- 6. USB Port**
 - For firmware upgrade.
 - Used for audio in/out, USB port to 3.5mm audio jack adaptor included.
- 7. USB Connector (TYPE B) USB 2.0 video output.**
- 8. 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.
- 9. Lens**
This is a 10X magnification optical zoom lens
- 10. Communication LED Indicator**
Flashes orange when the camera receives commands from the infrared remote controller.
- 11. Tripod mounting holes**
- 12. Fix Mounting Holes**
For original wall/ceiling mount bracket
- 13. Bottom DIP Switch**
Used for setting the camera configuration. For details, refer to the Bottom DIP Switch Settings.



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 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
- Near

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

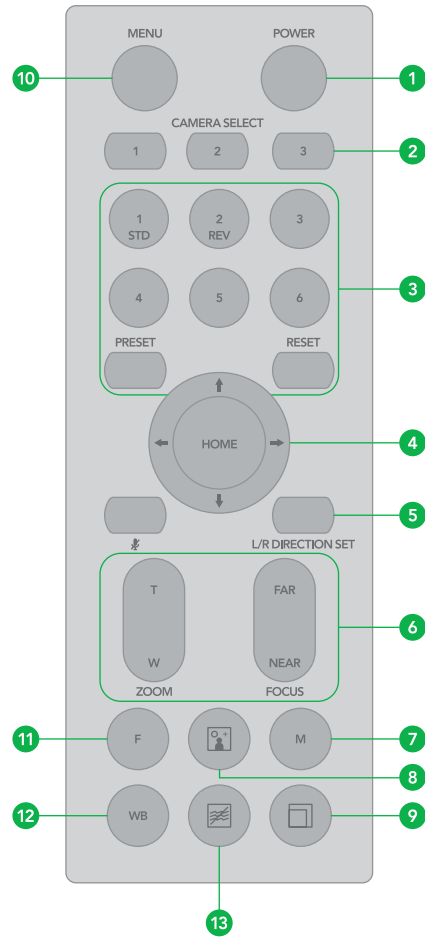
- Change the White Balance setting by pressing the button.

13. De-Flicker

- When you find the video flicking, press the button once to eliminate the flickers.

Notes:

- 3V CR2032 Coin lithium Battery is not included with the remote controller.
- 3V CR2032 Coin lithium batteries are not re-chargeable.



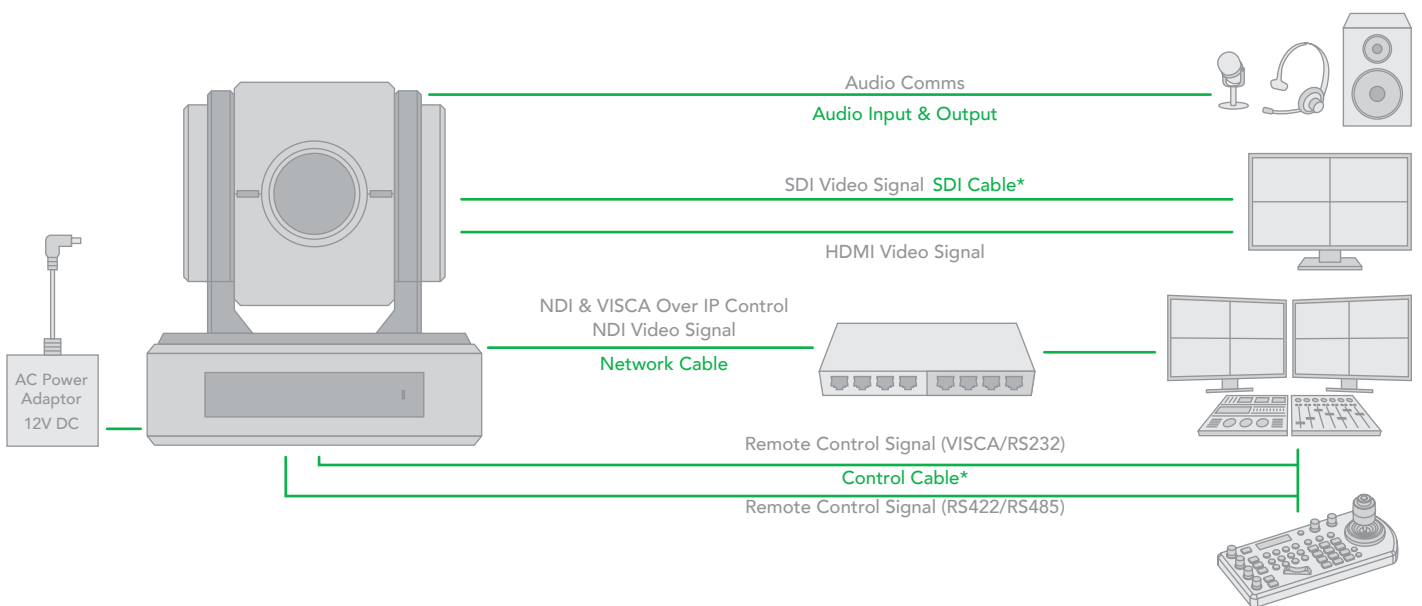
System Configuration

Connection

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, HDMI cable, SDI video cable, data cable, Network cable is required. To obtain these third-party components or accessories, consult the dealer where you bought your camera.



Obtain Video Signal

The camera can simultaneously have SDI video output, HDMI video output 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.
2. You now have SDI video output.

Power

- Use only the DC power adaptor (JEITA type4) supplied with the unit. Do not use any other DC power adaptor.
- If using POE to power the camera, PoE+(IEEE802.3at) is supported
- Ensure that the POE power source has sufficient power budget to power the camera, or some features may not function properly.

3. SDI video only supports 1080P.

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 Network Camera User Manual Part Two.

USB Video Signal

This camera supports USB 2.0 only.



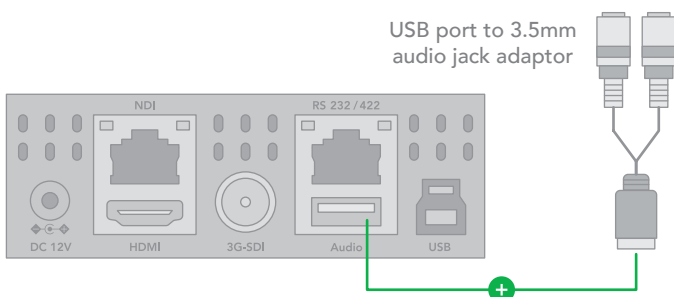
Camera Initial setting status Information

Information of the camera initial setting status will display 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[...]

Audio IN / OUT



- 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.

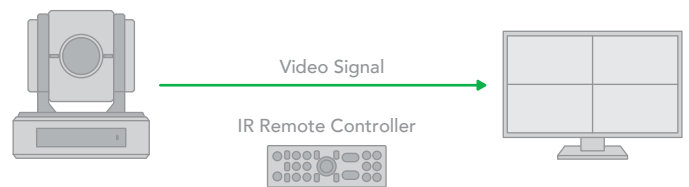
Camera Control Methods and System Configurations

This unit has multiple ways of controlling the camera and various system configuration capabilities using optional products. This section describes the ways of controlling and typical system examples with the required components and usage of each system.

1. Use the Infrared Remote Controller
2. Use RS-232 (VISCA)
3. Use RS-422/485 (VISCA/PELCO P/D)
4. NDI® Control (See Network Camera User Manual)

Use the Infrared Remote Controller

To operate the camera from a short distance.



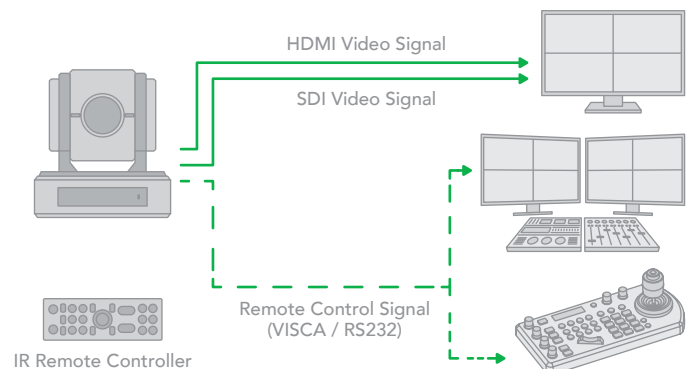
For IR remote control details, refer to Operation Using the Infrared Remote Controller.

Use RS-232 (VISCA)

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

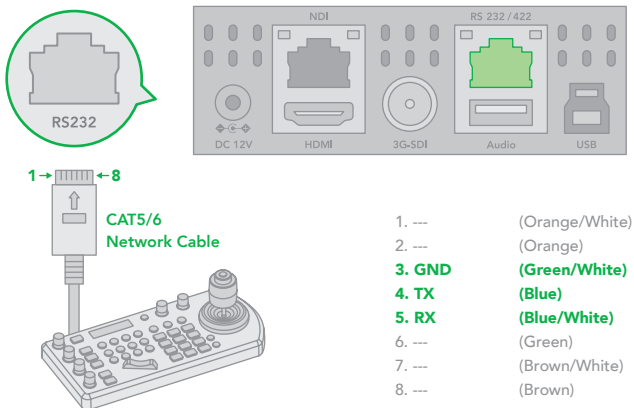
To perform pan/tilt and zoom operations using the joystick of the control keyboard, and to perform the Preset operation using the control buttons.

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

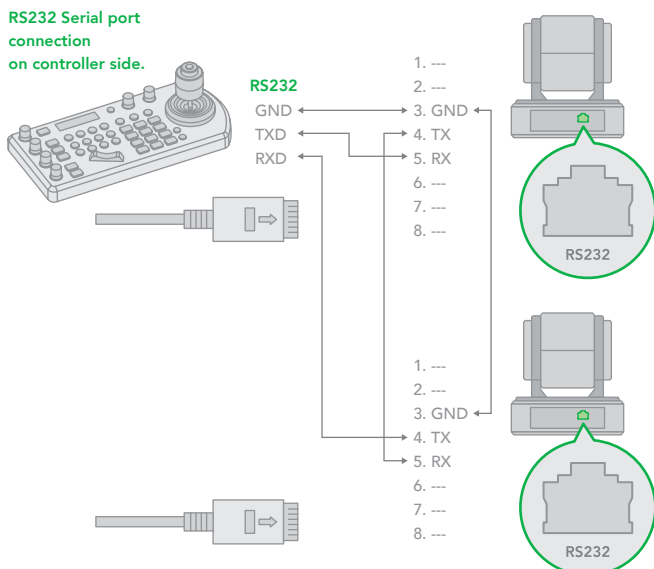


RS232 Connection

1. Set RS232 control method on Bottom Dip Switch.
2. Set Baud Rate on Bottom 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 Bottom Dip Switch.
4. If you want to have the camera address to be automatically assigned by VISCA controller, set camera Dip Switch address to 0.
5. Reboot the camera by turning it Off/On after the Bottom Dip Switch has been set up correctly.
6. Camera supports Daisy Chain connection up to 7 cameras.
7. Use the RJ45 to RS232 (VISCA) control cable. The controller must be VISCA compatible.
8. Or you can use CAT5/6 network cable (T-568B standard pinout) to make RS232 connection by following the pin definition below:



9. How to make RS232 Daisy Chain multiple camera connection with standard RS232 serial port controller as below:

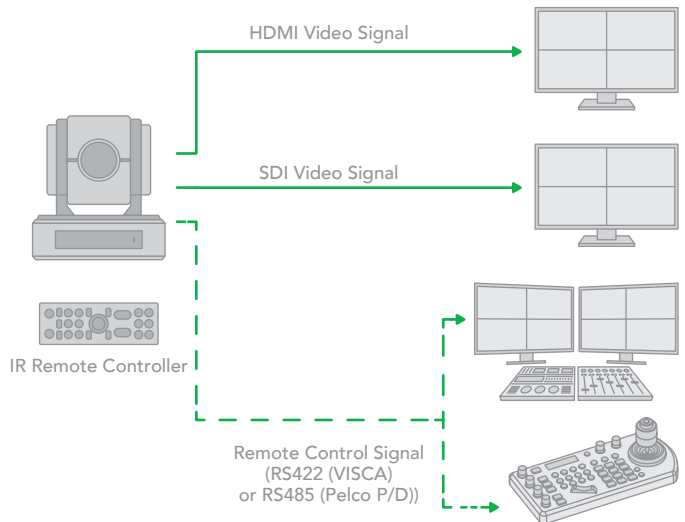


10. Use RS422(VISCA) / RS485 (PELCO P/D)

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.



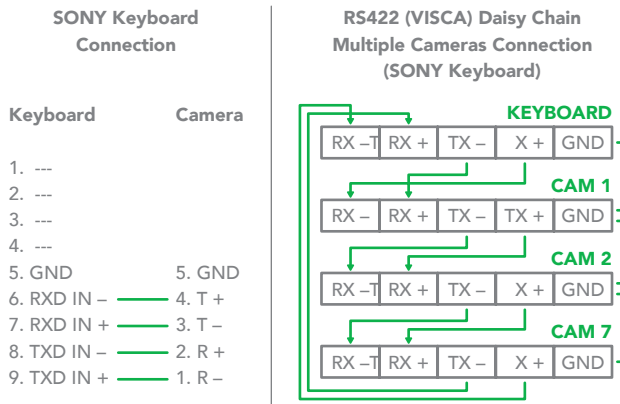
RS422 (VISCA) connection

1. Set RS422 control method on Bottom Dip Switch.
2. Set Baud Rate on Bottom 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 Bottom Dip Switch.
4. If you want to have the camera address to be automatically assigned by VISCA controller, set camera Dip Switch address to 0.
5. Reboot the camera by turning it Off/On after the Bottom Dip Switch has been set up correctly.
6. Use the RJ45 to RS422 control cable. The controller must be VISCA compatible.
7. Camera supports Daisy Chain connection up to 7 cameras.
8. The connection of SONY keyboard is different than other VISCA (Non-Sony) keyboard.

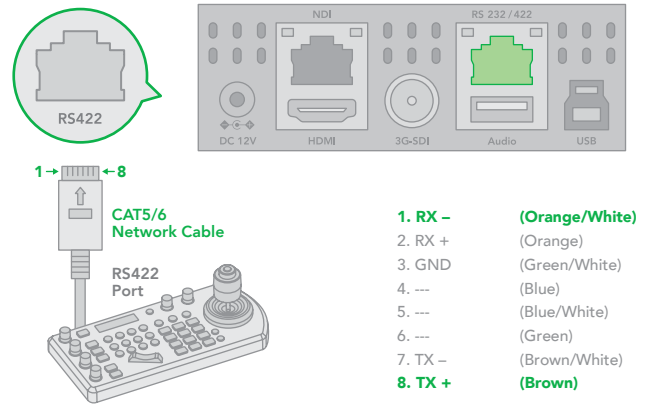


9. How to make RS422 connection and RS422 Daisy Chain multiple cameras connection with SONY controller as below:

SONY Keyboard RS422 Connection

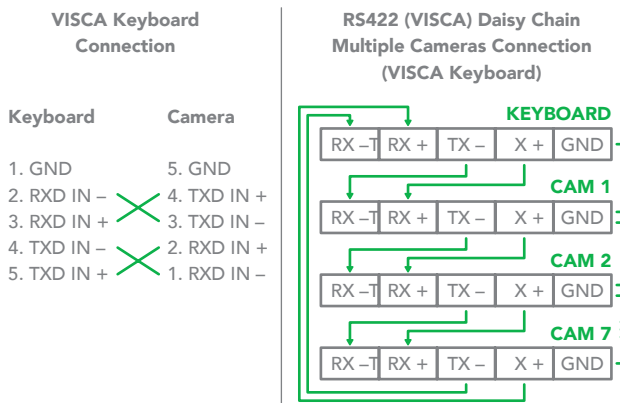


12. Or you can use CAT5/6 T-568B Standard Ethernet cable direct connect between the camera and the controller to make RS422 connection by following the pin definition below:

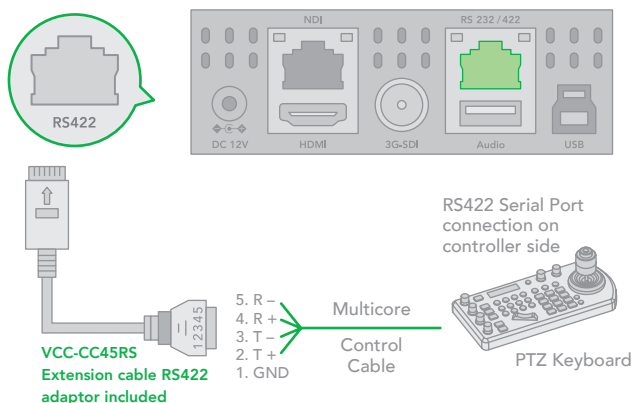


10. How to make RS422 connection and RS422 Daisy Chain multiple cameras connection with Non-Sony controller as below:

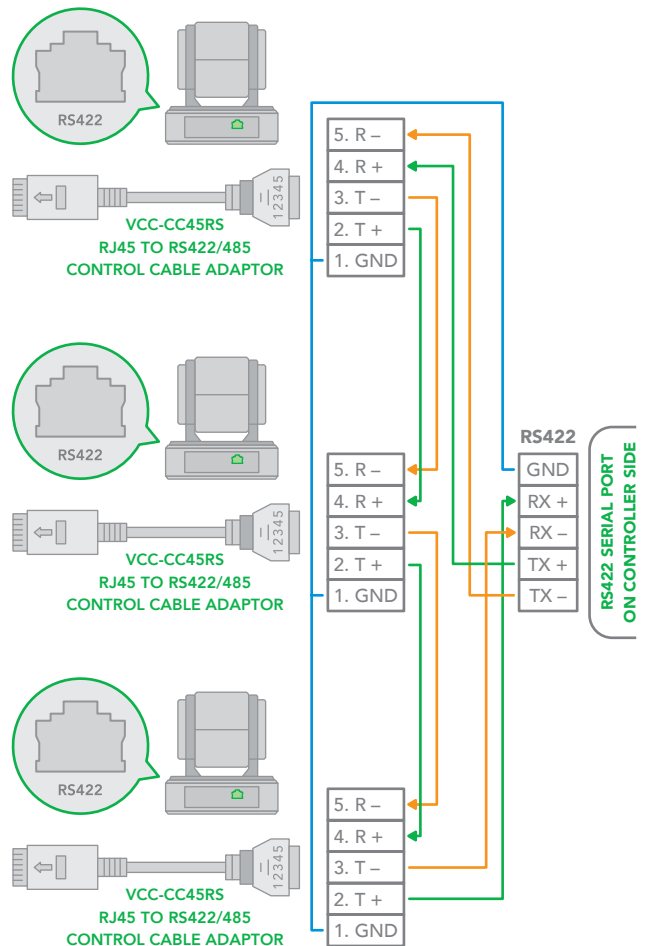
VISCA (Non-Sony) Keyboard RS422 Connection



11. Use extension cables RJ45 to RS422 Phoenix connector adaptor included to make RS422 connection for your control device.



13. How to make RS422 Daisy Chain multiple camera connection with RS422 standard serial port controller:

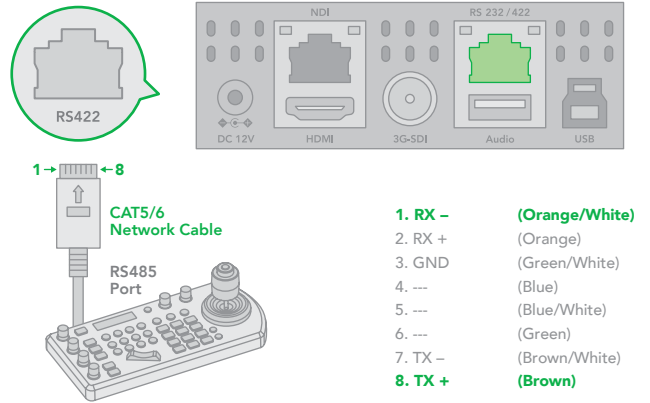


PELCO P/D Keyboard RS485 Connection

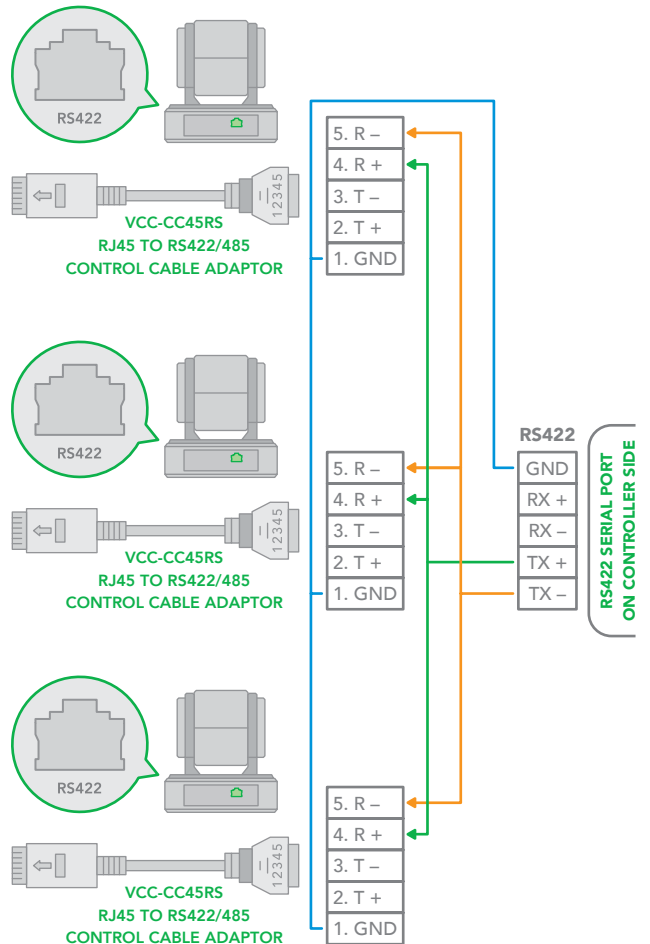
NOTE: Use RS422 ports for RS485 connection. Only use TX+ and TX- for RS485 connection.

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

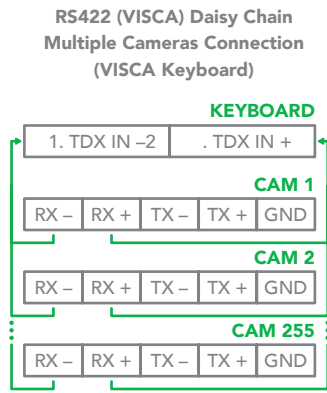
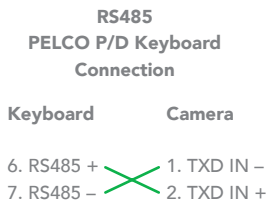
- Or you can use CAT5/6 T-568B Standard Ethernet cable direct connect between the camera and the controller to make RS485 connection by following the pin definition below:



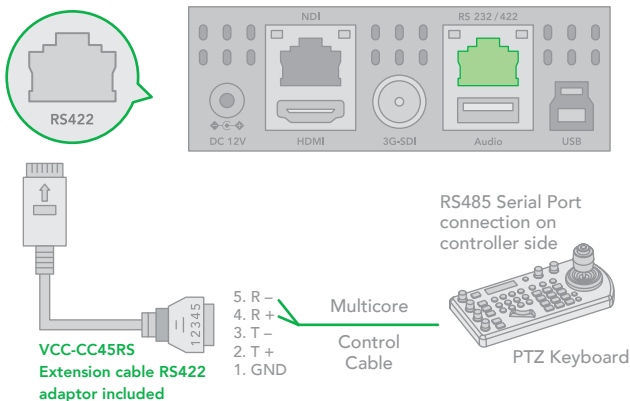
- How to make RS485 multiple cameras connection with RS485 standard serial port controller:



PELCO RS485 Connection



- Use extension cables included RJ45 to RS422 Phoenix connector adaptor to make RS485 connection for your control device.



NOTE: For RS-232 VISCA control, this unit supports daisy chain connection for using multiple cameras.

For control details, refer to Operating Instructions of control keyboard/station software.

- You need to match the communication speed (Baud Rate)



between the camera and the joystick controller.

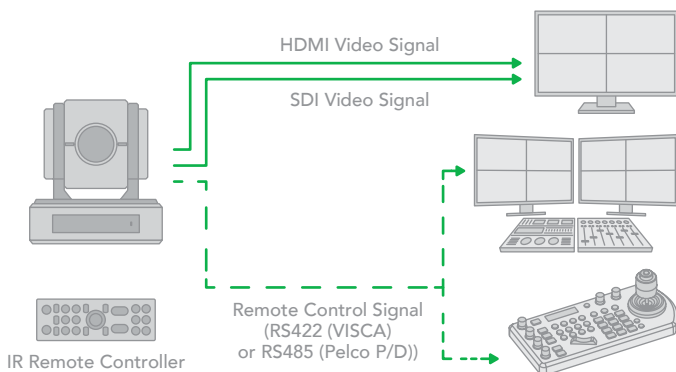
- You cannot use the RS-232 connections while you are using the RS422/485 connection.

Operating Multiple Cameras Using RS-232,422/485

- 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.

VISCA over IP Control

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



The communication specifications of VISCA over IP are followings:

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

VISCA over IP Network Configuration

Re-assign the camera

The default information of the IP camera is following:

- Static IP: 192.168.0.13
- Subnet mask: 255.255.255.0
- Gateway: 192.168.0.1
- VISCA over IP control port: 52381.

The camera IP address needs to be assigned to the IP address that works with your local network.

Controlling via VISCA over IP

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

DIP SWITCH SETTINGS

The Dip switches are for setting the camera configuration for following items:

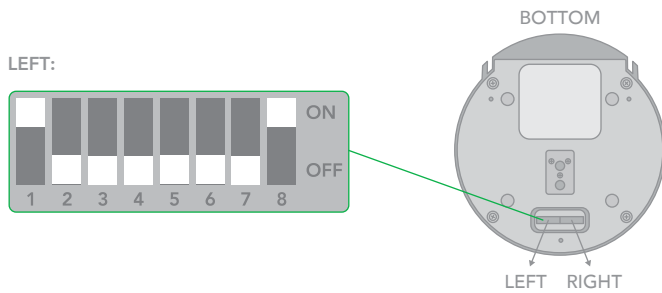
1. Camera ID Address for RS-485 PELCO protocol
2. Video output / Video color space
3. RS-232 / RS-422/485 selection
4. RS-232 / RS-422/485 baud rate
5. Video resolutions selection
6. IR remote controller ID

Setting of the BOTTOM 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.

From the above list, No.1 Camera ID address and NO.2 Video resolution settings can be set in camera OSD menu as well. The camera takes either the way of OSD menu setting or the way of bottom DIP switch setting. They override each other. After the camera is turned on, the camera takes the last setting before it is turned on, either set through the OSD or bottom DIP switch.

The Bottom DIP Switch Settings



SW1 Factory Default Setting:
ON, OFF, OFF, OFF, OFF, OFF, OFF, ON.

Bit 1~3: Camera Address setting for VISCA protocol

Bit 4: Video Output/Video Color Space

Bit 5: Reserve

Bit 6: RS-232/RS-422

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

1. 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. 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 convertor to have DVI video output, set the Dip switch B4 to ON.

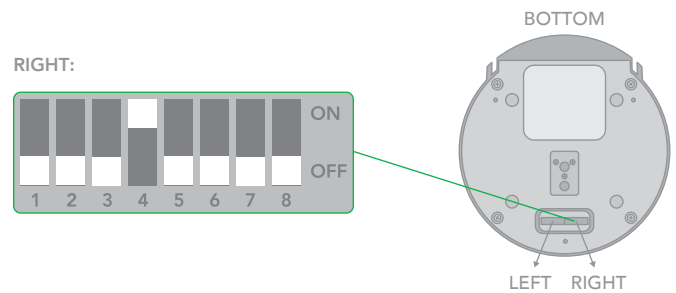
4	Colour Space Setting
OFF	YUV Output
ON	RGB Output

3. RS-232 / RS-422 Setting

6	Control Mode
OFF	RS-232
ON	RS-422

4. RS-232 / RS-422 Baud Rate Setting

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



SW2 Factory Default Setting:
OFF, OFF, OFF, ON, OFF, OFF, OFF, OFF.

Bit 1~4: Video Resolution Setting

Bit 5~6: Reserve

Bit 7~8: IR Remote Controller ID Setting

1. Video Resolution Setting

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. IR Remote Controller ID Setting

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

Adjusting and Setting with Menus

About On-Screen Menus

You can change various settings, such as shooting conditions and system setup of the camera, while observing menus displayed on a connected computer screen.

This section explains how to read the on-screen menus before starting menu operations.

The menu parameters may vary according to the different product model numbers.

For a complete configurations menu, see "Menu Configuration" (page 25).

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

Main Menu

To display the main menu, press the DATA SCREEN button on the supplied infrared remote controller.

1. Selected Items
Selects a setting menu.
The selected item is shown by the cursor. The cursor moves up or down by pressing the "↑, ↓" button on the infrared remote controller.
2. Menu Items
To display a setting menu, select one using the "↑, ↓" button on the infrared remote controller and press the HOME button on the infrared remote controller.

Setting Menus

The setting menu selected on the main menu is displayed.

1. Setting Menu
The name of the setting menu currently selected is displayed here.
2. Selected Item
Selects a setting item.
The selected item is shown by the cursor.
Move the cursor up or down by pressing the "↑, ↓" button on the infrared remote controller.
3. Setting Items
The setting items for this setting menu are displayed.
Select the setting item using the "↑, ↓" button on the infrared remote controller.
4. Set Value
The currently set values are displayed.
To change a set value, use the "←, →" button on the infrared remote controller.

NOTE: In some product models, only use "←" button on the infrared remote controller to change the value. To confirm the value, you can use either "→" button or HOME button.

Control Button

You can select the item by pressing "↑, ↓, ←, →" and HOME button.

1. You can select a menu item by "↑, ↓" button on the infrared remote controller. The selected item is shown by the cursor (Color change). You can change the value of the item by pressing "←, →" button.
2. You can move to the next layer by pressing the HOME button.
3. You can return to the normal display by pressing the DATA SCREEN button.

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 is used to set the items related to exposure.

MODE (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: Adjust the GAIN, GAIN LIMIT, electronic shutter speed (SPEED), iris (IRIS), and HIGH SENSITIVITY manually.

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. The exposure is adjusted automatically using the values manually set for iris (IRIS), GAIN LIMIT, and EX-COMP.



available only when the AE mode is set to "Full Auto." The initial setting is "Auto Slow Shutter Off."

S. SHUTTER LIMIT: When the subject becomes dark, the shutter speed becomes slow and the gain is increased. This is a function to put a limit on the shutter speed. It prevents the camera shake when you shoot a moving subject in a dark place.

AE Response: The slow AE Response function allows you to reduce the exposure response speed. Usually the camera is set up so that the optimum exposure can be obtained automatically within about 1 second. However, using the slow AE response function allows you to lengthen the auto exposure response speed from the initial setup speed

EX-COMP (Exposure Compensation): When MODE is set to one of FULL AUTO, SHUTTER PRI or IRIS PRI, set this item to ON to enable exposure compensation. When you set EX-COMP to ON, LEVEL appear and you can select the exposure compensation level from the following: -10.5, -9, -7.5, -6, -4.5, -3, -1.5, 0, +1.5, +3, +4.5, +6, +7.5, +9, +10.5

If you set the level to 0, exposure compensation will be disabled. Level +10.5 is the brightest and -10.5 is the darkest compensation value.

When EX-COMP is set to OFF, exposure compensation does not function.

WHITE BALANCE Menu

The WHITE BALANCE menu is used to select the white balance mode.

MODE (white balance mode)

Select the white balance mode from the following:

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

AUTO: This mode computes the white balance value output using color information from the entire screen. It outputs the proper value using the color temperature radiating from a black subject based on a range of values from 2500K to 7500K. This mode is the initial setting.

INDOOR: 3200K Base Mode

OUTDOOR: 5800K Base Mode

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

SHUTTER PRI: Shutter Priority mode. The exposure is adjusted automatically using the values manually set for electronic shutter speed (SPEED), GAIN LIMIT, and EX-COMP.

OSD	EXPOSURE MENU: SHUTTER PRI	
▶ EXPOSURE	MODE	SHUTTER PRI
WHITE BALANCE	SPEED	1/60
PICTURE 1	GAIN LIMIT	21.4dB
PICTURE 2		
PAN TILT ZOOM		
SYSTEM	EX COMP	OFF

When you select one from various exposure modes, some of the following setting items that are required for the selected mode will appear.

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. Use this setting when you want to obtain images with a focus on the signal-to-noise ratio

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

SPEED: Select the electronic shutter speed from the following:

When video format is set to 720P25, 1080P50, 1080i50, 1080P25, 720P50, '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, 720P60, '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 when the light darkens. This setting is



Push Trigger), assuming that a white subject, in correct lighting conditions, and occupying more than 1/2 of the image, is submitted to the camera. One Push White Balance data is lost when the power is turned off. If the power is turned off, reset One Push 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 piece of white paper) in the center of the screen.
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 tone 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 R and B 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		

NOTE: When you select USER, R. GAIN (red gain) and B. GAIN (blue gain) appear. You can select each item in the range from 0 to 255.

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

SL AUTO: Sodium Vapor Lamp Auto: This is an auto white balance mode that is compatible with 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.

PICTURE1 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: Picture sharpness value ranges from 0 to 15. You can enjoy emphasized edge and high-resolution images.

EFFECT: (Picture Effect). It consists of the following functions:

B&W: Monochrome Image
Image effect from Off, B&W

NOISE REDUCTION: Noise reduction - you can enjoy clearer images by removing unnecessary noise. You can select 6 levels from OFF (MIN), 1 to 5 (MAX).

FLIP: Image E-Flipper – Used when ceiling mounting or up-right mounting. Set to OFF is upright mode, set to ON is for ceiling mount.

MIRROR: You can have the image as seen in a mirror, with the right side as though it were the left.

DE-FLICKER: You can turn it ON if the Video output format frame rate is difference from your country’s electricity Frequency.

WDR: (Wide dynamic range mode): WDR feature is available on certain product models.

Wide Dynamic: ON, OFF. The camera distinguishes light and dark areas within the same scene, adjusts the brightness for dark areas, and also controls the blown-out highlights. You can select the wide dynamic range mode between ON and OFF.

COLOR: You can configure the color gain from 1-15. Use this setting when bright color is particularly important.

HUE: You can adjust 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 is, the lower the contrast becomes, and the larger the value is, the higher the contrast becomes.



PICTURE2 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: HLC (Highlight Light Compensation) is a function to adjust AE and AF, and to perform the masking of light area as required when a high intensity spot light is detected.

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 will make the subject appear clearer.

STABILIZER: (Available on 30X, not available on 20X) When the image stabilizer function is set to ON, you can obtain the image with less screen blur caused by shaking. The correction effect can be achieved at the vibration frequency around 10 Hz. The image stabilizer function uses the digital zoom method. Although there are changes in the angle of view and resolution, the sensitivity is maintained.

NOTE: The image stabilizer function may not work under the environment of high frequency vibration components. When using the camera under such environment, set the image stabilizer function to Off.

STABLE ZOOM: (Available on 30X, not available on 20X) Stable Zoom is a function to perform correction using the image stabilizer function according to the zoom magnification and zoom the image up to approx. 24x smoothly by combining the optical zoom with the digital zoom. By zooming the image furthermore using the digital zoom, the image is zoomed up to 288x. On the wide side, the image without the deterioration in resolution can be obtained because the digital zoom is not used. On the other hand, the correction effect by the image stabilizer function is maximized on the tele side, reducing the blur.

GAMMA: In this mode, the gamma can be set to value from 0 to 1.

PAN TILT ZOOM Menu

OSD	PAN TILT ZOOM MENU	
EXPOSURE	DIGITAL ZOOM	OFF
WHITE BALANCE	ZOOM RATIO OSD	OFF
▶ PICTURE 1	ADAPTIVE PT	ON
PICTURE 2	VIDEO PARAMETERS	ON
PAN TILT ZOOM	MF SPEED	2
SYSTEM	P/T SPEED	3
	PRESET SPEED	5
	PAN DIR	NORMAL
	TILT DIR	NORMAL

The PAN TILT ZOOM menu is used to select the pan/tilt/zoom mode.

DIGITAL ZOOM: Set to DIGITAL ZOOM ON, 12X digital zoom is activated. You can set digital zoom to ON or OFF. When set to OFF, digital zoom does not operate, and only optical zoom is available. When set to ON, digital zoom takes over after optical zoom reaches MAX (20X/30X). Up to 200X/300X can be zoomed digitally. When digital zoom is available, the resolution decreases

ZOOM RATIO OSD (Zoom times display): Set Ratio OSD to ON, the number of the zoom ratio that you are operating displays on screen.

ADAPTIVE P/T: Set to ON, Pan Tilt speed would be adaptive with the zoom range. Turn ON to automatically adjust the Pan and Tilt speed with various zoom ratios. For example, the higher zoom ratio you use, the slower the speed of P/T.

MF SPEED: Manual Focus variable speed, that has eight speed levels.

P/T SPEED: Set P/T Speed value to from 0 to 5 (The speed from low to high), to change the speed of P/T on remote controller.

PRESET SPEED: Set preset speed value from 0 to 5 to change the preset speed.

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 address that you want to control to. 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: 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 message of the camera configuration appears for about 3 seconds on the screen, after the camera is powered on or rebooted.

PRESET MEMORY: This feature allows you to save the image parameter to PRESET memory, turn it on to save most image parameters like as picture, white balance, exposure, focus mode, zoom positions when you call the preset.

FACTORY RESET: You can select this item to set camera back to Factory Default setting by pressing HOME button to confirm the action. All data of the camera that have been set will be deleted.

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

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

VIDEO FORMAT: You can change the video format by adjusting this item. Select the item, press “←” button to choose the video format you want to set to, then press “→” (Pressing “→” button changes value on some product models) or HOME button to confirm it. After you confirm your choice, press HOME button again to restore it. The camera will reboot by itself. The new video format is activated.

You can cancel it by pressing the DATA SCREEN button.

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

The video formats that you can select from are:

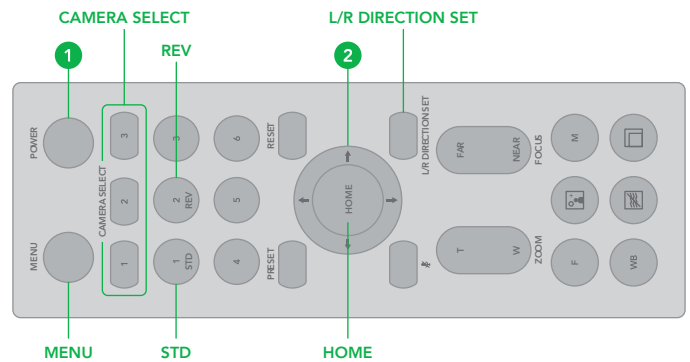
1080P:60/59.94/50/30/29.97/25,1080I:60/59.94/50,720P:60/59.94/50/30/25

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

NOTE: The camera video format can be changed by setting bottom DIP switch as well.

Operation Using the Infrared Remote 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

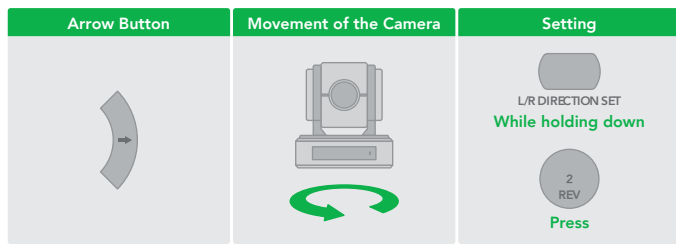
The camera is preset so that the image output from the camera is rotated toward the right whenever you press the “←, →” button.

To face the camera toward the opposite direction

You might wish to face the camera toward the opposite direction from that of the button you pressed, for example, when

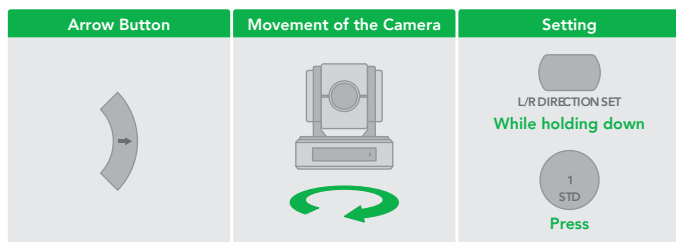


you change the direction of the camera while checking the picture on the screen. In such a case, press the 2 (REV) button while holding down the L/R DIRECTION SET button.



To reset the setting

To reset the setting, press the 1 (STD) button while holding down the L/R DIRECTION SET button.



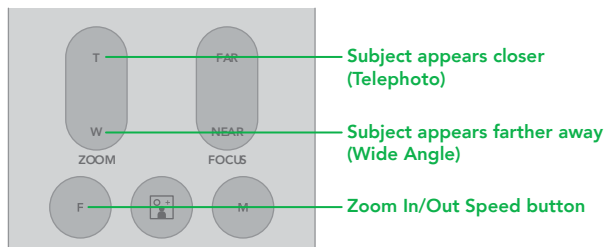
Note: The above setting only changes the signal emitted from the infrared remote controller, and does not change the setting of the camera itself. Therefore, repeat the setting for each infrared remote controller if you are using more than one infrared remote controller.

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

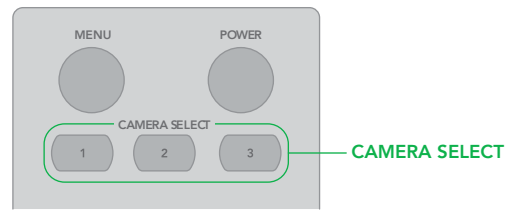


Button [T] - Zoom-IN and [W] - Zoom-OUT.

Button [F] – FAST mode.

Press once and the LED turns red to activate the Fast Zoom Speed Mode, press again to go back to normal Zoom Speed mode.

Operating Multiple Cameras with the Infrared Remote Controller



1. Set the DIP Switch on the bottom of the camera to the number of camera you want to operate to 1, 2 or 3. (See bottom DIP Switch setting instruction).
2. Press the CAMERA SELECT button on the infrared remote controller that corresponds to the number set in step.

Then, you can 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 lights.

Adjusting the Camera

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.

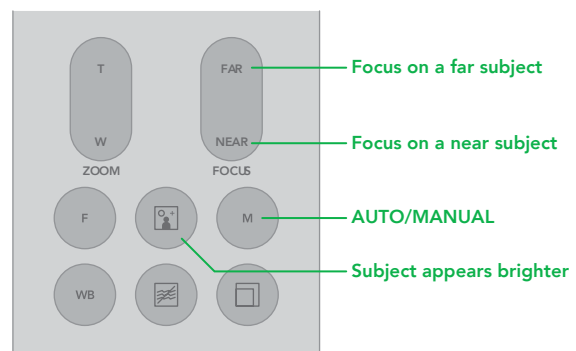
Focusing the camera on a subject manually

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.



Storing the Camera Settings in Memory — the Presetting Feature

Memory (Preset)

Using the preset function, 6 sets of camera shooting conditions can be stored and recalled. 6 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.

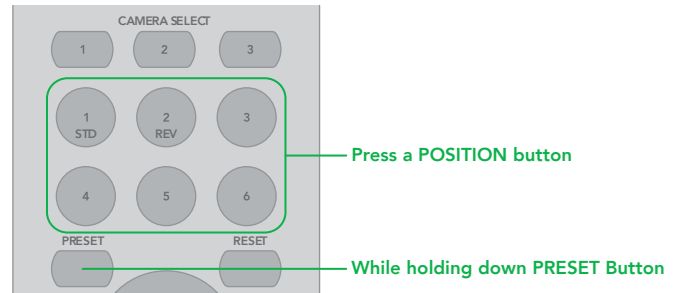
- Pan/Tilt Position
- Zoom Position
- Focus Auto/Manual
- Focus Position
- AE Mode
- Shutter control parameters
- Bright Control
- Iris control parameters
- Gain control parameters
- Exposure Compensation On/Off
- Exposure Level
- Backlight Compensation On/Off
- White Balance Mode
- R/B Gain
- Aperture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

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

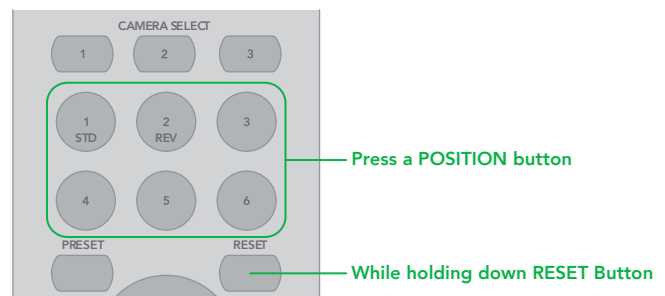
1. Press the PAN-TILT RESET button to reset the pan/ tilt position.
2. Adjust the position, zooming, focusing and backlighting of the camera.

While holding down the PRESET button, press any of the POSITION buttons, 1 to 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.

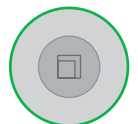


Notes:

- 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.

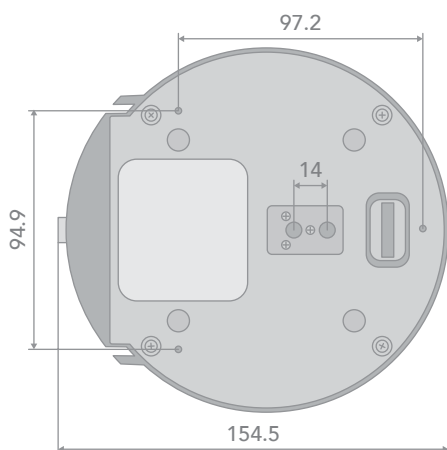
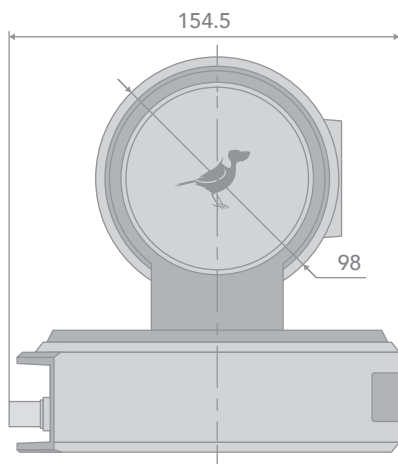
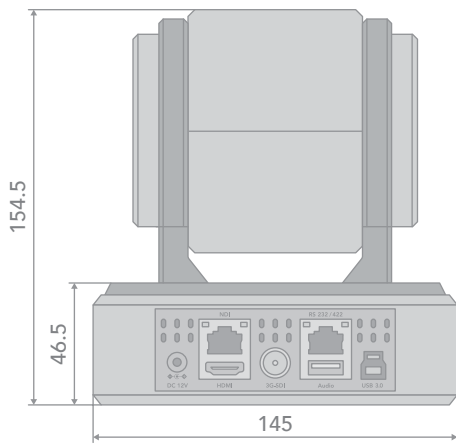
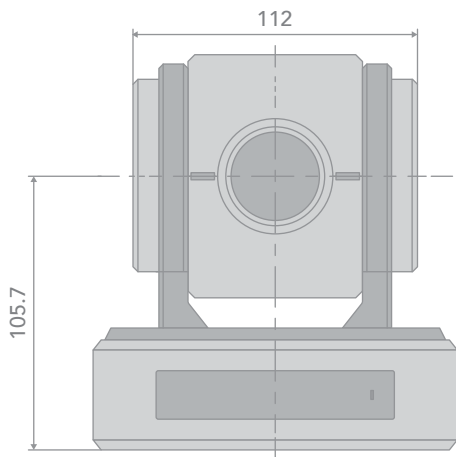
Changing Resolutions

- Press the Video Format Switching 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



Dimensions

Unit: mm





FULL NDI®. NO COMPROMISES.



USER GUIDE

PART 2: NDI® INSTRUCTIONS
& ADVANCED CONTROLS

NDI®



WELCOME TO THE FUTURE.



FULL NDI®. NO COMPROMISES.

- 5 Getting to know P100**
 - Physical connectors
 - Powering P100
 - PoE+ (Power over Ethernet)
 - DC
 - Thermal management
- 6 Booting up your BirdDog EYES P100**
 - Indication of system boot process
- 6 Operating P100**
 - Web configuration panel
 - Access via web browser (URL)
 - Accessing P100 via an IP address
 - Accessing P100 on a network without a DHCP server
- Password management**
- 7 Default password**
 - Password reset
- A/V**
- 8 Bitrate Management**
 - NDI Video selection
 - NDI Group Enable
- NDI Audio Selection**
- 9 Failover Source**
- Network settings and device naming**
- 9 Device naming**
 - IP configuration method
 - DHCP IP address
- Static IP address**
- 10 IP address recovery**
 - BirdDog name
- 10 PTZ**
 - Control
 - Settings
 - PT Max Speed
 - OSD
- 12 NDI NETWORK SETTINGS**
 - TCP
 - UDP
 - Multicast
 - MultiTCP
- 13 Advanced Controls**
- 14 Colour Matrix**
 - Colour Gain
- 15 Colour Hue**
 - Recommended practice for using Colour Matrix controls
- 16 Firmware update**
- Receiving NDI VIDEO**
 - NewTek Studio Monitor
 - NewTek TriCaster Series

About BirdDog Eyes P100

BirdDog Eyes P100 is a remotely controllable PTZ (Pan-Tilt-Zoom) camera based on BirdDog's unique Full-bandwidth NDI A/V transfer protocol. It is equipped with many features to ensure the quality of images and control is kept to the highest standards as well as being fully compatible with industry standards.

Key features of this product

BirdDog P100 has the most complete feature set for a HD production PTZ camera, including some advanced control functions to ensure the camera excels even in the most challenging conditions:

- Sony Image module
- BirdDog NDI Processing
- Simultaneous HDMI, SDI and NDI outputs
- Video resolutions up to 1080p60 including non-integer rates such as 59.94 and 29.97fps
- Native VISCA-IP and NDI Protocol support for 3rd Party control applications and interfaces
- Stereo Audio input/output with Mic and Line level
- BirdDog Comms audio communications software compatible
- Excellent image properties for low light and challenging lighting conditions
- **NEW!** Advanced Color Matrix colour controls
- **NEW!** Advanced Gamma/Exposure controls
- **NEW!** Unified communications platform for all camera settings.

About NDI

Network Device Interface (NDI) is a high performance standard that allows anyone to use real time, ultra low latency video on existing IP video networks.

NDI® harnesses the power of Software, Computers, and Networks to make video creation and sharing accessible and fun for millions, helping fuel the software defined visual storytelling revolution. NDI makes video a standard part of every computer network, from common IT implementations to mobile environments and has changed the picture- giving everyone access to easy-to-use, high-quality video using the equipment they have today.

NDI® moves live digital media around with your existing software applications, computing devices, and networks using what you already have.

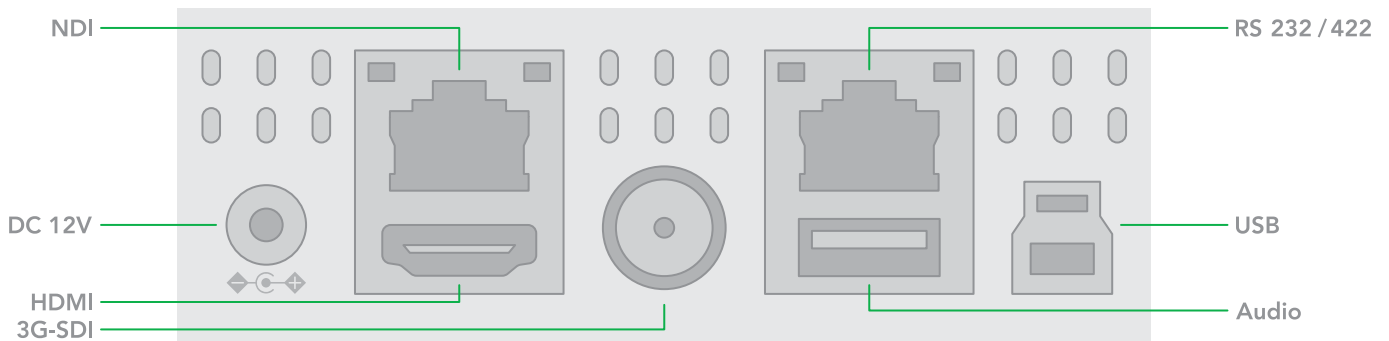
NDI® empowers even small teams of creatives to achieve big show results, as there are no limitations from specialized upgrades, networks, or hardware.

For more information about NDI please visit: bird-dog.tv/ndi

Getting to know your P100

Thanks for purchasing BirdDog Eyes P100. Please take some time to read this document to allow you to get the most out of your purchase and familiarize yourself with the features available in the unit.

Physical connectors



Powering Eyes P100

P100 is equipped with a sophisticated system allowing power from various sources:

PoE+ (Power over Ethernet)

PoE+ is a convenient way to power P100 as it allows both data and power to be sent through the same standard Ethernet cable. To take advantage of PoE+, the network switch that P100 is directly plugged into must support PoE+ (802.3at).

Different network switches are capable of providing differing amounts of total power to all connected devices. P100 uses approximately 14 watts in PoE mode.

DC

Located at the rear of the P100 is a DC connection port. This power input socket is capable of accepting 12vDC power. P100 should only be powered by the included AC adaptor.

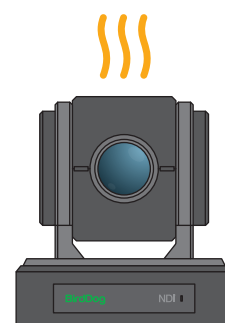
Thermal management

Eyes P100 has been engineered to be passively cooled, no fans are required. In order to achieve this the entire enclosure of P100 is designed to dissipate heat. The main processor is capable of operating up to 100° C / 212° F.

Some factors affect how much heat BirdDog 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 P100 via DC as this produces less heat than PoE.

BirdDog has been tested in extreme environments.



Booting up your BirdDog Eyes P100

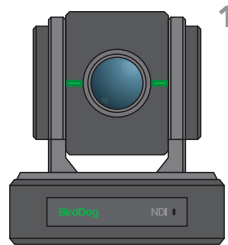
Indication of system boot process

As soon as BirdDog P100 detects a power input signal the left hand 'power/fault' light will light up green.¹

On the ethernet/NDI connector on the rear.

After initial boot up is complete your P100 unit will be visible as a source on any NDI compatible devices on the SAME ethernet subnet.

For further networking architecture instructions including routing please consult either your system administrator or the support page at bird-dog.tv



Operating EYES P100

Web configuration panel

In this release, the web configuration panel allows you to alter key settings of P100, specifically A/V settings, and video frame rates, restarting the video processing engine, changing networking parameters, recalling PTZ presets and applying firmware updates.

Access via web browser (URL)

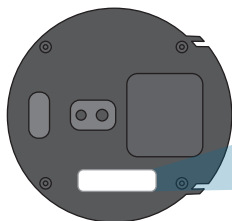
To access the web configuration panel please point your computer web browser to:

<http://birddog-xxxxx.local/>

“xxxxx” is the serial number of the P100, the serial number is printed on the box and on the main unit. Note the web address is case sensitive and should be all lower case. Your computer will need to have ‘Bonjour’ services loaded in order to access the unit via it’s ‘friendly’ name described above.

Apple devices come pre-installed with Bonjour, while Windows devices need a small plugin available here:

support.apple.com/kb/dl1999?locale=en_AU



Note: only the last 5 digits are required for accessing the web interface.

BirdDog Eyes P100
SERIAL xx:xx:xx:x[X:XX:XX]

Accessing P100 via an IP address

P100 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 P100 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/>

Accessing P100 on a network without a DHCP server

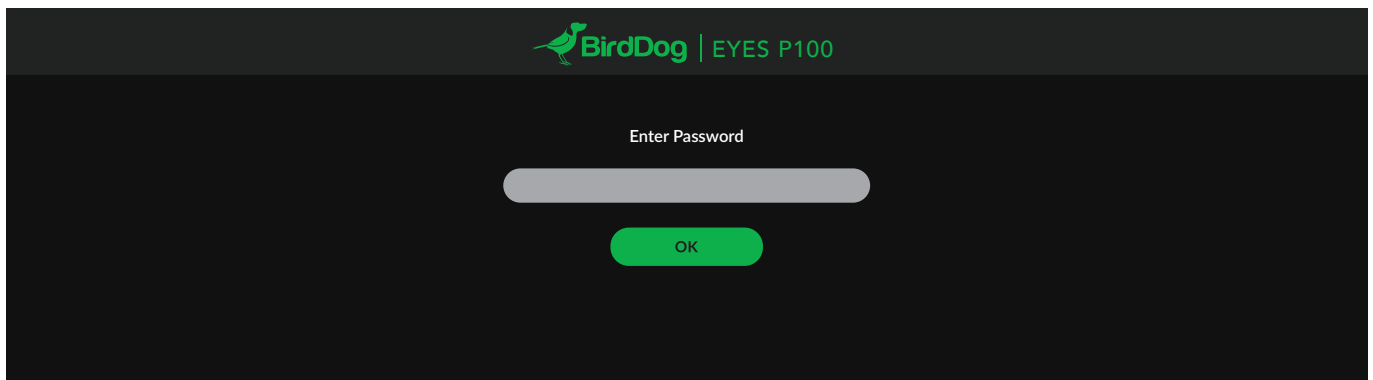
Some standalone or private networks may not have a DHCP server. After 30 seconds of searching for an automatically assigned IP address P100 will fall back to a default address which is: **192.168.100.100**

In order to access the web configuration panel 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 BirdDog web configuration panel 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 configuration panel you will need to log in to change any settings.



Default password

The web configuration panel is secured by a user-selectable password. The default password is:

birddog (one word, lower case).

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 P100 is shared with other users (e.g. not private). By entering this password, the user is granted full access to the P100 configuration settings and could interrupt a live program.

The screenshot shows the BirdDog EYES P100 dashboard with the 'A/V' tab selected. The 'NDI AV SETUP' menu is active, displaying various configuration options. At the top, there are navigation tabs: 'NDI AV SETUP', 'EXPOSURE', 'WHITE BALANCE', 'PICTURE 1', 'PICTURE 2', and 'COLOUR MATRIX'. A warning message states: 'NDI video bandwidth settings should be changed with consideration to your overall network capabilities. Typical bitrate for 1080p is 120Mbps. Increasing this can add additional load to software receivers that may result in unpredictable behaviour, while lower bandwidth can affect image quality.'

The settings are as follows:

- Bitrate management: **NDI MANAGED** (selected), MANUAL
- NDI output bandwidth: Slider set to 120
- NDI video format selection: 1080p2 (dropdown)
- NDI group enable: **DISABLE** (selected), ENABLE
- NDI group name: BirdDog
- NDI audio selection: **EMBEDDED** (selected), COMMS
- Analog in gain: Slider set to 50
- Analog out gain: Slider set to 50
- NDI tally: **DISABLE** (selected), ENABLE
- Failover source name: P200BIRDDOG (CAM)
- Failover source IP: 192.168.1.210:5961
- Available NDI sources: P200BIRDDOG (CAM)

Buttons for 'Refresh' and 'Apply' are located at the bottom right of the settings panel.

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 on your networking infrastructure (lower bandwidth) or higher image quality for critical footage. The scale allows you to select anywhere from 60mbps to 360mbps.

By setting Bitrate Management to NDI MANAGED, the BirdDog device will manage the target bitrate in accordance with the NDI® standard. By selecting MANUAL you are able to manually select a target bitrate.

NDI Video selection

Eyes P100 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 set in Part 1 of the P100 Manual. ie. 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 the BirdDog Eyes P100 camera 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

BirdDog Eyes P100 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 P100 as an output for IFB communications.

Network settings and device naming

Device naming

When P100 is first powered on it defaults to the naming convention as described in the web configuration panel section of this manual.

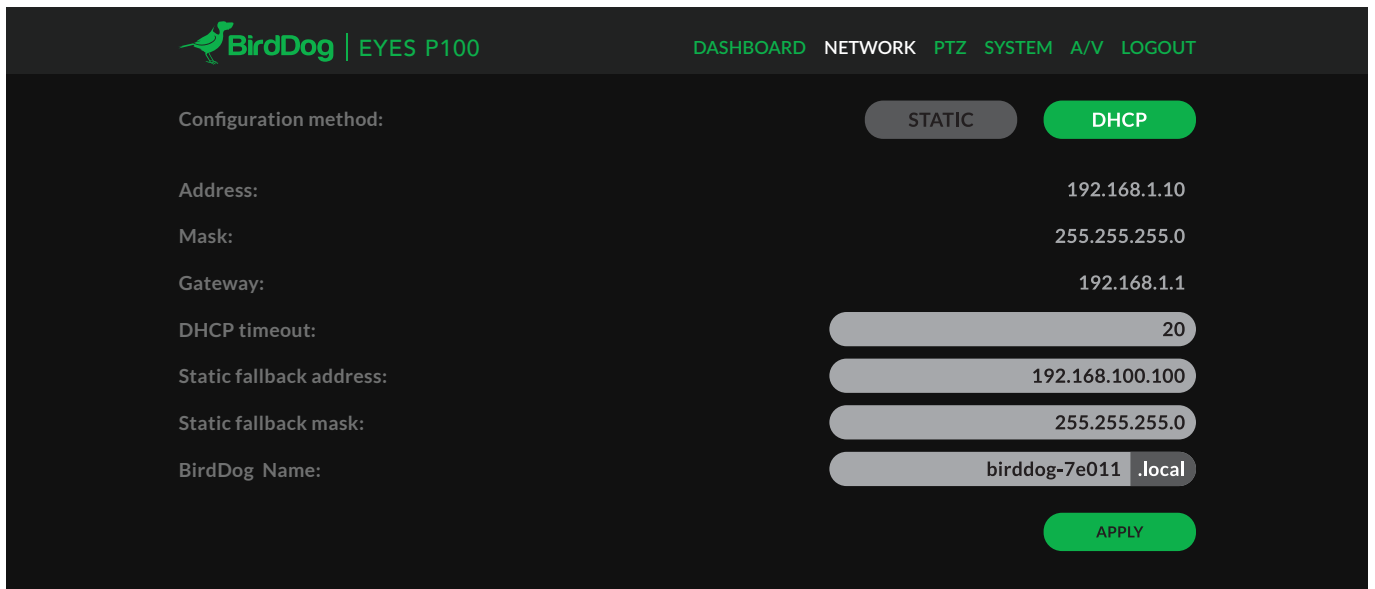
<http://birddog-xxxxx.local/>

Failover Source

BirdDog Eyes P100 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 either Chrome or Firefox web browsers.

It is possible to change the name along with the network settings to better suit your environment.

In the web configuration panel, navigate to the network section.



IP configuration method

You can configure P100 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 and static IP address.

DHCP IP address

DHCP is set as the network configuration by default for P100.

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 P100 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 the P100 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

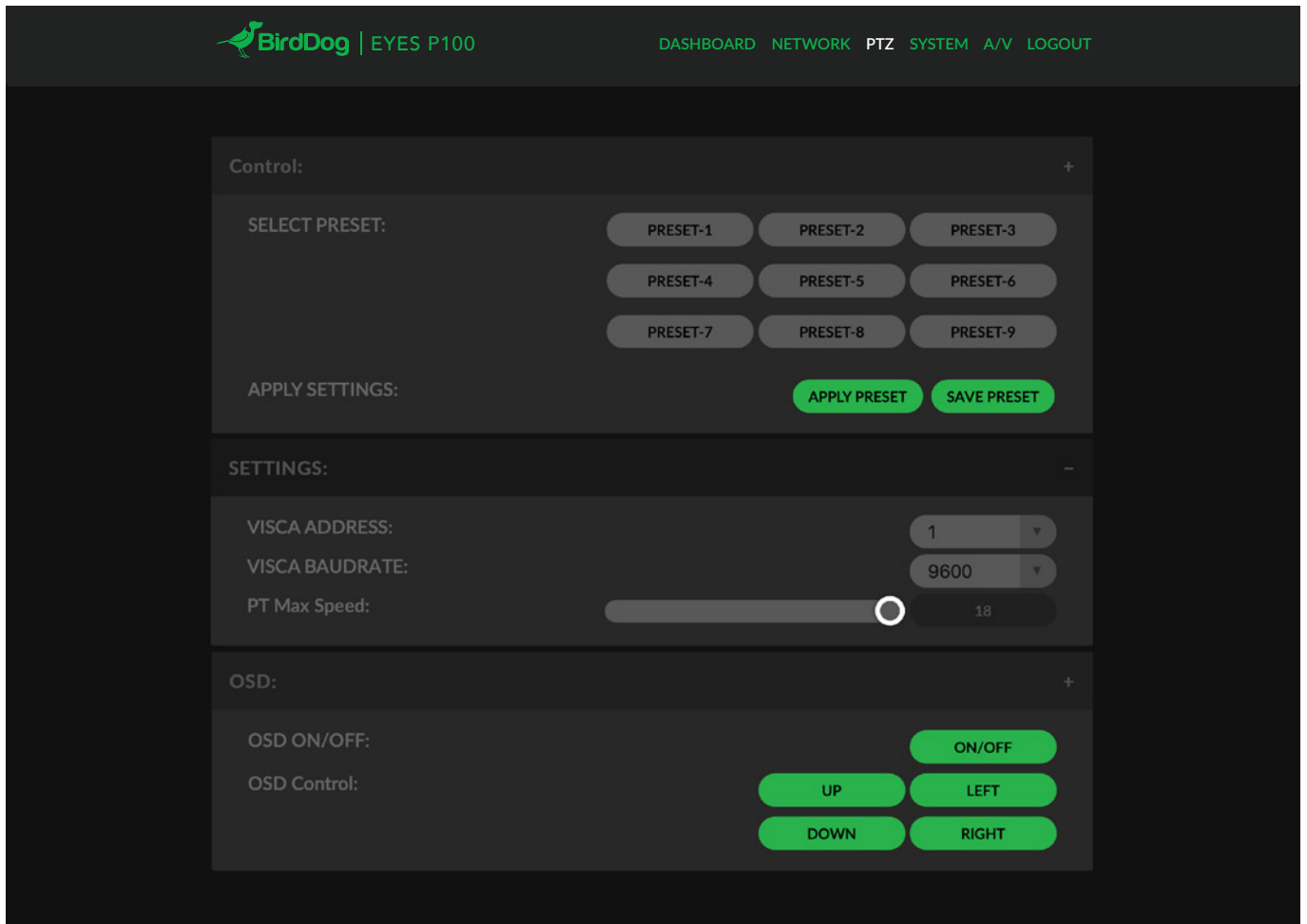
You can name each P100 with a friendly name that makes sense for each production (Camera 1, Camera 2, etc). This name will appear on any NDI receiver when it looks for video coming from P100 over the network. The name must not include any special characters and can be any combination of 'a-z, 1-0, and -'.

Note: no uppercase characters are valid.

On NDI receiving devices, P100 will present as a source as follows:

birddog-name [CAM]

when the unit is set to automatic input.



Control

You are able to save and recall presets from the Web Dashboard using the Select Preset option. To operate this, simply press the Preset number you wish to recall or save followed by APPLY PRESET or SAVE PRESET

Settings

The P100 communicates with the camera head via a serial interface, these settings should remain as per default:

- VISCA ADDRESS: 1
- VISCA BAUDRATE: 9600

PT Max Speed

When controlling the P100 over NDI you can limit the maximum speed of PTZ movements by affecting this option, the higher the number (18)

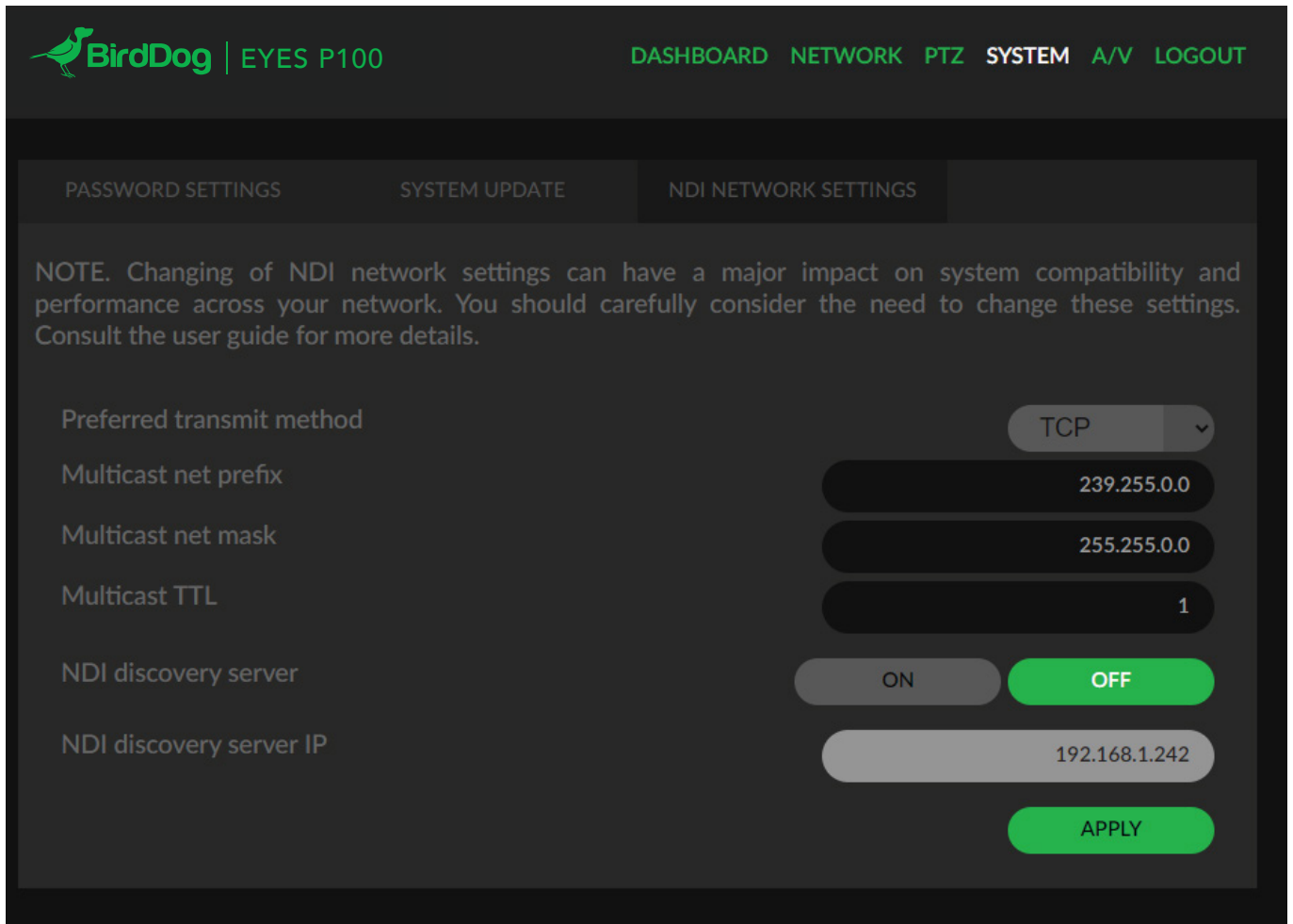
the faster and more sensitive the movements will be on the P100.

OSD

In the initial release of P100 the OSD is very important for adjusting the camera image settings since this is the primary control mechanism. To adjust all cameras settings please press the OSD ON/OFF button to illuminate 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.



BirdDog Eyes P100 operates with the latest NDI Libraries. There are several options to configure the P100’s 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. Transmit Preferred 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 if 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 Multicast 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 specifically 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 topography 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

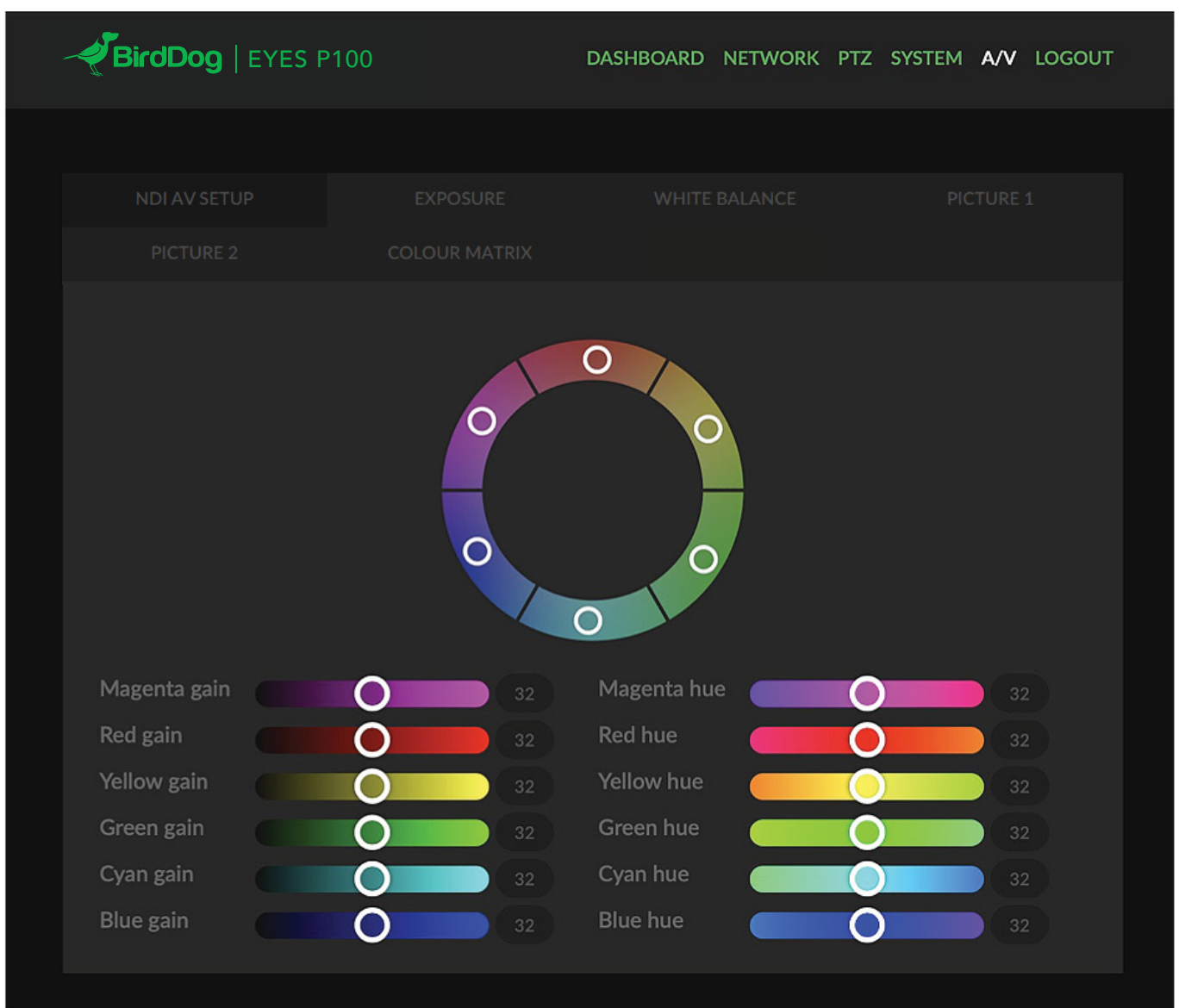
receiving packet, confirm nothing is lost and prepare for the next one before it's sent the next TCP packet in the round robin. This is similar to a RAID setup in traditional storage.

Advanced Controls

BirdDog Eyes P100 now supports some advanced controls to enable greater fine-tuning of image

properties for either matching images with other cameras in your production or pushing the overall dynamic performance of the camera for more true to life and sharper images.

These advanced controls are placed into three



distinct setting sections: Colour Matrix, Colour Enhancement and Image Enhancement.

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, these 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.



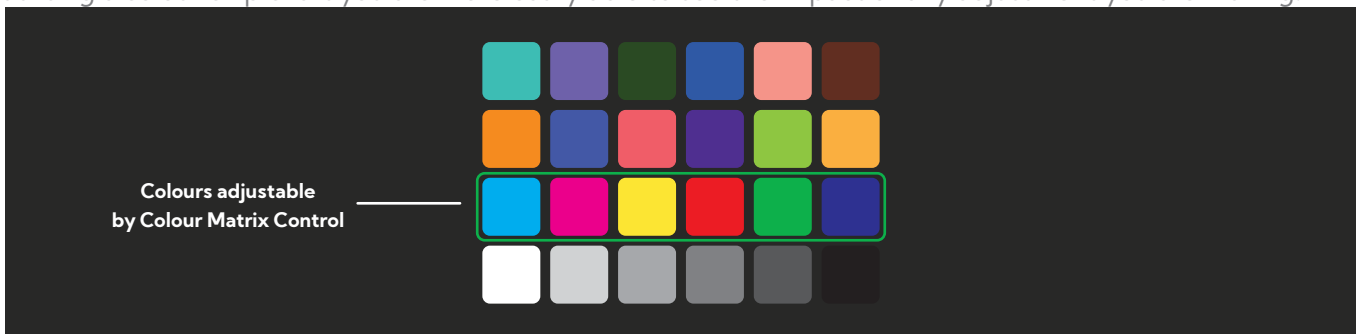
In P100 Colour Matrix controls you can adjust the colour offset in a negative (counter clockwise) or positive (clockwise) direction, effectively moving the cameras response to any colour towards its neighbouring colour transition point.



Adjusting individual colour Hue can assist dramatically in matching colour representation from the camera to true-to-like colours or matching the P100 to other cameras in your production.

Recommended practice for using Colour Matrix controls

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.



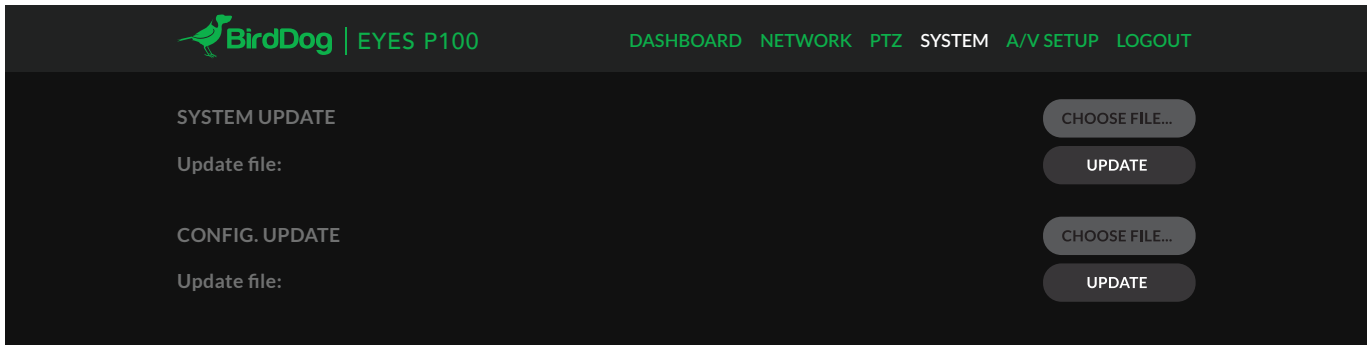
Using a colour chip chart such as the Datacolor SpyderCheckr can be beneficial to fine-tuning adjustments in the P100 Colour Matrix.

Firmware update

P100 is updateable via the web interface. Please check the below address regularly to ensure you have the latest firmware available for your device.

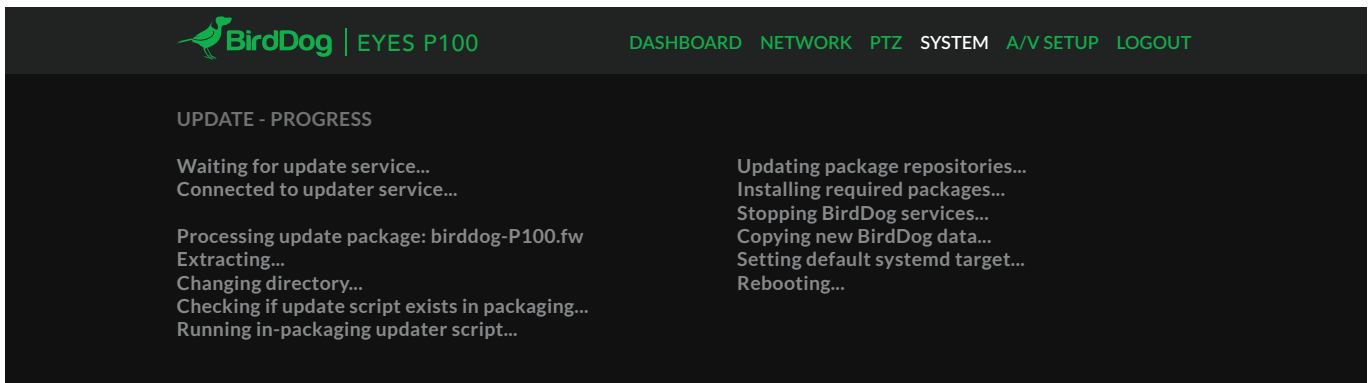
Having the latest firmware ensures you have all the latest features and performance updates to get the most out of P100: bird-dog.tv/firmware-updates

After downloading the latest firmware release, navigate to the settings tab on the P100 web configuration console click on Choose file... select the firmware update file and press the update button.



The screen will update the status of the update procedure, once complete it will reboot the main processor.

Please wait for 30 seconds and refresh your browser to access the unit again.



Receiving NDI streams

There are many applications that support receiving the NDI signal that P100 produces. Each application will vary slightly on how you choose your source.

NewTek Studio Monitor

NewTek provide a free Studio Monitor application that 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 P100 from the drop-down list.

Once connected to the P100 you will notice a configuration cog appears on the bottom right-hand side of the video display, this is a shortcut to access the P100 web configuration panel.

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 P100 as a source on your TriCaster, simply 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 P100 source.

Once connected to the P100 you will notice a configuration cog appears next to the source drop down window, this is a shortcut to access the P100 web configuration panel.

bird-dog.tv

hello@bird-dog.tv