

4K HDBaseT PTZ Camera

USER MANUAL

VERSION: VCC-4KHDB-M-11252018



VCC-8-4K20S-3SMB

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Operating Instructions

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

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

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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). Password login does not apply to some models that do not need password login.

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. This manual is a guide for multiple product models and so it is not intended for any specific product. In this manual, the illustrations of displayed interface, parameters displayed, drawings and value ranges may vary with models. Please see the actual product for details. 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.

Safety Information



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

Camera:

	Camera X 1
	IR Remote Controller X 1 (3V CR2032 Coin Lithium Battery Required)
	Camera Power Adaptor and Power cord X 1
	Bag of Mounting Screws X 1
	RJ45 to RS232 Extension Cable X 1
	RJ45 to RS422 Extension Cable X 1
	User Manual X 1

HDBaseT Receiver (Not included with the camera, order separately)

	HDBaseT Receiver X 1
	Power Adaptor/Power cord X 1
	Bag of Mounting Screws X 1
	Rackmount X 2
	Rubber Pads X 4
	RJ45 to RS232 Extension Cable X 1
	RJ45 to RS422 Extension Cable X 1

Accessories (Optional)

	Wall Mount
	Ceiling Mount

Overview

Model Numbers

This user guide is suitable for the following models:

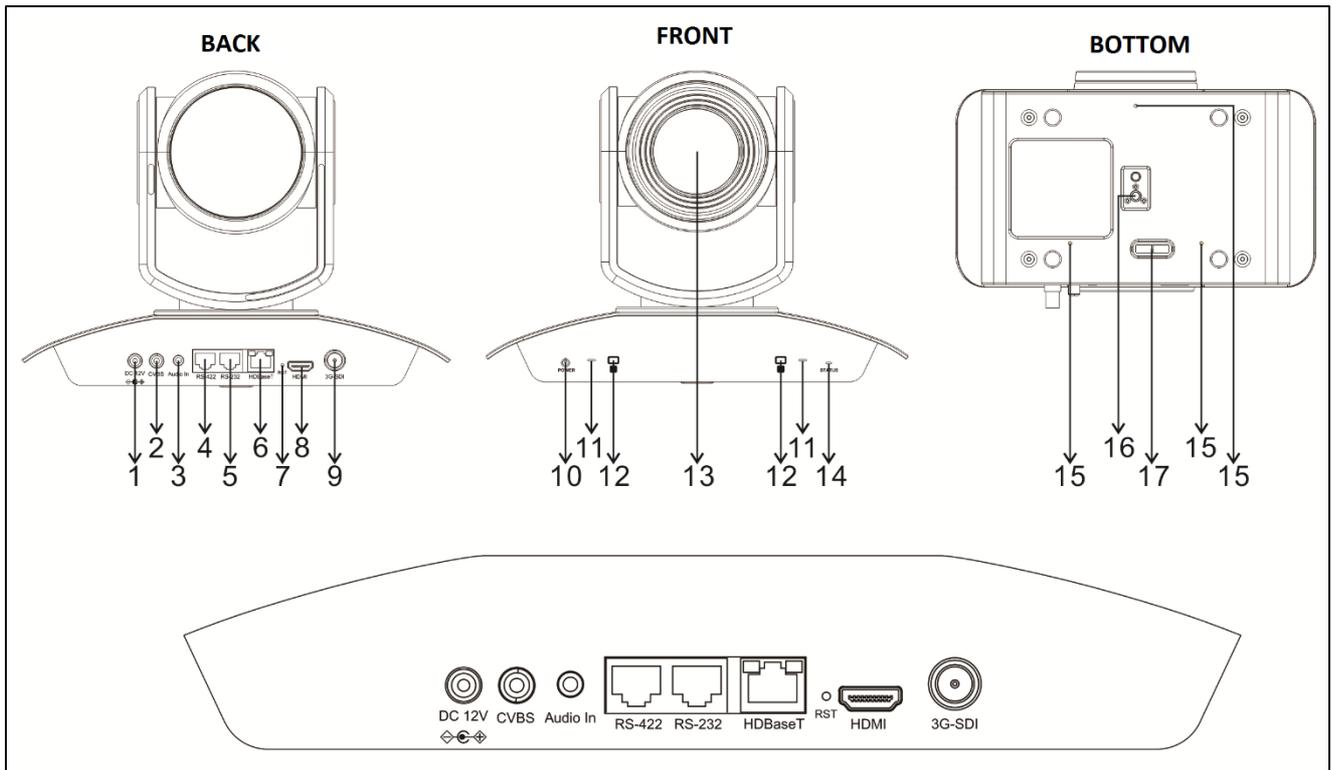
- VCC-8-4K20S-3SMB
- VCC-8-4K-BR (For use with HDBaseT Model, not included with the camera, order separately)

Features

- Resolution: 4K, 1080P, 720P
- Zoom: Optical 20X, Digital 12X. SRZ Feature: Up to 30X in 4K and 40X in FHD via Super Resolution Zoom
- Video Output: HDMI, HD-SDI, HDBaseT
- Power: DC 12V, POH (Power Over HDBaseT)
- 70.2 Degrees wide angle
- With Sony Clear Zoom technology, digital zoom is up to 12X.
- ± 350 -degree continuous pan, ± 120 -degree continuous tilt
- 128 presets, Speed up to 100 degrees/sec
- Standard mounting and ceiling mounting with E-Flip function
- IR remote control, RS-232 control, RS-422/485 control
- You can use the infrared remote controller to set the camera and to select panning, tilting and zooming from the setting menu.
- You can store up to 6 presets of camera direction and camera parameters into the camera. (Up to 6 presets on remote controller or 128 presets via protocol programming.)
- The camera has HDBaseT HDMI video adapter built-in to have longer distance (Up to 100M) of HDMI transmission with One-Cable solution.
- The HDBaseT receiver supports, one cable solution:
 - 4K Video Output, HDMI Port.
 - Provides power supply to camera
 - RS-232 control, RS-422/485 control
 - 3.5mm Jack Audio Output
 - LAN connection, IP Pass-Thru,
 - *The LAN Port is IP Pass-Thru for the camera with IP control or IP streaming functionality. Do not use it as an IP video encoder. (Model specific for Dual Output HDMI+IP HDBaseT camera).
- IR Control Extension Input. You can use IR remote controller to control the camera from the remote side via HDBaseT receiver.
- The camera can be used as for 4K HDMI output or HD-SDI output without using HDBaseT Receiver.
- Supported 23.98 frame rate via FW upgrade.

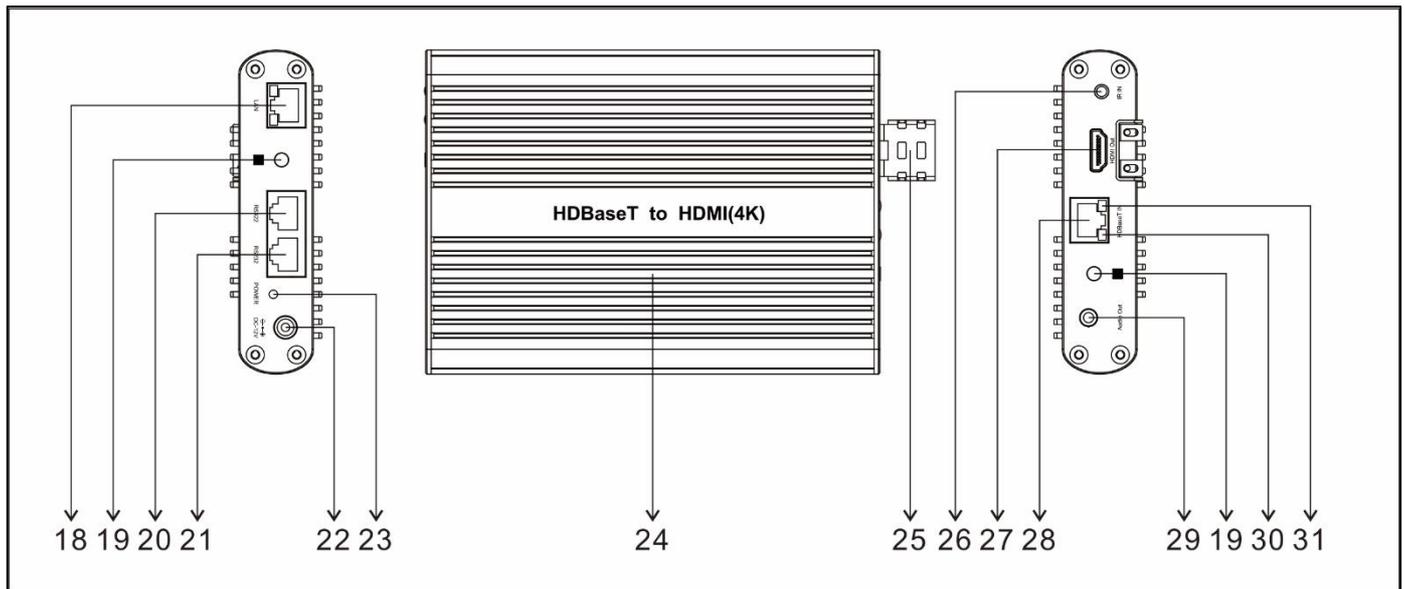
Camera Diagrams

Camera



- 1. 12V DC Power Port**
Connect the supplied DC power adaptor and cord.
- 2. CVBS Video output**
- 3. 3.5mm Audio Input**
- 4. RS-422/485 Control Port**
RJ45 to RS422 extension cable is provided. (For more detail of extension cable see page15)
- 5. RS-232 Control Port**
RJ45 to RS232 extension cable is provided. (For more detail of extension cable see page15)
- 6. RJ45 Port for HDBaseT signal output**
- 7. Reset Button**
Reset the image resolution to default setting (1080P59.94).
- 8. HDMI Port**
HDMI 1.4b
- 9. SDI Port**
3G-SDI
- 10. 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.
- 11. Built-in Mic**
- 12. IR Remote Controller Sensors**
These are sensors to receive commands from infrared remote controller.
- 13. Lens**
This is a 20X magnification optical zoom lens.
Remove the lens protection plastic before first use.
- 14. Communication LED Indicator**
Flashes blue when the camera receives commands from the infrared remote controller.
- 15. Fix mounting holes**
For original wall/ceiling mount bracket
- 16. Tripod mounting holes**
- 17. Bottom DIP Switch**

HDBaseT Receiver



18. LAN Port (RJ45, IP Pass-Thru)

Connect network switch or router to this port for Dual Output HDMI+IP HDBaseT camera.

NOTE:

- This HDBaseT receiver is not an IP video encoder. The LAN Port is the IP video extension for the IP video output on the camera side. Do not use it as an IP video encoder.
- It is not for use with model VCC-8-4K20S-3SMB.

19. IR Remote Controller Indicator

These are sensors to receive commands from infrared remote controller, distance up to 10 meters.

You can use IR remote controller to control the camera from the remote side via HDBaseT receiver.

20. RS-422 Control Port

Use RJ45 to RS-422 extension adapter cable to remotely control PTZ camera. (Extension cable detail view on page 15)

21. RS232 Control Port

Use RJ45 to RS-232 extension adapter cable to remotely control PTZ camera (Extension cable detail view on page 15)

22. 12V DC Power Port

Connect include 12V DC power adaptor and cord.

23. Power LED Indicator

Turns red when the device is connected to power outlet.

24. Heat-sink surface panel

All aluminum body for quick heat dissipation.

25. HDMI Upholder

For tightening up HDMI port in stabilization.

26. 3.5mm IR IN

Connect to an IR receiver, The IR signal received from this port can send out via HDBaseT receiver.

27. v1.4b HDMI Video Output

Connect to HDMI source display.

28. RJ45 Port for HDBaseT Input (POH)

Support One-Cable transmission of camera power (POH), 4K video and control signal. Connects to the HDBaseT camera via CAT5e/CAT6 cable. (Transmission distances of up to 100M/328ft)

29. 3.5mm jack Audio Out

30. HDBaseT Port Signal Link indicator

The LED lit GREEN when the camera is powered on.

31. HDBaseT Port Signal Link indicator

The LED flashes ORANGE when the camera transmits data with HDBaseT.

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 – A list of available resolutions will appear. Use the arrow keys to navigate, and press the Home button to make a selection. The OSD will show “CHANGING...”. Press the Menu button to exit this menu.

10. MENU

- On screen menu display ON/OFF

11. Audio Switch

- You can turn the Mic built in the camera Off/ON by pressing the button once.

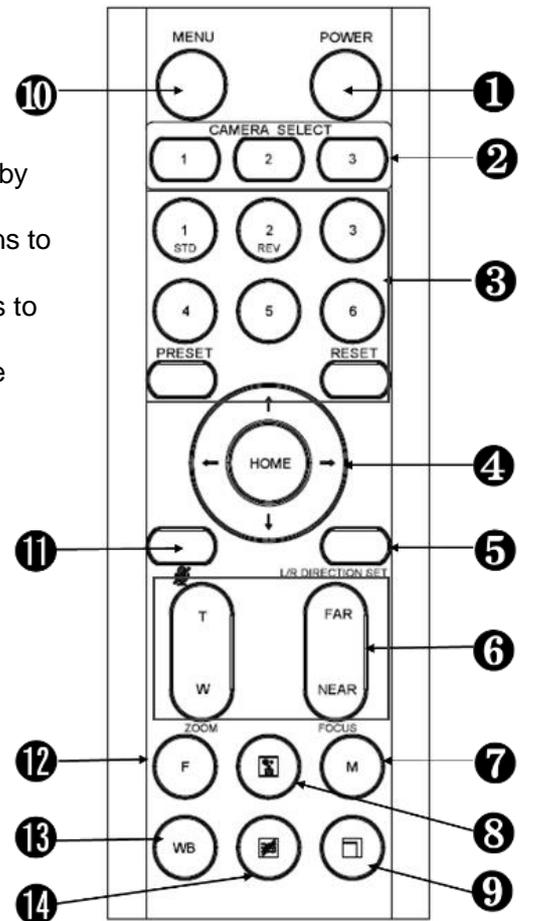
12. Fast/Slow Zoom Switching

13. White Balance

- Change the White Balance setting by pressing the button.

14. De-Flicker

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



Notes

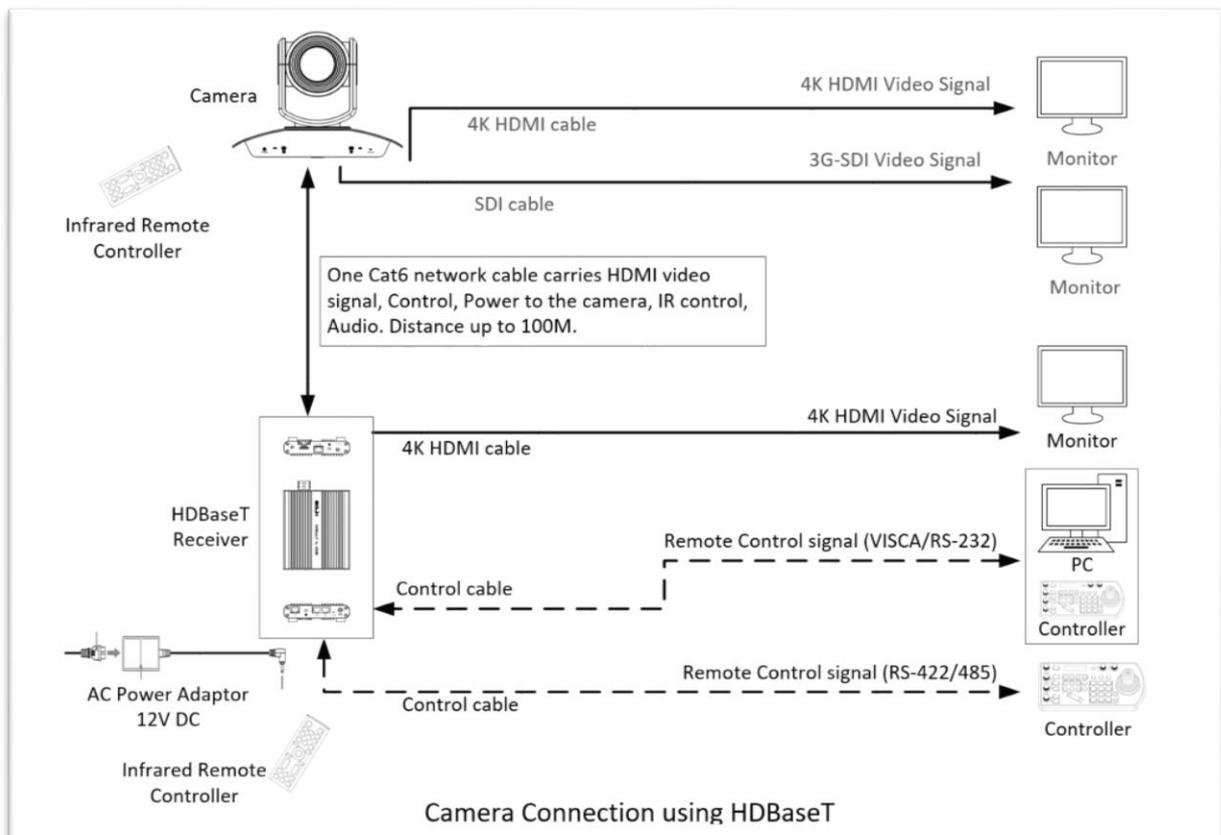
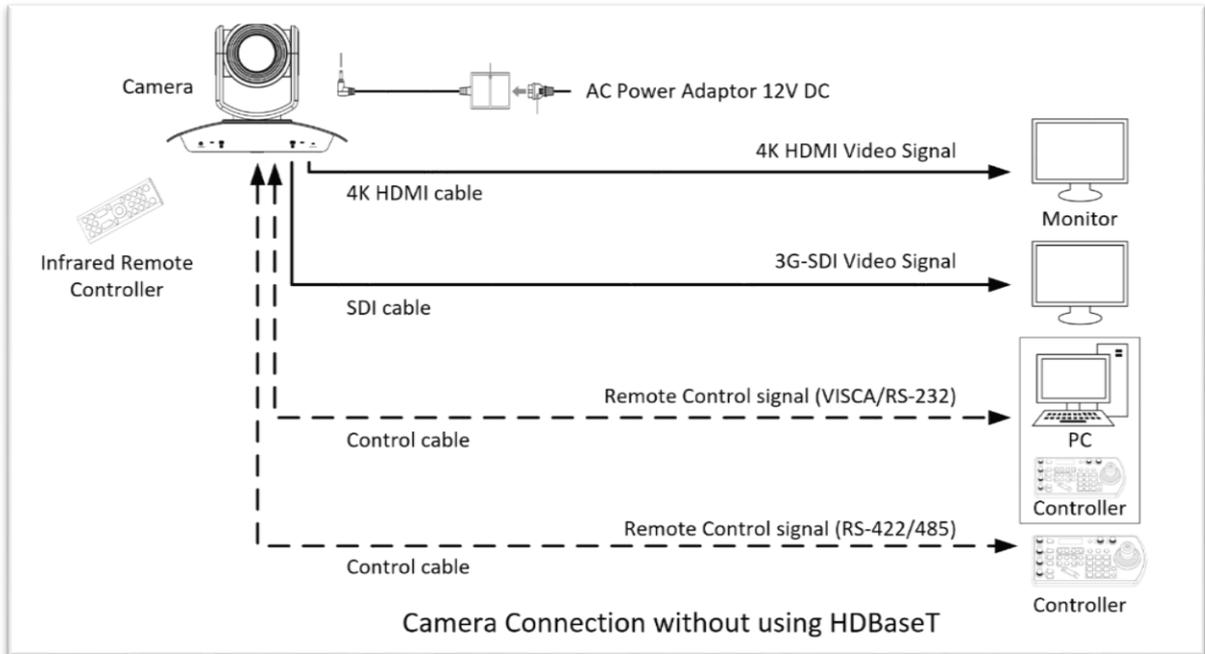
- 3V CR2032 Coin lithium Battery is not included with remote controller, you should purchase it at your local market.
- 3V CR2032 Coin lithium batteries are not interchangeable.

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.

Power

- Use only the DC power adaptor (JEITA type4) supplied with the unit. Do not use any other DC power adaptor.
- Camera power can be provided by the POH (Power Over HDBaseT receiver) via CAT5e/6 cable. Do not need to need to use the 12VDC power adapter for powering the camera when HDBaseT POH is being used.



Obtain Video Signal

HDMI 4K / HD Video signal

1. The camera video format is set to 1080P59.94 by default, so that you can have the video display on regular HD monitor/TV. Do not set camera video format to 4K resolution until you have a 4K monitor/TV ready for displaying.
2. Change the camera video format setting to 4K if a 4K displayer is ready.
3. Connect the camera to a 4K or HD monitor/TV using HDMI cable. For displaying 4K video, a HDMI version 1.4 needs to be used.
4. Turn on the camera, video will display on the monitor after running initializing.
5. Information of the camera initial setting status will display for 5 seconds.
6. You can set the video format of the camera to the one you want to display. (How to set video format, see page 18)

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.
3. SDI video only supports 1080P, does not support 4K format.

Use HDBaseT Receiver to obtain HDMI 4K / HD Video signal

1. Use Cat 6 network cable to connect the camera to HDBaseT Receiver.
2. Connect HDBaseT Receiver to a 4K or HD monitor/TV using HDMI cable. For displaying 4K video, a HDMI version 1.4 needs to be used.
3. Power on the HDBaseT Receiver, the camera will be powered on by the receiver, video will display on the monitor after running initializing.
4. Information of the camera initial setting status will display for 5 seconds.
5. You can set the video format of the camera to the one you want to display. (How to set video format, see page 18)

Camera Initial setting status Information

Information of the camera initial setting status will display for 5 seconds.

1. Camera physical ID for RS-422/485 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

PELCO ID:	001
IR ID:	01
IR-RECEIVE:	ON
BAUD RATE:	9600
COMM TYPE:	232
HDMI FMT:	2160P29.97
SDI FMT:	1080P29.97
HDMI OUT:	YUV
MODEL TYPE:	----
SV:VOC0500S110401A01	

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 ways of controlling and typical system examples with the required components and usage of each system.

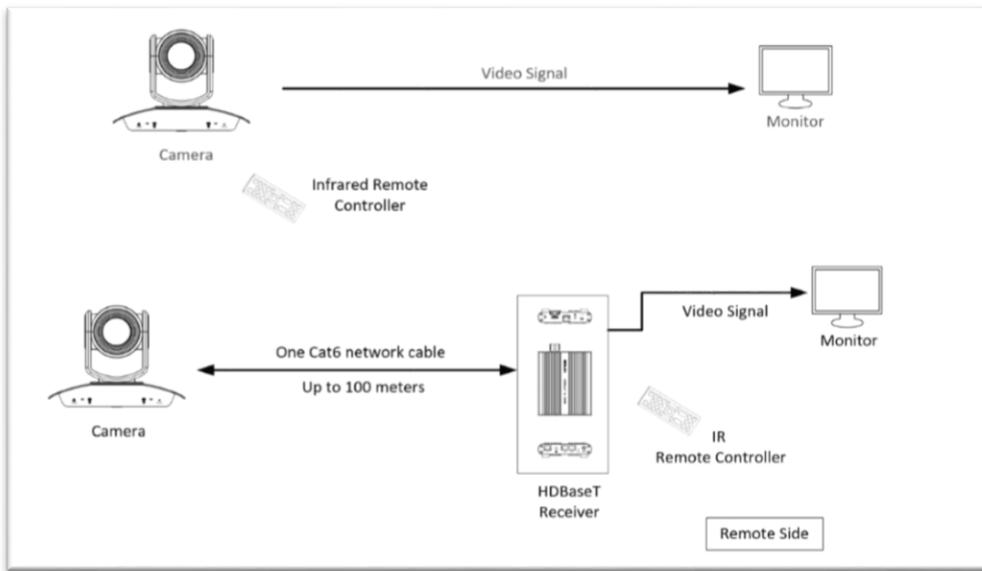
1. Use the Infrared Remote Controller
2. Use RS-232 (VISCA)
3. Use RS-422/485 (VISCA/PELCO P/D)
4. Use HDBaseT Receiver to control.

Control the camera without using HDBaseT Receiver

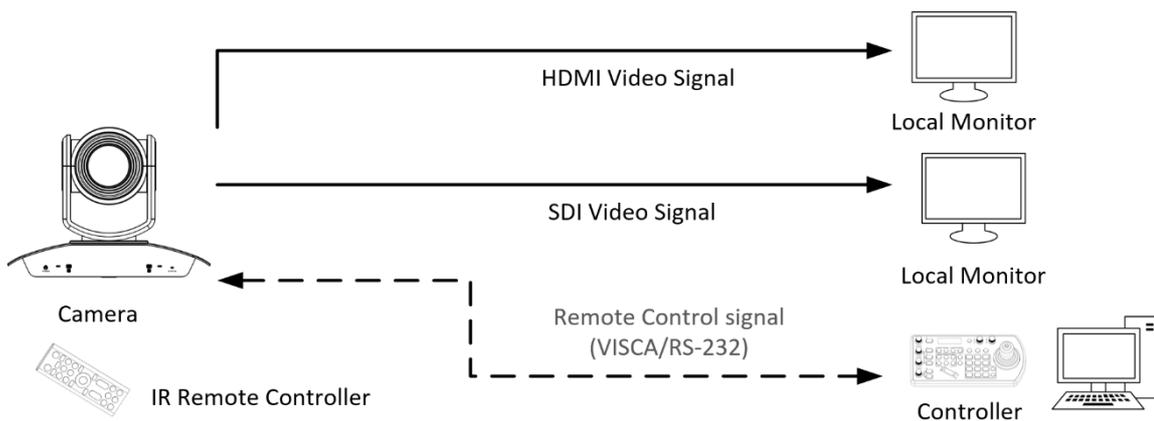
Use the Infrared Remote Controller

To operate the camera from a short distance. For IR remote control details, refer to Operation Using the Infrared Remote Controller.

Via HDBaseT, you can use IR remote controller to control the camera from the remote side that is up to 100 meters away.



Use RS-232 (VISCA)



RS232 control without using HDBaseT Receiver

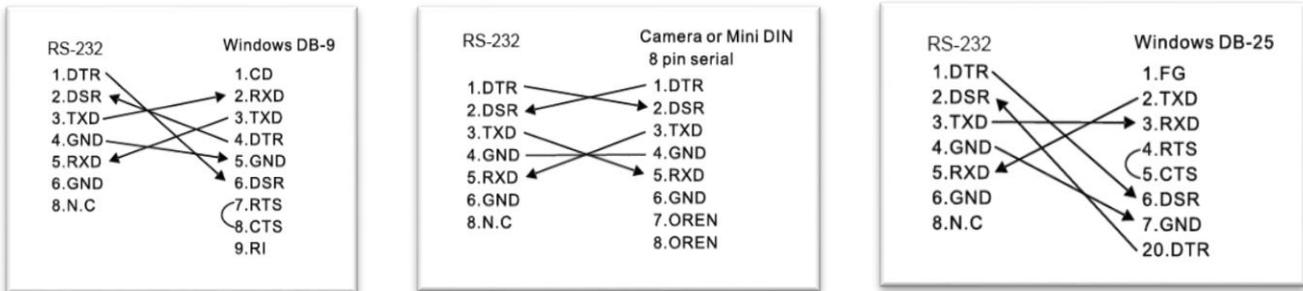
You can use RS-232 port to connect to optional controllers, such as joystick control keyboard, control PC station, to operate the camera.

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

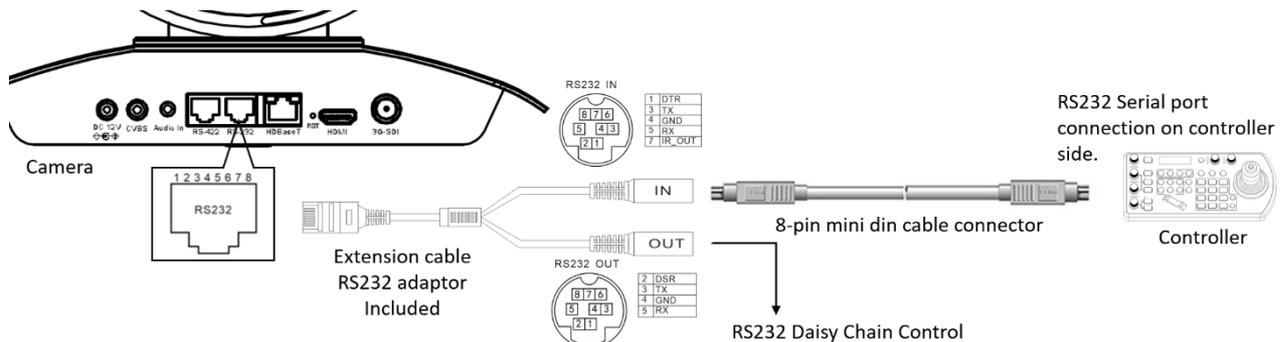
An application software that supports this unit is needed if you use PC station.

RS232 Connection

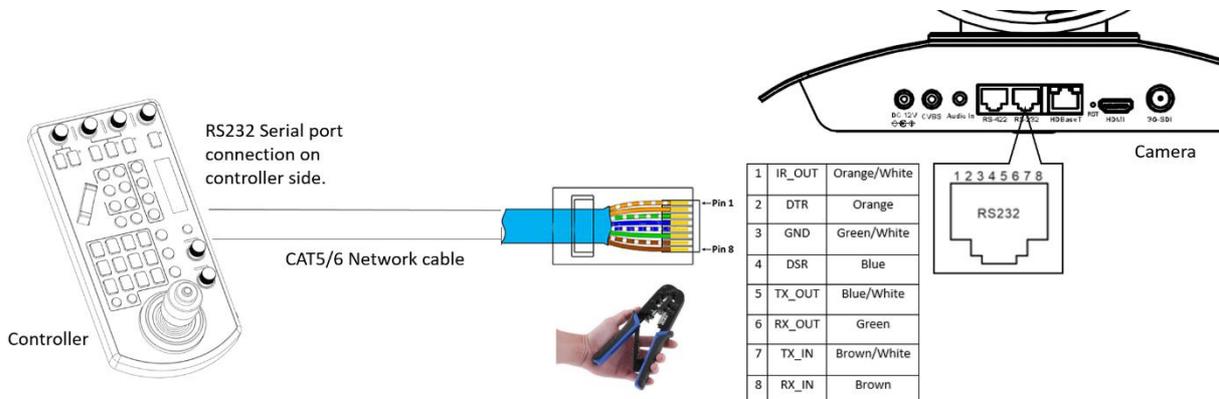
1. Set RS232 control method on Bottom Dip Switch.
2. Set Baud Rate on Bottom Dip Switch to the same as Baud Rate setting on the keyboard you are using.
3. Set specific camera address that you want to control the camera for on Bottom Dip Switch.
4. If you want to have the camera address to be automatically 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. Use the RS232 connection cable provided by third party controller (VISCA). The controller must be VISCA compatible.
7. Camera supports Daisy Chain in RS232 control mode by using extension cables (Included). Have to use 8-Pin Mini Din Serial RS232 Cable (Not included) connection for the controller. **HDBaseT Receiver does not support RS232 daisy chain connection.**
8. You can make RS232 connection cable if you have the following applications:



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



10. Or you can use CAT5/6 network cable to make RS232 connection by following the pin definition below:

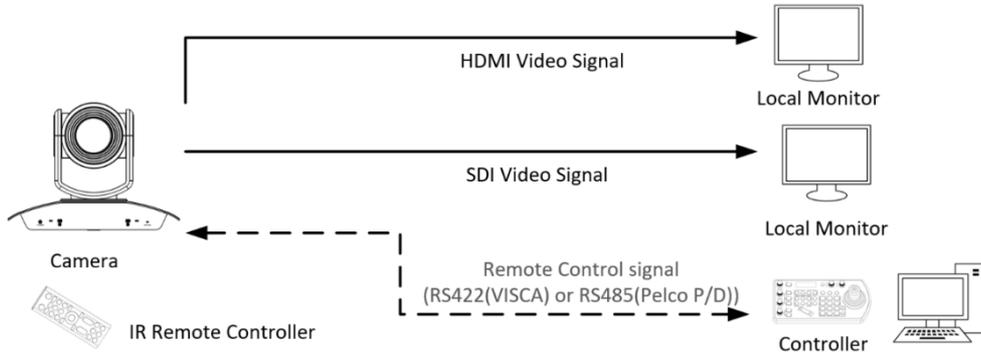


Use RS-422(VISCA)/RS-485 (PELCO P/D)

You can use RS-422/485 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.

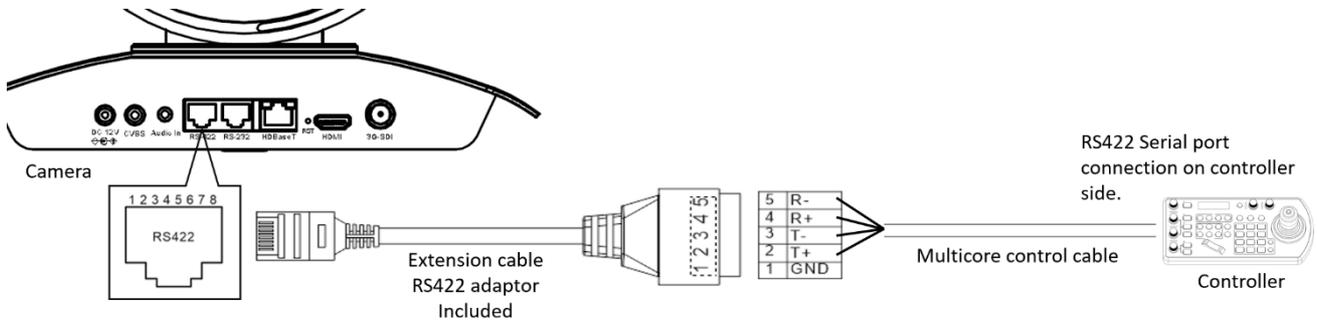
An application software that supports this unit is needed if you use PC station.



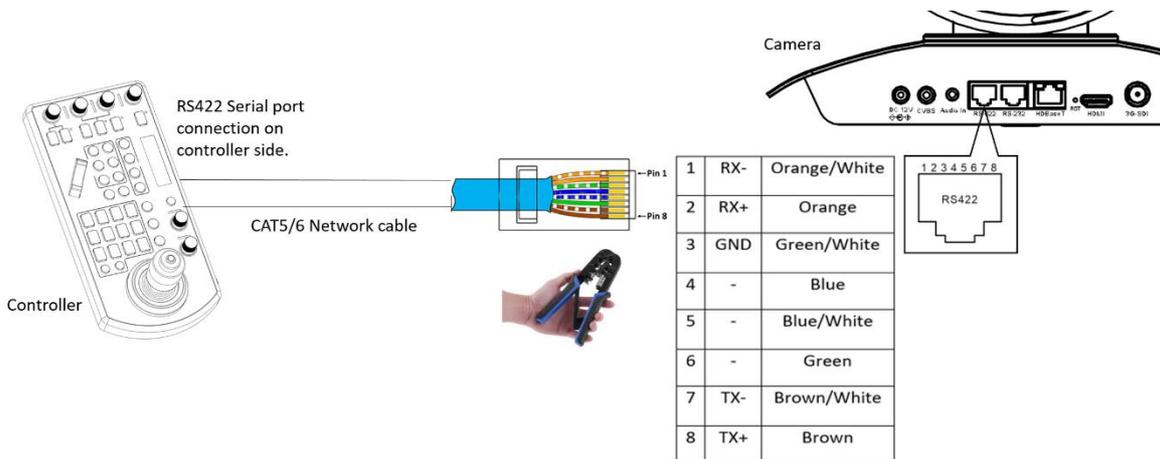
RS422 control without using HDBaseT Receiver

RS422 (VISCA) connection

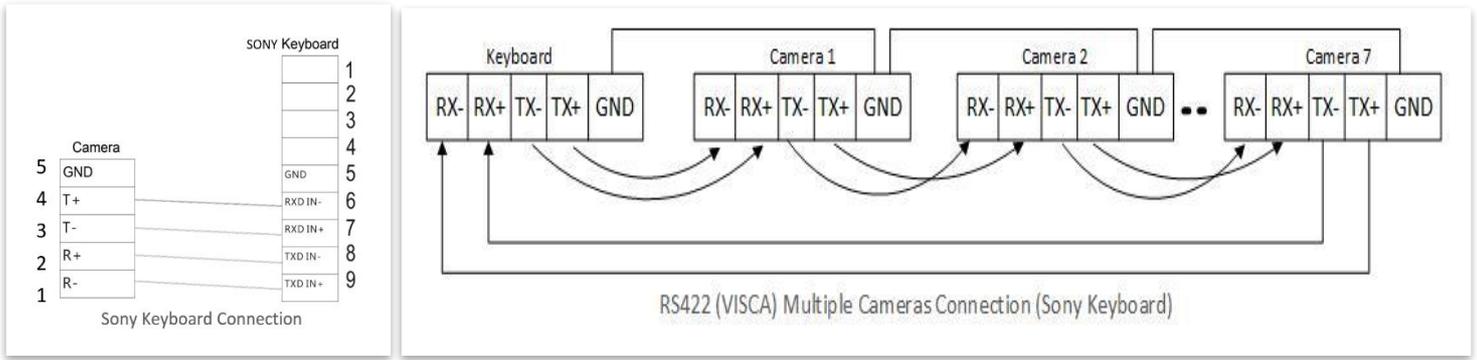
1. Set RS422 control method on Bottom Dip Switch.
2. Set Baud Rate on Bottom Dip Switch to the same as Baud Rate setting on the keyboard you are using.
3. Set specific camera address that you want to control the camera for on Bottom Dip Switch.
4. If you want to have the camera address to be automatically 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 RS422 control cable provided by third party controller. 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. Use extension cables included RJ45 to RS422 Phoenix connector adaptor to make RS422 connection for your control device.



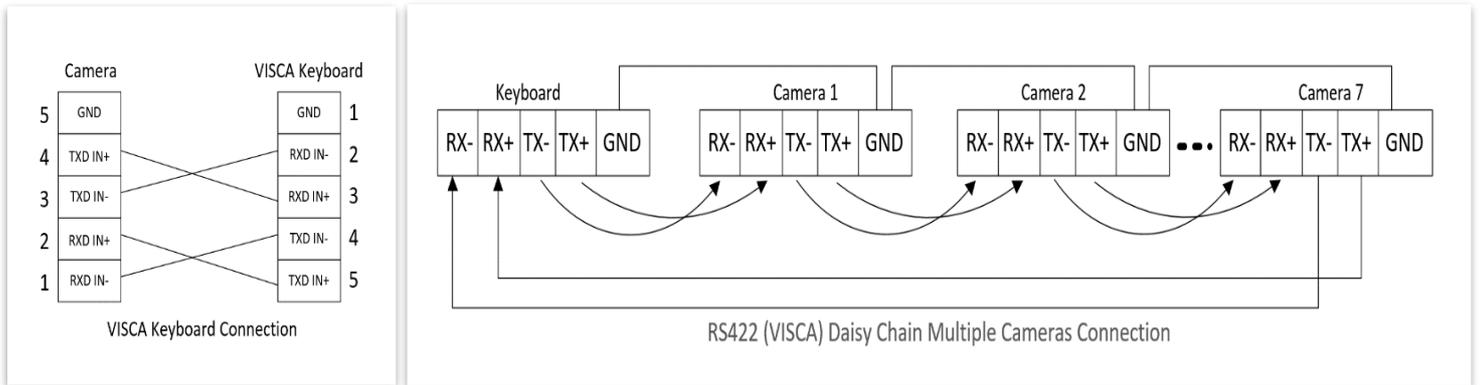
10. Or you can use CAT5/6 network cable to make RS422 connection by following the pin definition below:



SONY Keyboard RS422 Connection

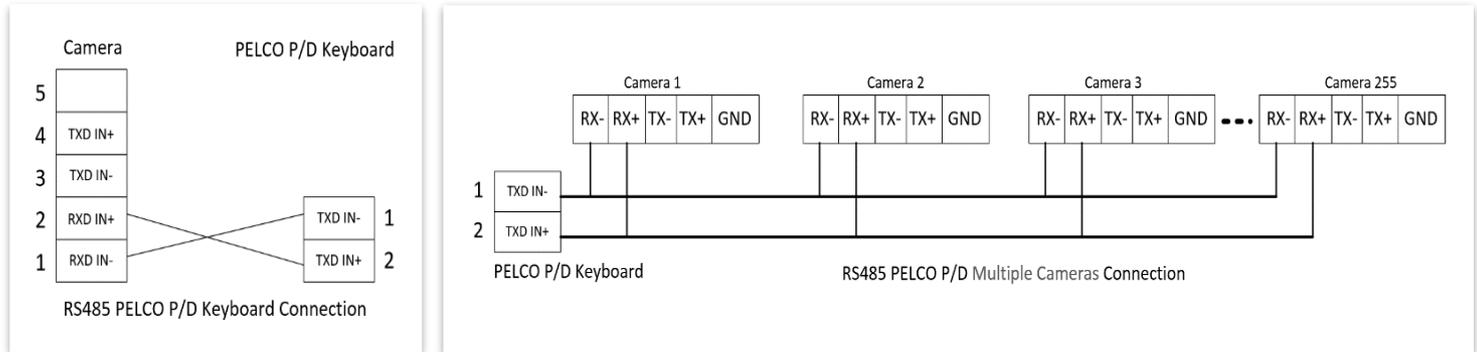


VISCA (Non-Sony) Keyboard RS422 Connection



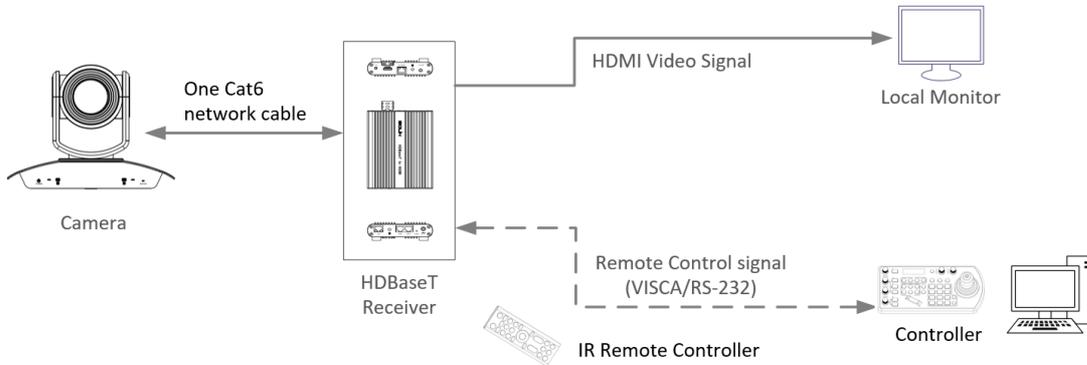
PELCO P/D Keyboard RS485 Connection

1. Use PELCO P/D compatible keyboard.
2. Use preset 95# on the keyboard to bring up/exit camera OSD menu.
3. Use joystick and Button "OPEN" or "CLOSE" to navigate OSD menu.
4. To operate keyboard, please refer to the user manual of the keyboard you are using.

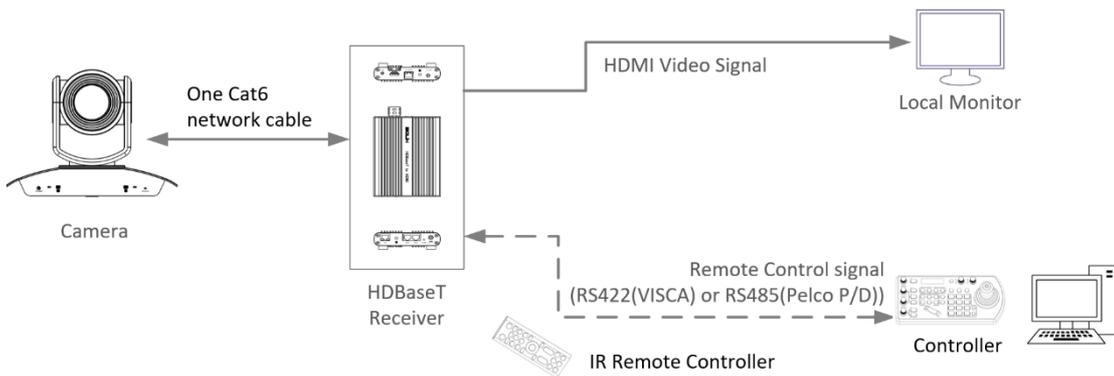


Control the camera using HDBaseT Receiver

1. Must set the camera in 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. Reboot the camera by turning it Off/On after the Bottom Dip Switch has been set up correctly.
4. Device supports RS232 and RS422/485 control.
5. RS232 on HDBaseT receiver does not support daisy chain control.
6. Use Cat 6 network cable to connect from the camera HDBaseT port to HDBaseT Receiver input port.
7. HDBaseT will provide the power to the camera via the network cable.
8. Make the control connection in between HDBaseT Receiver and keyboard as following:



RS232 control using HDBaseT Receiver

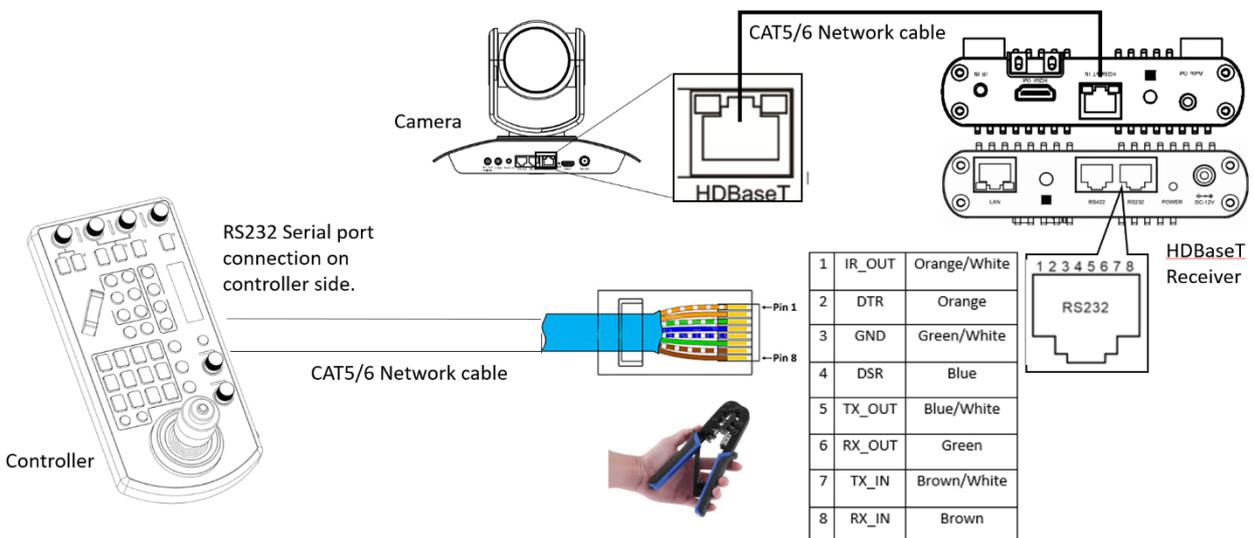


RS422 control using HDBaseT Receiver

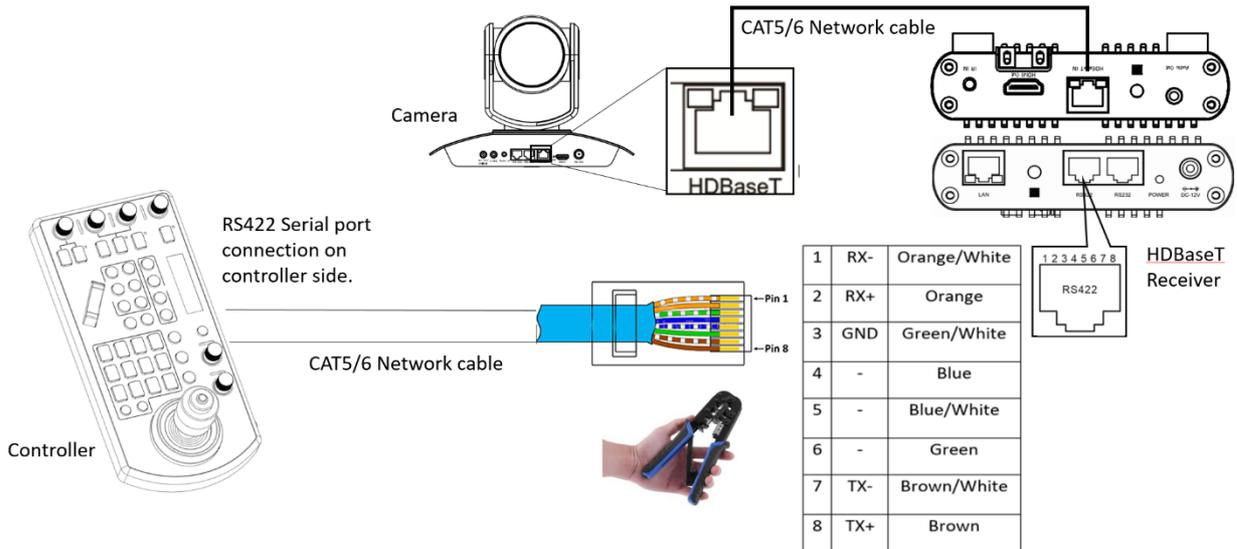
RS232/RS422 Control Connection between the HDBaseT receiver and the controller:

To make the RS232/RS422 control cable connection between the HDBaseT receiver and the controller:

1. Use CAT6 network cable to make the RJ45 connector to connect to the HDBaseT Receiver control port.
 - a) RS232: Make RJ45 connector for HDBaseT Receiver RS232 port as following:



b) RS422: Make RJ45 connector for HDBaseT Receiver RS422 port as following:

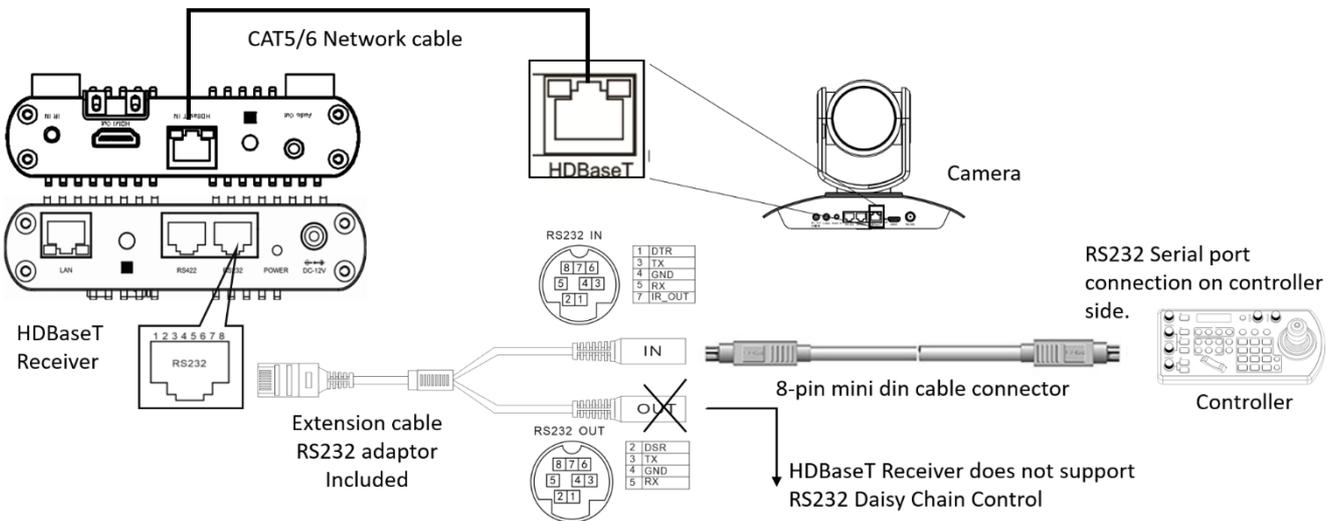


c) The RS232/RS422 serial port connection on controller side, please refer to the userguide of the controller.

2. Use extension cables included to connect the RS232/RS422 control cable to the controller:

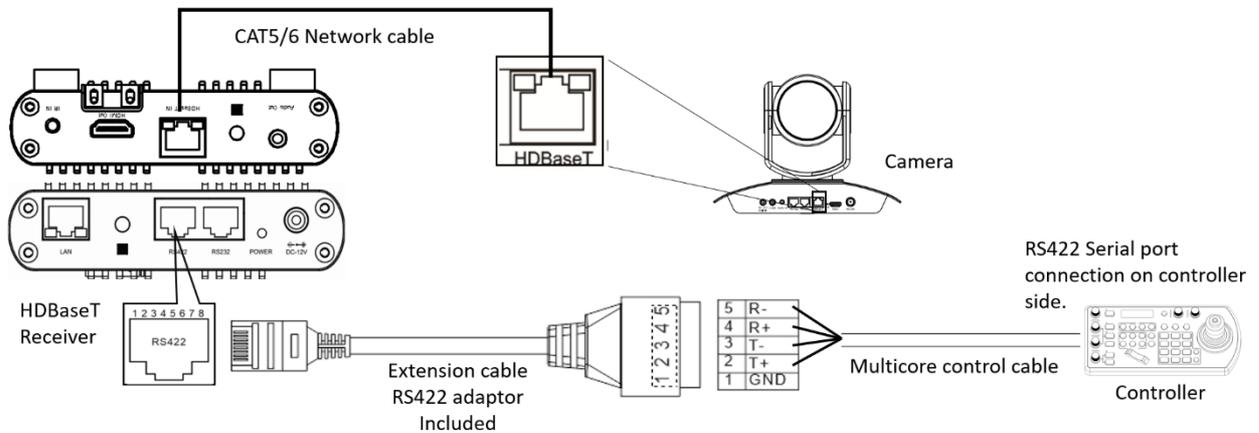
a) **RJ45 to RS232** extension adapter cable.

- You have to use 8-Pin Mini Din Serial RS232 Cable
- HDBaseT does not support RS232 daisy chain control. So only plug in to “IN” 8-pin Mini Din port for RS232 control.



b) RJ45 to RS422 extension adapter cable.

- Make the RS422 connection as following pinout definition instruction:
- If you have more than one HDBaseT receivers to make multiple camera connection for RS422 daisy chain control, please refer to Page 14 (How to connect multiple cameras).
- You cannot use the RS-232 connections and the RS422/485 connection and the same time.



Operating Multiple Cameras Using RS-422/485

- Using RS-422 (VISCA), you can connect up to 7 cameras.
- Using RS-485 (PELCO), you can connect up 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.
- The joystick of the remote keyboard controller allows comfortable pan/tilt and zoom operations.

BOTTOM DIP SWITCH SETTINGS

The bottom dip switch is 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.

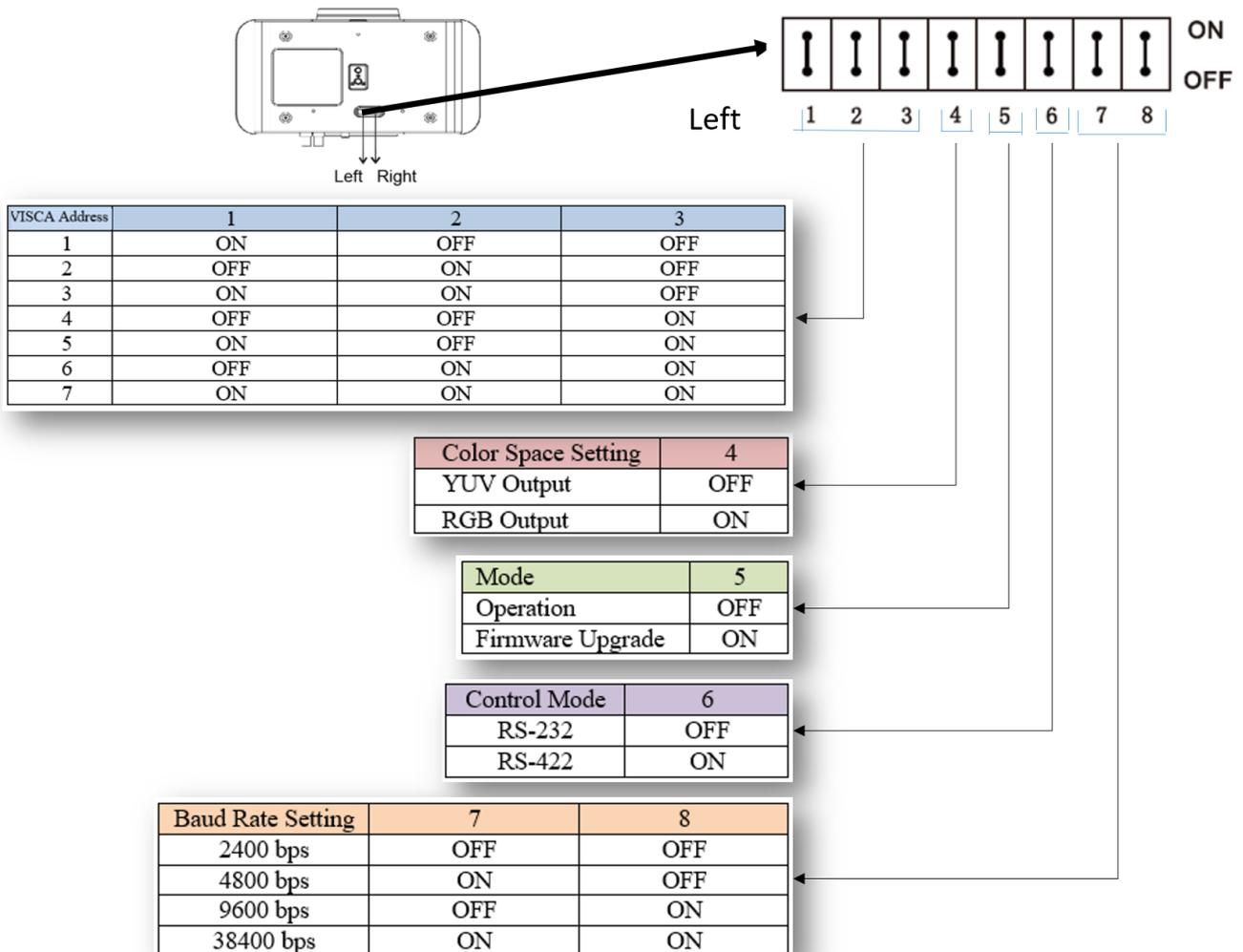
Please Note: Camera ID and Video Resolution can be set on either the DIP switches or on the OSD menu. Whichever setting was changed last will be the setting that is loaded when the camera boots.

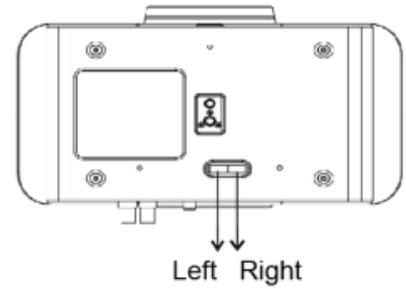
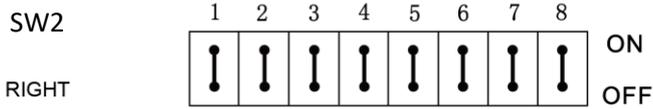
Always do a hard power cycle on the camera after changing DIP switch settings to apply the settings. This is done by removing power, allowing the camera to completely power down, and then reconnecting the power.

The DIP Switch Settings

- 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 (* Set RS232 for controlling via HDBaseT)
- Bit 7~8: RS-232/RS-422 Baud Rate

SW1 Factory default setting is: ON.OFF.OFF.OFF.OFF.OFF.OFF.ON.





Bit 1~4: Video resolution setting
 Bit 5~6: Reserve
 Bit 7~8: IR remote controller ID setting

SW2 Factory default setting is: OFF OFF.ON.ON.OFF.OFF.OFF.OFF.

1. Video Resolution Setting

Video Resolution	B1	B2	B3	B4
1080i59.94	OFF	OFF	OFF	OFF
1080P50	OFF	OFF	OFF	ON
720P59.94	OFF	OFF	ON	OFF
1080P59.94	OFF	OFF	ON	ON
HDMI: 2160P29.97 SDI: 1080P59.94	OFF	ON	OFF	OFF
1080P50	OFF	ON	OFF	ON
1080P50	OFF	ON	ON	OFF
1080P50	OFF	ON	ON	ON
1080i50	ON	OFF	OFF	OFF
1080P50	ON	OFF	OFF	ON
720P50	ON	OFF	ON	OFF
1080P50	ON	OFF	ON	ON
HDMI: 2160P25 SDI: 1080P29.97	ON	ON	OFF	OFF
1080P50	ON	ON	OFF	ON
1080P50	ON	ON	ON	ON

2. IR Remote Controller ID Setting

IR Remote Controller ID	B7	B8
1	OFF	OFF
2	ON	OFF
3	OFF	ON

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 24).

Bring out the OSD menu:

1. If you are using PELCO protocol keyboard, use preset 95# on the keyboard to bring up/exit camera OSD menu, use joystick to navigate the menu.
2. If you are using VISCA protocol keyboard, find “Menu” button on the keyboard, press the button to bring up the OSD menu.

Note

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

Main Menu

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

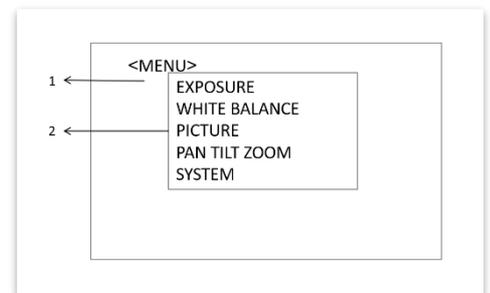
1. Selected Items

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 Menu

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.

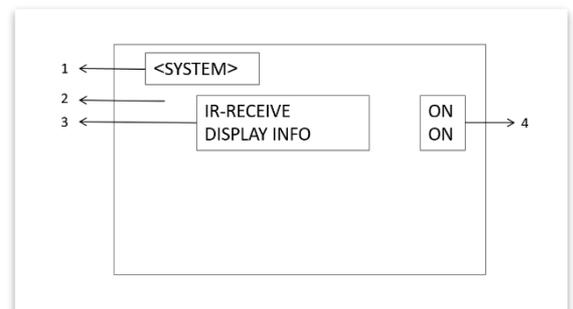
3. Setting Items

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 MENU 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 sensitivity, electronic shutter speed, and iris.

BRIGHT: Adjust the brightness level (LEVEL) manually.

SHUTTER PRI: Shutter Priority mode. The exposure is adjusted automatically using the sensitivity and iris. Adjust the electronic shutter speed (SPEED) manually.

IRIS PRI: Iris Priority mode. The exposure is adjusted automatically using the sensitivity and electronic shutter speed. Adjust the iris (IRIS) manually.

MANUAL: Adjust with variable (GAIN), electronic shutter speed (SPEED) and iris (IRIS) manually.

High Sensitivity mode selection: ON/OFF, in this mode, the maximum gain increases, enabling to obtain a brighter image even in a dark environment. However, if the gain reaches high level, the image will have a large amount of noise.

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

GAIN: Select the gain from the following:

0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28,30,32 dB

SPEED: Select the electronic shutter speed from the following:

When video format is set to 1080P50, 1080i50, 2160P25, 720P50 Speed can be selected from the following:

1/1, 2/3,1/2, 1/3,1/4, 1/6,1/8, 1/12,1/15,1/20,1/25, 1/30, 1/50,1/60, 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 1080i59.94, 1080P59.94, 720P59.94, 2160P29.97 Speed can be selected from the following:

1/1, 2/3,1/2, 1/3,1/4, 1/6,1/8, 1/10, 1/15,1/20,1/30, 1/50,1/60, 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, F11, F10, F9.6, F8, F7.3, F6.8, F6.4, F6.2, F5.6, F5.2, F4.8, F4.4, F4.0, F3.7, F3.4,F3.1,F2.8,F2.6,F2.4,F2.0

LEVEL: Select the brightness level from 0, 5 to 37.

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 appears 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:

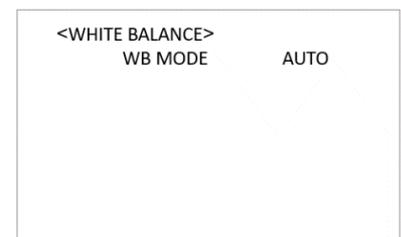
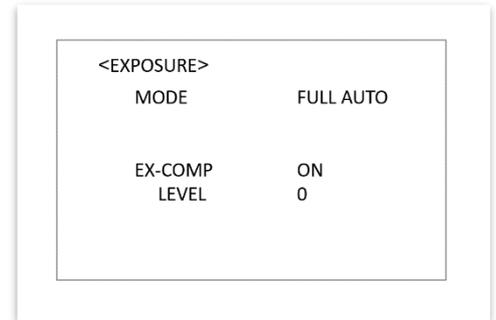
AUTO: This mode computes the white balance value output using color information from the entire screen. It outputs the proper value using the color temperature radiating from a black subject based on a range of values from 2500K to 7500K. This mode is the initial setting.

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 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 Tracing White Balance): Auto Tracing White balance (2000K to 10000K)

USER: This is a mode that enables you to manually set the control of R and B gain up to 256 steps.

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.

SODIUM VAPOR LAMP (AUTO/OUTDOOR AUTO): This is an auto white balance mode specifically for outdoors, which is compatible with sodium vapor lamps.

• **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.

PICTURE Menu

The PICTURE menu is used to set the items related to the picture.

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:

Black & White: MonochromeImage

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 upright mounting. Set to OFF is upright mode, set to ON is for ceiling mount.

MIRROR:

You can turn it ON to display the video reversely.

DE-FLICKER:

You can turn it ON if the Video output format frame rate is difference from your country's electricity Frequency.

GAMMA:

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

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.

STABILIZER

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.

<PICTURE>

SHARPNESS 3	
EFFECT	OFF
NOISE REDUCTION	OFF
FLIP	OFF
DE-FLICKER	OFF
MIRROR	OFF
DE-FLICKER	OFF
GAMMA	0
WDR	OFF
COLOR	5
HUE	8
STABILIZER	OFF

PAN TILT ZOOM Menu

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

DIGITAL ZOOM: OFF, ON, SRZ

OFF: When set to OFF, digital zoom does not operate, and only optical zoom is available.

ON: Set to DIGITAL ZOOM ON, 12X digital zoom is activated. The resolution would be compromised when digital zoom is activated.

SRZ (Super Resolution Zoom): Through the use of “all pixel super resolution technology” developed by Sony Corporation, this product provides superior images while maintaining the resolution without degrading image quality, even when magnified. By combining with optical zoom 20×, zoom is achieved up to 30× in 4K and 40× in FHD.ZOOM RATIO OSD (Zoom times display):

Set Ratio OSD to ON, the number of the zoom times that you are operating displays on screen.

ADAPTIVE PT:

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.

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.

ZOOM RATIO OSD (Zoom times display):

Set Ratio OSD to ON, the number of the zoom ratio that you are operating displays on screen.

PRESET SPEED:

Set Preset Speed value to from 0 to 5 (Speed up to 5), to adjust the speed of PRESET on remote controller.

PAN DIR:

Camera horizontal left and right orientation setting, option: Normal/Invert

TILT DIR:

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

<PAN TILT ZOOM>		
DIGITAL ZOOM		OFF
ZOOM RATIO OSD		OFF
ADAPTIVE PT		ON
P/T SPEED		1
PRESET SPEED		5
PAN DIR	NORMAL	
TILT DIR	NORMAL	

SYSTEM Menu

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 000-255.

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.

<SYSTEM>		
PELCO ID 001		
IR-RECEIVE	ON	
DISPLAY INFO	ON	
FACTORY RESET		
RELOAD PRESET 1	ON	
AUTO FOCUS	NORMAL	
VIDEO FORMAT	2160P29.97	
SDI FMT	1080P29.97	

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.

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 FMT:

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 MENU button.

The video formats that you can select from are: 2160p:29.97/25/23.98; 1080p:59.94/50/29.97/25; 1080i:59.94/50; 720p:59.94/50/23.98 (23.98 supported via FW upgrade).

You can select SDI video format are: 1080p:59.94/50/29.97/25/23.98; 1080i:59.94/50; 720p:59.94/50.

SDI 1080p23.98 can be gained when video format is set to 2160p:29.97/25.

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. For detail, see page 18.

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.

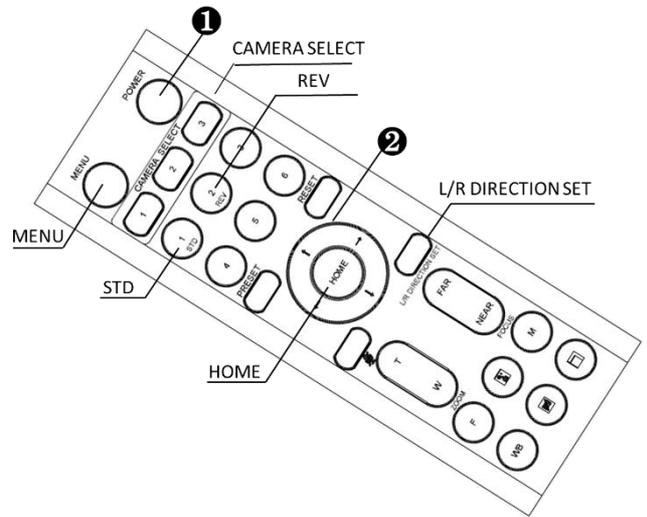
2. Press the arrow button to pan or tilt the camera.

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.

Arrow button	Movement of the camera	Setting
		While holding down Press

To reset the setting

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

Arrow button	Movement of the camera	Setting
		While holding down 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, or a finger or other object interferes with camera movement, the camera may fail to memorize the pan/tilt position.

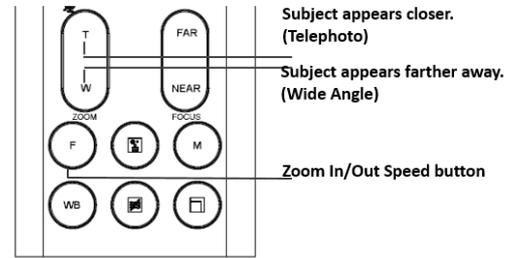
Press the PAN-TILT RESET button to reset the pan/tilt position.

Zooming

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

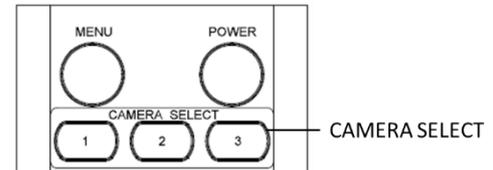
Button [F] – FAST mode.

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

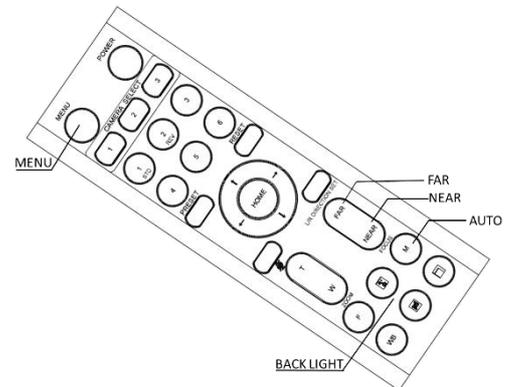
Focusing the camera on a subject automatically

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.



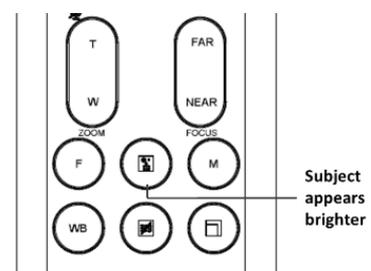
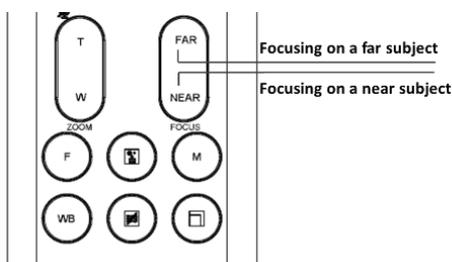
Shooting with Back Lighting

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.



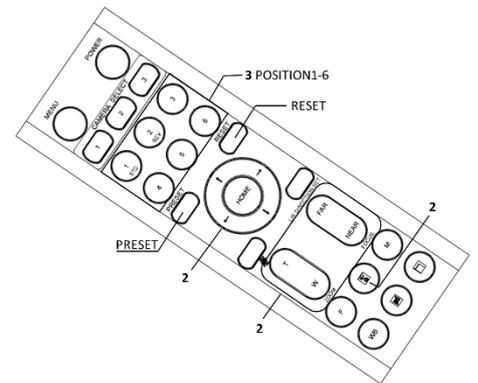
Storing the Camera Settings in Memory — the Presetting Feature

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.

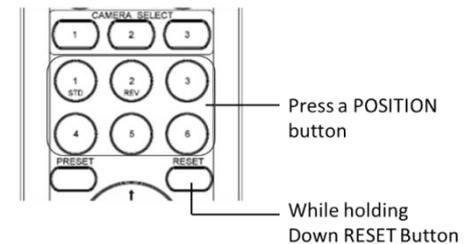
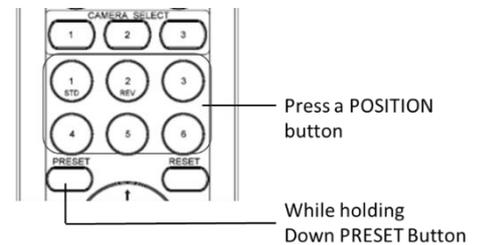
While holding down the PRESET button, press any of the POSITION buttons, 1 to 6, in which you want to store the settings.

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.

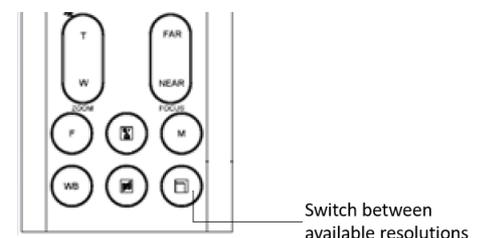


Notes

- 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



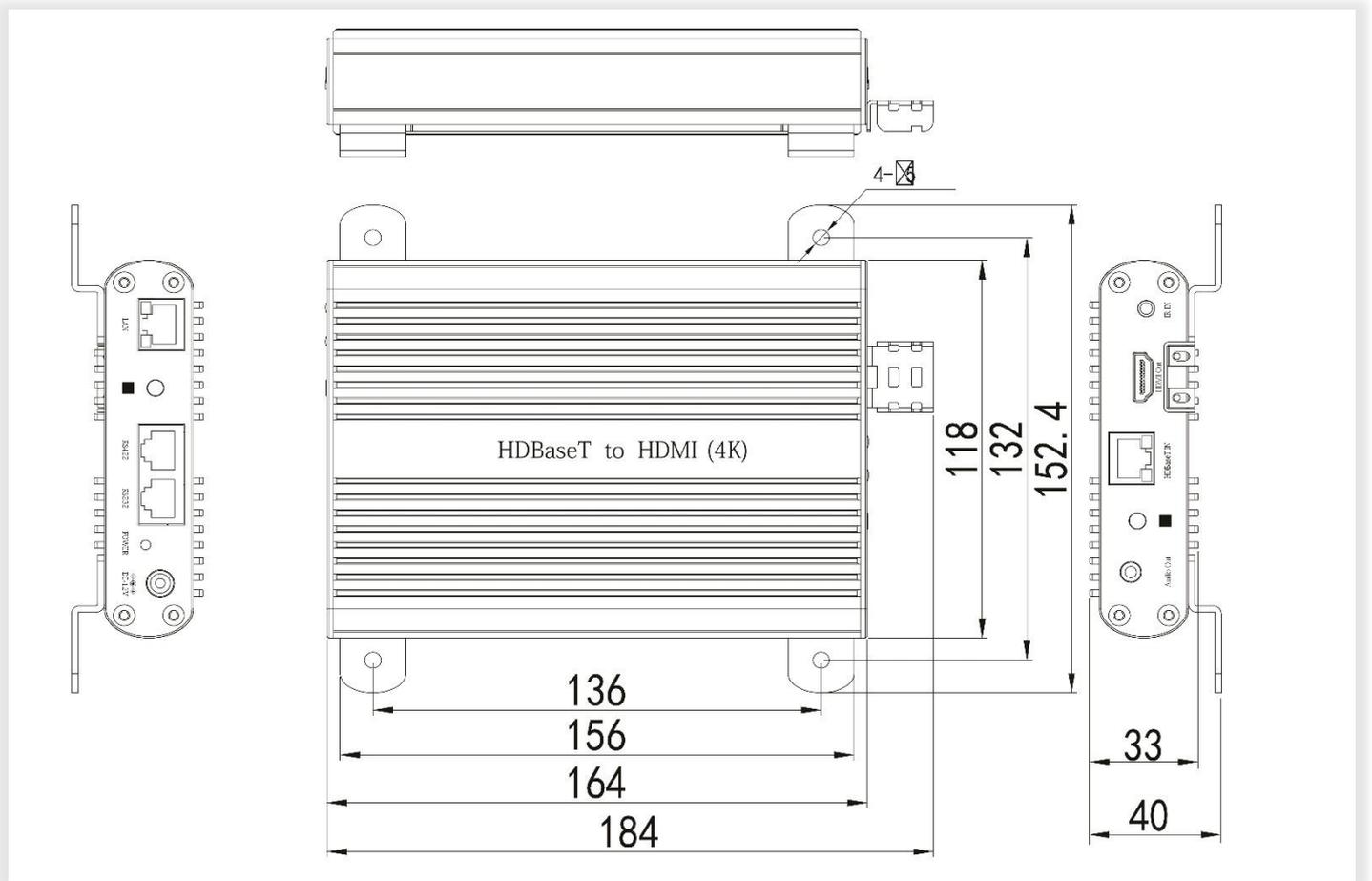
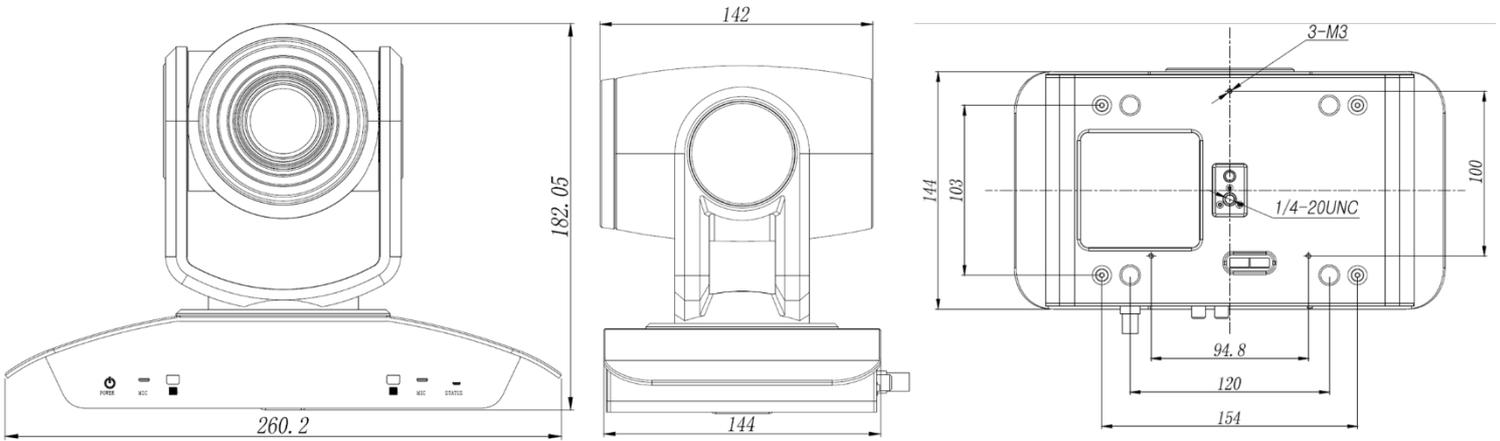
Menu Configuration

The menus of the camera are configured as described below. For more details, refer to the pages in parentheses. The initial settings of each item are in bold.

DATA SCREEN	EXPOSURE	MODE	FULL AUTO
			IRIS PRI CLOSE, F11, F10, F9.6, F8, F7.3, F6.8, F6.4, F6.2, F5.6, F5.2, F4.8, F4.4, F4.0, F3.7, F3.4, F3.1, F2.8, F2.6, F2.4, F2.0
			SHUTTER PRI 1/1, 2/3, 1/2, 1/3, 1/4, 1/6, 1/8, 1/10, 1/15, 1/20, 1/30, 1/50, 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 sec. See Page 20
			BRIGHT 0, 5-37
			MANUAL GAIN 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32 Db
			SPEED 1/50, 1/60, 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 sec. See Page 20
			IRIS CLOSE, F11, F10, F9.6, F8, F7.3, F6.8, F6.4, F6.2, F5.6, F5.2, F4.8, F4.4, F4.0, F3.7, F3.4, F3.1, F2.8, F2.6, F2.4, F2.0
			HIGH SENSITIVITY OFF , ON
		EX-COMP	OFF
			ON
	WHITE BALANCE	MODE	AUTO
			INDOOR
			OUTDOOR
			OPW
			ATW
			OUTDOOR AUTO
			SLO AUTO Sodium Vapor Lamp Outdoor Auto
			SL Sodium Vapor Lamp
			SL AUTO Sodium Vapor Lamp Auto
			OUT AUTO Outdoor Auto
		USER	R GAIN 0-255
			B GAIN 0-255
	PICTURE	SHARPNESS	0-15
		EFFECT	OFF , B&W
		NOISE REDUCTION	OFF , 1-5
		FLIP	OFF , ON
		MIRROR	OFF , ON
		DE-FLICKER	OFF , ON
		GAMMA	0-1
		WDR	OFF , ON
		COLOR	1-15
		HUE	1-15
		STABILIZER	OFF , ON
	PAN TILT ZOOM	DIGITAL ZOOM	OFF , ON, SRZ
		ZOOM RATIO OSD	OFF , ON
		ADAPTIVE PT	OFF , ON
		P/Z SPEED	0-5
		PRESET SPEED	0-5
		PAN DIR	NORMAL , INVERT
		TILT DIR	NORMAL , INVERT
	SYSTEM	PELCO ID	001 -255
		IR-RECEIVE	OFF, ON
		DISPLAY INFO	OFF, ON
		PRESET MEMORY	OFF , ON
		FACTORY RESET	
		RELOAD PRESET 1	OFF, ON
		AUTO FOCUS	NORMAL , LOW
		VIDEO FMT	2160p:29.97/25/23.98; 1080p:59.94/50/29.97/25; 1080i:59.94/50; 720p:59.94/50/23.98
		SDI FMT	1080p:59.94/50/29.97/25; 1080i:59.94/50; 720p:59.94/50
		SV:	VOC0500S32040AA05

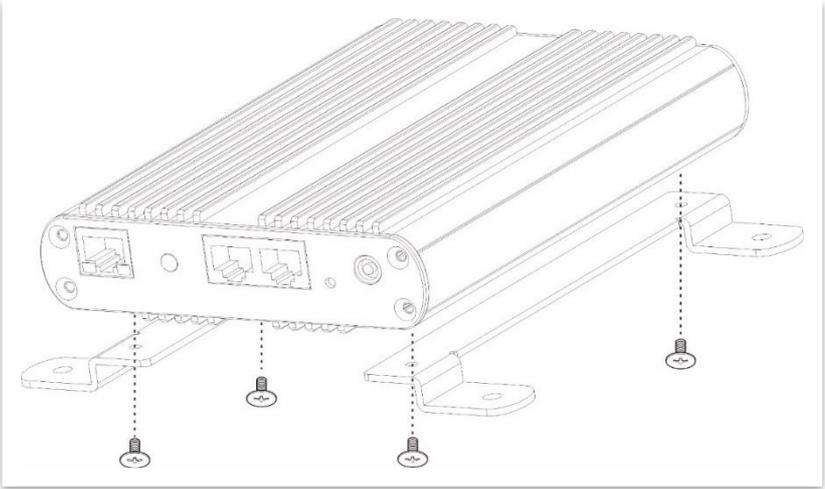
Dimension

Unit: mm

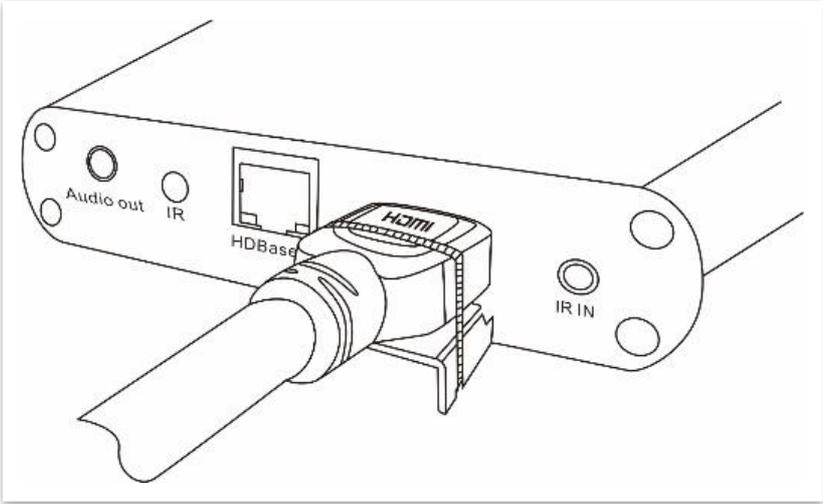


Installation

Screw up the rack mount on HDBaseT



Securing the HDMI cable on metal cable rack.





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