Marshall Electronics

CV610-U3

Full HD Teleconference PTZ USB3.0 Camera

User Manual

Ver. 2.0

Operating Instructions

Operating Instructions

Before operating the unit, please read this manual thoroughly and retain it for future reference.
Thank you for purchasing our product. If there are any questions, please contact the authorized dealer.

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.
This manual is a guide for multiple product models and so it is not intended for any specific product.
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

PTZ Camera

Power Adapter & Power Cord

IR Remote Controller x 1
(AA Battery Required)

USB3.0 Cable (1.5m) x 1

Camera Extension Module x 1

Manual

Features

- 2 Megapixel 1/2.8-inch Sensor

- Full-HD Video: 1920x1080p, 1280x720p &1920x1080i

- High Speed: 60, 50, 30, 25 fps

- 10x Optical Zoom 6.53~62.18mm (F1.8~2.8) - 12x Digital Zoom

- USB3.0 (only) plus HDMI & Composite (CVBS) simultaneous outputs

- Pan-Tilt Range: 350 degree Horizontal Pan - 120 degree Vertical Tilt

- Built-in Mic and external audio input

- Control via PC-UI Gui interface, IR Remote, RS232, RS422/485 (Visca)

- Integrate into a variety of familiar UC video programs and apps

- Extreme Quiet PTZ movements with 128 presets

- Shelf & ceiling mountable with 1/4"-20 including flippable image ability

Camera Diagrams

Camera
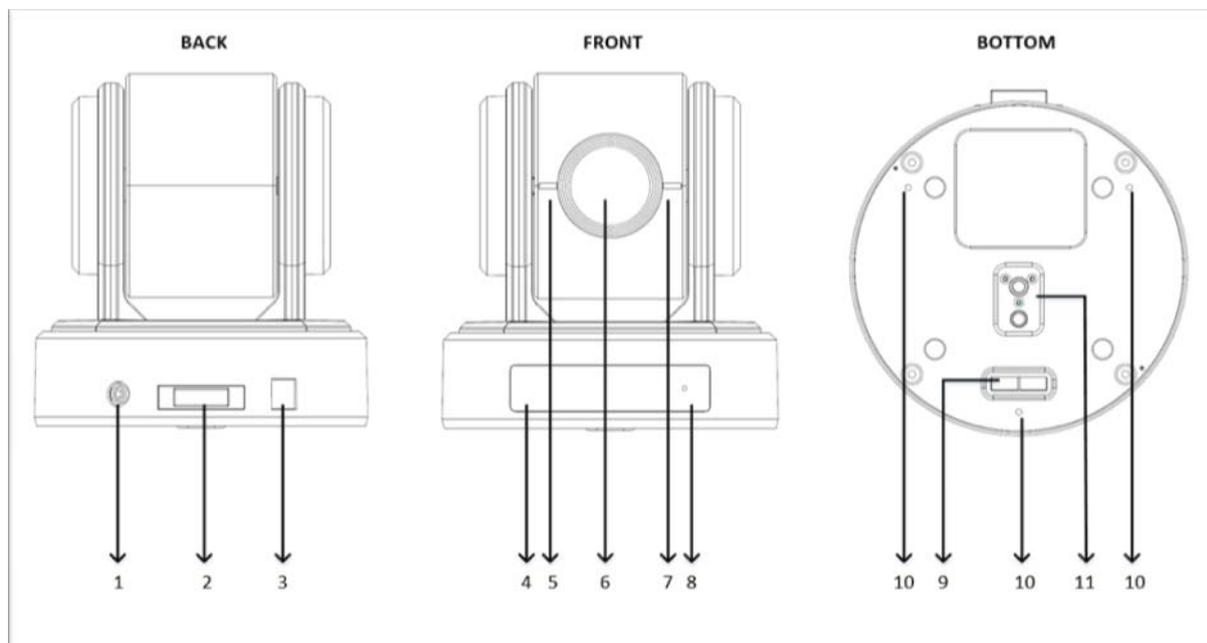
1. **12V DC Power Port**
   Connect the supplied AC power adaptor and cord.
2. **Extension Module Port**
   Composite port for extra features to provide RS-232, RS-422/RS-485, CVBS, HDMI, Audio Line functionalities
3. **USB 3.0 Port**
   Outputs the images from this unit as a USB3.0 video signal.
   Do not apply the voltage higher than the rated value to the USB terminal.
   This unit does not have the Battery Charging function. This unit does not support USB2.0 and USB3.1.
   This unit does not support the USB suspend.
4. **IR Remote Controller Sensors**
   These are sensors to receive commands from infrared remote controller.
5. **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.
6. **Lens**
   This is a 10X magnification optical zoom lens.
7. **Communication LED Indicator**
   Flashes orange when the camera receives commands from the infrared remote controller.
8. **MIC**
   Built-in microphone. Range of sensitivity is within 15 feet.
9. **Bottom DIP Switch**
   Used for setting the camera configuration.
   For details, refer to the Bottom DIP Switch Settings (page 16).
10. **Fix mounting holes**
11. **Tripod mounting holes**

Remote Controller

1. CAMERA SELECT
2. FOCUS
   - Auto
   - Far
   - Near
   - Manual
3. DATA SCREEN
   - On screen menu display ON/OFF
4. PAN-TILT
   - Pan and Tilt direction control
   - HOME: Home position, Resolution reset
5. L/R DIRECTION SET
   - Left and right orientation setting
6. POWER
7. BACK LIGHT
8. PRESET POSITION
9. PAN-TILT RESET
10. ZOOM IN/OUT
    - Slow T
    - Slow W
    - Fast T
    - Fast
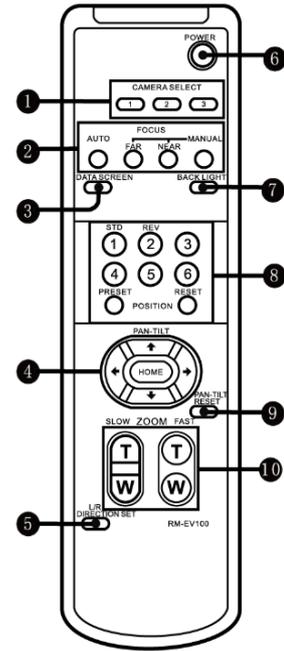
Extension Module

Extension Module gives you capabilities of having HDMI video signal output, CVBS analog video output, RS232 control, RS422/485 control, External audio input.
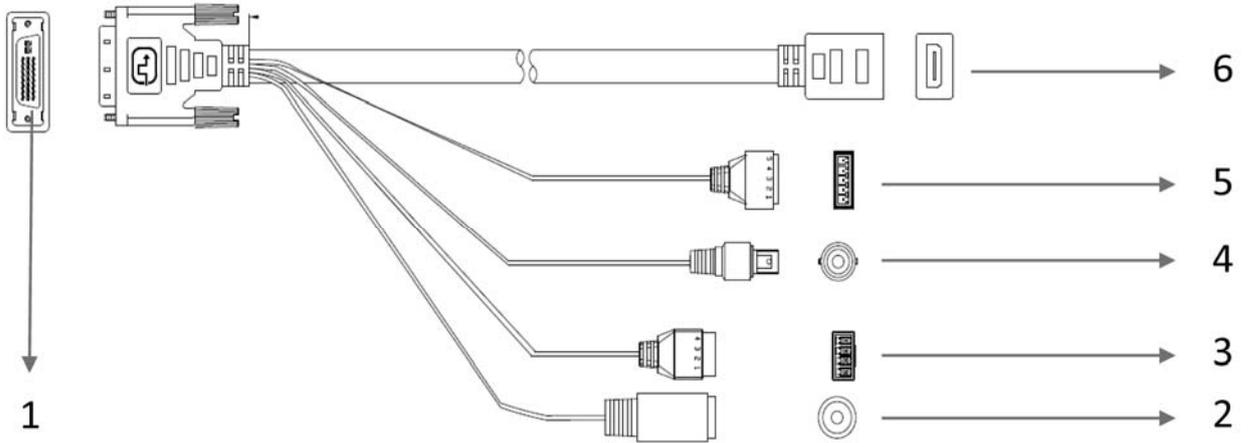
1. Extension Port (Connect to the camera body)
2. Audio line in (3.5mm jack)
3. RS232 Port
4. CVBS (BNC)
5. RS422/485 Port
6. HDMI Video Output Port

System Configuration

Connection

When the camera is connected to a computer and joystick keyboard via Extension Module 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 via Extension Module with a control cable (cross type, RS-422/485), you can operate the camera's pan, tilt, zoom with the joystick keyboard.
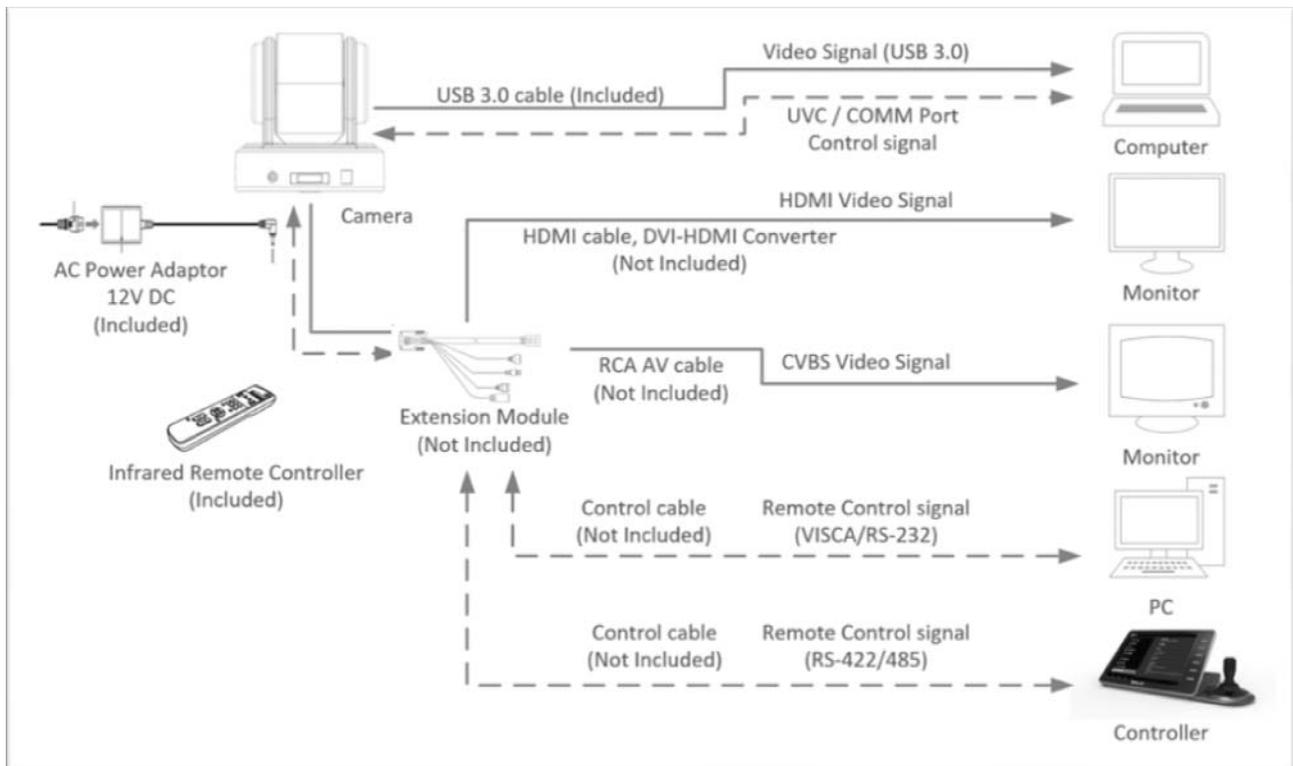
In this connection configuration, Extension Module, DVI-HDMI converter, DVI cable, HDMI cable, Analog video cable, data cable is required. To obtain these third party components or accessories, consult the dealer where you bought your camera.

Notes
- Use only the AC power adaptor (JEITA type4) supplied with the unit.
  Do not use any other AC power adaptor.
- Polarity of the plug
- You have to set the video format of the signal to output from the camera.
  For detailed information on how to set the video format, see "SYSTEM SELECT switch" on page 17, 21.

Obtain Video Signal

USB3.0 Video Signal

1. Install video client software on the computer that you want to use the camera on.
2. Use the USB3.0 cable to connect the camera to the computer. Connect the power adapter to the camera and the power outlet.
3. Power on the camera, wait for a while, the camera will be recognized and installed automatically by the computer. USB3.0 driver is not required for the camera.
4. Open the video client software (Here, we use VLC Media Player for example), under "Media", select "Capture Device". Under Video device name, "USB3.0 Video Camera" will be listed. Under the Audio device name, "Digital Audio Interface (2-USB3.0 Video Camera)" will be listed. Select both devices to use.
5. Check the box "show more options", Select Caching to 500ms.
6. Interface of the setting page and terminology of the setting items may vary according to the video client software you are using.
7. Click "Play" or "Apply" the selections and the video will be displayed on the screen.
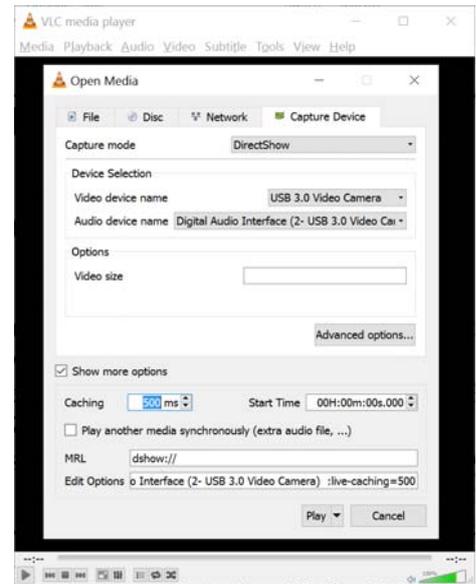
HDMI / DVI Video Signal

The camera can simultaneously stream HDMI video output with USB3.0 video output. The DVI port on the rear panel is not for DVI video output but it is a composite port for multiple use. In order to use HDMI video output, you need to use the Extension Module (sold separately).

1. Connect the Extension Module to the camera composite port when the power is off. Turn on the camera power, after the camera initializes, HDMI video signal can be activated automatically.
2. Connect HDMI cable in between the Extension Module and your HDMI display.
3. You now have HDMI video output.
4. You can use HDMI to DVI converter to obtain DVI video signal.

CVBS Video signal

The situation is same as DVI video signal. Use Extension Module and analog video cable to obtain CVBS video signal. AV cable is needed.

Obtain Audio Signal

1. The camera has built in Mic. It generates audio signal to the video client software. In the software Audio section find Microphone setting. "Digital Audio Interface (USB3.0 Video Camera)" will be listed. Once you select it as software audio device, you can use the built-in Mic for communicating.
2. You can have external audio input by using Extension Module (optional). The built-in Mic will be deactivated after the external audio input is used.
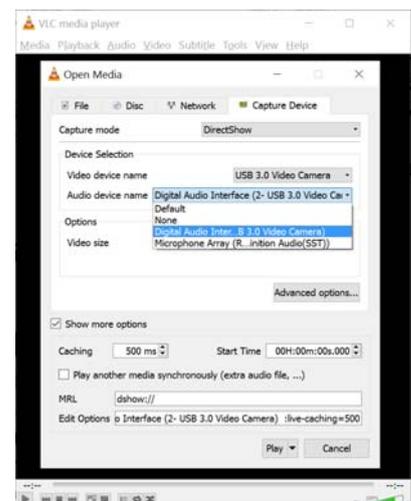
Camera Control Methods and System Configurations

This unit has multiple ways of controlling the USB3.0 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 Third party video conference software (UVC1.5 compliant).
3. Use camera built-in virtual COM port.
4. Use RS-232 (VISCA), via Extension Module (optional).
5. Use RS-422(VISCA)/485 (PELCO P/D) via Extension Module (optional).

Use the Infrared Remote Controller
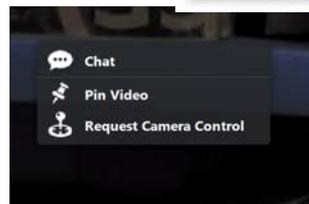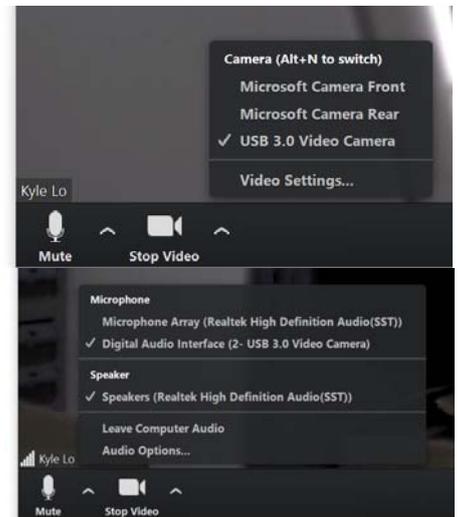To operate the camera from a short distance.
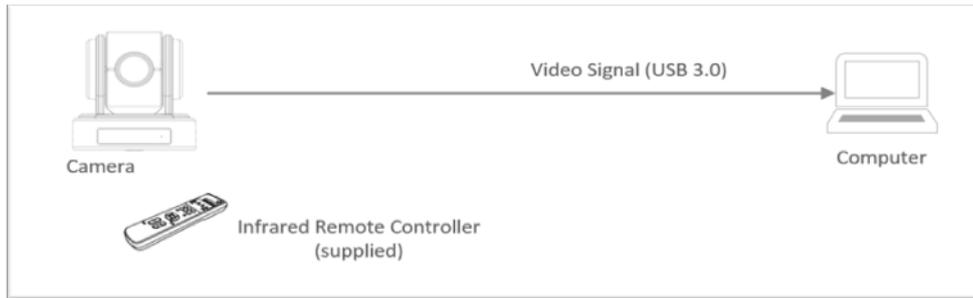
System Configuration A

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

Use Third party video conference software (UVC1.5 compliant).
The camera can be controlled by any third party UVC1.5 compatible video software. Use USB3.0 cable to connect the camera to the PC/device equipped with UVC1.5 compatible software, the camera will be recognized automatically. Follow the instruction of the video software you are using. You can control the camera via PC, Pad, Smartphone.

1. Install video client software on the computer that you want to use the camera on.
2. Use the USB3.0 cable to connect the camera to the computer. Connect the power adapter to the camera and the power outlet.
3. Power on the camera, wait for a while, the camera will be recognized and installed automatically by the computer. USB3.0 driver is not required for the camera.
4. Open the video client software (Here, we use ZOOM ROOM for example), on left bottom under "Stop Video" setting, select video device from Camera list "USB3.0 Video Camera".
5. On left bottom under "Mute" Audio setting, select video device from Microphone list "Digital Audio Interface (2-USB3.0 Video Camera)".
6. Interface of the setting page and terminology of the setting items may vary according to the video client software you are using.
7. You can have the video displayed after you made above selection. Right Click mouse to pull out action selection, to Request Camera Control from the meeting group.

8. After you get approve from the meeting group, the control intereface will pop up. You can control the camera.
9. For camera control detail, please refer to video software user guide.

Use camera built-in virtual COM port

To operate the camera third party control software / interface, control distance may be short.

System Configuration B

Before you use the virtual COM port, you need to install the driver onto your PC/Mac. You can download the driver (PL2303 Prolific Driver Installer v1.12.0) here: http://plugable.com/drivers/prolific
You can use this Virtual COM port to control the USB camera.

Steps:
1. Install driver onto PC/Mac. After successful installation, you can find the port "Prolific USB-to-Serial COM Port" in computer Setting, Device Manager.
2. Connect the camera with your PC/Mac USB3.0 port.
3. You can find a Virtual COM port in your PC/Mac application software setting.
   You can choose the Virtual COM to control the camera.
4. COM port control system support: Windows 7, 8, 10 and Mac OS

Use RS-232 (VISCA), RS-422(VISCA)/485 (PELCO P/D) Control via Extension Module.

The Extension Module is required when using RS-232 / RS-422/485 signals with external control devices.
You can use RS-232 port or RS-422/485 port on Extension Module 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.

System Configuration C
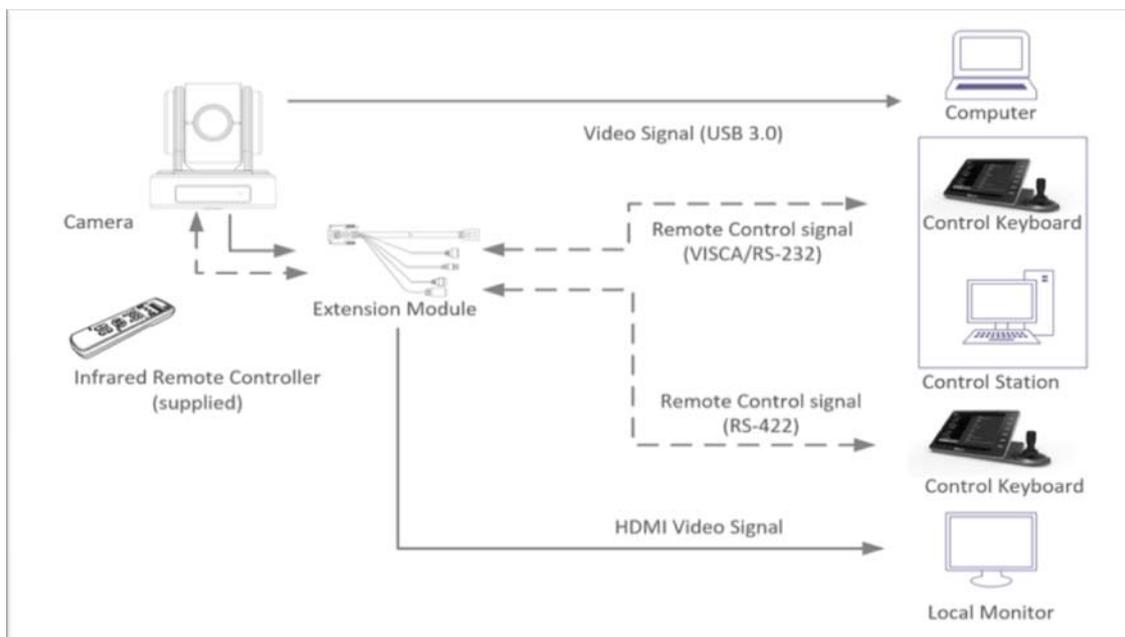
RS232 Connection

1. Set Bottom Dip Switch SW1-B6 to OFF. (See page 16).
2. Set Baud Rate on Bottom Dip Switch to the same as Baud Rate setting on the keyboard you are using.
   (See page 16).
3. Reboot the camera by turning it Off/On after the Bottom Dip Switch has been set up correctly.
4. Camera ID address setting (see page 16).
5. The controller must be VISCA compatible.
6. Camera does not support Daisy Chain in RS232 control mode.
7. You can make RS232 connection cable if you have the following applications:

Extension Cable   Extension Cable RS232 Port

4	NC
3	GND
2	TX
1	RX

RS-232	Windows DB-9
1.DTR	1.CD
2.DSR	2.RXD
3.TXD	3.TXD
4.GND	4.DTR
5.RXD	5.GND
6.GND	6.DSR
8.N.C	7.RTS
	8.CTS
	9.RI

RS-232	Camera or Mini DIN 8 pin serial
1.DTR	1.DTR
2.DSR	2.DSR
3.TXD	3.TXD
4.GND	4.GND
5.RXD	5.RXD
6.GND	6.GND
8.N.C	7.OREN
	8.OREN

RS-232	Windows DB-25
1.DTR	1.FG
2.DSR	2.TXD
3.TXD	3.RXD
4.GND	4.RTS
5.RXD	5.CTS
6.GND	6.DSR
8.N.C	7.GND
	20.DTR

Use RS-422(VISCA) / RS485 (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.
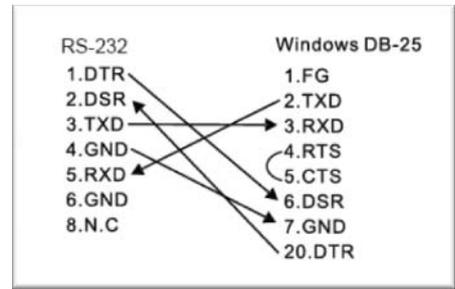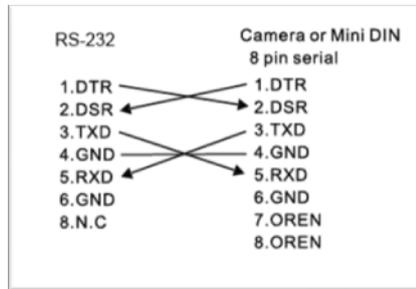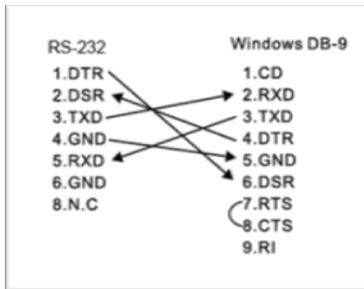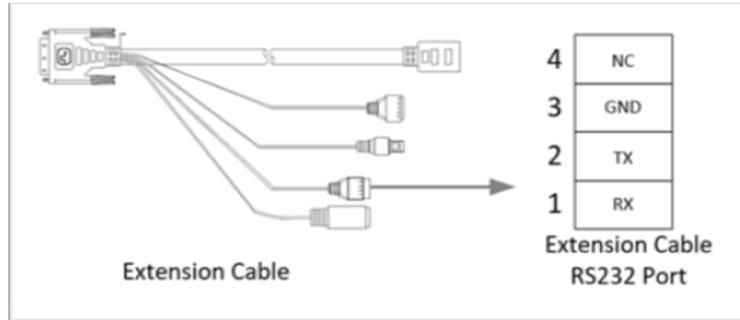An application software that supports this unit is needed if you use PC station.

RS422/482 Connection

Extension Cable   Extension Cable RS422/485 Port

5	R-
4	R+
3	T-
2	T+
1	GND
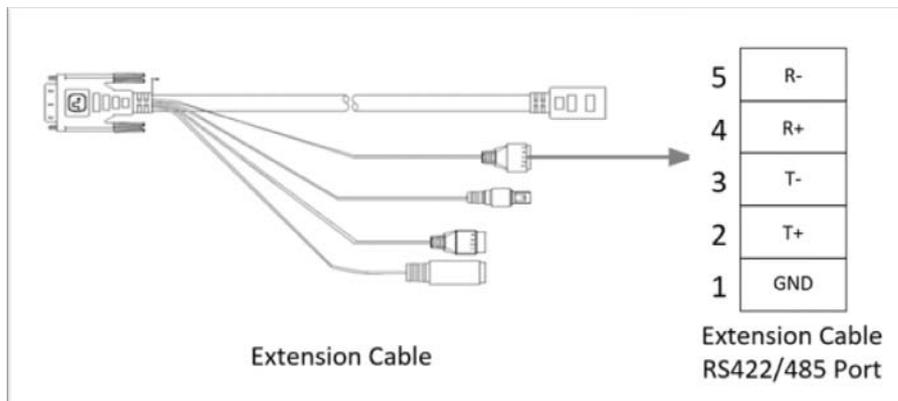
RS422 (VISCA) connection

1. Set Bottom DIP Switch SW1-B6 to OFF. (See page 16).
2. Set Baud Rate on Bottom Dip Switch to the same as Baud Rate setting on the keyboard you are using.
   (See page 16).
3. Reboot the camera by turning it Off/On after the Bottom Dip Switch has been set up correctly.
4. Does not need setting camera address in way of RS422(VISCA) controlling.
5. The controller must be VISCA compatible.
6. Camera supports Daisy Chain connection up to 7 cameras.
7. The connection of SONY keyboard is different than other VISCA (None-Sony) keyboard.

SONY Keyboard RS422 Connection

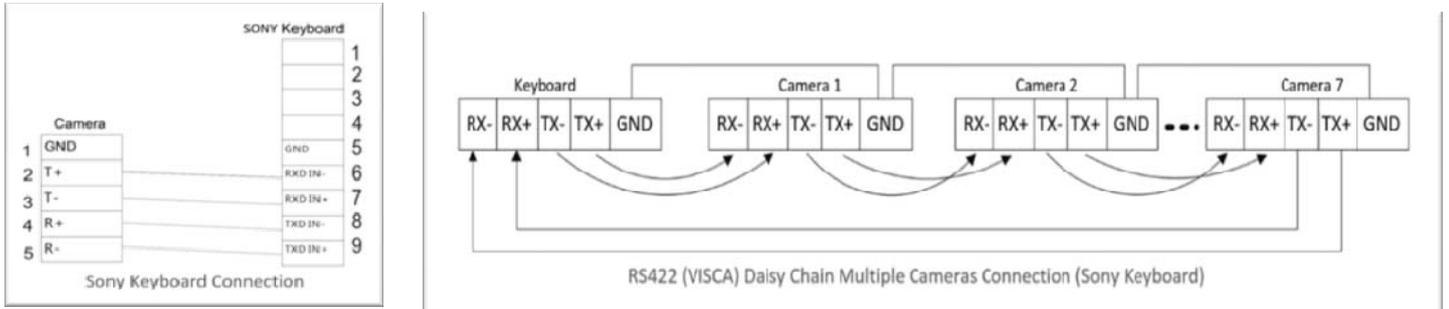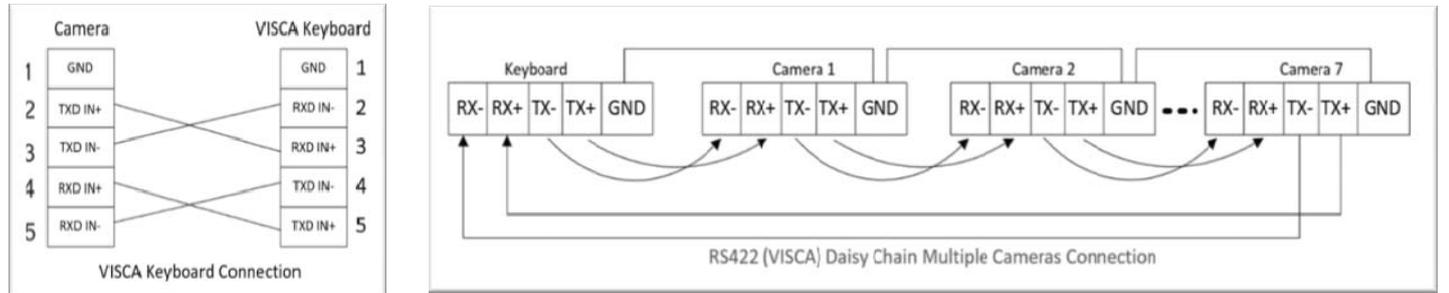Sony Keyboard Connection

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

VISCA (None-Sony) Keyboard RS422 Connection

VISCA Keyboard Connection

RS422 (VISCA) Daisy Chain Multiple Cameras 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.

Note

For RS-232 VISCA control, this unit does not support daisy chain connection for using multiple cameras.
For control details, please refer to Operating Instructions of control keyboard/station software.

RS485 PELCO P/D Keyboard Connection

PELCO P/D Keyboard

RS485 PELCO P/D Multiple Cameras Connection
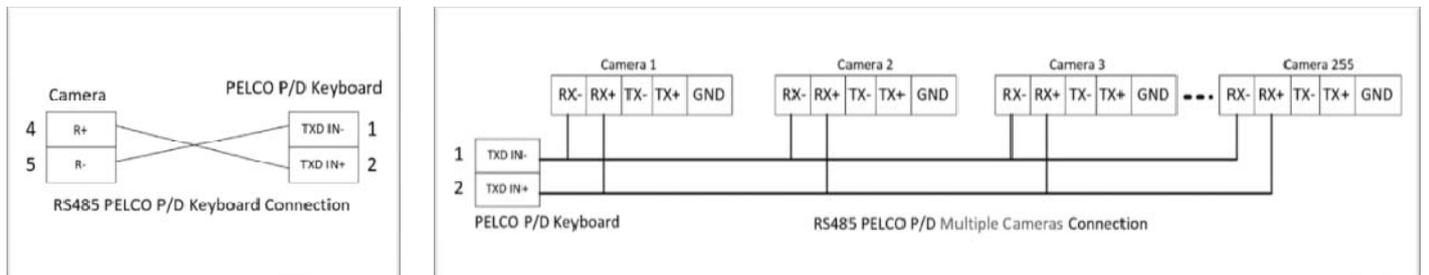
- You need to match the communication speed between the camera and the joystick controller.
- You can use the RS-232 connections when using the RS422/485 connection.
- The specified frame rate may change when communicating via a USB3.0 hub.

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.
- In this case, you can use multiple control keyboards. Only one keyboard that the camera can response to at one time.
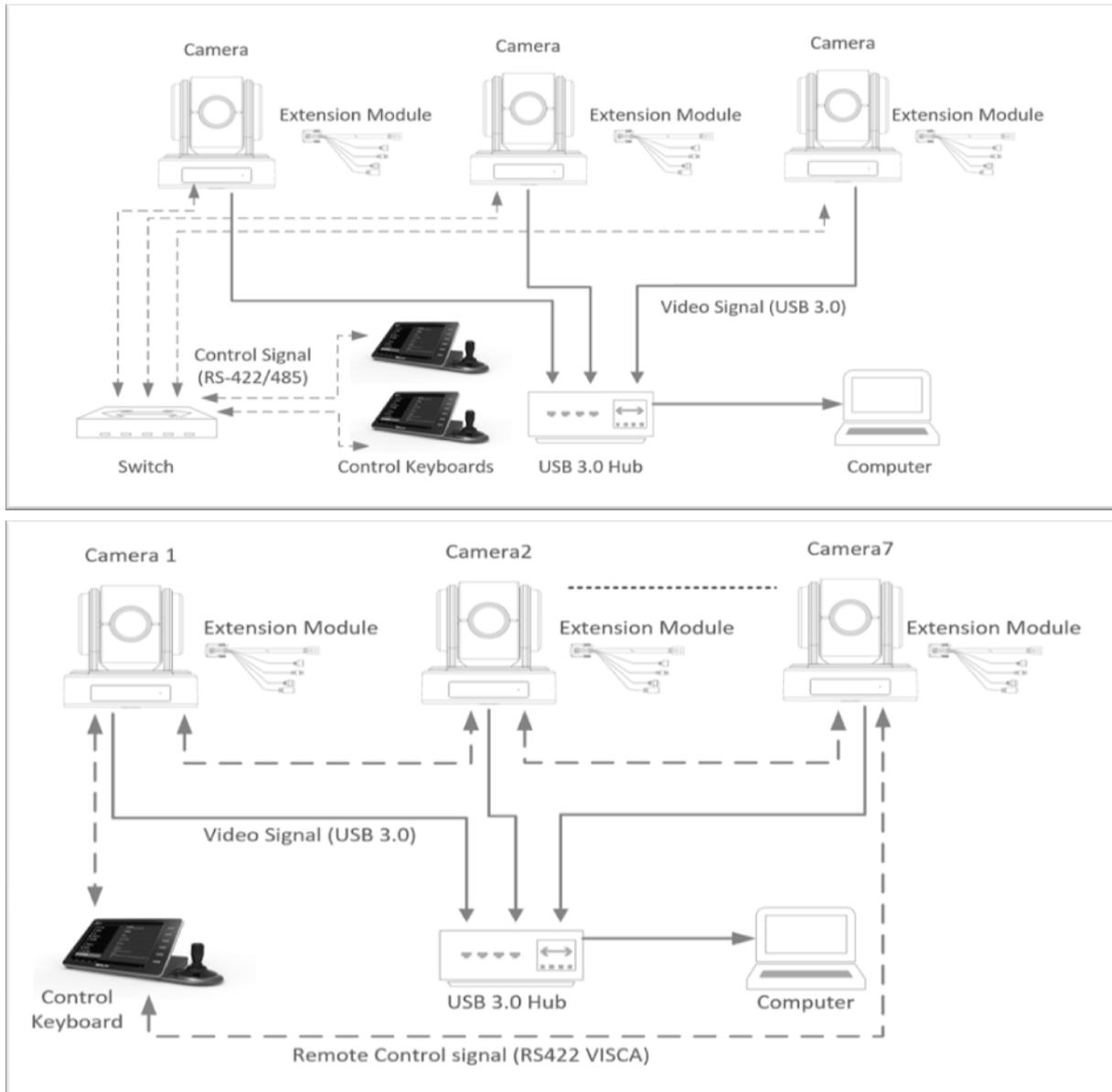- The joystick of the remote keyboard controller allows comfortable pan/tilt and zoom operations.

System Configuration D (Operating Multiple Cameras)

Notes
- You can use the RS-232 connections when using the RS-422/485 connection.
- Only one camera at a time can be displayed on the computer.
- The specified frame rate may change when communicating via a USB3.0 hub

Precautions for Preventing Access to the Camera by an Unintended Third Party

The camera can be fraudulently accessed in a network environment where a device is connected or connectable to the network without the administrator's permission, or a PC or other network device connected to the network can

be used without any permission. If the computer to check USB images is connected to a network, there may be a risk of information leaks, obstructed viewing due to infection by a virus, or other risks. Connect to these environments at your own risk.

BOTTOM DIP SWITCH SETTINGS

The bottom dip switch is for setting the camera configuration for following items:
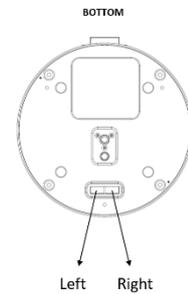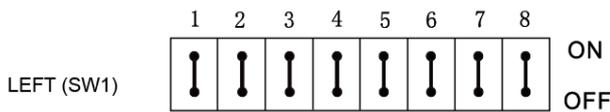1. Camera ID Address for VISCA protocol
2. Video output / Video color space
3. RS-232 / RS-422/485 selection
4. Video resolutions selection
5. IR remote controller ID

Setting of the BOTTOM DIP Switches
Turn off power to the camera before changing the DIP switch settings.

From the above list, The NO.1 Camera ID address is for VISCA protocol up to 7. The camera ID address for PELCO P/D protocol can be set on camera OSD menu. 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 DIP Switch Settings

LEFT (SW1)

Bit 1~3:   Camera Address setting for VISCA protocol
Bit 4:   Video Color Space
Bit 5:   Reserve
Bit 6:   Reserve for System firmware upgrade
Bit 7~8:   RS-232/RS-422 Baud Rate

1. Camera Address setting for VISCA protocol
   When just one camera is used, system takes the camera ID address that is set on Bottom DIP Switch. When more than one camera is used, cameras will be automatically issued ID addresses by system via VISCA protocol. The ID address setting on Bottom DIP Switch will be ignored by system.

B1	B2	B3	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 Color Space

B4	Color Space Setting
OFF	HDMI YUV
ON	DVI-D RGB

3. Control Setting
   In normal use, B6 has to be set to OFF, USB3.0. RS-232, RS-422, RS-485 way of controlling will be recognized by the camera. B6 ON is only for authorized use.

B6	Control Setting
OFF	For Normal Use
ON (For Authorized Use ONLY)	Firmware Upgrade

4. RS-232 / RS-422 Baud Rate Setting
   The baud rate of the camera has been set up as 9600bps, it is not changeable.

B7	B8	RS-232 / RS-422 Baud Rate Setting
OFF	OFF	9600 bps
ON	OFF	9600 bps
OFF	ON	9600 bps
ON	ON	9600 bps

RIGHT

BOTTOM

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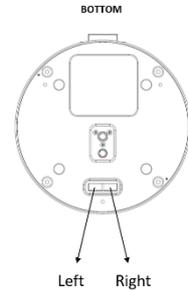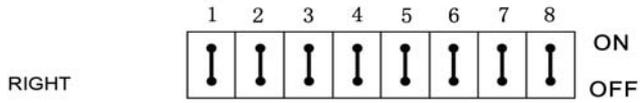
Bit 1~4:   Video resolution setting
Bit 5~6:   Reserve
Bit 7~8:   IR remote controller ID setting

1. Video Resolution Setting

B1	B2	B3	B4	Video Resolution
OFF	OFF	ON	ON	1080P60
ON	OFF	ON	ON	1080P50
OFF	OFF	OFF	ON	1080P30
ON	OFF	OFF	ON	1080P25
OFF	OFF	ON	OFF	720P60
ON	OFF	ON	OFF	720P50

2. IR Remote Controller ID Setting

B7	B8	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 23).

Note

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

Main Menu

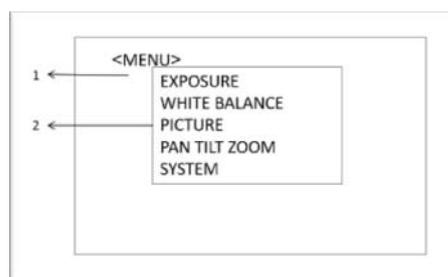To display the main menu, press the DATA SCREEN button on the supplied infrared remote controller.

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 Menu

The setting menu selected on the main menu is displayed.
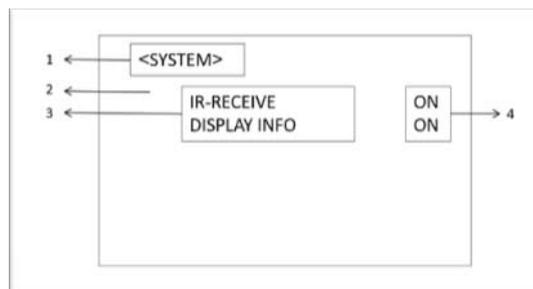**1.** Setting Menu
The name of the setting menu currently selected is displayed here.

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 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 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 the sensitivity (GAIN), electronic shutter speed (SPEED) and iris (IRIS) manually.

```
<EXPOSURE>
    MODE            FULL AUTO

    EX-COMP         ON
       LEVEL        0
```
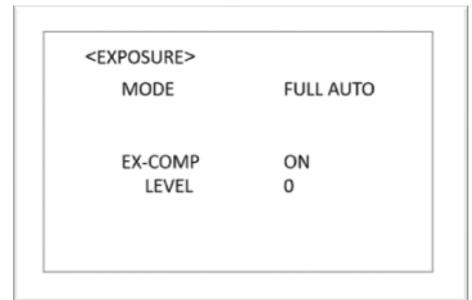
When you select one from various exposure modes, some of the following setting items that are required for the selected mode appear.

GAIN: Select the gain from the following:
-3, 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24,26, 28 dB
SPEED: Select the electronic shutter speed from the following:
When video format is set to 1080P50, 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 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
LEVEL: Select the brightness level from 0, 5 to 31.

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 toON, 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, IN DOOR, OUT DOOR, OPW (One Push White Balance), ATW (Auto Tracing White Balance), USER.

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.

```
<WHITE BALANCE>
    WB MODE         AUTO
```
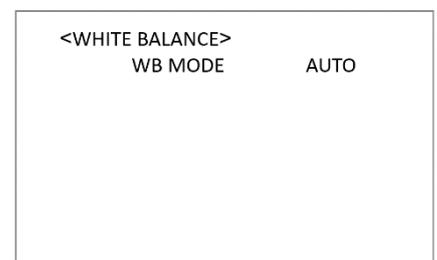
When you select the OPW (One Push White Balance)

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.

PICTURE Menu

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

```
<PICTURE>
        SHARPNESS        3
        EFFECT           OFF
        NOISE REDUCTION  OFF
        FLIP             OFF
        DE-FLICKER       OFF
        GAMMA            0
        WDR              OFF
        BLC              OFF
```

SHARPNESS:
Picture sharpness value ranges from 0 to 20. You can enjoy emphasized edge and high-resolution images.

EFFECT: (Picture Effect)
It consists of the following functions:
Neg. Art: Negative/Positive Reversal
Black & White: Monochrome Image
Image effect from Off, B&W, NEG.ART

NOISE REDUCTION:
Noise reduction - you can enjoy clearer images by removing unnecessary noise. You can select 4 levels from OFF (MIN), 1 to 3 (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.

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 4.

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

BLC (Back Light Compensation)
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.
This is set to ON, OFF

PAN / TILT / ZOOM Menu

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

```
<PAN TILT ZOOM>
        DIGITAL ZOOM       OFF
        ZOOM SPEED         1
        ZOOM RATIO OSD     OFF
        ADAPTIVE PT        ON
```

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 (10×). Up to 120× can be zoomed digitally.
When digital zoom is available, the resolution decreases

ZOOM SPEED:
Set Zoom Speed value to from 1 to 8 (The speed from low to high), to change the speed of SLOW ZOOM on remote controller.

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

```
<SYSTEM>
        IR-RECEIVE       ON
        DISPLAY INFO     ON
        FACTORY RESET
        RELOAD PRESET 1  ON
        VIDEO FORMAT     1080P60
        PELCO ID         255
```

SYSTEM Menu
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.

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.

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: 720P50, 1080P25, 1080P60, 720P60, 1080P30, 1080P50.

PELCO ID:

You can set camera address for RS422/485 control.

Note

The camera video format can be changed by setting bottom DIP switch as well. For details, see page 17.

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 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
		L/R DIRECTION SET While holding down REV ② 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
		L/R DIRECTION SET While holding down STD ① 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
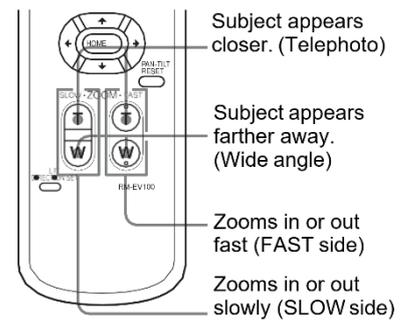memorize the pan/tilt position.
Press the PAN-TILT RESET button to reset the pan/tilt position.

Zooming

Press either of the ZOOM buttons.

> **Note**
> When you perform pan/tilt operation while the camera is in the telephoto
> mode, the moving speed of the image on the screen may be a little jerky.

Subject appears
closer. (Telephoto)

Subject appears
farther away.
(Wide angle)

Zooms in or out
fast (FAST side)

Zooms in or out
slowly (SLOW side)

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 1.
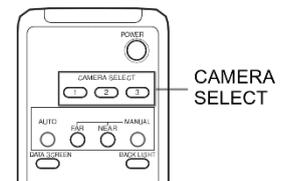
CAMERA
SELECT

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
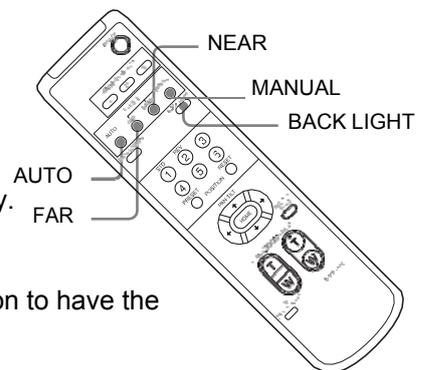
NEAR

MANUAL

BACK LIGHT

Focusing the camera on a subject automatically

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

AUTO

FAR

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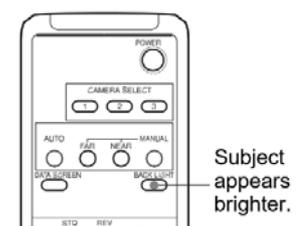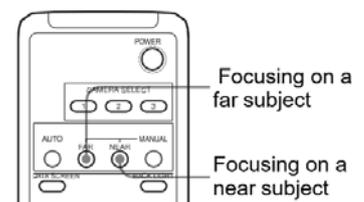
When you shoot a subject with a light source behind it, the subject becomes dark.
In such a case, press the BACK LIGHT button.
To cancel the function, press the BACK LIGHT button again.

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

Focusing on a
far subject

Focusing on a
near subject

Subject
appears
brighter.

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
- Digital Zoom On/Off
- 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.
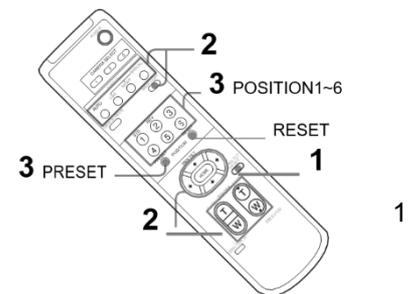
While holding down the PRESET button, press any of the POSITION buttons, to 6, in which you want to store the settings.

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.

Press a POSITION button.

While holding down this button

Press a POSITION button.

While holding down this button
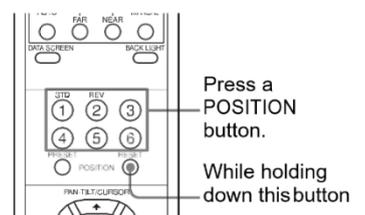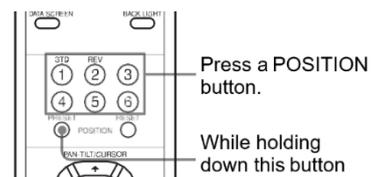
Notes
- When the power is turned on, the camera starts with the settings stored in POSITION 1.
- If you want to retain the previous pan and tilt positions, etc. before the power is turned off and turned on again, store those positions in POSITION 1.
- When you are storing or cancelling the settings in 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.

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, F14, F11, F9.6, F8.0, F6.8, F5.6, F4.8, F4.0, F3.4, F2.8, F2.4, F2.0, F1.6
			SHUTTER PRI		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, 1/10000 sec. See page 19.
			BRIGHT		0, 5-31
			MANUAL	GAIN	-3, 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24,26, 28 dB
				SPEED	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, 1/10000 sec. See page 19.
				IRIS	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
		EX-COMP	***OFF***		
			ON	LEVEL	−10.5, −9, −7.5, −6, −4.5, −3, −1.5, 0, +1.5, +3, +4.5, +6, +7.5, +9, +10.5
	WHITE BALANCE	MODE	***AUTO***		
			INDOOR		
			OUTDOOR		
			OPW		
			ATW		
			USER	R GAIN	0-255
				B GAIN	0-255
	PICTURE	SHARPNESS	0, 1, 2, ***3***, -20		
		EFFECT	***OFF***, B&W, NEG.ART		
		NOISE REDUCTION	***OFF***, 1-3		
		FLIP	***OFF***, ON		
		DE-FLICKER	***OFF***, ON		
		GAMMA	***0***-4		
		WDR	***OFF***, ON		
		BLC	***OFF***, ON		
	PAN TILT ZOOM	DIGITAL ZOOM	***OFF***, ON		
		ZOOM SPEED	***1***-8		
		ZOOM RATIO OSD	***OFF***, ON		
		ADAPTIVE PT	OFF, ***ON***		
	SYSTEM	IR-RECEIVE	OFF, ***ON***		
		DISPLAY INFO	OFF, ***ON***		
		FACTORY RESET			
		RELOAD PRESET 1	OFF, ***ON***		
		VIDEO FORMAT	720P50, 720P60, 1080P25, ***1080P30***, 1080P50, 1080P60		
		PELCO ID	000-***255***		

Troubleshooting

Check the following as a guide for troubleshooting the problem. If the problem cannot be corrected, consult your dealer.

Symptom	Cause	Remedy
The power of the camera is not turned on.	The AC power adaptor is not connected to the DC 12 V connector firmly.	Insert the power cord firmly as far as it will go.
	The AC power cord is not inserted firmly into the AC power adaptor or the AC outlet.	Insert the power cord firmly as far as it will go.
	-	Pull out the plug of the power cord from the AC outlet, then reinsert it into the AC outlet after waiting a while.
The images are not displayed on the connected computer screen.	The USB3.0 cable is not connected properly.	Make sure the connection between the computer and camera is made correctly.
	A USB3.0 cable is not used.	Use a USB3.0 cable.
	The USB cable is not connected to the USB3.0 port.	Connect it to the USB3.0 port.
	-	Pull out the USB cable from the computer once then reinsert it into the computer.
	The exposure is not set correctly on the camera.	Set the exposure correctly on the EXPOSURE menu (page 9).
	The USB3.0 driver is not latest one.	Install the latest driver. In the case of Windows 7, the USB3.0 drivers cannot be updated to the latest version even if the drivers are updated from the device manager of the computer. Download the latest driver from the home page of chipset manufacturers, and install it.
	-	Pull out the plug of the power cord from the AC outlet, then reinsert it into the AC outlet after waiting a while.
	The video device setting on video client software is not set correctly.	Select the device listed as "USB3.0 video camera", reconnect it.
	The video client software hasn't taken the new video format setting.	Restart the video client software. Connect the device correctly.
Pan or tilt cannot be operated.	A menu is displayed on the computer screen.	Press the DATA SCREEN button on the supplied infrared remote commander to remove the menu from the computer screen.
	The panning or tilting range is limited.	Change the PAN/TILT LIMIT setting on the PAN TILT ZOOM menu (page 11).
	Remote controller ID is not set correct.	Check ID setting on bottom Dip switch, restart the camera. Press the right number of ID button on remote controller.
The EXPOSURE menu cannot be set except for FULL AUTO.	WDR (VIEW-DR) is not set to OFF.	After setting the WDR (VIEW-DR) to OFF, select the MODE of the EXPOSURE (page 9).
The infrared remote commander does not work.	The CAMERA SELECT button you pressed on the infrared remote commander does not match the number set with the IR SELECT switch on the camera.	Press the CAMERA SELECT button corresponding to the IR SELECT switch setting on the camera (page 15).
The VISCA CONTROL is not available with a computer connected to the	The computer is not correctly connected to the camera.	Make sure the connection between the computer and camera is made correctly.
Bottom DIP switch doesn't work.	The camera hasn't been restarted.	Set the DIP switch when the camera is turned off. After setting, turn on the camera.

Changing the video format on OSD menu doesn't work.	The camera hasn't been restarted.	After setting the video format, confirm with pressing HOME button on the remote controller. Camera will restart.
There is no audio.	The audio device setting on video client software is not set correct.	Select the device listed as "Digital audio device, USB3.0 video camera", reconnect it.
The image is upside down.	The Flip function is not set.	Set the Flip function on OSD menu.
The Pan movement is reversed.	The L/R Direction Set on remote controller is not set.	Set the L/R Direction on the remote controller.

Dimensions

Unit: mm
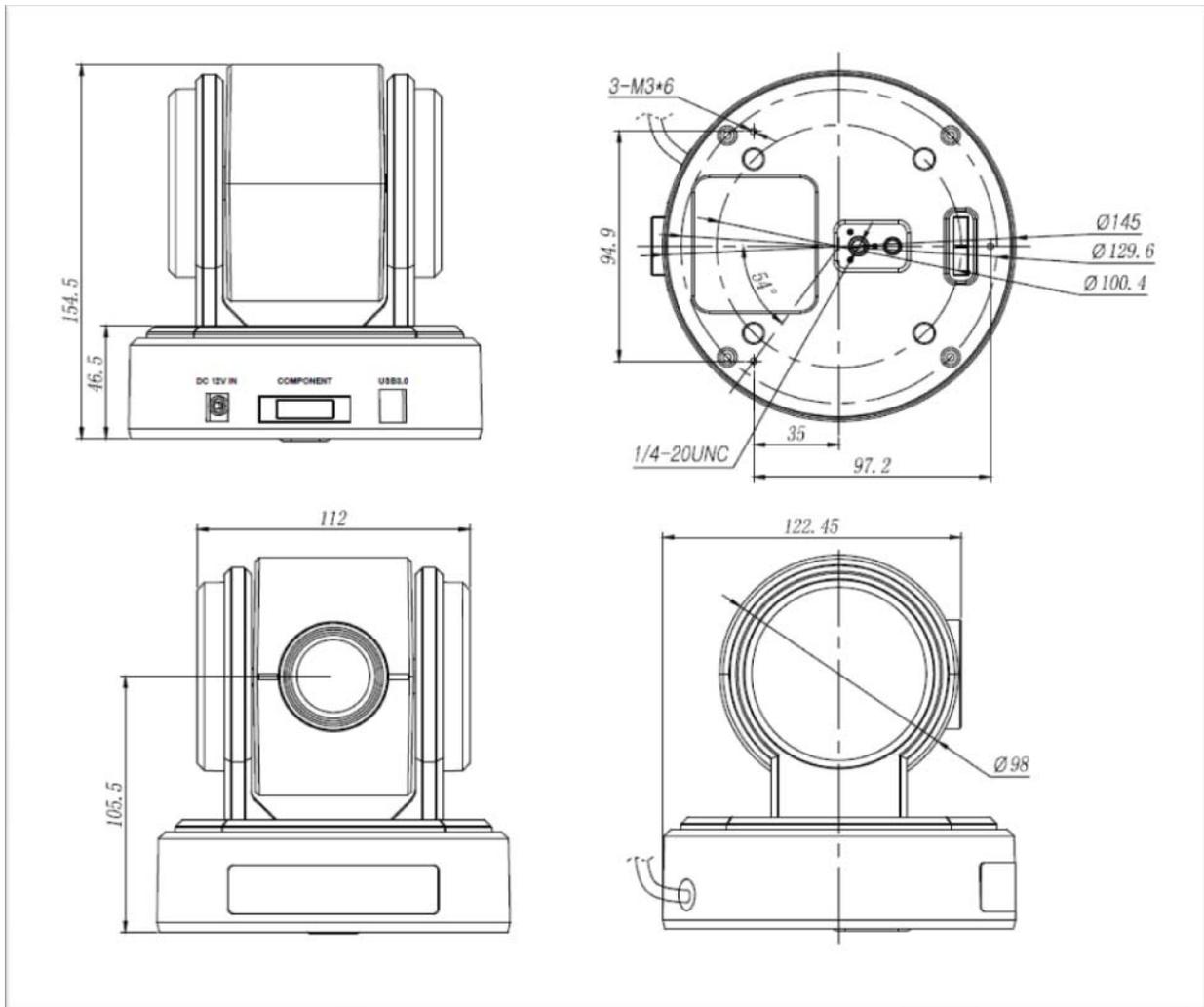
Marshall Electronics

Tel: (800) 800-6608 • (310) 333-0606
Fax: 310-333-0688

www.LCDRacks.com
sales@lcdracks.com