

# Marshall

Broadcast A/V Division

## CV610-U3-V2

HD PTZ USB Camera



## User Manual

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# 1. Important Information

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## Legal notice

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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

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### **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.

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## 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

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### 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.



## 2. What's In The Box

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PTZ Camera



Power Adapter and Power Cord



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



Camera Extension Module X 1



USB3.0 Cable(1.5m) X 1

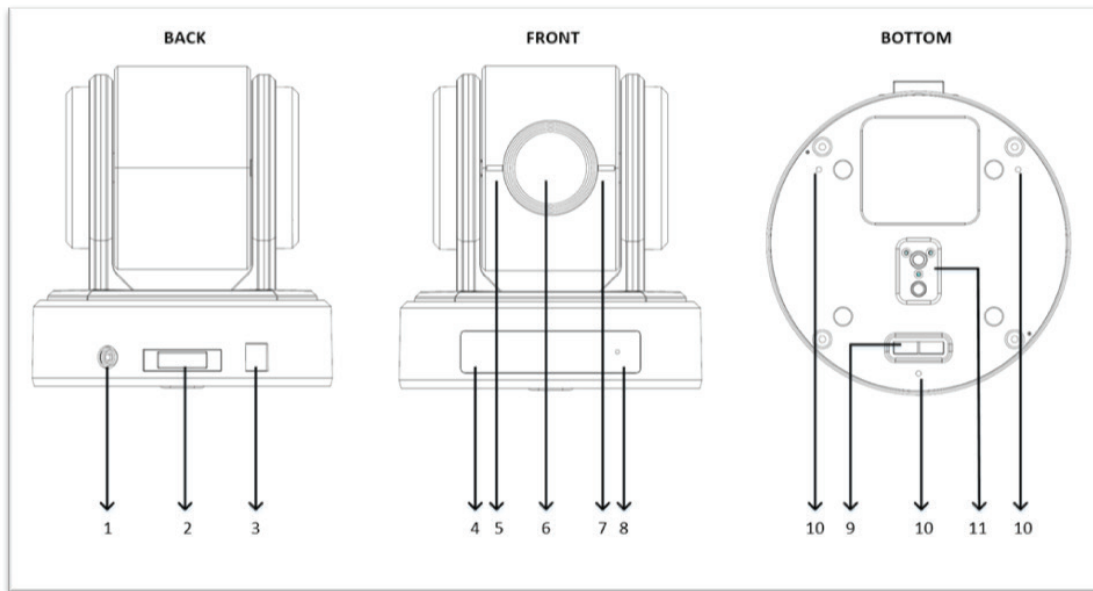
## 3. Features

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- HD resolution allows for high- definition resolution with superior picture quality.
- 10X optical zoom combined with 12X digital zoom, allows to zoom up to 120X totally.
- 62.5 - degrees horizontal angle zoom lens.
- USB2.0 and USB3.0 compatibility.
- Microphone is built in the camera.
- By adopting its wide and dynamic range functions (WDR availability varies with different models), camera optimizes shooting image that captures bright and dark subjects at the same time.
- It supports protocols: UVC1.5 (Video & Control), UAC2.0, VISCA, PELCO P/D.
- You can use extension module to have the following functions: RS-232 control, RS-422/485 control, HDMI video output, CVBS video output(Inactive), external audio input.
- Adopts the industry standard RS-232 interface of VISCA camera protocol.
- High-speed and low-noise pan/tilt functions support a variety of purposes.
- You can use the infrared remote controller to set the camera and also 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 supports various HD video formats and has a USB3.0 or USB2.0 video output terminal.

## 4. Camera Diagrams

### 4.1 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 and USB2.0 Port

Outputs the images from this unit as a USB3.0 and USB2.0 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 supports 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 18).

#### 10. Fix mounting holes

#### 11. Tripod mounting holes

## 4.2 Remote Controller

### 1. Power

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

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

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

### 4. PAN-TILT

- Pan and Tilt direction control
- HOME: Home position, Resolution reset

### 5. L/R Direction Set

- Left and right orientation setting

### 6. ZOOM/FOCUS

- Far
- Near

### 7. Auto/Manual Focus

### 8. Back Light

### 9. Video Format Switching

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

### 10. MENU

- On screen menu display ON/OFF

### 11. Audio Switch

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

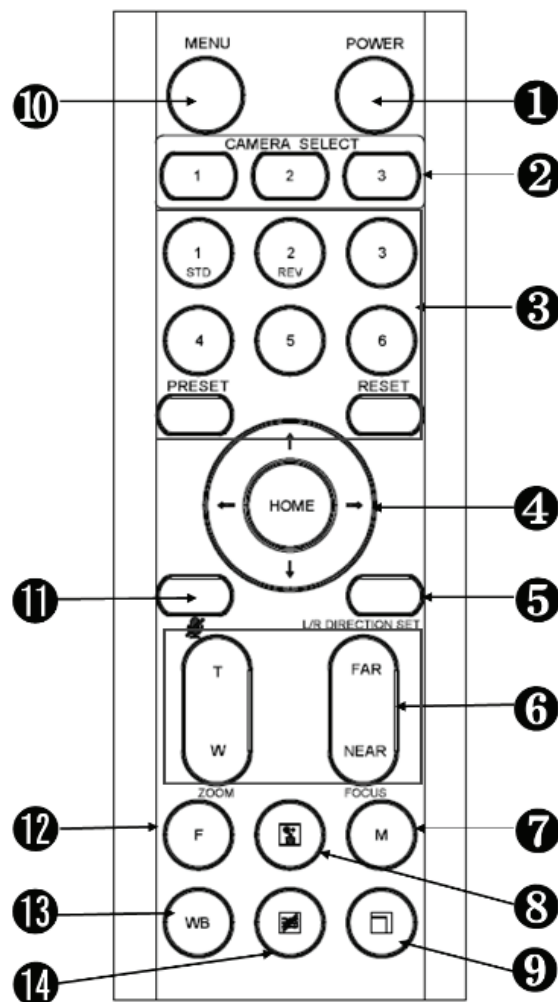
### 12. Fast/Slow Zooming Speed Switching

### 13. White Balance

- Change the White Balance setting by pressing the button.

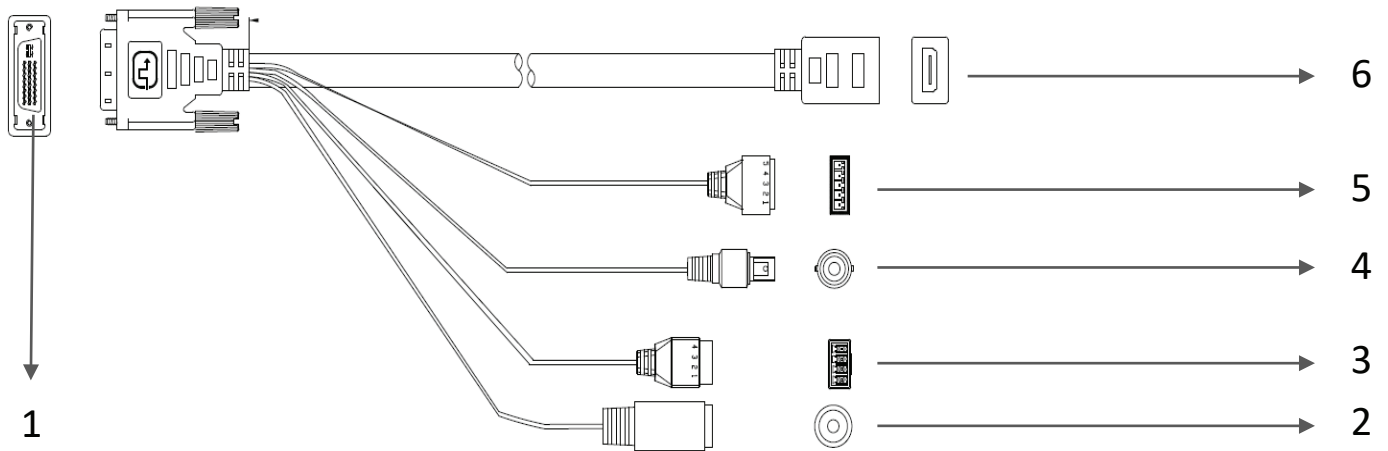
### 14. De-Flicker

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





### 4.3 Extension Module



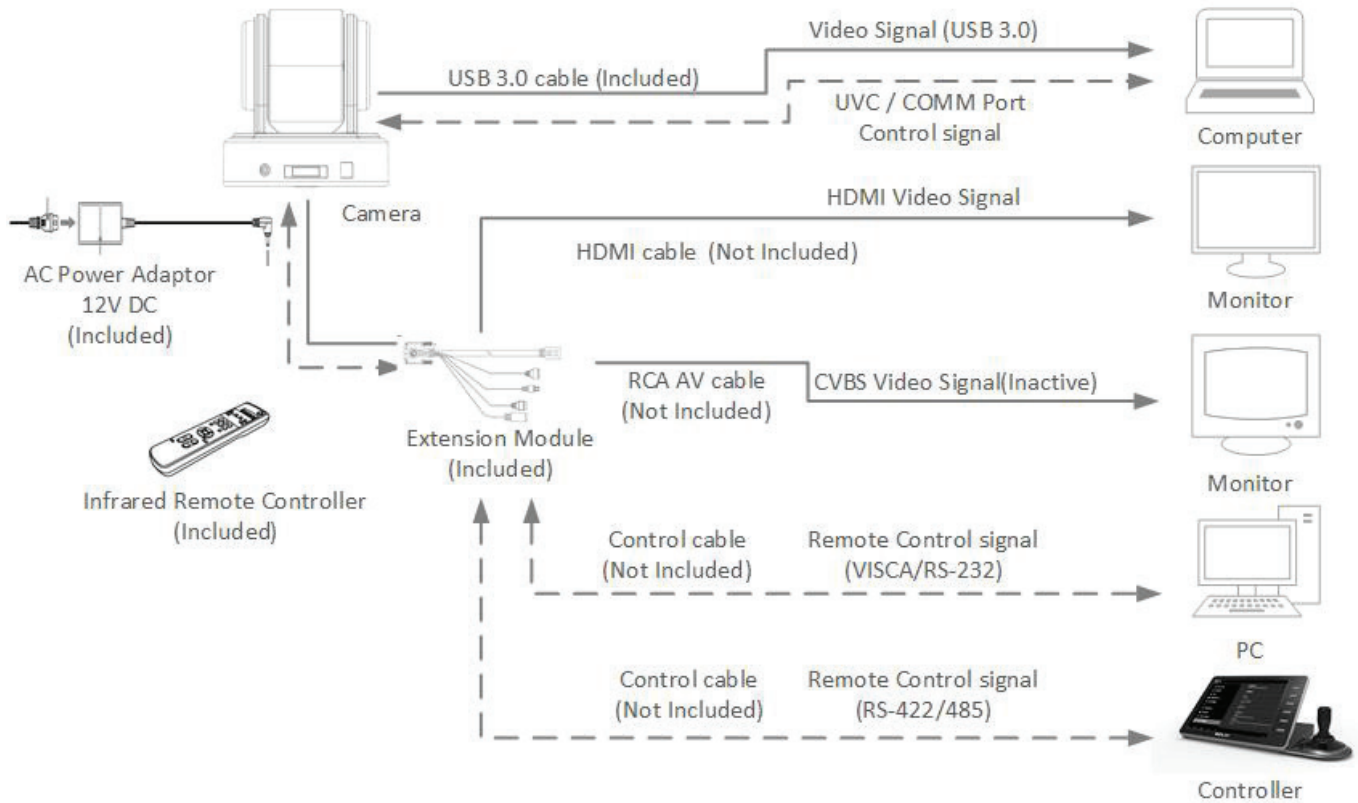
1. Extension Port (Connect to the camera body)
2. Audio line in (3.5mm jack)
3. RS232 Port
4. CVBS (Inactive)
5. RS422/485 Port
6. HDMI Video Output Port

## 5. System Configuration

### 5.1 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 19, 23.

## 5.2 Obtain Video Signal

### System Requirements for your PC

1. Operating System: Microsoft Windows 10/Windows 8/Windows 7, Linux Ubuntu 16.04LTS, macOS Sierra, Microsoft Windows 7 (32-bit) or above is recommended.
2. CPU: 2.0 GHz or higher, dual-core. Intel i3 CPU or higher are recommended.
3. Memory: At least 1 GB. 2 GB (or higher) is recommended.
4. Graphic Card: At least 128 MB display memory. Mainstream discrete graphics with more than 1 GB display memory are recommended. Make sure that the latest driver is installed on graphic card.
5. Sound Card: The intercom and voice broadcast require the latest driver on sound card.
6. Network Card: Gigabit Ethernet network cards (or higher) are recommended.

### USB3.0 and USB2.0 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 and USB2.0 drivers are 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, “MEI CV610-U3-V2” will be listed. Under the Audio device name, “Digital Audio Interface (MEI CV610-U3-V2)” 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.

The camera is compatible with PC USB2.0 and USB3.0 ports. The camera USB port will output at the lower resolution while connecting PC USB2.0 port. The following tables are lists of all available output formats for USB2.0 and USB3.0.

When the camera setting HDMI video format at 1080P60/1080P30/720P60, USB2.0 and USB3.0 resolution with frame rate are available as following list.

HDMI FORMAT	USB2.0 Resolution	Frame Rate	USB3.0 Resolution	Frame Rate
1080P60/1080P30/720P60	1920x1080	10P	1920x1080	60P/30P/15P
	1280x720	25P/15P	1280x720	
	1024x768	30P/15P	1024x768	
	960x540		960x540	
	850x480		850x480	
	800x600		800x600	
	768x448		768x448	
	720x576		720x576	
	720x540		720x540	
	720x480		720x480	
	720x404		720x404	
	640x480		640x480	
	640x360	60P/30P/15P	640x360	
	352x288		352x288	

When the camera setting HDMI video format at 1080P50/1080P25/750P50, USB2.0 and USB3.0 resolution with frame rate are available as following list.

HDMI FORMAT	USB2.0 Resolution	Frame Rate	USB3.0 Resolution	Frame Rate	
1080P50/1080P25/720P50	1920x1080	10P	1920x1080	50P/25P/10P	
	1280x720	25P/10P	1280x720		
	1024x768		1024x768		
	960x540		960x540		
	850x480		850x480		
	800x600		800x600		
	768x448		768x448		
	720x576		720x576		
	720x540		720x540		
	720x480		720x480		
	720x404		720x404		
	640x480		640x480		
	640x360		50P/25P/10P		640x360
	352x288				352x288

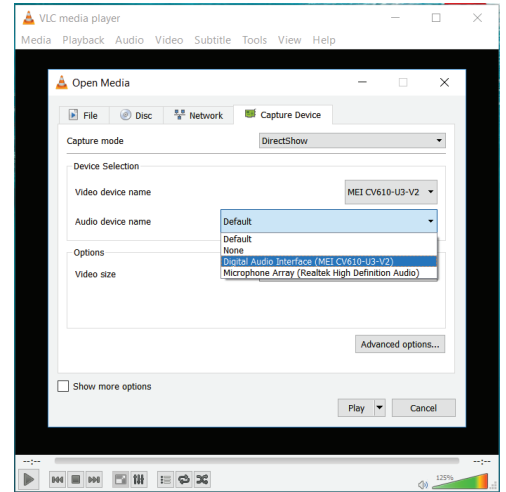
## HDMI / DVI Video Signal

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.

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.

## 5.3 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 (MEI CV610-U3-V2)” 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.



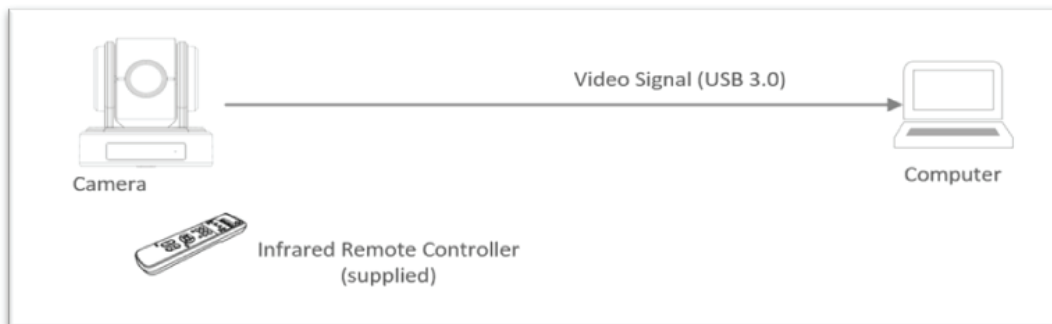
## 5.4 Camera Control Methods and System Configurations

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 RS-232 (VISCA), via Extension Module (optional).
4. 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.



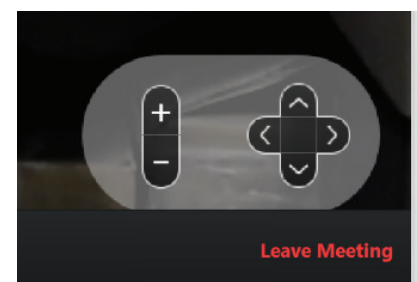
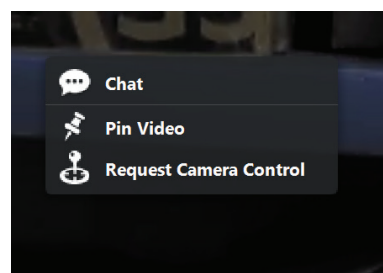
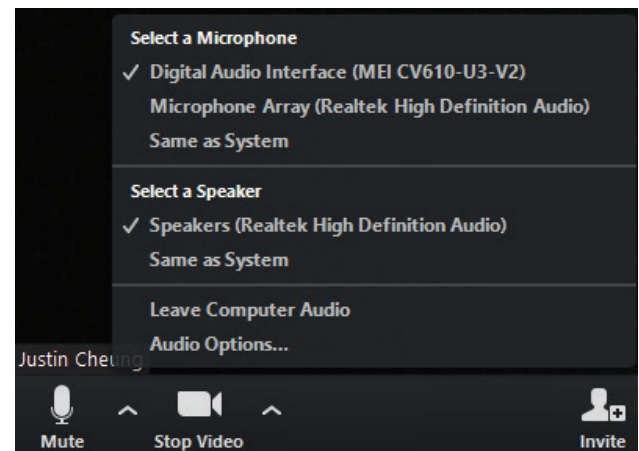
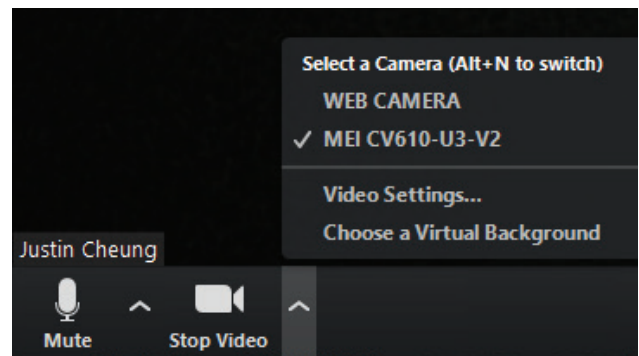
### System Configuration A

For IR remote control details, refer to Operation Using the Infrared Remote Controller, see page 24.

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 “MEI CV610-U3-V2”.
5. On left bottom under “Mute” Audio setting, select video device from Microphone list “Digital Audio Interface (MEI CV610-U3-V2)”.
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 interface will pop up. You can control the camera.
9. For camera control detail, please refer to video software user guide.



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

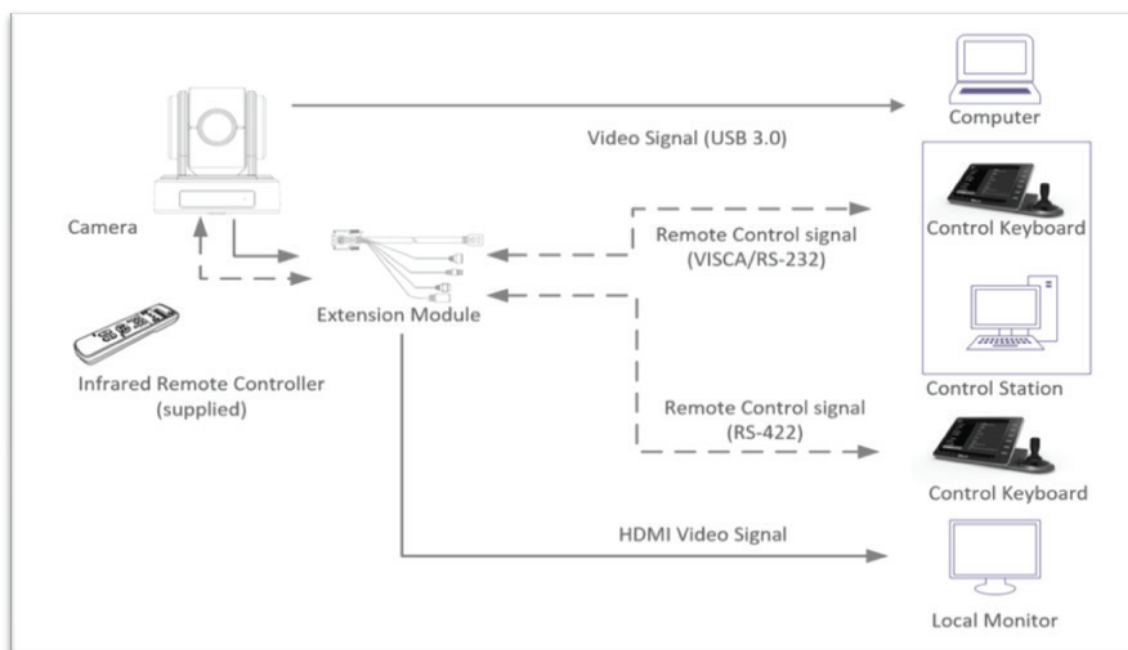
The Extension Module is required when using RS-232 / RS-422/485 signals with external control devices.

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.

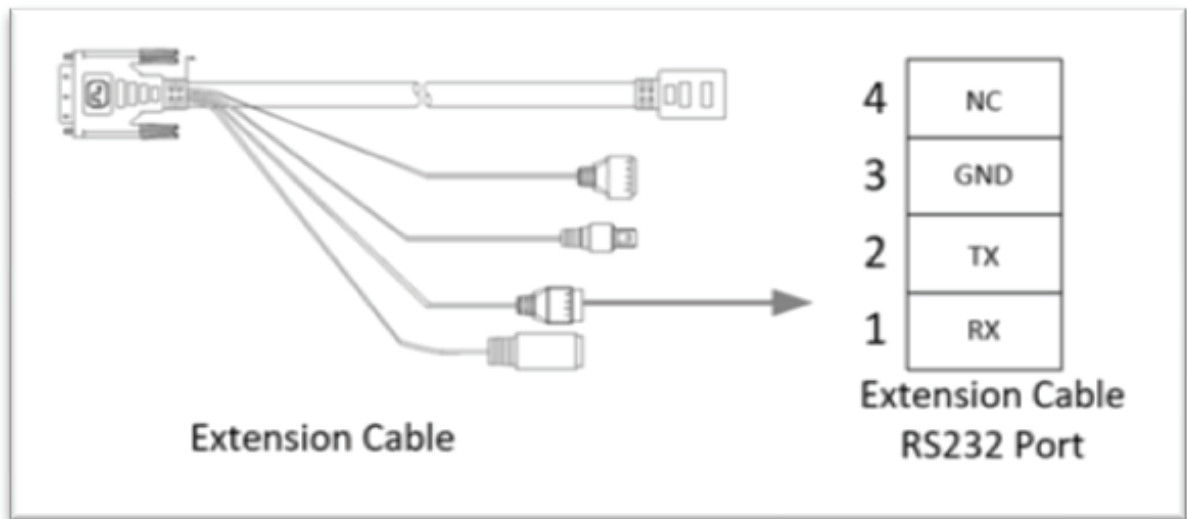
## System Configuration B





**RS232 Connection**

1. Set Bottom Dip Switch SW1-B6 to OFF. (See page 18).
2. Set Baud Rate on Bottom Dip Switch to the same as Baud Rate setting on the keyboard you are using.  
(See page 18).
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 18).
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:



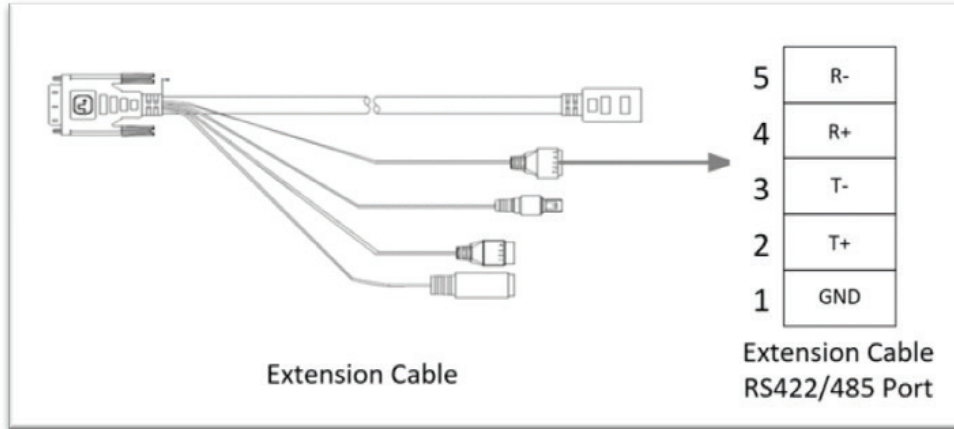
## Use RS-422(VISCA) / RS485 (PELCO P/D)

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.

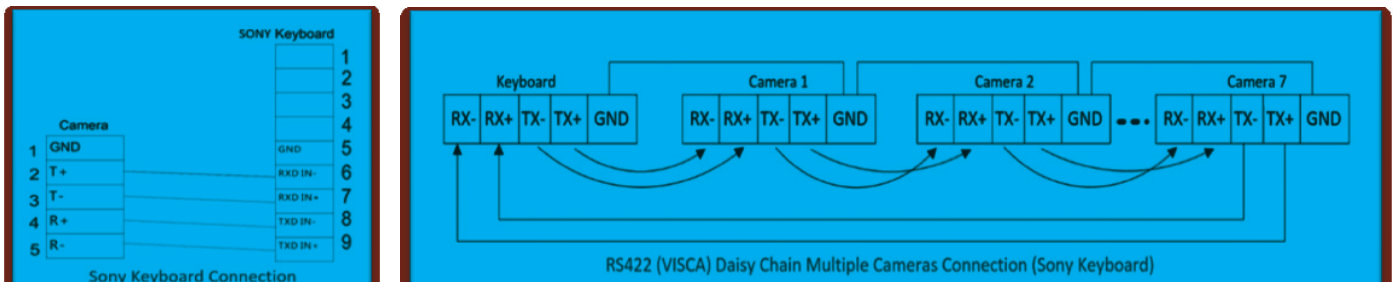
## RS422/482 Connection



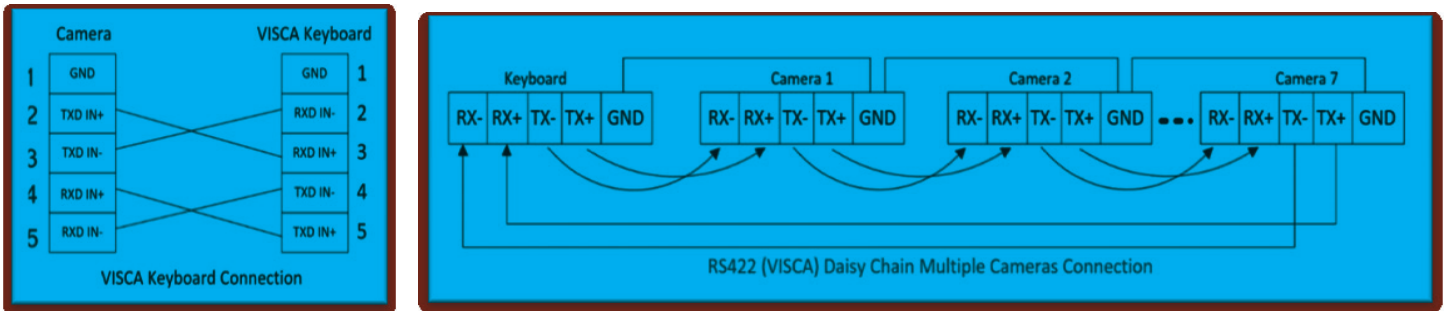
## RS422 (VISCA) connection

1. Set Bottom DIP Switch SW1-B6 to OFF. (See page 18).
2. Set Baud Rate on Bottom Dip Switch to the same as Baud Rate setting on the keyboard you are using.  
(See page 18).
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

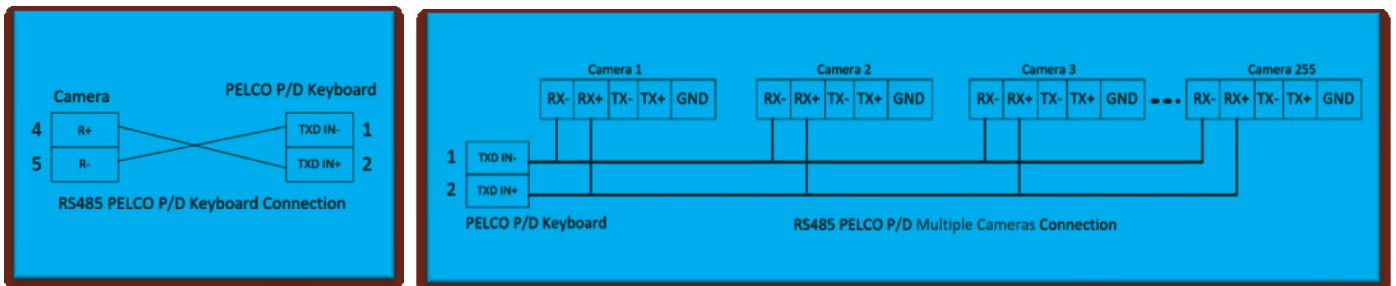


## SONY Keyboard RS422 Connection



## 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.



### Note

For RS-232 VISCA control, this unit does not support daisy chain connection for using multiple cameras.

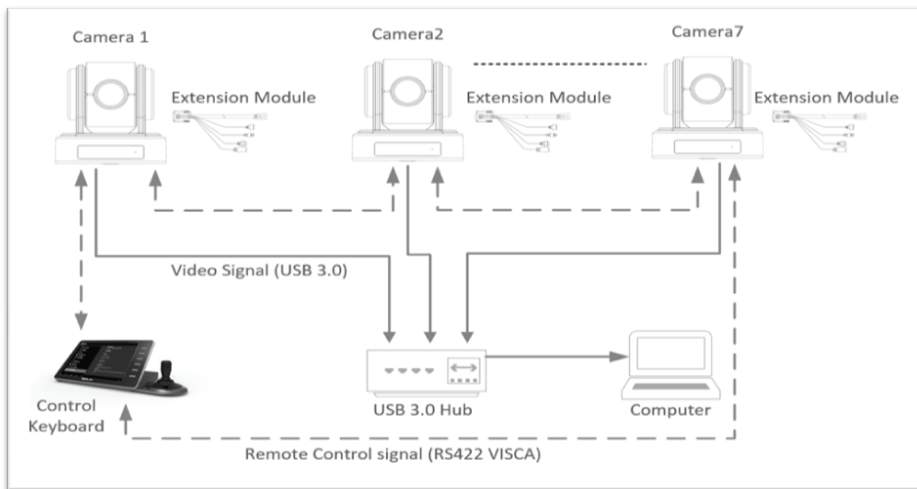
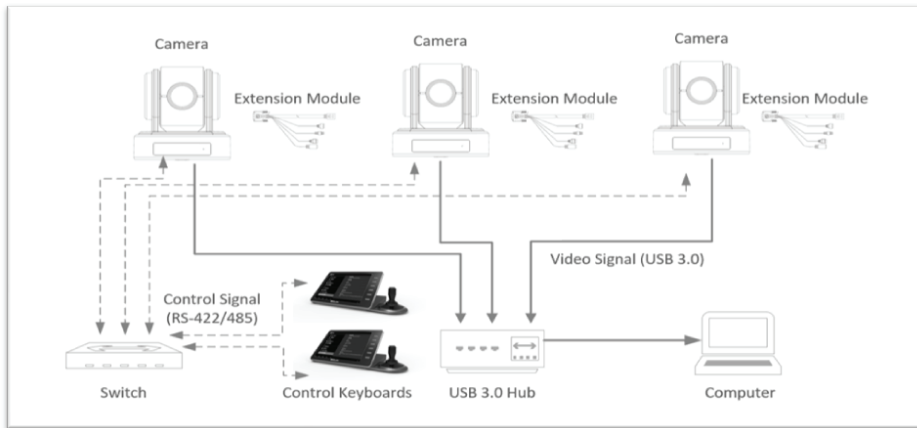
For control details, please refer to Operating Instructions of control keyboard/station software.

- 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 C (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.

## 6. Bottom Dip Switch Settings

The bottom dip switch is for setting the camera configuration for following items:

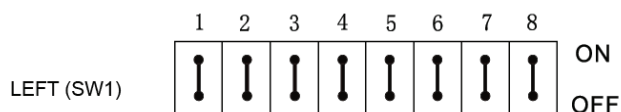
1. Camera ID Address for VISCA protocol
2. Video output / Video color space
3. RS-232 / RS-422/485 selection
4. Video resolutions selection
5. IR remote controller ID

### Setting of the BOTTOM DIP Switches

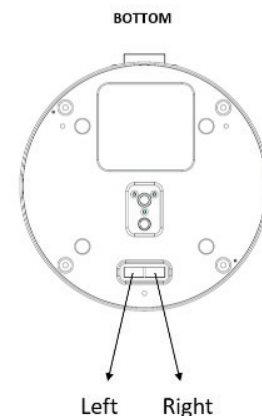
Turn off power to the camera before changing the DIP switch settings.

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



- 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	YUV
ON	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

## 7. 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.

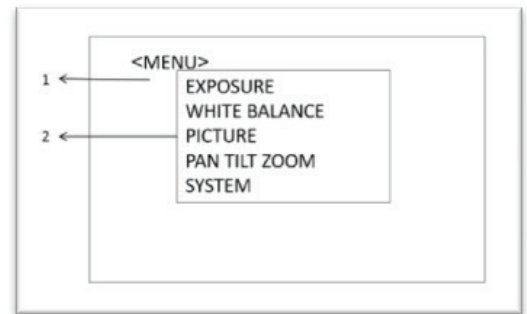
### Main Menu

To display the main menu, press the 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

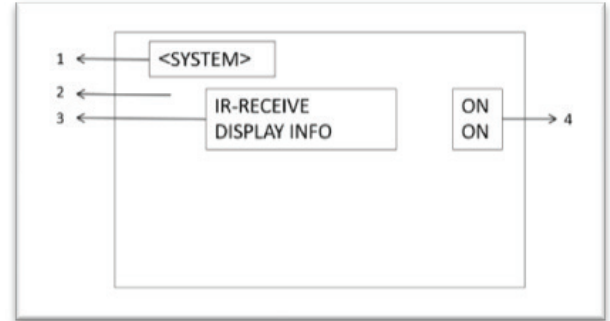
To display a setting menu, select one using the “↑, ↓” button on the infrared remote controller and press the HOME button on the infrared remote controller.

## 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.

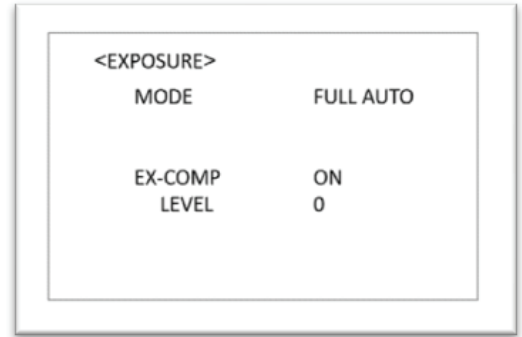
#### Note

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.



## 7.1 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:0~27) 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.

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 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 to 27.

## EX-COMP (Exposure Compensation)

When MODE is set to one of FULL AUTO, SHUTTER PRI or IRIS PRI, set this item to ON to enable exposure compensation. When you set EX-COMP to ON, LEVEL appear and you can select the exposure compensation level from the following:

-7, -6, -5, -4, -3, -2, -1, 0, +1, +2, +3, +4, +5, +6, +7

If you set the level to 0, no exposure compensation effect to the image. Level +7 is the brightest and -7 is the darkest compensation value.

When EX-COMP is set to OFF, exposure compensation does not effect added to the image.

## 7.2 WHITE BALANCE Menu

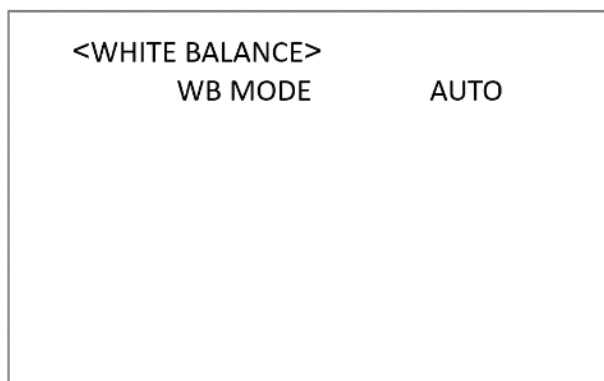
---

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, INDOOR, 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.



### When you select the OPW (One Push White Balance)

Perform the following operations:

1. Place a white object (For example: A piece of white paper) in front of camera lens.
2. Press the HOME button of the infrared remote controller. The one-push white balance adjustment is activated.

## 7.3 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:

**Neg:** Negative/Positive Reversal

**Black & White:** Monochrome image

Image effect from Off, B&W, NEG.

### 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.

**MIRROR:** You can use it to horizontally flip video.

**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 controls the blown-out highlights.

You can select the wide dynamic range mode between ON and OFF

**SATURATION:** You can adjust saturation parameter from 0~15.

**CONTRAST:** Increase and decrease contrast to adjust separation between dark and bright.

### <PICTURE>

SHARPNESS	3
EFFECT	OFF
NOISE REDUCTION	OFF
FLIP	OFF
MIRROR	OFF
DE-FLICKER	OFF
GAMMA	0
WDR	OFF
SATURATION	5
CONTRAST	8

## 7.4 PAN / TILT / ZOOM Menu

---

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

### DIGITAL ZOOM:

Set to DIGITAL ZOOM ON, 12X digital zoom is activated.

You can set digital zoom to ON or OFF. When set to OFF, digital zoom does not operate, and only optical zoom is available. When set to ON, digital zoom takes over after optical zoom reaches MAX (10x). Up to 120x 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.

### PRESET SPEED:

Set preset speed value from 0 to 5 to change the preset speed.

### PAN DIR:

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

### TILT DIR:

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

#### <PAN TILT ZOOM>

DIGITAL ZOOM	OFF
ZOOM SPEED	1
ZOOM RATIO OSD	OFF
ADAPTIVEP/T	OFF
PRESET SPEED	5
PAN DIR	NORMAL
TILT DIR	NORMAL

## 7.5 SYSTEM Menu

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### PELCO ID

When using RS485 (PELCO P/D) control, Set Camera ID to the address that you want to control to. This value is from 001-255.

### IR-RECEIVE (Infrared Signal Reception)

When this is set to OFF, the camera does not receive the signal from the infrared remote controller. Be sure to keep it set to ON when you use the infrared remote controller.

#### Note

You cannot set IR-RECEIVE to OFF when you operate the menu using the infrared remote controller. To set it to OFF, use the appropriate VISCA controller.

### DISPLAY INFO

When this item is set to ON, the message of the camera configuration appears for about 3 seconds on the screen, after the camera is powered on or rebooted.

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

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

**RELOAD PRESET 1:** When this item is set to ON, the camera will go to preset 1 settings when preset 1 button is pressed or when camera is power cycling. This function allows you to recall the image parameters saved on preset 1 such as picture, white balance, exposure, focus mode, zoom positions.

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

**HDMI FORMAT:** You can change the video format by adjusting this item. Select the item, press “←” and “→” button to choose the video format you want to set to, then press “Home” (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.

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.

#### Note

The camera video format can be changed by setting bottom DIP switch as well. For details, see page 19.

## 8. Operation Using the Infrared Remote Controller \_\_\_\_\_

### 8.1 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
		 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
		 <p>While holding down</p>  <p>Press</p>

**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.

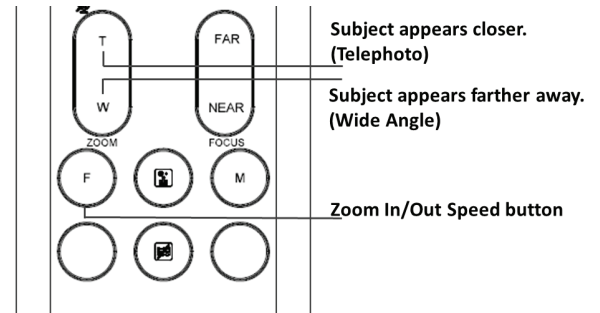
Press the PAN-TILT RESET button to reset the pan/tilt position.

## Zooming

Press either of the ZOOM buttons.

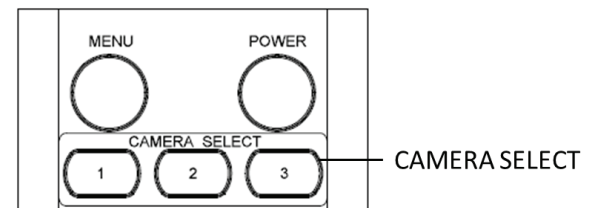
### Note

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.



## 8.2 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.



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.

## 8.3 Adjusting the Camera

### Focusing on a Subject

### Focusing the camera on a subject automatically

Press the M button.

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

### Focusing the camera on a subject manually

After pressing the MENU button, press either the FAR or the NEAR button to have the camera focus on the subject.

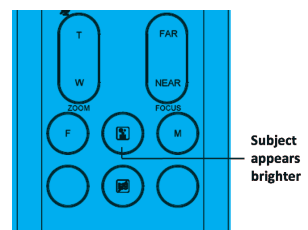
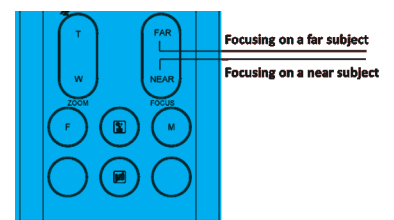
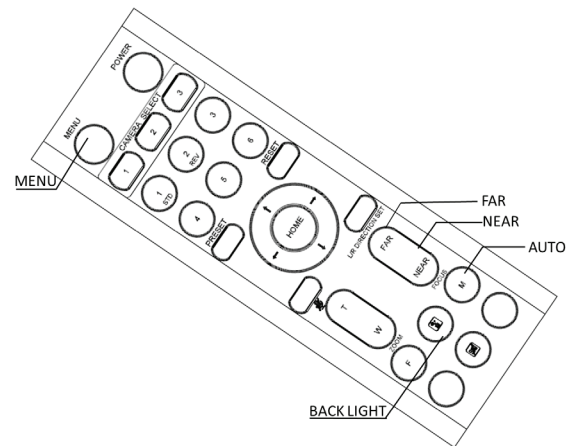
### Shooting with Back Lighting

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.





## 8.4 Storing the Camera Settings in Memory – the Presetting Feature

### Memory (Preset)

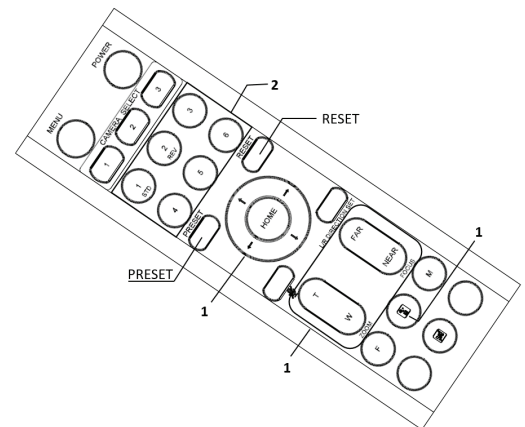
Using the preset function, 6 sets of camera shooting conditions can be stored and recalled. 6 sets of camera shooting conditions can be stored and recalled by using remote controller. Up to 128 presets via protocol programming.

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. Adjust the position, zooming, focusing and backlighting of the camera.
2. Position 1-6



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

## Recalling the stored settings

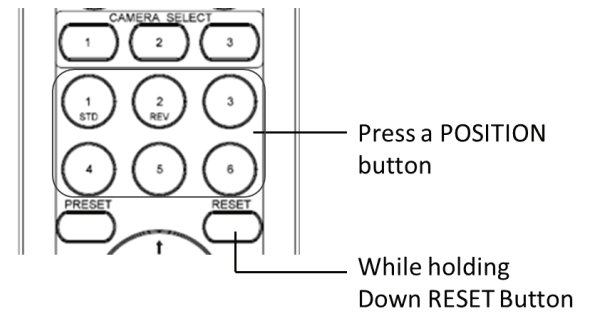
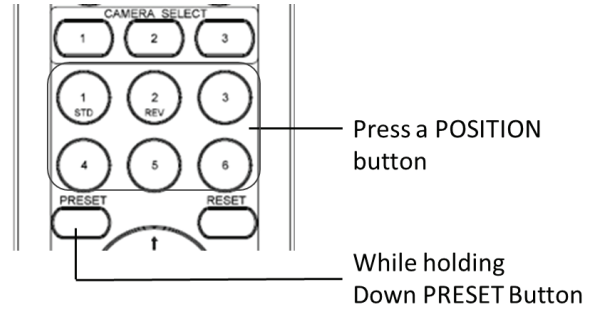
Press any of the POSITION buttons, 1 to 6, in which you have stored the settings.

## Cancelling the preset memory

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

### Note

- When the power is turned on, the camera starts with the settings stored in POSITION 1.
- 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.



## 9. Menu Configuration

DATA SCREEN	EXPOSURE	MODE	<b>FULL AUTO</b>
			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 21
			BRIGHT 0-27
			MANUAL GAIN 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 21.
			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	<b>OFF</b>
			ON 7, -6, -5, -4, -3, -2, -1, 0, +1, +2, +3, +4, +5, +6, +7
	WHITE BALANCE	MODE	<b>AUTO</b>
			INDOOR
			OUTDOOR
			OPW
			ATW
		USER	R GAIN 0-255
			B GAIN 0-255
	PICTURE	SHARPNESS	0-15
		EFFECT	OFF, B&W, NFG
		NOISE REDUCTION	OFF, 1-3
		FLIP	OFF, ON
		MIRROR	OFF, ON
		DE-FLICKER	OFF, ON
		GAMMA	0-4
		WDR	OFF, ON
		SATURATION	0-15
		CONTRAST	0-15
	PAN TILT ZOOM	DIGITAL ZOOM	OFF, ON
		ZOOM SPEED	1-8
		ZOOM RATIO OSD	OFF, ON
		ADAPTIVE PT	OFF, ON
		PRESET SPEED	0-5
		PAN DIR	NOMRAL, INVERT
	SYSTEM	TILT DIR	NOMRAL, INVERT
		PELCO ID	001-255
		IR-RECIEVE	OFF, ON
		DISPLAY INFO	OFF, ON
		PRESET MEMORY	OFF, ON
		FACTORY RESET	
		PRESET MEMORY	OFF, ON
		AUTO FOCUS	Normal
		PRESET MEMORY	720P50, 720P60, 1080P25, 1080P30, 1080P50, 1080P60

## 10. Troubleshooting

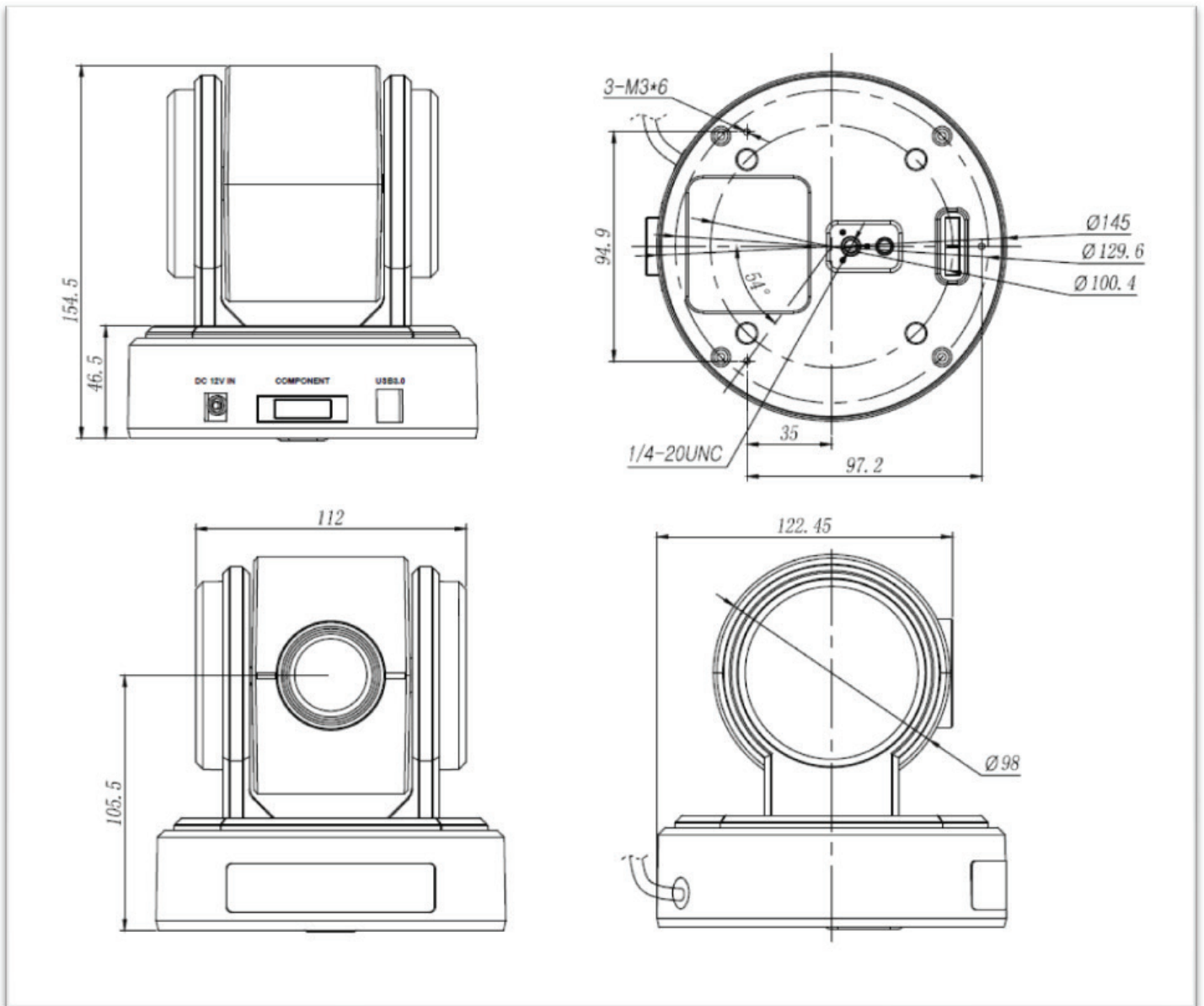
Check the following as a guide for troubleshooting the problem. If the problem cannot be corrected, consult your dealer.

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.
	-	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 21).
	The USB3.0 driver is not latest one.	Install the latest driver.  Note 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 MENU 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 22).
	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 21).
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 25).
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.

Symptom	Cause	Remedy
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, MEI CV610-U3-V2", 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.

## 11. Dimensions

Unit: mm



## Warranty

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Marshall Electronics warrants to the first consumer that this device will, under normal use, be free from defects in workmanship and materials, when received in its original container, for a period of two years from the purchase date. This warranty is extended to the first consumer only, and proof of purchase is necessary to honor the warranty. If there is no proof of purchase provided with a warranty claim, Marshall Electronics reserves the right not to honor the warranty set forth above. Therefore, labor and parts may be charged to the consumer. This warranty does not apply to the product exterior or cosmetics. Misuse, abnormal handling, alterations or modifications in design or construction void this warranty. No sales personnel of the seller or any other person is authorized to make any warranties other than those described above, or to extend the duration of any warranties on behalf of Marshall Electronics, beyond the time period described above.

Due to constant effort to improve products and product features, specifications may change without notice.

# Marshall

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