

Marshall Electronics

CV612HT-4K

4K Broadcast PTZ Camera



Installation Guide

Ver.2

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Safety Instructions

Always follow these safety instructions when setting up and using the CV612HT-4K:

1 Operation

- 1.1 Please use the product in the recommended operating environment.
- 1.2 Do not place the product in tilted position.
- 1.3 Do not place the product on an unstable trolley, stand or table.
- 1.4 Do not use this product near water or source of heat.
- 1.5 Use attachments only as recommended.
- 1.6 Use only the type of power source indicated on the CV612HT-4K. If you are not sure of the type of power available, consult your distributor or local electricity company for advice.
- 1.7 Always take the following precautions when handling the plug. Failure to do so may result in sparks or fire:
 - Ensure the plug is free of dust before inserting it into a socket.
 - Ensure that the plug is inserted into the socket securely.
- 1.8 Do not overload wall sockets, extension cords or multi-way plug boards as this may cause fire or electric shock.
- 1.9 Do not block the slots and openings in the case of CV612HT-4K. They provide ventilation and prevent the CV612HT-4K from overheating.
- 1.10 Except as specifically instructed in this User Manual, do not attempt to service this product by yourself. Opening or removing covers may expose you to dangerous voltages and other hazards. Refer all servicing to licensed service personnel.
- 1.11 Unplug the CV612HT-4K from the wall outlet and refer servicing to licensed service personnel when the following situations happen:
 - If the power cords are damaged or frayed.
 - If liquid is spilled into the Product or the Product has been exposed to rain or water.

2 Installation

- 2.1 For security considerations, please make sure the standard hanging rack you bought is in line with UL or CE safety is in line with UL or CE safety precautions, and is installed by skilled technicians.

3 Storage

- 3.1 Do not place the Product where the cord can be stepped on as this may result in fraying or damage to the lead or the plug.
- 3.2 Never push objects of any kind through cabinet slots. Never allow liquid of any kind to spill into the Product.
- 3.3 Unplug this product during thunderstorms or if it is not going to be used for an extended period.
- 3.4 Do not place this product or accessories on top of vibrating equipment or heated objects.

4 Cleaning

- 4.1 Unplug all the cables before cleaning. Use a damp cloth for cleaning. Do not use liquid or aerosol cleaners.





5 Remote control

- 5.1 Using an incorrect battery type in the remote control may cause damage to the battery compartment. Please pay attention to local regulations on proper battery disposal.

■ Precautions

Warning: To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture.

Unplug this product during thunderstorms or if it is not going to be used for an extended period.

	<table border="1"> <tr> <td style="text-align: center;">Note</td> </tr> <tr> <td style="text-align: center;">Risk of Electric Shock Please do not open it by yourself</td> </tr> </table>	Note	Risk of Electric Shock Please do not open it by yourself	
Note				
Risk of Electric Shock Please do not open it by yourself				
<p>Caution: To reduce the risk of electric shock, do not remove cover (or back). No user-serviceable parts inside. Refer servicing to licensed service personnel.</p>				
	<p>This symbol indicates that this equipment may contain dangerous voltage which could cause electric shock.</p>		<p>This symbol indicates that there are important operating and maintenance instructions in this User Manual with this unit.</p>	

■ FCC Warning

This CV612HT-4K has been tested and found to comply with the limits for a Class A digital device, pursuant to Article 15-J of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation.

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled "Digital Apparatus," ICES-003 of Industry Canada.

■ EN55032 (CE Radiation) Warning

Operation of this equipment in a residential environment may cause radio interference.

Package Contents

CV612HT-4K



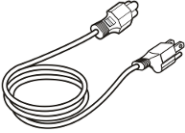
Instruction for installation



Remote Control

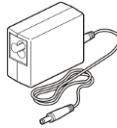


Power Cord

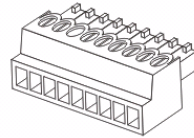


Appearance may vary
depending on country/region

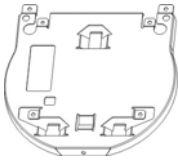
Power Adapter



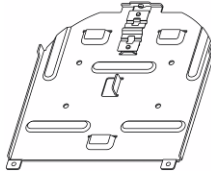
RS-422 Connector



Metal Plate A



Metal Plate B

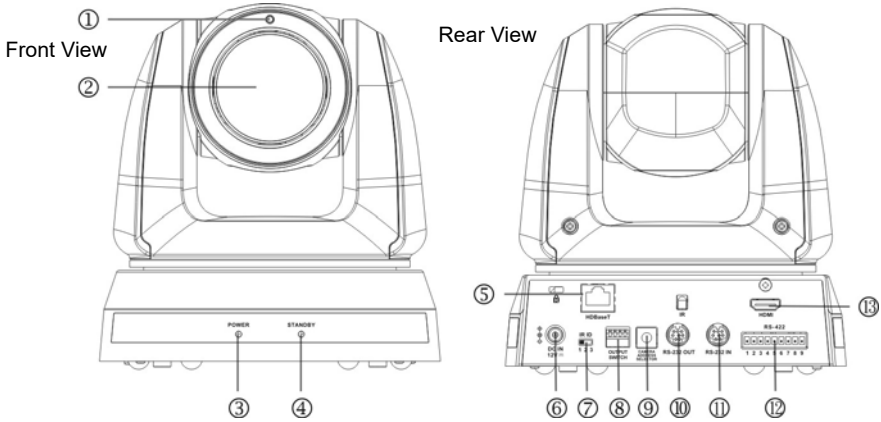


M3 Screws



Product Overview

3.1 Overview



1. Tally indicator	2. Camera lens
3. Power LED indicator	4. Standby LED indicator
5. HDBaseT output (POE 802.3af)	6. Power input
7. IR SELECT	8. OUTPUT Switch
9. Camera Address Selectors	10. RS-232 output
11. RS-232 input	12. RS-422 Connection
13. HDMI Output	

3.2 Description of LED indicator

3.2.1 Power:

3.2.1.1 No Light: Power off

3.2.1.2 Green light: In use

3.2.1.3 Flickering green: Signal from the remote control is received; the indicator flickers every 0.5 second

3.2.2 Standby:

3.2.2.1 Orange: In standby mode

3.2.2.2 No Light: Power on

3.2.2.3 Green light: HDBaseT and HDMI are connected

3.2.2.4 No Light: HDBaseT is connected

Installation

4.1 Preparation before Installation

Special precautions should be taken during installation and connection of the CV612HT-4K. Please pay attention to the following directions to ensure steady and secure mounting, and to avoid damage to the CV612HT-4K, and users.

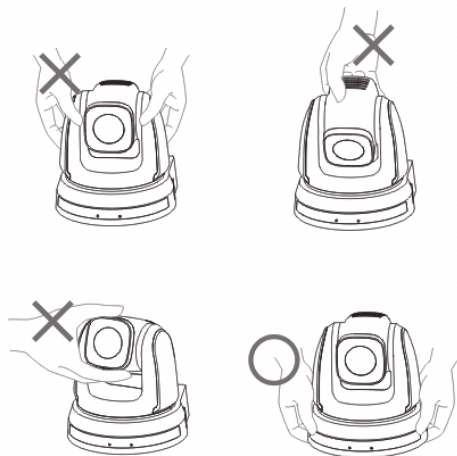
- 4.1.1 Ensure the safety of the installation environment. Please do not install the device on unstable ceiling or in a place where the device is in danger of falling.**
- 4.1.2 Please check whether accessories in the box are complete or not. Please contact the supplier for any shortage, and make sure to keep the accessories in the box intact.**
- 4.1.3 Please choose a proper place for installation of CV612HT-4K in advance. Please determine an installation place according to the following requirements**
 - 4.1.1.1 Confirm the position for the object to be captured.
 - 4.1.1.2 Confirm whether the CV612HT-4K is set at a proper distance from other light sources.

4.2 Instruction for Installation

4.2.1 Installing CV612HT-4K on the desk

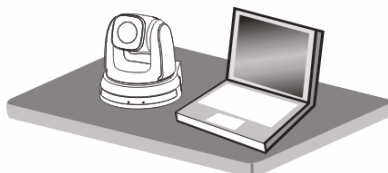
4.2.1.1 Precautions for installation

- ◆ Please install the camera on a flat desk
- ◆ Do not grab the camera head by hand when handling the device
- ◆ Do not rotate the camera head by hand. Improper rotation may result in damage of the camera



4.2.1.2 Installation steps

1. Please adjust DIP switch at first prior to installation
*** Please refer to [Chapter 7 DIP Switch Setting](#) for the relevant descriptions on DIP switch.**
2. Place the camera on a flat desk directly to ensure the normal vertical and horizontal operation of the machine



4.2.2 Installing CV612HT-4K on the ceiling

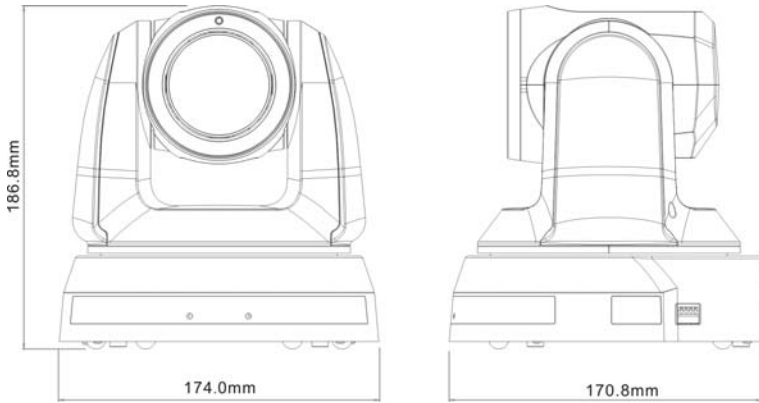
4.2.2.1 Parts and equipment required for mounting the CV612HT-4K on the ceiling

1. Accessories of CV612HT-4K in the box
(metal plates A, B and M3 screw x 7)
2. Screw for locking on ceiling mounted hanger x 4
3. Drill and screw driver

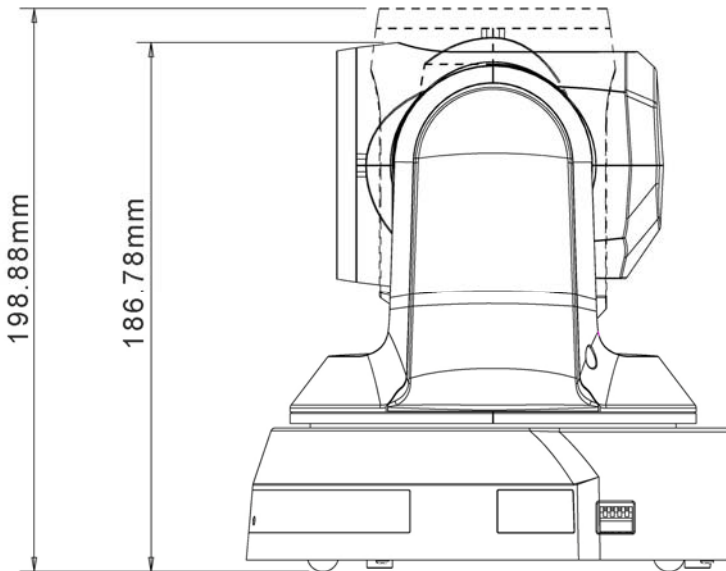
4.2.2.2 Camera Size

Length x Width x Height: 174 x 186.8 x 170.8 mm

Weight: 2.0 Kg

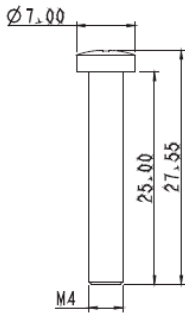


4.2.2.3 Max. rotation dimension of camera

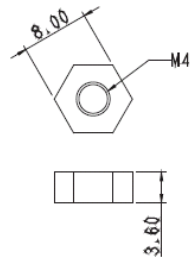


4.2.2.4 Size Diagram

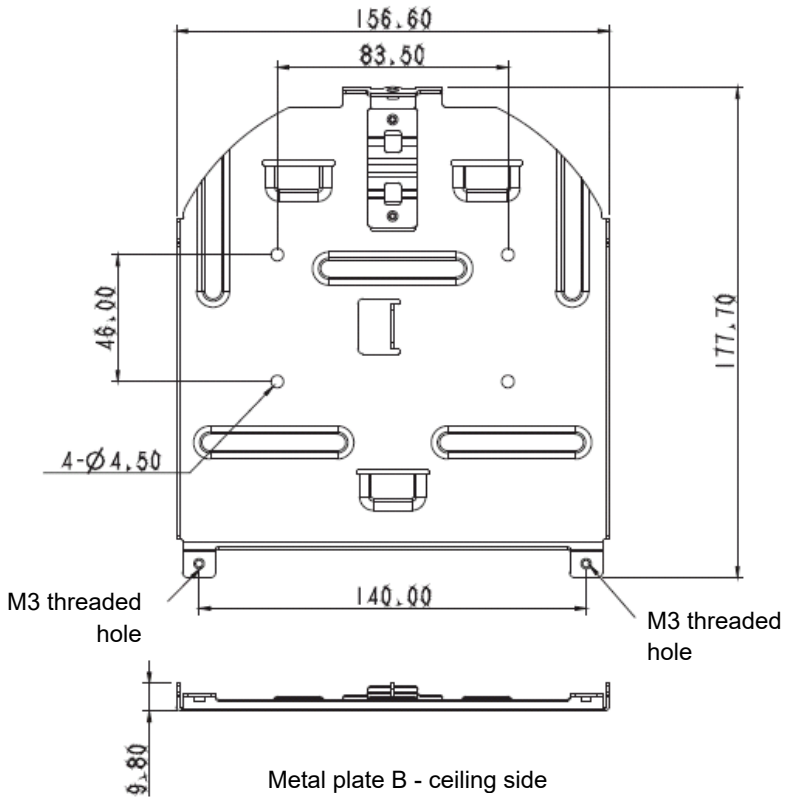
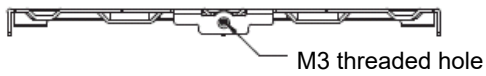
1. Metal plate B - ceiling side



Metal plate B locking screw

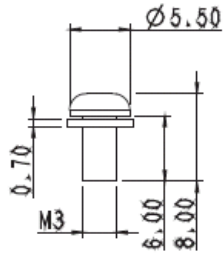


Metal plate B locking bolt

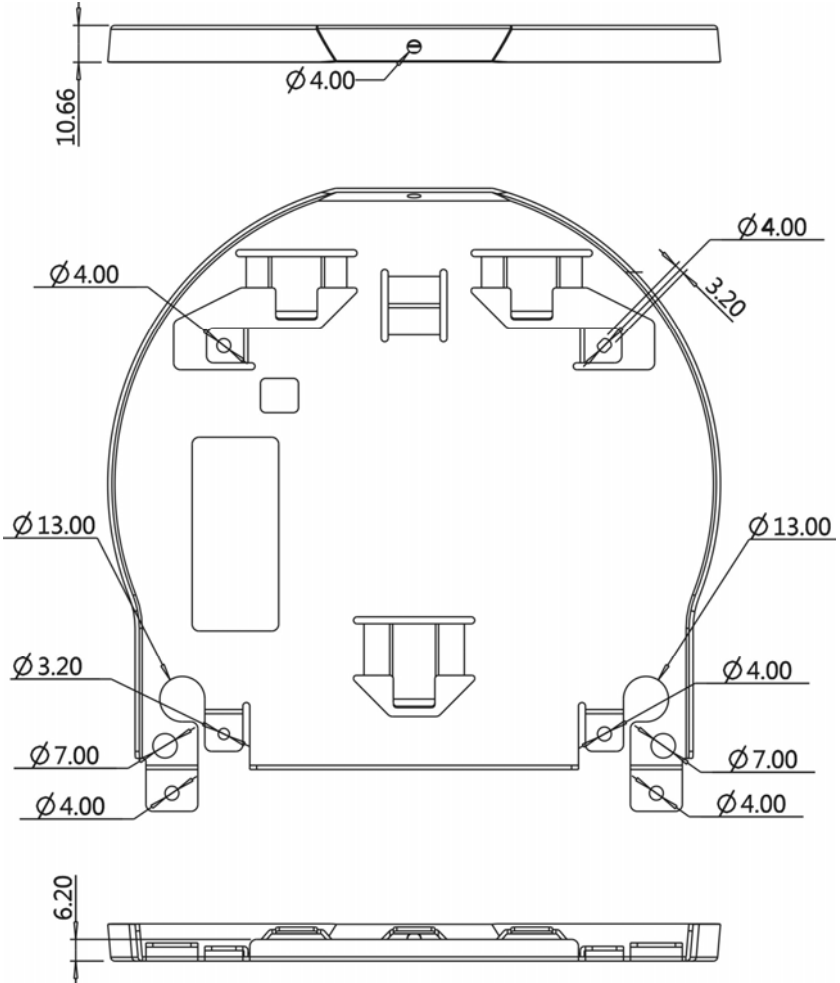


Metal plate B - ceiling side

2. Metal plate A - machine side

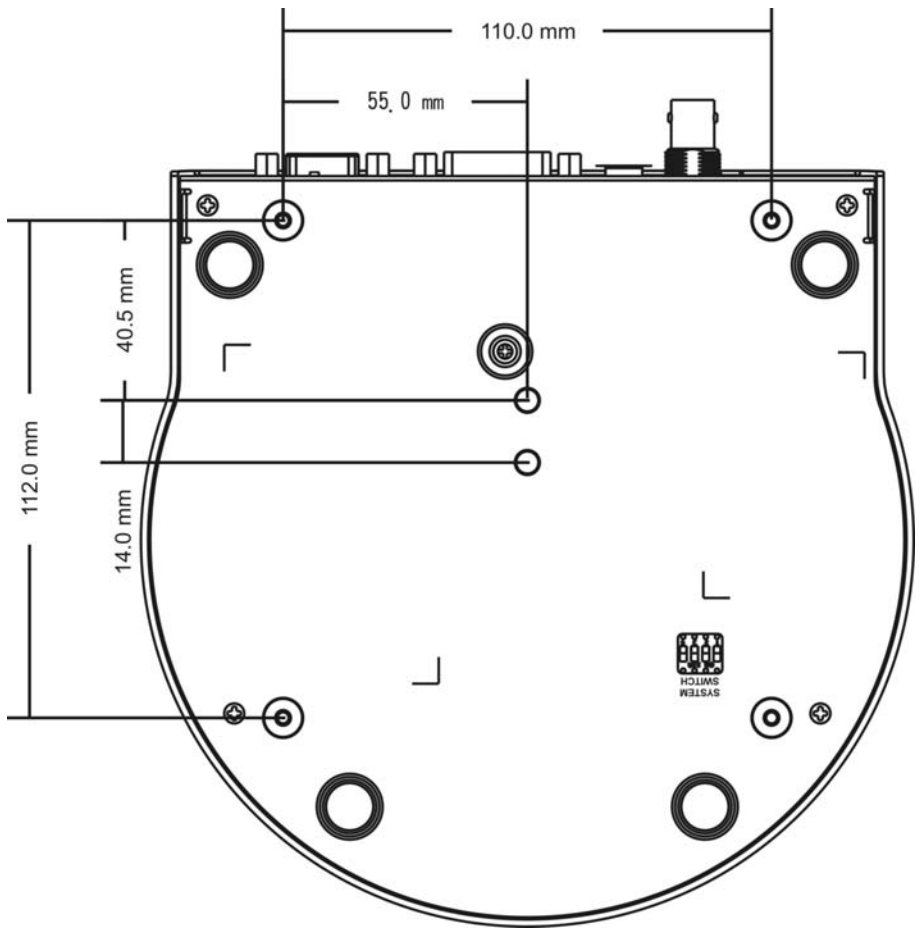


Metal plate A locking screw



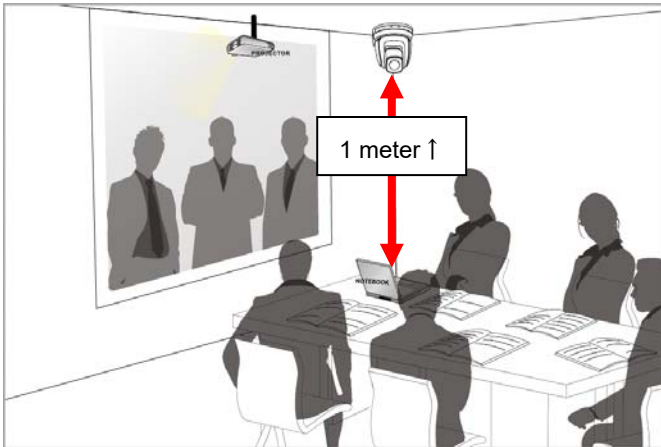
Metal plate A - machine side

3. Bottom of camera



4.2.2.5 Precautions for installation

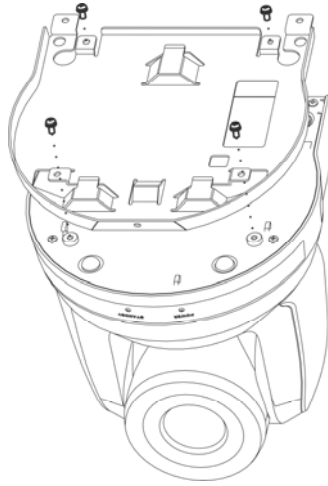
1. Before installation, please confirm the orientation of the camera relative to the object to be captured
2. It is recommended that the camera should be set at a distance of more than 1 meter away from the object to be captured. Please adjust for a best distance according to the magnification of the lens



3. The camera (including metal plates) weighs approximately 2.5 kg. If it is to be installed on the ceiling, please use the hanger that has obtained UL security approval to prevent the camera from falling down.
4. Please check whether the camera is installed securely on a regular basis

4.2.2.6 Installation steps

1. Please adjust resolution on DIP switch at first
* Please refer to [Chapter 7 DIP Switch Setting](#) for the relevant descriptions on DIP switch.
2. Fix the metal plate A on the camera base with 4 M3 screws



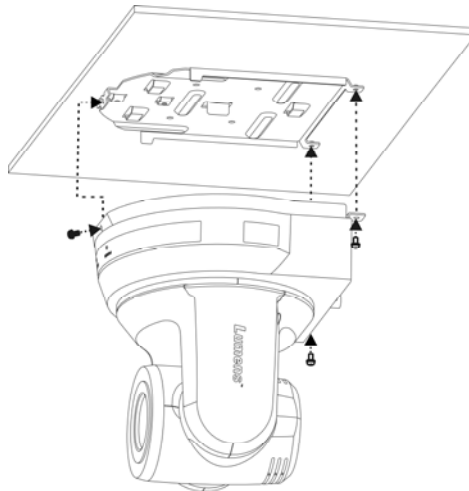
3. Lock the metal plate B on ceiling mounted hanger

※Caution:

- (1) Please use the hanger that has obtained UL security approval
- (2) Please reserve the hole for the connecting wires of the camera

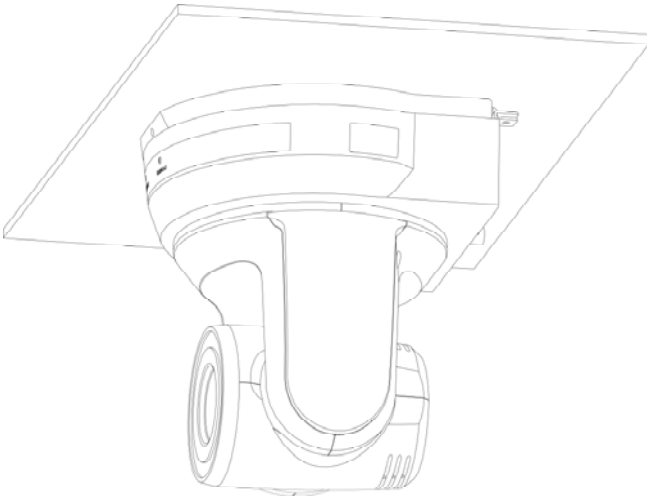
4. Combine the metal plate A and the metal plate B

- (1) Push the metal plate A up to the ceiling and then to the right to latch the metal plate B
- (2) Secure with 2 M3 silver screws and 1 M3 black screw.



4.2.2.7 How to uninstall

1. Remove the connecting wires from the camera
2. Uninstall the camera together with the ceiling, loosen the three screws that fix the metal plates A and B and push to the left to remove the camera

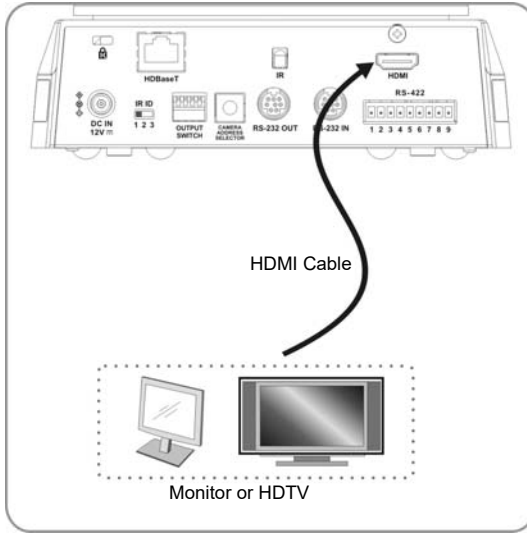


3. Remove the screws on the hanger and the camera

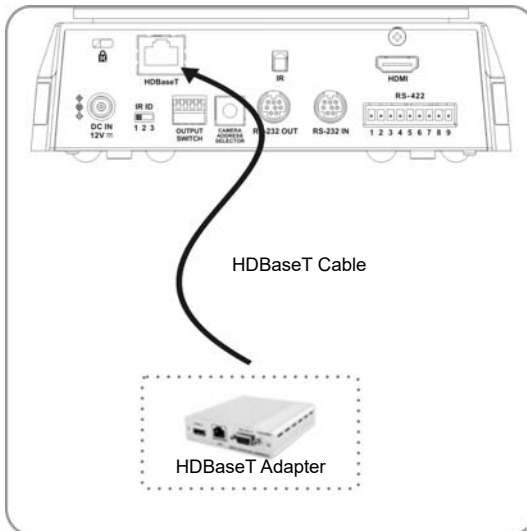
4.3 Connecting the device

4.3.1 Image Output

4.3.1.1 Connecting to an HDTV/computer monitor (HDMI)



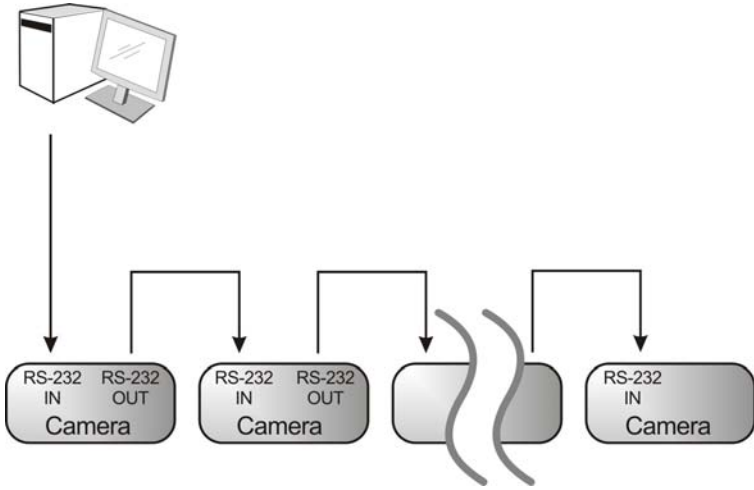
4.3.1.2 Connecting to a HDBaseT Adapter



* PoE Power Supply is available for this device. HDBaseT Adapter may be enabled without connecting to a power cord

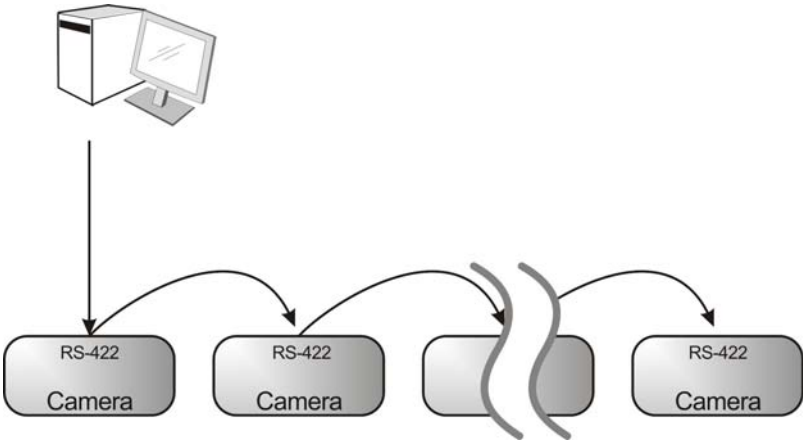
4.3.2 Controlling VCs with the computer

4.3.2.1 Connecting to one computer for connection between multiple cameras (RS-232 input/output)



* With RS-232 in/out, at most 7 cameras can be connected.

4.3.2.2 Connecting to one computer for connection between cameras (RS-422)



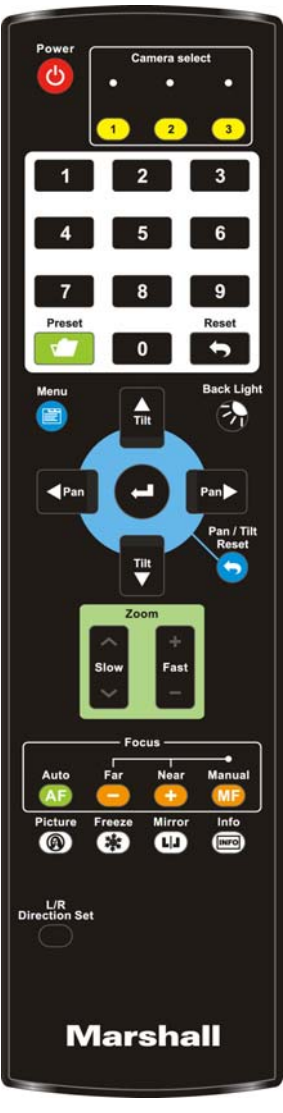
* Please refer to [7.2 RS-422 connection](#) for the RS-422 connection instructions.

* With RS-422, at most 7 cameras can be connected.

Remote Control and Setting Menu

5.1 Functions of remote control

* The below functions are listed alphabetically.

	Item	Description
	◀, ▶, ▲, ▼	Move the lens
	Back Light	Turn on/off back light compensation
	Camera select	Select 1 ~ 3
	Focus-Manual / Far/Near	Turn on manual focus to adjust the focal length
	Focus-Auto	Auto focus
	Freeze	Freeze the screen
	Home-Enter	Go back to the main page / Execute
	Info	Status information
	L/R Direction Set	L/R Direction / OFF / Normal
	Menu	Display OSD menu
	Mirror	Rotate the image (OFF / Mirror / Flip / Mirror + Flip)
	Pan/Tilt Reset	Clear the Pan / Tilt setting
	Picture	Switch image effect (OFF / B&W)
	Power	Power Switch
	Preset	Appoint an ID (0 ~ 9) to save the current position data
	Reset	Appoint an ID (0 ~ 9) to delete the current position data
	Zoom-Fast	Adjust image size
	Zoom-Slow	Fine-tune image size

5.2 Setting Menu

*Press **[Menu]** on the **remote control** to enter the setting menu; the **bold underlined** values in the following table are defaults.

1 st Level Major Items	2 nd Level Minor Items	3 rd Level Adjustment Values		Function Descriptions	
Exposure	Mode	1. <u>Full Auto</u> 2. Brightness 3. Shutter Pri 4. Iris Pri 5. Manual		Exposure mode setting	
	Exposure_ Comp.	<u>On</u> / Off		AE Level	
	Exposure_ Comp. Level	-7~ <u>C</u> ~7		The value can be adjusted only after Exposure_ Comp. is activated	
	Spot Light	On / <u>Off</u>		The value can be adjusted when the mode is set to Shutter Pri	
	Spot Light Position	X(0~15)Y(0~15)		The value can be adjusted only after Spot Light is activated	
	Shutter Pri	59.94/29.97 mode		50/25 mode	Shutter priority setting
		1/10000		1/10000	
		1/6000		1/6000	
		1/4000		1/3500	
		1/3000		1/2500	
		1/2000		1/1750	
		1/1500		1/1250	
1/1000		1/1000			
1/725		1/600			
1/500		1/425			
1/350		1/300			
1/250		1/215			
1/180		1/150			
1/125		1/120			

		1/100	1/100	
		1/90	1/75	
		<u>1/60</u>	<u>1/50</u>	
		1/30	1/25	
		1/15	1/12	
		1/8	1/6	
		1/4	1/3	
		1/2	1/2	
		1/1	1/1	
		Iris Pri	<ol style="list-style-type: none"> 1. <u>F1.8</u> 2. F2 3. F2.4 4. F2.8 5. F3.4 6. F4 7. F4.8 8. F5.6 9. F6.8 10. F8 11. F9.6 12. F11 13. F14 14. Close 	
Manual Gain	<ol style="list-style-type: none"> 1. <u>0dB</u> 2. 3 dB 3. 6 dB 4. 9 dB 5. 12 dB 6. 15 dB 7. 18 dB 8. 21 dB 9. 24 dB 10. 27 dB 11. 30 dB 12. 33 dB 	Manually set the gain		

		59.94/29. 97 mode	50/25 mode	
		1/10000	1/10000	
		1/6000	1/6000	
		1/4000	1/3500	
		1/3000	1/2500	
		1/2000	1/1750	
		1/1500	1/1250	
		1/1000	1/1000	
		1/725	1/600	
		1/500	1/425	
		1/350	1/300	
	Manual Speed	1/250	1/215	Manually set the shutter
		1/180	1/150	
		1/125	1/120	
		1/100	1/100	
		1/90	1/75	
		<u>1/60</u>	<u>1/50</u>	
		1/30	1/25	
		1/15	1/12	
		1/8	1/6	
		1/4	1/3	
		1/2	1/2	
		1/1	1/1	

	Manual Iris	<ol style="list-style-type: none"> 1. <u>F1.8</u> 2. F2 3. F2.4 4. F2.8 5. F3.4 6. F4 7. F4.8 8. F5.6 9. F6.8 10. F8 11. F9.6 12. F11 13. F14 14. Close 	Manually set the aperture
	Bright	1~ <u>C</u> ~28	
	Gain Limit	<ol style="list-style-type: none"> 1. 9 dB 2. 12 dB 3. 15 dB 4. 18 dB 5. 21 dB 6. 24 dB 7. 27 dB 8. 30 dB 9. <u>33 dB</u> 	Max. limit value of electron gain
	WDR	<ol style="list-style-type: none"> 1. <u>OFF</u> 2. 1 3. 2 4. 3 	WDR settings

White Balance	Mode	<ol style="list-style-type: none"> 1. <u>Auto</u> 2. Indoor 3. Outdoor 4. Trigger White Balance 5. Auto White Balance 6. Manual 7. Outdoor Auto 8. Sodium Lamp Auto 9. Sodium Lamp 10. Sodium Lamp Outdoor Auto 	Select the color temperature mode
	One Push Trigger	<u>ENTER</u>	One push trigger
	R-Gain	0~ <u>C</u> ~255	Adjustable when the white balance mode is set to Manual
	B-Gain	0~ <u>C</u> ~255	Adjustable when the white balance mode is set to Manual
Picture	Picture effect	<ol style="list-style-type: none"> 1. <u>Off</u> 2. B&W 	Set the picture effect
	Sharpness	1~ <u>A</u> ~16	Adjust the sharpness of the image
	NR	<ol style="list-style-type: none"> 1. Off 2. 1 3. 2 4. <u>3</u> 5. 4 6. 5 	Noise reduction setting
	Saturation	0~ <u>A</u> ~14	Adjustable when the <i>image mode</i> is set to Custom mode
	Hue	0~ <u>A</u> ~14	Adjustable when the <i>image mode</i> is set to Custom mode

	Gamma	1. <u>1</u> 2. 2	Adjustable when the <i>image mode</i> is set to <i>Custom mode</i>
Pan Tilt Zoom	Pan / Tilt Limit	On / <u>Off</u>	Turn on/off the angle limit setting
	Pan Right Limit	0~ <u>170</u>	Limit the right angle
	Pan Left Limit	<u>-170</u> ~0	Limit the left angle
	Tilt UP Limit	0~ <u>90</u>	Limit the upward angle
	Tilt Down Limit	<u>-30</u> ~0	Limit the downward angle
	Pan Flip	On / <u>Off</u>	
	Tilt Flip	On / <u>Off</u>	
	Preset Speed	1. 5 per second 2. 25 per second 3. 50 per second 4. <u>150 per second</u> 5. 250 per second 6. 300 per second	Set the rotation speed of the cradle head when Preset is executed
Dig. -Effect	Mirror	1. <u>Off</u> 2. Mirror 3. Flip 4. Mirror + Flip	Set the mode at which the image is turned
Auto Focus	AF Sensitivity	1. Low 2. <u>Normal</u>	Select the AF triggering speed. The higher the speed is, the faster AF is triggered
	AF speed	1. <u>Normal</u> 2. 1 3. 2 4. 3 5. 4 6. 5	Focus speed after AF triggering
System	Prompt	On / <u>Off</u>	Turn on/off the prompt information on the display
	IR Receive	<u>On</u> /Off	Turn on/off the infrared reception
	Control Device	<u>Encoder</u> / Controller	Control Device setting

	Protocol	Protocol V / Protocol PD	Protocol V: VISCA Protocol PD: PELCO D
	Motionless Preset	On / Off	When the function is enabled, the screen will Freeze when Preset is executed. Freeze will be released after Preset is completed
	Low Latency	On / Off	Turn on to reduce image delay
	Digital Zoom	1. Off 2. Clear Image Zoom 3. Digital Zoom	Set the image zoom
	Tally Mode	1. Low 2. Height 3. Off	Turn on/off the Tally Mode to set the brightness of indicator.
	PD Address	1~ C ~255	The Protocol set to PD allows the camera ID address to be assigned
	Output Mode	1. 3840x2160/29.97p 2. 3840x2160/25p 3. 1920x1080/59.94p 4. 1920x1080/50p 5. 1920x1080/ 59.94i 6. 1920x1080/50i 7. 1280x720/ 59.94p 8. 1280x720/50p	Set the image output mode
	Digital Output	YUV /RGB	Set the digital output
	Factory Reset	On / Off	Resume the factory default setting
Status			Display the current setting status

Descriptions of Major Functions

6.1 Switching to CV612HT-4K

1. Press [**Camera 1 ~ 3**] on the **remote control** to select CV612HT-4K.
 - **Camera 1 ~ 3 is selected with IR SELECT.**

6.2 Setting the Digital Output (RGB, YUV)

1. Press [**MENU**] to activate the setting menu.
2. Press [**▶**] or [**◀**] to select [**System**].
3. Press [**ENTER**] to activate.
4. Press [**▲**] or [**▼**] to select [**Digital Output**].
5. Press [**ENTER**] to activate.
6. Press [**▶**] or [**◀**] to select [**YUV / RGB**].
7. Press [**MENU**] to exit.

6.3 Enabling the Tally Mode function

1. Press [**MENU**] to activate the setting menu.
2. Press [**▶**] or [**◀**] to select [**System**].
3. Press [**ENTER**] to activate.
4. Press [**▲**] or [**▼**] to select [**Tally Mode**].
5. Press [**ENTER**] to activate.
6. Press [**▶**] or [**◀**] to select [**Low / High / Off**].
7. Press [**MENU**] to exit.

6.4 Hiding the preset image switch (Motionless Preset)

1. Press [**MENU**] to activate the setting menu.
2. Press [**▶**] or [**◀**] to select [**System**].
3. Press [**ENTER**] to activate.
4. Press [**▲**] or [**▼**] to select [**Motionless Preset**].

5. Press **[ENTER]** to activate.
6. Press **[▶]** or **[◀]** to select **[Off / On]**.
7. Press **[MENU]** to exit.

6.5 Saving the current lens position data

8. Press **[Preset + ID]** on the **remote control** to save the current position data.
 - ID shall be a digit [0 ~ 9].
 - Use VISCA command to store position data to [0 ~ 127]

6.6 Clearing the saved position data

1. Press **[Reset + ID]** on the **remote control** to clear the given position data.
 - ID shall be a digit [0 ~ 9].
 - Use VISCA command to clear position data stored in [0 ~ 127]

6.7 Turning on the back light compensation function

1. Press **[Back Light]** on the **remote control** to turn on or turn off the back light compensation
[Note] Enabled only when the Exposure Mode is set to **Full Auto**.

6.8 Adjusting the shooting angle of the lens

1. Press **[Tilt ▲]** or **[Tilt ▼]** on the **remote control** to adjust the angle upward or downward.
2. Press **[Pan ▶]** or **[Pan ◀]** on the **remote control** to adjust the angle to right or left.
3. Press **[Pan - Tilt Reset]** on the **remote control** to reset the angle to the center point.

6.9 Zooming in/out images

6.9.1 Adjust image size

1. Press **[Fast +]** on the **remote control** to zoom in images.
2. Press **[Fast -]** on the **remote control** to zoom out images.

6.9.2 Fine-tune image size

1. Press [**Slow +**] on the **remote control** to zoom in images.
2. Press [**Slow -**] on the **remote control** to zoom out images.

6.10 Adjusting the focal length

6.10.1 Auto tune

1. Press [**AF**] on the **remote control** to adjust automatically.

6.10.2 Manual focus

1. Press [**MF**] on the **remote control** to turn on the manual focus function.
2. Press **Focus - [+]** or **Focus - [-]** to adjust.

6.11 Adjusting the AF speed

6.11.1 Adjusting the AF Sensitivity

Triggering speed of focus. The higher the speed is, the faster focus is triggered

To shoot fast-moving objects, **AF Sensitivity** can be set to [**High**] or [**Medium**], which is applicable to quick focus.

When the environment is too dark to enable auto focus or fixed objects have to be shot in different brightness, **AF Sensitivity** can be set to [**Low**].

1. Press [**MENU**] to activate the setting menu.
2. Press [**▶**] or [**◀**] to select [**Auto Focus**].
3. Press [**ENTER**] to activate.
4. Press [**▲**] or [**▼**] to select [**AF Sensitivity**].
5. Press [**ENTER**] to activate.
6. Press [**▶**] or [**◀**] to select [**Low / Normal**].
7. Press [**MENU**] to exit.

6.11.2 Adjusting the AF speed

The focus speed upon triggering **AF Sensitivity**

- [**Normal**] (default): Image flickering may not occur
- [**Fast**]: Fast focus speed

1. Press **[MENU]** to activate the setting menu.
2. Press **[▶]** or **[◀]** to select **[Auto Focus]**.
3. Press **[ENTER]** to activate.
4. Press **[▲]** or **[▼]** to select **[AF speed]**.
5. Press **[ENTER]** to activate.
6. Press **[▶]** or **[◀]** to select **[Fast / Normal]**.
7. Press **[MENU]** to exit.

6.12 Setting the image mode

1. Press **[Picture]** on the **remote control** to switch **[Off / B&W]**.

6.13 Freezing images

1. Press **[Freeze]** on the **remote control** to freeze the current image on the display.

6.14 Rotating the image

1. Press **[Mirror]** on the **remote control** to switch **[Off / Mirror / Flip / Mirror + Flip]**.

6.15 Changing the camera direction

1. Press **[L/R Direction Set]** on the **remote control** to switch **[L/R Direction / Off / Normal]**.

6.16 Displaying the current status

1. Press **[Info]** on the **remote control** to display the current status information.

6.17 Resetting to the original setting

1. Press **[MENU]** to activate the setting menu.
2. Press **[▶]** or **[◀]** to select **[System]**.
3. Press **[ENTER]** to activate.
4. Press **[▲]** or **[▼]** to select **[Factory Reset]**.
5. Press **[ENTER]** to activate.
6. Press **[▶]** or **[◀]** to select **[On]**.

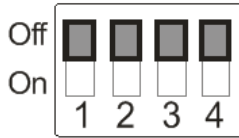
7. Press [ENTER] to execute.

DIP Switch Setting

* Please turn off the camera before changing DIP switch setting.

7.1 DIP SWITCH

7.1.1 OUTPUT Switch



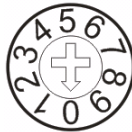
Output Mode	Setting	Output Mode	Setting
3840 × 2160 29.97p		3840 × 2160 25p	
1920 × 1080 59.94p		1920 × 1080 50p	
1920 × 1080 59.94i		1920 × 1080 50i	
1280 × 720 59.94p		1280 × 720 50p	

7.1.2 IR SELECT



ID	Setting
1	
2	
3	

7.1.3 Camera Address Selector



Setting	Function Descriptions
0~7	ID 0~7
8~9	Reserved

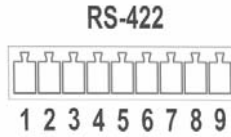
7.1.4 System Switch



Setting	Function Descriptions
DIP 1	RS-232C/RS-422 selector OFF : RS-232C / ON : RS-422
DIP 2	Infrared signal output switch OFF : Off / ON : On
DIP 3	Communication baud rate selector OFF : 9600 / ON : 38400
DIP 4	Reserved

7.2 RS-422 Connection

7.2.1 RS-422 Pin Description

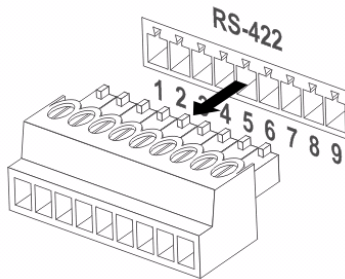


Pin NO.	Function
1	RXD OUT -
2	RXD OUT +
3	TXD OUT -
4	TXD OUT +
5	GND
6	RXD IN -
7	RXD IN +
8	TXD IN -
9	TXD IN +

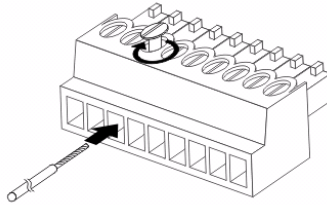
* Please connect IN+ to OUT+ when connecting to SONY products
For non-SONY products, it may be necessary to connect IN+ to OUT-

7.2.2 Use RS-422 Connection

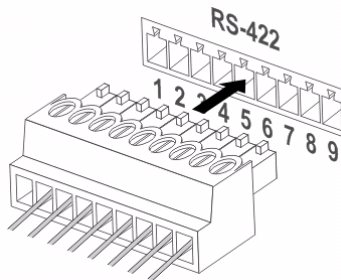
1. Hold the two sides of RS-422 connector and pull out in the direction shown by the arrow in the figure below



2. Peel off a section of copper wire (AWG Nos. 28 to 18) and insert it into the connector hole; then use flat screw driver to fix it



3. Insert the wired RS-422 connector back to the camera.
The connection is now completed.



* When RS-422 connection is being used, do not use RS-232C connection.

Troubleshooting

This chapter describes problems you may encounter while using the CV612HT-4K. If you have questions, please refer to related chapters for additional information.

If problems persist after troubleshooting, contact Marshall Electronics technical support.

Toll free: (800) 800.6608 / Outside USA: (310) 333.0606

support@marshall-usa.com

No.	Problems	Solutions
1.	Boot without power signal	<ol style="list-style-type: none">1. Make sure you have plugged in the power cord.2. Make sure the Service DIP switch is Off.
2.	There is no image output from CV612HT-4K	<ol style="list-style-type: none">1. Check the power.2. Check if DIP switch is properly set. Please refer to Chapter 7 DIP Switch Setting for related settings.3. Make sure the display supports the output resolution; in general, the resolution is 1080p60/1080i60/720p60.4. Replace the cables and make sure they are not faulty.
3.	CV612HT-4K image is severely delayed	Please use 1080p or 720p 60/50 Hz signals rather than 25/30 Hz signals.
4.	Not working after changes to DIP Switch setting	After completing DIP Switch setting, unplug and reconnect the power cord and turn on the camera to change the setting.
5.	CV612HT-4K cannot be operated by remote control	<ol style="list-style-type: none">1. Please confirm if the Camera Select on the remote control can be used together with the IR Select on CV612HT-4K.2. Please prevent CV612HT-4K from direct sunshine.3. Make sure the energy-saving bulb and the IR touch screen are as far as possible in order to avoid interference.4. When several CV612HT-4K are connected in the same area, the operation of two remote controls at the same time may result in signal interference. It is recommended to use one remote control.
6.	The device cannot be controlled with Codec	<ol style="list-style-type: none">1. Please consult the distributor to make sure the firmware version is the latest one. The steps to check version is as follows:<ol style="list-style-type: none">1.1 Press [MENU] on the remote control1.2 Choose [Status]1.3 Go to Page 5 of [System]1.4 Make sure the firmware version is correct2. Make sure the connection is correct (RS-232/422 Input).3. Make sure System Switch DIP 1 and DIP 3 are correct.
7.	The device cannot be controlled with RS-232/RS422	<ol style="list-style-type: none">1. Make sure the connection is correct (RS-232/422 Input).2. Make sure System Switch DIP 1 and DIP 3 are correct.

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