ANI-PIP-21UHD

4K60 2x1 Multiviewer Seamless UHD Video Switcher

PACKAGE CONTENTS

Before attempting to use this unit, please check the packaging and make sure the following items are contained included:

- 4K60 2x1 Multiviewer Seamless UHD Video Switcher
- IR Remote
- 3pin-3.81mm Phoenix Connector (male)
- 38KHz IR Wideband Receiver Cable (1.5 meters)
- (2) Mounting Ears
- (4) Machine Screws (KM3*4)
- 12V/1A Locking Power Adapter

SAFETY INFORMATION

1. To ensure the best results from this product, please read this manual and all other documentation before operating your equipment. Retain all documentation for future reference.

2. Follow all instructions printed on unit chassis for proper operation.

3. To reduce the risk of fire, do not spill water or other liquids into or on the unit, or operate the unit while standing in liquid.

4. Make sure power outlets conform to the power requirements listed on the back of the unit. Keep unit protected from rain, water and excessive moisture.

5. Do not attempt to clean the unit with chemical solvents or aerosol cleaners, as this may damage the unit. Dust with a clean dry cloth.

6. Do not use the unit if the electrical power cord is frayed or broken. The power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords and plugs, convenience receptacles, and the point where they exit from the appliance.

7. Do not force switched or external connections in any way. They should all connect easily, without needing to be forced.

8. Always operate the unit with the AC ground wire connected to the electrical system ground. Precautions should be taken so that the means of grounding of a piece of equipment is not defeated.

9. AC voltage must be correct and the same as that printed on the rear of the unit. Damage caused by connection to improper AC voltage is not covered by any warranty.

10. Turn power off and disconnect unit from AC current before making connections.

11. Never hold a power switch in the "ON" position.

12. This unit should be installed in a cool dry place, away from sources of excessive heat, vibration, dust, moisture and cold. Do not use the unit near stoves, heat registers, radiators, or other heat producing devices.

13. Do not block fan intake or exhaust ports. Do not operate equipment on a surface or in an environment which may impede the normal flow of air around the unit, such as a bed, rug, carpet, or completely enclosed rack. If the unit is used in an extremely dusty or smoky environment, the unit should be periodically "blown free" of foreign dust and matter.

14. To reduce the risk of electric shock, do not remove the cover. There are no user serviceable parts inside. Refer all servicing to qualified service personnel. There are no user serviceable parts inside.

15. When moving the unit, disconnect input ports first, then remove the power cable; finally, disconnect the interconnecting cables to other devices.

16. Do not drive the inputs with a signal level greater than that required to drive equipment to full output.

17. The equipment power cord should be unplugged from the outlet when left unused for a long period of time.

18. Save the carton and packing material even if the equipment has arrived in good condition. Should you ever need to ship the unit, use only the original factory packing.

19. Service Information Equipment should be serviced by qualified service personnel when:

    A. The power supply cord or the plug has been damaged.

    B. Objects have fallen, or liquid has been spilled into the equipment.

    C. The equipment has been exposed to rain.

    D. The equipment does not appear to operate normally, or exhibits a marked change in performance.

    E. The equipment has been dropped, or the enclosure damaged.

THIS SAFETY INFORMATION IS OF A GENERAL NATURE AND MAY BE SUPERSEDED BY IN-STRUCTIONS CONTAINED WITHIN THIS MANUAL.

SAFETY PRECAUTIONS

Please read all instructions before attempting to unpack, install or operate this equipment and before connecting the power supply. Please keep the following in mind as you unpack and install this equipment:

• Always follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.

• To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.

• Never spill liquid of any kind on or into this product.

• Never push an object of any kind into this product through any openings or empty slots in the unit, as you may damage parts inside the unit.

• Do not attach the power supply cabling to building surfaces.

• Use only the supplied power supply unit (PSU). Do not use the PSU if it is damaged.

• Do not allow anything to rest on the power cabling or allow any weight to be placed upon it or any person walk on it.

• To protect the unit from overheating, do not block any vents or openings in the unit housing that provide ventilation and allow for sufficient space for air to circulate around the unit.

DISCLAIMERS

The information in this manual has been carefully checked and is believed to be accurate. We assume no responsibility for any infringements of patents or other rights of third parties which may result from its use.

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INTRODUCTION

This 4K60 2x1 Multiviewer Seamless UHD Video Switcher was developed for the purpose of supporting higher output resolution (4K@60) for multiple sources on a single screen. It can combine two video signals onto a single UHD or HD displayer. The user can manage each input, and create combinations of the two inputs on a single display, as well as adjust the position of either input. This product supports (4) display modes, within the mode range, users can freely switch 2-channel HD input signals. It can realize single screen display and multiview display on a single screen. This device supports full range of input video resolutions up to 4K@60 (RB) and audio RCA /Optical de-embedding supported for external audio distribution systems. This device can be controlled via front panel buttons, IR remote, OSD menu navigation, Controller software, RS-232 commands.

FEATURES

- HDMI 2.0b, HDCP 2.2 and HDCP 1.x compliant
- Support 18Gbps video bandwidth
- Input and output resolutions support up to 4K2K@60 4:4:4
- Support LPCM, AC3, DD+, DTS, DTS-HD, up to 7.1 audio channel
- Seamless switching between input channels and combined multiple images on single UHD monitor
- Up to (4) display modes: SINGLE, PIP, PBP (1), PBP (2)
- Audio de-embedding via analog and optical fiber audio ports
- Support volume control and independent audio selection
- Advanced EDID management
- Control via front panel buttons, IR remote, OSD menu navigation, Controller software, RS-232 commands
- Compact design for easy and flexible installation

SPECIFICATIONS

- **Input Ports:** (2) HDMI IN [Type A, 19-pin female]
- **Output Ports:** HDMI OUT [Type A, 19-pin female]
  - L/R OUTPUT [RCA]
  - OPTICAL OUTPUT (TosLink)
- **Control Ports:**
  - RS-232 [3pin-3.81mm phoenix connector]
  - IR EXT [3.5mm Stereo Mini-jack]
- **HDMI Compliance:** HDMI 2.0b
- **HDCP Compliance:** HDCP 2.2 / 1.x
- **Video Bandwidth:** 18Gbps
- **Video Resolution:** Up to 4K2K@60 4:4:4
- **IR Level:** 5Vp-p
- **IR Frequency:** 38KHz
- **Color Space:** RGB, YCbCr 4:4:4, YCbCr 4:2:2, YCbCr 4:2:0
- **Color Depth:** 8 bpc (24 bit total)
- **Audio Formats:**
  - **HDMI:** PCM2.0/5.1/7.1CH, Dolby Digital/Plus, DTS, DTS High Res
  - **Analog audio [3.5mm L/R]:** PCM2.0
  - **TosLink (OPTICAL):** Dolby Digital, DTS 5.1, PCM2.0
  - ***Note:*** It does not support HBR audio.
- **ESD Protection:** Human Body Model:
  - ±8kV (air-gap discharge)
  - ±4kV (contact discharge)
- **Housing:** Metal Enclosure
- **Color:** Black
- **Dimensions (WxDxH):** 6.9 x .22 x 1.2 in (175x100x30mm)
- **Weight:** 1.1 lb / 497g
- **Operating Temperature:** 0°C~40°C/ 32°F~104°F
- **Storage Temperature:** −20°C ~ 60°C/−4°F ~140°F
- **Relative Humidity:** 20~90% RH (non-condensing)
- **Power Consumption (Max):** 4.56W (Max)
- **Power Supply:** Input: AC 100 - 240V 50/60Hz / Output: DC 12V/1A (US/EU standard, CE/FCC/ UL certified)

As product improvements are continuous, specifications are subject to change without notice.

OPERATION CONTROLS & FUNCTIONS

FRONT PANEL

❶ **POWER BUTTON:** Press this button to power on the device. Hold down this button for 1 second to enter the standby mode.

❷ **POWER LED:** The Power LED will light green when the product is powered on, and red when on standby.

❸ **INPUT 1-2 LEDS:** Input signal indicator lights. When the HD 1/2 ports are connected to an active source device, the corresponding green LED will be on.
Note: Only the LED of the selected input channel will light in green on single screen display mode; all LEDs will light in green on multiview mode.

❹ **IR WINDOW:** IR signal receiving window.

❺ **INPUT BUTTON:** Input source button, only available on single screen display mode.

❻ **MULTIVIEW BUTTON:** Multiview display mode button.
- Press this button to circularly select: SINGLE - PIP - PBP (1) - PBP (2).
- Hold down this button for 3 seconds to select the aspect ratio for PBP (1) / PBP (2).

❼ **RES BUTTON:** Output resolution switching button.
- Press the RES button to circularly switch the output resolution of the HDMI OUTPUT port (Please refer to the output resolution list of "8. Video & Audio").
- Hold down the RES button for 3 seconds to switch the output resolution to 720P60.

OPERATION CONTROLS & FUNCTIONS

BACK PANEL
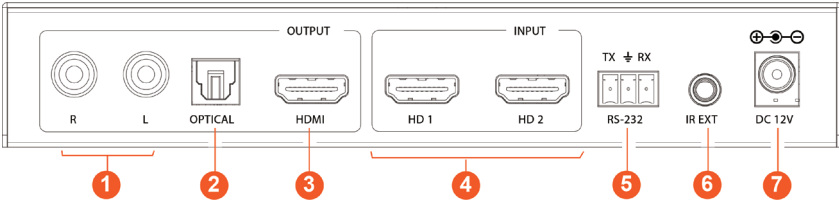
❶ **L/R PORT:** PCM2.0 Analog audio output port.

❷ **OPTICAL PORT:** Optical fiber digital audio output port.

❸ **HDMI OUTPUT PORT:** HDMI output port, connected to a HDMI display device such as a TV or Monitor with a HDMI cable.

❹ **HD 1-2 INPUT PORTS:** HDMI signal input ports, connected to HDMI source devices such as a DVD or Set-top box with a HDMI cable.

❺ **RS-232 PORT:** 3-pin phoenix connector, connected to a PC or control system for serial port upgrade or RS-232 command control.
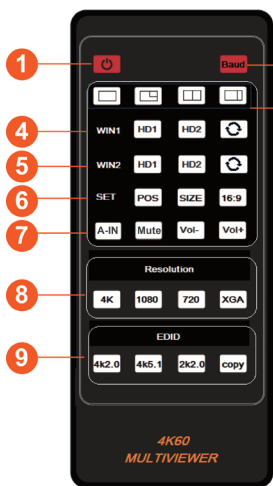
❻ **IR EXT PORT:** IR signal receiving port, connected with a 38KHz IR Receiver cable. If the IR signal receiving window of the unit is blocked or the unit is installed in a closed area out of infrared line of sight, the IR receiver cable can be inserted to the **"IR EXT"** port to receive the IR remote signal.

❼ **DC 12V:** DC 12V/1A power input port.

REMOTE CONTROL

❶ **POWER ON OR STANDBY:** Press this button to power on the switcher or set it to standby mode.

❷ **BAUD:** Press this button to pop up OSD menu, then circularly select the serial port baud rate: 115200, 57600, 38400, 19200, 9600

❸ **MULTIVIEW DISPLAY MODE BUTTONS:** Press these buttons to select the display mode: SINGLE - PIP - PBP (1) - PBP (2).

❹ **WIN1:** These buttons are available in all modes. In single screen display mode, press **HD1/HD2/ ↻** button to directly/ circularly select input source for the WIN1 screen, and the corresponding input LED on the front panel will light in green. In PIP / PBP(1) / PBP(2) display mode, press **HD1/HD2/** button to directly/circularly select input source for the WIN1 screen, and both input LEDs on the front panel will light in green.

❺ **WIN2:** These buttons are unavailable in single screen display mode. In PIP / PBP(1) / PBP(2) mode, press **HD1/HD2/↻** button to directly /circularly select input source for the WIN2 screen, and both input LEDs on the front panel will light in green.

❻ **SET:** In PIP mode, press **POS** to change the position of sub window; press **SIZE** to zoom in / out the size of sub window. In PBP(1) / PBP(2) mode, press **16:9** to switch the aspect ratio between 16:9 and FULL.

❼ **AUDIO:** Press **A-IN** to switch between the two HDMI input audio sources. Press **MUTE** to mute / unmute the audio output. Press **VOL- / VOL+** to increase / decrease the audio output volume.

❽ **RESOLUTION:** Press 4K, 1080P, 720P or XGA to select output resolution.

❾ **EDID:** Press 4K2.0, 4K5.1, 2K2.0 or COPY to select EDID mode.

IR PIN DEFINITION

IR Receiver pin's definition is as below:

IR CODES

Power Toggle	08F7 4D	WIN2 HD1	08F7 19	Resolution 4K	08F7 4F
Baud	08F7 0B	WIN2 HD2	08F7 0F	Resolution 1080	08F7 44
Multiview-Single	08F7 09	WIN2 Cycle	08F7 03	Resolution 720	08F7 50
Multiview-PIP	08F7 54	SET POS	08F7 57	Resolution XGA	08F7 0E
Multiview-PBP (1)	08F7 47	SET SIZE	08F7 4E	EDID 4K2.0	08F7 18
Multiview-PBP (2)	08F7 42	SET 16:9	08F7 17	EDID 4K5.1	08F7 45
WIN1 HD1	08F7 48	Audio Mute	08F7 0D	EDID 2K2.0	08F7 14
WIN1 HD2	08F7 4B	Audio Vol-	08F7 56	EDID copy	08F7 51
WIN1 Cycle	08F7 43	Audio Vol+	08F7 16		

EDID SETTINGS

User can select following EDID modes via RS-232 command or OSD menu navigation.

No.	EDID Mode	No.	EDID Mode	No.	EDID Mode
1	4K60-2.0CH	8	1080P-5.1CH	15	1280x1024-2.0CH
2	4K60-5.1CH	9	1080P-7.1CH	16	1024x768-2.0CH
3	4K60-7.1CH	10	1920x1200-2.0CH	17	720P-2.0CH
4	4K30-2.0CH	11	1680x1050-2.0CH	18	AUTO
5	4K30-5.1CH	12	1600x1200-2.0CH	19	USER1
6	4K30-7.1CH	13	1440x900-2.0CH		
7	1080P-2.0CH	14	1360x768-2.0CH		

VIDEO & AUDIO

The switcher supports multiple resolution video inputs up to 3840x2160@60, and supports multiple audio formats such as LPCM, AC3, DD+, DTS, DTSHD, up to 7.1 channel pass through function via a HDMI cable. Control the volume of audio in LPCM format.

The switcher supports following video output resolutions via a powerful scaling engine.

| No.	EDID Mode	No.	EDID Mode
1	4096x2160p 60Hz	8	1920x1080p 60Hz
2	4096x2160p 50Hz	9	1920x1080p 50Hz
3	3840x2160p 60Hz	10	1360x768p 60Hz
4	3840x2160p 50Hz	11	1280x800p 60Hz
5	3840x2160p 30Hz	12	1280x720p 60Hz
6	3840x2160p 25Hz	13	1280x720p 50Hz
7	1920x1200p 60Hz RB	14	1024x768 60Hz

MULTIVIEW / OSD MENU NAVIGATION

MULTIVIEW

The switcher supports 4 categories of multiview display modes: SINGLE, PIP, PBP (1), PBP (2)
Users can select different operations for different multiview modes as following:

SINGLE: Inputs selection

PIP: Inputs selection, Sub window size and position selection

PBP (1), PBP (2): Inputs selection,
Display mode selection, Display aspect selection Multiview window distributions are as following:

| SINGLE | PIP | PBP (1) | PBP (2) |
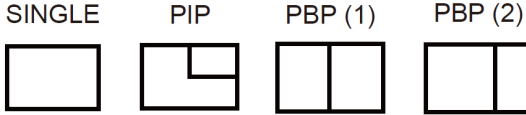
User can select multiview display modes via IR remote, RS-232 commands or Controller software.

OSD MENU NAVIGATION

A total of four buttons on the IR Remote are used for audio setting on OSD menu navigation, including Baud, Mute, VOL-, VOL+.
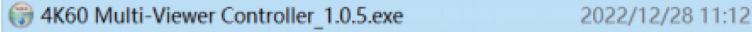Menu contents are as follows:

Baud	Baud rate	115200	115200,57600,38400,19200,9600
Mute	Audio Mute	OFF	ON, OFF
VOL-/VOL+	Audio Volume	100	0..100

CONTROLLER SOFTWARE OPERATION GUIDE

INSTALLATION & CONNECTION

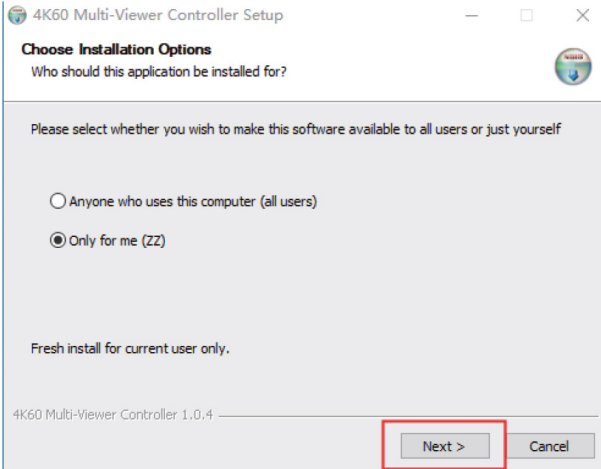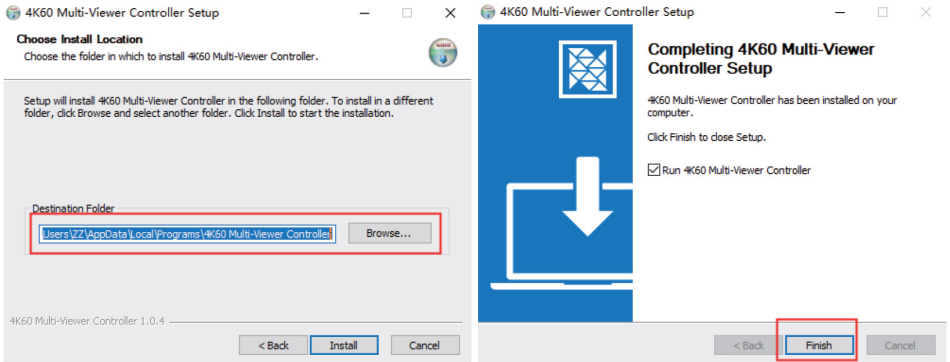Follow the steps below to install the Controller software.

Step 1. Double-click the following driver to install the Controller software.

**Step 2.** Select **"Anyone who uses this computer (all users)"**, and then click **"Next"**.

Step 3. Select the installation path and click **"Install"**. After the installation is completed, click **"Finish"** to start using the Controller software.

OSD MENU NAVIGATION

Follow the steps below to connect the Controller software and the device.

Step 1. Connect the RS-232 port of the switcher to a PC with an RS-232 serial cable and an USB to RS-232 serial cable, as shown in the figure below.
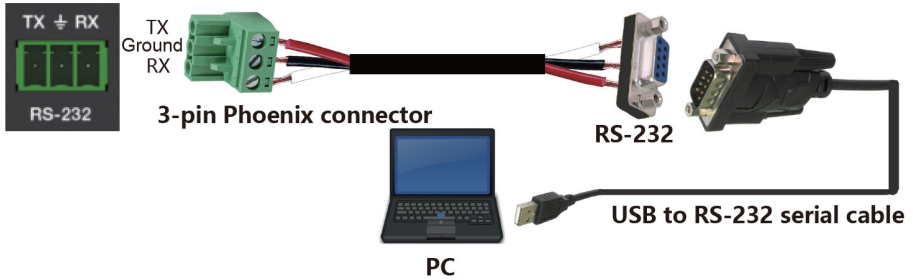
Step 2. Launch the installed Controller software. (The default language is English, and you can set the language on the upper right corner of the main page.) Select **"COM Control Mode"** on the **"General"** page, then select the Port number and Baud Rate (default: 115200), and finally click **"Connect"**.
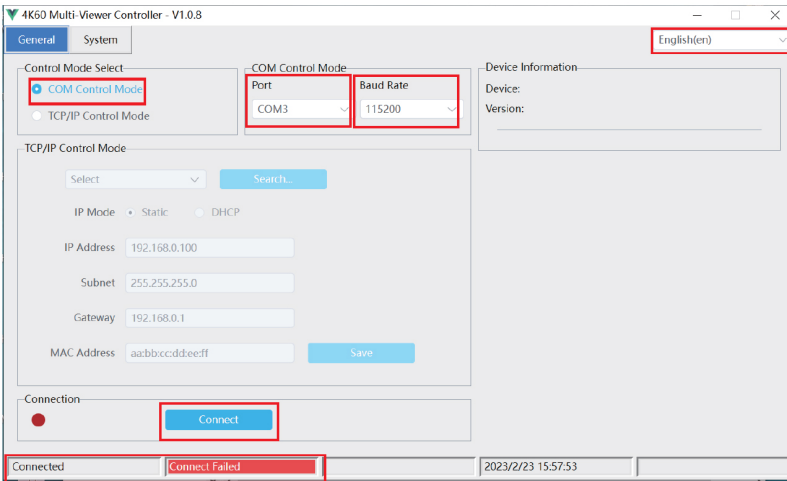
After successful connection, the **"General"** page will display the relevant information of the connected device, and the status bar at the bottom will display **"Connected"**.

OSD MENU NAVIGATION

CONTROLLER MAIN INTERFACE
GENERAL PAGE
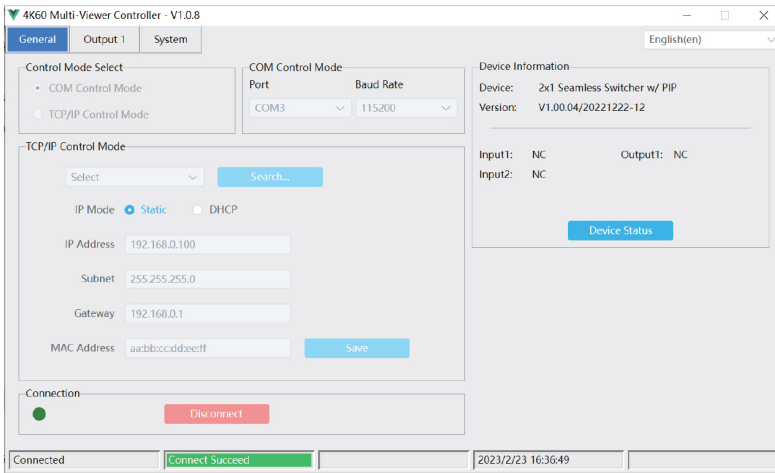
You can do the following operations on the General page:

❶ **CONTROL MODE SELECT:** Select the **"COM Control Mode"**. (TCP/IP control is not supported temporarily, so the TCP/IP Control Mode is disabled.)

❷ **COM CONTROL MODE:** Select the Port number and Baud Rate of the device.

❸ **DEVICE INFORMATION:** Display the device name, version and input/output connection status. Click **"Device Status"** to refresh the device status.

❹ **CONNECTION:** Click to set the connection status.

❺ **CONNECTED:** Display the connection status.

OUTPUT PAGE
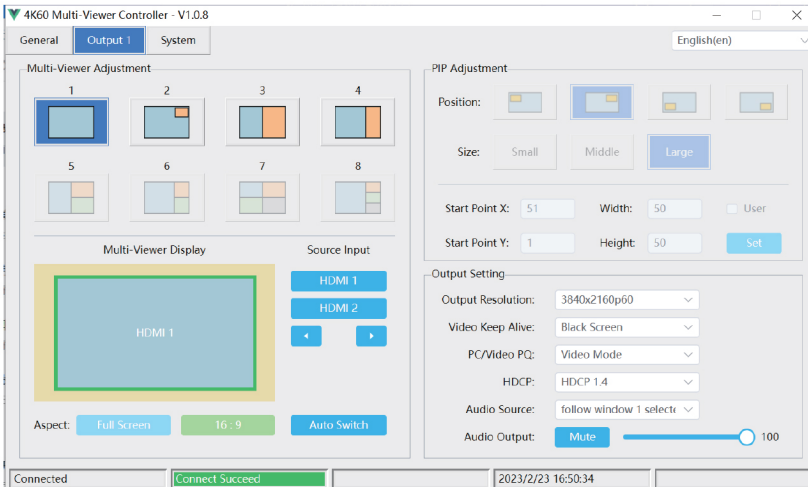
OSD MENU NAVIGATION

You can do the following operations on the Output page:

❶ **MULTI-VIEW ADJUSTMENT:** Click to select the desired screen display mode. There are four modes available: SINGLE-PIP-PBP(1)-PBP(2).

❷ **PIP ADJUSTMENT:** In the PIP mode, you can switch the location and size of the PIP and set the user-defined PIP, as shown in the following table.

Size	Relative Position (Starting Position)	Height and Width of the Inner Frame
Small	Start Point X: 71 Start Point Y: 71	Width: 30 Height: 30
Middle	Start Point X: 61 Start Point Y: 61	Width: 40 Height: 40
Large	Start Point X: 51 Start Point Y: 51	Width: 50 Height: 50
User	Start Point X: 1-100 Start Point Y: 1-100	Width: 1-100 Height: 1-100

❸ **MULTI-VIEWER DISPLAY:** Display the input and output.

❹ **SOURCE INPUT:** Select the input signal source. You should select the window in **"Multi-Viewer Display"** firstly, and then click **"HDMI 1/2"** in **"Source Input"** to select a signal source, or click / to select the last/next signal source.

❺ **ASPECT:** Click **"Full Screen"** or **"16:9"** to switch the display aspect. Only the following modes are available: PBP(1)-PBP(2).

❻ **AUTO SWITCH:** Enable or disable the function of automatically switching input signal source, available only in SINGLE mode.

❼ **OUTPUT SETTING:** Set the output resolution, video keep alive, PC/Video PQ, HDCP, audio source and audio output.

SYSTEM PAGE
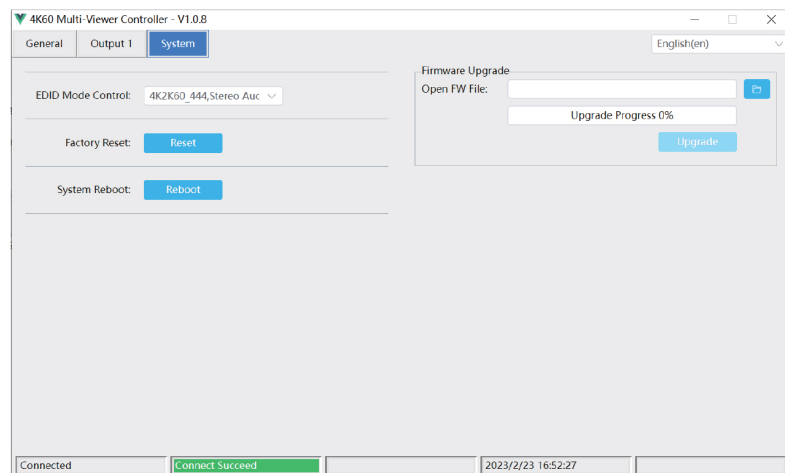
OSD MENU NAVIGATION

❶ **EDID MODE CONTROL:** Click the drop-down list on the right to select EDID mode.

❷ **FIRMWARE UPGRADE:** Click the folder icon on the right to import the firmware upgrade file, then click **"Upgrade"** to start upgrade. There will be a progress bar prompt during the upgrade process. When the progress bar reaches 100%, it indicates the upgrade is successful, and the device will be restarted automatically.

❸ **FACTORY RESET:** Click **"Reset"** to reset the device to factory default settings.

❹ **SYSTEM REBOOT:** Click **"Reboot"** to reboot the device.

RS-232 COMMANDS

The product also supports RS-232 command control. Connect the RS-232 port of the product to a PC with an RS-232 to USB serial cable. Then open a Serial Command tool on PC to send ASCII commands to control the product. The ASCII command list about the product is shown as below.

ASCII Commands				
Serial port protocol: baud rate: 115200(default) Data bits: 8 Stop bits: 1 Check bit: 0				
x - Parameter 1; y - Parameter 2; ! - Delimiter				
Command Code	**Function Description**	**Example**	**Feedback**	**Default Setting**
SYSTEM SETTING				
help!	List all commands	help!		
r type!	Get device model	r type!	2x1 HDMI Multiviewer	
r fw version!	Get Firmware version	r fw version!	MCU FW version x.xx.xx SCALER FW version x.xx.xx	
power z!	Power on/off the device, z=0~1(z=0 power off, z=1 power on)	power z!	power on System Initializing... Initialization Finished! MCU FW version x.xx.xx SCALER FW version x.xx.xx	
r power!	Get current power state	r power!	power on/power off	
reboot!	Reboot the device	reboot!	Reboot… System Initializing... Initialization Finished! MCU FW version x.xx.xx SCALER FW version x.xx.xx	
reset!	Reset to factory defaults	reset!	Reset to factory defaults System Initializing... Initialization Finished! MCU FW version x.xx.xx SCALER FW version x.xx.xx	
OUTPUT SETTING				
s output res x!	Set Output Resolution (x=1~14) 1. 4096x2160p60, 2. 4096x2160p50, 3. 3840x2160p60, 4. 3840x2160p50, 5. 3840x2160p30, 6. 3840x2160p25, 7. 1920x1200p60RB, 8. 1920x1080p60, 9. 1920x1080p60, 10.1360x768p60, 11.1280x800p60, 12.1280x720p60, 13.1280x720p50, 14. 1024x768p60	s output res 3!	out resolution: 3840x2160p60	3840x2160p60

RS-232 COMMANDS

Command Code	Function Description	Example	Feedback	Default Setting
r output res!	Get output resolution	r output res!	out resolution: 3840x2160p60	
s output hdcp x!	set output hdcp(x=1~3) 1. HDCP 1.4 2. HDCP 2.2 3. HDCP OFF	s output hdcp 2!	output HDCP: HDCP 1.4	HDCP1.4
r output hdcp!	Get output hdcp status.	r output hdcp!	output HDCP: HDCP 1.4	
s output vka x!	Set output video keep active pattern.(x=1~2) 1. black screen 2. blue screen	s output vka 1!	output VKA pattern: black screen	black screen
r output vka!	Get output video keep active pattern.	r output vka!	output VKA pattern: black screen	
s output itc x!	Set output video mode(x=1~2) 1: video mode 2: pc mode	s output itc 1!	output ITC: video mode	video mode
r output itc!	Get output video mode	r output itc!	output ITC: video mode	
EDID SETTING				
s input EDID x!	Set HDMI input EDID mode (x=1~19) 1. 4K2K60_444,Stereo Audio 2.0 2. 4K2K60_444,Dolby/DTS 5.1 3. 4K2K60_444,HD Audio 7.1 4. 4K2K30_444,Stereo Audio 2.0 5. 4K2K30_444,Dolby/DTS 5.1 6. 4K2K30_444,HD Audio 7.1 7. 1080P,Stereo Audio 2.0 8. 1080P,Dolby/DTS 5.1 9. 1080P,HD Audio 7.1 10.1920x1200,Stereo Audio 2.0 11.1680x1050,Stereo Audio 2.0 12.1600x1200,Stereo Audio 2.0 13.1440x900,Stereo Audio 2.0 14.1360x768, Stereo Audio 2.0 15.1280x1024,Stereo Audio 2.0 16.1024x768, Stereo Audio 2.0 17.720p,Stereo Audio 2.0 18.copy from HDMI out 19.USER1	s input EDID 1!	input EDID: 4K2K60_444, Stereo Audio 2.0	4K2K60_444,Stereo Audio 2.0
r input EDID!	Get input EDID mode	r input EDID!	input EDID:4K2K60_444, Stereo Audio 2.0	
r input EDID!	Get input EDID mode	r input EDID!	input EDID:4K2K60_444, Stereo Audio 2.0	
s edid user1 00 FF FF ...!	Set user1 EDID data	s edid user1 00 FF FF FF FF FF ...!	user1 EDID data: 00 FF FF FF FF FF FF 00	
r edid user1!	Get user1 EDID data	r edid user1!	user1 EDID data: 00 FF FF FF FF FF FF 00	

RS-232 COMMANDS

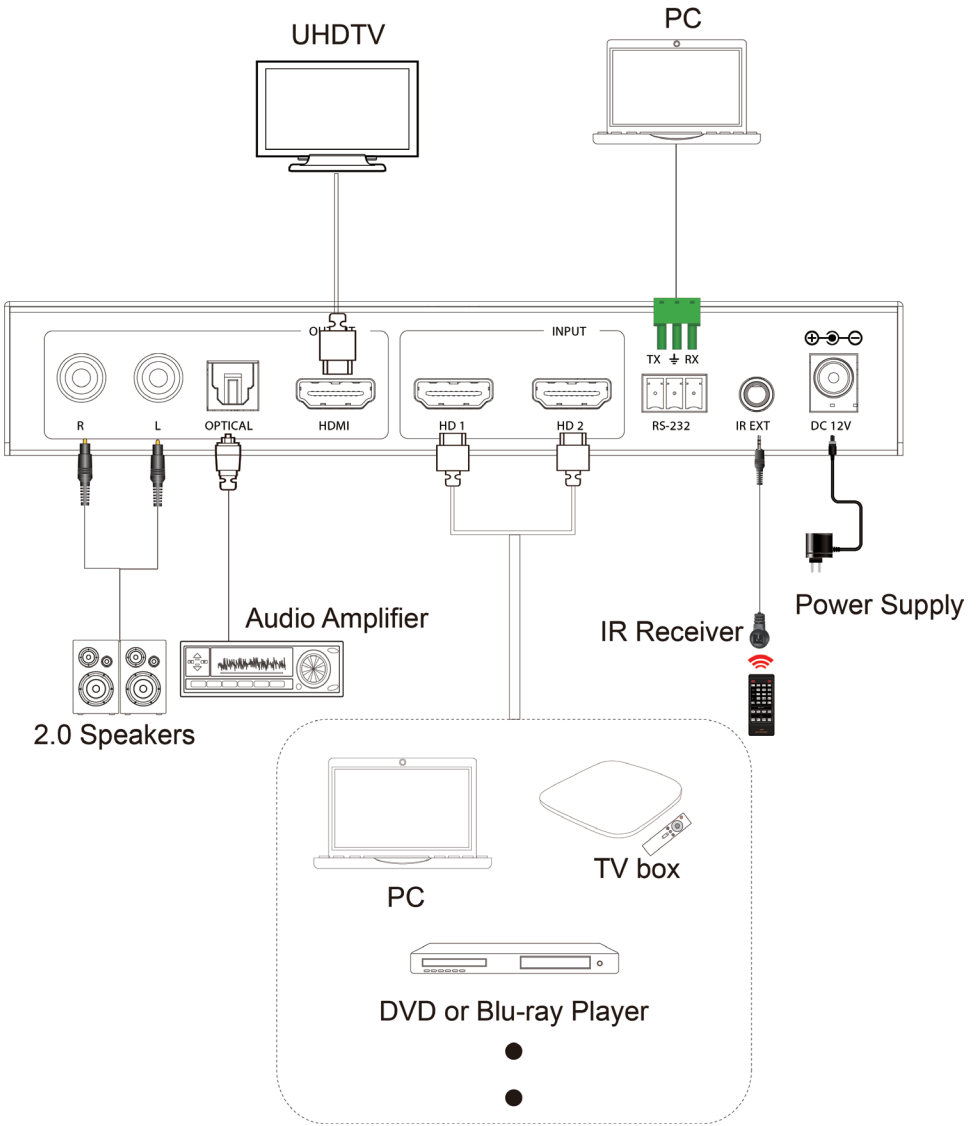| Command Code	Function Description	Example	Feedback	Default Setting
AUDIO SETTING				
s output audio x!	Set output audio source(x=0~4) 0. follow window 1 selected source 1. HDMI 1 input audio 2. HDMI 2 input audio 3. HDMI 3 input audio 4. HDMI 4 input audio	s output audio 0!	output audio: follow window 1 selected source	output audio: follow window 1 selected source
r output audio!	Get output audio source	r output audio!	output audio: follow window 1 video source	
s output audio vol+!	Increase output audio volume	s output audio vol+!	output audio volume: 50	
s output audio vol-!	Decrease output audio volume	s output audio vol-!	output audio volume: 50	
s output audio vol x!	Set output audio volume value (x=0~100)	s output audio vol 30!	output audio volume: 30	100
r output audio vol!	Get output audio volume	r output audio vol!	output audio volume: 30	
s output audio mute x!	Set output audio mute on/off (x=0~1) 0. mute off 1. mute on	s output audio mute 0!	output audio mute: off	off
r output audio mute!	Get output audio mute on/off	r output audio mute!	output audio mute: off	
SINGLE SCREEN MODE SETTING				
s auto switch x!	Enable/disable auto switch feature(x=0~1) 0. Disable auto switch 1. Enable auto switch	s auto switch 0!	auto switch off	auto switch off
r auto switch!	Get auto switch feature	r auto switch!	auto switch off	
s in source x!	Route input source to output (1~4) 1. HDMI 1 2. HDMI 2 3. HDMI 3 4. HDMI 4	s in source 1!	HDMI 1	HDMI 1
r in source!	Get output secected input source	r in source!	HDMI 1	

RS-232 COMMANDS

Command Code	Function Description	Example	Feedback	Default Setting
MULTI-VIEWER MODE SETTING				
s multiview x!	Set multi-viewer display mode (x=1~3) 1. single screen 2. PIP 3. PBP	s multiview 1!	single screen	single screen
r multiview!	Get multi-viewer display mode	r multiview!	single screen	
s window x in y!	Select one input for one display window for the current Multiview mode. (x=1~2) 1. window 1 2. window 2 (y=1~2) 1. HDMI 1 2. HDMI 2	s window 1 in 1!	window 1 select HDMI 1	
r window x in!	Get windows selected input source (x=0~2) 0. ALL 1. window 1 2. window 2	r window 1 in!	window 1 select HDMI 1	
s window x border y!	Set the border mode of the specified window. (x=1~2) 1. window 1 2. window 2 (y=0~1) 0. off 1. on	s window 1 border 1!	window 1 border on	off
r window x border!	Get the border mode of windows (x=0~2) 0. ALL 1. window 1 2. window 2	r window 1 border!	window 1 border on	
s window x border color y!	Set the border color of the specified window. (x=1~2) 1. window 1 2. window 2 (y=1~9) 1. BLACK 2. RED 3. GREEN 4. BLUE 5. YELLOW 6. MEGENTA 7. CYNA 8. WHITE 9. GRAY	s window 1 border color 1!	window 1 border color:BLACK	YELLOW

RS-232 COMMANDS

Command Code	Function Description	Example	Feedback	Default Setting
r window x border color!	Get the border color of windows (x=0~2) 0. ALL 1. window 1 2. window 2	r window 1 border color!	window 1 border color:BLACK	
s PIP Hstart Vstart Hsize Vsize!	Set PIP window to user define mode Hstart=(1~100) Vstart=(1~100) Hsize=(1~100) Vsize=(1~100) NOTE:Hstart+Hsize<=101, Vstart+Vsize<=101	s PIP 10 10 20 20!	PIP 10 10 20 20	
s PIP position x!	Set PIP window position (x=1~5) 1. Left Top 2. Left Bottom 3. Right Top 4. Right Bottom 5. user	s PIP position 3!	PIP on right top	PIP on right top
r PIP position!	Get PIP window position	r PIP position!	PIP on right top	
s PIP size x!	Get PIP window size (x=1~4) 1. small 2. middle 3. large 4. user	s PIP size 3!	PIP size: large	PIP size: large
r PIP size!	Get PIP window size	r PIP size!	PIP size: large	
s PBP mode x!	Set PBP windows display mode (x=1~2) 1. PBP mode 1 2. PBP mode 2	s PBP mode 1!	PBP mode 1	PBP mode 1
r PBP mode!	Get PBP windows display mode	r PBP mode!	PBP mode 1	
s PBP aspect x!	Set PBP windows display aspect ratio (x=1~2) 1. Full screen 2. 16:9	s PBP aspect 1!	PBP aspect: full screen	PBP aspect: full screen
r PBP aspect!	Get PBP windows display aspect ratio	r PBP aspect!	PBP aspect: full screen	

APPLICATION EXAMPLE

UHDTV

PC

OUT

INPUT

TX ⏚ RX

R   L   OPTICAL   HDMI   HD 1   HD 2   RS-232   IR EXT   DC 12V

Audio Amplifier

IR Receiver

Power Supply

2.0 Speakers

PC

TV box

DVD or Blu-ray Player

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