

## ANI-PiP-42UHD

4X2 4K60 UHD Multiviewer Seamless Video Matrix Switcher





## 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 INSTRUCTIONS 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.

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Version 1.1 JAN 2024

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## INTRODUCTION

The ANI-PIP-42UHD 4x2 Multiviewer Seamless UHD Video Matrix Switcher was developed for the purpose of supporting higher output resolution (4K@60) for multiple sources on (2) screens. It can accept (4) HDMI input digital sources and combine (4) video signals onto (2) HDMI UHD or HD monitors independently. The user can manage each input, and create combinations of the four inputs on (2) displays, as well as adjust the position of any input. This product supports (8) display modes, within the mode range, users can freely switch 4-channel HD input signals. It can realize single screen display and multiview display on a single screen. This product 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 matrix switcher can be controlled via front panel buttons, IR remote, RS-232 commands. This product has a 3 year warranty.

## PACKAGE CONTENTS

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

- 4K60 4x2 Multiviewer Seamless UHD Video Matrix 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/2.5A Locking Power Adapter
- Users Guide

## FEATURES

- HDMI 2.0b, HDCP 2.2 and HDCP 1.x compliant
- 18Gbps uncompressed Bandwidth, input and output resolution up to 4K2K@60 4:4:4
- HDMI audio formats support LPCM, DD+, DTS, Dolby TrueHD, DTS HD-master pass-through
- Seamless switching between input channels
- Combined multiple images independent layouts to display on (2) UHD TVs
- Up to (8) display modes: Single, PIP, PBP(1), PBP(2), Triple(1), Triple(2), Quad(1), Quad(2)
- Audio de-embedding via analog and optical fiber audio ports
- Control via front panel buttons, IR remote, RS-232 commands
- Each output port supports Scaler function
- Support independent audio selection
- Advanced EDID management
- Compact design for easy and flexible installation

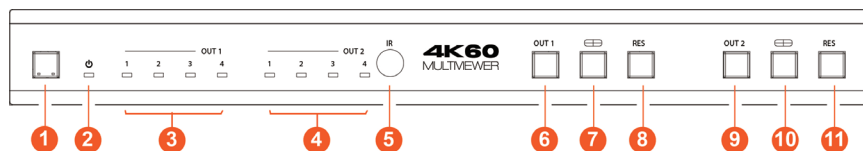
## SPECIFICATIONS

- **Input Ports:** (4) HDMI IN [Type A, 19-pin female]
- **Output Ports:**
  - (2) HDMI OUT [Type A, 19-pin female]
  - (2) L/R OUTPUT [RCA]
  - (2) OPTICAL OUTPUT [S/PDIF]
- **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 Audio:** PCM2.0/5.1/7.1CH, Dolby Digital/Plus/EX, Dolby True HD, DTS, DTS-EX, DTS-96/24, DTS High Res, DTS-HD Master Audio
  - **Analog audio [3.5mm L/R]:** PCM2.0
  - **Optical fiber audio:** PCM2.0/5.1/7.1CH, Dolby Digital/plus, DTS 5.1
- **ESD Protection:** Human Body Model:
  - ±8kV (air-gap discharge)
  - ±4kV (contact discharge)
- **Housing:** Metal Enclosure
- **Color:** Black
- **Dimensions (WxDxH):** 10.6 x 5.1 x 1.2 in (270x130x30mm)
- **Weight:** 2 lb / 906g
- **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):** 15.72W (Max)
- **Power Supply:** Input: AC 100 - 240V 50/60Hz / Output: DC 12V/2.5A (US/EU standard, CE/FCC/UL certified)

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

# OPERATION CONTROLS & FUNCTIONS

## FRONT PANEL



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

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

**3 OUT 1 LEDS:** Signal source indicator for the HDMI OUT 1 port. On single screen display mode, when the HDMI OUT 1 port outputs the signal from the HD 1/2/3/4 port, the corresponding green LED will be on. On multiview mode, all OUT 1 LEDs will light in green.

**4 OUT 2 LEDS:** Signal source indicator for the HDMI OUT 2 port. On single screen display mode, when the HDMI OUT 2 port outputs the signal from the HD 1/2/3/4 port, the corresponding green LED will be on. On multiview mode, all OUT 2 LEDs will light in green.

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

**6 OUT 1 BUTTON:** Input source switching button for the HDMI OUT 1 port, only available on single screen display mode.

**7 OUT 1 MULTIVIEW BUTTON:** Multiview display mode switching button for the HDMI OUT 1 port.

- Press this button to circularly select: Single-PIP-PBP(1)-PBP(2)-Triple(1)-Triple(2)-Quad(1)-Quad(2)-single.
- Press this button for 3 seconds to switch the aspect ratio (16:9/Full) for PBP (1) / PBP (2) / Triple (1) / Triple (2) / Quad (1) / Quad (2).

**8 OUT 1 RES BUTTON:** Output resolution switching button for the HDMI OUT 1 port.

- Press the RES button to circularly switch the output resolution of the HDMI OUT 1 port (Please refer to the output resolution list of “**Video & Audio**”).
- Press the RES button for 3 seconds to switch the output resolution to 720P60.

**9 OUT 2 BUTTON:** Input source switching button for the HDMI OUT 2 port, only available on single screen display mode.

## OPERATION CONTROLS & FUNCTIONS

**⑩ OUT 2 MULTIVIEW BUTTON:** Multiview display mode switching button for the HDMI OUT 2 port.

- Press this button to circularly select: Single-PIP-PBP(1)-PBP(2)-Triple(1)-Triple(2)-Quad(1)-Quad(2)-single.
- Press this button for 3 seconds to switch the aspect ratio (16:9/Full) for PBP (1) / PBP (2) / Triple (1) / Triple (2) / Quad (1) / Quad (2).

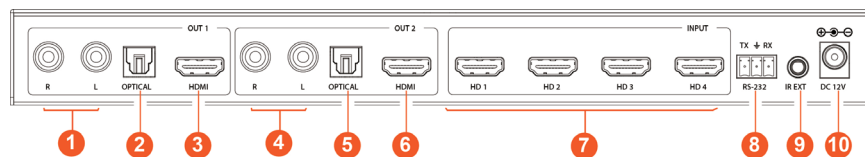
**⑪ OUT 2 RES BUTTON:** Output resolution switching button for the HDMI OUT 2 port.

- Press the RES button to circularly switch the output resolution of the HDMI OUT 2 port (Please refer to the output resolution list of “**Video & Audio**”).
- Press the RES button for 3 seconds to switch the output resolution to 720P60.



# OPERATION CONTROLS & FUNCTIONS

## BACK PANEL



**1 L/R PORT:** PCM2.0 Analog audio output port.

**2 OPTICAL OUT 1:** Optical fiber digital audio output port.

**3 HDMI OUT 1:** HDMI signal output port, connected to HDMI display device such as TV or Monitor with HDMI cable.

**4 L/R OUT 2:** PCM2.0 Analog audio output port.

**5 OPTICAL OUT 2:** Optical fiber digital audio output port.

**6 HDMI OUT 2:** HDMI signal output port, connected to HDMI display device such as TV or Monitor with HDMI cable.

**7 HD 1-4 INPUT PORTS:** HDMI signal input ports, connected to HDMI source device such as DVD or Set-top box with HDMI cable.

**8 RS-232 PORT:** 3-pin phoenix connector, connected to a PC or control system for serial port upgrade or RS-232 command control.

**9 IR EXT PORT:** IR signal receiving port, connected with 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.

**10 DC 12V:** DC 12V/2.5A power input port.

## REMOTE CONTROL

**1 POWER BUTTON:** Press this button to power on the switcher or set it to standby mode.

**2 OUT 1/OUT 2 BUTTONS:**

**HD 1/2/3/4:** Press these buttons to select input source on single screen display mode, and the corresponding input LED on the front panel will light in green.

**◀▶:** Press these buttons to circularly select the last or next input source on single screen display mode.

**⌘** Multiview display mode switching button. Press this button to circularly select: SINGLE - PIP - PBP(1) - PBP (2) - Triple (1) - Triple (2) - Quad (1) - Quad (2).

**16:9:** Press this button to switch the aspect ratio (16:9/ Full) for PBP (1) / PBP (2) / Triple (1) / Triple (2) / Quad (1) / Quad (2) display mode.

**A-IN:** Press this button to pop up the audio channel selection OSD, then press the ▲/▼ button to select the audio output channel. (The output audio follows the video source by default.)

**Mute:** Press this button to mute / unmute the audio.

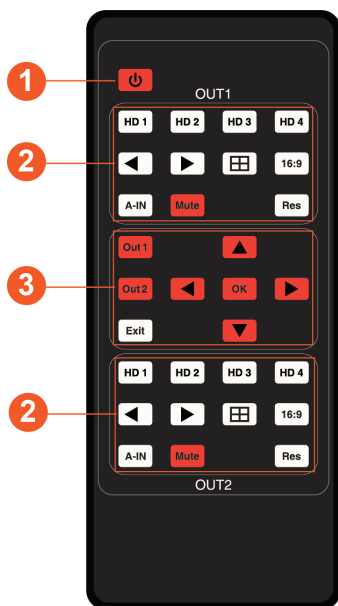
**RES:** Output resolution switching button.

- Press the RES button to circularly switch the output resolution of the HDMI OUT 1/2 port (Please refer to the output resolution list of “**Video & Audio**”).
- Press the RES button for 3 seconds to switch the output resolution to 720P60.

**3 Out 1:** Press this button to enter the OSD menu of the HDMI OUT 1 port, and set the corresponding function by pressing ▲/▼/◀/▶ **OK** button.

**Out 2:** Press this button to enter the OSD menu of the HDMI OUT 2 port, and set the corresponding function by pressing ▲/▼/◀/▶ **OK** button.

**Exit:** Press this button to exit the OSD settings layer by layer.



## REMOTE CONTROL

Power Toggle	08F7 4D		Aspect Ratio (OUT 1)	08F7 43
HD Input 1 (OUT 1)	08F7 09		Aspect Ratio (OUT 2)	08F7 53
HD Input 2 (OUT 1)	08F7 54		Resolution (OUT 1)	08F7 03
HD Input 3 (OUT 1)	08F7 47		Resolution (OUT 2)	08F7 51
HD Input 4 (OUT 1)	08F7 42		A-IN (OUT 1)	08F7 0C
HD Input 1 (OUT 2)	08F7 4F		A-IN (OUT 2)	08F7 18
HD Input 2 (OUT 2)	08F7 44		MUTE (OUT 1)	08F7 19
HD Input 3 (OUT 2)	08F7 50		MUTE (OUT 2)	08F7 45
HD Input 4 (OUT 2)	08F7 0E		Out 1 OSD (OUT 1)	08F7 55
Previous Source (OUT 1)	08F7 08		Out 1 OSD (OUT 2)	08F7 4C
Next Source (OUT 1)	08F7 48		Exit OSD	08F7 40
Previous Source (OUT 2)	08F7 13		OK	08F7 56
Next Source (OUT 2)	08F7 12		Menu Up	08F7 4E
Cycle Multiview (OUT 1)	08F7 4B		Menu Down	08F7 11
Cycle Multiview (OUT 2)	08F7 15		Menu Left	08F7 0D
			Menu Right	08F7 16

## EDID SETTINGS / VIDEO & AUDIO

### EDID SETTINGS

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

No.	EDID Mode	No.	EDID Mode
1	4K2K60_444, Stereo Audio 2.0	11	1680x1050, Stereo Audio 2.0
2	4K2K60_444, Dolby/DTS 5.1	12	1600x1200, Stereo Audio 2.0
3	4K2K60_444, HD Audio 7.1	13	1440x900, Stereo Audio 2.0
4	4K2K30_444, Stereo Audio 2.0	14	1360x768, Stereo Audio 2.0
5	4K2K30_444, Dolby/DTS 5.1	15	1280x1024, Stereo Audio 2.0
6	4K2K30_444, HD Audio 7.1	16	1024x768, Stereo Audio 2.0
7	1080P, Stereo Audio 2.0	17	720p, Stereo Audio 2.0
8	1080P, Dolby/DTS 5.1	18	AUTO
9	1080P, HD Audio 7.1	19	USER1
10	1920x1200, Stereo Audio 2.0		

### VIDEO & AUDIO

The switcher supports multiple resolution video input up to 3840x2160@60, and supports multiple audio formats (PCM2.0/5.1/7.1CH, Dolby Digital/Plus/EX, Dolby True HD, DTS, DTS-EX, DTS-96/24, DTS High Res, DTS-HD Master Audio) pass-through function via HDMI cable. The switcher supports following video output resolutions via a powerful scaling engine. The switcher supports following video output resolutions via a powerful scaling engine.

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

# MULTIVIEW

The switcher supports (8) categories of multiview display modes: SINGLE, PIP, PBP (1), PBP (2), Triple (1), Triple (2), Quad (1), Quad (2)

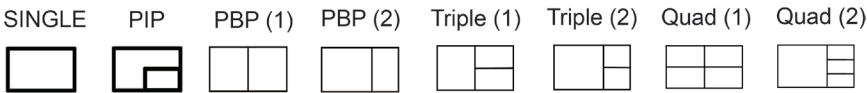
Users can select different operations for different Multiview modes as following:

**SINGLE:** Inputs selection

**PIP:** Inputs selection, Sub window size and position selection

**PBP (1), PBP (2), Triple (1), Triple (2), Quad (1), Quad (2):** Inputs selection, Display mode selection.

Display aspect selection Multiview window distributions are as following:



Users can select Multiview modes via RS-232 commands or OSD menu navigation.

\* The ANI-PIP-42UHD switcher supports customized PIP size and location via RS-232 commands.

The command format is “**s output y PIP Hstart Vstart Hsize Vsize!**”

y=output channel

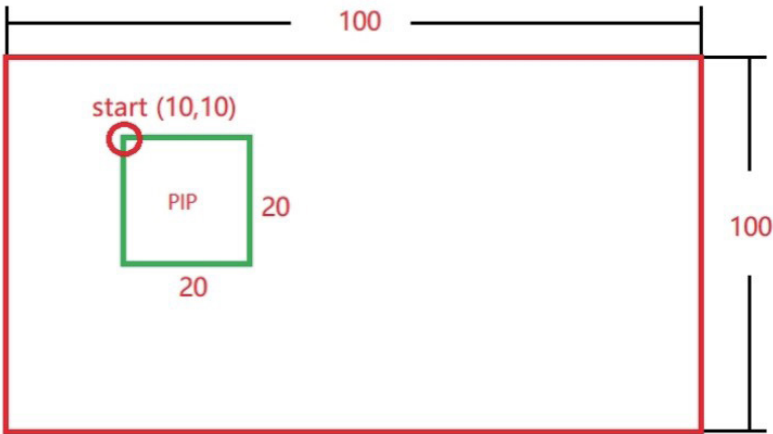
Hstart=(1~100)

Vstart=(1~100)

Hsize=(1~100)

Vsize=(1~100)

**For example:** the command “**s PIP 10 10 20 20!**” will produce an image as shown below:



## OSD MENU NAVIGATION

1. A total of eight buttons on the IR Remote are used for OSD menu navigation, including OUT 1, OUT 2, Exit, ▲/▼/◀/▶ **OK**. Menu contents are as follows:

Menu contents are as follows:

Output	Resolution	3840x2160p60	4096x2160p 60Hz / 4096x2160p 50Hz / 3840x2160p 60Hz / 3840x2160p 50Hz / 3840x2160p 30Hz / 3840x2160p 25Hz / 1920x1200p60Hz RB / 1920x1080p 60Hz / 1920x1080p 50Hz / 1360x768p 60Hz / 1280x800p 60Hz / 1280x720p 60Hz / 1280x720p 50Hz / 1024x768 60Hz
	VKA	BLACKSCREEN	BLACKSCREEN, BLUESCREEN
	ITC	OFF	ON,OFF
Multiview	Single	Input select	HDMI1, HDMI2, HDMI3, HDMI4
	PIP	Win1 Select	HDMI1, HDMI2, HDMI3, HDMI4
		Win2 Select	HDMI1, HDMI2, HDMI3, HDMI4
		PIP Position	Right Bottom, Right Top, Left Bottom, Left Top
		PIP Size	Small, Middle, Large
	PBP	Win1 Select	HDMI1, HDMI2, HDMI3, HDMI4
		Win2 Select	HDMI1, HDMI2, HDMI3, HDMI4
		MODE	1, 2
		Aspect	Full, 16:9
	3xWIN	Win1 Select	HDMI1, HDMI2, HDMI3, HDMI4
		Win2 Select	HDMI1, HDMI2, HDMI3, HDMI4
		Win3 Select	HDMI1, HDMI2, HDMI3, HDMI4
		MODE	1, 2
		Aspect	Full, 16:9
	4xWIN	Win1 Select	HDMI1, HDMI2, HDMI3, HDMI4
		Win2 Select	HDMI1, HDMI2, HDMI3, HDMI4
		Win3 Select	HDMI1, HDMI2, HDMI3, HDMI4

## OSD MENU NAVIGATION

Multiview		MODE	1, 2
		Aspect	Full, 16:9
AUDIO	Audio Select	WIN1	WIN1, HDMI1, HDMI2, HDMI3, HDMI4
	Volume	100	0..100
	Audio-Mute	OFF	ON, OFF
System	EDID	4K60-2.0	4K60-2.0, 4K60-5.1CH, 4K60-7.1CH, 4K30-2.0CH, 4K30-5.1CH, 4K30-7.1CH, 1080P-2.0CH, 1080P-5.1CH, 1080P-7.1CH, 1920x1200-2.0CH, 1680x1050-2.0CH, 1600x1200-2.0CH, 1440x900-2.0CH, 1360x768-2.0CH, 1280x1024-2.0CH, 1024x768-2.0CH, 720P-2.0CH, AUTO

2. A total of two buttons on the IR Remote are used for audio setting on OSD menu navigation, including A-IN, Mute. Menu contents are as follows:

A-IN	Audio Input	WIN1	WIN1,HDMI1,HDMI2,HDMI3, HDMI4
Mute	Audio Mute	OFF	ON, OFF

## RS-232 COMMANDS

The product also supports RS-232 command control. Connect the RS-232 port of the product to a PC with a 3-pin phoenix connector 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
<b>System Setting</b>			
help!	List all commands	help!	
r type!	Get device model	r type!	4x1 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
<b>Output Setting</b>			
s output y res x!	Set Output y Resolution (y=1~2, x=1~14) y=1. output 1 y=2. output 2 1. 4096x2160p60, 2. 4096x2160p50, 3. 3840x2160p60, 4. 3840x2160p50, 5. 3840x2160p30, 6. 3840x2160p25,	s output res 3!	out resolution: 3840x2160p60



## RS-232 COMMANDS

Command Code	Function Description	Example	Feedback
<b>Output Setting</b>			
s output y res x! <i>cont'd</i>	7. 1920x1200p60RB, 8. 1920x1080p60, 9. 1920x1080p50, 10. 1360x768p60, 11. 1280x800p60, 12. 1280x720p60, 13. 1280x720p50, 14. 1024x768p60,	s output res 3!	out resolution: 3840x2160p60
r output y res!	Get output y resolution (y=1~2) 1. output 1 2. output 2	r output res!	output 1 resolution: 3840x2160p60
s output hdcp x!	set output hdcp (y=1~2, x=1~3) y=1. output 1 y=2. output 2 x=1. HDCP 1.4 x=2. HDCP 2.2 x=3. HDCP OFF	s output 1 hdcp 2!	output 1 HDCP: HDCP 1.4
r output y hdcp!	Get output y hdcp status. (y=1~2) 1. output 1 2. output 2	r output 1 hdcp!	output 1 HDCP: HDCP 1.4
s output y vka x!	Set output video keep active pattern. (y=1~2, x=1~2) y=1. output 1 y=2. output 2 x=1. black screen x=2. blue screen	s output 1 vka 1!	output 1 VKA pattern: black screen
r output y vka!	Get output y video keep active pattern. (y=1~2) 1. output 1 2. output 2	r output 1 vka!	output 1 VKA pattern: black screen
s output y itc x!	Set output video mode (y=1~2, x=1~2) y=1. output 1 y=2. output 2 x=1: video mode x=2: pc mode	s output 1 itc 1!	output 1 ITC: video mode
r output y itc!	Get output video mode (y=1~2) 1. output 1 2. output 2	r output 1 itc!	output 1 ITC: video mode

## RS-232 COMMANDS

Command Code	Function Description	Example	Feedback
<b>EDID Setting</b>			
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.AUTO 19. USER1	s input EDID 1!	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 ...!	user1 EDID data: 00 FF FF ....
r edid user1!	Get user1 EDID data	r edid user1!	user1 EDID data: 00 FF FF FF FF FF FF 00 .....
<b>Audio Setting</b>			
s output y audio x!	Set output y udio source (y=1~2, x=0~4) y=1. output 1 y=2. output 2 x=0. follow window 1 selected source x=1. HDMI 1 input audio x=2. HDMI 2 input audio x=3. HDMI 3 input audio x=4. HDMI 4 input audio	s output 1 audio 0!	output 1 audio follow window 1 video source
r output y audio!	Get output y audio source (y=1~2) 1. output 1 2. output 2	r output 1 audio!	output 1 audio follow window 1 video source
s output y audio mute x!	Set output audio mute on/off (x=0~1, y=1~2) y=1. output 1	s output 1 audio mute 0!	output 1 audio mute off

# RS-232 COMMANDS

Command Code	Function Description	Example	Feedback
s output y audio mute x! <b>cont'd</b>	y=2. output 2 x=0. mute off x=1. mute on	s output 1 audio mute 0!	output 1 audio mute off
r output y audio mute!	Get output y audio mute on/off (y=1~2) 1. output 1 2. output 2	r output 1 audio mute!	output 1 audio mute off
<b>Single Screen Mode Setting</b>			
s output y auto switch x!	Enable/disable auto switch feature(y=1~2,x=0~1) y=1. output 1 y=2. output 2 0. Disable auto switch 1. Enable auto switch	s auto switch 0!	auto switch off
r output y auto switch!	Get output y auto switch feature (y=1~2) 1. output 1 2. output 2	r auto switch!	auto switch off
s output y in source x!	Route input source to output y (y=1~2, x=1~4) y=1. output 1 y=2. output 2 x=1. HDMI 1 x=2. HDMI 2 x=3. HDMI 3 x=4. HDMI 4	s in source 1!	HDMI 1
r output y in source!	Get output y selected input source(y=1~2) 1. output 1 2. output 2	r in source!	HDMI 1
<b>Multi-viewer Mode Setting</b>			
s output y multiview x!	Set output y multi-viewer display mode(y=1~2, x=1~5) y=1. output 1 y=2. output 2 x=1. single screen x=2. PIP x=3. PBP x=4. triple screen x=5. quad screen	s output 1 multiview 1!	output 1 multiview: single screen
r output y multiview!	Get output y multi-viewer display mode(y=1~2) 1. output 1 2. output 2	r output 1 multiview!	output 1 multiview: single screen

## RS-232 COMMANDS

Command Code	Function Description	Example	Feedback
s output z window x in y!	Select output z one input for one display window for the current Multiview mode. (z=1~2) 1. output 1 2. output 2 (x=1~4) 1. window 1 2. window 2 3. window 3 4. window 4 (y=1~4) 1. HDMI 1 2. HDMI 2 3. HDMI 3 4. HDMI 4	s output 1 window 1 in 1!	output 1: window 1 select HDMI 1
r output y window x in!	Get output y windows selected input source (y=1~2) 1. output 1 2. output 2 (x=0~4) 0. ALL 1. window 1 2. window 2 3. window 3 4. window 4	r output 1 window 1 in!	ouput 1 window 1 select HDMI 1
s output y PIP position x!	Set output y PIP window position (y=1~2) 1. output 1 2. output 2 (x=1~4) 1. Left Top 2. Left Bottom 3. Right Top 4. Right Bottom	s output 1 PIP position 3!	output 1 PIP on right top
r output y PIP position!	Get ouput y PIP window positon (y=1~2) 1. output 1 2. output 2	r output 1 PIP position!	output 1 PIP on right top
s output y PIP size x!	Get output y PIP window size (y=1~2) 1. output 1 2. output 2 (x=1~3) 1. small 2. middle 3. large	s output 1 PIP size 3!	output 1 PIP size large

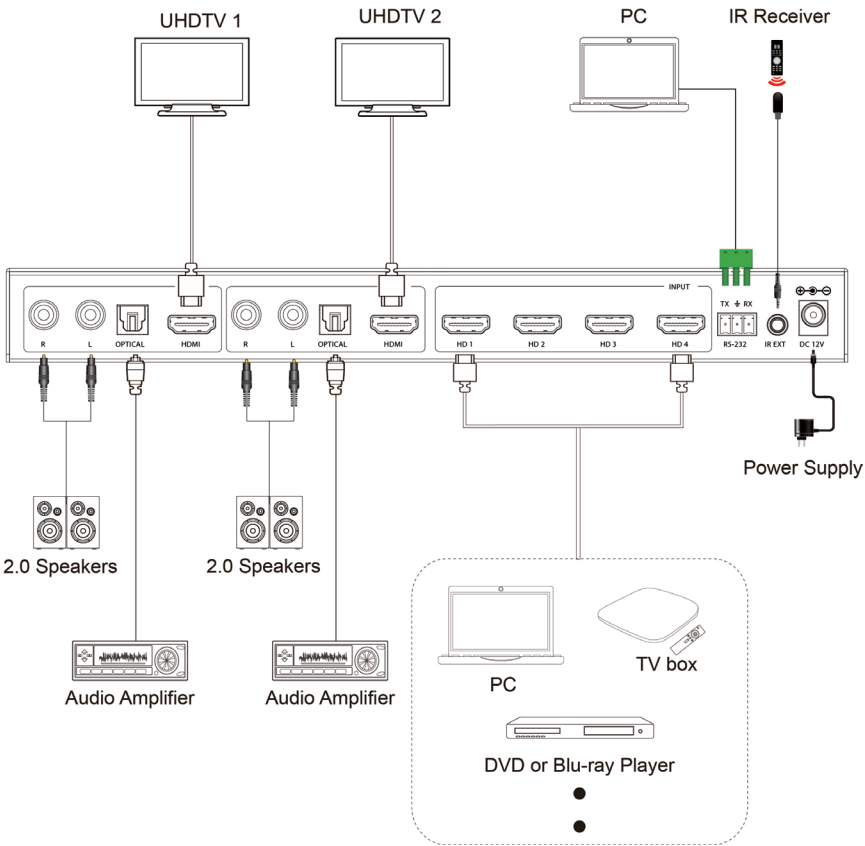
## RS-232 COMMANDS

Command Code	Function Description	Example	Feedback
r output y PIP size!	Get output y PIP window size (y=1~2) 1. output 1 2. output 2	r output 1 PIP size!	output 1 PIP size large
s output y PBP mode x!	Set output y PBP windows display mode (y=1~2) 1. output 1 2. output 2 (x=1~2) 1. PBP mode 1 2. PBP mode 2	s output 1 PBP mode 1!	output 1 PBP mode 1
r output y PBP mode!	Get output y PBP windows display mode (y=1~2) 1. output 1 2. output 2	r output 1 PBP mode!	output 1 PBP mode 1
s output y PBP aspect x!	Set output y PBP windows display aspect ratio (y=1~2) 1. output 1 2. output 2 (x=1~2) 1. Full screen 2. 16:9	s output 1 PBP aspect 1!	output 1 PBP aspect full screen
r output y PBP aspect!	Get output y PBP windows display aspect ratio (y=1~2) 1. output 1 2. output 2	r output 1 PBP aspect!	output 1 PBP aspect full screen
s output y triple mode x!	Set output y triple windows display mode (y=1~2) 1. output 1 2. output 2 (x=1~2) 1. triple mode 1 2. triple mode 2	s output 1 triple mode 1!	output 1 triple mode 1
r output y triple mode!	Get output y triple windows display mode (y=1~2) 1. output 1 2. output 2	r output 1 triple mode!	output 1 triple mode 1
s output y triple aspect x!	Set output y triple windows display aspect ratio (y=1~2) 1. output 1	s output 1 triple aspect 1!	output 1 triple aspect full screen

## RS-232 COMMANDS

Command Code	Function Description	Example	Feedback
s output y triple aspect x! <i>cont'd</i>	2. output 2 (x=1~2) 1. Full screen 2. 16:9	s output 1 triple aspect 1!	output 1 triple aspect full screen
r output y triple aspect!	Get output y triple windows display aspect ratio (y=1~2) 1. output 1 2. output 2	r output 1 triple aspect!	output 1 triple aspect full screen
s output y quad mode x!	Set output y quad windows display mode (y=1~2) 1. output 1 2. output 2 (x=1~2) 1. quad mode 1 2. quad mode 2	s output 1 quad mode 1!	output1 quad mode 1
r output y quad mode!	Get output y quad windows display mode (y=1~2) 1. output 1 2. output 2	r output 1 quad mode!	output1 quad mode 1
s output y quad aspect x!	Set output y quad windows display aspect ratio (y=1~2) 1. output 1 2. output 2 (x=1~2) 1. Full screen 2. 16:9	s output 1 quad aspect 1!	output 1 quad aspect full screen
r output y quad aspect!	Get output y quad windows display aspect ratio (y=1~2) 1. output 1 2. output 2	r output 1 quad aspect!	output 1 quad aspect full screen
s output y PIP Hstart Vstart Hsize Vsize!	Set PIP window to user define mode y=Output Channel Hstart=(1~100) Vstart=(1~100) Hsize=(1~100) Vsize=(1~100) NOTE: Hstart+Hsize<=101, Vstart+Vsize<=101	s output 1 PIP 10 10 20 20!	PIP 10 10 20 20

# APPLICATION EXAMPLE



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