

4K 4x4 HDMI™ Seamless Matrix Switcher and Video Wall Processor



User Manual

VER 1.0

Thank you for purchasing this product

For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.

Surge protection device recommended

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lighting strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the life of your equipment.

Table of Contents

1. Introduction.....	1
2. Features.....	1
3. Package Contents.....	1
4. Specifications.....	2
5. Operation Controls and Functions.....	3
5.1 Front Panel.....	3
5.2 Rear Panel.....	3
6. IR Remote.....	4
7. Video wall.....	5
8. RS-232 Control Commands.....	5
9. Application Example.....	10

1. Introduction

This is a 4x4 seamless matrix switcher that can also be used as a video wall processor. In switcher mode, it can display any of the 4 HDMI inputs on any of the 4 HDMI output displays. In video wall mode, it divides one display across 2 to 4 devices, creating a super display of multiple screens.

This product is HDCP-compliant, and supports resolutions up to 4K2K@30. HDMI output resolutions can be upscaled/downscaled to 1080P/720P/1920*1200/4K30. The product can be controlled via the front panel buttons, IR remote and RS-232 commands.

The multifunctional product can be widely used in various occasions such as demonstration, video conference, multimedia teaching, etc.

2. Features

- ☆ HDCP 1.4 compliant
- ☆ Support 10.2Gbps video bandwidth
- ☆ Input resolutions support up to 4K@30Hz, as specified in HDMI 1.4b
- ☆ Output resolutions can be upscaled/downscaled to 1080P/720P/1920*1200/4K30
- ☆ Features 2 operational modes:
 - 4×4 Matrix (seamless switch)
 - Video wall (2×2, 4×1 or 1×4 etc configuration)
- ☆ Seamless video switching ensures no switching delay and pictures loss during transitions
- ☆ Support video wall mode and output image mirror function
- ☆ Support LPCM, DD, DD+, DTS audio channel
- ☆ Control via front panel buttons, IR remote, RS-232 commands
- ☆ Compact design for easy and flexible installation

3. Package Contents

- ① 1x 4K 4x4 HDMI Seamless Matrix Switcher and Video Wall Processor
- ② 1x Matrix IR Remote
- ③ 1x 3pin-3.5mm Phoenix Connector (male)
- ④ 2x Mounting Ear
- ⑤ 4x Machine Screw (KM3*4)
- ⑥ 1x 12V/1A Locking Power Adapter
- ⑦ 1x User Manual

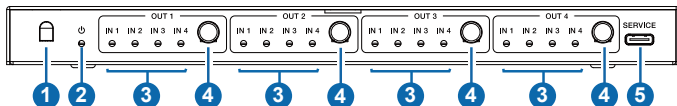
4. Specifications

Technical	
HDMI Compliance	HDMI 1.4b
HDCP Compliance	HDCP 1.4
Video Bandwidth	10.2Gbps
Input Video Resolution	Up to 4K2K@30Hz
Output Video Resolution	4096x2160p30Hz, 3840x2160p30Hz, 1920x1200p60Hz, 1920x1080p60Hz, 1920x1080p50Hz, 1600x1200p60Hz, 1600x900p60Hz, 1440x900p60Hz, 1360x768p60Hz, 1280x1024p60Hz, 1280x720p60Hz, 1280x720p50Hz, 1024x768p60Hz
Color Space	RGB_4:4:4, YCbCr_4:4:4, YCbCr_4:2:2, YCbCr_4:2:0
Color Depth	8/10/12-bit
IR Level	5Vp-p
IR Frequency	Fixed frequency 38KHz
HDMI Audio Formats	LPCM 2.0, LPCM 5.1, Dolby 2.0, Dolby 5.1, Dolby Digital Plus, DTS 2.0, DTS 5.1
Transmission Distance	4K30: 5m/16ft (HDMI cable) 1080P 4:4:4: 10m/33ft (HDMI cable)
ESD Protection	IEC 61000-4-2: ±8kV (Air-gap discharge), ±4kV (Contact discharge)
Connection	
Input	4x INPUT [HDMI Type A, 19-pin female]
Output	4x OUTPUT [HDMI Type A, 19-pin female]
Control	1x RS-232 [3pin-3.5mm phoenix connector] 1x SERVICE [USB Type C, 24-pin female]
Mechanical	
Housing	Metal Enclosure
Color	Black
Dimensions	220mm (W) × 105mm (D) × 19mm (H)
Weight	508g
Power Supply	Input: AC 100 - 240V 50/60Hz Output: DC 12V/1A (US/EU standard, CE/FCC/UL certified)
Power Consumption	3.6W (Max)
Operating Temperature	0°C ~ 40°C / 32°F ~ 104°F

Storage Temperature	-20°C ~ 60°C / -4°F ~ 140°F
Operating Humidity	20%~80% (relative humidity, non-condensing)
Storage Humidity	10%~90% (relative humidity, non-condensing)

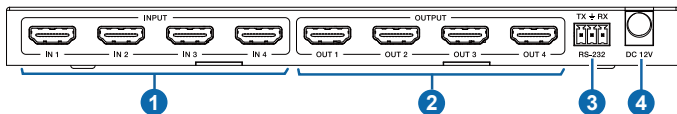
5. Operation Controls and Functions

5.1 Front Panel



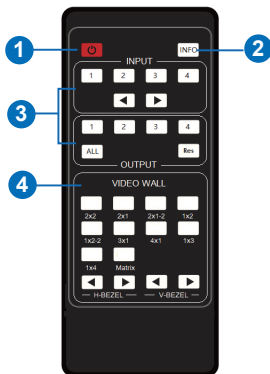
No.	Name	Function Description
1	IR window	IR signal receiving window, it only receives the IR remote signal from this product.
2	Power LED	The LED will light in green when the product is working, and red when the product is on standby.
3	Signal source LEDs	Signal source indicators for the OUT 1 - 4 output ports. When IN 1/2/3/4 port is selected as the signal input channel, the corresponding LED will light in green.
4	Input source switching buttons	Input source switching buttons for the OUT 1 - 4 output ports. Press the button to circularly switch the signal input channel.
5	SERVICE port	Firmware upgrade port.

5.2 Rear Panel



No.	Name	Function Description
1	IN 1 - 4	HDMI signal input port, connected to HDMI signal source device.
2	OUT 1 - 4	HDMI signal output port, connected to HDMI display device.
3	RS-232	RS-232 serial port, connected to a PC or control system for firmware upgrade or RS-232 commands control.
4	DC 12V	DC 12V/1A power input port.

6. IR Remote



- ① **Power on or Standby:** Power on the Matrix or set it to standby mode.
- ② **INFO:** Press this button to display the serial port baud rate in the upper right corner of the screen. (The information will disappear after 5 seconds.)

③ **INPUT/OUTPUT**

INPUT 1/2/3/4: Select the signal input channel.

◀ ▶: Select the previous or next signal input channel.

OUTPUT 1/2/3/4: Select the signal output channel.

ALL: Select all output channels simultaneously. For example, when you press the “ALL” button and then press INPUT 1 button, at this time the INPUT 1 signal will be output to all display devices.

Res: Output resolution switching button. It can only be used in matrix mode. Press

OUTPUT 1/2/3/4 or **ALL**, then press **Res** to switch output resolution circularly.

Operation Instruction: You need to press the OUTPUT button firstly and then press the INPUT button to select the corresponding input source. For example, Press OUTPUT-X (X means output button from 1 to 4, including “ALL” button), then press INPUT-Y (Y means input button from 1 to 4).

④ **VIDEO WALL:**

Video wall mode selection:

Press the video wall mode button directly to enter corresponding mode.

Source selection for the video wall group:

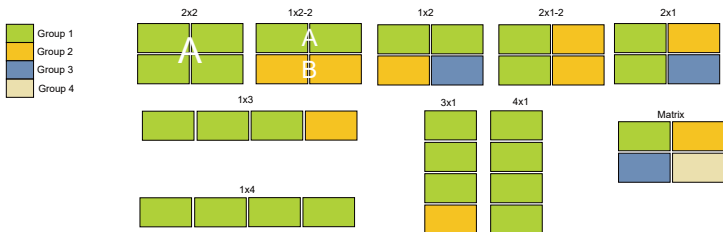
Press **OUTPUT 1/2/3/4** to select the video wall group firstly, then press

INPUT 1/2/3/4 or ◀/▶ to select the input source.

Bezel Adjustment: Press ◀/▶ of H-BEZEL / V-BEZEL to adjust the bezel.

7. Video Wall

The product supports 10 categories of display modes as below. Users can select display modes via IR remote or RS-232 commands.



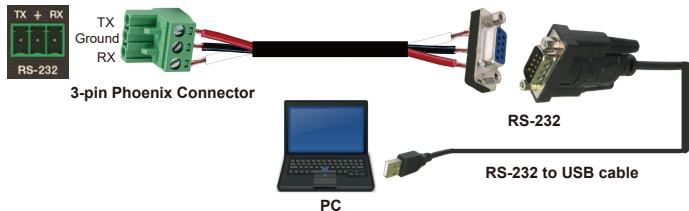
Notes:

(1) In the video wall mode, the TVs which are selected to perform video wall splicing will output the fixed resolution of 1080P, while other TVs support transparent transmission. For example, in the 1x2 mode, the first and second TV outputs are 1080P; The third and fourth are transparent transmission, that is, if the signal source is 4K30, the output is 4K30.

(2) The output image mirror function is available only in the video wall mode.

8. RS-232 Control Commands

The product also supports RS-232 commands control. Connect the RS-232 port of the product to a PC with a 3-pin phoenix connector cable and an RS-232 to USB cable. The connection method is as follows.



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 Command

Serial port protocol: Baud rate: 115200 (default) Data bits: 8 Stop bits: 1 Check bit: 0

x - Parameter 1, y - Parameter 2, z - Parameter 3, ! - Delimiter

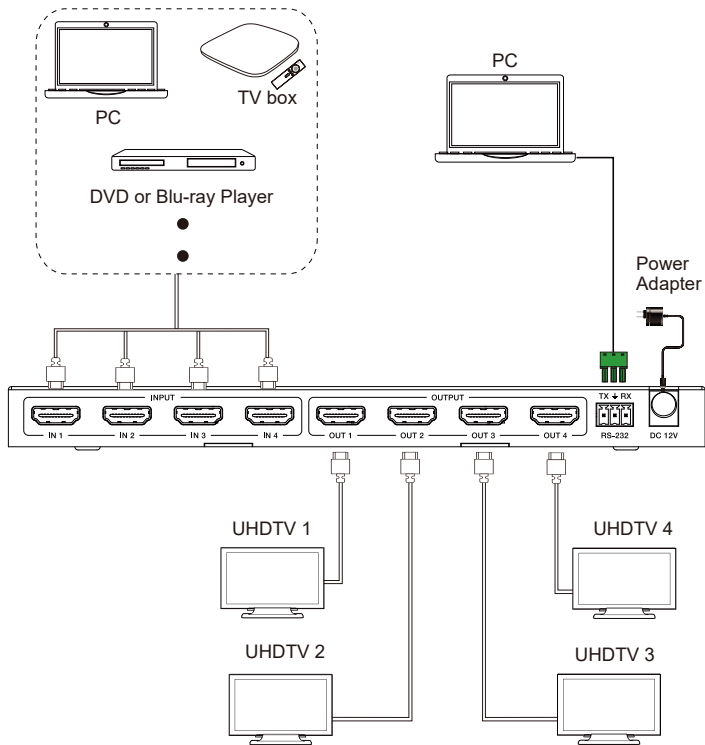
Command Code	Function Description	Example	Feedback	Default Setting
System setting				
help!	Lists all commands	help!		
r status!	Get device current status	r status!	get the unit all status: power, beep, lock, in / out connection, video/ audio crosspoint, edid, scaler, network status	
r type!	Get device model	r type!	4x4 hdmi seamless matrix	
r fw version!	Get firmware version	r fw version!	mcu fw version x.xx.xx	
s power z!	Power on/off the device, z=0~1 (z=0 power off, z=1 power on)	s power 1!	power on system initializing... initialization finished! mcu fw version x.xx.xx	
r power!	Get current power state	r power!	power on /power off	
s beep z!	Enable/disable buzzer function, z=0~1(z=0 beep off, z=1 beep on)	s beep 1!	beep on beep off	beep on
r beep!	Get buzzer state	r beep!	beep on / beep off	
s lock z!	Lock/unlock front panel button, z=0~1 (z=0 lock off, z=1 lock on)	s lock 1!	panel button lock on panel button lock off	panel button lock off
r lock!	Get panel button lock state	r lock!	panel button lock on/off	
s reboot!	Reboot the device	s reboot!	reboot... system initializing... initialization finished! mcu fw version x.xx.xx	
s reset!	Reset to factory defaults	s reset!	reset to factory defaults system initializing... initialization finished! mcu fw version x.xx.xx	
Output setting				
s in x av out y!	Set input x to output y, x=1~4, y=0~4 (0=all)	s in 1 av out 2!	input 1 -> output 2	ptp
r av out y!	Get output y signal status y=0~4 (0=all)	r av out 0!	input 1 -> output 1 input 2 -> output 2 input 4 -> output 4	

Command Code	Function Description	Example	Feedback	Default Setting
s output y res x!	Set output y resolution (y=0~4, x=1~13) y=0. output all y=1. output 1 y=2. output 2 y=3. output 3 y=4. output 4 x=1: 4096x2160p30Hz x=2: 3840x2160p30Hz x=3: 1920x1200p60Hz x=4: 1920x1080p60Hz x=5: 1920x1080p50Hz x=6: 1600x1200p60Hz x=7: 1600x900p60Hz x=8: 1440x900p60Hz x=9: 1360x768p60Hz x=10: 1280x1024p60Hz x=11: 1280x720p60Hz x=12: 1280x720p50Hz x=13: 1024x768p60Hz	s output 1 res 2!	output 1 resolution: 3840x2160p30	3840x2160p30
r output y res!	Get output y resolution (y=0~4) y=0. output all y=1. output 1 y=2. output 2 y=3. output 3 y=4. output 4	s output 1 res 1!	output 1 resolution: 3840x2160p30	
s output y csc x!	Set output y color space (y=0~4, x=1~3) y=0. output all y=1. output 1 y=2. output 2 y=3. output 3 y=4. output 4 x=1. rgb444 x=2. ycbcr444 x=3. ycbcr422	s output 1 csc 1!	output 1 csc: rgb444	rgb444
r output y csc!	Get output y color space status. (y=0~4) y=0. output all y=1. output 1 y=2. output 2 y=3. output 3 y=4. output 4	r output 1 csc!	output 1 csc: rgb444	

Command Code	Function Description	Example	Feedback	Default Setting
s output y mirror x!	Set output y mirror (y=0~4, x=0~3) y=0. output all y=1. output 1 y=2. output 2 y=3. output 3 y=4. output 4 x=0. mirror off x=1. h mirror on x=2. v mirror on x=3. h+v mirror	s output 1 mirror 0!	output1 mirror off	output 1 mirror off output 2 mirror off output 3 mirror off output 4 mirror off
r output y mirror!	Get output y mirror status (y=0~4) y=0. output all y=1. output 1 y=2. output 2 y=3. output 3 y=4. output 4	r output 1 mirror!	output 1 mirror off	
s output y stream x!	Set output y stream enable/disable (y=0~4, x=0~1) y=0. output all y=1. output 1 y=2. output 2 y=3. output 3 y=4. output 4 x=0. stream disable x=1. stream enable	s output 1 stream 1!	output 1 stream: enable	enable
r output y stream!	Get output y stream status. (y=0~4) y=0. output all y=1. output 1 y=2. output 2 y=3. output 3 y=4. output 4	r output 1 stream!	output 1 stream: enable	
EDID setting				
s edid in x from z!	Set input x edid from default edid z, x=0~4 (0=all), z=1~11 z=1: 4K2K30_444, stereo audio 2.0 z=2: 4K2K30_444, dolby/DTS 5.1 z=3: 1080p, stereo audio 2.0 z=4: 1080p, dolby/DTS 5.1 z=5: 1920x1200, stereo audio 2.0 z=6: 1360x768, stereo audio 2.0 z=7: 1024x768, stereo audio 2.0 z=8: copy from HDMI output 1 z=9: copy from HDMI output 2 z=10: copy from HDMI output 3 z=11: copy from HDMI output 4	s edid in 1 from 1! s edid in 0 from 1!	input 1 edid: 4k30, 2.0ch all input edid: 4K30, 2.0ch	4K30, 2.0ch

Command Code	Function Description	Example	Feedback	Default Setting
r edid in x!	Get input x edid mode (x=0~4) x=0. all input x=1. input1 x=2. input2 x=3. input3 x=4. input4	r edid in 0!	input 1 edid: 4K2K30_444, stereo audio 2.0 input 2 edid: 4K2K30_444, stereo audio 2.0 input 3 edid: 4K2K30_444, stereo audio 2.0 input 4 edid: 4K2K30_444, stereo audio 2.0	
Video wall setting				
s tw mode x!	Set tv wall display mode(x=1~10) x=1. 2x2 mode x=2. 2x1 mode x=3. 2x1-2 mode x=4. 1x2 mode x=5. 1x2-2 mode x=6. 3x1 mode x=7. 4x1 mode x=8. 1x3 mode x=9. 1x4 mode x=10. matrix mode	s tw mode 1!	tv wall mode: 2x2	tv wall mode: 2x2
r tw mode!	Get tv wall display mode	r tw mode!	tv wall mode: 2x2	
s tw h bezel x!	set tv wall horizontal bezel (x=0~10, +, -)	s tw h bezel 0!	tv wall horizontal bezel: 0	tv wall horizontal bezel: 0
r tw h bezel!	Get tv wall row bezel	r tw h bezel!	tv wall horizontal bezel: 0	
s tw v bezel x!	Set tv wall vertical bezel (x=0~10, +, -)	s tw v bezel 0!	tv wall vertical bezel: 0	tv wall vertical bezel: 0
r tw v bezel!	Get tv wall vertical bezel	r tw v bezel!	tv wall vertical bezel: 0	
s tw group y input x!	Set tv wall group y display which source input (y=0~4, x=1~4) y=0. tv wall group all y=1. tv wall group 1 y=2. tv wall group 2 y=3. tv wall group 3 y=4. tv wall group 4 x=1. hdmi input 1 x=2. hdmi input 2 x=3. hdmi input 3 x=4. hdmi input 4	s tw group 1 input 1!	tv wall group 1 input: hdmi input 1	tv wall group 1 input: hdmi input 1
r tw group y source!	Get tv wall group y display which source input (y=0~4) y=0. tv wall group all y=1. tv wall group 1 y=2. tv wall group 2 y=3. tv wall group 3 y=4. tv wall group 4	r tw group 0 source!	tv wall group 1 input: hdmi input 1 tv wall group 2 input: hdmi input 2 tv wall group 3 input: hdmi input 3 tv wall group 4 input: hdmi input 4	

9. Application Example



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HIGH-DEFINITION MULTIMEDIA INTERFACE

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