4K 4×4 Seamless Matrix & Video Wall Processor

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1. INTRODUCTION

This is a 4×4 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. HDCP-compliant, supports resolutions up to 4K@30Hz. HDMI™ output resolutions can be upscaled/downscaled to 1080P/720P/1920×1200/4K@30Hz. Controlled via front panel buttons, IR remote, and RS-232 commands.

2. FEATURES

- ☆ HDCP 1.4 compliant
- ☆ Supports 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/1920×1200/4K@30Hz
- ☆ Features 2 operational modes: 4×4 Matrix (seamless switch) and Video Wall (2×2, 4×1, 1×4 etc.)
- ☆ Seamless video switching ensures no switching delay and no picture loss during transitions
- ☆ Supports video wall mode and output image mirror function
- ☆ Supports 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 1× 4K 4×4 HDMI™ Seamless Matrix Switcher and Video Wall Processor
- ② 1× Matrix IR Remote
- ③ 1× 3pin-3.5mm Phoenix Connector (male)
- ④ 2× Mounting Ear
- ⑤ 4× Machine Screw (KM3×4)
- ⑥ 1× 12V/1A Locking Power Adapter
- ⑦ 1× User Manual

Surge Protection Recommended
Sensitive electrical components may be damaged by surges or lightning. Use of surge protection is highly recommended.

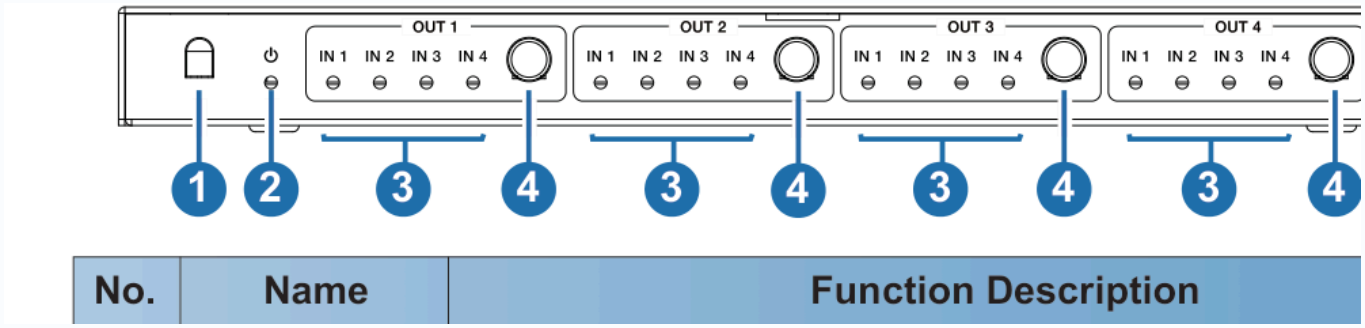
Network Cable
The RS-232 connection uses direct wiring (TX→RX, GND→GND). Do not cross-connect.

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	4096×2160p30Hz, 3840×2160p30Hz, 1920×1200p60Hz, 1920×1080p60Hz, 1920×1080p50Hz, 1600×1200p60Hz, 1600×900p60Hz, 1440×900p60Hz, 1360×768p60Hz, 1280×1024p60Hz, 1280×720p60Hz, 1280×720p50Hz, 1024×768p60Hz
Color Space	RGB_4:4:4, YCbCr_4:4:4, YCbCr_4:2:2, YCbCr_4:2:0
Color Depth	8/10/12-bit
HDMI™ Audio Formats	LPCM 2.0, LPCM 5.1, Dolby 2.0, Dolby 5.1, Dolby Digital Plus, DTS 2.0, DTS 5.1
IR Level	5Vp-p
IR Frequency	Fixed 38KHz
Transmission Distance	4K30: 5m/16ft (HDMI™ cable) | 1080P 4:4:4: 10m/33ft (HDMI™ cable)
ESD Protection	IEC 61000-4-2: ±8kV (Air-gap), ±4kV (Contact discharge)
CONNECTION	
Input	4× INPUT [HDMI™ Type A, 19-pin female]
Output	4× OUTPUT [HDMI™ Type A, 19-pin female]
Control	1× RS-232 [3pin-3.5mm phoenix connector] | 1× SERVICE [USB Type-C, 24-pin female]
POWER	
Power Supply	Input: AC 100–240V 50/60Hz | Output: DC 12V/1A (US/EU standard, CE/FCC/UL certified)
Power Consumption	3.6W (Max)
MECHANICAL	
Housing	Metal Enclosure
Color	Black
Dimensions	220mm [W] × 105mm [D] × 19mm [H]
Weight	508g
ENVIRONMENTAL	
Operating Temperature	0°C – 40°C / 32°F – 104°F
Storage Temperature	-20°C – 60°C / -4°F – 140°F
Operating Humidity	20% – 80% RH (non-condensing)
Storage Humidity	10% – 90% RH (non-condensing)
CERTIFICATIONS	
Power Adapter	CE / FCC / UL certified

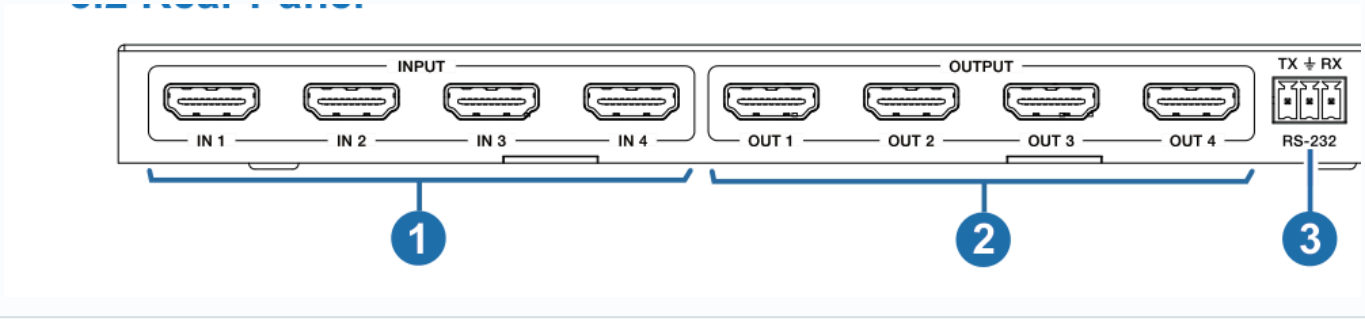
5. Operation Controls and Functions

5.1 Front Panel



NO.	NAME	FUNCTION DESCRIPTION
1	**IR Window**	IR signal receiving window — receives IR remote signal only from this product.
2	**Power LED**	Lights green when the product is working; red when on standby.
3	**Signal Source LEDs**	Signal source indicators for OUT 1–4 output ports. When IN 1/2/3/4 is selected as input channel, the corresponding LED lights green.
4	**Input Source Switching Buttons**	Switching buttons for OUT 1–4 output ports. Press to circularly switch the signal input channel.
5	**SERVICE Port**	Firmware upgrade port (USB Type-C).

5.2 Rear Panel



NO.	NAME	FUNCTION DESCRIPTION
1	**IN 1–4**	HDMI signal input ports — connect to HDMI signal source devices.
2	**OUT 1–4**	HDMI signal output ports — connect to HDMI display devices.
3	**RS-232**	RS-232 serial port — connect to PC or control system for firmware upgrade or RS-232 command control. 3-pin phoenix connector: TX / GND / RX.
4	**DC 12V**	DC 12V/1A power input port.

6. IR Remote

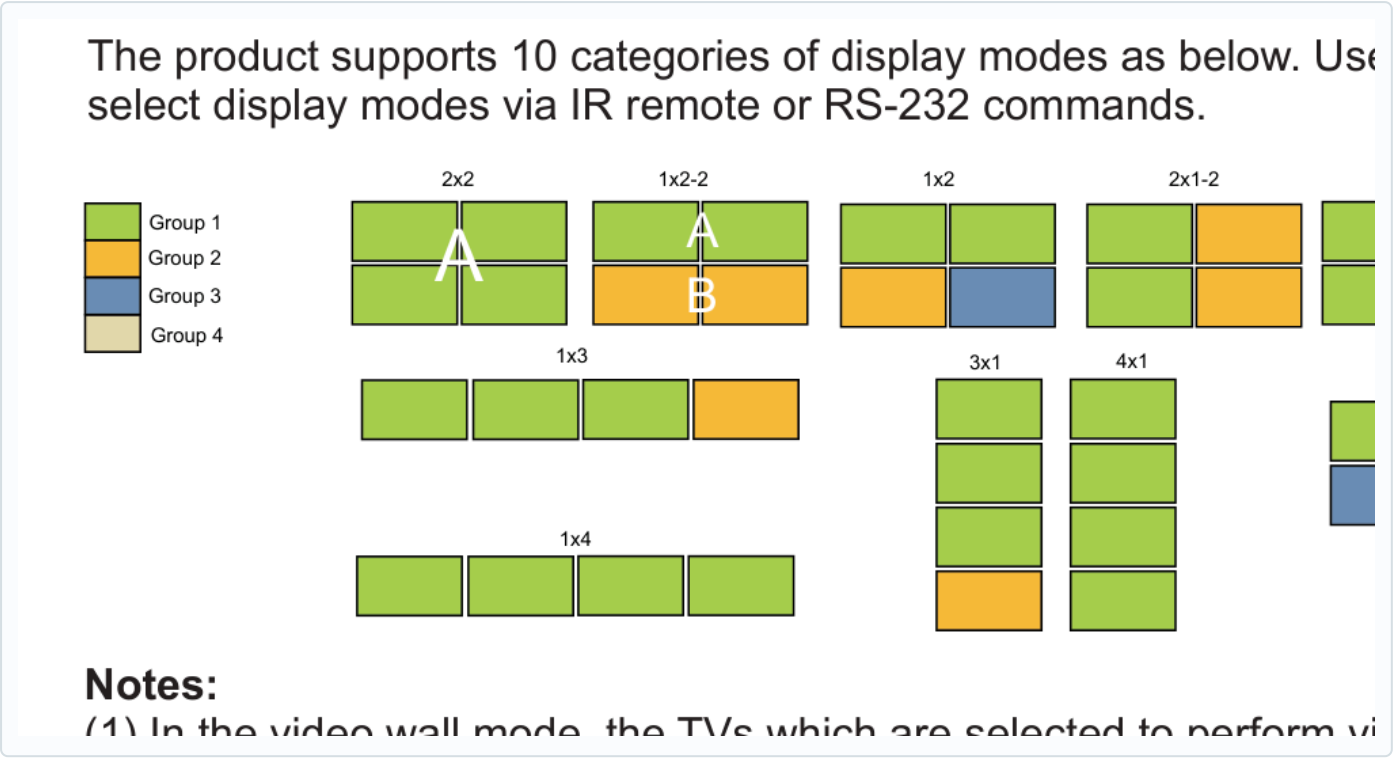
The included IR remote controls all matrix and video wall functions:

- ① **Power on/Standby** — Power on or set to standby mode.
- ② **INFO** — Displays serial port baud rate on screen for 5 seconds.
- ③ **INPUT/OUTPUT** — INPUT 1/2/3/4: Select signal input channel. OUTPUT 1/2/3/4: Select signal output channel. ALL: Select all output channels simultaneously (e.g., press ALL then INPUT 1 to route IN1 to all displays). Res: Switch output resolution (matrix mode only — press OUTPUT then Res to cycle resolutions).
- ④ **VIDEO WALL** — Press video wall mode button to enter the corresponding layout. Press OUTPUT 1/2/3/4 to select the video wall group, then INPUT 1/2/3/4 to select the source. H-BEZEL / V-BEZEL: Adjust horizontal/vertical bezel compensation.

Operation: Press OUTPUT button first, then INPUT button to route. Example: Press OUTPUT 2, then INPUT 3 to route IN3 to OUT2.

7. Video Wall

The product supports 10 display modes selectable via IR remote or RS-232 commands:



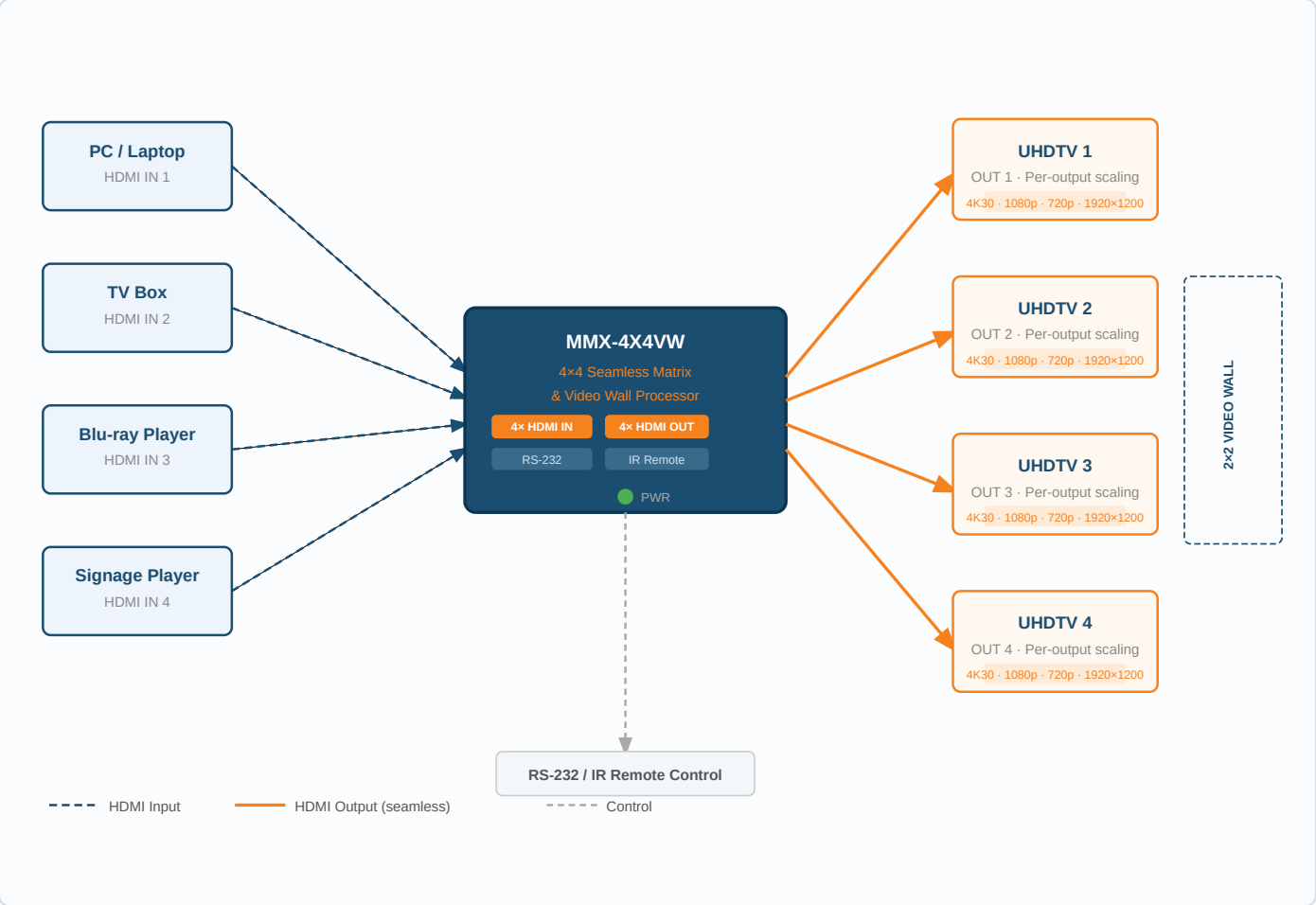
(1) In video wall mode, screens selected for video wall splicing output fixed 1080P resolution. Other screens support transparent transmission (e.g., in 1×2 mode, OUT1 and OUT2 are 1080P; OUT3 and OUT4 pass through the source resolution).
(2) The output image mirror function is available only in video wall mode.

8. RS-232 Control Commands

Serial Port Protocol: Baud rate: 115200 (default) | Data bits: 8 | Stop bits: 1 | Check bit: 0
Parameters: x = Parameter 1 | y = Parameter 2 | z = Parameter 3 | ! = Delimiter

COMMAND	FUNCTION	DEFAULT	EXAMPLE
help!	Lists all commands	–	help!
r status!	Get device current status (power, in/out, EDID, scaler)	–	r status!
r type!	Get device model	–	r type!
r fw version!	Get firmware version	–	r fw version!
s power z!	Power on/off (z=0 off, z=1 on)	power on	s power 1!
r power!	Get current power state	–	r power!
s beep z!	Enable/disable buzzer (z=0 off, z=1 on)	beep on	s beep 1!
s lock z!	Lock/unlock front panel buttons (z=0 unlock, z=1 lock)	lock off	s lock 1!
s reset!	Reset to factory defaults	–	s reset!
s reboot!	Reboot the device	–	s reboot!
s in x av out y!	Route input x to output y (x=1–4, y=0–4; y=0=all)	ptp	s in 1 av out 2!
r av out y!	Get output y signal status (y=0–4)	–	r av out 0!
s output y res x!	Set output y resolution (y=0–4, x=1–13). x: 1=4096×2160p30, 2=3840×2160p30, 3=1920×1200p60, 4=1920×1080p60, 5=1920×1080p50, 6=1600×1200p60, 7=1600×900p60, 8=1440×900p60, 9=1360×768p60, 10=1280×1024p60, 11=1280×720p60, 12=1280×720p50, 13=1024×768p60	3840×2160p30	s output 1 res 2!
r output y res!	Get output y resolution (y=0–4)	–	r output 1 res!
s output y csc x!	Set output y color space (x=1 rgb444, x=2 ycbcr444, x=3 ycbcr422)	rgb444	s output 1 csc 1!
s output y stream x!	Enable/disable output y stream (x=0 disable, x=1 enable)	enable	s output 1 stream 1!
s output y mirror x!	Set output y mirror (x=0 off, x=1 H-mirror, x=2 V-mirror, x=3 H+V mirror)	mirror off	s output 1 mirror 0!
s edid in x from z!	Set input x EDID (x=0–4; z=1–11: 1=4K30_444/2.0, 2=4K30_444/5.1, 3=1080p/2.0, 4=1080p/5.1, 5=1920×1200/2.0, 6=1360×768/2.0, 7=1024×768/2.0, 8–11=copy from OUT 1–4)	4K30, 2.0ch	s edid in 1 from 1!
r edid in x!	Get input x EDID mode (x=0–4)	–	r edid in 0!
s tw mode x!	Set video wall mode (x=1 2×2, x=2 2×1, x=3 2×1-2, x=4 1×2, x=5 1×2-2, x=6 3×1, x=7 4×1, x=8 1×3, x=9 1×4, x=10 matrix)	2×2	s tw mode 1!
r tw mode!	Get video wall display mode	–	r tw mode!
s tw h bezel x!	Set horizontal bezel (x=0–10)	0	s tw h bezel 0!
s tw v bezel x!	Set vertical bezel (x=0–10)	0	s tw v bezel 0!
s tw group y input x!	Set video wall group y source (y=0–4, x=1–4)	group1=IN1	s tw group 1 input 1!
r tw group y source!	Get video wall group y source (y=0–4)	–	r tw group 0 source!

9. Application Example



In **Matrix Mode**, any of the four HDMI sources can be independently routed to any of the four displays with no switching delay or picture loss. In **Video Wall Mode**, a single source is distributed across two to four screens using any of 10 configurable layouts (2×2, 4×1, 1×4, and more). Each output independently scales to the display's native resolution. Control via front panel buttons, IR remote, or RS-232 ASCII commands.