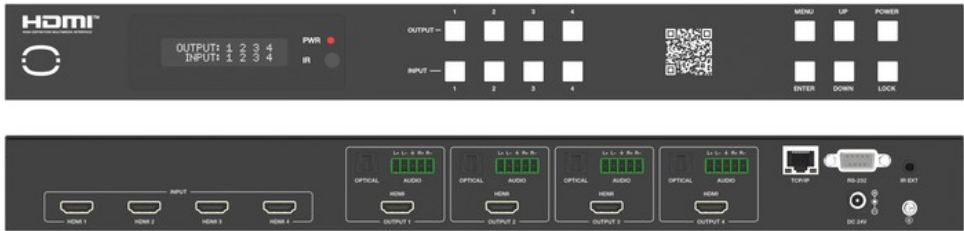


48Gbps 4x4 HDMI 2.1 Matrix Switcher with Per-Output Downscaling & Audio Breakout

Full Gaming Feature Set - VRR, ALLM, QMS, QFT & SBTM to Every Output at 4K120 4:4:4



Routes 8K and 4K/120 gaming sources to a mix of new and legacy displays, downscaling and HDR-converting each output independently so one matrix drives every screen in the room. The MMX-4X4-48G is a 1U, all-metal 4x4 HDMI 2.1 matrix that carries the full 48Gbps FRL bandwidth to all four outputs, powered by a locking 24V/2.7A supply and rated up to 8K60 4:2:0, 8K30 4:4:4 and 4K120 4:4:4. It is the right choice for gaming theaters, esports rooms and mixed-resolution commercial installs where high-refresh signal integrity and per-output scaling matter more than raw port count.

Each of the four outputs carries the complete HDMI 2.1 gaming feature set — VRR, ALLM, QMS, QFT and SBTM — with HDR10, HDR10+, Dolby Vision and HLG pass-through, plus independent optical S/PDIF and balanced analog breakout for de-embedding audio to a processor or zone amp. Advanced EDID management with 36 defined, 3 user and 4 copy modes keeps mixed-source, mixed-display systems stable, and the matrix drops into any control system over front-panel buttons, IR, RS-232 or a TCP/IP Web GUI. Its single strongest advantage is doing all of this at a true 48Gbps — not the 40Gbps of many 8K units — while downscaling per output so legacy 4K and 1080p displays share the same routing fabric as the 8K reference screen, without a separate scaler in the rack.

Surge Protection Recommended

— This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, or lightning strikes. Use of surge protection systems is highly recommended.

TABLE OF CONTENTS

1. Features	2
2. Package Contents	2
3. Specifications	2
4. Introduction	3
5. Panel Descriptions	4
Front Panel	4
Rear Panel	5
6. Cabling and Interconnection	5
7. LCD Display Navigation	5
8. IR Remote	6
9. IR Cable Pin Assignment	6
10. EDID Management	7
11. Web GUI User Guide	8
12. RS-232 Control Command	8
System Setting	9
Output Setting	9
EDID Setting	10
Ext-Audio Setting	11
CEC Setting	11
Network Setting	11
13. Application Example	12
14. Troubleshooting	13
15. Installation FAQ	13
16. Integration FAQ	13

1. Features

- ✓ HDCP 2.3 compliant.
- ✓ 4 × HDMI inputs can be independently routed to 4 × HDMI outputs.
- ✓ Video resolution up to 8K60Hz 4:2:0, 8K30Hz 4:4:4 and 4K120Hz 4:4:4, as specified in HDMI 2.1.
- ✓ Supports 48Gbps video bandwidth.
- ✓ HDR, HDR10, HDR10+ and Dolby Vision pass-through.
- ✓ Resolution downscaling and HDR conversion on each output port.
- ✓ Supports VRR, ALLM, QMS, QFT and SBTM.
- ✓ Optical audio and balanced analog audio output.
- ✓ Advanced EDID management.
- ✓ Control via front-panel buttons, IR remote, RS-232 and Web GUI.

2. Package Contents

- ✓ 1 × 48Gbps 4×4 HDMI Matrix
- ✓ 1 × 24V/2.7A locking power adapter
- ✓ 1 × IR remote
- ✓ 1 × IR wideband receiver cable (12V, 1.5m)
- ✓ 1 × AC power cord (1.5m)
- ✓ 1 × RS-232 serial cable (1.5m, male-to-female)
- ✓ 4 × 5-pin 3.81mm phoenix connector
- ✓ 8 × machine screw (KM3*6)
- ✓ 2 × mounting ear

3. Specifications

TECHNICAL		
	HDMI Compliance	HDMI 2.1
	HDCP Compliance	HDCP 2.3
	Video Bandwidth	48Gbps
	Video Resolution	Up to 8K60Hz 4:2:0, 8K30Hz 4:4:4 and 4K120Hz 4:4:4
	Color Space	RGB 4:4:4, YCbCr 4:4:4, YCbCr 4:2:2, YCbCr 4:2:0
	Color Depth	8/10/12-bit
	HDR Formats	HDR, HDR10, HDR10+, Dolby Vision, HLG
	Audio Latency	No latency
	Video Latency	No latency
	Audio Formats — HDMI In/Out	LPCM, Dolby Digital/Plus/EX, Dolby TrueHD, Dolby Atmos, DTS, DTS-EX, DTS-96/24, DTS High Res, DTS-HD Master Audio, DSD
	Audio Formats — Optical Breakout	LPCM 2.0CH / Dolby / DTS 5.1CH
	Audio Formats — Balanced Analog Breakout	LPCM 2CH
	ESD Protection	IEC 61000-4-2: ±8kV air-gap discharge, ±4kV contact discharge
HDMI CABLE LENGTH (IN / OUT)		
	8K	3m / 9.8ft (Ultra High Speed HDMI 2.1)



continued

	4K60	5m / 16ft
	4K30	10m / 33ft
	1080P	15m / 49ft
CONNECTION		
	Input Ports	4 × HDMI Input [Type A, 19-pin female]
	Output Ports	4 × HDMI Output [Type A, 19-pin female]; 4 × Optical Audio [S/PDIF]; 4 × L/R Audio [5-pin 3.81mm phoenix connector]
	Control Ports	1 × TCP/IP [RJ45]; 1 × RS-232 [D-Sub 9]; 1 × IR EXT [3.5mm stereo mini-jack]
PHYSICAL		
	Housing	Metal enclosure
	Color	Black
	Dimensions (W × D × H)	17.32" × 7.99" × 1.75" (440 × 203 × 44.5mm)
	Weight (net)	5.84 lbs (2.65kg)
POWER		
	Power Supply	Input AC 100–240V 50/60Hz; Output DC 24V/2.7A (locking power adapter)
	Power Consumption	35W (max)
ENVIRONMENTAL		
	Operating Temperature	32–104°F / 0–40°C
	Storage Temperature	–4–140°F / –20–60°C
	Operating Humidity	20%–80% RH, non-condensing
	Storage Humidity	10%–90% RH, non-condensing
CERTIFICATIONS		
	Certifications	CE, FCC, UL

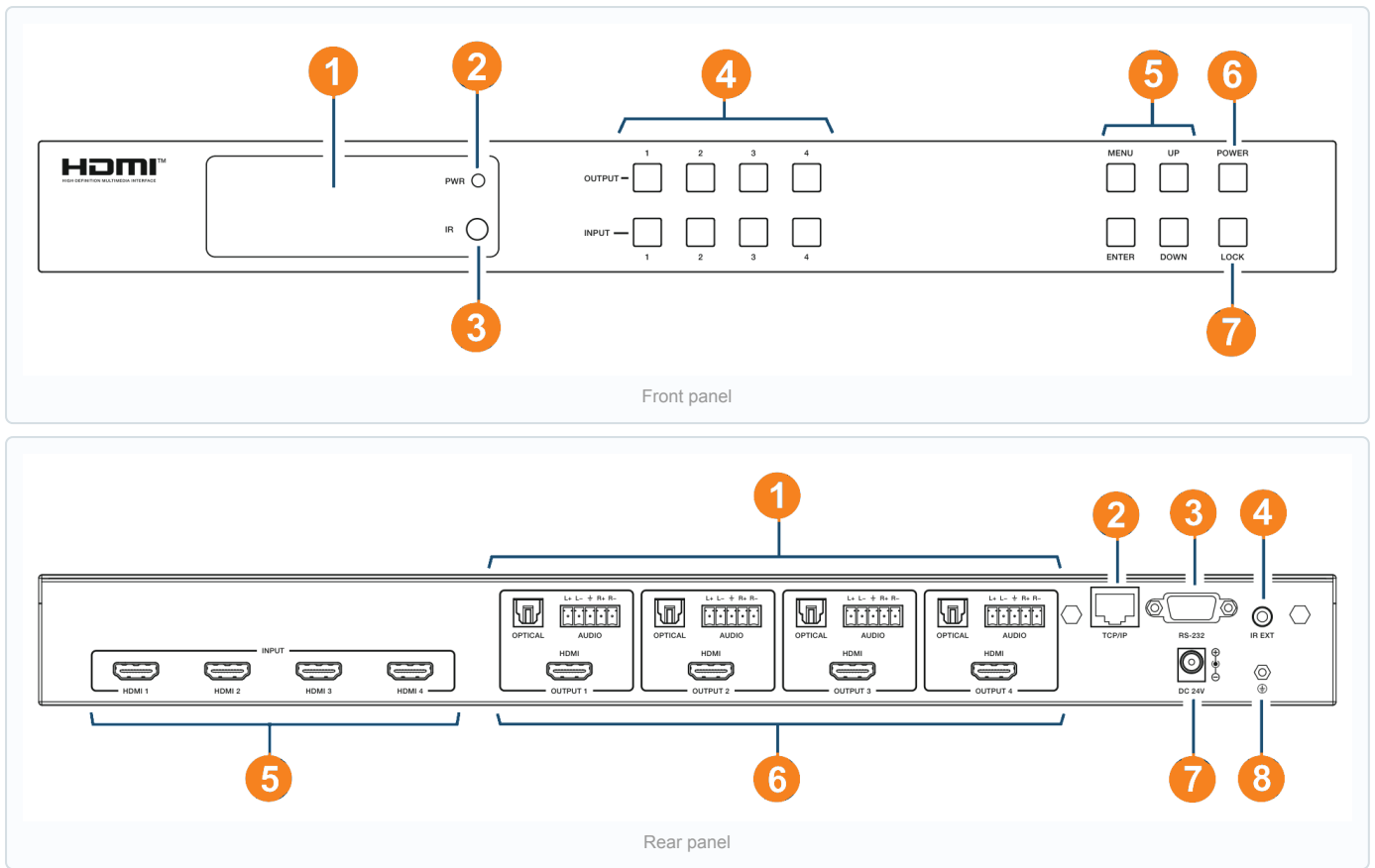
4. Introduction

The 48Gbps 4×4 HDMI Matrix supports the transmission of high-resolution video (up to 4K2K@120Hz 4:4:4 12-bit and 8K4K@60Hz 4:2:0 12-bit) and multi-channel digital audio from four HDMI sources to four HDMI displays. Resolution downscaling and HDR conversion are supported on each HDMI output. The unit works with Blu-ray players, set-top boxes, home-theater PCs and game consoles that connect to an HDMI display, and it can be controlled from the front-panel buttons, the IR remote, RS-232 or the Web GUI.

A surge-protection device is recommended, as the product contains sensitive electrical components that electrical spikes, surges or lightning strikes can damage.



5. Panel Descriptions



FRONT PANEL

No.	Name	Description
1	LCD screen	Displays matrix switching status, input/output port, EDID, baud rate, IP address, etc.
2	PWR Indicator	The LED is green when the device is running and red when the device is on standby.
3	IR	IR signal receiver; it receives the signal from the IR remote.
4	INPUT / OUTPUT buttons	To route a source, first press an output button (1–4), then press an input button (1–4) to select the input source for that output port.
5	MENU / ENTER / UP / DOWN	Navigate the LCD menus. From the initial LCD screen, press MENU to reach the OUTPUT/INPUT/EXTAUDIO/SETUP items; use UP/DOWN to move through a list, ENTER to confirm or enter the next menu, and MENU to return to the previous menu. (For example, to reset: MENU → select SETUP → ENTER → select RESET → ENTER; the screen shows "RESET SUCCESS!".)
6	POWER button	Long-press for one second to enter standby; short-press to wake the device.



continued

No.	Name	Description
7	LOCK button	Short-press to lock the front-panel buttons (except the power button); press again to unlock.

REAR PANEL

No.	Name	Description
1	AUDIO OUT (1~4)	OPTICAL: optical audio output to a device such as an audio amplifier. L/R AUDIO: analog audio output supporting balanced or unbalanced audio, up to 2Vrms. Balanced wiring: L+, L-, ground, R+, R-. Unbalanced wiring: L+, ground, R+.
2	TCP/IP	TCP/IP control port; connect to a PC or router with an RJ45 cable.
3	RS-232 port	Connect to a PC or control system with a D-Sub 9-pin cable to send RS-232 commands.
4	IR EXT	If the unit's IR receiver window is blocked or the unit is installed out of infrared line of sight, plug the IR receiver cable into this port to receive the IR remote signal.
5	HDMI INPUT ports (1~4)	HDMI inputs; connect to HDMI sources such as an 8K computer, DVD player or set-top box with an HDMI cable.
6	HDMI OUTPUT ports (1~4)	HDMI outputs; connect to HDMI displays such as a TV or monitor with an HDMI cable.
7	DC 24V	Connect to the 24V/2.7A power adapter.
8	GND	Connect the housing to ground.

Notes from the manual: factory settings can be restored from the front panel, Web GUI or an RS-232 command; a power-cut memory function is available except in standby; and RS-232 and Web control become available a few minutes after power-on.

6. Cabling and Interconnection

The product requires UTP connectors. Wire the cable straight through using the direct-interconnection method; do not cross-connect. The pin order is: white/orange, orange, white/green, blue, white/blue, green, white/brown, brown.

7. LCD Display Navigation

The front-panel buttons — INPUT (1~4), OUTPUT (1~4), MENU, ENTER, UP, DOWN — drive the LCD menu. Press MENU to enter the top level, use UP/DOWN to move within a level, ENTER to descend or confirm, and MENU to step back. The menu structure is:

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
OUTPUT	VID MODE	OUT1/OUT2/ OUT3/OUT4	BYPASS / 8K to 4K / 8K/4K to 1080P / AUTO / AUDIO ONLY
OUTPUT	HDR	OUT1/OUT2/ OUT3/OUT4	BYPASS / HDR to SDR / AUTO
OUTPUT	ARC	OUT1/OUT2/ OUT3/OUT4	ON / OFF
OUTPUT	STREAM	OUT1/OUT2/ OUT3/OUT4	ENABLE / DISABLE
OUTPUT	AUD MUTE	OUTPUT 1/2/3/4	ON / OFF

continued

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
INPUT	EDID	IN1/IN2/IN3/IN4	EDID modes 1–43 (see EDID Management)
EXTAUDIO	OUT	OUT1/OUT2/OUT3/OUT4	ENABLE / DISABLE
EXTAUDIO	MODE	BIND to INPUT / BIND to OUTPUT / AUDIO MATRIX	—
EXTAUDIO	MATRIX	OUT1/OUT2/OUT3/OUT4	INPUT1–4 / OUTPUT1–4 ARC
SETUP	LCD ONTIME	OFF / ALWAYS ON / 15 SECONDS / 30 SECONDS / 60 SECONDS	—
SETUP	BAUDRATE	4800 / 9600 / 19200 / 38400 / 57600 / 115200	—
SETUP	IP INFO	DHCP: ON/OFF; 192.168.0.10 0	—
SETUP	REBOOT	SUCCESS!	—
SETUP	RESET	SUCCESS!	—

8. IR Remote

You can select input and output channels with the IR remote. The remote's keys are grouped as Output A, Output B, Output C and Output D, each with buttons 1–4:

- **Power:** powers the matrix on or sets it to standby.
- **Output A (buttons 1–4):** selects the input source for HDMI OUTPUT 1.
- **Output B (buttons 1–4):** selects the input source for HDMI OUTPUT 2.
- **Output C (buttons 1–4):** selects the input source for HDMI OUTPUT 3.
- **Output D (buttons 1–4):** selects the input source for HDMI OUTPUT 4.
- **◀ ▶:** selects the previous or next input source.

There are two ways to receive the IR signal. First, aim the remote at the matrix's IR window: the range is up to 8 meters head-on and 5 meters at $\pm 45^\circ$. Second, if the window is blocked or the unit is out of line of sight, plug the IR receiver cable into the "IR EXT" port; the range is then up to 5 meters head-on and 3 meters at $\pm 45^\circ$.

9. IR Cable Pin Assignment

The IR receiver cable carries three connections: IR signal, power, and grounding.



10. EDID Management

The matrix provides 36 factory-defined EDID settings, 3 user-defined EDID modes and 4 copy-EDID modes. You can apply a defined or copied EDID to an input port from the front-panel buttons, over RS-232 or through the Web GUI.

- **Front panel:** from the initial LCD screen, press MENU, use UP/DOWN to select INPUT, press ENTER, and the EDID item appears. Press ENTER, use UP/DOWN to choose the EDID mode you need, then press ENTER to confirm.
- **RS-232:** connect the matrix to a PC with a serial cable and send the ASCII command `s input x EDID z!` to set the EDID (see the EDID Setting rows under RS-232 Control Command).
- **Web GUI:** manage EDID on the Input page (see Web GUI User Guide).

Defined EDID setting list:

MODE	DESCRIPTION	MODE	DESCRIPTION
1	1080P, 2.0CH	23	4K60(444)_HDR, 5.1CH
2	1080P, 5.1CH	24	4K60(444)_HDR, 7.1CH
3	1080P, 7.1CH	25	4K120(420)_HDR, 2.0CH
4	4K30, 2.0CH	26	4K120(420)_HDR, 5.1CH
5	4K30, 5.1CH	27	4K120(420)_HDR, 7.1CH
6	4K30, 7.1CH	28	4K120(444)_HDR, 2.0CH
7	4K60(420), 2.0CH	29	4K120(444)_HDR, 5.1CH
8	4K60(420), 5.1CH	30	4K120(444)_HDR, 7.1CH
9	4K60(420), 7.1CH	31	FRL10G_8K_HDR, 2.0CH
10	4K60(444), 2.0CH	32	FRL10G_8K_HDR, 5.1CH
11	4K60(444), 5.1CH	33	FRL10G_8K_HDR, 7.1CH
12	4K60(444), 7.1CH	34	FRL12G_8K_HDR, 2.0CH
13	1080P_HDR, 2.0CH	35	FRL12G_8K_HDR, 5.1CH
14	1080P_HDR, 5.1CH	36	FRL12G_8K_HDR, 7.1CH
15	1080P_HDR, 7.1CH	37	user1_EDID
16	4K30_HDR, 2.0CH	38	user2_EDID
17	4K30_HDR, 5.1CH	39	user3_EDID
18	4K30_HDR, 7.1CH	40	copy out1
19	4K60(420)_HDR, 2.0CH	41	copy out2
20	4K60(420)_HDR, 5.1CH	42	copy out3
21	4K60(420)_HDR, 7.1CH	43	copy out4
22	4K60(444)_HDR, 2.0CH		



11. Web GUI User Guide

The matrix can be controlled from a web browser. The default IP address is 192.168.0.100 (this address varies with the machine).

Step 1 — find the current IP address. Either read it from the front panel (MENU → SETUP → ENTER → IP INFO → ENTER) or send the RS-232 command `r ipconfig!`, which returns the IP mode, IP address, subnet mask, gateway, TCP/IP port (8000), Telnet port (23) and MAC address.

Step 2 — connect. Connect the matrix's TCP/IP port to a PC with a UTP cable and set the PC's IP address to the same network segment as the matrix.

Step 3 — log in. Enter the matrix's IP address in your browser. At the login page, select the username "Admin", enter the password "admin", choose a language, then click LOGIN.

Status page. Shows basic information about the device — the model, the installed firmware version and the network settings. (*The text does not print the model value shown here; see Flags.*)

Matrix page. Use the Switch controls to route an input source to an output; each input and output uses the display name set on the Input and Output pages. Use Presets to set, save and clear presets — four presets are supported, each pairing a group of outputs with an assigned input. An "All Output" control applies one input source to all four outputs at once.

Input page. Each row shows the input channel, an Active indicator (green when a source signal is detected, gray when none), an editable Name (max 32 characters) and the current EDID, which you can change from a drop-down. You can load an EDID bin file into user memory with "Browse", download an existing EDID to your computer by selecting the channel and clicking "Download", and upload a file to User Define 1/2/3.

Output page. Each row shows the output channel, a Cable indicator (green when a display is connected, gray when not) and an editable Name (max 32 characters). Set the **Video Mode** per output from five options: Bypass (default — output resolution follows the source); 8K → 4K (downscale any 8K signal to 4K); 8K/4K → 1080p (downscale any 8K/4K signal to 1080p); Auto (output resolution follows the sink's EDID); and Audio Only (audio only, no picture). Set **HDR Conversion** from three options: Bypass (default — output follows the source); HDR to SDR (convert HDR to SDR); and Auto (follow the sink's EDID). Set **HDCP** per output from HDCP 1.4, HDCP 2.2, Follow Sink, Follow Source and User Mode. Toggle **ARC**, **Mute** and **Stream** on or off per output.

Ext-Audio page. Choose one of three audio modes. In **Bind to Input**, each audio output follows its matching HDMI input one-to-one; input sources and output ARC cannot be selected in this mode. In **Bind to Output**, each audio output follows its HDMI output (for example, if HDMI input 3 is routed to HDMI output 1, then AUDIO OUT 1 carries the audio from HDMI input 3); input sources and output ARC cannot be selected. In **Audio Matrix**, you route extracted audio independently — click an Audio Out, then select any input source or ARC audio to assign to it. In every mode, use Enable/Disable to turn a channel on or off.

CEC page. Manage connected devices over CEC. Under Input Control, select an input and use the icons to power on/off, return, switch, pause, fast-forward, fast-back, mute and unmute. Under Output Control, select an output and use the icons to control the display — power on/off, volume up/down/off, active-source switching and so on.

Network page. Modify the IP mode, IP address, gateway, subnet mask and Telnet port, then click Save to apply. In Static mode you set these manually; in DHCP mode the router assigns the address and you cannot edit it. You can also change the user password (the password cannot be empty, the new password cannot equal the old one, and the new and confirm entries must match) and click "Set Network Defaults" to restore the default network settings.

System page. Toggle Panel Lock (ON locks the panel buttons), toggle Beep, set the LCD On Time (Always ON / 15s / 30s / 60s or off), set the Serial Baud Rate, update firmware with "Browse" then "Update", perform a Factory Reset, and Reboot the unit. After a reset or reboot the browser returns to the login page.

12. RS-232 Control Command

The product supports RS-232 control. Use a serial cable with an RS-232 male head and a DB9-to-USB male head: connect the RS-232 end to the matrix's rear DB9 RS-232 port and the USB end to the PC, then open a serial command tool to send ASCII commands.

Serial protocol: baud rate 115200, 8 data bits, 1 stop bit, no parity. **TCP/IP port:** 8000. **Telnet port:** 23. In the tables, x, y, z and XXX are parameters. Error codes: E00 = unknown command, E01 = parameter out of range, E02 = error EDID data.



SYSTEM SETTING

COMMAND	FUNCTION	EXAMPLE	FEEDBACK / DEFAULT
<code>help!</code>	List all commands	<code>help!</code>	—
<code>status!</code>	Get device current status	<code>status!</code>	All status: power, beep, lock, in/out connection, video/audio crosspoint, EDID, network
<code>r type!</code>	Get device model	<code>r type!</code>	4x4 HDMI2.1 Matrix
<code>r fw version!</code>	Get firmware version	<code>r fw version!</code>	MCU FW version x.xx.xx
<code>power z!</code>	Power on/off (z=0 off, z=1 on)	<code>power 1!</code>	Power on; system initializing → finished; FW version
<code>r power!</code>	Get power state	<code>r power!</code>	power on / power off
<code>s beep z!</code>	Enable/disable buzzer (z=0 off, z=1 on)	<code>s beep 1!</code>	beep on (default beep off)
<code>r beep!</code>	Get buzzer state	<code>r beep!</code>	beep on / beep off
<code>s lock z!</code>	Lock/unlock front panel (z=0 off, z=1 on)	<code>s lock 1!</code>	panel button lock on/off (default off)
<code>r lock!</code>	Get panel lock state	<code>r lock!</code>	panel button lock on/off
<code>s lcd on time z!</code>	Set LCD on-time (0 off, 1 always, 2=15s, 3=30s, 4=60s)	<code>s lcd on time 3!</code>	lcd on 30 seconds
<code>r lcd mode!</code>	Get LCD backlight status	<code>r lcd mode!</code>	lcd always on
<code>s logo1 ****!</code>	Set LCD line-1 logo text (max 16 chars)	<code>s logo1 Matrix Switch!</code>	logo1:Matrix Switch
<code>reboot!</code>	Reboot device	<code>reboot!</code>	Reboot → initializing → finished; FW version
<code>reset!</code>	Reset to factory defaults	<code>reset!</code>	Reset → initializing → finished; FW version
<code>r link in x!</code>	Get input connection status (x=0~4, 0=all)	<code>r link in 1!</code>	hdmi input 1: connect/sync/disconnect
<code>r link out y!</code>	Get output connection status (y=0~4, 0=all)	<code>r link out 1!</code>	hdmi output 1: connect/disconnect
<code>s save preset z!</code>	Save routing to preset z (z=1~4)	<code>s save preset 1!</code>	save to preset 1
<code>s recall preset z!</code>	Recall preset z (z=1~4)	<code>s recall preset 1!</code>	recall from preset 1
<code>s clear preset z!</code>	Clear preset z (z=1~4)	<code>s clear preset 1!</code>	clear preset 1
<code>r preset z!</code>	Get preset z info (z=1~4)	<code>r preset 1!</code>	video/audio crosspoint

OUTPUT SETTING

COMMAND	FUNCTION	EXAMPLE	FEEDBACK / DEFAULT
<code>s output y in source x!</code>	Route input x to output y (y=0~4, 0=all; x=1~4)	<code>s output 1 in source 1!</code>	output1->input1
<code>r output y in source!</code>	Get output y's source (y=0~4, 0=all)	<code>r output 1 in source!</code>	output1->input1



continued

COMMAND	FUNCTION	EXAMPLE	FEEDBACK / DEFAULT
s output y hdcpc x!	Set output HDCP (x=1 HDCP1.4, 2 HDCP2.2, 3 follow sink, 4 follow source, 5 user mode)	s output 1 hdcpc 2!	output 1 HDCP: HDCP 2.2 (default follow sink)
r output y hdcpc!	Get output HDCP (y=0~4, 0=all)	r output 1 hdcpc!	output 1 HDCP: HDCP 2.2
s output y stream x!	Set output stream (x=0 disable, 1 enable)	s output 1 stream 1!	output 1 stream: Enable (default Enable)
r output y stream!	Get output stream status	r output 1 stream!	output 1 stream: Enable
s output y video mode x!	Set video mode (x=1 pass-through, 2 8k→4k, 3 8k/4k→1080p, 4 auto/follow sink, 5 audio only)	s output 1 video mode: 2!	output 1 video mode: 8k->4k (default pass-through)
r output y video mode!	Get video mode (y=0~4, 0=all)	r output 1 video mode!	output 1 video mode: 8k->4k
s output y hdr x!	Set HDR-to-SDR mode (x=1 pass-through, 2 HDR to SDR, 3 auto/follow sink)	s output 1 hdr 2!	output 1 HDR mode: HDR to SDR (default pass-through)
r output y hdr!	Get HDR mode (y=0~4, 0=all)	r output 1 hdr!	output 1 HDR mode: HDR to SDR
s output y arc x!	Set output ARC (x=0 off, 1 on)	s output 1 arc 0!	output 1 arc: off (default off)
r output y arc!	Get output ARC status	r output 1 arc!	output 1 arc: off
s output y audio mute x!	Set output audio mute (x=0 off, 1 on)	s output 1 audio mute 0!	output 1 audio mute: off (default off)
r output y audio mute!	Get output audio mute status	r output 1 audio mute!	output 1 audio mute: off

EDID SETTING

COMMAND	FUNCTION	EXAMPLE	FEEDBACK / DEFAULT
s input x EDID z!	Set HDMI input x EDID mode (x=0~4, z=1~39; see EDID list)	s input 1 EDID 36!	input 1 EDID: FRL12G_8K_HDR, 7.1CH
s input x edid copy output y!	Copy input x EDID from output y (x=0~4, 0=all; y=1~4)	s input 1 edid copy output 1!	input 1 EDID: copy from output 1
r input x EDID!	Get input x EDID mode (x=0~4, 0=all)	r input 1 EDID!	FRL12G_8K_HDR, 7.1CH
s user x edid 00 FF FF ...!	Set user x EDID data (x=1~3)	s user 1 edid 00 FF FF FF FF ...!	user 1 EDID data: 00 FF FF ...
r user x edid!	Get user x EDID data (x=1~3)	r user 1 edid!	user 1 EDID data: 00 FF FF ...



EXT-AUDIO SETTING

COMMAND	FUNCTION	EXAMPLE	FEEDBACK / DEFAULT
<code>s output y exa x!</code>	Set output ext-audio (x=0 disable, 1 enable)	<code>s output 1 exa 1!</code>	output 1 ext-audio: Enable (default Enable)
<code>r output y exa!</code>	Get output ext-audio status	<code>r output 1 exa!</code>	output 1 ext-audio: Enable
<code>s output exa mode x!</code>	Set ext-audio mode (x=0 bind to input, 1 bind to output, 2 matrix)	<code>s output exa mode 0!</code>	output ext-audio mode: bind to input (default bind to input)
<code>r output exa mode!</code>	Get ext-audio mode	<code>r output exa mode!</code>	output ext-audio mode: bind to input
<code>s output y exa in source x!</code>	Route audio to output ext-audio y (y=0~4; x=1~4 inputs, x=5~8 output 1~4 ARC)	<code>s output 1 exa in source 1!</code>	output1 ext-audio->input1
<code>r output y exa in source!</code>	Get output y ext-audio source (y=0~4, 0=all)	<code>r output 0 exa in source!</code>	output1 ext-audio->input1 ...

CEC SETTING

Input CEC commands (x=0~4, 0=all input): `s cec in x on!, off!, menu!, back!, up!, down!, left!, right!, enter!, play!, pause!, stop!, rew!, mute!, vol-!, vol+!, ff!, previous!, next!` — each returns a confirmation such as `input 1 power on`.

HDMI output CEC commands (y=0~4, 0=all output): `s cec hdmi out y on!, off!, mute!, vol-!, vol+!, active!` — each returns a confirmation such as `hdmi output 1 power on`.

NETWORK SETTING

COMMAND	FUNCTION	EXAMPLE	FEEDBACK
<code>r ipconfig!</code>	Get current IP configuration	<code>r ipconfig!</code>	IP mode, IP, subnet, gateway, TCP/IP port 8000, Telnet port 23, MAC
<code>r mac addr!</code>	Get MAC address	<code>r mac addr!</code>	Mac address: 00:1C:91:03:80:01
<code>s ip mode z!</code>	Set IP mode (z=0 static, z=1 DHCP)	<code>s ip mode 0!</code>	Set IP mode:Static. (apply with <code>s net reboot!</code>)
<code>r ip mode!</code>	Get IP mode	<code>r ip mode!</code>	IP mode: Static
<code>s ip addr xxx.xxx.xx x.xxx!</code>	Set IP address	<code>s ip addr 192.168.0. 100!</code>	Set IP (apply with <code>s net reboot!</code>); DHCP must be off first
<code>r ip addr!</code>	Get IP address	<code>r ip addr!</code>	IP address:192.168.0.100
<code>s subnet xxx.xxx.xx x.xxx!</code>	Set subnet mask	<code>s subnet 255.255.25 5.0!</code>	Set subnet (apply with <code>s net reboot!</code>); DHCP off first
<code>r subnet!</code>	Get subnet mask	<code>r subnet!</code>	Subnet Mask:255.255.255.0
<code>s gateway xxx.xxx.xx x.xxx!</code>	Set gateway	<code>s gateway 192.168.0. 1!</code>	Set gateway (apply with <code>s net reboot!</code>); DHCP off first
<code>r gateway!</code>	Get gateway	<code>r gateway!</code>	Gateway:192.168.0.1



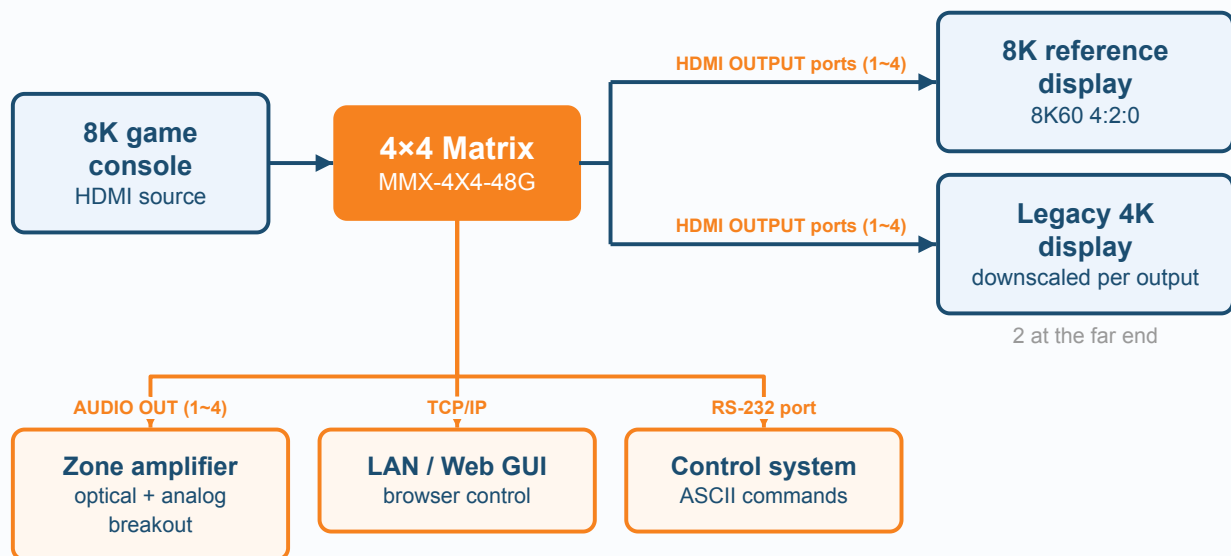
continued

COMMAND	FUNCTION	EXAMPLE	FEEDBACK
<code>s tcp/ip port x!</code>	Set TCP/IP port (x=1~65535)	<code>s tcp/ip port 8000!</code>	Set TCP/IP port:8000
<code>r tcp/ip port!</code>	Get TCP/IP port	<code>r tcp/ip port!</code>	TCP/IP port:8000
<code>s telnet port x!</code>	Set Telnet port (x=1~65535)	<code>s telnet port 23!</code>	Set Telnet port:23
<code>r telnet port!</code>	Get Telnet port	<code>r telnet port!</code>	Telnet port:23
<code>s net reboot!</code>	Reboot network modules	<code>s network reboot!</code>	Network reboot; returns current network config

13. Application Example

TYPICAL SETUP

48Gbps 4×4 HDMI 2.1 Matrix Switcher with Per-Output Downscaling & Audio Breakout



How it works: Each of the four outputs carries the complete HDMI 2.1 gaming feature set — VRR, ALLM, QMS, QFT and SBTM — with HDR10, HDR10+, Dolby Vision and HLG pass-through, plus independent optical S/PDIF and balanced analog breakout for de-embedding audio to a processor or zone amp. Advanced EDID management with 36 defined, 3 user and 4 copy modes keeps mixed-source, mixed-display systems stable, and the matrix drops into any control system over front-panel buttons, IR, RS-232 or a TCP/IP Web GUI. Its single strongest advantage is doing all of this at a true 48Gbps — not the 40Gbps of many 8K units — while downscaling per output so legacy 4K and 1080p displays share the same routing fabric as the 8K reference screen, without a separate scaler in the rack.



14. Troubleshooting

Q: The MMX-4X4-48G shows no picture on a connected display. What should I check?

A: Confirm the front-panel PWR indicator is green rather than red, which means the unit is running and not in standby. Then check that output's Cable indicator on the Web GUI Output page is green (a display is detected) and that the input's Active indicator is green (a source signal is present); a gray indicator points to the cable or device at that end.

Q: I cannot reach the MMX-4X4-48G Web GUI in a browser. What should I try?

A: RS-232 and Web control become available a few minutes after power-on, so allow the unit to finish initializing. Then verify the PC is set to the same network segment as the matrix and that you are browsing to the matrix's current IP address, which you can read from the front panel under MENU > SETUP > IP INFO or with the RS-232 command `r ipconfig!`.

Q: The front-panel buttons on the MMX-4X4-48G do not respond. What is wrong?

A: The panel is most likely locked. Press the LOCK button to unlock it, or send `s lock 0!` over RS-232; the power button keeps working even while the panel is locked.

Q: An 8K source shows nothing while lower resolutions work on the MMX-4X4-48G. What should I check?

A: Confirm the HDMI cable at 8K is within the supported 3m/9.8ft length using an Ultra High Speed HDMI 2.1 cable, since 4K60 allows 5m and 1080p allows 15m. If the display cannot accept 8K, set that output's Video Mode to 8K to 4K or 8K/4K to 1080p to downscale, or set an EDID that matches the sink.

Need help? — For additional support, contact KanexPro technical support at support@kanexpro.com or 888.975.1368, or scan the QR code below for the product page.

15. Installation FAQ

Q: How does the MMX-4X4-48G get power, and how is the adapter connected?

A: Connect the supplied 24V/2.7A locking power adapter to the rear DC 24V jack; the adapter accepts AC 100-240V, 50/60Hz. A GND terminal is provided to bond the housing to ground, and a surge-protection device is recommended.

Q: How do I connect the MMX-4X4-48G to my network for Web GUI control?

A: Run an RJ45 cable from the rear TCP/IP port to a PC or router, and set the PC to the same network segment as the matrix. The default IP address is 192.168.0.100; you can read the current address from the front panel under MENU > SETUP > IP INFO.

Q: What plugs into the AUDIO OUT and IR EXT ports on the rear panel?

A: OPTICAL carries S/PDIF audio to a device such as an amplifier, and L/R AUDIO provides balanced or unbalanced analog audio up to 2Vrms on the 5-pin phoenix connectors. If the front IR window is blocked or out of line of sight, plug the supplied IR receiver cable into the IR EXT port.

Q: What kind of cable should I use on the TCP/IP port, and how is it wired?

A: Use a UTP cable wired straight through by the direct-interconnection method; do not cross-connect. The pin order is white/orange, orange, white/green, blue, white/blue, green, white/brown, brown.

16. Integration FAQ

Q: What control protocols does the MMX-4X4-48G accept?

A: Front-panel buttons, IR remote, RS-232, and the Web GUI. RS-232 runs at 115200 baud, 8 data bits, 1 stop bit, no parity; network control uses TCP/IP port 8000 and Telnet port 23.

Q: How does a control system route sources on the MMX-4X4-48G?

A: A controller connected to the DB9 RS-232 port sends ASCII commands such as `s output 1 in source 1!` to route input 1 to output 1, and can save or recall up to four presets with `s save preset z!` and `s recall preset z!`.

Q: Can the MMX-4X4-48G control connected displays and sources over CEC?

A: Yes. The Web GUI CEC page and RS-232 CEC commands can power on/off, switch, and adjust volume on connected devices, for example `s cec hdmi out 1 on!` for a display and `s cec in 1 play!` for a source.

Q: What does a typical MMX-4X4-48G installation look like?

A: HDMI sources such as a PC, Blu-ray player, and set-top box connect to the four inputs, and displays connect to the four outputs; extracted audio feeds an amplifier and speakers through the optical and L/R analog outputs. The TCP/IP port joins the LAN for Web GUI control.



Scan for product page
kanexpro.com/item/MMX-4X4-48G