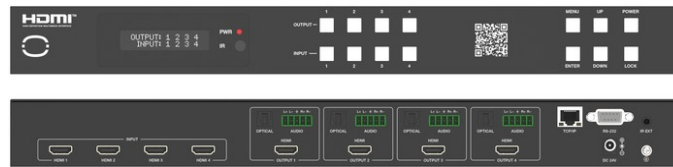


48Gbps 4×4 HDMI 2.1 Matrix Switcher with Per-Output Downscaling & Audio Breakout

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

MPN: MMX-4X4-48G



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 4×4 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.

1 PRODUCT OVERVIEW

DESIGNED FOR

Built for the rack that feeds several displays from current-generation sources: dedicated home theaters and media rooms running console and PC gaming, esports and gaming lounges, corporate boardrooms with a mix of screen sizes, broadcast and production monitoring walls, sports-bar and hospitality head-ends, and retail or experiential showcases driving native 8K content. It fits any installed system where next-gen consoles, 4K/120 players, high-refresh PCs or 8K signage engines must reach a blend of 8K, 4K and 1080p displays from one central switch.

THE CHALLENGE

Most matrix switchers still on the shelf are 4K/60 at 18Gbps and physically cannot carry 8K, 4K/120 or the 48Gbps signalling that VRR, ALLM and high-frame-rate content require, so routing a modern console or PC through them strips out the very modes the display supports. The displays in a real install are rarely uniform — one 8K screen, a pair of 4K panels, a 1080p confidence monitor — which forces outboard scalers and separate audio de-embedders into the bill of materials, each adding boxes, EDID conflicts and failure points to a system where a single fault takes down the whole room.

THE KANEXPRO ADVANTAGE

- Carries the full 48Gbps HDMI 2.1 bandwidth to all four outputs — not the 40Gbps that limits many 8K units — sustaining 8K60 4:2:0, 8K30 4:4:4 and 4K120 4:4:4.
- Passes the complete gaming feature set — VRR, ALLM, QMS, QFT and SBTM — to every output, which no 18Gbps 4K/60 matrix can do.
- Downscales resolution and converts HDR independently per output, so a legacy 4K or 1080p display shares the same routing fabric as the 8K reference screen without a separate scaler.
- De-embeds audio at each output over both optical S/PDIF and balanced analog, feeding a processor or zone amp independently of the video routing.
- Manages EDID across 36 defined, 3 user and 4 copy modes and integrates over front panel, IR, RS-232 and a TCP/IP Web GUI for third-party control systems.

2 PRODUCT POSITIONING

The MMX-4X4-48G is the 48Gbps HDMI 2.1 matrix switcher for AV integrators who need to route 8K and 4K/120 gaming sources to a mix of new and legacy displays — with per-output downscaling and audio breakout — without adding separate scalers or de-embedders.

3 APPLICATIONS



1. Dedicated home theater with console gaming

In a residential theater rack, a PS5 Pro, an Xbox Series X, a 4K/120 media server, and a cable box feed the matrix; a 4K/120 projector takes the main output while a 4K TV in the same room takes a downscaled feed. VRR and ALLM pass to the projector so gaming stays tear-free, and the per-output downscaling keeps the secondary display in sync without a separate scaler. Balanced analog and optical breakout feed the theater's processor and a zone amp.



2. Esports / gaming lounge

Several high-refresh PCs and consoles route to a wall of 4K/120 and 8K displays. The matrix preserves 4K120 4:4:4 and the full gaming feature set (VRR, ALLM, QMS, QFT, SBTM) to every station, and per-output downscaling lets older 1080p spectator monitors join the same system. RS-232/IP control drives the routing from the venue's control system.



3. Corporate boardroom with mixed displays

An 8K front-of-room display, a pair of 4K confidence monitors, and a 1080p overflow screen run from one rack. Sources — a room PC, a laptop input, a codec — are routed and independently downscaled per output, so one matrix serves every display resolution in the room and de-embeds audio to the DSP over balanced analog. EDID management keeps laptop hot-plug behaviour stable.



4. Broadcast / production monitoring

In a control or QC area, 8K and 4K/120 camera and playout sources are routed to a grid of monitors at different resolutions. Zero-latency video and audio (as specced) matter for monitoring accuracy, and per-output downscaling lets legacy 1080p monitors share the same routing fabric as the 8K reference display.



5. Sports bar / hospitality head-end

A rack of 8K and 4K sources feeds screens throughout the venue, some 8K-capable and many legacy 4K/1080p. The matrix downscales per output so every screen shows content correctly from one central switch, and optical breakout feeds the venue's distributed audio system independently of the video routing.



6. Retail / experiential showcase

A flagship store or demo space running native 8K content across a primary showcase display and secondary 4K panels uses the matrix to route and downscale from a single 8K signage engine. HDR10+/Dolby Vision pass-through preserves the intended look on the hero display while downscaled outputs keep the supporting screens consistent, all under scheduled RS-232/IP control.

4 WHO THIS IS FOR

High-end residential (home theater)

Media room

Whole-home AV

Gaming/esports lounges

Corporate boardrooms and huddle spaces

Broadcast/production monitoring

Houses of worship

Sports-bar and hospitality head-ends

Ideal User

A systems designer or lead installer who reads spec sheets, checks HDCP/EDID/FRL claims, and racks the gear. They care about signal integrity over real cable lengths (this unit is rated 3m at 8K, 5m at 4K60 — a genuine design constraint they must plan cabling around), EDID management to keep a mixed-display system stable, and RS-232/IP control so the matrix drops into a third-party control system.

Project Types

high-end residential (home theater, media room, whole-home AV), gaming/esports lounges, corporate boardrooms and huddle spaces, broadcast/production monitoring, houses of worship, sports-bar and hospitality head-ends, retail/experiential.

Typical Buyer

in residential, the integration firm's owner or lead designer chooses the brand; in commercial, an AV consultant or design-build integrator specs it, sometimes against a written bid. Both weigh brand trust, warranty, control-system compatibility, and support responsiveness heavily because a matrix failure takes down the whole room.

5 FREQUENTLY ASKED QUESTIONS

Q: Is this a true 48Gbps HDMI 2.1 matrix, or a 40Gbps unit?

It carries the full 48Gbps HDMI 2.1 bandwidth to every output, which supports 8K60 4:2:0, 8K30 4:4:4, and 4K120 4:4:4. Some competing 8K matrices run at 40Gbps and cannot sustain the highest-bandwidth modes; this one is specified at the full 48Gbps.

Q: Will it preserve VRR and ALLM for game consoles?

Yes. It supports VRR, ALLM, QMS, QFT, and SBTM, so variable-refresh and auto-low-latency modes pass through to the display. This is the main reason to choose it over an 18Gbps 4K/60 matrix, which cannot carry those modes.

Q: Can it drive an 8K display and older 4K or 1080p displays at the same time?

Yes. Each of the four outputs has independent resolution downscaling and HDR conversion, so one output can pass native 8K while another downscals to 4K or 1080p for a legacy display — without a separate scaler in the rack.

Q: What audio outputs does it provide, and can I feed a separate audio system?

Each output has both an optical S/PDIF and a balanced analog (phoenix) breakout. Optical carries up to Dolby/DTS 5.1; balanced analog carries two-channel LPCM. That lets you de-embed audio to a processor or zone amp independently of the video routing.

Q: How far can I run HDMI cable at 8K?

Plan cabling to the rated lengths: 3m/9.8ft at 8K with a certified Ultra High Speed HDMI 2.1 cable, 5m/16ft at 4K60, 10m/33ft at 4K30, and 15m/49ft at 1080p. For longer 8K runs, extenders should be designed into the system. A Premium/Ultra High Speed HDMI cable is highly recommended for reliable 8K.

Q: How is it controlled and integrated into a control system?

Front-panel buttons, IR remote, RS-232, and a Web GUI over TCP/IP, so it drops into third-party control systems. It also includes advanced EDID management to keep mixed-source, mixed-display systems stable.

Q: What comes in the box?

The matrix, a 24V/2.7A locking power adapter, an AC power cord, an IR remote and wideband IR receiver cable, an RS-232 serial cable, four phoenix audio connectors, and rack-mount ears with screws. Documentation is digital only — scan the QR code on the box for the full manual; no printed manual ships.