

48Gbps 8K 2-In 4-Out HDMI Switching Splitter with Independent Downscaling & Audio De-embedding

Select 1 of 2 HDMI Sources and Send It to 4 Screens, with Auto-Scaling Video & Balanced/Digital Audio Breakout



Select either of two HDMI 2.1 sources and send it to four displays at up to 8K@60Hz, with independent downscaling and audio de-embedding on every output. The KanexPro SP-HDMI2X4-8K is a 48Gbps 2-input, 4-output HDMI switching splitter: a 2×1 switcher and a 1×4 splitter in one box, eliminating the need for a separate switcher, splitter, downscaler, or audio extractor in the rack. All four outputs show the selected source at the same time; to send a different source to each display, use a true matrix switcher.

Compliant with HDMI 2.1 and HDCP 2.3, the switching splitter supports 8K@60Hz 4:2:0 12-bit, 8K@30Hz 4:4:4 12-bit, and 4K@120Hz 4:4:4 12-bit with HDR10, HDR10+, Dolby Vision, HLG, and ALLM/VRR pass-through. Each output independently downscales 8K to 4K or 2K and converts HDR to SDR for mixed-resolution display environments. Audio de-embedding delivers digital optical (up to 5.1CH) and balanced/unbalanced analog stereo with adjustable gain. A built-in HDMI signal generator aids diagnostics. Control via front panel, IR remote, RS-232, or API commands.

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.

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1. Features

- ✓ Selects 1 of 2 HDMI 2.1 sources and sends it to all 4 displays at once, at up to 8K@60Hz 4:2:0 12-bit with 48Gbps bandwidth — auto or manual input switching
- ✓ HDCP 2.3 compliant with HDMI 2.1 — supports protected content across all input and output channels
- ✓ HDR10, HDR10+, Dolby Vision, HLG pass-through with ALLM and VRR for low-latency gaming and cinematic playback
- ✓ Independent 8K→4K/2K downscaling on each output — feed mixed-resolution displays from a single source without manual reconfiguration
- ✓ Per-output HDR→SDR conversion preserves contrast and detail on non-HDR legacy displays
- ✓ Audio de-embedding via digital optical (up to 5.1CH Dolby/DTS) and balanced/unbalanced analog stereo (L/R) with adjustable gain control
- ✓ Built-in HDMI signal generator with 15 resolutions and 13 test patterns for on-site diagnostics and cable verification
- ✓ Control via front panel buttons, IR remote, RS-232, and API commands — advanced EDID management with 16 presets, 2 user-defined, and pass-through mode

2. Specifications

HDMI Compliance	HDMI 2.1
HDCP Compliance	HDCP 2.3
Video Bandwidth	48 Gbps
Video Resolution	Up to 8K@60Hz 4:2:0 12-bit, 8K@30Hz 4:4:4 12-bit, 4K@120Hz 4:4:4 12-bit
Color Depth	8/10/12-bit
Color Space	RGB, YCbCr 4:4:4, YCbCr 4:2:2, YCbCr 4:2:0
HDR Formats	HDR, HDR10, HDR10+, Dolby Vision, HLG
HDMI Audio (Pass-through)	LPCM, Dolby Digital/Plus/EX, Dolby TrueHD, Dolby Atmos, DTS, DTS-EX, DTS-96/24, DTS High Res, DTS-HD Master Audio, DSD
Audio De-embedding (Optical)	Up to LPCM/Dolby/DTS 5.1CH
Audio De-embedding (L/R)	LPCM 2CH
Analog Output Impedance	300 Ohm
Analog Output Level (Max)	8.2 dBu (2Vrms) balanced • 2.2 dBu (1Vrms) unbalanced
Frequency Response	20 Hz – 20 KHz (+0.5 dB, -1 dB)
Audio Output Sync Delay	0 to 2.2 ms
Audio S/N Ratio	99 dB @ 2Vrms, 1 kHz, A-weighted
Audio THD+N	<0.2% @ 0 dBV, 1 kHz
IR Level	12Vp-p
IR Frequency	Wideband 20K – 60 KHz
Transmission Distance	3 m / 9.8 ft over HDMI cable
ESD Protection	IEC 61000-4-2: ±8 kV (air-gap) & ±4 kV (contact)
Input	2× HDMI Type A [19-pin female]
Output (Video)	4× HDMI Type A [19-pin female]
Output (Audio)	1× Optical [S/PDIF] • 1× L/R [5pin-3.5mm Phoenix connector]



continued

Control	1× RS-232 [3pin-3.5mm Phoenix] • 1× IR CTL [3.5mm stereo mini-jack] • 1× SERVICE [USB Type C]
Housing	Metal Enclosure, Black
Dimensions	220 mm (W) × 110 mm (D) × 21.5 mm (H)
Weight	620 g
Power Supply	DC 12V/1A
Power Consumption	6.24 W (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% RH, non-condensing
Storage Humidity	10% – 90% RH, non-condensing

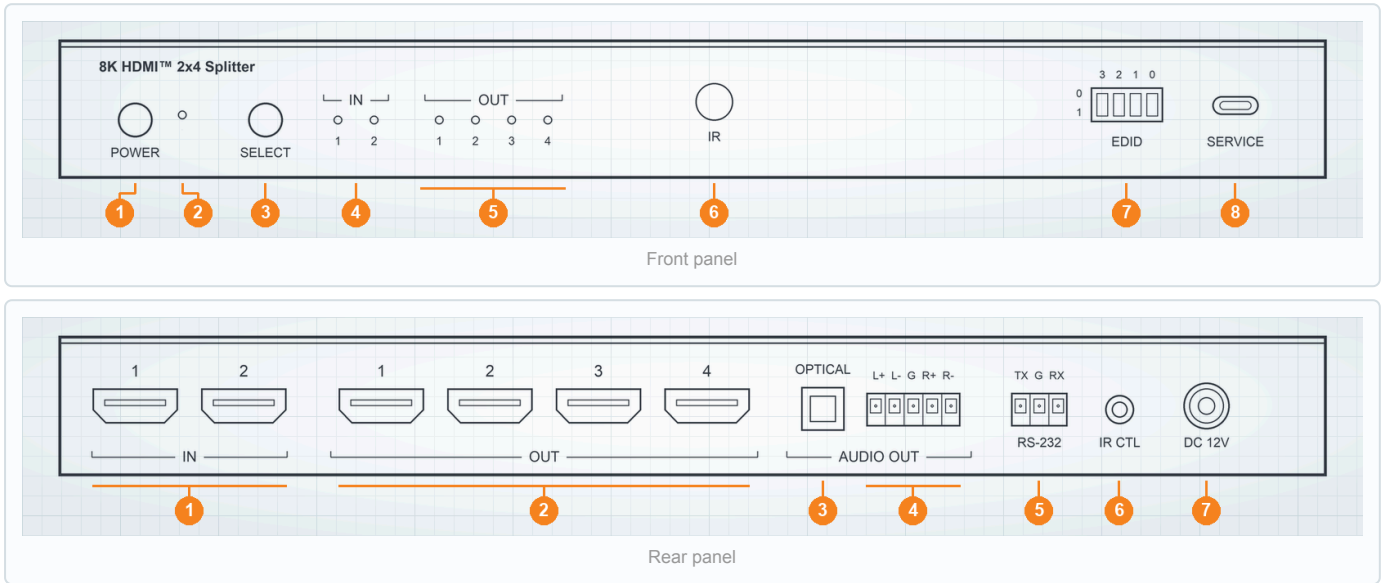
3. Introduction

This 2x4 HDMI matrix splitter takes two HDMI sources and sends the selected one to four HDMI outputs at the same time, at up to 8K@60Hz 4:2:0 12-bit.

- **Per-output scaling and HDR.** Each output can scale 8K down to 4K or 2K on its own, and can convert HDR to SDR. A single source can therefore feed a mix of displays.
- **Audio.** Audio is taken off the HDMI signal and sent to a digital optical output and a balanced or unbalanced analog output. The analog output has adjustable gain.
- **Switching and diagnostics.** You can switch inputs automatically or by hand. The unit includes advanced EDID management and a built-in HDMI signal generator for testing.
- **Control.** You can control the unit from the front panel buttons, the IR remote, or RS-232 API commands.

Surge protection is recommended. This product contains sensitive electrical parts that electrical spikes, surges or lightning strikes can damage. Connect it through a surge protection system.

4. Panel descriptions



FRONT PANEL



No.	Name	Description
1	POWER Button	Press to power the unit on. Press and hold to put it into standby.
2	POWER LED	Lights green when the unit is on and red when it is in standby.
3	SELECT Button	Press to cycle the active input between IN 1 and IN 2.
4	IN LED (1–2)	The green LED for IN 1 or IN 2 lights when that input is the active source.
5	OUT LED (1–4)	The green LED for an output lights when that port is connected to an active display.
6	IR	IR receiving window for the IR remote.
7	EDID DIP Switch	Four-position DIP switch that selects the EDID mode. Its binary combinations give 16 presets.
8	SERVICE	USB-C port for firmware updates.

REAR PANEL

No.	Name	Description
1	IN (1–2)	HDMI input ports. Connect source devices such as a PC, PS5 or Blu-ray player.
2	OUT (1–4)	HDMI output ports. Connect displays such as a TV, monitor or projector.
3	OPTICAL	Digital audio output (S/PDIF), carrying up to 5.1-channel Dolby/DTS audio.
4	L/R (AUDIO OUT)	Analog audio output on a 5-pin 3.5mm Phoenix connector. It provides balanced (2Vrms max) or unbalanced (1Vrms max) stereo.
5	RS-232	RS-232 serial port on a 3-pin 3.5mm Phoenix connector. Connect a PC or control system to send API commands.
6	IR CTL	IR input port. Connect the included IR wideband receiver cable here.
7	DC 12V	Power input. Connect the included 12V/1A power supply.

5. Troubleshooting

There is no video on one or more displays. 1. Check that you are using Ultra High Speed HDMI cables, no longer than 9.8 ft (3 m) for 8K or 4K120 signals. 2. Try setting the EDID DIP switch to match the display's native resolution. 3. If your displays have different resolutions, send `set output x downscale 2` to force 1080p on the affected outputs, where `x` is the output number.

There is no audio from the optical or analog output. 1. Check that the source is sending audio in a supported format. 2. For the optical output, make sure the connected device supports LPCM, Dolby or DTS up to 5.1 channels. 3. For the analog output, check the gain setting with the `set analog gain` command. 4. Check the wiring on the 5-pin connector:

- **Balanced:** L+, L–, the centre pin, R+, R–.
- **Unbalanced:** L+, the centre pin, R+.

How do I use the built-in signal generator? Send `set generator x y`, where `x` is the resolution code and `y` is the pattern code. To see the current generator setting, send `get generator`. The codes the manual gives are:



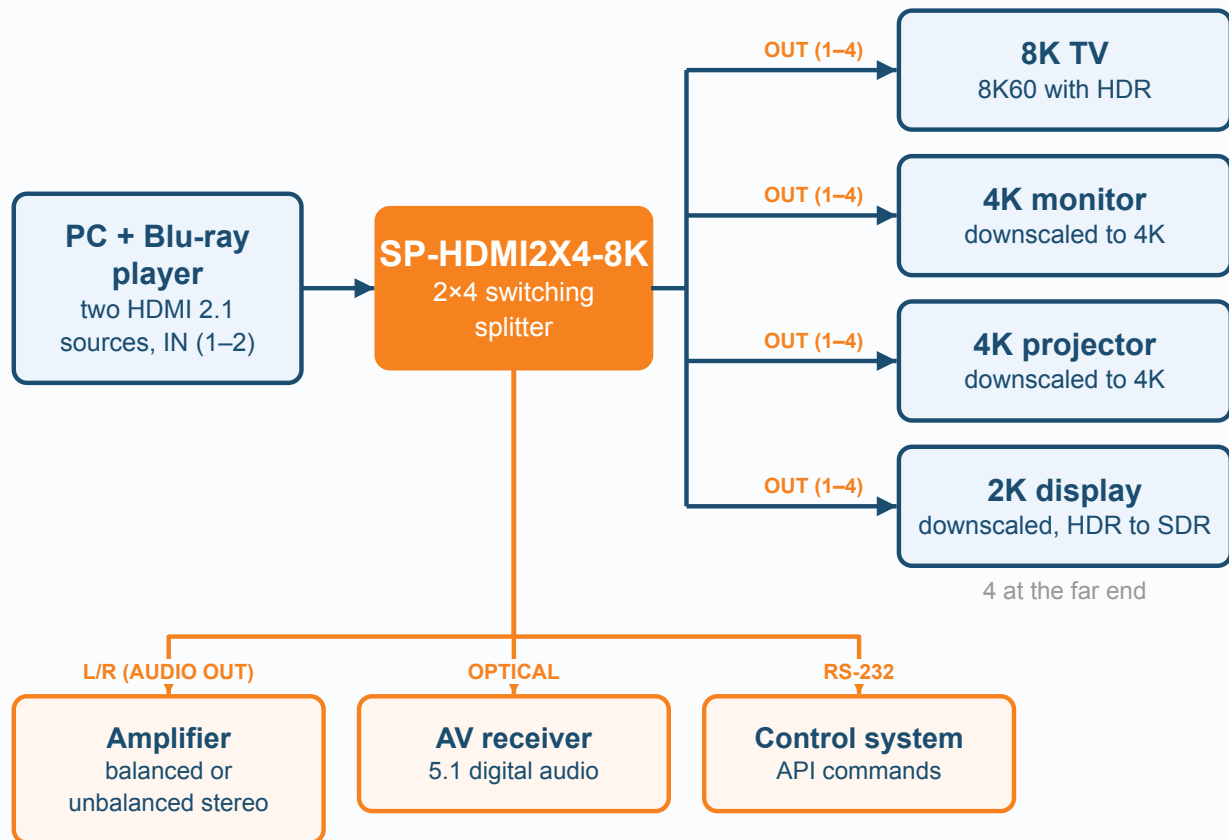
PARAMETER		CODE	SETTING
	Resolution (x)	01	8K30
	Resolution (x)	09	4K60
	Resolution (x)	13	1080p60
	Pattern (y)	01	Color bar
	Pattern (y)	07	White
	Pattern (y)	13	Black



6. Application Example

TYPICAL SETUP

48Gbps 8K 2-In 4-Out HDMI Switching Splitter with Independent Downscaling & Audio De-embedding



How it works: Compliant with HDMI 2.1 and HDCP 2.3, the switching splitter supports 8K@60Hz 4:2:0 12-bit, 8K@30Hz 4:4:4 12-bit, and 4K@120Hz 4:4:4 12-bit with HDR10, HDR10+, Dolby Vision, HLG, and ALLM/VRR pass-through. Each output independently downscales 8K to 4K or 2K and converts HDR to SDR for mixed-resolution display environments. Audio de-embedding delivers digital optical (up to 5.1CH) and balanced/unbalanced analog stereo with adjustable gain. A built-in HDMI signal generator aids diagnostics. Control via front panel, IR remote, RS-232, or API commands.

7. Troubleshooting

Q: The splitter does not respond and the POWER LED is red. What should I do?

A: A red POWER LED means the unit is in standby. Press the POWER button on the front panel; the LED turns green when the unit is on.



Q: One display is blank and its OUT LED is off. What should I check?

A: An OUT LED lights green only when its port is connected to an active display. First confirm the display is powered on and its HDMI cable is seated at both ends. Then check that the cable is an Ultra High Speed HDMI cable no longer than 3 m (9.8 ft) for 8K or 4K120 signals.

Q: All displays show the wrong source. What should I check?

A: Check which IN LED is lit on the front panel; the green LED marks the active input. Press SELECT to cycle between IN 1 and IN 2, and confirm the source you want is powered on and connected to that input.

Q: The IR remote does not control the splitter. What should I check?

A: If you are not using the external receiver, aim the remote at the IR window on the front panel. If the unit is hidden, confirm the IR wideband receiver is plugged into the rear IR CTL port and that its sensor has line of sight to the remote.

Need help? — For additional support, visit kanexpro.com/support, or scan the QR code below for the product page.

8. Installation FAQ

Q: How do I wire the 5-pin L/R audio output for balanced or unbalanced connections?

A: For a balanced connection, wire L+, L-, the centre pin, R+ and R- on the included 5-pin 3.5mm Phoenix connector. For an unbalanced connection, use L+, the centre pin and R+. The maximum level is 2Vrms balanced and 1Vrms unbalanced.

Q: How do I connect the IR receiver if the splitter is hidden in a rack or cabinet?

A: Plug the included 1.5 m (4.9 ft) IR wideband receiver into the IR CTL port, a 3.5mm stereo mini-jack on the rear panel. Then place the receiver where the remote can reach it. If the unit is in plain sight, the remote can be aimed straight at the IR window on the front panel.

Q: Can the SP-HDMI2X4-8K be mounted?

A: Yes. The box includes two mounting ears and four KM3x6 machine screws for fixing the unit in place.

Q: Should the splitter be connected through surge protection?

A: Yes, surge protection is recommended. The unit contains sensitive electrical components that spikes, surges or lightning strikes can damage. Power it from the included 12V/1A locking supply through a surge protection system.

Q: How is the firmware updated?

A: Firmware is updated through the SERVICE port, a USB Type-C connector on the front panel.

9. Integration FAQ

Q: How do I connect the SP-HDMI2X4-8K to an amplifier or powered speakers?

A: Use the optical S/PDIF output for digital audio up to 5.1-channel LPCM, Dolby or DTS. Or wire the L/R Phoenix output balanced or unbalanced to an amplifier or powered speakers. Analog gain can be set with the set analog gain command over RS-232.

Q: Can the splitter feed displays that do not support HDR?

A: Yes. Each output can convert HDR to SDR on its own, so an older SDR display keeps its contrast and detail while the other outputs carry full HDR.

Q: How is the active source selected?

A: Switching can be automatic or manual. To switch by hand, press SELECT on the front panel to cycle between IN 1 and IN 2, or use the IR remote, or send RS-232 API commands from a PC or control system. The selected source goes to all four outputs.

Q: What does a typical system built around the SP-HDMI2X4-8K look like?

A: In a typical layout, a PC and a Blu-ray player connect to IN 1 and IN 2, and the four outputs feed an 8K TV, a 4K monitor, a 4K projector and a 2K display. The audio outputs feed an amplifier, and a control system connects to the 3-pin RS-232 port.

