

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

Select 1 of 2 HDMI Sources and Send It to 8 Screens, with Auto-Scaling Video & Balanced/Digital Audio Breakout



The SP-HDMI2X8-8K eliminates the multi-box problem of chaining a separate switcher into a distribution amplifier by combining two-source HDMI 2.1 switching with eight independently scaled outputs in a single compact enclosure. All eight outputs show the selected source at the same time; to send a different source to each display, use a true matrix switcher. Each output downscals 8K to 4K or 2K and converts HDR to SDR on the fly, enabling mixed-resolution display fleets to receive optimized video without external scalers or EDID workarounds.

Compliant with HDMI 2.1 and HDCP 2.3, the splitter delivers 48Gbps bandwidth supporting 8K@60Hz 4:2:0, 8K@30Hz 4:4:4, and 4K@120Hz 4:4:4 with HDR10, HDR10+, Dolby Vision, HLG, ALLM, and VRR pass-through. Audio de-embedding provides both optical S/PDIF (up to 5.1CH) and balanced/unbalanced analog output with adjustable gain via a 5-pin phoenix connector. A built-in signal generator with 15 resolutions and 13 test patterns simplifies commissioning and cable verification. Control via front panel, IR remote, or RS-232 ASCII 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 8 displays at once, at up to 8K@60Hz 4:2:0 12-bit with 48Gbps bandwidth and HDCP 2.3 compliance
- ✓ Independent 8K to 4K/2K downscaling on each output — auto, bypass, or force 1080p per display for mixed-resolution fleets
- ✓ Per-output HDR to SDR conversion preserves accurate imagery on non-HDR displays without manual EDID intervention
- ✓ HDR10, HDR10+, Dolby Vision, HLG, ALLM, and VRR pass-through for gaming and cinematic content on compatible screens
- ✓ Audio de-embedding via optical S/PDIF (LPCM/Dolby/DTS 5.1CH) and balanced/unbalanced analog (LPCM 2CH) with adjustable gain (0 dB to -79 dB)
- ✓ Built-in HDMI signal generator with 15 resolutions (8K to 480p) and 13 test patterns for on-site commissioning and cable diagnostics
- ✓ Advanced EDID management with 16 hardware DIP switch presets and 33 software presets including 2 user-defined slots and pass-through mode
- ✓ Control via front panel buttons, IR remote, and RS-232 ASCII commands (3-pin phoenix, configurable 4800–115200 bps) — USB-C service port for firmware updates

2. Specifications

TECHNICAL		
	HDMI Compliance	HDMI 2.1
	HDCP Compliance	HDCP 2.3
	Video Bandwidth	48Gbps
	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-bit, 10-bit, 12-bit
	Color Space	RGB, YCbCr 4:4:4 / 4:2:2, YCbCr 4:2:0
	HDR Formats	HDR, HDR10, HDR10+, Dolby Vision, HLG
	Gaming Features	ALLM, VRR
	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-embed (Optical)	LPCM / Dolby / DTS up to 5.1CH
	Audio De-embed (Analog)	LPCM 2CH — balanced (8.2 dBu max) or unbalanced (2.2 dBu max)
	Analog Audio S/N	99 dB @ 2 Vrms, 1 kHz, A-weighted
	Analog Audio THD+N	<0.2% @ 0 dBV, 1 kHz
	Analog Audio Impedance	300 Ohm
	Analog Audio Frequency Response	20 Hz – 20 kHz
	Analog Audio Gain	Adjustable 0 dB to -79 dB
	IR Level / Frequency	12 Vp-p / Wideband 20K–60 kHz
	Transmission Distance	3m / 9.8 ft over HDMI cable
	ESD Protection	IEC 61000-4-2: ±8kV (air-gap) & ±4kV (contact)
CONNECTION		
	Input	2× HDMI Type A [19-pin female]
	Output	8× HDMI Type A [19-pin female], 1× Optical S/PDIF, 1× L/R Analog [5-pin phoenix connector]



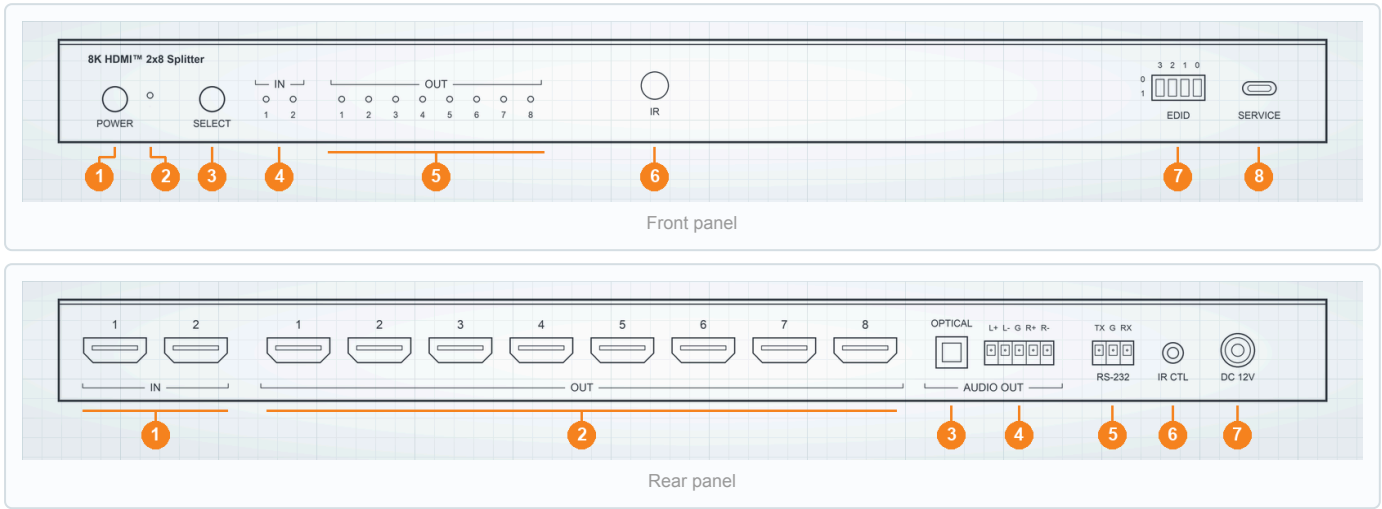
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	Control	1× RS-232 [3-pin phoenix connector], 1× IR CTL [3.5mm stereo mini-jack], 1× SERVICE [USB Type-C]
MECHANICAL		
	Housing	Metal Enclosure, Black
	Dimensions	320mm (W) × 100mm (D) × 21.5mm (H)
	Weight	810 g
	Power Supply	DC 12V / 2.5A (multinational locking adapter)
	Power Consumption	9.6W (max)
	Operating Temp	32–104°F / 0–40°C
	Storage Temp	-4–140°F / -20–60°C
	Operating Humidity	20–80% RH (non-condensing)
	Storage Humidity	10–90% RH (non-condensing)

3. Surge Protection Recommended

This product contains sensitive electrical components that electrical spikes, surges, electric shock or lightning strikes can damage. A surge protection system is highly recommended.

4. Panel descriptions



FRONT PANEL

No.	Name	Description
1	POWER button	Press to turn 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 step between the two inputs, IN 1 and IN 2, in turn.
4	IN LED (1-2)	The LED for the selected input lights green.
5	OUT LED (1-8)	Each LED lights green when its output detects an active display.
6	IR window	Receives commands from the included IR remote.



continued

No.	Name	Description
7	EDID DIP switch	A 4-position DIP switch that sets the EDID mode. See the DIP switch table under EDID Management.
8	SERVICE	USB Type-C port for firmware updates. It also accepts the serial API commands at a fixed 115200 bps.

REAR PANEL

No.	Name	Description
1	IN (1–2)	HDMI inputs. Connect your sources (PC, PS5, Blu-ray player and similar) with HDMI cables.
2	OUT (1–8)	HDMI outputs. Connect your displays (TV, monitor, projector) with HDMI cables.
3	OPTICAL	Digital S/PDIF audio output. Connect a soundbar or AV receiver.
4	L/R (AUDIO OUT)	Analog audio output on a 5-pin Phoenix connector. For balanced audio, wire L+, L–, ⊥ (ground), R+, R–. For unbalanced audio, wire L+, ⊥ (ground), R+.
5	RS-232	RS-232 serial port on a 3-pin Phoenix connector. Connect a PC or control system to send API commands.
6	IR CTL	12V IR input (3.5mm). Connect the included IR wideband receiver cable.
7	DC 12V	12V/2.5A power input. Connect the included locking power adapter.

IR REMOTE

Press the power button on the remote to turn the unit on or put it into standby. Press **1** or **2** to select HDMI input IN 1 or IN 2 directly. Press the cycle button (↻) to switch between IN 1 and IN 2 in turn.

5. EDID Management

You can set the EDID in two ways: with the 4-position DIP switch on the front panel, or with the API command `set edid x to y`. When you change the DIP switch, its setting overrides any EDID set by API command.

DIP SWITCH EDID PRESETS (HARDWARE)

DIP CODE	EDID MODE
0000	EDID pass-through (copy from Sink 1) (default)
0001	HDMI 1080p@60Hz, Audio 2CH PCM
0010	HDMI 1080p@60Hz, Audio 5.1CH DTS/DOLBY
0011	HDMI 4K@60Hz 4:4:4, 8-bit, Audio 2CH PCM
0100	HDMI 4K@60Hz 4:4:4, 8-bit, Audio 5.1CH DTS/DOLBY
0101	HDMI 4K@120Hz 4:4:4, 10-bit HDR/DV, Audio 2CH PCM
0110	HDMI 4K@120Hz 4:4:4, 10-bit HDR/DV, Audio 5.1CH DTS/DOLBY
0111	HDMI 4K@120Hz 4:4:4, 12-bit HDR/DV, Audio 2CH PCM
1000	HDMI 4K@120Hz 4:4:4, 12-bit HDR/DV, Audio 5.1CH DTS/DOLBY



continued

DIP CODE	EDID MODE
1001	HDMI 8K@60Hz 4:2:0, 10-bit HDR/DV, Audio 2CH PCM
1010	HDMI 8K@60Hz 4:2:0, 10-bit HDR/DV, Audio 5.1CH DTS/DOLBY
1011	HDMI 8K@60Hz 4:2:0, 12-bit HDR/DV, Audio 2CH PCM
1100	HDMI 8K@60Hz 4:2:0, 12-bit HDR/DV, Audio 5.1CH DTS/DOLBY
1101	HDMI 8K@60Hz 4:2:0, 12-bit HDR/DV, Audio 2CH PCM (includes VRR/DSC)
1110	HDMI 8K@60Hz 4:2:0, 12-bit HDR/DV, Audio 5.1CH DTS/DOLBY (includes VRR/DSC)
1111	Software EDID if possible, otherwise HDMI 1080p@60Hz, Audio 2CH PCM

SOFTWARE EDID PRESETS (API COMMAND)

Send `set edid x to y`. Here `x` is the input: 0 sets both inputs, and 1 or 2 sets a single input. `y` is the preset number, from 0 to 32. There are 33 presets in total, covering 1080p through 8K with various audio and HDR combinations. Presets 30 and 31 are user-defined slots, and preset 32 is EDID pass-through. The manual lists these key presets:

Y	EDID MODE
0	HDMI 1080p@60Hz, Audio 2CH PCM (default)
3	HDMI 4K@60Hz 4:4:4, 8-bit, Audio 2CH PCM
6	HDMI 4K@120Hz 4:4:4, 8-bit, Audio 2CH PCM
9	HDMI 4K@120Hz 4:4:4, 10-bit HDR/DV, Audio 2CH PCM
12	HDMI 4K@120Hz 4:4:4, 12-bit HDR/DV, Audio 2CH PCM
15	HDMI 4K@120Hz 4:4:4, 12-bit HDR/DV, Audio 2CH PCM (includes VRR/DSC)
18	HDMI 8K@60Hz 4:2:0, 10-bit HDR/DV, Audio 2CH PCM
21	HDMI 8K@60Hz 4:2:0, 12-bit HDR/DV, Audio 2CH PCM
24	HDMI 8K@60Hz 4:2:0, 12-bit HDR/DV, Audio 2CH PCM (includes VRR/DSC)
27	DVI 1920×1080@60Hz, Audio None
29	HDMI 1920×1200@60Hz, Audio 2CH PCM
30	User EDID 1
31	User EDID 2
32	EDID pass-through (copy from Sink 1)

The presets between the listed ones follow a pattern. Presets 1, 4, 7, 10 and so on use the same video mode as the preset before them but add 5.1CH DTS/DOLBY audio. Presets 2, 5, 8, 11 and so on use the same video mode but add 7.1CH DTS/DOLBY/HD audio.

6. Signal Generator

The built-in signal generator outputs test patterns at a resolution you choose. Use it to commission the system and to check cables. Send `set generator x y`, where `x` is the resolution (1–15) and `y` is the pattern (01–13).

The 15 resolutions are 8K30Hz, 4K120Hz, 4K100Hz, 5K60Hz, 5K50Hz, 5K30Hz, 5K25Hz, 5K24Hz, 4K60Hz, 4K50Hz, 4K25Hz, 4K24Hz, 1080P60Hz, 480P60Hz and 576P50Hz.

The 13 patterns are color bar, checkerboard, strip, red, green, blue, white, ramp, red ramp, green ramp, blue ramp, PRBS and black.

7. API Commands

Connect a PC to either the SERVICE port (USB-C) or the RS-232 port (3-pin Phoenix) and open a serial terminal. The SERVICE port runs at a fixed 115200 bps. You can set the RS-232 port anywhere from 4800 to 115200 bps; its default is 115200 bps. Use 8 data bits, 1 stop bit and no parity, and end every command with a carriage return and line feed (<CR><LF>).



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COMMAND	FUNCTION	EXAMPLE	DEFAULT
?	List all commands	?	—
get fw version	Get firmware version	get fw version	—
set power on/off	Power on or standby	set power on	—
get power	Get power status	get power	—
set reboot	Reboot the device	set reboot	—
set reset	Factory reset (requires confirmation)	set reset	—
get status	Full system status report	get status	—
set key on/off	Lock/unlock front panel buttons	set key off	on
set IR on/off	Enable/disable IR receiver	set IR off	on
set baud x	RS-232 baud rate (1=4800, 2=9600, 3=19200, 4=38400, 5=57600, 6=115200)	set baud 6	115200
set input x	Select input (0=Off, 1–2=HDMI 1–2)	set input 1	1
get input	Get active input	get input	—
set autoswitch x	Auto-switch on/off (5V detection)	set autoswitch on	on
set output x downscale y	Set downscale per output (x=0–8; y: 0=auto, 1=bypass, 2=force 1080p)	set output 0 downscale 0	0
set output x display y	Display mode (y: 0=off, 1=input, 2=AVMUTE, 3=internal pattern)	set output 0 display 1	1
set output x HDCP y	HDCP mode (y: 0=reserved, 1=follow sink, 2=follow source, 3=force 1.4, 4=force 2.2)	set output 0 HDCP 1	1
set generator x y	Signal generator (x=resolution 1–15, y=pattern 01–13)	set generator 1 1	—
set analog mute x	Mute analog audio (on/off)	set analog mute on	off
set analog gain x	Analog gain (0dB to –79dB)	set analog gain –79dB	0dB
set edid x to y	Set EDID preset (x=0–2 input, y=0–32 preset)	set edid 0 to 0	0
get edid x	Get EDID preset for input(s)	get edid 0	—



continued

COMMAND	FUNCTION	EXAMPLE	DEFAULT
<code>set user edid x <y></code>	Upload user EDID (x=1–2, y=256 bytes hex)	<code>set user edid 1 <data></code>	—
<code>get hdmi5v</code>	Get 5V status on inputs	<code>get hdmi5v</code>	—

RS-232 WIRING (3-PIN PHOENIX)

Wire pin 1 as TX, pin 2 as ground (GND) and pin 3 as RX.

ANALOG AUDIO WIRING (5-PIN PHOENIX)

For a balanced connection, wire L+, L–, ⊥ (ground), R+ and R–. For an unbalanced connection, wire L+, ⊥ (ground) and R+.

8. Troubleshooting

There is no video on one or more displays. Make sure you are using Ultra High Speed HDMI cables, which 48Gbps / 8K requires. Keep each cable to 3m (9.8 ft) or less. Try setting the EDID to the display's native resolution. If your displays have different resolutions, set downscaling to auto (`set output 0 downscale 0`) so each output adapts to its display.

There is no audio from the optical or analog output. Check that the EDID preset includes audio. For optical, choose a preset with 5.1CH DTS/DOLBY; for the analog LPCM 2CH output, any preset works. Make sure analog mute is off (`set analog mute off`) and the gain is at 0dB (`set analog gain 0dB`). For balanced audio, check that the 5-pin Phoenix wiring matches L+, L–, ⊥, R+, R–.

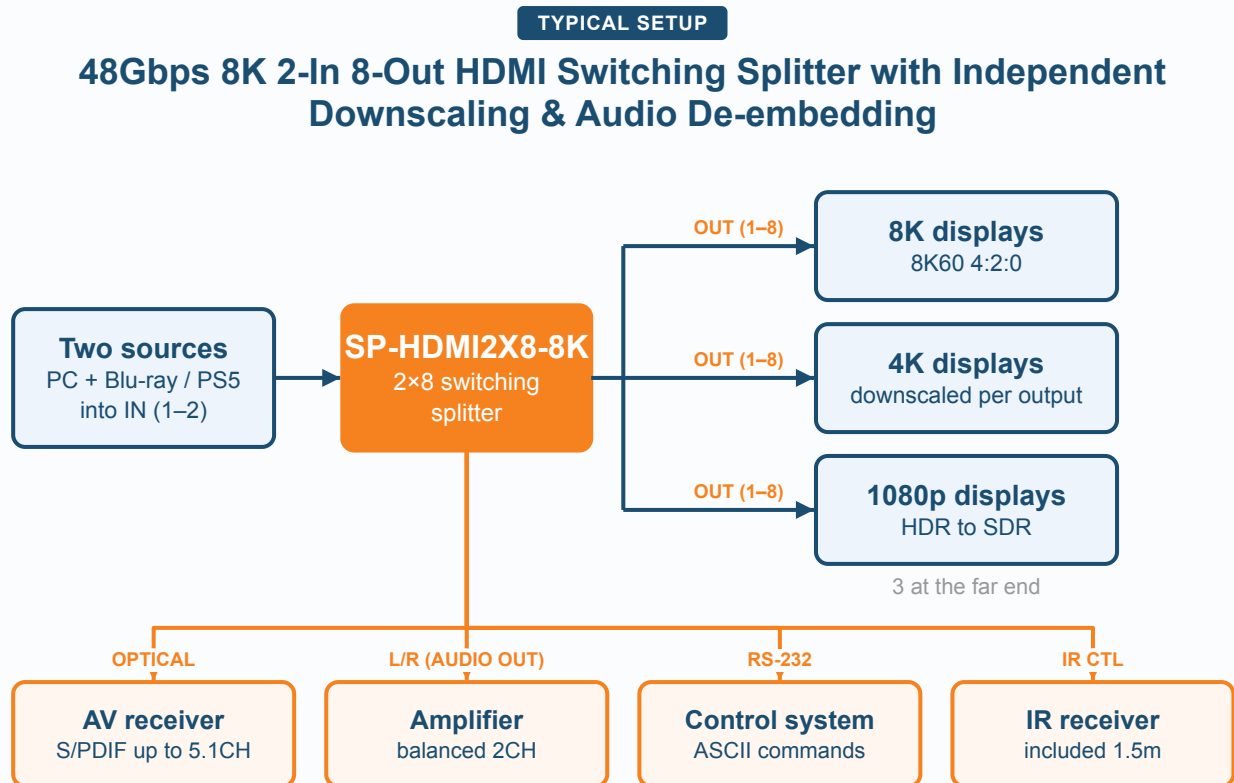
The image flickers or drops out. At 8K@60Hz, cable quality is critical. Use certified 48Gbps HDMI cables no longer than 3m. For longer runs, lower the resolution to 4K@120Hz or 4K@60Hz. The built-in signal generator can help you tell whether the problem is the cable or the source.

How do I reach RS-232 control? Connect the 3-pin Phoenix RS-232 port (TX/GND/RX) to a PC serial port or a USB-to-serial adapter. Open a terminal at 115200 bps (the default), 8N1. Type ? and press Enter to list all commands. You can also connect through the USB-C SERVICE port, which runs at a fixed 115200 bps.

Can I save a custom EDID from a connected display? Yes. Send `get edid data x` to read the raw EDID from input x. Then send `set user edid 1 <data>` to store it in user slot 1, or `set user edid 2 <data>` for slot 2. To use the stored EDID, send `set edid 0 to 30` for slot 1 or `set edid 0 to 31` for slot 2.



9. Application Example



How it works: Compliant with HDMI 2.1 and HDCP 2.3, the splitter delivers 48Gbps bandwidth supporting 8K@60Hz 4:2:0, 8K@30Hz 4:4:4, and 4K@120Hz 4:4:4 with HDR10, HDR10+, Dolby Vision, HLG, ALLM, and VRR pass-through. Audio de-embedding provides both optical S/PDIF (up to 5.1CH) and balanced/unbalanced analog output with adjustable gain via a 5-pin phoenix connector. A built-in signal generator with 15 resolutions and 13 test patterns simplifies commissioning and cable verification. Control via front panel, IR remote, or RS-232 ASCII commands.

10. Troubleshooting

Q: An OUT LED stays dark and its display shows nothing. What should I check?

A: An OUT LED lights green only when that output detects an active display, so first reseal the HDMI cable and confirm it is Ultra High Speed and no longer than 3m. If the LED is lit but the screen is still blank, send set output x display 3 to show the internal test pattern. If the pattern appears, the cable and display are fine and the problem is upstream at the source.

Q: The unit switches inputs by itself, or will not stay on the input I picked. What should I check?

A: Auto-switch is on by default and follows the 5V signal from each source. Send get hdmi5v to see which inputs are live, and send set autoswitch off if you want the input to change only when you select it.

Q: The EDID I set over RS-232 is not taking effect. Why?

A: A change on the front-panel DIP switch overrides any EDID set by API command. Set the DIP switch to 1111 so the unit uses the software EDID, then send get edid 0 to confirm the preset for each input.

Q: The IR remote does nothing. What should I check?

A: Make sure the IR receiver has not been disabled: send set IR on. Then aim the remote at the front IR window, or check that the included wideband receiver is fully plugged into the rear IR CTL jack.



Q: The POWER LED is red and no outputs are active. What does that mean?

A: Red means the unit is in standby, and green means it is on. Press the POWER button or the power key on the remote, or send set power on; get power reports the current state.

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

11. Installation FAQ

Q: How do I wire the 5-pin Phoenix analog audio output?

A: For balanced audio, wire L+, L-, ground, R+ and R-. For unbalanced audio, wire only L+, ground and R+. A 5-pin Phoenix connector comes in the box.

Q: What connects to the rear panel?

A: Connect the sources to IN 1-2 and up to eight displays to OUT 1-8 with HDMI cables. A soundbar or AV receiver goes on OPTICAL, an amplifier on the L/R Phoenix output, a control system on the 3-pin RS-232 port, and the included IR wideband receiver on IR CTL. The 12V locking adapter plugs into DC 12V.

Q: How do I set the EDID with the front-panel DIP switch?

A: The 4-position DIP switch on the front selects one of 16 EDID modes. 0000, the default, copies the EDID from Sink 1, and 1111 uses the software EDID if one is set. Changing the DIP switch overrides any EDID set by API command.

Q: Where does the IR remote need to point, and can the IR sensor be moved?

A: The remote aims at the IR window on the front panel. If the unit sits out of sight, plug the included 1.5m IR wideband receiver into the rear IR CTL jack and place the receiver where the remote can reach it.

12. Integration FAQ

Q: Can each output show a different source?

A: No. The selected input goes to all eight outputs at the same time, chosen by the SELECT button, the remote or set input x (0=off, 1-2=HDMI 1-2). Each output still sets its own downscaling, display mode and HDCP mode.

Q: How do I change the RS-232 baud rate for a control system?

A: Send set baud x, where 1=4800, 2=9600, 3=19200, 4=38400, 5=57600 and 6=115200 (the default). The USB-C SERVICE port always runs at 115200 bps, 8N1.

Q: Which commands can a controller use to poll the unit's state?

A: get status returns a full system report. get input, get power, get edid x, get hdmi5v and get fw version return single values. Send ? to list every command.

Q: How do I load a custom EDID into the splitter?

A: Send set user edid 1 <data> or set user edid 2 <data> with 256 bytes of hex. To use it, send set edid 0 to 30 for user slot 1 or set edid 0 to 31 for slot 2 (0 applies it to both inputs).

Q: How is the analog audio level and mute controlled for an amplifier or PA system?

A: Over RS-232, set analog gain sets the level from 0dB down to -79dB, and set analog mute on/off mutes or unmutes it. The optical S/PDIF output carries LPCM, Dolby or DTS up to 5.1CH to a receiver.

