

PANIO HD4420K

4K@60Hz 4-in 8-out HDMI Matrix Switch + Extender All-in-One

Support HDBaseT, POC, RS232, IR, TCP/IP & HDR Formats (HDR10+, Dolby Vision)

Product Overview

The HD4420K redefines AV signal management by integrating **4x4 HDMI matrix switching** and **long-distance HDBaseT extension** into a single, compact solution—eliminating the need for separate matrix and extender devices. Designed for high-demand environments like corporate conference rooms, command centers, multi-zone home theaters, and retail digital signage, it centralizes control of 4 HDMI sources (e.g., Apple TV, laptops, DVD players, PCs) and distributes content to 4 near-end HDMI displays + 4 remote displays (via Cat6 cables), with **synchronized playback** for local and corresponding remote outputs.

Engineered for uncompromised performance, the HD4420K supports 4K@60Hz resolution with YUV 4:4:4 chroma subsampling and 18Gbps bandwidth, delivering crisp UHD visuals alongside HDR formats (HDR10+, Dolby Vision, HLG) for cinematic contrast. Its HDBaseT technology enables lossless transmission up to 120m (4K@60Hz) or 150m (1080P@60Hz) via standard Cat6 cables, while Power over Cable (POC) simplifies installation by powering remote receivers directly from the matrix—ideal for locations where power outlets are scarce. With built-in EDID management, independent audio outputs, and versatile control options, it solves compatibility challenges and streamlines AV setups for both professional and consumer use.

Product Features

- **All-in-One Matrix + Extender Design:** Combines 4x4 HDMI matrix switching and 4-channel HDBaseT extension, supporting 4 near-end HDMI outputs (local displays) and 4 remote HDBaseT outputs (via Cat6 to receivers). Each local output synchronizes with its paired remote output, eliminating signal desync and reducing equipment clutter.
- **4K@60Hz UHD & HDR Excellence:** Delivers maximum resolution of 3840×2160@60Hz with YUV 4:4:4 chroma subsampling and 18Gbps bandwidth; supports HDR10, HDR10+, Dolby Vision, and HLG for vibrant color depth and dynamic contrast—perfect for 4K movies, high-frame-rate gaming, and professional presentations.
- **Long-Distance HDBaseT Transmission:** Uses HDBaseT technology over Cat6 cables (8-pin full wiring) for lossless, zero-latency audio/video transmission: up to 120m at 4K@60Hz and 150m at 1080P@60Hz. Replaces bulky HDMI cables and avoids signal attenuation common with traditional copper extensions.

- **Power over Cable (POC) Convenience:** Enables unilateral power supply—remote HD4420K-R receivers draw power directly from the matrix via the same Cat6 cable used for signal transmission. Eliminates the need for power outlets at remote display locations, simplifying installation in hard-to-reach areas (e.g., ceiling-mounted projectors, wall-mounted signage).
- **Flexible Resolution Compatibility:** Each output supports independent 4K-to-1080P downscaling, resolving conflicts between 4K sources and legacy 1080P displays. No extra converters required—configure via front panel or Web GUI for seamless mixed-resolution setups.
- **Advanced EDID Management:** Includes 21 built-in EDID presets, 2 user-defined EDID modes, and 8 EDID copy modes. Ensures optimal signal communication between sources and displays, preventing compatibility issues (e.g., black screens, audio dropouts) in complex AV systems.
- **Comprehensive Control & Connectivity:**
 - **Audio Extraction:** 4 coaxial (RCA) + 4 L/R (5-pin Phoenix connector) outputs for independent audio routing to soundbars, amplifiers, or headphones—no reliance on display speakers.
 - **Dual-Way IR Control:** Supports bidirectional infrared remote passthrough, allowing control of source devices (e.g., DVD players) from remote display locations.
 - **Multi-Mode Control:** Operate via front panel buttons (local quick access), IR remote (8m range), RS-232 serial (integration with Crestron/AMX control systems), or Web GUI (browser-based setup for remote management).
- **Professional 1U Rack-Mount Design:** Features a 1U (44.5mm height) chassis for easy rack integration, plus a high-visibility OLED front-panel display that shows real-time status (source selection, resolution, POC power)—simplifying monitoring and troubleshooting.
- **Robust Protection & Compliance:** Compliant with HDMI 2.0b and HDCP 2.2/1.4 (secure playback of DRM-protected content like Netflix 4K); ESD protection ($\pm 8\text{kV}$ air-gap / $\pm 4\text{kV}$ contact discharge) shields against electrostatic damage in industrial or dry environments.

Specification

Parameter	Details
Model Name	HD4420K (Matrix Switcher) + HD4420K-R (Receivers, 4 included)
Input Ports	4 × HDMI 2.0 (Type A Female), 4 × IR Inputs, 1 × RS-232 Input (3-pin), 1 × TCP/IP (RJ-45)

Output Ports (Matrix)	4 × HDMI 2.0 (near-end, Type A Female), 4 × HDBaseT (RJ-45, for remote receivers), 4 × COAX Audio (RCA), 4 × L/R Audio (5-pin Phoenix), 4 × IR Outputs
Receiver Interfaces	1 × HDMI 2.0 (output, Type A Female), 1 × HDBaseT (RJ-45 input), 1 × 3.5mm Audio Output, 1 × IR Input, 1 × IR Output, 1 × RS-232 (3-pin Phoenix)
Max Video Resolution	4K@60Hz (3840×2160), YUV 4:4:4; Backward compatible with 1080P/720P/480P
Supported Protocols	HDMI 2.0b, HDCP 2.2 / 1.4, HDBaseT, CEC, POC (Power over Cable)
Transmission Distance	4K@60Hz: Up to 120m (Cat6 cable); 1080P@60Hz: Up to 150m (Cat6 cable)
Audio Formats	- HDMI: LPCM 2.0/2.1/5.1/6.1/7.1, Dolby Digital, Dolby TrueHD, Dolby Digital Plus (DD+), DTS-ES, DTS HD Master, DTS HD-HRA, DTS-X, DSD- COAX: PCM 2.0, Dolby Digital/Plus, DTS 2.0/5.1- L/R: PCM 2.0
HDR Formats	HDR10, HDR10+, Dolby Vision (Profile 5/7), HLG (Hybrid Log-Gamma)
Color Space	RGB 4:4:4, YCbCr 4:4:4 / 4:2:2 / 4:2:0
Color Depth	8-bit/10-bit/12-bit (1080P@60Hz); 8-bit (4K@60Hz YUV4:4:4); 8-bit/10-bit/12-bit (4K@60Hz YCbCr 4:2:2/4:2:0)
Bandwidth	18Gbps (full HDMI 2.0b bandwidth)
ESD Protection	Human body model—±8kV (Air-gap discharge) & ±4kV (Contact discharge)
Cable Requirements	- HDMI: Certified HDMI 2.0 (max 5m); - HDBaseT: Cat6 (8-pin full, max 150m)
Control Modes	Front Panel Buttons, IR Remote (8m range), RS-232 (9600bps/8N1), Web GUI (Chrome/Firefox/Safari)
Power Supply	Matrix: AC 100~240V 50/60Hz; Receivers: POC (powered via matrix)
Power	Matrix: 15W (max); Receivers: 3W (max, via POC)

Consumption	
Dimensions	Matrix: 440 × 200 × 44.5mm (1U rack-mount); Receiver: 140 × 65 × 18mm
Weight	Matrix: 3.1kg (net); Receiver: 155g (net per unit)

Connection Diagram

Diagram



Package Contents

- 1 × HD4420K 4x8 HDMI Matrix Switcher
- 4 × HD4420K-R Remote Receivers
- 1 × AC Power Cord (100~240V 50/60Hz)
- 1 × IR Remote Control (2 × AAA batteries not included, per international shipping regulations)
- 10 × Rack-Mount Accessories (brackets, screws, washers)
- 1 × User Manual