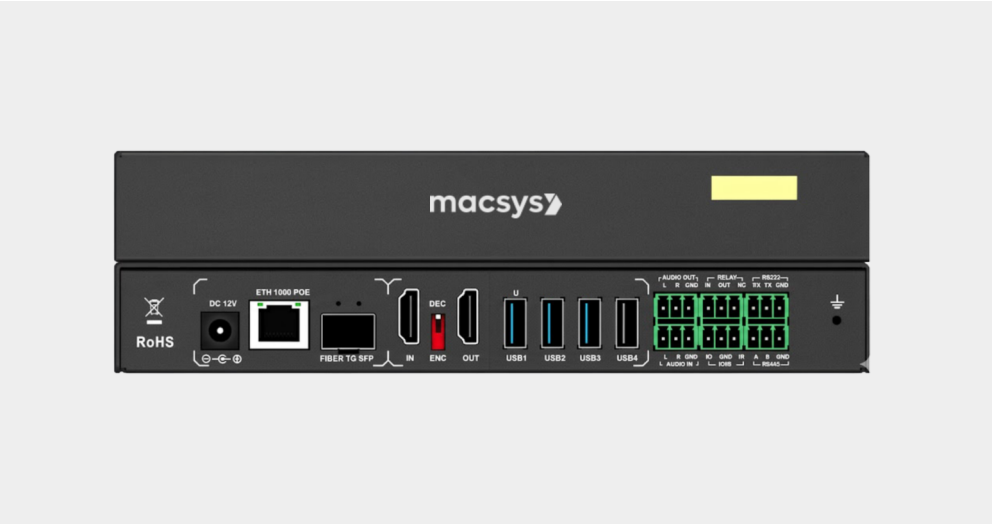
Datasheet

# AVNEX-80K | 4k 60Hz, Integrated Encoder/Decoder HDMI 2.0, 4:4:4 With KVM




## Key features

- All-in-One Design – Integrated encoder, decoder, and KVM in a single 1U device.
- True 4K UHD – HDMI 2.0, 3840×2160 @60Hz 4:4:4 input/output.
- Advanced Video Wall – Splicing up to 12×16 screens, multi-picture display.
- Ultra-Low Latency – <60 ms KVM transmission with pre-group scheduling.
- Flexible Interfaces – HDMI in/out, audio in/out, dual network ports, RS232/RS485/IO/IR/Relay, 4×USB.
- Long-Distance AV-over-IP – 100 m Cat5+ transmission, PoE up to 80 m, optical fiber support.
- Seamless Switching – Character overlays, station logos, subtitles, brightness/color control.
- High-Capacity Decoding – 20× 960×540@30Hz, 2× 4K60, 6× 4K30, or 16×1080p streams.
- App & Mobile Control – Device status, layouts, logos, and subtitles via mobile app.
- Multiple Modes – Encoding, decoding, KVM, and forwarding modes.
- RS232/RS485 Control – Integrate and manage external devices easily.
- Flexible Streaming Protocols – H.264/H.265 with adjustable bitrates (20Kbps–30Mbps).
- Easy Installation – Standard 19-inch 1U chassis, wall-mount or side-by-side.

## Product Overview

The Macsys AVNEX-80K is a high-performance 4K UHD 60Hz HDMI 2.0 Integrated Encoder/Decoder with KVM support designed for next-generation distributed audio-visual systems. This all-in-one device integrates video, audio, control, and network interfaces to deliver an ultra-clear, low-latency, and flexible AV-over-IP experience.

Supporting 3840×2160 @60Hz 4:4:4 video quality with seamless switching, it enables multi-screen splicing up to 12×16 video walls, single-screen multi-picture display, and one-to-many signal distribution. With customizable H.264/H.265 streaming, dual network redundancy (electrical and optical), and KVM functionality for real-time keyboard/mouse control of connected sources, it offers unprecedented flexibility for enterprise, command center, and large visualization deployments.

Its app-based monitoring and mobile visual control simplify management, allowing operators to configure layouts, preview streams, and control devices from anywhere. Additional features include rolling subtitles, character overlays, station logos, and brightness/color adjustments to create a professional visual environment.

The AVNEX-80K also supports long-distance transmission over Cat5e/6 cabling and PoE power supply, plus RS232/RS485/IO/IR/Relay ports for third-party device integration. Compact and easy to install in a standard 19-inch 1U chassis, it is an ideal solution for scalable, future-ready AV streaming and KVM systems.

## Technical Specification

| Feature | Details |
|---|---|
| Maximum Resolution | 3840 × 2160 @60Hz 4:4:4 (downward compatible) |
| Protocols Supported | HDMI 2.0, H.264, H.265 |
| Video Input | 1 × HDMI input (HDMI 2.0) |
| Video Output | 1 × HDMI output (HDMI 2.0) |
| Audio Input | 1 × Analog audio input |
| Audio Output | 1 × Analog audio output |
| Network Port | 1 × RJ45 with PoE Support |
| Fiber Port | 1 × SFP dual-fiber optical port |
| USB Interfaces | 4 × USB ports for KVM control |
| Control Interfaces | 1 × RS232 port; 1 × RS485 port; IO/IR; Relay control interface |
| KVM Transmission | Supports mouse/keyboard control of input sources (e.g., PC, set-top boxes), latency ≤ 60 ms |
| Working Modes | Encoding (one-to-many), decoding, KVM, forwarding modes |
| Decoding Performance | At 1080p: max 20 streams of 960×540@30Hz; supports decoding 2×4K60, 6×4K30, 16×1080p output nodes |
| Splicing Processing | Decoding supports DLP/LED/LCD splicing, single-screen multi-picture, max 12×16 splicing walls; Encoding supports one-to-many |
| Codec Protocol | Supports customizable H.264/H.265 codec; simultaneous high/low streams; multi-region interconnect |
| Average Encoding Rate | 3840 × 2160 @60Hz: 650 Mbps (average) / 900 Mbps (maximum) |
| Bit Rates | Variable or fixed bit rates (20Kbps to 30Mbps); adjustable main and auxiliary streams |
| Transfer Rate | Up to 18 Gbps (6 Gbps per color) |
| Pixel Clock | Up to 600 MHz |
| Transmission Distance | 100 m Cat5+ transmission, PoE up to 80 m |
| End-to-End Delay | ultra-low latency 1 frame |
| Video Impedance | 100 Ω |
| Mobile Visual Control | Allows entire system control, multi-screen/single-screen display, subtitles, logos, custom client |
| IPC/RTSP Preview | Forwarding mode supports IPC and RTSP stream preview, one-to-many unlimited screen output |

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| Feature | Details |
|---|---|
| Control Methods | PC control software, Mobile/Tablet terminal |
| App | Device status management via app with online/offline status |
| Special Features | Seamless switching, character overlay, station logo, basemap, rolling subtitles, signal preview, echo, brightness and color adjustment |
| LCD | Front LCD displays IP, CPU, network, running time information |
| Ground | 1 × Grounding point |
| Power Supply | 12 V DC 2 A; PoE |
| Power Consumption | 7 W (max.) |
| Electrostatic Protection | ±8 kV (air gap discharge), ±4 kV (contact discharge) |
| Physical Dimensions | 229 × 30 × 170 mm (W×H×D) |
| Net Weight | 0.74 kg |
| Certifications | CE, RoHS compliance |



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