AVNEX-100K-EN/DN | 4k 60Hz Encoder/Decoder With Network Backup, HDMI 2.0, 4:4:4, KVM & OSD Menu





Key features

- 4K Ultra HD support at 60Hz, 4:4:4 chroma, HDMI 2.0, delivering sharp, accurate visuals.
- Scalable AV-over-IP streaming over standard Gigabit Ethernet with up to 16 x 16 video wall capability.
- Integrated network redundancy with dual 1G copper and optical ports, enabling automatic failover.
- Advanced KVM management for multi-computer keyboard and mouse control with seamless HID switching and roaming.
- Comprehensive signal routing: video, audio, IR, USB, and RS232 can be paired or routed independently.
- Supports multiple audio formats: PCM 7.1, Dolby Atmos, DTS HD Master, DTS:X; S/PDIF and ARC.
- Complete video wall functionality: fill/stretch, 180°/270° rotation, aspect ratio management.
- Transparent two-way RS232 and infrared transmission for easy integration and device control.
- Dual USB ports: fast IP extension for webcams, seamless switching for mouse/keyboard.
- Uses PoE via network switches – no extra power supply needed.
- Compatible with HDCP 2.2/2.3, CEC control supported for power/display automation.
- Visual management via PC, iPad, or IP control box; supports Telnet, SSH, HTTP, HTTPS protocols.
- Flexible deployment: point-to-point, point-to-multi-point, multi-point-to-multi-point.

Product Overview

The Macsys AVNEX-100K-EN/DN 4K 60Hz Encoder/Decoder system is an advanced optical network backup collaboration solution designed for professional AV over IP applications. Delivering true 4K Ultra HD video at 60Hz with pristine 4:4:4 chroma sampling, this system ensures exceptional image clarity and color fidelity, meeting the demands of high-resolution display environments. It supports full video wall functionality for up to 16 x 16 displays with flexible options for fill, stretch, and screen rotation, making it ideal for dynamic visualization in control rooms, conference halls, and broadcast settings.

Equipped with dual network ports featuring automatic failover, the AVNEX-100K-EN/DN provides robust gigabit redundancy, guaranteeing uninterrupted signal transmission even if one network path fails. The system integrates powerful KVM functionality, allowing seamless operator control of multiple computers with keyboard and mouse roaming capabilities to enhance operational efficiency.

Supporting bidirectional RS232 and infrared communication alongside peripheral device control, the product facilitates complete system integration and management. It transmits all signal types — video, audio, IR, USB, and serial — over standard Cat 5e or better cables for up to 100 meters, simplifying installation and reducing infrastructure costs.

Audio capabilities include multi-channel PCM 7.1, Dolby Atmos, DTS HD Master, and DTS:X, ensuring immersive sound quality. The decoder adds S/PDIF and HDMI ARC return features for comprehensive audio return channel support. Control is highly flexible, available through PC software, iPad apps, IP central control boxes, and open protocols (Telnet, SSH, HTTP, HTTPS), supporting seamless system administration.

The AVNEX-100K-EN/DN also features advanced HDR10 and Dolby Vision video enhancement for vivid imaging, flexible signal routing and pairing modes, and power over Ethernet (PoE) operation, eliminating the need for additional power adapters. With custom CEC frame output and API-based infrared control, the system offers unparalleled integration and automation options for modern AV network infrastructures.

This makes the Macsys AVNEX-100K-EN/DN encoder/decoder solution a highly versatile, scalable, and resilient platform for delivering flawless 4K media distribution with integrated control and fail-safe operation in demanding AV environments.

Technical Specification

Feature	Details	
Model	AVNEX-100K-EN	AVNEX-100K-DN
Video Input Port	1 × HDMI Interface	1 × Gigabit LAN (RJ-45), 1 × Gigabit Fiber SFP
Input Video Format	HDMI 2.0 compliant, HDCP 2.2/2.3 support	IP AV Stream over Gigabit Network
Input Video Resolution	3840 × 2160 @24Hz 4:4:4 3840 × 2160 @30Hz 4:4:4 3840 × 2160 @50Hz 4:4:4 3840 × 2160 @60Hz 4:4:4 640 × 480 @60Hz, 720 × 480 @60Hz 1280 × 720 @60Hz, 1920 × 1080 @60Hz 1920 × 1080 @24Hz, 720 × 576 @50Hz 1280 × 720 @50Hz, 1920 × 1080 @50Hz 1920 × 1080 @50Hz, 1920 × 1080 @24Hz 1920 × 1080 @25Hz, 640 × 480 @60Hz 800 × 600 @60Hz 1024 × 768 @60Hz, 1280 × 720 @60Hz 1280 × 768 @60Hz, 1280 × 800 @60Hz 1280 × 960 @60Hz, 1280 × 1024 @60Hz 1360 × 768 @60Hz, 1366 × 768 @60Hz 1440 × 1050 @60Hz, 1440 × 900 @60Hz 1600 × 900 @60Hz, 1600 × 1200 @60Hz 1680 × 1050 @60Hz, 1920 × 1080 @60Hz 1920 × 1200 @60Hz	
Video Output Port	1 × Gigabit LAN (RJ-45), 1 × Gigabit Fiber SFP	1 × HDMI Interface
Output Video Format	IP Video Stream over 1G Network	HDMI 2.0 compliant, HDCP 2.2/2.3 support
Output Video Resolution	Up to 3840×2160 @60Hz 4:4:4 Ultra HD	
Average Bitrate	4K@60Hz: ~650 Mbps typical / 900 Mbps peak	
End-to-End Latency	1-frame ultra-low latency	
Pixel Clock	Up to 600 MHz	
Max Data Throughput	Up to 18 Gbps (6 Gbps per color channel)	
HDR Support	HDR10, Dolby Vision	
HDCP Compatibility	HDCP 2.2/2.3	

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Feature	Details	
Audio Input Ports	1 × HDMI Audio; 1 × 3.5 mm Stereo Line-in	1 × S/PDIF Digital Audio In; LAN: 1 × RJ-45; Optical: 1 × SFP
Supported Audio Formats (Input)	All formats supported by HDMI 2.0 including PCM 2.0/5.1/7.1, Dolby TrueHD, Dolby Atmos, DTS-HD Master Audio, DTS:X; Stereo Line-in	Digital Audio LAN/Optical: All formats supported by HDMI 2.0 including PCM 2.0/5.1/7.1, Dolby TrueHD, Dolby Atmos, DTS-HD Master Audio, DTS:X
Audio Output Ports	1 × 3.5 mm Stereo Line-out; 1 × S/PDIF Out; LAN: 1 × RJ-45; Optical: 1 × SFP	1 × HDMI Audio Out; 1 × 3.5 mm Stereo Line-out
Supported Audio Formats (Output)	Stereo Line-out; Digital Audio via S/PDIF or LAN/Optical with PCM 2.0/5.1/7.1, Dolby TrueHD, Dolby Atmos, DTS-HD Master Audio, DTS:X	HDMI Audio Out with PCM 2.0/5.1/7.1, Dolby TrueHD, Dolby Atmos, DTS-HD Master Audio, DTS:X; Stereo Line-out
Audio Formats Supported (General)	PCM7.1, Dolby Atmos, DTS:X, DTS HD Master	
Audio Return		S/PDIF (Decoder→Encoder), HDMI ARC
Signal Types Supported	Video, Audio, IR, USB, RS232	
Network Ports	Dual 1G (PoE + Fiber)	
Protocol Support	Telnet, SSH, HTTP, HTTPS	
DHCP/AutoIP	Supported	
Control Methods	PC, iPad, IP control box	
Control Interfaces	PC management software, iPad/mobile control app, IP control processor	
Transparent RS232 Transmission	Supported (bidirectional)	
IR Functionality	Bidirectional & IR control & API	
USB Ports		Dual USB (Port 1 Keyboard-Mouse and IP based Seamless switch / Port 2 camera)
KVM Operator Management	Keyboard/mouse multi-computer control	
CEC Control	Supported	
Video Wall Support	Up to 16×16	
Video Wall Functions	Fill/stretch, rotation (180°/270°)	
Installation Modes	Point-to-any/Multipoint routing	
Transmission Distance	Up to 100 meters (Cat 5e or higher)	
Power Supply Options	12 V DC 2 A adapter or PoE (Power over Ethernet)	
Power Consumption	7W	

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Feature	Details
Electrostatic Protection	±8 kV (air discharge) / ±4 kV (contact discharge)
Enclosure Size (W×H×D)	215 × 25 × 120 mm
Net Weight	0.74 kg
Certifications	CE, RoHS compliance

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