

MXnet

NETWORKED VIDEO ECOSYSTEM

AC-MXNET-1G-E | ENCODER

MXNET 1G ENCODER/TRANSMITTER DEVICE

OVERVIEW

All signals begin their journey through an MXnet system when entering the AC-MXNET-1G-E Encoder (Transmitter). Whether an HDMI source, analog audio, RS-232 and IR control data, or KVM-related signals, once connected each becomes encoded into the multicast data format stream, ready for routing to any Decoder endpoint within the project.

Using Cat 5e (or better) wiring, fiber optic cabling, or a hybrid configuration featuring both types to interface with an MXnet Network Switch, an MXnet 1G system will transmit content to another room or even another zip code.

As an integral part of the MXnet 1G family, the AC-MXNET-1G-E is designed and manufactured in-house, alongside exclusive AVPro Edge network switches plus the CBox system controller, which serves as host for MXnet MENTOR, our universally acclaimed, intuitive software suite, developed in conjunction with all MXnet 1G products. AC-MXNET-1G-E encoders and AC-AC-MXNET-1G-D decoders bookend an MXnet system as endpoints for all source control inputs and outputs.

The AC-MXNET-1G-E encodes HDMI signals up to 4K, 4:2:0, and 30fps. Multicast IP packeting combines control data and Power over Ethernet with the A/V signal, for transport through the network with near-zero latency. Within the MXnet Ecosystem, products work in tandem to provide up/down scaling for systems with mixed resolution displays, complete EDID and HDCP management, plus built-in video wall design, all courtesy of MENTOR, AVPro Edge’s exclusive suite of software tools for system setup, control, diagnostics, and troubleshooting.

Never before have integrators had an all-inclusive, AV-o-IP system available from a single manufacturer at a level this comprehensive, implemented into a format with a design goal for plug-and-play ease and deployment simplicity, completely backed by world-class tech support with an industry-leading ten-year, hassle-free warranty.



FEATURES

<p>1 Gigabit Ethernet Network Port, Supports PoE (1G maximum data rate)</p>	<ul style="list-style-type: none"> • 8-pin RJ-45 female connector, 1000BASE-T copper Ethernet port • Supports standard PoE power, IEEE 802.3AF (15.4W), maximum power consumption of 6.5 watts • 10/100/1000Mbps auto-negotiation, MDI/MDI-X cable mode auto-negotiation • Maximum distance 100m (330ft) over Cat5e and higher • Compatible with all MXNet network switches or point-to-point applications with MXNet decoder • Optional DC 12V local power supply
<p>Bidirectional SFP Port Fiber Optic Connector (SFP transceiver modules sold separately)</p>	<ul style="list-style-type: none"> • Supports single mode or multimode SFP modules for extremely long cable runs • Recommended standard single mode fiber: LC to LC 1310nm, up to 40km (24.85 miles) • Recommended standard multimode fiber: LC to LC 850nm, up to 550m (1804 feet) • Compatible with most SFP transceiver modules available on the US market
<p>HDMI Input Port</p>	<ul style="list-style-type: none"> • 19-pin HDMI® Type A female connector • Source device input for HDMI connection
<p>HDMI Output Loop Out Port</p>	<ul style="list-style-type: none"> • 19-pin HDMI Type A female connector • Sends HDMI signal pass-through from locally connected input source • Copy EDID functionality in conjunction with front panel button <i>EDID COPY FROM LOOP OUT</i>

Audio Input Port	<ul style="list-style-type: none"> • 3.5mm stereo jack (TRS) audio input port • Auto-detects input once directly connected, will override HDMI input audio stream
Audio Output Port (de-embedded audio)	<ul style="list-style-type: none"> • 5-pin terminal block connector • Extracts balanced analog 2-channel PCM audio
USB Host Port	<ul style="list-style-type: none"> • USB 2.0 Type B female connector • USB extension for connection to a computer to control keyboard/mouse • No video over USB
Mini-OLED Data Window <i>*Exclusive and Proprietary Feature from AVPro Edge!</i>	<ul style="list-style-type: none"> • Built-in front panel mini-OLED screen • Displays encoder's custom name or MAC address (if no custom name is assigned) and IP address • Toggle options allow screen on, off, or flashing for visibility
IR Input Ports for I-PASS and IR-EYE	<ul style="list-style-type: none"> • (2x) 3.5mm stereo jack (TRS) IR receiver ports • I-PASS port sends IR signals via a direct connection from a control processor to the IR output of the desired endpoint(s) • IR-EYE port supports use of an IR eye to capture IR signals from a control system processor or third-party remote to send IR signals to the IR output of the desired endpoint(s)
IR Output Port	<ul style="list-style-type: none"> • 3.5mm mono jack (TS) IR transmitter port • Sends encapsulated/virtualized IR signals upstream via the MXNet API
RS-232 Port	<ul style="list-style-type: none"> • 3-pin terminal block connector port • Sends encapsulated/virtualized RS-232 (serial pass-through) over IP via the MXNet API • Supports serial routing with direct connection to a control system processor
Integrated Metal Chassis Device Casing	<ul style="list-style-type: none"> • Chip-top heatsink specifically designed to efficiently disperse heat • Entire internal frame functions as one giant heatsink • Eliminates the need for internal cooling fans
Unlimited and Expandable End Points with Auto-device Discovery	<ul style="list-style-type: none"> • Unlimited number of sources, displays, USB devices, and video walls (tested to 400 endpoints) • Once all MXNet Ecosystem devices are properly connected and powered on, Mentor auto-detects each endpoint device and replicates the physical MXNet Ecosystem in a digital space • A Link-local IP address is self-assigned to each encoder by factory default • The MAC address and multicast channel are pre-assigned to each encoder
Custom Video Walls	<ul style="list-style-type: none"> • Supports unlimited number of video walls, each up to 64 panels • Layouts include standard arrays (2x2, 3x3, 1x2, etc.) and mosaic-style (artistic) with overlapping displays of various sizes • Panels may be rotated 180 or 270 degrees • Our encoding supports GEN LOCK for tear-free video wall images
Video Encoding	<ul style="list-style-type: none"> • Supports GEN LOCK, frames of a video source are synced to all decoders for tear-free video walls • Bit rate errors are minimized by packetizing data into smaller blocks for higher quality image fidelity • Content-specific flexible data rates from 200Mbps to 850Mbps, allows managing bandwidth usage • Utilized by DCI for motion pictures, live HD broadcasting, and DICOM® for medical imaging communications

Built-in Scaling / Output Resolution Settings	<ul style="list-style-type: none"> • Select video resolutions from 720p 50Hz to 4K 30Hz • Downscale one or multiple decoders to lower-resolution sink devices while maintaining high-quality video to other zones • Interlaced formats are converted to progressive when output scaling is enabled (Note: scaler usage will affect switching times, often reducing switching times in most cases)
Fast Switching Times	<ul style="list-style-type: none"> • Switching times range between 4-7 seconds for pass-through content of the same format, or 5-10 seconds between content of different formats • Switching times of 2 seconds achievable with proper scaling and formats

BENEFITS

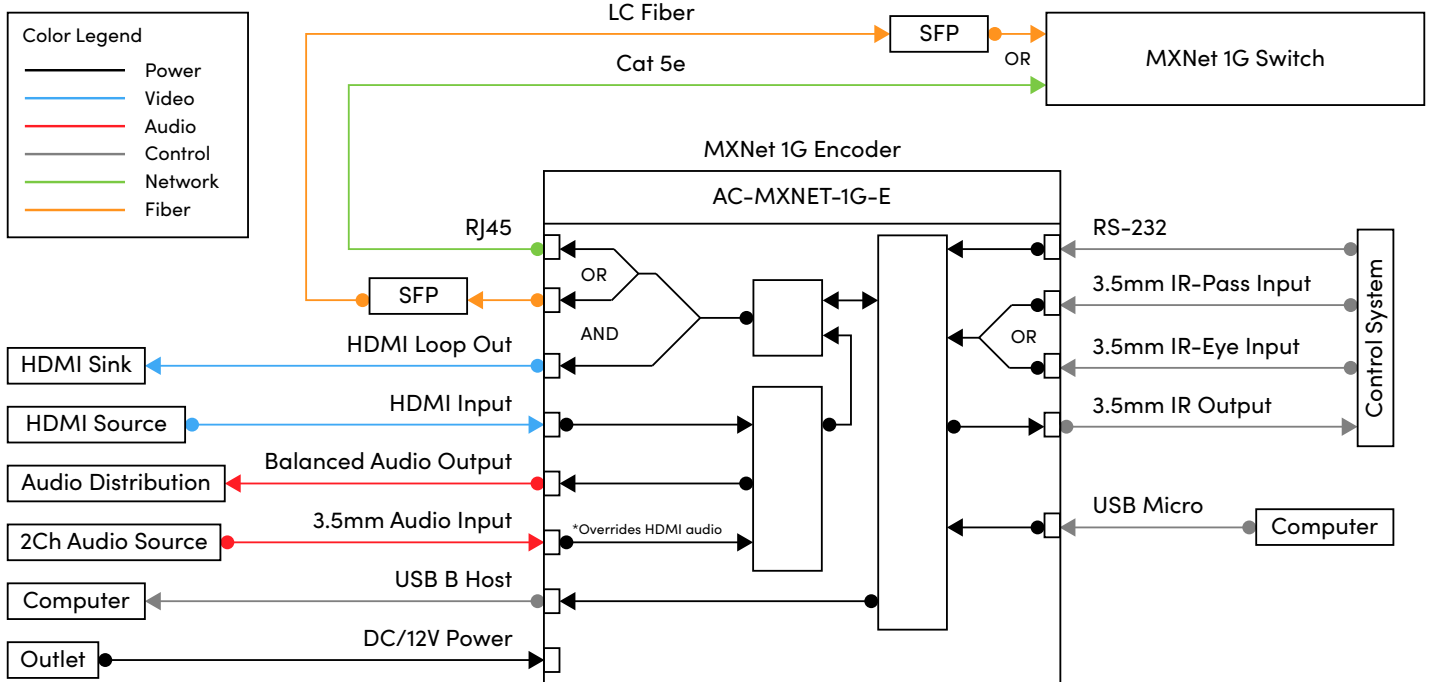
MXNet Mentor Web Interface	<ul style="list-style-type: none"> • Mentor is MXNet’s proprietary setup, configuration, and testing web interface that comes pre-installed on every AC-MXNET-CBOX • Features simple, yet powerful and advanced tools and settings to provide a complete setup and control solution for every MXNet installation • Customizable configurations allow EDIDs, custom names, and descriptions assigned to every encoder • Live Diagnostics provide real-time status feedback for HDMI and network cable connections for monitoring link quality and speed • View the source video resolution, color bit depth, HDCP version, hot-plug events, and preview source images as thumbnails that update every 10 seconds
Full Control of External Front Panel Lights	<ul style="list-style-type: none"> • Toggle options allow front panel LEDs and mini-OLED screen stay lit on, continuously flash for quick visibility and troubleshooting when locating devices, or completely off for real-time dark mode
Supports Third-Party Control Systems	<ul style="list-style-type: none"> • Drivers available for third-party control systems, such as Control4®, Crestron®, RTI®, ELAN®, Q-SYST™, URC®, etc.
Reliable Serviceability	<ul style="list-style-type: none"> • Compatible with most remote monitoring software, such as OvrC® • On-site components are “hot-swappable” for faster servicing and troubleshooting • Industry-leading technical support assistance from AVPro Edge
Quiet Operation and Low Power Consumption	<ul style="list-style-type: none"> • MXNet encoders operate quietly and without any internal cooling fans • Requires only 3-7 watts of power consumption • Runs cooler than competitive products, contributing to system stability and device longevity
Intuitive Configuration and Easy Expandability	<ul style="list-style-type: none"> • MXNet Mentor configuration, monitoring, and diagnostic software included • Auto-discovery and auto-cataloging features greatly save time while assuring flawless accuracy
Distance Capabilities	<ul style="list-style-type: none"> • Fiber SFP options allow distances up to 40km (24.85 miles)
Multifaceted Market Appeal	<ul style="list-style-type: none"> • Versatile applications for a multitude of AV installations, such as corporate enterprises, education, hospitality, residential, medical, financial, and government applications
10-Year Warranty	<ul style="list-style-type: none"> • AVPro Edge warrants its products that are purchased from all authorized AVPro Edge resellers or direct purchases

SPECIFICATIONS

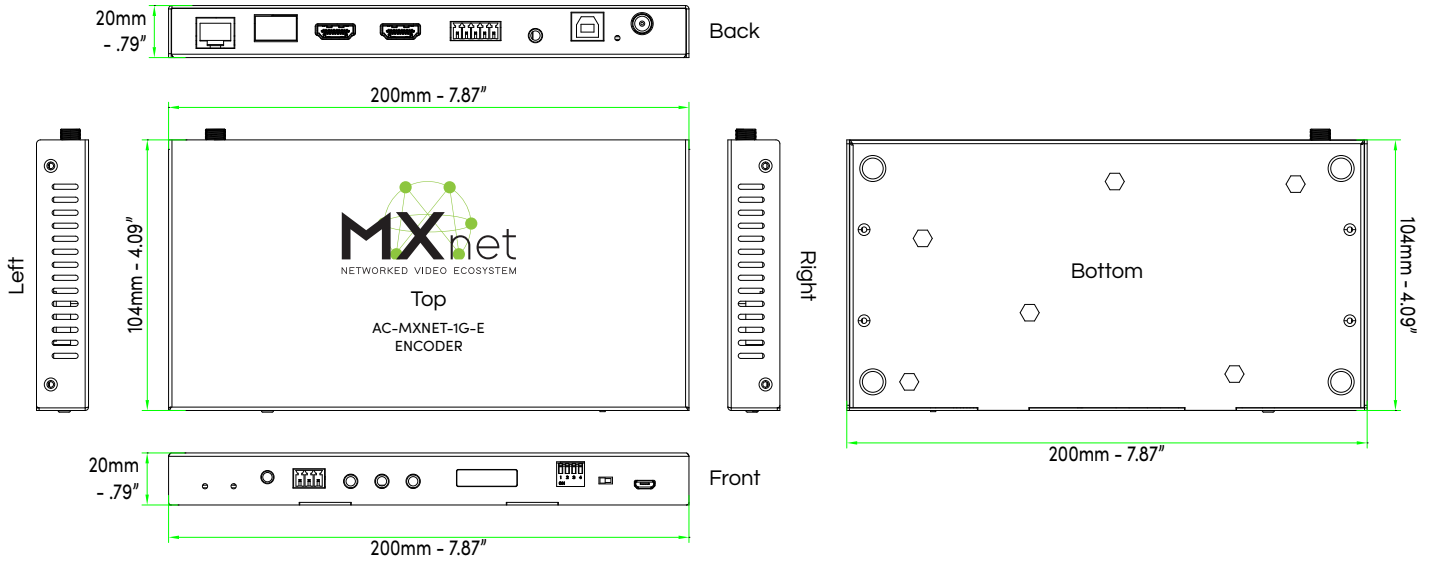
Encoding:	
Video Codec	Proprietary Codec based on M-JPEG
Audio Codec	Proprietary Codec
Latency	16ms@60Hz
Streaming Protocols	TCP, UDP, IP, IGMP-V2
Copy Protection	HDCP 2.x and earlier
Video Input/Ingestion:	
Signal Type	DVI 1.0 (ingested, outputs as HDMI), HDMI 2.0b
Video Resolution	720p@50/60Hz; 1080p@24, 50 & 60Hz; 4K@30Hz
Chroma Subsampling	4:4:4, 4:2:2, 4:2:0 (Compresses to RGB Output) RGB
Bit Depth per Color	1080p (8-, 10-Bit), 4K (8-, 10-Bit) (Compresses to 8-Bit Output)
Visually Lossless	1080p@60Hz SDR RGB (8-Bit), 4K@30Hz SDR RGB (8-Bit)
Audio:	
Audio Format (end to end)	PCM 2, 5.1, 7.1 Channel, Dolby Digital 5.1, Dolby Digital Plus, DTS 5.1, DTS-ES, DTS-HD Master Audio
Audio Format (HDMI Loopout)	Same as End to End, with the addition of Dolby MAT 8-CH
Embedded Audio	Stereo Analog Audio (3.5 mm jack)
De-Embedded Audio	Balanced Stereo Analog Audio (5-pin Phoenix connector)
Communication/Control of External Devices:	
USB	HID-Compliant
Serial/RS-232	Bi-directional Device Control / Monitoring
IR	Bi-directional Device Control / Extension
HDMI	HDCP 2.x, EDID Management (Encoder), CEC (Decoder)
Ports:	
Ethernet	(1) × female RJ45, PoE
SFP	(1) × SFP Slot
HDMI	(2) × HDMI Type A 19-pin, female, one HDMI input, one HDMI loop out
Audio	(1) × 5-Pin Terminal Block, Balanced L/R Audio out (1) × 3.5 mm mini-stereo jack, Audio in
IR	(1) × 3.5 mm mini-stereo jack (IR-PASS) (1) × 3.5 mm mini-stereo jack (IR-EYE) (1) × 3.5 mm mini-stereo jack (IR-OUT)
RS232	(1) × 3-Pin Terminal Block
USB	(1) × USB 2.0 Type-B for USB keyboard/mouse extension, (1) × USB Micro for MXNET service
Distance:	
Ethernet	100 Meters/330 Feet over CAT5e or better
SFP and Fiber	1000BASE-SX SFP Transceiver Module (MMF, 850nm, 550m, LC, DOM) 1000BASE-LX/LH SFP 1310nm 10km Transceiver Module
Environmental:	
Operating Temperature	23° to 125°F (-5° to 51°C)
Storage Temperature	-4° to 140°F (-20° to 60°C)
Operating Humidity	5% -90% RH (No Condensation)
Power:	
Max Power Consumption	6.5W
PoE (Power over Ethernet)	IEEE 802.3af (15.4W)
Power Supply Unit	Input: AC 120-240V-50/60Hz 0.8A Output: DC 12V 2A
Dimensions:	
Mounting	Rack and Furniture mount support
Dimensions (Unit Only Width/Depth/Height)	mm: 199.14 X 103.1 X 13.47 inch: 7.84 X 4.06 X 0.53
Dimensions (Packaged Width/Depth/Height)	mm: 309.88 X 180.09 x 54.10 inch: 12.2 X 7.09 X 2.13
Weight (Unit)	1.25 LBS/0.57 KG
Weight (Packaged)	1.65 LBS/0.74 KG
Regulatory	CE/FCC/UL
Product Warranty	10 Years

Specifications subject to change without notice. Mass & dimensions are approximate.

WIRING DIAGRAM



CAD DIAGRAM



MXNet 1G Encoder: AC-MXNET-1G-E

by **AVPro** edge

