AC-MXNET-10G-TCVR | TRANSCEIVER
MXNET 10G

The MXNet Ecosystem is an AV over IP platform of products that uses traditional networking infrastructure to route video and audio signals through large scale systems with unlimited numbers of sources and displays, all switching independently and seamlessly. Designed and developed by AVPro Edge to be truly "plug and play", MXNet provides the complete end-to-end solution for stability, interoperability, and easy deployment of the entire ecosystem.

OVERVIEW

Inarguably, the most versatile product in the AVPro MXNet 10-G SDVoE ecosystem is the AC-MXNET-10G-TCVR, a single SKU, dual-use configurable, advanced modular AV-over-IP encoding / decoding IP streaming solution. Whether deployed as a transmitter (Encoder) or receiver (Decoder), AVPro Edge has cultivated multiple advanced concepts into this A/V tour de force that just a single year ago, seemed implausible. An indispensable design, it is unique and destined to become an instant classic. The new AC-MXNET-10G-TCVR serves as both a gateway and destination point for the next generation 10G lineup of AV-over-IP multicast offerings from AVPro Edge.

Audio, Video and Control signals reside on autonomously isolated layers within the SDVoE platform, each independently routable for unparalleled flexibility with flawless distribution over a 10GbE copper, fiber, or hybrid-blended network. A built-in, segregated, 1GbE Ethernet w/ PoE full gigabit sub-network channel is reserved for high-speed local network connections.

FEATURES

1 Gigabit Ethernet Network Port, Supports PoE (1G maximum data rate)	• 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
Bidirectional SFP Port Fiber Optic Connector (SFP transceiver modules sold separately)	• 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
HDMI Input Port	• 19-pin HDMI® Type A female connector • Source device input for HDMI connection
HDMI Output Loop Out Port	• 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 *EDID COPY FROM LOOP OUT*

Audio Input Port	• 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)	• 5-pin terminal block connector • Extracts balanced analog 2-channel PCM audio
USB Host Port	• USB 2.0 Type B female connector • USB extension for connection to a computer or other USB 2.0 devices • Supports KVM routing and hosting
Mini-OLED Data Window *Exclusive and Proprietary Feature from AVPro Edge!*	• 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	• (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	• 3.5mm mono jack (TS) IR transmitter port • Sends encapsulated/virtualized IR signals upstream via the MXNet API
RS-232 Port	• 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	• 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	• Unlimited number of sources, displays, USB devices, and video walls • 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	• 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 • JPEG 2000 supports GEN LOCK for tear-free video wall images • Retains Dolby Vision and HDR10 metadata pass-through
JPEG 2000 Video Encoding	• Progressive decoding delivers both lossy and lossless compression within a code stream • 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 • Supports Dolby Vision®, HDR, and accepts 10-bit color and reduces color banding • 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

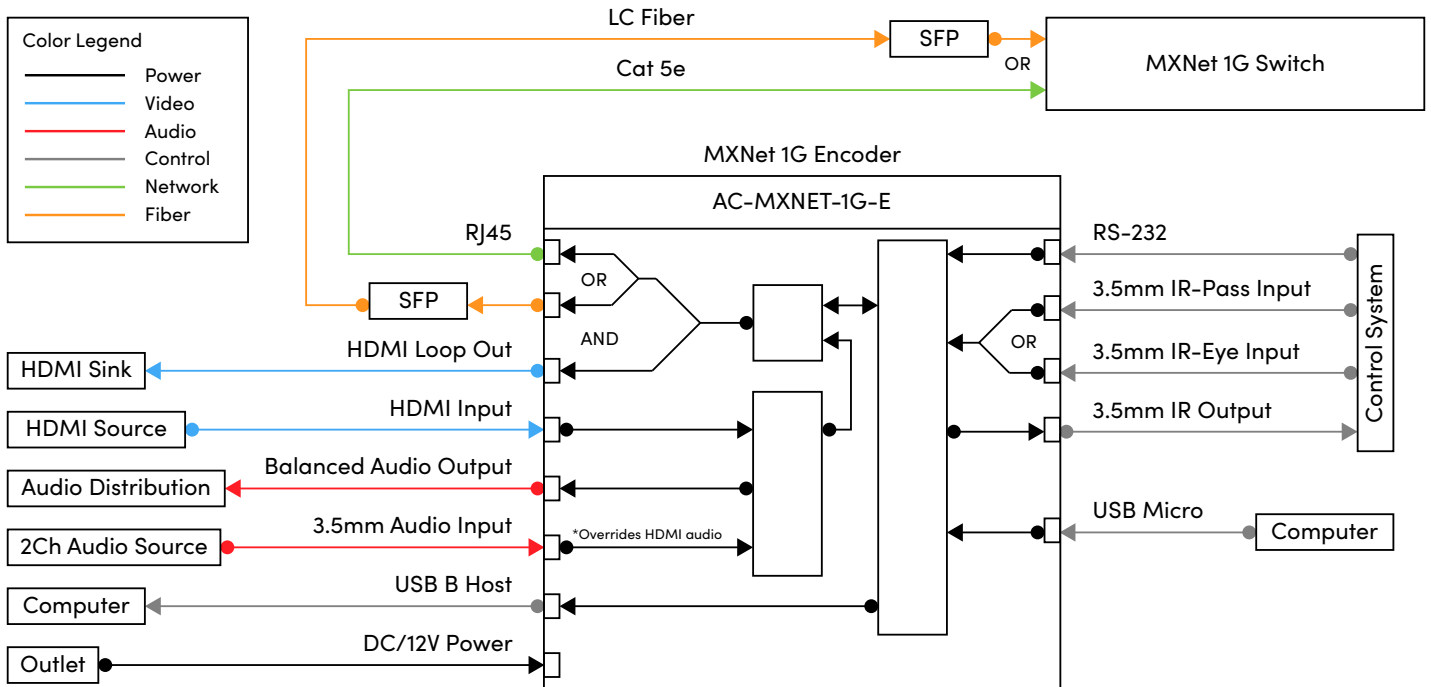|	
Built-in Scaling / Output Resolution Settings	• Select video resolutions from 720p 50Hz to 4K 60Hz • Downscale one or multiple decoders to lower-resolution sink devices while maintaining high-quality video to other zones • Interlaced formats are converted to progressive when output scaling is enabled (Note: scaler usage will affect switching times, often reducing switching times in most cases)
Fast Switching Times	• Switching times range between 4-7 seconds for pass-through content of the same format, or 5-10 seconds between content of different formats (such as 1080p 60Hz SDR / 4K 30Hz HDR, depending on the display type) • Switching times of 2 seconds achievable with proper scaling and formats • Ultra-low, nearly zero latency

BENEFITS

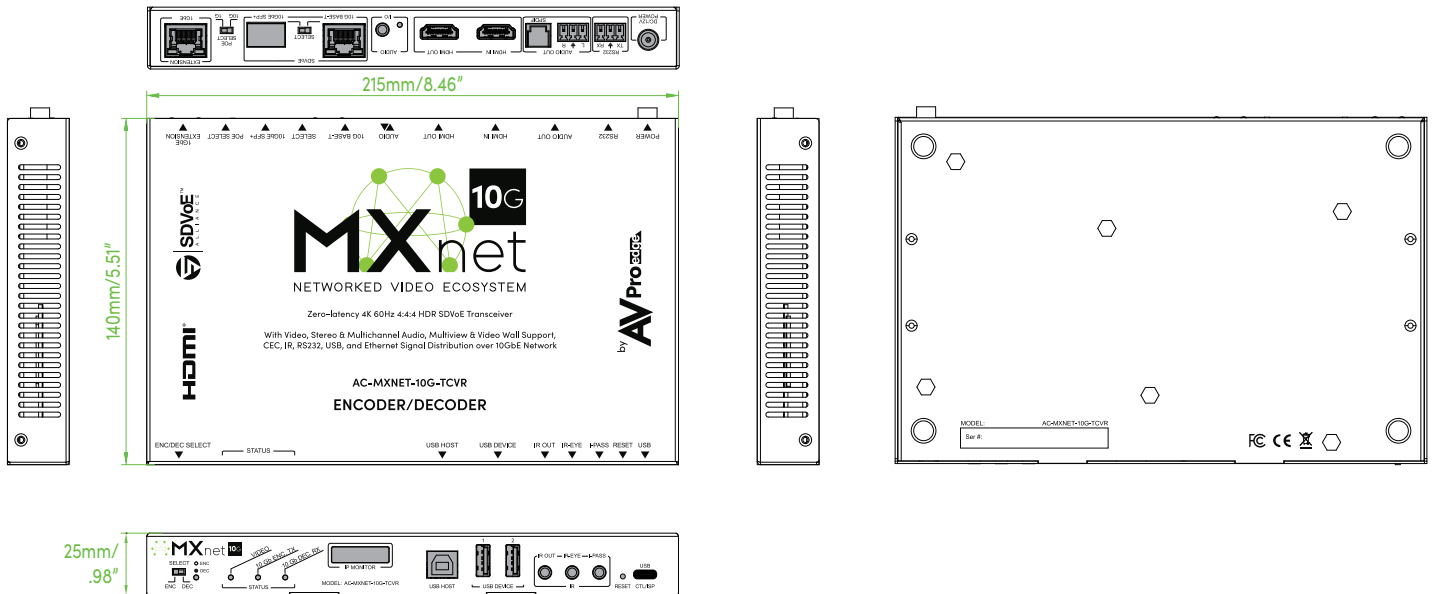|	
Oversee HDR Metadata	• Select video resolutions from 720p 50Hz to 4K 60Hz • Downscale one or multiple decoders to lower-resolution sink devices while maintaining high-quality video to other zones • Interlaced formats are converted to progressive when output scaling is enabled (Note: scaler usage will affect switching times, often reducing switching times in most cases)
MXNet Mentor Web Interface	• 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, HDR metadata detection, 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	• 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	• Drivers available for third-party control systems, such as Control4®, Crestron®, Savant, RTI®, ELAN®, Q-SYS™, URC®, etc.

SPECIFICATIONS

VIDEO:	
Signal Type	DVI 1.0, HDMI 2.0b
Video Resolution	4K@60Hz 4:4:4, 4K@30Hz 4:4:4, 4K@60Hz 4:2:0
HDR Format	HDR 10, HLG, DV
Chroma Subsampling	444, 422, 420
Bit Depth per Color	1080P (16Bit), 4k (10, 12 Bit)
AUDIO:	
Audio Format	PCM 2, 5.1, 7.1 Channel, Dolby Digital 5.1 Channel, Dolby Digital Plus, DTS 5.1 Channel, DTS–ES, DTS–HD High Resolution
Embedded Audio	Stereo Analog Audio
De-Embedded Audio	Balanced Analog Audio
PORTS:	
Ethernet	(1) 10G female RJ45 port for SDVoE transmissions, (1) 1G female RJ45 port for Ethernet extension or CBOX control. Both are PoE compatible.
SFP	(1) 10G SFP+ Port used for SDVoE transmissions
HDMI	(1) HDMI input (1) HDMI output
Audio	(1) TOSLINK, (1) x 3 Pin Terminal Block, (1) 3.5mm female stereo jack. It can be audio input or audio output, depending on if TCVR is in Encoder or Decoder mode respectively.
IR	(3) × 3.5mm mini–stereo jack, one IR-Pass, one IR-EYE, one IR-out
RS232	(1) x 3 Pin Terminal Block for MXNet System Control
USB	(1) USB Type-C for MXNet Service, (1) USB Type–B, (2) USB Type–A
DISTANCE:	
Ethernet	100 Meters/ 330 Feet over CAT5e and above
SFP+ and Fiber	10G SFP+ AOC cable up to 3 meters, 10G SFP+ Multimode transceiver over Multimode fiber up to 550 meters, 10G SFP+ Single mode transceiver over Single mode fiber up to 20 Kilometers
ENVIRONMENTAL:	
Operating Temprature	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	Encoder ≈ 9.1W, Decoder ≈ 9.2W
PoE (Power over Ethernet)	IEEE 802.3af (15.4W)
Power Supply Unit	Input: AC 120–240V, 50/60Hz, 0.8A Output: DC 12V, 2A
Thermal dissipation	Encoder 39.32 BTU/hr, Decoder 33.56 BTU/hr
DIMENSIONS:	
Mounting	Rack and Furniture mount support
Dimensions (Unit Only Width/Depth/Height)	mm: 215 × 140 × 25 inch: 8.46 × 5.51 × 0.98
Dimensions (Packaged Width/Depth/Height)	mm: 310 × 180 × 54 inch: 12.2 × 7.09 × 2.13
Weight (Unit)	1.76 lbs./0.8 kg
Weight (Packaged)	2.25 lbs./1.02 kg
Regulatory	CE/FCC/UL
Product Warranty	10 Years
Specifications subject to change without notice. Mass & dimensions are approximate	

WIRING DIAGRAM

Color Legend
- Power (black)
- Video (blue)
- Audio (red)
- Control (gray)
- Network (green)
- Fiber (orange)

LC Fiber — SFP — OR — MXNet 1G Switch
Cat 5e

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

- RJ45 — OR / AND
- SFP
- HDMI Loop Out — HDMI Sink
- HDMI Input — HDMI Source
- Balanced Audio Output — Audio Distribution
- 3.5mm Audio Input — 2Ch Audio Source
- *Overrides HDMI audio
- USB B Host — Computer
- DC/12V Power — Outlet

- RS-232 — Control System
- 3.5mm IR-Pass Input
- 3.5mm IR-Eye Input — OR
- 3.5mm IR Output
- USB Micro — Computer

CAD DIAGRAM

215mm/8.46"
140mm/5.51"
25mm/.98"

10G
MXnet
NETWORKED VIDEO ECOSYSTEM
Zero-latency 4K 60Hz 4:4:4 HDR SDVoE Transceiver
With Video, Stereo & Multichannel Audio, Multiview & Video Wall Support,
CEC, IR, RS232, USB, and Ethernet Signal Distribution over 10GbE Network

AC-MXNET-10G-TCVR
ENCODER/DECODER

MODEL: AC-MXNET-10G-TCVR
Ser #:

MXNet 10G Transceiver: AC-MXNET-10G-TCVR
by AVPro Edge

HDR
MXnet
NETWORKED VIDEO ECOSYSTEM
Zero-latency 4K60 4:4:4 HDR SDVoE Transceiver with
Multiview and Video Wall Support.
Video, Stereo Audio, Multichannel Audio, CEC, IR, RS232, USB and
Ethernet Signals Distribution over 10GbE Network.

4K
AC-MXNET-10G-TCVR
ENCODER/DECODER

18:8A:6A:00:A4:13
18:8A:6A:00:A4:14