

# The MXNet 10G SDVoE<sup>®</sup> Ecosystem

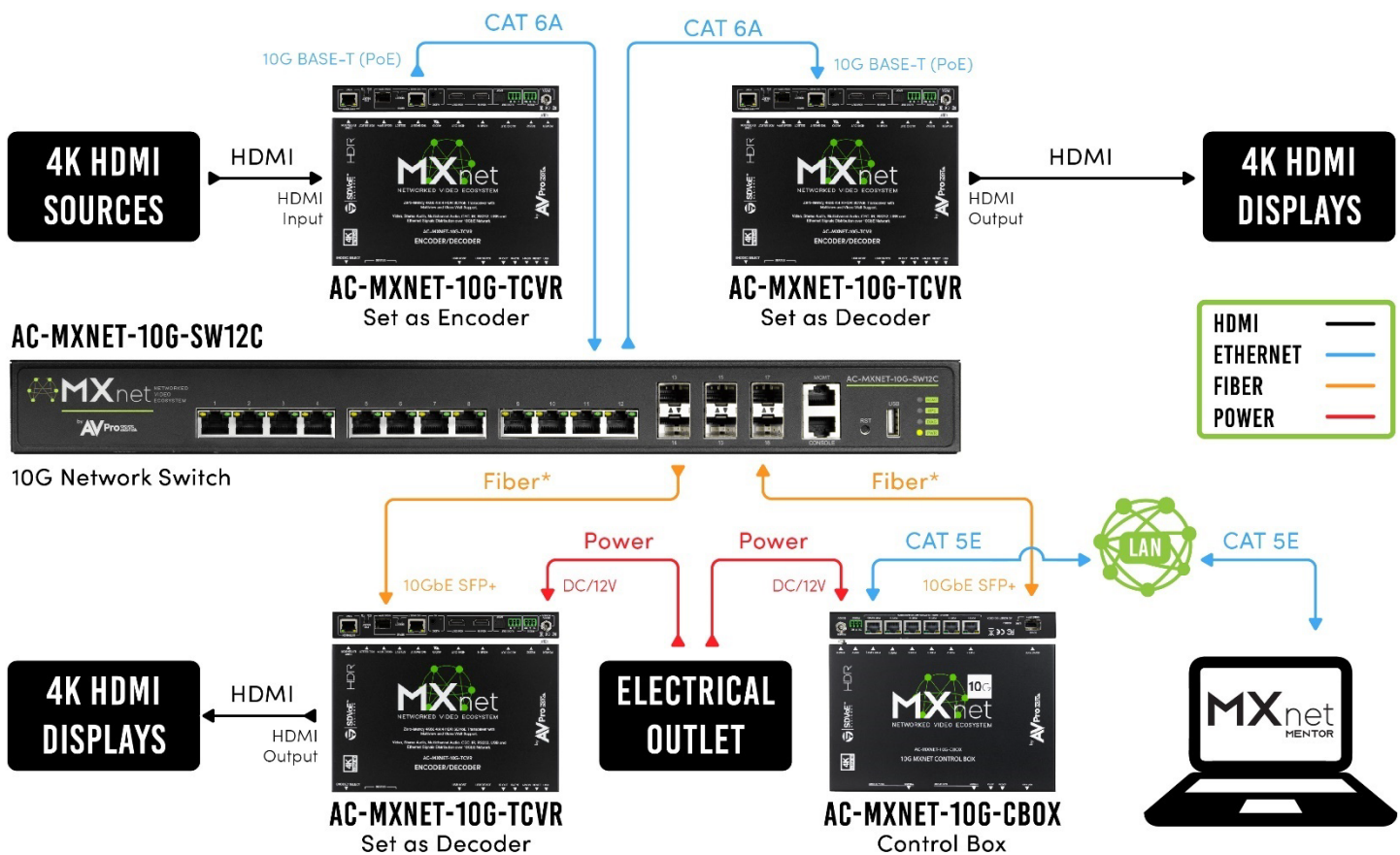
## QUICK START GUIDE

### OVERVIEW

The MXNet 10G SDVoE<sup>®</sup> Ecosystem is an AV-over-IP platform of products developed and designed by AVPro Edge. This system is an ultra-low latency HDMI 2.0, 4K 60Hz 4:4:4 video, multichannel audio, and control signal distribution system over 10G Ethernet infrastructure, based on SDVoE<sup>®</sup> standards and Semtech<sup>®</sup> ASIC technologies. Crystal-clear 4K video is provided along with versatile AV and control signal distribution applications.

The diagram below shows the basic application with the AC-MXNET-10G-SW12C managed switch, AC-MXNET-10G-TCVR transceivers, and AC-MXNET-10G-CBOX control box. The cable connections can be Category cable, optical fiber, or a combination of both, as shown below.

If using a third-party network switch with MXNet, please first review our Knowledge Base article [here](#).



# 1. SELECT THE TRANSCEIVER MODE

The encoder and decoder (transmitter/receiver) are combined into one chassis with a simple toggle switch to select application functionality. By default, the transceiver is set to decoder mode.

Flip the **ENC/DEC SELECT toggle switch** to set the transceiver to encoder or decoder mode.

AC-MXNET-10G-TCVR (Front Panel)



The AC-MXNET-10G-TCVR is shown, but the same steps apply to all transceivers:

- AC-MXNET-10G-TCVR-AVDM
- AC-MXNET-10G-TCVR-USBX
- AC-MXNET-10G-TCVR-PRO

To the right of the toggle switch is a blue LED that indicates the selected mode:

- LED is on = Encoder mode
- LED is off = Decoder mode

# 2. SELECT THE TRANSCEIVER PORT TYPE

10GbE copper and fiber ports on each transceiver allow flexibility to utilize the cabling that best fits the specific installation.

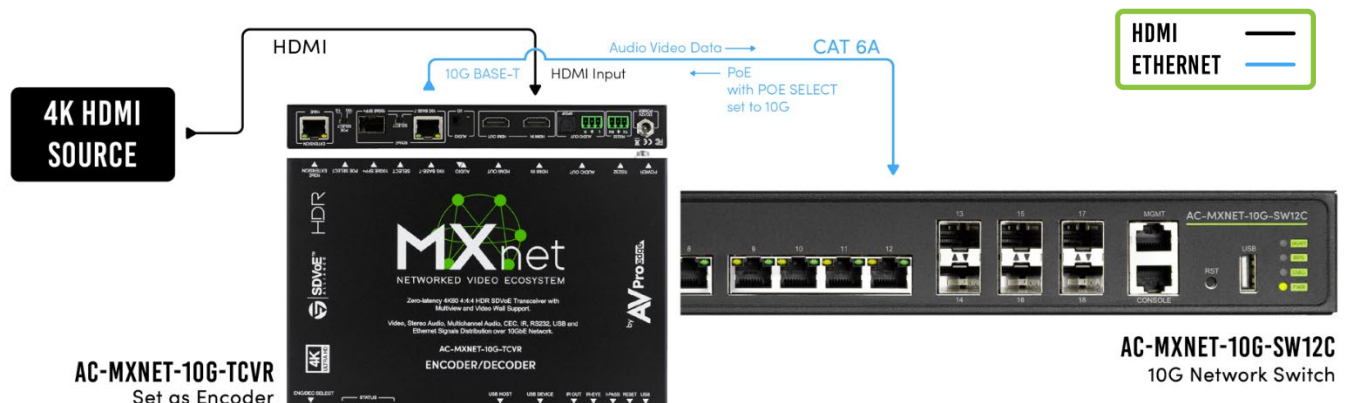
## FOR CATEGORY CABLE CONNECTIONS

Flip the **SDVoE SELECT toggle switch** to the **10G BASE-T** setting, then flip the **POE SELECT toggle switch** to the **10G** setting.

AC-MXNET-10G-TCVR (Rear Panel)



Connect the **SDVoE 10G BASE-T port** on the transceiver to a **10G Copper PoE port** on the network switch.



Connect the power supply to the network switch. By using this method, no additional cabling is required to power the transceiver as it will be powered by the network switch via PoE (Power-over-Ethernet).

## FOR OPTICAL FIBER CONNECTIONS

Flip the **SDVoE SELECT toggle switch** to the **10GbE SFP+** setting, then flip the **POE SELECT toggle switch** to the **1G** setting.

AC-MXNET-10G-TCVR (Rear Panel)



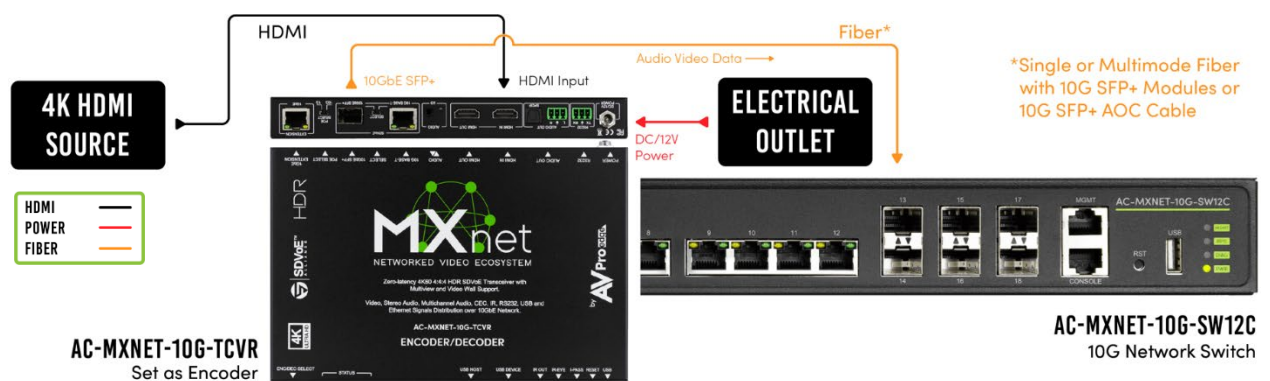
Connect the **SDVoE 10GbE SFP+ port** on the transceiver to a **10G SFP+ port** on the network switch (or an **SFP28 port** on the AC-MXNET-10G-SW12C).

Connect the power supply to the network switch.

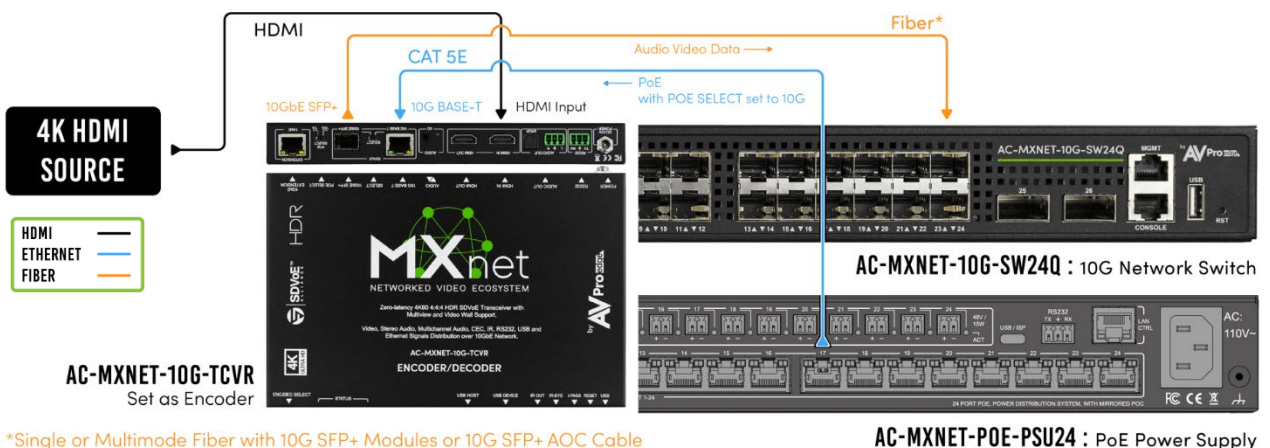
## POWER WITH FIBER CONNECTIONS

Fiber optic cables do not carry an electrical current and cannot supply power from one device to another. There are two ways to power the transceivers when using fiber optic connections:

### 1 FIBER WITH LOCAL POWER:



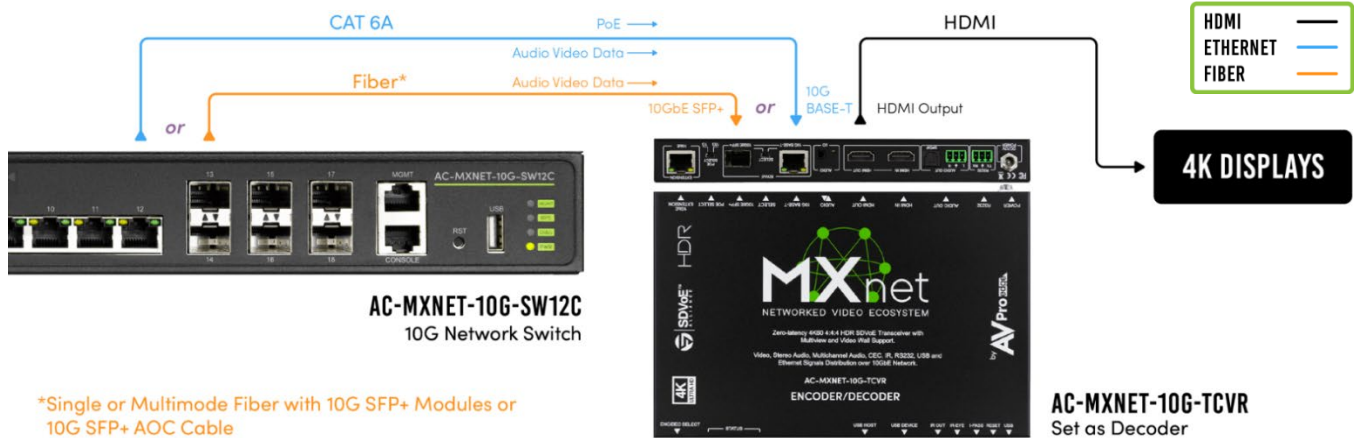
### 2 FIBER WITH POE POWER SWITCH:





### 3: CONNECT THE TRANSCEIVERS TO THE NETWORK SWITCH

Once the transceiver modes have been selected and the port types have been configured for Category or fiber cabling, connect the transceivers to the network switch.



### 4: CONNECT THE TRANSCEIVERS TO THEIR HDMI DEVICES

Connect the HDMI source devices to the **HDMI IN port** on the encoders, and the HDMI output devices to the **HDMI OUT port** on the decoders.

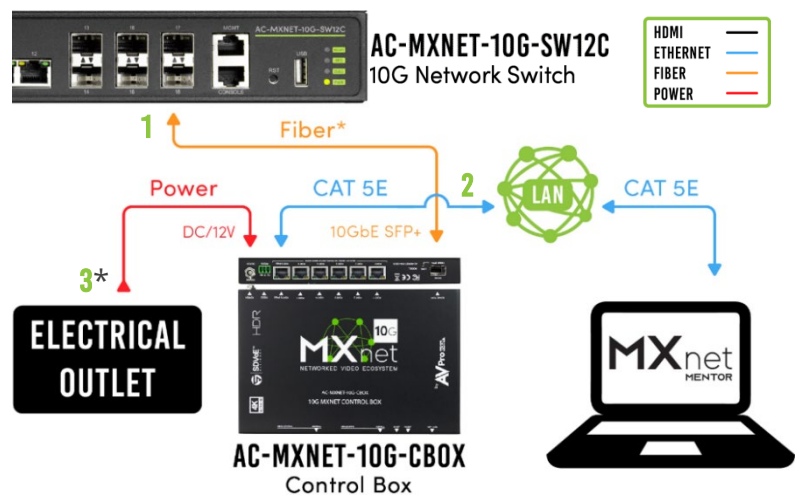
AC-MXNET-10G-TCVR (Rear Panel)



**NOTE:** When the transceiver is set to encoder mode, the HDMI OUT port functions as an HDMI Loop Out port.

### 5: CONNECT THE CBOX TO THE NETWORK SWITCH

- 1 Connect the **SDVoE port** on the CBOX to a **10G SFP+ port** on the network switch (or an **SFP28 port** on the AC-MXNET-10G-SW12C).
- 2 Connect the **PORT 6 (PoE) port** to the LAN, router, or third party control system for power and/or access to the Mentor interface.
- 3 \*If PoE is unavailable, use the **DC/12V power inlet** to locally power the CBOX by connecting it to an electrical outlet.



## 6: ACCESS THE MENTOR WEB UI

Mentor is MXNet's proprietary HTML5-based setup and control web interface that contains a variety of powerful, yet easy-to-use tools and settings to help streamline the installation process. It comes pre-installed on every CBOX and is purposefully designed for easy navigation and monitoring of the entire system.

Once all devices are connected and powered on, the Mentor homepage can be accessed using the following steps below.

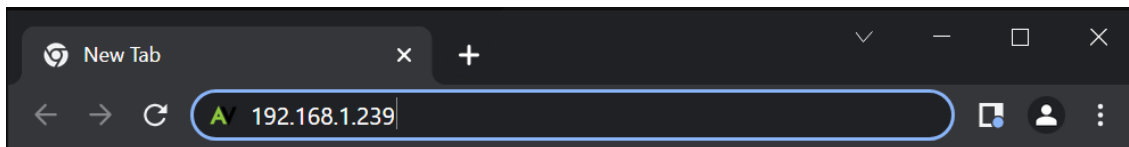
### LOG IN TO MENTOR

- 1 Press the **SCROLL PAGE button** located on the right side of the **CBOX STATUS screen** to view the IP address (by default, the CBOX is set to DHCP mode).

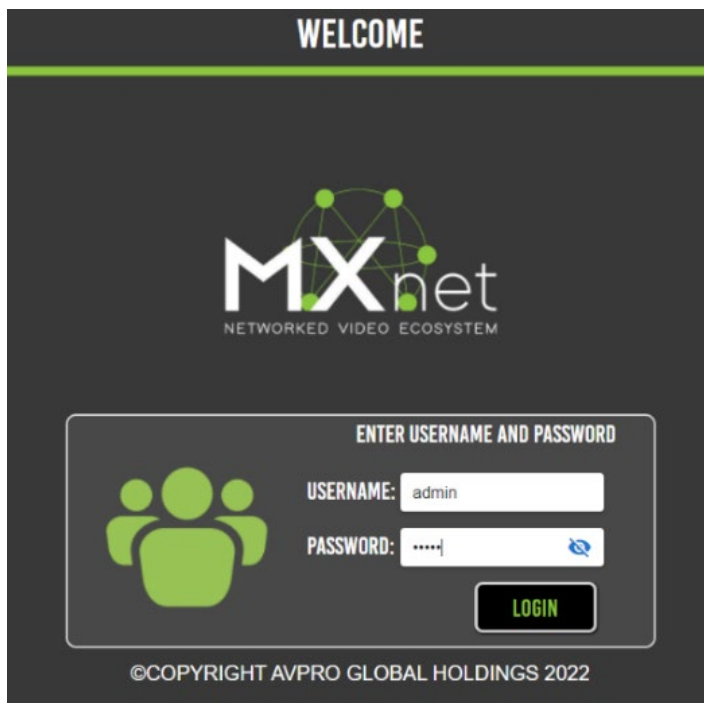
AC-MXNET-10G-CBOX (Front Panel)



- 2 Open a new tab in any web browser and type in the CBOX's IP address. This will open the Mentor web interface welcome page.



- 3 Enter in the default username and password to log in.



#### DEFAULT LOGIN CREDENTIALS

USERNAME: admin (all lowercase)

PASSWORD: admin (all lowercase)

# 7: SETUP AND CONTROL USING MENTOR



## HOME - SYSTEM UTILITIES

After successfully logging in, users will be taken to the Mentor home screen with SYSTEM UTILITIES as the default page. This page shows the IP address for MXNet and the current firmware version on the CBOX. From here, the MXNet devices can be updated to their latest versions of firmware, along with options to reboot the CBOX, reboot/remove the transceivers, and also factory reset them.



## CONFIGURE - INPUTS & OUTPUTS

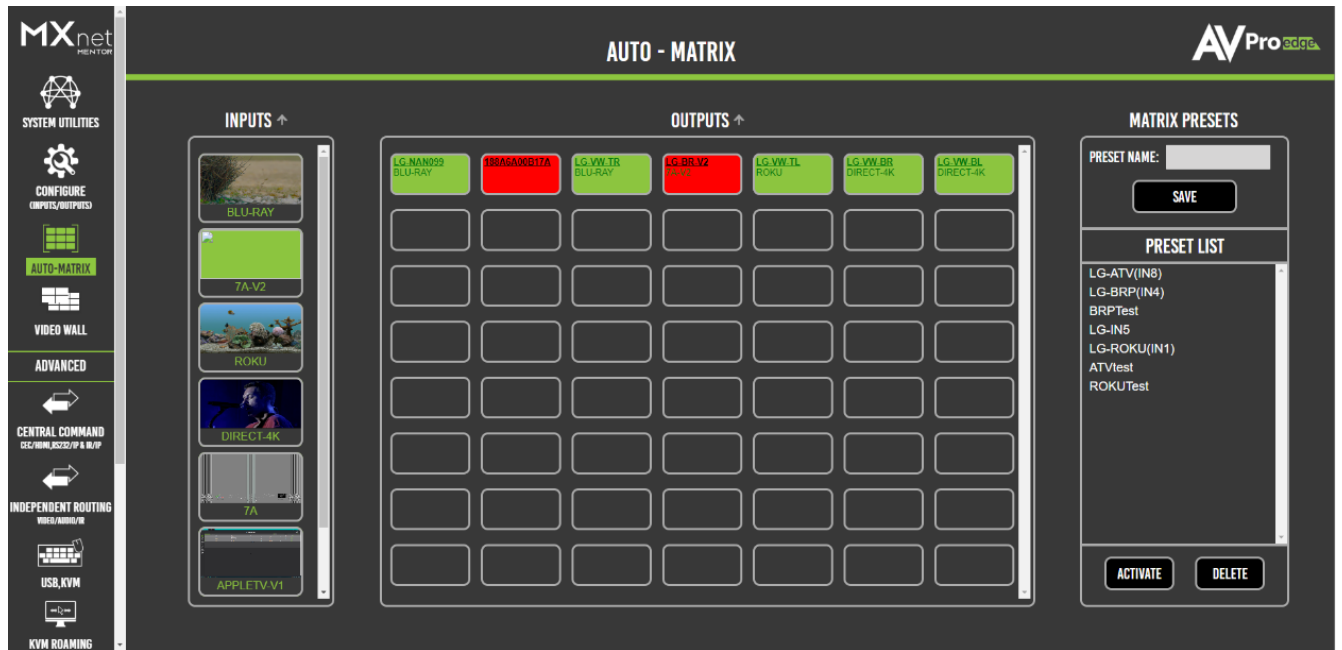
This page is where users can configure the transceivers, including assign custom names and descriptions (limit of 12 characters), set the input EDID's and output resolution scaling, adjust the front panel LEDs, and check the current version of firmware on the transceivers. The SYSTEM DIAGNOSTICS page provides useful troubleshooting information on the speed and quality of the link and signal strength, the video and audio signal coming through, detect and reset HDMI hot-plug events, view HDCP versions, and more.

CUSTOM NAME	DESCRIPTION	EDID MGMT	CHANNEL	IP ADDRESS(AUTO)	MAC ADDRESS(AUTO)	FIRMWARE VERSION	CHIPSET	NATIVE STREAM STATUS	SCALED STREAM STATUS	LIGHTS CONTROL ALL
AppleTV		User_EDID	224.1.1.10	169.254.77.193	188a6a0c04c	1.21	AVP2000	ENABLE	ENABLE	ON
OTV		4K60Hz_3D_8CH_HDR	224.1.1.11	169.254.117.192	188a6a0c074	1.21	AVP2000	ENABLE	ENABLE	ON
Roku		User_EDID	224.1.1.42	169.254.252.163	188a6a0a3b	1.21	AVP2000	ENABLE	ENABLE	ON



## AUTO-MATRIX - SWITCHING

From here, users can switch between sources and displays, just like with an HDMI matrix switcher. The sources are located on the left, and the displays are on the right. Simply click on a source, then click the display it is to be viewed on. Matrix presets can also be saved and recalled on this page for faster switching.



## TROUBLESHOOTING

**TRANSCEIVER OR CBOX NOT POWERING ON:** If all devices are not getting power, verify the power connection on the network switch and check the LED indicator lights for each device connection. If only one device isn't getting power, verify the connection to the network switch is correct (see examples below).

**VERIFY CONNECTIONS (DEVICE NOT GETTING POWER, VIDEO SIGNAL DROPOUTS, MENTOR SHOWS DEVICE WITH POOR CONNECTION, ETC.):**

Check that all cables are properly connected and not tightly bundled together or exceeding their bend radius.

- For Category cabling, re-terminate using standard RJ-45 connectors. Avoid using push-through or "EZ" type ends, as these have exposed copper wiring at the tips that can damage or bend the pins inside the ports.
- For optical fiber cabling, try re-terminating fiber connection ends to eliminate potential issues.
- Ensure the SFP+ modules are specifically designed to output 10Gb/s and are properly seated within the SFP+ port on both the network switch and MXNet 10G device.
- Generally speaking, the higher the video resolution and the longer the cable run, the better the cabling should be. For most copper installations, Cat6a (or better) is recommended with MXNet.

- Swap ports, cables, devices, etc., to help narrow down if the issues stays with the port, cable, or device. Try replicating the issue with a shorter, factory-terminated patch cable closer to the network switch.
- If using a third-party network switch, verify its IGMP settings, MTU size, PoE budget, and EEE functionality are configured correctly. Third-party switch requirements and settings for MXNet can be found [here](#). (*Internal switch configurations are the same as the MXNet 1G Ecosystem.*)

**ENCODER/DECODER NOT SHOWING ON MENTOR:** Check the mini-OLED screen on the front panel of the transceiver to verify it shows the MAC address and current IP address. The IP address (if running default configurations on an MXNet switch) should be a link-local address of 169.254.x.x. If it is not a link-local address and the MXNet switch/CBOX is running on default factory configurations (no IP settings have changed), reach out to AVPro Edge Technical Support for further assistance.

- If the **STATUS LEDs** on the front panel of the transceiver are inactive when using fiber connections from the network switch to the transceivers, ensure the fiber cable connections are “crossed” properly (i.e., Tx to Rx, and Rx to Tx).

**VERIFY EDID’S AND SCALING:** If you’re having issues with 4K signals but 1080p is working, verify all the connected devices are capable of the signal you are sending.

- Adjust the output resolution scaling down to a lower resolution, such as 1080p, on a Transceiver (set as decoder) plugged into a display you’re having issues with. Adjusting the output resolution scaling allows you to simultaneously send 4K signals to the more capable zones, and a lower resolution signal to the non-4K displays, eliminating the need to downgrade the entire system when using a mix of 4K and non-4K displays.

**HAVE QUESTIONS OR NEED ASSISTANCE?  
DON'T HESITATE TO CONTACT US!**

**SUPPORT: +1 605-274-6055  
USA TOLL FREE: 877-886-5112  
EMAIL: SUPPORT@AVPROEDGE.COM**

