

# User Manual

## 18Gbps True 4K60 4:4:4 8x8 Matrix

### AC-MX-88



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# Introduction

The AC-MX-88 is an 8x8 HDMI matrix switch that supports HDMI 2.0(a/b), HDCP 2.3, up to 4K video resolution, and up to 18 Gbps bandwidth. This switch allows any source (Blu-ray, UHD Blu-ray, satellite receiver, game consoles, PCs, etc ...) to show on any connected displays. This matrix equalizes and amplifies the output to ensure the HDMI signal transmits through long HDMI cables without losing quality.

Audio Delay is “On-Board” so integrators can manage lip-sync issues before they become a problem. Video signal management is also possible with built-in scalers. So, if the installation has a couple of older displays, integrators don’t need to forfeit 4K signals to pass the signal to all of the displays. In addition to scalers, this matrix supports complete EDID management, allowing maximum flexibility with today’s broad mixture of sources and displays.

## Features

- HDMI 2.0(a/b)
- 18Gbps Bandwidth Support
- 4K60 4:4:4 Support
- Full HDR Support (HDR 10 & 12 Bit)
- Dolby Vision, HDR10+ and HLG Support
- HDCP 2.3 (and all earlier versions supported)
- 4K > 1080p Down Scalers on each output
- Advanced EDID Management
- IR, RS-232 and LAN Control Options
- Digital Toslink Out (7CH PCM, DD, DTS)
- Balanced Analog Out (2CH PCM)
- Audio Delay for Digital & Analog Out
- HDBaseT Compatibility mode for mixed systems
- Driver Support For Crestron, C4, RTI, ELAN and more
- Extracted Audio Now Has 3 Operating Modes. Bound to Input, Bound to Output, or Independent Matrix
- Built in Test Pattern on Each Output to Verify Infrastructure

## What's in the box

- AC-MX-88 (Matrix Switch)
- 12V Locking Power Supply
- 1 x Ground Strap
- 1 x IR Remote Control (Battery not included)
- 1 x IR Extension Cable
- 8 x 5-Pin 2 Channel Audio Extraction Cables
- 1 x 3 Pin Terminal Connector (For RS232)
- Mounting Brackets
- 4 x Rubber Feet



## Not Included

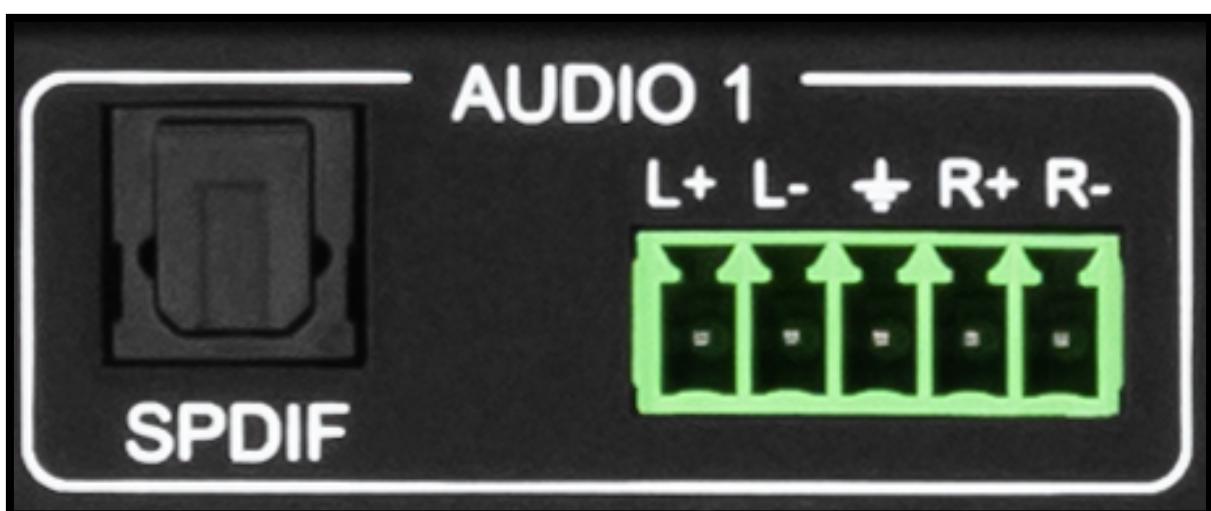
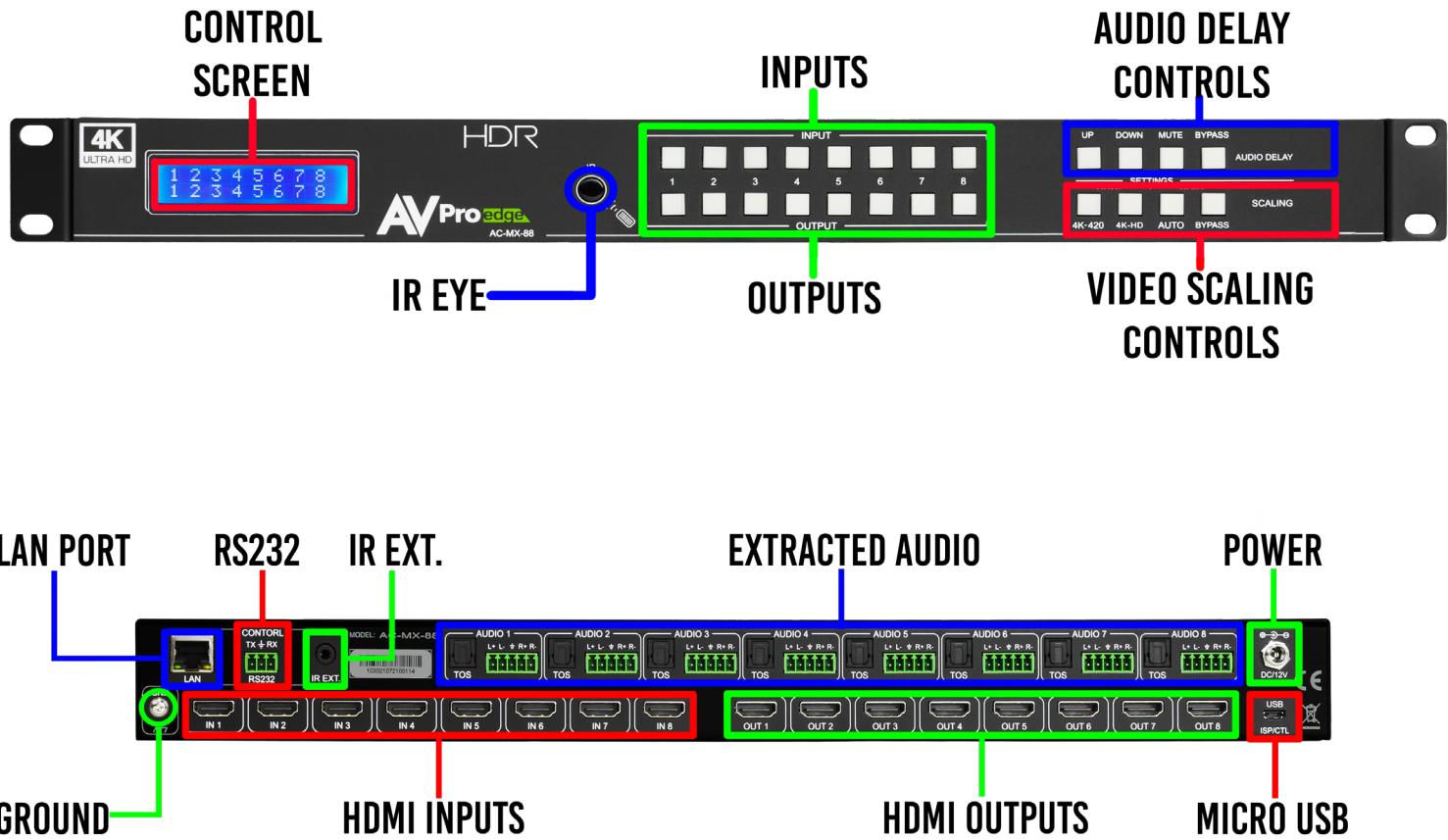
\*3V CR2025 Battery Required For IR Remote Control

# Specifications

| VIDEO:                                       |   |
|--|---|
| VIDEO RESOLUTIONS                            | UP TO 4K 60HZ 4:4:4   |
| VESA RESOLUTIONS                             | UP TO DCI 4K (4096X2160)  |
| HDR FORMATS/RESOLUTIONS                      | 420, 422, 444 (10 AND 12 DEEP COLOR) HDR10, HDR10+, DOLBY VISION, HLG   |
| COLOR SPACE                                  | YUV (COMPONENT), RGB<br>(CSC: REC. 601, REC. 709, BT2020, DCI, P3 D6500)  |
| CHROMA SUBSAMPLING                           | 4:4:4, 4:2:2, 4:2:0 SUPPORTED   |
| DEEP COLOR                                   | UP TO 16 BIT (1080), UP TO 12 BIT (4K)  |
| SCALERS (HDMI) PER OUTPUT OPTIONAL           | 4K TO 1080P DOWN-SCALING (RESOLUTIONS ONLY, FRAMERATE STAYS THE SAME),<br>AND 4:4:4 TO 4:2:0 (SEE MANUAL FOR MORE INFO)       |
| AUDIO:                                       |   |
| AUDIO FORMATS SUPPORTED HDMI                 | PCM 2.0 CH, LPCM 5.1 & 7.1, DOLBY DIGITAL, DTS 5.1, DOLBY DIGITAL PLUS, DOLBY TRUEHD, DTS-HD MASTER AUDIO, DTS-X, DOLBY ATMOS |
| AUDIO FORMATS SUPPORTED EXTRACTED (TOSLINK)  | PCM 2.0 CH, LPCM 6 CH, LPCM 7 CH, DOLBY DIGITAL, DOLBY DIGITAL PLUS   |
| AUDIO FORMATS SUPPORTED EXTRACTED (2CH PORT) | PCM 2CH   |
| AUDIO EXTRACTION LOCATION                    | BIND TO INPUT, BIND TO OUTPUT, OR MATRIX (INDEPENDENT)  |
| AUDIO DELAY (PER OUTPUT, EXTRACTED)          | UP TO 630MS   |
| DISTANCE:                                    |   |
| HDMI IN/OUT (4K60 4:4:4)                     | UP TO 50 FEET (USING BULLET TRAIN HDMI)   |
| HDMI IN/OUT (W/ AOC CABLE) (4K60 4:4:4)      | UP TO 130 FEET (USING BULLET TRAIN AOC)   |
| OTHER:                                       |   |
| BANDWIDTH HDMI                               | 18 GBPS UNCOMPRESSED  |
| HDCP   | HDCP 2.3 AND EARLIER  |
| CONTROL:                                     |   |
| PORTS  | LAN, RS232, IR  |
| DRIVERS                                      | C4, RTI, ELAN, CRESTRON, URC<br>(FOR MORE INFORMATION - SEE DRIVERS PAGE ON AVPROEDGE.COM/DRIVERS)                            |
| LAN WEBUI                                    | YES   |
| PORTS:                                       |   |
| HDMI   | TYPE A  |
| LAN  | RJ45 W/ WEB INTERFACE/ CONTROL  |
| AUDIO (EXTRACTED DIGITAL)                    | TOSLINK   |
| AUDIO (EXTRACTED ANALOG)                     | 5 PIN TERMINAL BLOCK (BALANCED)   |
| IR EXT                                       | 3.5MM STEREO (3 CONDUCTOR)  |
| RS232  | 3 PIN TERMINAL BLOCK  |
| ENVIRONMENTAL:                               |   |
| OPERATING TEMPERATURE                        | 23 TO 125°F (-5 TO 51°C)  |
| STORAGE TEMPERATURE                          | -4 TO 140°F (-20 TO 60°C)   |
| HUMIDITY RANGE                               | 5-90% RH (NO CONDENSATION)  |
| POWER:                                       |   |
| POWER CONSUMPTION (TOTAL)                    | 30 WATTS MAX  |
| POWER SUPPLY - MATRIX                        | INPUT: AC 100-240V ~ 50/60HZ<br>OUTPUT: DC 12V 5A   |
| DIMENSIONS:                                  |   |
| DIMENSIONS (UNIT ONLY - HEIGHT/DEPTH/WIDTH)  | MM: 44.5 X 228.6 X 441.45<br>INCH: 1.75 X 9 X 17.38   |
| DIMENSIONS (PACKAGED HEIGHT/DEPTH/WIDTH)     | MM: 127 X 377.8 X 571.5<br>INCH: 5 X 14.8 X 22.5  |
| RACK UNITS                                   | 1 UNIT  |
| WEIGHT (UNIT)                                | 7 LBS (3.18 KG)   |
| WEIGHT (PACKAGED)                            | 10.2 LBS (4.63 KG)  |

\*SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE. MASS & DIMENSIONS ARE APPROXIMATE

# Front and Rear Panel Overview



# Initial Setup: WebUI

The AC-MX-88 can be controlled using the Micro USB port, 3pin RS232, or over TCP/IP using the LAN connection. For initial setup it is recommended to connect the matrix to a local area network (LAN) and use a computer on the same network in conjunction with the built in WebUI. After making all the physical connections, the first step will be to check for any Firmware Updates. The below steps are an example of this setup, other control options are covered in separate sections of this user manual.

1. With the AC-MX-88 placed into its new home (AV Rack, cabinet, table top) take a Phillips head screwdriver and attach the included yellow ground strap to the back of the chassis using the pre-installed screw, then attach the other end to a suitable grounded object.



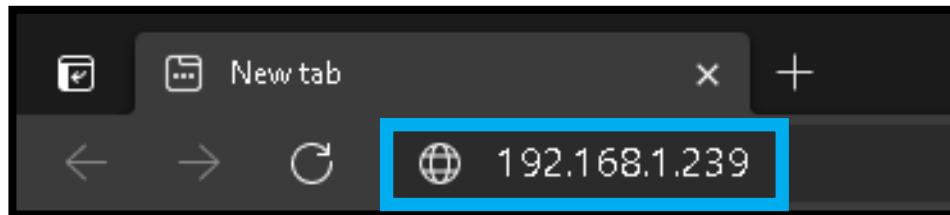
2. Connect the HDMI Input sources to the HDMI Inputs on the back of the matrix.
3. Connect the HDMI/devices to the HDMI Outputs.
4. Connect the network LAN cable to the RJ45 port labeled LAN (between the Micro USB and 3pin RS232 port).
5. Power on the sources (Inputs).
6. Power on the Output devices/displays.
7. Connect the 12V power supply to power on the matrix and then to a suitable power source.
8. In order to see the current IP settings, press and hold (for 3 seconds) INPUT 3 and INPUT 4 buttons simultaneously. This screen will change every 3 seconds showing additional settings (host, net mask, router IP).



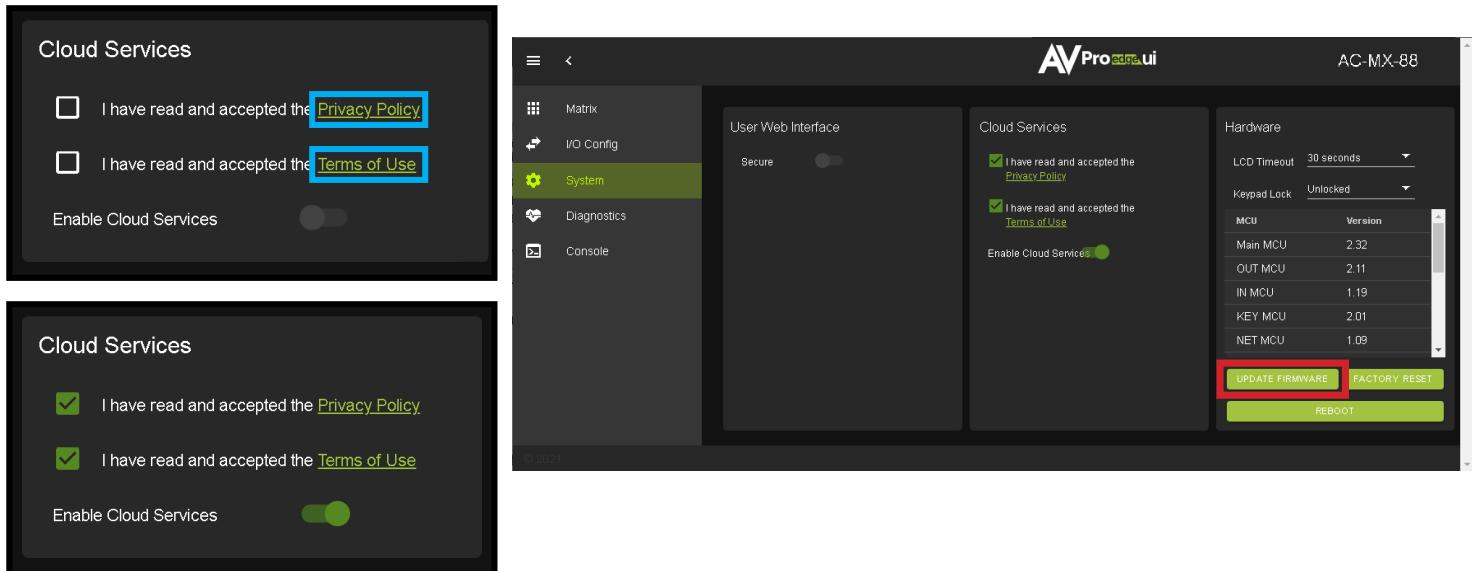
NOTE: This screen starts with the current IP address of the matrix.

HOST IP:  
192.168.001.239

9. To Enable/Disable DHCP, press and hold INPUT 1 and INPUT 4 at the same time for 3 seconds. With the matrix connected to the local network, using a computer on the same network open up a web browser and type the HIP (Host IP Address) into the address bar to navigate to the WebUI.
10. With the WebUI open, navigate to System. Click on the Privacy Policy and Terms of Use, this will open these documents in a new tab for review. Once read click on the boxes next to each to agree. When both are checked the switch for Enable Cloud Services will be selectable (will be red or disabled by default). Click to enable (the switch will turn green).



11. With the Cloud Services enabled under the Hardware section click the **Update Firmware** button to check for new Firmware OTA (over the air). This will compare the firmware versions currently loaded on the AC-MX-88 and compare to the latest available. If it is up to date, you will see a prompt stating "No update available!"

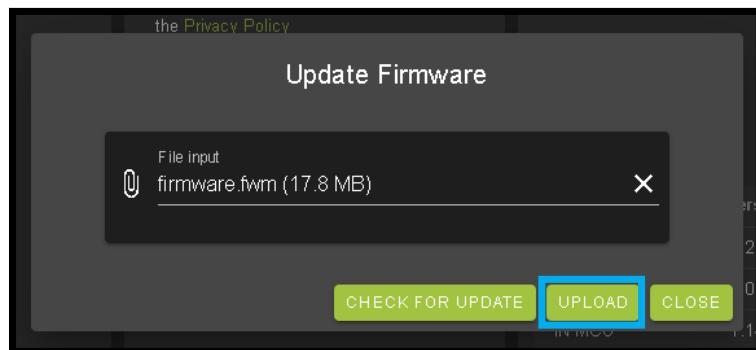


12. If an update is available, the following prompt will show. Simply click **UPDATE**.

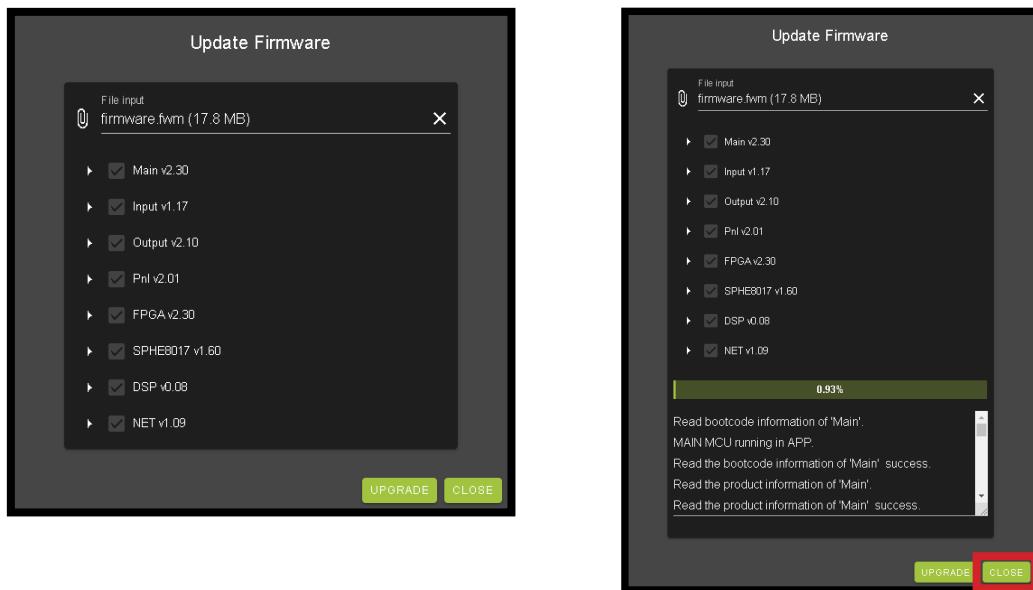
13. If a new update is available a file will automatically be selected, simply click the **UPLOAD** button to load the firmware files to the Matrix. Uploading does not install the Firmware, that is the next step.



14. Once the firmware file has been uploaded, it will display all containing firmware files. Here you can select individual firmware files to load or simply leave all files/options selected. If the version currently installed is not newer (does not need to be updated), then that update will be skipped automatically. Click the **UPLOAD** button to start.



15. Once the progress bar hits 100% click the **CLOSE** button, the firmware upgrade process is complete.

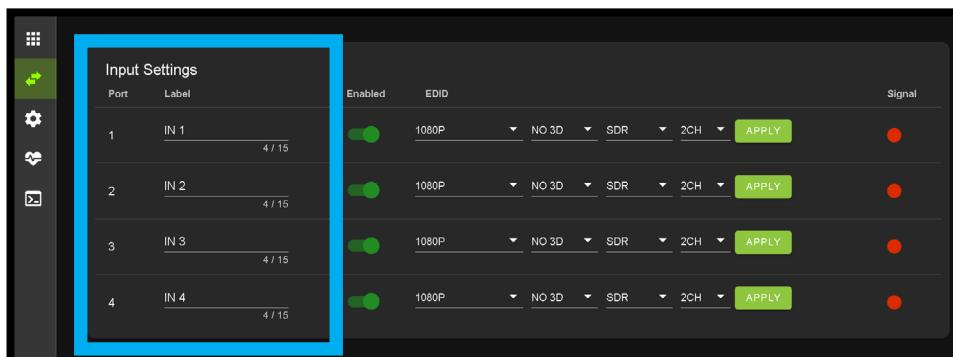


16. With the Firmware up to date it's time to start setting up the matrix. With the AVPro Edge WebUI open, navigate to the I/O Conifa section. Label the applicable Inputs (Apple TV, Cable Box, Roku, etc) under the **Input Settings - Label**.

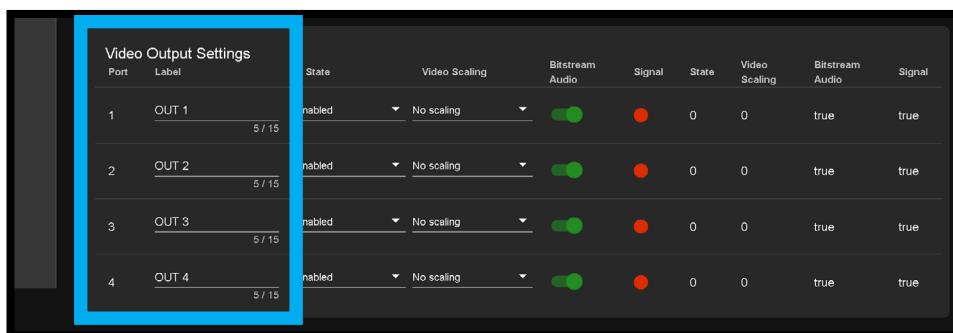
17. Label the Outputs (Living Room, Bedroom, Den, etc) under the **Video Output Settings - Label**.

18. Set the HDMI Video Scaling if needed. HDMI outputs can down-scale a 4K signal to 2K (1080P) or down-scale a 4K 4:4:4 signal down to 4K 4:2:0.

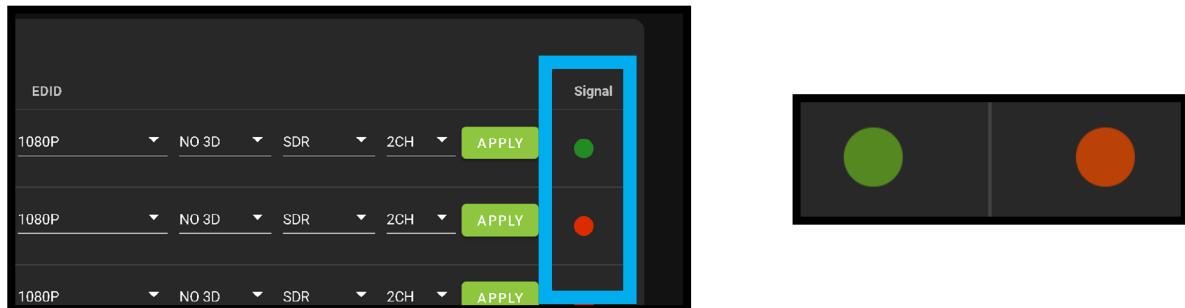
19. With the system and all it's components powered up it's time to verify signal path from source to the sync. For now leave EDID settings to their default 1080P 2CH, the next section Advanced Setup will cover the more advance settings.



20. Use the Signal Indicator on the HDMI INPUTS. Green means HDMI source is detected, red means that



the source is not detected. If red verify that the input is powered on and that the HDMI cable is properly connected to the source and to the back of the matrix.



21. Now verify that the connections to the HDMI outputs using the Signal indicator. Green means HDMI sync is detected, red means that the HDMI sync is not detected. If red verify that the sync devices are powered on and that the HDMI/HD cables are properly connected to the back of the matrix.
22. With everything connected and powered on, green indicators across the applicable inputs and outputs, verify you are getting all of your sources on all of your displays.
23. Problems with a source or sync, see the [Troubleshooting](#) section for help on [page 43](#).

## Advanced Setup: WebUI Input Settings

After verifying good signal path from source to sync now it is time to go through the rest of the settings to maximize the setup. Starting with the input side with the EDID and Audio Mode settings.

1. With the WebUI open, navigate to the I/O Config tab and focus on the Input Settings section at the top.
2. Set the EDID on each input by selecting the resolution drop-down first (default is set to 1080P). The options are 1080P, 4K30Hz, 4K60Hz Y420, and 4K60Hz. If you select USER1 EDID, then the drop-downs change to allow you to select from and output to copy from. You can select any of the 4 HDMI outputs then click the COPY button. This will save that outputs EDID to the USER1 slot.
3. Next use the drop-down to select NO 3D, or 3D depending on the displays capability.  
NOTE: Currently the only resolution you can choose NO 3D for is 1080P.
4. Next drop-down select either SDR (standard dynamic range) or HDR (High Dynamic Range).
5. The fourth drop-down in the EDID section is for the audio, you can select 2CH, 6CH, or 8CH.
6. Click the APPLY button to set the EDID.

7. Verify you are still getting that source to all your displays and that the image looks correct.

NOTE: Some older displays may take an HDR signal and display correctly (ignoring the HDR Metadata) others will not ignore the HDR part of the signal and may display incorrectly.

Input Settings

| Port | Label | Enabled | EDID  | Signal                          |
|------|-------|---------|---|---------------------------------|
| 1    | IN 1  | 4 / 15  | 1080P<br>4K30HZ<br>4K60HzY420<br>4K60HZ<br>USER1 EDID<br>USER2 EDID<br>USER3 EDID | NO 3D SDR 2CH<br>3D HDR 6CH 8CH |
| 2    | IN 2  | 4 / 15  | 1080P   | NO 3D SDR 2CH                   |
| 3    | IN 3  | 4 / 15  | 1080P   | NO 3D SDR 2CH                   |
| 4    | IN 4  | 4 / 15  | 1080P   | NO 3D SDR 2CH                   |
| 5    | IN 5  | 4 / 15  | 1080P   | NO 3D SDR 2CH                   |
| 6    | IN 6  | 4 / 15  | 1080P   | NO 3D SDR 2CH                   |
| 7    | IN 7  | 4 / 15  | 1080P   | NO 3D SDR 2CH                   |
| 8    | IN 8  | 4 / 15  | 1080P   | NO 3D SDR 2CH                   |

Global Input Settings (Applies to all inputs)

Support Dolby MAT  Require Dolby Vision Low Latency (Recommended)

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8. Signal - The Signal Indicator on the HDMI INPUTS shows the current state of the connection HDMI source. Green means the HDMI source is detected, red means that the source is not detected. If red verify that source is powered on and that the HDMI cable is properly connected to the source and to the back of the matrix.

9. Global Input Settings (Applies to all inputs)

- Support Dolby MAT** - Check this box to enable Dolby MAT audio
- Requires Dolby Vision Low Latency (Recommended)** - Check this box to require Dolby Vision Low Latency (Player-led) over Standard Dolby Vision (TV-Led). Sources like the Apple TV and X-Box Series X use Dolby Vision Low Latency.

10. Now navigate to the Video Output Settings under I/O Config

# Advanced Setup: WebUI Output Settings

11. In addition to the output Label (name/alias), there are 3 settings for each HDMI output.

12. Under State there are 4 options.

- Enabled (Default) - HDMI Port is on (normal functionality)
- Disabled - HDMI Output Port will not output a signal
- Test Pattern 1080P - Enables a 1080P Colorbar test pattern on that port
- Test Pattern 4K - Enables a 4K Colorbar test pattern on that port

| Video Output Settings |       |                    |               |        |  |
|-----------------------|-------|--------------------|---------------|--------|--|
| Port                  | Label | State              | Video Scaling | Signal |  |
| 1                     | OUT 1 | Enabled            | Auto          | ●      |  |
| 2                     | OUT 2 | Disabled           | No scaling    | ●      |  |
| 3                     | OUT 3 | Test Pattern 1080p | 4K to 1080P   | ●      |  |
| 4                     | OUT 4 | Test Pattern 4K    | 444 to 420    | ●      |  |
| 5                     | OUT 5 | Enabled            | No scaling    | ●      |  |

13. Under the Video Scaling mode you can choose to No Scaling (off), 4K to 1080P, or 1080P to 4K.

- Auto - Will automatically scale based on the connected syncs EDID
- No Scaling (Default) - Signal remains untouched
- 4K to 1080P - Down-scales any 4K signal down to 1080P
- 4:4:4 to 4:2:0 - Will convert any 4K Signal (with a Video Clock above 500MHz) with YUV 4:4:4 and convert it to YUV 4:2:0.

14. Signal - The Signal Indicator on the HDMI outputs shows the current state of the connected HDMI device. Green means HDMI signal is detected, red means that the signal is not detected. If red verify that the HDMI cable is properly connected to both the matrix and HDMI sync device.

# Advanced Setup:

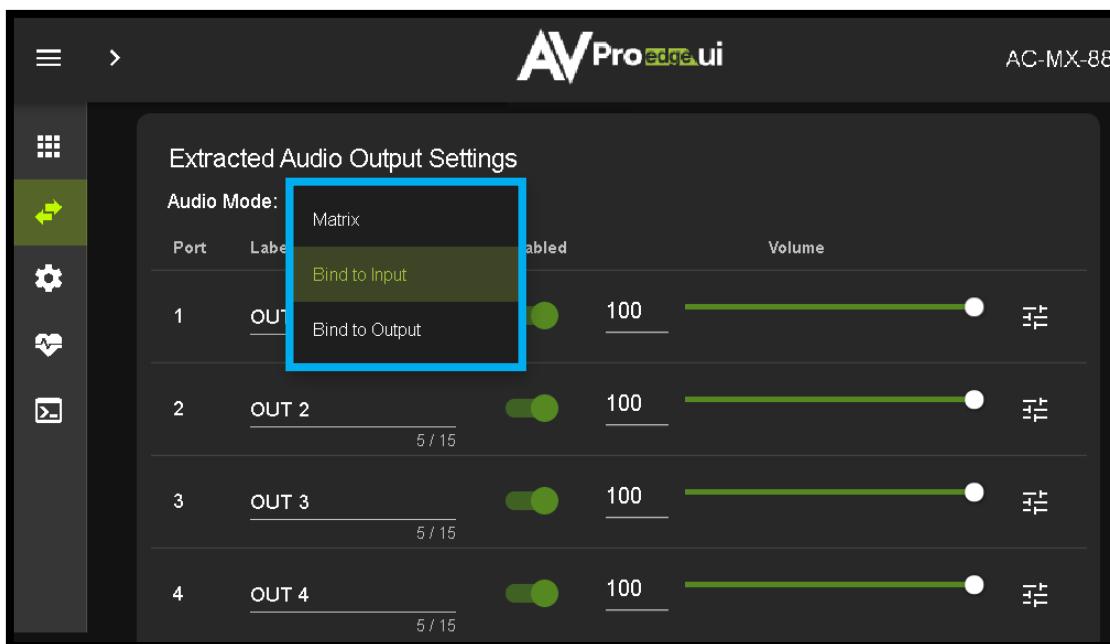
## 1. WebUI Extracted Audio Output Settings

1. Now navigate to the Extracted Audio Output Settings under I/O Config.
2. The extracted audio ports have 3 distinct operating modes, use the drop-down at the top to select. The three options are.

**Bind to Input (Default)** - where the audio port number corresponds to the input signal. This is ideal for systems where audio is matrixed separately in a zoned amplifier.

**Bind to Output** - this configuration the audio will automatically follow the HDMI output. This is ideal for systems that use local AVR's for some of the Zones.

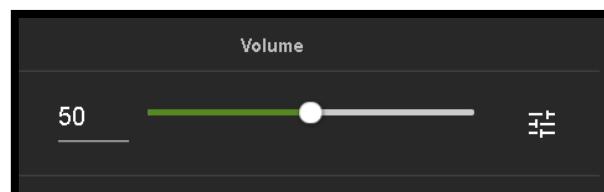
**Matrix** - This mode allows you to matrix the extracted audio ports independently from the HDMI outputs. In this mode you there will be a Tab for the extracted audio under the Matrix page, allowing you to route the audio just like routing the video. If the matrix is set to Bind to Input or Bind to Output this tab will not be visible.



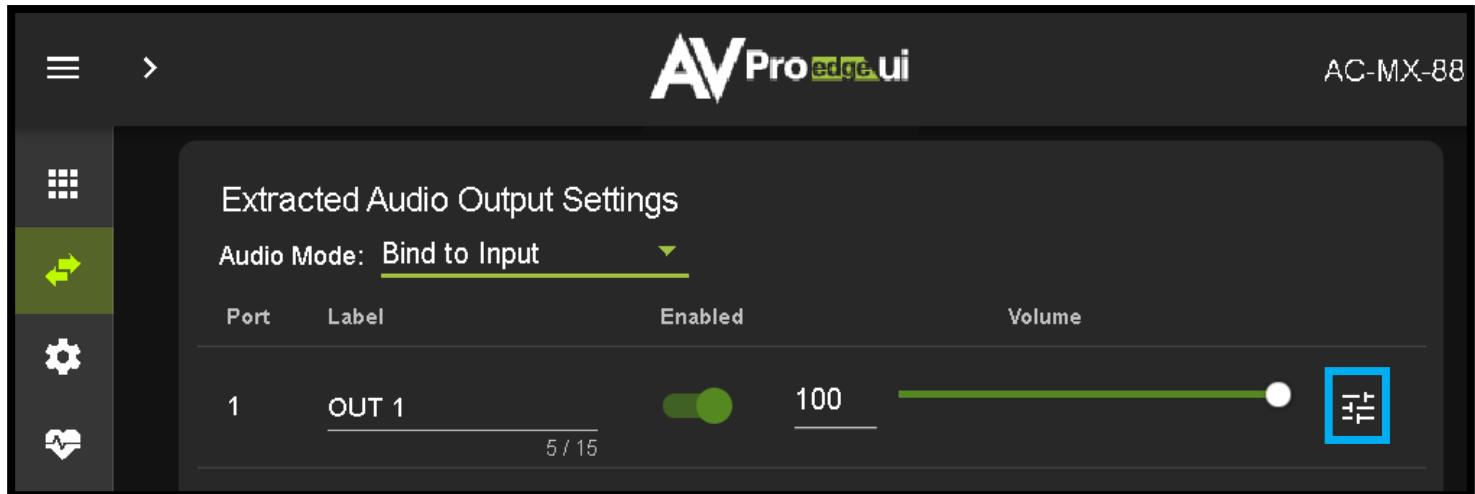
3. Other available settings for the extracted audio ports include Enable/Disable, Volume control (1-100), EQ presets (7 generic preset options to choose from), Left/Right balance, and audio delay. Each of these 5 settings can be changed per extracted audio port.

NOTE: The balanced 5pin and Toslink ports are mirrored and always down-mixed to 2CH audio.

4. You can use the slider or text box to change the volume (settings are 0-100).



5. To change the EQ settings of that port click on the **emblem** to the right of the volume slider. This will bring up the Audio Configuration Page. Here you can choose from 8 different EQ settings, change the Left / Right balance, and set the audio delay.



Audio Configuration: OUT 1

EQ

OFF

60 170 370 600 1000 3000 6000 12000 14000 15000

+12 0 -12

0 0 0 0 0 0 0 0 0 0

Balance

0 L R

Delay (ms)

None

OFF

Classical

Headphone

Hall

Live

Pop

Rock

Vocal

None

90

180

270

360

450

540

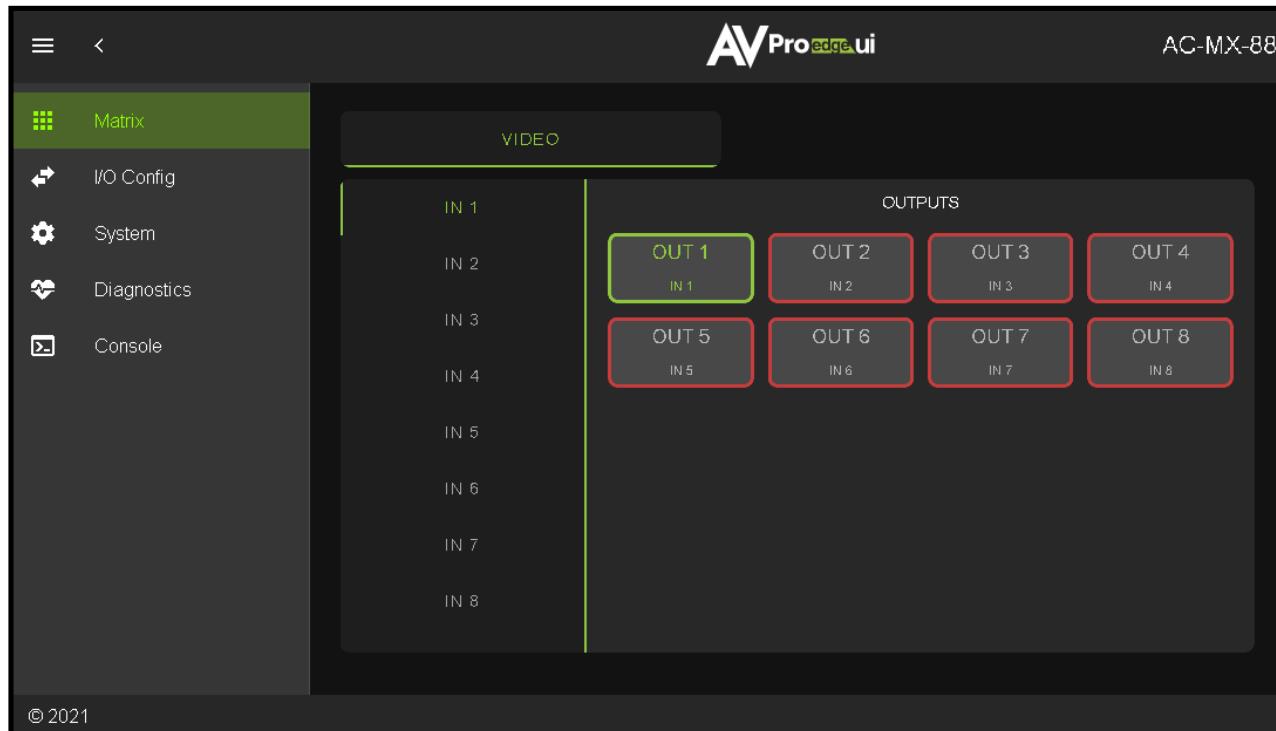
630

6. Delay (eight settings in 90 millisecond increments)  
None (default), 90, 180, 270, 360, 450, 540, and 630.

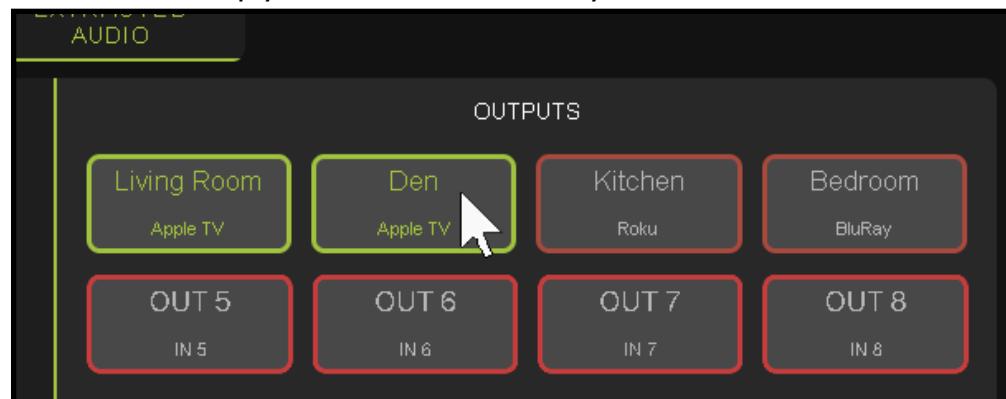
# WebUI: Video Matrix

Use this page to route the video INPUTS and OUTPUTS.

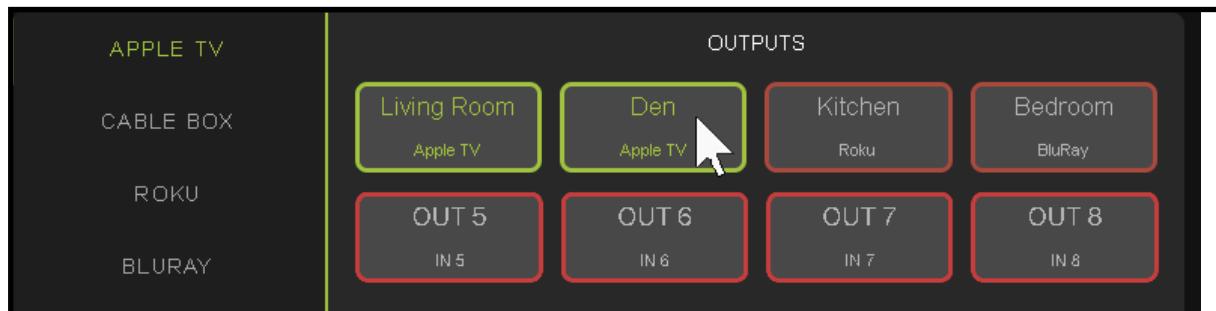
- Click on the INPUT number to select (example below shows IN 1)



- With the INPUT selected simply click on the OUTPUT you want to send that source to.



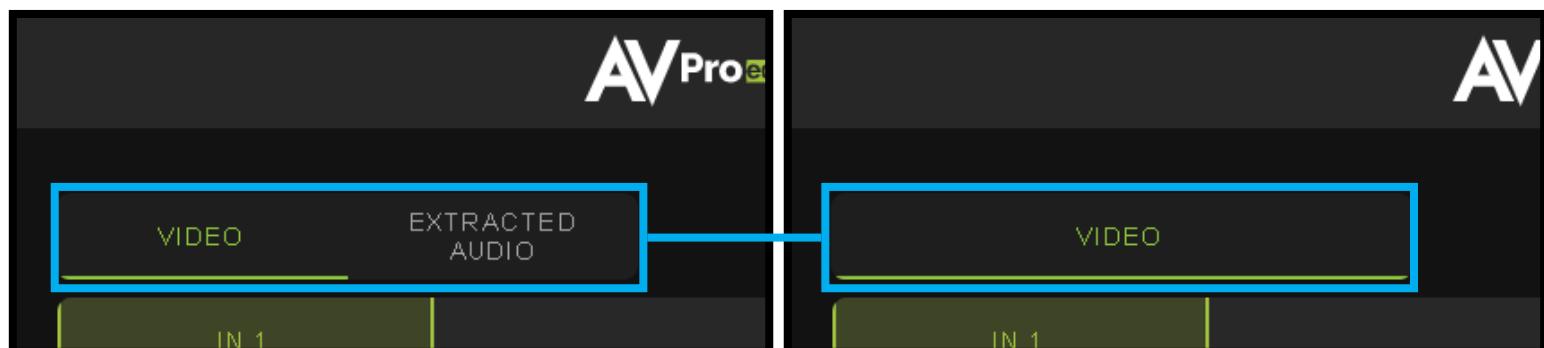
- Note: If you rename the INPUTS/OUTPUTS using the I/O Config page they will display here.



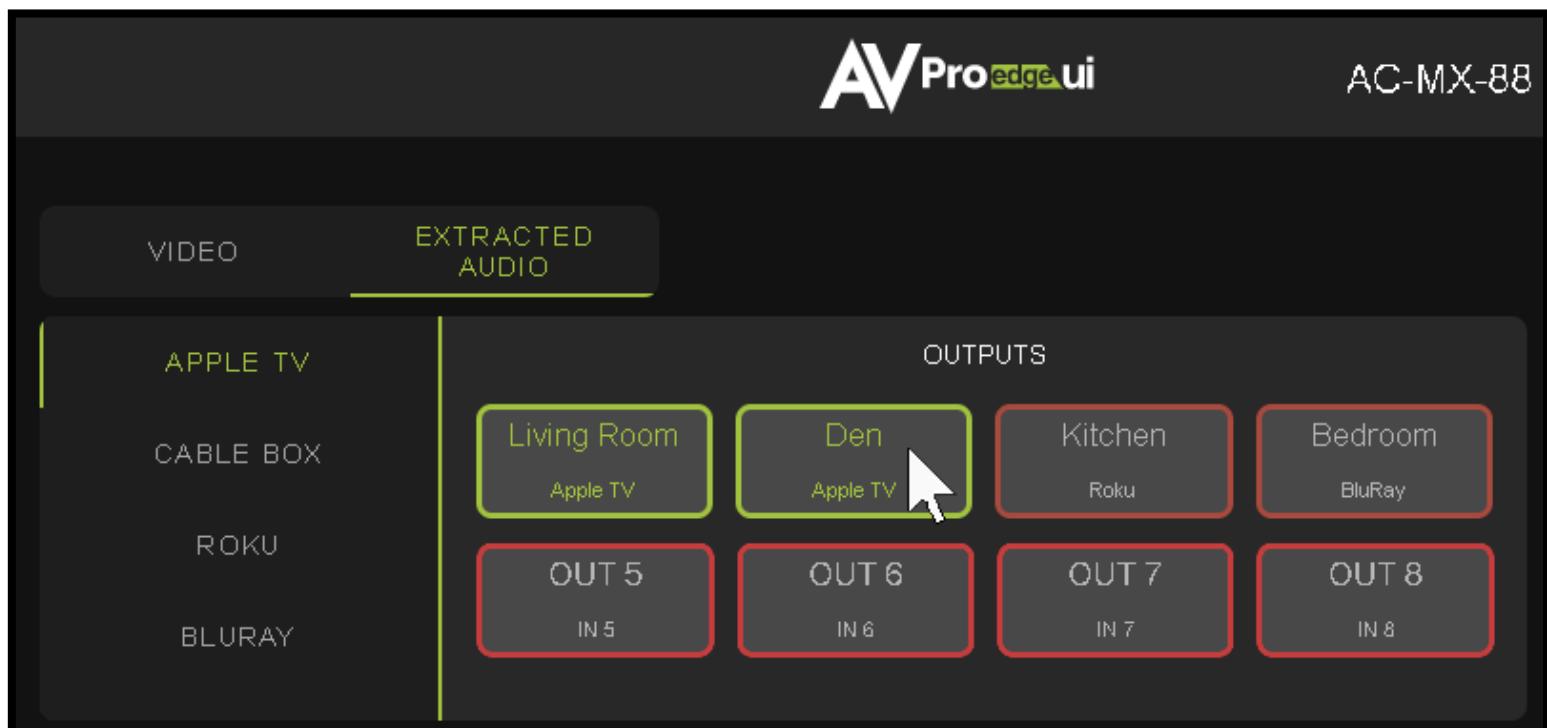
# WebUI: Audio Matrix

Use this page to route the extracted audio.

NOTE: The extracted audio ports can only be manually changed (matrixed) when in Matrix Mode. If the extracted audio is set to Bind to Input (default) or Bind to Output then this tab will not be visible, example below. See [Page 14 "Advanced Setup: WebUI Extracted Audio Output Settings"](#) for more info.



- Click on the INPUT number to select (example below shows IN 1 - Apple TV)
- With the INPUT selected simply click on the OUTPUT you want to send that audio to.
- Note: If you rename the INPUTS/OUTPUTS using the I/O Config page they will display here.



# WebUI: I/O Config - Input Settings

The screenshot shows the 'Input Settings' section of the AVPro UI interface. On the left, a sidebar contains icons for Home, Input, and Settings. The main area is titled 'Input Settings' and contains two main sections: 'Port' and 'Label' on the left, and 'Enabled' and 'EDID' on the right. The 'Port' and 'Label' section lists eight inputs (IN 1 to IN 8) with a status of '4 / 15'. The 'Enabled' and 'EDID' section shows eight rows, each with a green 'Enabled' switch, followed by dropdown menus for 'EDID' (set to '1080P'), '3D' (set to 'NO 3D'), 'SDR' (set to 'SDR'), and '2CH' (set to '2CH'), and a green 'APPLY' button. To the right of these settings is a vertical column of red circular signal indicators. At the bottom, there is a section titled 'Global Input Settings (Applies to all inputs)' with two checkboxes: 'Support Dolby MAT' and 'Require Dolby Vision Low Latency (Recommended)'.

**Input Settings Label** - Use this to give an name/alias to your inputs (Apple TV, Cable Box, Roku, etc). Note: There is a 15 character limit to this field, the name will replace the default "IN #" throughout the rest of the WebUI (for instance the Video Matrix tab).

**Input Settings Enable switch** - Use this enable/disable switch to turn the corresponding Input port on or off. The default setting is enabled (green) by default.

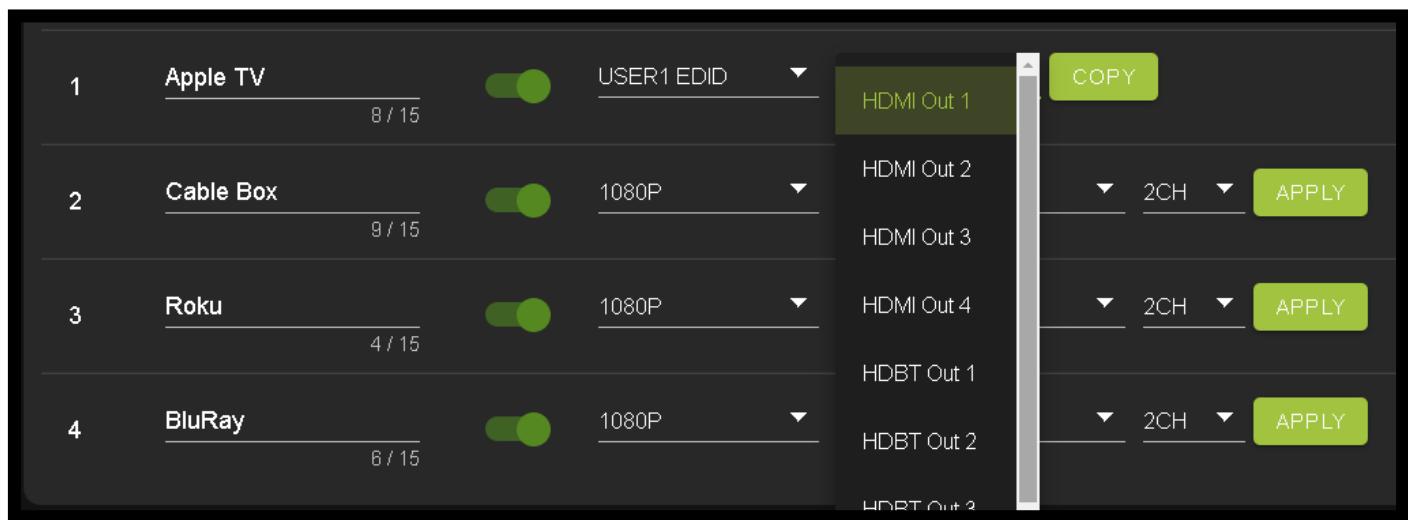


# WebUI: I/O Config - Input Settings Cont.

**Input Settings EDID** - Use these four drop-downs to select your preferred EDID. The available combinations are as follows.

|                  |                       |                       |                           |
|------------------|-----------------------|-----------------------|---------------------------|
| 1. 1080P_2CH     | 9. 4K30HZ_3D_8CH      | 17. 1080P_6CH_HDR     | 25. 4K60HzY420_3D_2CH_HDR |
| 2. 1080P_6CH     | 10. 4K60HzY420_3D_2CH | 18. 1080P_8CH_HDR     | 26. 4K60HzY420_3D_6CH_HDR |
| 3. 1080P_8CH     | 11. 4K60HzY420_3D_6CH | 19. 1080P_3D_2CH_HDR  | 27. 4K60HzY420_3D_8CH_HDR |
| 4. 1080P_3D_2CH  | 12. 4K60HzY420_3D_8CH | 20. 1080P_3D_6CH_HDR  | 28. 4K60HZ_3D_2CH_HDR     |
| 5. 1080P_3D_6CH  | 13. 4K60HZ_3D_2CH     | 21. 1080P_3D_8CH_HDR  | 29. 4K60HZ_3D_6CH_HDR     |
| 6. 1080P_3D_8CH  | 14. 4K60HZ_3D_6CH     | 22. 4K30HZ_3D_2CH_HDR | 30. 4K60HZ_3D_8CH_HDR     |
| 7. 4K30HZ_3D_2CH | 15. 4K60HZ_3D_8CH     | 23. 4K30HZ_3D_6CH_HDR |                           |
| 8. 4K30HZ_3D_6CH | 16. 1080P_2CH_HDR     | 24. 4K30HZ_3D_8CH_HDR |                           |

**NOTE:** If you select USER1 EDID, then drop-downs change to allow you to select from and output to copy from. You can select any of the 4 HDMI outputs then click the COPY button (this replaces the Apply button). This will save that outputs EDID to the USER1 slot.



**Input Settings Signal** - The Signal Indicator on the HDMI INPUTS shows the current state of the connection HDMI source. Green means the HDMI source is detected, red means that the source is not detected. If red verify that source is powered on and that the HDMI cable is properly connected to the source and to the back of the matrix.

**Global Input Settings** - There are two settings available



- Supports Dolby MAT - Check this box to enable Dolby MAT audio
- Requires Dolby Vision Low Latency - Check this box to require Dolby Vision Low Latency (Player-led) over Standard Dolby Vision (TV-Led). Sources like the Apple TV and X-Box Series X use Low Latency.

# WebUI: I/O Config - Output Settings

## Video Output Settings

| Port | Label           | State              | Video Scaling | Signal |
|------|-----------------|--------------------|---------------|--------|
| 1    | OUT 1<br>5 / 15 | Enabled            | Auto          | ●      |
| 2    | OUT 2<br>5 / 15 | Disabled           | No scaling    | ●      |
| 3    | OUT 3<br>5 / 15 | Test Pattern 1080p | 4K to 1080P   | ●      |
| 4    | OUT 4<br>5 / 15 | Test Pattern 4K    | 444 to 420    | ●      |
| 5    | OUT 5<br>5 / 15 | Enabled            | No scaling    | ●      |
| 6    | OUT 6<br>5 / 15 | Enabled            | No scaling    | ●      |
| 7    | OUT 7<br>5 / 15 | Enabled            | No scaling    | ●      |
| 8    | OUT 8<br>5 / 15 | Enabled            | No scaling    | ●      |

**Output Settings Label** - Use this to give an name/alias to your outputs (Living Room, Den, Kitchen, etc).

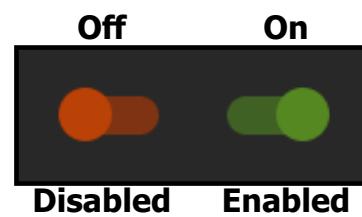
Note: There is a 15 character limit to this field, the name will replace the default "OUT #" throughout the rest of the WebUI (for instance the Video Matrix tab).

**Output Settings State** - This drop-down has 4 settings, just like the input settings you can Enable or disable this port. In addition you can also choose Test Pattern to enable a 1080P or 4K color bar test pattern on that output. This is helpful in verifying the signal chain from Matrix to sync (display). To disable the test pattern, change the state back to Enabled (default).

## WebUI: I/O Config - Output Settings Cont.

**Output Settings Video Scaling** - The HDMI outputs can down-scale a 4K 4:4:4 to 4k 4:2:0 and also down-scale a 4K signal down to 2K (1080P).

**Output Settings Signal** - The Signal Indicator on the HDMI OUTPUTS shows the current state of the connection HDMI Output. Green means HDMI sync is detected, red means that the sync is not detected. If red verify that the output is powered on and that the HDMI cable is properly connected to the sync and to the back of the matrix.



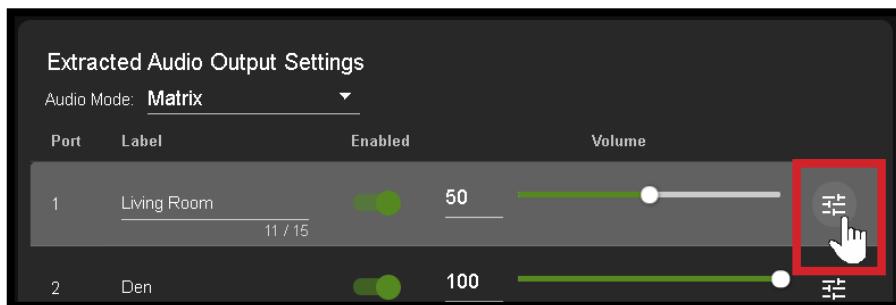
# WebUI: I/O Config - Output Settings Cont.

**Output Settings Label** - Use this to give an alias/name to your extracted audio outputs.

Note: There is a 15 character limit to this field, the name will replace the default "OUT #" throughout the rest of the WebUI (for instance the Video Matrix tab).

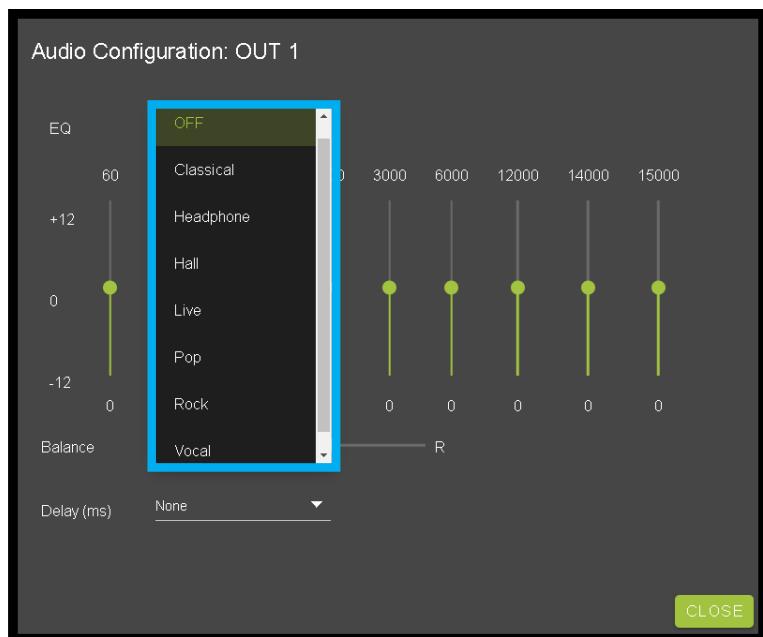
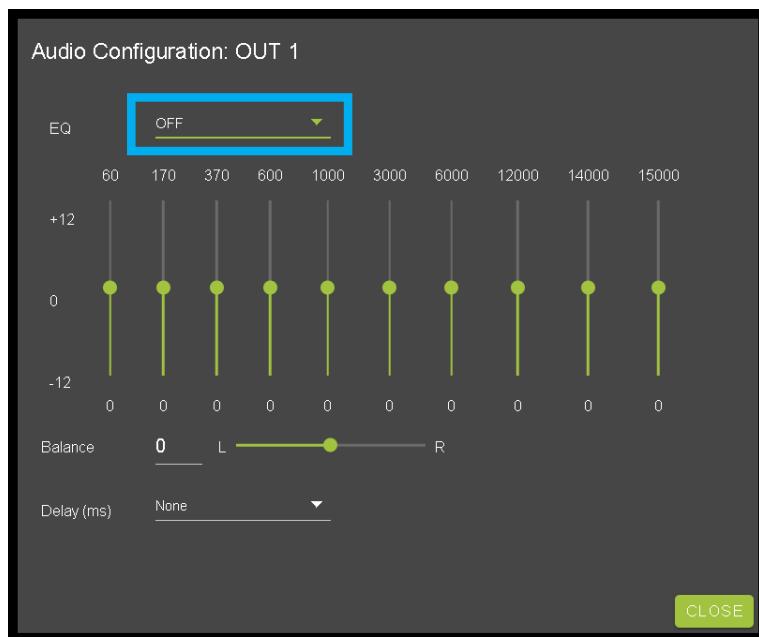
**Output Settings Enabled** - This is an enable/disable switch. By default this will be Enabled/Green. To change the setting simply click to switch. Disabled/Red there will be no Audio passed on that extracted audio port (both Toslink and balanced 5pin will be muted).

**Output Settings Volume** - Here you can use the slider bar to adjust the extracted port volume (0~100). You can also use the text box and enter a value (0~100).



**Output Settings EQ Settings** - To open the EQ Settings click on the **symbol** next to the Volume slider.

**EQ Drop-down** contains 8 settings. The default off, Classical, Headphone, Hall, Live, Pop, Rock, and Vocal.



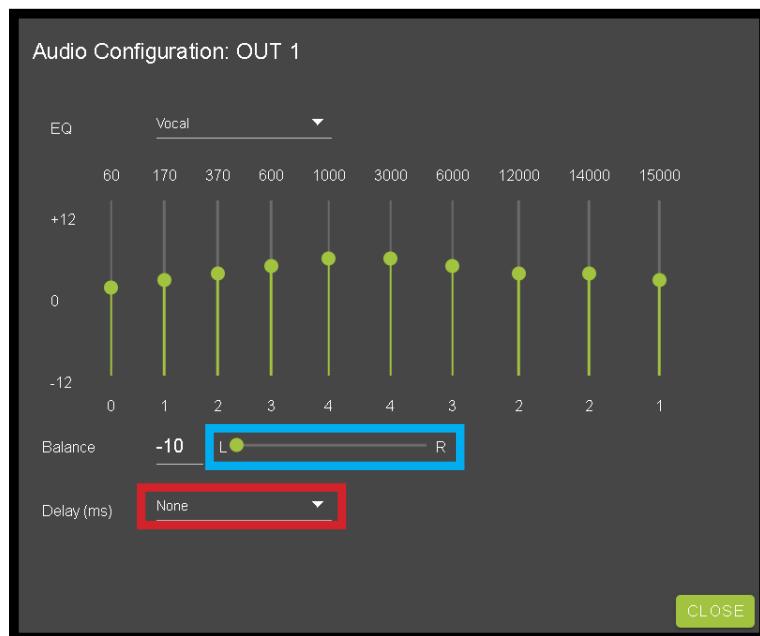
# WebUI: I/O Config - Output Settings Cont.

**Output Settings Balance** - Use this **slider** to adjust the Left/Right balance.

Note: Default is 0 (zero), value can be -10~10

**Output Settings Delay (ms)** - Audio delay **drop-down** has eight available settings, these are measured in milliseconds.

None (default), 90ms, 180ms, 270ms, 360ms, 450ms, 540ms, and 630ms.



# WebUI: System - IP Settings

This area contains relevant network information of the AC-MX-88.

**Host Name** - Devices name on the network. This field is automatically filled with Model Name by default.

**Model Name** - Displays the AVProEdge Model/Part number.

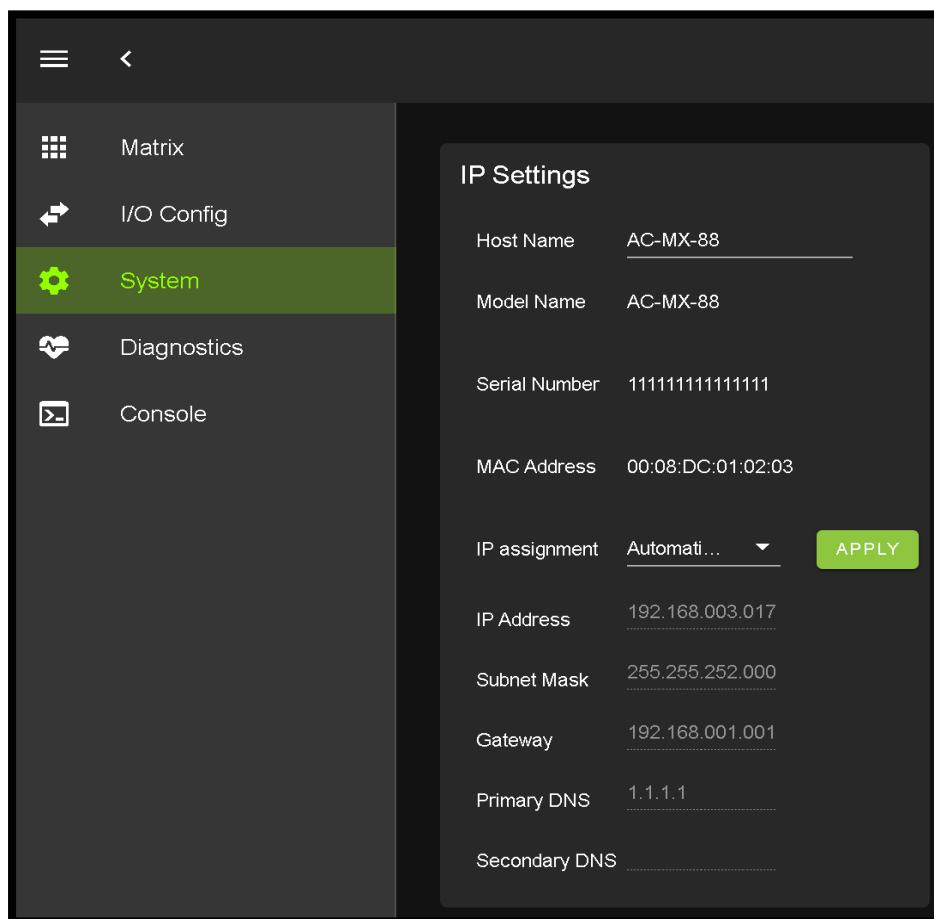
**Serial Number** - Displays the Serial Number of the matrix.

**MAC Address** - Displays the devices MAC Address.

**IP assignment** - This drop-down has two options.

1. Manual
2. Automatic (DHCP)

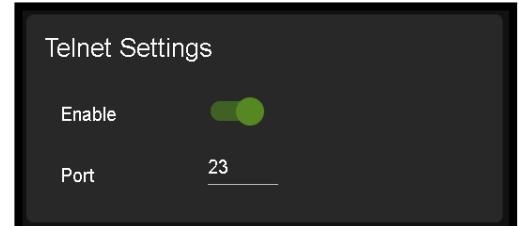
Default out of the box will be set to Automatic (DHCP), the IP Address, Subnet Mask, Gateway, Primary DNS, and Secondary DNS will be assigned by your network controller. If you select Manual, you can use the text fields to enter your own Network settings. Once all fields have been filled out, click the green Apply Button to set. A prompt will appear to confirm the change, click OK to confirm.



# WebUI: System - Telnet Settings

This area contains relevant Telnet settings for the AC-MX-88. There are two fields that can be changed, Enable/Disable switch and the Port Number.

- Enable - This switch has two options, Green/Enabled (Default) and Red/Disabled.
- Port - This field is used to change the Telnet Port of the AC-MX-88. You can use the text field to enter a number or use the Up/Down arrow buttons to increase/decrease the number.

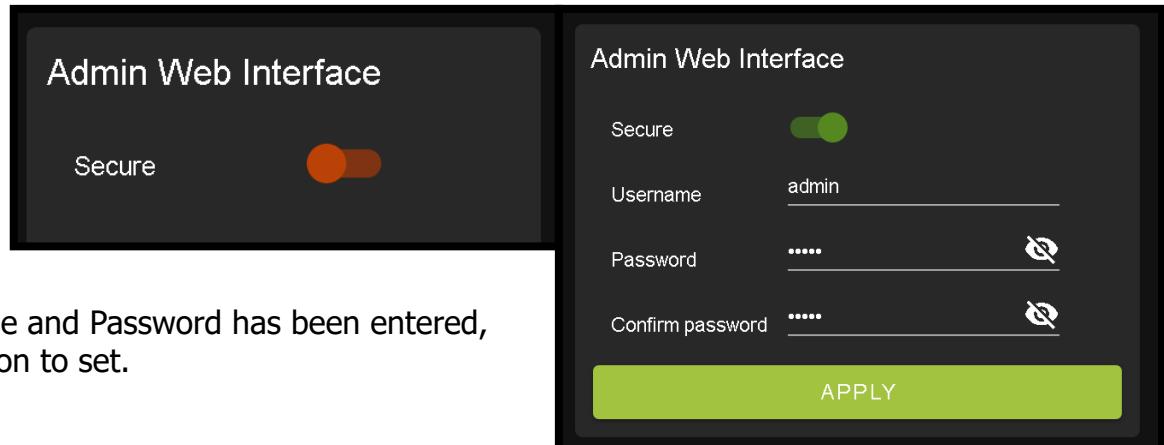


# WebUI: System - Admin Web Interface

This switch has two options, Red/Disabled (Default) and Green/Enabled. When enabled (green) there will be three fields that appear, Username, Password, and Confirm Password.

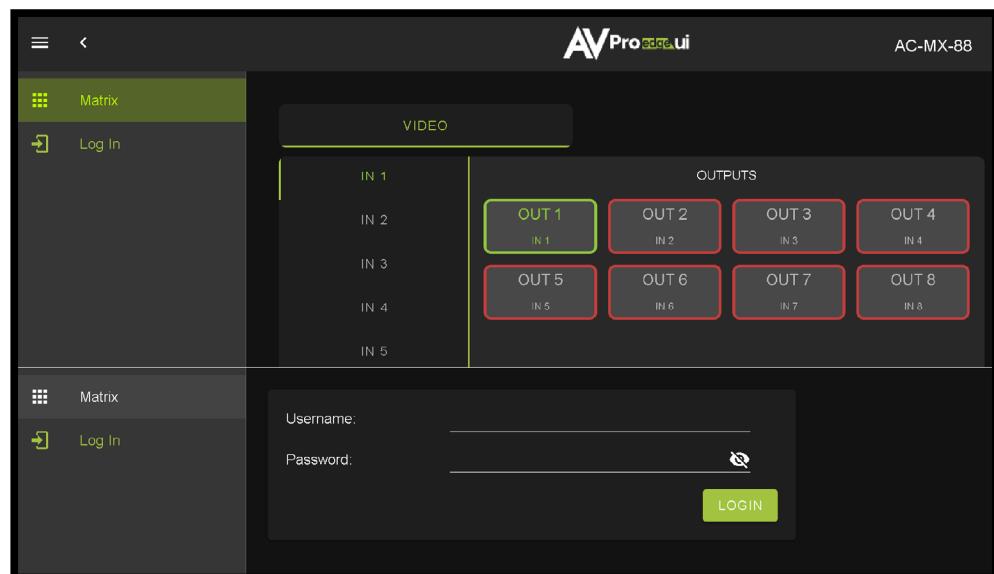
Default Username - admin

Default Password - admin



Once the desired Username and Password has been entered, click the green APPLY button to set.

With the Admin Web Interface enabled, the only menu that will be accessible using the WebUI will be the Matrix tab. The rest of the settings will require the Admin log in to access.



# WebUI: System - User Web Interface

This switch has two options, Red/Disabled (Default) and Green/Enabled. When enabled (green) there will be three fields that appear, Username, Password, and Confirm Password.

NOTE: The Admin Web Interface must first be Enabled and setup before this field will be available to change.

Default Username - user

Default Password - user123

Once the desired Username and Password has been entered, click the green APPLY button to set.

User Web Interface

Secure

Username

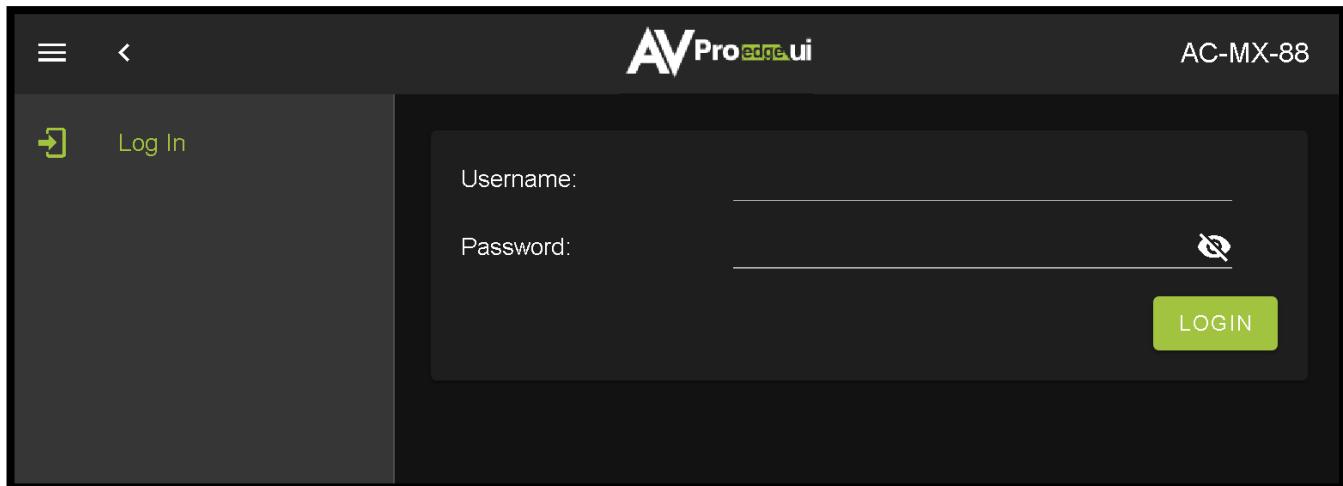
Password

Confirm password

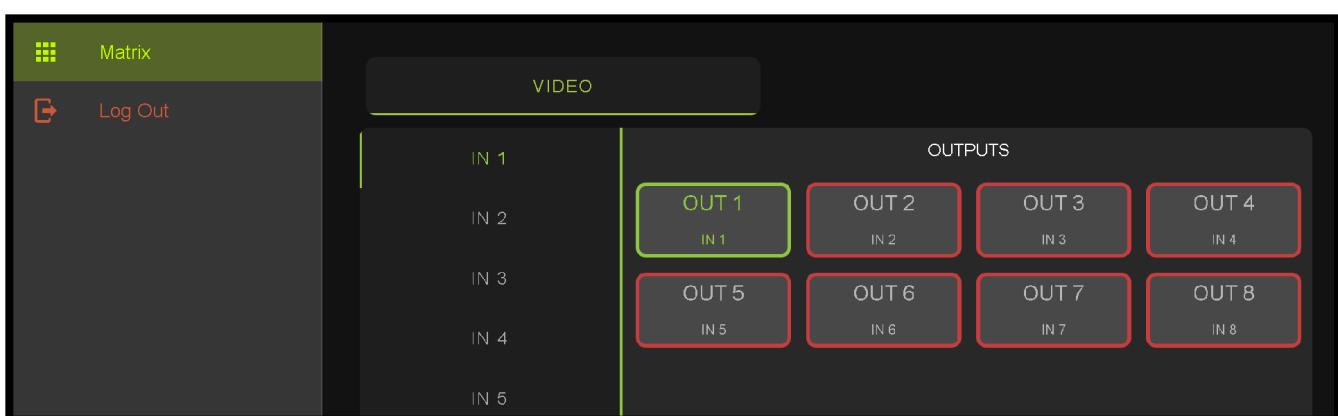
**APPLY**

Note: The webpage will reload to the Log In page.

With both Admin and User Web Interfaces enabled, no menus will be accessible using the WebUI without first logging in (see image below).



Logging in with the User credentials, the only menu that will be accessible will be the Matrix tab. The rest of the settings will require the Admin user to log in (see page [24](#)).

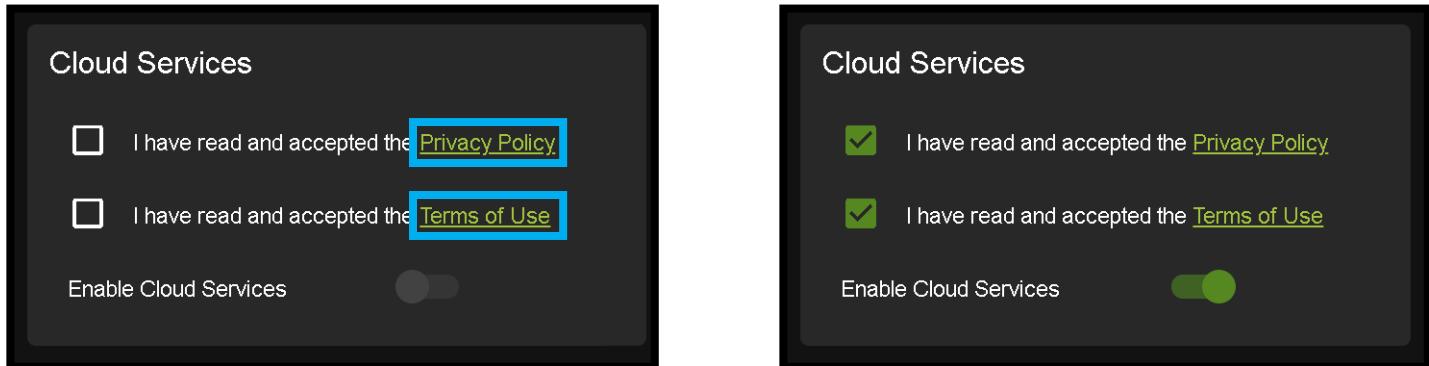


# WebUI: System - Cloud Services

By enabling Cloud Services your device will have the ability to connect to firmware servers for over-the-air (OTA) updates and enable third-party remote management services. If Cloud Services are disabled, your device will opt-out of any previously enabled services and will not be able to access OTA updates.

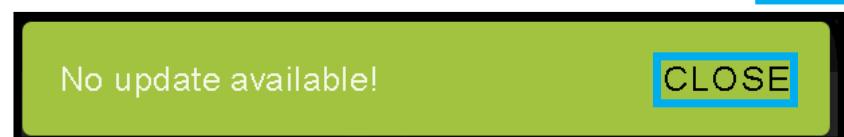
Before you can enable the cloud services you must first agree to the "Privacy Policy" and "Terms of Use".

You can view these documents by clicking on [Privacy Policy](#) or [Terms of Use](#) links, this will open up a PDF copy of that document in a new tab.



With the Cloud Services enabled you can use the System tab to check for new Firmware OTA (over the air).

This will check the firmware versions currently loaded on the AC-MX-88 and compare to the latest available. If it is up to date, you will see a prompt stating "No update available!" click [CLOSE](#) to exit.

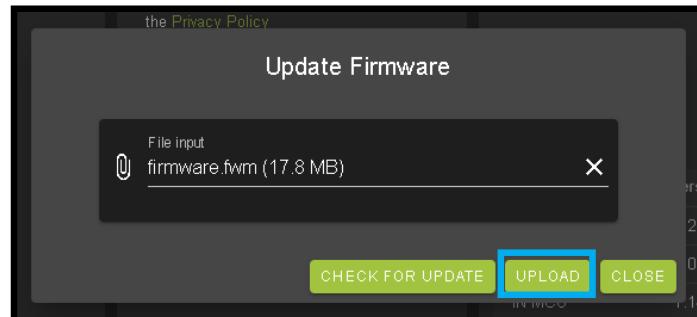


If an update is available, the following prompt will show. Simply click the [UPDATE](#) button to load.



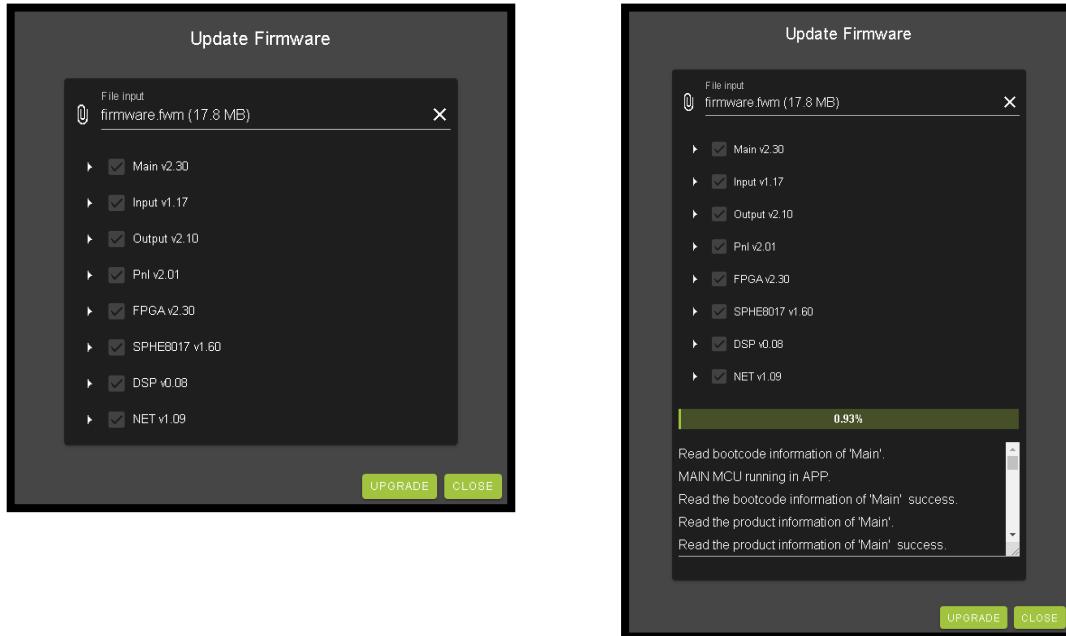
**NOTE:** When loading firmware (depending on the firmware files that are being updated) some settings will revert back to Factory Defaults. Take note of the I/O Config tab. Settings like the INPUT/OUTPUT labels, EDID Settings, Video Scaling, Audio Settings, etc. as they will have to be re-applied after the firmware updates are completed.

If an update is available a file will automatically be selected, simply click the [UPLOAD](#) button to load the firmware files to the Matrix.



# WebUI: System - Firmware Update Cont.

Once the firmware file has been uploaded, it will display all containing firmware files. Here you can select individual firmware files to load or simply leave all files/options selected. If the version currently installed not newer, then that update will be skipped automatically.



Once the progress bar hits 100% click the CLOSE button, the firmware upgrade process is complete.

Now you will want to go back and re-apply settings like INPUT/OUTPUT Labels, applied EDIDs, Video Scaler Settings, Audio Settings, etc.

## WebUI: System - Hardware

**LCD Timeout** - This adjusts the time the front panel display will stay lit up when a button is pressed.

There are four setting available

1. Always on (Default)
2. 15 Seconds
3. 30 Seconds
4. 45 Seconds

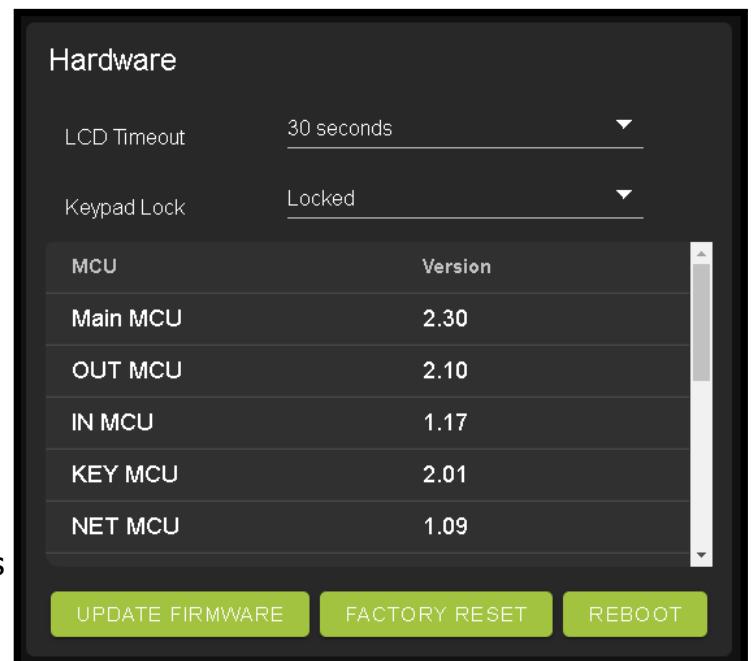
**Keypad Lock** - Enable or Disable (default) the front panel Keypad Lock.

**MCU/Version** - Lists the current Firmware Versions

**UPDATE FIRMWARE** - Check/upload firmware.

**FACTORY RESET** - Restores matrix to Factory Defaults

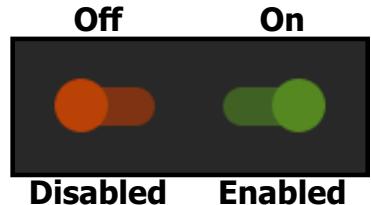
**REBOOT** - Reboots the AC-MX-88



# WebUI: Diagnostics - HDMI IN

**Input Settings Label** - Use this to give an name/alias to your inputs (Apple TV, Cable Box, Roku, etc). Note: There is a 15 character limit to this field, the name will replace the default "IN #" throughout the rest of the WebUI (for instance the Video Matrix tab).

**Input Settings Enable switch** - Use this enable/disable switch to turn the corresponding Input port on or off. The default setting is enabled (green) by default.



**Connection Reset** - Use this button to perform a reset of the HDMI Input connection.

**Input Settings EDID** - Use these four drop-downs to select your preferred EDID. The available combinations are as follows.

|                  |                       |                       |                           |
|------------------|-----------------------|-----------------------|---------------------------|
| 1. 1080P_2CH     | 9. 4K30HZ_3D_8CH      | 17. 1080P_6CH_HDR     | 25. 4K60HzY420_3D_2CH_HDR |
| 2. 1080P_6CH     | 10. 4K60HzY420_3D_2CH | 18. 1080P_8CH_HDR     | 26. 4K60HzY420_3D_6CH_HDR |
| 3. 1080P_8CH     | 11. 4K60HzY420_3D_6CH | 19. 1080P_3D_2CH_HDR  | 27. 4K60HzY420_3D_8CH_HDR |
| 4. 1080P_3D_2CH  | 12. 4K60HzY420_3D_8CH | 20. 1080P_3D_6CH_HDR  | 28. 4K60HZ_3D_2CH_HDR     |
| 5. 1080P_3D_6CH  | 13. 4K60HZ_3D_2CH     | 21. 1080P_3D_8CH_HDR  | 29. 4K60HZ_3D_6CH_HDR     |
| 6. 1080P_3D_8CH  | 14. 4K60HZ_3D_6CH     | 22. 4K30HZ_3D_2CH_HDR | 30. 4K60HZ_3D_8CH_HDR     |
| 7. 4K30HZ_3D_2CH | 15. 4K60HZ_3D_8CH     | 23. 4K30HZ_3D_6CH_HDR |                           |
| 8. 4K30HZ_3D_6CH | 16. 1080P_2CH_HDR     | 24. 4K30HZ_3D_8CH_HDR |                           |

# WebUI: Diagnostics - HDMI IN Cont.

| Port | Label | Enabled                             | Connection                           | Reset                                |
|------|-------|-------------------------------------|--------------------------------------|--------------------------------------|
| 1    | IN 1  | <input checked="" type="checkbox"/> | <input type="button" value="RESET"/> | <input type="button" value="APPLY"/> |

| Assigned EDID           | 1080P                               | NO 3D | SDR | 2CH | APPLY |
|-------------------------|-------------------------------------|-------|-----|-----|-------|
| Manufacturer            | TCL                                 |       |     |     |       |
| Monitor Name            | 55P605                              |       |     |     |       |
| Sink Device Type        | HDMI                                |       |     |     |       |
| Preferred Timing        | 3840x2160 60Hz                      |       |     |     |       |
| Supported Audio Formats | LPCM, 2CH                           |       |     |     |       |
| 3D Support              | <input checked="" type="checkbox"/> |       |     |     |       |
| Deep Color Support      | <input checked="" type="checkbox"/> |       |     |     |       |

| Signal Info         |                                     |
|---------------------|-------------------------------------|
| Signal Present      | <input checked="" type="checkbox"/> |
| Timing              | 1920x1080p 60Hz                     |
| Color space         | YUV422                              |
| Video Type          | HDMI                                |
| HDCP                | HDCP 2.2                            |
| Color Depth         | 24 Bit                              |
| TMDS Bandwidth      | 4.455G                              |
| HDR Metadata        | No HDR                              |
| Audio Encoding      | PCM                                 |
| Audio Sampling Freq | 48KHz                               |
| Audio Sampling Size | 24 Bit                              |
| Audio Channels      | 2 Channels                          |

On the left, you will see the current applied EDID information. In the example above, you will see a canned 1080P - No 3D - SDR - 2CH EDID applied to IN 1. Any EDID change, once applied will display here.

Signal Info shows the connected source's current output information. This includes

- Timing
- Color Space
- Video Type
- HDCP Version
- TMDS Bandwidth
- HDR Metadata
- Audio Sampling Frequency
- Audio Sampling Size
- Audio Channels

| Port | Label | Enabled                             | Connection                           | Reset                                |
|------|-------|-------------------------------------|--------------------------------------|--------------------------------------|
| 1    | IN 1  | <input checked="" type="checkbox"/> | <input type="button" value="RESET"/> | <input type="button" value="APPLY"/> |

| Assigned EDID           | 1080P                               | NO 3D | SDR | 2CH | APPLY |
|-------------------------|-------------------------------------|-------|-----|-----|-------|
| Manufacturer            | TCL                                 |       |     |     |       |
| Monitor Name            | 55P605                              |       |     |     |       |
| Sink Device Type        | HDMI                                |       |     |     |       |
| Preferred Timing        | 3840x2160 60Hz                      |       |     |     |       |
| Supported Audio Formats | LPCM, 2CH                           |       |     |     |       |
| 3D Support              | <input checked="" type="checkbox"/> |       |     |     |       |
| Deep Color Support      | <input checked="" type="checkbox"/> |       |     |     |       |

| Signal Info         |                                     |
|---------------------|-------------------------------------|
| Signal Present      | <input checked="" type="checkbox"/> |
| Timing              | 1920x1080p 60Hz                     |
| Color space         | YUV422                              |
| Video Type          | HDMI                                |
| HDCP                | HDCP 2.2                            |
| Color Depth         | 24 Bit                              |
| TMDS Bandwidth      | 4.455G                              |
| HDR Metadata        | No HDR                              |
| Audio Encoding      | PCM                                 |
| Audio Sampling Freq | 48KHz                               |
| Audio Sampling Size | 24 Bit                              |
| Audio Channels      | 2 Channels                          |

# WebUI: Diagnostics - HDMI OUT

| Port | Label | State   | Connection              | Reset          |
|------|-------|---------|-------------------------|----------------|
| 1    | OUT 1 | Enabled |                         | RESET          |
| 2    |       |         | Connected Device EDID   | REFRESH        |
| 3    |       |         | Manufacturer            | GSM            |
| 4    |       |         | Monitor Name            | LG TV SSCR     |
| 5    |       |         | Sink Device Type        | HDMI           |
| 6    |       |         | Preferred Timing        | 3840x2160 60Hz |
|      |       |         | Supported Audio Formats | LPCM, 2CH      |
|      |       |         | 3D Support              | ●              |
|      |       |         | Deep Color Support      | ●              |

HDMI Output Label, State, and Connection Reset.

Connected Device EDID shows the connected sync's preferred EDID information and current state.

This includes

- Manufacturer
- Monitor Name
- Sink Device Type
- Preferred Timing
- Supported Audio Formats
- 3d Support
- Deep Color Support
- Signal Present
- Source Input (future update)

# WebUI: Console

There is a built in Command Console

Using the command API (command list) you can send device specific commands or use as a live monitor while sending commands from a control system (helpful in troubleshooting).

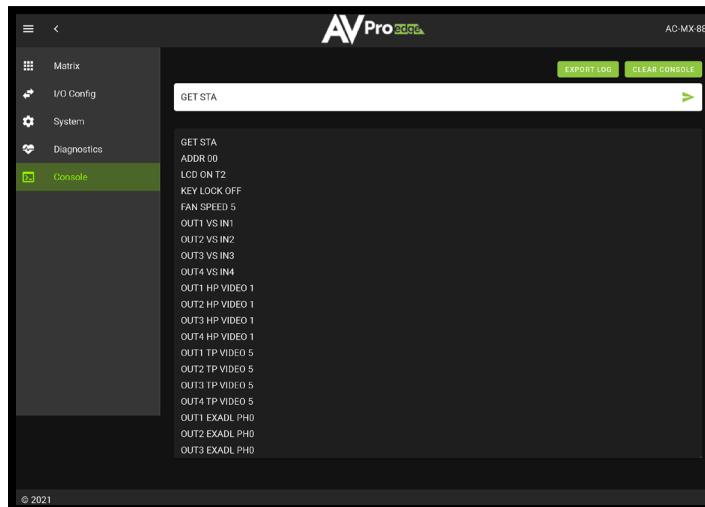
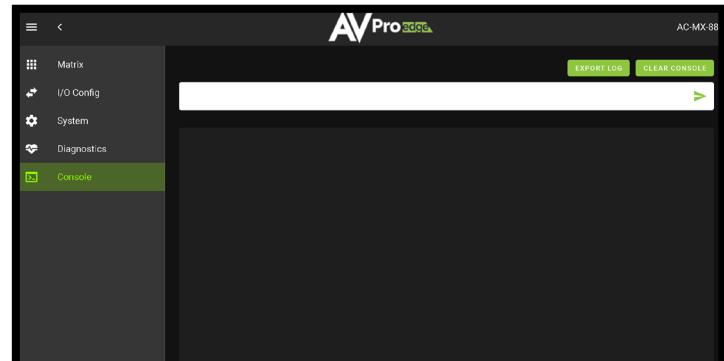
## Example

1. Click in the white box and type

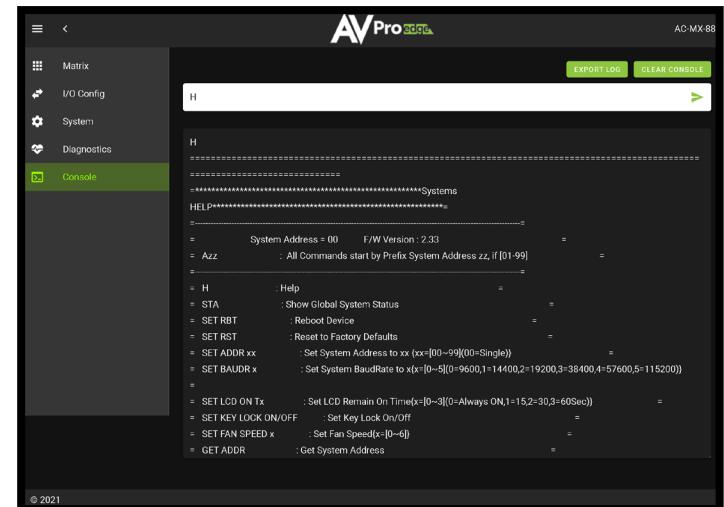
a. GET STA

Click the green arrow or hit ENTER/RETURN on your keyboard

The the command response will show in the field below.



**Example - "GET STA"**  
Get status

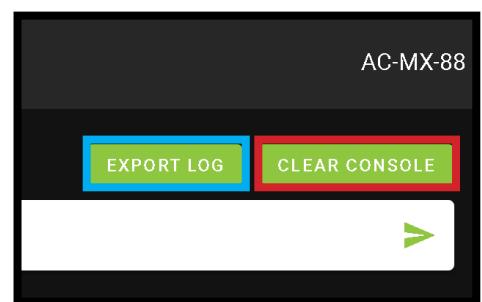


**Example - "H"**  
Help command  
Returns all Available Commands

## \*NEW to NET MCU Firmware Version 1.06

### EXPORT LOG - Button

This button will generate a text file containing the console information in your web browsers download folder.



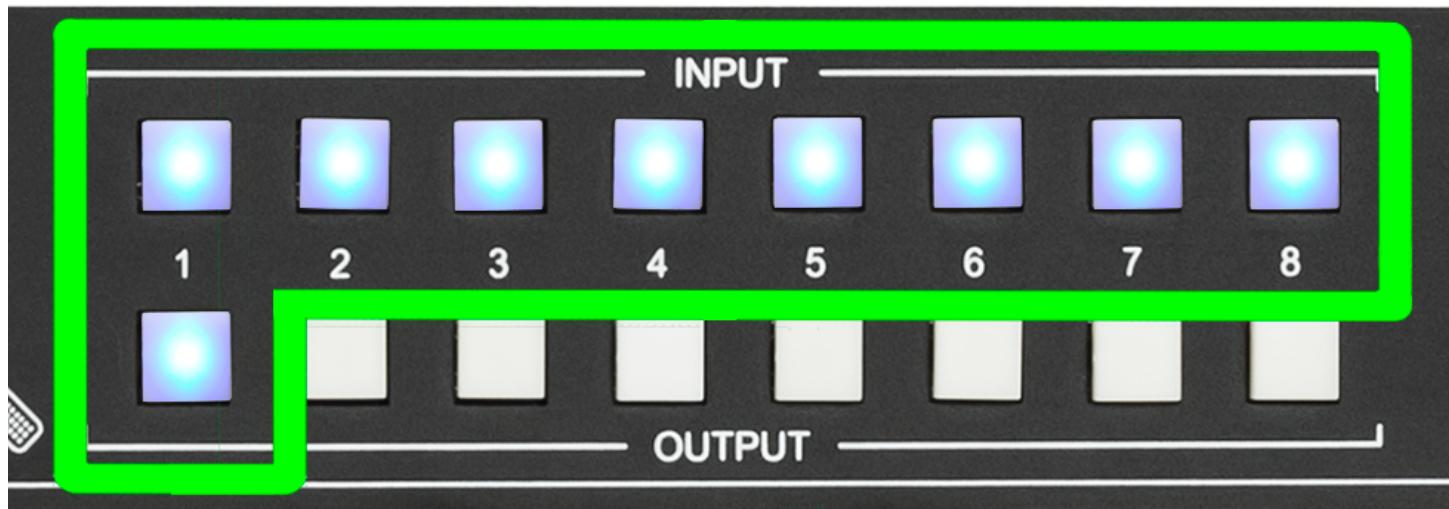
### CLEAR CONSOLE - Button

This button will clear the current console session.

# Front Panel Control - Switching

The AC-MX-88 can be switched from the front panel by first pressing the desired OUTPUT (bottom row) button first, then by pressing the desired INPUT button (top row).

1. Press the OUTPUT button (1 through 8) on the bottom row that corresponds with the OUTPUT (Display, or Sink Device) you would like to send to a source.
2. Once pressed, the front panel display will change to the SWITCH menu showing the current IN/OUT routes. Press the corresponding INPUT button (top row) to set.

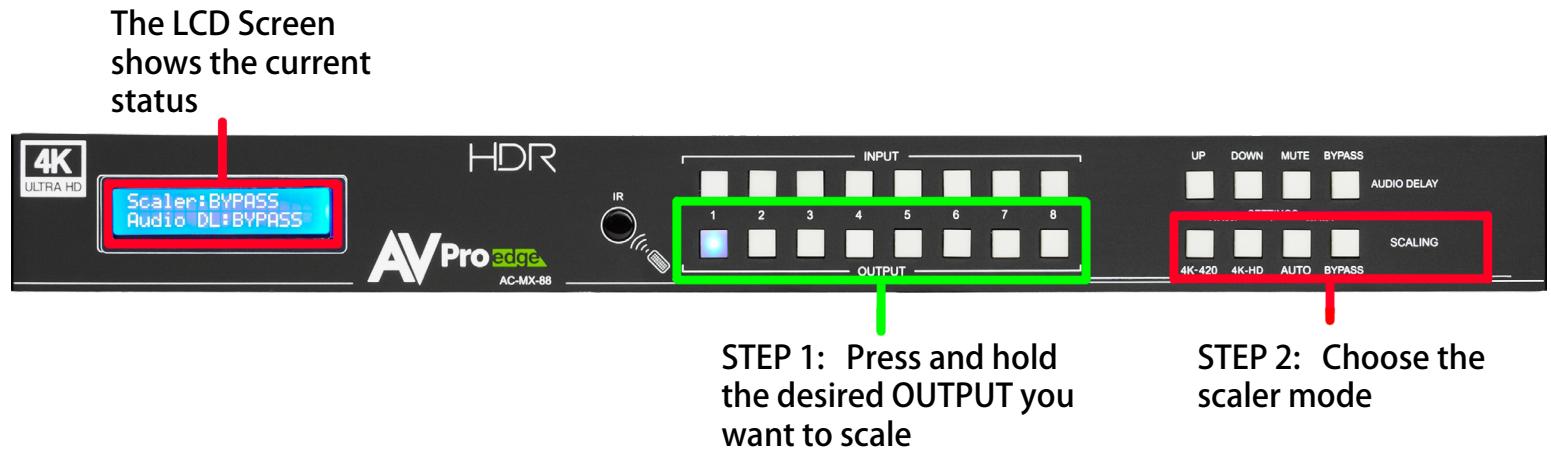


# Front Panel Control - Scaling

The AC-MX-88 has scalers built into every output. The HDMI Ports can be DOWN-SCALED. The scalers are set on the OUTPUT side of the switch and each can have separate settings.

- 4K-420: Takes 4K YUV 4:4:4 signal (when Video Clock is 500MHz or higher) and converts to 4K 4:2:0
- 4K-HD: Down-scales any 4K signal to 2K (1080P)
- AUTO: Automatically sets the scaler based of the sync devices EDID information
- BYPASS: No scaling applied

# Front Panel Control - Scaling Cont.



To Change the scaler settings

1. Press and hold the desired OUTPUT button (1 through 4) on the bottom row that corresponds with the OUTPUT (Display, or Sink Device) you would like to change the scaler settings on (it will stay lit).
2. Use the Scaler Control buttons on the bottom right to make your selecting (refer to options above)
3. Press the same OUTPUT button (1 through 4) that you held in step one to Confirm/Set your chosen scaling mode. Or wait 5 seconds and the matrix will automatically exit and keep any changes made.

# Front Panel Control - Audio Binding

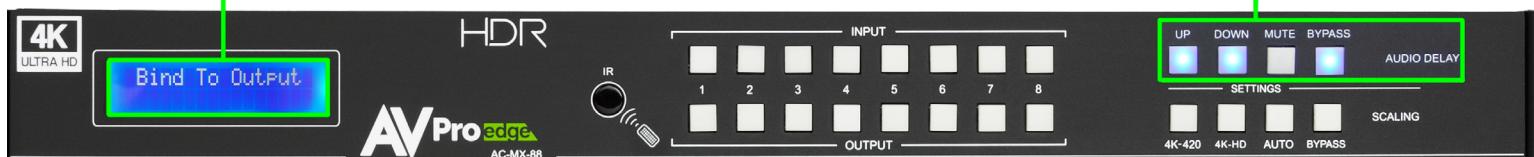
The AC-MX-88 can be configured to extract audio in 3 ways

- Bind to OUTPUT(Default)
- Bind to INPUT
- Matrix

To change from the default:

1. Press and hold (3 sec) BYPASS from the audio settings (top right of machine).
2. Toggle selection by pressing the "UP" and "DOWN" buttons
3. Once a desired selection is found, quick press the BYPASS button again to set.

The LCD Screen shows the current status



STEP 1: Press and hold the BYPASS button

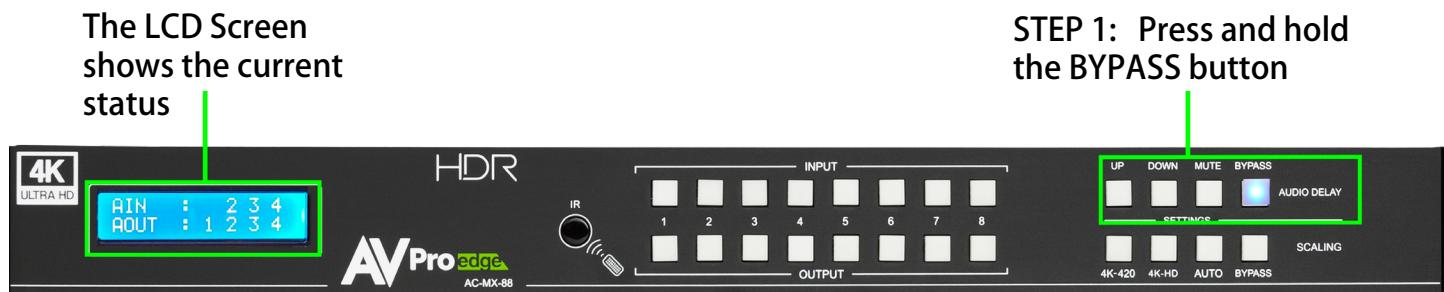
STEP 2: Use the UP and DOWN buttons to change the setting

# Audio Matrix Control:

Once in "Matrix" mode for audio, the extracted audio routing on the AC-MX-88 can be controlled from the front panel:

To Control:

1. Press and hold (3 sec) BYPASS button from the audio settings (top right of machine).
2. Make sure the screen says "Matrix", if it does not use the UP/DOWN arrow keys to change, then press the BYPASS button again in order to enter the AUDIO MATRIX mode.  
(See image below, screen will show "AIN" and "AOUT" for AUDIO INPUT and AUDIO OUTPUT.)
3. Press the desired OUTPUT number (1-4)
4. Press the INPUT for the desired audio source you want to route (1-4)
5. To exit, quick press BYPASS button again or wait 15 seconds (matrix will exit automatically)



## Front Panel Control - Audio Delay

The AC-MX-88 has an Audio Delay feature built-in. Audio Delay is set on the extracted audio OUTPUT (Digital and Analog) of the switch and each can have separate settings. The Audio Delay has 4 controls:

- UP (Increase Delay)
- Down (Decrease Delay)
- MUTE (The audio will be muted)
- BYPASS (There will be no delay set)

\*Delay settings are in increments of 90 milliseconds.

Settings are: 90MS, 180MS, 270MS, 360MS, 450MS, 540MS or 630MS.

Control this feature from the front panel:

1. Press and hold the OUTPUT number for which you want to delay the audio.
2. The available options will light up (as pictured).
3. Press UP, DOWN, MUTE or BYPASS to control the delay.
4. The current setting will be indicated on the LCD screen.



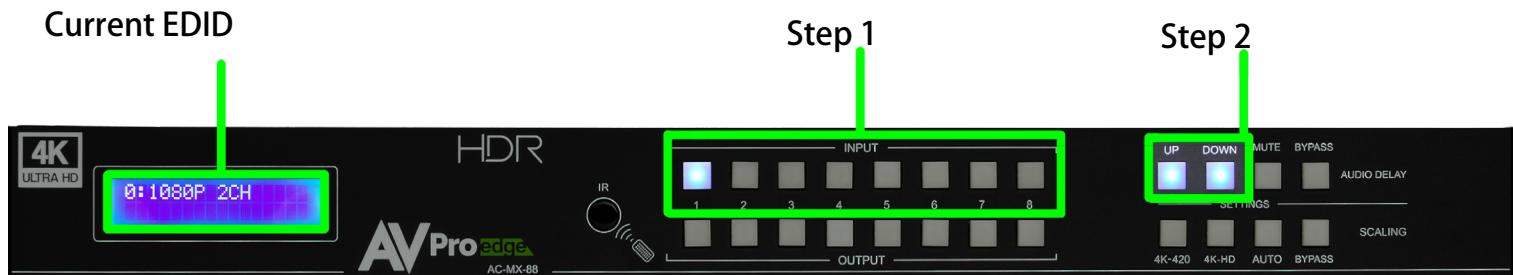
# EDID Management:

This matrix has 29 factory defined EDID settings. It also has 3 user defined EDID memories. The user EDID memories are independent to each input and can be set differently. The user defined EDID can be uploaded using the free PC Control software or RS-232. In addition, you can choose to read the EDID from the desired output and the captured EDID will automatically store and overwrite the EDID in "USER EDID 1" and will be applied to the selected source.

By default, the matrix is set to a 1080P EDID, this is to maximize plug and play capability. When using 4K sources, you will want to define a 4K EDID on each input (or read from the display).

To Change the EDID setting:

1. Press and hold (for 3 seconds) the INPUT you want to change.
2. The "UP" and "DOWN" button's will illuminate (as pictured below), and the LCD will show the active EDID.
3. Toggle through the EDID options by pressing up or down repeatedly.
4. Press the "INPUT" you had selected in order to apply the EDID (this will still be illuminated).



These are the pre-defined EDID settings that you can toggle through:

|                       |                           |
|-----------------------|---------------------------|
| 1. 1080P_2CH          | 17. 1080P_8CH_HDR         |
| 2. 1080P_6CH          | 18. 1080P_3D_2CH_HDR      |
| 3. 1080P_8CH          | 19. 1080P_3D_6CH_HDR      |
| 4. 1080P_3D_2CH       | 20. 1080P_3D_8CH_HDR      |
| 5. 1080P_3D_6CH       | 21. 4K30HZ_3D_2CH_HDR     |
| 6. 1080P_3D_8CH       | 22. 4K30HZ_3D_6CH_HDR     |
| 7. 4K30HZ_3D_2CH      | 23. 4K30HZ_3D_8CH_HDR     |
| 8. 4K30HZ_3D_6CH      | 24. 4K60HzY420_3D_2CH_HDR |
| 9. 4K30HZ_3D_8CH      | 25. 4K60HzY420_3D_6CH_HDR |
| 10. 4K60HzY420_3D_2CH | 26. 4K60HzY420_3D_8CH_HDR |
| 11. 4K60HzY420_3D_6CH | 27. 4K60HZ_3D_2CH_HDR     |
| 12. 4K60HzY420_3D_8CH | 28. 4K60HZ_3D_6CH_HDR     |
| 13. 4K60HZ_3D_2CH     | 29. 4K60HZ_3D_8CH_HDR     |
| 14. 4K60HZ_3D_6CH     | 30. User EDID 1           |
| 15. 4K60HZ_3D_8CH     | 31. User EDID 2           |
| 16. 1080P_2CH_HDR     | 32. User EDID 3           |
| 17. 1080P_6CH_HDR     |                           |

\*You may also copy EDID from any output and apply to any input, simply select "Copy EDID from Output x" (x=1-4). This will copy the EDID from the display attached and store it into "User EDID 1" and apply it to the input you have selected.

**In order to obtain Dolby Atmos, DTS:X, or other HBR Surround formats, the EDID must be copied from a capable device.**

# Display IP Information:

In order to see the current IP settings, press and hold (for 3 seconds) INPUT 3 and INPUT 4 buttons simultaneously. This screen will change every 3 seconds showing additional settings (host, net mask, router IP).

NOTE: This screen always starts with the current IP address of the matrix:

HOST IP:  
192.168.001.239

In order to toggle DHCP on and off, press and hold (for 3 seconds) the INPUT 1 and INPUT 4 buttons simultaneously.

In order to prevent potential IP problems, you can change the IP settings by using RS-232 commands (connect via the Micro USB port or 3 Pin Terminal RS-232 connection).

NOTE: The default IP address is 192.168.001.239 (as pictured above).

# Quick Network Connect to Web Interface:

Use the following steps to quickly and immediately connect to the matrix switch:

1. Connect the LAN port into an active router port.
2. On most networks you can simply type the Default IP address into any web browser. The Default IP Address is 192.168.1.239

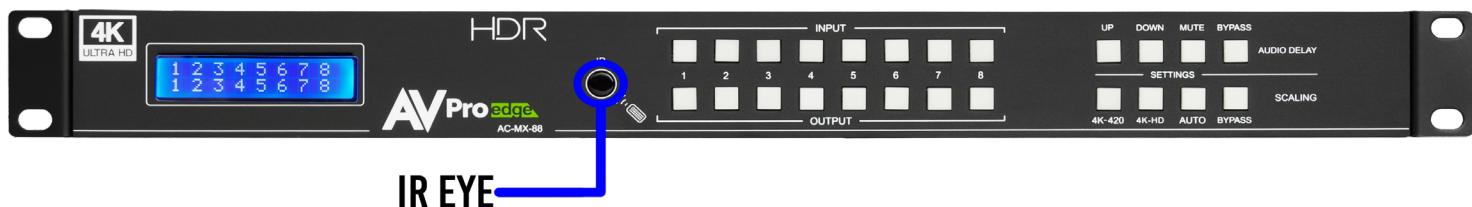
If you are on a closed network or non-standard, the following may work better when using DHCP:

1. Use an Ethernet cable to connect the LAN port on the switch to an unused, active port on the router.
2. Enable DHCP by pressing the INPUT 1 and INPUT 4 buttons simultaneously for 3 seconds.
3. Wait 5 seconds, then press and hold (for 3 seconds) the INPUT 3 and INPUT 4 buttons simultaneously. The display will show the assigned IP address.
4. Input the IP Address into any web browser.

Setting a Static IP:

- Once connected, you can use the web interface to set a static IP address.
- A static IP can also be set by using the RS-232 software or a direct command (see Command list for more information).

# IR Control: IR Remote



## IR Remote Control:

When routing HDMI, the matrix can be controlled by using the IR remote supplied. When routing HDMI, the matrix can be controlled by using the IR remote supplied with the product (battery not included, requires CR2025).

The labels on the left are the **OUTPUT** numbers.

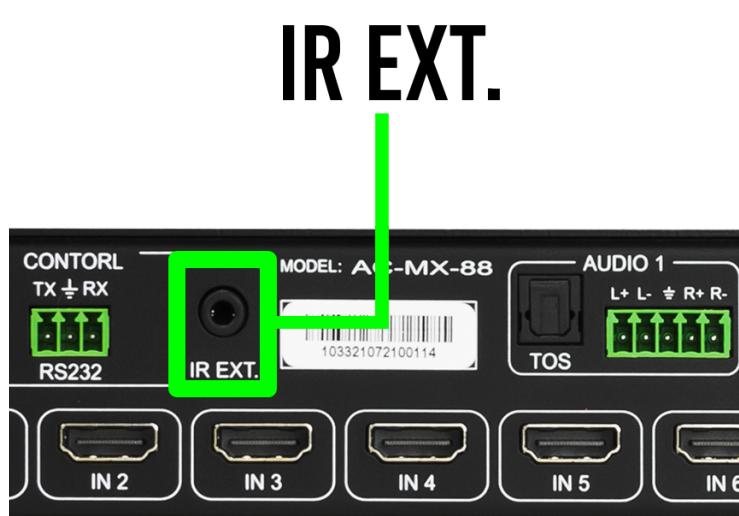
The **arrow** buttons are for cycling through the **INPUTS**. Pressing the left arrow will decrease (move to previous input) and pressing the right arrow will increase (move to next input).



\*Not Included

## IR Control: Extension Port

The IR EXT. port on the back can accept an IR Receiving Eye (one included in the box).



# RS-232 and TCP/IP Control:

The AC-MX-88 can be controlled with either RS-232 or TCP/IP commands. Certain switching or format configurations can only be done using these commands. We recommend using either the MyUART (RS-232 - free) or Hercules (TCP/IP - free) apps as they are very easy to use for sending commands to the machine.

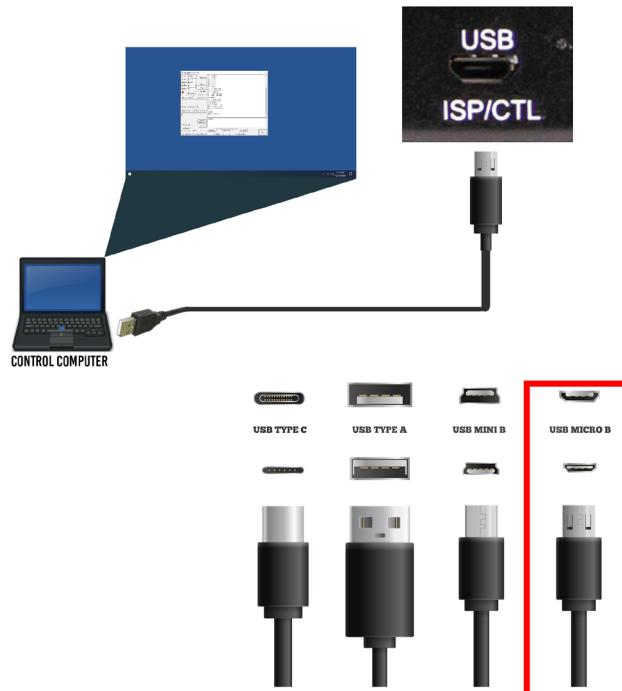
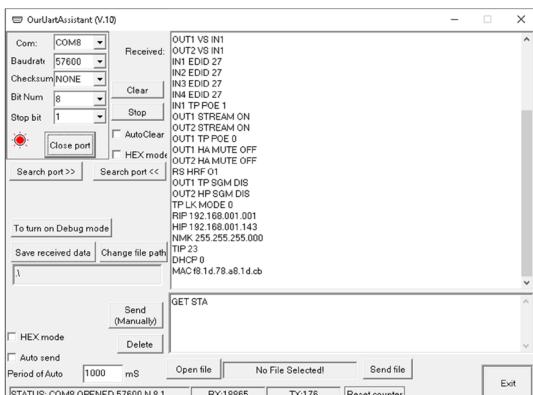
For TCP/IP control commands use Telnet Port 23.

For RS-232, use a null modem serial cable adapter and set the serial communications to: 57600,n,8,1 (baud: 57600, no parity, 8 data bits and 1 stop bit) with no handshaking.

Please add a carriage return (Enter key) after each command when using direct commands.

The unified command list (ASCII) is listed on the following pages. Text version available [here](#), and under the resources tab of on the products [web page](#).

## USB CONTROL FOR AVPRO EDGE



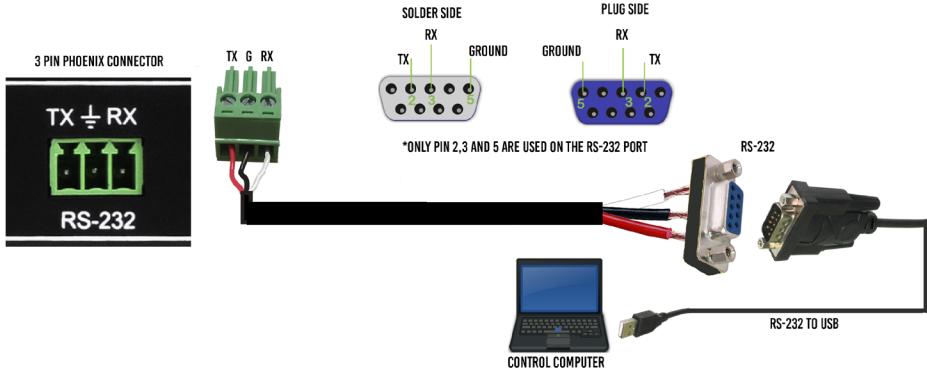
[WWW.AVPROEDGE.COM/DRIVERS](http://WWW.AVPROEDGE.COM/DRIVERS)

### OTHER TOOLS & DRIVERS

[MyUART Serial Communicator](#): Used to send direct serial commands to our products.

[Universal FTDI USB->Serial Driver](#): Used with SIX-G/SIX-A & Fox 8 Board and several USB-Serial converters supplied by AVPro Edge

## RS-232 CABLE FOR AVPRO EDGE



# Command List:

- Baudrate: 57600
- Checksum: None
- Bit Num: 8
- Stop Bit: 1

| Command                       | Action  |
|-------------------------------|---|
| H                             | : Help  |
| STA                           | : Show Global System Status   |
| SET RST                       | : Reset to Factory Defaults   |
| SET RBT                       | : Reboot Device   |
| SET LAN RBT                   | : Set LAN MCU Reset to Reboot   |
| SET ADDR xx                   | : Set System Address to xx {xx=[00-99](00=Single)}  |
| SET BAUDR x                   | : Set System BaudRate to x {x=[0~5](0=9600,1=14400,2=19200,3=38400,4=57600,5=115200)}   |
| SET LCD ON Tx                 | : Set LCD Remain On Time{x=[0~3](0=Always ON,1=15,2=30,3=60Sec)}  |
| SET KEY LOCK ON/OFF           | : Set Key Lock On/Off   |
| SET FAN SPEED x               | : Set Fan Speed{x=[0~3]}  |
| GET ADDR                      | : Get System Address  |
| GET STA                       | : Get System System Status  |
| GET BAUDR                     | : Get System BaudRate   |
| GET Inx SIG STA               | : Get Input x Signal Status{x=[0~8](0=ALL)}   |
| GET OUTx SIG STA              | : Get Output x Signal Status{x=[0~8](0=ALL)}  |
| GET OUTx HPD                  | : Get HDMI Output x HPD Status{x=[0~8](0=ALL)}  |
| GET Inx VID FMT INF           | : Get Input x Video Format Info{x=[0~8](0=ALL)}   |
| GET LCD ON T                  | : Get LCD Remain On Time  |
| GET KEY LOCK                  | : Get Key Lock Status   |
| GET FAN SPEED                 | : Get Fan Speed Value   |
| <b>Output Setup Commands:</b> |   |
| SET OUTx VS Iny               | : Set Output x To Input y{x=[0~8](0=ALL), y=[1~8]}  |
| SET OUTx SGMT y               | : Set Output Signal Generator Timing  |
| SET OUTx VIDEOy               | : Set HDMI Output VIDEO Mode {x=[0~8](0=ALL), y=[0,1,2,4](0=Auto,1=BYPASS,2=4K->2K,4=444->420)}   |
| SET OUTx EXA EN/DIS           | : Set Ex-Audio Output Enable/Disable{x=[0~8](0=ALL)}  |
| SET OUTx EXADL PPhy           | : Set Ex-Audio Delay {x=[0~8](0=ALL), y=[0~7](0=Bypass,1~7=90,180,270,360,450,540,630MS)}   |
| SET EXAMx MODEx               | : Set Ex-Audio Matrix Mode{x=[0~2](0=Bind To Output,1=Bind To Input,2=Matrix)}  |
| SET OUTx AS INy               | : Set Ex-Audio Output x To Input y{x=[0~8](0=ALL), y=[1~8]}   |
| SET OUTx EXAUD LEVy           | : Set Output x EQ-Audio Volume Levely{x=[0~4](0=all),y=[0~100]}   |
| SET OUTx EXA LVLy             | : Set Output x Ex-Audio(Balanced) Left Volume Levely{x=[0~8](0=ALL),y=[0~10]}   |
| SET OUTx EXA RVLy             | : Set Output x Ex-Audio(Balanced) Right Volume Levely{x=[0~8](0=ALL),y=[0~10]}  |
| SET OUTx EXEQ MODEy           | : Set Output x EX-Audio Volume EQ Modey{x=[0~8](0=ALL),y=[0~7]}<br>y=[0-OFF],[1-Classical],[2-Headphone],[3-Hall],[4-Live],[5-Pop],[6-Rock],[7-Vocal] |
| SET OUTx STREAM ON/OFF        | : SET OUTx STREAM ON/OFF{x=[0~8](0=ALL)}  |

# Command List Continued:

|                    |  |
|--------------------|--|
| GET OUTx VS        | : Get Output x Video Route{x=[0~8](0=ALL)}                           |
| GET OUTx VIDEO     | : Get HDMI Output x Video Mode{x=[0~8](0=ALL)}                       |
| GET OUTx SGMT      | : Get Output Signal Generator Timing Status{x=[0~8](0=ALL)}          |
| GET OUTx EXA       | : Get Ex-Audio Output Enable/Disable Status{x=[0~8](0=ALL)}          |
| GET OUTx EXADL PH  | : Get Ex-Audio Output Delay Status{x=[0~8](0=ALL)}                   |
| GET EXAMx MODE     | : Get Ex-Audio Matrix Mode   |
| GET OUTx AS IN     | : Get Output x Ex-Audio Route{x=[0~8](0=ALL)}                        |
| GET OUTx EXAUD LEV | : Get Output x EQ-Audio Volume Level{x=[0~8](0=ALL)}                 |
| GET OUTx EXA LVL   | : Get Output x Ex-Audio(Balanced) Left Volume Level{x=[0~8](0=ALL)}  |
| GET OUTx EXA RVL   | : Get Output x Ex-Audio(Balanced) Right Volume Level{x=[0~8](0=ALL)} |
| GET TOUx EXEQ MODE | : Get Output x EX-Audio Volume EQ Mode Status{x=[0~8](0=ALL)}        |
| GET OUTx STREAM    | : Get Output x Stream ON/OFF Status{x=[0~8](0=ALL)}                  |
| GET OUTx EDID DATA | : Get Output x EDID DATA{x=[1~8]}                                    |

## Input Setup Commands:

|                                 |   |                            |  |
|---------------------------------|---|----------------------------|--|
| SET INx EDID y                  | : Set Input x EDID{x=[0~8](0=ALL), y=[0~32]}                                    |                            |  |
| 0:1080P_2CH(PCM)                | 1:1080P_6CH   | 2:1080P_8CH                |  |
| 3:1080P_3D_2CH(PCM)             | 4:1080P_3D_6CH  | 5:1080P_3D_8CH             |  |
| 6:4k30Hz_3D_2CH(PCM)            | 7:4k30Hz_3D_6CH   | 8:4k30Hz_3D_8CH            |  |
| 9:4K60Hz(Y420)_3D_2CH(PCM)      | 10:4K60Hz(Y420)_3D_6CH  | 11:4K60Hz(Y420)_3D_8CH     |  |
| 12:4K60Hz_3D_2CH                | 13:4K60Hz_3D_6CH  | 14:4K60Hz_3D_8CH           |  |
| 15:1080P_2CH(PCM)_HDR           | 16:1080P_6CH_HDR  | 17:1080P_8CH_HDR           |  |
| 18:1080P_3D_2CH(PCM)_HDR        | 19:1080P_3D_6CH_HDR   | 20:1080P_3D_8CH_HDR        |  |
| 21:4K30Hz_3D_2CH(PCM)_HDR       | 22:4K30Hz_3D_6CH_HDR  | 23:4K30Hz_3D_8CH_HDR       |  |
| 24:4K60Hz(Y420)_3D_2CH(PCM)_HDR | 25:4K60Hz(Y420)_3D_6CH_HDR  | 26:4K60Hz(Y420)_3D_8CH_HDR |  |
| 27:4K60Hz_3D_2CH(PCM)_HDR       | 28:4K60Hz_3D_6CH_HDR  | 29:4K60Hz_3D_8CH_HDR       |  |
| 30:USER1_EDID                   | 31:USER2_EDID   | 32:USER3_EDID              |  |
| SET INx EDID CY OUTy            | : Copy Output y EDID To Input x(USER1 BUF){x=[0~8](0=ALL), y=[1~4]}             |                            |  |
| SET INx Uy EDID CY OUTz         | : Copy Output z EDID To User y Buff Input x{x=[0~8](0=ALL), y=[1~3],z=[1-8]}    |                            |  |
| SET INx EDID Uy DATAz           | : Write EDID To User y Buffer of Input x{x=[0~8](0=ALL), y=[1-3],z=[EDID Data]} |                            |  |
| SET INx TMDS ON/OFF             | : Set Inputx Port Power Status ON/OFF{x=[0~8](0=ALL)}                           |                            |  |
| GET INx EDID                    | : Get Input x EDID Index{x=[0~8](0=ALL)}  |                            |  |
| GET INx EDID y DATA             | : Get Input x EDID y Data{x=[1~8],y=[0~32]}                                     |                            |  |
| GET INx TMDS                    | : Get Input Port Power On/Off State{x=[0~8](0=ALL)}                             |                            |  |

# Command List Continued:

|                                |  |
|--------------------------------|--|
| <b>Network Setup Command:</b>  |  |
| SET RIP xxx.xxx.xxx.xxx        | : Set Route IP Address to xxx.xxx.xxx.xxx  |
| SET HIP xxx.xxx.xxx.xxx        | : Set Host IP Address to xxx.xxx.xxx.xxx   |
| SET NMK xxx.xxx.xxx.xxx        | : Set Net Mask to xxx.xxx.xxx.xxx  |
| SET TIP zzzz                   | : Set TCP/IP Port to zzzz  |
| SET DHCP y                     | : Set DHCP {y=[0~1](0=Dis,1=Enable)}   |
| GET RIP                        | : Get Route IP Address   |
| GET HIP                        | : Get Host IP Address  |
| GET NMK                        | : Get Net Mask   |
| GET TIP                        | : Get TCP/IP Port  |
| GET DHCP                       | : Get DHCP Status  |
| GET MAC                        | : Get MAC Address  |
| <b>IR Route Setup Command:</b> |  |
| SET IR SYS xx.yy               | : Set IR Custom Code{xx=[00-FFH],yy=[00-FFH]}                                    |
| SET IR OUTx INy CODE zz        | : Set IR Data Code{x=[1~4],y=[1~4],zz=[00-FFH]}                                  |
| SET IR SWMD x                  | : Set IR Switch Mode x{x=[0-1],0-Left or Right Switch,1-Output Select The Input} |
| GET IR SYS                     | : Get IR Custom Code   |
| GET IR OUTx INy CODE           | : Get IR Data Code   |
| GET IR SWMD                    | : Get IR Switch Mode Status  |

# Extracted Audio:

The extracted audio ports have three distinct operating modes. Your desired mode can be set to suite your particular installation.

The 3 modes are:

**Bind to Input** ~ This is the default configuration. In this mode the audio port number corresponds to the INPUT signal. This is ideal for systems where audio is matrixed separately in a zoned amplifier.

**Bind to Output** ~ This configuration will automatically have the audio follow OUTPUT, so the audio from the extracted port always matches the HDMI output. This is ideal for systems that use local AVR's for some of the zones.

**Independent/Matrix** ~ This mode allows you matrix the extracted audio outputs independent of HDMI. In this mode a new set of commands becomes available to be able to route audio however you want. This can be used as a separate zoned audio matrix with only using an amplifier.

## Setting up Extracted Audio Routing:

You can set up Extracted Audio Routing from the front panel, WebUI, Driver or by sending the following command:

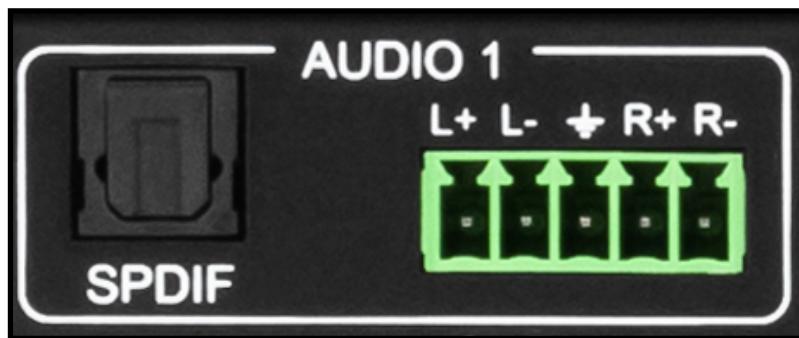
SET EXAMX MODEx -- Where {x=[0~2](0=Bind To Output,1=Bind To Input,2=Matrix)}

If you set to "Matrix" you can use the following command to route the 16 extracted audio ports to any INPUT:

SET OUTx AS INy -- Where Set Ex-Audio Output x To Input y{x=[0~4](0=ALL), y=[1~4]}

## Balanced 5 pin 2Ch and Toslink Audio Port /SPDIF:

The SPDIF Toslink port supports up to 5.1 Ch Digital audio the balanced 5 pin terminal connector supports 2 Ch audio only. This means in order for these ports to function the sources must be set to 2 Ch PCM, this unit does NOT down mix the audio (see AC-AXION-4 for down-mixing matrix). To get more than 2 Channels you will want to use the SPDIF port.



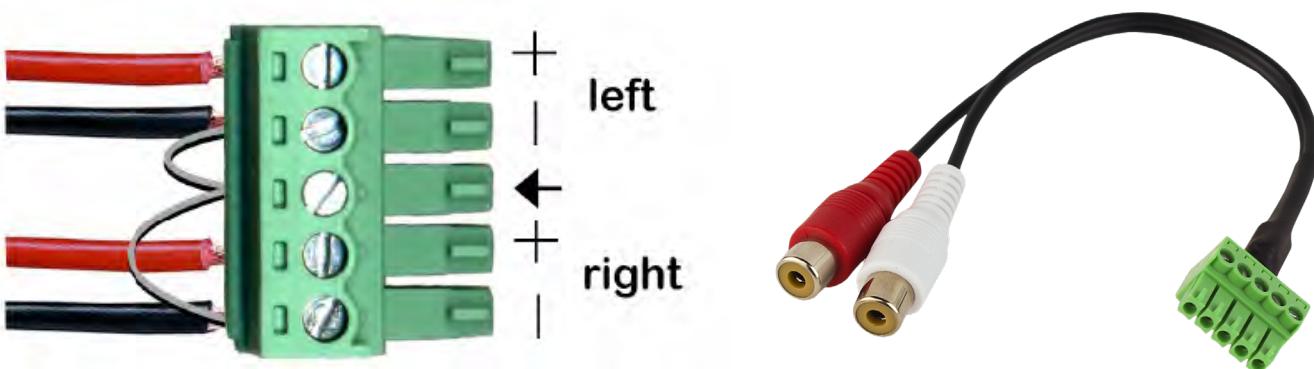
# Audio Output Logic and Cable Prep:

You can extract audio from Toslink or balance 2CH Audio.

**2CH Balanced Audio Port** - Supports 2CH PCM audio only, which is ideal for 2 Channel systems and zoned audio systems. No Down-mixing on this version, see **AC-AXION-4**.

**Toslink Audio Port** - Toslink extracted audio ports support up to 5.1 digital audio.

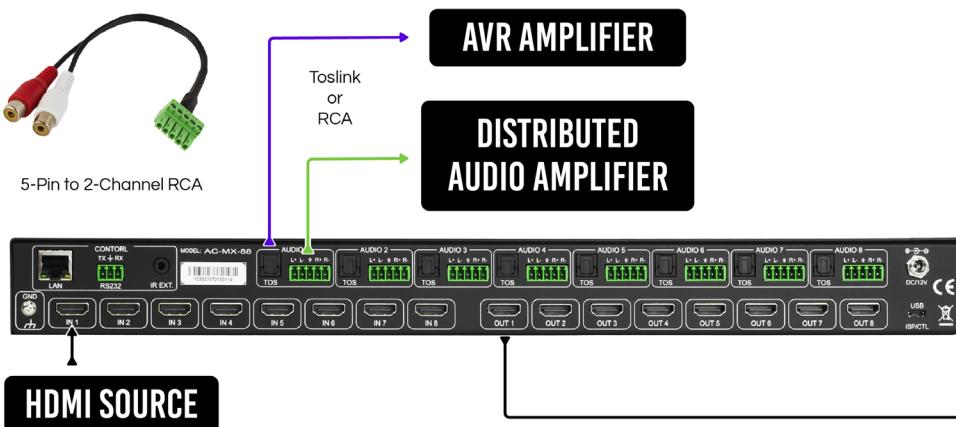
You can use balanced analog outputs in a balanced system, but you can also prep a cable as shown below to convert to a traditional 2CH unbalanced (L/R) system. You can also purchase pre-made cables (AC-CABLE-5PIN-2CH) four of these are included in the box when purchased.



**AVProedge**  
AC-MX-88

## AUDIO CONNECTION DIAGRAM

HDMI  
RCA  
TOSLINK



# Troubleshooting

- Verify Power - Check that the power supply is properly connected and on an active circuit.
- Verify Connections - Check that all cables are properly connected.
- IR Issues - Verify correct connections - Page(s) [37](#)
- Lights indicate everything is good but still not getting a picture, this may be a bandwidth limitation. See Bandwidth Chart below to verify the signal is not exceeding the bandwidth of the Extender kit (limited to 10.2Gbps).

## Bandwidth Chart

| Type      | Resolution | Frame Rate (FPS) | Colour Compression | Deep Colour Bit Depth | HDR | Wide Color Gamut (BT2020) | HDMI Version | Data Rate  | AUHD Series |
|-----------|------------|------------------|--------------------|-----------------------|-----|---------------------------|--------------|------------|-------------|
| HD        | 1920x1080  | 24               | 4:2:2              | 8 BIT                 | NO  | NO                        | 1.4          | 0.75 Gbps  | YES         |
| HD        | 1920x1080  | 60               | 4:2:2              | 8 BIT                 | NO  | NO                        | 1.4          | 4.45 Gbps  | YES         |
| HD        | 1920x1080  | 60               | 4:4:4              | 16 BIT                | NO  | NO                        | 1.4          | 5.91 Gbps  | YES         |
| UHD       | 3840x2160  | 24               | 4:2:0              | 8 BIT                 | NO  | NO                        | 1.4          | 8.91 Gbps  | YES         |
| UHD       | 3840x2160  | 24               | 4:4:4              | 8 BIT                 | NO  | NO                        | 1.4          | 8.91 Gbps  | YES         |
| 4K        | 4096x2160  | 24               | 4:4:4              | 8 BIT                 | NO  | NO                        | 1.4          | 8.91 Gbps  | YES         |
| UHD OR 4K | 3840x2160  | 60               | 4:2:0              | 8 BIT                 | NO  | NO                        | 1.4/2.0      | 8.91 Gbps  | YES         |
| UHD OR 4K | 3840x2160  | 24               | 4:2:0              | 10 BIT                | YES | YES                       | 2.0(A/B)     | 8.91 Gbps  | YES         |
| UHD OR 4K | 3840x2160  | 24               | 4:2:2              | 12 BIT                | YES | YES                       | 2.0(A/B)     | 11.14 Gbps | YES         |
| UHD OR 4K | 3840x2160  | 24               | 4:4:4              | 10 BIT                | YES | YES                       | 2.0(A/B)     | 11.14 Gbps | YES         |
| UHD OR 4K | 3840x2160  | 24               | 4:4:4              | 12 BIT                | YES | YES                       | 2.0(A/B)     | 13.37 Gbps | YES         |
| UHD OR 4K | 3840x2160  | 60               | 4:2:0              | 10 BIT                | YES | YES                       | 2.0(A/B)     | 11.14 Gbps | YES         |
| UHD OR 4K | 3840x2160  | 60               | 4:2:0              | 12 BIT                | YES | YES                       | 2.0(A/B)     | 13.37 Gbps | YES         |
| UHD OR 4K | 3840x2160  | 60               | 4:2:2              | 12 BIT                | YES | YES                       | 2.0(A/B)     | 17.82 Gbps | YES         |
| UHD OR 4K | 3840x2160  | 60               | 4:4:4              | 8 BIT                 | YES | YES                       | 2.0(A/B)     | 17.82 Gbps | YES         |

# Maintenance

To ensure reliable operation of this product as well as protecting the safety of any person using or handling this device while powered, please observe the following instructions.

- Use the power supplies provided. If an alternate supply is required, check voltage, polarity and that it has sufficient power to supply the device it is connected to.
- Do not operate these products outside the specified temperature and humidity range given in the above specifications.
- Ensure there is adequate ventilation to allow this product to operate efficiently.
- Repair of the equipment should only be carried out by qualified professionals as these products contain sensitive components that may be damaged by any mistreatment.
- Only use this product in a dry environment. Do not allow any liquids or harmful chemicals to come into contact with these products.
- Clean this unit with a soft, dry cloth. Never use alcohol, paint thinner or benzene to clean this unit.

# Damage Requiring Service

The unit should be serviced by qualified service personnel if:

- The DC power supply cord or AC adapter has been damaged
- Objects or liquids have gotten into the unit
- The unit has been exposed to rain
- The unit does not operate normally or exhibits a marked change in performance
- The unit has been dropped or the housing damaged

# Support

Should you experience any problems while using this product, first, refer to the Troubleshooting section of this manual before contacting Technical Support. When calling, the following information should be provided:

- Product name and model number
- Product serial number
- Details of the issue and any conditions under which the issue is occurring
- Clean this unit with a soft, dry cloth. Never use alcohol, paint thinner or benzene to clean this unit.

# Warranty

## THE BASICS.

AVPro Edge warranties its products that are purchased from all Authorized AVPro Edge Resellers or direct purchases. Products are guaranteed to be free from manufacturing defects and of sound physical and electronic condition.

AVPro Edge has developed a warranty that anyone can get behind. We really wanted to take all the "red tape" out of a warranty and just make it simple. Our 10 YEAR NO BS warranty hinges on 3 elements.

1. If you are having trouble, call us. We will attempt to troubleshoot your issue over the phone.
2. If it's broke - We'll replace it in advance on our dime. (We'll cover return shipping too.) Repair is an option too, but it's YOUR call.
3. We know you know what you are doing. We will not make you go through unnecessary steps to troubleshoot an extender...

## COVERAGE DETAILS.

AVPro Edge will replace or repair (at customer choice) the defective product. If the product is out of stock or on back order it can either be replaced with a comparable product of equal value/feature set (if available) or repair.

Your warranty begins at receipt of product (as confirmed by shipping firm tracking). If tracking information is unavailable for any reason, the warranty will commence 30 ARO (After Receipt of Order). The coverage continues for 10 YEARS.

## **RED TAPE.**

AVPro Edge is not responsible for untraceable purchases or those that were made outside of an authorized channel.

If we conclude that a product or serial number has been tampered with as identified by warranty seal or physical examination the warranty will be void. Additionally, excessive physical damage (beyond normal wear & tear) the warranty may be voided or pro-rated based on the extent of the damage as examined by an AVPro Edge representative.

Damage caused by "acts of God" are not covered. They can include natural disasters, power surges, storms, earthquakes, tornadoes, sink holes, typhoons, tidal waves, hurricanes, or any other uncontrollable event related to nature.

Damage caused by incorrect installation will not be covered. Incorrect power supply, inadequate cooling, improper cabling, inadequate protection, static discharge are examples of this.

Products installed or sold by a third party to AVPro Edge will be serviced by the Authorized AVPro Edge Re-seller.

Accessories (IR Cables, RS-232, Power Supplies, etc...) are not included in the warranty. We will make acceptable effort to source and supply replacements for defective accessories at a discounted rate as needed.

## **OBTAINING AN RMA.**

Dealers, Re-sellers, and Installers can request an RMA AVPro Edge Tech Support Rep or their Sales Engineer. Or you may email [support@avproedge.com](mailto:support@avproedge.com) or fill out the general contact form at [www.avproedge.com](http://www.avproedge.com)

End users may not request an RMA directly from AVPro Edge and will be referred back to the Dealer, Re-seller or Installer.

## **SHIPPING.**

For USA (not including Alaska and Hawaii). Shipping is covered on advanced replacements for FedEx Ground (some expressed exceptions may apply). Defective product return shipping is covered by AVPro Edge using an emailed return label. Item must be returned within 30 days of receipt of replacement product, after 30 days, the customer will be billed. Other return shipping methods will not be covered.

For International (and Alaska and Hawaii) return shipping costs will be the responsibility of the returnee. Once the unit is scanned for return shipping AVPro Edge will ship new unit for replacement.

## **LEGAL STUFF.**

### **Limitation on Liability**

The maximum liability of AVPro Global Holdings LLC under this limited warranty shall not exceed the actual purchase price paid for the product. AVPro Global Holdings LLC is not responsible for direct, special, incidental or consequential damages resulting from any breach of warranty or condition, or under any other legal theory to the maximum extent permitted by law.

Taxes, Duties, VAT, and freight forwarding service charges are not covered or paid for by this warranty.

Obsolescence or incompatibility with newly invented technologies (after manufacture of product) is not covered by this warranty.

Obsolescence is defined as:

"Peripherals are rendered obsolete when current technology does not support product repair or re-manufacture. Obsolete products cannot be re-manufactured because advanced technologies supersede original product manufacturer capabilities. Because of performance, price and functionality issues, product redevelopment is not an option."

Discontinued or out of production items will be credited at fair market value towards a current product of equal or comparable capabilities and cost. Fair market value is determined by AVPro Edge.

### **Exclusive Remedy**

To the maximum extent permitted by law, this limited warranty and the remedies set forth above are exclusive and in lieu of all other warranties, remedies and conditions, whether oral or written, express or implied. To the maximum extent permitted by law, AVPro Global Holdings LLC specifically disclaims any and all implied warranties, including, without limitation, warranties of merchantability and fitness for a particular purpose. If AVPro Global Holdings LLC cannot lawfully disclaim or exclude implied warranties under applicable law, then all implied warranties covering this product, including warranties of merchantability and fitness for a particular purpose, shall apply to this product as provided under applicable law.

This warranty supersedes all other warranties, remedies and conditions, whether oral or written, express or implied.





Thank you for choosing AVProEdge!

Please contact us with any questions, we are  
happily at your service!

 AVProedge

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