User Manual

18 Gbps True 4K60 4:4:4 HDBaseT 4x4 Matrix w/ Mirrored 18Gbps HDMI Outputs. 70 Meters 4K 60 4:4:4 & HDR / 100 Meters 1080P. Dual Audio De-Embedding, Scaling & Audio Delay.

AC-MX44-AUHD-HDBT

Introduction

The AC-MX44-AUHD-HDBT is a true HDMI/HDBaseT matrix switch. This unit includes 4/8 HDMI inputs, and 4/8 HDMI/HDBaseT output blocks. These output blocks include a HDBaseT and HDMI port, these ports are mirrored, and both are active. This Matrix supports HDMI 2.0(a/b), HDCP 2.2, up to 4K video resolution, and up to 18 Gbps bandwidth. We are able to pass 18Gbps through category cable by using the new HDBaseT technology we have developed called "ICT", learn more about ICT below. This switch allows any source (Blu-ray, UHD Blu-ray, satellite receiver, game consoles, PCs, etc ...) to be shown on any of the connected displays. This matrix equalizes and amplifies the output to ensure the HDMI signal can be transmitted through long HDMI cables without loss of quality.

Audio Delay is "On-Board" so you can manage lip-sync issue before it is a problem. Also with built in Scalers you do not have to forfeit that 4K signal just because you have a couple older displays. All that with Full EDID management allows maximum flexibility with today's wide mixture of sources and displays.This is an ideal solution for digital entertainment centers, HDTV retail, show sites, data centers, schools, conference and training centers and more!

Features

- HDMI 2.0(a/b)
- 18Gbps Uncompressed Bandwidth Support on HDMI
- 18 Gbps wit ICT on HDBaseT outputs
- 4K60 4:4:4 Support
- Full HDR Support (HDR 10 & 12 Bit)
- Dolby Vision, HDR10+ and HLG Support
- HDCP 2.2 (and all earlier versions supported)
- 1080p > 4K Up Scaling on HDMI outputs
- 4K > 1080p Down Scaling on HDBaseT outputs
- Advanced EDID Management
- IR, RS-232 and LAN Control Options
- Digital Toslink Out (7CH PCM, DD, DD+, DTS, DTS-MA)
- Balanced Analog Out (2CH PCM)
- Audio Delay for Digital & Analog Out
- HDBaseT Compatibility mode for mixed systems! (More below)
- Driver Support for Crestron, C4, RTI, ELAN and more!!!
- Extracted Audio Supports DD+, DTS Master Audio on Toslink
- Extracted Audio has 3 Operating Modes. Bound to Input, Bound to Output, or Independent Matrix
- Built in Test Pattern on Each Output to Verify Infrastructure

Whats in the box

- AC-MX44-AUHD-HDBT Matrix
- IR Remote Control (*No Battery Included)
- IR Extension Cable
- 48v Power Supply
- RS-232 terminal blocks
- Rack ears
- Grounding Strap

*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 (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	1080P TO 4K (RESOLUTIONS ONLY, FRAMRATE STAYS THE SAME)
SCALERS (HDBASET) PER OUTPUT OPTIONAL	4K TO 1080P (RESOLUTIONS ONLY, FRAMRATE STAYS THE SAME)
AUDIO:	
AUDIO FORMATS SUPPORTED HDMI	PCM 2.0 CH, LPCM 5.1 & 7.1, DOLBY DIGTAL, 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, DTS- MASTER AUDIO
AUDIO FORMATS SUPPORTED EXTRACTED (2CH PORT)	PCM 2 CH (NO DOWNMIX)
AUDIO EXTRACTION LOCATION	BIND TO INPUT, BIND TO OUTPUT, OR MATRIX (INDEPENDENT)
AUDIO DELAY (PER OUTPUT, EXTRACTED)	UP TO 630MS
DISTANCE:	
HDBASET OUT (4K60 4:4:4 & HDR) W/AC-EX70-444-RNE	70 METERS / 230 FEET (CAT 6A)
HDBASET OUT (1080P) W/AC-EX70-444-RNE	100 METERS / 330 FEET (CAT 6A)
HDBASET OUT (4K60 4:2:0 MAX) W/AC-EX70-UHD-R	40 METERS / 131 FEET (CAT 6A)
HDBASET OUT (1080P) W/AC-EX70-UHD-R	70 METERS / 230 FEET (CAT 6A)
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
BANDWIDTH HDBASET	18 GBPS (USES ICT ABOVE 10.2 GBPS SIGNALS)
HDCP	HDCP 2.2AND EARLIER
POH FOR RECEIVERS (NO NEED TO POWER RECEIVERS)	YES, ALL OUTPUTS
CONTROL:	
PORTS	LAN, RS232, IR
DRIVERS	C4, RTI, ELAN, CRESTRON, URC (FOR MORE INFORMATION - SEE DRIVERS PAGE ON AVPROEDGE.COM/DRIVERS
PC SOFTWARE	YES
LAN WEB OS	YES
PORTS:	
HDMI	TYPE A
HDBASET	RJ45 W/ POH FOR HDBASET RECEIVERS
LAN	RJ45 W/ WEB INTERFACE/ CONTROL
AUDIO (EXTRACTED DIGITAL)	TOSLINK
AUDIO (EXTRACTED ANALOG)	5 PIN TERMINAL BLOCK (BALANCED)
IR RX	3.5MM STEREO (3 CONDUCTOR)
RS232	3 PIN TERMINAL BLOCK
ENVIRONMENTAL:	
OPERATING TEMPRATURE	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)	38 WATTS MAX
POWER SUPPLY - MATRIX	INPUT: AC 100-240V ~ 50/60HZ OUTPUT: DC 48V 1.5A
DIMENSIONS:	
DIMENSIONS (UNIT ONLY - HEIGHT/DEPTH/WIDTH)	MM: 50.8 X 256 X 441.33 INCH: 2 X 10.07 X 17.375
DIMENSIONS (PACKAGED HEIGHT/DEPTH/WIDTH)	MM: 88.9 X 393.7 X 495.3 INCH: 3.5 X 15.5 X 19.5
RACK UNITS	1 UNIT
WEIGHT (UNIT)	8 LBS (3.5 KG)
WEIGHT (PACKAGED)	11 LBS (5 KG)
*SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE. MASS & DIMENSIONS ARE APPROXIMATE	

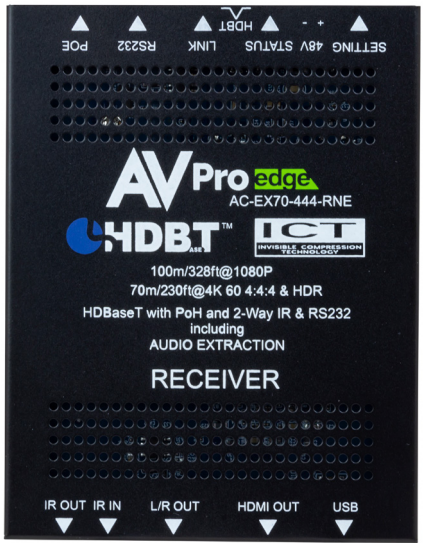
Device Overview

- Definition - Matrix switches provide the ability to route any input to any output or to multiple outputs at any time. Depending on the model, a matrix switch can route HD, UHD or AUHD content in this manner. Additionally, since most venues have both, audio zones and video zones, the requirement to breakout or strip off the audio is often necessary and has become almost a standard feature on most matrix switches.
- Control – Matrix switches are generally controlled via a third-party controller (like Control 4, RTI, Crestron, etc...). Many integrators want ready-made drivers for their control system in order to make programming and deployment easier.
- Matrix Switches are widely used in both, Commercial and Residential Applications.

Compatible HDBaseT Receivers

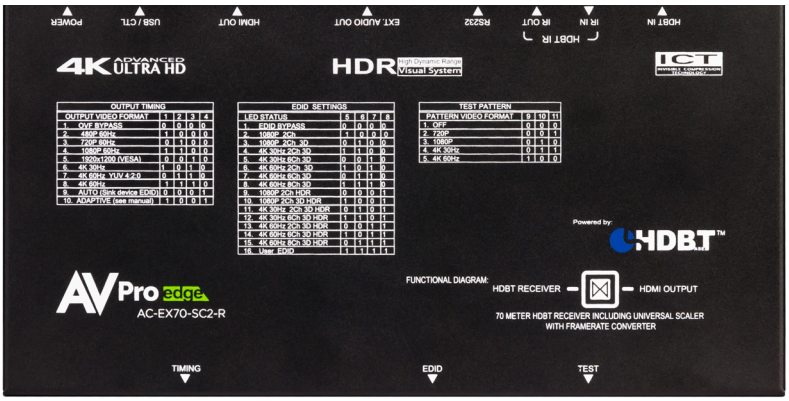
AC-EX70-444-RNE (Receiver /No Ethernet)

- 70M 4k 60 4:4:4 & HDR
- 100M 1080P



AC-EX70-SC2-R (Scaling Receiver)

- 70M 4k 60 4:4:4 & HDR
- 100M 1080P

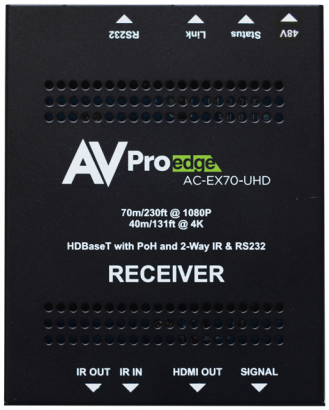


AC-CX100-RAMP

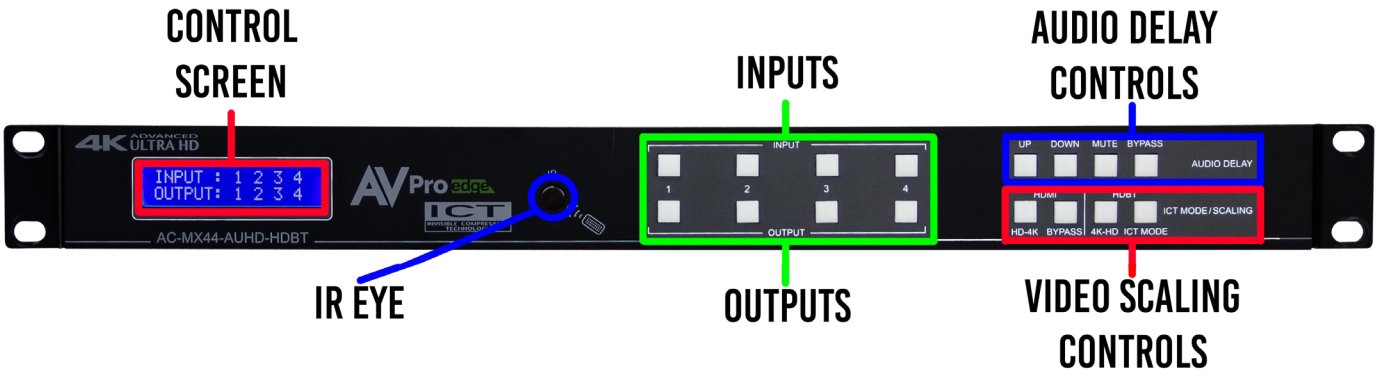
- 70M 4k 60 4:2:0 & HDR
- 70M 1080P

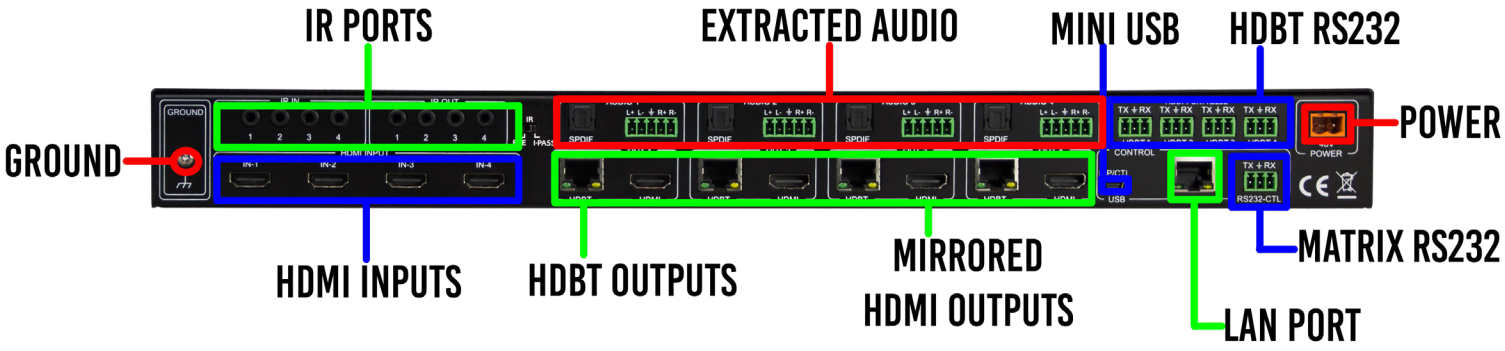
AC-EX70-UHD-R

- 40M 4k 60 4:2:0 & HDR
- 70M 1080P



Front & Rear Panel





Front Panel Button Combinations

Parameter	How To	Options
Switching Control	1. Press the OUTPUT button you want to switch. 2. Press the desired INPUT button.	
EDID Setup	1. Press and hold (3 seconds) the INPUT button of the source you want to set the EDID for. 2. Use the "UP" & "DOWN" bottons that have lit up to navigate to your desired EDID setting. 3. Quick press the same INPUT button to lock in the selection.	See EDID Management in the manual for a full list of available EDIDs.
Scaling Control	1. Press and hold (3 seconds) the OUTPUT button that you would like to scale. 2. The Bottom row of buttons on the right hand side of the machine light up, allowing you to make your selection.	- HD -->4K - 4k --> HD - AUTO (Detetcs Display) - BYPASS (No Scaling)
Audio Delay Control	1. Press and hold (3 seconds) the OUTPUT button that you would like to delay/mute 2. The TOP row of buttons on the right hand side of the machine light up, allowing you to make your selection.	- UP - DOWN - MUTE (Turns off audio) - BYPASS (No Delay)
Set Extracted Audio Bindings	1. Press and hold (3 seconds) the BYPASS button on the audio settings (top right set of buttons). 2. Press the "UP" & "DOWN" buttons to switch between the desired settings. 3. Press the BYPASS button again to set the selection. Note: If "Matrix" is selected, you will be able to route audio. Please see "Extracted Audio Switching" 4. Press the BYPASS button again to exit.	- Bind to OUTPUT - Bind to INPUT - Matrix Note: Send switching commands from the front panel by selecting "Matrix" when in audio mode.
Extracted Audio Switching	1. Press and hold (3 seconds) the BYPASS button on the audio settings (top right set of buttons). 2. The screen will say "Matrix" 3. Quick press the BYPASS button again to enter Extracted Audio Switching, to switch - Press the OUTPUT you would like to change - Press the INPUT you would like to route to the previously selected OUTPUT 4. When finished, press the BYPASS button again in order to exit.	Note: Audio switching commads are ONLY available from the front panel when the audio mode is set to "MATRIX". Note: The web interface may be easier for active, live, switching.
Initialize Test Pattern Output	1. Press and hold (3 seconds) the desired INPUT & OUTPUT buttons together 2. Repeat step 1 to turn off the test pattern	Example: Pressing and holding INPUT 1 & OUTPUT 1 at the time for 3 seconds will generate a test pattern out of OUTPUT 1
Toggle DHCP Mode	1. Press and hold (3 seconds) INPUT 1 & INPUT 4 together	Toggles DHCP OFF/ON
View Network Settings	1. Press and hold (3 seconds) INPUT 3 & INPUT 4 together	The Screen will flash the following: - Device IP - Host IP - Subnet Mask - MAC Address
View Firmware Versions	1. Press and hold (3 seconds) INPUT 2 & INPUT 4 together	Displays Current Firmware
Factory Reset	1. Press and hold (10 seconds) HD->4k/4k->HD/MUTE/ and BYPASS buttons at the same time.	Resets to Factory Defaults

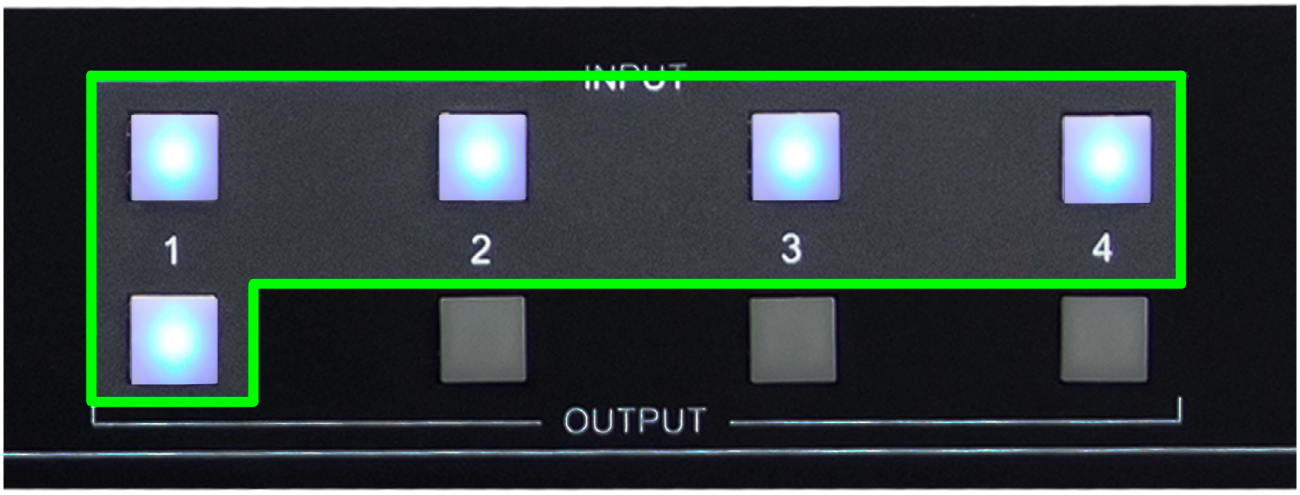
Front Panel Control - Switching

The AC-MX44-AUHD-HDBT can be switched from the front panel by selecting the desired OUTPUT button first, and then selecting the desired INPUT button.

1. Press the OUTPUT button (1 through 4) 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 switch will illuminate the OUTPUT button that you selected (1, 2, 3, 4) along with the INPUT row indicating that it is ready for you to select your desired INPUT.

3. Press the desired INPUT number.



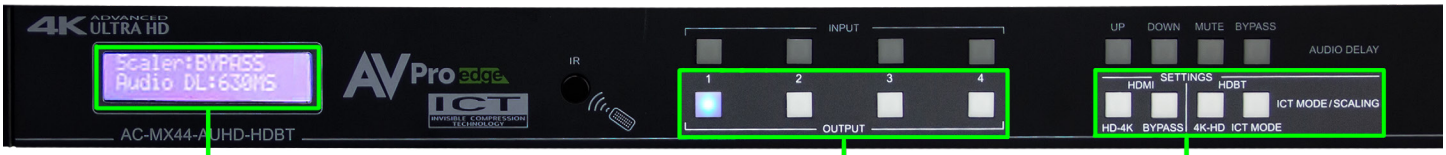
Example above shows OUTPUT #1 being selected, the INPUT lights will stay lit until one is selected.

Front Panel Control - Scaling

The AC-MX44-AUHD-HDBT has scalers built into every output. The HDbaseT Ports can be DOWN-SCALED and the HDMI Ports can be UPSCALED. The scalers are set on the OUTPUT side of the switch and each can have separate settings.

- HD-4K (Scales 1080P to 2160P - On HDMI Port Only)
- ICT Mode (Enables ICT Compression mode on HDBT Port) - DEFAULT
- 4K-HD (Scales 2160P to 1080P - On HDBT Port Only)
- AUTO (Automatically detects capabilities of attached display - for HDBT Port Only)
- BYPASS (There will be no scaling set)

NOTE: When using a non ICT receiver the unit automatically applies HDBT-C mode when ICT mode is selected, which reduces 10-18Gbps content to 9Gbps for legacy infrastructures. This mode maintains 4K resolution, but removes HDR.



The LCD Screen shows the current status

STEP 1: Press and hold the desired OUTPUT you want to scale

STEP 2: Choose the scaler mode

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 you choosen scaling mode. Or wait 5 seconds and the matrix will automatically exit and keep any changes made.

Front Panel Control - Audio Binding

The AC-MX44-AUHD-HDBT 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.

Audio Matrix Control:

Once in "Matrix" mode for audio, the extracted audio routing on the AC-MX44-AUHD-HDBT 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-MX44-AUHD-HDBT 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.

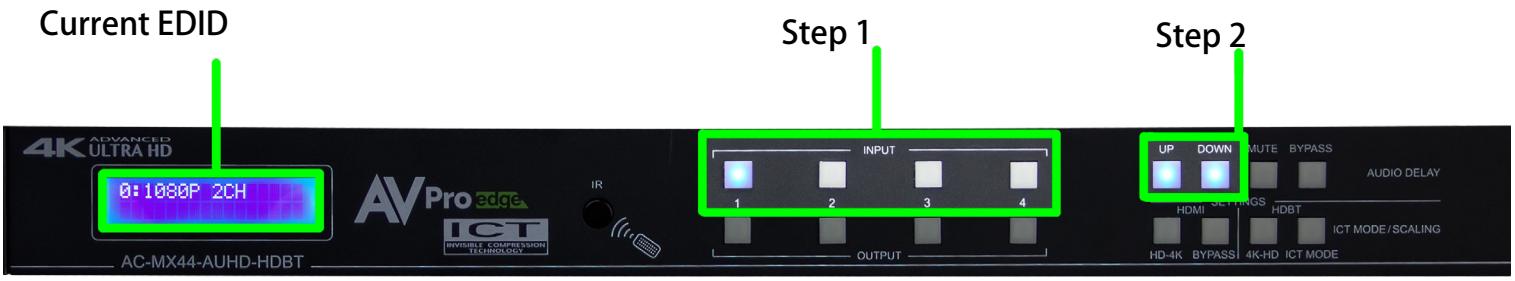
EDID Management:

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:

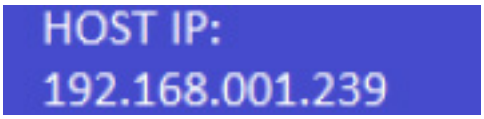
1.	1080P_2CH	17.	1080P_8CH_HDR
2.	1080P_6CH	18.	1080P_3D_2CH_HDR
3.	1080P_8CH	19.	1080P_3D_6CH_HDR
4.	1080P_3D_2CH	20.	1080P_3D_8CH_HDR
5.	1080P_3D_6CH	21.	4K30HZ_3D_2CH_HDR
6.	1080P_3D_8CH	22.	4K30HZ_3D_6CH_HDR
7.	4K30HZ_3D_2CH	23.	4K30HZ_3D_8CH_HDR
8.	4K30HZ_3D_6CH	24.	4K60HzY420_3D_2CH_HDR
9.	4K30HZ_3D_8CH	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.

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:



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, most IP settings have to be managed in the Free PC Software or by using RS-232 commands.

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).

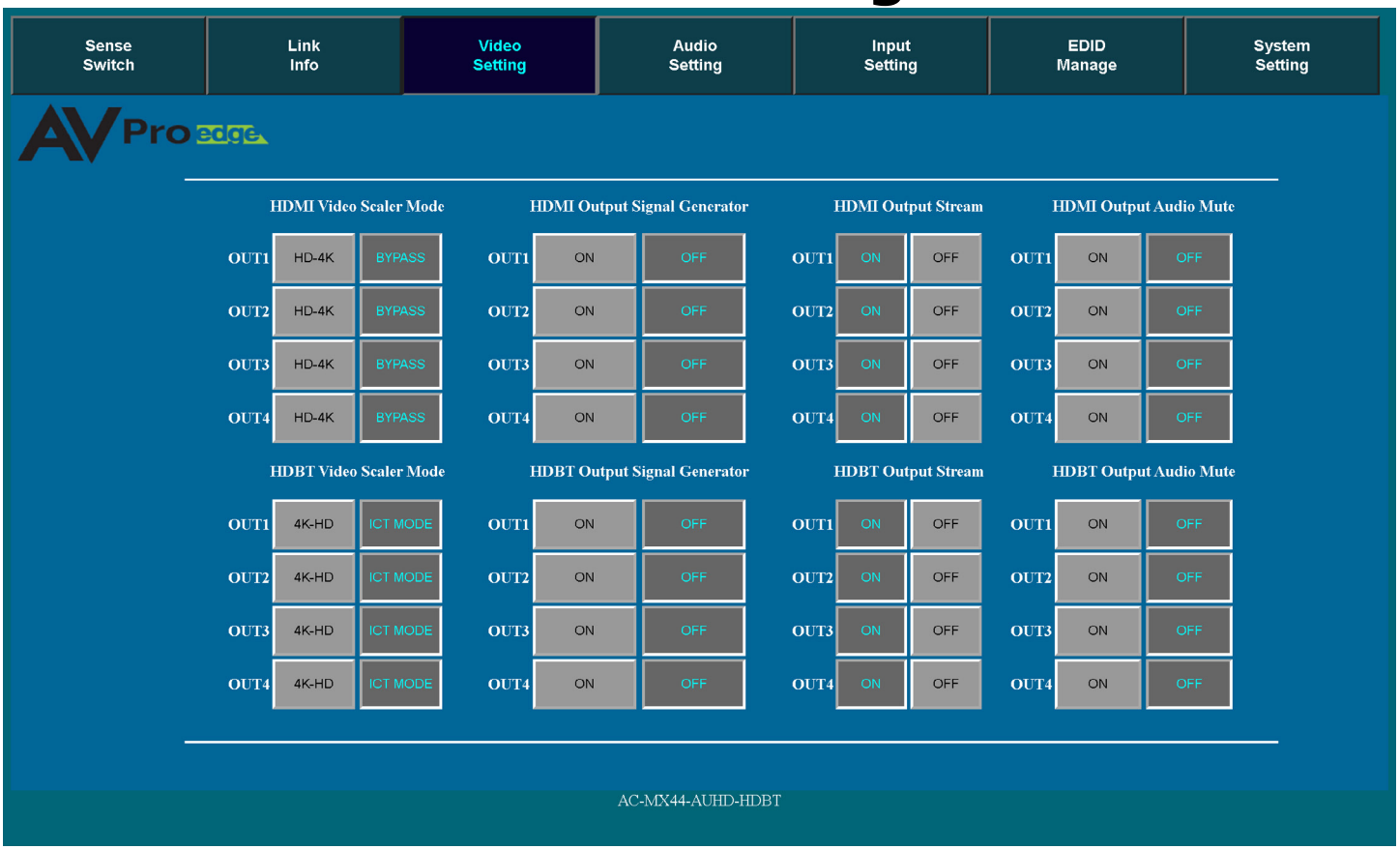
Web Interface: Switching

Use this page to switch between inputs and outputs from the web interface.

Web Interface: Link Info

Use this page to view the Video Info (Resolution, Timing, Color Space) of each of the 4 HDMI INPUTS.

Web Interface: Video Settings



HDMI Video Scaler Mode:
With the video scaler mode, you can scale each HDMI output independently

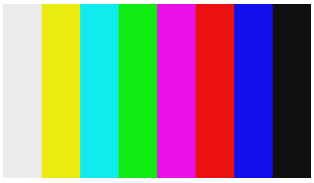
- **BYPASS** = Bypass - Scaler is disabled (Default).
- **HD-4K** = 2K --> 4K - If the incoming signal is 1080P it will be upscaled to 4K.

HDBT Video Scaler Mode:
With the video scaler mode, you can scale each HDBaseT output independently

- **4K-HD** = 4K --> 2K - If incoming signal is 4K, it will be downscaled to 1080P or 1900x1200 depending on the input format.
- **ICT MODE** = ICT Mode (Enables ICT (18G) Compression mode on HDBT Port) - DEFAULT.

HDMI/HDBT Output Signal Generator:
Each output (HDMI and HDBT) has a built in test pattern that can be enabled.

- **ON** = The Corresponding port will output a 1080p color bar test pattern.
- **OFF** = Test pattern disabled, normal operation (DEFAULT)..



HDMI/HDBT Output Stream:
Each output (HDMI and HDBT) can be turned ON/OFF independently

- **ON** = The Corresponding port will be powered on (DEFAULT).
- **OFF** = The corresponding port will be powered off.

HDMI/HDBT Audio Mute:
The Audio of each output (HDMI and HDBT) can be muted.

- **ON** = Audio will be muted (DEFAULT).
- **OFF** = Audio will be unaltered.

Web Interface: Audio Settings

EX-Audio Delay:
This setting allows the user to change the audio delay to overcome lip-sync issues when using audio separate from HDMI. The user can choose from the above options in milliseconds. Bp = Bypass or No Delay. Delay can be different per audio output port.

Audio Status:
This allows the user to turn ON and OFF the extracted audio output. When this is set to OFF the audio is muted from the extracted port.

Audio Matrix:
This allows the user to route the audio in a matrix fashion for the extracted audio ports.

NOTE: The Audio Matrix Function only works if "MATRIX" is selected on the right (See next explanation).

Ex-Audio Matrix Mode:
This allows the user to set a binded audio setting or set the extracted audio to Matrix. The options are:

- **Bind to Input** - The extracted audio port is always fixed to a specific input. For example, when a source is plugged into INPUT 1, OUTPUT 1 will always have the audio signal from INPUT 1. This will happen regardless of which input is selected for OUTPUT 1
- **Bind to Output (Default)** - The extracted audio always follows the corresponding HDMI output. For example, in this mode AUDIO OUT 1 and HDMI OUT 1 are the same (Switched Together).
- **Matrix** - You can set to "Matrix" and it will allow routing of the audio as a separate, stand-alone "Matrix". This allows use of the "Audio Matrix" buttons pictured above.

Web Interface: Input Settings

Input Port Status:
The HDMI Input ports can be turned ON and OFF independently

- **ON** = The Corresponding port will be powered on (DEFAULT).
- **OFF** = The corresponding port will be powered off.

Web Interface: EDID Management

EDID Manage:

Using the built-in EDID manager, a multitude of EDID's can be set for each input, and each input can be assigned a different EDID. This should be used to optimize or to manage infrastructure.

The EDID options are:

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

NOTE: You can copy the EDID from any output and apply it to any input. Select "Copy EDID from Output x" (x=1-8). This will copy the EDID from the display and apply it to the selected input. The new EDID will be stored as "USER EDID1"

Web Interface: System Settings

IP Settings:

Here you can change network settings for the following:

- Static IP
- Subnet Mask
- Router IP
- TCP Port
- Enable DHCP

Port Alias Settings:

Here you can rename the inputs and outputs for easy management. Each custom name is limited to eight (8) characters.

IR Control:

IR Remote Control:

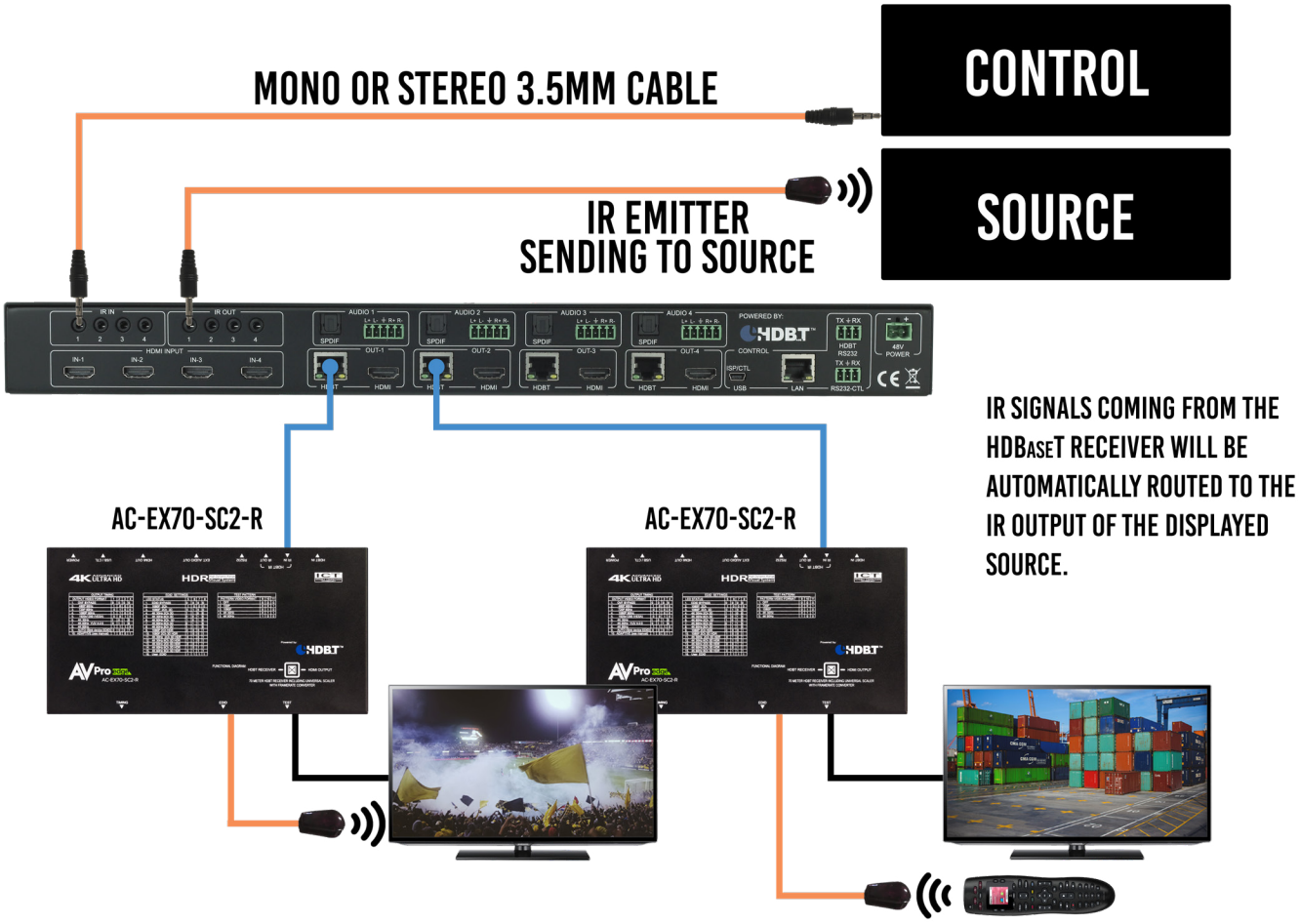
When routing HDMI, the matrix can be controlled by using the IR remote supplied with the product (battery not included, requires CR2025).

The labels on the left are the OUTPUT numbers.

The left arrow button decrements to the next input port, and the right arrow increments to the next input port.
The numbers are for selecting a desired INPUT.

2 WAYS FOR IR SWITCH CONTROL

IR Continued:



IR NOTES (On the Matrix):

1. By default the IR IN is routed to the corresponding HDBaseT Output number (ie. IR IN #1 --> HDBaseT Output 1, IR IN #2 --> HDBaseT Output 2, etc...)
2. By default the IR OUT is automatically routed with the active source (ie. If you are watching INPUT 3 on HDBaseT OUTPUT 1, when you point a remote at an IR Receiver on the HDBaseT Rx connected the signal will be routed to IR OUT 3)
3. Each IR IN can be routed in any way you like (One to one or one to many) by using the command SET IRC EXT SW x1.x2.x3.x4 (See below).
4. Each IR OUT can be routed manually as well using the command SET IRC OUTx VS INy. This can also be controlled by the Web Interface

IR NOTES (On the HDBaseT Receiver):

1. IR OUT = IR Emitter for sending signals to a Display or Projector (Note - Use Provided Emitters)
2. IR IN = For sending IR signals back to the Matrix for switching AND to send IR signals to the IR OUT on the Matrix - by default the IR OUT on the matrix is automatically routed with the active source (ie. If you are watching INPUT 3 on HDBaseT OUTPUT 1, when you point a remote at an IR Receiver on the HDBaseT Rx connected the signal will be routed to IR OUT 3)

RS-232 and TCP/IP Control:

The AC-MX44-AUHD-HDBT 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.

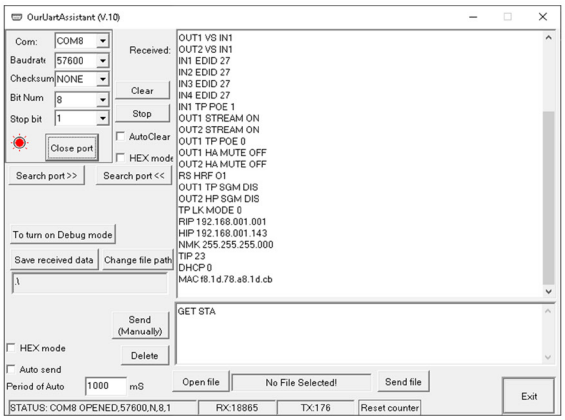
For TCP/IP control commands use Telnet Port 23.

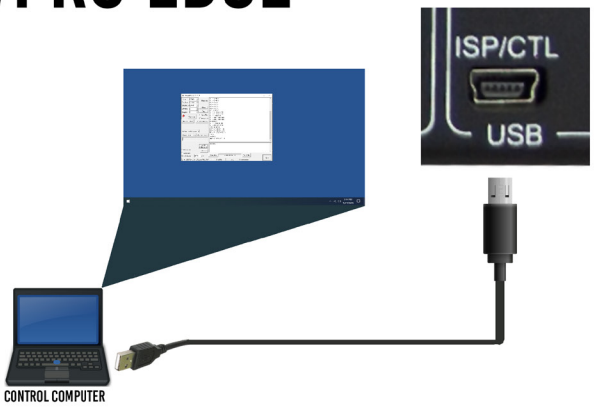
For RS-232, use a null modem serial cable adapter and set the serial communications to: 57600,n,8,1 (baud: 57600, no parity, 8 data bits and 1 stop bit) with no handshaking.

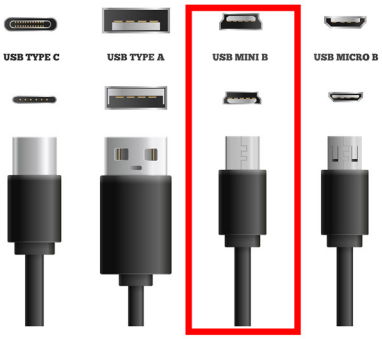
Please add a return (Enter key) after each command when using direct commands..

The unified command list (ASCII) is listed on the next two pages.

USB CONTROL FOR AVPRO EDGE





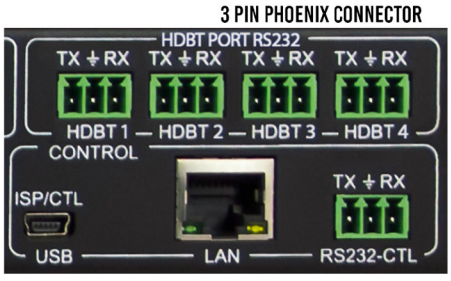


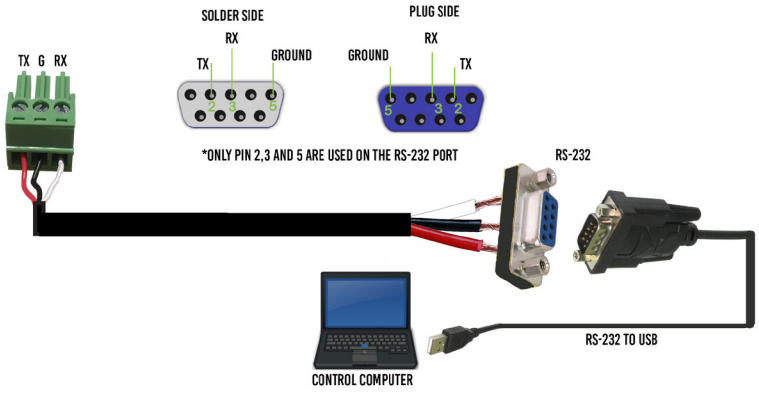
OTHER TOOLS & DRIVERS

MyUart Serial Communicator: Used to send direct serial commands to our products.

Universal FTDI USB-->Serial Driver: Used with SIX-G/SIX-A & Fox & Hound 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 RBT	: Reboot Device
SET RST	: Reset to Factory Defaults
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
GET ADDR	: Get System Address
GET BAUDR	: Get System BaudRate Status
GET STA	: Get System System Status
GET INx SIG STA	: Get Input x Signal Status{x=[0~4](0=ALL)}
GET INx VID FMT INF	: Get Input x Video information{x=[0~4](0=ALL)}
GET LCD ON T	: Get LCD Remain On Time
GET KEY LOCK	: Get Key Lock Status
Output Setup Commands:	
SET OUTx VS INy	: Set Output x To Input y{x=[0-4](0=ALL), y=[1-4]}
SET OUTx HP VIDEOy	: Set HDMI Output VIDEO Mode {x=[0~4](0=ALL), y=[1,3](1=BYPASS,3=2K->4K)}
SET OUTx TP VIDEOy	: Set HDBT Output VIDEO Mode {x=[0~4](0=ALL), y=[2,5](2=4K->2K,5=ICT Mode)}
SET OUTx EXA EN/DIS	: Set Ex-Audio Output Enable/Disable{x=[0~4](0=ALL)}
SET OUTx EXADL PHy	: Set Ex-Audio Delay {x=[0~4](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=[0~4](0=ALL), y=[1~4]}
SET OUTx HP SGM EN/DIS	: Set HDMI Output Signal Generator Enable/Disable{x=[0~4](0=ALL)}
SET OUTx TP SGM EN/DIS	: Set HDBT Output Signal Generator Enable/Disable{x=[0~4](0=ALL)}
SET OUTx HP STREAM ON/OFF	: Set HDMI Output x Stream ON/OFF{x=[0~4](0=ALL)}
SET OUTx TP STREAM ON/OFF	: Set HDBT Output x Stream ON/OFF{x=[0~4](0=ALL)}
SET OUTx HP HA MUTE ON/OFF	: Set HDMI Output x Audio Mute ON/OFF{x=[0~4](0=ALL)}
SET OUTx TP HA MUTE ON/OFF	: Set HDBT Output x Audio Mute ON/OFF{x=[0~4](0=ALL)}
SET OUTx TP POE y	: Set Output x POE Mode{x=[0~4](0=ALL),y=[0~1](0=Auto,1=Force)}
GET OUTx VS	: Get Output x Video Route {x=[0~4](0=ALL)}
GET OUTx HP VIDEO	: Get HDMI Output x Video Mode{x=[0~4](0=ALL)}
GET OUTx TP VIDEO	: Get HDBT Output x Video Mode{x=[0~4](0=ALL)}
GET OUTx HP EDID DATA	: Get HDMI Output x EDID DATA{x=[1~4]}
GET OUTx TP EDID DATA	: Get HDBT Output x EDID DATA{x=[1~4]}
GET OUTx EXA	: Get Ex-Audio Output Enable/Disable Status{x=[0~4](0=ALL)}
GET OUTx EXADL PH	: Get Ex-Audio Output Delay Status{x=[0~4](0=ALL)}
GET EXAMX MODE	: Get Ex-Audio Matrix Mode
GET OUTx AS IN	: Get Output x Ex-Audio Route{x=[0~4](0=ALL)}
GET OUTx HP SGM	: Get HDMI Output Signal Generator Enable/Disable Status{x=[0~4](0=ALL)}
GET OUTx TP SGM	: Get HDBT Output Signal Generator Enable/Disable Status{x=[0~4](0=ALL)}
GET OUTx HP STREAM	: Get HDMI Output x Stream ON/OFF Status{x=[0~4](0=ALL)}
GET OUTx TP STREAM	: Get HDBT Output x Stream ON/OFF Status{x=[0~4](0=ALL)}
GET OUTx HP HA MUTE	: Get HDMI Output x Audio Mute ON/OFF Status{x=[0~4](0=ALL)}
GET OUTx TP HA MUTE	: Get HDBT Output x Audio Mute ON/OFF Status{x=[0~4](0=ALL)}
GET OUTx TP POE	: Get Output x POE Mode{x=[0~4](0=ALL)

Command List Continued:

Input Setup Commands:		
SET INx EDID y	: Set Input x EDID{x=[0~4](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_6CH_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 HP	: Copy HDMI Output y EDID To Input x(USER1 BUF){x=[0~4](0=ALL), y=[1~4]}	
SET INx EDID CY OUTy TP	: Copy HDBT Output y EDID To Input x(USER1 BUF){x=[0~4](0=ALL), y=[1~4]}	
SET INx EDID Uy DATAz	: Write EDID To User y Buffer of Input x{x=[0~4](0=ALL), y=[1~3],z=[EDID Data]}	
SET INx TMDS ON/OFF	: Set Input Port Power On/Off{x=[0~4](0=ALL)}	
GET INx EDID	: Get Input x EDID Index{x=[0~4](0=ALL)}	
GET INx EDID y DATA	: Get Input x EDID y Data{x=[1~4],y=[0~32]}	
GET INx TMDS	: Get Input Port Power On/Off State{x=[0~4](0=ALL)}	
Network Setup Command:	: (xxx=[000-255], zzzz=[0001~9999]	
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	
IR Route Setup Command:		
SET IR EXT SW x1.x2.x3.x4	: Set IR Extender Switch {x1~x4=[0-1](0=Disable,1=Enable)}	
GET IR EXT SW	: Get IR Extender Switch Status	
RS232 Route Setup Command:		
SET RS PTH OUTx LENy BRz	: Set RS232 Pass Through to Outputx {x=[0-4](0=ALL),y=[1~100],	
	z=[0~5](0=9600,1=14400,2=19200,3=38400,4=57600,5=115200)}	
IR Code Setup Command		
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]}	
GET IR SYS	: Get IR Custom Code	
GET IR OUTx Iny CODE	: Get IR Data Code	

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:

From 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.

From Output ~ This configuration will vautomatically 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, WebOS, Driver or by sending the following command:

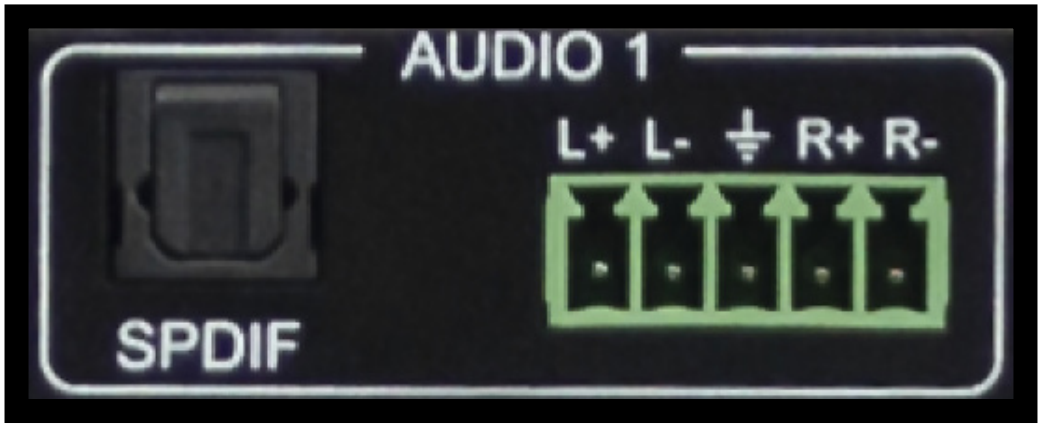
SET EXAMX MODEx -- Where {x=[0~2](0=Bind To Output,1=Bind To Input,2=Matrix}

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]}

NOTE: 2CH Balanced Audio Port - Supports 2CH PCM audio only, which is ideal for 2 Channel systems and zoned audio systems. THIS UNIT DOES NOT DOWN-MIXING.

Toslink Audio Port /SPDIF - Supports PCM, LPCM (up to 7CH), Dolby Digital, Dolby Digital Plus, DTS, DTS-HD, DTS Master Audio, which is ideal for multi-channel audio systems and older AVRs that do not support 18Gbps.



Audio Output Logic and Cable Prep:

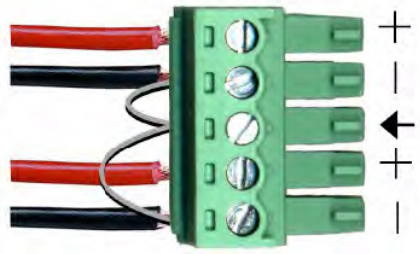
You can extract audio from toslink or balance 2CH Audio. Audio outputs are an un-decoded output. This means that what goes in, is what goes out. That means if your source is outputing 5.1 audio, then the 2CH ports will not pass audio.

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-MX44-AUHD-HDBT-AVDM.

Toslink Audio Port - Supports PCM, LPCM (up to 7CH), Dolby Digital, Dolby Digital Plus, DTS, DTS-HD, DTS Master Audio, which is ideal for multi-channel audio systems and older AVRs that do not support 18Gbps.

Need to down-mix for combination, uncompressed and 2CH systems? Check out the AC-ADM-AUHD and AC-ADM-COTO, or the AC-MX44-AUHD-HDBT-AVDM

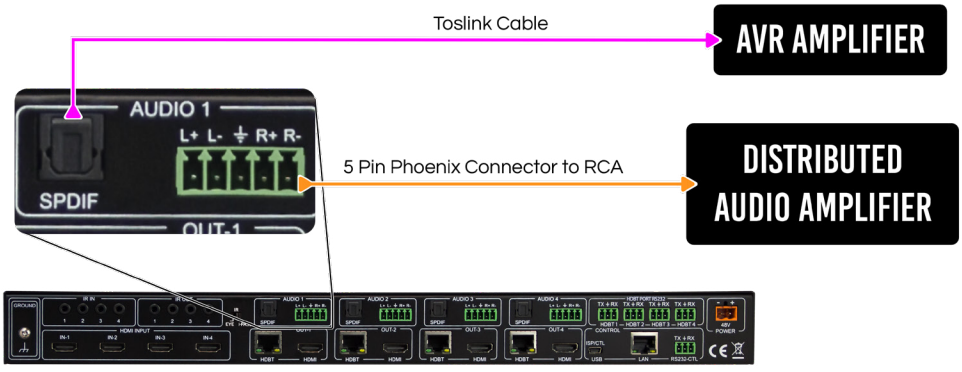
You can use balanced analog outputs in a balanced system, but you can also prep a cable as shown below to convert to a traditional 2CH unbalanced (L/R) system. You can also purchase pre-made cables (AC-CABLE-5PIN-2CH)

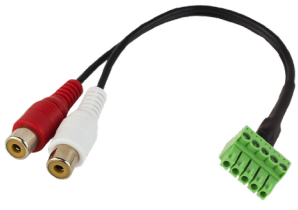


*make sure ground is always connected

AC-CABLE-5PIN-2CH

AUDIO CONNECTION DIAGRAM





AC-CABLE-5PIN-2CH

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.
- TX/RX Indicator Troubleshooting Lights - Pg. 5-6
- IR Issues - Verify correct connections - P. 8-9
  Note: Visibly flashing Emitters may not function properly, if you are experiencing issue try the IR Cables that come in the box.
- Lights indicate everything is good but still not getting a picture, this may be a bandwith limitation. See Bandwith Chart below to verify the signal is not exceeding the bandwith of the Extender kit (limited to 10.2Gbps).

Bandwith 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 adaptor 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

If your product does not work properly because of a defect in materials or workmanship, AVProEdge (referred to as "the warrantor") will, for the length of the period indicated as below, (Parts/Labor (10) Years), which starts with the date of original purchase ("Limited Warranty period"), at its option either (a) repair your product with new or refurbished parts, or (b) replace it with a new or a refurbished product. The decision to repair or replace will be made by the warrantor. During the "Labor" Limited Warranty period there will be no charge for labor. During the "Parts" warranty period, there will be no charge for parts. You must mail-in your product during the warranty period. This Limited Warranty is extended only to the original purchaser and only covers product purchased as new. A purchase receipt or other proof of original purchase date is required for Limited Warranty service.

This warranty extends to products purchased directly from AVPro or an authorized dealer. AVPro is not liable to honor this warranty if the product has been used in any application other than that for which it was intended, has been subjected to misuse, accidental damage, modification or improper installation procedures, unauthorized repairs or is outside of the warranty period. Please direct any questions or issues you may have to your local dealer before contacting AVPro.

Thank you for choosing AVProEdge!

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

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