ANI-1082UHD

**10x10 HDMI and HDBaseT™ Matrix
with Audio Matrixing & LAN Serving**

A▸NEUVIDEO®

AUDIO / VIDEO MANUFACTURER

SAFETY INFORMATION

1. To ensure the best results from this product, please read this manual and all other documentation before operating your equipment. Retain all documentation for future reference.

2. Follow all instructions printed on unit chassis for proper operation.

3. To reduce the risk of fire, do not spill water or other liquids into or on the unit, or operate the unit while standing in liquid.

4. Make sure power outlets conform to the power requirements listed on the back of the unit. Keep unit protected from rain, water and excessive moisture.

5. Do not attempt to clean the unit with chemical solvents or aerosol cleaners, as this may damage the unit. Dust with a clean dry cloth.

6. Do not use the unit if the electrical power cord is frayed or broken. The power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords and plugs, convenience receptacles, and the point where they exit from the appliance.

7. Do not force switched or external connections in any way. They should all connect easily, without needing to be forced.

8. Always operate the unit with the AC ground wire connected to the electrical system ground. Precautions should be taken so that the means of grounding of a piece of equipment is not defeated.

9. AC voltage must be correct and the same as that printed on the rear of the unit. Damage caused by connection to improper AC voltage is not covered by any warranty.

10. Turn power off and disconnect unit from AC current before making connections.

11. Never hold a power switch in the "ON" position.

12. This unit should be installed in a cool dry place, away from sources of excessive heat, vibration, dust, moisture and cold. Do not use the unit near stoves, heat registers, radiators, or other heat producing devices.

13. Do not block fan intake or exhaust ports. Do not operate equipment on a surface or in an environment which may impede the normal flow of air around the unit, such as a bed, rug, carpet, or completely enclosed rack. If the unit is used in an extremely dusty or smoky environment, the unit should be periodically "blown free" of foreign dust and matter.

14. To reduce the risk of electric shock, do not remove the cover. There are no user serviceable parts inside. Refer all servicing to qualified service personnel. There are no user serviceable parts inside.

15. When moving the unit, disconnect input ports first, then remove the power cable; finally, disconnect the interconnecting cables to other devices.

16. Do not drive the inputs with a signal level greater than that required to drive equipment to full output.

17. The equipment power cord should be unplugged from the outlet when left unused for a long period of time.

18. Save the carton and packing material even if the equipment has arrived in good condition. Should you ever need to ship the unit, use only the original factory packing.

19. Service Information Equipment should be serviced by qualified service personnel when:

    A. The power supply cord or the plug has been damaged.
    B. Objects have fallen, or liquid has been spilled into the equipment.
    C. The equipment has been exposed to rain.
    D. The equipment does not appear to operate normally, or exhibits a marked change in performance.
    E. The equipment has been dropped, or the enclosure damaged.

THIS SAFETY INFORMATION IS OF A GENERAL NATURE AND MAY BE SUPERSEDED BY INSTRUCTIONS CONTAINED WITHIN THIS MANUAL.

► CONTENTS

DEAR CUSTOMER

Thank you for purchasing this product. For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.

SAFETY PRECAUTIONS

Please read all instructions before attempting to unpack, install or operate this equipment and before connecting the power supply. Please keep the following in mind as you unpack and install this equipment:
• Always follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
• To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
• Never spill liquid of any kind on or into this product.
• Never push an object of any kind into this product through any openings or empty slots in the unit, as you may damage parts inside the unit.
• Do not attach the power supply cabling to building surfaces.
• Use only the supplied power supply unit (PSU). Do not use the PSU if it is damaged.
• Do not allow anything to rest on the power cabling or allow any weight to be placed upon it or any person walk on it.
• To protect the unit from overheating, do not block any vents or openings in the unit housing that provide ventilation and allow for sufficient space for air to circulate around the unit.

DISCLAIMERS

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INTRODUCTION

This 10x10 HDMI/HDBaseT™ Matrix supports routing and transmission of video (for resolutions up to 4K@60Hz w/ HDMI 2.0 & HDCP 2.2) and audio (multi-channel digital/stereo analog) while providing flexible control via IR, RS-232, Telnet or WebGUI. As many as (10) HD sources may be routed to any of the (8) destinations via a single CAT5e/6/7 cable (up to 328 ft/100M at 1080p or up to 197ft/60M at 4K@30Hz). The (2) HDMI 2.0 outputs support transmission of 6G UltraHD HDMI sources (Up to 4K@60Hz YUV 444 (6G)) from any HDMI inputs (Up to 4K@60Hz YUV 444 (6G)) or they can mirror any of the HDBaseT™ outputs (Up to 4K@60Hz YUV 420 (3G)) for local monitoring. 3D video is also supported when compatible sources and displays are connected. This product supports passing 7.1 channel LPCM digital audio as well as advanced bitstream and HD bitstream audio formats. Additionally, (4) analog audio outputs are available to provide stereo breakout audio from the associated HDBaseT™ output (LPCM 2.0 sources only).

Beyond basic video routing, this product also incorporates an independent audio matrix with (14) audio outputs and (10) audio inputs. Offering discrete audio routing, insertion and extraction, this product makes it possible to have multiple audio zones within your installation. Additionally the matrix contains (3) independent audio mixers allowing for applications such as adding music or a voice over to existing video. This product supports the Optical Audio Return (OAR) channel feature, found on compatible HDBaseT™ receivers, allowing optical audio sources connected to those receivers to be sent back to the matrix unit.

LAN support allows your 100BaseT™ network to be extended to smart TVs or game consoles. Internally generated test patterns (up to 6G UHD resolutions) are provided to assist with setup, providing a simple way to verify both matrix and sink functionality. The Power over HDBaseT™ (PoH) function can power compatible receivers, providing greater flexibility in your installations. Control via manual selection buttons, WebGUI, Telnet, RS-232 or IR remote.

The HDMI over single CAT5e/6/7 Receiver is a great solution to extend uncompressed Audio/Video and IP data over a single CAT5e/6/7 cable at a distance up to 328ft (100M). Multi-control interfaces are available which includes IR, RS-232, USB and LAN connection. This extender set complies with advanced protocols of HDCP 2.2 and HDMI 2.0, and HDCP 1.4 is also supported. 6G HDMI video supports and extends 4K2K data with features like "Optical Audio Return" which supports audio from the Receiver back to the ANI-1082UHD. The "audio insertion" allows you to insert external audio into HDMI video for applications such as background music insertion. HDBaseT clock stretch and TMDS re-clocking are also supported. The Receiver can be powered via the PoE 48V function of the ANI-1082UHD, allowing for greater flexibility to fit different installation scenarios. These products have a 3 year warranty.

PACKAGE CONTENTS

Before attempting to use this unit, please check the packaging and make sure the following items are contained in the shipping carton:

- ANI-1082UHD 10x10 HDMI and HDBaseT™ Matrix with Audio Matrixing
- ANI-9251RX HDMI over CAT5e/6/7 Receiver
- Remote Control (ANI-163)
- (3) IR Extender Cable
- (3) IR Blaster Cable
- (2) 24V/6.25A DC Power Adaptor
- 48V/0.83A DC power adapter
- (3) Power Cord
- RS-232 terminal (Phoenix Connector)
- Audio terminal (Phoenix Connector)
- (1) Rack Ear Set
- Users Guide

FEATURES

- HDMI 2.0, HDCP 1.4 and HDCP 2.2 compliant
- Routes (10) HDMI sources to (10) displays using (8) HDBaseT™ outputs and (2) independent or mirrored HDMI outputs
- HDBaseT™ 5-Play™ Convergence: High-Definition video and audio, 100BaseT™ Ethernet, PoH (Power over HDBaseT™) and control (Bi- directional IR & RS-232 pass through)
- Supported HDBaseT™ Resolutions: VGA~WUXGA, 480i~1080p, 4K@24/25/30Hz (RGB, YUV 4:4:4 & YUV 4:2:2) & 4K@60Hz (YUV 4:2:0) dependent upon the output display's EDID settings
- Supports HDMI output resolutions up to 4K@60Hz (RGB/YUV 4:4:4)
- Supports automatic 4K@60Hz RGB/YUV 4:4:4 to YUV 4:2:0 conversion for HDBaseT™ outputs
- 4K@30Hz signals can be transmitted up to 198ft/60M via CAT5e/6 and up to 328ft/100M via CAT6a/7
- Supports pass-through of all standard digital audio formats: LPCM 2.0/5.1/7.1, bitstream and HD bitstream
- Supports audio matrix functionality enabling full audio management of the system including HDBaseT™ audio selection, fully independent audio-only zones and HDMI audio embedding and de-embedding (LPCM only)
- Supports Digital to Analog Conversion (DAC) and Analog to Digital Conversion (ADC) for audio integration
- Supports integrated audio over CAT inputs and outputs for transmission up to 984ft/300M
- Supports volume, treble, bass, and audio delay for lip-sync (up to 230ms) on analog audio outputs and mute on all outputs
- HDBaseT™ outputs with Optical Audio Return (OAR) support
- Audio mixer functionality (3 mixers in total)
- Advanced internal and external EDID management with (4) sets of configurable EDID settings
- Internal test pattern generation for self and sink testing
- Capable of generating test signals up to 4K@60Hz
- Bi-directional IR support over HDBaseT™
- Control via front panel controls, Ethernet (Telnet & WebGUI), RS-232 & IR remote
- 2U rack mounted design

RECEIVER

- HDCP 1.4/HDCP 2.2 and HDMI 2.0 compliant
- HDMI with 3D, 4K2K@60Hz support and DVI Compliant
- Simultaneous transmission of uncompressed data over a single CAT5e/6/7 cable up to 100M /328 ft at 1080p and 70M/230ft at 4K2K@60Hz
- 5Play™ convergence: HDMI, LAN, PoE & Control (IR & RS-232)
- Supports output resolution up to 4K2K@50/60Hz (YUV 420)
- Supports deep color input and output of 8 bits, 10 bits and 12 bits
- Supports CEC bypass
- Optical audio return supports audio transmit back from receiver to ANI-1082UHD
- Audio insertion supports external audio insert to HDMI video such as background music insertion
- Supports EDID management PC software with default EDID and native EDID from display or other sink devices
- Supports HDMI DDC bus clock stretch for better compatibility of some Blu-ray players
- Manages TMDS re-clocking and signal re-generation for better signal stability
- Supports standard 48V from ANI-1082UHD to Receiver
- Easy firmware update via USB

NOTE:

1. The standard 48V PoE function is designed for powering compatible Receiver units only---non-PoE Receivers will need their own power supply. Receivers of another brand may not be compatible.
2. Displaying HDMI 3D and 4K2K content, equivalent source signal and HDMI cable are required in order to secure the quality.

SYSTEM REQUIREMENTS

- HDMI or DVI source equipment such as media players, video game consoles, set-top boxes, PCs or laptops. DVI equipped source devices must be connected via DVI to HDMI cables/adapters
- HDMI receiving equipment such as HDTVs, monitors or audio amplifiers
- The use of industry standard CAT6, CAT6a or CAT7 cable is highly recommended
- HDBaseT™ receivers equipped with Optical Audio Return (OAR) channel support are strongly recommended
- The use of **"Premium High Speed HDMI"** cables is highly recommended

SPECIFICATIONS

MAIN UNIT

- **Inputs:**
  - (10) HDMI (10x Uncompressed AV and Data)
  - (2) TOSLINK (2x OPTICAL 2 Channel LPCM)
  - (2) RCA (2x COAXIAL 2 Channel LPCM)
  - (8) RCA (4x Stereo (L/R))
  - (2) RJ-45 (2x IN / OUT Digital Audio Propriety Data)
  - (8) 3.5mm Stereo Mini-jack (8) Infrared Receiver)
  - 3.5mm Stereo Mini-jack (ALL Infrared Receiver)
  - RJ-45 (IP Control / LAN Serving)
  - 9-pin D-sub (RS-232 Data)
  - USB Type A (SERVICE Propriety Data)
- **Outputs:**
  - (8) RJ-45 (8x HDMI & Propriety Data)
  - (2) HDMI (2x Uncompressed AV and Data)
  - (8) RCA (4x EXTENDED Stereo (L/R))
  - (16) RCA (8x ZONE Stereo (L/R))
  - (10) 3.5mm Stereo Mini-jack (10x Infrared Emitter)
  - 3.5mm Stereo Mini-jack (ALL Infrared Emitter)
- **Video Bandwidth:**
  - HDMI: 600MHz/18Gbps
  - HDBaseT™: 340MHz/10.2Gbps
- **Control Ports:**
  - (9) IR Extenders
  - (11) IR Blasters
  - RS-232 (9-pin D-sub)
  - LAN (RJ-45)
- **Service Port:** USB 2.0
- **IR Frequency:** 38kHz
- **Baud Rate:** 115200bps
- **PSU:** 24V/6.25A
- **Dimensions (WxDxH):** 19 x 14 x 3.8 in (483x356x96mm)
- **Net Weight:** 14.3 lb/6500g
- **ESD Protection Human Body Model:**
  - ±12kV (Air Discharge)
  - ±8kV (Contact Discharge)
- **Chassis Material:** Metal
- **Silkscreen Color:** Black
- **Operating Temperature:** 0˚C ~ 40˚C / 32˚F ~ 104˚F
- **Storage Temperature:** -20˚C ~ 60˚C / -4˚F ~ 140˚F
- **Relative Humidity:** 20~90% RH (non-condensing)
- **Power Consumption:** 175W

RECEIVER

- **Inputs:**
  - CAT5e/6/7 (RJ45)
  - IR In
  - Optical In
- **Outputs:**
  - HDMI
  - IR Out 2
- **Others:**
  - LAN (RJ45)
  - RS-232 (Phoenix Connector)
  - Update slide switch
- **Video Bandwidth:** 340MHz / 10.2Gbps
- **HDMI Resolutions:**
  - HD: 480i up to 4K2K@50/60Hz (YUV 420)
  - PC: VGA up to WUXGA
- **HDMI Cable Distance Input:** 33ft (10M) 1080p@8-bit or 12-bit / 16ft (5M) 4K2K@60Hz
- **HDMI Cable Distance Output:** 33ft (10M) 1080p@8-bit or 12-bit / 16ft (5M) 4K2K@60Hz
- **CAT5e/6/7 Cable Distance:** Up to 328ft (100M)
- **RS-232 Baud Rate:** Up to 115200bps
- **IR Frequency:** 30~50kHz
- **ESD Protection:**Human Body Model:
  - ± 8kV (air-gap discharge)
  - ± 4kV (contact discharge)
- **Dimensions (WxDxH):** 3 x 6.4 x .6 in (78x163x16mm) 3 x 7.2 x .6 in (78x183x16mm) including surface mount tabs
- **Weight:** .75 lb (340g)
- **Chassis Material:** Metal
- **Color:** Black
- **Operating Temperature:** 0˚C~40˚C / 32˚F ~ 104˚F
- **Storage Temperature:** −20˚C~60˚C/−4˚F~140˚F
- **Relative Humidity:** 20~90% RH (non-condensing)
- **Power Consumption:** 19.5W

As product improvements are continuous, specifications are subject to change without notice.

FRONT PANEL
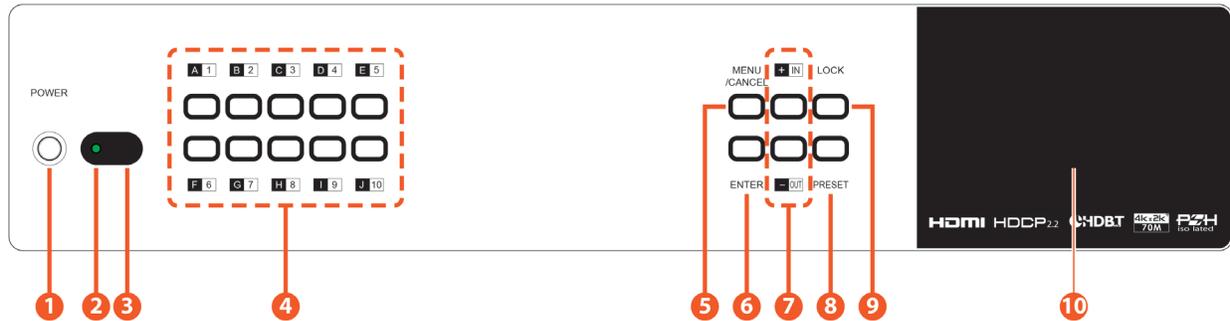
❶ POWER: Press this button to power the unit on or place it into standby mode.
NOTE: Network functionality and PoH (if the second power supply is connected) remains active when the unit is in stand-by mode.

❷ POWER LED: This LED will illuminate GREEN to indicate the unit is on and receiving power. When the unit is in stand-by mode the LED will illuminate RED.

❸ IR WINDOW: Accepts IR signals from the included IR remote for control of this unit only.

❹ OUTPUT A~J & INPUT/NUMBER 1~10: Press the **"OUT"** button to enter output selection mode. *Next,* press the output keys **(A~J)** of the outputs you wish to route a source to (they will flash to indicate selection). *Next,* press the **"IN"** key followed by the input **(1~10)** you wish to route to the selected outputs. Finally, press **"ENTER"** to confirm your selection and execute the routing change.

For Example: If you wish to display **INPUT 1** on **OUTPUTS A~D** press the following sequence of buttons:
       OUT → A, B, C, D → IN → 1 → ENTER
When directly entering the Ethernet address information into the unit, all (10) buttons are used to represent the numbers from 0 to 9 (button 10 = 0) to make the number entry more streamlined.

❺ MENU/CANCEL: Press the **"MENU/CANCEL"** button to enter the OLED menu, or to back out from menu items.

❻ ENTER: Press this button to confirm selections.

❼ +/IN: Within the menu, this button moves you up within the menu tree. Otherwise, in routing mode, this button allows you to make your input source selection.

❽ -/OUT: Within the menu, this button moves you down within the menu tree. Otherwise, this button starts routing mode and allows you to begin your output destination selections.

❾ PRESET: Press this button to recall saved presets. A maximum of (8) presets can be stored in the unit. Presets are created and stored via the WebGUI.

❿ LOCK: Press and hold this button for 3 seconds to lock/unlock all buttons on the front panel. The OLED will display an **"L"** in the upper right corner to indicate the front panel is locked.

⓫ OLED WINDOW: Displays the unit's menu, settings and information.

RECEIVER

FRONT PANEL
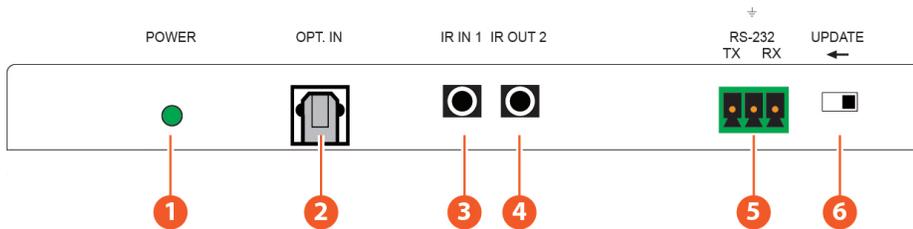
❶ **POWER LED:** This power LED will illuminate when receiving power from the transmitter.

❷ **OPTICAL IN:** Connects with an optical audio source as an optical audio return which sends audio to the Transmitter.

❸ **IR IN 1:** IR IN 1 is considered an IR receiver which connects to the supplied IR Receiver cables for IR signal reception. Ensure that remote being used is within the direct line-of-sight of the IR Extender.

❹ **IR OUT 2:** IR Out 2 is considered an IR BLASTER which connects to the supplied IR Blaster cable for IR signal transmission. Place the IR Blaster in direct line-of-sight of the equipment to be controlled.

❺ **RS-232:** Connects to the device that is to be controlled (via RS-232 terminal connected with a D-Sub 9-pin cable) by ASCII commands.

❻ **UPDATE:** When updating the firmware, the switch should be moved to the left side. As indicated by the arrows on the case.

BACK PANEL
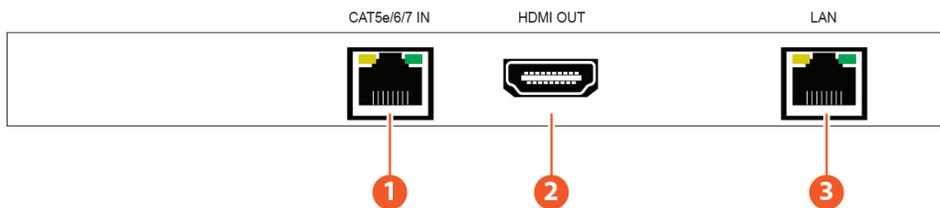
❶ **CAT5E/6/7 IN:** Connects to the transmitter unit with a single CAT5e/6/7 cable for transmission of all data signals and power.

❷ **HDMI OUT:** Connects to the HDMI sink equipment such as a display.

❸ **LAN:** Connects to your local LAN or device.

REAR PANEL
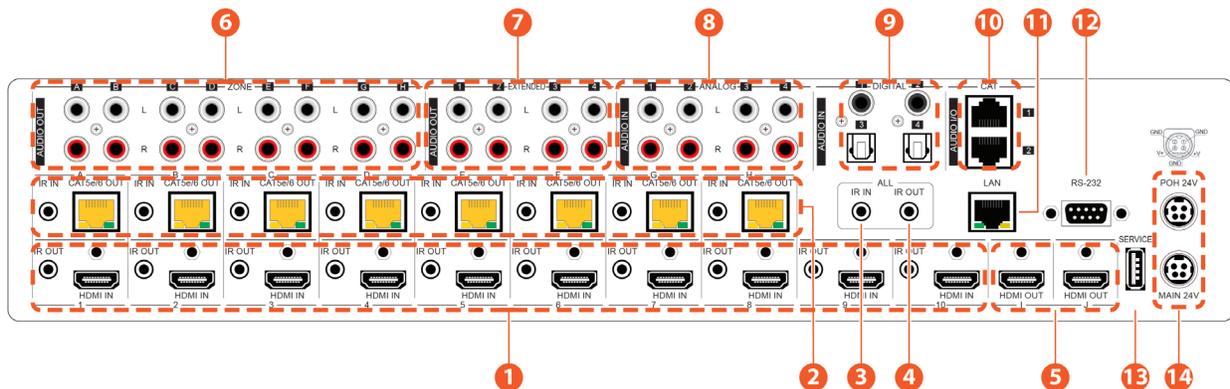
❶ **HDMI IN & IR OUT 1~10:** Connects up to (10) source devices to the HDMI ports using appropriate quality HDMI cables. Input source devices include Blu-ray players, set-top boxes, game systems and so on. These inputs are DVI-D compliant (with the use of DVI to HDMI adapters or cables). Attach IR blasters to the IR Out ports to transmit the IR signals received from connected HDBaseT™ Receivers. The IR signal routing follows the HDMI signal routing. *NOTE: The use of "Premium High Speed HDMI" cables is highly recommended.*

❷ **CAT5E/6 OUT & IR IN A~H:** Connects the CAT5e/6 outputs via an appropriate cable to the input ports of a compatible HDBaseT™ receivers for HDMI audio/video and IR/RS-232 control signal transmission. In order for an IR signal to be transmitted along with the HDMI signal an IR extender must be connected to the associated IR In port. IR signals coming back from the connected HDBaseT™ receiver can be used to control the matrix remotely and will also be broadcasted from the IR blasters connected to the appropriate IR Out/All IR Out ports. *NOTE: 4K signals with HDR (High Dynamic Range) or Deep Color are supported by the (2) HDMI output ports, however they are not supported by the HDBaseT™ outputs due to bandwidth limitations. If your HDR source needs to be output over the HDBaseT™ outputs please remember to disable the HDR support on your source device or use a non-HDR supporting EDID.*

❸ **IR IN (ALL):** Connects an IR extender to this port for IR signal reception. All IR signals received will be broadcast by all IR blasters connected to the matrix or connected to the HDBaseT™ receivers. Please ensure that the remote being used is within direct line-of-sight of the IR extender.

❹ **IR OUT (ALL):** Connects an IR Blaster to this port to broadcast IR signals. All IR signals received by any IR extenders connected to the matrix or HDBaseT™ receivers will be broadcasted. Please place the IR Blaster in direct line-of-sight of the equipment to be controlled.

❺ **HDMI OUT I & J:** Connects up to (2) HDMI displays using these HDMI output ports. These (2) HDMI ports can be either independent high bandwidth (18Gbps) outputs or they can be configured to mirror (2) of the HDBaseT™ outputs for local monitoring or recording purposes. *NOTE: 4K signals with HDR (High Dynamic Range) or Deep Color are supported by the (2) HDMI output ports, however they are not supported by the HDBaseT™ outputs due to bandwidth limitations. If your HDR source needs to be output over the HDBaseT™ outputs please remember to disable the HDR support on your source device or use a non-HDR supporting EDID.*

❻ **ZONE AUDIO OUT A~H:** (8) sets of stereo analog audio outputs. These audio ports are capable of independently outputting audio routed from any audio source within the matrix. Audio mixing, treble, bass, volume and audio delay adjustments can be set in the WebGUI (LPCM 2.0 or analog stereo sources only).

❼ **EXTENDED AUDIO OUT 1~4:** (4) sets of stereo analog audio outputs. These audio ports are capable of independently outputting audio routed from any audio source within the matrix. Audio mixing, treble, bass, volume and audio delay adjustments can be set in the WebGUI (LPCM 2.0 or analog stereo sources only).

❽ **ANALOG AUDIO IN 1~4:** Accepts unbalanced analog audio from sources such as DVD players, PCs, MP3 players, etc. These audio sources can be paired with the video from any HDMI input or can be mixed with another audio source. Audio mixing can be set in the WebGUI.

❾ **DIGITAL AUDIO IN 1~4:** Accepts digital audio (LPCM 2.0 only) from sources such as Blu-ray players, game systems, PCs, etc. These audio sources can be paired with the video from any HDMI input or can be mixed with another audio source. Audio mixing can be set in the WebGUI.

REAR PANEL

⑩ CAT AUDIO I/O 1~2: Sends/receives audio to/from connected compatible CAT Audio devices via a standard CAT5e cable. This connection allows audio to be sent to/from the matrix over greater distances than would normally be possible via standard cables. 48kHz audio can be transmitted up to 984ft/300M, 96kHz audio can be transmitted up to 492ft/150M and 492ft/192kHz audio can be transmitted up to 328ft/100M.

⑪ LAN: Connects to an active Ethernet network to allow for Telnet and WebGUI control of the matrix as well as to share the network (including Internet, if available) with connected compatible LAN equipped HDBaseT™ receivers. This allows for any Ethernet equipped device (e.g. a smart TV or game console) connected to the LAN port of a receiver to share the network/Internet access.

⑫ RS-232: Connects directly to your PC/laptop to send RS-232 commands to control the unit.

⑬ SERVICE: Used for firmware service updates in the field via a USB thumb drive. After connecting a USB thumb drive containing appropriate firmware, please navigate via the front panel menu to **5-Firmware → 2-Update → YES** to begin the firmware update.

⑭ MAIN 24V & POH 24V: Plug one of the 24V power supplies (included in the package) into the port marked **"MAIN 24V"** to power the matrix unit. If you wish to connect PoH powered HDBaseT™ receivers to the matrix, please plug the second 24V power supply into the **"POH 24V"** port. This will allow the matrix to provide 48v PoH to all connected HDBaseT™ receivers.

SIDE PANEL
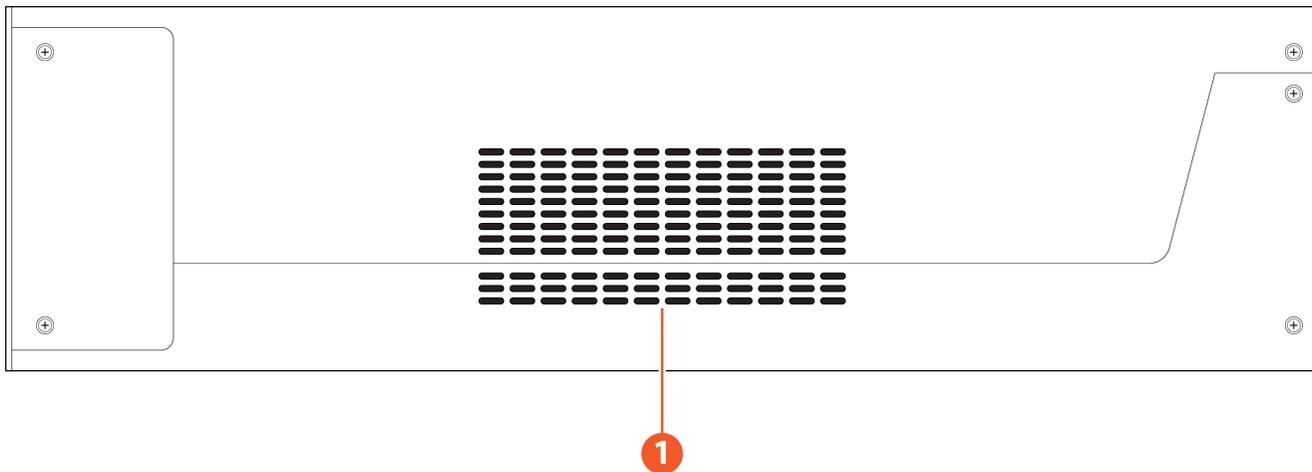
❶ FAN VENT: These are air ventilation areas. DO NOT block these areas or cover them with any objects. Please allow adequate space around the unit for air circulation.

REMOTE CONTROL

❶ **POWER:** Press to power the unit on or place it into stand-by mode.

❷ **LOCK:** Press to lock/unlock the front panel of the matrix unit.

❸ **MUTE:** Mutes Zone Audio outputs. HDBaseT™ audio can only be muted when an independent, non-HDMI, audio source has been routed to the output.

❹ **IN 1~10, OUT A~J & PATTERN:**

[Local Matrix Control]: When controlling the unit directly. Input selection from 1~10 plus test patterns (pattern button) and output selection from A~J.

[Zone A/V Pairing]: When controlling the unit via a HDBaseT™ receiver in a remote location. Pressing buttons 1~10 will switch to the A/V source assigned to the number depending on your current zone. These assignments are configured via the WebGUI.

❺ **MENU/CANCEL:** Press the **"MENU/CANCEL"** button to enter the OLED menu, or to back out from menu items.

❻ **PRESET:** Recall matrix presets. The presets are configured within the WebGUI.

❼ **+/IN:** Within the menu, this button moves you up within the menu tree. Otherwise, in routing mode, this button allows you to make your input source selection.

-/OUT: Within the menu, this button moves you down within the menu tree. Otherwise, this button starts routing mode and allows you to begin your output destination selections.

◄/VOL- & ►/VOL-: Adjust volume of zone audio.

ENTER: Press this button to confirm selections.
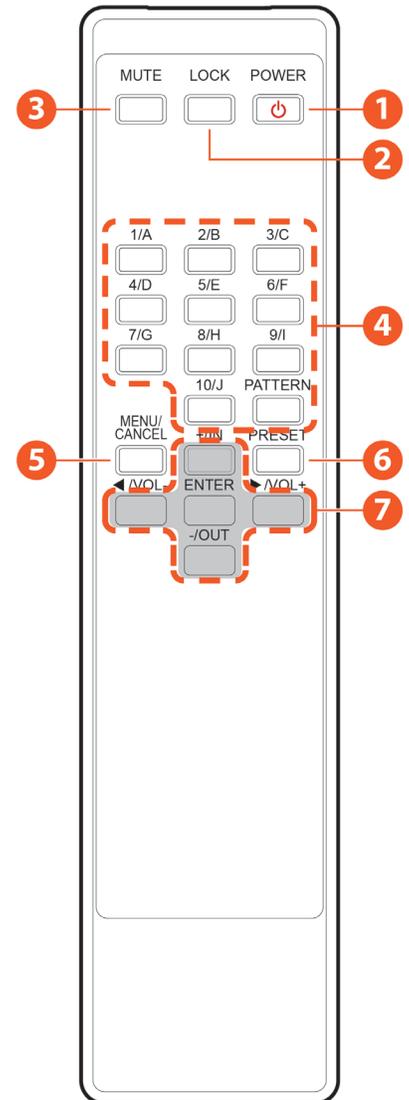
NOTE: This remote control is designed for the full family of matrix products. Some functions are not available on all units.

OLED MENU

1ST LEVEL	2ND LEVEL	3RD LEVEL
EDID	EDID Mode	ALL
		Independent
	EDID Select	All
		1~6 (Default EDID settings)
		7~12 (Sink's EDID settings)
		13~16 (User's EDID settings)
NETWORK	Link Status **(Idle)**	
	IP Address	
	Subnet Mask	
	Gateway Address	
	MAC Address	
	DHCP Mode	On
		Off
HDMI MIRRORING	Output E	
	Output F	
FACTORY DEFAULT	Yes	
	No	
FIRMWARE	Version	Yes
	Update	No

NOTE: The model name and IP address will be displayed when the unit is powered on. The netmask and gateway information can be displayed by repeatedly pressing the "+" button on the front panel or remote control unit.

RS-232 PROTOCOLS

MATRIX		REMOTE CONTROLLER	
PIN	**ASSIGNMENT**	**PIN**	**ASSIGNMENT**
1	NC	1	NC
2	Tx	2	Rx
3	Rx	3	Tx
4	NC	4	NC
5	GND	5	GND
6	NC	6	NC
7	NC	7	NC
8	NC	8	NC
9	NC	9	NC

Baud Rate: 115200bps
Data Bit: 8bits
Parity: None
Flow Control: None
Stop Bit: 1

RS-232 & TELNET COMMANDS

COMMAND SYNTAX

The RS-232/Telnet command structure for this unit is both flexible and powerful, and allows for multiple parameters to be set across multiple ports simultaneously within a single command transmission. This section will detail the command syntax used to send both simple (single port/single parameter) commands as well as the more complex (multi-port/parameter) commands.

The following multi-function syntax is specifically for use with these commands: **"ZoneLineOut"**, **"ExtLineOut"**, **"AudioCAT_Out"**, **"HDMI_Out"**, **"HDBT_Out"**, **"MixerOut"**, and **"Pattern"**. **"ZoneAvPair"** has a special structure that will be explained separately. All other commands must be sent within discrete transmissions.

BASIC COMMAND FORMAT

Use this syntax to set or change a single parameter for a single input/ output port. **<Command> {Port} {Parameter [= Value]}**

Example: ZoneLineOut B Treble= -12 HDBT_Out A Mute

BASIC COMMAND FORMAT (ZONEAVPAIR)

The ZoneAvPair command requires multiple variables to define the location of the slot's value to adjust. This command only accepts (3) possible parameters: **"VideoSrc"**, **"AudioSrc"**, and **"Load"**. Use the following syntax to set or change a single parameter for a single slot assigned to an HDBaseT™ or HDMI output port. **ZoneAvPair HDBT_Out {Port} Slot {Slot} {Parameter [= Value]}**

Example: ZoneAvPair HDBT_Out B Slot 5 VideoSrc = HDMI_In 2 ZoneAvPair HDMI_Out J Slot 3 Load

MULTI-PORT COMMAND FORMAT

Use the following syntax to set or change a single parameter for multiple ports.
NOTE: Each additional port uses the "+" character for separation. The number of ports allowed in a single command is limited by the number of ports on that specific interface. **<Command> {Port1}+{Port2}+{Etc.} {Parameter [= Value]}**

Example: ZoneLineOut A+B+C Treble = -12 HDBT_Out A+D+H Mute

MULTI-SLOT COMMAND FORMAT (ZONEAVPAIR)

The ZoneAvPair command allows for multiple slots on a single HDBaseT™ or HDMI output to be assigned the same value simultaneously. Use the following syntax to accomplish this.
NOTE: Each additional port uses the "+" character for separation. The number of ports allowed in a single command is limited by the number of ports on that specific interface. **ZoneAvPair HDBT_Out {Port} Slot {Slot1}+{Slot2}+{Etc.} {Param [= Value]}**

Example: ZoneAvPair HDBT_Out B Slot 1+3+5 VideoSrc = HDMI_In 2

RS-232 & TELNET COMMANDS

MULTI-PARAMETER COMMAND FORMAT
Use the following syntax to set or change multiple parameters for a single port. ***NOTE:*** *Each additional parameter uses the* ***","*** *character for separation and spaces are allowed. The number of parameters allowed in a single command is limited only by the number of individual parameters that command has.* **<Command> {Port} {Param1 [= Value]}, {Param2 [= Value]}, {Etc.}**   ***Example:*** ZoneLineOut C Treble = -12, Mute, Delay = 100 HDBT_Out A VideoSrc = HDMI_In 1, AudioSrc = HDMI_In 1

MULTI-PARAMETER COMMAND FORMAT (ZONEAVPAIR)
The **"VideoSrc"**, **"AudioSrc"** and **"Load"** parameters may be combined on a ZoneAvPair command. ***NOTE:*** *The* ***","*** *character is used for separation.* **ZoneAvPair HDBT_Out {Port} Slot {Slot} {Param1=Value}, {Param2=Value}**   ***Example:*** ZoneAvPair HDBT_Out B Slot 5 VideoSrc=HDMI_In 2, AudioSrc=CoaxIn 1

COMPLEX MULTI-PORT/PARAMETER COMMAND FORMAT
It is possible to have a single command that affects multiple ports with multiple groupings of parameters. All previously explained syntax rules must be observed and each additional set of ports/parameters are separated by the **"&"** character.   **<Command> {Port1}+{Port2}+{Etc.} {Param1 [= Value]}, {Param2 [= Value]}, {Etc.} & {Port1}+{Port2}+{Etc.} {Param1 [= Value]}, {Param2 [= Value]}, {Etc.} & Etc.**   ***Example:*** HDBT_Out A+C+E VideoSrc=HDMI_In 2, AudioSrc=CoaxIn 2 & B+D Mute & F VideoSrc=HDMI_In 1, AudioSrc=HDMI_In 1

COMPLEX MULTI-SLOT/PARAMETER COMMAND FORMAT (ZONEAVPAIR)
The ZoneAvPair command can also control multiple slots with multiple parameter groupings however the syntax is slightly different. Each command can only affect a single port at a time. Each additional set of slots/parameters are separated by the **"&"** character.   **ZoneAvPair HDBT_Out {Port} Slot {Slot1}+{Slot2}+{Etc.} {Param1=Value}, {Param2=Value} & Slot {Slot1}+{Slot2}+{Etc.} {Param1=Value}, {Param2=Value} & Etc.**   ***Example:*** ZoneAvPair HDBT_Out B Slot 1 VideoSrc=HDMI_In 2, AudioSrc=CoaxIn 1 & Slot 2+3+4 VideoSrc=HDMI_In 2, AudioSrc=AnalogIn 1 & Slot 5+6 VideoSrc=HDMI_In 1, AudioSrc=HDMI_In 1 & Slot 1 Load

REAL WORLD COMMAND USE

ZONE A/V PAIRING MODE COMMAND EXAMPLE
The easiest way to use the matrix for simple HDMI switching while still allowing for individually tailored zone audio is to use the Zone A/V Pairing setting within the WebGUI.   This is a configured and saved setting allowing each HDMI input to be paired with different audio inputs, depending on the zone it is being output to, for easy selection from a remote within that zone. ***For Example***: Certain zones might not be able to handle surround sound, so you can pair the video in that zone with stereo inputs.

COMMAND	DESCRIPTION
ZoneAvPair HDBT_Out A Slot 1 Load	Load the 1st A/V pairing for HDBaseT™ Output A's zone

OPTICAL AUDIO RETURN (OAR) COMMAND EXAMPLE
If you are also using the Zone Audio outputs (Stereo Zones) for any zone we recommend using the Optical Audio Return (OAR) function to set the Zone Audio output to always play the audio coming from the TV itself. In this way the end user can freely switch between the matrix input on the TV and the internal tuner/smart functions of the TV and always be guaranteed audio (remember to set the TV's optical output to LPCM 2.0).   This command only needs to be resent after an audio only source has been selected for that individual Zone Audio output. Commonly a control system would have a **"TV"** button in the audio source selection area along with your other audio sources.

COMMAND	DESCRIPTION
ZoneLineOut A AudioSrc=OAR_In A	Zone Audio output **"A"** plays OAR audio from the TV connected to HDBaseT™ output **"A"**

RS-232 & TELNET COMMANDS

HDMI MIRRORING COMMAND EXAMPLE	
If you have rack (head end) based AVR's for surround sound rooms we recommend using the HDMI outputs and the HDMI mirroring mode to easily have the audio and video sent to the AVR follow the signal sent to that zone's TV. As long as no further commands are ever sent to the HDMI outputs of the matrix you only need to set this up once:	
COMMAND	**DESCRIPTION**
HDMI_Out I Mirroring=HDBT_Out A	Set HDMI output **"I"** to mirror HDBaseT™ output **"A"**
When using the mirroring function you can use any standard commands with the mirrored HDBaseT™ output and the mirroring HDMI output will follow the commands. These can be an A/V Pairing, Video or Audio commands, etc.	
AUDIO ONLY SOURCE SELECTION COMMAND EXAMPLES	
This unit offers (8) direct audio only inputs, while some of these inputs will likely be used for down mixed audio signals from surround sound sources (for stereo only zones) we expect audio only sources to be connected to deliver just audio to both TV zones and Audio Only zones.	
COMMAND	**DESCRIPTION**
ZoneLineOut A AudioSrc=AnalogIn 1	Route Analog input 1 to Zone Audio output **"A"**
ZoneLineOut A AudioSrc=OpticIn 1	Route Optical input 1 to Zone Audio output **"A"**
ZoneLineOut A AudioSrc=CoaxIn 1	Route Coaxial input 1 to Zone Audio output **"A"**
ExtLineOut 1 AudioSrc=AnalogIn 1	Route Analog input 1 to Extended Line output **"1"**
ExtLineOut 1 AudioSrc=OpticIn 1	Route Optical input 1 to Extended Line output **"1"**
ExtLineOut 1 AudioSrc=CoaxIn 1	Route Coaxial input 1 to Extended Line output **"1"**
Above are just a few example of the audio selections available. Please refer to the full command listing for all possible commands. Remember if you have configured any audio zones to play the OAR audio from the TV within a zone you must be able to select this again to return to **"listening"** to that TV.	
INDIVIDUAL AUDIO AND VIDEO ROUTING COMMAND EXAMPLES	
To offer the greatest level of flexibility the matrix can be used to send individual commands for both video and audio, this allows the installer to completely tailor the matrix to suit any possible configuration the end user may require. Route audio and video from HDMI input 1 to HDBaseT™ output A independently:	
COMMAND	**DESCRIPTION**
HDBT_Out A VideoSrc=HDMI_In 1	Video switch command
HDBT_Out A AudioSrc=HDMI_In 1	Audio switch command
COMBINED AUDIO AND VIDEO ROUTING COMMAND EXAMPLE	
It is also possible to switch audio and video simultaneous by using an advanced command structure. In this case the individual parameters of the **"HDBT_Out"** command are separated by a comma. Route audio and video from HDMI input 1 to HDBaseT™ output A simultaneously:	
COMMAND	**DESCRIPTION**
HDBT_Out A VideoSrc=HDMI_In 1, AudioSrc=HDMI_In 1	Video and Audio switch command
Every individual audio and video input has a bespoke command (including separate commands for the audio and video within a HDMI source).	

FULL COMMAND LIST

COMMAND	DESCRIPTION
Help	Displays all available commands. (Except hidden commands.)
?	Displays all available commands. (Except hidden commands.)
Help {Command}	Detailed description of the specified command.
? {Command}	Detailed description of the specified command.
SaveMuteSetting ?	Displays the current Save Mute Setting configuration.
SaveMuteSetting XXX	Allows or disallows saving the audio mute setting when the unit is powered off. **XXX = "On" or "Off"**
ZoneLineOut M AudioSrc=XXX	Sets the audio source for a zone line output. **M = A~H** Available XXX values: HDMI_In n [n=1~10] CoaxIn n [n=1~2] OAR_In n [n=A~H] MixerOut n [n=1~3] OpticIn n [n=1~2] AnalogIn n [n=1~4] CAT_In n [n=1~2]
ZoneLineOut M Treble=XXX	Sets the treble value for a zone line output. **M = A~H** **XXX = -12~+12** (Units: dB)
ZoneLineOut M Bass=XXX	Sets the bass value for a zone line output. **M = A~H** **XXX = -12~+12** (Units: dB)
ZoneLineOut M Volume=XXX	Sets the volume for a zone line output. **M = A~H** **XXX = 0 ~ -100** (Units: dB)
ZoneLineOut M Volume=Fast XXX	Adjusts the volume of a zone line output in large steps (2dB steps). **M = A~H** **XXX = "Up" or "Down"**
ZoneLineOut M Volume=Slow XXX	Adjusts the volume of a zone line output in small steps (0.5dB steps). **M = A~H** **XXX = "Up" or "Down"**
ZoneLineOut M Delay=XXX	Sets the audio delay for a zone line output. **M = A~H** **XXX = 0~230** (Units: ms)
ZoneLineOut M Mute	Mutes a zone line output. **M = A~H**
ZoneLineOut M Unmute	Unmutes a zone line output. **M = A~H**
ZoneLineOut M Status	Displays the status of a zone line output. **M = A~H**
ZoneLineOut M Name={NameString}	Sets the verbose name of a zone line output. Maximum 32 characters. **M = A~H** *NOTE: Can only rename one port at a time. Multi-port is not supported.*
ExtLineOut M AudioSrc=XXX	Sets the audio source for an extended line output. **M = 1~4** Available XXX values: HDMI_In n [n=1~10] CoaxIn n [n=1~2] OAR_In n [n=A~H] MixerOut n [n=1~3] OpticIn n [n=1~2] AnalogIn n [n=1~4] CAT_In n [n=1~2]
ExtLineOut M Treble=XXX	Sets the treble value for an extended line output. **M = 1~4** **XXX = -12~+12** (Units: dB)
ExtLineOut M Bass=XXX	Sets the bass value for an extended line output. **M = 1~4** **XXX = -12~+12** (Units: dB)
ExtLineOut M Volume=XXX	Sets the volume for an extended line output. **M = 1~4** **XXX = 0 ~ -100** (Units: dB)
ExtLineOut M Volume=Fast XXX	Adjusts the volume of an extended line output in large steps (2dB steps). **M = 1~4** **XXX = "Up" or "Down"**
ExtLineOut M Volume=Slow XXX	Adjusts the volume of an extended line output in small steps (0.5dB steps). **M = 1~4** **XXX = "Up" or "Down"**
ExtLineOut M Delay=XXX	Sets the audio delay for an extended line output. **M = 1~4** **XXX = 0~230** (Units: ms)

FULL COMMAND LIST

COMMAND	DESCRIPTION
ExtLineOut M Mute	Mutes an extended line output. **M = 1~4**
ExtLineOut M Unmute	Unmutes an extended line output. **M = 1~4**
ExtLineOut M Status	Displays the status of an extended line output. **M = 1~4**
ExtLineOut M Name={NameString}	Sets the verbose name of an extended line output. Maximum 32 characters. **M = 1~4** *NOTE: Can only rename one port at a time. Multi-port is not supported.*
AudioCAT_Out M AudioSrc=XXX	Sets the audio source for an AudioCAT output. **M = 1~2** Available XXX values: HDMI_In n [n=1~10] CoaxIn n [n=1~2] OAR_In n [n=A~H] MixerOut n [n=1~3] OpticIn n [n=1~2] AnalogIn n [n=1~4] CAT_In n [n=1~2]
AudioCAT_Out M Status	Displays the status of an AudioCAT port. **M = 1~2**
AudioCAT_Out M Name={NameString}	Sets the verbose name of an AudioCAT port. Maximum 32 characters. **M = 1~2** *NOTE: Can only rename one port at a time. Multi-port is not supported.*
HDMI_Out M AudioSrc=XXX	Sets the audio source for a HDMI output. **M = I~J** Available XXX values: HDMI_In n [n=1~10] CoaxIn n [n=1~2] OAR_In n [n=A~H] MixerOut n [n=1~3] OpticIn n [n=1~2] AnalogIn n [n=1~4] CAT_In n [n=1~2] FollowVideo
HDMI_Out M Mute	Mutes a HDMI output's audio. **M = I~J**
HDMI_Out M Unmute	Unmutes a HDMI output's audio. **M = I~J**
HDMI_Out M VideoSrc=XXX	Sets the video source for a HDMI output. **M = I~J** Available XXX values: HDMI_In n [n = 1~10]
HDMI_Out M VideoSrc=Pattern	Sets the video source of a HDMI output to the internal test pattern**. M = I~J**
HDMI_Out M VideoSrc=Default	Resets the video source of a HDMI output to the factory default. **M = I~J**
HDMI_Out M Mirroring=XXX	Sets the audio/video mirroring source for a HDMI output. **M = I~J** Available XXX values: HDBT_Out n [n = A~H]
HDMI_Out M Status	Displays the status & properties of a HDMI output including audio/video matrix. **M = I~J**
HDMI_Out M Name={NameString}	Sets the verbose name of a HDMI output. Maximum 32 characters. **M = I~J** *NOTE: Can only rename one port at a time. Multi-port is not supported.*
HDBT_Out M AudioSrc=XXX	Sets the audio source for a HDBaseT™ output. **M = A~H** Available XXX values: HDMI_In n [n=1~10] CoaxIn n [n=1~2] OAR_In n [n=A~H] MixerOut n [n=1~3] OpticIn n [n=1~2] AnalogIn n [n=1~4] CAT_In n [n=1~2] FollowVideo
HDBT_Out M Mute	Mutes a HDBaseT™ output's audio. **M = A~H**
HDBT_Out M Unmute	Unmutes a HDBaseT™ output's audio. **M = A~H**
HDBT_Out M VideoSrc=XXX	Sets the video source for a HDBaseT™ output. **M = A~H** Available XXX values: HDMI_In n [n=1~10]
HDBT_Out M VideoSrc=Pattern	Sets the video source of a HDBaseT™ output to the internal test pattern. **M = A~H**
HDBT_Out M VideoSrc=Default	Resets the video source of a HDBaseT™ Tx output to the factory default. **M = A~H**
HDBT_Out M Status	Displays the status & properties of a HDBaseT™ output including audio/video matrix. **M = A~H**
HDBT_Out M Name={NameString}	Sets the verbose name of a HDBaseT™ output. Maximum 32 characters. **M = A~H** *NOTE: Can only rename one port at a time. Multi-port is not supported.*
HDMI_In M Status	Displays the status of a HDMI input. **M = 1~10**
HDMI_In M Name={NameString}	Sets the verbose name of a HDMI input. Maximum 32 characters. **M = 1~10** *NOTE: Can only rename one port at a time. Multi-port is not supported.*

FULL COMMAND LIST

COMMAND	DESCRIPTION
MixerOut M AudioSrc N=XXX	Sets the audio source for an audio mixer input channel. **M = 1~3 N = A~B** Available XXX values: HDMI_In n [n=1~10] CoaxIn n [n=1~2] OAR_In n [n=A~H] OpticIn n [n=1~2] AnalogIn n [n=1~4] CAT_In n [n=1~2]
MixerOut M Gain N=XXX	Sets the gain level of an audio mixer input channel. **M = 1~3 N = A~B** **XXX = 0~100** (Units: %)
MixerOut M Mono	Sets the output of a mixer channel to **"mono"** mode. Left and right channel outputs will be the same. **M = 1~3**
MixerOut M Stereo	Sets the output of a mixer channel to **"stereo"** mode. **M = 1~3**
MixerOut M Status	Displays the status of a mixer channel. **M = 1~3**
SETIP {IP} {Subnet} {Gateway}	Sets the IP address, subnet and gateway in Static IP mode. **Address format: xxx.xxx.xxx.xxx**
RSTIP	Requests updated IP information from the DHCP server.
IPCONFIG	Displays the current IP configuration.
P0	Enters light stand-by mode. (RS-232, Ethernet and PoH functionality is still active.)
P1	Turns the power on.
P2	Enters deep stand-by mode. (Only RS-232 functionality is still active.)
P?	Reports the current power status.
PRESET Save M	Saves the current A/V routing as a preset. **M = 1~8**
PRESET Load M	Loads and activates a saved A/V preset. **M = 1~8**
PRESET Show [M]	Lists the contents of a stored A/V preset. **M = 1~8** (If M is omitted, list all A/V presets.)
PRESET name M={NameString}	Sets the verbose name of a preset. Maximum 32 characters. **M = 1~8**
EDID All=XXX	Sets the EDID source for all HDMI input ports. Available XXX values: 1~6 [Factory EDIDs] 7~16 [Connected sink EDIDs] 17~20 [User EDIDs]
EDID HDMI_In M=XXX	Sets the EDID source for a single HDMI port. **M = 1~10** Available XXX values: 1~6 [Factory EDIDs] 7~16 [Connected sink EDIDs] 17~20 [User EDIDs]
EDID M Name={NameString}	Sets the verbose name of a user EDID slot. Maximum 16 characters. **M = 17~20**
Pattern	Displays the current test pattern configuration.
Pattern timing=XXX	Sets the color to display the test pattern in. Available XXX values: Black, Blue, Green, Cyan, Red, Magenta, Yellow, White
FactoryDefault	Resets all settings to their factory defaults. (Hidden command.)
MAC	Displays the MAC address.
Ver	Displays the firmware version.
ZoneAvPair HDBT_Out M Slot N AudioSrc=XXX	Assigns an audio source to a Zone A/V Pair slot on a HDBaseT™ output. **M = A~H N = 1~10** Available XXX values: HDMI_In n [n=1~10] CoaxIn n [n=1~2] OAR_In n [n=A~H] MixerOut n [n=1~3] OpticIn n [n=1~2] AnalogIn n [n=1~4] CAT_In n [n=1~2]
ZoneAvPair HDBT_Out M Slot N VideoSrc=XXX	Assigns a video source to a Zone A/V Pair slot on a HDBaseT™ output. **M = A~H N = 1~10** Available XXX values: HDMI_In n [n=1~10] Pattern ***NOTE: HDMI_In is not available for use with slot 11.***

FULL COMMAND LIST

COMMAND	DESCRIPTION
ZoneAvPair HDBT_Out M Slot N Load	Loads and activates the contents of a Zone A/V Pair slot on a HDBaseT™ output. **M = A~H N = 1~11**
ZoneAvPair HDMI_Out M Slot N AudioSrc=XXX	Assigns an audio source to a Zone A/V Pair slot on a HDMI output. **M = I~J N = 1~11** Available XXX values: HDMI_In n [n=1~10] CoaxIn n [n=1~2] OAR_In n [n=A~H] MixerOut n [n=1~3] OpticIn n [n=1~2] AnalogIn n [n=1~4] CAT_In n [n=1~2]
ZoneAvPair HDMI_Out M Slot N VideoSrc=XXX	Assigns a video source to a Zone A/V Pair slot on a HDMI output. **M = I~J N = 1~11** Available XXX values: HDMI_In n [n=1~10] Pattern ***NOTE:** HDMI_In is not available for use with slot 11.*
ZoneAvPair HDMI_Out M Slot N Load	Loads and activates the contents of a Zone A/V Pair slot on a HDMI output. **M = I~J N = 1~11**
IR_Route HDBT_Out M0 M1 M2	Selects the IR source(s) for a HDBaseT™ output. M0 is the output port index. M1 is the function to use. M2 is the IR input source. **M0 = A~H** (supports multiple port selection by using **"+"**.) **Available M1 Values:** Add [Add M2 source to M0] Del [Remove M2 source from M0] **Available M2 Values:** IR_InAll [IR In (ALL) input jack] Generator [Internal IR encoder]
IR_Route HDBT_Out M0 Show	Displays the current IR source of the HDBaseT™ output. **M0 = A~H** (supports multiple port selection by using **"+"**.)
IR_Route IR_Out M0 M1 M2	Selects the IR source(s) for an IR Output jack (next to each HDMI input). M0 is the output port index. M1 is the function to use. M2 is the IR input source. **M0 = 1~10** (supports multiple port selection by using **"+"**.) **Available M1 Values:** Add [Add M2 source to M0] Del [Remove M2 source from M0] **Available M2 Values:** IR_InAll [IR In (ALL) input jack] Generator [Internal IR encoder]
IR_Route IR_Out M0 Show	Displays the current IR source for an IR Output jack (next to each HDMI input). **M0 = 1~10** (Supports multiple port selection by using **"+"**.)

NOTE: Commands will not be executed unless followed by a carriage return. Commands are not case-sensitive.

TELNET CONTROL

Before attempting to use Telnet control, please ensure that both the unit and the PC/Laptop are connected to the same active networks.

To access Telnet in Windows 7, click on the **"Start"** menu and type **"cmd"** in the search field, then press **"Enter"**. Under Windows XP go to the **"Start"** menu, click on **"Run"**, type **"cmd"** then press **"Enter"**.

Under Mac OS X, go to **Go** → **Applications** → **Utilities** → **Terminal**. See below for reference.
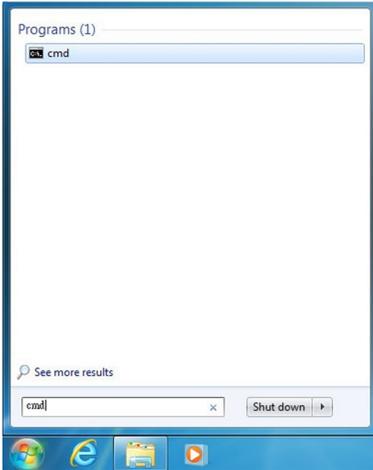
Once in the CLI (Command Line Interface) type **"Telnet"**, followed by the IP address of the unit and **"23"**, then hit **ENTER**.

```
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation.  All rights reserved.

C:\Users\Administrator>telnet 192.168.5.175
```

```
Welcome to TELNET.
>?

SETIP       : SET ETHERNET IP ADDRESS
IPCONFIG    : DISPLAY THE CURRENT IPCONFIG
RSTIP       : IP CONFIGURATION RESET TO <DHCP>
P0          : POWER OFF
P1          : POWER ON
STORE       : STORE current I/O position (01~08)
SHOW        : SHOW current port's I/O position (01~08)
PRESET      : PRESET the store I/O position (01~08)
NAME        : NAME N1 N2
the stored port N1(01~08) no more than 8 charactors N2(ABCDEFGH)
I1~I8       : SET ALL OUTPUTS SOURCE
ST          : SHOW UNIT FIRMWARE VERSION
RS          : System Reset to
EM          : Setting EDID MODE. 1-STD 2-TV 3-USER.
USBISP      : Update FW by USB
A1~A8       : SET OUTPUT A SOURCE(1-8)
B1~B8       : SET OUTPUT B SOURCE(1-8)
C1~C8       : SET OUTPUT C SOURCE(1-8)
D1~D8       : SET OUTPUT D SOURCE(1-8)
E1~E8       : SET OUTPUT E SOURCE(1-8)
F1~F8       : SET OUTPUT F SOURCE(1-8)
G1~G8       : SET OUTPUT G SOURCE(1-8)
H1~H8       : SET OUTPUT H SOURCE(1-8)
AB..1~AB..8 : Switch output ABCD... to 1~8 at the same time
UARTSW?     : Display the uart switching state
UARTBAUD?   : Display all the output's uart baud
UARTSW      : Switch output's uart to A~H
UARTSW0     : Switch output's uart to MCU
UARTBAUD    : Setting outputA~H's uart baud (1:9600bps,2:14400bps,3:19200bps,4:3
8400bps,5:57600bps,6:115200bps)
?           : SHOW DESCRIPT OF COMMAND
QUIT        : Telnet QUIT
```

This will bring us into the unit which we wish to control. Type **"help"** to list the available commands.

NOTE: Commands will not be executed unless followed by a carriage return. Commands are not case-sensitive. If the IP address is changed then the IP address required for Telnet access will also change accordingly.

WEBGUI CONTROL

INSTALL THE DEVICE DISCOVERY TOOL:
Please obtain the Device Discovery software from your authorized dealer and save it in a directory where you can easily find it.
NOTE: The unit's default IP address is 192.168.1.50

Connects the unit and your PC/Laptop to the same active network and execute the Device Discovery software. Click on **"Find Devices on Network"** and a list of devices connected to the local network will show up indicating their current IP address.

By clicking on one of the listed devices you will be presented with the network details of that particular device. If you choose, you can alter the static IP network settings for the device, or switch the unit into DHCP mode to automatically obtain proper network settings from a local DHCP server. To switch to DHCP mode, please select DHCP from the IP mode drop-down, then click **"Save"** followed by **"Reboot"**.

Once you are satisfied with the network settings, you may use them to connect via Telnet or WebGUI. The network information window provides a convenient link to launch the WebGUI directly.

LOGIN TO THE WEBGUI:

By default, both the Username and Password are **"admin"** for the WebGUI. The administrator password can be changed within the **"User Config"** tab of the WebGUI if desired.

The above function tabs will always display on left side of the WebGUI to aid with navigation.

VIDEO SWITCH

This page provides video routing settings including HDCP and test pattern configuration.

OUTPUT AND INPUT ROUTING
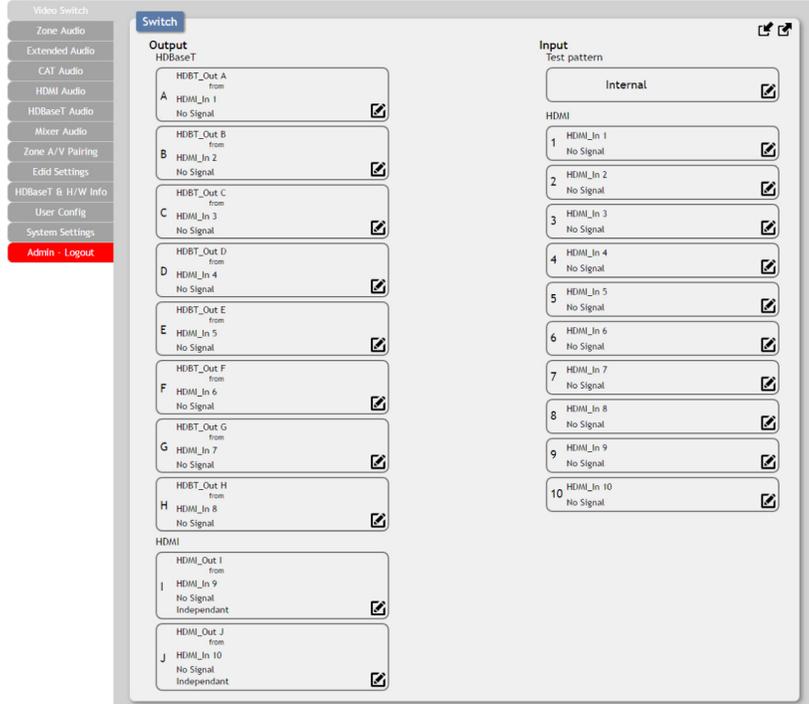
To begin assigning a new video route, please click the button of the HDBaseT™ output you wish to send video to (e.g. **"HDBT_Out A"**) and then click on the button of the preferred HDMI input port (e.g. **"HDMI_In 1"**).

If desired, you may select more than one output prior to selecting the input. As you select each button they will change their color to orange. The new route will become active immediately and the routing information displayed on the buttons will change accordingly.

If you need to route an input to multiple outputs, please select all of the appropriate output buttons before selecting the input port.

OUTPUT AND INPUT NAMING
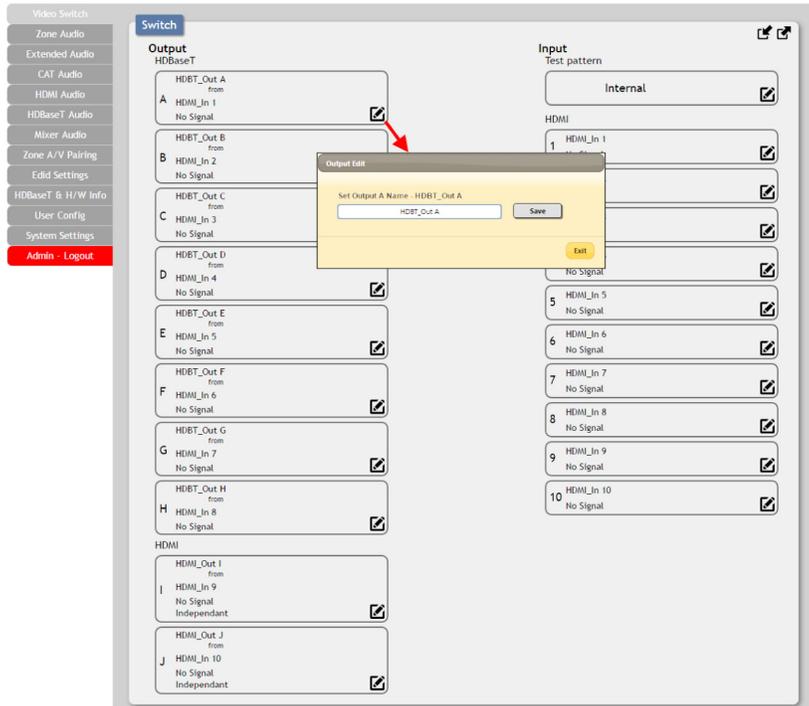
All inputs and outputs can be renamed as required. To rename the HDBaseT™ output ports and HDMI input ports please click the **"edit"** icon (✎). Click the **"Save"** button to confirm the change.
NOTE: Blank spaces (" ") are not allowed in names.

VIDEO SWITCH

HDMI OUTPUT SETTING
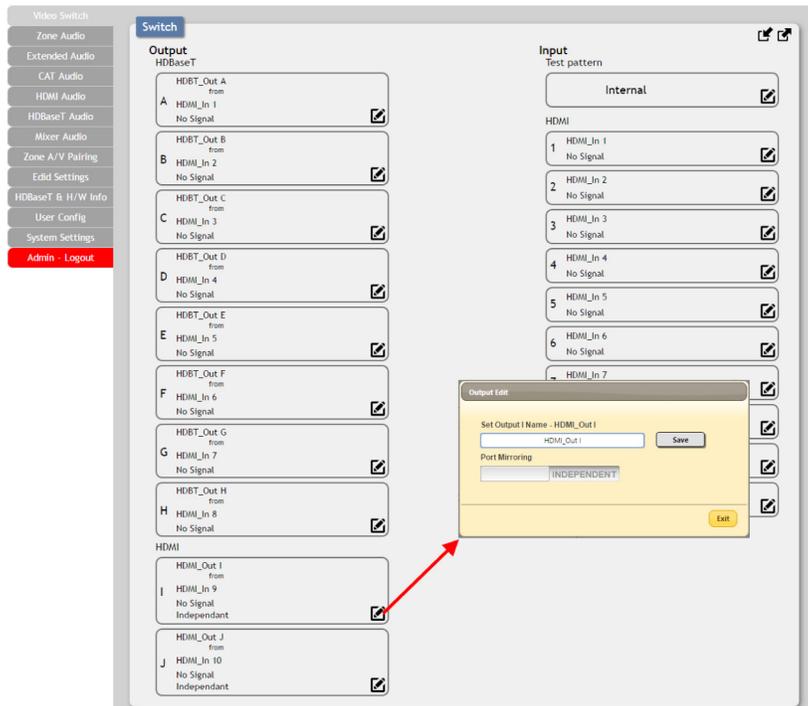
The (2) HDMI outputs (port I & port J) allow support for the maximum HDMI timing up to 18Gbps (4096x2160@60Hz) and can be used for normal source routing (listed as **"Independent"** within the WebGUI) and mirroring (listed as **"Mirror"** within the WebGUI) for local monitoring purposes or zone monitoring (e.g. The HDBaseT™ output connects to a TV in a remote zone the local HDMI connection goes into an AVR).

Click the **"edit"** icon (✎) to toggle the HDMI output mode between **"Independent"** and **"Mirror"**. When an HDMI port is in **"Mirror"** mode you can only select HDBaseT™ outputs as inputs.

INTERNAL TEST PATTERN
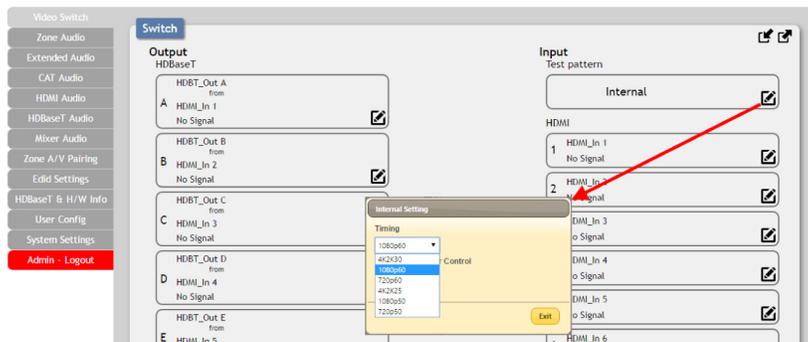
This advanced matrix system comes with an internal test pattern generation feature which can be used to test connected sink device functionality or be used to self-test matrix unit itself. This is a useful tool for installation engineers to troubleshoot potential issues between the matrix and connected devices.

This can also be used as a video source for any connected **"audio only"** sources in cases where only a TV is available for audio reproduction and it requires an active video source in order for the audio to be heard.
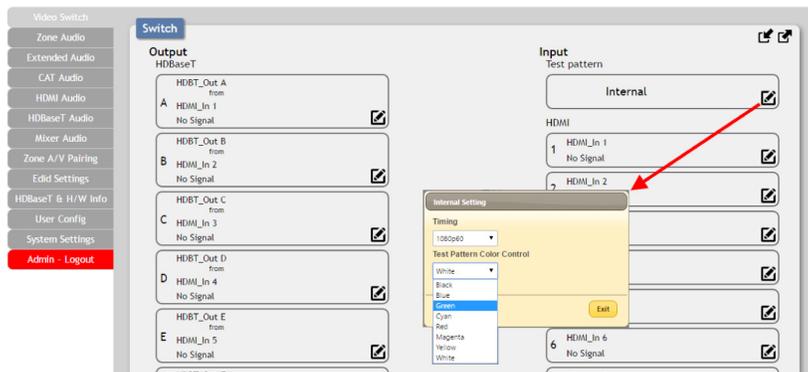
Timing: Test patterns can be generated with the following standard timings: 720p@50/60Hz, 1080p@50/60Hz, 4K@25/30Hz. Test pattern output does not use HDCP.

Color: The test pattern can be changed to any one of a choice of (8) colors.

VIDEO SWITCH

PRESET SETTING
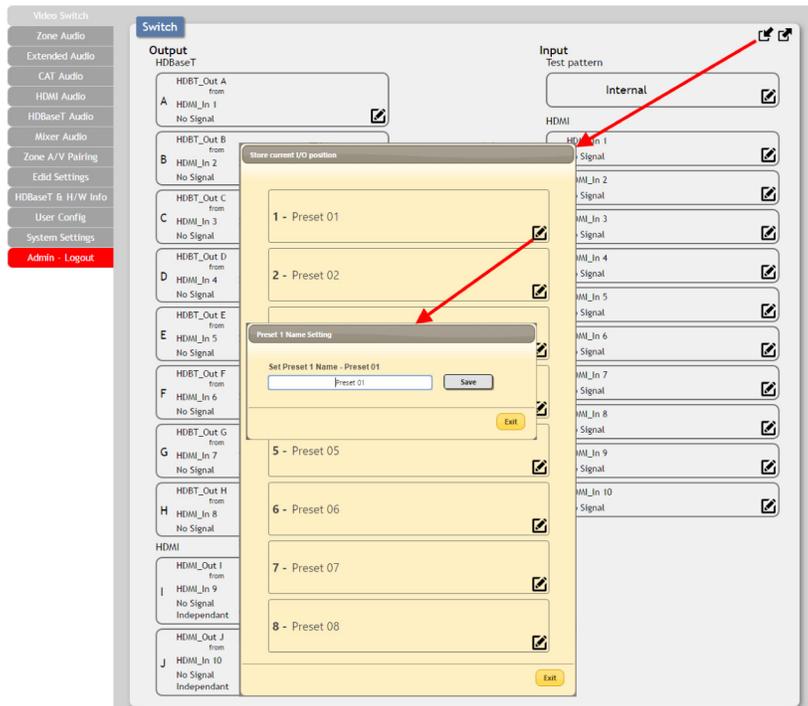
This matrix can store up to (8) video and audio routing presets. Presets can be utilized to store multiple different routing states in advance for rapid, hassle-free, recall.

Store: Once you have the matrix set the way you like, you can click the **"store"** icon (📭) in the upper right corner of the window. You may also name the preset at this stage by selecting the **"edit"** icon (📝). Click **"Save"** when you are ready to commit the preset to memory.

Recall: When you wish to load a previously stored setting, please click the **"recall"** icon (📭) and you will be presented with a choice of the available (8) presets. The preset will load immediately upon selecting the preset.

ZONE AUDIO

This advanced matrix offers a complete audio routing function. The Zone Audio ports offer analog audio breakaway capability. The audio source, treble, bass, volume and audio delay adjustments can be set on this page.
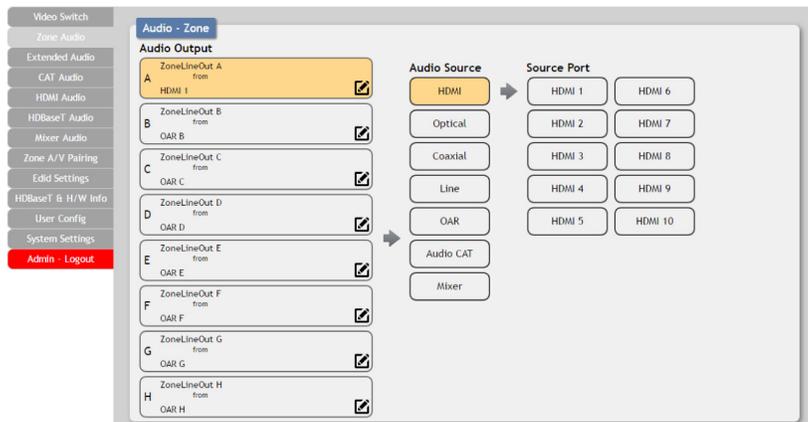
OUTPUT AND INPUT ROUTING
Click the buttons from left to right to choose each output's source. Once the new source has been selected, the change will happen immediately. Audio source options include HDMI, Optical, Coaxial, Line, OAR, Audio CAT and Mixer.

ZONE AUDIO

AUDIO OUTPUT SETTING
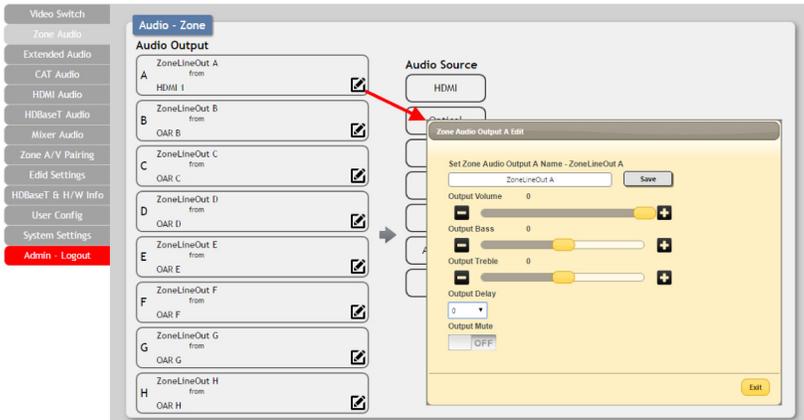
Click the **"edit"** icon (✏) to change the following settings:

Rename: The Zone Audio outputs can be renamed here.

Volume: Adjustable from -100dB to 0dB.

Bass: Adjustable from -12dB to +12dB.

Treble: Adjustable from -12dB to +12dB.

Delay: Adjustable from 0 to 230ms.

Mute: Mute may be turned on or off.

EXTENDED AUDIO

The Extended Audio ports offers additional analog audio breakaway capability. The audio source, treble, bass, volume and audio delay adjustments can be set on this page.

OUTPUT AND INPUT ROUTING
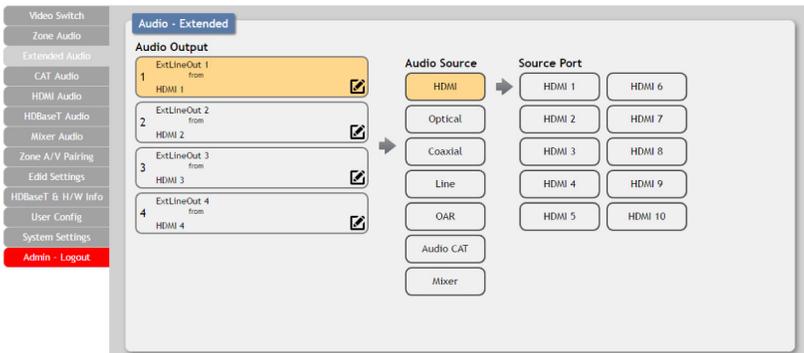
Click the buttons from left to right to choose each output's source. Once the new source has been selected, the change will happen immediately. Audio source options include HDMI, Optical, Coaxial, Line, OAR, Audio CAT and Mixer.

EXTENDED AUDIO OUTPUT SETTING
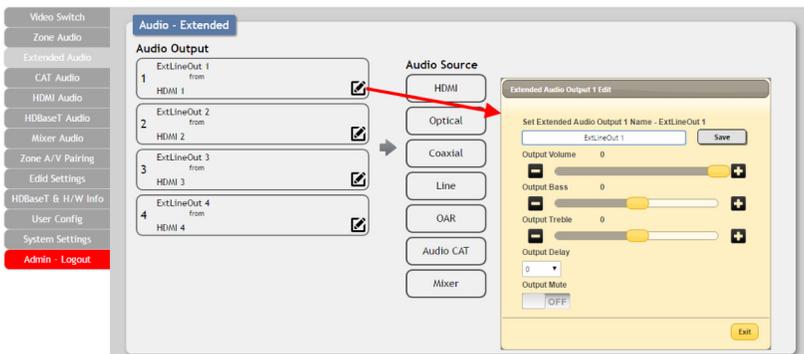
Click the **"edit"** icon (✏) to change the following settings:

Rename: The Zone Audio outputs can be renamed here.

Volume: Adjustable from -100dB to 0dB.

Bass: Adjustable from -12dB to +12dB.

Treble: Adjustable from -12dB to +12dB.

Delay: Adjustable from 0 to 230ms.

Mute: Mute may be turned on or off.

CAT AUDIO

Connecting compatible CAT5e/6 receivers allows the matrix to both send and receive audio over distances up to 984ft/300M. The audio source and mute settings of audio being sent from the matrix to a receiver can be set on this page.
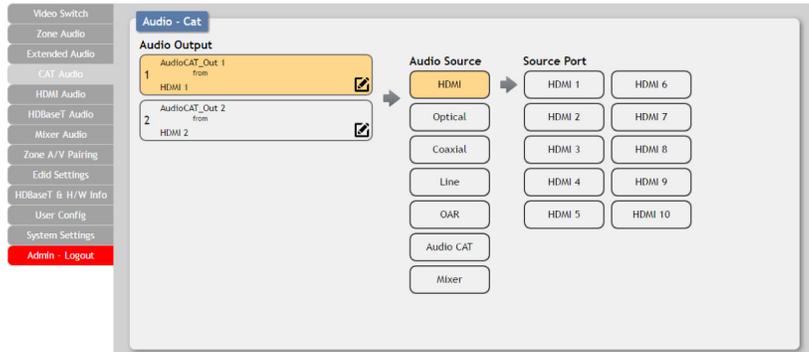
OUTPUT AND INPUT ROUTING

Click the buttons from left to right to choose each output's source. Once the new source has been selected, the change will happen immediately. Audio source options include HDMI, Optical, Coaxial, Line, OAR, Audio CAT and Mixer.

CAT AUDIO OUTPUT SETTING
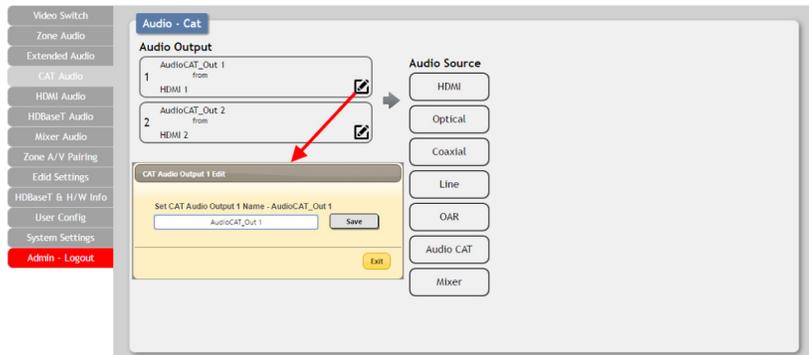
Click the **"edit"** icon (⬚) to rename the CAT Audio outputs.

HDMI AUDIO

The audio routed to the (2) HDMI outputs (Ports: I & J) and their associated settings are adjusted on this page.
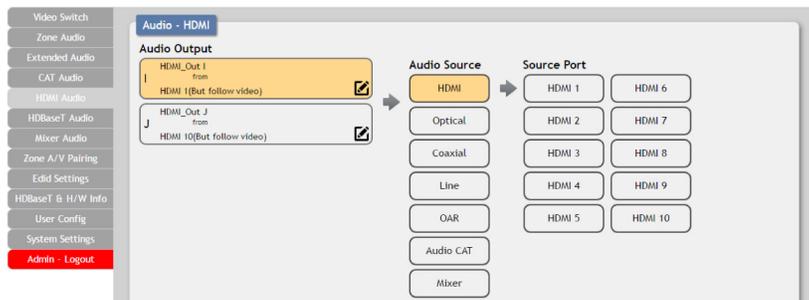
OUTPUT AND INPUT ROUTING
Click the buttons from left to right to choose each output's source. Once the new source has been selected, the change will happen immediately. Audio source options include HDMI, Optical, Coaxial, Line, OAR, Audio CAT and Mixer.

HDMI AUDIO

HDMI AUDIO OUTPUT SETTING
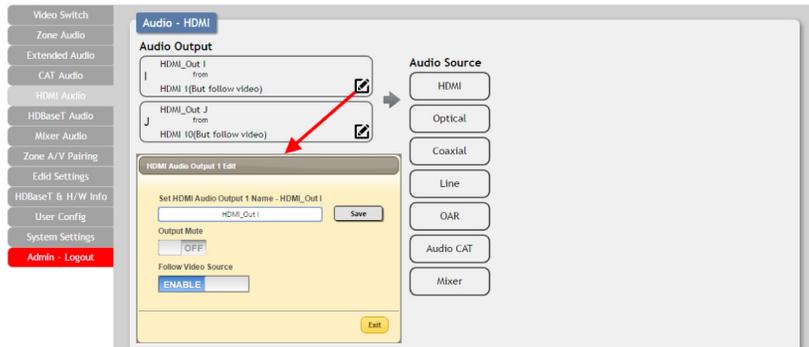
Click the **"edit"** icon (📝) to change the following settings:

Rename: The HDMI Audio outputs can be renamed here.

Mute: Mute may be turned on or off.

Follow Video Source: Clicking the selection bar switches between Enabled (follows video) and Disabled (doesn't follow video).

HDBASET™ AUDIO

The audio routed to the (8) HDBaseT™ outputs (Ports: A~H) and their associated settings are adjusted on this page.
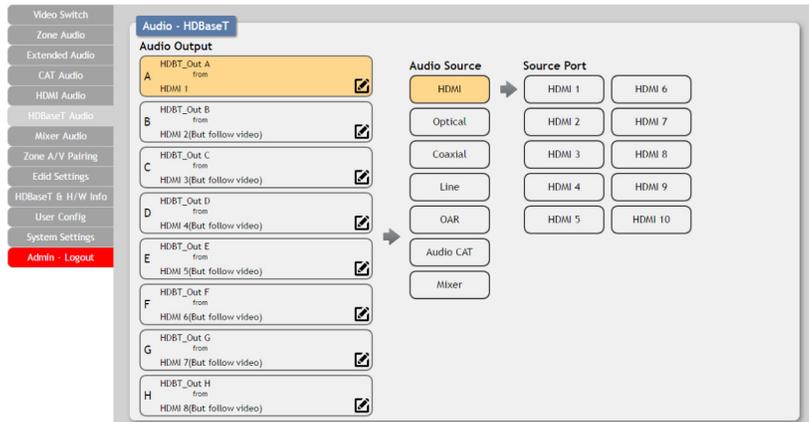
OUTPUT AND INPUT ROUTING

Click the buttons from left to right to choose each output's source. Once the new source has been selected, the change will happen immediately. Audio source options include HDMI, Optical, Coaxial, Line, OAR, Audio CAT and Mixer.

HDBASET™ AUDIO OUTPUT SETTING
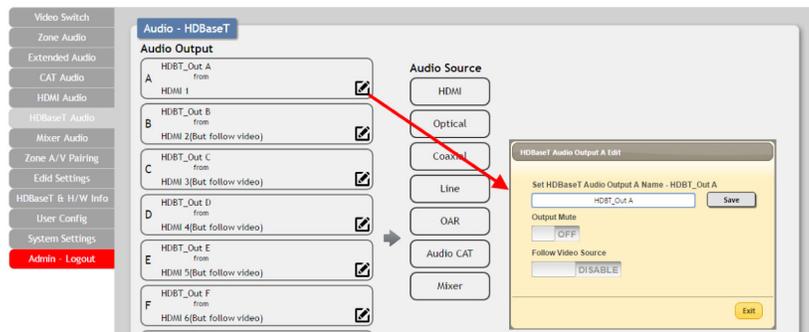
Click the **"edit"** icon (📝) to change the following settings:

Rename: The HDBaseT™ Audio outputs can be renamed here.

Mute: Mute may be turned on or off.

Follow Video Source: Clicking the selection bar switches between Enabled (follows video) or Disabled (doesn't follow video).

MIXER AUDIO

The Audio Mixer feature allows for any (2) audio sources to be mixed together. The matrix has (3) mixers in total and their settings can be adjusted on this page.

OUTPUT AND INPUT ROUTING
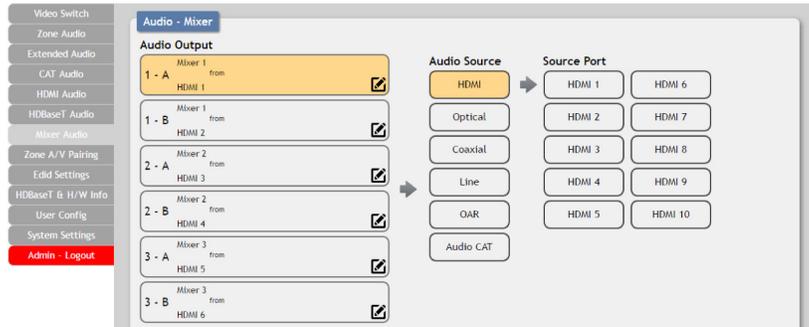
Click the buttons from left to right to choose each mixer's A & B sources. Only (2) sources total may be selected for each mixer. Once the new source has been selected, the change will happen immediately. Audio source options include HDMI, Optical, Coaxial, Line, OAR and Audio CAT.

MIXED AUDIO OUTPUT SETTING
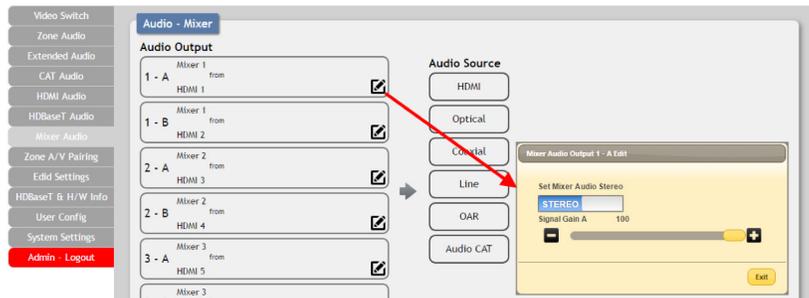
Click the **"edit"** icon (✐) to change the following settings:

Stereo: Clicking the selection bar switches between **"Stereo"** and **"Mono"**.

Gain: The signal gain for each channel can be set from 0% to 100%.

ZONE A/V PAIRING

The zone A/V pairing function allows the end user to control the matrix, using the supplied remote control, in a customized manner while in remote rooms (zones) containing a HDBaseT™ receiver and IR extender.

Each zone can have a different set of video/audio sources assigned to the buttons on the remote control for easy switching. The video and audio routing selections for each of the (8) HDBaseT™ outputs need to be set up via the WebGUI in advance.

After setting them all up, the end user just needs to press a number key on the remote control unit once to change the routing status in whichever zone they are currently occupying. The distinct zone pairings can also be activated from within the WebGUI or by using Telnet/ RS-232 commands.

QUICK BUTTON SELECTION
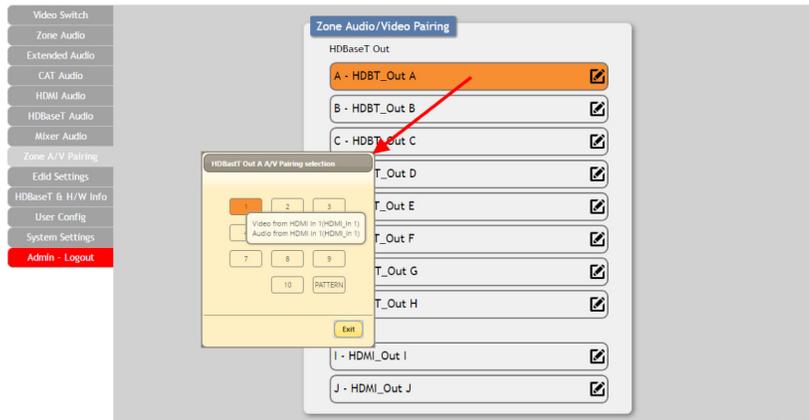
Please select the HDBaseT™ output port first and then click the **"edit"** icon (📝) to launch the window for further adjustments. The numbers 1~10 and **"pattern"** correspond to the keys on remote control unit.

VIDEO AND AUDIO PAIRING EDIT
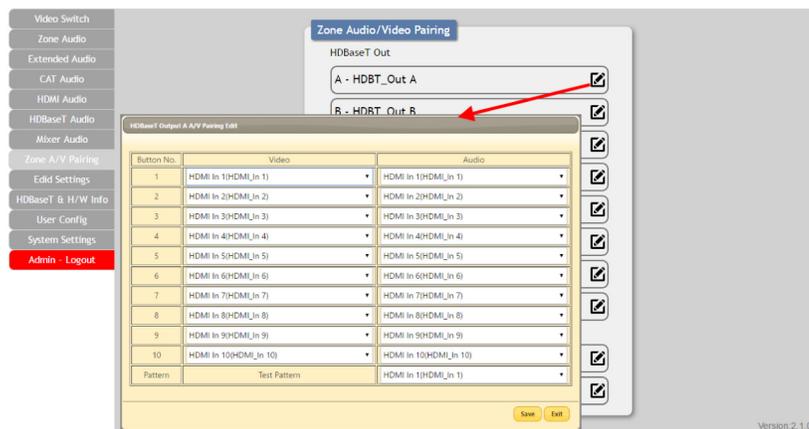
Please click the **"edit"** icon (📝) to edit the video and audio routing settings. Once you have completed your selections press **"Save"**.

EDID SETTINGS

This matrix provides the option of (6) standard EDIDs, (10) sink sourced EDIDs and (4) customer uploaded EDIDs that can be assigned to each input port individually. The names of the (4) customers uploaded EDIDs can be changed if desired.

CUSTOMER EDID SETTINGS

To upload a custom EDID, please click the **"Upload"** button next to the Customer EDID Settings item you would like to change. An EDID Upload window will appear, allowing you to locate and upload your preferred EDID file from the file directory on your local PC. Once the correct file has been selected, please click the **"Upload"** button in the window, and the file will be transferred to the matrix.

SINK EDID DOWNLOAD

To save an existing custom EDID to your local PC please press the **"Download"** button next to the Customer EDID Settings item you would like to save. An EDID Download window will appear, allowing you to save the EDID file to your local PC. Once a file save location has been selected, please click the **"Download"** button in the window, and the file will be transferred to your PC.

SET EDID INPUT CONTENT
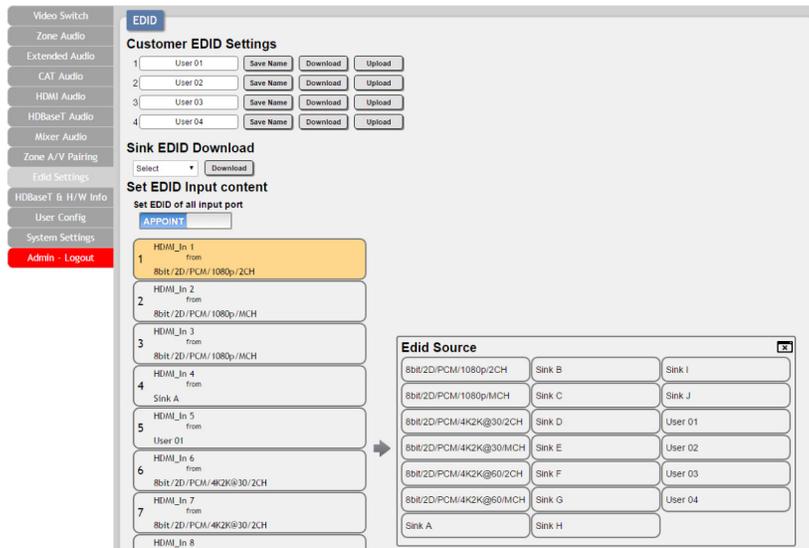
The Set EDID Input Content section allows for the assignment of an EDID to each individual input port, or to all inputs at once. Click the selection bar to toggle between individual assignment, or all inputs.

The unit comes with the following (6) default EDIDs:
FHD/2CH: 1080p/60Hz (486ft/148M), 2.0 LPCM, 8-bit color.
FHD/MCH: 1080p/60Hz (486ft/148M), 7.1 LPCM and bitstream, 8-bit color.
4K UHD/2CH: 3840x2160p/30Hz (974ft/297M), 2.0 LPCM, deep color (8/10/12-bit).
4K UHD/MCH: 3840x2160p/30Hz (974ft/297M), 7.1 LPCM and bitstream, Deep Color (8/10/12-bit).
4K UHD+/2CH: 3840x2160p/60Hz (1949ft/594M), 2.0 LPCM, deep color (8/10/12-bit).
4K UHD+/MCH: 3840x2160p/60Hz (1949ft/594M) 7.1 LPCM and bitstream, deep color (8/10/12-bit).
NOTE: In some rare cases it is possible for custom or external EDIDs to cause compatibility issues with certain sources. If this happens, it is recommended to switch to one of the (6) default EDIDs for maximum compatibility.

HDBASET™ & H/W INFO
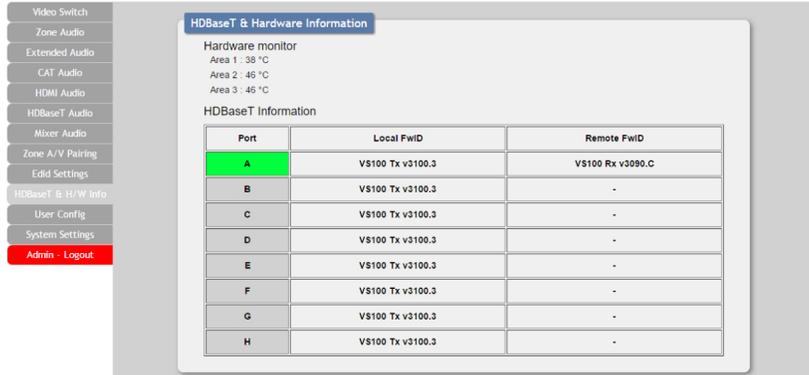
This page provides information concerning the temperature inside the matrix (Areas 1, 2 & 3) and the HDBaseT™ firmware versions used in the matrix and in connected receivers. Temperature area 1 is the left side of the output ports (from the front), area 2 is the right side of the output ports (from the front) and area 3 is at the middle of the HDMI inputs.

USER CONFIG

The WebGUI and Telnet username/password are set on this page. (2) management levels are available: **"Administrator"** and **"General User"**. The administrator username (**"admin"**) cannot be changed.

The **"Administrator"** user has access to change all settings. The **"General User"** is not permitted to access or change information on the EDID Settings or System Settings pages.

SYSTEM SETTINGS
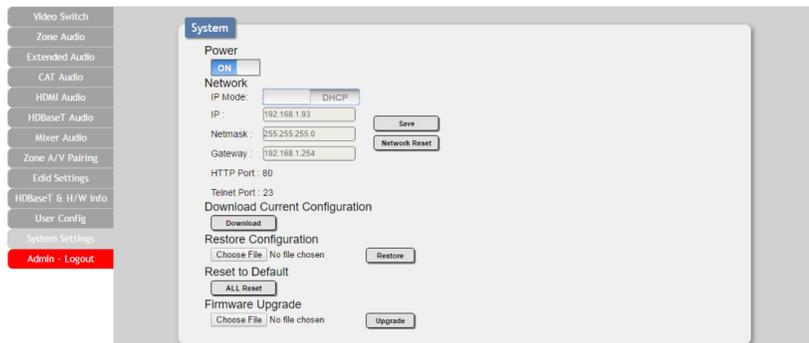
This page provides system configuration options including turning the power on/off, changing the network settings, downloading/restoring saved system configurations, resetting the system to factory defaults and updating the firmware.

SYSTEM SETTINGS
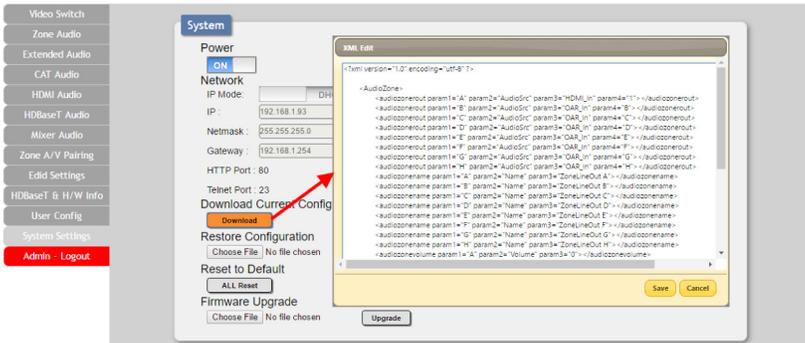
Click the **"Download"** button to save the current system configuration to your local PC. The current system configuration will be saved as XML file. The system configuration can also be restored from a saved XML file by clicking the **"Choose File"** button to locate the saved XML file, then clicking the **"Restore"** button.

LOGOUT
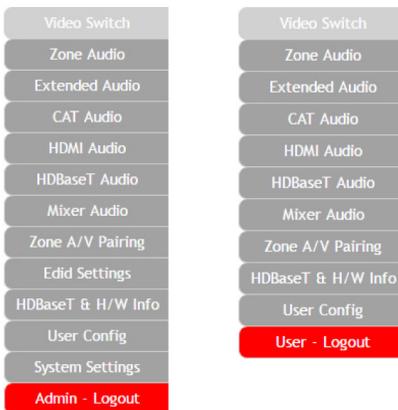
The **"Logout"** tab will indicate if the current user is connected as an Administrator or General User. Clicking the **"Logout"** tab will automatically log the user out of the WebGUI and return to login page.

CONNECTION DIAGRAM: MAIN UNIT

AV Zones
• HDMI Out
• IR In/Out
• LAN
• PoH
• OAR

AV Zone B
AV Zone D
AV Zone F
AV Zone H
AV Zone A
AV Zone C
AV Zone E
AV Zone G

Extended Analog Audio Zones

Audio Source Devices

CAT5e/6 Outputs

Analog Stereo Outputs

Analog Stereo Inputs

Digital S/PDIF Inputs

Bi-directional Audio In/Out

Power Supplies

HDMI Inputs & IR Outputs

IR In/Out

LAN RS-232

Internet Enabled Router

RS-232 Equipped PC/Laptop

HDMI Source Devices

HDMI Outputs

Local Monitors

31

CONNECTION AND INSTALLATION: RECEIVER

Active Speakers

Internet Connected Router

LAN

IR Extender

IR Blaster

RS-232 PC

Analog Stereo Output

DVD/Blu-ray Player

HDMI Input

RS-232

USB

TX

CAT5e/6/7 Cable

Amplifier

DVD/Blu-ray Player

Power Supply

Optical Digital Input

RX

HDMI Digital Outputs

LAN

IR Extender

IR Blaster

RS-232

RS-232 Controlled Device

Smart TV with Optical Digital Output

IR CABLE PIN ASSIGNMENT

IR Blaster

1. Power
2. IR Signal
3. NC

IR Extender

1. IR Signal
2. Power
3. Ground

SUPPORTED HDMI RESOLUTIONS: MAIN UNIT

INPUT & OUTPUT RESOLUTIONS (HZ)			
480i@60Hz	800x600@60Hz	1280x1024@60Hz	3840x2160@24/25/30/50/59.94/60Hz
480p@60Hz	720p@50/60Hz	1360x768@60Hz	4096x2160@24/50/59.94/60Hz
576i@60Hz	1080i@50/60Hz	1600x1200@60Hz	
576p@60Hz	1080p@24/50/60Hz	1920x1200@60Hz	
640x480@60Hz	1024x768@60Hz	2560x1440@60Hz	

TIMING SUPPORT TABLE: RECEIVER

HDMI	INPUT	OUTPUT		HDMI	INPUT	OUTPUT
480ix576i	Supported	Supported		1024x768	Supported	Supported
480px576p	Supported	Supported		1600x1200	Supported	Supported
720p@50&60	Supported	Supported		1920x1200	Supported	Supported
1080i@50&60	Supported	Supported		3840x2160p@50/60 (YUV_444)	Supported	Not Supported
1080p@50&60	Supported	Supported		Up to 4K@60Hz YUV 444 (6G)	Supported	Supported
640x480	Supported	Supported		Up to 4K@60Hz YUV 420 (3G)	Not Supported	Supported
800x600	Supported	Supported				

D-SUB 9 PIN DEFINITIONS: RECEIVER

PIN	DEFINE TX / RX		PIN	DEFINE TX / RX		PIN	DEFINE TX / RX
1	NC		4	N/C		7	N/C
2	TxD / RxD		5	GND		8	N/C
3	RxD / TxD		6	N/C		9	N/C

MAXIMUM HDMI CABLE LENGTH: MAIN UNIT

HDMI RESOLUTION	INPUT	OUTPUT
8-bit 1080p	33ft/10M	33ft/10M
12-bit 1080p	33ft/10M	33ft/10M
3840x2160@60Hz (YCbCr 4:2:0)	16ft/5M	16ft/5M
3840x2160@60Hz (YCbCr 4:4:4)	10ft/3M	10ft/3M

NOTE:

1. 18Gbps (4K@60Hz YCbCr 4:4:4) HDMI signals will be converted to 10.2Gbps (4K@60Hz YCbCr 4:2:0) signals when output over the (8) HDBaseT™ ports. Some TVs may not support YCbCr 4:2:0 color or 4K@60Hz and may display the signal incorrectly, or not at all. Please check your TV's technical specs before attempting to display 4K@60Hz signals.

*2. The use of **"Premium High Speed HDMI"** cables is highly recommended.*

ANALOG AUDIO

ANALOG INPUTS	
Max Audio Level	2Vrms
Input Impedance	>10kΩ
ANALOG OUTPUTS	
0dBFS Output Level	2Vrms
THD ≤ 80%	1K 0dBFS
THD ≤ 90%	1K -1dBFS
SNR	>100dB@1K 0dBFS
Frequency Response	<±0.5dB@20Hz~20KHz
Crosstalk	<90dB@20hz~20Khz
Output Impedance	>470Ω

LINEAR PCM AUDIO

CHANNELS (KHZ)		
LPCM 2.0@44.1	LPCM 5.1@44.1	LPCM 7.1@44.1
LPCM 2.0@88.2	LPCM 5.1@88.2	LPCM 7.1@88.2
LPCM 2.0@176.4	LPCM 5.1@176.4	LPCM 7.1@176.4
LPCM 2.0@32	LPCM 5.1@32	LPCM 7.1@32
LPCM 2.0@48	LPCM 5.1@48	LPCM 7.1@48
LPCM 2.0@96	LPCM 5.1@96	LPCM 7.1@96
LPCM 2.0@192	LPCM 5.1@192	LPCM 7.1@192

COMPRESSED AUDIO

BITSTREAMS
Standard Bitstream Formats
High-Bandwidth Bitstream Formats

NOTES: *Audio break away function supported in LPCM format only. The OAR, optical, coaxial, and Audio CAT functions only support LPCM.*

AUDIO ADJUSTMENTS

Volume: -100dB to 0dB and adjust 0.5dB per step (for both zone and extended audio).

Treble/Bass: Bass range from - 12dB to +12dB, 1dB per step adjustment. Treble range from - 12dB to +12dB, 1dB per step adjustment.

Audio Delay: 230ms for line-out per channel, 1ms per step adjustment.

Audio Mixer: Mixes any (2) audio sources into a single channel. (3) mixers in total. Mixer gain is adjustable from 0%~100%.

CATEGORY CABLE SPECIFICATIONS: MAIN UNIT

CABLE TYPE	CABLE LENGTH	SUPPORTED VIDEO FORMAT
CAT5e/6	328ft/100M	Most common Full HD video: • Up to 1080p@60Hz, 36-bit color • Data rates lower than 5.3Gbps or below 225MHz TMDS clock
	230ft/70M	Full HD & Ultra HD video: • 1080p@60Hz, 48-bit color • 4K@24/25/30Hz, 24-bit color • Data rates higher than 5.3Gbps or above 225MHz TMDS clock
CAT6a/7	328ft/100M	

CAT5E/6/7 CABLE SPECIFICATIONS: RECEIVER

CABLE TYPE	RANGE	PIXEL CLOCK RATE	VIDEO DATA RATE	SUPPORTED VIDEO FORMATS
CAT5e/6/7	328ft (100M)	≤225MHz	≤5.3Gbps (HD Video)	Up to 1080p@60Hz, 36-bit, 3D (data rates lower than 5.3Gbps or below 225MHz TMDS clock)
	CAT5e/6: 229ft (70M) CAT7 328ft (100M)	>225MHz	>5.3Gbps (Ultra HD Video)	4K2K@30Hz video formats

HDBASET™ FEATURES: MAIN UNIT

HDBASET™ FEATURE				
HD Video & Audio	IR Control	RS-232 Control	Power to Compatible Receiver	LAN

HDBASET™ FEATURES: RECEIVERS

HDBASET™ FEATURE	SUPPORTED		HDBASET™ FEATURE	SUPPORTED
Video & Audio	Yes		Sends power to Transmitter	No
IR	Yes		Sends power to Receiver	Yes
RS-232	Yes		LAN	Yes

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