

EMX-AMP / EMX-I-AMP 4K HDMI Audio Extractor with Power Amplifier

UMA1244 GUI Insert, Rev NC

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INFORMATION

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1. EMX-AMP Windows™ Software Installation

1.1. General

The EMX-AMP is controllable via free Windows® based software available from the Hall Research website.. All of the device features, and more, are accessible and controllable from the GUI.

References in this manual to the model EMX-AMP also apply to LAN enabled model EMX-I-AMP.

1.2. Software Installation Prerequisites

- A PC with Windows XP® OS or later
- USB port
- Microsoft® .NET Framework 2.0 or later (most recent OS including Windows 8 and later include this software and no action is required). If the .NET Framework 2.0 or later is not installed on your PC, the Microsoft™ website has free downloads available.

1.3. Software Installation

If an earlier version of this particular software was previously installed, UNINSTALL the program first from either the Add/Remove Programs section of the control panel or by running the previous installation's SETUP.EXE and selecting "remove application".

- Install the software by executing the SETUP.EXE program from the installation source directory
- Accept the default settings, but if you want to specify a particular installation directory other than the default, you may do so.
- Once the EMX-AMP software installation has completed, either click the desktop icon or navigate the Start Menu to

Start -> Programs -> Hall Research -> EMX-AMP Amplifier

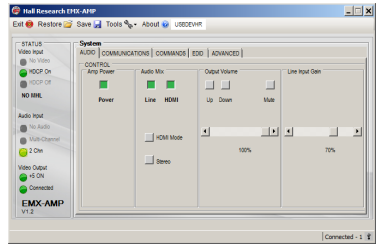
2. Using the Software

2.1. General

In most installations the use of the software GUI is not required as most functions can be performed using the front panel buttons on the product.

You can use the software to import/export EDID files from the device. Custom EDID data can also be written to devices connected to the output if they support that function.

It is possible to connect more than one EMX-AMP to the PC (using several USB ports of the PC). The same software GUI detects all connected devices and allows control from the same application.



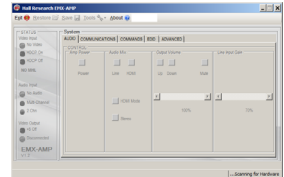
2.2. USB Device Detection

The EMX-AMP software uses standard Windows® drivers, which automatically configure the USB port after connection and do not require the installation of any special USB drivers.

The first time you connect the EMX-AMP to the PC, you may experience a short delay and a windows notification pop-up message may be shown.

2.2.1. The software GUI scans the EMX-AMP settings continuously in real time, so all device changes are immediately reflected on the software GUI.

2.2.2. If no EMX-AMP device is attached to the system, the on-screen fields are disabled (grayed out).



The new device detection and driver auto installation typically only occurs once. Thereafter, reconnected devices are detected with no delay or message.

2.2.3. Only one instance of the software GUI can run at a time. Executing the application more than once will result in a warning message.



2.3. Tool Bar Menu

2.3.1. EXIT



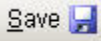
Exits the application

2.3.2. RESTORE



Restore previously saved configuration files

2.3.3. SAVE



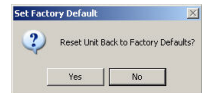
Save the current configuration file.

2.3.4. TOOLS



Factory Defaults

Restore the device to factory default settings.
The user must confirm the action.



Import EDID

Import an EDID (256-byte binary or XML file) into the unit. (If the file has an XML extension, the file will be interpreted as containing XML data, otherwise the file will be interpreted as containing BINARY data).

Export EDID

Save the current EDID as a 256-byte binary file
This file can be edited using third party software and reloaded using the 'Import EDID' tool selection.

Firmware Update

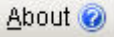
Allows users to field upgrade the device application firmware. Application firmware that does not support this function will disable this option.

Only valid firmware files can upload into the EMX-AMP.

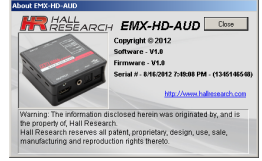
LAN Update

Allows users to field upgrade the device application LAN firmware on Model EMX-I-AMP only.

2.3.5. ABOUT

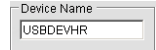


Displays screen with software versions, website link, legal disclaimer and copyright information. The Serial # information displayed is a time/date stamp referenced to GMT (Greenwich Mean Time) and has no reference to the serial number sticker on the actual device.



2.4. Device Name

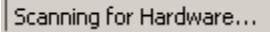
Assigns a descriptive name to the EMX-AMP device that is a maximum 8 characters long. The user is not allowed to change the device name with multiple devices connected. The FACTORY DEFAULT name is USBDEVHR.



2.5. Status Bar

The bottom bar of the screen shows the current USB status as follows:

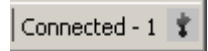
“Scanning for Hardware...”



The GUI software is looking for EMX-AMP devices.

Screen controls disable until a valid EMX-AMP device attached

“Connected – XX”



Where XX is the number of EMX-AMP devices connected to the PC.

2.6. Status Group

Video Input

No Video

Indicates the system is not receiving an INPUT video signal.

HDCP On

Indicates video received has HDCP Encryption enabled.

HDCP Off

Indicates video received has HDCP Encryption disabled.



Audio Input

No Audio

Indicates no audio received (DVI mode)

Multi-Channel

Indicates HDMI audio received is **not** LPCM format.

2 Chn

Indicates HDMI audio received is **LPCM** format.



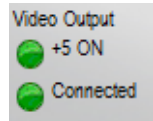
Video Output

+5 ON/OFF

Indicates the state of the +5 vDC signal to the HDMI OUTPUT. When the HDMI INPUT has, +5 vDC connected, the +5 vDC OUTPUT signal is turned on and this indicator will be green. When no +5 vDC signal is detected on the HDMI INPUT, the indicator on the screen changes to a dark red color.

Connected or Disconnected

Indicates the state of the device connected to the EMX-AMP OUTPUT. When a HPD signal is detected, the button will be green and the word Connected will be shown next to it. When no display is detected (or the display is not sending an HPD signal), then the indicator on the screen changes to a dark red color and the word Disconnected will be shown next to it.



2.7. Audio Tab

Control

Amp Power

The Power control shows both the device power state as well as being able to control the ON or OFF state. Factory default is OFF.

Audio Mix

The Line control shows both the device LINE Audio state as well as being able to control the ON or OFF state. Factory default is ON.

- When ON, the 3.5mm LINE IN audio is mixed and output on the amplifiers speakers and 3.5mm LINE OUT connectors.
- When OFF, the 3.5mm LINE IN audio is not mixed and not output.

The HDMI control shows both the device HDMI Audio state as well as being able to control the ON or OFF state. Factory default is ON.

- When ON, the HDMI IN audio is mixed and output on the amplifiers speakers and 3.5mm LINE OUT connectors.
- When OFF, the HDMI IN audio is not mixed and not output.

The HDMI Mode control shows both the device HDMI Mode state as well as being able to control the HDMI or ARC state. Factory default is HDMI.

- When OFF, the HDMI IN audio is mixed and output on the amplifiers speakers and 3.5mm LINE OUT connectors.
- When ON, the HDMI OUT ARC audio is mixed and output on the amplifiers speakers and 3.5mm LINE OUT connectors.
- The Stereo/Mono control shows both the device Stereo/Mono audio state as well as being able to control the Stereo or Mono state.

Output Volume

The Up control increases the volume by 1% for each click.

The Down control decreases the volume by 1% for each click.

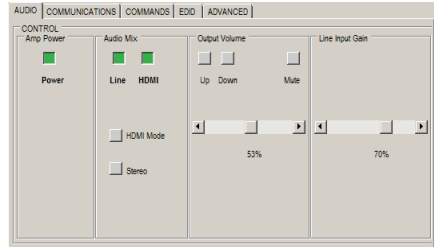
The Mute control shows both the device audio MUTE state as well as being able to control the MUTE state.

- When ON, the speaker and 3.5mm LINE OUT audio is muted.
- When OFF, the speaker and 3.5mm LINE OUT audio is NOT muted.

The volume Slider control adjusts volume as the user changes the control. Factory default is 0%.

Line Input Gain

The volume Slider control adjusts the gain of the 3.5mm LINE IN audio as the user changes the control. Factory default is 70%.



2.8. Communications Tab

The screenshot shows a configuration page with several sections:

- Serial #2 Output:** Baud rate is 9600, Parity is None, and Pass-Thru is Off.
- Device Info:** Device ID# is 0 and Current ID# is 0.
- Miscellaneous:** FP Unlocked is checked, and Encoder/Page Sensor is set to Encoder.
- Local Area Network:** A table of network settings for four ports.

Port	IP Address	Subnet Mask	Gateway
1	192	255	192
2	158	255	158
3	123	255	123
4	134	0	1

Serial #2 Output

Baud

The Baud control shows the device Serial #2 Baud Rate. Factory default is 9600.

Parity

The Parity control shows the device Serial #1 Parity. Factory default is NONE

Pass-Thru

The Pass-Thru control shows both the device RS232 Pass-Thru state as well as being able to control the ON or OFF state. Factory default is OFF.

- When ON, RS232 characters received on Serial port #1 are 'Passed thru' to Serial port #2 unchanged.
- When OFF, RS232 characters received on Serial port #1 are NOT 'Passed thru' to Serial port #2.

Device Info

Device ID#

The Device ID# control shows the device ID#. Factory default is 0.

Current ID #

The Current ID# control shows the device ID#. Factory default is 0.

Miscellaneous

FP Unlocked/Locked

The FP Unlocked/Locked control shows the device front panel lock status. Factory default is Unlocked.

- When UNLOCKED, the device front panel buttons are active.
- When LOCKED, the device front panel buttons are NOT active. RS232, webpage and telnet commands are always active even when the FP is in the LOCKED state.

Encoder/Page Sensor

The Encoder/Page Sensor control shows the device state for the terminal strip connections where different controls or sensors may be connected. Factory default is ENCODER.

- When set for ENCODER, a compatible encoder connected on the rear terminal strip controls the device volume.
- When set for PAGE SENSOR, a compatible page sensor connected on the rear terminal strip controls the PAGE MUTE function. Whenever a signal is received of sufficient amplitude, the 3.5mm LINE IN and HDMI/ARC audio will be mute. When the signal received is below the threshold, the 3.5mm LINE IN and HDMI/ARC audio will NOT be mute.
- When set for CONTACT, when the CW and GND terminals are shorted, the audio output will be muted. When the CW and GND terminals are open, the audio output will NOT be muted.

Local Area Network**IP Address**

The IP Address control shows the device network IP address. Factory default is DHCP so this address is determined by the end users compatible DHCP router.

Subnet Mask

The Subnet Mask control shows the device network subnet mask. Factory default is DHCP so this subnet mask is determined by the end users compatible DHCP router.

Gateway Address

The Gateway Address control shows the device network Gateway address. Factory default is DHCP so this address is determined by the end users compatible DHCP router.

DHCP

The DHCP control shows the device DHCP status. Factory default is ON.

- When OFF, the IP address, Subnet Mask and Gateway address are determined by the settings in the other fields (after the UPDATE button is clicked).
- When ON, the IP address, Subnet Mask and Gateway address are determined by the end users compatible DHCP router.

UPDATE

The UPDATE control is only enabled when DHCP is OFF.

Click this control after setting the IP address, Subnet Mask and Gateway address to the desired STATIC settings.

Commands Tab

Command Configuration

Function

The Function control field shows ON or OFF. This field indicates which is being displayed or configured.

Protocol

The Protocol control field shows either 'Serial' or 'Delay'. This pertains to whether the user is entering an RS232 command or a Time Delay into the currently set 'Function'.

Command (Protocol set for Serial)

The Command control field is where the user enters the desired RS232 string.

The RS232 values can be entered as ASCII text and/or hex byte values formatted in a &hXX format.

Any extra spaces or other characters entered are transmitted.

Where "XX" is the desired HEX byte value.

Any character from 0 to 0xFF can be entered in this format.

Delay (sec) (Protocol set for Delay)

The Delay (sec) control field is where the user enters the desired time delay in seconds. The limit is from 1 to 6 seconds.

INSERT

The INSERT control is clicked to append the current 'Serial' COMMAND or TIME DELAY into the existing command.

The new command (either Serial or Delay) is appended to any existing command and is displayed in the window.

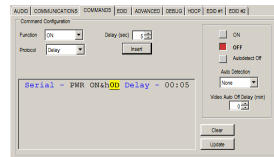
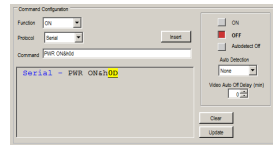
CLEAR

The CLEAR control is clicked to erase the entire ON or OFF RS232 command. (You must still click the UPDATE button to save)

UPDATE

The Update control is clicked to save the existing RS232 command.

This control is only visible when an unsaved change has been made to the ON or OFF configuration.



EXAMPLE

To send the RS232 string "PWR ON" followed by a Carriage Return character and then wait 5 seconds.

Enter the characters "PWR ON&h0D" into the 'COMMAND' field and click 'INSERT'.

Change the 'Protocol' to 'Delay' and set the 'Delay (sec)' to 5 and click 'INSERT'.

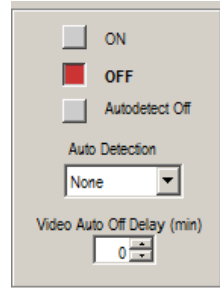
Click 'UPDATE' to save the command.

ON

The ON control field shows the device current ON button state as well as sending the ON RS232 command from Serial Port #2 when clicked.

OFF

The OFF control field shows the device current OFF button state as well as sending the OFF RS232 command from Serial Port #2 when clicked. Factory Default is OFF.



Autodetect ON/OFF

The Autodetect ON/OFF control field shows the device current Auto Detect state as well as being able to control the Auto Detect state. Factory Default is OFF.

- When OFF, no action is taken.
- When ON, and the 'Auto Detection' is NOT set to NONE, this allows the device to automatically send the pre-programmed RS232 strings (ON or OFF) when a specific event occurs.
 - **NONE** – NO action will occur
 - **+5** – When +5 vDC is received on the HDMI Input, the ON string will be sent from Serial Port #2. When the +5 vDC is no longer received, the OFF string will be sent from Serial Port #2.
 - **Video** – When video is received on the HDMI Input, the ON string will be sent from Serial Port #2. When the video is no longer received and after an optional time delay, the OFF string will be sent from Serial Port #2.
 - **Contact** - When terminals CCW and GND are connected (shorted), the ON string will be sent from Serial Port #2. When CCW and GND are NOT connected (open), the OFF string will be sent from Serial Port #2.

Video Auto Off Delay (min)

The Video Auto Off Delay (min) control field shows the device current Video time delay value as well as being able to set that value. Factory Default is 0.

- When 0 and 'Auto Detection' is set for 'Video' the OFF string will be sent immediately from Serial Port #2.
- When set to any value between 1 and 240 minutes, the OFF string will be sent from Serial Port #2 after the delay has elapsed.
- **NOTE, the actual time elapsed before the OFF string is sent from Serial Port #2 can be +/- 5% of the time entered.**

EDID Tab

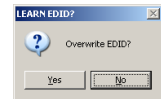
VIDEO EDID

Clicking these controls selects to either PASS-THRU or EMULATE the EDID.
 PASS-THRU uses the SINK EDID while EMULATE uses the internal EDID saved in the EMX-AMP.
 PASS-THRU is the FACTORY DEFAULT setting.



Learn EDID

Clicking this control will extract the EDID from device connected to the output connector and save it in the unit.
 The user must confirm the action.



EDID Data Display

The data shown in the EDID table is continually scanned to ensure that the checksums for each block is valid.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F		
00	00	FF	FF	FF	FF	FF	00	22	140	00	02	00	00	00	00		
01	08	18	01	03	00	00	8C	EA	EE	91	A3	54	4C	99	26		
02	0F	50	54	3F	CF	00	01	00	01	99	80	40	95	00	A8	40	
03	85	69	01	03	01	00	0E	10	00	00	51	08	1C	20	49	80	
04	36	00	00	00	00	00	1E	00	00	00	00	51	20	1F	30		
05	46	80	36	00	00	00	00	00	00	00	07	3F	40	30	6C	80	
06	20	40	70	A8	78	00	00	00	00	00	1A	28	38	98	30		
07	62	1A	27	00	98	00	38	00	00	00	10	00	00	1A	01	F7	
08	02	03	20	F2	46	86	82	04	05	10	1F	08	7F	07	15		
09	07	58	3C	08	03	83	1F	00	00	86	03	00	00	00	00	80	
0A	20	40	00	0C	2C	45	00	00	00	00	00	1E	00	00	3A	80	00
0B	72	38	20	40	70	2C	45	00	00	00	00	00	00	00	01	10	
0C	00	00	00	1E	01	10	00	72	51	00	1E	20	6E	00	8E	00	
0D	00	00	00	00	1E	01	10	00	EC	52	00	1E	20	20	28		
0E	3E	40	00	00	00	00	1E	00	00	00	00	00	00	00	00	00	
0F	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	

When wrong checksums are detected, the invalid checksum byte is highlighted in RED.

If an action is performed that affects the EDID such as initiating a "learn" process, The checksum field might momentarily flash 'RED' during the this process, but should go back to normal once the entire table is updated.

NOTE

You cannot "LEARN" an EDID that has an invalid checksum. If you try to learn an EDID that has a checksum error, the POWER and MUTE Button LEDs on the unit will alternately flash 5 times to indicate the error.
 No other checks are performed on the EDID to determine that it is valid per the EDID standard.
 However, the GUI software can import and upload to the EMX-AMP, EDID's that contain invalid checksum for testing purposes.

2.9. Advanced Tab

Ducking

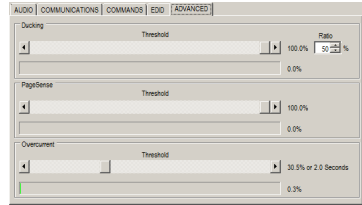
Threshold

The *Threshold* control shows the device 3.5mm LINE IN audio line-level threshold. Factory default is 100%. (Technically, this is 'OFF' since 100% cannot be exceeded)

If the 3.5mm LINE IN audio level exceeds this amount, the HDMI/ARC volume will be reduced by the given 'Ratio'.

Ratio

The *Ratio* control shows the device 'Ducking' threshold ratio. This is the percentage the HDMI/ARC volume is reduced when the 'Threshold' is exceeded. Factory Default is 50%.



Example

When the ducking threshold is exceeded, whatever volume level the HDMI/ARC is currently set for will be reduced by the 'Ratio'.

*If the volume level is currently 75% and the 'Ratio' is set for 50%, when the Ducking is in effect, the output volume level will be set for $75\% * 50\% = 37.5\%$.*

PageSense

Threshold

The *Threshold* control shows the device Paging Sensor voltage threshold. Factory default is 100%. (Technically, this is 'OFF' since 100% cannot be exceeded)

If the Paging Sensor input voltage exceeds this amount, the output volume will be muted.

Note

The graphical displays only update if the Ducking or PageSense 'Threshold' level has actually tripped.

To see a live display of the incoming signal, temporarily set the 'Threshold' level to a value lower than the incoming signal.



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