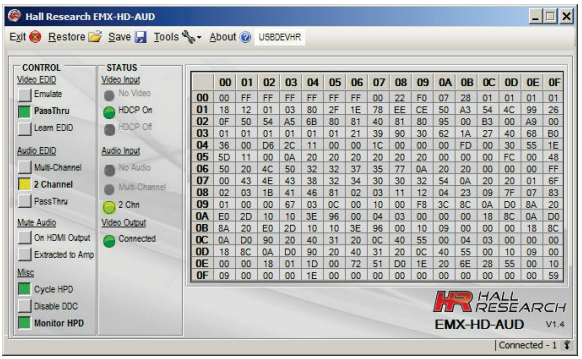
HALL RESEARCH

Software GUI User's Manual



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05	5D	11	00	0A	20	20	20	20	20	20	00	00	00	FC	00	48
06	50	20	4C	50	32	32	37	35	77	0A	20	20	00	00	00	FF
07	00	43	4E	43	38	32	34	30	30	32	54	0A	20	20	01	6F
08	02	03	1B	41	46	81	02	03	11	12	04	23	09	7F	07	83
09	01	00	00	67	03	0C	00	10	00	F8	3C	8C	0A	D0	8A	20
0A	E0	2D	10	10	3E	96	00	04	03	00	00	00	18	8C	0A	D0
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0C	0A	D0	90	20	40	31	20	0C	40	55	00	04	03	00	00	00
0D	18	8C	0A	D0	90	20	40	31	20	0C	40	55	00	10	09	00
0E	00	00	18	01	1D	00	72	51	D0	1E	20	6E	28	55	00	10
0F	09	00	00	00	1E	00	00	00	00	00	00	00	00	00	00	59

AUDIO EXTRACTOR & EDID MGR GUI
Model EMX-HD-AUD

CUSTOMER SUPPORT INFORMATION

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Address: **Hall Research**, 1163 Warner Ave. Tustin, CA 92780
Web site: www.hallresearch.com E-mail: info@hallresearch.com

UMA1201 Rev. D
GUI Insert

1. EMX-HD-AUD Windows™ Software Installation

1.1. General

The EMX-HD-AUD is controllable via a free Windows® based.

All of the device features, and more, are accessible from the GUI. EDID files can be exported or imported. The device is also capable of writing custom EDID data back to compatible display devices.

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 7 and 8 typically include this and no action is required). If.NET Framework 2.0 or later is not installed on your PC, the Microsoft™ website has free downloads available.

1.3. Software Installation

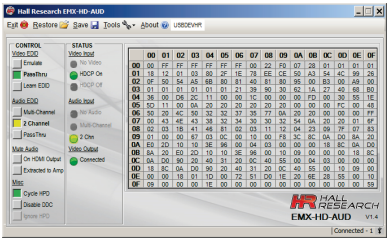
If an earlier version of this particular software was previously installed, UNINSTALL the program first from either the Add/Remove Programs section of the control panel or by running the previous installation's SETUP.EXE and selecting "remove application".

- 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 VR-DVI software installation has completed, either click the desktop icon or navigate the Start Menu to

Start -> Programs -> Hall Research -> EMX-HD-AUD Audio Extractor

2. Using the Software

2.1. General



In most installations the use of the software is not needed as most functions can be performed using the push-buttons on the product as described in the previous section.

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. You can also mute the extracted audio, or remove the audio from the HDMI output.

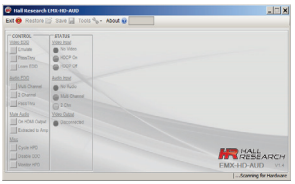
It is possible to connect more than one EMX-HD-AUD to the PC (using several USB ports of the PC). The same instance of the software detects all connected devices and allows control from the same interface.

2.2. USB Device Detection

The EMX-HD-AUD software uses standard Windows® drivers to automatically configure the USB port after connection and does not require any special USB drivers to be installed.
The first time you connect the extender to the PC, you may experience a short delay and a windows notification pop-up message may be shown.

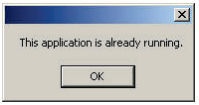
2.2.1. The software scans the EMX-HD-AUD settings continuously in real time, so all changes are immediately reflected on the screen

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



This detection and auto installation only occurs once. Thereafter, reconnected devices are detected with no delay or message.

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



2.3. Tool Bar Menu

2.3.1. RESTORE

Restore device settings from file

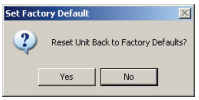
Used to select previously saved files

2.3.2. SAVE

Save device settings to a file

Save file to any location on the PC.

2.3.3. 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.

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.

Write EDID

Writes the current 256-byte EDID to the currently connected output device. This option is not available on systems with older firmware.
The user must confirm the action and take all necessary precautions to prevent loss of data. Hall Research is not responsible for any damage that may occur from the user attempting to modify the EDID.

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-HD-AUD.

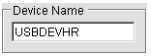
2.3.4. EXIT

Exits the application

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-HD-AUD 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-HD-AUD devices.
Screen controls disable until a valid EMX-HD-AUD device attached

"Connected – XX"

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

2.6. CONTROL Group

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-HD-AUD.
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.

AUDIO EDID

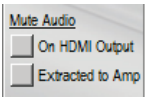
Clicking these controls selects either PASS-THRU, 2 CHN or MULTI modes

MULTI – EDID from SINK is set for LPCM, DTS and Dolby audio with multiple speakers.

2 CHN – EDID from SINK is set for 2 channel LPCM audio with 2 speakers. This is the FACTORY DEFAULT setting.

PASS-THRU – EDID from SINK is used.

Mute Audio



On HDMI Output

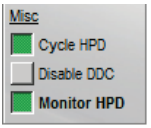
Clicking this control mutes the HDMI Audio. FACTORY DEFAULT is not muted.

Extracted to Amp

Clicking this control mutes the 3.5mm L/R and TOSLINK Audio. FACTORY DEFAULT is not muted.

Misc

Cycle HPD



Clicking this control sends a 500 mS Hot Plug Detect signal to the video source. This indicator is 'filled' when the source is connected.

Disable/Enable DDC

Disabling this control will turn off the DDC communication with the SOURCE device. The SOURCE will receive no response from any HDMI or EDID requests. This effectively disables the SOURCE from displaying HDCP content. FACTORY DEFAULT is enabled (HDCP and EDID acceptable).

Monitor/Ignore HPD

Clicking this control to 'Ignore HPD', allows the source to ignore changes to the OUTPUT HPD line.

The default behavior is to restart the HDMI/HDCP communications to the SOURCE if a SINK device reconnects after becoming disconnected.

This re-initializing of the connection to the source may cause a momentary drop-out in the Video and Audio output.

If this selection is set to "ignore" HPD, then the signal from the source is uninterrupted.

FACTORY DEFAULT is to monitor the SINK HPD.

2.7. STATUS

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.

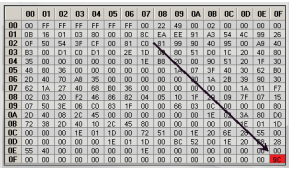
Video Output

Connected or Disconnected

Indicates the state of the device connected to the EMX-HD-AUD OUTPUT. When a display 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.

2.8. EDID Data Display

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



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 PASS-THRU and EMULATE 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-HD-AUD, EDID's that contain invalid checksum for testing purposes.

2.9. EDID Mixing

First of all, it is important to understand that any display device only has one EDID table that has information on all of its video and audio capabilities. The EMX-HD-AUD gives the user the capability to independently control or alter the video and audio portions of the EDID. This process is called EDID mixing. At power up, the default EDID stored within the device is loaded. This could be either the factory default or a 'Learned' EDID.

If a functioning and valid SINK device is connected to the EMX-HD-AUD 'Output' connector and the VIDEO EDID mode is set to PASS-THRU, the EDID from the SINK will be read and loaded into memory.

If the SINK EDID read is a simple 128 byte EDID (like some DVI monitors), a CEA-861 extension block (2nd 128 bytes) will be added to the EDID with a default native resolution of 480p and with LPCM 2 channel audio.

If the SINK is disconnected from the VSA-HA-DP connector, the internally saved EDID will be presented to the SOURCE mixed according to the AUDIO settings. Each time the VIDEO or AUDIO EDID GUI controls are pressed, the EDID presented to the SOURCE would be as shown in the following table:

VIDEO MODE	AUDIO MODE	EDID EFFECT
PASS	PASS	SINK EDID PASSED WITH CEC ADDRESS MODIFICATION
PASS	2CHN	SINK EDID PASSED WITH 2CHN AUDIO AND CEC ADDRESS MODIFICATION
PASS	MULTI	SINK EDID PASSED WITH 2CHN, DTS AND DOLBY AUDIO AND CEC ADDRESS MODIFICATION
EM	PASS	NOT POSSIBLE
EM	2CHN	INTERNAL EDID PASSED WITH 2CHN AUDIO AND CEC ADDRESS MODIFICATION
EM	MULTI	INTERNAL EDID PASSED WITH 2CHN, DTS AND DOLBY AUDIO AND CEC ADDRESS MODIFICATION

2.10. CEC Physical Addressing

CEC Address modification consists of taking the SINK or INTERNAL EDID and modifying the address to insert the EMX-HD-AUD CEC Physical address into the CEC chain. (The EMX-HD-AUD device does not understand any CEC commands).

For example: SINK EDID has CEC address of 0.0.0.0

EDID given to source will show the EMX-HD-AUD as CEC address 1.0.0.0 and the display still with its original CEC address of 0.0.0.0

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