



EMX-DVI

Single & Dual Link DVI Extender w/ EDID Mgmt

Equalizes and Boosts DVI or HDMI video signals
Learns and Emulates EDID
USB Port for EDID Read & Write
Can Disable HDCP Support

1.0 Introduction

Thank you for purchasing the Hall Research EMX-DVI. Use this device to extend and boost Single or Dual-Link DVI video signals and also learn and emulate any LCD's EDID.

The EMX-DVI automatically compensates for the signal degradation caused by long video cable runs of up to 50 ft (15 m) on its input and can drive long DVI Cables on its output to 40 ft (12 m) by boosting and echo-canceling the DVI video output.

By default, the unit is setup to buffer single link DVI or HDMI signals. Use the recessed LINK pushbutton to change the mode to support Dual link TMDS signals.

In most instances, when configured for Single Link extension, the unit can operate from the power available through the DVI source signal and no external power supply connection is required.

The unit ships with a universal power supply to use if the power through the DVI input is insufficient. The power can also come from the USB connector on a PC.

The DDC channel (that handles EDID and HDCP data) can either be by-passed through the EMX-DVI (so the source "sees" the connected LCD), or it can be Emulated, whereby the EDID is supplied from internal memory and HDCP is turned off (forcing the source to send non-content protected video without HDCP).

The Emulated (internal) EDID data is acquired from any connected LCD, or a custom EDID file can be uploaded via the USB port.

The unit provides driver free USB 1.1 port connection to a PC. Free Windows™ PC software is available on the website which allows reading, saving, manipulating, and writing EDID tables to and from the device. The EMX-DVI modes (Bypass vs. Emulate or Single-Link vs. Dual-Link buffer) are also controllable via the USB port.

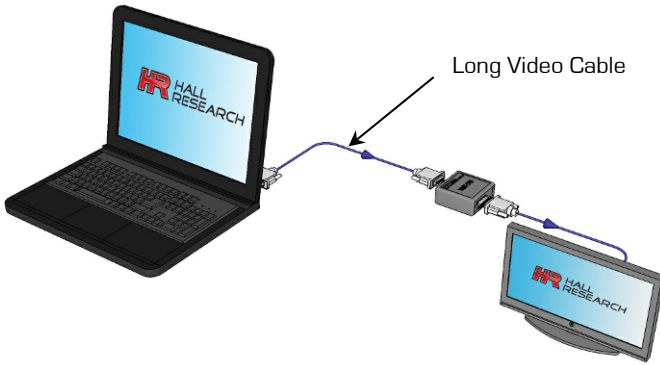
In addition to the above, the unit provides DVI-I bypass for analog RGBHV (or VGA) signals, so it can manage EDID for VGA sources and displays using inexpensive VGA to DVI cables or adapters

2.0 Features

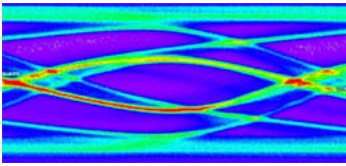
- Extend and boost DVI video to 90 ft total
- Pass-through EDID or emulate any LCD
- Can be powered from DVI input or external power supply (included)
- Can Learn and store EDID from any LCD
- Supports Single and Dual-Link DVI, HDMI™, CEC & 3D Video
- LED indicators for Mode display
- Analog VGA pass-through
- Use with or without display
- USB port for control and mgmt of EDID
- Free PC software to download, manipulate or upload EDID data
- Designed and made in USA

3.0 Installation

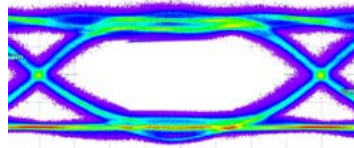
The EMX-DVI connects between the video source and an optional display device.



Though designed to drive long cables on its output, when used as an extender, it is best to place the EMX-DVI at the end of the long cable. In that way its automatic equalizer can clean the signal and open the TMDS "eye"



TMDS Signal at end of long Cable



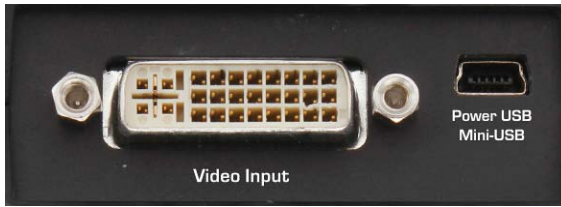
TMDS Signal after Equalization

The DVI source may have enough power to power up the unit (particularly when configured in Single-Link Mode), so you may not need to hookup an external power supply. The only way to tell if your source can supply the required power is to try it. If you need to connect a power supply, the package includes a power supply that will plug in the USB port of the device. When the EMX-DVI USB port is connected to a PC, it draws power from the USB and no additional power supply will be required.

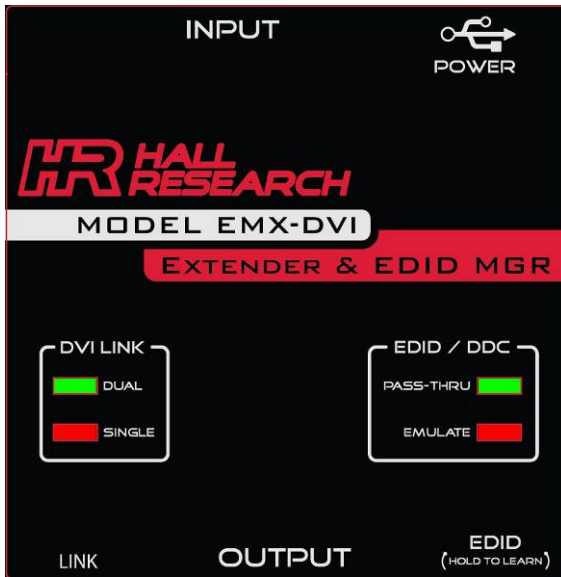
Connect the video source to the EMX-DVI video input (50 ft or 15 meters max). Connect the EMX-DVI video output to the display device (40 ft or 12 meters max).

The EMX-DVI LEDs show the current device settings. Refer to the operations section for more information.

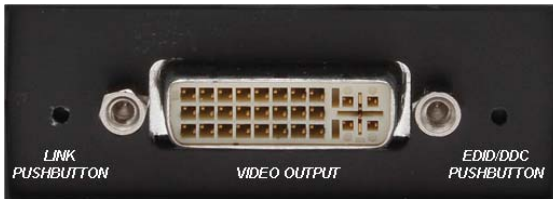
EMX-DVI Extender & EDID Mgr



Video Input End



Top View



Video Output End

4.0 Default EMULATION resolutions

The following lists the default resolutions of the EMX-DVI. The user can overwrite the default EDID table but upon performing a Factory Default reset, these values reset.

RESOLUTION	FREQUENCY	ASPECT RATIO	RESOLUTION	FREQUENCY	ASPECT RATIO
640x480	60, 67, 72, 75	(Aspect 4:3)	720x480i	59.94/60	(Aspect 4:3, 8:9)
800x600	56, 60, 72, 75	(Aspect 4:3)	720x480p	59.94/60	(Aspect 4:3, 8:9)
1024x768	60, 70, 75	(Aspect 4:3)	1280x720p	59.94/60	(Aspect 16:9, 1:1)
1280x720	60	(Aspect 16:9)	1920x1080i	59.94/60	(Aspect 16:9, 1:1)
1280x800	60	(Aspect 16:10)	1920x1080p	50, 59.94/60	(Aspect 16:9, 1:1)
1280x1024	60, 75, 85	(Aspect 5:4)			
1400x1050	60	(Aspect 4:3)			
1440x900	60	(Aspect 16:10)			
1600x1200	60	(Aspect 4:3)			
1680x1050	60	(Aspect 16:10)			
1920x1080	60	(Aspect 16:9)			
1920x1200	60	(Aspect 16:10)			

5.0 Power Requirements

This device requires 5 Volts DC which can be sourced from the included power supply or PC through the mini-B USB connector or from Pin 14 (+5 V) of the DVI connector.

To power the EMX-DVI from the DVI input power, the source must be able to supply a minimum of 120 mA (@ 5 vDC) for SINGLE LINK DVI operation and a minimum of 220 mA (@ 5 vDC) for DUAL LINK DVI operation. Using a video source with insufficient power capabilities will result in erratic operation and loss of video. If this happens, the user must connect the USB port to a PC or a power supply.

6.0 Operation

The EMX-DVI recessed buttons prevent inadvertent changes to its settings.

Change the settings requires a pointed device (such as a paper clip) inserted into the hold to depress the button. Some functions require depressing the button for several seconds.

- **EDID/DDC – PASS-THRU LED**
 - EDID & HDCP information passes through the device without modification.
 - HDCP **is** supported in this mode if the connected LCD is HDCP compliant.
 - Hot-plug signal from connected LCD passes to the DVI input.
- **EDID/DDC – EMULATE LED**
 - Emulates the EDID currently stored in the device.
 - HDCP **is not** supported in this mode (perfect to MacBook™ Pro)
 - HPD signal remains active (no monitor required)
- **LINK – SINGLE LED**
 - DVI video passes through the device in SINGLE LINK format.
- **LINK – DUAL LED**
 - DVI video passes through the device in DUAL LINK format.

- **LEARNING the EDID from Connected LCD**
 - Press and hold the EDID/DDC button for approximately 3-5 seconds until the EMULATE LED starts blinking
 - Release the button, the EMULATE LED will continue blinking while the unit is reading and saving the EDID form the LCD connected to the output.
 - If the EDID successfully reads, ALL LED's will illuminate one at a time in a circular pattern 5 times.
 - If the EDID does NOT successfully read, the PASS-THRU and EMULATE LEDs will alternately flash 5 times to indicate the error.

- **SET FACTORY DEFAULTS**
 - Press and hold BOTH the LINK and EDID/DDC buttons for approximately 3~5 seconds until BOTH the EMULATE and SINGLE LINK LED's start blinking.
 - Release both buttons.
 - If the factory defaults were successfully restored, ALL LED's will illuminate one at a time in a circular pattern 5 times.

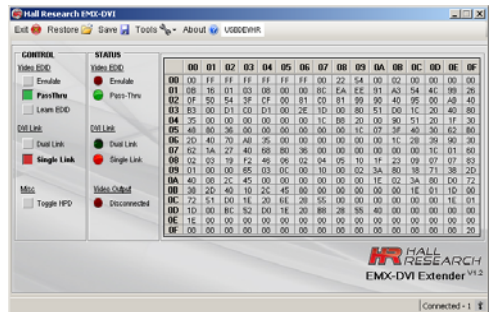
7.0 Windows Software GUI

The EMX-DVI is controllable via a free Windows™ based GUI available from the Hall Research website.

All of the device features are available as well as controlling multiple devices from the same GUI as well as EDID import and export (extracting the EDID as a file).

Modified EDID files can import back into the EMX-DVI to add or remove video resolutions.

The user guide for the Software GUI is only available on the website.



8.0 Troubleshooting

Problem: No LEDs illuminate or LED's only momentarily FLASH when buttons are pushed, or No video appears on the connected LCD

Possible Cause: If connected via DVI input cable only, your source may not have enough power through its DVI connector to power the device, connect and check power supply

Problem: DVD or Blu-ray content does not display

Possible Cause: The source is content protected using HDCP. HDCP is not supported in EMULATE mode, use the PASS-THRU mode.

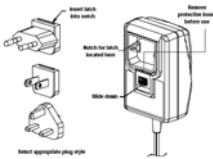
9.0 Returning unit for Repair

If you need to transport or ship your unit: Package it carefully. We recommend that you use the original container.

Before you ship the units back to Hall Research for repair or return, contact us to get a Return Authorization (RMA) number.

10.0 Specifications

Power Supply (North American)
 5 vDC, 1 ADC
 USB-A to mini-B cable
 90-264 VAC, 47-63 HZ
 CE/FCC/UL



(Export)
 5 vDC, 1.2 ADC
 Integral mini-B cable
 90-264 VAC, 47-63 HZ
 CE/FCC/UL
 Interchangeable blades

Size 2.71" (W) x 2.825" (D) x 1.25" (H)
 (68.83 mm) x (71.76 mm) x (31.75 mm)
 Weight 1 Lb (0.453 kg)
 Operating Temperature..... 32 to 104 DegF (0 to 40 DegC)
 Storage Temperature.....-40 to 185 DegF (-40 to 85 DegC)
 Humidity 10 to 90% non-condensing
 Cooling Convection
 Enclosure type Black Plastic ABS-94VO, UL File #56070
 Vibration ISTA 1A in carton (International Safe Transit Association)
 Safety CE
 EMI/EMC CE, FCC Class A
 MTBF..... 90,000 hours
 Warranty..... 2 years parts and labor
 USB 1.1 Full Speed
 Support video formats DVI 1.0
 HDMI™ 1.4
 HDCP 1.0
 Analog RGBHV

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