Gefen ToolBox

1:8 Splitter for HDMI®

GTB-MHDMI1.3-148

GTB-MHDMI1.3-148-BLK

User Manual

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CONTENTS

Congratulations on your purchase of the GefenToolBox 1:8 Splitter for HDMI. Your complete satisfaction is very important to us.

About Gefen

We specialize in total integration for your home theater, while also focusing on going above and beyond customer expectations to ensure you get the most from your hardware. We invite you to explore our distinct product line. Please visit http://www.gefen.com for the latest offerings in High-Definition signal solutions or call us between the hours of 8:00 am and 5:00 pm Monday-Friday, Pacific Standard Time for assistance with your A/V needs. We'll be happy to assist you.

Why GefenToolBox?

The GefenToolBox line offers portable and effective solutions for common A/V system integration setups using HDMI connectivity. GefenToolBox products are wall-mountable and small in size. GefenToolBox products are easily transported in the field and are ready for immediate and simple deployment in working environments behind the scenes. These products come finished in a glossy color to blend in with either a white wall or black cabinet.

The GefenToolBox 1:8 Splitter for HDMI

The 1:8 Splitter for HDMI sends one digital Hi Def A/V source to up to eight (8) HDTV displays at the same time. It works with any Hi-Def source that needs to be connected to an HDTV display, supporting Deep Color with resolutions up to 1080p60 and digital audio formats such as Dolby TrueHD and DTS HD Master Audio. 3D content can be displayed when connecting a 3DTV and 3D source.

How It Works

Connect the Hi Def source to the Splitter's input using the supplied HDMI cable. Connect up to eight (8) HDTV displays to the Splitter's eight (8) HDMI outputs. Apply power to sources and displays. The source signal will now be seen on all eight (8) displays at the same time.

READ THESE NOTES BEFORE INSTALLING OR
OPERATING THE 1:8 SPLITTER FOR HDMI

- EDID contains the A/V capabilities of a display device in regards to video resolutions and audio formats supported. This information is used by the source device to determine the format of the A/V signal it outputs. The GefenToolBox 1:8 Splitter for HDMI has advanced EDID management features to ensure complete compatibility with all sources and display devices. Please see pages 7-10 for more details.

- The GefenToolBox 1:8 Splitter for HDMI detects the presence of Deep Color automatically and disables Deep Color EDID features across all outputs if any connected device or display is not capable of Deep Color. This automatic behavior insures compatibility among all output devices in a mixed-device environment. This feature cannot be disabled.

HDMI 1.3 Features

- 225 MHz (up to 12 bit YUV 444 @ 1080p)
- Deep Color
- Dolby TrueHD and DTS-HD Master Audio
- Lip Sync

General Features

- Simultaneously displays a single Hi Def source on up to 8 HDTV displays without signal loss.

- Maintains high resolution video - beautiful, sharp HDTV resolutions up to 1080p@60, 1920x1200@60 Hz, and 2K.

- 3DTV Pass-Through

- EDID Management for rapid integration of sources and display devices.

- Fast Switching for quick and responsive HDMI signal routing. See page 11 for details.

- Supports modern advanced digital audio formats including LPCM 7.1 audio, Dolby Digital Plus, Dolby TrueHD, and DTS-HD Master Audio.

- Supports the use of DVI sources and DVI displays with an HDMI-to-DVI converter cable or adapter.

- Input and output cables up to 15 feet in length can be used when using 8-bit or 12-bit color. Extension distance is dependent upon the quality of the cables being used.

- This product is HDMI-compliant and HDCP-compliant.

Package Includes

(1) GefenToolBox 1:8 Splitter for HDMI
(1) 6 ft. HDMI cable (M-M)
(1) 5V DC Locking Power Supply
(1) User Manual

PANEL DESCRIPTIONS

1   HDMI Output Ports 1-8
Connect HDMI-compliant display device(s) to any of these output ports.

2   Audio Channel Selection Switch
This switch will modify the EDID to specify the number of supported audio channels when using the INTERNAL EDID mode. This setting will not affect the EDID information when using the EXTERNAL EDID mode.

3   EDID Mode Selection Switch
This switch will control the location of the EDID that will be sent to the source device. The options are EXTERNAL and INTERNAL. Please see pages 7-10 for more information.

4   USB Service Port
Used for upgrading the Splitter's HDMI firmware. This feature is currently in development. Future versions of this manual will include a procedure for upgrading the firmware.

5   HDMI Input Port
Connect an HDMI source device to this input port. The signal from this port will be replicated to all HDMI output ports. Please see the Features section on page 3 for supported HDMI 1.3 features.

6   5V DC Power Input Receptacle
Connect the included 5V DC power supply between this receptacle and a power source. Only use the power supply supplied with this unit. Screw the locking power tip into the socket on the Splitter until it fits snugly.

7   Power Indicator LED
This LED will become active once the included 5V DC power supply has been properly connected to the unit and a power source.
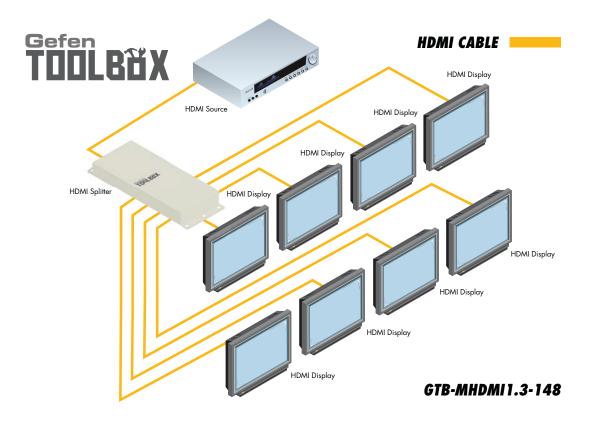
How to Connect the 1:8 Splitter for HDMI

1. Use the supplied HDMI cable to connect a Hi Def source device to the HDMI input port of the 1:8 Splitter for HDMI.

2. Use additional user supplied HDMI cables to connect up to 8 HDTV displays to the output ports on the 1:8 Switcher for HDMI.

3. Connect the included 5V DC power supply to the power receptacle on the Splitter.

4. Connect the other end of the power supply to an available power outlet.

How to Operate the 1:8 Splitter for HDMI

The 1:8 Splitter for HDMI does not require any configuration to begin splitting the incoming HDMI input signal. However, depending on the features required by the user, the EDID Mode and Audio Channel Selection switches may need to be adjusted. Please see the following section for more information on the usage of these switches.

Wiring Diagram for the 1:8 Splitter for HDMI

EDID Mode Selection

1. **EXTERNAL MODE**:

   See page 9 for details on using the External EDID.

2. **INTERNAL MODE**:

   In <u>Internal</u> EDID Mode, a generic EDID is used for all connected devices. This is useful when sufficient EDID data is unavailable from display devices or EDID-related problems are encountered. The generic EDID is compatible with most A/V equipment on the market.

   Set the EDID Mode Switch on the front panel to the **INT** position. This mode uses a standard, pre-programmed EDID at the factory which is compatible with most A/V display devices. All video resolutions and audio formats specified in this EDID will be passed to the source device. For a complete definition of the A/V formats in this internal EDID please see page 10.

   NOTE: All other HDMI-capable devices/displays connected to the Output ports **MUST** be compatible with at least one resolution/audio format specified in this EDID. It is recommended to set a commonly supported video resolution and audio format on the source device, to be shared by all attached devices/displays. This is to ensure that a compatible signal is output to all connected devices/displays.

EDID MANAGEMENT

Audio Channel Selection

The 1:8 Splitter for HDMI features a switch that will modify the supported audio formats listed in the pre-programmed EDID. This feature is useful for limiting the output of the source device to either 2 or multi-channel audio formats.

NOTE: This selector switch will only affect the pre-programmed EDID in the INTERNAL (INT) EDID Mode.

The 1:8 Splitter for HDMI can use either of the following settings for audio format support:

1. **2 Channel:** This setting will limit the audio formats listed in the pre-programmed EDID to 2 channel LPCM. For a full listing of the audio formats in this mode please see page 10.

    To use this mode, set the Audio Selection Switch on the front panel to the **2 CH** position.

    This mode is useful in scenarios where all output devices/displays are HDTV monitors that only support 2 channel LPCM. This setting will ensure that all connected devices will receive and produce sound.

2. **Multi-Channel:** This setting will enable all common audio formats in the pre-programmed EDID. For a full listing of the audio formats in this mode please see page 10.

    To use this mode, set the Audio Selection Switch on the front panel to the **Multi CH** position.

    This mode is useful in scenarios where the output devices/displays are varying devices (e.g. HDTV display and audio receivers). Please note that sound may not be heard from all output devices/displays if a shared common audio format is not used by the source device.

External EDID Management

The GefenToolBox 1:8 Splitter for HDMI features EDID Management. Before the source can send video or audio signals to the display, the source devices reads the EDID (Extended Display Identification Data) of each device connected to an output. The EDID contains information about what type of A/V data that the source can send to each display.

GefenToolBox 1:8 Splitter for HDMI distributes a single source to multiple output devices. This involves reading EDID data from more than one device. Management of the EDID data is important to maintain compatibility between all devices.

Display Connections

- If a display is not connected to Output 1, then no EDID changes are made, meaning that the previous EDID information will be used. This state will be in effect until a display is connected to Output 1 and the Splitter is power-cycled.

- EDID is copied from Output 1 to all other outputs. The audio block will be copied from Output 1. EDID-copying is performed only when the Splitter is reset or power-cycled.

3DTV Support

- 3D signals are supported if a 3DTV is connected to Output 1.

Deep Color

- Deep Color will be *disabled* if one of more other displays connected to the Splitter do not support Deep Color.

INTERNAL EDID SPECIFICATIONS

**Below are the settings programmed into the
built-in Internal EDID data structure:**

Video Data Block	Audio Data Block	xvYCC
1080p@60Hz	2-channel:	xvYCC 709
1080p@50Hz		
	LPCM 2CH	xvYCC 601
1080i@60Hz (native)		
1080i@50Hz	Multi-channel:	
	LPCM 2CH LPCM 8CH AC-3 6CH DTS 7CH Dolby Digital+ 8CH Dolby TrueHD 8CH DTS-HD 8CH MAT(MLP) 8CH	

Fast Switching Technology

Fast Switching Technology (FST) is a Gefen software implementation for HDMI 1.3 products. FST was created to improve the inherited lengthy HDMI authentication process, based on the HDMI and HDCP specifications.

FST provides quicker A/V source switching and greatly improves the overall A/V system behavior and performance when more than one HDTV display is used in the system setup.

FST allows connecting / disconnecting or turning ON / OFF of HDTV displays without having these activities affect other Hi-Def sources routed to any other HDTV display in the same system.

The GefenToolBox 1:8 Splitter for HDMI should be mounted vertically in a wall or cabinet with wood/drywall screws as shown in the diagram above. There should be an inch or two of clearance between the edges of the unit and any walls or vertical surfaces to allow for enough clearance for insertion and retraction of cables at the HDMI connectors.

For installation on a drywall surface, use a #6 drywall screw. It is recommended when installing on a drywall surface that studs be used to secure the Splitter should undue stress be applied when connecting and disconnecting HDMI cables.

SPECIFICATIONS

Single Link Bandwidth .... 225 MHz

Pixel Clock / Speed .... 165 MHz

Maximum Video Resolution .... 1080p@60Hz, 1920x1200@60Hz
with 12-bit Deep Color

Input Video Signal .... 1.2 volts p-p

Input DDC Signal .... 5 volts p-p (TTL)

HDMI Connectors................................... type A 19 pin female; (1) input, (8) output

LED Indicator: (Power).. (1) Red

EDID Mode Switches (2)..................................... Audio Channels, INT/EXT Mode

Power Supply .... 5V DC

Power Consumption .... 10W (max)

Dimensions .... 3"W x 10½"H x ¾"D

Operating Temperature ....0 - 40 °C

Compliancy.............................US/EU Standards, HDMI 1.3, HDMI 1.2, HDCP 1.1,
DVI 1.0

Certifications..UL (power supply), RoHS, CE

Shipping Weight .... 3 lbs.

WARRANTY

Gefen warrants the equipment it manufactures to be free from defects in material and workmanship.

If equipment fails because of such defects and Gefen is notified within two (2) years from the date of shipment, Gefen will, at its option, repair or replace the equipment, provided that the equipment has not been subjected to mechanical, electrical, or other abuse or modifications. Equipment that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for ninety (90) days from the day of reshipment to the Buyer.

This warranty is in lieu of all other warranties expressed or implied, including without limitation, any implied warranty or merchantability or fitness for any particular purpose, all of which are expressly disclaimed.

1. Proof of sale may be required in order to claim warranty.

2. Customers outside the US are responsible for shipping charges to and from Gefen.

3. Copper cables are limited to a 30 day warranty and cables must be in their original condition.

The information in this manual has been carefully checked and is believed to be accurate. However, Gefen assumes no responsibility for any inaccuracies that may be contained in this manual. In no event will Gefen be liable for direct, indirect, special, incidental, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. The technical information contained herein regarding the features and specifications is subject to change without notice.

For the latest warranty coverage information, refer to the Warranty and Return Policy under the Support section of the Gefen Web site at www.gefen.com.

PRODUCT REGISTRATION

Please register your product online by visiting the Register Product page under the Support section of the Gefen Web site.

Rev A2

This product uses UL listed power supplies.