Extender for HDMI 1.3 Over One Fiber with IR

EXT-HDMI1.3-1FO
User's Manual

www.gefen.com

ASKING FOR ASSISTANCE

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Notice

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TABLE OF CONTENTS

INTRODUCTION

Congratulations on your purchase of the Extender for HDMI 1.3 Over One Fiber with IR. Your complete satisfaction is very important to us.

Gefen

Gefen delivers innovative, progressive computer and electronics add-on solutions that harness integration, extension, distribution and conversion technologies. Gefen's reliable, plug-and-play products supplement cross-platform computer systems, professional audio/video environments and HDTV systems of all sizes with hard-working solutions that are easy to implement and simple to operate.

The Gefen Extender for HDMI 1.3 Over One Fiber with IR

This HDMI, RS-232 and IR Extender transmits 1080p Full HD in Deep Color and multi-channel digital audio up to 1000 feet (330m) over a single small strand of fiber optic cable. Extraordinary distances can be achieved using this feature-rich device.

1080p Full HD with Deep Color is instantaneously displayed at the remote location. This product also eliminates EMI (electromagnetic interference), picture cut-outs and screen distortions traditionally seen with copper-based HDMI extenders.

A multichannel digital audio experience is delivered with Dolby TrueHD & DTS Master Audio.

A single SC fiber cable carries the IR back channel, facilitating convenient local control of the video source devices.

How It Works

Connect the Sender to the high definition source and the receiver to a HD display using the HDMI cables that come with the unit. Run a single strand of SC fiber optic cable from sender to receiver. Power up both sender and receiver, and crisp, vibrant HDMI A/V will appear on the display with clean and crisp digital audio.

Send IR commands from the remote control to A/V source equipment via the IR back channel using the fiber optic cable connecting the sender to the receiver. The sender has an IR blaster port, enabling wide IR signal coverage in an A/V equipment room.

OPERATION NOTES

READ THESE NOTES BEFORE INSTALLING OR OPERATING THE EXTENDER FOR HDMI 1.3 OVER ONE FIBER WITH IR

- Use one SC terminated multi-mode fiber optic cable to operate the HDMI 1.3 Over One Fiber with IR.
- 1080p video may be extended up to 1000 feet (300m), depending on the type of fiber optic cable used. The following maximum extension distances will be possible depending on the types of fiber optic cabling that are used:
    - 100m (330 ft) on 62.5/125 µm (OM1) multi-mode SC fiber
    - 300m (1000 ft) on 50/125 µm (OM3) multi-mode SC fiber
- The Extender will automatically attempt to calibrate a fiber optic cable when powered on so as to optain optimum data transmission. This procedure can take up to 60 seconds. It is advised to calibrate a cable upon first use and then store the calibration values inside the memory of the Extender units, using the Lock feature (page 8). Otherwise the Extender will attempt calibration every time power is applied.
- When changing fiber optic cables, it is advised that you perform a new calibration operation for best performance. You will need to erase the stored (Locked) prior calibration values and allow the Extender to calibrate the new cable. (See page 8).
- IR repeater functionality is only from the receiving unit to the sending unit. IR data cannot be transmitted from the sending unit to the receiving unit.

Features

- Immune to electro-magnetic interference (EMI)
- Transmits HDMI 1.3 audio/video at full bandwidth
- Extends HDMI and RS-232 up to 1000 feet (300m)
- Delivers highest quality signal of any HDMI extension method
- Supports video resolutions up to 1080p60,1920 x 1200 and 2K
- Uses widely available single-strand multimode SC fiber optic cable
- HDCP Compliant

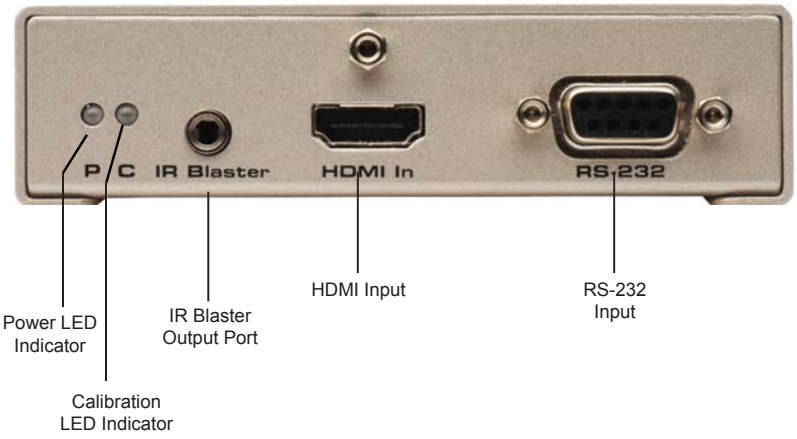
HDMI 1.3 Features

- 225 MHz (up to 12 bit YUV 444 @ 1080p)
- Deep Color Supported (XV Color Supported) from 8-bit to 12-bit
- Dolby TrueHD & DTS Master Supported
- Lip-Sync Pass Through
- CEC Protocol Pass Through

Package Includes

(1) Extender for HDMI 1.3 Over One Fiber with IR - Sender
(1) Extender for HDMI 1.3 Over One Fiber with IR - Receiver
(1) 6 Foot HDMI Cable (M-M)
(1) 6-Ft DB9 Serial Cable (M-F)
(2) 5V DC Power Supply
(1) User's Manual

Front Panel



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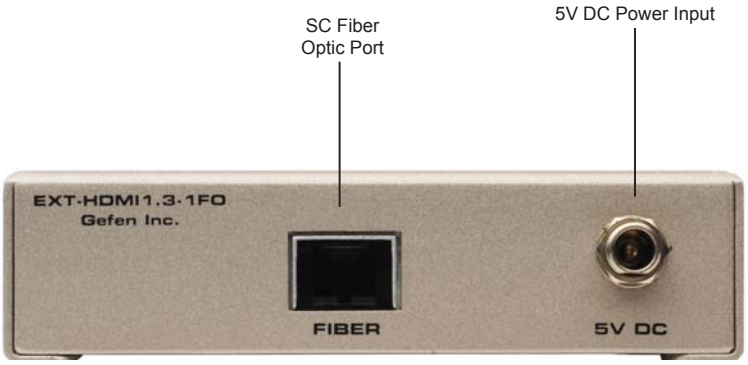

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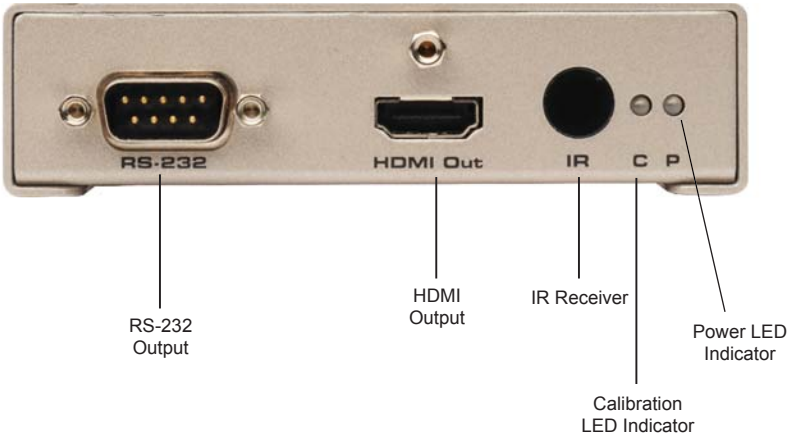

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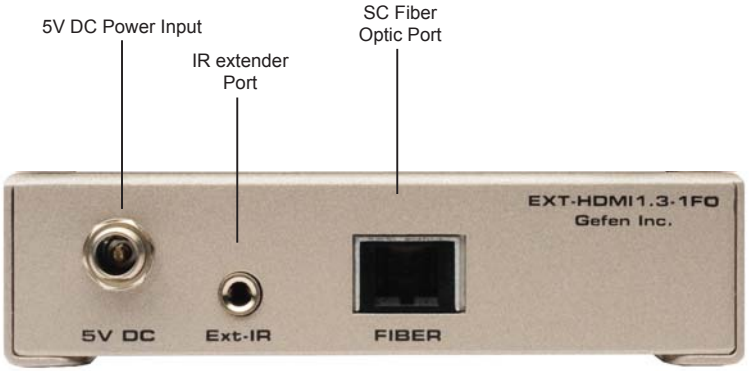


CONNECTING & OPERATING THE EXTENDER

1. Connect the HDMI source to the Extender for HDMI 1.3 Over One Fiber with IR sender unit's HDMI input port using the supplied HDMI cable.

2. Connect the RS-232 source to the Extender for HDMI 1.3 Over One Fiber with IR sender unit's RS-232 input port using the supplied DB-9 serial cable.

3. For IR repeater functionality, please connect the Gefen IR Emitter (sold separately, part # EXT-2IREMIT) into the Extender for HDMI 1.3 Over One Fiber with IR sender at the mini-jack labelled "IR Blaster." Place the IR Emitter directly on or above the IR receiving window of the source device you intend to control.

4. Connect the Extender's sender and receiver units together using one user supplied SC terminated multi-mode fiber optic cable.

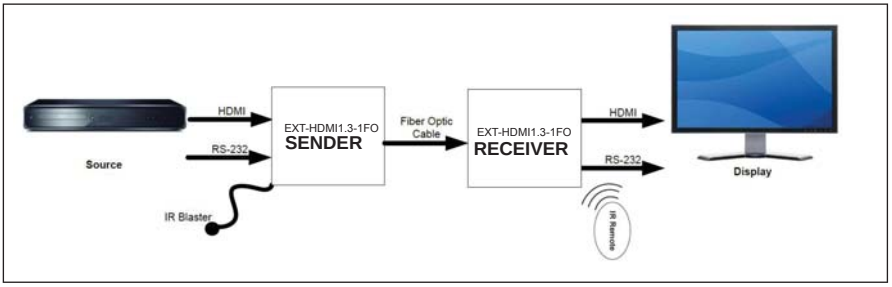
5. Connect the display to the HDMI output port of the Extender's receiver unit using a user supplied HDMI cable. Connect the RS-232 device (if applicable) to the RS-232 output port of the receiver unit using a user supplied DB-9 serial cable.

6. Plug in the included 5V DC power supplies into the Sender and Receiver units. Power on the display first and the source second. You will now experience HDMI video accompanied by up to 8 channels of embedded digital HDMI audio at the display device.

7. A delay of up to 60 seconds may be observed when power is applied as the Extender automatically calibrates itself to the fiber optic cable. The Calibration and Power LEDs will flash fast, then slower. When calibration is successful, both LED lights on the Sender and Receiver will be GREEN.

8. At this point, you will want to lock (or store) the calibration values into the memory of the Extender to avoid having to repeat this process and to safeguard the calibration values against loss during power outtages. Please see page 8 for locking instructions under the "Fiber Calibration" section.

How to Connect the Extender for HDMI 1.3 Over One Fiber with IR System:



EDID Modes

The Extender for HDMI1.3 Over One Fiber with IR features automatic and manual EDID adjustments to maximize compatibility of all attached devices. First it is necessary to understand EDID and what it is used for.

EDID. What is it and what is it used for?

Under normal circumstances, source devices will require information about a connected display device to assess what video resolutions and other features are compatible with the output device. This required information is called the EDID (Extended Display Information Data). Almost all types of output devices/displays (computer monitor, HDTV, A/V receiver) will transmit EDID to a connected source. The source will then read this EDID file and make the necessary adjustments to the output signal to ensure that only compatible resolutions/ features are generated in the output signal.

Why is EDID so important with the Extender for HDMI1.3 Over One Fiber with IR?

The Extender for HDMI1.3 Over One Fiber with IR collects and retransmits the EDID information from a display device back to the A/V source, letting it know what A/V features the display device supports. If this data should be incomplete or unavailable, the Extender for HDMI1.3 Over One Fiber with IR has to be able to compensate, otherwise the video picture and/or audio quality may suffer.

What options do I have to manage the EDID?

EDID contains much more than just listings of supported video resolutions and audio formats. However, these two parameters are the two key types of information that a user will need to understand EDID mechanics.

A common situation indicating an EDID incompatibility problem between the source and display device will usually manifest as an interruption in video or audio on the output device. You can cure the incompatibility in one of two ways, either by re-routing the display device's EDID to the source device (EXTERNAL EDID MODE) or by forcing the use of a stored EDID collected upon first power-up of the HDMI 1.3 Over One Fiber With IR (LOCAL EDID MODE).

Selection and use of one of these EDID Modes is detailed on page 8.

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EDID Mode Selection

1. EXTERNAL MODE:

In EXTERNAL mode, the Extender for HDMI 1.3 Over One Fiber With IR uses EDID collected during initial power-up from the display device. To activate this mode, make sure that the EDID Mode switch is in the OFF position (see page 9 for instructions). If EDID is unavailable from the external display device or other EDID-related problems are encountered (such as the source losing power and being unable to receive EDID from the display), use LOCAL Mode instead.

2. LOCAL MODE:

In this mode, the Extender for HDMI 1.3 Over One Fiber With IR collects and memorizes the EDID of a display device upon power-up, then plays back this EDID to connected sources whenever they need it. To use this mode, set the EDID Mode Switch to ON (see page 9).

Fiber Calibration

Calibrating a Fiber Optic Cable:

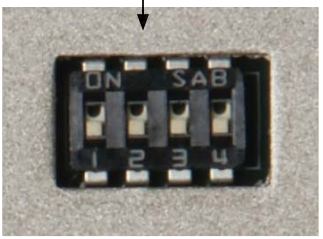
1. Make sure the Calibration switches on both Sender and Receiver units are in the OFF position (See page 9).

2. Connect the fiber optic cable assembly between Sender and Receiver units. Connect power to both Sender and Receiver units.

3. The Calibration process will commence. Calibration LEDs will blink fast at first then slower as the process finishes. The Calibration LEDs on the Sender and Receiver will turn GREEN when the process is finished (this process may take up to 60 seconds).

4. Once Calibration has taken place and video is observed to be clean and uninterrupted on display devices, place DIP switches for the Calibration function into the ON (LOCK) positions on both Sender and Receiver. The Extender will now skip the calibration process when powering up on subsequent occasions.

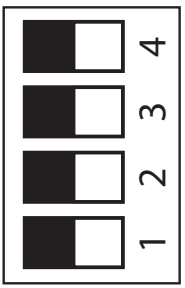
Exposed DIP Switch Bank Underneath the Sender and Receiver units



Underneath the Extender for HDMI 1.3 Over One Fiber With IR Sender and Receiver units there is a bank of small configuration switches known as DIP (Dual Inline Package) Switches. These control advanced features -- EDID, Fiber Optic Calibration, and Deep Color. It is important that you familiarize yourself with their location and usage.

To adjust these switches, please locate and remove the strip of silver tape on the underside of the Sender and Receiver units. The DIP switch banks will then be exposed. The switches and their functions are shown below.

Note: On the Receiver unit, Switches 1 & 2 are not used.



4 Reserved for Future Use - Do Not Use.

3 Fiber Optic Calibration Mode: Auto (OFF) or Lock (ON)

2 Deep Color Mode: 12-bit (OFF) or 8-bit (ON) (Sender Only)

1 EDID Mode: External (OFF) or Local (ON) (Sender Only)

To make changes to the settings, move the appropriate DIP switch to its ON or OFF position. Use an object with a small point such as a mechanical pencil with the lead retracted or a very small screwdriver.

What to do if Calibration fails:

- As long as both Sender and Receiver have not performed successful calibration, the indicator LEDs will both be RED. This also occurs when the Sender and Receiver are not connected properly by fiber. In these instances, check connections carefully and cycle the power on both ends to try again.

- When the indicator LED at one unit is GREEN and the other is RED, disconnect the power on the side with the RED indicator and connect it again. You may also try letting the Sender and Receiver perform a fresh power-on calibration, then disconnect and reconnect either the power or the fiber optic cable to force calibration again.

SPECIFICATIONS

Video Amplifier Bandwidth ..... 225 MHz

Maximum Resolutions Supported: 1080p60, 1920x1200, 2K

Deep Color Support: .....8-bits to 12-bits

Input Video Signal ..... 1.2 Volts p-p

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

HDMI Input/Output Connector ..... Type A, 19 pin

RS-232C Input/Output Connector.....DB9

LED Indicator (power ON/OFF):.....1 LED (red)

LED Indicator (Fiber Calibration):.....1 LED (red)

RS-232C Data Transmission Rate (max).....115,200 kbps

IR Modulation Frequency: .....38 KHz

IR Blaster/EXT-IR interface: .....3.5mm mini-Stereo jack

Link Connector ..... SC Fiber Optic x 1 cable

Power Supply ..... 5V DC

Power Consumption ..... 5W per unit (max)

Dimensions ..... 2.8”W x 4.5”H x 1.2”D

Shipping Weight ..... 5 lbs.

Compliancy: RoHS and CE Certified; Complies with US/EU Standards
HDMI 1.3, HDMI 1.2, HDCP 1.1 and DVI 1.0 Compliant.
UL-Certified Power Supply.

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, please visit Gefen's Warranty web page at http://www.gefen.com/kvm/aboutus/warranty.jsp

PRODUCT REGISTRATION

Please register your product online by visiting Gefen's web site at http://www.gefen.com/kvm/Registry/Registration.jsp

MA-EXT-HDMI1.3-1FO

Rev X8

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