

Gefen

®

HDSDI to HDMI Scaler

EXT-HDSDI-2-HDMIS
User Manual



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Notice

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INTRODUCTION

Congratulations on your purchase of the HDSDI to HDMI Scaler. 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 HDSDI to HDMI Scaler

The HDSDI to HDMIS Scaler is the newest revision of our HD-SDI conversion line incorporating SD/HD-SDI mode conversion scaled to HDMI. Resolutions of up to 1080p are supported over the SDI link for those that want true "High Definition". Performance has been greatly enhanced due to Gennum's VXP Scaler onboard; allowing for new features such as: Color and Gamma Correction, Noise Reduction, Detail Enhancement, Aspect Ratio Selection, Pattern Generator Mode, and Multiple Language Menu Support.

How It Works

HD-SDI devices are connected to the HD-SDI input and HDMI devices are connected to the HDMI output. When the source, display and the Scaler are powered and connected, video signals are converted to the proper format.

OPERATION NOTES

READ THESE NOTES BEFORE INSTALLING OR OPERATING THE HDSDI TO HDMI SCALER

- On power up, the HDSDI to HDMI Scaler will automatically detect the input format of the input. The unit is controlled using the included eight-button remote.
- Pressing the OUTPUT button cycles the HDSDI to HDMI Scaler through the following output modes: 640x480 - 800x600 - 720p - 1080i
- Other functions and output modes can be accessed through the onscreen menu.
- To Restore I/O settings, recycle the power on the Scaler.
- To bring up the on-screen menu, press the MENU button. Navigation is done using the UP, DOWN, LEFT, RIGHT and ENTER buttons.
- The SOURCE button selects the input source

Note: Both DIP switches under the remote battery cover must initially be in the OFF position to communicate with the Scaler. For more information, please see page 10 for RMT-8HDS-IR Installation instructions.

FEATURES

Features

- 10-bit resolution for greater precision and dynamic range
- Proprietary 10-bit motion adaptive video de-interlacing with edge interpolation for HD/SD formats.
- Advanced noise reduction and detail enhancement
- Maximum active image size of 2048 samples x 2048 lines PBP processing for various combinations of video and graphics with alpha blending
- Fully integrated sprite based multi-plane OSD controller.
- Frame rate conversion to and from any refresh rate
- Pattern mode with color bars and cross hatch patterns
- Color correction
- Limited/full RGB selection
- Detail Enhancement
- Brightness Adjustment
- Gamma Selection
- Aspect Ratio Select
- Custom Timing output mode
- French/English Menu Set
- RS-232 upgradeable firmware
- RS-232 and/or I/R Control
- Lifetime support includes two-year manufacturer's warranty and free technical support for the lifetime of the product.
- Rack Mountable

Package Includes

- (1) Gefen HDSDI to HDMI Scaler
- (1) IR Remote Control Unit
- (1) 5V DC Locking Power Supply
- (1) User Manual

PANEL LAYOUT

Front Panel



Back Panel



PANEL DESCRIPTIONS

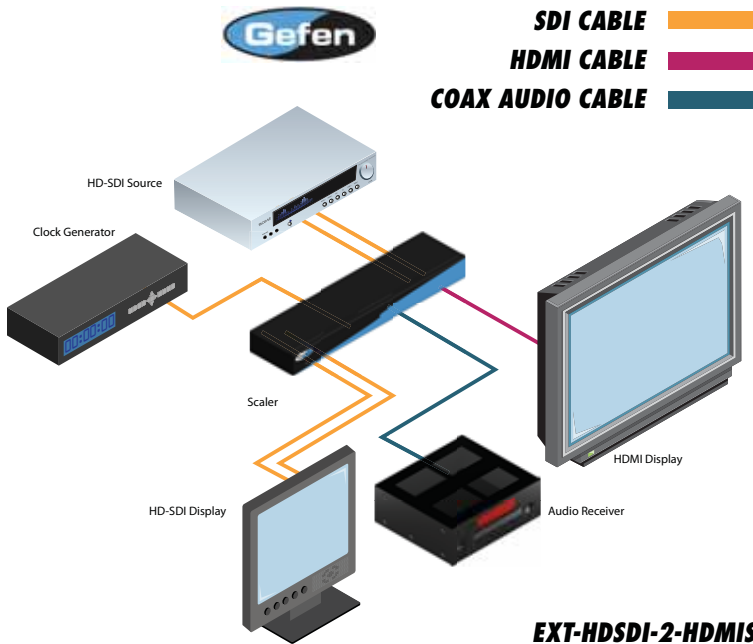
- 1 Infrared Sensor**
Point the supplied remote control at this port to access
- 2 Power LED**
When this is lit, the unit is powered on
- 3 RS232 Input**
Connect an RS-232 serial cable to this port. This port is used to update the firmware in addition to controlling the unit via RS-232. Refer to the Gefen web site to download documentation on the RS-232 command set.
- 4 5V DC Locking Power Input**
Connect the supplied low-voltage power supply cord into this socket
- 5 Genlock (Reference) Input**
Connect Genlock signal here
- 6 S/PDIF Audio Output**
This S/PDIF output will supply supported audio formats for output to an external audio decoder or device such as an amplifier or receiver.
- 7 HD-SDI Dual Link Input**
Input HD-SDI here
- 8 HD-SDI Dual Link Loop Output**
Connect the loop output here
- 9 HD-SDI Dual Link Input**
Input HD-SDI here
- 10 HD-SDI Dual Link Loop Output**
Connect the loop output here
- 11 HDMI Output**
Connect up an HDTV display to this HDMI port

CONNECTING THE HDSDI TO HDMI SCALER

How to Connect the HDSDI to HDMI Scaler

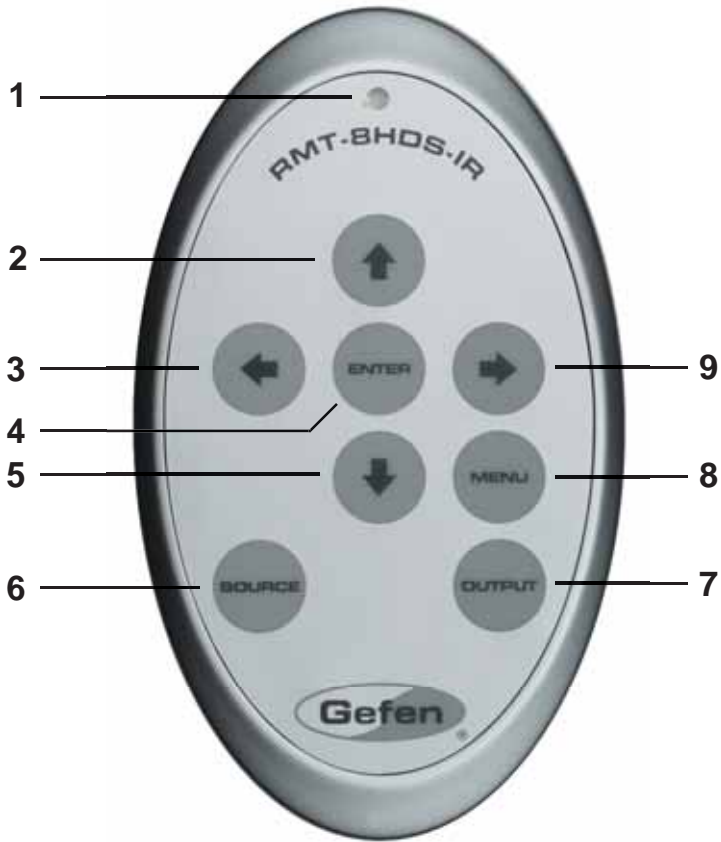
1. Connect an appropriate HD-SDI source to the Scaler.
2. Optionally connect a suitable clock generator to the Reference In connector.
3. Connect a DVI display (to work with a loop also connect an HD-SDI compliant display).
4. Connect a coax cable from S/PDIF connector on the Scaler to an audio amplifier.
5. Connect the supplied 5V DC locking power supply.

Wiring Diagram for the HDSDI to HDMI Scaler



IR REMOTE CONTROL LAYOUT

RMT-8HDS-IR



IR REMOTE CONTROL DESCRIPTIONS

- 1 I/R Sensor**
The LED will light up every time a button is pushed on the remote control.
- 2 Up Arrow Button**
Use this to navigate up the OSD (On-Screen Display)
- 3 Left Arrow Button**
Use this to navigate left on the OSD
- 4 ENTER Button**
Use this button to Accept Operation / Return to Menu
- 5 Down Arrow Button**
Use this to navigate down on the OSD
- 6 SOURCE Button**
(Not used in this system)
- 7 OUTPUT Button**
Cycles through the following input modes: 480i, 576i, 720p, and 1080i
- 8 MENU Button**
Show / Hide OSD (On-Screen Display)
- 9 Left Arrow Button**
Use this to navigate left on the OSD

IR REMOTE CONTROL INSTALLATION

Installing the IR Remote Control Battery

1. Remove the battery cover on the back of the IR Remote Control unit.
2. Insert the included battery into the open battery slot. The positive (+) side of the battery should be facing up.
3. Replace the battery cover.

The Remote Control unit ships with two batteries. One battery is required for operation and the other battery is a spare.



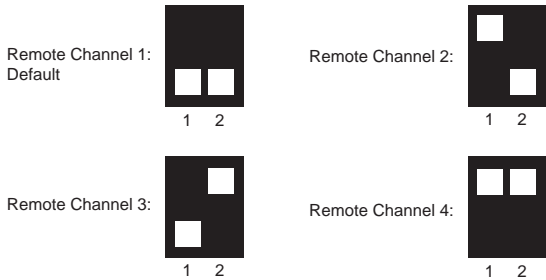
Battery Compartment

IR REMOTE CONFIGURATION

Setting the IR Remote Channel on the RMT-8HDS-IR

In the event that IR commands from other remote controls conflict with the supplied IR Remote Control Unit, changing the remote IR channel will fix this issue. The IR Remote Control Unit has a bank of DIP switches for setting the Remote IR channel.

The DIP Switch bank is located underneath the battery cover.



Left: Picture of the opened rear battery compartment of the IR Remote Control Unit showing the exposed DIP Switch bank between the battery chambers.

The IR channel selected on the IR Remote Control unit must match the IR channel assigned to the HDSDI to HDMI Scaler. For example, if both DIP switches on the remote are in the down position (IR channel 1), the HDSDI to HDMI Scaler must be set to IR channel 1.

Refer to page 13 on how to change the IR channel on the HDSDI to HDMI Scaler.

MENU FUNCTIONS

General

- **Language:**
Localizes Menu System for English or French.
- **Save configuration:**
Saves the current settings.
- **Restore default configuration:**
Restores the factory default settings.

Patterns

- **Color Bars**
Displays a color bar (SMPTE) test pattern.
- **Cross Hatch:**
Displays a cross hatch test pattern.

Output

- **Available Formats**

All

Displays all available output formats, supported by the Scaler.

Monitor Supported

Displays only output formats supported by the connected monitor.

- **Video Output Format**

Displays the available video output formats. See page 16 for a list of supported output formats. *NOTE: If **Monitor Supported** was selected under **Available Formats**, only those timings and resolutions supported by the monitor will be available.*

MENU FUNCTIONS

- **Graphic Output Format**
Displays the available graphic output formats. See page 16 for a list of supported output formats.
- **Custom Output Format**
Allows the creation of a custom output format based on the following parameters: HTotal (Total Horizontal Lines), HActive (Total Active Lines), HSync backporch, HSync Width (Horizontal Sync Width), VTotal (Total Vertical Lines), VActive (Active Vertical Lines), VSync Backporch, VSync Width, and Refresh Rate.
- **Link Configuration**
Selects the color space: RGB 4:4:4, YCbCr 4:4:4, or YCbCr 4:2:2
- **Frame Rate**
Selects the frame rate: Default, 48 Hz, 50 Hz, 59.94 Hz, 60 Hz, 75 Hz, or 85 Hz.
- **Sync Adjust**
Allows vertical and horizontal sync adjustment.
- **Genlock Reference**
Selects the reference signal: Off, Video Input, or Ref Input.

Input

- **Input Format**
Select the input formats. The default selection is **Auto Detect**. See page 16 for a list of supported input formats.
- **Link Configuration**
When using dual link SDI/HDS DI input, this options allows the selection of either YCbPr or RGB.

MENU FUNCTIONS

- **Clean Aperture**

- **Horizontal Size**

- Stretches the image horizontally

- **Vertical Size**

- Stretches the image horizontally

- **Horizontal Position**

- Positions the output signal horizontally.

- **Vertical Position**

- Positions the output signal vertically.

- **Audio**

- Selects the number of audio channels. The built in S/PDIF connector outputs the first 2 channels of Audio Group 1 PCM bitstream (8 channels) and compressed audio formats using the first 2 ch. of Audio Group 1

- **Remote Channel**

- Changes the I/R code of the Scaler to one of 4 settings between 0 and 3 (which in turn set the I/R frequency in use). The I/R code must be set the same in both I/R remote and Scaler. Please see the RMT-8HDS-IR Installation on page 10 for more information.

Picture

- **Image Color**

 - **Contrast Red**

 - Adjusts the contrast for the red color component.

 - **Contrast Green**

 - Adjusts the contrast for the green color component.

 - **Contrast Blue**

 - Adjusts the contrast for the blue color component.

 - **Brightness Red**

 - Adjusts the contrast for the red color component.

 - **Brightness Green**

 - Adjusts the contrast for the green color component.

 - **Brightness Blue**

 - Adjusts the contrast for the blue color component.

 - **RGB/Y Output Offset**

 - Adjust black levels between 0 (default) and 100.

- **Gamma Correction**

- Can be set to: Default, sRGB, User Table, Custom, or a Gamma Coefficient can be specified.

- **Detail Enhancement**

- Adjusts the sharpness and noise level of the output signal.

- **Noise Reduction**

- Digitally reduce the noise on the output signal.

MENU FUNCTIONS

- ***Motion Threshold***

Sets the VXP processor intra-frame motion detection threshold for the deinterlacer. This feature is used to remove motion-related artifacts in the video when creating progressive frames from interlaced fields.

- ***Output Color Range***

- ***16 - 235 (Pass Through)***

- Forces input to limited-range RGB

- ***0 - 255 (Expand)***

- Forces input to full-range RGB.

Layout

- ***Size and Position***

- ***Horizontal Size***

- Adjusts the horizontal size of the output signal.

- ***Vertical Size***

- Adjusts the vertical size of the output signal.

- ***Horizontal Position***

- Adjusts the horizontal position of the output signal.

- ***Vertical Position***

- Adjusts the vertical position of the output signal.

MENU FUNCTIONS

Aspect

- **Full Screen**
Stretches input to fill the monitor.
- **Letter / Pillar Box**
Sets the aspect ratio to fit a letter or pillar box format.
- **Panoramic**
Panoramic zoom feature
- **Extract**
Zooms in on a subset of the input signal.

Extract Size

Specifies the percentage of the input signal to be extracted (zoomed).

Horizontal Position

Adjust the horizontal position of the extracted portion of the input signal.

Vertical Position

Adjust the vertical position of the extracted portion of the input signal.

Clean Aperture

- **Horizontal and Vertical Size**
Stretch image Horizontally or Vertically.
- **Horizontal and Vertical Position**
Move image in view port Horizontally or Vertically.

SUPPORTED INPUT/OUTPUT RESOLUTIONS

Input Video Formats Supported:

480i	720p/50	1080p/23.98	1080sf/23.98
480p	720p/59.94	1080p/24	1080sf/24
576i	720p/60	1080p/25	1080sf/25
576p	1035i/59.94	1080p/29.97	1080sf/29.97
720p/23.98	1035i/60	1080p/30	1080sf/30
720p/24	1080i/50	1080p/50	2K-p/23.98
720p/25	1080i/50M	1080p/50M	2K-p/24
720p/29.97	1080i/59.94	1080p/59.94	2K-sf/23.98
720p/30	1080i/60	1080p/60	2K-sf/24

Output Video Formats Supported:

480i	720p/50	1080p/23.98	2K-p/23.98
480p	720p/59.94	1080p/24	2K-p/24
576i	720p/60	1080p/25	
576p	1035i/59.94	1080p/29.97	
720p/23.98	1035i/60	1080p/30	
720p/24	1080i/50	1080p/50	
720p/25	1080i/50M	1080p/50M	
720p/29.97	1080i/59.94	1080p/59.94	
720p/30	1080i/60	1080p/60	

Output Graphic Formats Supported:

640x350/85	1024x768/75	1280x1024/85	1920x1200/60
640x400/85	1024x768/85	1360x768/60	2048x1080
640x480/60	1280x854	1366x768/60	
640x480/75	1152x864/75	1366x923/50	
640x480/85	1280x768/60	1440x900/60	
800x600/60	1280x960/60	1440x1080/60	
800x600/75	1280x960/85	1600x1024	
800x600/85	1280x1024/60	1600x1200/60	
1024x768/60	1280x1024/75	1680x1050/60	

FIRMWARE UPDATE PROCEDURE

Please check <http://www.gefen.com/kvm/support/download.jsp> for firmware updates and procedures.

SPECIFICATIONS

Input Video Bandwidth.....	1.485 Gbps
SDI Input Connectors.....	(2) BNC, male
SDI Loop Out Connectors.....	(2) BNC, male
Reference In Connector.....	BNC, male
HDMI Output Connector.....	Type A, 19-pin, female
Digital Audio Output Connector.....	S/PDIF
RS-232 Serial Connector.....	DB-9, female
Power Supply.....	5V DC
Shipping Weight.....	5 lbs.
Dimensions.....	6.5" W x 1" H x 6.75" H

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>

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