

# Gefen

®

## DVI to HDSDI Scaler Plus

EXT-DVI-2-HSDISP

User Manual



[www.gefen.com](http://www.gefen.com)

## ASKING FOR ASSISTANCE

---

### Technical Support:

Telephone (818) 772-9100  
(800) 545-6900

Fax (818) 772-9120

### Technical Support Hours:

8:00 AM to 5:00 PM Monday thru Friday, Pacific Time

### Write To:

Gefen, LLC.  
c/o Customer Service  
20600 Nordhoff St  
Chatsworth, CA 91311

[www.gefen.com](http://www.gefen.com)  
[support@gefen.com](mailto:support@gefen.com)

### Notice

Gefen, LLC reserves the right to make changes in the hardware, packaging, and any accompanying documentation without prior written notice.

**DVI to HD-SDI Scaler Plus** is a trademark of Gefen, LLC

© 2012 Gefen, LLC. All rights reserved.  
All trademarks are the property of their respective owners

# CONTENTS

---

- 1 Introduction
- 2 Operation Notes
- 3 Features
- 4 Panel Layout
- 5 Panel Descriptions
- 6 IR Remote Control Unit Layout
- 7 IR Remote Control Unit Descriptions
- 8 Connecting the DVI to HDSDI Scaler Plus
- 9 IR Remote Control Unit Installation
- 10 Menu Functions
- 14 Supported Resolutions
- 15 Firmware Update Procedure
- 16 Specifications
- 17 Warranty

# INTRODUCTION

---

Congratulations on your purchase of the DVI to HDS DI Scaler Plus. 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 DVI to HDS DI Scaler Plus**

The Gefen DVI to HDS DI Scaler Plus combines SDI and DVI Equipment for maximum Interoperability

It is the newest revision of our HDS DI conversion line incorporating single link DVI-D conversion scaled to SD/HDS DI Single link modes. Resolutions of up to 1080p are supported over the HDS DI 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**

DVI devices are connected to the DVI input and SDI devices are connected to the SDI 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 DVI TO HDS DI SCALER PLUS**

- On power up, the DVI to HDS DI Scaler Plus will automatically detect the input format.
- The Native resolution for the DVI to HDS DI Scaler Plus is 1080i.
- To Restore factory settings, cycle power on the Scaler.

# FEATURES

---

## Features

- Maximum active image size of 2048 samples x 2048 lines PBP processing for various combinations of video and graphics with alpha blending 10-bit resolution for greater precision and dynamic range.
- Proprietary 10-bit motion adaptive video de-interlacing with edge interpolation for HD / SD formats.
- Supports Dolby Digital (AC-3) and multichannel PCM audio.
- Advanced noise reduction and detail enhancement
- Fully integrated sprite-based multi-plane OSD controller.
- Frame rate conversion to / from any refresh rate
- Pattern mode with color bars and cross hatch patterns
- Color correction
- Noise Reduction
- Detail Enhancement
- Brightness Adjustment
- Gamma Selection
- Aspect Ratio Select
- Custom Timing output mode
- French/English Menu Set
- RS-232 upgradable firmware
- Remote control using RS-232 and/or IR
- Rack Mountable

## Package Includes

- (1) Gefen DVI to HDSDI Scaler Plus
- (1) 6 ft. DVI cable (M-M)
- (1) IR Remote Control Unit
- (1) 6 ft. DB-9 cable (M-F)
- (1) 5V DC Locking Power Supply
- (1) Set of Rack Ears
- (1) Quick-Start Guide

# PANEL LAYOUT

Front



1

2

Back



3

4

5

6

7

8

## PANEL DESCRIPTIONS

---

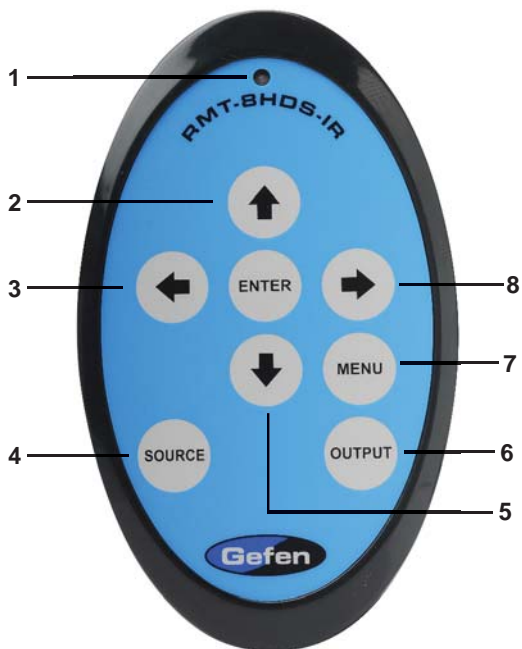
- 1 Infrared Sensor**  
Detects IR signals from remote control.
- 2 Power on LED**  
When this LED is lit the unit is powered up.
- 3 RS-232 Port**  
Connect a RS-232 control device to this port.
- 4 5V DC Locking Power Connector**  
Connect the included 5V DC power supply to this port.
- 5 DVI Input**  
Connect a DVI source to this input.
- 6 Reference Input**  
Connect an external clock to this port.
- 7 HDSDI Out 1**  
Connect a suitable SDI display here.
- 8 HDSDI Out 2**  
Connect a second SDI cable between the scaler when using dual link resolutions or if using two displays.



# IR REMOTE CONTROL UNIT LAYOUT

---

## RMT-8HDS-IR Remote Control Unit



## IR REMOTE CONTROL UNIT DESCRIPTIONS

---

**1 LED Signal**

This LED will flash each time a command is entered using one of the keys.

**2 UP Arrow**

This key is used to navigate upwards in the on-screen menu.

**3 LEFT Arrow**

This key is used to navigate left in the on-screen menu.

**4 SOURCE Key**

This key selects the input source (Input 1 or Input 2).

**5 DOWN Arrow**

This key is used to navigate down in the on-screen menu.

**6 OUTPUT Key**

Cycles the DVI to HDS DI Scaler Plus through the output modes (640x480, 800x600, 720p and 1080i).

**7 MENU Key**

This key brings up the on-screen menu.

**8 RIGHT Arrow**

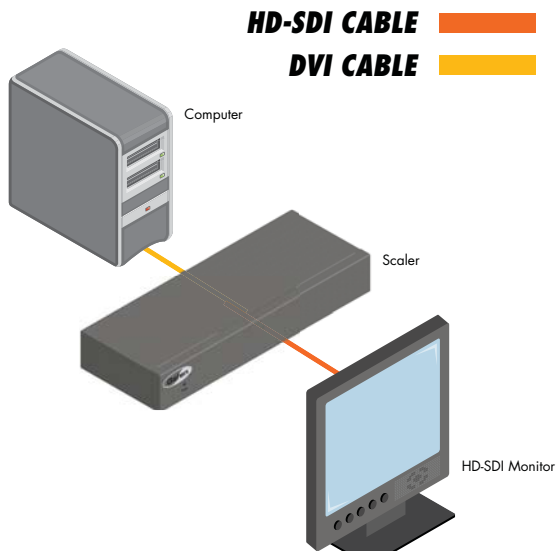
This key is used to navigate right in the on-screen menu.

# CONNECTING THE DVI TO HDSDI SCALER PLUS

## How to Connect the DVI to HDSDI Scaler Plus

1. Connect the DVI source to the DVI input on the DVI to HDSDI Scaler Plus using the supplied DVI cable.
2. Connect the SDI output device to the HDSDI output on the DVI to HDSDI Scaler Plus.
3. Connect the included 5V DC locking power receptacle to the DVI to HDSDI Scaler Plus.
4. Plug the power supply into an available electrical outlet.

## Wiring Diagram for the DVI to HDSDI Scaler Plus



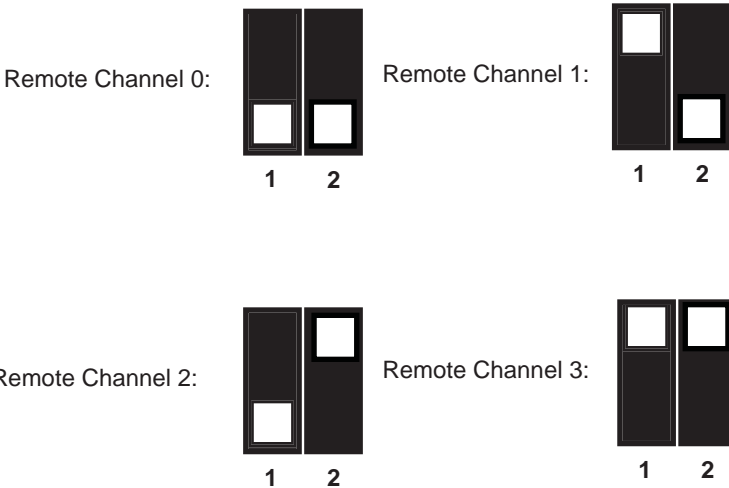
# IR REMOTE CONTROL UNIT INSTALLATION

---

1. Remove battery cover from the back of the IR Remote Control Unit.
2. Verify that DIP switch 1 and DIP switch 2 are in the down (OFF) position.
3. Insert the battery, hold the battery so that you can see the positive side facing up. The side that is not marked must be facing down.
4. Test the IR Remote Control Unit by pressing ONLY one button at a time. The indicator light on the remote will flash once each time you press a button. **WARNING:** Do not press multiple buttons simultaneously and do NOT press buttons rapidly. These actions will cause the remote to reset and steps 1-4 will have to be repeated.

Note: The IR Remote Control Unit ships with two batteries. One battery is required for operation, the second battery is complimentary.

The following are the DIP switch combinations that correspond to the Remote Code menu option on the DVI to HDS/SDI Scaler Plus (please see OSD Menu Functions section on page 10 for more information).



## 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. SSP*
- *Panoramic:*  
*Panoramic Zoom feature*
- *Extract: Feature to magnify the signal.*
- *Extract Size: Adjusts signal magnification.*
- *Horizontal / Vertical Position:*  
*Moves the magnified signal Horizontally and Vertically*
- *Through:*  
*Feature to crop the signal.*
- *Horizontal / Vertical Size:*  
*Horizontally and Vertically contracts or expands the cropping viewport.*
- *Horizontal / Vertical Position:*  
*Move the signal Horizontally or Vertically inside the cropping viewport.*
- *Layout:*  
*Feature to Resize Image resolution.*
- *Size and Position:*
  - *Horizontal / Vertical Size:*  
*Adjust Horizontal or Vertical resolution.*
  - *Horizontal / Vertical Position:*  
*Move image Horizontally or Vertically.*

## MENU FUNCTIONS

---

### Picture:

#### Image Color:

- *Contrast:*  
Individually adjust the contrast for red, green and blue
- *Brightness:*  
Individually adjust the brightness for red, green and blue
- *Black level:*  
Adjust black levels between 0 (default) and 100

#### Detail Enhancement:

- *Detail Enhancement:*  
Digitally enhance signal
- *Noise Threshold:*  
Adjusts noise allowed in detail enhancement
- *Noise Reduction:*  
Digitally reduce signal noise
- *Motion Threshold*

## MENU FUNCTIONS

---

### Input Video Format:

- Auto Detect by default.  
Signal can be forced to a specific High-definition resolution.

### Input Graphic Format:

- Auto Detect by default.  
Signal can be forced to a specific computer resolution.

### Clean Aperture:

- *Horizontal and Vertical Size:* Stretch image Horizontally or Vertically
- *Horizontal and Vertical Position:* Move image in view port Horizontally or Vertically
- *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. The Remote uses DIP Switches; the Scaler uses this menu function.  
(See the IR Remote Control Unit Installation on page 9 for more information.)

### Input Color Range:

- Auto  
16 - 235 (limited range RGB)  
0 - 255 (full range RGB)

## MENU FUNCTIONS

---

### Output:

- *Output Format:* Select the desired output resolution.
- *Genlock Reference:* Genlock Reference: Synchronizes the DVI input video source with an external SDI input source or reference signal. The SDI output will be genlocked. Note that the input and output frequencies must be multiples of one another.
- *Language:*  
Set menu to display English or French text.

### Gamma Correction:

- *Default:*  
Set for Default Gamma settings: *sRGB*
- *Custom:*  
Enables Gamma Coefficient menu item as the current Gamma coefficient.
- *Gamma Coefficient:*  
(0.3 - 3.0); Default set at 1.0.

### Patterns:

- *Color Bars:*  
Display color bar video pattern.
- *Cross Hatch:*  
Display cross hatch video pattern.



## SUPPORTED RESOLUTIONS

### Input 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	

### Input Graphic Formats Supported:

640x350/85	1024x768/75	1280x1024/85	1080p/60
640x400/85	1024x768/85	1360x768/60	1920x1200/60
640x480/60	1280x854	1366x768/60	2048x1080
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	

### Output video formats supported:

480i	720p/50	1080p/23.98	1080sf/23.98
480p/59.94	720p/59.94	1080p/24	1080sf/24
576i	720p/60	1080p/25	1080sf/25
576p/50	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

## FIRMWARE UPDATE PROCEDURE

---

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

## SPECIFICATIONS

---

Input Video Bandwidth.....	165 MHz
Output Video Bandwidth.....	2 x 1.485 Gbps
Maximum Input Resolution.....	2048x1080
Maximum Output Resolution.....	2048x1080/24
DVI Connector.....	DVI-I 29 pin female (digital only)
SDI/HDSDI Connector.....	(2) BNC, female
Data Port.....	DB9
Power Supply.....	5V DC
Power Consumption.....	20 watts (max.)
Dimensions.....	8.25" W x 1.75" H x 7.5" D
Shipping Weight.....	5 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](http://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.**



**20600 Nordhoff St., Chatsworth CA 91311**  
**1-800-545-6900 818-772-9100 fax: 818-772-9120**  
**www.gefen.com support@gefen.com**



This product uses UL listed power supplies.