Gefen®

DVI to HDSDI
Single Link Scaler

EXT-DVI-2-HDSDISSL

User Manual

www.gefen.com

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
support@gefen.com

Notice

DVI to HDSDI Single Link Scaler is a trademark of Gefen, LLC

CONTENTS

Congratulations on your purchase of the DVI to HDSDI Single Link 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 DVI to HDSDI Single Link Scaler

The Gefen DVI to HDSDI Single Link Scaler combines SDI and DVI Equipment for maximum Interoperability.

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

**READ THESE NOTES BEFORE INSTALLING OR
OPERATING THE DVI TO HDSDI SINGLE LINK SCALER**

- On power up, the DVI to HDSDI Single Link Scaler will automatically detect the input format.

- The default output resolution for the DVI to HDSDI Single Link Scaler is 720p.

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 Single Link Scaler
(1) 6 ft. DVI cable (M-M)
(1) 6 ft. DB-9 Serial cable
(1) IR Remote Control Unit
(1) 5V DC Locking Power Supply
(1) Set of Rack Ears
(1) User Manual

Front

Back
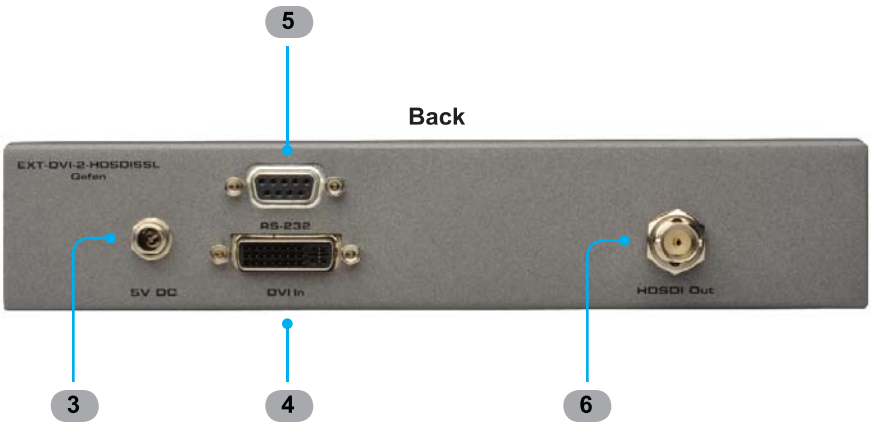
PANEL DESCRIPTIONS

1   Infrared Sensor
Detects IR signals from remote control.

2   Power on LED
When this LED is lit the unit is powered up.

3   5V DC Locking Power Connector
Plug the included 5V DC power supply into this port.

4   DVI Input
Connect a DVI source to this input.

5   RS232 Input
Connect RS-232 here.

6   HDSDI Out
Connect a suitable SDI display here.

IR Remote Control Layout
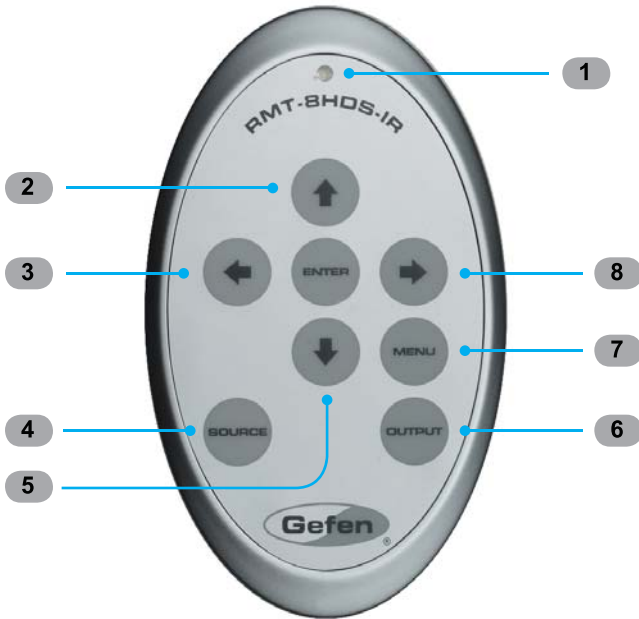
IR Remote Control Descriptions

1   Activity Indicator
This LED will be activated momentarily each time a button is pressed.

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 is not used.

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

6   Output Key
Cycles the DVI to HDSDI Single Link Scaler through the output modes (480i, 576i, 720p @ 60, 1080i @ 60).

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.

Installing the 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 Slot

WARNING: Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

8

How to Resolve IR Code Conflicts

In the event that IR commands from other remote controls interfere with the supplied IR Remote Control unit, changing the IR Remote Control's IR channel will fix the problem. The IR Remote Control unit has a bank of DIP switches used for setting the IR channel.

The DIP switch bank is located underneath the battery cover.

Remote Channel 0: Default

Remote Channel 1:

1   2

1   2

Remote Channel 2:

Remote Channel 3:

1   2

1   2
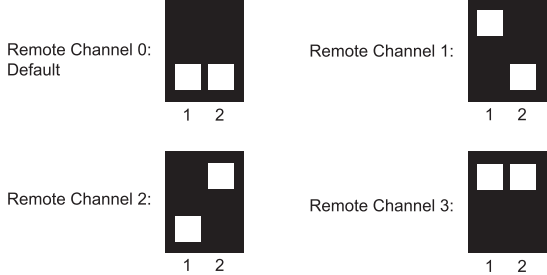
Left: Picture of the opened rear battery compartment of the IR remote showing the exposed DIP Switch bank between the battery chambers.

It is important that the IR channel on the Remote Control unit, matches the IR channel set on the DVI to HDSDI Single Link Scaler.   For example, if both DIP switches on the IR Remote Control unit are set to IR channel 0 (both DIP switches down), then the DVI to HDSDI Single Link Scaler must also be set to IR channel 0. See page 14 on how to change the IR channel on the DVI to HDSDI Single Link Scaler.

How to Connect the DVI to HDSDI Single Link Scaler

1. Connect the DVI source to the DVI input on the DVI to HDSDI Single Link Scaler using the supplied DVI cable.

2. Connect the SDI output device to the HDSDI output on the DVI to HDSDI Single Link Scaler.

3. Connect the included 5V DC locking power receptacle to the DVI to HDSDI Single Link Scaler.

4. Plug the power supply into an available electrical outlet.

Wiring Diagram for the DVI to HDSDI Single Link Scaler

HD-SDI SINGLE LINK CABLE

DVI CABLE

Computer

Scaler

HD-SDI Device
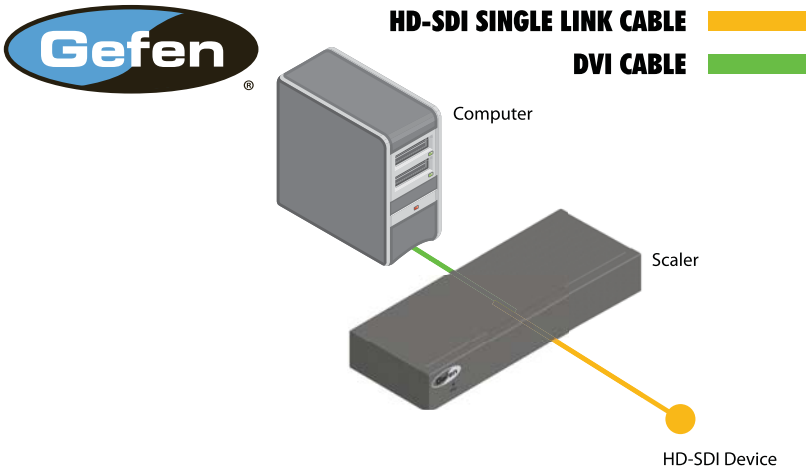
General Menu

Information

To access the General Menu, press the Menu button on the IR Remote Control Unit. The General Menu will be the first menu displayed on contains information about the Scaler:

• Host Firmware Version

• Kernel Version

• Configuration Version

• FPGA Version

• Remote Channel

General > Save Configuration

The Save Configuration feature is used to save the current configuration of the Scaler. Once the current configuration is saved, these settings will be restored each time the Scaler is powered.

> **IMPORTANT:** This command will overwrite any previously saved configuration, including the factory default settings. To restore the factory default settings, press the following buttons in order: Left, Right, and OK buttons. Do not depress all three buttons simultaneously.

General > Restore default configuration

Restores the Scaler to factory default settings. Use this feature to restore default configurations if they have been overwritten by using the *Save Configuration* command.

Patterns Menu

Patterns > Color Bars

Produces a color bar pattern, similar to a standard SMPTE bar pattern used for color calibration.

Patterns > Cross Hatch

Produces a cross hatch pattern. This pattern can be used for "pin cushion" testing (curvature of the image on the screen) or color convergence / divergence.

> **NOTE:** When a pattern is produced, the current video image will be masked.

Output Menu

The HDMI output signal can be configured from the Output menu. The Output menu controls several commands, such as resolutions, color space, and frame rate.

Output > Output Format

Selects the output resolution. See pages 34 - 35 for a list of supported output resolutions.

Output > Link Configuration

Not available on this product.

Output > Genlock Reference

This option enables or disabled the automatic genlock mode.

- Off
  Disabled genlock

- Video Input
  Uses the video input as the reference clock.

Output > Language

From the Output Menu, press the ▼ button on the IR Remote Control Unit.
Select the Language using the ► and ▼ buttons on the IR Remote Control Unit.
Press the Menu button to exit the menu.

•   English

•   French

Output > Gamma Correction

Sets the Gamma correction mode.

•   **Default**
    Sets the default Gamma settings.

•   **sRGB**
    Color space used with PCs, cameras, and printers.

•   **User Table**
    This option is used with a user Gamma LUT. See page 36 for details on
    using a Gamma Look Up Table.

•   **Custom Table**
    Use when defining a custom LUT. See page 36 for details on using a
    Gamma Look Up Table.

•   **Gamma Coeffecient**
    Adjusts the Gamma coeffecient in the range from 0.3 to 3.0. The default
    Gamma value is 1.0.

> **NOTE:** When the Custom LUT (Look Up Table) is selected, the
> Gamma coefficient is used to calculate a new Gamma LUT.

13

Input Menu

Input > Input Video Format

When the Scaler detects a valid DVI input signal, the input format is displayed at the bottom of the OSD. The detected input format is also checked in the Input Format menu. Auto Detect is checked if no valid input is found. The input source can be set to input 1 or input 2. Therefore, exert caution when setting the input format.

Input > Input Graphic Format

Lists all the available graphic input resolutions and timings supported by the DVI to HDSDI Single Link Scaler. See pages 34 - 35 for a complete list of supported graphic input resolutions and timings.

Input > Clean Aperture

The clean aperture parameters allow an area within the production aperture to be defined. The maximum clean aperture size that may be defined and processed by the DVI to HDSDI Single Link Scaler is 2048 pixels by 2048 lines. The minimum clean aperture size is 0 pixels by 0 lines.

Input > Remote Channel

The included IR Remote Control Unit (page 6) transmits IR codes on a single infrared channel. A total of four (4) channels are available for use by the DVI to HDSDI Single Link Scaler and the IR Remote Control Unit. If the IR Remote Control Unit and /or the DVI to HDSDI Single Link Scaler becomes inoperable due to a conflict with another IR device, IR channel can be changed. The IR channel must be changed on the DVI to HDSDI Single Link Scaler and the IR Remote Control Unit. Use this menu option to select the IR channel for the DVI to HDSDI Single Link Scaler.

Picture Menu

Picture > Image Color

Allows individual adjustment of the Red, Green, and Blue color components, brightness, and Black Level of the image.

- **Contrast Red**
  Adjusts the contrast of the Red color component.

- **Contrast Green**
  Adjusts the contrast of the Green color component.

- **Contrast Blue**
  Adjusts the contrast of the Blue color component.

- **Brightness Red**
  Adjusts the brightness of the Red color component.

- **Brightness Green**
  Adjusts the brightness of the Green color component.

- **Brightness Blue**
  Adjusts the brightness of the Blue color component.

- **Black Level**
  Adjusts the black level of the image.

Picture > Detail Enhancement

These parameters processes the input data in either progressive or interlaced format. Changes to the detail enhancement are implemented at the start of the next frame of video. Both of these parameters can be adjusted within the range or 0 - 100.

- Detail Enhancement

- Noise Threshold

Picture > Noise Reduction

This is an adaptive noise reduction command which processes the input data in either progressive or interlaced format. Enabling the Noise Reduction to noisy interlaced signals can optimize de-interlacer performance.

Picture > Motion Threshold

This sets the intraframe motion detection threshold for the deinterlacer on the VXP processor. Video artifacts can be created when de-interlacing (creating interlaced fields from progressive fields). This command allows adjustment of the threshold used by the de-interlacer motion detection algorithm, removing / minimizing motion artifacts in the converted video.

Picture > Output Color Range

The RGB output color range may be changed/set to limited (16-235) or to full (0-255). The *Output > Link Configuration* must be set to RGB 4:4:4 otherwise this menu is disabled. SDI values ranging from 16 - 235 will be expanded to 0 - 255

- **16 - 235**
  The output color range will be compressed from full-range (0 - 255) to limited-range.

- **0 - 255**
  The output color range will be expanded from limited-range (16 - 235) to full-range (0 - 255).

Layout Menu

Layout > Size and Position

The size and position of the output signal can be changed. By default, the horizontal and vertical dimensions match the output resolution. For example, an output format of 720p will have a horizontal size of 1280 lines and a vertical size of 720 lines. These values may be decreased to reduce the size of the output picture, after which it may be moved horizontally or vertically.

NOTE: A picture whose size is the same as the output format cannot be moved horizontally or vertically.

Aspect Menu

Aspect > Full Screen

the Scaler transforms the input signal to the selected resolution on the output device. For example, if the Scaler receives an SDI 480i 4:3 signal and the output is set to HD 720p 16:9, the output signal will have an aspect ratio of 16:9.

Aspect > Letter / Pillar Box

The Scaler will keep the aspect ratio received from the source. For example, if you input 480i at 4:3 and output 720p at 16:9 HD format, the picture will occupy only the center of the screen and black bars will be placed on each side. This option has no effect if the input and the target aspect ratios are identical.

Aspect > Panoramic

The panoramic zoom feature can be used on non-linear inputs to make then fit on the output device.

Aspect > Extract

This a command allows the Scaler to zoom in on a subset of the input video signal. This feature allow you to zoom on one selected section of the input picture.

- **Extract Size**
  Selects the size of the subset to be extracted in percentage of the input.

- **Horizontal Position**
  Moves the picture left or right (within the original input full size input).

- **Vertical Position**
  Moves the picture up or down (within the original input full size input).

Aspect > Through

This command defines a sub-window that is always centered on the screen. The position is the relative position of the window within the full picture. This feature allow you to display one selected section of the input picture without modifying its size.

- **Horizontal Size**
  Adjusts the size of the sub-window horizontally.

- **Vertical Size**
  Adjusts the size of the sub-window vertically.

- **Horizontal Position**
  Horizontally adjusts the relative position of the window within the full picture.

- **Vertical Position**
  Vertically adjusts the relative position of the window within the full picture.

> **NOTE:** When changing the input format, the Scaler will try and apply the current settings to the new input format. If this is not possible (e.g. the value is beyond the zoom limit), then the default value (100% size) will be used.

Only Pins 2 (RX), 3 (TX), and 5 (Ground) are used on the RS-232 serial interface

RS232 Settings

Bits per second 115200

Data bits 8

Parity .... None

Stop bits 1

Flow Control .... None

> **IMPORTANT:** When sending RS-232 commands, a *carriage return* and a *line feed* character must be included at the end of each line. Command names are not case-sensitive.

Commands

Command	Description
#ASPECT	Sets the aspect ratio of the output signal
#AUTOLOCK	Enables or disables the automatic genlock mode
#BLACKLEV	Sets the black level (RGB/Y) of the output signal
#BRIGHT	Sets the brightness value for a specific color
#CLEANAPER	Sets the clean aperture level for position and size
#CONTRAST	Sets the contrast level for a specific color
#DEVERSION	Returns the hardware and firmware version
#DEVTYPE	Return the device presently connected
#EDID	Writes an EDID file to memory (PROM)
#ENHANCE	Sets the enhancement value
#EXTRACT	Sets the extract aspect mode
#GAMMA	Sets the Gamma correction mode
#INPUT	Sets the input format of the image
#LANGUAGE	Sets the current language of the OSD
#LIST	Displays a list of all available commands on this Scaler
#MOTIONTHRES	Sets the intraframe motion detection threshold
#NOISEREDUC	Sets the noise reduction value
#NOISETHRES	Sets the noise reduction threshold
#OUTPUT	Sets the format (refresh rate) of the output signal
#REMOTECHAN	Sets the IR remote channel on the Scaler
#RESTORE	Restores all the default parameters on the Scaler
#SAVE	Saves the current parameters in memory
#SIZEPOS	Sets the size and position of the image
#THROUGH	Sets the through aspect ratio
#VERSION	Returns the version of the firmware and Kernel

#ASPECT Command

The #ASPECT command sets the aspect ratio.

<u>Syntax</u>:

`#ASPECT param1`

<u>Parameters</u>:

param1   IR channel   [1 - 5]

Value	Meaning
1	Full Screen
2	Letter / Pillar Box
3	Panoramic
4	Extract (Uses default value)
5	Through (Uses default Value)

<u>Notes</u>:

If the Extract or Through mode is selected, the default values are set. To modify the parameters for Extract or Through mode refer to these commands in this manual.

#AUTOLOCK Command

The #AUTOLOCK command enables of disables the Auto Genlock Mode.

Syntax:

#AUTOLOCK param1

Parameters:

param1   IR channel   [0 - 2]

Value	Meaning
0	Disable (Default value)
1	Video Input Reference
2	Reference Input

#BLACKLEV Command

The #BLACKLEV command sets the black level (RGB/Y) of the image.

Syntax:

#BLACKLEV param1

Parameters:

param1   Level value   [0 - 1023]

#BRIGHT Command

The #BRIGHT command sets the brightness value for a specific color.

Syntax:

```
#BRIGHT param1 param2
```

Parameters:

| param1 | | Color name | | [0 - 2] |

Value	Meaning
0	Red
1	Green
2	Blue

| param2 | | Color value | | [0 - 100] |

Notes:

The default value of the Color value is 50.

#CLEANAPER Command

The #CLEANAPER command sets the clean aperture level for each position and size.

Syntax:

```
#CLEANAPER param1 param2 param3 param4
```

Parameters:

param1	Horizontal size	[1 - 100]
param2	Vertical size	[1 - 100]
param3	Horizontal position	[1 - 100]
param4	Vertical position	[1 - 100]

Notes:

The default value of the Color value is 50.

#CONTRAST Command

The #CONTRAST command sets the contrast level for a specific color.

Syntax:

#CONTRAST param1 param2

Parameters:

param1   Color name   [0 - 2]

Value	Meaning
0	Red
1	Green
2	Blue

param2   Contrast value   [0 - 100]

Notes:

The default value of the Color value is 50.

#DEVERSION Command

The #DEVERSION command returns the hardware and firmware version.

Syntax:

#DEVERSION

Parameters:

None

#DEVTYPE Command

The #DEVTYPE command returns the present device type connected. The return value is either #DEVTYPE_DVITOSDI or #DEVTYPE_SDITODVI.

Syntax:

#DEVTYPE

Parameters:

None

#EDID Command

The #EDID command programs the EDID PROM with the Default EDID value or an EDID file. The EDID file can be 128 bytes or 256 bytes in size.

Syntax:

#EDID param1

Parameters:

param1   Value   [0 - 2]

Value	Meaning
0	Load Default EDID
1	Write 128 byte EDID file
2	Write 256 byte EDID file

#ENHANCE Command

The #ENHANCE command sets the enhancement value.

Syntax:

`#ENHANCE param1`

Parameters:

param1   Enhancement value   [0 - 100]

#EXTRACT Command

The #EXTRACT command sets the extract aspect mode.

Syntax:

`#EXTRACT param1 param2 param3`

Parameters:

param1   Extract size percentage   [1 - 100]
param2   Horizontal position   [1 - 100]
param3   Vertical position   [1 - 100]

#GAMMA Command

The #GAMMA command sets the gamma correction mode.

Syntax:

```
#GAMMA param1 param2
```

Parameters:

param1   Gamma correction mode   [0 - 3]

Value	Meaning
0	Default
1	sRGB
2	Custom
3	User table

param2   Mode   [see below]

Value	Meaning
3 - 30	Set for Custom mode
1	Set for User table

Notes:

If the Custom mode is used, then set the gamma coefficient value in the second parameter. If User Table is used, then set the second parameter to 1 to set the user table currently saved in EEPROM memory. To write a new gamma LUT (Look-Up Table) file, you must use the updater with the following command:

```
updater %comport% GAMMA [filename].csv
```

If the Default or sRGB modes are used, then set the second parameter to 0. See page 36 for the gamma LUT format.

#INPUT Command

The #INPUT command sets the input format of the image. See pages 34 - 35 for a list of supported input formats.

Syntax:

#INPUT param1

Parameters:

param1   Input format   [see format table]

#LANGUAGE Command

The #LANGUAGE command sets the current language of the Main Menu.

Syntax:

#LANGUAGE param1

Parameters:

param1   Language   [0 - 1]

Value	Meaning
0	English
1	French

#LIST Command

The #LIST command displays the list of all the available commands that can be executed on the serial port. It also gives the number of parameters that each command requires.

Syntax:

#LIST

Parameters:

None

#MOTIONTHRES Command

The #MOTIONTHRES command sets the motion threshold value.

Syntax:

#MOTIONTHRES param1

Parameters:

param1   Language   [0 - 15]

Notes:

The default value is 4.

#NOISEREDUC Command

The #NOISEREDUC command sets the noise reduction value.

Syntax:

#NOISEREDUC param1

Parameters:

param1   Value   [0 - 100]

Notes:

The default value is 0.

#NOISETHRES Command

The #NOISETHRES command sets the noise threshold command.

Syntax:

#NOISETHRES param1

Parameters:

param1   Value   [0 - 100]

Notes:

The default value is 0.

#OUTPUT Command

The #OUTPUT command sets the output format of the image.

Syntax:

`#OUTPUT param1`

Parameters:

param1   Value   [see output table]

#REMOTECHAN Command

The #REMOTECHAN command sets the IR remote control channel.

Syntax:

`#REMOTECHAN param1`

Parameters:

param1   Channel   [0 - 3]

#RESTORE Command

The #RESTORE command restores all of the default paramters.

Syntax:

#RESTORE

Parameters:

None

#SAVE Command

The #SAVE command saves all the current parameters in the PROM. These parameters will be reloaded upon the next boot up.

Syntax:

#SAVE

Parameters:

None

#SIZEPOS Command

The #SIZEPOS command sets the size and the position of the image. Note that this option is not available in the panoramic aspect mode.

Syntax:

`#SIZEPOS param1 param2 param3 param4`

Parameters:

param1	Pattern	[0 - 3]

#THROUGH Command

The #THROUGH command defines a sub-window that is always centered on the screen. The position is the relative position of the window within the full picture. This feature allow you to display one selected section of the input picture without modifying its size.

Syntax:

`#THROUGH param1 param2 param3 param4`

Parameters:

param1	Horizontal size	[1 - 100]
param2	Vertical size	[1 - 100]
param3	Horizontal position	[0 - 100]
param4	Vertical position	[0 - 100]

#VERSION Command

This command returns the version of the Host Firmware, the Kernel and the configuration in that order.

Syntax:

`#VERSION`

Parameters:

None

APPENDIX

Supported Video and Graphics Formats

The following table contains all supported video and graphic formats supported by the DVI to HDSDI Single Link Scaler. The Value column are parameters used by the RS-232 Serial Control.

Input		Output	
Format	Value	Format	Value
480i	0	480i	0
480p @ 59.94	6		
576i	1	576i	1
576p @ 50	7		
720p @ 23.97	15	720p @ 23.98	15
720p @ 24	14	720p @ 24	14
720p @ 25	13	720p @ 25	13
720p @ 29.97	12	720p @ 29.97	12
720p @ 30	11	720p @ 30	11
720p @ 50	10	720p @ 50	10
720p @ 60	8	720p @ 59.94	9
720p @ 59.94	9	720p @ 60	8
1035i @ 59.94	64	1035i @ 59.94	17
1035i @ 50	63	1035i @ 60	16
1080i @ 50	24	1080i @ 50	24
1080i @ 50M	25	1080i @ 50M	25
1080i @ 59.94	23	1080i @ 59.94	23
1080i @ 60	22	1080i @ 60	22
2K-p @ 23.98	73	1080sf @ 23.98	35
2K-p @ 24	74	1080sf @ 24	33
640 x 480 @ 60	38	1080sf @ 25	31
640 x 480 @ 75	39	1080sf @ 29.97	29
640 x 480 @ 85	40	1080sf @ 30	27
800 x 600 @ 60	41	1080p @ 23.98	24
800 x 600 @ 75	42	1080p @ 24	32
800 x 600 @ 85	43	1080p @ 25	30
1024 x 768 @ 60	44	1080p @ 29.97	28
1024 x 768 @ 75	45	1080p @ 30	26

Input		Output	
Format	Value	Format	Value
1024 x 768 @ 85	46	2K-p @ 23.98	75
1280 x 854	65	2K-p @ 24	76
1152 x 864 @ 75	47	2K-sf @ 23.98	73
1280 x 768 @ 60	48	2K-sf @ 24	74
1280 x 960 @ 60	49		
1280 x 960 @ 85	50		
1280 x 1024 @ 60	51		
1280 x 1024 @ 75	52		
1280 x 1024 @ 85	53		
1360 x 768 @ 60	54		
1366 x 768 @ 60	56		
1366 x 923 @ 50	55		
1440 x 900 @ 60	66		
1440 x 1080 @ 60	67		
1600 x 1024	68		
1600 x 1200 @ 60	57		
1600 x 1200 @ 65	58		
1600 x 1200 @ 70	59		
1600 x 1200 @ 75	69		
1680 x 1050 @ 60	70		
1920 x 1200 @ 60	71		
2048 x 1080	72		

Gamma LUT File Format

The Gamma Look Up Table (LUT) can be programmed using the `GefenUpdater.exe` program from the Gefen software package. To do this, following the instructions below:

1   Create the Gamma LUT.

2   Create a standard ASCII text file with the following line:

```
GefenUpdater GAMMA filename.csv
```

    where filename.csv is the name of the Gamma LUT file.

3   Save the file as UpdateGamma.bat. Make sure that the GefenUpdater.exe file resides in the same directory (or is in the path) as the UpdateGamma.bat file.

4   Connect a USB cable from the computer to the DVI to HDSDI Single Link Scaler.

5   Power on the DVI to HDSDI Single Link Scaler. Once the Scaler has powered up, run the `UpdateGamma.bat` file.

The LUT is a standard .CSV file. Each line contains Red, Green and Blue values separate by comma ",". A value must be between 0 and 1023. A file must contain 1024 lines:

```
1023,0,0      (Line 1)
1023,0,0
1023,0,0
1023,0,0
1023,0,0
1023,0,0
1023,0,0
…
…
1023,0,0      (Line 1024)
```

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..1.485 Gbps

DVI Connector...DVI-I 29 pin female (digital only)

SDI/HDSDI Connector..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.

PRODUCT REGISTRATION

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

MA-DVI-2-HDSDISSL

This product uses UL listed power supplies.