Gefen TOOLBŤX

HD Pattern Signal Generator

GTB-HD-SIGGEN

User Manual



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Congratulations on your purchase of the GefenToolBox HD Pattern Signal Generator. Your complete satisfaction is very important to us.

About 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.

GefenToolBox

The GefenToolBox line offers portable and easy-to-install 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 installations in working environments.

The GefenToolBox HD Pattern Signal Generator

The GefenToolbox HD Pattern Signal Generator is the most advanced testing device for your audio and video equipment. 39 built-in timings, 41 patterns, and four (4) data analysis patterns provide over a thousand testing combinations for both analog and digital devices. The front panel LCD screen provides easy viewing of functions and features for each timing / pattern. This device can be conveniently controlled via the front panel buttons, the IR remote or the downloadable software from the Gefen Web site. In addition to its portability, this signal generator is wall-mountable and field-upgradeable.

How It Works

Connect the HDMI output port of the GefenToolbox HD Pattern Signal Generator to your HDTV display. Power-on all equipment. The front panel LCD will display all features and options of the active timing and pattern. You can feed digital or analog audio into the generator's rear panel and hear multi-channel digital audio or use the built-in sine wave test tone.

READ THESE NOTES BEFORE INSTALLING OR OPERATING THE GEFENTOOLBOX HD PATTERN SIGNAL GENERATOR

 The GefenToolBox HD Pattern Signal Generator can be controlled using a software application and RS-232. Download this application from the Gefen Web site at: http://www.gefen.com/kvm/support/download.jsp

Features

- Multi-format video output for SD and HD video up to 1080p
- PC/HD resolutions up to UXGA / WUXGA (1920 x 1200)
- 39 timings, 41 patterns, and 4 data analysis patterns
- Supports RGB 4:4:4, YCbCr 4:4:4, and YCbCr 4:4:2 color spaces
- Supports NTSC and PAL frame rates
- 2 CH, 5.1 CH, and 7.1 CH LPCM internal sine wave generator
- RS-232 control via the downloadable software from the Gefen Web site.
- Small form factor; easy to transport
- Supports HD timings for VGA output
- HDCP Pattern
- Supports reading and copying EDID functionality.
- User Friendly Interface LCD Display, LED indicators and Software.
- Deep Color support up to 12-bit
- HDMI 1.3 and DVI 1.0 Compliant
- HDCP Compliant

Sample Applications

- Apparatus Testing and Troubleshooting
- Equipment Adjustment
- EDID checking
- Source / Sink definition
- HDCP Verification

Package Includes

- (1) GefenToolBox HD Pattern Signal Generator
- (1) 6ft. HDMI cable (M-M)
- (1) IR Remote
- (1) 5 V DC Power Supply
- (1) User Manual

Top Panel



Top Panel

1 LCD Display

Displays pattern and timing information in addition to other functions used by the Signal Generator.

2 IR Window

Receives signals from the IR Remote Control unit.

3 Control Panel

See pages 8 - 10 for detailed information on the Control Panel.

Back Panel



Back Panel

1 Overscan Button

By default, the GefenToolBox HD Pattern Signal Generator is set to underscan mode. If the video signal does not fill the entire display, press this button once to switch to overscan mode. Press the Overscan button a second time to return to underscan mode.

2 VGA Output

Connect a VGA monitor to this port.

3 RS-232 Serial Port

Connect an RS-232 cable from this port to the computer running the HD Pattern Signal Generator software.

4 HD Out

Connect an HDTV display to this HDMI port. DVI displays can be connected using an HDMI to DVI cable or adapter.

5 Analog Audio Outputs

8 RCA type audio outputs (FL, FR, C, SUB, SL, SR, SSL, and SSR) are available for connection to a separate amplifier. Up to 6 discrete channels can be utilized.

6 TOSLink Output Connector

Connect an optical cable from this output to an amplifier or other audio output device.

7 S/PDIF Output Connector

Connect a coax cable from this output to an amplifier or other audio output device.

8 HD In

Used to connect a Hi-Def source to the Signal Generator using an HDMI cable. DVI displays can be connected using an HDMI to DVI cable or adapter.

9 Analog Audio Inputs

8 RCA type audio outputs (FL, FR, C, SUB, SL, SR, SSL, and SSR) are available for connection from a source device.

10 TOSLink Input Connector

Connect an optical cable from the audio source device to this connector.

11 Power Switch

Turns the Signal Generator power ON or OFF.

12 5 V DC Power Connector

Connect the included 5 V DC power supply to this connector.



Control Panel

Control Panel

1 Timing (Down)

Cycles backward through the list of timings.

2 Timing (Up)

Cycles forward through the list of timings.

3 Pattern (Down)

Cycles backward through the list of patterns.

4 Pattern (Up)

Cycles forward through the list of patterns.

5 Auto Indicator

This LED will glow bright green when the Signal Generator is placed in Auto mode.

6 Auto

Automatically cycles through a specified list of timing / pattern sets. The Autorun Demonstration mode is configured through the HD Pattern Signal Generator software. See page 72 for details.

7 EDID Pattern

Press this button to jump directly to the EDID Pattern (P38). See page 21 for more information on using the EDID Pattern.

8 EDID Pattern Indicator

This LED will glow bright green when the Signal Generator is placed in EDID mode.

9 Output Signal Button

Selects between PC / HD (VGA), DVI, or HDMI signal types. Consecutively press this button to cycle through each of the signal types.

10 Output Signal Indicators

These LED indicators will glow bright green to indicate the current video output mode (PC, HD, DVI, or HDMI).

11 Fav. Button

Configures the generator to show only the patterns selected using the HD Pattern Signal Generator software (see page 51 for details). This button is also used to change parameters when using certain patterns.

12 Fav. Indicator

This LED will glow bright green when the [Fav] button is pressed.

13 Option Button

The option button provides access to sub-functions within certain patterns.

14 Option Indicator

This LED will glow bright green when the Signal Generator is in Option mode.

15 HDCP On / Off Indicator

This LED will glow bright green when HDCP content is being sent from the Signal Generator.

16 HDCP Button

Enables / disables HDCP on the output. See page 29 for more information on using HDCP.

17 HDCP Pattern Button

Press this button to jump directly to the HDCP Pattern (P40).

18 HDCP Pattern Indicator

This LED will glow bright green when the HDCP Pattern (P40) is enabled.

19 Audio Selection Button

Pressing this button consecutively will cycle through the different audio output options (see page 25 for details).

20 Audio Selection Indicator

These LED indicators will glow bright green to indicate the current audio output mode.

21 Audio Channel Button

Pressing this button consecutively will cycle through the different output audio channels (see page 25 for details).

22 Audio Channel Indicator

These LED indicators will glow bright green to indicate the current audio channel selection.

23 Color Space Selection Button

Pressing this button consecutively will cycle through the available output color spaces.

24 Color Space Selection Indicator

These LED indicators will glow bright green to indicate the current color space.

25 Bit Depth Selection Button

Selects between 8-bit, 10-bit, or 12-bit color.

26 Bit Depth Indicator

These LED indicators will glow bright green to indicate the current color bit depth selection on the output.

How to Connect the GefenToolBox HD Pattern Signal Generator

- 1. Connect an HDMI cable from the GefenToolBox HD Pattern Signal Generator to the HDTV Display.
- 2. Connect an optional external audio source to the HD Pattern Signal Generator using an optical cable or RCA cables.
- Connect the included 5V DC power supply to the power receptacle on the HD Pattern Signal Generator and connect the power cord to an available electrical outlet.
- 4. Turn on the HDTV display first, then turn on the HD Pattern Signal Generator.

Wiring Diagram for the GefenToolbox HD Pattern Signal Generator



GTB-HD-SIGGEN



IR Remote Layout and Descriptions (RMT-HD-SIGGEN)

1 ▼ / ▲ (Timing)

Cycles forward (\blacktriangle) and backward (\triangledown) through the list of timings.

2 ▼ / ▲ (Pattern)

Cycles forward (\blacktriangle) and backward (\triangledown) through the list of patterns.

3 Option

The Option button provides access to sub-functions within certain patterns.

4 HDCP

Enables / disables HDCP on the output. See page 29 for more information on using HDCP.

5 Col Spc

Pressing this button consecutively will cycle through the available output color spaces.

6 Signal On

Turns the signal ON after it has been turned off (A/V mute) using the Signal Off button.

7 Signal Off

Turns the signal OFF (A/V mute).

8 Output

Selects between PC / HD (VGA), DVI, or HDMI signal types. Consecutively press this button to cycle through each of the signal types.

9 EDID

Press this button to jump directly to the EDID Pattern (P38). See page 21 for more information on using the EDID Pattern.

10 Aud Src

Pressing this button consecutively will cycle through the different audio output options (see page 25 for details).

Installing the Battery

- 1. Hold the IR remote control unit facing down and gently pull the battery tab with your thumb to reveal the battery slot.
- 2. Insert the included battery into the battery slot. The battery slot indicates that the positive (+) side of the battery must be facing up as shown below:



3. Close the battery slot by sliding it closed.

Display Window

The **Display Window** of the GefenToolBox HD Pattern Signal Generator is a 16-character, 2-line display. This display will show the currently selected timing and pattern on the output. In addition, this display is also used for providing information or messages about the connected devices. When the unit is powered on, a screen similar to the following will be displayed:



Currently selected pattern

Timing Buttons

To change the timing, use the \blacktriangle and \triangledown Timing buttons. The \blacktriangle button will move forward through the timings. Use the \checkmark button will move backward through the timings. See pages 36 - 37 for a list of supported timings.



Pattern Buttons

To change the pattern, use the \blacktriangle and \blacktriangledown Pattern buttons. The \blacktriangle button will move forward through the patterns (see the pages 14 - 35 for a list of available patterns). Use the \blacktriangledown button to move backward through the patterns.



Resetting the HD Pattern Signal Generator

To reset the HD Pattern Signal Generator to factory default settings, simultaneously hold down the Color Space Selection button and the Bit Depth Selection button. During the reset sequence, the LCD display will show the message: System Reset



Purity

Pattern 01 - Pattern 08 (P01 - P08)

Press the [OPTION] button to switch between Full Screen and Windowed format.

P01	White	
P02	Blue	
P03	Red	
P04	Magenta	
P05	Green	
P06	Cyan	
P07	Yellow	
P08	Black	

Red (P03) and Green (P05) are often used to check color purity. When using the Red pattern, no other color should be present on the screen. If the Red pattern appears tinted, then this is an indication that the color purity should be adjusted. The Red pattern can also be used to ensure that there is no interference between the sound and the chroma carrier, in addition to adjusting the long play delay level to minimum flicker.

Green (P05) provides a color purity check for display devices that use three in-line guns. The in-line configuration defines guns which are positioned horizontally with the green gun located in the center (R-G-B).

Blue (P02) is a complementary color. This pattern is frequently used to test color performance.

Color Settings

Pattern 09 - Pattern 13 (P09 - P13)

Press the [OPTION] button to enter the pattern options. Use the Pattern [UP] and [DOWN] buttons to adjust the color level. Press the [FAV] button to switch between full and limited color range.





Adjusts color level



Switch between full and limited color range

When using Pattern 09 - Pattern 12, a black screen will be displayed, first. Use the [OPTION] to enable to the pattern. The Blue Pattern (P11) is illustrated below:



The BLUE Setting pattern (P11) with blue level at 203 and set to the Full color range setting using the [FAV] button:



Pattern 13 (P13) will appear as a white screen and can only be controlled using RS-232. See page 46 for more information.

Color Bars

Pattern 14 - Pattern 17 (P14 - P17)

There are four different color bar patterns. Use the [OPTION] button on Pattern 14 (P14) and Pattern 16 (P16) to switch between 75 IRE (Option LED indicator OFF) and 100 IRE (Option LED indicator ON).

P14	Color Bar	
P15	SMPTE Color Bar	
P16	Split Bar	
P17	RGB Delay	

Gray Scale

Pattern 18 - Pattern 22 (P18 - P22)

Gray scale patterns can be used to locate faulty linearity of the video amplifier or gray scale settings. Use the [OPTION] button on Gray-11 (P19) to alternate between the two patterns. Option LED indicator OFF = Vertical Pattern, ON = Cross Pattern.

P18	Gray-8	
P19	Gray-11	1.5
P20	Gray-32	
P21	Gray-256	
P22	H.Gray-11	_

Black White Line

Pattern 23 -Pattern 26 (P23 - P26)

The vertical pattern serves as a test for the horizontal bandwidth and phase behavior of a color monitor. This pattern can also be used to verify the video amplifier and color temperature.

The horizontal pattern can check the vertical bandwidth and phase behavior, in addition to verifying the video amplifier integrity and color temperature.

P23	V Line ONOFF	
P24	H Line ONOFF	
P25	MULTI-BURST	
P26	Dual Needle	

Pluge

Pattern 27 - Pattern 31 (P27 - P31)

Pluge (Picture line up) patterns are used to perform accurate and consistent line-up of the output signal (video). The concept behind Pluge patterns is to adjust the brightness control so that the first bar is invisible, while the second bar remains visible.

Use the [OPTION] button on PLUGE-5 (P31) to cycle through each of the Pluge variations.

P27	PLUGE-1	11 🔳
P28	PLUGE-2	
P29	PLUGE-3	
P30	PLUGE-4	
P31	PLUGE-5	

By default, Pattern 31 (P31) is set to the first pluge pattern. During this state, the Option LED indicator will be OFF.

Press the [OPTION] button to display the second Pluge-5 variation pattern. The Option LED indicator will glow bright green.

Press the [OPTION] button a third time to display the third Pluge-5 variation pattern. The Option LED indicator will glow bright green.

Pressing the [OPTION] button a fourth time will display the original Pluge-5 pattern. The Option LED indicator will turn OFF.

Grid

Pattern 32 - Pattern 33 (P32 - P33)

Grid and cross patch patterns are mainly used for detecting corner convergence ("pin cushions").

P32 GRID



P33

Cross Hatch

	_	_	_	_	_	_	
	コ						C
	LТ	4	_				L
	ш						L
	П	Т					ſ
	IT						ľ
	_	_	_	-	_	_	1

Press the [OPTION] button on Pattern 33 (P33) to toggle between the black/white (Option LED indicator is OFF) and white/black (Option LED indicator is ON) cross hatch patterns.

Gradient

Pattern 34 - Pattern 36 (P34 - P36)

Gradient patterns are used to detect linearity faults in the video amplifier. Nonlinearities will usually result in color level compression.



Circles

Pattern 37 (P37)

Produces a pattern with large circles on the screen. This pattern is primarily used for checking the overall geometry and linearity of the display.

P37

CIRCLES



EDID

Pattern 38 (P38)

Displays the EDID pattern screen. This pattern is used to analyze the EDID data of the connected sink (display, A/V receiver, etc).

P38

EDID Analysis



TIP: The EDID pattern (P38) can also be directly accessed by pressing the [EDID] button on the top panel.



The EDID pattern supports up to two (2) blocks (Block0 and Block1).

When the EDID pattern is selected, the display will appear as follows:



To use the EDID pattern, follow the instructions below:

- 1 Press the [OPTION] button.
- 2 The EDID Analysis Menu will be displayed. The first line of the menu will be highlighted in blue.

	is highlighted in blue.
EDID Analysis Menu EDID Source Select: HDMI / DVI Out Block0. Binary List Block0. Vendor / Product Id Block0. Color Characteristics Block0. Established Timings Block0. Standard Timings Block0. Detail Timings Block1. DrW Monitor Support Block1. DTW Monitor Support Block1. Audio Data Block Block1. Vendor Specific Data Block	
Block1. Other Data Block Block1. Detail Timings	

3 Press the [OPTION] button to select between HDMI / DVI Out, HDMI / DVI In, or VGA PC / HD Out.

HDMI / DVI Out

Reads the EDID of the sink (display, A/V receiver, etc) connected to the HD Pattern Signal Generator.

• HDMI / DVI In

Reads the built-in EDID of the HD Pattern Signal Generator.

• VGA PC / HD Out

Reads the EDID of the display connected to the VGA port of the HD Pattern Signal Generator.

- 4 In this example, the HDMI / DVI Out option will be used. An HDMI cable is connected between the sink and the HD Out port of the HD Pattern Signal Generator. Any of the three options (mentioned above) could be used, depending upon the application.
- 5 Press the ▼ Pattern button twice to scroll down to the Block0. Vendor / Product Id option.



6 Press the [OPTION] button on the top panel to display this section of the EDID data structure.

The HD Pattern Signal Generator will display the Vendor / Product Id EDID information on the screen.

Your Vendor / Product Id EDID information will most likely differ from the example below:



In this example, the HD Pattern Signal Generator reported the following EDID information for the Vendor / Product Id in Block 0:

```
EDID OUT Analysis Block0 Page 2
Manufacturer Name. GEF
Product Code. 101
SN. 0
Week of Manufacture. 50
Year of Manufacture. 2009
EDID Version. 1.3
Signal Type. Digital
DFP 1.x. Not Compatible
```

- Press the [OPTION] button to return to the EDID Analysis Menu or press the
 ▲ or ▼ Pattern buttons to display each section of the EDID data structure, without having to return to the EDID Analysis Menu.
- 8 To exit the EDID pattern, return to the EDID Analysis Menu (press the [OPTION] button if required) to return to the EDID Analysis Menu, then press the [EDID] button on the top panel. Press the ▲ or ▼ Pattern buttons to select another pattern.

Audio

Pattern 39 (P39)

This pattern displays the audio information of the connected source device, such as the number of audio channels, sampling rate, and I²S (Intergrated Interchip Sound) bus data.

P39

AUDIO



The table below provides a listing of the audio input and audio output combinations when using the Audio Pattern (P39).

		Output			
		Analog 7.1 Ch Optical / Coax HDMI			
t.	Ext. 7.1 Ch	Bypass	LPCM 2CH @ 48 kHz Ext.		
ndu	Ext. Optical	2 CH	Bypass Bypas		
	Int. Sinewave 2CH, 6CH, 8CH LPCM 2 CH @ 48 kHz Ext. O		Ext. Optical		

External 7.1 Channel Audio Input

In the example below, the Audio Pattern is shown using the external 7.1 channel audio input.



In the example above, the Audio Pattern is shown using the external 7.1 channel audio input. The Audio Input Selection button is used to change the audio input type.



Text that is highlighted in yellow indicates that the value may be changed. In the illustration above, the HDMI output can be toggled between 2 channel LPCM and 6 channel (5.1) channel LPCM audio using the Audio Channel selection button.



Note that HDMI does not support 8 channels (7.1) of audio. Therefore, the 7.1 CH option cannot be selected.

External Optical Audio Input

Changing the audio input to EXT OPTICAL, using the Audio Input Selection button will produce the following screen:

INPUT: Ext. OPTICAL OUTPUT Analog 7.1CH: 2CH OPTICAL/COAX: Bypass HDMI: Bypass Source Format Detection App Type: None Audio Coding: None Sampling Rate(kHz): None [EXT. 7.1CH/OPTICAL/SINEWAVE]. Audio Source	Audio Pattern	
OUTPUT Analog 7.1CH: 2CH OPTICAL/COAX: Bypass HDMI: Bypass Source Format Detection App Type: None Audio Coding: None Sampling Rate(kHz): None [EXT. 7.1CH/OPTICAL/SINEWAVE]. Audio Source	INPUT: Ext. OPTICAL	
Analog 7.1CH: 2CH OPTICAL/COAX: Bypass HDMI: Bypass App Type: None Audio Coding: None Sampling Rate(kHz): None [EXT. 7.1CH/OPTICAL/SINEWAVE]. Audio Source	OUTPUT	
OFTICAL/COAX: Bypass HDMI: Bypass Source Format Detection App Type: None Audio Coding: None Sampling Rate(kHz): None [EXT. 7.1CH/OPTICAL/SINEWAVE]. Audio Source	Analog 7.1CH: 2CH	
HDMI: Bypass Source Format Detection App Type: None Audio Coding: None Sampling Rate(kHz): None [EXT. 7.1CH/OPTICAL/SINEWAVE]. Audio Source	OPTICAL/COAX: Bypass	
Source Format Detection App Type: None Audio Coding: None Sampling Rate(kHz): None [EXT. 7.1CH/OPTICAL/SINEWAVE]. Audio Source	HDMI: Bypass	
App Type: None Audio Coding: None Sampling Rate(kHz): None [EXT. 7.1CH/OPTICAL/SINEWAVE]. Audio Source	Course Formet Detection	
Audio Coding: None Sampling Rate(kHz): None [EXT. 7.1CH/OPTICAL/SINEWAVE]. Audio Source	App Type: None	
Sampling Rate(kHz): None [EXT. 7.1CH/OPTICAL/SINEWAVE]. Audio Source	Audio Coding: None	
[EXT. 7.1CH/OPTICAL/SINEWAVE]. Audio Source	Sampling Rate(kHz): None	
[EXT. 7.1CH/OPTICAL/SINEWAVE]. Audio Source		
[EXT. /.ICH/OPTICAL/SINEWAVE]. Audio Source		
	[EXT. /.ICH/OPTICAL/SINEWAVE]. Audio	Source

In the example above, since no optical input was used, the Source Format Detection displays None.



Internal Sinewave Generator

The third option (INT SINEWAVE) uses the internal sine wave generator:

Audio Pattern
INPUT: Int. Sinewave
OUTPUT Analog 7.1CH: 2/6/8CH OPTICAL/COAX: LPCM 2CH 48KHz HDMI: LPCM 2/6/8CH 48/96/192KHz I2S Bus: On/Mute
[FAV.].I2S Bus
[OPTION]. HDMI-OUT Sampling Rate [2CH/5.1CJ/7.1CH]. Analog/HDMI-OUT Audio Channels
[EXT. 7.1CH/OPTICAL/SINEWAVE]. Audio Source
PATTERN SUMMARY



The I²S data line option is only present when the HD Pattern Signal Generator is set to 5.1 CH or 7.1 CH audio. In 2 CH mode, the I²S bus can only be enabled or disabled (muted). Use the [FAV] button to change the I²S bus options.

When the output is set to 5.1 (6 channel) audio, the I²S options are:

I2S Bus: On, Mute, SDO, SD1, and SD2

When the output is set to 7.1 (8 channel) audio, the I²S options are:

I2S Bus: On, Mute, SDO, SD1, SD2, and SD3

HDCP

Pattern 40 (P40)

This pattern displays HDCP information such as handshaking and link integrity test. If the sink (output device) is a repeater, both the B_{KSV} and B_{KSV} are displayed.

P40

HDCP



When the HDCP pattern is selected, the display will appear as follows:



TIP: The HDCP pattern (P40) can also be directly accessed by pressing the [HDCP] button on the top panel.

By default, HDCP is disabled. Press the [HDCP] button on the front panel to enable HDCP. HDCP can be enabled or disabled for any pattern, except for the EDID pattern (P38).



Once HDCP has been enabled, the screen will appear similar to the following:



The HDCP pattern provides a full three phase authentication:

Phase 1:

- a The HD Pattern Signal Generator writes a 64-bit random number (A_N) to the sink / receiver (Rx).
- b The receiver responds by sending its own KSV (B_{KSV}) to the transmitter (Tx). The Receiver also sends the repeater bit, used to determine if the sink / receiver acts as a repeater. During this step, the transmitter also verifies that B_{KSV} has not been revoked and has the proper format
- c If A_{KSV} and B_{KSV} are deemed to be valid, then the receiver (sink) and transmitter (source) each generate R0 (the receiver generates R_0 . R_0 is read by the transmitter and compared with R_0 . If $R_0 = R_0$, then the authentication phase is successful. If they are not equal, HDCP authentication will fail.

Phase 2:

d As long as R0 = R0', the transmitter will begin sending encrypted video.

Phase 3:

e Every 128 frames (2 sec), the Tx and Rx generate a value R which is similar to the R_o values. Comparing these values between the Tx and Rx verifies that the link is synchronized.

In the example above, the HDCP authentication process is successful. Note that the sink (Rx) was not identified as a *repeater*. For a display, this is normal.

NOTE: A repeater is defined as an active device which has one or more HDMI inputs and one or more HDMI outputs that work with HDCP. A repeater is an active device because it decrypts HDCP content on the input (Rx) and re-encrypts on the output (Tx).

Motion

Pattern 41 (P41)

This pattern produces a 10x10 pixel block that moves horizontally across the screen, from right to left. See page 48 for details on modifying this pattern.

P41

Motion



Data Analysis

Pattern 42 - Pattern 44 (P42 - P44)

These patterns are used to detect HDMI / DVI timings, input video packets, and infoframe analysis.

P42 In Timing

Rx Timing

The In Timing pattern will display timing information about an incoming video signal. Connect the source signal to the HDMI or VGA input connector.

If no input signal is detected (or is not connected), the top line will display No Signal.



When a valid video input signal is detected, the In Timing pattern will display information similar to the following:



Press the [OPTION] button to perform a hot-plug (HPD) event. Triggering an HPD event is the similar to disconnecting and reconnecting the input source.

P43

In Video



The In Video pattern provides information about color space, color depth, extended colorimetry (if applicable), HDCP, and AVI infoframe information.



As with the In Timing pattern (P42), if a valid signal is not detected on the input, the top line will display No Signal.



Press the [OPTION] button to trigger an HPD event.



The In Audio pattern provides audio information, including sampling rate, bit depth, audio encoding, and the number of audio channels.

ACR N:6144		
ACR CTS:148487		
Packet Layout:Layout 0		
High Bit Rate:№		
Channel Status	Infoframe	
Audio Coding: LPCM	Stream Header	
Channel Count: 1		
Sampling Rate.KHz:48	Stream Header	
Sampling Size.Bit:24	Stream Header	
CHS.App Type:Consumer		
CHS.Source Number:8		
Info.Level Shift Value.d	B :0	
Info.Down-mix:Permitted		
Info.Speaker Placement:		
	'R FT.	

If an audio signal is not detected on the input, the In Audio Detection will indicate No Signal.

Use the [OPTION] button to trigger an HPD event.

System Setup

Pattern 45 (P45)

Built-in Rx EDID setup, IR remote address setup.

P45

System Setup

Sys Setup
$ - \cdot - $
12 A 12

When the System Setup pattern is selected, the display will appear as follows:



Press the [OPTION] button to bring up the following screen:



There are four options under the System Setup pattern. Use the ▲ or ▼ buttons to select the desired option. Press the [OPTION] button to accept the selection.

1 Copy OUT EDID to IN EDID

Copies the EDID from the device/display connected to the HD Pattern Signal Generator and stores it in a local buffer on the unit. The EDID can be uploaded to another output device.

WARNING: The EDID data is stored in volatile memory. Any power disruption will erase the contents of the buffer.

2 Copy IN EDID to OUT EDID

Copies the EDID data stored in the local buffer (using the Copy OUT EDID to IN EDID option), to the device connected to the output of the HD Pattern Signal Generator.

3 IR Remote Address

Changes the IR channel of the HD Pattern Signal Generator, when used with the IR Remote Control Unit. An IR Remote Control Unit is not included with this product at this time.

4 Exit

Returns to the first screen of the System Setup pattern.

The following table lists the available graphic and video timings used by the HD Pattern Signal Generator.

Timing Number	Timing
T01	640 x 480 @ 60 Hz
T02	640 x 480 @ 72 Hz
Т03	640 x 480 @ 75 Hz
T04	640 x 480 @ 85 Hz
T05	800 x 600 @ 56 Hz
T06	800 x 600 @ 60 Hz
Т07	800 x 600 @ 72 Hz
Т08	800 x 600 @ 75 Hz
Т09	800 x 600 @ 85 Hz
T10	1024 x 768 @ 60 Hz
T11	1024 x 768 @ 70 Hz
T12	1024 x 768 @ 75 Hz
T13	1024 x 768 @ 85 Hz
T14	1280 x 960 @ 60 Hz
T15	1280 x 960 @ 85 Hz
T16	1280 x 1024 @ 60 Hz
T17	1280 x 1024 @ 75 Hz
T18	1280 x 1024 @ 85 Hz
T19	1600 x 1200 @ 60 Hz
T20	1920 x 1200 @ 60 Hz
T21	720 x 480i @ 59 Hz
T22	720 x 480i @ 60 Hz
T23	720 x 480p @ 59 Hz
T24	720 x 480p @ 60 Hz
T25	1280 x 720p @ 59 Hz
T26	1280 x 720p @ 60 Hz
T27	1920 x 1080i @ 59 Hz
T28	1920 x 1080i @ 60 Hz
T29	1920 x 1080p @ 59 Hz
Т30	1920 x 1080p @ 60 Hz

Timing Number	Timing
T31	720 x 576i @ 50 Hz
T32	720 x 576p @ 50 Hz
Т33	1280 x 720p @ 50 Hz
T34	1920 x 1080i @ 50 Hz
Т35	1920 x 1080p @ 50 Hz
Т36	1920 x 1080p @ 23 Hz
Т37	1920 x 1080p @ 24 Hz
Т38	1366 x 768 @ 60 Hz
Т39	1366 x 768 @ 50 Hz

NOTE: Analog PC output (VGA) only supports VESA (VGA through WUXGA) timings. Analog HD output only supports SD / HD (480i, 480p, 576i, and 576p) timings. HDMI / DVI output supports all timings. Timings cannot be edited.

i

HD-SIGGEN Software

The HD Pattern Signal Generator can be controlled via RS-232 on a PC running Windows®, using the HD-SIGGEN software. The program is available for download on the Gefen Web site: http://www.gefen.com/kvm/support/download.jsp

Installing the Software

- 1. Unzip the archive file, containing setup.exe, SETUP.LST, and version.txt.
- 2. Run the setup.exe file by double-clicking on it.

🛃 setup.exe	2/22/2004 11:00 PM	Application
SETUP.LST	3/1/2011 1:39 PM	LST File
version.txt	3/1/2011 1:41 PM	Text Document

3. If the installer is running under Windows 7®, the following dialog may appear:

🚱 User Account	ontrol			
Do you want to allow the following program from an unknown publisher to make changes to this computer?				
Program Publishe File origi	name: setup.exe Unknown : Hard drive on this computer			
Show <u>d</u> etail	Yes No			
	Change when these notifications appear			

Click Yes to allow the installer to continue.

4. The installer will begin by copying the required installation files, to the hard drive:

Install	_	
	Copying Files, please stand by.	C ⁰

5. After the required files have been copied to the hard drive, the installer Welcome screen will appear:

1	HD-SIGGEN	l Setup		x
	P	Welcome to the HD-SIGG	EN installation program.	
	Setup cann Before proc be running.	ot install system files or u ceeding, we recommend th	pdate shared files if they are in us hat you close any applications you	e. I may
			\searrow	
		ОК	E <u>x</u> it Setup	

Click the OK button to continue with the installation.

Click the Exit Setup button to exit the installer.

NOTE: If the installer is cancelled, the installer will remove the files that were copied, earlier in the installation process.

HD PATTERN SIGNAL GENERATOR SOFTWARE

6. The destination directory can be changed. The default installation directory for Windows 7® is C:\Program Files(x86)\HD-SIGGEN. For other versions of the Windows® operating system, the default installation location will be C:\Program Files\HD-SIGGEN.

Click to install to the default director	e y
HD-SIGGEN Setup	
Begin the installation by clicking the button below.	software to the specified destination
Directory:	Change Directory
E <u>x</u> it Setup	
C	Click to change the

7. During the installation process, the following message will be displayed:



8. After the installer has successfully completed the installation process, the following message box will be displayed:



Click the OK button to dismiss the message box and exit the installer.

Connecting the RS-232 cable

Before launching the HD Pattern Signal Generator software, an RS-232 cable must be connected from the back of the HD Pattern Signal Generator to the computer which has the HD Pattern Signal Generator software installed.



Running the HD Pattern Signal Generator Software

1. Launch the HD Pattern Signal Generator Software by clicking on the application icon in the Windows® Start Menu:

The example below, shows the HD-SIGGEN application icon as it appears in the Windows 7 $\ensuremath{\mathbb{R}}$ Start Menu:

Recycle Bin Gefen		
<pre> ++++++++++++++++++++++++++++++++++++</pre>	+++ + +++	Documents Pictures Music Computer Control Panel Devices and Printers Default Programs
All Programs		Help and Support
Search programs and files	9	Shut down

After the HD Pattern Signal Generator is launched, the following screen will be displayed:



- Select the COM port from the pull-down list. COM port 1 is selected by default.
- 3. Click the Connect button to initialize the connection between the software and the HD Pattern Signal Generator.

If you are unable to connect to the HD Pattern Signal Generator, make sure that the correct COM port is selected in the software. The Disconnect button will turn red if the connection between the software and the HD Pattern Signal Generator cannot be established.



Selecting the Timing

- 1. Use the Timing Select button to select the timing / resolution of the output signal.
- 2. Press the SET button to set the timing.

Select the timing in the Timings window

HD-SIGGEN				RS232 Port	1		
Timing Select	3		Connect	Disconnect	COW	1: <u>•</u>	About
	Timings	_	T01 640x480-60) ———			
Pattern Select	T01 640x480-60		Select a timing in ti	ming table.			
	T02 040x400-72 T03 640x480-75		Press [SET] to uplo	ad the selec	cted timin	g to HD-S	SIGGEN.
Favorite Timing	T04 640x480-85		Horizontal				
	T05 800x600-56	_	Total	: 800	pix		
Favorite Pattern	100 800x000-00 T07 800v600-72	_	Active	: 640	pix		
	T08 800x600-75						
	T09 800x600-85		Pulse Delay	: 16	pix,	0.636	us
EDID Read/write	T10 1024x768-60	_	Pulse Width	: 96	pix,	3.813	us
	T12 1024x768-70	E					
Autorun Config	T13 1024x768-85	5	Polarity	: -			
	T14 1280x960-60		Frequence	: 31.469	KHz		
Panel Control	T15 1280x960-85	_					
	T17 1280v1024-00	_	Vertical-				
HD-SIGGEN OUT Status	T18 1280x1024-85		Total	: 525	line		
Pofrach	T19 1600x1200-60		Active	: 480	line		
	T20 1920x1200-60	_					
Timing :	121 720X4801-59 T22 720x480i-60		Pulse Delay	r: 10	line,	0.318	ms
T01 640×480-60	T23 720x480p-59		Pulse Width	: 2	line.	0.064	ms
Pattern :	T24 720x480p-60						
P15 SMPTE Bar	T25 1280x720p-59	_	Polarity	r: -			
Output Format :	T27 1920x120p-00	-	Frequence	: 59.940	Hz(fr	ame)	
HDMI	T28 1920x108i-60						
HDCP :	T29 1920x108p-59		Pixel Clock	25.175	MHz		SET
OFF	T30 1920x108p-60	+				_	

Retrieves the current settings

Click the SET button to enable the timing

NOTE: After changing a timing, pattern, the output format, or toggling HDCP, make sure to press the Refresh button on the left side of the window. The HD-SIGGEN Status window is not automatically updated, even if a change has been made through the software or using the front panel. Clicking the Refresh button will retrieve the current settings from the HD Pattern Signal Generator. Otherwise HD-SIGGEN Status window will display "Link Error".

Selecting the Pattern

- 1. Use the Pattern Select button to select the desired pattern.
- 2. Press the SET button to enable the pattern.



Click the SET button to enable the pattern



A "Link Error" message caused by the Refresh button not being pressed after connecting to the HD Pattern Signal Generator. Click Refresh to update the information.

Unique Patterns

Pattern 13 (ColorSetting) and Pattern 41 (Motion) can be selected from the top panel buttons on the HD Pattern Signal Generator. However, they provide addition parameters which can only be modified using the HD-SIGGEN software.

Color Setting

- 1. Select the ColorSetting pattern (P13).
- 2. Press the Download button to retrieve current color settings of the ColorSetting pattern.



- 3. Adjust the Red, Green, Blue, and Grey sliders to render the desired color.
- 4. Press the SET button to upload the current settings to the ColorSetting pattern.

HD-SIGGEN		
Timing Select		Connect Disconnect COM1: About
Pattern Select	Patterns ^ P01 WHITE	P13 ColorSetting Select a pattern in pattern table.
Favorite Timing	PO3 RED PO4 MAGENTA PO5 GREEN	Press [SE1] to upload the selected pattern to HD-SIGGEN. Press [Download] to get HD-SIGGEN's Color Settings.
Favorite Pattern	P06 CYAN P07 YELLOW P08 BLACK	Download
EDID Read/Write	P09 RED Setting P10 GRN Setting P11 BLUE Setting	Red 212
Autorun Config	P12 GRAY Setting P13 ColorSetting P14 COLOR BAR	Green 133
Panel Control	P15 SMPTE Bar P16 Split Bar P17 PGB Delay	Blue 212 • • • • • • • • • • • • • • • • • •
- HD-SIGGEN OUT Status	P18 GRAY-8	
Refresh	P19 GRAY-11	
Taning	P21 GRAY-32	
rinning .	P22 H.GRAY-11	
Dattorn :	P23 V Line ONOFF	
Link Error	P25 MULTI-BURST	
Output Format :	P26 Dual Needle	
Suppler office .	P27 PLUGE-1 P28 PLUGE 2	
HDCP ·	P29 PLUGE-3	PET .
	P30 PLUGE-4	SET
	LOST DI LICER S	
	Use the slid	lers to Click the SET button
	adjust the	e color to upload the new color settings

Unique Patterns

Pattern 13 (ColorSetting) and Pattern 41 (Motion) can be selected from the top panel buttons on the HD Pattern Signal Generator. However, they provide addition parameters which can only be modified using the HD-SIGGEN software.

Motion

- 1. Select the Motion pattern (P41).
- 2. Press the Download button to retrieve current color settings of the Motion pattern.

By default, the Motion pattern uses a block shape for the pattern.

Click the Download button to retrieve the current Motion pattern settings

🖙 HD-SIGGEN						Ŀ	_ 0 <mark>_ X</mark>
1			-	- RS232 Port -		_	
Timing Select			Connect	Disconnect	COM1:	•	About
	Patterns		-P41 Motion				
Pattern Select	P13 ColorSetting		Select a pattern	in pattern table.			
	P15 SMPTE Bar		Press [SET] to u Press [Download	upload the select d1 to get HD-SIG	ted pattern t GEN's custo	o HD-SI om strin	GGEN.
Favorite Timing	P16 Split Bar		11000 [2011100	aj to got no oro	02.10 0000		9
	P17 RGB Delay P18 GRAY-8	\searrow	Download				
Favorite Pattern	P19 GRAY-11		Custom String	a	Up	load	
	P20 GRAY-32 P21 GRAY-256			·			
EDID Read/Write	P22 H.GRAY-11						
	P23 V Line ONOFF						
Autorun Config	P25 MULTI-BURST						
	P26 Dual Needle						
Panel Control	P27 PLUGE-I P28 PLUGE-2						
	P29 PLUGE-3						
- HD-SIGGEN OUT Status	P30 PLUGE-4	E					
Refresh	P32 GRID-1						
Timina ·	P33 CROSS HATCH						
······g·	P34 GRAY-256-R						
Dattorn :	P35 GRAY-200-0						
Link Error	P37 CIRCLES						
Output Formation	P38 EDID						
Output Format :	P39 AUDIO						
	P40 HDCP						
HDCP :	P42 IN Timing						SET
	DA2 INI Video	-					

- 3. A custom string, up to 12 characters in length, can be entered in the Custom String field.
- 4. Click the Upload button to update the HD Pattern Signal Generator with the new pattern.

🖙 HD-SIGGEN			x
		RS232 Port	
Timing Select		Connect Disconnect COM1: About	ıt
Pattern Select	Patterns ^ P16 Split Bar P17 RGB Delay	P41 Motion Select a pattern in pattern table.	
Favorite Timing	P18 GRAY-8 P19 GRAY-11 P20 GRAY-32	Press [SE 1] to upload the selected pattern to HD-SIGGEN. Press [Download] to get HD-SIGGEN's custom string	
Favorite Pattern	P21 GRAY-256 P22 H.GRAY-11 P23 V Line ONOFF	Download Custom String How are you? Upload	
EDID Read/Write	P24 H line ONOFF P25 MULTI-BURST P26 Dual Needle		
Autorun Config	P27 PLUGE-1 P28 PLUGE-2 P29 PLUGE-3		
Panel Control	P30 PLUGE 4 P31 PLUGE-5 P32 GRID-1		
HD-SIGGEN OUT Status	P33 CROSS HATCH		
Refresh	P34 GRAY-256-R		
	P35 GRAY-256-G		
Timing :	P37 CIRCLES		- 11
	P38 EDID		- 11
Pattern :	P39 AUDIO		
P41 Motion	P41 Motion		- 11
Output Format :	P42 IN Timing		- 11
HDCP :	P43 IN Video P44 IN Audio P45 System Setup	SET	
	Use the slider	s to A custom	
	adjust the e	olor message can be	
	aujust the c		
		added nere	
		A custom message	
		can be added here	

5. Click the SET button to save the existing settings to the Motion pattern.

Favorite Timing

A list of favorite timings can be assembled and stored in the HD Pattern Signal Generator. The [FAV] button, on the front panel, can then be used to cycle through the list of timings that is created.

1. In the Timings window, place a check mark in the boxes of the timings to be added to the Favorites list.

Use the Check All button to select all the timings in the Timings window. Use the Check None button to deselect any or all currently selected timings.

 Press the SET button to upload the selected Timings to the HD Pattern Signal Generator. The list of Favorite will be available using the [FAV] button on the front panel of the HD Pattern Signal Generator.

Use the Download button to download and edit the Favorite timings on the HD Pattern Signal Generator.



Favorite Pattern

A list of favorite patterns can be assembled and stored in the HD Pattern Signal Generator. The [FAV] button, on the front panel, can then be used to cycle through the pattern list that is created.

In the Patterns window, place a check mark in the boxes, next to the timings to be added to the Favorites list.

Use the Check All button to select all the timings in the Patterns window. Use the Check None button to deselect any or all selected patterns.

1. Press the SET button to upload the selected Patterns to the HD Pattern Signal Generator. The list of Favorite will be available using the [FAV] button on the front panel of the HD Pattern Signal Generator.

Use the Download button to download and edit the Favorite patterns on the HD Pattern Signal Generator.



EDID Read / Write

The HD Pattern Signal Generator has the ability to read EDID data. EDID data can also be saved, loaded, written, erased, compared, interpreted, and summed. Each of these features will be covered in this section. Clicking the EDID Read / Write button will display the following screen:

🖙 HD-SIGGEN				
1				
Timing Select		Connect	Disconnect COM1:	About
	EDID Read / Write			
Pattern Select	WRITE	Bourde . · Hommon o	READ	
Favorite Timing	Pre-F		READ	
	OPEN		COMP	
Favorite Pattern	MOITE			
	VVRITE	т		
EDID Read/Write	VERIFY	Ţ		
Autorun Config	AUTO			
Panel Control	ERASE			
- HD-SIGGEN OUT Status				
Refresh				
Timing :	1		1	
Link Error	IRANS		IRANS	
Pattern :	SUM		SUM	
Output Format :	SAVE		SAVE	
	CLEAR		CLEAR	
HDCP :	Checksum BK0	BK1	Checksum BK0	BK1
	Therease			

Reading EDID

1. Select the Source by clicking one of the three radio buttons at the top portion of the screen.



EDID can be read from a downstream sink (display, etc) or from the EDID stored in the HD Pattern Signal Generator. Click HDMI/DVI Out or VGA Out to read the downstream EDID. Click the HDMI / DVI In radio button to read the EDID stored in the HD Pattern Signal Generator.

READ button

In this example, the EDID is being read from the display connected to the HD Pattern Signal Generator.

1. Click the READ button on the READ Panel.

HD-SIGGEN			RS232 Port	
Timing Select		Conr	ect Disconnect	COM1: About
Pattern Select	EDID Read / Writ	e Source : 🔹 HDMI	DVI OUT C HDMI/DVI IN READ Reading	← VGA OUT ng HDMI/DVI-OUT's edid
Favorite Timing	Pre-F		•REAN	
Favorite Pattern	OPEN		COMP	
EDID Read/Write	VERIFY			
Autorun Config	AUTO			
Panel Control	ERASE			
HD-SIGGEN OUT Status Refresh				
Timing : Link Error	TRANS		TRANS	
Pattern : Link Error	SUM	1	SUM	Ť
Output Format :	SAVE		SAVE	
HDCP :	CLEAR		CLEAR	
	Checksum BK0	ВК1	Checksum BK0	BK1

The READ and COMP (compare) functions are only available under the READ panel. The Pre-F, OPEN, WRITE, VERIFY, AUTO, and ERASE function are only available under the WRITE panel.

The TRANS, SUM, SAVE, and CLEAR functions are available under both the WRITE and READ panels.

NOTE: Disabled buttons, under the WRITE or READ panel, will become active when EDID data is loaded into the associated panel.

2. If the EDID is read successfully, the EDID will appear in the READ Panel:

1			- RS232 Port	100		
Timing Select		Connect	Disconnect	COM1:	-	About
Detter Calant	EDID Read / Write	Source : • HDMI/DVI DI		N C VGA (рит	
Pattern Select	WRITE		READ 00 F	F FF FF FF	FF FF 0	0 //7
Favorite Timing	Pre-F		REA 32 1 32 9	A 65 00 00 3 01 03 80 0 85 A3 58	33 1D 7 53 9F 2	8 //17 6 //1F
	OPEN		COMP 0F 5	0 54 25 CE 1 01 01 01	00 01 0	1 //27 1 //2F
Favorite Pattern	WRITE	-	80 1	8 71 38 2D 0 FD 1E 11	40 58 2 00 00 1	E //37
EDID Read/Write	VERIFY		00 0	0 00 FD 00 F 00 0A 20	38 4C 1 20 20 2 FC 00 5	F //4F 0 //57 6 //5F
Autorun Config	AUTO		4D 3 20 2	2 33 30 58 0 20 20 00	56 54 0 00 00 F	A //67 F //6F
	ERASE		30 3	C 49 49 49 6 35 31 33	47 43 4 OA 01 E	1 //77 A //7F
Panel Control			02 0	3 1C 71 48 2 07 06 01	90 05 0 23 11 0	4 //87 7 //8F
-HD-SIGGEN OUT Status			50 8 00 2	3 01 00 00 0 00 00 02	66 03 0 3A 80 1	C //97 8 //9F
Refresh			71 3 FD 1	E 11 00 00	1E 01 1	D //AF
Timing : Link Error	TRANS		TRANS	0 FD 1E 11 A D0 8A 20	00 00 1 E0 2D 1	E //BF 0 //C7
Pattern :	SUM		SUM 10 3 16 2	E 96 00 FD 8 01 1D 80 0 58 2C 25	1E 11 0 18 71 1 00 FD 1	0 //CF C //D7 E //DF
Output Format :	SAVE		SAVE 000 0	0 00 9E 00 0 00 00 00	00 00 0	0 //E7 0 //EF
UDOD .	CLEAR	Ĩ	CLEAR 00 0	0 00 00 00	00 00 9	4 //FF

Translating the EDID

After the EDID has been read, it can be translated into verbose form by clicking the TRANS (Translate) button in the READ panel:



The Translate [Read] EDID screen:

HD-SIGGEN					
Timing Select	C	onnect	Disconnect CO	OM1: ▼	About
Pattern Select	Translate [Read] EDID Back to [EDID Read/Write]	Repo	rt		
Favorite Timing	Block 0: VESA Basic Block	Block	0 is VESA Basic r = 00 FF FF FF	Block FF FF FF 00	^
Favorite Pattern	Vendor/Product Id Basic Display Parameters Color Characteristics				
EDID Read/Write	Established Timings Standard Timings Detail Timings/Monitor Descriptors				
Autorun Config	Block 1: CEA 861 Block				
Panel Control	Data Block Collection Detail Timings Extended				
HD-SIGGEN OUT Status Refresh					
Timing : Link Error			I		
Pattern : Link Error					
Output Format :					
HDCP :					~
10 m					

Clicking on the one of the items in the panel on the left, will display the information in the panel on the right. Some items will have a [+] symbol next to them, indicating that additional information is available for that section:

Translate [Read] EDID	
Back to [EDID Read/Write]	Report
Block 0: VESA Basic Block Binary List Vendor/Product Id Basic Display Parameters Color Characteristics Established Timings Standard Timings 1,2,3 Standard Timings 4,5,6	Block 0 is VESA Basi Header = 00 FF FF FF
Standard Timings 7,8	

Click the [+] button to expand any section where additional information is present. In the example below, the [+] button has changed to a [-] symbol after the Standard Timings section has been expanded:



The information about the Standard Timing 1, Standard Timing 2, and Standard Timing 3 is listed in the panel on the right.

Generating an EDID Report

Clicking the Report button can be used to save the verbose form of the EDID to a file:



The EDID Report window is shown below. Click the Save button to save the file in .TXT format. Click the Exit button to return to the Translate EDID screen.

_			_		- 132321	
🛥 EDID F	leport					~
EDID #	Analysis R	eport				
2:13:3	34 PM 5/6/	2011				
						=
00 EE	Block 0:	VESA B	asic Blo	ock		
100 FF	FF FF FF	FF FF 0	0 //7			
2F 14	07 11 01	00 00 0	0 //r 8 //17			
0A 1E	AC 98 59	56 85 2	8 //1F			
29 52	57 FF FF	80 A9 4	0 //27			
01 01	01 01 01	01 01 0	1 //2F			
01 01	01 01 01	01 8C 0	A //37			
DO 8A	20 E0 2D	10 10 3	E //3F			
96 00	81 60 00	00 00 1	8 //47			
01 1D	80 18 71	1C 16 2	0 //4F			
58 2C	25 00 81	49 00 0	0 //57			
00 9E	00 00 00	FC 00 4	8 //5F			
44 2D	53 49 47	47 45 4	E //67			
0A 20	20 20 00	00 00 F	D //6F			
00 17	3D OD 2E	11 00 0	A //77			
20 20	20 20 20	20 01 F	0 ///1			
Ve	ndor/Prod	uct. Ide	ntificat	tion	_	
Manufa	acturer Na	me = GE	F			
Produc	t Code =	4359				
Serial	Number =	1				
Week o	of Manufac	ture =	47			
Year o	of Manufac	ture =	2010			
EDID V	/ersion =	1.3				
V1	laeo input	Derini	tion	-		
DED 1	r - Not C	igitai ommotib	1			
DrP 1.	x - NOU C	ompacip	Te			
Ва	asic Displ	ay Para	meters -			
Max Ho	orizontal	Size(cm) = 12			
Max Ve	ertical Si	ze (cm)	= 9			
Gamma	Value = 2	.20				÷
		. 1		1		
	:	Save	Exit			

Generating the EDID Checksum

Once an EDID has been read or loaded into the HD Pattern Signal Generator, a checksum can be generated.

- 1. Read or load an EDID file into the HD Pattern Signal Generator.
- 2. Click the SUM button under the READ panel.

A HD-SIGGEN				
1				
Timing Select		Connect	Disconnect CC	M1: About
Pattern Select	EDID Read / Write Sou	irce : 🗭 HDMI/DVI O		VGA OUT
Favorite Timing	Pre-F		REA 32 13 01 32 90 85	03 80 33 1D 78 //17 A3 58 53 9F 26 //1F
Favorite Pattern	OPEN		COMP 01 01 01 01 01 01 01 01 01 80 18 71	25 CL 00 01 01 01 //2F 01 01 01 01 01 01 //2F 01 01 01 02 3A //37 38 2D 40 58 2C //3F
EDID Read/Write	VERIFY		48 00 1D 00 00 00 52 0F 00 20 20 00	FD 10 00 00 1E //47 FD 00 38 4C 1F //4F DA 20 20 20 20 20 //57 D0 00 FC 00 56 //5F
Autorun Config	AUTO		4D 32 33 20 20 20 00 4C 49 30 36 35	20 00 00 00 FF //6F 49 49 47 43 41 //77 31 33 05 01 F5 //7F
Panel Control	ERASE		02 03 1C 03 02 07 50 83 01	71 48 90 05 04 //87 06 01 23 11 07 //8F 00 00 66 03 0C //97
- HD-SIGGEN OUT Status Refresh			00 20 00 71 38 2D FD 1E 11 00 72 51	00 02 3A 80 18 //9F 40 58 2C 25 00 //A7 00 00 1E 01 1D //AF D0 1E 20 6E 28 //B7
Timing : Link Error	TRANS		TRANS 55 00 FD 8C 0A D0 10 3E 96	1E 11 00 00 1E //BF BA 20 E0 2D 10 //C7 D0 FD 1E 11 00 //CF
Pattern : Link Error	SUM	C	• SUM 00 18 01 16 20 58 11 00 00	1D 80 18 71 1C //D7 2C 25 00 FD 1E //DF 9E 00 00 00 00 //E7
Output Format :	SAVE		SAVE 00 00 00 00 00 00	00 00 00 00 00 00 //EF 00 00 00 00 00 //F7
HDCP :	CLEAR	DI//	CLEAR CLEAR	DV1-04 Correct
	Cilecisum DAU		Checksum BK0=EA CO	ed. DK1-34 Collect.

Click the SUM button to generate the EDID checksum

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 The EDID Checksum dialog will be displayed. Select the method of how unused bytes will be calculated into the checksum by clicking either the 0x00 or 0xFF radio button.

Select how unused bytes will be used in calculating

Fourite Tioning										
Fauraita Timina										
Faurarita Tinzina	1									
Favorite Timing	Pre-F		READ	32 1: 32 9	8 01 0 85	03 A3	80 : 58 :	33 1I 53 9I	26	//17 //1F
Equarita Pattara	OPEN	DID	0.000		01	01	01 01	01 01 01 02	01 01 3A	//2T //2F //37
	WRITE	[READ] Checksum of program	mer	0 1	9 1 1 1 1 1	38 1E	2D -	40 58	2C 1E	//3F //47
EDID Read/Write	VERIFY	EEPROM Size 8 KBits (1024	Bytes) 🔻	0		FD OA	20 :	38 40 20 20	1F	//4F //57
Autorun Config	AUTO	Show lower 4 digits of checksum	F only	2	33	30 20	58 1	56 54	0A FF	//67 //6F
	ERASE			3	35 35	49 31	49 · 33 ·	47 43 OA 01	41 EA	//77 //7F
Panel Control				0	1C 07	71 06	48 :	90 05 23 11	04	//87 //8F
HD-SIGGEN OUT Status	- 1	CHECKSUM		2	00	00	00 02 0	66 03 3A 80	0C	//97 //9F
Refresh		EXIT		11	11	00	00 : 1E :	1E 01 20 6E	1D 28	//AF //B7
Timing : Link Error	TRANS		TRANS	8C 0	D FD	1E 8A	11 1 20 1	00 00 E0 21	1E 10	//BF //C7
Pattern :	SUM		SUM	10 31	96 01 58	00 1D 2C	FD : 80 : 25 :	1E 11 18 71 00 FI	00 1C 1E	//CF //D7 //DF
Output Format :	SAVE		SAVE	11 0	00 00	9E	00		00	//E7 //EF
HDCD -	CLEAR		CLEAR	00 0	0 00	00	00	00 00	94	//FF
	Checksum I	, ЭКО ВК1	Checksum E	3K0=E	A Co	rrect	L E	3K1=9	4 C 0	rrect.

4. Adjust the EEPROM size, if necessary, by selecting it from the EEPROM Size drop-down list: 256, 512, 1024, or 2048 bytes.

	OPEN	DID					0 54	25	01	00 0	1 01 1 01	//27 //2F	
Favorite Pattern		- [READ] Che	cksum of p	ooram	mer N		1 01	01 38	01 2D	01 0 40 5	2 3A 8 20	//37 ://3F	
	WRITE	[INCAD] ONC	chourn or pr	ogran	the he	1 0	O FE	1E	11	00 0	0 18	1/47	
		EEPROM Size	8 KBits (1024	Bytes) 🔻	0 0	0 00	FD	00	38 4	C 18	F //4F	
EDID Read/Write	VERIEN		2 VPita/	256	Puton)	0	F 00	0A	20	20 2	0 20	//57	
1		Unused Bytes	2 KDIUS(E10	Bytes)) 2	0 00	00	00	FC 0	0 56	5 //5F	
	41170		4 KBIUS (512	Byces)	03	2 33	30	58	56 5	4 07	1/67	
Autorun Config	AUTU	Show lower	5 KBIUS	1024	bytes)	2	0 20	20	00	00 0	O FE	//6F	
			16 KBits(2048	Bytes)	4	C 45	49	49	4/ 4	3 41	1/11	
	ERASE					3	0 35	31	33	UAU	I BR	1//12	
Papel Control							2 10	71	40	90 0	5 04	1/97	
T and Control							2 07	06	01	23 1	1 07	//8F	
		OUFOVOUM	1			8	3 01	00	00	66 0	3 00	: //97	
- HD-SIGGEN OUT Status		CHECKSUM				2	0 00	00	02	SA B	0 18	1/9F	
						. 3	8 20	40	58	2C 2	5 00	//A7	
Refresh				1		0 1	E 11	00	00	1E 0	1 10) //AF	
			EXIT			17	2 51	DO	1E	20 6	E 28	3 //B7	
Timing :		_	-	_		ہ زا	O FE	1E	11	00 0	0 15	1/BF	
Link Error	TRANS			_	TRANS	8C 0	A DO	8A	20	E0 2	D 10) //C7	
Ellik Ellor						10 3	E 96	00	FD	1E 1	1 00) //CF	
Pattern :	SUM				SUM	00 1	8 01	1D	80	18 7	1 10	C //D7	
Link Error	00111				00111	16 2	0 58	2C	25	00 F	D 1E	1/DF	
Entre Entre						11 0	0 00	9E	00	00 0	0 00) //E7	
Output Format :	SAVE				SAVE	00 0	0 00	00	00	00 0	0 00	//EF	
						00 0	0 00	00	00	00 0	0 00	1//E7	
HDCD .	CLEAR				CLEAR	00 0	0 00	00	00	00 0	0 94	. //22	
HDOI .	Checksum	BK0	BK1		Checksum E	BK0=I	EAC	orrec	t.	BK1=	94 C	orrect.	11
							_						

5. Click the CHECKSUM button to generate the EDID checksum.

	OPEN	DID	=12	29 52 57 FF FF 80 A9 40 //27 01 01 01 01 01 01 01 01 //2F
Favorite Pattern	WDITE	[READ] Checksum of programmer		8A 20 E0 2D 10 10 3E //3F
EDID Read/Write		EEPROM Size 8 KBits (1024 Bytes)	-	. 1D 80 18 71 1C 16 20 //4F
	VERIFY	Unused Bytes O 0x00 @ 0xFF		9E 00 00 00 FC 00 48 //5F
Autorun Config	AUTO	Show lower 4 digits of checksum only		20 20 20 00 00 00 FD //6F
	ERASE			20 20 20 20 20 20 01 F0 //7F
Panel Control				: 03 43 71 4D 82 05 04 //87 . 10 11 14 13 1F 06 15 //8F
HD-SIGGEN OUT Status		CHECKSUM 0x3600		12 3B 0F 7F 07 17 1F //97 1 1F 07 30 2F 07 72 3F //9F
Refresh		EXIT		72 4F 7F 00 57 7F 00 //A7 F 7F 01 47 7F 72 83 4F //AF
Timing :	TRANG			00 10 00 B8 2D 00 00 //BF
	TRANS			DO 1E 20 6E 28 55 00 81 //CF
Pattern :	SUM	SUM	4	49 00 00 00 1E D6 09 80 //D7 A0 20 E0 2D 10 10 60 A2 //DF
Output Format :	SAVE	SAVE		00 81 60 00 08 08 18 8C //E7 0A D0 90 20 40 31 20 0C //EF 40 55 00 81 60 00 00 00 //F7
HDCP :	CLEAR	CLEA	1 ۲	18 00 00 00 00 00 00 28 //FF
	Checksum	BK0 BK1 Checks	ım Bl	3K0=F0 Correct. BK1=28 Correct.

By default, the checksum will be restricted to the lower 4 digits. This feature can be disabled unchecking the *Show lower 4 digits of checksum only* box.

			. 01 0
		READ Checksum of programmer) 8A 2
	RILE		5 00 B
	-	EEPROM Size 8 KBits (1024 Bytes) 🔻	. 1D 8
			2C 2
	RIFT	Linused Bytes C. 000 G. 0) 9E 0
	-	Chased Bytes (0x00 (0xFF	2D 5
	UTO.	Show lower 4 digits of checksum only	20.2
	010		17 3
([20.2
	ASE		20 2
			03 9
			10 1
		CHECKSUM 0x3600	3 12 3
			3 1F 0
			72 4
L			7 7 7 7
		 Uncheck to disable 	
		truncation of checksum	

In the example above, if the checksum were calculated by disabling the *Show lower 4 digits of checksum only* feature, the result would be 0x33600.

Saving an EDID to a File

Any EDID can be saved to a file, once it has been read into the HD Pattern Signal Generator.

1. Once an EDID has been read, click the SAVE button.

Timing Select Connect Disconnect COM1: About Pattern Select Favorite Timing FF	➢ HD-SIGGEN					
Timing Select Disconnect COM1: About Pattern Select EDID Read / Write Source: @ HDM//DVI OUT CHOM//DVI IN CVGA OUT Favorite Timing Pre-F OPEN Source: @ HDM//DVI OUT CHOM//DVI IN CVGA OUT Favorite Timing Pre-F OPEN Source: @ HDM//DVI OUT CHOM//DVI OUT CHOM//DVI IN CVGA OUT Favorite Pattern WRITE Pre-F OPEN COMP 0.0 0 FD 0.03 3.10 7.12 (0.0 0.0 1.12 (0.1 0.0 1.0 1.12 (0.1 0.0 1.0 1.12 (0.1 0.0 1.0 1.12 (0.1 0.0 1.0 1.0 1.0 1.12 (0.1 0.0 1.0 1.12 (0.1 0.0 0.0 0.12 (0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	1			RS23	2 Port	
Pattern Select EDID Read / Write Source : @ HDM/DVI DUT C HDM/DVI IN C VGA DUT Favorite Timing Pre-F 00 FF F	Timing Select		Connect	Discor	nect COM1:	✓ About
Pattern Select WRITE Favorite Timing Pre-F OPEN Quite 1: 0: 4000,000 100 100 000 000 000 000 000 000		EDID Read / Write				
Favorite Timing Pre-F Pre-F Pre-F OPEN S3 33 0.0 30 5.3 35 0.5 39 35 0.7 67 //17 Favorite Pattern OPEN COMP 0.1 0.0 1.0 0.0 1.0 0.1 //27 OPEN WRITE COMP 0.1 0.0 1.0 0.0 1.0 0.1 //27 Favorite Pattern WRITE COMP 0.1 0.0 1.0 0.0 1.0 0.1 //27 WRITE VERIFY AUTO 50 54 25 65 0.0 0.0 1.0 0.1 1.77 Autorun Config AUTO AUTO 50 54 25 65 56 0.0 0.5 0.0 0.77 Panel Control ERASE 71 48 90 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Pattern Select	WOTT	Source: • HDMI/DVI U		1/DVI IN (VGA	UUI
Favorite Timing Pre-F GPEN 0 Pen F OPEN 0 OPEN WRITE 0 OPEN VERIFY Autoru Autoru 0 OPEN Autoru 0 OPEN ERASE 0 OPEN Paale Control 0 OPEN Frans 0 OPEN Traing : TRANS Link Error SUM Output Format : SAVE Checksum BKO BK1		WRITE		READ	59 3A 65 00 00	00 00 00 //F
Pavorite Pattern OPEN WRITE COMP EDID Read/Write WRITE VERIFY Autorun Config Autorun Config AUTO Franci Control ERASE HD:SIGGEN OUT Status Franci Status Refresh TRAINS Timing : TRAINS Link Error SUM Pattern : SUM SUM SUM SAVE SAVE Output Format : CLEAR HDCP : Checksum BKO	Favorite Timing	Pre-F		READ	32 13 01 03 80 32 90 85 A3 58	33 1D 78 //17 53 9F 26 //1F
Favorite Pattern OPEN WRITE WRITE EDID Read/Write VERIFY Autorun Config AUTO Panel Control ERASE HD-SIGGEN DUT Status ITRANS Refresh TRANS Timing : Link Error TRANS SUM SAVE Output Format : SAVE AUECP : CLEAR BUM BK1 Checksum BKO BK1		0051		00140	OF 50 54 25 CE	00 01 01 //27
WRITE WRITE EDID Read/Write VERIFY Autorun Config AUTO Panel Control AUTO FBD-SIGGEN DUT Status FB 512 47 38 20 40 58 20 //37 20 20 20 20 20 00 00 FF //6F Panel Control ERASE HD-SIGGEN DUT Status FTRANS Refresh Traing : Link Error TRANS SUM SUM Link Error SUM SAVE SAVE CLEAR SAVE CLEAR SAVE CLEAR BAIL CLEAR BK1	Favorite Pattern	OPEN		COMP	01 01 01 01 01 01	01 02 3A //37
EDID Read/Write VERIFY Autorun Config VERIFY Autorun Config AUTO Panel Control ERASE HO:SIGGEN OUT Status Refresh Timing : Link Error TRANS Pattern : Link Error SUM SUM SUM SUM SUM CLEAR SAVE CLEAR SAVE CLEAR EAUE CLEAR BK1		WRITE			80 18 71 38 2D 45 00 FD 1E 11	40 58 2C //3F 00 00 1E //47
Autorun Config VERFY Autorun Config Autorun Config Panel Control ERASE HD-SIGGEN DUT Status ERASE Refresh Timing : Link Error Tatter : Link Error SUM SUM SUM SUM SUM SUM SUM Link Error SUM CLEAR SUM CLEAR SAVE CLEAR BK1	EDID Read/Write				00 00 00 FD 00	38 4C 1F //4F
Autorun Config AUTO Panel Control ERASE HD-SIGGEN OUT Status ERASE Timing : Link Error Patern : SUM SUM SUM SUM SUM CLEAR SAVE CLEAR SAVE CLEAR SAVE CLEAR SAVE CLEAR BK1	Loid Hour Hite	VERIFY			20 20 00 00 00	FC 00 56 //5F
Autorun Coning 0 4 C 49 49 49 47 43 41 //77 Panel Control 0 3 6 38 31 33 0A 01 EA //77 HD-SIGGEN OUT Status 0 3 0 0 01 EA //75 Refresh 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	A 4 - 0 - 5	AUTO 1			4D 32 33 30 58 20 20 20 20 00	56 54 0A //67
Panel Control ERASE HD:SIGGEN OUT Status 0 36 35 31 3 04 01 EA //75 Refresh 0 30 00 00 00 00 00 00 00 00 00 00 00 00	Autorun Config				00 4C 49 49 49	47 43 41 //77
Panel Control PAnel Control		ERASE			30 36 35 31 33	0A 01 EA //7F
HD-SIGGEN OUT Status Refresh Timing : Link Error Pattern : Link Error SUM SUM SAVE Output Format : HDCP : CLEAR Exeksum BK0 BK1	Panel Control				02 03 1C 71 48	90 05 04 //87
HD:SIGGEN OUT Status Refresh Timing : Link Error Pattern : Link Error Output Format : SAVE CLEAR CLEAR Checksum BK0 BK1					50 83 01 00 00	66 03 0C //97
Refresh Tming: Trans Trans Link Error SUM Trans SUM Pattern : SUM SUM SUM Unput Format : CLEAR SAVE SAVE HDCP : Checksum BK0 BK1 Checksum BK0-EA Correct BK1=94 Correct	- HD-SIGGEN OUT Status				00 20 00 00 02	3A 80 18 //9F
Timing : TRANS Link Error TRANS SUM SUM Link Error SUM Output Format : CLEAR HDCP : CLEAR Checksum BK0 BK1	Refresh				FD 1E 11 00 00	1E 01 1D //AF
TRANS TRANS Link Error SUM Pattern : SUM Link Error SUM Output Format : SAVE HDCP : Checksum BK0	Timing				00 72 51 D0 1E	20 6E 28 //B7
Link Error SUM I 382 96 00 75 112 11 00 //CF Jink Error SUM SUM SUM Joint Format : SAVE SAVE SAVE HDCP : CLEAR CLEAR CLEAR CLEAR	Link Enne	TRANS		TRANS	8C 0A DO 8A 20	E0 2D 10 //C7
SUM SUM <td>LINK Error</td> <td></td> <td></td> <td></td> <td>10 3E 96 00 FD</td> <td>1E 11 00 //CF</td>	LINK Error				10 3E 96 00 FD	1E 11 00 //CF
Link Error Output Format : HDCP : CLEAR Checksum BK0 BK1 Checksum BK0 BK1 Checksum BK0 BK1 Checksum BK0 CLEAR Checksum BK0 CLEAR	Pattern :	SUM		SUM	00 18 01 1D 80	18 71 1C //D7
Output Format : SAVE SAVE Output Format : SAVE Output Format : SAVE Output Format : Output Format : CLEAR Output Format : Outpu	Link Error				11 00 00 9E 00	00 00 00 //E7
HDCP : CLEAR	Output Format :	SAVE	C	 SAVE 	00 00 00 00 00	00 00 00 //EF
HDCP : Checksum BK0 BK1 Checksum BK0=EA Correct. BK1=94 Correct.		CLEAR		CLEAR	00 00 00 00 00	00 00 94 //FF
Checksum BK0 BK1 Checksum BK0=EA Correct. BK1=94 Correct.	HDCP :]	
		Checksum BK0	BK1	Checksum	BK0=EA Correct.	BK1=94 Correct.

Click the SAVE button to save the EDID to a file.

2. The Save EDID file dialog box will be displayed:

Droanize w New told	lor				8::: -	0	0		About
Develoads		^			·			ашт	
Downloads	Name		Da	te modified	13	pe		EF FF	00 //7
Kecent Places		11.5						00 00	00 //F
		No items	match your sear	rcn.				33 1D	78 //17
词 Libraries								53 9F	26 //1F
Documents								00 01	01 //27
N Music								01 02	3A //37
								40 58	2C //3F
E Pictures								00 00	1E //47
Videos								38 4C	1F //4F
								20 20	20 //57
								56 54	01 //67
Computer								00 00	FF //GF
🏭 OS (C:)								47 43	41 //77
🙀 andrew (\\filesen	20							0A 01	EA //7F
	•						-	00.05	04 (107
	-						-	23 11	07 //8F
File name:							2	66 03	OC //97
File name:									
File name: Save as type: *.hex							•	3A 80	18 //9F
File name: Save as type: .hex							•	3A 80 2C 25	18 //9F 00 //A7
File name: Save as type: *.hex						1	•	3A 80 2C 25 1E 01	18 //9F 00 //A7 1D //AF
File name: Save as type: <u>*.hex</u>				Save	Can	cel	•	3A 80 2C 25 1E 01 20 6E 00 00	18 //9F 00 //A7 1D //AF 28 //B7 1E //BF
File name: Save as type: <u>*.hex</u>				Save	Can	cel	•	3A 80 2C 25 1E 01 20 6E 00 00 E0 2D	18 //9F 00 //A7 1D //AF 28 //B7 1E //BF 10 //C7
File name: Save as type: *.hex				Save	Can	cel 96 0	•	3A 80 2C 25 1E 01 20 6E 00 00 E0 2D 1E 11	18 //9F 00 //A7 1D //AF 28 //B7 1E //BF 10 //C7 00 //CF
File name: Save as type:	SUM		6	Sum	Can 10 3E 00 18	cel 96 0 01 1	• 00 FD 1D 80	3A 80 2C 25 1E 01 20 6E 00 00 E0 2D 1E 11 18 71	18 //9F 00 //A7 1D //AF 28 //B7 1E //BF 10 //C7 00 //CF 1C //D7
File name: I Save as type: *.hex	SUM		1	Save	Can	cel 96 0 01 1 58 2	• 00 FD 1D 80 2C 25	3A 80 2C 25 1E 01 20 6E 00 00 E0 2D 1E 11 18 71 00 FD	18 //9F 00 //A7 1D //AF 28 //B7 1E //BF 10 //C7 00 //CF 1C //D7 1E //DF
File name: 1 Save as type: *.hex	SUM		Ç3	Save	Can 10 3E 00 18 16 20 11 00 00 00	96 0 01 1 58 2 00 5	• 00 FD 10 80 20 25 92 00 00 00	3A 80 2C 25 1E 01 20 6E 00 00 E0 2D 1E 11 18 71 00 FD 00 00 00 00	18 //9F 00 //A7 1D //AF 28 //B7 1E //BF 10 //C7 00 //CF 1C //D7 1E //DF 00 //EF
File name: Save as type: *.hex Hide Folders Link Error Pattern : Link Error Output Format :	SUM		2	Save SUM SAVE	Can 10 3E 00 18 16 20 11 00 00 00 00 00	cel 96 0 01 1 58 2 00 5 00 0	• 00 FD 1D 80 1C 25 9E 00 10 00 10 00	3A 80 2C 25 1E 01 20 6E 00 00 E0 2D 1E 11 18 71 00 FD 00 00 00 00 00 00	18 //9F 00 //A7 1D //AF 28 //B7 1E //BF 10 //C7 00 //CF 1C //D7 1E //DF 00 //EF 00 //EF
File name: Save as type: ".hex Hide Folders Hide Folders Pattern : Link Error Output Format :	SUM SAVE			Save SUM SAVE	Can 10 3E 00 18 16 20 11 00 00 00 00 00 00 00	cel 96 0 01 1 58 2 00 5 00 0 00 0	• 00 FD D0 FD D0 ED D0 00 00 00 00 00 00 00	3A 80 2C 25 1E 01 20 6E 00 00 E0 2D 1E 11 18 71 00 FD 00 00 00 00 00 00 00 00	18 //9F 00 //A7 1D //AF 28 //B7 1E //BF 10 //C7 00 //CF 1C //D7 1E //DF 00 //E7 00 //EF 90 //F7 94 //FF

3. Select a name for the EDID file and type it in the File name box. -



The file can be saved as either a .hex file or a .bin file.

Select the file type from the Save as type pull-down list. -

4. Select the directory where the EDID file will be saved and click the Save button on the dialog box.

By default, the EDID file will be saved in the working directory of the HD Pattern Signal Generator software directory.

Organize 🔻 🛛 New fol	der				
Downloads Concernents Documents Music Futures Videos Computer Com	Name	A No items match y	Date modified	Туре	DUT FF FF 00 //7 00 00 00 //F 33 1D 78 //17 53 97 26 //1F 00 01 01 //27 01 01 01 //27 01 01 01 //27 00 00 01 11 //27 00 00 11 11 //27 00 00 11 12 //38 00 00 01 12 //47 03 00 00 11 //47 04 00 00 01 15 //47 05 00 00 17 //57 05 00 00 17 //57 06 00 01 17 //57 06 00 01 17 //57 06 00 01 17 //57 06 00 01 17 //57 06 00 01 17 //57 07 00 01 17 //57 07 01 12 14 1//77 07 01 12 14 1//77 07 01 12 14 1//77
2 . <u>1</u>		m		,	90 05 04 //87
File name: myl	EDID				23 11 07 //8F
Save as type: *.he	x			•	3A 80 18 //9F
Hide Folders		(Save Save	Cancel	2C 2S 00 //A7 1E 01 1D //AF 20 6E 28 //B7 00 00 1E //BF E0 2D 10 //C7
Pattern : ink Error	SUM		SUM	10 3E 96 00 F 00 18 01 1D 8 16 20 58 2C 2 11 00 00 9E 0	D 1E 11 00 //CF 0 18 71 1C //D7 5 00 FD 1E //DF 0 00 00 00 //E7
Output Format :	SAVE		SAVE	00 00 00 00 0	0 00 00 00 //EF
IDCP :	CLEAR		CLEAR		0 00 00 94 //FF
	Checksum BK0	BK1	Checksum	BK0=EA Correct.	BK1=94 Correct.

Click to save the EDID
Clearing the EDID from Memory

1. Click the Clear button to clear the EDID from memory.

🖙 HD-SIGGEN			
		RS232	Port
fiming Select		Disconnect	ADOUT
Pattern Select	EDID Read / Write s	ource : • HDMI/DVI OUT C HDMI	/DVI IN C VGA OUT
	WRITE	READ	
Favorite Timing	Pre-F	READ	
Country Dottom	OPEN	COMP	
Favorite Pattern	WRITE		
EDID Read/Write	VERIFY		
Autorun Config	A010		
Panel Control	ERASE	6	
-HD-SIGGEN OUT Status			
Timing			
Link Error	TRANS	TRANS	
Pattern :	SUM	SUM	
Output Format :	SAVE	SAVE	
	CLEAR		
HDCP :	Checksum BK0	BK1 Checksum E	BK0=EA Correct BK1=94 Correct
·			
		Clears the E	DID from
		memory	

If an EDID is loaded (OPEN) under the WRITE panel, use the CLEAR button to clear it from memory.

Loading an EDID from a File

An EDID file in binary (.bin) format or in text format (.hex) can be loaded into the HD Pattern Signal Generator.

1. Click the OPEN button under the WRITE panel. If necessary, refer to page 61 on how to save an EDID to a file.

HD-SIGGEN				
1				
Timing Select		Connect	Disconnect CO	M1: About
Pattern Select	EDID Read / Wr	ite Source : • HDMI/DVI OU		VGA OUT
Favorite Timing	Pre-F		READ	
Eavorite Pattern	OPEN		COMP	
	WRITE			
EDID Read/Write	VERIFY			
Autorun Config	AUTO			
Panel Control	ERASE		C3	
HD-SIGGEN OUT Status Refresh				
Timing : Link Error	TRANS		TRANS	
Pattern : Link Error	SUM		SUM	
Output Format :	SAVE		SAVE	
HDCP :	CLEAR		CLEAR	

Click to open an EDID file

2. Select the EDID file to be opened.

12				110.	UZ.	on	11.
		Fille Blackmanth	File folder	4	58	2C	11:
nents		CPHD-3GTBB_PC_Software_v1.3G	File folder	0	00	1E	11.
		anter ante 4	File folder	2	20	20	11
es		DESKTOP	File folder	F	00	56	11
		Gefen Manuals	File folder	0	00 00	FF	11
		myEDID hex 1 K	B HEX File	41	7 43 A 01	41 EA	11
er		~		9	0 05	04	11
2	_			2:	3 11	07	11
v (\\filesen 🔻				1 6	5 03	0C	11
		Contraction of the second s		32	A 80	18	11
File n	ame:	myEDID.hex • hex / bin / ddc		20	25	00	11
				- 11	2 01	1D	11
		Open 🔻	Cancel	2) 6E	28	11
				0	00 0	1E	11

3. The EDID file will be loaded into the HD Pattern Signal Generator and displayed in the WRITE panel.

In the example below, an EDID has been read using the HD Pattern Signal Generator software (using the READ function) and an EDID has been loaded from a file using the OPEN function.

🖙 HD-SIGGEN - C:\Users\an	drew\Desktop\my	EDID.hex				- - ×
					ort —	
Timing Select			Connect	Disconne	ct COM1:	About
Pattern Select	EDID Read	/ Write Sou	Ce: HDMI/DVI C FF FF 00 //7		VIIN CVGA O	UT FF FF 00 //7
Favorite Timing	Pre-F	3A 65 00 00 13 01 03 80 90 85 A3 58 50 54 25 CE	00 00 00 //F 33 1D 78 //17 53 9F 26 //1F 00 01 01 //27	READ	3 3A 65 00 00 2 13 01 03 80 2 90 85 A3 58 F 50 54 25 CE	00 00 00 //F 33 1D 78 //17 53 9F 26 //1F 00 01 01 //27
Favorite Pattern	OPEN 01 01 01 01 01 01	01 01 01 01 01 01 01 01 01 18 71 38 2D	01 01 01 //2F 01 02 3A //37 40 58 2C //3F	COMP	1 01 01 01 01 01 1 01 01 01 01 0 18 71 38 2D	01 01 01 //2F 01 02 3A //37 40 58 2C //3F
EDID Read/Write	VERIFY 20	00 FD 1E 11 00 00 FD 00 0F 00 0A 20 20 00 00 00	00 00 1E //47 38 4C 1F //4F 20 20 20 //57 FC 00 56 //5F	4	5 00 FD 1E 11 0 00 00 FD 00 2 0F 00 0A 20 0 20 00 00 00	00 00 1E //47 38 4C 1F //4F 20 20 20 //57 FC 00 56 //5F
Autorun Config	AUTO 4D 00	32 33 30 58 20 20 20 00 4C 49 49 49	56 54 0A //67 00 00 FF //6F 47 43 41 //77		0 32 33 30 58 0 20 20 20 00 0 4C 49 49 49	56 54 0A //67 00 00 FF //6F 47 43 41 //77
Panel Control	ERASE 02 03	36 35 31 33 03 1C 71 48 02 07 06 01	0A 01 EA //7F 90 05 04 //87 23 11 07 //8F	0: 0:	3 36 35 31 33 2 03 1C 71 48 3 02 07 06 01	0A 01 EA //7F 90 05 04 //87 23 11 07 //8F
HD-SIGGEN OUT Status Refresh	50 00 71 FD	83 01 00 00 20 00 00 02 38 2D 40 58 1E 11 00 00	66 03 0C //97 3A 80 18 //9F 2C 25 00 //A7 1E 01 1D //AF	5 0 7 F	0 83 01 00 00 0 20 00 00 02 1 38 2D 40 58 D 1E 11 00 00	66 03 0C //97 3A 80 18 //9F 2C 25 00 //A7 1E 01 1D //AF
Timing : Link Error	TRANS 100	72 51 D0 1E 00 FD 1E 11 0A D0 8A 20 3E 96 00 FD	20 6E 28 //B7 00 00 1E //BF E0 2D 10 //C7 1E 11 00 //CF	TRANS	0 72 51 D0 1E 5 00 FD 1E 11 C 0A D0 8A 20 0 3E 96 00 FD	20 6E 28 //B7 00 00 1E //BF E0 2D 10 //C7 1E 11 00 //CF
Pattern : Link Error	SUM 00	18 01 1D 80 20 58 2C 25	18 71 1C //D7 00 FD 1E //DF	SUM 1	0 18 01 1D 80 6 20 58 2C 25	18 71 1C //D7 00 FD 1E //DF
Output Format :	SAVE 00	00 00 00 00 00	00 00 00 //E7 00 00 00 //EF 00 00 00 //F7	SAVE	0 00 00 00 00 00 0 00 00 00 00 0 00 97 00	00 00 00 00 //E7 00 00 00 00 //EF 00 00 00 00 //F7
HDCP ·	CLEAR 00	00 00 00 00	00 00 94 //FF	CLEAR	0 00 00 00 00	00 00 94 //FF
	Checksum BK0	=EA Correct.	BK1=94 Correct.	Checksum Bk	(0=EA Correct.	BK1=94 Correct.

Comparing EDID Data

The HD Pattern Signal Generator software can compare two EDID data structures. One EDID is read from a sink (display, A/V receiver, etc) and the other is loaded into the HD Pattern Signal Generator software using the OPEN function.

- 1. Read the source EDID by following the instructions starting on page 52.
- 2. Load an EDID into the HD Pattern Signal Generator by following the instructions starting on page 65.
- 3. Click the COMP button under the READ panel.

Click the COMP button to compare the two EDID data structures

1						-				RS232	Port	1		-	-	-		
Timing Select							Co	nnect		Disconr	nect		co	M1:	ŝ	•		About
	-EDID Re	ad / W	rite	_		~												
Pattern Select				Sour	ce :	(•	HDM	AI/DVI I	DUT (HDMI	/DVI	IN	C	VG/	1 01	JT		
	WRITE	59 3A	FF FE	00	DO DO	00	00	//7	RE	AD	59	3A	FF .	DO 0	00 C	0 00	00	//7
Foundite Timine		32 13	01 03	80	33	1D	78	//17	DE		32	13	01	3 8	30 3	3 11	78	//17
Favorite Timing	Pre-F	32 90	85 AS	58	53	9F	26	//1F	RE	AD	32	90	85 .	13 5	8 5	3 91	26	//1F
	ODEN	01 01	01 01	01	00	01	01	//2T	00		01	02	01	25 0	11 C	1 01	01	//2T
Favorite Pattern	OPEN	01 01	01 01	01	01	02	3A	//37		JVIP	01	01	01	01 0	1 0	1 02	3A	//37
r aronio r anoni	MOITE	80 18	71 38	2D	40	58	2C	//3F			80	18	71	38 2	D 4	0 58	20	//3F
and the second se	WRITE	45 00	FD 11	11	38	40	1E	//47			45	00	FD	ED C	10 3	0 00	11	//47
EDID Read/Write	VEDIEV	52 OF	00 07	20	20	20	20	//57			52	OF	00	DA 2	10 2	0 20	20	//57
	VERIFT	20 20	00 00	00	FC	00	56	//5F			20	20	00	00 0	00 H	C 00	56	//5F
1	ALITO	4D 32	33 30	58	56	54	OA	//67	22		4D	32	33	30 5	8 5	6 54	OA	//67
Autorun Config	AUTO	20 20	20 20	49	47	43	41	//62			20	20	20 .	19 4	19 4	7 43	41	//62
	EDAOE	30 36	35 31	. 33	OA	01	EA	//7F			30	36	35	31 3	33 0	A 01	EA	//7F
Denal Control	ERASE			195	1000							0.01						
Panel Control		02 03	1C 71	48	90	05	04	//87			02	03	10 1	71 4	18 9	0 05	04	//87
		50 83	01 00	00	66	03	0C	//97			50	83	01		00 6	6 03	OC	//97
HD-SIGGEN OUT Status		00 20	00 00	02	ЗA	80	18	//9F			00	20	00	00 0	12 3	A 80	18	//9F
Defect		71 38	2D 40	58	2C	25	00	//A7			71	38	2D -	10 5	68 2	C 25	00	//A7
Refresh		FD 1E	11 00	00	1E	01	1D	//AF			FD	1E	11	00 0	00 1	E 01	10	//AF
Timina :		55 00	51 DL	111	20	00	12	//8/			00	72	FD .		1 0	0 62	12	//B/
Thinking .	TRANS	BC OA	D0 87	20	EO	2D	10	//07	TR	ANS	8C	OA	DO	BA	10 1	0 21	10	//07
Link Error		10 3E	96 00	FD	1E	11	00	//CF			10	3E	96	00 1	TD 1	E 11	00	//CF
Pattern ·	SUM	00 18	01 11	80	18	71	10	//D7	0		00	18	01 :	LD 8	80 1	8 71	10	//D7
Link Error	3010	16 20	58 20	: 25	00	FD	1E	//DF			16	20	58 :	2C 2	15 0	0 FI	1E	//DF
	0.01/5	11 00	00 95	00	00	00	00	//E7			11	00	00	DE C	00 0	0 00	00	//E7
Output Format :	SAVE	00 00	00 00	00	00	00	00	//25	S/	AVE	00	00	00	0 00		0 00	00	//EF
		00 00	00 00	00	00	00	94	//FF			00	00	00	00 0	00 0	0 00	94	//FF
	CLEAR								CLI	EAR								
HUGF .		1																

If the two EDID data structures are identical, then a message will be displayed indicating that the compare process has passed:

	01	01	01	01	01	01	02	ЗA	//37		COMP	. 01	01	01	01	01	01
	80	18	71	38	2D	40	58	2C	//3F			80	18	71	38	2D	40
E	45	00	FD	15	11	00	00	1 🖬	1147			45	00	FD	18	11	00
_	00	00	0	COL	MPA	RF											
	52	OF	0								Ť						2
T	20	20	0	Co	mpa	aring	g										2
	4D	32	3	Ma	tch	ent	irely	1.									
	20	20	2	L													
	00	4C	4	L													
E	30	36	3														3
	02	03	1	L													
	03	02	0	I													
	50	83	0	P		20				OK							
	00	20	0		-				1	Un	• · · · · · · · · · · · · · · · · · · ·						
	71	38	20	40	58	20	25	υu	//A/	-		1/1	38	zυ	40	58	20
	FD	1E	11	00	00	1E	01	1D	//AF			FD	1E	11	00	00	1E

Click the OK button to return to the EDID Read / Write screen.

If there are differences in the two EDID data structures, then the compare process will fail. The number of reported comparison errors will also be displayed.

	_			_	-	_	_	-		_		JWIP :1	_		-	_	_	
۰.,	01	01	01	01	01	01	02	3A	//31	7			01	01	01	01	01	01
	80	18	71	38	2D	40	58	2C	//31	7			DO	8A	20	EO	2D	10
E	45	00	FD	18	11	00	00	1 🖬	114	7			96	00	81	60	00	00
	00	00	0	CO	MP/	RE												1
	52	OF	0															2 J.
T	20	20	0	Co	mpa	aring]											22
	4D	32	3	The	ere	are	190	wro	ong d	ata								
	20	20	2									т						
	00	4C	4	L								1						
E	30	36	3															
	02	03	1	L														
	03	02	0	I														
	50	83	0	E		1					ov	1						
	00	20	0			-				_	UK							
	71	38	20	40	58	20	25	υu	//A	1			1/2	14	41	12	υu	5/
	FD	1E	11	00	00	1E	01	1D	//A3	r			SE	75	01	47	7 F	72

Click the OK button to return to the EDID Read / Write screen.

Writing EDID to a Sink

After an EDID has been read from another source or loaded from a file, the EDID can be written to the sink connected to the output of the HD Pattern Signal Generator.

WARNING: Overwriting the EDID of a sink device may cause unwanted results. Be sure to save a copy of the EDID. This will allow the sink's EDID to be restored if necessary. Also note that not all device EDID data structures can be overwritten. If the sink cannot be programmed with a new EDID, the WRITE process will fail.

- 1. Load an EDID into the HD Pattern Signal Generator by following the instructions starting on page 65.
- 2. Click the WRITE button to write the EDID to the sink device.

Click to write the EDID data to the sink device

24			-		ort —	
Timing Select			Connect	Disconne	ct COM1:	About
	- EDID Re	ad / Write				
Pattern Select	2010 110	Source	e : 🖲 HDMI/DVI OI		VIIN 🤍 VGA OU	JT
	WRITE	00 FF FF FF FF F	F FF 00 //7	READ ⁰	O FF FF FF FF F	F FF 00 //7
		59 3A 65 00 00 0	0 00 00 //F	5	9 3A 65 00 00 0	0 00 00 //F
Favorite Timing	Pre-F	32 13 01 03 80 3	3 1D 78 //17	READ	2 13 01 03 80 3	3 1D 78 //17
		OF 50 54 25 CE 0	0 01 01 //27		F 50 54 25 CE 0	0 01 01 //27
	OPEN	01 01 01 01 01 0	1 01 01 //2F	COMP	1 01 01 01 01 0	1 01 01 //2F
Eavorite Pattern	OPEN	01 01 01 01 01 0	1 02 3A //37	COMP	1 01 01 01 01 0	1 02 3A //37
r avonte r attern	CONTRACTOR OF THE	80 18 71 38 2D 4	0 58 2C //3F	8	0 18 71 38 2D 4	0 58 2C //3F
	VVRITE	45 00 FD 12 11 0	0 00 17 //47	اه	5 00 FD 1F 11 0	0 00 1E //47
		00 00 0 VVRITE				4C 1F //4F
EDID Read/write	VERIFY	52 OF 0 Writing V	WRITE data			20 20 //57
		20 20 0 Vinting V	WITE data			00 56 //SF
	ALITO	4D 32 3				54 UA //6/
Autorun Config	AUTO	00 4C 4				43 41 //77
		30 36 3				01 EA //7F
1	ERASE					
Panel Control		02 03 1				05 04 //87
		03 02 0				11 07 //8F
		50 83 0		OKN		03 OC //97
HD-SIGGEN OUT Status		00 20 0		63		. 80 18 //9F
Pofrach		71 38 20 40 58 2	L 25 UU //A/	1	1 38 20 40 58 2	C 25 00 //A7
Iteliesii		PD 1E 11 00 00 1	E UI ID //AF	2	0 72 51 00 00 1	E UI ID //AF
Timina :		55 00 FD 1F 11 0	0 00 17 //87		5 00 FD 1F 11 0	0 00 17 //87
ining.	TRANS	8C 0A DO 8A 20 E	0 20 10 //07	TRANS	C 0A DO 8A 20 E	0 20 10 //07
Link Error		10 3E 96 00 FD 1	E 11 00 //CF	1	0 3E 96 00 FD 1	E 11 00 //CF
Pattern ·	0.04	00 18 01 1D 80 1	8 71 1C //D7	01114	0 18 01 1D 80 1	8 71 1C //D7
Link Ener	SOM	16 20 58 2C 25 0	0 FD 1E //DF	SUM 1	6 20 58 2C 25 0	0 FD 1E //DF
LINK ENO		11 00 00 9E 00 0	0 00 00 //E7	1	1 00 00 9E 00 0	0 00 00 //E7
Output Format	SAVE	00 00 00 00 00 0	0 00 00 //EF	SAVE 0	0 00 00 00 00 0	0 00 00 //EF
		00 00 00 00 00 0	0 00 00 //F7	0	0 00 00 00 00 0	0 00 00 //F7
	CLEAR	00 00 00 00 00 0	0 00 94 //FF	CLEAR	0 00 00 00 00 0	0 00 94 //FF
HDCP :		2				

Erasing the EDID from a Sink

The ERASE function will erase the EDID of a sink device.

WARNING: Be sure to save a copy of the sink's EDID before performing the ERASE function. This will allow the sink's EDID to be restored if necessary. Also note that not all device EDID data structures can be erased. If the sink's EDID cannot be erased, then the ERASE procedure will fail.

- 1. Make sure that the sink device is connected to the HD Pattern Signal Generator.
- 2. Click the ERASE button.
- The HD Pattern Signal Generator software will prompt you before erasing the sink's EDID. Click the Yes button to continue with the erasure. Click No to return to the EDID Read / Write screen.

HD-SIGGEN - C:\Users\ar	ndrew\Desktop	myl	DID	hex															L	-)
2				_				-	_		R8	5232 F	Port	((<u>-</u>		-	_	-	-	-	_	
Timing Select									Co	nnect	Dis	conn	ect		CC	DM1	1:		•	_	Abou	t
	EDID Re	ad	w	rite	S	oun	ne :	œ	ном			номи	DVI	IN	0	VP	sa r	דוור				
Pattern Select	WRITE	00	FF 3A	FF 65	FF	FF	FF	FF	00	//7 //F	REA	D	00	FF 3A	FF 65	FF	FF	FF	FF	00	//7	-
Favorite Timing	Pre-F	32 32	13 90	01 85	03 A3	80 58	33 53	1D 9F	78 26	//17 //1F	REA	D	32	13 90	01 85	03 A3	80 58	33 53	1D 9F	78	//17 //1F	
Eavorite Pattern	OPEN	0F 01 01	01 01	54 01 01	25 01 01	01 01	00 01 01	01 01 02	01 01 3A	//27 //2F //37	COM	IP	DF 01 01	50 01 01	54 01 01	25 01 01	01 01	00 01 01	01 01 02	01 01 3A	//27 //2F //37	
T dvonte T ditern	WRITE	80 45	18	71 FD	38 1E	2D 11	40	58	2C 1E	//3F //47			15	18	71 FD	38 1E	2D 11	40	58	2C 1E	//3F //47	
EDID Read/Write	VERIFY	52 20	0F 20	00	OA	20	20	20	20	//57		57	52	0F 20	00	0A 00	20	20 FC	20	20	//57 //5F	
Autorun Config	AUTO	4D 20	32 20 4C	3 1	ID-S	GGG	5EN	-	1	1		<u>A</u> 3	1	32 20 4C	33 20 49	30 20 49	58 00 49	56 00 47	54 00 43	OA FF 41	//67 //6F	
	ERASE	30	36	3	An	e yo	u su	ire to	o era	ise sink	s EDID ?		1	36	35	31	33	OA	01	EA	//7F	
Panel Control		02	03	1						_				03	1C 07	71	48 01	90 23	05	04	//87 //8F	
HD-SIGGEN OUT Status		00	20	0 2		l		Ye	5		No			20	00 2D	00	02	3A 2C	80	18	//9F	
Refresh		FD 00	1E 72	11	00 D0	00 1E	1E 20	01 6E	1D 28	//AF	-		00	1E 72	11 51	00	00 1E	1E 20	01 6E	1D 28	//AF	
Timing : Link Error	TRANS	55 8C	00 0A	FD DO	1E 8A	11 20	00 E0	00 2D	1E 10	//BF	TRAM	IS	55 BC	00 0A	FD D0	1E 8A	11 20	00 E0	00 2D	1E 10	//BF //C7	
Pattern :	SUM	00	18	01	1D 2C	80	18	71 FD	1C 1E	//D7 //DF	SUN	Λ	00	18	01	1D 2C	80	18	71 FD	1C 1E	//D7 //DF	
Output Format :	SAVE	11 00 00	00	00	9E 00 00	00	00	00	00	//E7 //EF //F7	SAV	E	11 00	00	00	9E 00 00	00	00	00	00	//E7 //EF //F7	
HDCP ·	CLEAR	00	00	00	00	00	00	00	94	//FF	CLEA	AR	00	00	00	00	00	00	00	94	//FF	

Click to erase the sink's EDID

Opening Recent EDID Files

The HD Pattern Signal Generator software keeps a record of the last ten files which were opened or saved. To access the most recently used files, do the following:

- 1. Click the Pre-F button in the WRITE panel.
- 2. A list of the most recently used EDID files will appear in a drop-down window.
- 3. Highlight and click the EDID file to be loaded.



Autorun Configuration

The Autorun Configuration option allows custom programming of timings and patterns used by the Autorun Demonstration mode (pressing the AUTO button on the front panel):

- 1. Click the Autorun Config button.
- 2. If necessary, you can press the Download button to read the current Autorun settings from the HD Pattern Signal Generator.
- 3. Select the Timing and/or Pattern from the timing drop-down list boxes.
- 4. Select the Duration (in seconds), from the interval drop-down box.
- 5. Click the Add / Replace button to add the current timing and pattern to the Autorun Configuration list.

Downloads Aut	current orun list	A cur	dds o rent ti	r replace ming / pa	s the attern	Dele pa	tes a timir ttern from	ng / list
HD-SIGGEN - C:\Users\ar	ndrew\Desktop	hyEDID.hex						×
Timing Select			С	onnect [Disconnect	COM1	: <u>•</u> A	bout
Pattern Select	Autorun Press D Press A	Config Download] to dowr vdd/Replace1 [Del	nload HD	-SIGGEN Aut	orun setting	s.		
Favorite Timing	Press S	SET] to upload Aut	torun sett	tings to HD-S	IGGEN.	laca		
Favorite Pattern	T	01 640x480-60	▼ F	P01 WHITE	•	5	•	
EDID Read/Write	No. T	iming	I	'attern		Interval 0	l (sec)	
Autorun Config	3 4 5					0		
Panel Control	67	Timing selection		Patte selectio	rn on	0	Duration selection	=
HD-SIGGEN OUT Status	9 10					0		
Timing :	11 12			•		0		
Link Error	13 14			1		0		
Pattern : Link Error	15					0		
Output Format :	17 18					0		-
HDCP :							SE	г
	-							
			Auto	run	U	pload	s current	
		Configu	iration	list		Au	torun list	

HD PATTERN SIGNAL GENERATOR SOFTWARE

An existing timing and pattern set can be replaced by clicking (highlighting) the set, selecting the new timing and new pattern from the drop-down list boxes, then pressing the Add / Replace button.

Use the Delete button to remove a timing / pattern set from the Autorun Configuration llist.

6. Click the SET button to write the changes to the HD Pattern Signal Generator.

Panel Control

The Panel Control screen allows remote control of the front panel buttons on the HD Pattern Signal Generator. The current settings will be indicated by green buttons.

The Download button is used to retrieve the current settings from the HD Pattern Signal Generator.

Downloa	ads current						
,							
- HD-SIGGEN						-	
Timing Select		Ē	Connect	Disconnect	COM1:	- -	About
Pattern Select	Panel Control Press [Dowr load]	to download I	HD-SIGGEN s	ystem status. GEN right awa	v		
Favorite Timing	After [Reset] pres	s [Download]	to get HD-SIG	GEN default st	atus.		
Favorite Pattern	Output Format =	PC	HD	DVI	HDM	11	
EDID Read/Write	HDCP =	ON	OFF				
	Audio Source =	EXT 7.1CH	EXT OPT	INT SINE			
Autorun Config	LPCM CH =	2 CH	5.1 CH	7.1 CH			
Panel Control	Color Space =	RGB444	YUV444	YUV422			
	Deep Color =	8 BIT	10 BIT	12 BIT			
Refresh	Autorun =	ON	OFF				
Timing :	My Favorite =	ON	OFF				
T01 640x480-60 Pattern : P15 SMPTE Bar	System Reset =	Reset					
Output Format : HDMI							
HDCP : OFF							

Getting the Hardware and Firmware Version

Press About button on the top portion of the HD Pattern Signal Generator software.

				. 🗆 🗙
	- RS232 Port -			
Connect	Disconnect	COM1:	-	About •
iload HD-SIGGEN	system status. GGEN right aw	av ha	Pres ardware a	ss to display nd software information

The About screen will be displayed, showing the software and firmware versions:

-Software / Firmware Versions
Application S/W is v1.3G Linking HD-SIGGEN Hardware F/W is v1.7
ОК v11

2. Press the OK button to dismiss the About box and return to the HD Pattern Signal Generator software window.



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

RS232 Settings

Bits per second	
Data bits	
Parity	None
Stop bits	
Flow Control	None



NOTE: The return value will be displayed when using a terminalbased application, indicating the current value after executing the command.

Commands

Command	Description
ASC001	Audio source is from external L/R
ASC002	Audio source is from external OPTICAL
ASC003	Audio source is from internal Sinewave
ASC999	Query audio source status
ATO000	Set Autorun Off
ATO001	Set Autorun On
ATO999	Query Autorun Action status
ATNnnn	Autorun Number, nnn = 001 ~ 032 (see note 2 on page 81)
ATTnnn	Autorun Timing, nnn = 001 ~ 039
ATPnnn	Autorun Pattern, nnn = 001 ~ 050
ATInnn	Autorun time Interval, nnn = 005 ~ 600 (seconds)
ATS999	Query Autorun Configuration status
CRRnnn	Set the Red (Cr) ColorSetting value, nnn = 000 ~ 255
CRGnnn	Set the Green (Y) ColorSetting value, nnn = 000 ~ 255
CRBnnn	Set the Blue (Cb) ColorSetting value, nnn = 000 ~ 255
CRYnnn	Set the Gray ColorSetting value, nnn = 000 ~ 255
CRR999	Query Red (Cr) ColorSetting status (see note 3 on page 81)
CRG999	Query Green (Y) ColorSetting status
CRB999	Query Blue (Cb) ColorSetting status
CRY999	Query Gray ColorSetting status
CSC001	Set color space to RGB:444
CSC002	Set color space to YUV:444
CSC003	Set color space to YUV:422
CSC999	Query color space status
DEE001	Set deep color to 8-bit
DEE002	Set deep color to 10-bit
DEE003	Set deep color to 12-bit
DEE999	Query deep color status
ESC001	EDID source is from Tx (HDMI / DVI Out)
ESC002	EDID source is from Rx (built-in active EDID)
ESC003	EDID source is from Rx1 (built-in EDID1)
ESC004	EDID source is from Rx2 (built-in EDID2)

Command	Description
ESC005	EDID source is from Rx3 (built-in EDID3)
ESC006	EDID source is from VGA (PC / HD out)
ERD001	Read EDID from sink (see note 4 on page 81)
ERS001	Erase sink's EDID and fill all bytes with FF (see note 5 on page 81)
EWR001	Write EDID to sink (see note 6 on page 81)
FAV000	Set My Favorite OFF
FAV001	Set My Favorite ON
FAV999	Query My Favorite action status
FP+nnn	Add Pattern to Favorites, nnn = 001 ~ 050
FP-nnn	Drop Pattern from Favorites, nnn = 001 ~ 050
FP+999	Query Favorite Pattern status (FP-999 can also be used)
FT+nnn	Add Timing to Favorites, nnn = 001 ~ 039
FT-nnn	Drop Timing from Favorites, nnn = 001 ~ 039
FT+999	Query Favorite Timing status (FT-999 can also be used)
HDC000	Set HDCP OFF
HDC001	Set HDCP ON
HDC999	Query HDCP status
MOT001	Set custom string for Pattern 46 (see note 7 on page 81)
MOT999	Query string from Pattern 46
OUT001	Select output format [PC]
OUT002	Select output format [HD]
OUT003	Select output format [DVI]
OUT004	Select output format [HDMI]
OUT999	Query output format status
PATnnn	Select Pattern, nnn = 001 ~ 050
PAT999	Query Pattern status
PCM001	Set PCM 2CH
PCM002	Set PCM 5.1CH
PCM003	Set PCM 7.1CH
PCM999	Query PCM status
RST001	Reset Signal Generator
TIMnnn	Select Timing, nnn = 001 ~ 039
TIM999	Query Timing status
VER999	Query firmware version

Notes

- After the RS-232 device sends commands to the HD Pattern Signal Generator, the RS-232 device must wait for the HD Pattern Signal Generator to responds. Although the RS-232 device can send another command without waiting for a response, the communication may fail if the HD Pattern Signal Generator is in Auto mode.
- To configure the HD Pattern Signal Generator to follow a sequence of commands in Auto mode, the following syntax is used: ATNXXX + ATTXXX + ATPXXX + ATIXXX...
- 3. If the HD Pattern Signal Generator is not set to Pattern 47, running a query for the ColorSetting pattern will return: CRR300, CRG300, CRB300 or CRY300.
- 4. After sending the ERD001 response, the HD Pattern Signal Generator reads the sink's EDID and transmits the data to the remote terminal. If the EDID cannot be read, then the HD Pattern Signal Generator sends 0xFE and stops the datastream. The HD Pattern Signal Generator supports a 256byte EDID (block0 + block1).
- After sending the ERS001 response, the HD Pattern Signal Generator erases the sink's EDID and fills all bytes with FF. After the EDID is erased, the HD Pattern Signal Generator returns ERS002. If the process fails, then ERS003 is returned.
- 6. After sending the EWR001 response, the HD Pattern Signal Generator waits for the EDID datastream (256 bytes) from the RS-232 device. After receiving the datastream, the HD Pattern Signal Generator writes the EDID to the sink. If the write-process is successful, then EWR002 is returned. If the writeprocess fails, then EWR003 is returned.
- Send MOT001 and wait for the MOT001 response from the HD Pattern Signal Generator. Send the custom string and wait for the MOT002 response. The maximum length for a string is 12 bytes. Any unused bytes must be filled with 0x00. Only English characters are supported.



The GefenToolBox HD Pattern Signal Generator 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 removal of cables on the back of the unit.

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

Maximum Pixel Clock	165 MHz
Input Video Signal	
Input DDC Signal	
Video Input	(1) HDMI Type A ,19-pin, female
Video Output	(1) HDMI, Type A, 19-pin, female
Video Output	(1) HD15, female
Analog Audio Inputs	FL, FR, C, LFE, SL, SR, SSL, SSR (RCA type)
Analog Audio Outputs	FL, FR, C, LFE, SL, SR, SSL, SSR (RCA type)
Digital Audio Input	(1) TOSLink
Digital Audio Outputs	
Input Impedance	10 kΩ
Frequency Response	20 Hz - 20 kHz (± 0.5 dB)
SNR	> 90 dB
THD	< 0.001% at 1 kHz or 2 V rms
Crosstalk	
RS-232 Serial Port	DB-9, female
Power Supply	
Power Consumption	10W (max.)
Operating Temperature	
Dimensions	12.0" W x 1.75" H x 6.5" D
Shipping Weight	

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.
- 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.





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This product uses UL or CE listed power supplies.