HDLG

HD/SD SDI Logo Generator & Color Bar Generator

User Manual Version 2.01

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HDLG HD/SD SDI Color Logo/Color Bar Generator

Introduction:

Congratulations on your purchase of the HDLG HD/SD SDI Color Logo/Color Bar Generator by Burst Electronics Inc. The HDLG is capable to overlaying a 24-bit full color bitmap over SDI video. This product can store up to four (4) logos within its internal non-volatile memory, each logo can be recalled to overlay video either manually or by use of a built-in Scheduler. The HDLG also includes an internal Color Bar Generator switchable to either 720p60Hz or 1080i60Hz.

Features:
Overlay a 24-bit Full Color logo over video
Internal Color bar generator (selectable 720p60Hz or 1080i60Hz)
Automated timing scheduler
Compatible with most HD and SD SDI video standards (auto-sensing)
Software, Front panel and GPI controls
External 1pps clock input

Software Installation:
Place the HDLG Software Installation disk into your CD drive. If your computer allows "Autorun", then HDLogoGen will begin installing. If "Autorun" is not activated, browse to your computer's CD drive, locate and run the file "setup.exe". Follow the onscreen instructions to complete installation. A shortcut for the HDLG software should now be available upon your Desktop. If not, the Application can be accessed by browsing to C:\Program Files (x86)\Burst Electronics\HDLG\.

USB Driver Installation:
At the time this manual was written and the software installation disk was created, the latest drivers from FTDI were included on the HDLG Installation Disk. However, it is always recommended to obtain the latest drivers from FTDI. The HDLG uses their Virtual Communications Port (VCP) driver for Windows. Their website is listed here...
http://www.ftdichip.com/Drivers/VCP.htm

To use the included drivers, insert the HDLG Installation Disk into your computer's CD/DVD drive (you may cancel the installation wizard if you have already installed HDLogoGen). Connect the HDLG to your PC via the supplied USB2.0 compatible cable. A New Hardware Wizard will appear. When asked for the file location of the drivers browse to X:\program files\Burst Electronics\HDLG\usb driver\ (where "X" is your CD/DVD drive). Select the "INF" file presented. Click next and continue with the driver installation. When complete, click finish.
Note: Some versions of Windows will run New Hardware Wizard again. This is normal and must also be completed to successfully install the USB drivers. Use the same location for the required INF file.

Configuring the USB (USB-Serial Port):
The USB driver for the HDLG was provided by FTDI. This is a USB to Serial port emulator. By default the driver is preconfigured to operate with the HDLG, you should not need to make any adjustments to the driver's settings. However, advanced configurations of the port can be accessed through your computer's Device Manager (listing is under PORTS).

HDLogoGen

HDLogoGen is a Windows based interface software necessary to command the HDLG. Through the use of the Menu, Relative Screen Position (RSP), Control Panel, and Logo Selection, you will be able to control nearly every aspect of the HDLG's functions and features.

MENU

FILE:
Open Logo File
Send Logo to HDLG
Get Logo From HDLG
Recent Files
Exit

Open Logo File
Clicking the Open Logo File link will activate a standard Windows Browse dialog box where you can locate and select a compatible bitmap (BMP) file for installation into the HDLG memory. If a logo is incompatible for any reason (i.e. image too large, logo dimensions incorrect, not 24-bit BMP, etc.), and error message will be displayed.

Send/Get Logo
Send Logo to HDLG
The HDLG can store up to four (4) full color 24-bit bitmap images within its onboard memory. Each logo can be recalled from its respective memory location to be displayed over SDI video. Also, in the event your original BMP logo file is lost or misplaced, the HDLG can retrieve and save the stored logo back to a BMP file. Send Logo to HDLG is a three step process.

1. By using the radio buttons at the bottom of HDLogoGen (or by using the logo selections available in the "Logo" menu), select any of the four Logo Selections.
2. Under the File menu, OPEN LOGO your previously created logo (adjust Color Key R,G,B as necessary for transparent pixels).
3. Again, under the File menu, SEND LOGO to HDLG.

HDLogoGen now performs the download of your logo to the HDLG hardware. Once complete, your new logo is saved to HDLG. You can now adjust the position, overall transparency and fade speed of the logo.

Get Logo from HDLG
Get Logo from HDLG is a feature that allows you to save a logo previously stored in one of the four memory locations in the HDLG. The process is simple. Select the logo you wish to save. Now click on Get Logo from HDLG (a message regarding saving the logo is displayed). Click OK. The logo will now be uploaded from the HDLG's memory. Once complete, you will be given the opportunity to give the logo a name and select the location where to save.

Recent Files
Up to eight (8) of the most recent logo images opened will be listed and accessible through this link.

Exit
Closes HDLogoGen.

Com Select/Com Search:
Upon first installing HDLogoGen and its associated USB-Serial Port drivers, you will need to command HDLogoGen to Search for available Com Ports and then select the appropriate Port. First click on Com Search/Search for a Comm Port (takes 30 Sec). Wait 30 seconds and then click on Com Select. You should be presented with all of the available Com Ports connected to your computer. Select the Com Port listed and wait a few seconds while HDLogoGen establishes a connection with the HDLG. If there are any more than one Port listed, select each listed Com Port in turn and wait a few seconds to give HDLogoGen a chance to establish communication with the HDLG. Communication is established when the Title Bar of HDLogoGen (very top) displays "Model HDLG001M" and the Com indicator near the lower right of the software shows a green colored background (red = no communication, cyan = attempting connection, green = communication established). The Com Port number you selected will also be displayed within this field.

Zoom:
The Zoom feature doubles the apparent size of the logo to allow you a closer look at your logo's detail. This is only a visual aide and does not affect the actual size of the logo being displayed over video. Simply click ZOOM to expand the logo, click ZOOM again to bring the logo back to original size.

PaintBrush:
This is a link to Microsoft Windows Paint. When activated the currently selected logo is imported to Windows Paint for simple editing of the image.

Logo:
Logo1 - Logo4
Color Key R,G,B = (#,#,#)

Logo#
The Logo menu allows you to choose which logo is displayed and gives access to the Color Key R,G,B (transparent pixel) tool. To choose a logo, click on the logo number desired. These selections are also available as radio buttons across the bottom of HDLogoGen. Just click on the radio button that corresponds to the Logo# desired.

Color Key R,G,B = (#,#,#)
The Color Key R,G,B tool allows you to choose a color value of pixel to become transparent within your logo (see Making a Pixel Transparent). Select Color Key R,G,B and enter the value you used when you created the transparent field in your logo (i.e. if you created a field with an R,G,B value of 128 (grey),

then enter "128" into the Color Key's dialog box). Now Send Logo to HDLG. Any pixel that has a value equal to the Color Key value will now be completely transparent on video.

Schedule:
Schedule View
Schedule Lock
Scheduler On/Off
Control Panel Lock

Schedule View
Schedule allows a user to setup a sequence of times when a logo would be displayed. Select Schedule View. Within Schedule View there are four (4) vertical slider bars. Each of these sliders (Start, T-ON, Repeat, End) configures a value of time. Time is displayed in 24hr format (00:00:00 & 24:00:00 = midnight)

Start Slider
Tells HDLG at what time a logo display cycle will start.

T-ON Slider
Determines the amount of time a logo will be displayed (in increments of 15 seconds) during a display cycle.

Repeat Slider
Determines the total time of a display cycle. If this value is equal to T-ON, then the logo will always be displayed. Selecting any amount of time more than that of T-ON will command the logo to be OFF (i.e. T-On = 0:00:15 & Repeat = 0:30:00)

End Slider
Tells HDLG at what time a logo cycle will stop.
The LOGO field to the right side of this table allows the user to select which logo will be displayed during that particular logo cycle. Any value from one (1), two (2), three (3), four (4) and OFF can be selected into this field. This value corresponds to the logo memory location.

Calendar
A 7-day calendar that allows a user to select which day(s) of the week a particular logo will be displayed.

Scan for Conflicts
This button will scan through the schedule table for any conflicts with how the schedule cycle will run. Conflicts occur if more than one logo is being recalled at the same time.

AutoScan
The check box called AutoScan will continually scan the table for conflicts while you are configuring your schedule.

Save
This button will save any changes made in the Schedule View Table to your computer's registry. Save must be pressed before this window is closed to avoid losing any changes made to this table.
Note: To save Schedule View Table to the HDLG's internal memory. go to the HDLG Setup pull down menu and select Send Timing Schedule.

Exit
This button will close this window and return you to HDLG. If Exit is performed before Save is pressed, any changes made to Schedule will be lost.

Schedule Lock
Prevents accidental changes to Schedule.

Schedule On/Off
Selecting this item commands HDLogoGen to begin running the Schedule shown in Schedule View and not from any Schedule saved to the HDLG's internal memory. Timing of Schedule is based upon your PC's internal clock. Deselecting this item commands HDLogoGen to stop running Schedule.

Control Panel Lock
Prevents accidental changes to the logo's position, fade speed and transparency settings.

HDLG Setup:
Send Timing Schedule
Send Date and Time
Daylight Saving Time Setup
GPI Setup: Mode = #: CTRL = #

HDLG Setup
The HDLG Setup menu allows the user to send the HDLG Schedule to the non-volatile memory. This allows for automatic, unattended operation of the HDLG's saved Schedule when having a PC continuously command the HDLG is not viable or impractical. The HDLG Setup menu includes a link to update the time and date from the computer, regional daylight savings time setup, and GPI setup options.

Send Timing Schedule
This button commits your configured Schedule to be loaded into the non-volatile memory of the HDLG hardware. The schedule can then be activated via the front panel switch or by configuring the GPI Setup.

Send Time and Date
This selection opens a dialog box allowing you to set the internal clock of the HDLG. A Timer Offset Adjustment is also included to allow you to tweak the internal clock in the event the HDLG and real-world clock (GPS or atomic clock) are a few seconds out of tune.

Daylight Saving Time Setup

Use this item to set your local Daylight Savings Time. Click on this item and follow the onscreen instructions to properly set Daylight Savings for your location.

GPI Setup: Mode = #: CTRL =

This item opens the Schedule Mode & GPI Control Setup Menu. On the left are listed the different configurations for how the front panel "TAKE" switch and rear panel GPI input control the operation of Schedule and logo selections. On the right are listed the different control options for the GPI input. Once you have selected the Mode and Control options, click Save & Update to send these changes to the HDLG.

GPI Mode

1. Scheduler: Front panel controlled/GPI: Disabled - Pressing down on the front panel TAKE switch activates Schedule. GPI Controls are disabled from controlling either Schedule or selecting logos.
2. Scheduler: Front panel disabled/GPI: Control Scheduler - Pressing down on the front panel TAKE switch does not activate Schedule. GPI input controls activation of Schedule.
3. Scheduler: Front panel controlled/GPI: Overrides Scheduler with Logo ON - Pressing down on the front panel TAKE switch activates Schedule. GPI Control turns the currently selected logo ON.
4. Scheduler: Disabled/GPI: Sequences through Logos 1-2-3-4-1 - Pressing down on the front panel TAKE switch does not activate Schedule. Each time the GPI Control is activated, the next logo in line will turn on and be displayed over video. When the GPI Control is removed, the currently selected logo will turn off.
5. Scheduler: Front panel controlled/GPI: Forces Logo 4 ON - Pressing down on the front panel TAKE switch activates Schedule. GPI Control overrides Schedule and activates the logo stored at Logo 4. Removing GPI Control will allow Schedule to continue to run normally.

GPI Control

1. Active when closed - A constant contact closure required.
2. Active when open - A constant contact open required.
3. Pushbutton (Pos edge) - A momentary contact closure where the positive going edge of the GPI signal toggles activation of the GPI Mode.
4. Pushbutton (Neg edge) - A momentary contact closure where the negative going edge of the GPI signal toggles activation of the GPI Mode.

Help

User Guide (HDLG-Manual.PDF) - Provides a link to the HDLG User's Manual in PDF format originally included during installation of this software.
About - Opens the information window for this version of HDLogoGen. This also provides Burst Electronics' telephone numbers and email address for technical support.
Terminal - Opens a small window that allows you to monitor the communications between the PC and HDLG.
HDLogoGen Copyright - Commands the HDLG to display the Copyright and firmware information through the Terminal window.

Creating Compatible Logos:

The HDLG is capable of overlaying one of four 24-bit full color bitmap logo images on to SDI video. These logos can be either a photograph or text or a combination of both. Rather than limiting the HDLG to a simple square logo, each logo can contain as few as 1,064 pixels and as many as 262,144 pixels. The minimum logo dimensions are 32x32 pixels. The maximum area of your logo can range in dimension from 1920x136 through 512x512 and on to 240x1080. To accomplish this dynamic range of logo size compatibility the image's size must conform to a ratio of 4x2. The width of the image must be even divisible by 4, the height evenly divisible by 2 and not to exceed 262,144 pixels (W x H = 262,144). If your logo exceeds the maximum allowable size, HDLogoGen will indicate such if you attempt to open the logo with a small status window.

Making a Pixel Transparent

If you need an area of your logo that will always be transparent, fill the area with a shade of grey. The HDLG reads the RGB value of each pixel within your logo. If you create an area of equal value R,G,B, the HDLG can be told to consider that R,G,B value as completely transparent (i.e. Red = 128, Green = 128, Blue = 128 (50% grey) OR Red = 30, Green = 30, Blue = 30 (slightly lighter than black)).
Once you have chosen an RGB value to use in your logo image and created the logo, select the Menu item LOGO and click Color Key R,G,B = (#,#,#). A dialog box appears requesting a numeric value ranging from 0 - 255. Enter the value of RGB that you used in your logo and click OK. Now open and download your logo to the HDLG. Once complete, your logo will now be transparent in all the places where you've designated a transparent pixel. The rest of your logo will be subject to the transparency adjustment found with the MIX Ratio setting.

Black (NTSC vs. PAL)

When creating an area of black for NTSC (486i), we recommend using an RGB value of no less than RGB = 25. A value of RGB = 25 will create black at about 7.5IRE. For PAL(567i), a value of RGB = 0 will create black at 0IRE.

Video is different than "print", what may look fantastic printed on paper may appear less than acceptable when displayed over video. If you have difficultly creating an outstanding logo or just need some advice on how to modify an existing logo, please contact our Technical Support department.

Relative Screen Position (RSP)

The RSP gives you a graphical representation of a logo's placement when overlaid onto video. The currently selected logo will appear within this field and can be dragged and dropped to any position within RSP. The position will change in real-time on your video monitor. After you release the logo, it's position information is immediately saved to the HDLG's internal memory. This will ensure that if power is lost, your change wasn't. The RSP will also read and display the current position of a logo image stored in the HDLG as you select through each logo memory slot. Take note, the logo displayed in the RSP may not be the logo saved in the HDLG's internal memory. The RSP can only report on a logo's position, to retrieve a logo from the HDLG's internal memory, see Send/Get Logo.

Control Panel:

The Control Panel allows access to Relative Position, Fade Speed, Mix Ratio, and TAKE. The PC Clock, logo image size, video format and Com Port are also visible in this field.

Relative Position
Relative Position allows you to enter in specific percentile values for horizontal and vertical positioning of your logo. Note: HDLogoGen looks at the upper left corner of the image as the origin.

Fade Speed
Fade Speed is an adjustment for setting how quickly a logo will transition from ON to OFF and back. The range of transition speed is 0.05sec - 5.0sec. Sliding the bar to the left reduces the transition speed. Sliding the bar to the right increases the transition speed.

Mix Ratio
Mix Ratio is an adjustment for setting the overall transparency of your logo. Through use of this slider, a logo can be absolutely solid, completely transparent or anything in between. Sliding the bar to the left causes your logo to become more transparent. Sliding the bar to the right causes your logo to become less transparent. This is different than setting the Color Key R,G,B for transparent pixels. To create a field of pixels that are always transparent, see Making a Pixel Transparent.

TAKE
TAKE is a toggle switch to activate/deactivate your logo onto video. Simply click TAKE to display the currently selected logo onto video. Click TAKE again to turn the logo off. When the button is GREEN, your logo is ON. When the button is grey, your logo is OFF.

Image
Image indicates the size of the selected logo and provides the total pixel count of the image.

Video Mode
Video Mode indicates the format of video being fed to the HDLG.

Com
Com displays the currently selected Com Port and through the background color, indicates the status of communication with the HDLG. GREEN means communication has been established successfully, CYAN means communications are being attempted, and RED means no communication.

Logo Selection:
As the name implies, here you can quickly select between the four (4) logo memory locations. Just click on the respective radio button corresponding to the Logo# you wish to select and that logo becomes the currently selected logo. Once a logo has been opened, HDLogoGen remembers the file name and displays it beneath the Logo#. Use this feature before using Send Logo or Get Logo to ensure your logo is opened and saved to the proper location. Once a logo is loaded to a particular memory location, the previously loaded logo will be overwritten.

Copyright Field
At the very bottom of HDLogoGen is a field that displays the HDLG's copyright information as well as firmware version. The data is refreshed continuously as long as there is communication between the HDLG and HDLogoGen.

Front Panel

The Front Panel of the HDLG gives control of many features available in HDLogoGen as well as the switch to make the HDLG into a Color Bar Generator. Logo Selection, Position, Mix Ratio and Fade Speed are accessible via these switches.

HDLG Color Bar Generator

By a simple flip of a switch, the HDLG can generate 75% Color Bars at either 1080i60Hz or 720p60Hz HDSDI. The switch on the far left performs this action. By default, the HDLG is configured with this switch in the Center Position (Live Feed) to overlay it's logos onto a live video feed. Pulling this switch fully up will cause the HDLG to bypass the incoming video and generate 1080i60Hz Color Bars. Pushing this switch fully down will cause the HDLG to generate 720p60Hz Color Bars. Regardless of this switch's position, the HDLG can continue to overlay a logo upon the video.

Speed

The Speed switch controls how quickly a logo will transition between ON and OFF. Pulling the spring-loaded switch up speeds the transition, where pushing the switch down slows the transition.

Mix

The Mix switch controls the overall transparency of the logo. Through use of this switch, a logo can be absolutely solid, completely transparent or anything in between. Pulling the spring-loaded switch up causes the logo to become less transparent. Pushing the switch down causes the logo to become more transparent. This is different than setting the Color Key R,G,B for transparent pixels. To create a field of pixels that are always transparent, see Making a Pixel Transparent.

Up/Down & Left/Right Arrows

These two switches control the position of the currently selected logo. The Up/Down arrows command the logo in the vertical axis, the Left/Right arrows command the logo in the horizontal axis.

Take

The TAKE switch has two functions. The first is to toggle a logo ON and OFF, but also can be used to activate Schedule. To use the TAKE switch to toggle a logo ON and OFF, simple pull the spring-loaded switch up. To use the TAKE switch to activate Schedule, configure GPI Control appropriately and flip the switch down (this is not a spring-loaded action, the switch will stay in the down position). To stop running Schedule, return the TAKE switch to the center position.

Logo

The Logo switch allows you to step through each logo. Pulling the spring-loaded switch up cycles forward through each Logo# (1 - 2 - 3 - 4 - 1). Pushing the spring-loaded switch down cycles backward through each Logo# (4 - 3 - 2 - 1 - 4). The currently selected logo is indicated by the bank of four (4) LEDs immediately to the right of the Logo switch.

Bug

The Bug LED gives an indication if a logo is being displayed. If on, the currently selected logo will be ON. If off, then no logo is being displayed. A flashing LED indicates a logo is transitioning between ON/OFF.

HD/SD LED
The HD/SD LED provides, at a glance, the presence of video and if the format is either HDSDI or SDSDI. If the LED is AMBER, then the incoming video is an HD format. If the LED is GREEN, then the incoming video is an SD format. If the LED is off, then there is no video present on the HDLG's output.

Power
The Power switch is just that, the power switch. Up is ON, down is OFF.

Rear Panel
The Rear Panel of the HDLG houses all of the video, GPI, USB and power connectors.

Power
Power connector for the HDLG (see Specifications for requirements)

USB
This is a USB2.0 compatible port used to communication between the HDLG and HDLogoGen.

SDI Input
HDSDI or SDSDI (auto-sensing) input.

SDI Loop
A looping output in the event power is lost, video will pass through.

SDI Output
Secondary output.

EXT Clock/GPI Input
A six (6) pin Phoenix connector (mated pair included) to provide input for both GPI control signals and 1PPS reference signal from a GPS or atomic clock.

EXT Clock
The External Clock input accepts a standard 1pps (pulse per second) signal provided by either a GPS Clock or similar clock reference generator. The pins are labeled 5V, 1pps and GND.
The External Clock should be able to supply 1pps Active High 100ms reference to synchronize the HDLG's internal clock. Connect your clock's output signals to GND and 1pps (respectively). Burst Electronics Inc has used the Tiny Tools *Time Sync Plus* from Broadcast Tools, Inc. (www.broadcasttools.com) to input 1pps.

GPI Input

The GPI input consists of three (3) pins. The pins are labeled 5V, GPI and GND. The GPI Input can be a TTL low or a TTL high to trigger the GPI. By default the HDLG's GPI input is configured for TTL Low. Either create a contact closure between GND and GPI, or place a TTL Low on GPI to activate a GPI Control function. You can change this to a TTL High by carefully removing the rear panel, sliding the top cover off and moving the jumper (JP1) located directly behind the GPI input. (Note: Connect the jumper between 5V & GPI to configure for TTL Low input, connect the jumper between GND & GPI for TTL High input. GPI Control is now accessed when you create a contact closure between 5V & GPI, or place a TTL High on GPI).

Specifications

Power Requirement:

12 volts DC @ 300mA (Polarity insensitive).

Size:

5.6W x 1.5H x 7.3D inches.

Logo:

24-bit bitmap (BMP); 262,144 maximum pixel count per logo

Storage:

Up to 4 logos

Interface:

USB2.0

Video:

Output -- Generate Mode 1080i/60, 720p/60 Digital Color Bars.
Input – SD/SDI or HD/SDI, SMPTE 259M, SMPTE 274M, SMPTE 296M

   Compatible formats:
- 486i 59.94Hz (SD-NTSC)
- 576i 50Hz (SD-PAL)
- 720p 59.94Hz
- 720p 60Hz
- 1035pSF 30 Hz
- 1035pSF 29.97Hz
- 1080p 30Hz
- 1080p 29.97Hz
- 1080p 25Hz
- 1080i 50Hz
- 1080i 59.94Hz
- 1080i 60Hz
- 1080pSF 30Hz
- 1080pSF 29.97Hz
- 1080pSF 23.98Hz
- 1080pSF 24Hz
- 1080pSF 25Hz

Accessories:

3 foot USB2.0 cable
Program/Driver Installation Disk
120VAC to 12VDC 500mA converter (Center Positive)
Phoenix connector for GPI/Clock connector

Battery Replacement

If your HDLG is unable to hold on to Time/Date when you cycle power, before you call, it may just need a new battery. Your HDLG is installed with a small button cell battery to run the internal clock. We expect this battery to run for years, however, we also expect the HDLG to far outlive this battery. So periodically, this cell will need to be replaced.

You will need a CR2032 button cell battery (available at most department and convenient stores) and a #1 Phillips screwdriver.

Before you begin, remove the HDLG from service (disconnect from video, power and the PC). We recommend you follow appropriate ESD precautions before opening the product. Using the Phillips screwdriver, remove the two front panel screws from the HDLG. Carefully remove the front panel and plastic bezel (try to avoid changing the positions of the LEDs that protrude from the panel). Now slide the top cover toward the front of the unit until you expose the battery and it's cradle (approximately half way down the length of the circuit board). With your fingernail, gently pry the battery up and out of the cradle. Replace the old battery with the new battery and slide the top cover back into place. Replace the bezel and front panel (carefully line up the protruding LEDs with their panel cutouts). Replace the front panel screws and tighten just to "finger-tight". The HDLG should now be ready for service.