

HDTV Generator Module for the TG2000 Video Signal Generator Platform



Features & Benefits

- Provides Reliable 1.485 Gb/s Serial Digital Video Test Signal Source:
 - 1080i at 60, 59.94, and 50 Hz Rates
 - 1080i at 23.98, 24, 25, 29.97, 30 Hz
 - 1080p at 23.98 and 24 sF Rates
 - 720p at 60 and 59.94 Hz Rates
- Up to 8 Channels of Embedded Audio
- Character ID and Logo Insertion
- Create New HD Test Signals with Supplied SDP2000 PC Software
- Three HD Serial Outputs
- Synchronous Solution with AGL1 Genlock Module
- Multiple Modules in a Single Frame

Applications

- A Source of Reference Signals for TV Operations
- R&D Design Engineering
- Manufacturing Test and Quality Control
- Service and Maintenance

The HDVG1 is a high-accuracy, multiformat high-definition test signal generator module that is designed to install into the Tektronix TG2000 video signal generation platform. The HDVG1 provides three 1.485 Gb/s serial digital video test signal outputs in 1080i format in 60, 59.95, and 50 Hz rates, 1080p formats in 25, 24/24 sF, and 23.98/23.98 sF formats and 720p in 60 and 59.94 Hz formats. Completely programmable with the included SDP2000 PC-based signal creation software, the HDVG1 module in the TG2000 generator platform offers terrestrial broadcasters, content providers, and manufacturers a complete solution for their high-definition video test signal creation and generation needs.

Embedded Audio

Modeled after the successful DVG1 digital SDTV generator module, the HDVG1 includes the ability to add up to 8 channels of embedded audio as ancillary data. Each audio channel can be switched off, set to silence, or have independent selection of frequency and amplitude characteristics.

HD Test Signals

The HDVG1 comes preloaded with a large complement of test signals selected for maximum functionality in today's HD broadcast, content creation, and manufacturing environments. Custom HD test signals can also be created with the included SDP2000 PC-based signal creation and editing software. User-definable custom character ID and logos can be created and embedded in any of the HD test signals.

HDVG1 Test Signals

- 100%, 75%, and SMPTE bars
- 0%, 50%, 100% flat fields
- 3 channel, 5 step
- Limit ramp
- Shallow ramp
- Shallow ramp matrix
- Valid ramp
- 75% red, green, blue fields
- Convergence
- 1-10, 10-20, 20-30 MHz multiburst
- 2T30 pulse and bar
- SDI equalizer, PLL, and matrix
- 1-15 and 1-30 MHz sweeps
- Bowtie
- Co-site pulse

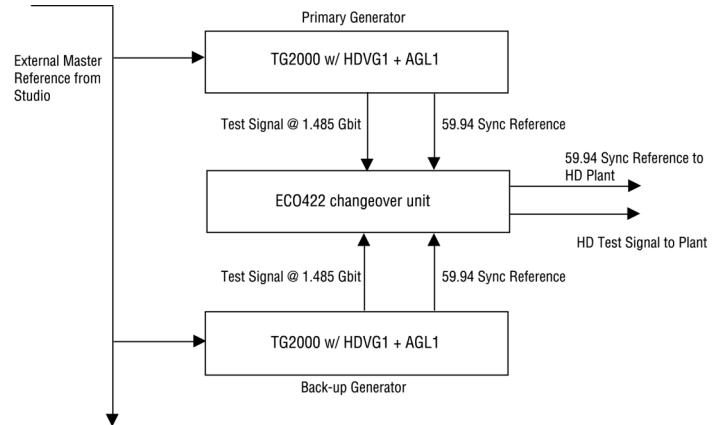


Figure 1.

Complete HD Test Signal and Master Sync Lock Solution

The TG2000 with the HDVG1 and AGL1 (analog genlock module) and ECO422 sync changeover unit provides a completely redundant master sync and HD test signal solution for broadcasters and content creation applications. The AGL1 module provides a precise lock of the TG2000 and HDVG1 module clocks to an external timing reference source. Analog blackout and high-definition test signals can then be routed to the high-definition plant.

See figure 1.

Characteristics

HDVG1 Test Signal Generator

Standards Conformance – SMPTE 272M, 292M, 274M, 296M.

Electrical Characteristics (Typical)

Connector (Serial) – (3) BNC.

Bit Rate – 1.485 Gb/s, 1.485/1.001 Gb/s.

Formats –

1080i/60 Hz, 59.94, and 50 Hz.

1080p/25 Hz, 24 Hz/24 sF, and 23.98 Hz/23.98 sF. 29.97 and 30 Hz.

720p/60 Hz and 59.94 Hz.

Amplitude – 800 mV \pm 10%.

Overshoot – \leq 10%.

Rise and Fall Times – \leq 270 ps (20% to 80%).

DC Offset (AC Coupled) – 0.0 V \pm 0.5 V.

Jitter – \leq 135 ps (alignment jitter).

Return Loss –

\leq 15 dB from 5 MHz to 742.5 MHz.

\leq 10 dB from 742.5 MHz to 1.485 GHz.

Audio Signal (Embedded)

Channels Active – 1, 2, 3, 4, 5, 6, 7, 8.

Audio Sampling Frequency – 48 kHz.

Sampling Alignment – Asynchronous, synchronous without frame numbers, synchronous with frame numbers. 24 and 20 bit selectable.

For Each Channel: –

Audio amplitude: 0 to -60 dBFS in 1 dB increments.

Audio Frequency (Hz): 50, 100, 150, 200, 250, 300, 400, 500, 600, 750, 800, 1000, 1200, 1500, 1600, 2000, 2400, 3000, 3200, 4000, 4800, 6000, 8000, 9600, 12000, 16000, 24000.

Ordering Information

HDVG1

Includes: SDP2000 Signal Generation Software.

Warranty

1-year parts and labor.



Product(s) are manufactured in ISO registered facilities.

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For Further Information. Tektronix maintains a comprehensive, constantly expanding collection of application notes, technical briefs and other resources to help engineers working on the cutting edge of technology. Please visit www.tektronix.com



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