

**TG8000**  
**Multiformat Test Signal Generator**  
**Release Notes**

This document supports firmware version 1.1.

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



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# Release notes

This document describes new features, improvements, and limitations of firmware version 1.1 for the TG8000 Multiformat Test Signal Generator.

This release includes repairs for defects found in earlier versions of the TG8000 firmware.

## New features

The following new features are included in this release:

- BG7 module**
- On BG7 modules with Option CB, new test signals have been added including Shallow Ramp, Convergence, Pluge and Luma Reference. In addition, PAL test signals CCIR-17L and CCIR-18L have been added.

- GPS7 module**
- The capability to genlock to CW signals has been added. The module can genlock to 1 MHz, 3.58 MHz, 4.43 MHz, 5 MHz and 10 MHz reference input signals.

- SDI7 module**
- Burn-in time code (BITC) display can now be added to any test pattern generated from the outputs.
  - The secondary outputs can now output a test pattern or black burst signal with the embedded audio enabled, muted, or disabled (no audio).

**Mainframe diagnostics** The mainframe DIAGNOSTICS menu now includes two additional readouts:

- The number of hours that the Power Supply module has been active
- The status of the power level in the RTC (Real Time Controller) battery

## Feature modifications

The following modifications to existing features are included in this release:

- GPS7 module**
- The behavior of the time-of-day controls for INTERNAL reference time has been changed. When INTERNAL is selected as the time-of-day source, the time-of-day will not be automatically changed. To change the time-of-day in the INTERNAL mode, the user must enter the TIME OF DAY menu, scroll to the “Internal: yyyy-mm-dd hh:mm:ss” display, make the change, and then press the ENTER button to confirm the change.

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**NOTE.** *The manual time-of-day setting is not automatically reapplied when the instrument power is cycled. If the instrument powers up in INTERNAL mode, the time of day will be acquired from the internal real-time clock in the TG8000 generator.*

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- The behavior of the system time-of-day when VITC/LTC is used as the time-of-day reference has been changed. When VITC or LTC is used as the time-of-day source, the hh:mm:ss:ff settings will be synchronized to the VITC/LTC source (if present). However, the yyyy-mm-dd settings will be set from the most recent valid source (GPS or internal/manual).
- SDI7 module**
- The logo overlay position on test pattern outputs will not move when MOVING PICTURE mode is enabled.

## General limitations

This firmware release has the following general limitations. Please check the Tektronix Web site ([www.tek.com/software/downloads](http://www.tek.com/software/downloads)) for any firmware updates to the TG8000 generator.

### TG Setup software

In setting signal formats for the Black 2 and Black 3 outputs of the AGL7 module, do not select Black 2 = HD sync (same as Black 3) and Black 3 = BB (same as Black 2) simultaneously, while Frame Reset 1 is set to 2.997 Hz. This operation makes the Frame Reset 1 unstable. If this is the case, reset the system by recalling the Power On Default setting or a preset.

### USB port

- When you mount a USB drive, the SDI output signal from an HDVG7 module may briefly unlock. This problem only occurs on HDVG7 modules with serial numbers B013412 or earlier, or HDVG7 modules with a serial number that begins with the letter 'J'. The SDI outputs from DVG7, HD3G7, and SDI7 modules are not affected by the mounting of a USB drive.
- The TG Setup application cannot be used for remote configuration while files are being restored from a USB drive. Wait until the restore operation is complete before opening the TG Setup application and connecting to the TG8000 generator.

### Firmware upgrades

- When the TG8000 firmware is upgraded (using a USB drive or a network connection), all files created or installed by the user are deleted. The deleted files include presets, signal files, frame picture files, logo files, sequence files, and for the SDI7 module, can also include text and font files. The standard set of factory installed signal files, logo files, and SDI7 module font files are restored when the firmware is upgraded.

To prevent the loss of your user created files, use the “Backup All User Data to USB” function from the UTILITY menu to save your user files before you upgrade the firmware. After the upgrade, use the “Restore All User Data From USB” function from the UTILITY menu to restore your user created files.

- If you have loaded the TG8000 memory with a large number of test signals or frame picture files, you may not be able to upgrade the instrument firmware because the memory is too full. If you receive a memory error while attempting to upgrade the firmware version, you need to delete some of the test signal or frame picture files and then perform the upgrade.

- Resetting an output signal** When the instrument rereads or resets signal data, such as format changing, preset recall, or signal-button assignment, a signal output interruption or synchronization shock may occur.
- Changing output formats with open menus** Some front-panel menus and status displays are dependent on the frame rate of the currently selected output format. If you open a submenu and press the FORMAT button to change the frame rate, the submenu will not be refreshed until it is exited and reopened.
- Setting the genlock source** If you change the frame reset period in the AGL7 module after the genlock source is set to CW, the frame reset may not be selected properly. If this is the case, set the frame reset to CW.
- Assigning a signal and frame picture to a front-panel button** When you assign a downloaded signal to a front-panel button, do not assign different format signals to the same button.  
Do not assign a signal set to a button that corresponds to the signal that is currently being output. Also, do not assign a signal set to a signal button while the message “No Signal Set Assigned” is displayed. If you reassign a signal set to the OTHER button, perform the reassignment while a signal that is assigned to a button other than the OTHER button is output.
- Time of day changes for timecode outputs** When the time-of-day changes, such as when scheduled daylight savings adjustments are made or when the internal time is set from the front panel, there can be a delay before that change is reflected on timecode outputs.  
This delay may be a small number of frames (fraction of a second) when all timecode output formats are based on the same clock rate (for example, NTSC black burst and 1080i 59.94 HD tri-level on black outputs in addition to 30 fps drop-frame on LTC outputs), or up to several seconds when timecode formats based on different clock rates are used (for example, 29.97 fps and 24 fps on different outputs).



**Daylight Savings Time (DST) scheduler system**

The DST scheduler system applies the DST offset even if the Time-Of-Day (TOD) source is set to “VITC Input” or “LTC Input”. In both cases, the offset is applied whether or not a valid VITC or LTC input signal is available. For proper DST scheduling, you need to manually enter the date and time in the TOD menu and ensure that the instrument has valid time information.

When the TOD source is set to “GPS signal” and the GPS is not locked to the input signal, the DST scheduler system will apply the DST offset when the internal time of day clock (which starts at fixed default and may not be correct) reaches the time scheduled for the DST offset to be applied or removed. Ensure that the GPS is locked and that the system time of day is correct before turning on the DST scheduler system.

The manual time-of-day setting is not automatically reapplied when the instrument power is cycled. If the instrument powers up in “Internal” mode, the time of day will be acquired from the internal real-time clock in the TG8000 generator. Check the system time of day and adjust as needed to ensure that it is correct before enabling the DST scheduler in “Internal” mode.

**Timing range of AGL7 module**

The TIMING menu for the AGL7 module will allow output timing adjustment beyond  $\pm \frac{1}{2}$  frame of the current format.

**Embedded audio of the HDVG7 module**

- Embedded audio for 720 23.98p/24p formats are not supported for the HDVG7 module, even though they can be selected in the menus.
- The first user data word in the audio control packet (containing the Audio Frame value) has incorrect parity when the frame count is 1, 2, or 4.

**Y to GBR convertor mode of the HDLG7 module**

If the output format is 2K and the Converter mode is set to Y to GBR, changing operating mode by selecting a test signal will cause an unexpected black and white signal to be generated. To correct the test signal, press the OTHER button until Normal is selected, and then press the test signal button.

**25/29.97/30 Hz segmented frame format for the HDLG7 module**

The HDLG7 module does not have format selections for 1080PsF at 25 Hz, 29.97 Hz, or 30 Hz. These formats are almost identical to 1080i (interlaced) formats at 50 Hz, 59.94 Hz, and 60 Hz respectively; these format settings can be used with progressive segmented signals. However, note that the SMPTE 352M payload identifier for the output signal will show an interlaced signal format, even when the HDLG7 module is converting a single link progressive segmented input signal to dual link.

**Converter mode of the HD3G7 module**

- Infrequently, the module will fail to up-convert the input HD-SDI signal. If no output is seen, the problem can be corrected by selecting a different test signal and then switching back to converter mode.
- The trigger output cannot generate a frame pulse or line pulse when the module is in converter mode.
- The moving picture and video component functions do not apply to up-converted output signals.
- When a Level B format is selected for the up-converted 3 Gb/s output signal, embedded audio from the input HD-SDI signal will be copied into both virtual links. Therefore, up to 32 channels of embedded audio can appear on the 3 Gb/s output.
- The HD3G7 module does not reformat SMPTE 334 Caption Distribution Packets in converter mode. Therefore, when up-converting from 1080i 59.94 Hz to 1080p 59.94 Hz, for example, the output will contain CDP data in alternate frames, each with 40 bytes of caption data, instead of CDP data in every frame, each with 20 bytes of caption data.
- Up-conversion to a Level B fast progressive format may result in mis-ordered Caption Distribution Packets in the stream of output frames.

**SDI equalizer test signal of the HD3G7 and SDI7 modules**

Per SMPTE RP198 for HD-SDI, a polarity change word is used to ensure equal probabilities of the DC bias for the equalizer test pattern. However, some SDI formats still exhibit an unequal bias. Enabling a dynamic bit stream in the output signal, such as embedded audio or timecode data, will result in both DC levels appearing in the output signal.

**Test signal files of the HD3G7 and SDI7 modules**

The HD3G7 and SDI7 modules use file-based test signal definitions. If you modify a signal file from the factory version, unpredictable results may occur. To recover from this situation, reload the factory version of the signal file from the *TG8000 SW Library and Documentation DVD* that was supplied with the instrument.

**SDI7 multi-language support**

Languages that require combined glyphs in order to be represented may not be correctly rendered in the Text ID display on the SDI7 module.

**Multiburst signal motion on the SDI7 module**

Do not set a Multiburst signal in motion on the SDI7 module. Otherwise, a corrupted signal will be generated.