

**SPG8000**  
**Master Sync / Clock Reference Generator**  
**Release Notes**

This document supports firmware version 1.2.

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



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# Release notes

This document describes new features, improvements, and limitations of firmware version 1.2 for the SPG8000 Master Sync / Clock Reference Generator.

## Product features

The SPG8000 is a precision multiformat video signal generator, suitable for master synchronization and reference applications. It provides multiple video reference signals, such as black burst, HD tri-level sync, and serial digital and composite analog test patterns, and it provides time reference signals such as time code and NTP (Network Time Protocol).

The base configuration includes three sync outputs that can be configured with independent output formats (NTSC/PAL black burst and/or HD tri-level sync) and independently adjustable timing offsets. With the BG option, four more analog outputs can be added. A high-accuracy, oven-controlled crystal oscillator provides a stable frequency reference for the system, or the pass-through genlock input can be used to lock to an external video reference or 10 MHz continuous wave signal.

The SPG8000 includes the following features:

- Multiple independent black burst and HD tri-level sync outputs provide all the video reference signals required in a video broadcast or production facility
- Four LTC outputs, VITC on black burst outputs, and NTP server provide time reference signals in a variety of formats
- GPS-based synchronization gives an accurate time-of-day reference and deterministic video phase reference, and locks remote SPG8000 systems to each other
- Stay GenLock® and GPS Holdover Recovery preven. synchronization shock when the external reference input or GPS signal is temporarily lost
- Wide selection of video test patterns in serial digital formats (SD, HD and 3G-SDI) and composite analog formats (NTSC and PAL)
- Dual hot-swappable power supplies ensure continuous availability of reference signals
- Easy to manage with Web-based interface for remote configuration and SNMP for status and alert information

## 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 SPG8000 generator.

### Firmware upgrades

- When the SPG8000 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 Option SDI, can also include text and font files. The standard set of factory installed signal files, logo files, and Option SDI 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 SYSTEM 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 SYSTEM menu to restore your user created files.

- If you have loaded the SPG8000 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, you need to delete some of the test signal or frame picture files and then perform the upgrade.

### Alert messages

If there is an active alert condition (e.g. reference input missing) while the STATUS : ALERT menu is displayed, the alert message(s) will not automatically change if the alert condition is cleared. To view any changes to the alert messages, you must change to another menu and then return to the STATUS : ALERT menu.

### 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.

### Incorrect CW reference signal

If an NTSC or PAL signal is connected to the REF input when the reference source is set to “CW”, the video timing of all SPG8000 outputs will rattle every 1–2 seconds. To resolve this problem, use the REFERENCE : SOURCE menu to select the signal type that matches the reference input signal.

### Web interface performance with Internet Explorer 8

Some performance issues have been observed when the SPG8000 Web Interface is used with Internet Explorer 8. Newer browsers such as Internet Explorer 9, Mozilla Firefox, Safari, or Google Chrome are recommended.

**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.

If the TOD source is set to “Internal” when the instrument is powered on, you will need to change the TOD source to “VITC Input”, “LTC Input”, or “GPS Signal” and then back to “Internal” in order to enable the DST scheduler system with “Internal” as the TOD source. Check the system time of day and adjust as needed to ensure that it is correct before enabling the DST scheduler in “Internal” mode.

**Option GPS**

**Missing GPS signal.** When the reference source is set to “GPS Signal” but the external GPS signal is missing, the SPG8000 automatically uses the internal reference signal as the reference source. However, the front-panel INT indicator does not turn green to show that the internal reference is being used. The EXT indicator does correctly turn red to indicate that the external (GPS) reference is missing.

**Option SDI**    **SDI equalizer test signal.** 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.** The Option SDI signals 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 *SPG8000 Product Documentation CD*.

**Multi-language support.** Languages that require combined glyphs in order to be represented may not be correctly rendered in the Text ID display on SDI signals.

**Multiburst signal motion.** Do not set a Multiburst signal in motion on SDI signals. Otherwise, a corrupted signal will be generated.

**Overlay and zone plate circles not round.** For SD 525 and 625 signal formats, the overlay and zone plate circles are not perfectly round.

**Bitmap files for logo overlays.** When you create bitmap files for logo overlays, filter the sharp edges within the logo image before you download the bitmap file to the instrument. The SPG8000 applies a filter to the left and right edges of the bitmap image to reduce high-frequency ringing on the signal waveform. However, this filter is not applied within the span of the image.