

# SynFlash

Signal reference generator for Syncheck™

## Firmware v2.0 README

A computer running Windows (2k or higher) with a 9-pin serial port is required to install this update. Some USB to serial converters can be used, see the SynFlash user manual for more information. For the cost of shipping, we will install the update for you.

Use the cable we supplied with your SynFlash to connect it to the computer's serial port. Turn on SynFlash. Run this installer.

The following changes are implemented with version 2.0 firmware. (The previous firmware, version 1E, was shipped with all production units until September 2010.)

1. When a valid reference is detected at turn on, Synflash should begin operation automatically at 1 flashpip per second. (Previously, SynFlash started with either 8 frames per flashpip or 10 frames per flashpip, depending on detected frame rate.)
2. When "video speed" frame rates are detected (23.976, 29.97, 59.94) the green status LED will wink, otherwise a valid reference will show as solid green.
3. When set in 8, 10, or 12 frames per flashpip modes, there is a repeating pause in the sequence. New behavior pauses after 12 flashpips, for a duration equal to 4 additional flashpips. (Previously, the pause happened after 14 flashpips with a duration equal to 2 additional flashpips.)
4. Improved error detection and reset during a change of video frame rate and/or format. While not entirely bullet proof, it is much more robust than before.
5. Improved flashpip event on/off timing for some (but not all) formats, to coincide as closely as possible with standard active video lines. Changes were made for NTSC, PAL, 525p, 720p(50, 59.94, 60 only), 1080p, and 1080i. (Previously, the on/off timing default was always used, now the timing default is used only for those formats NOT mentioned above. The timing default turns each event on at 16 lines after frame edge, off at 4 lines before frame edge)
6. Fixed bug with 1080p tri level sync, to correctly output 1 per second flashpips. (Flashpip duration continues to be 2 frames with 1080p reference (not segmented), and 1 frame for all others.)
7. Changed behavior of 1080p/25 flashpip spacing. As noted above, 1080p/25 flashpip events are 2 frames in duration, a limitation of SynFlash's hardware. A true "1 per second" flashpip sequence is therefore not possible since 25 is not evenly divisible by 2. Therefore, when a 1 per second rate is selected with 1080p/25, the flashpip events actually alternate spacing of 24 and 26 frames. The long term average spacing is 25 frames, which an ideal 1 per second rate would be, but the actual spacing between any two consecutive flashpips is either 1 frame less than 25, or 1 frame more. (Another way to think of this is that *every other* flashpip will occur at exact 2 second intervals)
8. Battery drain has been reduced during operation by approximately 20 percent. Drain during sleep mode has been reduced approximately 50 percent.
9. Operations not mentioned here should remain as stated in the manual.