Eggtimer TRS Software Release Notes

Version 2.07

GPS Dump

One missing feature has been the ability to read the GPS data directly without going through an Eggfinder receiver. With Version 2.07, you can view the GPS data feed from the serial cable (at 9600 baud) by entering the Monitor Mode (holding the button down at power-up), and hitting the "G" key. This can be very useful for troubleshooting.

Version 2.06A

New Hardware Support

Version 2.06A (and later) will only support the "B" version of the TRS board. This is due to the change in the baro pressure sensor to a TE/Meas-Spec MS5637, which renders the software incompatible with the previous Bosch BMP180 sensor. This was done because the BMP180 has gone End of Life, and is nearly impossible to find from authorized Bosch distributors. Its direct replacement was not software compatible, so after an evaluation process we chose the MS5637 since the software was going to have to be changed anyway.

Interface Changes

An additional screen has been added to the arming sequence. After the status screen has been acknowledged (by holding the button on the Eggfinder LCD for at least 7 seconds), as screen that says "ARMING… Please Wait" appears. This is to provide positive feedback that it "took" your button press and is in the process of arming. Once you get the GPS coordinate screen, you're ready to fly.

Flight-Related Changes

The maximum logged altitude has changed from the previous value of 32,000' to about 65,000'. This was due to several requests, and because the new baro sensor has better resolution throughout its rated range. Because the increased ceiling implies longer flights, the length of the flight memory for each flight has been doubled, at the expense of having half the number of flights saved (16 instead of 32). Feedback from users has been that 32 flights was unnecessary, so this was an acceptable sacrifice. Note that all real-time flight events are actually performed using 32-bit math, so if you exceed the 65,000' ceiling (or 32,000' previously) it will have no effect on deployments.

Version 1.05A

Backup Drogue Issue Fixed

A bug that sometimes caused the drogue when used in backup deployment mode has been fixed. It did not affect the drogue in "normal" (nose-over) deployment mode.

Interface Changes

Acting on user feedback, some LCD interface changes have been made…

• The "fly" menu selections from the Settings menu have been broken out, there is now a separate "Start a Flight" menu. It works the same, you hold the button down for > 7 seconds to select, it displays the current TRS status, and you hold the button down for another > 7 seconds in order to start the flight sequence. If the channel status(es) do not agree with the Flight Settings, you will get a hard stop and you will not be able to continue the flight.

• The "Dsp/Chg Settings" menu has been changed so that there are only "Save" and "Don't Save" options. The "Save and Halt" option has been removed, when you pick a save option it returns to the menu.

• The "Display Status" menu no longer does a hard stop if the deployment status is not consistent with the settings, i.e. a selected deployment channel has no continuity. This allows you to fix it, i.e. turn on your deployment power without having to reset the TRS.

Channel Deployment Status Changes

The deployment channel status reported on the LCD during a flight has two new status options. If you have continuity after a deployment channel has fired, the deployment status will display a lower-case letter (i.e. "d" for Drogue, "m" for Main). This confirms that the TRS has attempted to fire the deployment charge. If there is no continuity after the channel fires, it will go blank, just like before. Prior to this release, you couldn't tell if the "D" or "M" status meant that you simply had continuity and the channel had not been selected, or if it had fired but had not burned open.

Version 1.04Q

Changed LDA Altitude Reference

The altitude for comparing to the LDA threshold (200') now uses the filtered altitude value rather than the raw value. This was done because some very high thrust motors caused the LDA to start early. This has no real effect on flight issues, since deployments aren't enabled until the low velocity threshold has been met (< 100 ft/sec for over one second) but it did make the downloaded graph look a little funny.

Version 1.04N

I'm Alive Beep

An "I'm Alive" beep is now sent to the LCD receiver every 15 seconds if the TRS is paired with the LCD and is idle (i.e. waiting for a button press). This lets you know that your TRS is still in communication with the LCD receiver, even though you aren't actively sending/receiving data.

Removed 2nd Order Filtering Display in Download

To accommodate the "I'm Alive" beep, we had to remove something. After looking through the documentation and code, we decided to remove the 2nd Order Filtering display from the download. We have found that it was confusing to people, and the flight software doesn't use it for calculations (it uses the 1st Order filter). The documentation has been changed to match… you will no longer see the "FVeloc2" column in the .csv download.

Version 1.04M

Added the ASCII DEL character (0x7F) to the Device Name editor as an alternate backspace key, since some ANSI/VT100 emulators cannot produce the ASCII backspace character (0x08).

Version 1.04L

Fixed Bugs in Master Reset

The Device Name was not being reinitialized to "MY EGGTIMER TRS" after a Master Reset, it has been fixed.

The default Drogue setting was supposed to be "Nose-Over", it was being set to "OFF" instead. That has been fixed.

Hard Stop Due to Low Voltage

A low voltage threshold of 6.6V has been added to the Status Check display. If the battery voltage of the Eggtimer GPS's computer battery is < 6.6V, the Status Check will fail. If it occurs during the Self Test portion of the flight initialization sequence (after the long button press from the Status Check display), you will get an error code from the Eggtimer TRS (one beep), and if you have the LCD display you will get an error code displayed on the LCD display and the flight computer will not arm.

6.6V was chosen because that is the minimum value that we feel is safe to operate a 2S 7.4V LiPo battery for a reasonable amount of time without having to worry about it getting so low that it might not take a charge again. Note that once you have completely armed the Eggtimer TRS and started the flight sequence (i.e. the buzzer starts "chirping" and the LCD display starts showing your AGL altitude), there are no more self-tests. If you have a low battery and you let the rocket sit on the pad for an extended period of time, it may be possible that you battery will run low even though it "passed" the self-test. For that reason, you should always charge your batteries before every flight; do NOT rely on the self-test routine to tell you if your battery is good or not.

Self-Test Error Codes Now Displayed on LCD

If your Eggtimer TRS fails a Self-Test routine (executed at the start of the launch sequence), you will get an error display on the LCD receiver, and the launch sequence will not continue. The buzzer on the Eggtimer TRS will also beep out the error code(s) (useful if you do not have an LCD receiver).

Version 1.04K

Initial Public Release