

MOTOR CONTROLLERS FOR ELECTRIC FREE FLIGHT

by Ron Vanden Bossche

Reprinted here from the FAC Eagle Squadron Flight Log — September/October 2005

Ron gave the following excellent presentation at the September 24th, 2005 FAC Quarterly meeting. Here it is for those that couldn't attend.

One big difficulty with electric-powered free flight has been accurately controlling the motor run. This problem is minimized by newly available electronic motor control profilers. Here are three.

The most basic controller is the "Micro Electronic Flight Timer" designed by Stew Meyers and available from HiLine (\$13.95 in their 2004 catalogue). Its adjustment range is from 10 seconds to 3 minutes. You start the timer by touching a 9 volt battery to its external contacts. The timer capacitor regulates the time of current flow from the flight battery. Max amps through the timer is 2A. Weight is 1.2 grams. No website.

Next is the "Zombie" Flight Profiler from Atomic Workshop in England (24.95 English Pounds plus shipping). This gizmo allows you to profile the climb phase and the cruise phase individually. That is you can set the percent of power and the time for both phases separately. The Zombie is factory configured to operate from a single Li-Poly cell. However, you can use its own internal programming to reconfigure it for 2 Li-Poly cells or 3 to 7 NiMH/NiCad cells. Max current is 4 Amps. The Zombie has a battery level indicator and, if the battery is too low for operation, the LED will blink rapidly for 3 seconds and the Zombie will shut down. It also has an on/off switch which features a delayed start (approx. 10 seconds). This lets you close any hatches on the model or place it on the ground ready for take-off. Even with all this capability, weight is only 1.1 grams. Website is: www.atomicworkshop.co.uk.

The third device is from EF technologies of Delaware. It's a digital free flight controller/timer called the "Smoothie". This actually is a family of 5 somewhat different microprocessor based multifunction devices. They are: Standard small electric, Small electric (LIPO), Standard large electric, Large electric LIPO, and High Performance electric. Their website (<http://www.eft-inc.com/models>) has a 12 page manual on the operation of the Smoothie series. I have on order the small electric LIPO (2.5 grams, \$50.00) and the Large electric LIPO (2.8 grams, \$55.00). I also ordered the Lost Model Finder (\$12.00), which is a board you attach to the Smoothie and will begin to "chirp" 10 minutes after the motor run/DT has expired to help you find your model. Both timers will take 1-3 cell Lithium Polymer batteries. The Small unit has a capacity of 2 Amps and the Large unit has a capacity of 10 Amps. They both have motor run timers, speed control, and a hot wire D/T.

I have no real life results to report but am really looking forward to trying out these units. The Zombie looks especially intriguing because it has the lowest weight and the most versatile flight profile.

