

Product Review

**Emcotec
DPSI-RV Mini 6
power distribution unit**
by
Colin Simpson.

In September I took delivery of my latest “toy”, a Boomerang XL2 turbine powered jet. Upon reading the instructions it was clear to me that some long leads were required to power the servos and that eight high-torque, high-speed digital servos were going to be required. With a large number of high-speed, high torque digital servos and long lead lengths, there was clearly a requirement for a high and stable voltage and current supply, together with a filtering system so as to eliminate servo wire induced receiver interference.

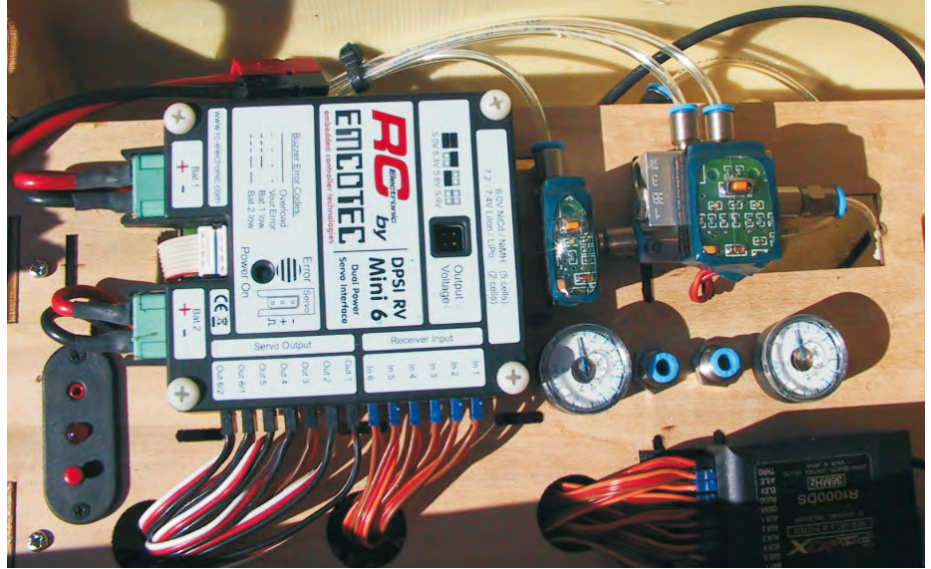
I noticed an advertisement in RCM News for the German Emtotec Series power distribution units imported by Precision Aerobatics of Sydney. I contacted PA and purchased the “Mini 6” version of the Emtotec DPSI (dual power servo interface). I installed it to the Boomerang XL2 in accordance with the excellent instructions given. Photograph 1 shows the unit fitted within the fuselage of the aircraft, the two electronic/pneumatic switching units seen above the Emtotec unit being the excellent PAPS electronic brake and retract operating switches (eliminates servos).

The unit is powered by two 2-cell 3200 milliamp hour Li-po cells, each being attached to the unit using the multiplex pins provided. Also provided with the device are six leads so as to allow for the connection of six receiver channels directly to the device. These six channels, in this case, supplied signal to the unit which, in turn, supplied a constant 5.9 volts (selectable between 5 and 5.9 volts) to the servos connected to the output stage.

The unit, and the receiver, are switched



5.9 volts at the end of a 2 metre servo lead.



through a very clever failsafe switching unit that can be seen arrowed at the base of the unit. This switch does not conduct current at all, it simply provides a switching signal to the device. Therefore, once switched on using the pin connection supplied, the unit will remain on until such time that the pin unit is placed back into its “off” location, then providing an “off” signal.

This switch, once providing the “on” signal, can then be completely severed from the device whilst keeping the device (and the radio system) turned on and operating normally. Therefore, any fault that may appear within the switch itself will not endanger the operation of the radio equipment. The device will therefore provide a constant 5.9 volts (as set up in my aircraft) to each of the attached servos no matter what the load is on that servo, i.e. the device keeps the voltage at 5.9 volts and supplies the current demanded by the servo, the current being variable in accordance with the load placed on the servo.

The Mini 6 is capable of delivering a total of 14 amps to the servos but this current does not pass through the receiver. The receiver is supplied with a constant voltage also of 5.9 volts, but is only required to draw the current required for its operation plus, in this instance, the current required to operate the throttle in the turbine ECU and the two PAPS electronic (retract and brake) switches.

Note in the photograph that a “Hangar 9” digital servo and receiver current meter is connected to the end of the 2 metre long servo leads leading to the elevators of the aircraft. The Emtotec Mini 6 is set for 5.9 volts and that is the voltage that is measured at the actual servo i.e., at the end of a two metre long lead.

In operation at the recent jet meeting at Temora, the device was utilised within the Boomerang XL2 and operated perfectly as the device was intended. Both Li-po batteries were partially drained equally as the device is intended to do.

In summary, the device utilises a pair of

batteries to supply a redundant power supply to the servos within the aircraft without that power being passed through the receiver. The receiver is then not subjected to large spikes of current, voltage drops and the like which can cause catastrophic “radio failures”, leading to the loss of an aircraft.

The device has a high frequency filtering system that prevents induced noise from within the long servo leads being passed back into the receiver and thus interfering with it. The switch unit for the machine is failsafe in its operation and, indeed, once switched on, can be completely



Chris Hebbard helps with my new toy.

removed or severed without compromising the radio integrity.

The device provides up to 14 amps peak current to 6 channels and 7 servos. I am so impressed with both the principle of operation and performance of the device that I have ordered a second “mini 6” for a scale project plus a larger unit (DPSI RV which allows 12 receiver channels and 32 servos to 56 amps) for a larger jet project.

There is a wide selection the Emtotec units available for many different applications. Data sheets and manuals along with a short description of each unit are available from the Precision Aerobatics’ website. I recommend reading through the data sheets and learn the many functions as these units has a lot to offer.

The Emtotec Mini 6 is available from Precision Aerobatics Tel 0255580443. www.PRECISIONAEROBATICS.com