



PowerBox Royal

Colin reviews the latest offering from PowerBox

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Royal unit mounted using the supplied rubber grommets and with leads from the LCD display and SensorSwitch connected



LCD display is a neat unit and fully matches the usual PowerBox quality

Background

Regular readers may recall that I have been building two Fliegerland Fox gliders, complete with retractable JetCat P120 turbines. These are now nearing completion, and will be covered in a future issue of RCJ. As these models will be well over 20 kg without fuel, they require the use of twin receivers. They are designed and stressed to be fully aerobatic and they are each fitted with seven Futaba BLS352 brushless servos to operate the large control surfaces, as well as powerful spoiler servos. It was clear that these servos could draw very high currents

due to the potential high flying speeds and consequent flight loads, so a substantial battery system would be required.

Having used the excellent PowerBox battery systems in previous jets and the standalone PowerBox RRS twin receiver system, I decided that the perfect power system for these large, heavy and fully aerobatic models would be the new PowerBox Royal. This combines a twin battery and twin receiver system and LCD information display, and is currently top of the range of systems available from PowerBox.

The Installation

The complete installation selected for the Fox includes the PowerBox Royal, LCD display, SensorSwitch and two 2800 mAh LiPo battery packs. The power system incorporated into the Royal provides a stabilised power supply to the servos, which is switch selectable between 5.9 V and 7.0 V, the higher voltages now beginning to become more popular with some of the latest servo designs. The receiver/s are at the same time supplied with a constant 5.0 V supply through twin independent regulators, this being a characteristic of the PowerBox products, with all of the safety critical components of the system being duplicated. Due to this design ethos, any single component failure can only result in the loss of one of the two battery supply circuits, ensuring a reliable supply of power to the receiver/s and servos at all times.

The SensorSwitch

The SensorSwitch is typical of the design ethos of PowerBox, in that if the switch should fail, or become disconnected in flight, the Royal will be unaffected. This is because the electronic switches are part of the Royal itself, the SensorSwitch just having a command function. The fail-safe mode of the electronic switches in the Royal is to remain switched on if there is no clear switch off command from the SensorSwitch. To switch the Royal on requires the isolated single button on the SensorSwitch to be held down for at least 1 second. Then each of the independent battery systems can be switched on by pressing the appropriate button. (During this the isolator switch is depressed.) Switching the Royal off requires the same operation, which ensures that there is no possibility of inadvertently switching the system on or off.

Supplied LiPo Batteries

The supplied 2800 mAh LiPo battery packs are in hard moulded cases and include their own internal charging circuitry. Only a very simple power supply is needed for charging, with PowerBox offering an AC mains unit as well as 12 V DC charge leads. Both of these have twin outputs, which allow both battery packs to be charged simultaneously. LEDs on the battery packs illuminate red whilst charging and green when fully charged. Usefully, the battery packs come complete with a fly lead and small LED, which can be plugged into the pack when the model is in long-term storage, this illuminates when the pack voltage drops to 3.5 V per cell. This is a very useful safety feature, particularly when the model is stored for any significant length of time, for example in countries with long, cold winters.

If the LEDs are installed in the model in



The complete Royal package mounted together with twin Futaba R6014FS 2.4 GHz receivers. Extra security is given to the connectors with these neat mouldings, much nicer than the previously used heatshrink tubing.

packs and receivers is probably the ultimate system when being used together with 2.4 GHz equipment, and I would highly recommend it for any model that can accept the relatively low airborne weight increase over more basic systems. The quality of design and construction is excellent, with all components giving that air of solidity and purpose, which seems so common amongst German designed and manufactured items. I certainly intend to use this system again in any of the larger jet or high performance models I build in the future. Ó

Website: www.powerbox-systems.com

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Input Voltage:	4.0 to 9.0 V	Servo Voltage:	5.9 or 7.0 V (Selectable and Stabilised)
Power Supply:	6.0 V (5-cell) NiCad/ NiMH or 7.4 V (2-cell) LiPo	Servo Outputs:	26 available (20 programmable)
Current Drain:	30 mA (Royal only) 200 mA (Inc LCD Display)	RRS Seven Functions Frequency	35/40/72 MHz, 2.4 GHz
Voltage Drop:	Approx 0.25 V	Suitability:	-10 to +75 °C
Max Receiver Current:	1.5 A (to each receiver)	Temp Range:	91 x 65 x 19 mm (Royal alone)
Max Servo Current:	20 A (on each circuit)	Size:	133 g (Royal), 80 g (LCD), 15 g (SensorSwitch)
		Weight:	

