



PowerBox Gemini II

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The Gemini II improves a quality product still further as Colin Straus finds out

New Unit

For some years now I have been using a couple of the original PowerBox Gemini twin battery units in jets with complete success, so I was very interested when I was informed about the new Gemini II at the recent JetPower show.

The unit under review arrived just a few weeks later, and was quickly unpacked for inspection. Included in the box is the main Gemini II unit itself, electronic SensorSwitch, two JR style double ended leads, foam mounting pads and a comprehensive English/German language instruction manual.

Although of a similar shape and size to the original Gemini albeit some 12 mm shorter, the Gemini II does have a very different appearance, losing the twin LED's that were included in the old unit, and replacing the JR style input sockets with the much heavier duty Multiplex type, whilst the additional fixed 5.5 V output of the old unit has also been deleted, as this used to be included for helicopter gyro usage, and all modern helicopter gyros are designed to operate on 7.4 V.

Added to the new unit is the MagSensor switch option, allowing the unit to be switched on remotely, and rendering the use of a SensorSwitch for switching on/off unnecessary.

Within its compact dimensions the Gemini II packs the following features:

- Twin regulated outputs for Rx/servos
- 5.9 V or 7.4 V output voltage
- Electronic On/Off switch using either SensorSwitch or MagSensor
- Visual and audible On/Off indication
- Twin LED voltage indicators
- Can be used with NiMH, NiCad, LiPo and LiFe batteries
- Heavy-duty battery inputs
- Servo feedback current suppression
- Aluminium anodised case with large integral heatsink

Input voltage range is nice and wide with a minimum of only 4.0 V up to a maximum of 9.0 V, and with the variety of cell technologies catered for there is a multiplicity of choice in terms of battery options. The peak current possible is 6.0 Amps per circuit, so a total of 12.0 Amps across the two outputs, which should be enough for most models!

Current consumption of the unit when switched off is a mere 16 μ A, with this increasing to 56 mA when the unit is switched on, whilst with a weight of only 33 grams plus 11 grams for the SensorSwitch, the Gemini II system is light enough for use in smaller jets, particularly if two LiPo battery packs are used, as their weight is comparatively low.

Orientation

The unit comprises a moulded plastic upper section, which has a recess for the SensorSwitch socket, and a larger and very nicely produced blue, anodised, aluminium lower part, which includes the neatly machined cooling fins, the outer edges of which have a contrasting plain aluminium finish.

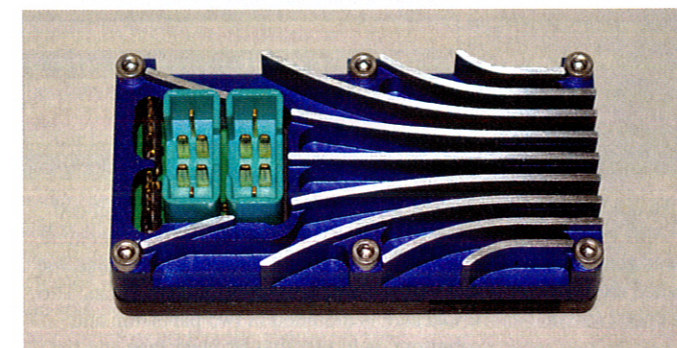
Fitted towards one end of the underside are the input and output sockets, whilst the top surface incorporates the MagSensor and the buzzer output. If using the SensorSwitch for On/Off operation then the Gemini II can be mounted in any orientation within the model, although the cooling fins must be left exposed, so the unit should not be wrapped in foam or similar, but be secured using either the foam pads supplied or cable ties, making sure that it is not rigidly mounted if the model is likely to suffer from vibration.

The SensorSwitch can then be mounted in a suitable and accessible position; ideally where the two LED's incorporated in the switch can easily be seen, as these indicate the status of the Gemini II itself and the battery packs being used by changing colour between red, orange and green.

If magnetic switching is preferred then first the optional MagSensor trigger must be



The Gemini II is both compact and light, weighing only 33 grams – note the two black discs, the larger one of these is the MagSensor, whilst the smaller one is the audio buzzer



Underside view shows the attractive and effective cooling fins, as well as the Multiplex battery input sockets, with the JR style output sockets being adjacent

obtained, then the Gemini II can be attached to the inner surface of the fuselage skin using the foam pads – the power of the magnetic system is sufficient for the system to operate even through several millimetres of glass or carbon fibre.

Whichever method of switching is adopted, the Gemini II has a clear audio output through the buzzer, with this being repeated for each battery, so that the pilot can be sure that both circuits are operational before flight – if using the SensorSwitch both LED's should also be illuminated green, this acting as a second confirmation.

Setting the unit up for the selected battery voltage/technology is straightforward using the SensorSwitch, this ensures that the unit provides the correct warnings etc. as the voltage falls during use, without this an almost flat LiPo pack connected to the unit with it set



The small (optional) magnet shown together with its lanyard can be used in place or alongside the SensorSwitch to switch the Gemini II on or off, these operations being confirmed by the in-built buzzer

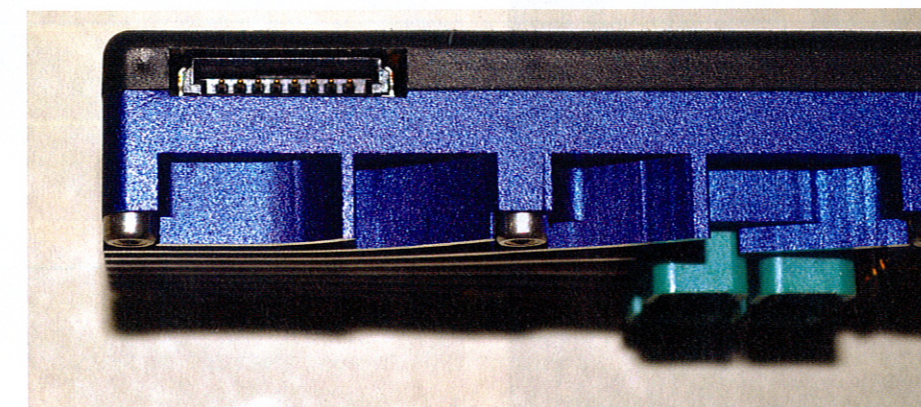
to 5-cell NiMH would indicate a good battery, as the voltage of the pack would still be above that of a charged NiMH pack.

Also set using the SensorSwitch is the output voltage – with more and more on-board

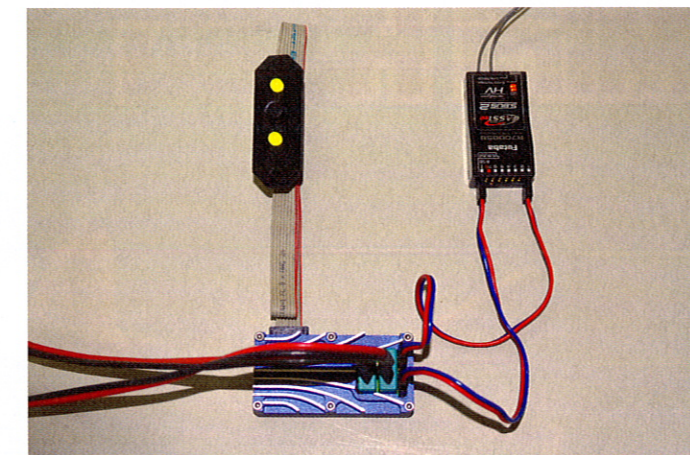
equipment now being suitable for high voltage use, the regulated 7.4 volt outputs of the Gemini II are ideal, as they provide a completely level voltage to the receiver and servos, rather than the much higher initial voltage of a directly connected LiPo, which would then fall as power is consumed from the pack, the initial higher voltage could be too much for some servos, and is likely to increase wear on any servo.

Conclusion

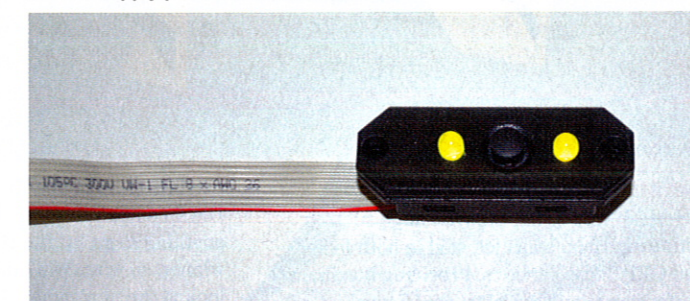
The new Gemini II improves an excellent product still further, and offers full twin battery security in a compact and light package, having the ability to pass significant current and with two switching options – I am delighted with the unit I have and am sure that they will become deservedly popular at flying fields around the world. ✱



The small multi-pin socket for the SensorSwitch connector is evident in this photo



Typical single receiver connection layout, with both JR style leads being used to supply power to the receiver



Close-up of the SensorSwitch with both batteries switched on, the green light from the LED's confirming that both batteries are supplying power and that they are at a working voltage



The complete PowerBox Gemini II package includes the SensorSwitch and comprehensive English and German language instructions