

SBEC

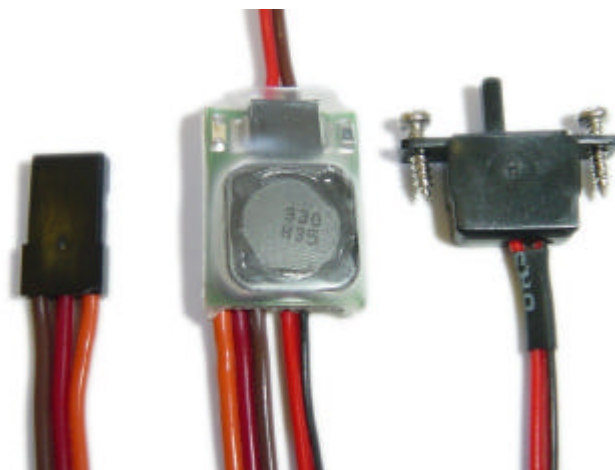
THE WORLD'S SMALLEST & LIGHTEST SWITCH-MODE BEC

INTRODUCTION

SBEC eliminates the need for a separate receiver battery pack by converting the main battery pack voltage into the required 5V to run servos, receiver, gyro, etc. This significantly reduces the overall weight and eliminates the administration of maintaining a charged receiver pack and monitoring its remaining capacity. SBEC is a highly integrated switch-mode power supply operating with an input voltage up to 50V and producing a constant regulated 5V or 6V output (depending on model), with any load up to 2.5A continuous – suitable for up to 8 standard servos or 6 digital servos¹. Besides being the smallest and lightest switch-mode BEC in the world, thanks to the latest integrated circuit technology, it also has the highest input voltage rating, allowing the use of up to 40 NiCd / NiMH cells (1.25V/cell) or 12s Lipo / Li-Ion (4.2V per cell). SBEC has special components to cater for the high instantaneous current draw that servos usually require. Although this instantaneous current may be above 2.5A, the continuous current draw of each servo is very much less, and SBEC is designed to handle both these current 'spikes' and the continuous current requirements of both standard and high-power digital servos.

FEATURES

- Up to 12s Lipo or 40 NiCd cells
- 5V or 6V regulated output (depending on model)
- 2.5 Amp continuous output current
- Low ripple voltage – 20mV @ 1A
- Exceptionally low EMI (low interference)
- Short circuit protection
- Input voltage surge protection up to 60V
- Compatible with all battery types



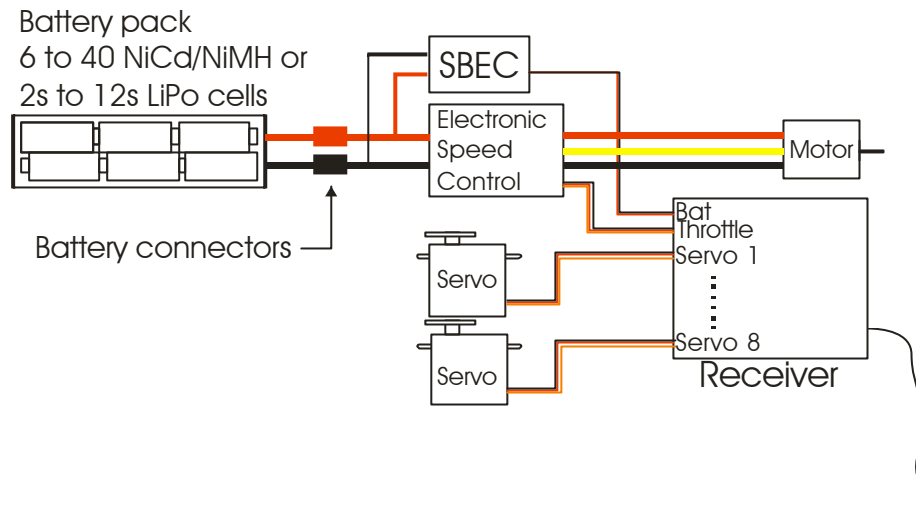
TECHNICAL INFORMATION

	MIN	TYPICAL	MAX	UNITS
DC Input voltage	5.5	7-50	55	V
Output voltage: SBEC	4.9	5.0	5.1	V
SBEC-6V	5.9	6.0	6.1	V
Current consumption	5.1	5.5	5.9	mA
No. of NiCd/NiMH cells @ 1.25V/cell	6	-	40	Cells
No. of LiPo cells @ 4.2V/cell	2	-	12	Cells
Output current (continuous) ²	-	-	2.5	A
Efficiency	77		89	%
Temperature coefficient (still-air)	34	35	36	°C/W
Size (L x W x H)	-	-	19 x 15 x 8	mm
	-	-	.75 x .59 x .32	in
Weight	10.8	11.0	11.2	g

CONNECTIONS

Connect the red (positive +) and black (negative -) input leads to the battery, making sure the polarity is correct. If an Electronic Speed Controller is used, make sure its BEC has been disabled. Alternatively, use an opto-decoupled ESC. Make sure the receiver has power before or at the same time as the ESC. This prevents the motor from unexpectedly starting up. Connect the output RC

connector to the receiver battery socket or an unused socket. The figure below shows a typical electric model setup with SBEC used to supply power to the receiver from a high-cell-count battery pack. Note that the Electronic Speed Controller and motor are optional.



Due to its nature of operation, SBEC generates a small amount of electronic noise (EMI) which may interfere with the receiver's reception if placed too close to the receiver. It is recommended that SBEC be placed at least 10cm from the receiver to minimise interference. **A range check must be performed to verify there is no interference.** Trim the length of the input lead (between battery and SBEC) to be as short as possible. If the receiver is far from the battery, it is better to extend the length of the RC output lead between SBEC and receiver rather than extending the power leads between the battery and SBEC.

OPERATION

SBEC will regulate the output voltage to a constant 5V (SBEC) or 6V (SBEC-6V) from an input voltage up to 50V. If the input voltage drops below 1V above the output voltage, the output will fall and maintain between 0.5V and 1V below the input voltage, depending on the load. The minimum number of cell recommended is 6 NiCd or 2 Li-Po's for SBEC and 7 NiCd or 3 Li-Po's for SBEC-6V.

If SBEC is supplied with a switch, it allows power to the RC electronics (receiver, servos, etc) to be controlled via the switch. This may be useful if the main battery pack is difficult to access by mounting the switch within easy reach. Please note that the "ON" and "OFF" markings on the switch are logically reversed. When the switch is "ON", SBEC is OFF³ and when the switch is "OFF", SBEC is ON. This feature allows the switch (if supplied with one) to be cut off if it's not needed (saving weight) which allows power to the RC electronics to be controlled in the usual way by connecting and disconnecting the main battery pack.

Important: If the main battery pack fails, all power to the receiver and servos will be lost.

CONTACT US

This product is manufactured by FirmTronics. Please visit us at www.firmtronics.com or email us at info@firmtronics.com.

¹ Based on JR DS368 digital servos.

² Airflow cooling required above 1.5A continuous.

³ When the switch is closed (ON position), SBEC enters "SHUTDOWN" mode and consumes 35 μ A.

WARRANTY

FirmTronics guarantees this product to be free from defects in materials and workmanship for a period of 90 days from the original date of purchase, verified by a sales receipt. This warranty does not cover incorrect application, incorrect installation, components worn by use, reversed voltage, improper voltage, tampering, misuse or shipping. Our warranty liability shall be limited to repairing the unit to our original specifications and in no case shall liability exceed the original cost of the product. By the act of installing or operating this product, the user accepts all resulting liability. We reserve the right to modify the provisions of this warranty at any time without notice.