



SBEC-LxV

THE WORLD'S SMALLEST & LIGHTEST SWITCH-MODE BEC

INTRODUCTION




SBEC-L is a highly compact and integrated switch-mode DC-DC power supply which converts the main battery pack voltage (up to 23 NiCd/NiMH cells @ 1.3V/cell or 7s LiPo/Li-Ion @ 4.2V per cell) to an accurately regulated output voltage from 0 – 2.5A which is sufficient to drive up to 8 standard servos or 6 digital servos¹, receiver, gyro and other on-board electronics.

SBEC-L 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-L is designed to handle both these current 'spikes' and the continuous current requirements of both standard and high-power digital servos.

FEATURES

- Up to 7s Lipo or 23 NiCd cells
- Regulated output
- 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 35V
- Compatible with all battery types

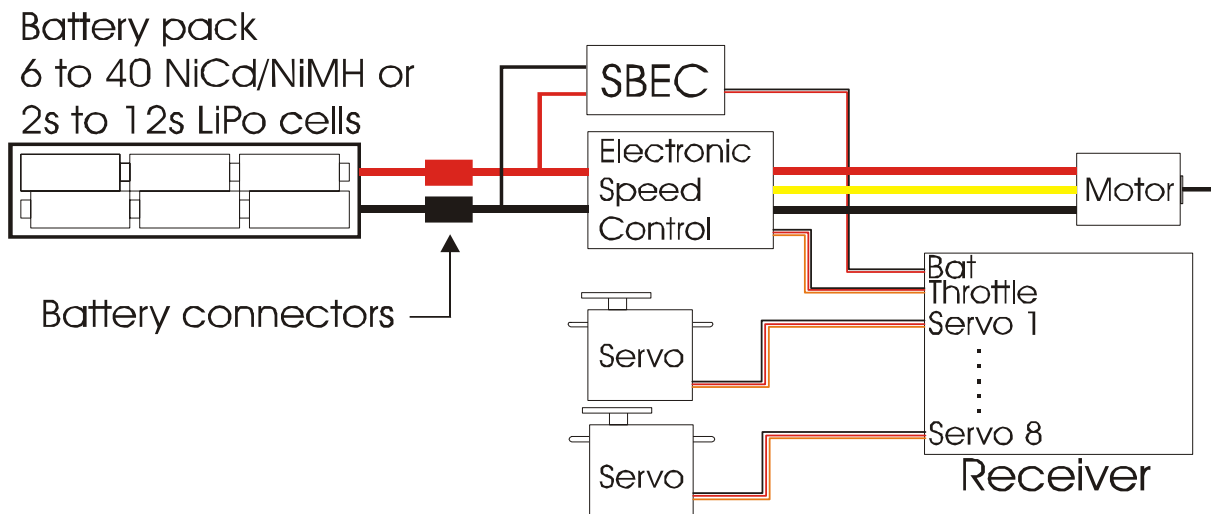
TECHNICAL INFORMATION

| Label Color |  |  |  |
|-----------------------------|---|---|---|
| Part Number | SBEC-L5V | SBEC-L6V | SBEC-L12V |
| Output Voltage | 4.9V – 5.1V | 5.9V – 6.1V | 11.9V – 12.1V |
| Input Voltage | 6V – 30V | 7V – 30V | 13V – 30V |
| Output current ² | ≤ 2.5A | | |
| Size mm <in> | 19 x 15 x 8mm <0.75 x 0.59 x 0.32in> | | |
| Weight: g <oz> | 10.8g – 11.2g <0.381oz – 0.395oz> | | |
| Notes | May be used to replace 4 cell battery packs. | May be used to replace 5 cell battery packs. | Suitable for 12V electronics systems. |

Operating Temperature: 0°C – 70°C

CONNECTIONS

Connect the red (positive +) and black (negative -) input leads to the battery, making sure the polarity is correct. If an Electronic Speed Controller (ESC) with built-in BEC is used, make sure its BEC has been disabled by cutting the red wire near the RC connector. Note that power to the ESC will be supplied when the battery is connected – make sure SBEC-L (and therefore receiver) has power simultaneously otherwise there is a risk of 'false start' where the ESC starts without the presence of a valid RC signal. Connect SBEC-L's output RC connector to the receiver 'BAT' socket or any other unused socket. The next figure shows a typical electric model setup with SBEC-L used to supply power to the receiver from a high-cell-count battery pack. Note that the ESC and motor are optional.



Due to its nature of operation, SBEC-L 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-L be placed at least 10cm from the receiver to minimise interference. **A range check must be performed to verify there is no interference.** If the range check is not at least 40m, a ferrite ring may be required on the RC output lead. An MPX ferrite ring with 5 to 7 turns is recommended, as shown. If the receiver is far from the battery, it is better to extend the length of the RC output lead between SBEC-L and receiver rather than extending the power leads between the battery and SBEC-L.



OPERATION

SBEC-L will regulate the output voltage (see technical information to determine output voltage) to a constant and stable voltage from an input voltage up to 30V. 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 cells, even when depleted, should produce a higher voltage than the nominal output voltage of SBEC-L. The input must always exceed 6V.

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

ORDERING INFORMATION

| Part Number | Output Voltage | Vin _{min} | Vin _{max} | Label Color |
|-------------|----------------|--------------------|--------------------|-------------|
| SBEC-L5V | 5V | 6V | 30V | Blue |
| SBEC-L6V | 6V | 7V | 30V | Yellow |
| SBEC-L12V | 12V | 13V | 30V | Green |

SBEC-L is available in standard output voltages of 5V, 6V and 12V. Contact us for custom voltages on info@firmtronics.com. SBEC-L is also available in a 20-Pin Dual-in-line package for direct PCB mounting. See www.firmtronics.com for further details on this and other products.

¹ Based on JR DS368 digital servos.

² Airflow cooling required above 1.5A continuous.



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.