AirPower BCM (Battery Cell Management) series brushless motor speed controller are designed and developed specifically for the current hottest power source Li-Po battery. It is the revolution for speed controller for brushless motors. The AirPower BCM series speed controller adapts brand new fuzzy design for smart functions and ease of use. It brings you a totally new concept of e-flight product.

The AirPower BCM series adapts revolutionary Li-Po Battery Cell Management system. By the time the battery is connected, the build-in super microprocessor takes over the control; from battery voltage, number of battery cell detection to battery condition monitoring. After careful and precise calculation, it executes battery cut off in different steps to achieve maximum battery protection! This AirPower BCM series has built in standard functions that require custom setting!! It also offers excellent compatibility with different kind and brand of batteries and brushless motors. It supports all high-end in-runner, out-runner, high speed, and high torque brushless motors.

Product Features

This is a brand new series of speed control for brushless motor, specifically designed to use with Li-Po battery. It was designed to drive sensor-less brushless motors, and was equipped with SoftStart and automatically power management system. With its precise throttle control, it's an excellent choice for radio controlled aircraft models. The speed controller incorporates the latest design concept. With the easiest interaction interface, this speed controller is taking the R/C model industry into a revolutionary era! As soon as the battery is connected, the speed controller will automatically determine the best setting to use. If necessary, user can change and setup custom settings via simple procedure by using the throttle stick. After custom setup, the speed control will automatically memorize the setting for the next time use. However, the fuzzy design will allow most factory default settings to fit most flying conditions. The AirPower BCM series speed controller adapts higher standard than other existing products in the market. To compare with others that was with similar specification, these AirPower BCM series controllers have much lower on-state switch resistance. It does not generate as much heat and moreover to offer more power to the brushless motors. The AirPower BCM series speed controller also adapts thermal control function. It provides well protection during operation. The power cut off function was designed to be working in steps. It allows the aircraft to have enough time to land safely.

Product Functions

BCM Battery Cell Management (Built in function, set-up free)
As soon as the battery was connected to the AirPower BCM series speed controller, the microprocessor of the controller will detect the status of the battery. Then the Battery Cell Management will be engaged and taken over by the microprocessor. The acknowledge tones will indicate the status along with high brightness LED on the PCB. It provides clear indication even in the outdoor flying field.

Break

Break: for glider with folding prop
No Break: for normal use (factory default)

Motor timing

Low timing: for 2,4,6 pole in runner motors
Automatic timing: factory default
High timing: for out running motors

Fuzzy power cut off (Built in function, set-up free)

It was a built in function of the speed controller. The power cut off timing was based on the cell number and continues output current of the battery. The microprocessor will calculate the timing and to cut the power with two steps. Because the late stage of each battery discharge cycle has quick voltage change, such function will provide a safe process during the operation.

1 Step: → enables when the single cell reaches the low point (Li-xx 2.7V) (Ni-xx 0.9V), the motor will be forced tolower the RPM by microprocessor

2 Step: → enables when the single cell reaches the lowest point (Li-xx 2.5V) (Ni-xx 0.7V), the motor will be completely cut off. To regain the power, the user needs to adjust the throttle to the lowest position, and then to throttle up will have the power back for landing.

Thermal protection (Built in function, set-up free)

The AirPower BCM series speed controller adapts high temperature cut off protection. If the controller reaches 95°C, the motor will not be allowed to start. If the controller reaches 110°C during operation, the power will be forced to cut off.

Product Specifications

Max RPM for 2-pole motors: 190,000 rpm

Motor controlling: PWM 12KHz

BEC output spec:

a. Max. 2A

b. Continues current towards batteries type and supported servos

2 cells Li-xx / 6~7 cells Ni-xx → 4 servos

3 cells Li-xx / 8~9 cells Ni-xx → 3 servos

4 cells Li-xx / 10~12 cells Ni-xx → 2 servos

Specification Table

ITEM / MODEL	AP15-3P	AP25-3P	AP35-3P
PCB size	23X24mm	28X24mm	34X24mm
Continues Current	15A	25A	35A
Max Current for 15 seconds	18A	30A	45A
Number of feeding Ni-xx Cells	6~10	6~12	6~12
Number of feeding Li-xx Cells	2~3	2~4	2~4
On-state switch resistance at 25°C	2X6mΩ	2X3.5mΩ	2X2.4mΩ
Weight (including cables, heat sink, and tube)	11g	20g	23g

AirPower Speed Controller Series

AirPower Models Accessories

AirPower Models

www.airpowernet.com

MADE IN TAIWAN

◆ Set Up Procedure ◆

Due to the signal differentiation amount different remote control brands, it is strongly recommended to run the throttle curve initiation process whenever set up a new aircraft.

Factory default setting: No break + Automatic timing

To enter set up mode and throttle curve initiation

* Throttle position to the maximum

* Power on the transmitter

* Power on the SE series speed controller, the motor will come up with acknowledge tones and LED on PCB.

♪ ♪ ▬▬2 seconds▬▬ ♪ ♪ ♪ ♪
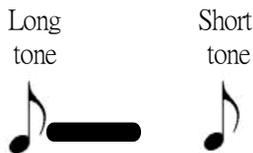
Throttle position to the minimum.

♪ ♪ ▬ ♪ ♪

This procedure was to calculate the throttle range by the microprocessor in order to optimize the throttle curve and the smoothness of operation. When finish the initiation process, we could simply shut down the power in the system is intend to use other factory default settings. If not, simply waiting for 2 seconds will enter the set up mode.
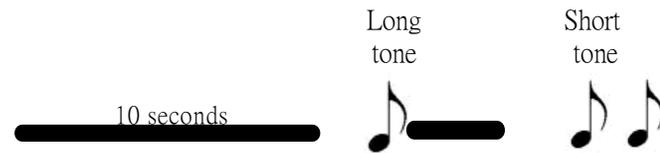
◆ Break set up ◆

Following by the throttle initiation process, the system will enter break mode. This section offers 2 options, break and no break. The motor will come up the corresponding indication tones and the PCB will have LED indication. The following is the indication with graphic reference.

No Break	Break

Long tone	Short tone		Long tone	Short tone
♪ ▬	♪	▬▬ 10 seconds ▬▬	♪ ▬	♪ ♪

When intend to choose one of above options, simply position the throttle stick from minimum to maximum after the indication tone. The next step is to position the throttle stick back to the minimum position to confirm. If there is no need to enter next set up section, you could simply shut down the power. The selection was stored into the microprocessor when the throttle stick was in confirmation position. If there is need to enter next timing set up section, simply wait for the next tone.

◆ Motor timing ◆

Following by the break set up, the system enters motor timing set up section. In this section the system offers 3 options, low timing, automatic timing, and high timing. The motor will come up the corresponding indication tones and the PCB will have LED indication. The following is the indication with graphic reference

Low timing	Automatic timing	High timing

Long tone	Short tone	Long tone	Short tone	Long tone	Short tone
♪ ♪ ▬	♪	♪ ♪ ▬	♪ ♪	♪ ♪ ▬	♪ ♪ ♪

When intend to choose one of above options, simply position the throttle stick from minimum to maximum after the indication tone. The next step is to position the throttle stick back to the minimum position to confirm. You could now simply shut down the power. The selection was stored into the microprocessor when the throttle stick was in confirmation position.