

# EMAX User Instruction for SimonK Series ESC

## A. Features

- A1: Based on Simon K firmware, further optimized to the perfect drive performance.
- A2: Low-voltage protection, over-heat protection and self-check functions.
- A3: Separate power supply for MCU and BEC, enhancing the ESC's ability of eliminating magnetic interference.
- A4: Parameters of the ESC can be set via program card or transmitter.
- A5: Throttle range can be set to be compatible with different receivers.
- A6: Equipped with built-in linear BEC or switch BEC.
- A7: Max speed: 210,000 rpm for 2-pole, 70,000 rpm for 6-pole, 35,000 rpm for 12-pole.

## B. Product specification

Item	Continuous Current	Burst current (10S)	Li-Po Battery (cell)	Dimension L*W*H(mm)	Weight (g) wires Included	BEC Mode	BEC Output	Programmable
Simon-12A	12A	15A	1-3	22*17*7	8	Linear	1A/5V	YES
Simon-20A	20A	25A	2-3	55*28*7	28	Linear	2A/5V	YES
Simon-25A	25A	30A	2-3	55*28*7	28	Linear	2A/5V	YES
Simon-30A	30A	40A	2-3	55*28*7	28	Linear	2A/5V	YES
Simon-40A-UBEC	40A	50A	2-6	73*28*12	41	Switch	3A/5V	YES

## C. Instructions

### C1.Normal startup procedures

Move throttle stick to the bottom position and then switch on transmitter	Connect battery pack to ESC	The long “beep” sound should be emitted , means the bottom point of throttle range has been detected	Several “beep” tones should be emitted to present the amount of battery cells	When self-test is finished, a “1 2 3” tune should be emitted	Move throttle stick upwards to go flying
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### C2.Throttle range setting procedures (when users change a transmitter, throttle range setting is recommended.)

Switch on the transmitter, move throttle stick to the top position	Connect battery pack to ESC	Two “beep” sounds should be emitted, means the top point of throttle range has been confirmed and saved	Move throttle stick to the bottom position (within 2s), a long “beep” sound should be emitted , means the bottom point of throttle range has been detected	Several “beep” tones should be emitted to present the amount of battery cells	When self-test is finished, a “1 2 3” tune should be emitted, Move throttle stick upwards to go flying
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If the throttle stick is neither at the bottom position nor the top position after powered on, it will constantly make “beep” sounds.

If you hold the throttle stick on top position for more than 2 seconds after the top point of throttle range has been confirmed and saved, you will be led to transmitter programming mode.

## D. Programmable parameters

- D1. Brake Type:** There are six brake types including **OFF**, Low, Mid-low, Middle, Mid-high and High. The default is OFF.
- D2. Timing Mode:** There are five options: Low: 0°, Mid-low: 8°, **Middle:15°**, Mid-high:23° and High:30°. The default is Middle: 15°. Low advance timing is recommended for high inductance and low KV motors. High advance timing is recommended for low inductance and high KV outrunner motors. For some high KV motors, if it shakes while rotating in high speed, the High timing mode is recommended.
- D3. Start Force:** There are 13 options: 0.03、0.05、0.06、0.09、0.13、0.19、0.25、0.38、0.50、**0.75**、1.00、1.25、1.50. The default is 0.75. Select the corresponding start force according to the load of motor.
- D4. Curve Mode:** There are four options: **Off**, Low, Middle, High. The default is off.
- D5. Control Frequency :** 2 options: **8KHz** and 22KHz. The default is 8KHz. This option is the drive frequency of the motors.
- D6. Low-voltage Protection:** 3 options: 2.8V/cell、**3.0V/cell**、3.2V/cell (If there are four options, the fourth option is off the low voltage protection ). The default is 3.0V/cell, the system will automatically identify the battery cell. E.g. suppose there're 3 cells, if the voltage is lower than 9V, the system will

