

# User Manual(20-100V)

The ESC adopts advanced algorithm to control the commutation of brushless motor exactly, and achieve a reliable high voltage drive by using with driver chip of professional industrial brushless motor driver.

## Main Parameter

### 1.Input voltage scope

DC 50—100V, Max input supply voltage: DC100V, Lipos: 12-24S

### 2.Working current

Continuous working current of 200A is 160A; please ensure good heat dissipation and ventilation; it is normal with below 80°C of case temperature; peak current is 240A with 5 seconds.

Continuous working current of 280A is 240A; please ensure good heat dissipation and ventilation; it is normal with below 80°C of case temperature; peak current is 300A with 5 seconds.

### 3.Control signal standards

3.1.Compatible with model remote control cycle 50Hz, high level time 1000—2000us command, and highest input frequency up to 400Hz.

Note: Maximum input pulse width must be below 2050us.

3.2.The remote control input signal position is isolated from the power supply position, and remote control signals is transmitted internally through optocoupler isolation. The red line of the remote control line must be provided with 5-8v power supply by the receiver or flight control.

3.3. Calibrate the throttle range, same as normal ESC: before the power supply, first enter the maximum value of RC signal, then power on, ESC will produces a series of sounds; when sounds stop, enter minimum value of RC signal, ESC will produces a series of sounds again; after sounds stop, power off. Then ESC can be used once power on. Refer to details of instruction 7.

#### 4. ESC electric timing

In order to suit for most multipole brushless motors, ESC electric timing is set to 15°.

#### 5. Protections

5.1. Power on low throttle detection.

5.2. Over-temperature Protection: When ESC temperature is up to 115°C, it will automatically reduce the output power.

5.3. Motor lock-up protection: When motor lock-up is detected ESC will cut off output automatically.

5.4. Throttle signal loss protection: When the remote control signal is turned off, ESC will automatically stop the output at a slow speed, and stop freely without brakes.

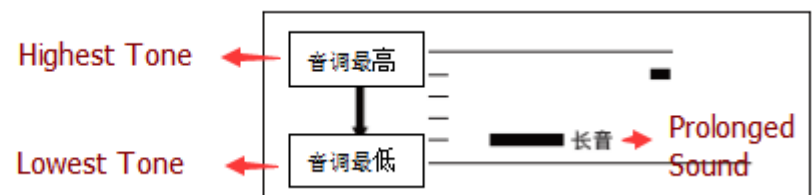
5.5. Waterproof function: The current all-metal version is not an IP67 waterproof design; ESC with waterproof requirements can be customized. The product can prevent the general rain.

#### 6. compatibility

The ESC is compatible with all dc brushless motor for multicopter; If there are compatibility problems, we can adjust for customers.

#### 7. Sound instruction:

##### 7.1. Sound example

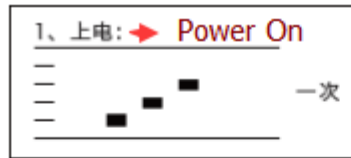


7.2. Sound in normal use: (Ensure low throttle position when power on)

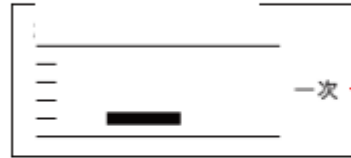


Need to recalibrate the throttle again, please follow these steps:

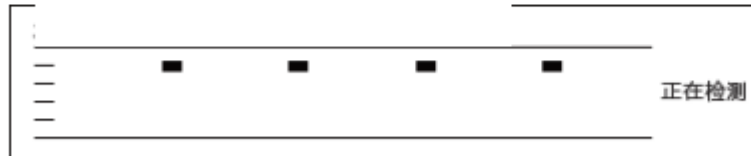
7.3. Throttle calibration method: ( Before power on, provide maximum throttle signal and maximum throttle signal below 2000us. )



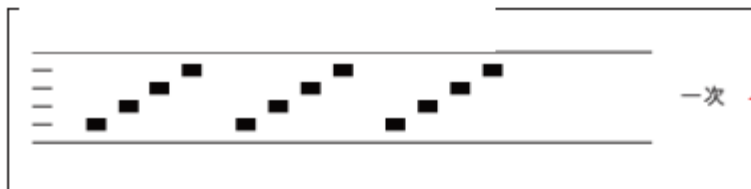
→ One time



→ One time

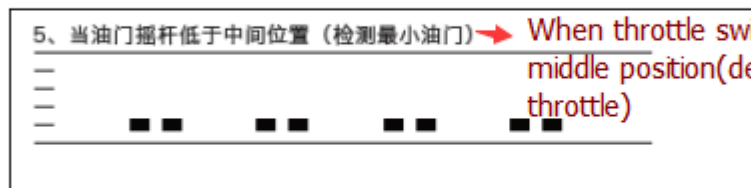


→ Detecting



→ One time

\*\*\*电调停止发音了，收到最小油门 → Sound stop, receive minimum throttle.



6、当油门摇杆低于中间位置: → When throttle switch is lower than middle position



此鸣叫顺序表示最小油门已经被存储 → The sound sequence shows minimum throttle is saved.



Cut off power supple and power on again,ESC will operates normally according to the newly calibrated throttle stroke

Remarks: Throttle signal effective range: 900-2000us, motor maybe stop running when maximum throttle signal is more than 2050us !

8. Some models have been manufactured in the 1150-1850 range after calibration and turn off the throttle calibration function.

**Wires:**

-- 3 Black cables: Connected to motors

-- 7AWG red cable: DC50-100V Positive input; 7AWG black cable: DC50-100V Negative input

(There is no anti-ignition circuit in the ESC. Please add from exterior if needed)

-- 3-pin JR signal wires:

\* Brown: GND

\* Red: power wire to signal.

(Opto-isolated extra DC4.8-8.4v is required. Consumption < 5ma)

\* Orange: Input of remote signals. (900-2000us)

-- 2-pin JR signal wires:

\* Black: GND

\* Red: Frequency of motor electrical circle.

Note: There is no anti-ignition circuit in the ESC. Please connect it externally

thin three signal wires: Brown line: signal ground wire, Black power input black line negative isolation

JR plug thin red wire: signal power supply line, supply power to Isolation Opto-couplers, DC4.8-8.4V, power consumption < 5Ma

thin orange wire: Remote signal input, 900-2000us High level effective, remote control/flight control output standard interface

thin two signal wires: thin black wire: signal ground wire, Black power input black line negative isolation, Communicate with the signal

JR Plug thin red wire: Motor operating cycle output frequency F, The high level value is determined by the power supply value of the signal power

Motor actual RPM conversion formula:

Motor actual RPM=Motor operating cycle output frequency  $F \times 60$  / pole numbers of motor magnet(PRM)

Pole numbers of motor magnet=magnet numbers of motor rotor/2