Outstanding Model Gear

MINI 20A ESC

ELECTRONIC SPEED CONTROLLER

OMG-RAPIDO-20A

Continuous current/peak current: 20A/45A
Support motor type: sensorless brushless motor
Mainly applicable models: 1/18, 1/24,1/28
Support brushless motor T number Note 1 ≥10.5T
Internal resistance: 0.0025ohm
Number of battery cells: 2S Lipo
BEC output: remark 5V/1A
Dimensions: 28x19x6mm
Weight:8 grams

FEATURES

- 10 programmable items;
- Built-in powerful BEC output 5V/1V;
- All senseless brushless motors supported;
- Proportional linear brake;
- Excellent starting and acceleration performance and perfect throttle linearity;
- Multiple protection functions: low voltage/overheating/failsafe/stall protection;
- Thick copper military-grade PCB enduring high current but no heating.

WARNING **For safety reasons, please turn on the control switch on the ESC when the wheels are in the air!**

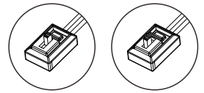
According to the motor used, after the wiring is correct according to the diagram, go to the next step. When connecting a sensorless brushless motor: The ESC output wire ABC can be connected to the motor wire arbitrarily. If the rotation direction is wrong, just exchange two wires of the motor. Or set the Motor Rotation programmable parameter of the ESC to change the motor's rotation direction mode to CW (clockwise)

Setting the Throttle Range: After using the ESC for the first time or changing the throttle midpoint, ATV, EPA and other parameters by the remote control, you need to reset the throttle range, otherwise it may cause unusable or malfunction.

Take the Futaba remote control as an example to illustrate the process of setting the throttle range.

1. Turn the switch of the ESC to OFF, connect the battery to the ESC, turn on the remote control, set the direction of the throttle channel to "REV", set the throttle trim to "0", and set the EPA/ATV forward and reverse of the throttle channel to 100 % (maximum). Please be sure to turn off the ABS braking function of the remote control.
2. Put the ESC switch in the OFF state, press and hold the SET button without releasing it, turn the ESC switch to ON, the red LED on the ESC will immediately start flashing (at the same time the motor beeps note 3), release the button immediately (if not in the Release the button in time within 3 seconds, and the ESC will enter the parameter programming mode, and you need to restart the operation from step 1).

Warm reminder: Motor chirping sound may be small, in this state, just observe the LED status.



Press "SET" button, the green light flashes once.

Press "SET" button, the green light flashes twice.

Press "SET" button, the green light flashes three times.

3.Set three points of the throttle stoke
1) Keep the throttle stick at the neutral point, press the SET button, then the red light is off, the green light flashes once, the motor beeps once, indicating the neutral point is stored;
2) Push the throttle stick to the highest forward point, press the SET button, then the green light flash twice, the motor beep twice, indicating the highest forward point is stored;
3) Push the throttle stick to the highest reverse point, press the SET button, then the green light flash 3 times, the motor beep 3 times, indicating the highest reverse point is stored;
4) The motor can operate after 3 seconds.

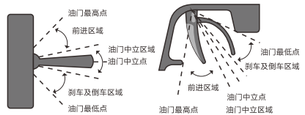
4. The motor can run normally after above settings. Below are the descriptions of the LED's status during driving. When the throttle stick is in the neutral point, both the red & green LED are off. When it is in forward and reverse, the red LED is always on, and when the throttle is at the highest forward point, the green LED will also be on. When braking, the red LED flashes rapidly.
5.If you use a lipo battery, please set the "Number of lipo battery" of the ESC accurately to ensure the battery will not be over-discharged (see the instructions on the next page) When you turn on the ESC without pressing SET, the motor will beep several times to indicate the number of lipo batteries, "Beep beep beep" means 2 lipo batteries, "beep beep beep beep beep beep" means 3 lipo batteries.

FACTORY RESET

At any time when the throttle stick is in the neutral position (except for throttle calibration or programming), press and hold the SET button for more than 3 seconds to restore the factory settings. When the red and green lights flash at the same time, it means that the settings are restored successfully.

	Items 1	Items 2	Items3	Items 4	Items 5	Items 6	Items 7	Items 8	Items 9
Basic programming items									
Runing Mode	正转带刹车	正反转带刹车	直接正反转						
Drag Brake Force	0%	5%	10%	20%	40%	60%	80%	100%	
Cut-off Threshold	Unprotected	2.6V/Cell	2.8V/Cell	3.0V/Cell	3.2V/Cell	3.4V/Cell			
Start Mode	1	2	3	4	5	6	7	8	9
Advanced programming items									
Brake Force	25%	50%	75%	100%					
Reverse Force	25%	50%	75%	100%					
Inital Brake Force	=Drag Brake Force	0%	20%	40%					
Neutral Range	6%	9%	12%						
Timing	0.00	3.75	7.50	11.25	15.00	18.75	22.50	26.25	
Over-Heat Prot	Protected	Unprotected							

1. Running mode: In the " forward rotation with brake" mode, the vehicle can only move forward and brake, but not reverse, this mode is usually used for racing; the "forward and reverse rotation with brake" mode provides the reverse function, usually used for training . The "forward and reverse with brake" mode adopts the double-click reversing , that is, when the throttle stick is pushed from the neutral point to the reverse area for the first time, the motor only brakes and no reverse action occurs; when the throttle stick quickly returns to the neutral point When pushing to the reverse zone for the second time, the motor stops at this time, and a reverse action occurs. If the motor does not stop, it will not reverse, and it is still braking. You need to return the accelerator to the neutral point and push it to the reverse zone , At this time, the motor will only reverse if the motor has stopped. The purpose of this is to prevent the vehicle from reversing accidentally due to multiple braking points during driving. The "direct forward and reverse" mode adopts the single-click reverse mode, that is, when the throttle stick is pushed from the neutral point area to the reverse area, the motor immediately produces a reverse action. This mode is generally used for special vehicles such as rock climbing vehicles.
2. Drag brake : Drag brake means that when the throttle stick is turned from the forward area to the neutral point area, a small amount of braking force is generated on the motor, which can simulate the resistance of the carbon brushes of the brushed motor to the motor rotor. Deceleration into corners and other occasions.
3. Battery low voltage protection threshold: This function is to prevent irreversible damage caused by excessive discharge of lithium battery. The ESC will monitor the battery voltage, and when the voltage is lower than the set threshold, the power output will be cut off. After entering the voltage protection, the red LED will flash in the manner of "☆ - ☆ - , ☆ - ☆ - , ☆ - ☆ - ".
4. Start-up acceleration: According to personal habits, venues, tire grip characteristics and other conditions, select 9 kinds of start-up acceleration from level 1 ("very soft") to level 9 ("very violent"). Tire skidding is very useful. When using the "level 7" - "level 9" mode, the discharge capacity of the battery is required to be high. If the battery discharge capacity is poor and cannot provide instantaneous high current, it will affect the starting effect instead. When there is a pause in starting or a momentary loss of power, it may be the battery discharge capacity is insufficient. At this time, it is necessary to reduce the starting acceleration or increase the gear reduction ratio.
5.Maximum braking force: The ESC provides a proportional braking function. The braking force is related to the position of the throttle stick. The maximum braking force refers to the braking force generated when the throttle stick is at the braking limit position. Very strong braking reduces braking time but can damage the gears. The "Disable" option will disable the brake function of the ESC. When this option is selected, the brake function will be realized by the traditional disc brake driven by the servo (servo). According to the specific conditions of the vehicle and personal habits, select the appropriate maximum braking force parameters.
6. Maximum reversing force: Selecting different parameter values can produce different reversing speeds (generally, it is recommended to use a relatively small reversing speed to avoid out-of-control crashes caused by reversing too fast).
7. Initial braking force: also called the minimum braking force, it refers to the braking force acting on the motor at the initial position of the brake. Under its action, it can achieve the effect similar to that of a point brake. The default value is equal to the force of the drag brake, so as to form a smooth braking effect.



8. Throttle neutral point area width: The throttle neutral point area is shown in the figure on the right, please adjust it according to your personal habits.

9. Timing: This function has three functions:
a) Compatible with different motors. Some motors work abnormally at the default timing, and need to be adjusted to a suitable timing to work normally;
b) By adjusting the timing, the maximum output speed of the motor can be fine-tuned. The higher the timing, the higher the maximum output speed and the greater the power consumption;
c) By adjusting the timing, the motor can work at the best efficiency point. Timing is an advanced programming option, please carefully test the actual effect after changing the corner, and then decide whether you really need to change it.
10. Overheating protection: When the temperature rise of the ESC reaches a certain value preset by the factory, the output will be automatically turned off, and the green light will flash , and the output will not resume until the temperature drops. When the ESC is under overheating protection, the green light flashes in a single flash: "☆ - , ☆ - , ☆ - ".

故障检查处理

Fault phenomenon	Solution	Possible reason
After power on, the indicator light is off, the motor cannot be started, and the fan does not work	1 The battery voltage is not input to the ESC 2 The ESC switch is damaged	Check whether the power input path from the battery to ESC has poor welding, and re-weld it.
Make a "beep-beep-, beep-beep-" warning sound	Battery pack voltage is out of normal range	Check battery pack voltage
After power on, the red LED is always on, but the motor cannot start	The ESC throttle wire is inserted backwards or the channel is plugged in wrongly	Insert the throttle wire of the ESC into the "Throttle (TH)" channel (Throttle, CH2) of the receiver in the correct direction
The remote control increases the accelerator, but the car reverses	1 The wire sequence of the connection between the ESC output wire and the motor wire is wrong 2 The motor steering of this frame is inconsistent with that of the mainstream frame	Interchange any two of the three wires of the motor, or set the Motor Rotation parameter of the ESC to change the direction of the motor Changed to Cw - clockwise
During the rotation of the motor, it suddenly stops	1 Receiver encounters interference 2 ESC enters battery low voltage protection or temperature protection	The red light keeps flashing for voltage protection, replace the battery; The green light keeps flashing for temperature protection, and continue to use the ESC after the temperature drops;

DECLARATION

Thank you for purchasing the RCOMG brand RAPIDO series brushless electronic Speed Controller(ESC)for RC Cars! Incorrect use may cause personal injury and equipment damage , so please read this manual carefully before using and operate as per the manual guide strictly. We do not assume any liabilityo arising from the use of this product, including but not limited to liability for incidental or consequential damages; at the same time , we do not assume any liability arising from unauthorized modi fications to the product. We reserve the right to change product design , appearance , performance and usage requirements without notice.