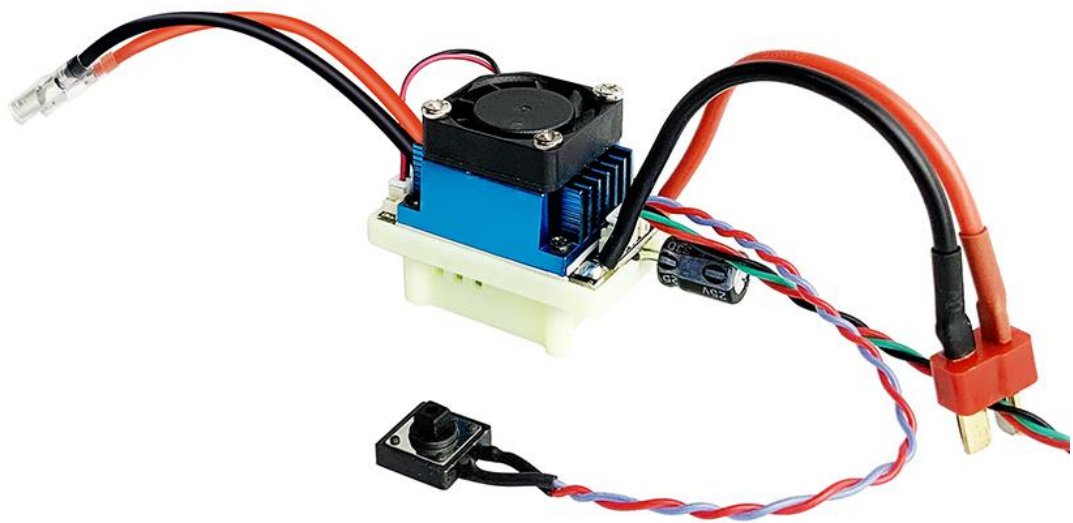


# RadioLink

## COOL 9030



## Brushed ESC for Cars&Boats Instruction Manual

\* Please be kindly noted that this manual will be updated regularly and please visit RadioLink official website to download the latest version.

Thank you for purchasing RadioLink Brushed ESC for Cars&Boats -- CL9030.

To fully enjoy the benefits of this product and ensure safety, please read the manual carefully and set up the device as instructed steps.

If any problems found during the operation process, either way listed below can be used as online tech support.

1. Send mails to [after\\_service@radiolink.com.cn](mailto:after_service@radiolink.com.cn) or [after\\_service1@radiolink.com.cn](mailto:after_service1@radiolink.com.cn) and we will answer your question at the earliest.
2. PM us on our Facebook page or leave comments on our Youtube page
3. If the product is purchased from the local distributor, you can also ask them for support and repair as prefer.

All manuals and firmwares are available on RadioLink official website [www.radiolink.com](http://www.radiolink.com) and more tutorials are uploaded. Or follow our Facebook and Youtube homepage to stay tuned with our latest news.



## SAFETY PRECAUTIONS

- Never operate models during adverse weather conditions. Poor visibility can cause disorientation and loss of control of model.
- Never use this product in a crowd or illegal areas.
- Always check all servos and their connections prior to each run.
- Always be sure about turning off the receiver before the transmitter.
- To ensure the best radio communication, please enjoy the flight/driving at the space without interference such as high voltage cable, communication base station or launching tower.

## WARNING

This product is not a toy and is **NOT** suitable for children under the age of 18. Adults should keep the product out of the reach of children and exercise caution when operating this product in the presence of children.

When connecting the ESC CL9030 to other parts, make sure the good insulation of wires and connection ends. Otherwise short circuit may damage CL9030.

Before using ESC CL9030, carefully follow the instructions and check devices to ensure reasonable installation and avoid the overloading power.

Connect wires and make test with model car suspended in the consideration of safety.

When finish, make sure to disconnect the ESC from battery. If keep connecting, the power consumption continue even the ESC is off. Long period of power consumption will discharge the battery and ESC and cause damages. RadioLink is NOT responsible for any damage caused by this.

**FCC Statement**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

**Specifications**

Name& Model	COOL 9030
Constant Current	90A
Supported Motor	Brushed motors (380/540/550 motor)
Applicable Models	All car/boat models
Motor T Qty Supported	2 LiPo/6 NIMH : $\geq 12T$ or $RPM < 30000@7.4V$ 540 or 550 Motor 3 LiPo/9 NIMH : $\geq 18T$ or $RPM < 20000@7.4V$ 540 or 550 Motor 4 LiPo/12 NIMH : $\geq 24T$ or $RPM < 15000@7.4V$ 540 or 550 Motor
Input Voltage	7-18V (2-4S lithium battery or 5-12 NIMH batteries)
BEC Output	5.5V@3A ( Switching regulator BEC )
Plug	Input - T Type ; Output-Bullet with female end
Size	44*30.5*36mm
Weight	49.5g (With Wires)
Drive Frequency	PWM frequency 2KHz

## Content

Introduction.....	1
1. Set up ESC.....	1
1.1 Connect ESC.....	1
1.2 Activate ESC.....	2
1.3 Throttle Range Calibration.....	2
1.4 Disable ESC.....	3
2. Working Modes.....	3
2.1 Car Mode.....	3
2.2 Racing Mode.....	3
2.3 Boat&Tank Mode.....	3
2.4 How to Switch Working Modes.....	4
3. Protection of LiPo Battery.....	4
3.1 Enable Low Voltage Protection Function.....	4
3.2 Disable Low Voltage Protection Function.....	4

## Introduction

COOL9030 is a two-way(Forward/Reversal Rotating) ESC intelligently controlled by 32bits high-speed chip with control accuracy determined by 2000 throttle sensitivity. Working with linear brake and the mixed control function of RadioLink 6-CH radio for car RC6GS, COOL9030 is perfectly compatible with all model cars/boats including twin-engine models such as crawlers, drifting cars, tractor trucks and fishing boats.

Components of low resistance power and optimal driving voltage minimize the internal resistance and massively reduce the heat during operation.

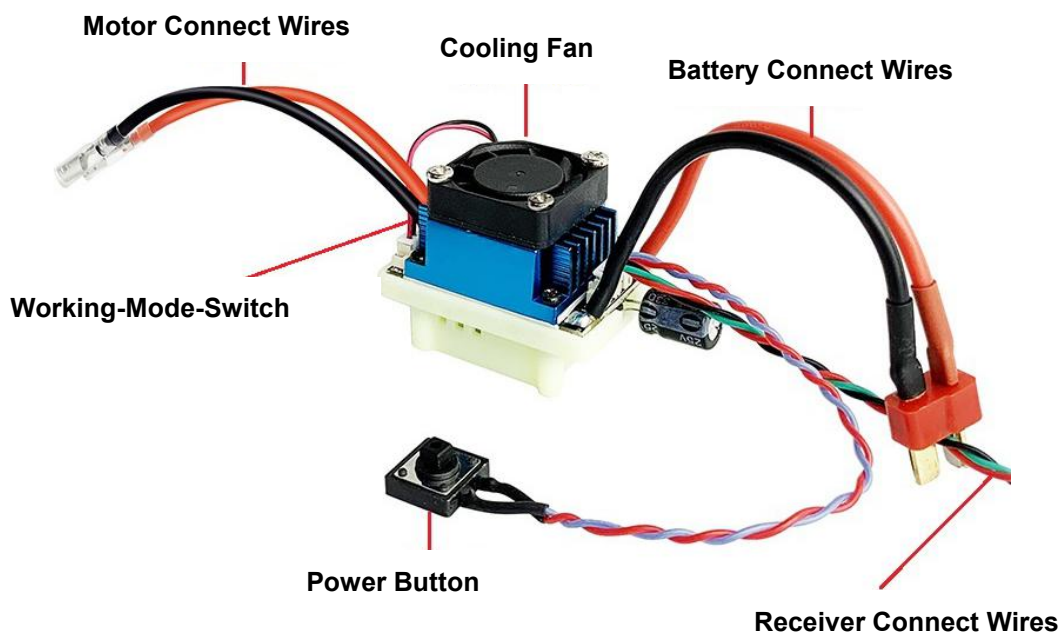
With the wide voltage range of 7.4-18V and constant current of 90A, COOL9030 has the built-in switch BEC works with max output current of 3A. No matter it is 2S or 4S battery with instant strong current, the output voltage will remain stable as 5.2V. There is no inefficient heating as linear battery or output voltage jitter from sudden loading of ordinary switch power,

With PWM frequency of 2KHz, CL9030 has 3 working modes and the breaking function can be enabled or disabled. From hardware to software of COOL9030, there is protection function of LiPo battery from over discharge to over temperature to abnormal voltage input.

### 1. Set up ESC

#### 1.1 Connect ESC

Connect the receiver wire to the receiver and motor wire to motor (connection direction basing on actual needs) but power input wire CANNOT be mistaken. Make sure the correct connection.

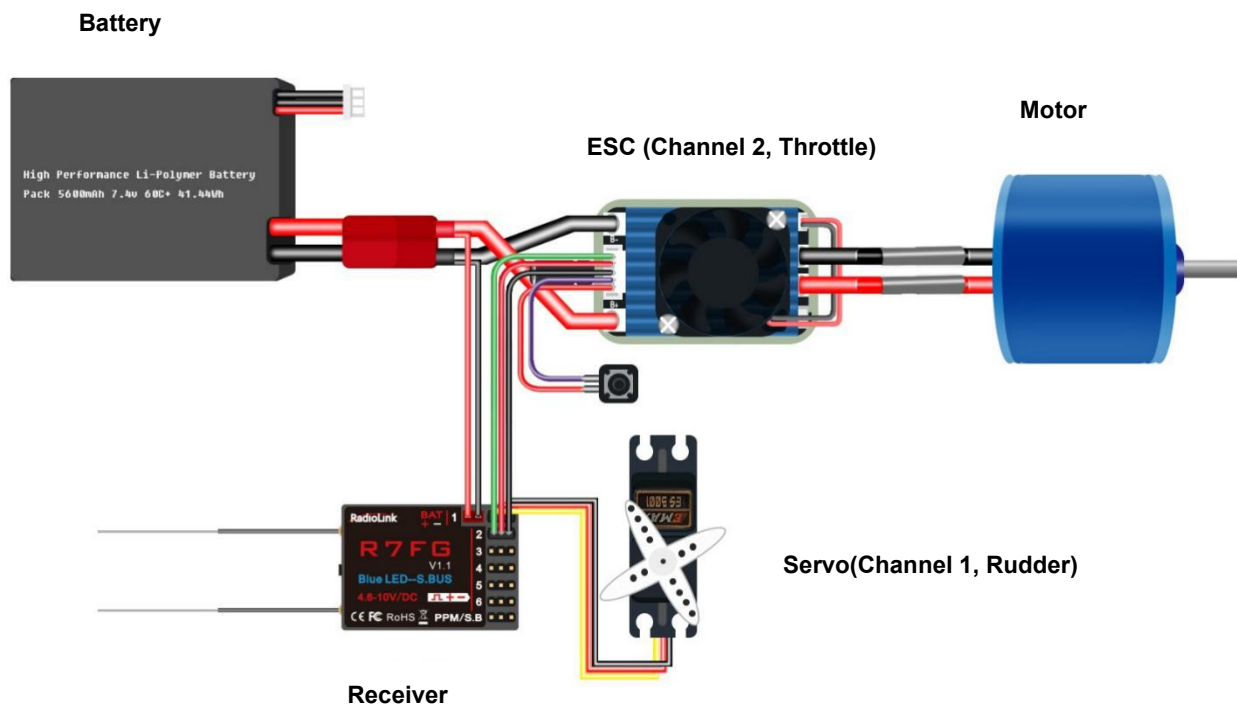


### Connect receiver

Connect the receiver wires of ESC to Channel 2 (Throttle) of receiver with the output supply of 5.5V to receiver and servo. So there's no need of power supply specially for receiver. Or it may damage the ESC.

### Connect battery

Make sure to connect VCC(+) of ESC to the VCC(+) of battery while GND(-) to GND(-). If mistaken, ESC will get damaged.



### 1.2 Activate ESC

Press the power button, the blue and green leds will flash synchronously to initialize the ESC with a DEE sound on each second from motor. If the RC signal is received, red led will flash once. When initialization done, red led is always on with a long DEE sound from motor to notify and blue and green leds will be off. If there's no long DEE sound, it could possibly because the radio or receiver is not powered on or no signal or battery capacity can't be confirmed as there's big fluctuation of battery voltage so that ESC fails to be activated.

**Note** If input voltage is over 18V, ESC won't be activated in order to protect the circuit.

### 1.3 Throttle Range Calibration

It's advised to calibrate the throttle range for the first use. Or the range is by default.

The calibration steps are as follow:

- ① Power on the transmitter and model but don't turn on the ESC power.
- ② Turn on the transmitter and make sure binding with receiver completed.
- ③ Trigger the throttle to max and press the ESC power button at the same time. The blue and green leds will flash with two DEE sounds from motor, meaning it's ready for the calibration.
- ④ Toggle the throttle to max then min then back to center and press the power button of ESC once. There will be two DEE sounds from the motor then a long DEE sound to notify.
- ⑤ When the green and blue leds are off, red led is always on, it means throttle range calibration is complete.

## 1.4 Disable ESC

Short press the power button on ESC once and it will stop working.

## 2. Working Modes

Different working modes can be chosen when the ESC is done initialization and activated.

There are three working modes: Car Mode, Racing Mode, Boat&Tank Mode.

Drivers can control models at various speed as wish because of the linear throttle and brake, which is much more smooth and sensitive than traditional ones.

### 2.1 Car Mode

Red led on means car mode activated with functions of Forward, Backward and Brake.

When the car is forwarding, push the throttle back to center for a short period ( 0.5 to 1s) to brake. Then push the throttle further for car backward.

### 2.2 Racing Mode

Green led on means racing mode activated with functions of Forward and Brake but no backward.

### 2.3 Boat&Tank Mode

Blue led on means boat&tank mode activated with functions of Forward and Backward while Brake Type is optional as explained below

*Type 1: Brake by reversed wheels*

When the blue led is always on (boat&tank mode), long press the working-modes-switch and press the power button once at the same time, the blue led will be off and red led will flash periodically with a DEE sound, meaning brake by reversed wheels is activated. Press the power button once again to save the setting with the red led off and blue led on.

*Type 2: Brake as A.B.S*

When the blue led is always on (boat&tank mode), long press the working-modes-switch and press the power

button once at the same time, the blue led will be off and red led will flash periodically with a DEE sound and press the power button again, the red led will quickly flash twice with two DEE sounds, means brake as A.B.S is set successfully. Press the power button once again to save the setting with the red led off and blue led on.

**Note** When the brake setting is done, remember to press the power button again to save. Otherwise the ESC can't be operated with throttle output.

The indispensable brake function for model cars is the obstacle to boat control so this mode is more suitable to boat. The extreme low heating of both motors and BEC ensures the long dependable use even in sealed environment.

## **2.4 How to switch working mode**

Press the SWITCH FOR WORKING MODES once and the three working modes will change in turn with corresponding led on and DEE sound.

Car Mode: One DEE sound and RED led is always on

Racing Mode: Two DEE sounds and GREEN led is always on

Boat & Tank Mode: Three DEE sounds and BLUE led is always on

## **3. Protection of LiPo Battery**

The Kalman Filter technology applied in COOL9030 can accurately identify in real-time the instant voltage when power on and rotors locked. This function can be enabled when the ESC is done initialization and activated.

### **3.1 Enable low voltage protection function**

Long press ESC power button, a DEE sound is heard and the green led flashes twice means low voltage warning is enabled. When the voltage of a single cell is lower than 3.7V, a constant DEE sounds will be heard from motor. When it's lower than 3.2V, the ESC will be automatically powered off.

### **3.2 Disable low voltage protection function**

Long press ESC power button, two Dee sounds will be heard while the red led flashes twice means disabled with success. When it's off, even the voltage of a single cell is lower than 3.7V or 3.2V, neither warning tone will be heard nor power off automatically. The battery will keep power output without decrease and model cars/boats will remain running at full speed.

**Thank you again for choosing RadioLink product.**