



# User Manual Multi-Rotor Brushless ESC

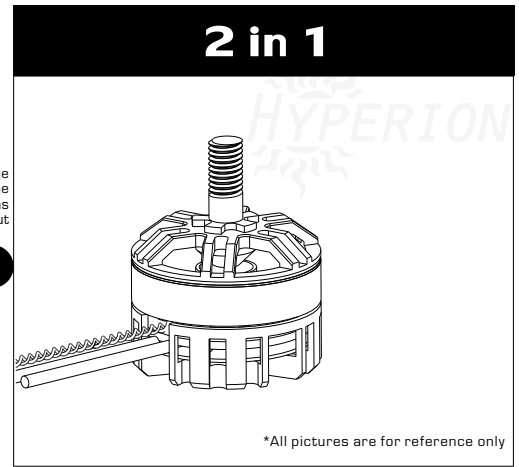
BLHeli



Thank you for purchasing our brushless electronic speed controller (ESC). Any improper operation may cause personal injury damage to the product and related equipments. This high power system for RC model can be dangerous, we strongly recommend reading the user manual carefully and completely. We will not assume any responsibility for any losses caused by unauthorized modifications to our product. We have the right to change the design, appearance, performance and usage requirements of the product without notice.

## 01 Main features

- Design of ESC and Motor 2 in 1, will greatly reduce the mounting area and size.
- ESC is mounted at the bottom of the motor, the shortest connection to reduce the line loss, increase ESC optimal output power, improve power efficiency.
- High performance MCU.
- ESC compatible with "regular" signal-receiving mode and "Oneshot125" signal-receiving mode (throttle signals range from 125 $\mu$ s ~ 250 $\mu$ s). In "regular" signal-receiving mode, ESC supports frequency of throttle signal to 500Hz max, compatible with various kinds of flight control.
- Use BLHeli open-source firmware, can update the firmware or write setup via signal cable; Using "Damped light" mode, it improves the throttle response, when reducing the throttle amount, the Motors slow down rapidly. It strengthens the stability and flexibility of multi-rotors, quite suitable for GAVs.
- The twisted-pair of the throttle signal cable effectively reduces the crosstalk caused by signal transmission, and makes flight more stable.



\*All pictures are for reference only

## 02 Specification

Model	Manufacture Model	ESC Con. Current	BEC	LiPo cells	Motor Spec.	Motor Max Con. Power*	Weight	Typical Applications (For reference)
2in1-30A	HP-MR2204-2100	30A	NO	2-4S	2204, 2100KV	290W (180s)	35.2g	170-450 Multi

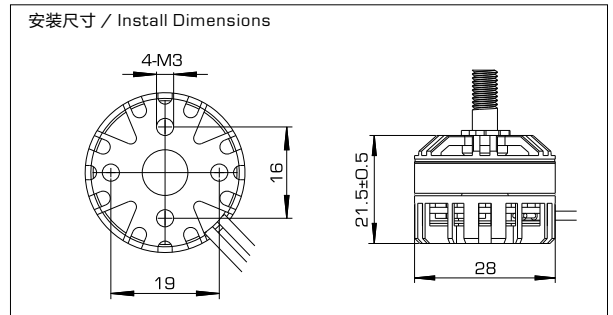
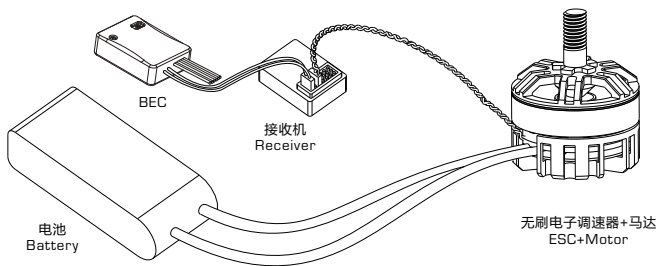


\*During the actual use, the total power do not exceed the motor maximum continuous power, otherwise it will cause damage to the motor. 2 in 1 ESC has both CW and CCW motors for the same spec., please contact us for more information.

## 03 Wiring diagram/ Install dimensions

Please ensure all solder joints are insulated with heat shrink where necessary.

\*All pictures are for reference only



## 04 Test Report

### 30A 2204 2100KV Motor Test Report

Motor working parametes:Max. continuous power:290W(180S) Max.burst power:540W (10S)

Prop. Type	Voltage(V)	Current(A)	Power(W)	Thrust(g)	Max. working time (if within motor affordable working range, it will work long hours. If out of range, there's a risk of burning motor) M=minute S=second
HQ3X3X3 four-blade	12.6V	4.5A	57	120g	keep working for long time
	16.8V	6.1A	102.48	180g	keep working for long time
HQ4X4X3 three-blade	12.6V	9.4A	118.44	380g	keep working for long time
	16.8V	13.4A	225.12	540g	continuous Max.Throttle 3M 54S
HQ5X4.5R three-blade	12.6V	21.5A	270.9	830g	continuous Max.Throttle 51S
	16.8V	31A	520.8	1160g	continuous Max.Throttle 10S
HQ5X4X4R four-blade	12.6V	17.3A	217.98	730g	continuous Max.Throttle 1M 35S
	16.8V	24.9A	418.32	1090g	continuous Max.Throttle 44S
HQ5X4X6R six-blade	12.6V	22A	277.2	810g	continuous Max.Throttle 50S
	16.8V	32.2A	540.96	1160g	continuous Max.Throttle 10S
Gemfan 4045 two-blade	12.6V	9.7A	122.225	340g	keep working for long time
	16.8V	14.6A	245.28	520g	continuous Max.Throttle 3M 15S
Gemfan 5045 Glass fiber nylon two-blade	12.6V	12.1A	152.46	460g	continuous Max.Throttle 4M 54S
	16.8V	17.1A	287.28	690g	continuous Max.Throttle 1M 46S
Gemfan 5045 three-blade	12.6V	13.4A	168.84	630g	continuous Max.Throttle 3M 50S
	16.8V	20.1A	337.68	1010g	continuous Max.Throttle 55S
Gemfan 6045 two-blade	12.6V	18.6A	234.36	920g	continuous Max.Throttle 1M 05S
	16.8V	26A	436.8	1290g	continuous Max.Throttle 25S
Gemfan 5045BN two-blade	12.6V	11.8A	148.68	590g	continuous Max.Throttle 5M 45S
	16.8V	17.4A	292.32	920g	continuous Max.Throttle 1M 22S