

AMPX ESC 120A HV

MAD
COMPONENTS

5~18S Electronic Speed Controller manual V1.0

Disclaimer

Thank you for choosing this product. Please carefully read this manual before using this product. Using this product will indicate you're agreed with the all items in this manual. Please strictly follow these items during usage. We'll not commit any responsibility including but not limited to indirect loss or joint responsibility caused by improper usage, private modification and other faults. The maximum compensation will be not more than the cost of product itself.

Attention

Please follow local laws and regulations to legally use this product in flight, and be sure to stay away from people, high-tension lines, and public places.

This product has strong power and high speed propeller operation with certain safety risks. Users must older than 18 years old and have relevant professional knowledge.

Do not get close to the motor or propeller that rotates at high speed to avoid being cut.

Before flight, please carefully check that all parts are in good condition, propeller and motor are installed correctly, and screws are not loose.

Features

- Quick response. it will take only 0.25 seconds from starting motor to full speed running.
- Good compatibility and stability with special control algorithm for disc motors.
- Synchronous freewheeling technology can bring better throttle linearity, driving efficiency and automatic energy recovery when lowering motor speed.
- Have output interfaces of RPM and error signal.
- IP67 waterproof grade with sealing, fireproof and waterproof process, and packaging with anti-corrosion shell.
- Convenient installation screw holes without considering ESC part front and back sides.

Protection Function

• Short Circuit Protection

Short circuit protection is triggered when the ESC detects a short circuit. ESC will power off, and will rework after trouble shooting and powering again.

• Stalling Protection

Motor stall will trigger stalling protection. ESC will resume after making throttle zero and powering again.

• Voltage Protection

Once checking voltage is less than 16V or more than 64V, ESC will alarm and will not start up motor. But it will be out of effect during flying.

• Temperature Protection

During flight, if the temperature of the ESC is higher than 125°C, it will generate a fault signal and start reducing the output power to 50% of the maximum value. If the temperature continues to rise to 140°C, the ESC will turn off the output, and the normal output will not be restored until the throttle setting is reset to zero. When the temperature drops to 80°C, the output power of the ESC starts to rise to the maximum value.

• Throttle Loss Protection

When the detected throttle signal is lost for more than 2 seconds, the ESC will automatically shut down. After the throttle signal is restored, the ESC will work again.

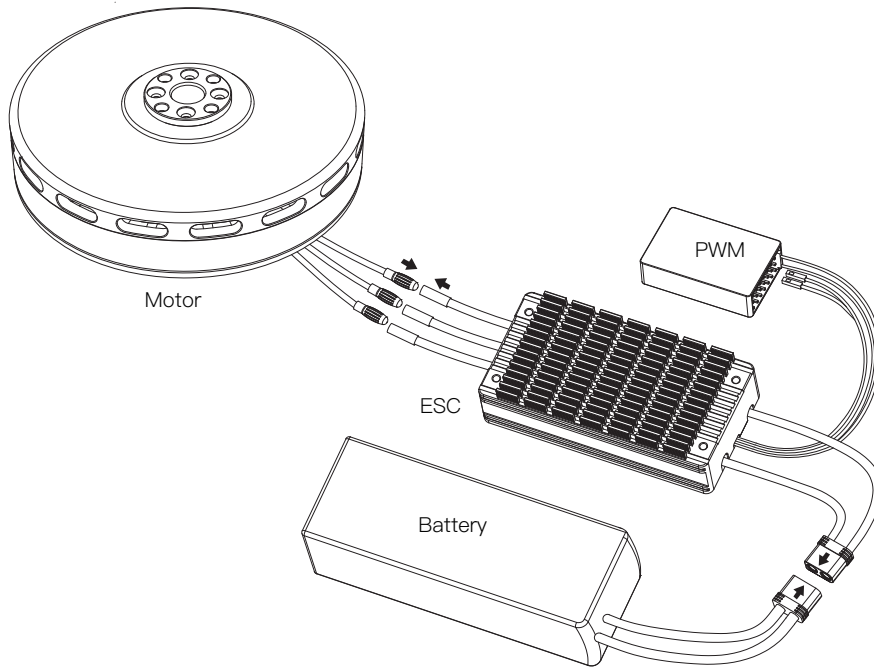
• Start Protection

When the motor is not started after increasing the accelerator for 10 seconds, the ESC will automatically shut down. After the accelerator is reset to zero, and the accelerator is pushed again, the ESC will return to normal.

• Throttle Stroke Setting

First to connect motor with ESC, then to power on & adjust throttle to top, you will hear sound of Beep-Beep for two times. Then adjust the throttle to lowest, you will hear a sound of Do-Mi-So, that means the throttle stroke has been set successfully.

ESC Connection



Black wire: ground wire
 White cable: throttle signal cable
 Yellow cable: error signal cable
 Orange cable: RPM signal cable
 RPM conversion formula:

$M_RPM = E_FRE * 60 / P$
 M_ RPM: motor speed
 E_ FRE: Electrical frequency of motor
 Namely RPM signal frequency
 P: Number of motor magnets

ESC Parameter

Model	AMPX ESC 120A	Stall Protection	available
BEC	Nil	Error Signal Output	available
PWM Input Signal Voltage	3.3V/5V (compatible)	Protection Grade	IP67 (sealing with resin)
Online Update	not available	Motor Line	12AWG
Throttle Loss Protection	available	Continuous Current	120A (under good cooling conditions)
Phase Short Circuit Protection	available	Limiting Current	120A
Size(L*W*H)	98.0 * 50.0 * 27.9mm	Throttle Pulse Width	default 1050us-1940us, throttle adjustment is available.
Power Line	10AWG	Voltage Protection	available
Battery Section	5~18S	Temperature Protection	available
Recommended Battery	18S	Speed Signal Output	available
Compatible Signal Frequency	50-500Hz	Weight(without lines)	200g
Current Protection	available	Working Environmental Temperature	-20-65°C

Trouble Shooting

Problem	Alarm	Cause	Solution
Motor can't start after powering on.	Quick noise of beep beep beep...	Throttle is not made zero.	Adjust throttle bottom
Motor can't start after powering on.	Beep, beep, beep... every 1 second.	Receiver has not throttle output signal.	Check sender and receiver co-work condition, check throttle control lines.
Voltage is less than 16V.	Beep beep, beep beep... every 1 second.	Battery voltage is too low.	Change full power battery.
Voltage is more than 64V.	Beep beep, beep beep... every 1 second.	Battery voltage is too high	Change proper full power battery.
Temperature is higher than 80 centigrade degree.	Beep beep beep, beep beep beep... every 1 second.	ESC's temperature is too high	Please cool down the ESC in a ventilated place
The power-on current or short-circuit protection is abnormal	Beep beep beep beep, beep beep beep beep... every 1 second.	Overload	Replace the appropriate propeller blades