

MAD AMPX 280A HV

12~24S Electronic Speed Controller manual (V1.0)

MAD
COMPONENTS

Disclaimer

Thank you for select this product. Please carefully read this manual before using this part. Using this part will indicate you agree with all the items in this manual. Please strictly follow these items for 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 this

Attention

This part has strong power. High speed running propellers have certain safety risk. User must be older than 18 years and have relative professional knowledge. Before usage, please carefully check if all the components are in good conditions.

This brushless ESC uses advanced algorithms to precisely control the commutation of the brushless motor, and achieves reliable high-voltage drive by using a professional industrial-grade brushless motor drive chip.

Parameter

● Main parameters

Input voltage range, DC 50–100V, maximum input power supply voltage: DC100V Support lipo 12–24S

● Working current

Continuous working Current: 240A (under good cooling conditions). ESC case temperature under 80°C is normal.
Instant Current: 240A for 5 seconds

● Control signal standard

1. Compatible with 50Hz remote control, high level time 1000–2000us command, the highest input frequency can reach 400Hz.

Note: The maximum input pulse width must be below 2050us.

2. The remote control signal is transmitted internally through optocoupler isolation. The red wire must be supplied with 5–8V power by the receiver or flight controller.

3. The throttle stroke can be calibrated: before powering on, input the maximum value of the remote control signal, and then switch on the power supply, the ESC will emit a series of sounds. And when the sound stops, input the remote control signal at the minimum value, the ESC will emit another series of sounds. After it stops, disconnect the power supply and power it on again. Details please refer to point 7.

● Timing Advance Degree

In order to adapt to most multi-pole brushless motors, the electrical timing of the ESC is default to 15 degree.

● Protection mechanism of ESC

1. Low throttle detection after power on

2. Over Current Protection, Once checking current is more than 115°C, ESC will shut off power output.

3. Stalling Protection Motor stall will trigger stalling protection.

4. Throttle Loss Protection Once checking throttle signal loss, ESC will automatically shut off.

● Compatibility

This ESC is compatible with almost all brushless multi-rotor dc motors. If there is a compatibility problem, can be debugged according to motor.

● Motor Tones Explanation

Motor Tones Examples

Tones during normal use: (Ensure low throttle position when powering on) If you need to recalibrate the throttle, follow the steps below:

Throttle calibration method: (before power on, provide maximum throttle signal, the maximum throttle signal is less than 2000us)

Disconnect the power supply and power on again, the ESC will operate normally according to the newly calibrated throttle stroke.

Special note: Effective range of throttle signal: 900–2000us. Motor might stop rotating when max throttle signal greater than 2050us.

ESC Connection

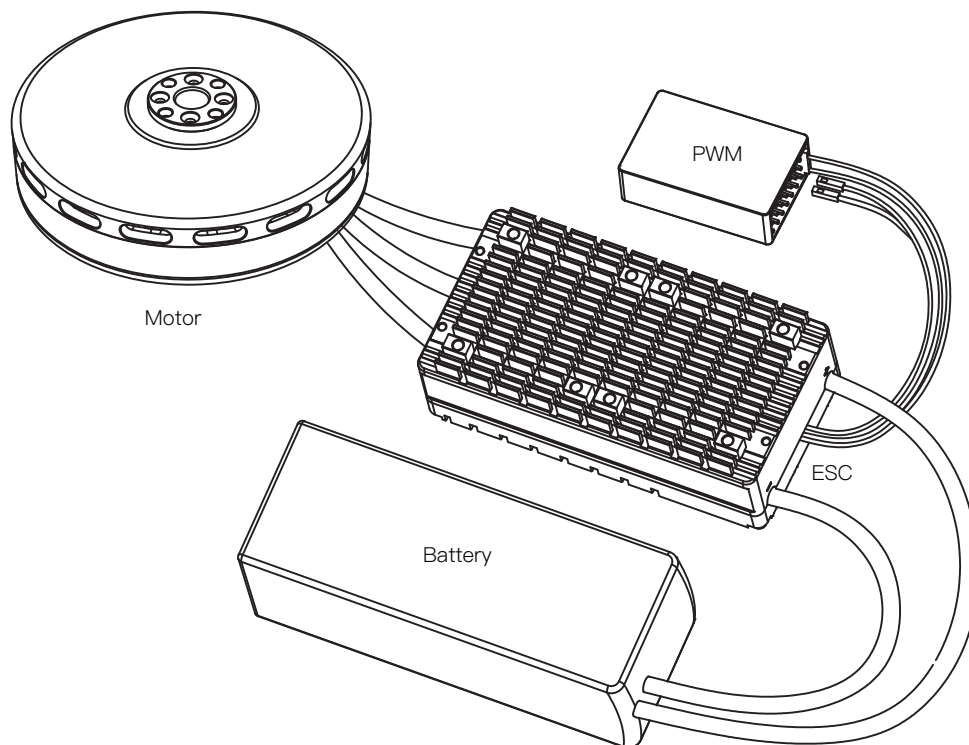
- #7AWG thick red wire: DC50–100V power supply positive input
- #7AWG thick black wire: DC50–100V power negative input
- Three 7AWG/8AWG black wire: connect motor (no anti-spark part included)

1. Thin 3 pin signal wire: brown wire, ground wire, black wire – for black negative isolation optocoupler

2. JR plug: red wire – signal power for isolation optocoupler: DC4.8–8.4V. Power consumption <5Ma

Orange wire – remote control signal input: 900–2000us

A throttle signal extension for increasing interference immunity is included.



ESC Parameter

Model: AMPX 280A

BEC: No

PWM Input Signal Voltage: 5–8V

Online Update: not available

Throttle Loss Protection: available

Phase Short Circuit Protection: available

Size(L*W*H): 140.5*66.6*47.1mm

Power Line: 7AWG

Continuous Current: 240A

(under good cooling conditions. FYI: ESC case temperature under 80°C is good)

Instant Current: 300A 5sec (under good cooling conditions)

Throttle Pulse Width: default 1000us–2000us.

Max input puls width must be below 2050us. If over 2050us, timing advance degree: 15°C

Voltage Protection: available

Temperature Protection: available

Speed Signal Output: available

Weight(without lines): 812g

Working Environmental Temperature: –20~65

Battery Section: 12~24S

Input Voltage Range: DC50–100V

Recommended Battery: 24S

Compatible Signal Frequency: 50–400Hz

Current Protection: available

Stall Protection: available

Error Signal Output: available

Protection Grade: IP53 (sealing with resin)

Motor Line: 7AWG

Working Environmental Temperature: –20~65°C