

Product Specification

Product Model: TW-40A-12S

Version: V2.0

Date: 2025-06-28

I. Purpose

This product specification provides a standard for product design, production, inspection, and sales.

II. Scope of Application

Electronic speed controller, suitable for input voltage: 20V - 48V DC.

III. Technical Parameters

Serial Number	Item	Requirements	Remarks
1	Supported Lithium Batteries (S)	6-12S	Factory inspection item
2	Continuous Output Current (A)	25A	With heat dissipation conditions
3	Instantaneous Output Current (less than 10 seconds)	45A	With heat dissipation conditions, can be no less than 3S instantaneously
4	BEC Output Voltage	无	
5	Weight of the Speed Controller (g) (including wires and connectors)	90.33g	

6	Operating Environment Temperature (°C)	-20°C~+65°C	
7	Operating Humidity (%)	15%~85%RH	
8	Storage Temperature (°C)	-10°C~+30°C	
9	Storage Humidity (%)	15%~65% RH	
10	Waterproof Rating	IP68	
11	Standby Power Consumption	≤50mA @48V	
12	Throttle Travel Range	1000us – 2000us (throttle mid – point at 1500us)	Can be calibrated
13	Two-Way Motor Rotation	1000us – 1500us for forward rotation / 1500us – 2000us for reverse rotation	
14	Maximum Supported Speed	100,000 RPM (electrical speed)	Mechanical speed = electrical speed / number of pole pairs
15	Throttle Refresh Frequency	50-400HZ	
16	Throttle Dead Zone Time	1%	
17	Upper Computer Data Reading	Monitor voltage, speed, temperature, etc.	General – purpose serial port module such as CP2102
18	Protection Functions	Stall protection / over – current protection / throttle	

		loss protection	
19	Input Signal Level	3.3V-5V	

IV. Main Material / Part Specifications

Serial Number	Item	Requirements	Remarks
1	Cord Specification	14AWG	
2	Power Cord Length	$200 \pm 8\text{mm}$	
3	Power Cord Color	Red (positive) Black (negative)	
4	Power Cord Connector	–	
5	Motor Wire Specification	14AWG	
6	Motor Wire Length	$100\text{mm} \pm 5\text{mm}$	
7	Motor Wire Connector	–	
8	Signal Wire Specification	UL1533 – 24AWG – gray (wrapped shield)	
9	PWM Signal Wire Length	$495 \pm 10\text{mm}$	
10	Serial Port Signal Wire Length	$80 \pm 5\text{mm}$	
11	Signal Wire Connector	–	
12	Housing Material	Glossy black aluminum shell	
13	Copper Nozzle	Outer diameter 4MM	

V. Finished Product Outline Drawing / Dimensions

Serial Number	Item	Requirements	Remarks
1	Length	78mm	$\pm 0.2\text{mm}$
2	Width	30mm	$\pm 0.2\text{mm}$
3	Height	19.9mm	$\pm 0.2\text{mm}$

VI. Outline and Structure

