DZS Elec SPEEDER-10A

DZS Elec 10A 12V-40V DC Motor Speed Controller Instruction Manual

Model: SPEEDER-10A

Introduction

The DZS Elec 10A 12V-40V DC Motor Speed Controller is a high-efficiency, high-torque device designed for precise control of DC motor speeds. It operates within a wide voltage range and incorporates essential protection features to ensure safe and reliable performance. This manual provides detailed instructions for the setup, operation, and maintenance of your speed controller.

- **Type:** DC 10A 12V-40V motor speed controller, offering high efficiency, high torque, and low heat radiation.
- **Function:** Equipped with power supply reverse polarity protection, over-voltage protection, and a 10A standard fuse for over-load protection, enhancing safety and reliability.
- **Control:** Features a variable speed knob potentiometer for adjusting motor speed with a PWM Duty Cycle of 10%-100%.
- **Applications:** Suitable for various DC motor speed control applications, including PLC speed control systems.

Setup Instructions

Follow these steps to correctly set up your DZS Elec DC Motor Speed Controller:

1. **Power Supply Connection:** Connect your DC power supply to the terminals labeled **Power+** and **Power-**. Ensure the polarity is correct (positive to Power+, negative to Power-). *Incorrect polarity will damage the speed controller.* This device is **not suitable for AC power supply**.
2. **Motor Connection:** Connect your DC motor to the terminals labeled **Motor+** and **Motor-**.
3. **Potentiometer:** The speed control knob potentiometer is pre-installed. If a lead-type knob is preferred, the fixed potentiometer must be carefully dismantled first.

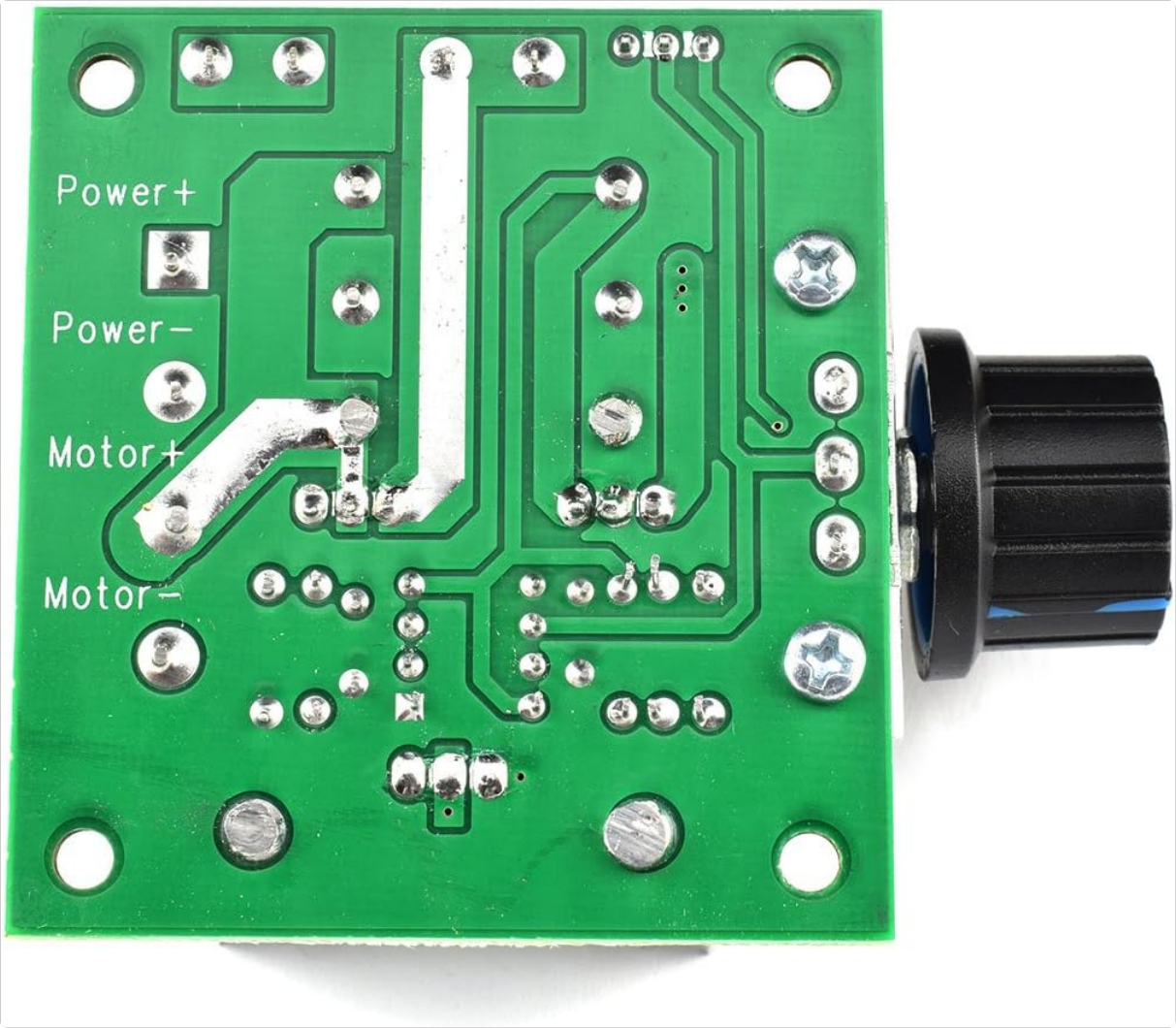

Figure 1: Rear view of the speed controller, illustrating the Power and Motor connection terminals. Ensure correct wiring as indicated.

Important Safety Note: Always double-check your wiring before applying power. Reversing DC power supply polarity will damage the speed controller. Do not connect to an AC power source.

Operating Instructions

Once the controller is correctly wired, operating it is straightforward:

1. **Power On:** Apply DC power within the specified voltage range (12V-40V).
2. **Adjust Speed:** Rotate the control knob potentiometer to adjust the motor speed. Turning the knob clockwise will increase the motor speed, while turning it counter-clockwise will decrease it. The speed range is adjustable from approximately 10% to 100% of the maximum speed.
3. **Monitor Performance:** Observe the motor's behavior. The controller provides a smooth and linear speed adjustment.

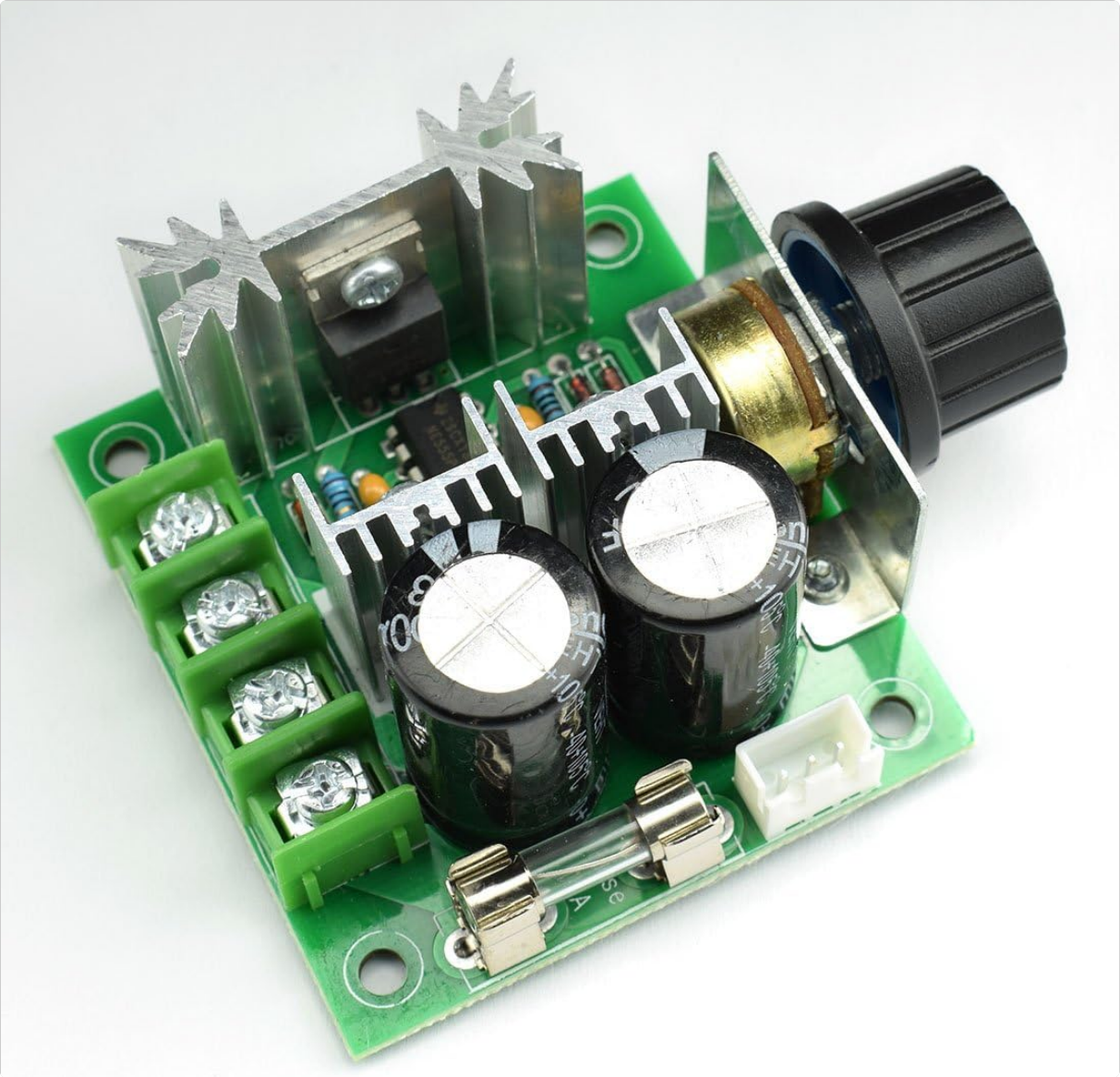

Figure 2: Top view of the speed controller, highlighting the speed control knob for easy adjustment.

Maintenance

The DZS Elec DC Motor Speed Controller is designed for durability and requires minimal maintenance. Adhering to these guidelines will help ensure its longevity:

- **Keep Clean and Dry:** Ensure the module is kept free from dust, dirt, and moisture. Use a soft, dry cloth for cleaning.
- **Fuse Replacement:** The controller includes a 10A standard fuse (5x20mm). If the controller stops functioning due to an overload, check and replace the fuse with one of the same rating. Always disconnect power before replacing the fuse.
- **Heat Management:** The integrated heat sink helps dissipate heat. Ensure adequate airflow around the module, especially during prolonged operation at higher loads.
- **Connection Integrity:** Periodically check all wire connections to ensure they are secure and free from corrosion.

Troubleshooting

If you encounter issues with your speed controller, consider the following troubleshooting steps:

Problem	Possible Cause	Solution
Motor does not run	No power supply; Incorrect power polarity; Blown fuse; Loose connections; Motor fault	Verify power supply is connected and active; Check power supply polarity (Power+ to positive, Power- to negative); Inspect and replace fuse if blown (5x20mm 10A); Secure all wiring connections; Test motor independently.
Motor runs but speed cannot be adjusted	Faulty potentiometer; Controller malfunction	Ensure the knob is securely attached and rotating the potentiometer shaft; If issue persists, the controller may require replacement.
Controller gets excessively hot	Overload; Insufficient ventilation	Reduce motor load to stay within rated current (8A continuous, 10A max); Ensure adequate airflow around the heat sink; Verify input voltage is within 12V-40V range.
Inconsistent motor speed or erratic behavior	Unstable power supply; Loose connections; Motor issues	Use a stable DC power supply; Check and tighten all wiring connections; Test motor independently for smooth operation.
Controller damaged immediately upon power-up	Reverse polarity connection; AC power supply connected	This damage is typically irreversible. Always ensure correct DC polarity and never connect to AC power.

If the problem persists after attempting these solutions, contact DZS Elec customer support for further assistance.

Specifications

Feature	Specification
Module Size	60 x 55 x 28 mm
Work Voltage	DC 12V-40V
Rated Current	8A
Max Current	10A
Quiescent Current	0.02A (Standby)
Output Voltage	Approx. 0%-100% of input voltage
Speed Range	10%-100%
PWM Frequency	13KHz
PWM Pulse Width Speed Range	10%-100%

Feature	Specification
Power Range	0.01-400W
Knob Potentiometer	Resistance B100K, Trepanning 8mm
Fuse Wire	5x20mm 10A
Item Weight	2.82 ounces
Package Dimensions	4.41 x 2.56 x 2.28 inches
Model Number	SPEEDER-10A
Material	Lead (Potentiometer/Internal Wiring)

Warranty and Support

Specific warranty information for the DZS Elec 10A 12V-40V DC Motor Speed Controller is not provided within this manual. For details regarding warranty coverage, technical support, or service, please refer to the product packaging or contact DZS Elec directly through their official website or customer service channels.

When contacting support, please have your product model number (SPEEDER-10A) and purchase information readily available.