ayetea 1

ayetea DC Motor Speed Controller User Manual

Universal 12V / 24V 10A Electronic Stepless Speed Regulator Switch

1. Introduction

This manual provides comprehensive instructions for the installation, operation, and maintenance of the ayetea DC Motor Speed Controller. This device is designed to provide stepless speed regulation for various DC motors and electrical appliances operating on 12V or 24V DC power supplies.

Please read this manual thoroughly before using the product to ensure correct operation and to prevent damage.

2. Safety Information

- Always disconnect power before making any wiring connections or performing maintenance.
- This product is designed exclusively for **12V or 24V DC power supplies**. Do not connect it to household 220V AC voltage, as this will cause severe damage and potential hazards.
- Ensure correct polarity during wiring. Reversing the positive and negative poles of the power supply can damage the controller and connected devices.
- Do not exceed the maximum rated current of **10A** or the maximum power output of **120W (at 12V)** or **240W (at 24V)**. Overloading can lead to overheating and device failure.
- This controller is generally suitable for brushed DC motors. It is **not recommended for brushless motors or geared motors**, as speed regulation may not be possible or could cause damage.
- Ensure adequate ventilation around the device, especially the heat sink, to prevent overheating during prolonged operation.

3. Product Features

- **Universal Voltage Compatibility:** Operates with 12V or 24V DC power sources.
- **High Power Support:** Handles up to 120W at 12V and 240W at 24V.

- **Stepless Speed Regulation:** Provides smooth, continuous adjustment of motor speed.
- **Integrated Heat Sink:** Features a heat sink for efficient thermal management and improved durability.
- **Simple Wiring:** Designed for straightforward installation and ease of use.
- **Compact Design:** Small form factor for versatile integration.

---

4. Installation and Wiring

Proper wiring is critical for the safe and effective operation of the speed controller. Refer to the diagram below for connection details.

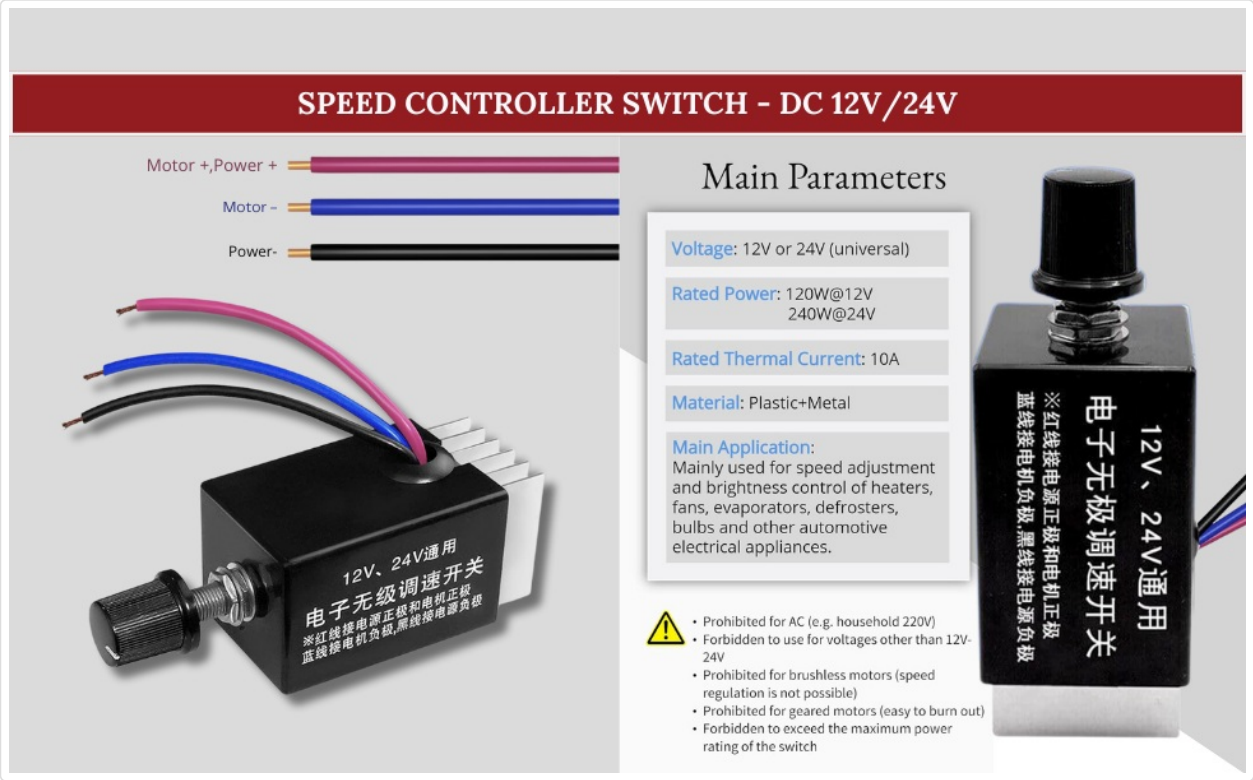

Image 1: Wiring Diagram and Main Parameters

This image illustrates the wiring connections and key specifications of the speed controller. It shows the red wire for motor positive and power positive, the blue wire for motor negative, and the black wire for power negative. Also displayed are voltage, rated power, rated thermal current, and material.

Wiring Steps:

1. **Red Wire:** Connect the red wire to the **positive (+) pole of your DC power supply** and also to the **positive (+) terminal of your DC motor**.
2. **Blue Wire:** Connect the blue wire to the **negative (-) terminal of your DC motor**.
3. **Black Wire:** Connect the black wire to the **negative (-) pole of your DC power supply**.

Important Note:

- Ensure all connections are secure and insulated to prevent short circuits.
- Double-check polarity before applying power. Incorrect polarity can damage the unit.

---

5. Operating Instructions

Once the controller is correctly wired and power is supplied, you can begin operation:

Image 2: Speed Adjustment Knob

This image highlights the rotary knob used to adjust the motor speed. Rotating the knob clockwise increases speed, while counter-clockwise rotation decreases speed, with a distinct 'off' click at the minimum setting.

- **Power On:** Ensure your DC power supply is active.
- **Adjust Speed:** Rotate the knob on the controller clockwise to increase the motor speed. Rotate it counter-clockwise to decrease the speed. The knob provides a smooth, stepless adjustment.
- **Power Off:** Continue rotating the knob counter-clockwise until you feel a distinct 'click'. This will turn off the power to the motor.

---

6. Applications

The ayetea DC Motor Speed Controller is versatile and can be used in various 12V-24V DC electrical applications, including but not limited to:

Image 3: Wide Range of Applications

This image displays several common uses for the speed controller, such as controlling automobile fans, air conditioner evaporators, agricultural sprayers, brushed motors, air heaters, and automobile bulbs, demonstrating its universal compatibility.

- Automobile fan heater control
- Defroster fan speed regulation
- General DC fan speed adjustment
- Control of brushed DC motors
- Automotive lighting dimming (e.g., car bulbs)
- Small DC pump speed control

---

7. Maintenance

The ayetea DC Motor Speed Controller is designed for durability and requires minimal maintenance. Follow these guidelines to ensure optimal performance and longevity:

- **Cleaning:** Keep the device clean and free from dust and debris. Use a soft, dry cloth for cleaning. Do not use liquid cleaners.
- **Connection Checks:** Periodically inspect all wiring connections to ensure they remain secure and free from corrosion. Loose connections can lead to intermittent operation or overheating.
- **Heat Dissipation:** Ensure that the heat sink is not obstructed and has adequate airflow. Proper heat dissipation is crucial for the controller's stability and lifespan, especially under heavy loads.

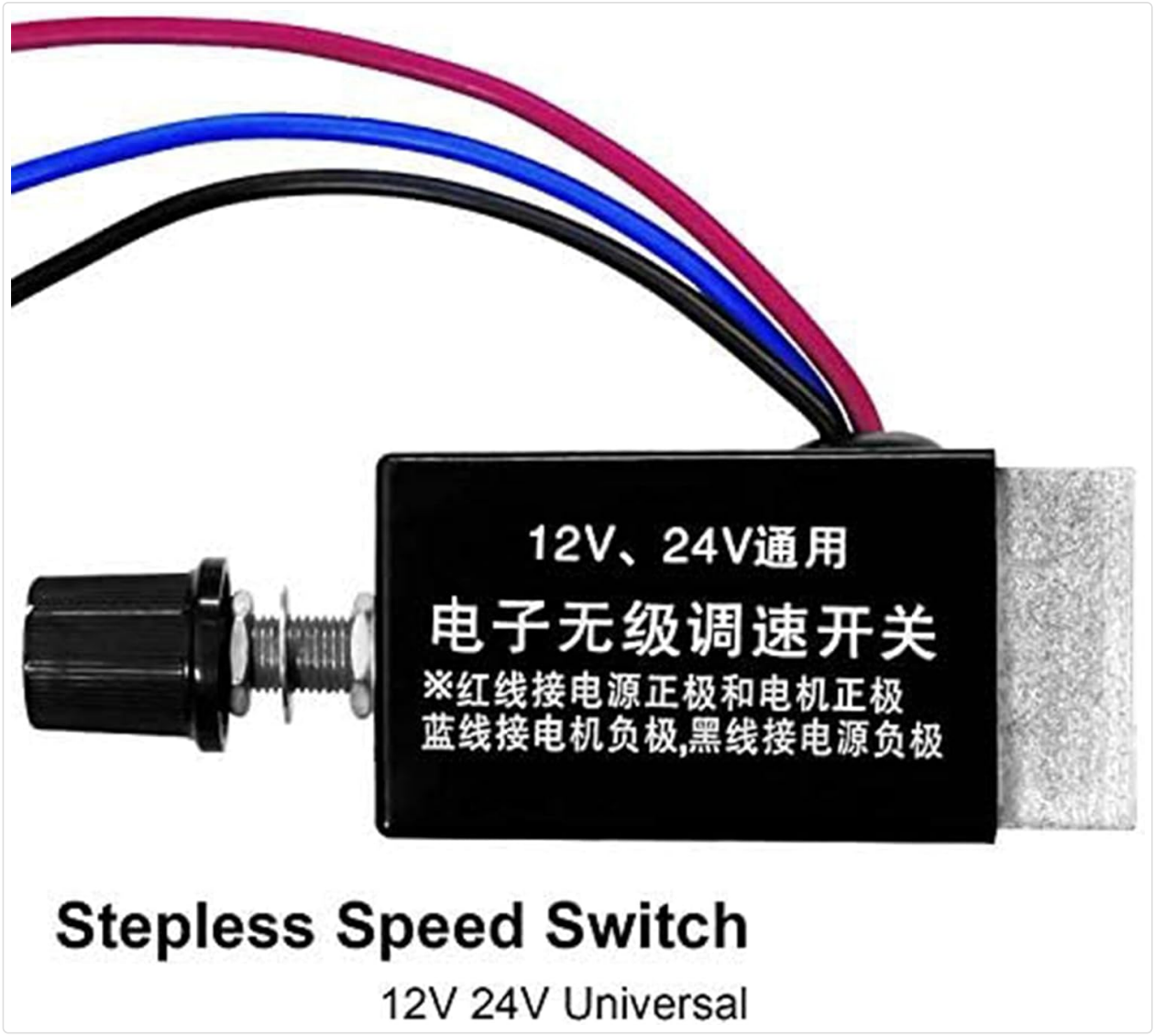

Image 4: Heat Sink Detail

This image provides a detailed view of the heat sink fins, which are essential for dissipating heat generated during operation and maintaining the controller's performance.

8. Troubleshooting

If you encounter issues with your speed controller, refer to the following troubleshooting guide:

Problem	Possible Cause	Solution
Device not powering on / Motor not responding	No power supply Incorrect wiring / Reversed polarity Loose connections Incompatible motor type (e.g., brushless)	Verify power supply is active and within 12V-24V DC range. Check wiring against the diagram in Section 4. Correct any reversed polarity. Ensure all wires are securely connected. Confirm motor is a brushed DC type.

Problem	Possible Cause	Solution
Motor runs only at full speed or not at all	Controller malfunction Incompatible motor type	Test with a known working DC motor. Ensure motor is a brushed DC type.
Device or motor overheating	Exceeding maximum load (10A / 120W / 240W) Insufficient ventilation for heat sink Short circuit in wiring or motor	Reduce the load on the controller. Verify motor current draw. Ensure heat sink is clear and has adequate airflow. Inspect wiring and motor for any short circuits.
High-pitched screeching sound at low speeds	Normal characteristic of PWM control with some motors	This can be a common occurrence with Pulse Width Modulation (PWM) controllers and certain motor types. If disruptive, consider operating at higher speeds or using a different motor.

9. Specifications

Specification	Value
Input Voltage	12V DC / 24V DC (Universal)
Rated Current	10A
Rated Power (12V)	120W
Rated Power (24V)	240W
Dimensions (L x W x H)	3.66 x 1.42 x 1.26 inches (approx. 93 x 36 x 32 mm)
Item Weight	1.76 ounces (approx. 50g)
Material	Copper (internal), Plastic (housing)
Manufacturer	Dawwoti
Model Number	1

10. Warranty and Support

For technical assistance, product support, or warranty inquiries, please contact your original retailer or the manufacturer directly. Please retain your proof of purchase for any warranty claims.

The manufacturer continually strives to improve its products. Specifications and features are subject to change

without prior notice.