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NITRIP NITRIPugcqp3sxb2

NITRIP DC 5V-36V 15A 3-Phase Brushless Motor Speed Control User Manual

Model: NITRIPugcqp3sxb2

Introduction

This manual provides detailed instructions for the installation, operation, and maintenance of the NITRIP DC 5V-36V 15A 3-Phase Brushless Motor Speed Control. This device is designed to regulate the speed and direction (CW/CCW) of 3-phase brushless motors within the specified voltage and current ranges. Please read this manual thoroughly before use to ensure proper and safe operation.

Safety Information

- **Input Voltage:** The input voltage must be DC 5V-36V. Do not connect to 220V AC household power.
- **Voltage Matching:** Ensure the input voltage matches the rated voltage of the motor (5V-36V).
- **Polarity:** Observe correct positive and negative polarity for the input power. Incorrect connection can damage the device.
- **Motor Connection:** The motor lines A, B, and C can be connected in any sequence; the controller will adjust.
- **Current Limit:** The maximum output current is 15A. Do not exceed this limit to prevent damage.
- **Environment:** Operate the controller in a dry, well-ventilated area, away from flammable materials and excessive heat.
- **Professional Installation:** If you are unfamiliar with electrical wiring, seek assistance from a qualified professional.

Product Overview

The NITRIP Brushless Motor Speed Control offers precise speed regulation and reversible direction for 3-phase brushless motors. It features a wide voltage input range and a robust design for stable performance.

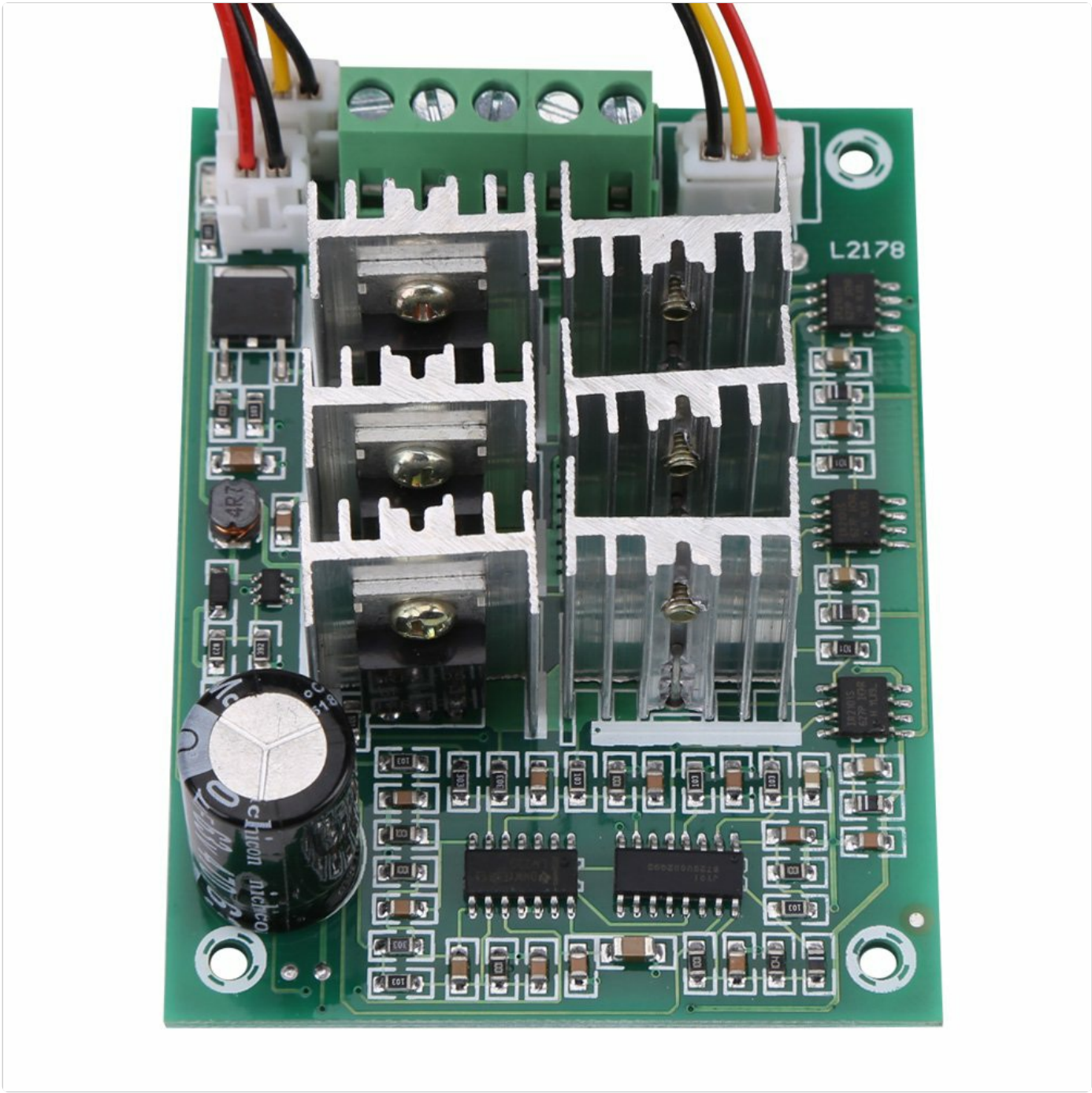


Figure 1: Top view of the NITRIP DC 3-Phase Brushless Motor Speed Control board, showing heat sinks and components.

Key Features:

- Wide input voltage range: DC 5V-36V.
- Maximum output current: 15A.
- Supports 3-phase brushless motors.
- CW/CCW (Clockwise/Counter-Clockwise) reversible motor direction.
- Potentiometer for 0-100% speed adjustment with integrated switch.
- Fence-type terminal for secure connections.

Specifications

Input Voltage	DC 5V-36V

Output Current	<15A
Protective Current	15A
CW/CCW Support	Yes
Speed Regulating Mode	Potentiometer (270 degree linear)
Speed Adjustment Range	0-100%
Supported Motor Type	3-Phase Brushless Motor
Connection Type	Fence Type Terminal
Potentiometer Specification	100K (with switch)
Module Dimensions (L x W x H)	8 x 6 x 2.8 cm (3.15 x 2.36 x 1.1 inches)
Item Weight	87g (3.2 ounces)
Material	Copper

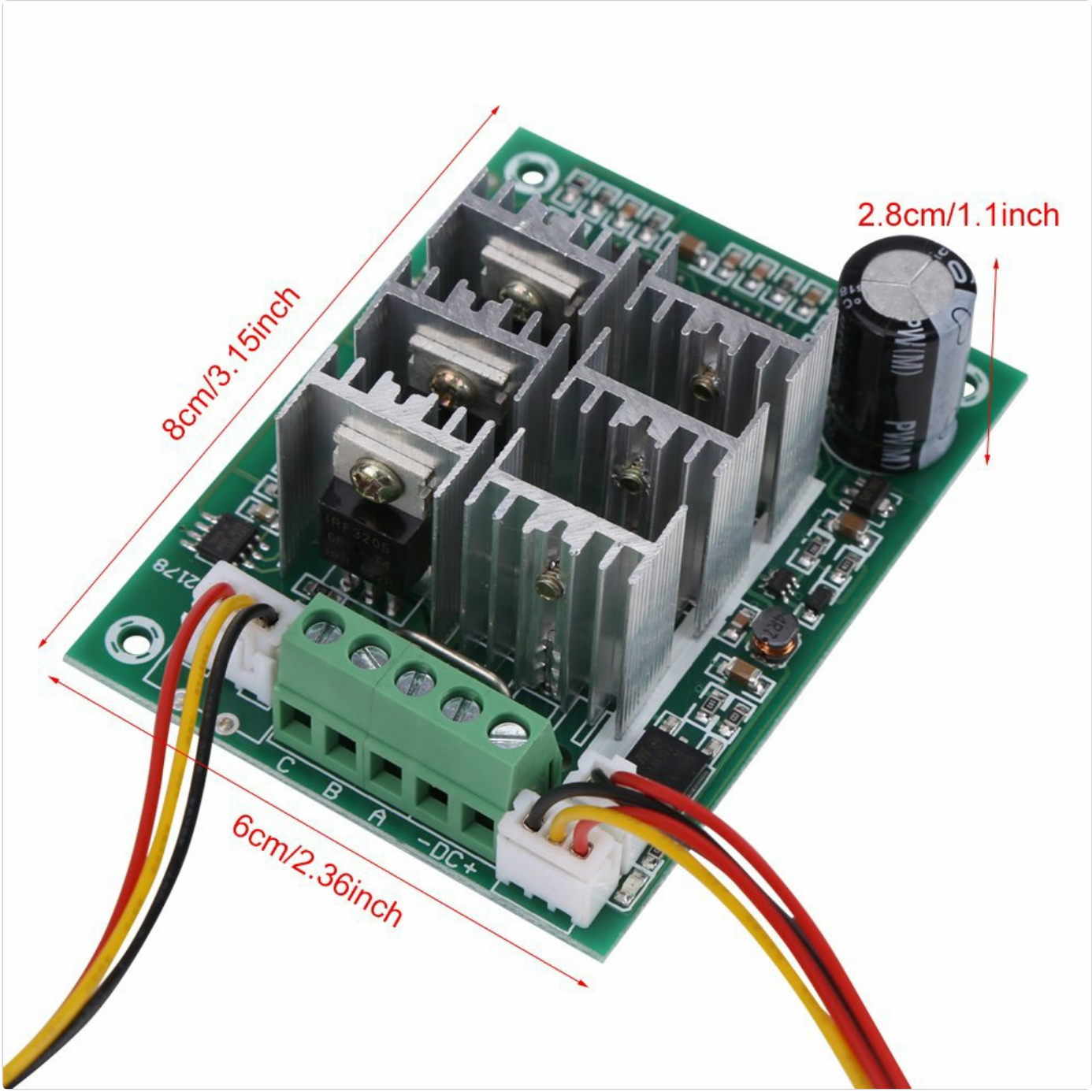


Figure 2: Physical dimensions of the control module.

Setup and Installation

Follow these steps to correctly connect the motor speed controller:

1. **Power Supply Connection:** Connect your DC power supply (5V-36V) to the **DC+** (positive) and **DC-** (negative) terminals on the controller. Ensure correct polarity.
2. **Motor Connection:** Connect the three wires from your 3-phase brushless motor to the **A**, **B**, and **C** terminals. The order of these connections does not matter for initial setup; the controller will adapt.
3. **Potentiometer Connection:** The potentiometer (100K with switch) connects to the dedicated 3-pin header. This controls the motor speed and acts as the main power switch for the control circuit.
4. **CW/CCW Switch Connection:** The CW/CCW reversible switch connects to its dedicated 2-pin header. This switch controls the direction of motor rotation.

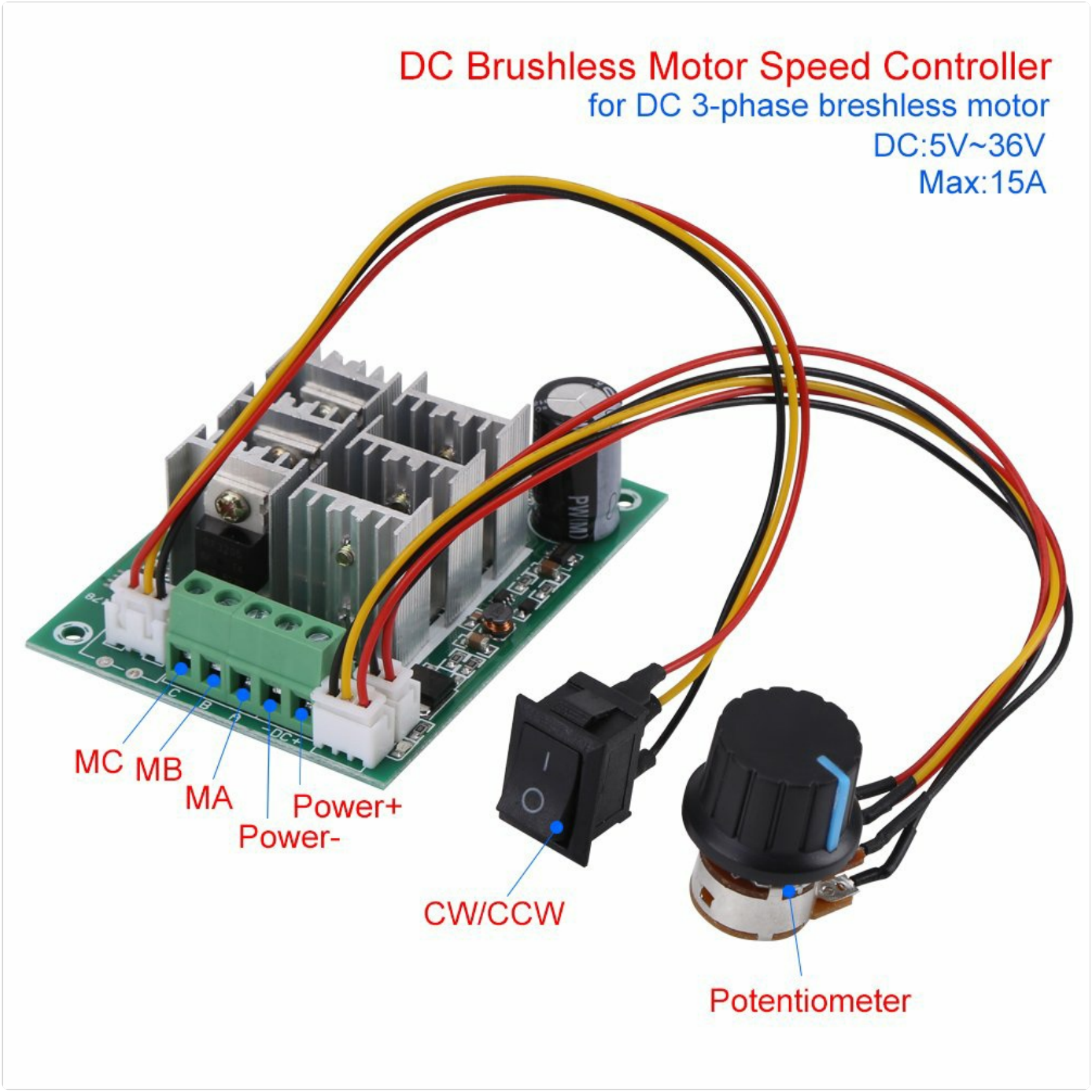


Figure 3: Connection diagram illustrating power input, motor output, potentiometer, and CW/CCW switch connections.

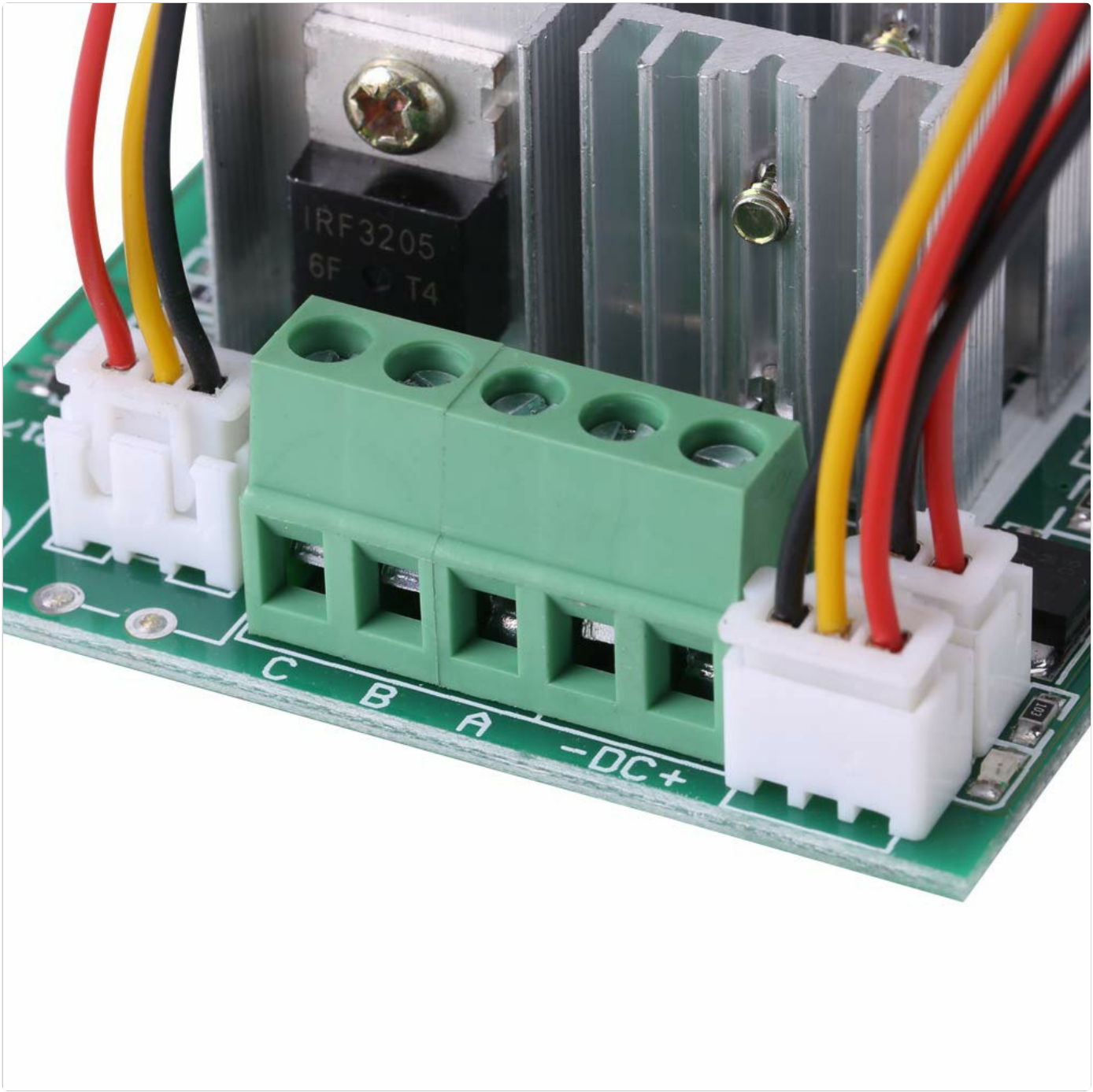


Figure 4: Detailed view of the fence-type terminal block for power and motor connections.

Important Note: Always ensure all connections are secure before applying power. Loose connections can lead to intermittent operation or damage.

Operating Instructions

1. **Power On:** Turn the potentiometer knob clockwise until you hear a click. This activates the control circuit.
2. **Adjust Speed:** Continue rotating the potentiometer knob clockwise to increase motor speed. Rotate counter-clockwise to decrease speed. The speed can be adjusted from 0% to 100%.
3. **Change Direction:** Use the CW/CCW switch to reverse the motor's direction of rotation. It is recommended to stop the motor or reduce its speed before changing direction to prevent stress on the motor and controller.
4. **Power Off:** Turn the potentiometer knob counter-clockwise until you hear a click to power off the control circuit.



Figure 5: Potentiometer knob for speed control and integrated power switch, alongside the CW/CCW direction switch.

Maintenance

- **Cleaning:** Keep the controller free from dust and debris. Use a soft, dry cloth for cleaning. Do not use liquids or abrasive cleaners.
- **Inspection:** Periodically inspect all wiring connections to ensure they are secure and free from corrosion or damage.
- **Ventilation:** Ensure adequate airflow around the module, especially around the heat sinks, to prevent overheating during prolonged operation.
- **Storage:** When not in use, store the controller in a dry, cool environment.

Troubleshooting

Problem	Possible Cause	Solution

Motor does not start	◦ No power to the controller. ◦ Potentiometer switch is off. ◦ Incorrect wiring (DC+, DC-, Motor A/B/C). ◦ Motor fault.	◦ Check power supply connection and voltage. ◦ Turn potentiometer knob clockwise until it clicks. ◦ Verify all connections according to the setup diagram. ◦ Test motor independently if possible.
Motor runs intermittently or erratically	◦ Loose wiring connections. ◦ Unstable power supply. ◦ Motor or controller overheating.	◦ Secure all terminal connections. ◦ Ensure power supply is stable and within voltage range. ◦ Check for proper ventilation; reduce load if necessary.
Motor does not change direction	◦ CW/CCW switch not connected or faulty.	◦ Verify CW/CCW switch connection. ◦ Ensure motor is compatible with direction reversal.
Controller gets excessively hot	◦ Overcurrent or excessive load on the motor. ◦ Insufficient ventilation.	◦ Reduce motor load or ensure current draw is below 15A. ◦ Improve airflow around the heat sinks.

Warranty and Support

For technical support or warranty inquiries, please contact your retailer or the manufacturer directly. Keep your purchase receipt as proof of purchase.

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