

GODIYMODULES ZS-X11Hall-001

GODIYMODULES DC 6-60V 400W 3-Phase Hall Brushless
Motor Controller Board User Manual

Model: ZS-X11Hall-001

1. INTRODUCTION

This manual provides detailed instructions for the installation, operation, and maintenance of the GODIYMODULES DC 6-60V 400W 3-Phase Hall Brushless Motor Controller Board (Model ZS-X11Hall-001). This module is designed to control brushless DC (BLDC) motors with Hall sensors, offering features such as forward, reverse, and brake functions, along with speed control capabilities.

2. PRODUCT FEATURES

- MA, MB, MC phase line output for connecting to the motor.
- Ha, Hb, Hc, +5V, GND Hall signal power input, compatible with most Hall-sensor equipped motors.
- Full patch process for stable performance.
- Integrated positive/reverse function.
- Positive and negative reversing control interface (supports external switch connection).
- VR speed control signal input (onboard potentiometer for speed control, also supports 0-5V analog simulation or PWM duty cycle for dual signal input speed regulation).
- VCC, GND for main motor power supply (external DC power supply).
- SC speed pulse signal output.
- Onboard 5V GND power supply (current not to exceed 30mA).

3. SPECIFICATIONS

Brand	GODIYMODULES
Model Number	ZS-X11Hall-001
Input Voltage	DC 6-60V
Maximum Power	400W

Motor Type	3-Phase Hall Brushless DC (BLDC) Motor
Item Weight	0.08 Kilograms

4. SETUP AND INSTALLATION

Careful wiring is essential for proper function and to prevent damage to the controller and motor. Refer to the wiring diagram below for correct connections.

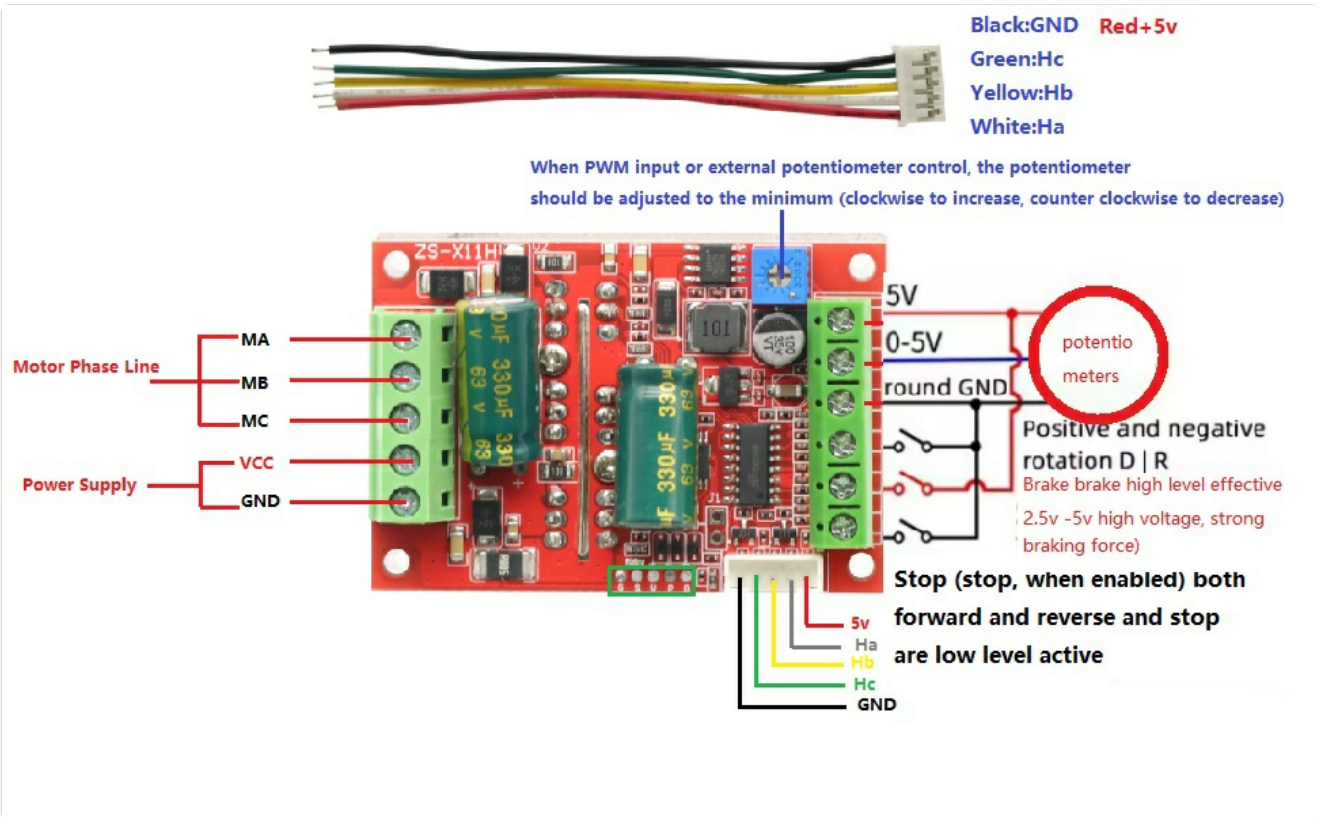


Figure 1: Wiring Diagram

This diagram illustrates the connection points for the motor phase lines (MA, MB, MC), Hall sensor signals (Ha, Hb, Hc, +5V, GND), main power supply (VCC, GND), speed control (VR), and control inputs for forward, reverse, and brake functions.

- Motor Phase Connections:** Connect the three phase lines of your brushless motor to the MA, MB, and MC terminals on the controller board.
- Hall Sensor Connections:** Connect the Hall sensor wires from your motor to the Ha, Hb, Hc, +5V, and GND terminals. Ensure correct polarity for +5V and GND.
- Power Supply:** Connect your DC power supply (6-60V) to the VCC and GND terminals. Observe correct polarity.
- Speed Control:**
 - Onboard Potentiometer:** The board includes a potentiometer for speed adjustment. When using an external PWM input or external potentiometer, the onboard potentiometer should be adjusted to its minimum (fully counter-clockwise) position.
 - External Speed Control:** The VR input supports 0-5V analog voltage or PWM duty cycle for external speed regulation.
- Direction and Brake Control:** The board features inputs for positive/negative reversing and brake functions. These can be controlled via external switches.

- **Forward/Reverse (D/R):** Connect an external switch to control motor direction.
- **Brake:** The brake function is active when the input is at a high level (2.5V-5V).
- **Stop:** Both forward and reverse inputs are low level active to stop the motor.

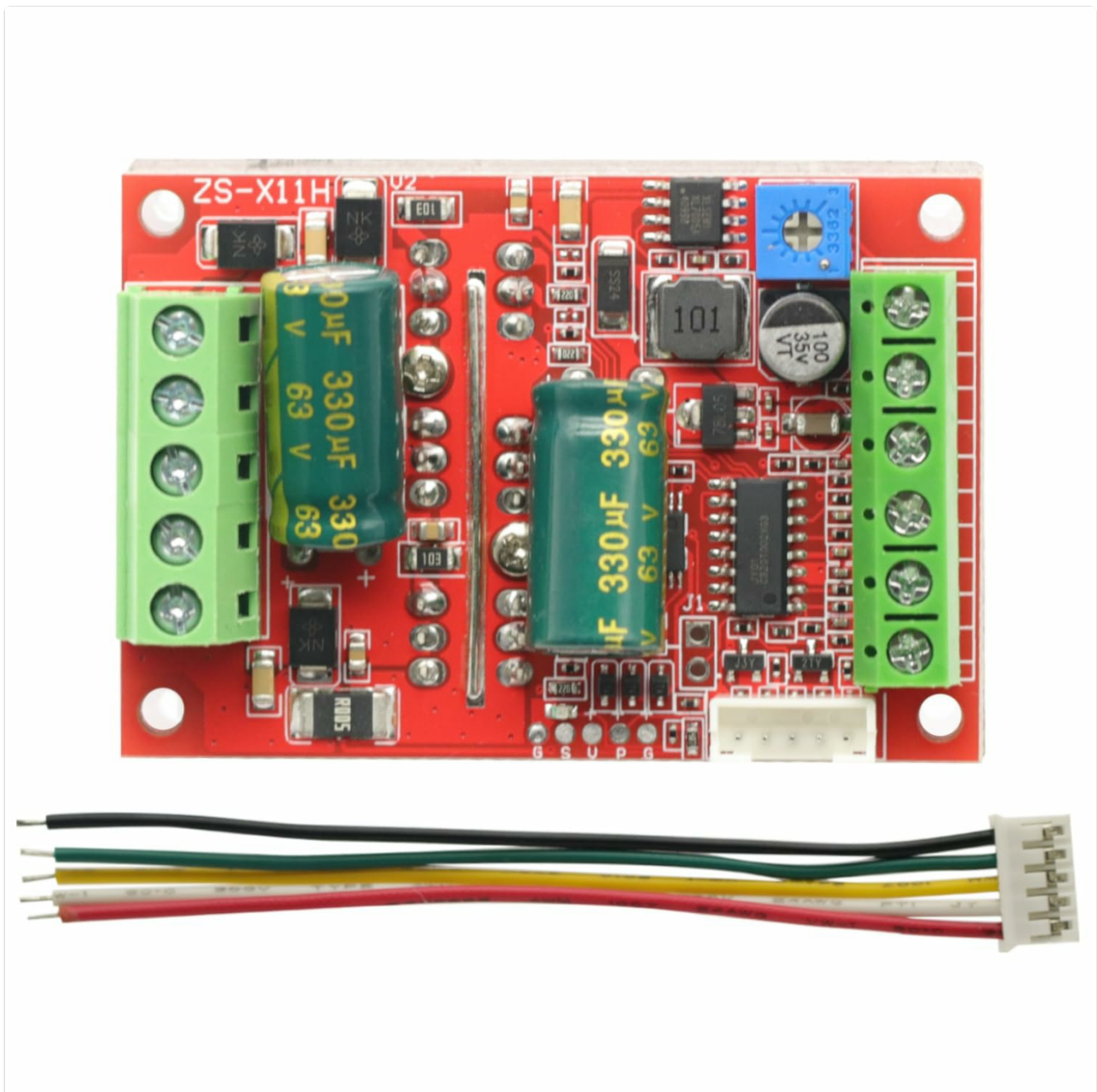


Figure 2: Controller Board with Hall Sensor Cable

This image shows the top view of the controller board, highlighting the terminal blocks for connections and the included Hall sensor cable.

5. OPERATING INSTRUCTIONS

Once the controller is correctly wired and powered, follow these steps for operation:

1. **Power On:** Apply DC power within the 6-60V range to the VCC and GND terminals.
2. **Speed Adjustment:**
 - If using the onboard potentiometer, rotate it clockwise to increase motor speed and counter-clockwise to decrease speed.
 - If using external 0-5V analog or PWM input, adjust the external signal source to control speed.

3. **Direction Control:** Use the D/R input to switch between forward and reverse rotation. Refer to your specific motor's wiring for expected direction.
4. **Brake Function:** Activate the brake function by applying a high-level signal (2.5V-5V) to the brake input.
5. **Stopping the Motor:** To stop the motor, ensure both forward and reverse control inputs are at a low level.

6. TROUBLESHOOTING

If the motor controller is not functioning as expected, consider the following:

- **No Motor Movement:**

- Verify all power connections (VCC, GND) are secure and correctly polarized.
- Check motor phase connections (MA, MB, MC) for proper contact.
- Ensure Hall sensor connections (Ha, Hb, Hc, +5V, GND) are correct and secure. Incorrect Hall sensor wiring is a common issue.
- Confirm the input voltage is within the 6-60V operating range.
- If using external speed control, ensure the signal is present and within the 0-5V range or correct PWM duty cycle. If using the onboard potentiometer, ensure it is not at the minimum setting.

- **Erratic Motor Behavior:**

- Recheck Hall sensor wiring for any loose connections or incorrect order.
- Ensure motor phase wires are not short-circuited or incorrectly connected.
- Verify the power supply is stable and can provide sufficient current for the motor.

- **Overheating:**

- Ensure adequate ventilation around the controller board.
- Confirm the motor's power consumption does not exceed the controller's 400W rating.
- Check for any mechanical binding in the motor or load that could cause excessive current draw.

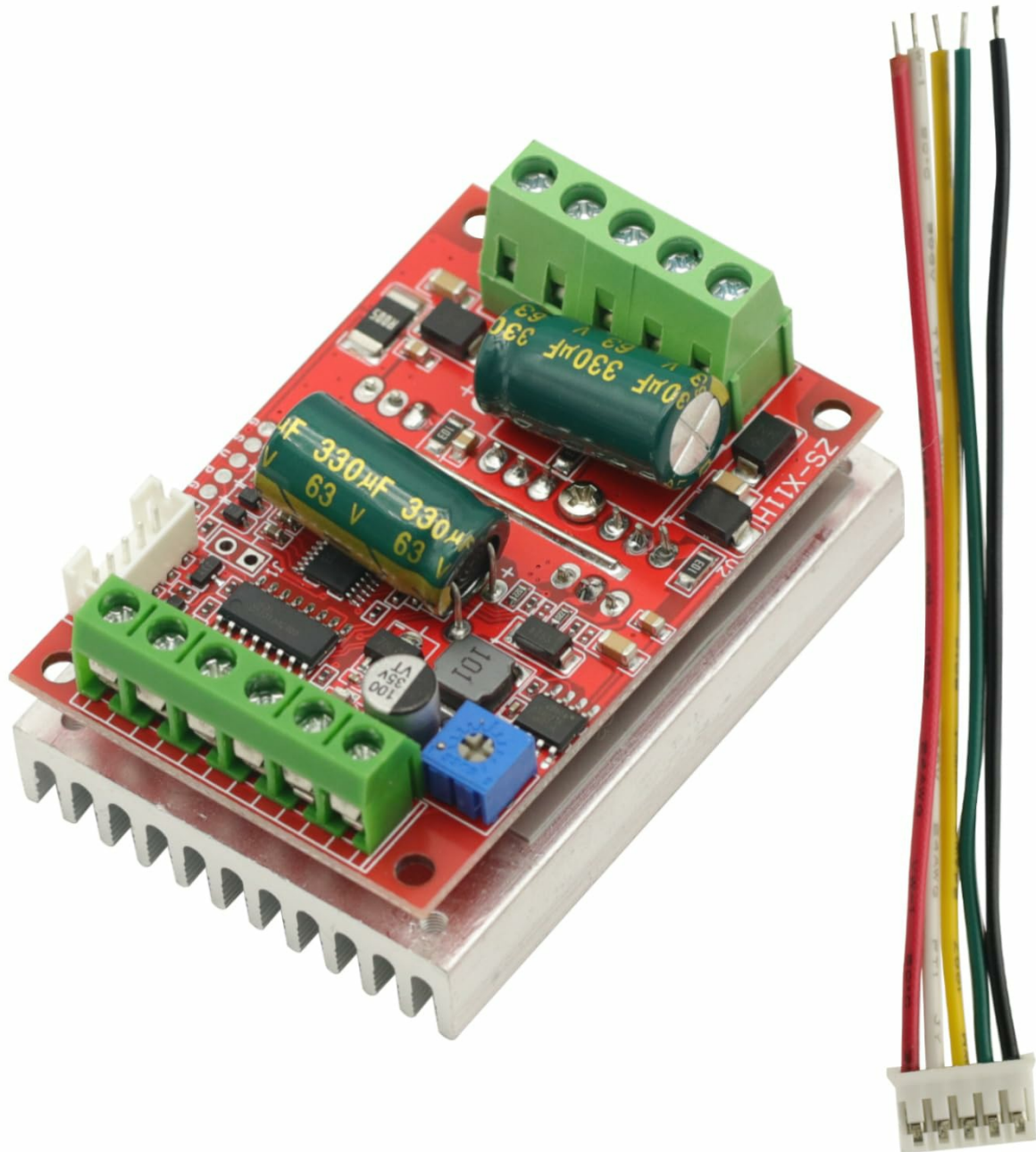


Figure 3: Controller Board with Heatsink

This image provides an angled view of the controller board, clearly showing the heatsink which aids in thermal management.

7. MAINTENANCE

The GODIYMODULES BLDC motor controller board is designed for reliable operation with minimal maintenance. Follow these guidelines:

- **Keep Clean:** Ensure the board is free from dust, dirt, and moisture. Use a soft, dry brush or compressed air for cleaning.
- **Environmental Conditions:** Operate the controller within its specified temperature and humidity ranges. Avoid extreme conditions.
- **Connection Checks:** Periodically inspect all wiring connections to ensure they remain secure and free from corrosion.
- **Ventilation:** Ensure the heatsink and surrounding area have adequate airflow to prevent overheating, especially during prolonged high-power operation.



Figure 4: Heatsink Component

This image shows the heatsink, which is crucial for dissipating heat from the controller board during operation.

8. WHAT'S IN THE BOX

The package includes:

- 1 x GODIYMODULES DC 6-60V 400W 3-Phase Hall Brushless Motor Controller Board (Model ZS-X11Hall-001)

9. WARRANTY AND SUPPORT

For warranty information and technical support, please contact the seller or manufacturer directly. Retain your proof of purchase for any warranty claims.

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

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Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

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