WFLNHB 48/72V 2000W DC Brushless Electric Motor Speed Control Box

WFLNHB 48/72V 2000W DC Brushless Electric Motor Speed Control Box User Manual

Model: 48/72V 2000W DC Brushless Electric Motor Speed Control Box

1. Introduction and Overview

This manual provides detailed instructions for the installation, operation, and maintenance of the WFLNHB 48/72V 2000W DC Brushless Electric Motor Speed Control Box. This controller is designed for use with electric bicycles and scooters, offering efficient and sensitive speed control for brushless DC motors.

Image 1.1: The WFLNHB 48/72V 2000W DC Brushless Electric Motor Speed Control Box, showing its aluminum casing and multiple wire connections.

Key Features:

- **Voltage Compatibility:** Supports 48V and 72V battery systems.
- **Power Output:** Rated for 2000W motors.
- **Smooth Operation:** Designed to reduce friction and noise for a smoother ride.
- **Precise Control:** Offers sensitive and accurate speed control, including low-speed torque.
- **Durable Construction:** Features a high-performance aluminum alloy shell for effective heat dissipation and internal circuit protection.
- **Safety Features:** Includes sensitive control for braking and direction changes, enhancing driving security.

2. Specifications

Specification	Value

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Dimensions (L x W x H)	9.64 in x 3.22 in x 1.57 in
Battery Voltage	48V - 72V
Rated Power	2000W
Brake Type	High/Low Electrical Level
Phase Angle	60° / 120° Automatic Identification
Material	Aluminum Alloy
Item Weight	1.41 Pounds (640 Grams)

3. Setup and Installation

Proper installation is crucial for the safe and effective operation of your motor controller. Please follow these instructions carefully. It is recommended that installation be performed by an individual with experience in electrical systems for electric vehicles.

3.1 Component Identification and Wiring Diagram

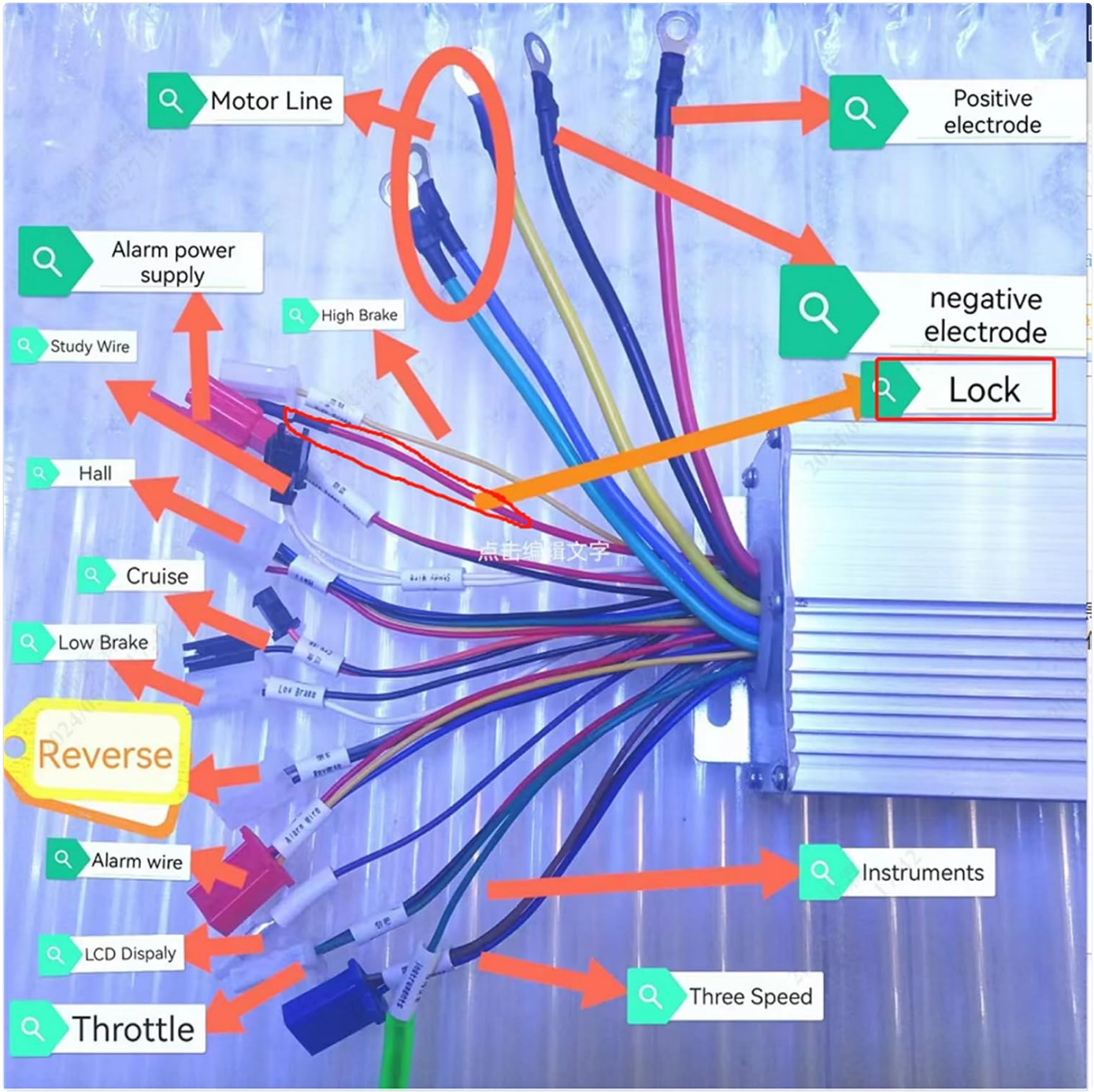

Image 3.1: Detailed wiring diagram showing all connection points on the WFLNHB motor controller. Each wire bundle is labeled with its function.

Refer to Image 3.1 for visual identification of the various wire connections. Each connection serves a specific function within your electric bicycle or scooter system.

3.2 Wiring Instructions

Before beginning, ensure the battery is disconnected to prevent electrical shock or damage to components. Connect the wires according to the following guide:

1. **Motor Line:** Connect the three thick wires (typically green, yellow, blue) from the controller to the corresponding phase wires of your brushless motor. Ensure colors match.
2. **Positive Electrode (Battery +):** Connect the thick red wire from the controller to the positive terminal of your battery.
3. **Negative Electrode (Battery -):** Connect the thick black wire from the controller to the negative terminal of your battery.
4. **Lock (Ignition):** Connect the ignition wire from your vehicle's key switch or power lock to this wire on the controller. This typically enables or disables power to the controller.
5. **Alarm Power Supply:** Connect to your alarm system's power input, if applicable.

6. **High Brake:** Connect to the high-level brake signal wire from your brake levers. This signal typically cuts motor power when brakes are applied.
7. **Study Wire (Self-Learning):** These two wires (often white or blue) are used for initial motor phase learning. Connect them together briefly, turn on the power, and the motor should spin. If it spins in the wrong direction, disconnect, reconnect, and try again. Once the motor spins correctly, disconnect these wires.
8. **Hall Sensor Wires:** Connect the thin wires (typically red, black, blue, green, yellow) from the controller to the corresponding Hall sensor wires of your brushless motor. These provide feedback on motor position.
9. **Cruise:** Connect to the cruise control switch, if your system supports this feature.
10. **Low Brake:** Connect to the low-level brake signal wire from your brake levers. This signal typically cuts motor power when brakes are applied.
11. **Reverse:** Connect to a reverse switch, if your vehicle requires a reverse function.
12. **Alarm Wire:** Connect to the signal wire from your alarm system.
13. **LCD Display** / **Instruments:** Connect to your vehicle's LCD display or instrument panel for speed, battery level, and other data.
14. **Throttle:** Connect the throttle input wires (typically red, black, green) to your throttle assembly. Red is usually positive, black is negative, and green is the signal wire.
15. **Three Speed:** Connect to a three-speed switch, if your system allows for different speed modes.

After all connections are made, double-check each connection for security and correct polarity before reconnecting the battery.

4. Operating Instructions

Once the controller is correctly installed and the battery is connected, the system is ready for operation.

- **Power On:** Turn the ignition key or power switch to the "ON" position. The display (if connected) should illuminate.
- **Throttle Control:** Gently twist the throttle to engage the motor. The motor speed will increase proportionally with the throttle input.
- **Braking:** Applying the brake levers will cut power to the motor, ensuring safe deceleration.
- **Speed Modes (if applicable):** Use the three-speed switch to select desired speed modes (e.g., low, medium, high).
- **Cruise Control (if applicable):** Activate the cruise control switch to maintain a constant speed.
- **Power Off:** Turn the ignition key or power switch to the "OFF" position when finished operating the vehicle.

5. Maintenance

The WFLNHB motor controller is designed for durability and requires minimal maintenance. However, regular checks can extend its lifespan and ensure optimal performance.

- **Keep Clean:** Periodically clean the exterior of the controller to prevent dust and debris buildup, which can hinder heat dissipation. Use a dry, soft cloth.
- **Check Connections:** Regularly inspect all wire connections to ensure they are secure and free from corrosion. Loose connections can lead to intermittent operation or damage.
- **Avoid Water Exposure:** While the aluminum casing offers some protection, avoid direct exposure to heavy rain or submersion in water to prevent internal damage.
- **Temperature Management:** Ensure the controller is mounted in a location with adequate airflow to prevent overheating, especially during prolonged high-power operation.
- **Physical Damage:** Inspect the casing for any signs of physical damage. A damaged casing may compromise the internal components.

6. Troubleshooting

If you encounter issues with your motor controller, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
Motor does not run	• Battery disconnected or low charge. • Ignition switch off. • Loose or incorrect wiring (e.g., motor, Hall, throttle, battery). • Brake lever engaged.	• Check battery connection and charge level. • Ensure ignition is on. • Verify all wiring connections as per Section 3. • Ensure brake levers are fully released.
Motor runs but is noisy or jerky	• Incorrect motor phase connection. • Damaged Hall sensors or wiring. • Controller not properly "learned" to the motor (Study Wire).	• Recheck motor phase wires (green, yellow, blue). • Inspect Hall sensor wires for damage. • Perform the "Study Wire" procedure again (Section 3.2).
Motor runs in reverse	• Incorrect motor phase or Hall sensor wiring. • Study wire procedure resulted in reverse direction.	• Perform the "Study Wire" procedure again. If it spins in reverse, disconnect the study wires, then reconnect them to try again. • Verify motor phase and Hall sensor wiring.
Controller gets excessively hot	• Overload (motor too powerful for controller, or continuous high load). • Insufficient airflow around the controller. • Internal fault.	• Ensure motor power matches controller rating. • Improve ventilation around the controller. • Reduce continuous high-power usage. If problem persists, contact support.

7. Warranty and Support

This product is manufactured by WFLNHB. For specific warranty information or technical support, please refer to the documentation provided at the time of purchase or contact WFLNHB directly through their official channels. Ensure you have your purchase details and product model information available when seeking support.
For general inquiries or to find contact information, you may visit theWFLNHB Store on Amazon.