WFLNHB 48/72V 1500W Brushless DC Electric Motor Speed Control Box (2-mode)

WFLNHB 48/72V 1500W Brushless DC Electric Motor Speed Control Box (2-mode) User Manual

Model: 48/72V 1500W Brushless DC Electric Motor Speed Control Box (2-mode)

Introduction

This manual provides detailed instructions for the installation, operation, and maintenance of the WFLNHB 48/72V 1500W Brushless DC Electric Motor Speed Control Box (2-mode). This controller is designed for electric bicycles, scooters, e-bikes, mechanical applications, skateboards, and electric forklifts, offering stable speed control and sensitive response for braking and direction changes.

Figure 1: WFLNHB 48/72V 1500W Brushless DC Electric Motor Speed Control Box. This image shows the main unit of the motor controller with its various wire harnesses extending from one end.

Product Overview

The WFLNHB Brushless DC Electric Motor Speed Control Box is engineered for optimal performance and durability. Key features include:

- **Versatile Compatibility:** Suitable for 48V/72V 1500W electric bicycle, scooter, e-bike, mechanical, skateboard, or electric forklift applications.
- **Stable Speed Control:** Provides consistent speed and responsive control for braking and direction changes.
- **Reduced Friction and Noise:** Designed for smooth operation with minimal friction and noise.
- **High Performance:** Offers fast operation, low-speed torque, and high-speed regulation accuracy.
- **Efficient Control:** Ensures sensitive, efficient, and rapid control for a comfortable user experience.

Technical Specifications

Feature	Detail
Brand	WFLNHB
Model Number	48/72V 1500W Brushless DC Electric Motor Speed Control Box (2-mode)
Voltage	48V / 72V (Dual Mode)
Wattage	1500W
Item Weight	1.41 pounds
Package Dimensions	10.55 x 5 x 2.05 inches
Phase Angle	60° / 120° Automatic Identification
Brake Type	High/Low Electrical Level

Figure 2: Dimensions of the WFLNHB Motor Controller. The image illustrates the physical dimensions of the controller: Length 9.64 inches, Width 3.22 inches, Height 1.57 inches.

Installation and Wiring

Proper installation and wiring are crucial for the safe and correct operation of the motor controller. Refer to the wiring diagram below and follow the instructions carefully.

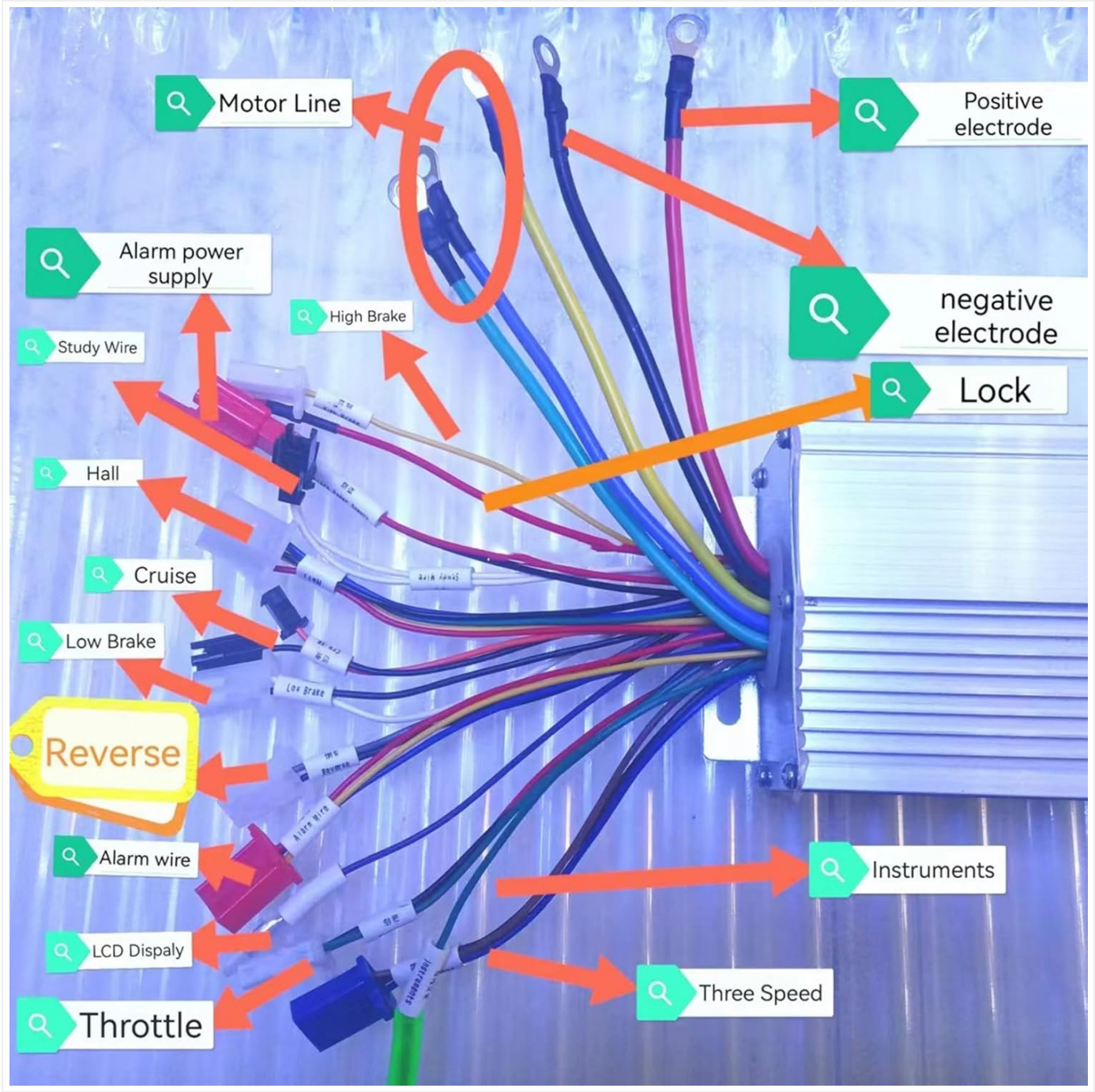

Figure 3: Comprehensive Wiring Diagram. This diagram labels each wire harness extending from the motor controller, indicating its function for connection to various components of an electric vehicle.

Wiring Connections:

- **Motor Line (Thick Yellow, Green, Blue Wires):** Connect these three thick wires to the corresponding phase wires of your brushless motor. Ensure correct color matching (Yellow to Yellow, Green to Green, Blue to Blue).
- **Positive Electrode (Thick Red Wire):** Connect this thick red wire to the positive terminal of your 48V or 72V battery pack.
- **Negative Electrode (Thick Black Wire):** Connect this thick black wire to the negative terminal of your 48V or 72V battery pack.
- **Hall Sensor Wires (Thin Red, Black, Yellow, Green, Blue Wires):** Connect the thin Hall sensor wires from the controller to the Hall sensor wires of your motor. The red wire is typically +5V, black is ground, and the other three are signal wires.
- **Throttle (Green, Red, Black Wires):** Connect to your throttle unit. Green is typically signal, Red is +5V, and Black is ground.
- **Lock (Red, Blue Wires):** Connect to the ignition key switch. This controls the power to the controller.
- **Instruments (Purple Wire):** Connect to your display or instrument panel for speed and other data.
- **Three Speed (Three Wires, often Black, Blue, Brown):** Connect to a three-speed switch for adjusting motor speed

modes.

- **High Brake (Yellow Wire):** Connect to the high-level brake signal.
- **Low Brake (Black, Yellow Wires):** Connect to the low-level brake signal.
- **Alarm Power Supply (Red, Black Wires):** Provides power for an alarm system.
- **Alarm Wire (Orange Wire):** Connects to the alarm signal input.
- **Cruise (Two White Wires):** Connect these wires to enable the cruise control function. Typically, these are connected together to activate.
- **Study Wire (Two White Wires, often labeled "Learning"):** These wires are used for motor phase identification. Connect them together briefly when first powering on the system to allow the controller to learn the motor's phase sequence. Disconnect after the motor runs smoothly.
- **Reverse (Brown Wire):** Connect to a reverse switch if a reverse function is desired.
- **LCD Display (Multi-pin Connector):** For connecting compatible LCD displays.

Important: Always ensure the battery is disconnected before performing any wiring. Double-check all connections for polarity and secure fitment to prevent damage to the controller or other components.

Operating Instructions

1. **Initial Power-Up:** After completing all wiring connections, ensure the "Study Wire" (Learning Wire) is connected. Turn on the battery power and then the ignition lock. The motor should spin. If it spins in the wrong direction, disconnect the "Study Wire" and reconnect it to reverse the direction. Once the motor runs smoothly in the desired direction, disconnect the "Study Wire" and secure it.
2. **Throttle Control:** Use the throttle to control the motor speed. Apply gently for smooth acceleration.
3. **Braking:** The controller supports both high and low-level brake signals. Engaging the brake will cut power to the motor.
4. **Speed Modes:** If a three-speed switch is connected, use it to cycle through different speed settings (e.g., low, medium, high).
5. **Cruise Control:** If connected, activate the cruise control function as per your vehicle's specific setup.

Always operate your electric vehicle responsibly and in accordance with local regulations.

Maintenance

The WFLNHB motor controller is designed for durability and requires minimal maintenance. However, regular checks can prolong its lifespan and ensure safe operation:

- **Inspect Connections:** Periodically check all wire connections to ensure they are secure and free from corrosion.
- **Cleanliness:** Keep the controller unit clean and free from dust, dirt, and moisture. Do not immerse in water.
- **Heat Dissipation:** Ensure the controller is mounted in a location with adequate airflow to prevent overheating. The ribbed casing is designed for heat dissipation.
- **Avoid Physical Damage:** Protect the controller from impacts and excessive vibration.

Troubleshooting

If you encounter issues with your motor controller, refer to the following common troubleshooting steps:

- **Motor Not Running:**
  - Check battery connection and charge level.
  - Verify ignition lock is engaged.
  - Inspect all wiring connections, especially motor phase wires and Hall sensor wires, for looseness or incorrect pairing.
  - Ensure the throttle is functioning correctly.

- Perform the "Study Wire" procedure again to re-identify motor phases.

- **Motor Runs Intermittently or Jerks:**
  - Check Hall sensor connections for proper seating and damage.
  - Ensure motor phase wires are securely connected.
  - Verify battery voltage is within the controller's operating range (48V-72V).
- **Controller Overheating:**
  - Ensure adequate ventilation around the controller.
  - Check for excessive load on the motor.
  - Verify that the motor is not drawing more current than the controller is rated for.
- **No Speed Control:**
  - Check throttle wiring for proper connection and function.
  - Ensure brake levers are not partially engaged, which can cut motor power.

If problems persist after following these steps, consult a qualified technician or contact customer support.

Warranty Information

WFLNHB products are manufactured to high-quality standards. For specific warranty terms and conditions, please refer to the documentation provided with your purchase or contact WFLNHB customer support. The warranty typically covers manufacturing defects under normal use conditions.

Customer Support

For technical assistance, questions regarding installation, or warranty claims, please contact WFLNHB customer support through the retailer where the product was purchased or visit the official WFLNHB store page on Amazon:
WFLNHB Amazon Store