

JRAHK CON004-12G-WL-GD

JRAHK Electric Bicycle Brushless DC Controller User Manual

Model: CON004-12G-WL-GD

1. INTRODUCTION

Thank you for choosing the JRAHK Electric Bicycle Brushless DC Controller. This manual provides essential information for the proper installation, operation, and maintenance of your controller. This sine wave controller is designed for electric bicycles and scooters, offering pure and noise-free current and voltage output. Its compact size and high heat dissipation performance make it a reliable choice for various applications. Please read this manual thoroughly before use to ensure optimal performance and safety.

2. PRODUCT OVERVIEW

The JRAHK Brushless DC Controller is a key component for your electric vehicle, ensuring smooth and efficient power delivery. It features robust protection mechanisms and a wide compatibility range.

2.1 Key Features

- **Sine Wave Output:** Provides pure and noise-free current and voltage for smooth motor operation.
- **Compact Design:** Small size and light weight for easy installation and portability.
- **Durable Construction:** Dustproof with high heat dissipation performance.
- **Wide Voltage Compatibility:** Supports 36V, 48V, 60V, 72V, and 84V systems.
- **High Power Handling:** Suitable for 2500W to 3000W motors.
- **Safety Features:** Includes short circuit and overload protection.
- **Broad Application:** Ideal for electric bicycles, scooters, tricycles, wheelchairs, and lawn mowers.

2.2 What's in the Box

- 1 x JRAHK Electric Bicycle Brushless DC Controller

2.3 Product Visuals



Image 2.3.1: Front view of the JRAHK Brushless DC Controller with its complete wiring harness.

This image displays the main unit of the JRAHK Electric Bicycle Brushless DC Controller, an orange rectangular device with a metal mounting bracket, alongside its extensive multi-colored wiring harness, which includes various connectors for different functions.

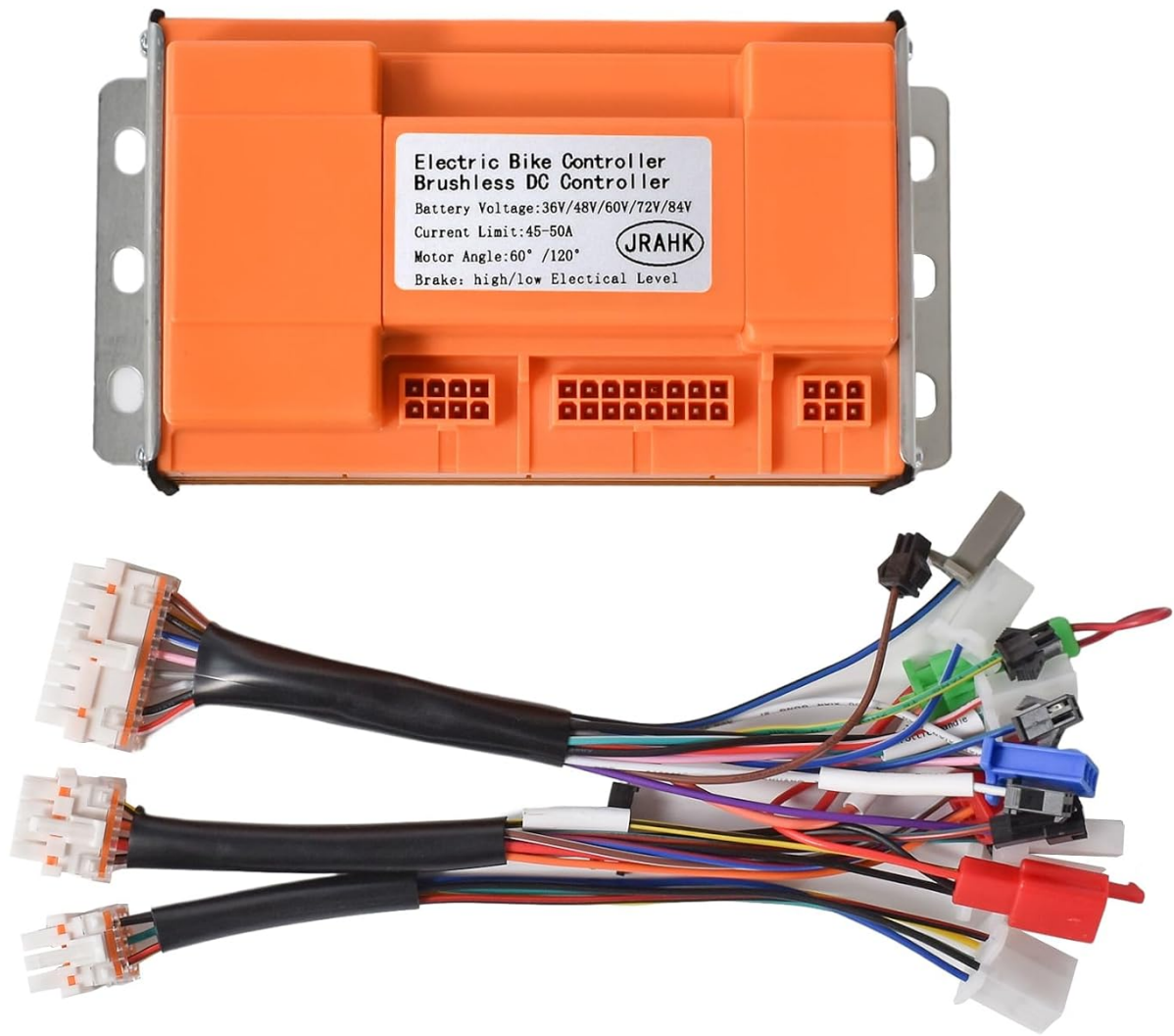
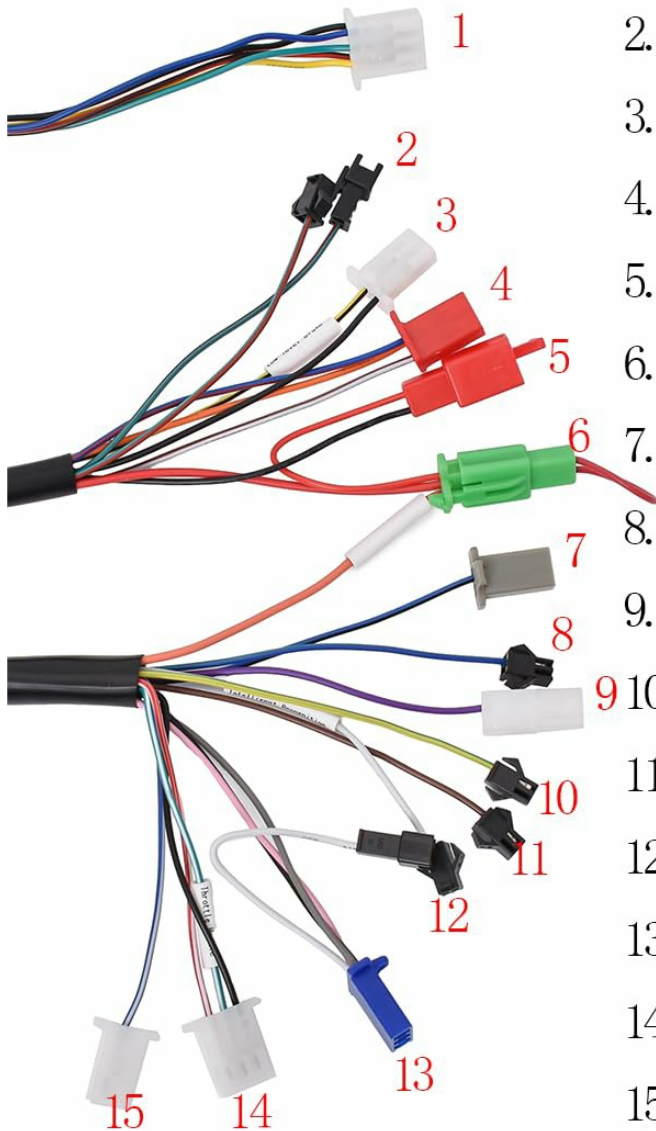


Image 2.3.2: Top view of the controller showing the label and wiring.

A top-down view of the orange JRAHK controller, highlighting the product label with specifications (Battery Voltage, Current Limit, Motor Angle, Brake Level) and the multiple wiring bundles extending from its side.



1. Hall sensor
2. Dedicated to differential motor
3. Low level braking
4. Anti-theft signal
5. Anti-theft power supply
6. Electric door lock
7. Reverse
8. Hall speed measuring line
9. High level brake
10. One-line communication
11. Phase line speed measurement
12. Intelligent identification
13. Three-speed shifter
14. Throttle
15. Cruise

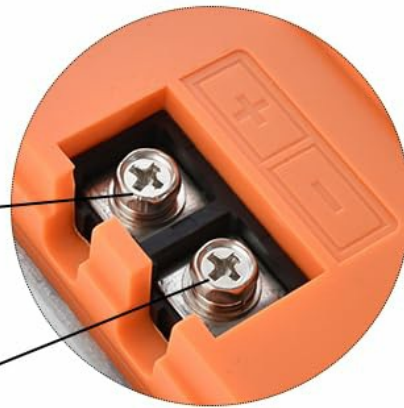
Image 2.3.3: Detailed wiring diagram with numbered connections.

This image provides a clear, numbered diagram of the controller's wiring harness, labeling each connector's function, such as Hall sensor, low level braking, anti-theft signal, throttle, and cruise control.

Batteries +



Batteries -



Phase wire connection



Yellow



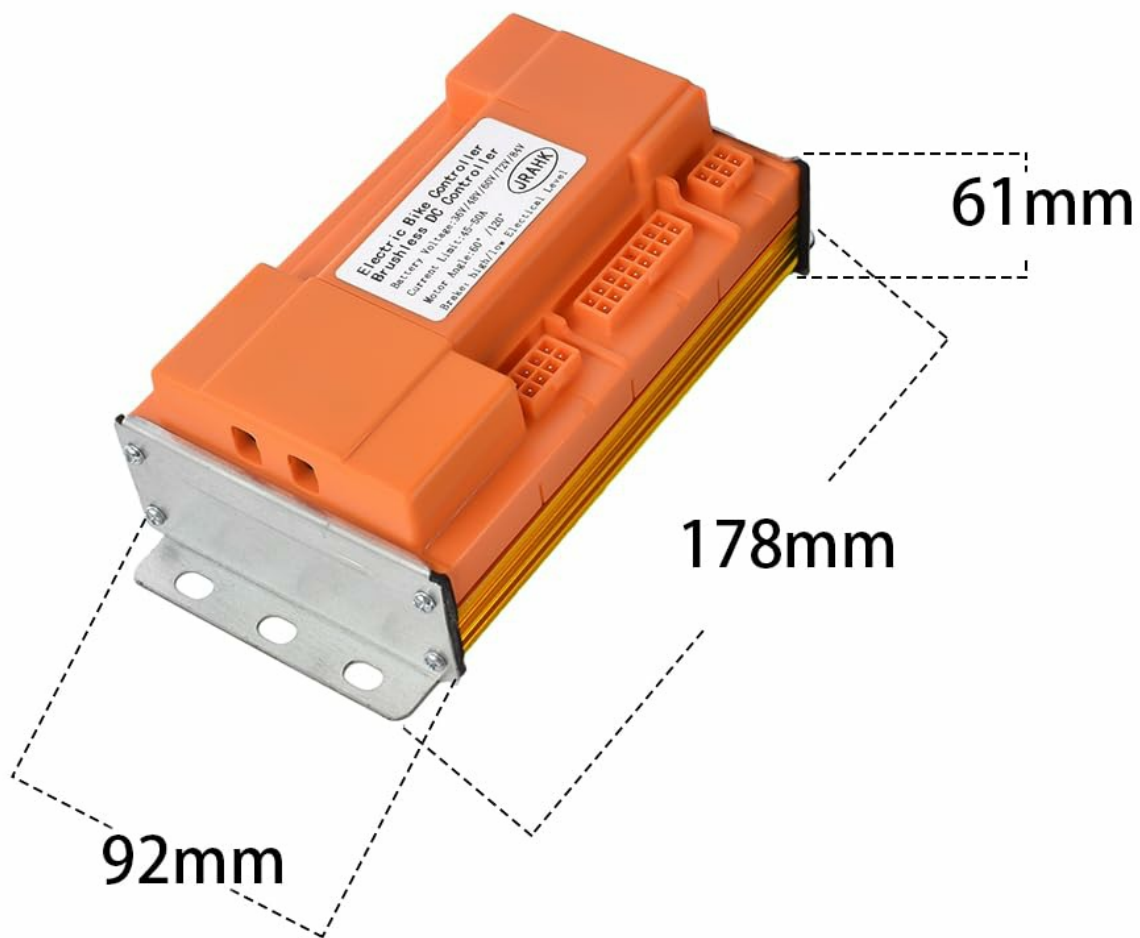
Green



Blue

Image 2.3.4: Close-up of battery and phase wire terminals.

A detailed view showing the screw terminals for battery connections (positive and negative) and the phase wire connections (Yellow, Green, Blue) on the JRAHK controller, indicating proper polarity and color coding.



Maximum size:178mm*92mm*61mm

Image 2.3.5: Controller dimensions.

This image illustrates the maximum dimensions of the JRAHK controller: 178mm length, 92mm width, and 61mm height, providing crucial information for installation planning.



Image 2.3.6: Controller weight measurement.

An image showing the JRAHK controller in its packaging on a digital scale, displaying a weight of 886 grams, confirming its lightweight design.

3. SPECIFICATIONS

Feature	Value
Product Dimensions	7 x 3.6 x 2.4 inches (178 x 92 x 61 mm)
Item Model Number	CON004-12G-WL-GD
Voltage Compatibility	36V / 48V / 60V / 72V / 84V
Motor Power	2500W / 3000W
Rated Current	45A

Feature	Value
Maximum Current	50A
Material	Aluminum
Item Weight	1.95 Pounds (886 Grams)
Short Circuit Protection	Yes
Overload Protection	Yes

4. INSTALLATION AND SETUP

Proper installation is crucial for the safe and efficient operation of your JRAHK controller. Please follow these steps carefully.

4.1 Pre-Installation Checklist

- Ensure the voltage and current of your electric bicycle or scooter match the parameters of this controller (36V-84V, 2500W-3000W).
- Disconnect power from your electric vehicle before beginning installation.
- Gather necessary tools (e.g., screwdrivers, wire strippers, electrical tape).
- Identify the location for mounting the controller, ensuring good ventilation and protection from moisture.

4.2 Wiring Instructions

Refer to Image 2.3.3 (Detailed wiring diagram) and Image 2.3.4 (Battery and phase wire terminals) for visual guidance.

1. **Battery Connection:** Connect the main positive (+) and negative (-) wires from your battery to the corresponding terminals on the controller. Ensure correct polarity (Red for +, Black for -).
2. **Motor Phase Wires:** Connect the three phase wires (Yellow, Green, Blue) from the controller to the corresponding motor phase wires.
3. **Hall Sensor Wires (1):** Connect the Hall sensor wires from the motor to the controller's Hall sensor port. This is crucial for proper motor commutation.
4. **Throttle (14):** Connect the throttle cable to the designated throttle port on the controller.
5. **Brake Levers (3, 9):** Connect the low-level braking (3) and high-level brake (9) wires from your brake levers to the controller.
6. **Electric Door Lock (6):** Connect the electric door lock wire if your system uses one.
7. **Anti-theft Signal (4) & Power Supply (5):** Connect these if your system includes an anti-theft alarm.
8. **Reverse (7):** Connect if your vehicle has a reverse function.
9. **Hall Speed Measuring Line (8):** Connect for speed feedback.
10. **One-line Communication (10):** For display or other communication devices.
11. **Phase Line Speed Measurement (11):** Alternative speed measurement.
12. **Intelligent Identification (12):** Used for initial motor learning/identification.
13. **Three-speed Shifter (13):** Connect if your system has a multi-speed switch.
14. **Cruise (15):** Connect for cruise control functionality.

Important: Double-check all connections before applying power. Incorrect wiring can damage the controller or other

components. If unsure, consult a qualified technician.

5. OPERATION

Once properly installed, the JRAHK controller operates automatically to manage power delivery to your motor.

1. **Power On:** Turn on your electric vehicle's main power switch. The controller will initialize.
2. **Throttle Control:** Use the throttle to control the motor speed. The sine wave output ensures smooth acceleration and deceleration.
3. **Braking:** Engaging the brake levers will cut off power to the motor, providing safe stopping.
4. **Intelligent Identification (if applicable):** For initial setup or after motor replacement, some controllers require an intelligent identification process. Refer to your motor or display unit's manual for specific steps, which usually involve connecting the intelligent identification wires (12) and following a sequence of throttle inputs.

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

6. MAINTENANCE

The JRAHK controller is designed for durability and requires minimal maintenance.

- **Keep Clean:** Periodically clean the exterior of the controller to prevent dust and dirt buildup, which can affect heat dissipation. Use a dry, soft cloth.
- **Check Connections:** Regularly inspect all wiring connections to ensure they are secure and free from corrosion. Loose connections can lead to intermittent power or damage.
- **Avoid Moisture:** While dustproof, avoid submerging the controller in water or exposing it to heavy rain for extended periods.
- **Temperature:** Ensure the controller is installed in a location that allows for adequate airflow to prevent overheating, especially during prolonged use or high power demands.
- **Physical Damage:** Protect the controller from physical impacts or drops.

7. TROUBLESHOOTING

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

Problem	Possible Cause	Solution
Motor not running / No power	Battery low or disconnected	Check battery charge and connections.
	Loose wiring connections	Inspect all wires for secure connections.
	Throttle malfunction	Test throttle functionality.
	Brake lever engaged	Ensure brake levers are fully disengaged.
	Controller overload protection activated	Turn off power, wait a few minutes, then restart. Reduce load.
Motor runs intermittently or roughly	Loose Hall sensor wires	Check Hall sensor connections.
	Damaged motor phase wires	Inspect motor phase wires for damage.
	Incorrect intelligent identification	Perform intelligent identification process again.

Problem	Possible Cause	Solution
Controller overheating	Insufficient ventilation	Ensure controller is in a well-ventilated area.
	Overloading the motor/controller	Reduce load or operating time.
	Short circuit in motor or wiring	Check motor and wiring for shorts.

If the problem persists after attempting these solutions, please contact customer support.

8. WARRANTY AND SUPPORT

JRAHK stands behind the quality of its products. If you have any questions about this product or if you are not satisfied with it, please feel free to contact us. We are committed to providing satisfactory solutions within 24 hours. For support, please reach out to the seller directly via the platform where you purchased the product.

ASK A QUESTION ABOUT THIS MANUAL

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.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

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.

Submit question