

Kunray G23-500 DISPLAY

Kunray 24V-48V 500W 25A Brushless Controller with LCD Display Instruction Manual

Model: G23-500 DISPLAY

1. INTRODUCTION

This manual provides essential instructions for the installation, operation, and maintenance of your Kunray 24V-48V 500W 25A Brushless Controller and G23 LCD Display. Please read this manual thoroughly before use to ensure proper function and safety. This product is designed for electric bicycles and scooters.

2. PRODUCT OVERVIEW

The Kunray controller and display kit offers a robust solution for electric bicycle and scooter power management and user interface.

2.1 Brushless DC Motor Controller (Model: S9-61)

- **Working Voltage:** 24V / 36V / 48V
- **Current Output:** 25A \pm 1
- **Rated Power:** 500W
- **Cutoff Voltage:** 19V / 29V / 39V \pm 0.5
- **Mosfets:** 9
- **Type:** Dual-mode square wave controller, compatible with Hall or non-Hall motors (6 Hall wires).

2.2 LCD Display (Model: G23)

- **Material:** ABS display cover, high-hardness acrylic screen.
- **Working Voltage:** 24V / 36V / 48V
- **Integrated Features:** Right thumb throttle.
- **Durability:** Lightweight, rainproof (IP65 rated), sturdy, and durable.
- **Display Functions:** Speed, Power Assist Level, Battery Power, Error Code, Total Mileage (ODO), Single Trip Mileage, Cruise Control indicator, Braking indicator, Light Display.



Figure 1: Kunray G23 LCD Display with integrated thumb throttle.



Figure 2: Integrated thumb throttle mechanism on the G23 display.

3. SETUP AND INSTALLATION

Proper wiring and initial setup are crucial for the correct operation of your controller and display system.

3.1 Wiring Connections

Refer to the diagram below for connecting the controller to your e-bike or scooter components. Ensure all connections are secure and correctly matched.

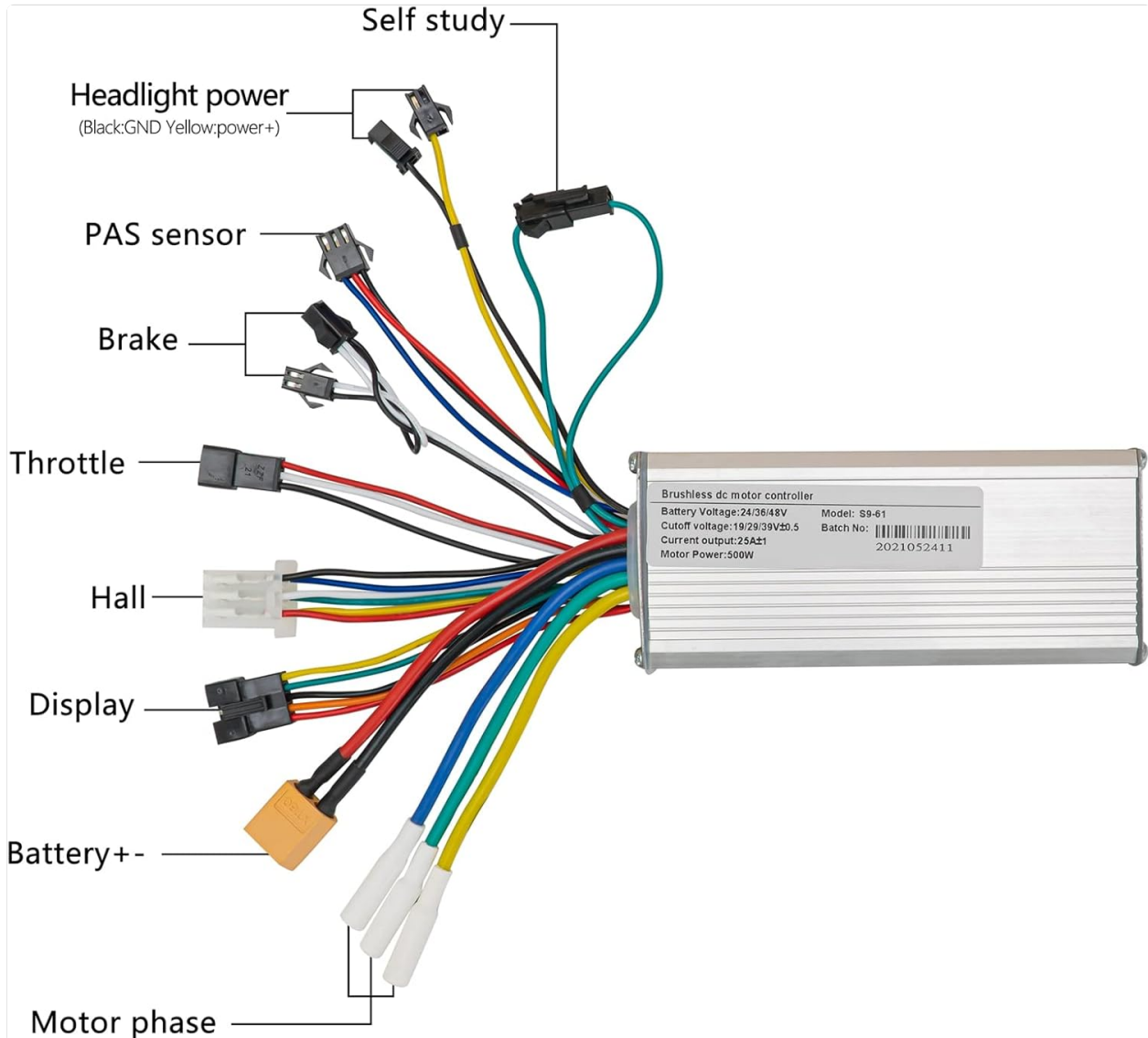


Figure 3: Controller Wiring Diagram.

- **Headlight Power:** Connect the black wire to GND and the yellow wire to power (+).
- **PAS Sensor:** Connect the Pedal Assist Sensor.
- **Brake:** Connect the brake levers.
- **Throttle:** Connect the throttle (integrated into the G23 display).
- **Hall:** Connect the motor's Hall sensor wires (if applicable, 6 wires for this controller).
- **Display:** Connect the G23 LCD display.
- **Battery (+-):** Connect to your e-bike battery. Ensure correct polarity.
- **Motor Phase:** Connect to the motor's phase wires.
- **Self-Study:** Two white wires used for initial motor learning.

3.2 Initial Self-Study Procedure

The first time you use the controller, you must perform a self-study procedure to match it with your motor. This ensures optimal performance and correct motor rotation.

1. Connect the controller's self-study wires (the two white wires).
2. The motor will automatically begin to run.
3. Observe the motor's rotation direction. If the motor runs in the wrong direction, disconnect the self-study wires and then reconnect them. The motor should now run in the correct direction.
4. Allow the controller to learn for 10-20 seconds while the motor is running.
5. Disconnect the self-study wires.

Note: *The self-study wires are only needed for the initial setup. You will not need to use them again unless you change motors or controllers.*

4. OPERATING INSTRUCTIONS

The G23 LCD display provides various functions and settings to customize your riding experience.

4.1 LCD Display Functions and Settings

The display allows you to monitor and adjust several parameters. Refer to the image below for a visual guide to the settings.

product name: G23

Product shell: ABS

Gear mode: 1-3

Net weight: 130g

Voltage rating: 24/36/48V

Waterproof rating: IP65



basic information

LCD display function setting:

P01: meter backlight;

P02: Mileage unit,0:KM;1:MILE;

P03: Voltage level,Base operating voltage;

P04: Sleep Time,0:no-sleep,unit:min

P05: Assist gear 1-3

P06: Wheel Diameter, unit: inch; Accuracy:0.1;

P07: Number of speed magnets,range:1-100;

P08: Speed Limit Range:0-50km/h,50:means Unlimited speed;

P09: Zero or non-zero start 0:zero start;
1:non-zero start;

P10: Drive mode setting;

0: Power Drive,throttle invalid;(Assist power)

1: Electric throttle Drive mode,Assist invalid;

2: Both assist and throttle are effective;

P11: Boost sensitivity setting,range:1-24;

P12: Boost star strength setting,range:1-5;

P13: PAS Assist Type Setting. (5/8/12)

Single Hall PAS: set to 5/8

Double Hall PAS: Set to 12

P16: ODO clear:long press up button 5 seconds to clear;

Note: What we send is the standard manual the function will be different if the version is different
Due to manual measurement 1-3 mm error occurs

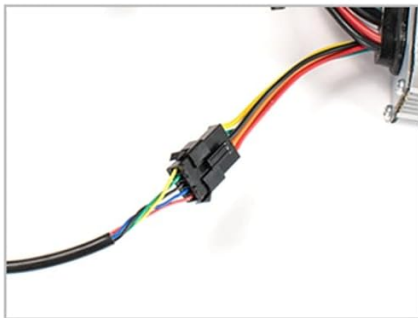


Figure 4: G23 LCD Display Basic Information and Parameter Settings.

- **P01: Meter Backlight Brightness**
- **P02: Mileage Unit:** 0 for Kilometers (KM), 1 for Miles (MILE).
- **P03: Voltage Level:** Base operating voltage.
- **P04: Sleep Time:** 0 for no sleep, unit in minutes.
- **P05: Assist Gear:** Sets the number of assist gears (1-3).
- **P06: Wheel Diameter:** Sets wheel diameter in inches (Accuracy: 0.1).
- **P07: Number of Speed Magnets:** Range 1-100.
- **P08: Speed Limit Range:** 0-50 km/h (50 means unlimited speed).
- **P09: Start Mode:** 0 for zero start, 1 for non-zero start.
- **P10: Drive Mode Setting:**
 - 0: Power Drive (Assist power only), Throttle invalid.
 - 1: Electric Throttle Drive mode, Assist invalid.
 - 2: Both assist and throttle are effective.
- **P11: Boost Sensitivity Setting:** Range 1-24.

- **P12: Boost Start Strength Setting:** Range 1-5.
- **P13: PAS Assist Type Setting:** (5/8/12). Set to 5/8 for Single Hall PAS, set to 12 for Double Hall PAS.

4.2 Headlight Operation

To turn the headlights on or off, press and hold the "UP" button on the display for 3 seconds.

4.3 ODO Reset

To clear the total mileage (ODO), press and hold the "UP" button for 5 seconds.

5. MAINTENANCE

Regular maintenance ensures the longevity and reliable performance of your Kunray controller and display.

5.1 Waterproofing

The LCD display is rated IP65 rainproof. While it is designed to withstand rain, it is not intended for submersion. If used in rainy conditions, please wipe the display dry promptly after use to prevent water ingress.



5.2 General Care

- Keep all connections clean and free from corrosion.
- Periodically check wiring for any signs of wear or damage.
- Clean the display screen with a soft, damp cloth. Avoid abrasive cleaners.

6. TROUBLESHOOTING

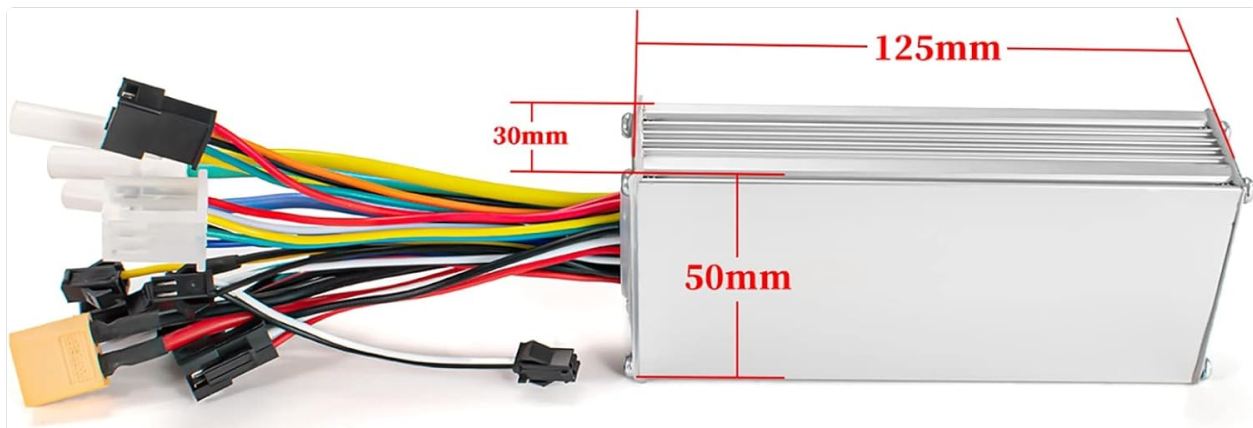
If you encounter issues with your controller or display, refer to the following common troubleshooting steps.

- **Motor Not Running or Running Incorrectly:** Ensure the initial self-study procedure (Section 3.2) has been completed correctly. If the motor runs in the wrong direction, repeat the self-study process.
- **Display Not Powering On or Showing Errors:** Check all wiring connections, especially the main power and display cables, for secure and correct attachment. Ensure the battery is charged and providing the correct voltage. The display may show error codes; consult the product support for specific code meanings if available.
- **Inconsistent Throttle Response:** Verify that the P10 drive mode setting is configured as desired (Section 4.1). Ensure the throttle mechanism is clean and moves freely.
- **Headlight Not Working:** Confirm the headlight is turned on via the display (Section 4.2) and check its wiring connection.

7. SPECIFICATIONS

7.1 Brushless DC Motor Controller (Model: S9-61)

- **Working Voltage:** 24V / 36V / 48V
- **Current Output:** 25A \pm 1
- **Power:** 500W
- **Cutoff Voltage:** 19V / 29V / 39V \pm 0.5
- **Dimensions (L x W x H):** Approximately 125mm x 50mm x 30mm
- **Net Weight:** Approximately 250g



Note * length 125mm wide 50mm high 30mm Weight 250g
Due to manual measurement 1-3 mm error occurs

Figure 6: Controller Dimensions.

7.2 LCD Display (Model: G23)

- **Material:** ABS (cover), High-hardness acrylic (screen)
- **Working Voltage:** 24V / 36V / 48V
- **Dimensions (L x W):** Approximately 70mm x 37mm
- **Net Weight:** Approximately 130g
- **Waterproof Rating:** IP65

7.3 General Product Information

- **Item Model Number:** G23-500 DISPLAY
- **Parcel Dimensions:** 20.5 x 11.3 x 10.49 cm
- **Item Weight (Total Package):** 449 g
- **Batteries Included:** No

8. WARRANTY INFORMATION

Kunray products are covered by a limited warranty against manufacturing defects. Please retain your proof of purchase for warranty claims. For specific warranty terms and conditions, refer to the product packaging or contact Kunray customer support.

9. SUPPORT

For technical assistance, troubleshooting, or further inquiries, please contact Kunray customer support through the retailer where the product was purchased or visit the official Kunray website for contact information.

