

X098-AXD001

Brushless Motor Controller X098-AXD001 User Manual

Model: X098-AXD001

1. INTRODUCTION

This manual provides essential information for the installation, operation, and maintenance of the Generic X098-AXD001 Brushless Motor Controller. This controller is designed for electric bicycles, electric mountain bikes, fat bikes, and similar products, operating at 48V with a maximum current of 25A. It is compatible with KDS protocol display meters.

2. IMPORTANT CONSIDERATIONS BEFORE INSTALLATION

Critical Note: Before proceeding with installation, it is imperative to verify that the model number of this controller (X098-AXD001) matches your original controller's model and that your display meter uses the KDS protocol. Incompatibility will result in error messages and non-functional operation. If your original controller model differs, please consult with your supplier for a suitable replacement.

Ensure all power is disconnected from your electric bicycle or scooter before beginning any installation or maintenance procedures. Incorrect wiring can cause damage to the controller, motor, or battery, and may pose a safety risk.

3. PRODUCT FEATURES

- **Durable Construction:** The controller shell is made of aluminum alloy, providing robust protection for internal circuitry and efficient heat dissipation to prevent thermal overload.
- **Stable Control:** Provides stable speed control and sensitive braking, along with precise direction change control.
- **Reliable Wiring:** Wires and interfaces are designed for durability, contributing to a low failure rate over time.
- **Compact Design:** Small form factor allows for easy installation and integration into various e-bike frames and setups.

4. SPECIFICATIONS

Specification	Detail
Model Number	X098-AXD001
Operating Voltage	48V
Maximum Current	25A
Display Protocol Compatibility	KDS Protocol
Dimensions (L x W x H)	144 x 52 x 32 mm (3.67 x 2.04 x 1.26 inches)
Material	Aluminum Alloy
Weight	416 Grams

5. PACKAGE CONTENTS

The product package includes:

- 1 x Brushless Motor Controller (Model: X098-AXD001)

6. PHYSICAL DESCRIPTION AND DIMENSIONS

The controller features a robust aluminum casing with various wire interfaces extending from one end. The label on the controller clearly indicates the model number, voltage, current limit, and display meter protocol.

Please note: Before purchasing, please verify the model number of your controller. To ensure accurate shipping, contact customer service prior to purchase and send us photos of your controller's label and connectors. Once the model is confirmed, we will arrange shipment for you as quickly as possible.

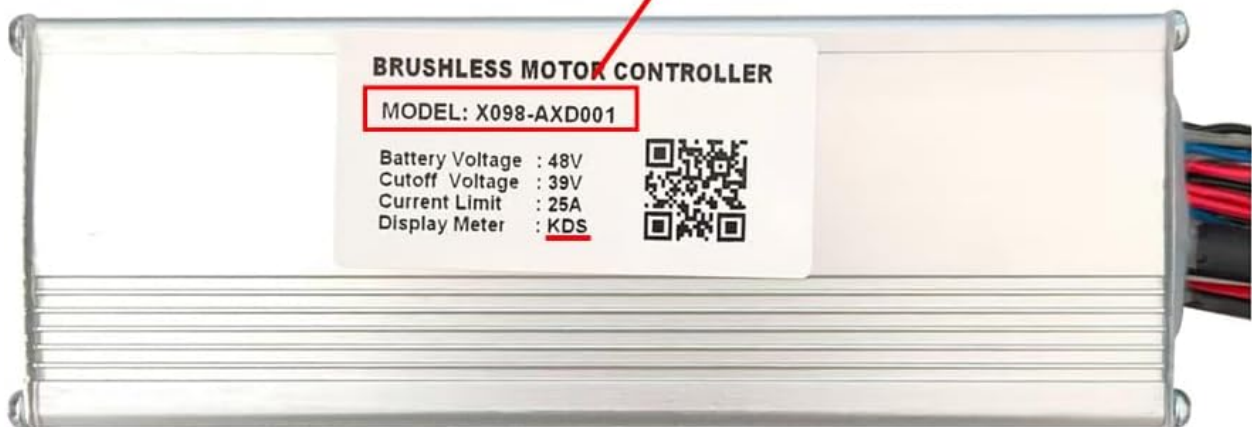


Figure 1: Generic X098-AXD001 Brushless Motor Controller. The controller features a silver aluminum casing with a label indicating its specifications and model number.

The compact dimensions of the controller facilitate integration into various electric bicycle and scooter designs.



Figure 2: Dimensions of the X098-AXD001 Brushless Motor Controller, measuring 144mm in length, 52mm in width, and 32mm in height.

7. WIRING DIAGRAM AND INTERFACE IDENTIFICATION

The controller is equipped with multiple interfaces for connecting to various components of an electric bicycle or scooter. Refer to the diagram below for identification of each connection point.



Figure 3: Wiring diagram illustrating the various interfaces of the X098-AXD001 Brushless Motor Controller.

1. **Brake Light Interface:** Connects to the brake light.
2. **Throttle Interface:** Connects to the throttle for speed control.
3. **Brake Interface:** Connects to the brake levers for motor cut-off.
4. **Stop Lamp/Rear Lamp Interface:** Connects to the stop lamp or rear lamp.
5. **Horn Switch Interface:** Connects to the horn switch.
6. **Headlight & Horn Interface:** Combined interface for headlight and horn.
7. **Assistance Interface:** Connects to the pedal assist sensor (PAS).
8. **Display Interface:** Connects to the KDS protocol display meter.
9. **Power Supply Interface:** Connects to the battery power supply.
10. **Motor Cable:** Connects to the brushless motor.

8. INSTALLATION GUIDE

Follow these general steps for installing the controller. Specific wiring may vary based on your e-bike model. Always refer to your e-bike's specific wiring diagram if available.

1. **Power Disconnection:** Ensure the battery is completely disconnected before starting installation.
2. **Mounting:** Securely mount the controller in a suitable location on your e-bike, ensuring it is protected from water and physical damage. The compact design allows for flexible placement.
3. **Motor Connection:** Connect the motor cable (11) from the controller to your brushless motor. Ensure a secure connection.
4. **Power Connection:** Connect the power supply interface (10) to your 48V battery. Observe correct polarity.
5. **Display Connection:** Connect the display interface (9) to your KDS protocol display meter.
6. **Throttle Connection:** Connect the throttle interface (2) to your throttle unit.
7. **Brake Connections:** Connect the brake interfaces (3) to your brake levers. These typically cut power to the motor when activated. Connect the brake light interface (1) and stop lamp/rear lamp interface (4) as applicable.
8. **Accessory Connections:** Connect the horn switch interface (5), headlight & horn interface (6), and assistance interface (7) to their respective components.
9. **Final Check:** Double-check all connections for security and correct polarity. Ensure no wires are pinched or exposed.
10. **Power On:** Reconnect the battery and power on your e-bike system to test functionality.

9. OPERATION

Once correctly installed, the X098-AXD001 controller will manage the power delivery to your brushless motor based on inputs from the throttle, pedal assist sensor, and brake levers, as interpreted by the KDS protocol display. The display will provide information on speed, battery level, and other operational parameters.

- **Throttle Control:** Use the throttle to manually control the motor's speed.
- **Pedal Assist:** If an assistance sensor is connected, the motor will provide power based on your pedaling input and the selected assist level on your display.
- **Braking:** Activating the brake levers will cut power to the motor, ensuring safe stopping.

10. MAINTENANCE

Regular maintenance helps ensure the longevity and optimal performance of your motor controller.

- **Keep Clean:** Periodically clean the exterior of the controller to prevent dust and dirt buildup, which can hinder heat dissipation. Use a dry, soft cloth.
- **Inspect Connections:** Regularly check all wire connections to ensure they are secure and free from corrosion or damage. Loose connections can lead to intermittent operation or component failure.
- **Avoid Water Exposure:** While the aluminum casing offers some protection, avoid submerging the controller in water or exposing it to heavy rain for extended periods.
- **Temperature Management:** Ensure the controller is mounted in a location with adequate airflow to facilitate heat dissipation, especially during prolonged use.

11. TROUBLESHOOTING

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

- **No Power/No Response:**

- Check battery charge level.
- Verify all power connections are secure and correctly polarized.
- Ensure the display is powered on and functioning.
- **Error Messages on Display:**
 - Refer to your display meter's manual for specific error code meanings.
 - **Crucially, re-verify controller model (X098-AXD001) and KDS protocol compatibility.** Incompatible components are a common cause of errors.
 - Check all sensor and signal wire connections (throttle, brake, PAS).
- **Intermittent Operation:**
 - Inspect all wiring for loose connections or damaged insulation.
 - Ensure the controller is not overheating.
- **Motor Not Responding to Throttle/PAS:**
 - Check throttle and PAS sensor connections.
 - Ensure brake levers are not engaged, as they cut motor power.

If issues persist after troubleshooting, contact customer support for further assistance.

12. SUPPORT INFORMATION

For technical support, warranty inquiries, or replacement parts, please contact your retailer or the manufacturer directly. When contacting support, please have your controller's model number (X098-AXD001) and a detailed description of the issue ready.