FarDriver ND72850

FarDriver ND72850 Electric Motorcycle Controller User Manual

Programmable Controller with Regenerative Braking Function

1. Introduction

This manual provides essential information for the installation, operation, and maintenance of the FarDriver ND72850 Electric Motorcycle Programmable Controller. This controller is designed for high-performance electric motorcycles, offering advanced features such as Sine Wave FOC control and regenerative braking. Please read this manual thoroughly before installation and use to ensure proper function and safety.

Image 1.1: The FarDriver ND72850 controller with its integrated wiring harness, showing various connectors for motor, battery, and control signals.

Image 1.2: An example of an electric motorcycle, illustrating the type of vehicle this controller is designed for.

2. Safety Information

Always observe the following safety precautions to prevent injury or damage to the controller and associated components:

- **Professional Installation:** Installation should be performed by qualified personnel with experience in electric vehicle systems.
- **Power Disconnection:** Always disconnect the battery power before performing any installation, wiring, or maintenance.
- **High Voltage:** This controller operates at high voltages. Contact with live terminals can cause severe injury or death.
- **Proper Wiring:** Ensure all wiring connections are secure and correctly polarized. Incorrect wiring can damage the controller and other components.
- **Environmental Protection:** Protect the controller from water, excessive heat, and physical impact.
- **Ventilation:** Ensure adequate airflow around the controller for proper heat dissipation.

3. Package Contents

Verify that all items are present in the package:

- 1x FarDriver ND72850 Controller
- 1x Programmable Cable (for PC) or Bluetooth Module (for Cell Phone)
- 1x Function Wiring Harness
- 1x Manuals & Software Link for Download

4. Specifications

Detailed specifications for the ND72850 controller:

Feature	Specification
Controller Type	Sine Wave FOC Controller
Model Number	ND72850
Max. Bus Current	400A

Feature	Specification
Max. Phase Current	850A
Temperature Sensor	KTY83-122
Working Voltage	48V/60V/72V (Max. 88V)
Compatible Motor Power	6000W - 8000W
Dimensions (L x W x H)	222mm x 142mm x 71mm
Weight	3.5 KGS
Material	Plastic (Housing)

Image 4.1: A close-up view of the controller's label, displaying the model number ND72850, current ratings (450A/850A), and voltage (72V).

5. Setup and Installation

Careful installation is crucial for the performance and longevity of your controller. Refer to the provided wiring diagram (usually included with the software link) for specific connections.

5.1 Mounting the Controller

- Choose a secure location on the motorcycle that is protected from direct water spray, excessive vibration, and physical damage.
- Ensure adequate ventilation around the controller to prevent overheating.
- Use appropriate fasteners to mount the controller firmly.

5.2 Wiring Connections

The controller features a main wiring harness with various connectors. Identify and connect the following:

- **Battery Connection:** Connect the main positive (+) and negative (-) terminals to the battery. Ensure correct polarity and use heavy-gauge wires capable of handling high currents.
- **Motor Phase Wires:** Connect the three phase wires (U, V, W) from the controller to the corresponding motor phase wires.
- **Hall Sensor Wires:** Connect the motor's Hall sensor wires to the controller's Hall sensor input.
- **Throttle Input:** Connect the throttle signal wire, power, and ground.
- **Ignition/Key Switch:** Connect the ignition wire to a switched power source.
- **Brake Inputs:** Connect the brake lever switches for both high and low-level braking signals. These are essential for regenerative braking functionality.
- **Other Signals:** Connect any additional signals such as speed sensor, reverse, cruise control, or anti-theft as required by your setup.

Image 5.1: The FarDriver ND72850 controller, highlighting the various color-coded connectors for easy identification during wiring.

5.3 Initial Power-Up

- Double-check all wiring connections before applying power.
- Turn on the ignition. The controller should power up without any error indicators.
- Perform a basic throttle test to ensure the motor responds correctly.

6. Operating the Controller

Once installed and configured, the controller manages the electric motor's operation based on throttle input and other control signals.

6.1 Basic Operation

- The controller translates throttle input into motor speed and torque.
- Ensure smooth throttle application for optimal performance and battery life.

6.2 Regenerative Braking

The ND72850 supports regenerative braking, which converts kinetic energy back into electrical energy to recharge the battery when braking. This feature can be configured via the programming software.

- **Activation:** Regenerative braking is typically activated by applying the brake levers.
- **Adjustments:** The intensity and characteristics of regenerative braking can be customized through the programming interface.

7. Programming and Configuration

The FarDriver ND72850 controller is programmable, allowing customization of various parameters to match your motor and riding preferences. Programming can be done via a PC cable or a Bluetooth module connected to a smartphone app.

- **Software/App:** Download the official programming software for PC or the mobile application for your smartphone. Links are typically provided with the product or can be found via the QR code on the controller label.
- **Connection:** Connect the controller to your PC via the programmable cable or pair it with your smartphone via Bluetooth.
- **Parameters:** Customizable parameters include motor type, pole pairs, Hall sensor angles, current limits, voltage limits, throttle response curves, regenerative braking strength, speed limits, and more.
- **Save Settings:** Always save your configuration changes to the controller after making adjustments.

8. Maintenance

The FarDriver ND72850 controller is designed for durability, but regular checks can help ensure optimal performance.

- **Cleaning:** Keep the controller clean and free from dust, dirt, and moisture. Use a dry, soft cloth for cleaning.
- **Wiring Inspection:** Periodically inspect all wiring connections for signs of wear, corrosion, or looseness. Tighten any loose connections.
- **Heat Management:** Ensure the controller's mounting location allows for adequate airflow. Check for any obstructions that might impede cooling.
- **Firmware Updates:** Check the manufacturer's website or app for any available firmware updates that may improve performance or add features.

9. Troubleshooting

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

Problem	Possible Cause	Solution
Controller does not power on	No battery power; faulty ignition switch; loose connections	Check battery voltage; inspect ignition wiring; verify all power connections.
Motor does not spin	Throttle issue; motor/Hall sensor wiring incorrect; motor fault; controller error	Test throttle function; verify motor and Hall sensor connections; check for error codes via programming software.
Erratic motor behavior	Incorrect motor parameters; Hall sensor issues; interference	Recalibrate motor parameters using programming software; inspect Hall sensor wiring; check for electromagnetic interference.
Overheating	Insufficient ventilation; excessive load; short circuit	Ensure proper airflow; reduce load; check for short circuits in motor or wiring.

For more advanced diagnostics, connect the controller to the programming software/app to read error codes and monitor real-time data.

10. Warranty and Support

For warranty information, please refer to the terms and conditions provided at the time of purchase or contact your retailer. FarDriver products typically come with a manufacturer's warranty covering defects in materials and workmanship.
For technical support, software downloads, or further assistance, please visit the official FarDriver website or use the contact information provided with your purchase. You may also find additional resources by scanning the QR code found on the controller label:

Image 10.1: The controller label, which includes a QR code for accessing additional resources or support.

Relevant link from QR code: http://weixin.qq.com/r/az8gOPXE7aiSrbFb92p5