LairtPOW CM-D20

LairtPOW MPPT Solar Charge Controller User Manual

MODEL: CM-D20 (50V, 20A)

Introduction

Welcome to the LairtPOW MPPT Solar Charge Controller user manual. This guide provides essential information for the safe and efficient operation of your solar charge controller. Please read this manual thoroughly before installation and use.

Safety Information

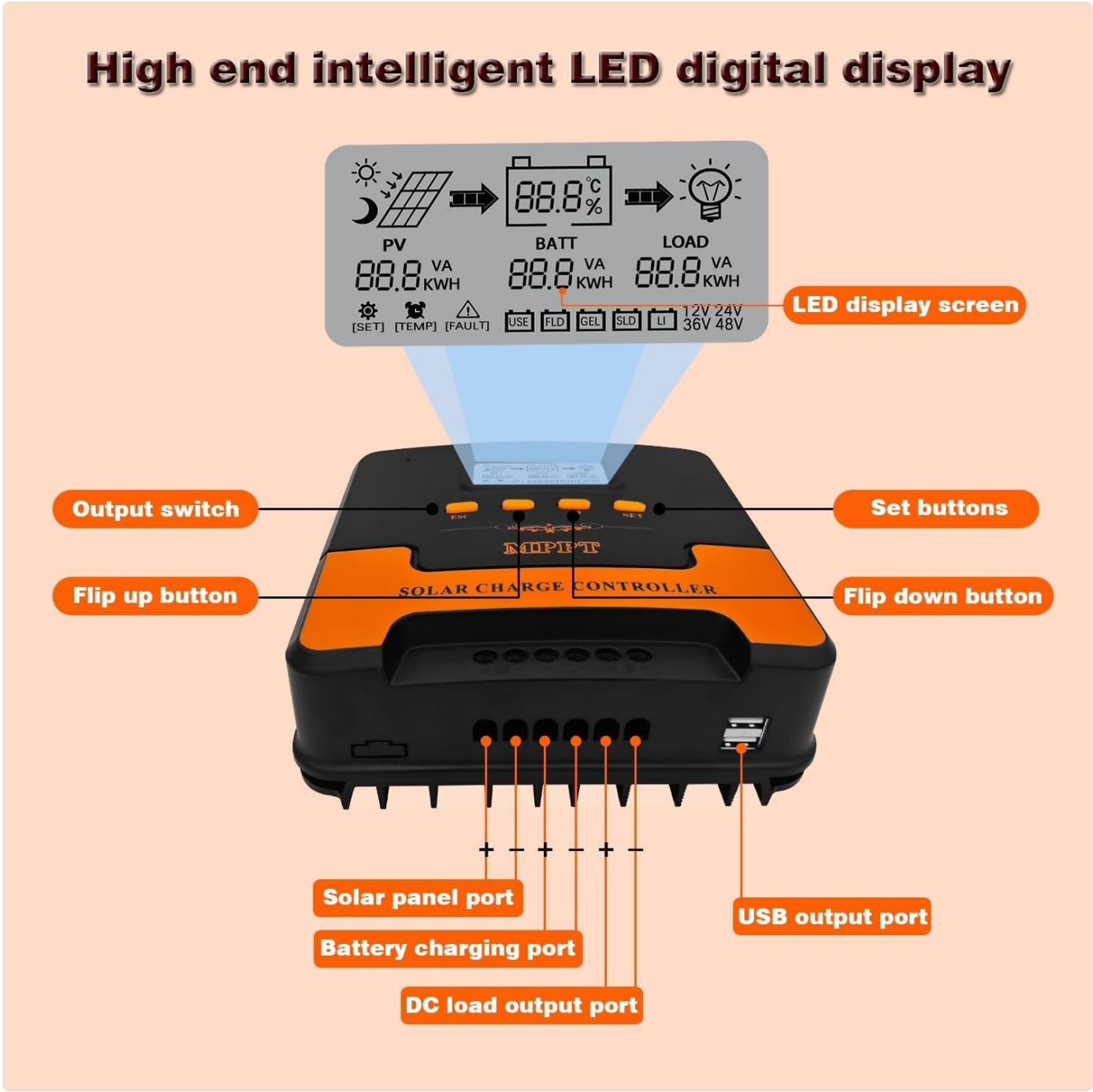
- Ensure all wiring is correctly polarized to prevent damage.
- Do not attempt to disassemble or repair the controller yourself. Refer to qualified personnel.
- Install the controller in a well-ventilated area to prevent overheating.
- Protect the controller from direct sunlight, rain, and moisture.
- Always connect the battery first, then the solar panel, and finally the load. Disconnect in reverse order.
- Use appropriate wire gauges for all connections to prevent overheating and power loss.



The LairtPOW MPPT Solar Charge Controller is designed with multiple safety features including protection against short circuits, open circuits, overcurrent, overcharge, reverse connection, reverse charging, over temperature, and TVS lightning protection. Its robust design ensures reliable and safe operation within your solar power system.

Product Overview

The LairtPOW MPPT Solar Charge Controller is an advanced device designed to optimize power harvesting from your solar panels and efficiently charge various battery types. It features a built-in Maximum Power Point Tracking (MPPT) algorithm for high efficiency and an intelligent LCD for easy monitoring and parameter adjustment.



This image illustrates the key components and ports of the LairtPOW MPPT Solar Charge Controller. The intelligent LED digital display provides real-time operational information. Control buttons allow for easy navigation and setting adjustments. Connection ports are clearly labeled for solar panels, battery charging, DC load output, and dual USB output for charging external devices.



A front view of the LairtPOW MPPT Solar Charge Controller, showcasing its compact design, LCD display, and intuitive control buttons. The orange and black casing indicates a durable build suitable for various environments.

Setup

Wiring Instructions

Proper wiring is crucial for the safe and efficient operation of your solar charge controller. Follow these steps carefully:

1. **Loosen Screws:** First, loosen the screws of the controller wiring port counterclockwise.
2. **Prepare Cable Trough:** The cable trough at the wiring port should be loosened to accommodate the line and facilitate wiring.
3. **Connect Battery First:** When wiring, always connect the battery to the controller first. Ensure correct polarity (positive to positive, negative to negative).
4. **Connect Solar Panel:** Next, connect the solar panel to the controller.
5. **Connect Load (Optional):** Finally, connect your DC load to the controller.
6. **Secure Connections:** After connecting, slightly tug on each wire to ensure it is securely fastened and connected in place.

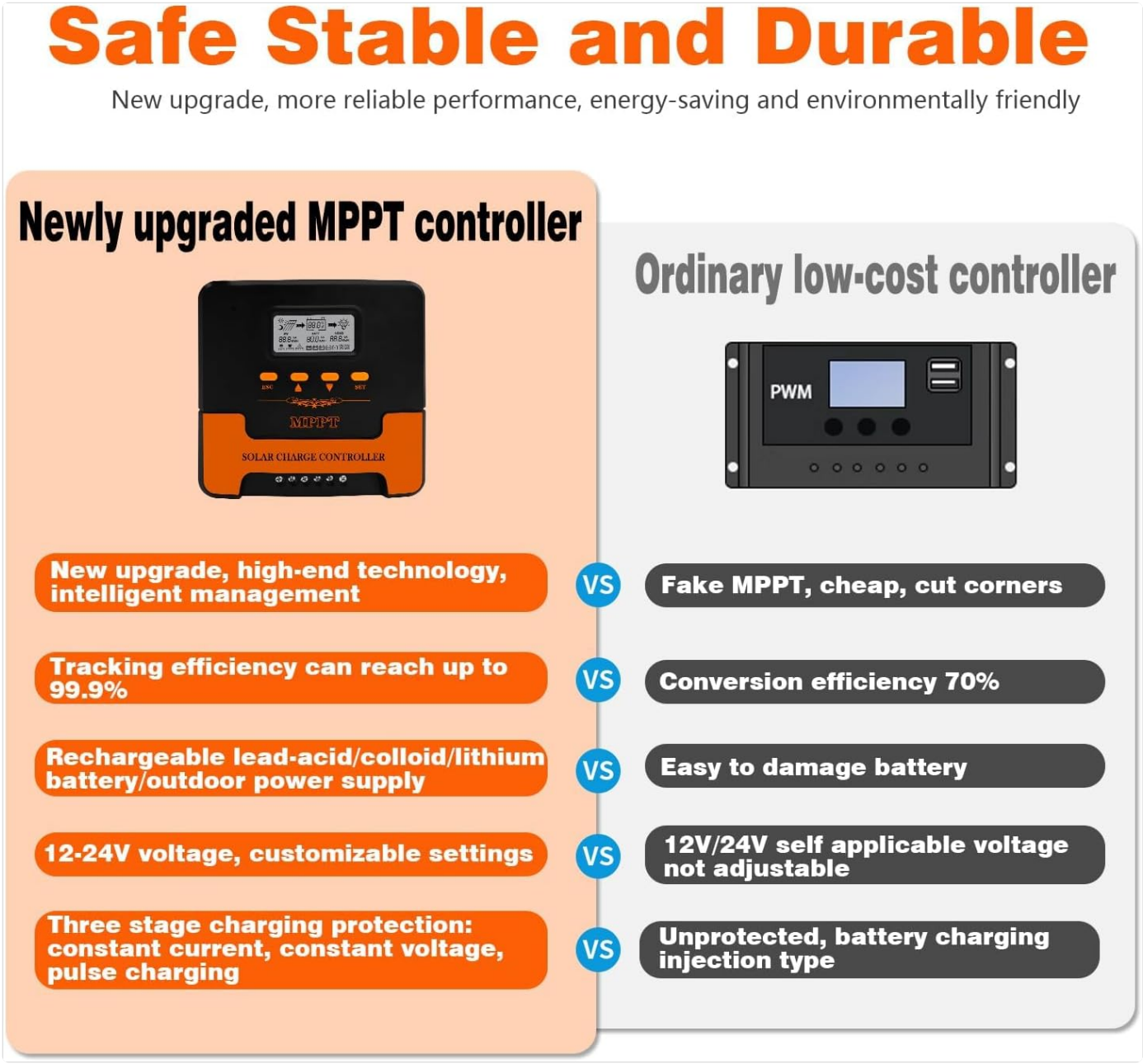
Your browser does not support the video tag.

This official video from LairtPOW provides a step-by-step guide on how to properly wire and set up your MPPT Solar Charge Controller. It demonstrates the correct sequence for connecting the battery, solar panel, and load, ensuring safe and optimal performance.

Operating Instructions

LCD Display Interface

The intelligent LCD display provides real-time information about your solar system.



This diagram details the various indicators and information presented on the controller's LCD screen. It includes status icons for solar panel activity (day/night), battery charge level, and load status. Numerical values show PV input, battery voltage, and load output. Indicators for battery type (USE, FLD, GEL, SLD, LI) and system voltage (12V, 24V, 36V, 48V) are also present.

Navigating the Display

Short press the up and down scroll keys on the main interface to switch between different parameter values. The keyless operating system automatically switches parameter pages every 5 seconds if no buttons are pressed.

- **Main Interface:** Displays current PV input voltage, battery input voltage, and load output voltage.
- **Cumulative Power Generation:** Shows the total power generated by the solar panels.
- **Cumulative Discharge Capacity:** Displays the total power discharged to the load.
- **Battery Parameter Page:** Provides detailed battery information.

Load Control

Press the **ESC** key to toggle the load on or off. The load indication icon on the display will change accordingly.

Setting Parameters

To enter the setting interface, press and hold the **SET** key on the main interface for 5 seconds.

In the setting interface, use the up and down page keys to select the required battery type (e.g., USE custom battery type, LI lithium battery).

Short press the page up and down keys to modify the value of a selected parameter. After modifying, press the **SET** key again to confirm and move to the next item.

The operating system automatically saves parameters and returns to the main interface after 10 seconds without pressing a button. You can also press the **ESC** key to quickly save the set parameters and return to the main interface.

Important: When the system parameters are adjusted unreasonably, a fault indication will appear when returning to the main interface. To restore parameters to factory settings, press and hold both the **SET** key and the **ESC** key simultaneously for 5 seconds on the main interface.

Battery Compatibility

This solar controller is compatible with various types of batteries, including:

- **Sealed Battery:** (SLD)
- **Gel Battery:** (GEL)
- **Flooded Battery:** (FLD)
- **Lithium Battery:** (LI)
- **User-Defined (Custom) Battery:** (USE)

The charging control parameters can be adjusted to fit different battery types, ensuring optimal charging and extending battery life.

Maintenance

- **Regular Inspection:** Periodically check all connections for tightness and corrosion.
- **Cleanliness:** Keep the controller clean and free from dust and debris. Use a dry cloth for cleaning.
- **Ventilation:** Ensure adequate airflow around the controller to prevent overheating. Do not block ventilation openings.
- **Environmental Conditions:** Avoid exposing the controller to extreme temperatures, humidity, or corrosive environments.

Troubleshooting

Problem	Possible Cause	Solution

Problem	Possible Cause	Solution
Controller not powering on	Battery not connected or low voltage. Incorrect battery polarity.	Check battery connections and voltage. Ensure correct polarity.
No charging from solar panel	Solar panel not connected or insufficient sunlight. Incorrect panel polarity. Faulty panel.	Check solar panel connections and ensure adequate sunlight. Verify polarity. Test panel output.
Load not working	Load not connected. Load switch off. Overload protection activated.	Check load connections. Press ESC key to turn on load. Reduce load or check for short circuit.
Fault indication on display	System parameters adjusted unreasonably. Overvoltage/undervoltage.	Review and correct parameter settings. Restore factory settings if necessary (press SET + ESC for 5s). Check system voltage.

For further assistance, please contact LairtPOW customer support.

Specifications

Model: CM-D20

Feature	Detail
Rated Charging Current	20A
Rated Load Current	20A
System Voltage	12V/24V Auto-Identification
Max. Solar Input Voltage	50V PV
Max. Photovoltaic System Input Power	240W/12V, 480W/24V
Conversion Efficiency	≥98%
MPPT Tracking Efficiency	>99%
Dimensions (L x W x H)	5.12" x 5.12" x 2.28"
Net Weight	0.83lb
Display Type	LCD
Charging Port Type	USB-A (Dual)
Material	Aluminum, Plastic, Metal

Warranty and Support

LairtPOW products come with a standard manufacturer's warranty. For specific warranty terms and conditions, please

refer to the warranty card included with your product or visit the official LairtPOW website.

For technical support, troubleshooting assistance, or any inquiries regarding your MPPT Solar Charge Controller, please contact LairtPOW customer service.

You can visit the official LairtPOW Store on Amazon for more information:LairtPOW Store.

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