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ELUSH DM60A

ELUSH 60Amp MPPT Solar Charge Controller User Manual

Model: DM60A

1. INTRODUCTION

This manual provides detailed instructions for the installation, operation, and maintenance of your ELUSH 60Amp MPPT Solar Charge Controller. This device is designed to efficiently manage power from your solar panels to charge various battery types, including LiFePO4, AGM, and Gel batteries, in 12V, 24V, and 48V systems.

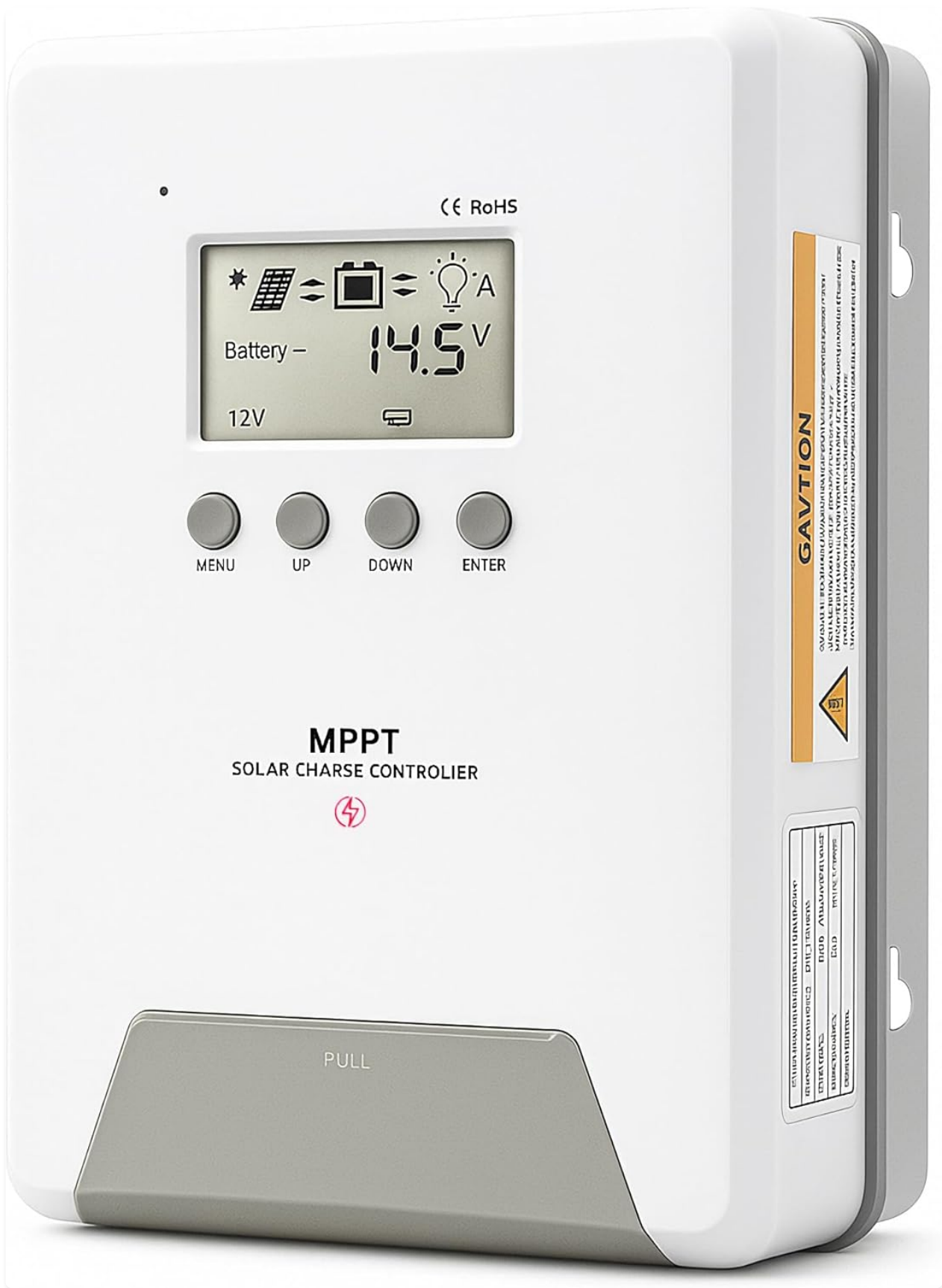


Image 1.1: ELUSH 60Amp MPPT Solar Charge Controller.

2. KEY FEATURES

- **Advanced MPPT Technology:** Maximizes energy harvest from solar panels with tracking efficiency no less than 99% and peak conversion efficiency up to 98%.
- **System Auto-Detection:** Automatically detects 12V, 24V, and 48V DC system voltages upon startup.

- **Broad Battery Compatibility:** Supports Sealed (AGM), Gel, Flooded lead-acid batteries, and Lithium batteries (LiFePO4, Ternary Lithium/Li-ion).
- **Clear LCD Display:** Provides real-time monitoring of PV voltage, battery voltage/current, charging power, accumulated energy generation, and load status.
- **Essential Built-in Protections:** Includes safeguards against overvoltage, overcurrent, undervoltage, and high temperature.
- **Efficient Heat Dissipation:** Features a high-quality aluminum heatsink for stable operation and optimal performance.

Hidden installation wiring

when in use to connect the wiring. After the wiring is properly connected, tighten the screws and close the bottom cover to complete the installation.



Professional certification The equipment is safe to use

Image 2.1: MPPT Technology highlighting 99% tracking efficiency and 98% peak conversion efficiency.

3. SAFETY INFORMATION AND SYSTEM PROTECTION

The ELUSH MPPT Solar Charge Controller is equipped with multiple protection features to ensure safe and reliable operation of your solar power system. Always adhere to local electrical codes and safety guidelines during installation and operation.

- **Over-discharging Protection:** Prevents batteries from being discharged below a safe voltage level.
- **Overload Protection:** Safeguards against excessive current draw from the load terminals.
- **Short-circuiting Protection:** Protects against short circuits in the solar panel, battery, or load circuits.
- **Reverse Polarity Protection:** Prevents damage from incorrect battery or solar panel connections.
- **Overcharging Protection:** Ensures batteries are not overcharged, extending their lifespan.
- **Temperature Compensation:** Adjusts charging parameters based on battery temperature for optimal charging.
- **Reverse Current Protection:** Prevents current from flowing back from the battery to the solar panel at night.

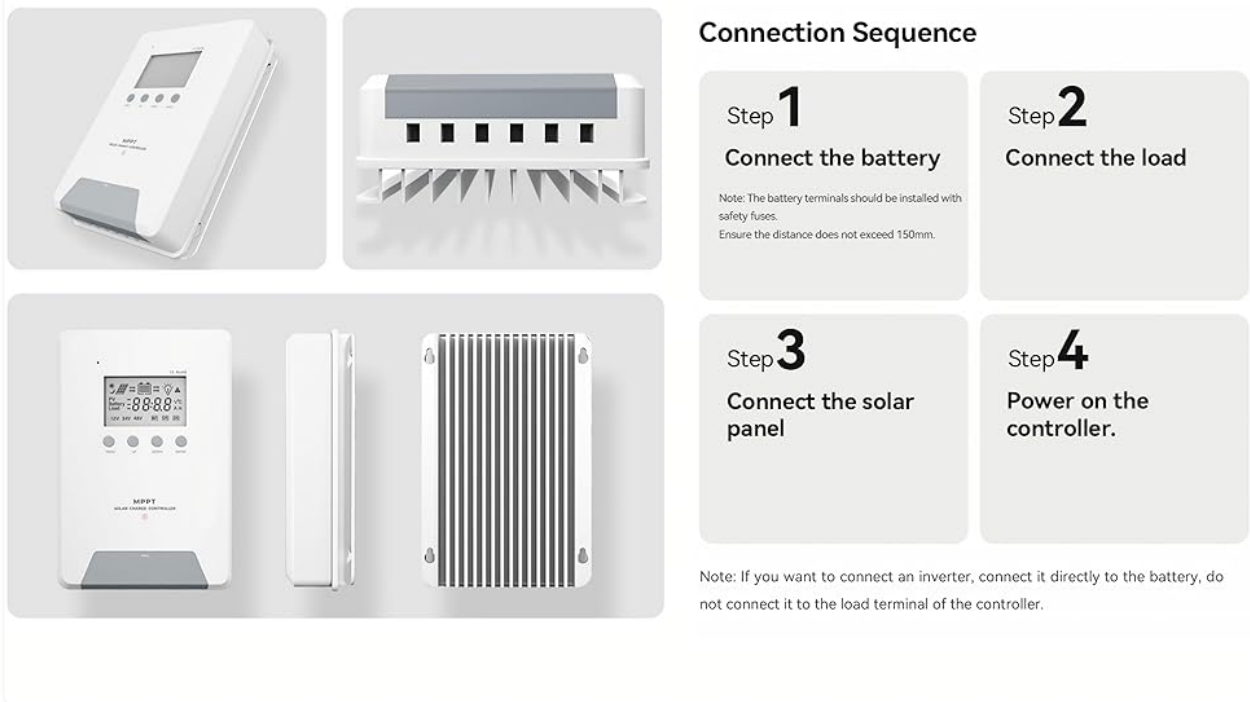


Image 3.1: Visual representation of the controller's system protection features.

4. INSTALLATION AND WIRING

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

4.1 Connection Sequence

Always connect components in the following order to prevent damage:

1. **Connect the battery:** Connect the battery to the controller's battery terminals. Ensure correct polarity (+ to + and - to -). The battery terminals should be installed with safety fuses. Ensure the distance does not exceed 150mm.
2. **Connect the load:** Connect your DC loads to the controller's load terminals.
3. **Connect the solar panel:** Connect the solar panel to the controller's solar energy terminals. Ensure correct polarity.
4. **Power on the controller:** The controller will automatically power on once all connections are secure.

Note: If you want to connect an inverter, connect it directly to the battery, not to the load terminal of the controller.

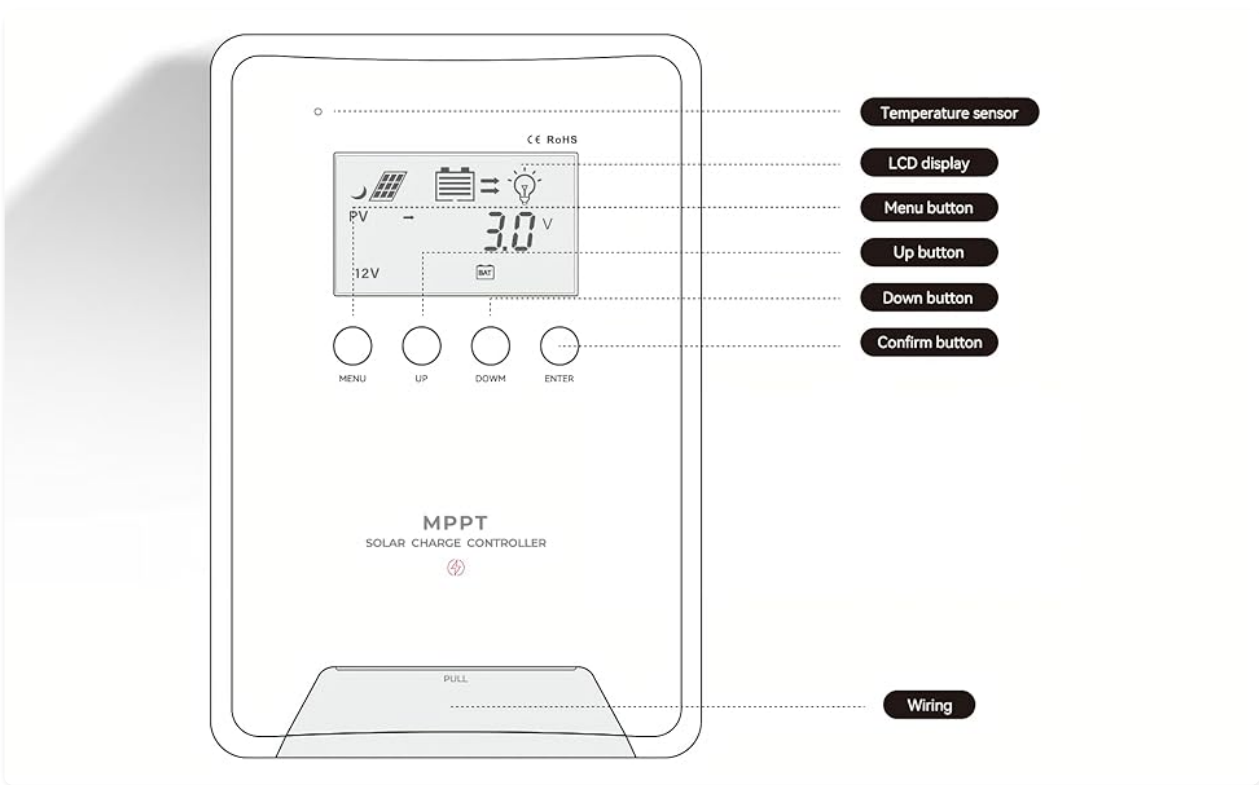


Image 4.1: Diagram showing the connection points for solar energy, battery, and load.

Efficient Conversion Rapid Power Generation MPPT Solar Controller



Image 4.2: Step-by-step visual guide for connecting the system components.

4.2 Hidden Installation Wiring

For a clean and secure installation, the wiring can be routed and hidden. After all connections are properly made and tested, tighten the screws on the terminals and close the bottom cover of the controller to complete the installation. This protects the wiring and provides a neat appearance.

5. OPERATING INSTRUCTIONS

The controller features an intuitive LCD display and buttons for monitoring and configuration.

5.1 LCD Display and Buttons

The LCD screen provides real-time information about your system. The buttons allow you to navigate menus and adjust settings.

- **Temperature Sensor:** Located on the controller, it measures ambient temperature for accurate charging compensation.
- **LCD Display:** Shows PV voltage, battery voltage, charging current, load status, and other system parameters.

- **MENU Button:** Used to enter and exit menu settings.
- **UP Button:** Navigates upwards through menu options or increases values.
- **DOWN Button:** Navigates downwards through menu options or decreases values.
- **ENTER Button:** Confirms selections or enters sub-menus.

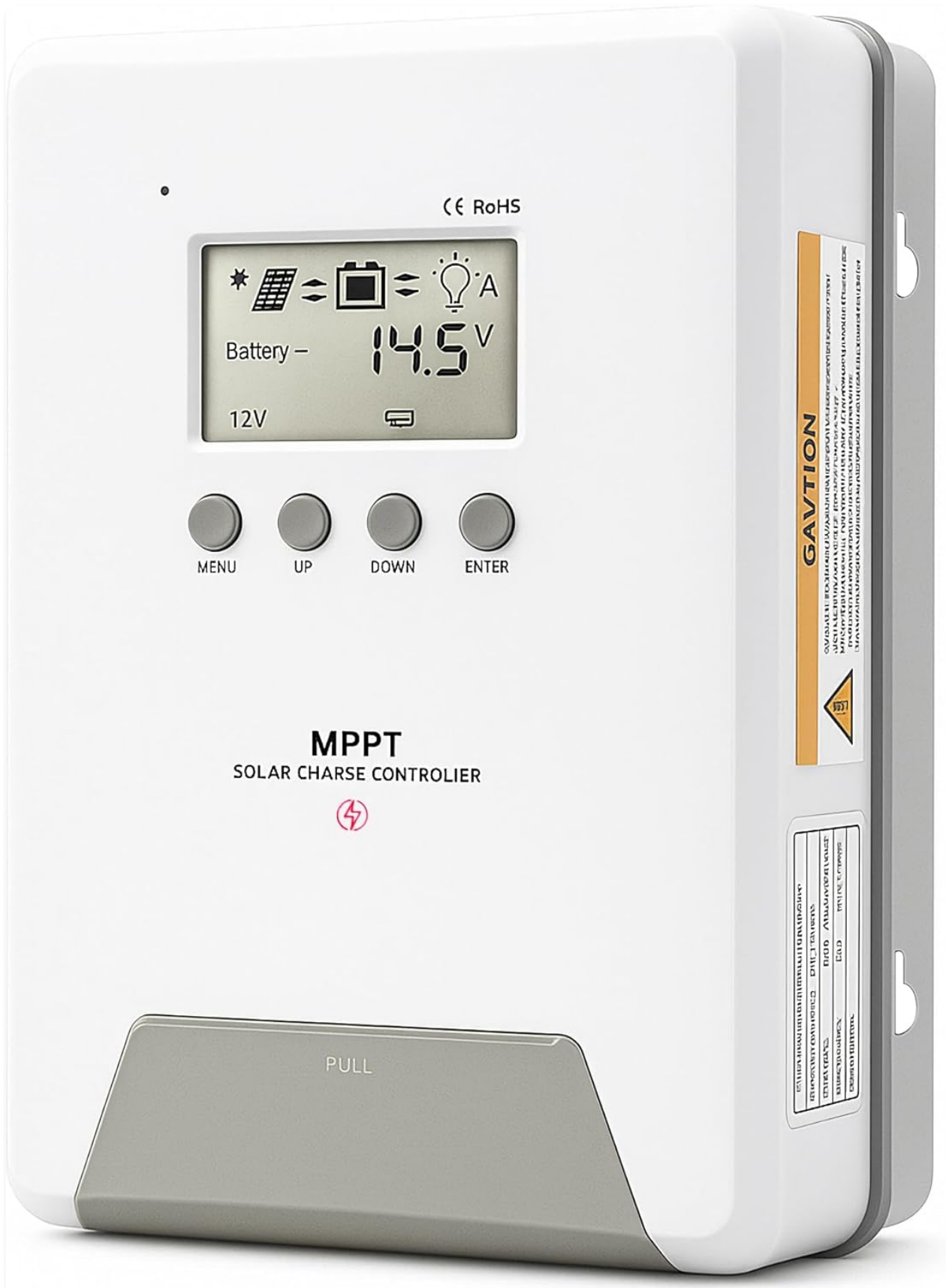


Image 5.1: The controller's LCD display and button layout for user interaction.

5.2 Automatic Voltage Recognition and Battery Compatibility

The controller automatically detects the system voltage (12V, 24V, or 48V) upon startup. It is compatible with a wide range of battery types, ensuring efficient and safe charging for your specific setup.

- **Lithium-ion batteries (Li):** For standard lithium-ion chemistries.
- **Lithium Iron Phosphate batteries (LiFePO4):** Specifically designed for LiFePO4 batteries.
- **Lead-acid batteries (BAT):** Includes Sealed (AGM), Gel, and Flooded types.



Image 5.2: Illustration of automatic voltage recognition and compatibility with various battery types.

6. SPECIFICATIONS

Brand	ELUSH
Model Number	DM60A
Current Rating	60A
System Voltage	12V/24V/48V Auto Detection

Max PV Input Voltage	150V
Material	Aluminum
Display Type	LCD
Color	Black



Image 6.1: Physical dimensions of the ELUSH 60Amp MPPT Solar Charge Controller.

7. MAINTENANCE

To ensure optimal performance and longevity of your solar charge controller, regular maintenance is recommended:

- **Inspect Connections:** Periodically check all wiring connections for tightness and corrosion. Loose connections can cause overheating and damage.
- **Clean the Controller:** Keep the controller clean and free from dust and debris. Use a dry cloth to wipe the exterior. Ensure ventilation openings are not blocked.
- **Monitor Performance:** Regularly check the LCD display for normal operating parameters. Note any unusual readings or error codes.

- **Battery Health:** Ensure your batteries are well-maintained according to their manufacturer's guidelines.

8. TROUBLESHOOTING

If you encounter issues with your ELUSH MPPT Solar Charge Controller, refer to the following basic troubleshooting steps:

- **No Display/No Power:** Check battery connections and ensure the battery voltage is within the controller's operating range. Verify fuses are intact.
- **Battery Not Charging:** Confirm solar panel connections and polarity. Check for sufficient sunlight and ensure solar panel voltage is above the battery voltage. Verify battery type settings are correct.
- **Load Not Working:** Check load connections and ensure the load current does not exceed the controller's rating. Verify load output settings on the controller.
- **Error Codes:** If the LCD displays an error code, consult the full product manual (if available) or contact technical support for specific guidance.
- **Overheating:** Ensure the controller is installed in a well-ventilated area, away from direct sunlight or heat sources. Check for any obstructions to the heatsink.

9. WARRANTY AND SUPPORT

ELUSH provides professional technical support for its products. If you have any questions, require assistance with installation, operation, or troubleshooting, please feel free to contact us. Refer to your purchase documentation for specific warranty terms and contact information.