Anern MSC 60A

Anern 60A MPPT Solar Charge Controller User Manual

Model: MSC 60A

1. Introduction

Thank you for choosing the Anern 60A MPPT Solar Charge Controller. This device is designed to efficiently manage power flow from your solar panels to your battery bank, ensuring optimal charging and extending battery life. It features advanced Maximum Power Point Tracking (MPPT) technology, automatic 12V/24V battery identification, and multiple protection functions. Please read this manual carefully before installation and operation to ensure safe and correct usage.

2. Safety Instructions

- Ensure all connections are correct and secure before powering on the controller.
- Always connect the battery first, then the solar panel, and finally the load. Disconnect in the reverse order.
- Do not attempt to disassemble or repair the controller yourself. Contact qualified personnel for service.
- Install the controller in a well-ventilated area, away from flammable gases and liquids.
- The controller is equipped with various protections, but proper wiring is crucial to prevent damage to the unit and connected components.
- Wear appropriate personal protective equipment (PPE) when working with batteries and solar panels.

3. Product Overview

The Anern 60A MPPT Solar Charge Controller is a robust and intelligent device designed for various solar power applications. It features a clear LCD display for real-time monitoring and easy configuration.

A front view of the Anern 60A MPPT Solar Charge Controller, showcasing its compact design and clear LCD screen for monitoring system parameters.

Key Features

- **Advanced MPPT Technology:** Innovative Maximum Power Point Tracking with up to 99% tracking efficiency and 98% peak conversion efficiency, ensuring maximum power harvest from solar panels.
- **Automatic System Voltage Recognition:** Automatically identifies 12V or 24V battery systems.
- **Multi-stage Smart Charging:** Features 4-level charging modes (Fast, Boost, Float, Equalization) to optimize battery charging and prolong battery lifespan.
- **Comprehensive Protection:** Includes safeguards against battery and solar panel reverse polarity, overcurrent, short-circuit, overload, open-circuit, and undervoltage.
- **Durable Design:** Equipped with temperature sensors and aluminum alloy heat dissipation panels for reliable performance and longevity.
- **LCD Display:** Clear LCD screen for easy monitoring of system parameters and settings.

This graphic highlights the controller's advanced MPPT technology, boasting an ultra-fast tracking efficiency of up to 99% and a peak conversion efficiency of 98%, ensuring maximum power harvest from solar panels.

An illustration demonstrating how the cast aluminum structure of the controller ensures efficient heat dissipation, contributing to continuous and stable recharging performance.

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4. Setup and Installation

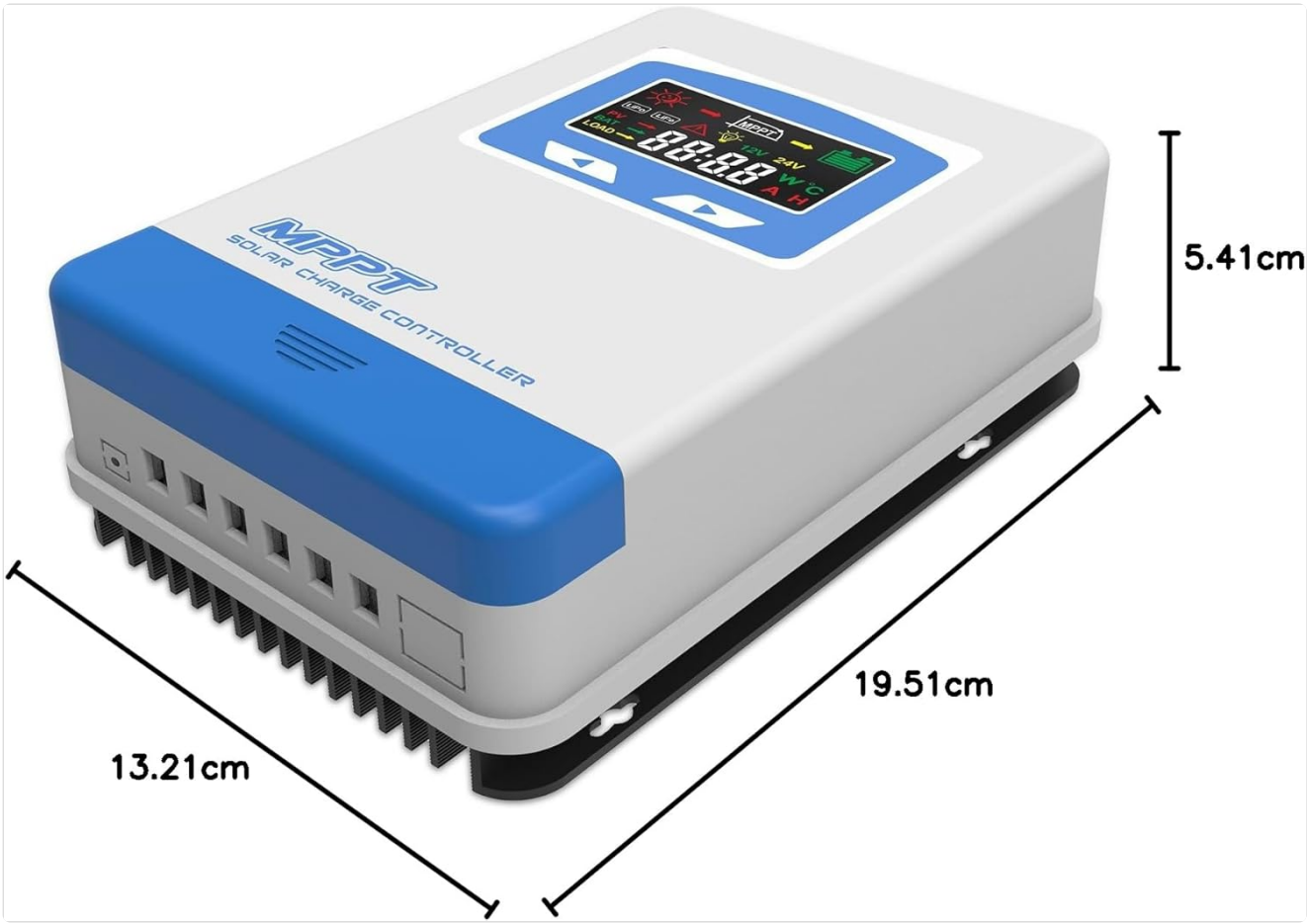
4.1 Wiring Diagram

Follow the wiring diagram carefully. Always connect the battery first, then the solar panel, and finally the load. Ensure all connections are tight and correct polarity is observed.

A simplified wiring diagram illustrating the correct connection sequence for the solar charge controller. It shows solar panels (Photovoltaic Field) connected to the controller, the controller connected to the battery (Battery), and the controller connected to the load (Load), with fuses and an interruption switch indicated for safety.

4.2 Battery Type Selection

The controller is compatible with various 12V/24V battery types. For Lithium batteries, the controller offers automatic recognition. For other types, you may need to select the correct battery type through the display interface.



This visual confirms the controller's compatibility with various 12V/24V battery types, including Lithium (LI), Sealed (SEL), Flooded (FLD), Gel, and AGM batteries, with automatic recognition for Lithium batteries.

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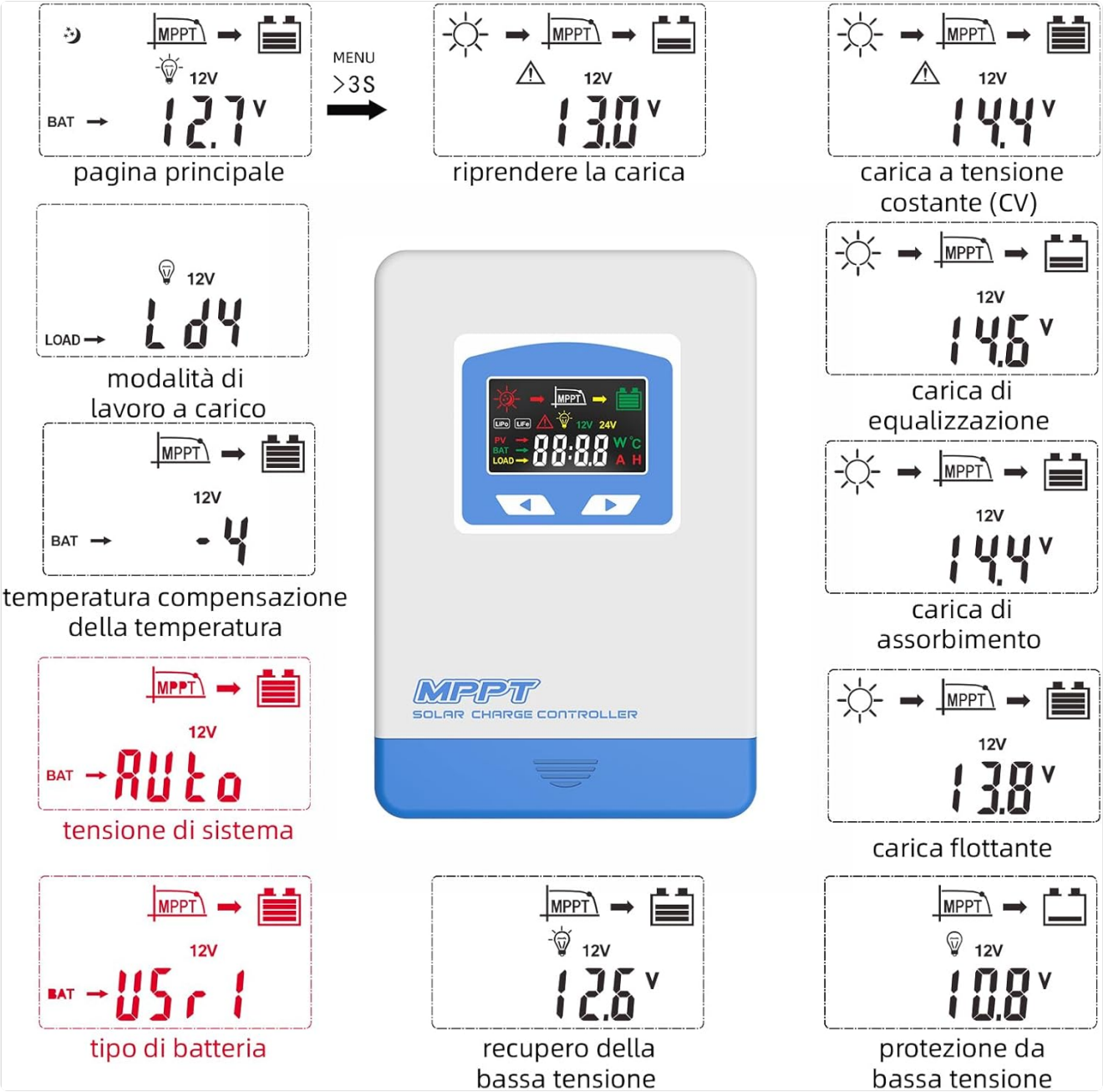
5. Operating Instructions

5.1 Display Interface

The LCD display provides real-time information about your solar system. Familiarize yourself with the icons and parameters shown.



An illustration of the controller's LCD display, explaining each icon and parameter, such as photovoltaic field status, battery charge/capacity, battery type, and load status. It also includes a table outlining the functions of the MENU and SET buttons for navigation and parameter adjustment.

Button Functions

Button	Function
MENU	Short press to scroll down. Press and hold for 3 seconds to enter the next interface.
SET	Short press to scroll through interfaces. Press and hold for 3 seconds to exit without saving.

5.2 Load Operating Modes

The controller offers four distinct load operating modes to suit various application needs:

Descrizione dell'interfaccia

Articolo	ICO		Stato	
Campo fotovoltaico			Giorno	Notte
			Carica	
Batteria			Carica /Capacità della batteria	
	LiPo	LiFe	Tipo di batteria	
Carica			Carica	Scarico

Pulsante -Significato	Schema dei pulsanti	Funzione del pulsante
MENÙ		Premere brevemente per scendere e tenere premuto per 3 secondi per passare all'interfaccia successiva
SET		Premere brevemente per passare all'interfaccia superiore Tenere premuto per 3 secondi per terminare il processo senza memorizzare

This diagram explains the four distinct load operating modes: Regular Mode (manual on/off), Light Control Mode (auto on at dusk, off at dawn), Light and Time Control Mode (timed operation after dusk and before dawn), and Light Inversion Control Mode (auto on at dusk, off automatically at night).

- **Regular Mode (LD1):** The load operates normally and can be manually switched on or off.
- **Light Control Mode (LD2):** The load automatically turns on at dusk and turns off at dawn.
- **Light and Time Control Mode (LD3):** The load turns on at dusk and operates for a set duration, then turns off. It can also be set to turn on for a duration before dawn.
- **Light Inversion Control Mode (LD4):** The load automatically turns on at dusk and turns off automatically at night (based on ambient light detection).

5.3 Display Parameters

The controller's display cycles through various parameters, providing detailed system status. Examples include:

This image shows different screens of the controller's LCD, demonstrating how various parameters like main page voltage, resume charge voltage, constant voltage charge, equalization charge, absorption charge, float charge, temperature compensation, system voltage, battery type, low voltage recovery, and low voltage protection are displayed.

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6. Maintenance

To ensure the longevity and optimal performance of your Anern MPPT Solar Charge Controller, regular maintenance is recommended:

- **Cleaning:** Periodically clean the controller's exterior with a dry cloth to remove dust and debris. Ensure ventilation openings are clear.
- **Connection Check:** Regularly inspect all wiring connections for tightness and corrosion. Loose connections can lead to power loss or overheating.
- **Environmental Check:** Ensure the installation environment remains dry, well-ventilated, and within the specified operating temperature range.
- **Firmware Updates:** Check the manufacturer's website for any available firmware updates that might improve performance or add features.

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7. Troubleshooting

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

Problem	Possible Cause	Solution
Controller not powering on	Battery not connected or low voltage; reverse polarity.	Ensure battery is connected first with correct polarity and sufficient voltage.
No charging from solar panels	Solar panels not connected; insufficient sunlight; panel voltage too low/high; faulty panel.	Check solar panel connections and polarity. Verify sunlight intensity. Ensure panel voltage is within controller's operating range. Test panels.
Load not working	Load not connected; battery voltage too low; load mode setting incorrect; overload.	Check load connections. Ensure battery is charged. Verify load mode settings. Reduce load or check for short circuit.
Display shows error code	Specific system fault (e.g., overvoltage, overcurrent).	Refer to the display interface section for error code meanings and corresponding actions. Address the underlying issue.

A visual guide detailing the various protection features of the solar charge controller, including safeguards against solar module reverse polarity, battery reverse polarity, battery overvoltage, battery over-discharge, and overload protection.

8. Specifications

Feature	Specification
Model Number	MSC 60A
Brand	Anern
Rated Charging Current	60A
System Voltage	12V/24V Auto
Max PV Input Voltage	60V

Feature	Specification
Max PV Power (12V System)	290W
Max PV Power (24V System)	580W
Load Output Current	20A
Product Dimensions	17.3 x 12.2 x 4.8 cm
Product Weight	2.22 kg
Display Type	LCD
Included Components	MPPT Controller
Color	Blue

This image illustrates the physical dimensions of the Anern 60A MPPT Solar Charge Controller, measuring approximately 19.51 cm in length, 13.21 cm in width, and 5.41 cm in height, providing a clear understanding of its size for installation planning.

9. Official Product Videos

Watch these official videos for additional guidance on your Anern MPPT Solar Charge Controller.

Product Overview and Features

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This video provides a general overview of the Anern MPPT Solar Charge Controller, demonstrating its main features and basic functionality. It may include a quick look at the display and connection points.

Detailed Setup and Operation Guide

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A detailed instructional video covering the setup and operation of the Anern MPPT Solar Charge Controller. This video likely guides users through wiring, initial configuration, and navigating the display settings for various battery types and load modes.

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10. Warranty and Support

Anern products are designed for reliability and performance. For warranty information, please refer to the documentation included with your purchase or visit the official Anern website. If you require technical support or have questions not covered in this manual, please contact Anern customer service through their official channels.
Return Policy: This product typically has a 14-day return/replacement policy. Please check your purchase details for specific terms.