

Anern MSC 60A

Anern 60A MPPT Solar Charge Controller (Model MSC 60A) Instruction Manual

INTRODUCTION

This manual provides comprehensive instructions for the installation, operation, and maintenance of your Anern 60A MPPT Solar Charge Controller, Model MSC 60A. This advanced controller is designed to optimize power harvesting from your solar panels and efficiently charge 12V and 24V battery systems, including Gel, Sealed, Flooded, and Lithium types. Please read this manual thoroughly before installation and use to ensure safe and optimal performance.

SAFETY INFORMATION

Always observe the following safety precautions during installation and operation:

- Ensure all connections are correct and secure before applying power.
- Do not connect the solar panel to the controller before connecting the battery. The controller needs to identify the battery voltage first. Connecting the solar panel first may cause a voltage error and damage the controller or battery.
- Avoid short circuits on the battery, solar panel, or load terminals.
- Install the controller in a well-ventilated area, away from flammable materials and direct sunlight.
- This device is designed for indoor use. Protect it from moisture and dust.
- Only qualified personnel should perform installation and maintenance.
- Wear appropriate personal protective equipment (PPE) during installation.

For detailed safety information, refer to the "Informazioni sulla sicurezza (PDF)" document provided with your product, if available.

1. SETUP AND INSTALLATION

1.1 Unpacking

Carefully unpack the solar charge controller and inspect it for any damage. Ensure all components are present.

1.2 Mounting

Mount the controller vertically on a non-flammable surface in a cool, dry, and well-ventilated area. Allow sufficient clearance around the controller for heat dissipation.



Image: The Anern 60A MPPT Solar Charge Controller, highlighting its heat sink fins for efficient cooling.

1.3 Wiring Connections

Follow the wiring sequence carefully to prevent damage to the controller or battery. The controller features large-section wiring ports for improved isolation and mounting reliability.

1. **Connect the Battery:** Connect the battery to the controller first. Ensure correct polarity (+ to + and - to -). The controller will automatically detect the battery voltage (12V or 24V).
2. **Connect the Solar Panel:** Connect the solar panel to the controller. Ensure correct polarity. The controller will begin charging the battery.
3. **Connect the Load:** Connect the DC load to the controller's load terminals. Ensure correct polarity.

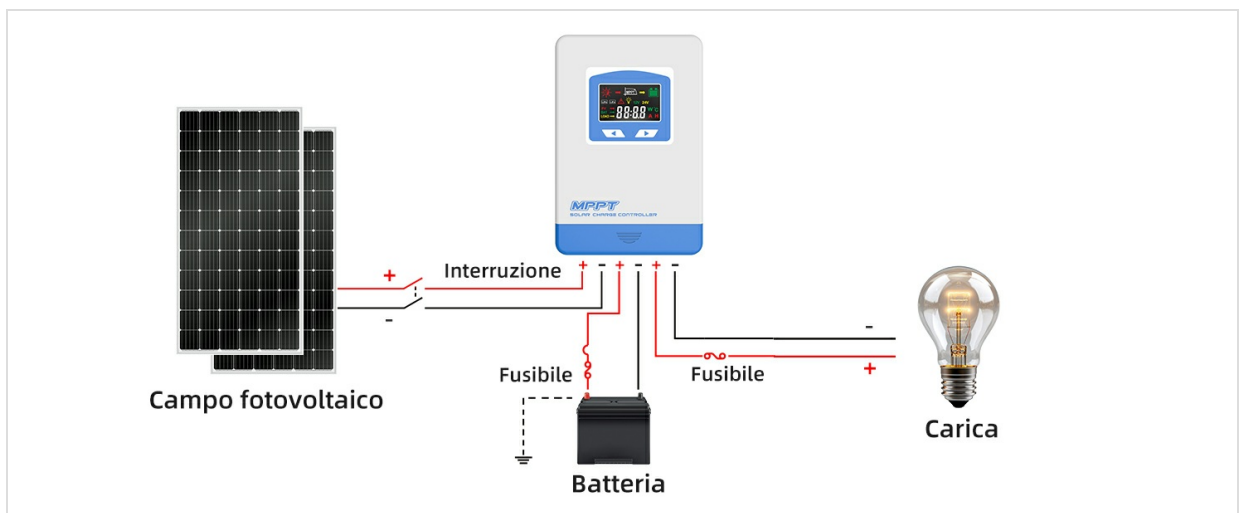


Image: A schematic diagram illustrating the correct wiring connections for the solar charge controller, connecting solar panels, battery, and load.

Your browser does not support the video tag.

Video: This video demonstrates the physical aspects and features of a solar charge controller, including its design and connection points.

2. OPERATION

2.1 LCD Display Interface

The controller features an LCD display that shows real-time system status and parameters. The interface includes indicators for photovoltaic input, battery status, and load status.

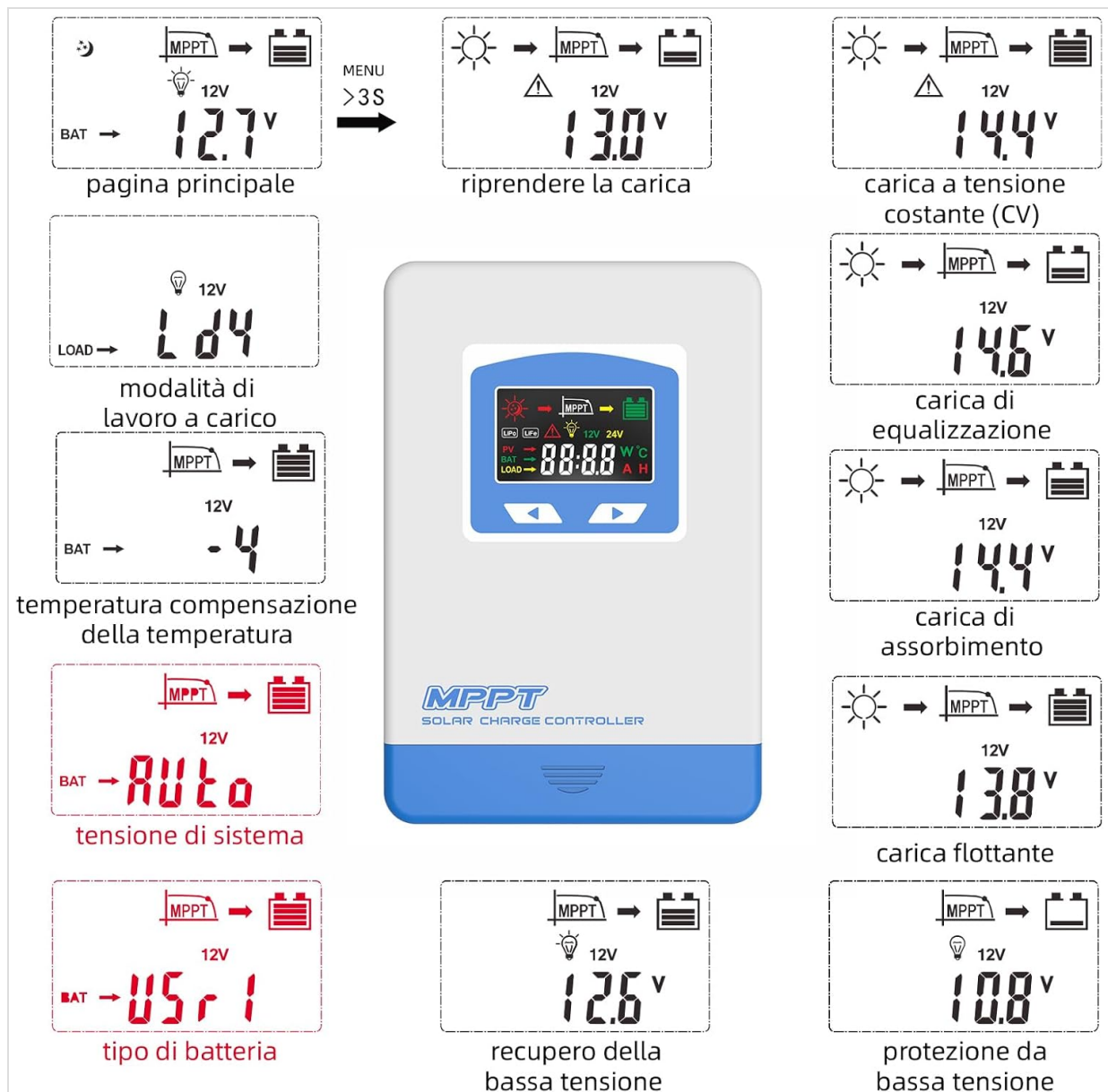


Image: The digital interface of the controller's LCD screen, displaying numerical values, buttons, and icons for different functions.

2.2 Button Functions

The controller has two main buttons for navigation and settings:

- **MENU Button**: Short press to scroll through display pages. Press and hold for 3 seconds to enter the next interface for settings.

- **SET Button:** Short press to navigate through settings. Press and hold for 3 seconds to save settings and exit.



Image: The Anern MPPT Solar Charge Controller with its LCD display and control buttons, illustrating the user interface.

2.3 Load Operating Modes

The controller offers four load operating modes:

1. **Regular Mode (LD1):** The load operates normally and can be manually switched on or off.
2. **Light Control Mode (LD2):** The load automatically turns on at dusk and off at dawn.
3. **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 before dawn for a set duration.
4. **Reverse Light Control Mode (LD4):** The load automatically turns on at dawn and off at night.



Image: A visual representation of the four load operating modes (LD1, LD2, LD3, LD4) available on the solar charge controller.

2.4 Smart MPPT 4-Stage Charging

The controller utilizes an intelligent MPPT 4-stage charging process to enhance charging speed and extend battery life:

- **Fast Charge:** Rapid charging phase.
- **Boost Charge:** Increases voltage to ensure full charge.

- **Float Charge:** Maintains battery at full charge.
- **Equalization Charge:** Periodically balances battery cells (for certain battery types).



Image: A diagram illustrating the controller's compatibility with 12V/24V battery types, including Lithium, Sealed, Flooded, Gel, AGM, and user-defined settings.

3. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your solar charge controller:

- **Clean Terminals:** Periodically check and clean all wiring terminals to ensure tight connections and prevent corrosion.
- **Inspect Wiring:** Examine all cables for signs of wear, damage, or loose connections. Replace any damaged wiring immediately.
- **Ventilation:** Ensure the installation area remains well-ventilated and free from obstructions to allow proper heat dissipation.
- **Dust Removal:** Keep the controller free from dust and debris, especially on the heat sink fins, to maintain cooling efficiency.
- **Battery Check:** Monitor battery health and electrolyte levels (for flooded batteries) as per battery manufacturer guidelines.

4. TROUBLESHOOTING

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

Problem	Possible Cause	Solution
No display/No power	Battery not connected or low voltage; reversed battery polarity; loose connections.	Check battery connections and voltage. Ensure correct polarity. Tighten all connections.
Battery not charging	Solar panel not connected or low voltage; reversed solar panel polarity; shading on panels; faulty panel.	Check solar panel connections and voltage. Ensure correct polarity. Clear any shading. Test solar panel output.

Problem	Possible Cause	Solution
Load not working	Load disconnected or faulty; battery low voltage protection activated; load overcurrent protection activated; incorrect load mode setting.	Check load connections and functionality. Charge battery. Reduce load. Adjust load operating mode.
Overvoltage/Undervoltage protection	Battery voltage exceeds or falls below set thresholds.	Verify battery type settings. Check battery health. Ensure solar panel voltage is within limits.

Funzione di protezione



Modulo solare capovolto

Il modulo solare può essere invertito se la batteria non è collegata. La batteria è invertita.



La batteria è invertita

La batteria può essere riservata se il FV non è collegato.



Sovratensione della batteria

La tensione della batteria raggiunge il punto di sovratensione.



Sovrascarica della batteria

La tensione della batteria scende al di sotto del punto di sottotensione.



Sovraccarico

La corrente di carico supera la corrente nominale.

Image: A diagram illustrating the intelligent protection features of the solar charge controller, including reverse polarity, overcurrent, short circuit, overload, open circuit, and undervoltage protection.

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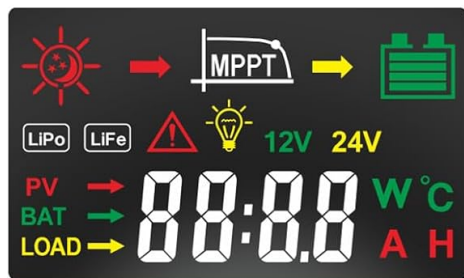
Video: This short video demonstrates how to adjust settings on a solar charge controller's display, specifically focusing on voltage protection thresholds.

5. TECHNICAL SPECIFICATIONS

Feature	Specification
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Feature	Specification
Model	MSC 60A
Rated Charge Current	60A
System Voltage	12V / 24V Auto-sensing
Max PV Input Voltage	Up to 60V
Max PV Power (12V System)	290W
Max PV Power (24V System)	580W
Load Output Current	20A
Battery Types Supported	Gel, Sealed, Flooded, Lithium, User-defined
MPPT Tracking Efficiency	Up to 99%
Conversion Efficiency	Peak 98%
Dimensions (L x W x H)	17.3 cm x 12.2 cm x 4.8 cm (6.81 x 4.80 x 1.89 inches)
Material	Aluminum
Display Type	LCD

Descrizione dell'interfaccia



Articolo	ICO	Stato		
Campo fotovoltaico			Giorno	Notte
			Carica	
Batteria		Carica /Capacità della batteria		
			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



Image: The physical dimensions of the Anern 60A MPPT Solar Charge Controller, showing length, width, and height measurements.

6. WARRANTY INFORMATION

Anern products are manufactured to high-quality standards. This product comes with a standard manufacturer's warranty. Please retain your proof of purchase for warranty claims. For specific warranty terms and conditions, refer to the documentation included with your product or contact Anern customer support.

7. CUSTOMER SUPPORT

If you require further assistance or have questions not covered in this manual, please contact Anern customer support through the retailer where you purchased the product or visit the official Anern website for contact information.

Online Resources:

- Anern Store on Amazon: [Visit Anern Store](#)