

Y&H SY6048

Y&H 60A PWM MPPT Solar Charge Controller

MODEL: SY6048

Brand: Y&H

1. Introduction

The Y&H 60A PWM MPPT Solar Charge Controller is designed for efficient and reliable management of solar power systems. It is compatible with various battery types, including sealed, GEL, flooded, and LifePO4 batteries, and features automatic voltage recognition for 12V, 24V, 36V, and 48V systems. This controller ensures optimal charging and protection for your battery bank, extending its lifespan and maximizing energy harvest from your solar panels.

Key features include a multifunctional LCD display with backlight, dual 5V USB charging ports, and comprehensive protection mechanisms against over-voltage, over-discharge, over-charge, and over-temperature.

2. Safety Instructions

- Ensure all wiring is correctly connected and securely fastened before operation. Incorrect wiring can cause damage to the controller or connected devices.
- Always connect the battery to the controller first, then the solar panel, and finally the DC load. Disconnect in the reverse order: DC load, then solar panel, then battery.
- This controller deals with voltages that exceed safe limits. Proper installation and handling by qualified personnel are recommended.
- Do not attempt to disassemble or repair the controller yourself. Contact technical support for assistance.
- Install the controller in a well-ventilated area, away from direct sunlight, high temperatures, and moisture to prevent overheating.
- Ensure the battery is fully charged before connecting the solar panel for the first time.

3. Product Overview

The Y&H 60A Solar Charge Controller features a robust design with a clear LCD display and intuitive control buttons. It is engineered for high tracking and conversion efficiency to optimize your solar power

system.

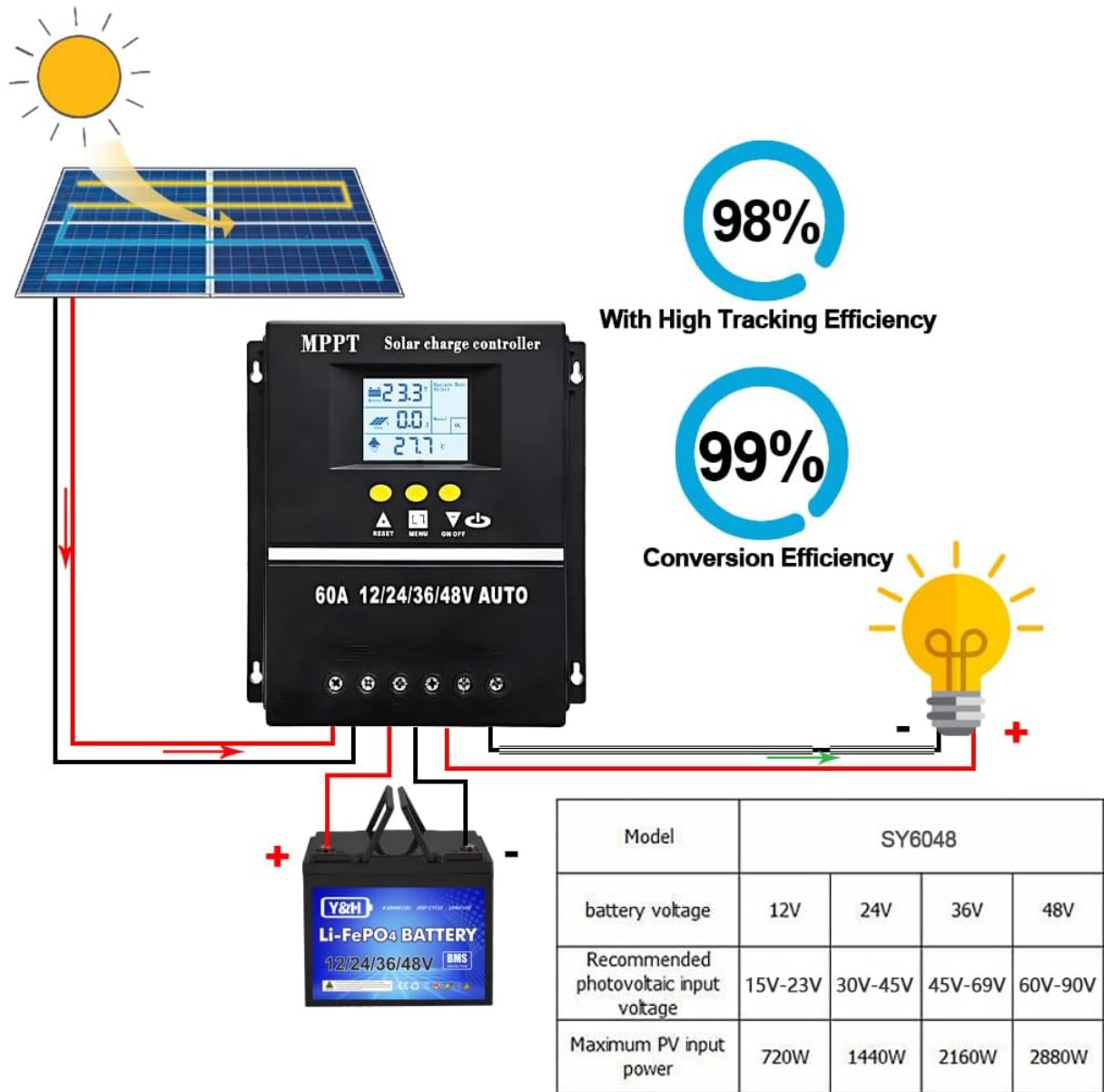


Figure 3.1: Front view of the Y&H 60A Solar Charge Controller, showing the LCD display and control buttons.

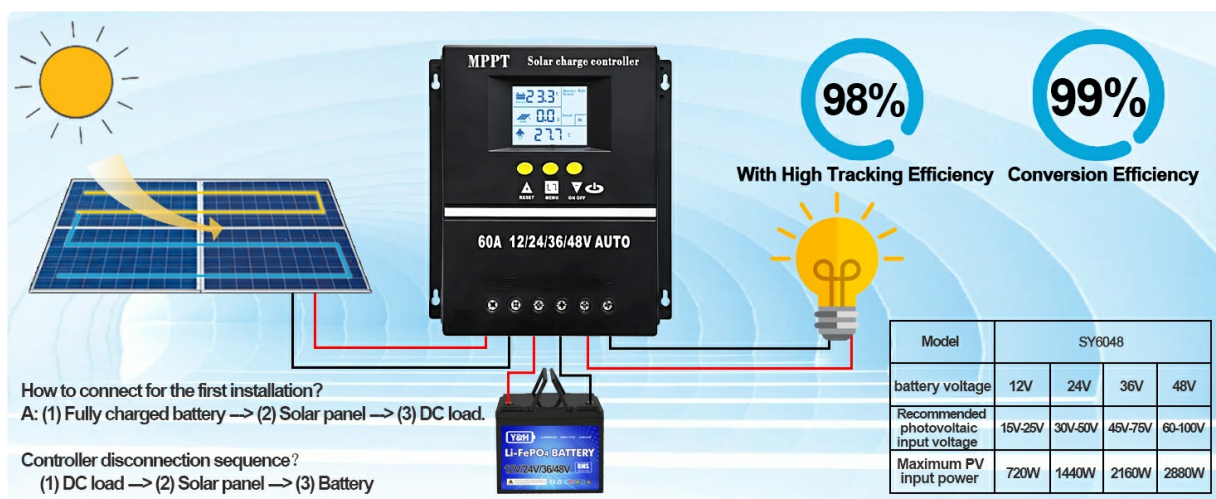


Figure 3.2: Diagram illustrating the connection of solar panels, charge controller, and battery, highlighting 98% tracking efficiency and 99% conversion efficiency.

COMPATIBLE WITH MULTIPLE BATTERY TYPES



SLD GEL Flooded and Lithium



Your battery protection expert. Extend battery life.

Figure 3.3: The controller is compatible with multiple battery types including SLD, GEL, Flooded, and Lithium batteries.

FOUR CHARGING STAGES



Bulk Charge



Boost Charge



Float Charge



Equalization Charge

Rapid, efficient, and safe battery charging algorithm.

Figure 3.4: The controller utilizes a rapid, efficient, and safe four-stage battery charging algorithm: Bulk Charge, Boost Charge, Float Charge, and Equalization Charge.

4. Setup and Wiring

Follow these steps for proper installation and wiring of your solar charge controller:

1. **Connect the Battery:** Ensure the battery is fully charged. Connect the battery terminals to the controller's battery ports (positive to positive, negative to negative).
2. **Connect the Solar Panel:** Connect the solar panel to the controller's PV input ports (positive to positive, negative to negative).
3. **Connect the DC Load:** Connect your DC load to the controller's load output ports (positive to positive, negative to negative).

Disconnection Sequence: When disconnecting, always follow the reverse order: first disconnect the DC load, then the solar panel, and finally the battery.



60A 80A 100A MPPT Solar Charge Controller

12V 24V 36V 48V Auto

Dual USB

LCD Display

7 working modes

Adjustable parameters



Figure 4.1: Detailed wiring diagram showing the connection order for battery, solar panel, and DC load.

Your browser does not support the video tag. This video demonstrates the unboxing and physical features of a similar Y&H solar charge controller, including its ports and display.

Video 4.1: Unboxing and overview of a Y&H solar charge controller, highlighting its physical components.

5. Operating Modes and Display Interface

The controller features a clear LCD display and multiple operating modes to suit various application needs.

5.1 Display Interface

The LCD provides real-time information on battery status, solar input, and load output. Use the buttons to navigate through different display screens and settings.

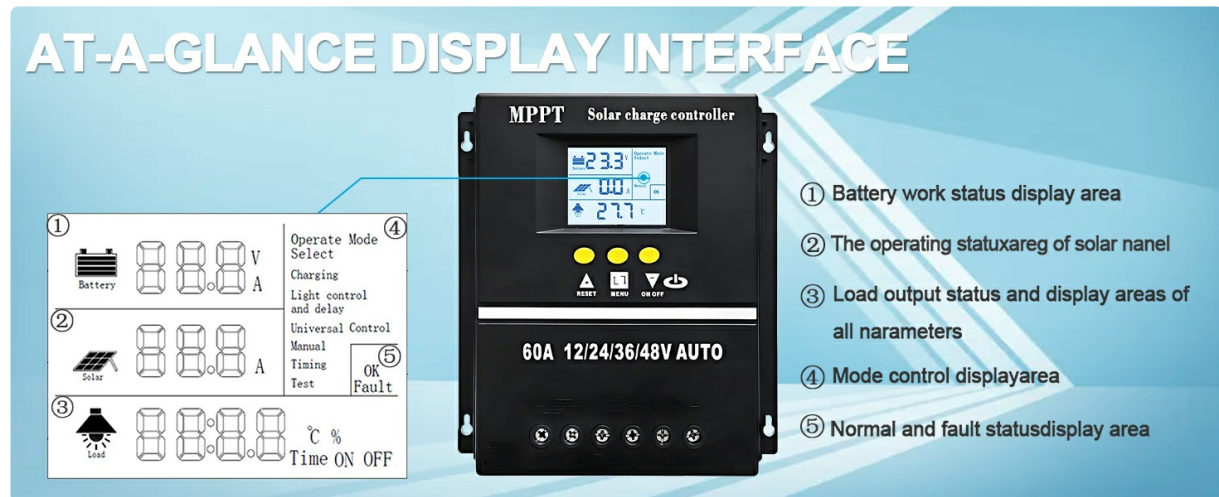


Figure 5.1: Overview of the LCD display interface, showing battery work status, solar panel operating status, load output status, and mode control area.

Your browser does not support the video tag. This video demonstrates how to navigate the display and adjust settings on the Y&H solar charge controller, including setting voltage protection and time.

Video 5.1: Demonstration of display navigation and setting adjustments on the Y&H solar charge controller.

5.2 Load Working Modes

The controller offers 7 operational modes for the DC load:

- **Charging Mode:** Standard battery charging.
- **Light Control Mode:** Load turns on at sunset and off at sunrise.
- **Light Control + Delay Mode:** Load turns on at sunset and stays on for a set duration.

- **Universal Control Mode:** Load is always on.
- **Manual Control Mode:** Load is controlled manually via the ON/OFF button.
- **Timing Control Mode:** Load operates according to a set schedule.
- **Test Mode:** For system testing and diagnostics.

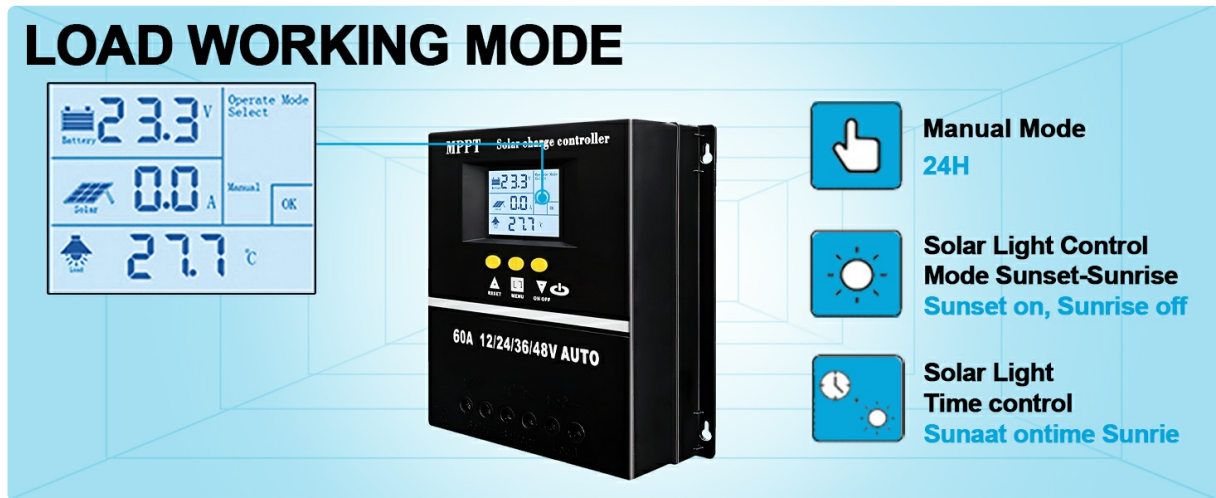


Figure 5.2: Digital control panel interface displaying various load working modes, including Manual Mode and Solar Light Control.

6. Maintenance

To ensure optimal performance and longevity of your Y&H Solar Charge Controller, regular maintenance is recommended:

- **Inspect Connections:** Periodically check all wiring connections for tightness and corrosion. Loose connections can lead to power loss or overheating.
- **Clean the Controller:** Keep the controller clean and free from dust and debris. Use a dry cloth to wipe the exterior. Do not use liquids or solvents.
- **Ventilation:** Ensure the installation area has adequate ventilation to prevent heat buildup. The heat sink on the back of the unit should not be obstructed.
- **Battery Inspection:** Regularly inspect your batteries for any signs of damage, swelling, or leakage. Ensure battery terminals are clean.
- **Software Updates:** Check the manufacturer's website for any available firmware updates to ensure your controller has the latest features and bug fixes.

7. Troubleshooting

If you encounter issues with your Y&H Solar Charge Controller, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
No display/Controller not powering on	Battery not connected or low voltage; faulty wiring.	Check battery connections and voltage. Ensure battery voltage is above the minimum operating threshold.
Battery not charging	Solar panel not connected; insufficient sunlight; faulty solar panel; incorrect battery type setting.	Verify solar panel connections. Check solar panel output. Ensure battery type setting matches your battery.

Problem	Possible Cause	Solution
Load not working	Load disconnected; load overcurrent; battery low voltage disconnect; incorrect load mode setting.	Check load connections. Reduce load if overcurrent. Charge battery. Adjust load working mode.
Overheating	Poor ventilation; excessive load.	Ensure adequate airflow around the controller. Reduce load if possible.

If the problem persists after trying these solutions, please contact Y&H customer support.

8. Specifications

Feature	Specification
Brand	Y&H
Model	SY6048
Current Rating	60A
System Voltage	12V/24V/36V/48V Auto Recognition
Material	Plastic
Color	Black
Display Type	LCD
USB Output	Dual 5V USB ports
Battery Compatibility	Seal, GEL, Flooded, LifePO4
Protection Features	Voltage protection, discharge current protection, charge protection, over-temperature protection
GTIN	716963493208, 716963493246

9. Warranty and Support

Y&H products are covered by a warranty. For technical assistance, troubleshooting, or any questions regarding your solar charge controller, please do not hesitate to contact our dedicated support team. Our engineers are available to provide advice and solutions to any issues you may encounter.

Please refer to your purchase documentation or the official Y&H website for specific warranty terms and contact information.