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› Y&H MPPT 80A Solar Charge Controller User Manual

Y&H SA8048-US

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Brand: Y&H | Model: SA8048-US

1. PRODUCT OVERVIEW

The Y&H MPPT 80A Solar Charge Controller is an intelligent regulator designed for solar power systems. It features advanced Maximum Power Point Tracking (MPPT) technology to efficiently charge 12V, 24V, 36V, and 48V battery systems. Equipped with a clear LCD display and dual USB charging ports, it offers comprehensive protection and versatile operating modes for various applications, including lead-acid and lithium batteries.



Figure 1: Front view of the Y&H MPPT 80A Solar Charge Controller, showing the LCD display and connection terminals.

2. KEY FEATURES

- **Advanced MPPT Technology:** Utilizes Maximum Power Point Tracking algorithm for tracking efficiency not less than 99.5%, significantly improving solar energy utilization.
- **Multi-Voltage Compatibility:** Automatic recognition for 12V, 24V, 36V, and 48V battery systems.
- **Dual USB Ports:** Includes two 5V USB charging ports for convenience.
- **Versatile Operating Modes:** Features 7 distinct operating modes: charging, light control, light control + time delay, universal control, manual control, and timing control.
- **Comprehensive Protection:** Built-in safeguards against battery over-voltage, over-current, power failure, overcharge, deep discharge, reverse connection, and overheat temperature.
- **Battery Type Compatibility:** Compatible with Seal, GEL, Flooded, and LifePO4 battery types.

- **Dynamic LCD Display:** Provides real-time operational data including working mode, battery voltage, PV charging current, battery discharging current, product working temperature, and delay time.
- **Enhanced Heat Dissipation:** Designed with increased radiator gear spacing for natural heat dissipation, contributing to improved charging efficiency.



Figure 2: Overview of key features including tracking efficiency, operating modes, and battery compatibility.

ADVANCED MPPT TECHNOLOGY



98%

High Tracking Efficiency

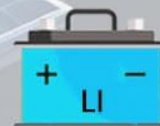


99%

Conversion Efficiency



MPPT CHARGING,
MODEPROLONG BATTERIES LIFECYCLE,
FITS ALL COMMON BATTERIES



With tracking efficiency reaching 98% and peak conversion efficiency at 99%. Rapid, efficient, and safe Charging Algorithm.

Figure 3: Diagram illustrating the high tracking and conversion efficiency of the advanced MPPT technology.

5 All-Around Protection

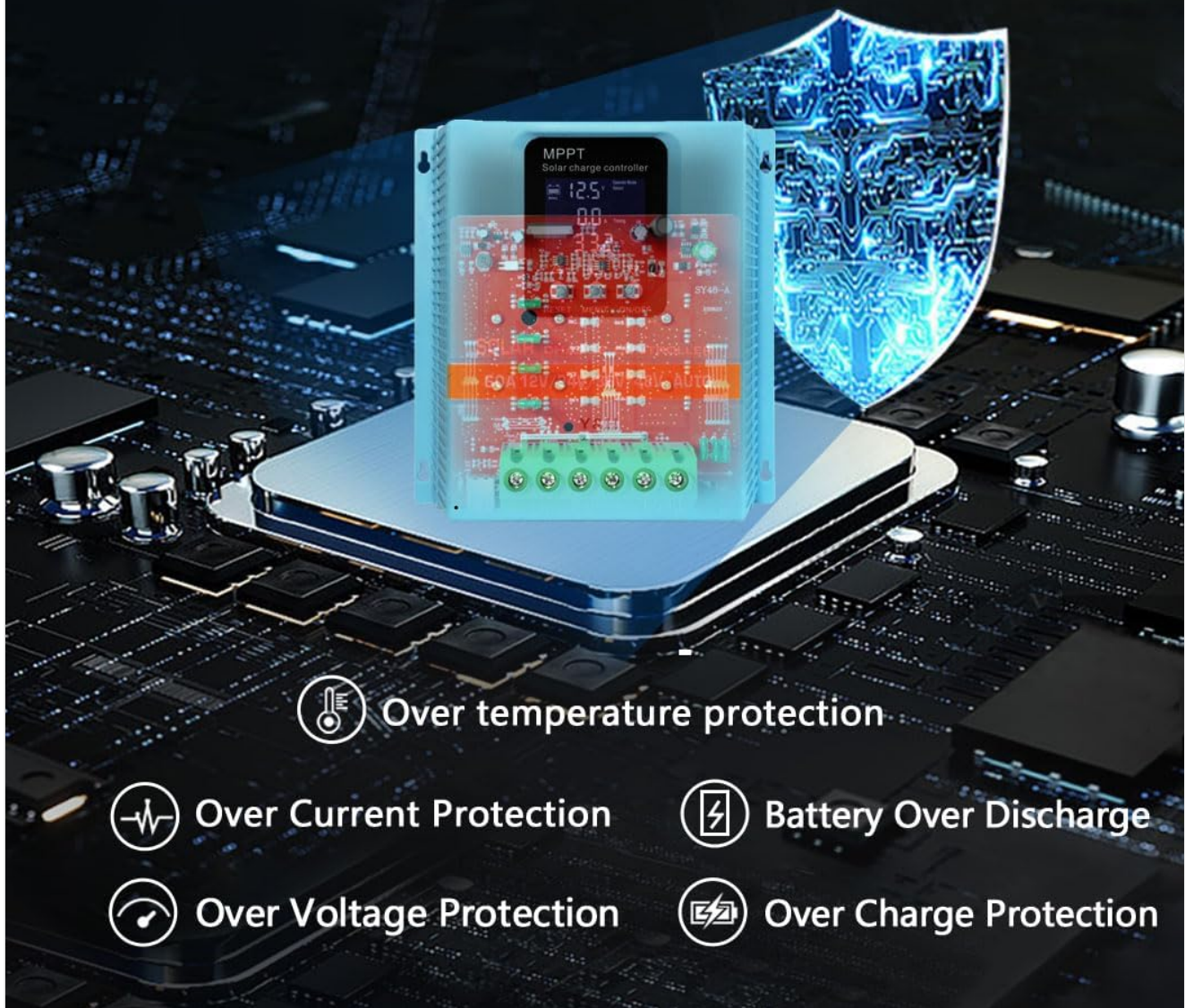


Figure 4: Visual representation of the five all-around protection features integrated into the controller.

3. SETUP AND INSTALLATION

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

1. **Prepare for Installation:** Ensure all components (solar panels, battery, load) are disconnected from power sources before beginning.
2. **Mount the Controller:** Choose a dry, well-ventilated location away from direct sunlight and moisture. Mount the controller vertically to allow for optimal heat dissipation.
3. **Connect the Battery:** **IMPORTANT: Connect the battery to the controller FIRST.** Ensure correct polarity (+ to + and - to -). The controller will automatically detect the battery voltage.
4. **Connect the Solar Panel Array:** After the battery is connected, connect the solar panel array to the controller. Ensure correct polarity. The controller will begin charging the battery.

5. **Connect the DC Load (Optional):** If using a DC load directly from the controller, connect it last. Ensure the load's voltage and current requirements are within the controller's specifications.

It is important to use appropriate cable sizes for all connections to ensure system safety and efficient operation. Refer to local electrical codes and guidelines for proper wiring practices.

Backlight LCD

The LCD is designed to dynamically display the operation data and working status of the equipment. Increase solar panel voltage visualization, user realtime understanding of pv input parameters.



- ① Battery work status display area
- ② The operating status of solar panel
- ③ Load output status and display areas of all parameters
- ④ Mode control display area
- ⑤ Normal and fault status display area

Figure 5: Connection diagram showing the sequence of connecting solar panel, battery, and DC load to the controller. Note the warning to connect the battery first.

Dimensions & Cables



It's very important for system safety and efficient operation to use appropriate cable for PV module connection. To reduce risk of injury, please use the proper recommended cable size as below.

Figure 6: Detailed view of the controller's wiring ports and the large heat sink designed for efficient heat dissipation.

4. OPERATING INSTRUCTIONS

The controller features an intuitive LCD display and control buttons for easy operation and monitoring.

4.1. LCD Display Overview

Easy wiring and excellent heat dissipation



Large ports make it easy to access cables, and a large heat sink keeps the device cooler for more efficient charging.



Figure 7: Detailed view of the LCD display and its various information areas.

- 1. Battery Work Status Display Area:** Shows current battery voltage and charge status.
- 2. Operating Status of Solar Panel:** Displays PV input parameters, including current and voltage from the solar array.
- 3. Load Output Status and Display Areas of All Parameters:** Shows load current, temperature, and other system parameters.
- 4. Mode Control Display Area:** Indicates the currently selected operating mode.
- 5. Normal and Fault Status Display Area:** Provides indicators for normal operation or error codes if a fault occurs.

4.2. Control Buttons

- **RESET Button:** Used to reset certain parameters or clear fault indicators.
- **MENU Button:** Navigates through different display screens and enters parameter setting mode.
- **UP Button:** Increases values or moves up in menu options.
- **DOWN/ON/OFF Button:** Decreases values, moves down in menu options, or toggles the DC load on/off.

4.3. Operating Modes

The controller supports 7 operating modes, selectable via the MENU button:

1. **Charging Mode:** Standard battery charging.
2. **Light Control Mode:** Load turns on at dusk and off at dawn.
3. **Light Control + Time Delay Control Mode:** Load turns on at dusk and stays on for a set duration.
4. **Universal Control Mode:** Load is always on.
5. **Manual Control Mode:** Load is controlled manually via the ON/OFF button.
6. **Timing Control Mode:** Load turns on and off based on pre-set timers.
7. *(Seventh mode not explicitly detailed in provided data, typically a test mode or similar)*

Refer to the on-screen menu for detailed parameter adjustments within each mode.

5. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your Y&H MPPT Solar Charge Controller.

- **Inspect Connections:** Periodically check all wiring connections (battery, solar panel, load) for tightness and corrosion. Loose connections can cause voltage drops and overheating.
- **Clean the Controller:** Keep the controller's exterior clean and free of dust. Ensure the heat sink fins are not obstructed to allow for proper air circulation and heat dissipation. Use a dry cloth for cleaning.
- **Monitor Performance:** Regularly check the LCD display for normal operation parameters (battery voltage, charging current, temperature). Note any unusual readings.
- **Check Battery Health:** Ensure your battery is in good condition and properly maintained according to its manufacturer's guidelines. A faulty battery can affect the controller's performance.
- **Environmental Check:** Ensure the installation environment remains dry and within the specified operating temperature range.

6. TROUBLESHOOTING

If you encounter issues with your solar charge controller, refer to the following common troubleshooting steps:

Problem	Possible Cause	Solution
Controller display is off or no power.	Battery not connected or reverse polarity; battery voltage too low; loose connection.	Ensure battery is connected correctly with proper polarity. Check battery voltage (must be above minimum operating voltage). Verify all battery connections are secure.
Battery not charging from solar panels.	Solar panel not connected or reverse polarity; insufficient sunlight; faulty solar panel; controller fault.	Check solar panel connections and polarity. Ensure panels are receiving adequate sunlight. Test solar panel output voltage. Monitor controller display for error codes.
Load not working.	Load not connected; load mode incorrect; battery voltage too low; overload protection activated.	Verify load connections. Check the controller's operating mode (e.g., ensure it's not in light control mode if you want it on during the day). Check battery voltage. Reduce load if overload protection is active.
Controller overheating.	Poor ventilation; excessive load; high ambient temperature.	Ensure adequate airflow around the controller. Reduce load if possible. Relocate controller to a cooler environment if ambient temperature is consistently high.

If the problem persists after following these steps, please contact customer support.

7. SPECIFICATIONS

Parameter	Value
Model Number	SA8048-US
Rated Charge Current	80A
System Voltage	12V/24V/36V/48V Auto
Max PV Input Voltage	100V
MPPT Tracking Efficiency	≥99.5%
Conversion Efficiency	Up to 97%
USB Output	Dual 5V ports
Dimensions (L x W x H)	19.5cm x 18.6cm x 6.5cm (7.68in x 7.32in x 2.56in)
Item Weight	1.7 pounds
Battery Types Supported	Seal, GEL, Flooded, LifePO4

Dimensions & Cables



It's very important for system safety and efficient operation to use appropriate cable for PV module connection. To reduce risk of injury, please use the proper recommended cable size as below.

Figure 8: Physical dimensions of the solar charge controller.

8. WARRANTY AND SUPPORT

For warranty information specific to your purchase, please refer to the terms and conditions provided by your retailer at the time of purchase. Y&H is committed to customer satisfaction.

If you have any questions, encounter difficulties, or require technical assistance, please reach out to the seller or Y&H customer support through the platform where the product was purchased. Providing your order details will help expedite the support process.

You can also visit the official Y&H store on Amazon for more information and resources: Y&H Amazon Store.