Y&H ME8048-SA

Y&H MPPT 80 Amp Solar Charge Controller User Manual

Model: ME8048-SA | Brand: Y&H

1. Introduction

This manual provides essential information for the safe and efficient operation of your Y&H MPPT 80 Amp Solar Charge Controller. This advanced controller utilizes Maximum Power Point Tracking (MPPT) technology to optimize solar energy harvesting, offering up to 99% tracking efficiency. It is designed for 12V, 24V, 36V, and 48V systems and is compatible with various battery types, including AGM, Gel, and Lithium batteries. Please read this manual thoroughly before installation and use.

2. Safety Information

- Ensure all wiring is correctly connected with proper polarity to prevent damage to the controller and connected devices.
- Always disconnect the solar panel and battery power before installing or adjusting the controller.
- Install the controller in a well-ventilated area, away from flammable gases and liquids.
- Do not disassemble or attempt to repair the controller yourself. Contact qualified personnel for service.
- Wear appropriate personal protective equipment, including eye protection, during installation.
- The controller can generate high voltages. Exercise extreme caution.

3. Product Overview

The Y&H MPPT 80 Amp Solar Charge Controller is designed for robust and efficient solar power management. Key features include:

- **High-Efficiency MPPT Technology:** Up to 99% tracking efficiency, significantly more efficient than traditional PWM controllers.
- **Smart System Compatibility:** Automatic recognition for 12V, 24V, 36V, and 48V battery systems.
- **Versatile Battery Support:** Compatible with AGM, Gel, and Lithium (LiFePO4/Li NiCoMn)O2 batteries.
- **Comprehensive Protection:** Built-in safeguards against overcharge, over-discharge, overload, short circuit, reverse polarity, and over-temperature (IP30 rated for -20°C to +55°C environments).
- **Intuitive LCD Display:** Provides real-time system status and allows for easy adjustment of settings.
- **Smart Load Management:** Features 20 Amp discharge capacity with four load control modes: Manual, Light Control, Light Control + Timer, and Reverse Control.

Component Identification

Figure 3.1: Front View. This image shows the front of the Y&H MPPT 80 Amp Solar Charge Controller, featuring the LCD screen displaying battery voltage and temperature, along with two blue control buttons and a temperature sensor indicator. The 'MPPT Solar Charge Controller' branding is visible at the bottom.

Figure 3.2: Bottom View with Terminals. This image displays the bottom of the solar charge controller, highlighting the various connection terminals for solar panels, battery, and load. A heat sink is visible below the terminals for efficient cooling.

Figure 3.3: Top View with Cooling Fan. This image shows the top of the controller, featuring a prominent cooling fan designed to dissipate heat and maintain optimal operating temperatures.

Figure 3.4: Back View. This image shows the rear of the controller, dominated by the large heat sink fins which are crucial for passive cooling and maintaining the device's performance.

4. Setup and Installation

Follow these steps for proper installation of the solar charge controller:

1. **Mounting:** Choose a cool, dry, and well-ventilated location. Mount the controller vertically on a wall or suitable surface, ensuring adequate clearance around the unit for airflow, especially around the heat sink.
2. **Battery Connection:** Connect the battery to the controller's battery terminals first. Ensure correct polarity (+ to + and - to -). The controller will automatically detect the battery voltage.
3. **Solar Panel Connection:** Connect the solar panels to the controller's PV input terminals. Again, observe correct polarity. The controller will begin charging the battery.

4. **Load Connection:** Connect your DC loads to the controller's load terminals. Ensure the total current draw of your loads does not exceed the controller's rated load current (20A).
5. **Verify Connections:** Double-check all connections for tightness and correct polarity before powering on the system.

Important: Always connect the battery first and disconnect the solar panel first when disassembling the system.

5. Operating Instructions

LCD Display and Navigation

The LCD screen displays real-time system parameters such as battery voltage, charging current, discharge current, battery temperature, and load status. Use the two blue buttons below the screen to navigate through the display menus and adjust settings.

- **Up Button:** Used to scroll through display screens or increase values during setting adjustments.
- **Down Button:** Used to scroll through display screens or decrease values during setting adjustments.
- **Long Press (Up/Down):** Enters or exits setting modes.

Battery Type Selection

The controller supports various battery types. It is crucial to select the correct battery type for optimal charging and battery longevity.

1. Long press the 'Up' button to enter the battery type setting menu.
2. Use the 'Up' or 'Down' buttons to select your battery type (e.g., GEL, AGM, FLOODED, LITHIUM).
3. Long press the 'Up' button again to confirm and exit the setting.

Load Control Modes

The controller offers four load control modes:

- **Manual Mode:** Load is turned on/off manually via the controller buttons.
- **Light Control Mode:** Load turns on automatically at dusk and off at dawn.
- **Light Control + Timer Mode:** Load turns on at dusk and stays on for a set number of hours.
- **Reverse Control Mode:** Load turns off at dusk and on at dawn (e.g., for security lights).

Refer to the on-screen menu for detailed adjustment of timer settings in Light Control + Timer mode.

6. Maintenance

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

- **Check Connections:** Periodically inspect all wiring connections for tightness and corrosion. Tighten any loose connections.
- **Clean the Controller:** Keep the controller clean and free from dust and debris. Use a dry cloth to wipe the exterior. Ensure the cooling fan and heat sink fins are not obstructed.
- **Monitor Performance:** Regularly check the LCD display for normal operation and system parameters. Note any unusual readings.
- **Battery Inspection:** Inspect batteries for any signs of damage, swelling, or leakage. Ensure battery terminals are clean.

7. Troubleshooting

Problem	Possible Cause	Solution

Problem	Possible Cause	Solution
No display on LCD	Battery not connected or low voltage	Check battery connections and ensure battery voltage is above minimum operating voltage.
Battery not charging	Solar panel not connected, low sunlight, or faulty panel/wiring	Check solar panel connections, ensure adequate sunlight, and inspect panel/wiring for damage.
Load not working	Load disconnected, overload, or incorrect load control mode	Check load connections, reduce load, or adjust load control mode settings.
Over-temperature alarm	Poor ventilation or high ambient temperature	Ensure proper ventilation around the controller. Relocate if ambient temperature is consistently too high.

8. Specifications

Feature	Specification
Model Number	ME8048-SA
Brand	Y&H
Max PV Input Power (12V)	1040W
Max PV Input Power (24V)	2080W
Max PV Input Power (36V)	3102W
Max PV Input Power (48V)	4160W
Max PV Input Voltage	150V
System Voltage	12V/24V/36V/48V Auto
Max Charge Current	80 Amp
Max Load Discharge Current	20 Amp
Tracking Efficiency	Up to 99%
Battery Compatibility	AGM, Gel, Flooded, Lithium (LiFePO4/Li NiCoMn)O2
Operating Temperature	-20°C to +55°C
Protection Rating	IP30
Product Dimensions	26 x 19 x 11 cm
Item Weight	2.36 kg
UPC	704334626942

9. Warranty and Support

Y&H provides professional and prompt technical assistance. If you have any questions or require support, please contact our team. We aim to respond with a solution within 24 hours.

For warranty information, please refer to the documentation included with your purchase or contact the seller directly.