Y&H WPE6048-DE

Y&H 60A 12V/24V/36V/48V PWM Solar Charge Controller User Manual

Model: **WPE6048-DE** | Brand: **Y&H**

1. Introduction

Thank you for choosing the Y&H 60A PWM Solar Charge Controller, Model WPE6048-DE. This device is designed to manage the power flow from your solar panels to your battery bank, ensuring efficient charging and protecting your batteries from overcharge and over-discharge. It is compatible with 12V, 24V, 36V, and 48V systems and supports various battery types including sealed, gel, flooded, and lithium batteries. Please read this manual thoroughly before installation and operation to ensure proper use and optimal performance.

2. Safety Instructions

Please observe the following safety precautions during installation and operation:

- Ensure all wiring is correctly connected and securely fastened to prevent loose connections that can cause excessive heat.
- Always connect the battery first, then the solar panel, and finally the load. Disconnect in the reverse order.
- Install the controller in a well-ventilated area, away from flammable materials and direct sunlight.
- Do not disassemble or attempt to repair the controller yourself. Contact qualified personnel for service.
- Use appropriate circuit breakers or fuses for all connections to protect against short circuits.
- Wear eye protection when working with batteries.
- Keep children away from the solar power system.

3. Product Features

The Y&H WPE6048-DE Solar Charge Controller offers a range of features for efficient and safe solar power management:

- **LCD Display:** Real-time display of battery power, voltage, current, charge/discharge status, and daily energy consumption statistics.
- **Multi-level Protection:** Includes undervoltage, overvoltage, overload, overcurrent, high temperature, and

short-circuit protection. Prevents reverse discharge and reverse connection for solar panels and batteries.

- **Adjustable Parameters:** Charge and discharge control parameters can be manually adjusted via buttons.
- **Multiple Operating Modes:** Supports 24-hour normal operation, light control mode, light control delay model, and light control with morning light.
- **Intelligent PWM Charging:** Optimizes battery charging for extended battery life.
- **Wide Battery Compatibility:** Suitable for sealed, gel, flooded, and lithium battery types.
- **0V Battery Activation:** Capable of operating from the solar panel even when battery voltage is 0V.
- **Integrated Temperature Probe:** For accurate temperature compensation during charging.
- **Backlit LCD Screen:** Ensures clear visibility of information.
- **Lightning Protection:** Provides limited protection against lightning strikes.
- **Dual USB Output:** Two 5V 2A USB interfaces for charging external devices.

Image Description: This image displays the Y&H solar charge controller with six icons illustrating its multiple protection features: heatsink over-temperature protection, reverse connection protection, natural convection cooling, overvoltage protection, short-circuit protection, and overload protection. It also mentions 'Lithium Battery Activation'.

4. Setup and Installation

Follow these steps for proper installation of your solar charge controller.

4.1 Wiring Connection Scheme

The diagram below illustrates the correct wiring sequence for the solar charge controller. Ensure all connections are made in the specified order to prevent damage to the controller or other components.

Image Description: This diagram shows the connection sequence for the solar charge controller. Solar panels are connected to the controller's input. The controller's output is connected to a battery bank. An inverter and a fan are shown as examples of loads connected to the battery. A table details maximum input power for 12V, 24V, 36V, and 48V systems, maximum input VOC (100V), and dimensions for models WPE3048, WPE6048, and WPE8048. Another table provides Max. DC output current, recommended wire diameter (AWG), and circuit breaker specifications for these models.

4.2 Connection Steps

1. **Connect the Battery:** Connect the battery to the controller's battery terminals. Ensure correct polarity (+ to + and - to -). The LCD screen will light up if the battery has sufficient charge.
2. **Connect the Solar Panel:** Connect the solar panel to the controller's solar panel terminals. 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.

Important: Always connect the battery first and disconnect it last. Incorrect wiring order can damage the controller.

4.3 Mounting

Mount the controller vertically on a flat, non-flammable surface. Allow sufficient clearance around the controller for proper ventilation and heat dissipation.

5. Operating Instructions

5.1 LCD Display Overview

The LCD provides real-time information about your solar system's status.

Image Description: This image highlights the information displayed on the controller's LCD screen. It shows icons and readings for the current charging mode (solar panel icon), the battery's current state (battery icon with charge level), and the load's ON/OFF status and state (light bulb icon).

- **Solar Panel Icon:** Indicates current charging mode.
- **Battery Icon:** Shows the battery's current charge level and voltage.
- **Load Icon:** Displays the ON/OFF status and current state of the connected load.
- **Numerical Values:** Show voltage, current, and other parameters.

5.2 Button Functions and Parameter Adjustment

The controller features several buttons for navigation and parameter settings. Refer to the specific button layout on your device.

- **Menu Button:** Press to cycle through display modes and enter setting menus.
- **Up/Down Buttons:** Used to adjust parameter values in setting menus.
- **Enter Button:** Confirms selections and saves parameter changes.
- **Load Control Button:** Manually turns the DC load ON or OFF.

To adjust parameters:

1. Press the Menu button until you reach the desired setting (e.g., battery type, charge voltage).
2. Use the Up/Down buttons to change the value.
3. Press the Enter button to save the new setting.

5.3 Battery Type Selection

The controller supports various battery types. Select the correct type for optimal charging.

Image Description: This image shows the Y&H solar charge controller alongside various battery icons, indicating compatibility with AGM, GEL, FLD (Flooded), LI (Lithium), and SLA (Sealed Lead-acid) battery types. It also highlights the auto-detection feature for 12V, 24V, 36V, and 48V systems.

- **Sealed:** For sealed lead-acid batteries.
- **Gel:** For gel batteries.
- **Flooded:** For flooded lead-acid batteries.
- **Li:** For lithium batteries.

Refer to your battery's specifications for the recommended charging parameters and select the corresponding battery type in the controller's settings.

6. Maintenance

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

- **Check Connections:** Periodically inspect all wiring connections for tightness and corrosion. Loose connections can cause voltage drops and overheating.

- **Clean the Controller:** Keep the controller clean and free from dust and debris. Use a dry cloth to wipe the surface. Do not use liquids or solvents.
- **Ventilation:** Ensure that the ventilation openings are not blocked to allow for proper heat dissipation.
- **Battery Inspection:** Regularly check your batteries for any signs of damage, leakage, or swelling. Ensure battery terminals are clean.

7. Troubleshooting

This section addresses common issues you might encounter with your solar charge controller.

Problem	Possible Cause	Solution
Controller display is off.	No battery connected, battery voltage too low, or reverse polarity.	Check battery connections and polarity. Ensure battery voltage is above the minimum operating voltage.
Battery not charging.	Solar panel not connected, solar panel voltage too low, reverse polarity, or insufficient sunlight.	Check solar panel connections and polarity. Ensure adequate sunlight. Verify solar panel voltage.
Load not working.	Load disconnected, load overcurrent, battery voltage too low, or load output disabled.	Check load connections. Reduce load if overcurrent. Charge battery. Enable load output via controller settings.
Controller overheating.	Poor ventilation, excessive load, or high ambient temperature.	Ensure proper ventilation. Reduce load. Relocate controller to a cooler environment if possible.

If the problem persists after attempting these solutions, please contact customer support.

8. Specifications

Key technical specifications for the Y&H WPE6048-DE Solar Charge Controller:

- **Model Number:** WPE6048-DE
- **Brand:** Y&H
- **Rated Current:** 60A
- **System Voltage:** 12V / 24V / 36V / 48V Auto-detection
- **Max. PV Input Voltage (VOC):** 100V
- **Max. Input Power (for WPE6048):**
  - 12V System: 720W
  - 24V System: 1080W
  - 36V System: 1920W
  - 48V System: 2880W
- **Battery Types:** Sealed, Gel, Flooded, Lithium
- **Display Type:** LCD
- **USB Output:** Dual 5V 2A
- **Product Dimensions (L x W x H):** 20 cm x 13 cm x 6 cm (7.87 in x 5.12 in x 2.36 in)

- **Weight:** 700 grams
- **GTIN/UPC:** 716963617796

Image Description: This composite image provides four detailed views of the Y&H solar charge controller. It shows the clarity of the LCD display, the overall dimensions (approximately 20cm long, 13.5cm wide, 6.5cm high), the location of the dual USB ports, and an internal view highlighting the die-cast aluminum heatsink for efficient cooling.

9. Warranty and Support

For warranty information and technical support, please refer to the documentation included with your purchase or contact Y&H customer service directly.

- **Customer Service:** For assistance, please visit the official Y&H website or contact the seller directly through your purchase platform.
- **Online Resources:** Additional support and FAQs may be available on the manufacturer's website.