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DEWIN 100A

DEWIN MPPT Solar Charge Controller 12V/24V/36V/48V, 100A User Manual

Model: 100A | Brand: DEWIN

1. Introduction

Thank you for choosing the DEWIN MPPT Solar Charge Controller. This device is designed to efficiently manage power flow from your solar panels to your battery bank, ensuring optimal charging and extending battery life. Utilizing advanced Maximum Power Point Tracking (MPPT) technology, it maximizes energy harvest from your solar array. This manual provides essential information for safe installation, operation, and maintenance of your solar charge controller.

2. Key Features

- **Advanced MPPT Technology:** Achieves up to 99% tracking efficiency and 98% power conversion efficiency, even under partial shading.
- **Intuitive LCD Display:** Provides clear, real-time operational status and allows for easy adjustment of charging and discharging parameters.
- **Robust Construction:** Features an aluminum alloy casing and a thickened heat sink for effective heat dissipation and durability.
- **Versatile Battery Compatibility:** Supports 12V, 24V, 36V, and 48V battery systems with automatic voltage identification. Compatible with sealed, open, gel, and lithium batteries.
- **Intelligent 3-Stage Charging:** Includes float charge, constant current charge, and constant voltage charge modes for optimized battery protection.
- **Multiple Protection Functions:** Incorporates safeguards against overcharge, over-discharge, over-voltage, low-voltage, reverse polarity, and short circuits.
- **Dual USB Output:** Equipped with two 5V 1A USB ports for charging external devices.

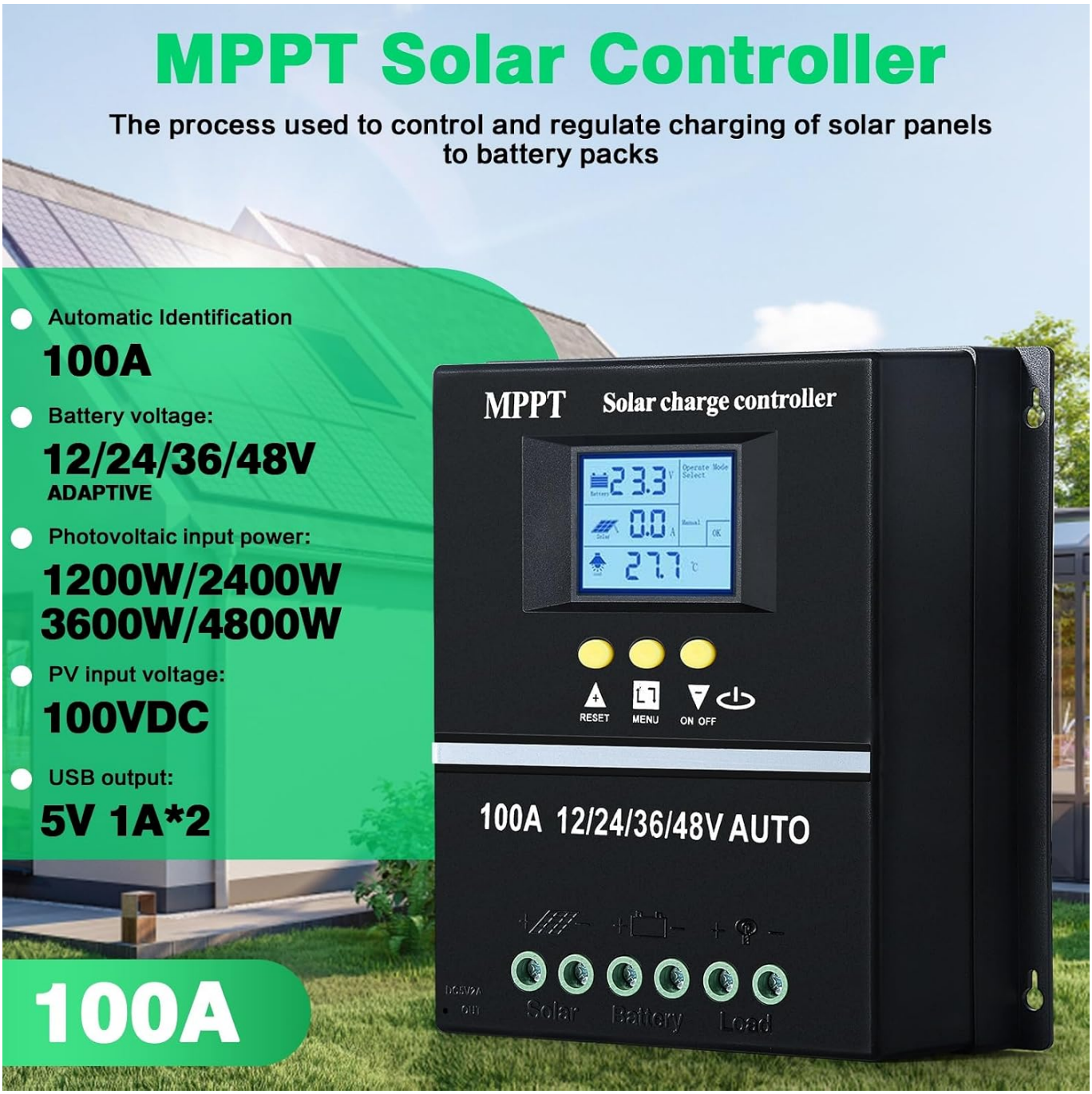


Figure 2.1: Front view of the DEWIN MPPT Solar Charge Controller highlighting key specifications.

3. Safety Instructions

Please read all instructions carefully before installation and operation. Failure to follow these instructions may result in damage to the unit, personal injury, or property damage.

- Ensure all connections are tight and correct to avoid excessive voltage drop and poor connection.
- Install the controller indoors, away from direct sunlight, high temperatures, and water.
- The controller generates heat during operation; ensure adequate ventilation.
- Connect the battery first, then the solar panel, and finally the load. Disconnect in the reverse order.
- Do not connect any other battery types not specified (e.g., nickel-metal hydride batteries).
- Ensure the solar panel's open-circuit voltage (Voc) does not exceed the controller's maximum input voltage (100VDC).
- Use appropriate circuit breakers or fuses for all connections.



Figure 3.1: Overview of the multiple protection features integrated into the solar charge controller.

4. Package Contents

Upon unpacking, please verify that all items listed below are present and undamaged:

- 1 x DEWIN MPPT Solar Charge Controller (Model 100A)
- 1 x User Manual

5. Setup and Installation

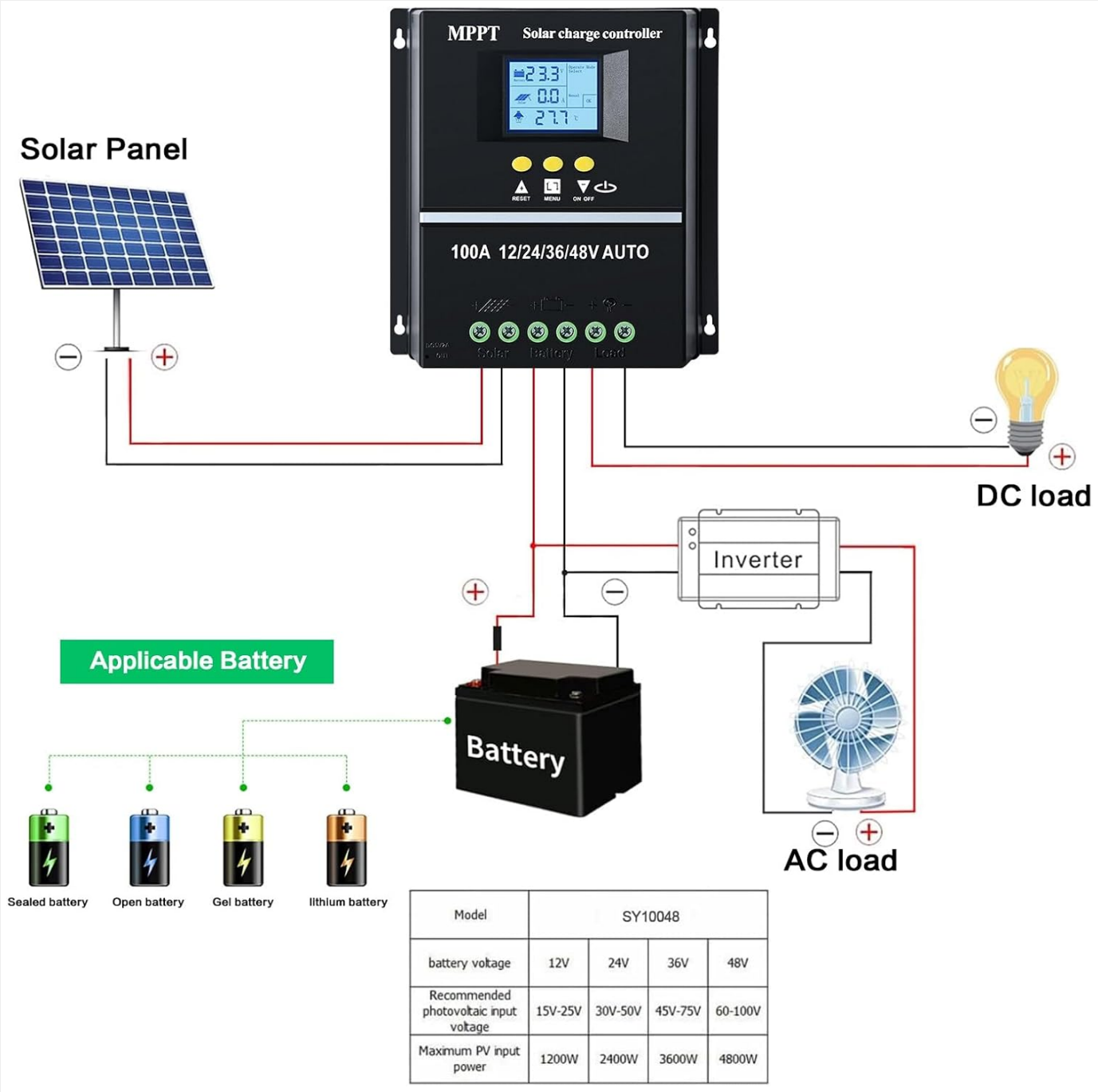
Follow these steps for proper installation. Ensure all power sources are disconnected before making any connections.

1. **Mounting:** Choose a suitable location for the controller. It should be mounted vertically on a wall or panel, ensuring good air circulation for heat dissipation. Avoid direct sunlight, high temperatures, and humid environments.
2. **Battery Connection:** Connect the battery to the controller's battery terminals (+ and -). Ensure correct polarity. The

controller will automatically detect the battery voltage (12V/24V/36V/48V).

3. **Solar Panel Connection:** Connect the solar panel to the controller's solar panel terminals (+ and -). Ensure correct polarity. The controller will begin charging the battery.
4. **Load Connection:** Connect the DC load to the controller's load terminals (+ and -). Ensure correct polarity. The load can be controlled via the controller's settings.
5. **USB Output:** The dual USB ports can be used to charge 5V USB devices.

Important: Always connect the battery first, then the solar panel, and finally the load. Disconnect in the reverse order: load, then solar panel, then battery.



Model	SY10048			
battery voltage	12V	24V	36V	48V
Recommended photovoltaic input voltage	15V-25V	30V-50V	45V-75V	60-100V
Maximum PV input power	1200W	2400W	3600W	4800W

Figure 5.1: Wiring diagram for the solar charge controller.



Figure 5.2: Connection ports on the DEWIN MPPT Solar Charge Controller.

6. Operating Instructions

The controller features an LCD display and three buttons for operation and parameter adjustment.

6.1. LCD Display

The LCD screen displays real-time information about the system's status, including battery voltage, charging current, discharging current, and temperature.



Figure 6.1: LCD screen and control buttons.

6.2. Button Functions

- **RESET (Up Arrow):** Used to navigate menus upwards or increase parameter values. Press and hold for 5 seconds to enter manual load control mode.
- **MENU (Middle Button):** Used to enter the menu, confirm selections, or cycle through display screens.
- **ON/OFF (Down Arrow):** Used to navigate menus downwards or decrease parameter values. Also used to manually turn the load on/off in certain modes.

6.3. Parameter Adjustment

To adjust parameters:

1. Press the **MENU** button to enter the parameter setting interface.
2. Use the **RESET** (Up) and **ON/OFF** (Down) buttons to navigate through different parameters.

3. Press **MENU** again to select a parameter for editing. The value will start blinking.
4. Use the **RESET** (Up) and **ON/OFF** (Down) buttons to change the value.
5. Press **MENU** to confirm the new value and exit the editing mode for that parameter.
6. Press and hold **MENU** to exit the parameter setting interface.

7. Load Working Modes

The controller offers various load working modes to suit different application needs. These modes determine when the connected DC load will be powered.

- **Charging Mode:** In this mode, the load output is always off. The controller focuses solely on charging the battery.
- **Light Control Mode:** The controller detects nightfall and turns on the load after a 10-minute delay. It turns off the load when it detects daylight, also after a 10-minute delay.
- **Light and Time Delay Control Mode:** Similar to Light Control Mode, but with an added timer. After detecting nightfall and the 10-minute delay, the load turns on and a countdown timer begins. The load will turn off when the timer reaches zero, or when daylight is detected. The maximum timer setting is 23 hours and 59 minutes.
- **Universal Control Mode (Default):** The load output is continuously on, provided there are no protection events (e.g., low battery voltage).
- **Test Mode:** Similar to Light and Time Delay Control Mode but without the 10-minute delay.
- **Manual Mode:** The load output can be manually controlled (on/off) by pressing and holding the**RESET** (Up Arrow) button for 5 seconds. Be cautious when using this mode, as it can lead to battery over-discharge if not monitored.



Figure 7.1: Load working mode selection on the LCD display.

8. Maintenance

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

- **Inspect Connections:** Periodically check all wiring connections for tightness and corrosion. Loose connections can cause overheating and damage.
- **Clean the Controller:** Keep the controller clean and free of dust and debris. Use a dry cloth to wipe the exterior. Do not use liquids or solvents.
- **Check Ventilation:** Ensure that the heat sink fins are not obstructed to allow for proper heat dissipation.
- **Monitor System Performance:** Regularly check the LCD display for normal operation and battery status.

9. Troubleshooting

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

Problem	Possible Cause	Solution
Controller display is off.	No battery connected or battery voltage is too low.	Connect the battery. Ensure battery voltage is above the minimum operating voltage.
Battery not charging.	Solar panel not connected, reverse polarity, or insufficient sunlight.	Check solar panel connections and polarity. Ensure adequate sunlight. Verify solar panel voltage.
Load not working.	Load disconnected, reverse polarity, battery voltage too low, or load mode setting.	Check load connections and polarity. Ensure battery is sufficiently charged. Adjust load working mode settings.
Controller overheating.	Poor ventilation or excessive load/charging current.	Ensure adequate airflow around the controller. Reduce load or check system sizing.

10. Specifications

Parameter	Value

Parameter	Value
Rated Charge Current	100 A
Rated Output Current	50 A
USB Output	5 V 1 A x 2
Max Solar Input Voltage	100 VDC
System Voltage	12 V / 24 V / 36 V / 48 V (Automatic Identification)
Max Battery Panel Input Power	1200 W (12V) / 2400 W (24V) / 3600 W (36V) / 4800 W (48V)
Applicable Batteries	Sealed, Open, Gel, Lithium
Conversion Efficiency	≤ 98 %
MPPT Tracking Efficiency	> 99 %
Cooling Method	Self-cooling heat sink
Operating Ambient Temperature	0 - 40 °C
Dimensions (L x W x H)	19.5 x 17.2 x 6.8 cm
Material	Aluminum alloy casing

11. Warranty and Support

For warranty information or technical support, please contact your retailer or the manufacturer directly. Keep your purchase receipt as proof of purchase.

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