DEWIN B0CLGSBLB9

DEWIN 12V/24V/36V/48V 40A PWM Solar Charge Controller User Manual

Model: B0CLGSBLB9

1. Introduction

The DEWIN PWM Solar Charge Controller is an advanced electronic device designed to manage the power flow from solar panels to battery banks. It ensures efficient and safe charging, extending battery life and optimizing solar energy utilization. This controller is suitable for various applications, including solar power generation systems, street lights, solar chargers, solar light boxes, and recreational vehicles (RVs).
This manual provides comprehensive instructions for the installation, operation, maintenance, and troubleshooting of your solar charge controller. Please read it thoroughly before use to ensure proper functionality and safety.

2. Safety Instructions

Always observe the following safety precautions to prevent personal injury or damage to the controller and other components:

- Ensure all connections are correct and secure before applying power. Incorrect wiring can cause damage.
- Do not attempt to disassemble or repair the controller yourself. Refer to qualified personnel for service.
- Install the controller in a well-ventilated area, away from flammable materials and direct sunlight.
- Wear appropriate personal protective equipment (PPE), such as gloves and eye protection, when working with batteries and electrical systems.
- Ensure the battery voltage matches the controller's supported voltage range (12V/24V/36V/48V auto-identification).
- Disconnect all power sources (solar panel and battery) before installing or moving the controller.
- Keep children away from the solar power system.

3. Product Overview

The DEWIN PWM Solar Charge Controller features a robust design with an aluminum alloy radiator for efficient heat dissipation and a flame-retardant PC material shell for durability.

3.1 Key Features

- **Automatic Voltage Identification:** Automatically detects 12V, 24V, 36V, and 48V battery systems.
- **Wide Battery Compatibility:** Suitable for ternary lithium batteries, lithium iron phosphate batteries, gel batteries, sealed batteries, and open batteries.

- **LCD Display with Backlight:** Shows charging/discharging current, accumulated power generation, discharge power, and more.
- **User-Friendly Interface:** Easy-to-operate buttons for parameter adjustment.
- **Multiple USB Ports:** Four 5V/2A USB outputs for charging mobile phones, tablets, and PCs.
- **Intelligent 3-Stage Charging:** Boost charging, trickle charging, and strong charging modes for optimal battery protection.
- **4 Load Modes:** Full day mode, light control mode, reverse light control mode, and dual time period control mode.
- **Comprehensive Protections:** Low voltage, temperature, overvoltage, overcurrent, reverse polarity, and short circuit protection.

3.2 Components



Figure 3.1: Front view of the DEWIN PWM Solar Charge Controller. This image shows the main unit with its central LCD screen, control buttons below the screen, and four USB ports (two on each side). The robust black casing with an orange faceplate is visible.



Figure 3.2: Detailed view of the controller's features. This image highlights the high-definition LCD screen, the durable ABS engineering plastic shell, and the dual USB interfaces, emphasizing their 2A output capability.

4. Setup and Installation

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

4.1 Mounting the Controller

- Choose a dry, well-ventilated location, protected from direct sunlight, high temperatures, and moisture.
- Mount the controller vertically on a wall or stable surface to allow for proper heat dissipation.
- Ensure there is sufficient clearance around the controller for air circulation.

4.2 Wiring Diagram and Connection Order

Follow the wiring diagram below. It is critical to connect components in the specified order to prevent damage to the controller or battery.



Figure 4.1: PWM Solar Controller Wiring Diagram. This diagram illustrates the correct connection sequence: solar panels to controller, battery to controller, and load to controller. It also specifies maximum PV input for different battery system voltages.

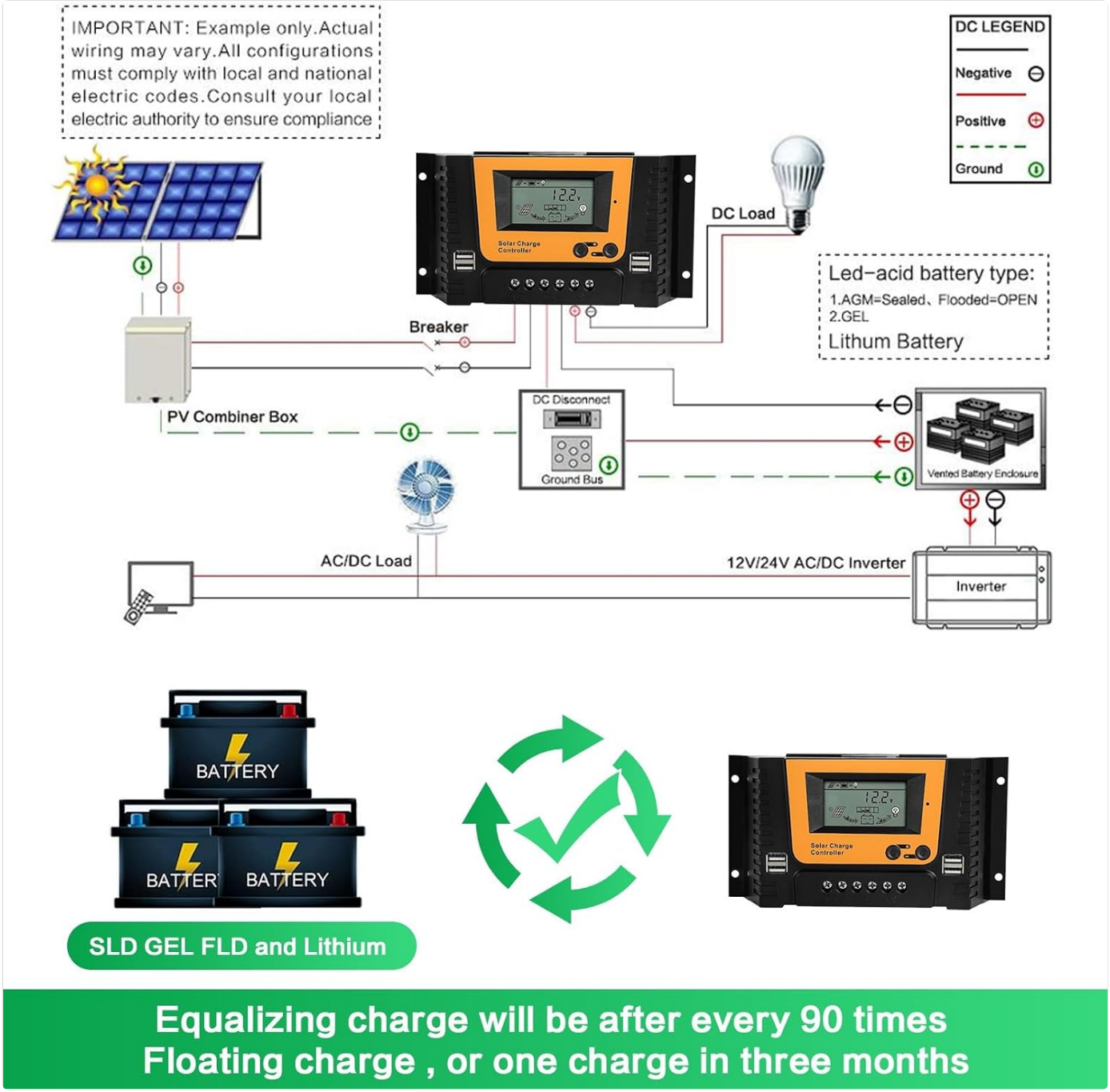


Figure 4.2: Comprehensive Solar System Wiring Diagram. This diagram provides a more detailed view of a solar power system, including the solar panels, PV combiner box, DC disconnect, charge controller, battery bank, and AC/DC load with an inverter. It also includes a legend for DC connections (negative, positive, ground).

4.3 Connection Steps

1. **Connect the Battery:** First, connect the battery to the controller's battery terminals (positive to positive, negative to negative). The controller will automatically detect the battery voltage. Ensure the battery is charged enough for the controller to recognize it (minimum 8V).
2. **Connect the Solar Panel:** Next, connect the solar panel to the controller's solar panel terminals (positive to positive, negative to negative). The controller will begin charging the battery.
3. **Connect the Load:** Finally, connect the DC load to the controller's load terminals (positive to positive, negative to negative). Do not connect an inverter directly to the load terminals; connect it directly to the battery.

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.

5. Operating Instructions

The controller's LCD display and buttons allow you to monitor system status and adjust parameters.

5.1 LCD Display and Button Functions



Figure 5.1: Machine Interface Introduction. This image displays a sequence of screens on the controller's LCD, illustrating various parameters such as battery voltage, controller temperature, charging voltage, accumulated power, discharge current, battery type selection, and DC output modes. It also shows specific voltage settings for lead-acid and lithium batteries.

Use the buttons below the LCD to navigate through different display screens and adjust settings. Press the left button to cycle through display modes, and the right button to enter setting mode or confirm selections.

5.2 Battery Type Selection

The controller supports various battery types. Ensure you select the correct battery type for optimal charging and battery longevity.

Product information



Product name:	PWM solar controller	Maximum input power:	260W/520W/780W/1040W
Material:	PC environmentally Friendly material	Self-loss:	⩽30mA
Charging control mode:	PWM	USB output:	5V/2A*4
Maximum open circuit Voltage of components:	100V	Working environment Temperature:	-20~+55℃
Rated charging current:	40A	Protection level:	IP32
Battery voltage:	12V/24V/36V/48V automatic identification	Humidity:	95% no condensation

Figure 5.2: Supported Battery Types. This image visually represents the controller's compatibility with GEL, SLD (Sealed Lead Acid), FLD (Flooded Lead Acid), USR (User-defined), and Lithium battery types, each with a distinct icon.

To change the battery type, navigate to the battery type setting screen using the buttons and select the appropriate type for your battery. Refer to Figure 5.1 for visual guidance on navigating the interface.

5.3 Charging Modes

The controller employs an intelligent 3-stage PWM charging algorithm:

- **Boost Charging:** Charges the battery at a higher current to quickly bring it to full capacity.
- **Strong Charging:** Continues charging at a steady rate until the battery reaches its absorption voltage.
- **Trickle Charging (Float):** Maintains the battery at a full charge by providing a small, constant current, preventing overcharging.

5.4 Load Control Modes

The controller offers four distinct load control modes for managing connected DC loads:

- **Full Day Mode:** The load remains ON 24 hours a day.

- **Light Control Mode:** The load turns ON automatically at dusk and OFF at dawn.
- **Reverse Light Control Mode:** The load turns OFF automatically at dusk and ON at dawn (less common, for specific applications).
- **Dual Time Period Control Mode:** Allows setting two distinct time periods for the load to be ON (e.g., dusk for X hours, then again for Y hours before dawn).

To select a load mode, navigate to the load mode setting screen on the LCD and choose the desired option.

6. Maintenance

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

- **Cleaning:** Periodically clean the controller's casing with a dry cloth. Do not use wet cloths or solvents. Ensure ventilation openings are free from dust and debris.
- **Connection Checks:** Annually, inspect all wiring connections to ensure they are tight and free from corrosion. Loose connections can cause overheating and poor performance.
- **Environmental Check:** Ensure the installation environment remains dry and well-ventilated. Address any signs of moisture or excessive heat immediately.
- **Battery Inspection:** Regularly check your battery's condition as per the battery manufacturer's guidelines.

7. Troubleshooting

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

7.1 Common Issues and Solutions

Problem	Possible Cause	Solution
Controller display is off.	Battery not connected or voltage too low; reverse polarity.	Check battery connections and voltage (must be >8V). Correct polarity.
Battery not charging.	Solar panel not connected; insufficient sunlight; solar panel reverse polarity; faulty solar panel.	Check solar panel connections and polarity. Ensure adequate sunlight. Test solar panel output.
Load is not working.	Load not connected; load reverse polarity; battery voltage too low; load mode setting incorrect; load overcurrent.	Check load connections and polarity. Check battery voltage. Adjust load mode. Reduce load or check for short circuit.
Controller overheating.	Poor ventilation; excessive load/charging current.	Ensure proper airflow around the controller. Reduce load or check system sizing.

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

8. Specifications

Detailed technical specifications for the DEWIN PWM Solar Charge Controller.

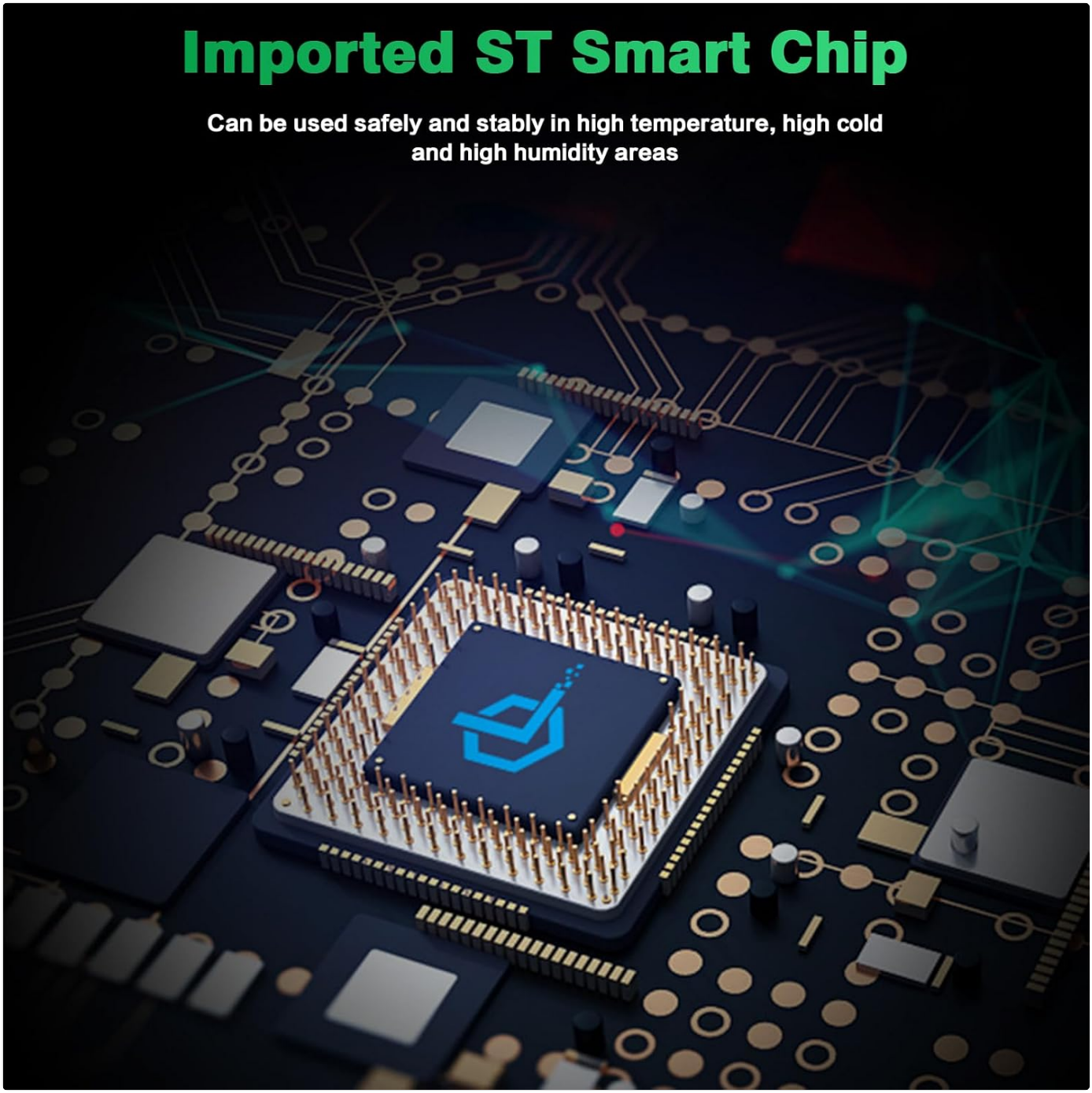


Figure 8.1: Product Information Table. This image provides a comprehensive table of the controller's specifications, including physical dimensions, material, charging control mode (PWM), maximum open circuit voltage (100V), rated charging current (40A), automatic battery voltage identification (12V/24V/36V/48V), maximum input power (up to 1040W for 48V), self-loss, USB output (5V/2A*4), working temperature range (-20°C to +55°C), IP32 protection level, and humidity tolerance (95% no condensation).

Parameter	Value
Product Name	PWM Solar Controller
Material	PC Environmental Friendly Material
Charging Control Mode	PWM
Maximum Open Circuit Voltage of Components	100V
Rated Charging Current	40A
Battery Voltage	12V/24V/36V/48V Automatic Identification

Parameter	Value
Maximum Input Power (12V System)	520W
Maximum Input Power (24V System)	780W
Maximum Input Power (36V System)	1040W
Maximum Input Power (48V System)	1040W
Self-loss	<30mA
USB Output	5V/2A*4
Working Environment Temperature	-20℃ ~ +55℃
Protection Level	IP32
Humidity	95% No Condensation
Dimensions (Approx.)	200mm x 100mm x 50mm

9. Warranty and Support

DEWIN products are manufactured to high-quality standards and are backed by a manufacturer's warranty against defects in materials and workmanship. Please refer to your purchase documentation for specific warranty terms and duration.
For technical support, troubleshooting assistance, or warranty claims, please contact your retailer or DEWIN customer service.
Have your product model number (B0CLGSBLB9) and purchase date ready when contacting support.
For more information, visit the official DEWIN website or contact their support channels as provided with your product packaging.

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