

## Electronic Spices W88-B

# Electroni Spices W88-B 20A Solar Charger Controller User Manual

Model: W88-B

## 1. INTRODUCTION

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The Electronic Spices W88-B 20A Solar Charger Controller is designed to efficiently manage the charging and discharging of 12V/24V solar power systems. This controller optimizes battery performance and extends battery life by preventing overcharging, over-discharging, and short circuits. It features dual USB ports for charging mobile devices and other USB-powered gadgets directly from the solar system. Utilizing intelligent PWM charging technology, it enhances energy conversion efficiency, making it suitable for off-grid solar setups, RVs, boats, and small solar installations. The user-friendly LCD display provides real-time data for effective monitoring and management. Constructed with durable and heat-resistant materials, the W88-B controller offers reliable long-term performance in various environmental conditions.

## 2. KEY FEATURES

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- **Model:** W88-B
- **Rated Voltage:** 12V/24V automatic identification
- **Rated Current:** 20A
- **Max. PV Voltage:** 50V
- **Max. PV Input Power:** 130W (for 12V system) / 260W (for 24V system)
- **Display Type:** LCD/LED display for real-time monitoring
- **Charging Technology:** PWM battery charging
- **USB Ports:** Dual USB ports for device charging
- **Protection Features:** Overcharging, over-discharging, short circuit, over-current, over-voltage, overheating, and lightning protection.
- **Battery Compatibility:** Suitable for lead-acid battery, lithium iron battery, lithium battery.
- **Material:** Durable plastic and metal construction.

### 3. PRODUCT OVERVIEW AND DIMENSIONS

The W88-B solar charge controller features a compact design with clearly labeled terminals and an intuitive LCD display. Below are images illustrating the product's appearance and its key dimensions.



Figure 3.1: Front view of the Electroni Spices W88-B Solar Charge Controller, showing the LCD display, control buttons, USB ports, and terminal connections.



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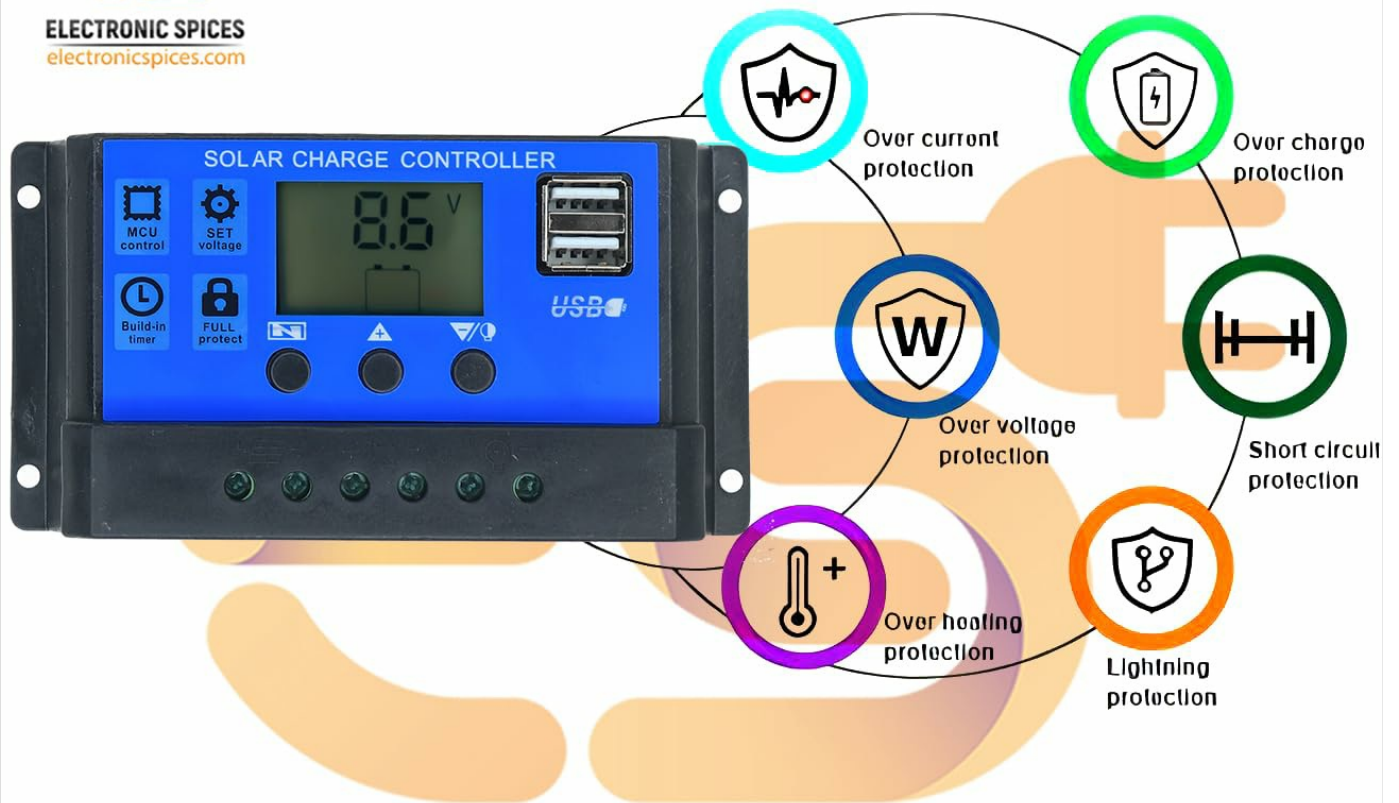


Figure 3.2: Dimensions of the W88-B Solar Charger Controller, indicating a length of 131 mm and a width of 69 mm.

#### 4. SAFETY INFORMATION AND PROTECTION FEATURES

Always observe safety precautions when working with electrical systems. Ensure all connections are secure and correct before applying power. The W88-B controller incorporates multiple protection features to ensure safe operation of your solar system:

- **Over Current Protection:** Prevents damage from excessive current flow.
- **Over Charge Protection:** Stops charging when the battery is full to prevent overcharging.
- **Short Circuit Protection:** Automatically disconnects in case of a short circuit.
- **Over Voltage Protection:** Protects against damage from excessively high voltage.
- **Over Heating Protection:** Shuts down if internal temperature exceeds safe limits.
- **Lightning Protection:** Offers defense against lightning strikes.



- 1: Three-stage PWM regulation charging
- 2: Suitable for lead acid battery, lithium iron battery, lithium battery
- 3: Solar control and time control
- 4: Double MOS Anti - flooding circuit, ultra low heating

Figure 4.1: Visual representation of the various protection features integrated into the W88-B Solar Charger Controller.

## 5. SETUP AND INSTALLATION

Proper installation is crucial for the optimal performance and longevity of your solar charge controller. Follow these steps carefully:

1. **Connect Battery First:** Connect the battery to the charge controller. Ensure correct polarity (+ to + and - to -). The controller will detect the battery voltage (12V or 24V) automatically.
2. **Connect Solar Panels:** Connect the solar panels to the charge controller. Again, observe correct polarity.
3. **Connect DC Load (Optional):** Connect your DC load (e.g., DC lights) to the load terminals of the controller.
4. **Connect Inverter (Optional):** If using an inverter for AC loads, connect it to the battery terminals (not directly to the controller's load terminals).

**Important:** Always connect the battery to the controller first, then the solar panels, and finally the load. Disconnect in the reverse order: load, then solar panels, then battery.

## System Connection Diagram

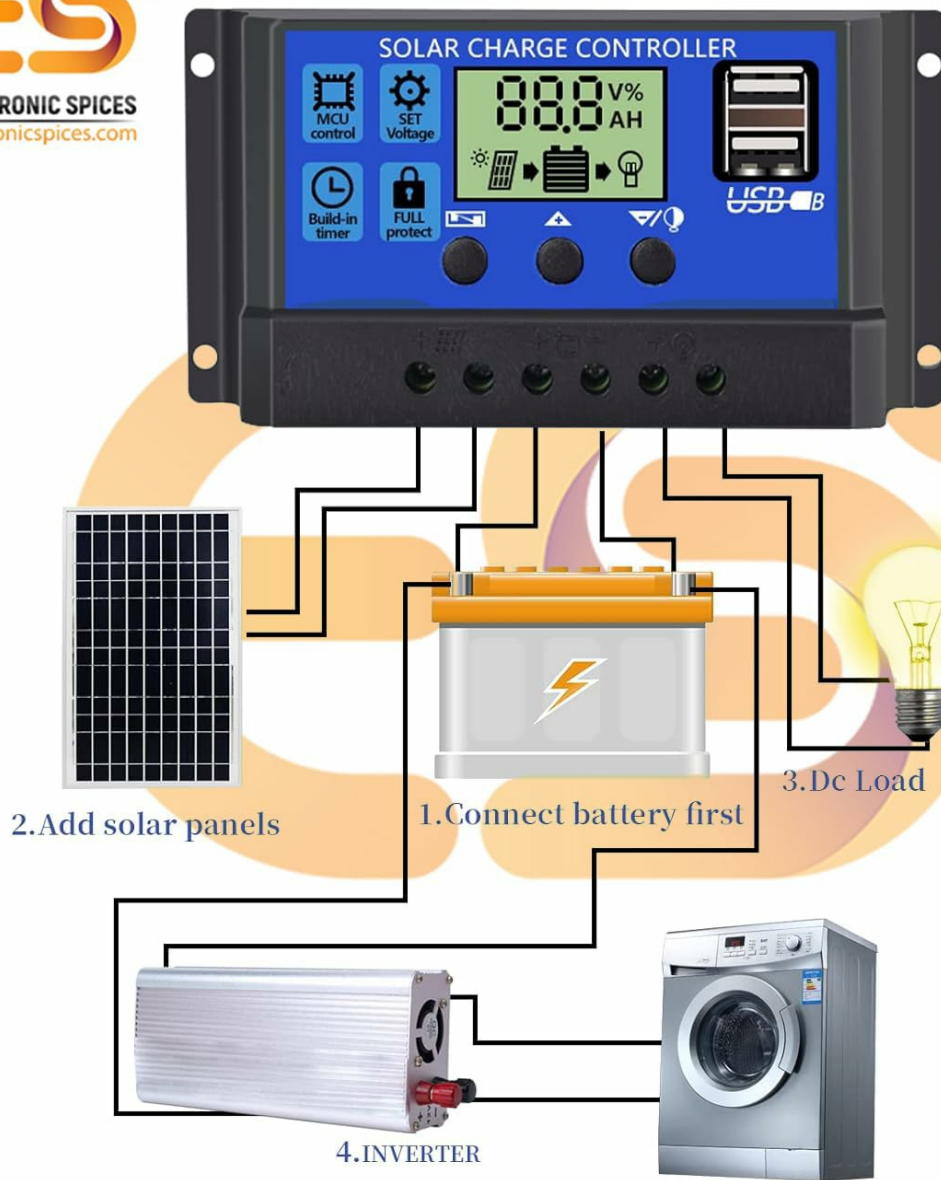


Figure 5.1: System connection diagram illustrating the proper sequence for connecting the battery, solar panels, DC load, and inverter to the solar charge controller.



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## A QUICK VISUAL CONNECTION GUIDELINE

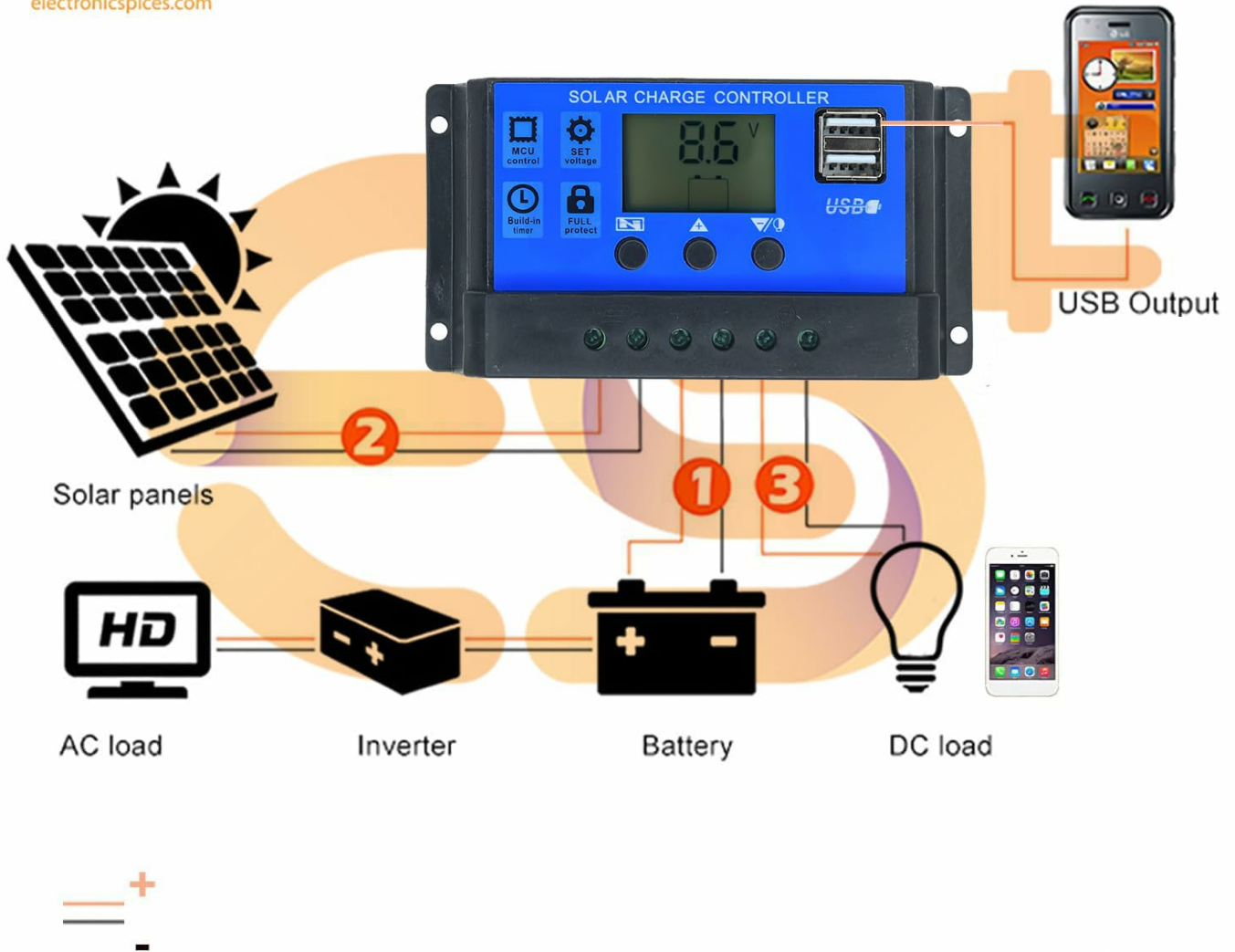


Figure 5.2: A quick visual guide for connecting the solar panels, battery, and DC load to the W88-B controller.

## 6. OPERATING INSTRUCTIONS

The W88-B controller features an LCD display that provides real-time information about your solar system's status.



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Figure 6.1: Explanation of the digital display on the W88-B controller, showing indicators for solar panel charge, battery status, and load output.

## 6.1. Display Modes

The LCD cycles through various display modes automatically. You can also manually cycle through them using the control buttons. Common displays include:

- **Battery Voltage:** Shows the current voltage of the connected battery.
- **Solar Panel Charge Status:** Indicates if the solar panels are actively charging the battery.
- **Load Output Status:** Shows if the load output is active or inactive.

## 6.2. Control Buttons

The controller has three buttons for navigation and setting adjustments:

- **Menu Button:** Used to enter and exit setting modes.
- **Up Button:** Used to increase values or navigate upwards in menus.

- **Down Button:** Used to decrease values or navigate downwards in menus.

Refer to the specific icons on the controller for functions like MCU control, set voltage, build-in timer, and full protect indicators.

## 7. MAINTENANCE

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To ensure the long-term reliability and performance of your W88-B solar charge controller, follow these maintenance guidelines:

- **Regular Cleaning:** Keep the controller clean and free from dust and debris. Use a soft, dry cloth for cleaning.
- **Check Connections:** Periodically inspect all wiring connections to ensure they are tight and free from corrosion. Loose connections can lead to power loss or overheating.
- **Ventilation:** Ensure the controller is installed in a well-ventilated area to prevent overheating. Do not block the ventilation holes.
- **Environmental Conditions:** While designed for durability, avoid exposing the controller to extreme moisture or direct sunlight for prolonged periods if not rated for such exposure.
- **Battery Health:** Monitor your battery's health regularly. A failing battery can impact the controller's performance.

## 8. TROUBLESHOOTING

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If you encounter issues with your W88-B solar charge controller, refer to the following common problems and their solutions:

| Problem                       | Possible Cause  | Solution   |
|-------------------------------|---|--|
| <b>No display or power</b>    | Battery not connected or low voltage; reversed polarity; loose connection.                          | Check battery connections and voltage. Ensure correct polarity. Tighten all terminals.                 |
| <b>Battery not charging</b>   | Solar panels not connected; insufficient sunlight; faulty solar panel; controller fault.            | Check solar panel connections. Ensure panels are receiving adequate sunlight. Test solar panel output. |
| <b>Load not working</b>       | Load disconnected; battery voltage too low (low voltage disconnect); overload protection activated. | Check load connections. Charge battery. Reduce load or check for short circuit in load.                |
| <b>Controller overheating</b> | Poor ventilation; excessive load; short circuit.  | Ensure adequate airflow around the controller. Reduce load. Check for short circuits in the system.    |

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

## 9. SPECIFICATIONS

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| Parameter     | Value          |
|---------------|----------------|
| Model         | W88-B          |
| Rated Voltage | 12V/24V (Auto) |
| Rated Current | 20A            |

| Parameter                 | Value            |
|---------------------------|------------------|
| Max. PV Voltage           | 50V              |
| Max. PV Input Power (12V) | 130W             |
| Max. PV Input Power (24V) | 260W             |
| Display Type              | LCD/LED          |
| Charging Port Type        | USB (Dual)       |
| Item Weight               | 150 Grams        |
| Dimensions (LxW)          | 13.1 cm x 6.9 cm |
| Material                  | Plastic, Metal   |
| Color                     | Blue             |
| Country of Origin         | India            |

## 10. WARRANTY AND SUPPORT

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This product is manufactured by Electronic Spices. For any technical assistance, troubleshooting beyond this manual, or warranty inquiries, please contact Electronic Spices customer support. Please have your product model number (W88-B) and purchase details ready when contacting support.

**Manufacturer:** Electronic Spices

**Contact Information:** Refer to the contact details provided with your purchase or visit the official Electronic Spices website for the most up-to-date support information.

