

WATTSTUNDE WSL20.100

WATTSTUNDE WSL20.100 20A 90V LCD MPPT Solar Charge Controller User Manual

Model: WSL20.100

1. INTRODUCTION AND OVERVIEW

The WATTSTUNDE WSL20.100 MPPT Solar Charge Controller is designed for efficient and rapid battery charging in various off-grid solar installations, including RVs, caravans, boats, and other self-sufficient solar systems. This charge controller acts as the central link between your photovoltaic cells, loads, and the solar battery.

It intelligently converts the varying voltage from solar panels into a stable voltage suitable for gentle battery charging. The innovative Maximum Power Point Tracking (MPPT) technology significantly increases energy yield, even under less favorable lighting conditions. The WSL20.100 features an integrated LCD, providing real-time information about your solar system, such as battery charge level and charging current, for easy monitoring. It also includes intelligent load disconnection to protect your battery from dangerous deep discharge.

2. KEY FEATURES

- **Intelligent MPPT Technology:** The WSL MPP series determines the optimal operating point of the solar panels multiple times per second, potentially generating up to 30% more yield under favorable conditions and ensuring shorter battery charging times.
- **Effective Energy Harvesting:** The innovative Maximum Power Point Tracking (MPPT) process enables significant yield increases, even in challenging light conditions.
- **Automatic System Voltage Recognition:** The charge controller automatically detects the system voltage (12V or 24V). An external temperature sensor allows for automatic adjustment of the charging voltage based on ambient temperature.
- **User-Friendly LCD Display:** All individually adjustable parameters are easy to configure, and all important data can be conveniently read from the LCD screen.

3. SETUP AND INSTALLATION

Proper installation is crucial for the safe and efficient operation of your solar charge controller. Please follow these general guidelines. For detailed wiring diagrams, refer to the included physical manual.

3.1 Unboxing and Inspection

Upon receiving your WATTSTUNDE WSL20.100, carefully unpack all components and inspect them for any signs of damage during transit. Ensure all parts listed in the packing contents are present.



Figure 1: The WATTSTUNDE WSL20.100 MPPT Solar Charge Controller shown with its retail packaging and user manual.

3.2 Mounting the Controller

Mount the charge controller in a dry, well-ventilated area, away from direct sunlight and heat sources. Ensure sufficient space around the unit for proper heat dissipation, especially around the heatsink fins.



Figure 2: Top view of the charge controller, highlighting the heatsink design for efficient cooling.

3.3 Wiring Connections

Safety First: Before making any connections, ensure that all power sources (solar panels and battery) are disconnected or switched off. Use appropriate wire gauges for your system to prevent overheating.

Connect the components in the following order:

1. **Battery Connection:** Connect the battery to the charge controller first. Ensure correct polarity (positive to positive, negative to negative). The controller will automatically detect the system voltage (12V or 24V).
2. **Load Connection:** Connect your DC loads (e.g., lights, USB chargers) to the load terminals. The controller will manage power delivery to these loads and disconnect them if the battery voltage drops too low.
3. **Solar Panel Connection:** Connect the solar panels to the PV terminals. Ensure correct polarity. The MPPT algorithm will then begin optimizing power harvest from your panels.



Figure 3: Detailed view of the connection terminals on the charge controller for solar input, battery, and DC load output.

3.4 External Temperature Sensor

The WSL20.100 includes an external temperature sensor. Connect this sensor to the designated port on the controller. Place the sensor near the battery to allow the controller to accurately adjust charging voltage based on battery temperature, optimizing battery life and performance.



Figure 4: Included accessories, featuring ferrules for secure wiring and the external temperature sensor.

4. OPERATING INSTRUCTIONS

Once installed, the WATTSTUNDE WSL20.100 operates largely automatically. The LCD provides essential information and allows for parameter adjustments.

4.1 LCD Display Navigation

The LCD displays various parameters of your solar system. Use the 'MENU' and 'OK' buttons to navigate through the display screens and adjust settings. Refer to the detailed manual for specific menu structures and parameter definitions.

4.2 Monitoring System Performance

The display provides real-time data, including:

- Battery voltage and charge level
- Solar panel voltage and current
- Load current

- Cumulative energy generated (statistical function)

Regularly monitoring these values helps ensure your system is functioning optimally and allows you to track your energy production.

4.3 Load Control

The controller features intelligent load disconnection. If the battery voltage drops to a critical level, the controller will automatically disconnect the loads to prevent deep discharge and protect the battery. Loads will automatically reconnect once the battery has recharged to a safe level.

5. MAINTENANCE

To ensure the longevity and optimal performance of your WATTSTUNDE WSL20.100 solar charge controller, periodic maintenance is recommended.

- **Cleanliness:** Keep the controller clean and free from dust and debris. Use a dry, soft cloth for cleaning. Do not use liquid cleaners.
- **Connections:** Periodically check all wiring connections for tightness and corrosion. Loose connections can lead to power loss or overheating.
- **Ventilation:** Ensure that the ventilation openings and heatsink fins are not obstructed to allow for proper heat dissipation.
- **Environmental Conditions:** Verify that the controller is operating within its specified temperature and humidity ranges.

6. TROUBLESHOOTING

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

- **No Display/No Power:**
 - Check battery connections and ensure the battery has sufficient charge.
 - Verify that the battery fuse (if installed) is intact.
- **No Charging Current from Solar Panels:**
 - Ensure solar panels are connected correctly and receiving adequate sunlight.
 - Check solar panel wiring for breaks or loose connections.
 - Verify that the solar panel voltage is within the controller's operating range.
- **Loads Not Working:**
 - Check load connections and ensure the load is not faulty.
 - Verify battery voltage. If it's too low, the controller may have disconnected the loads to protect the battery.
 - Check load settings on the controller's display.
- **Unusual Readings on Display:**
 - Ensure all sensors (especially the temperature sensor) are correctly connected.
 - Restart the controller by disconnecting and reconnecting the battery (always disconnect solar first, then battery; reconnect battery first, then solar).

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

7. SPECIFICATIONS

Specification	Value
Model Number	WSL20.100
Brand	WATTSTUNDE
Max. Charging Current	20A
Max. PV Open Circuit Voltage	90V
System Voltage	12V (automatic recognition, also compatible with 24V systems)
Max. Solar Panel Power (12V System)	Up to 260W
Display Type	LCD
Package Dimensions	24 x 21.9 x 9.1 cm
Item Weight	1.49 kg
First Available Date	January 15, 2020

8. WARRANTY INFORMATION

Specific warranty details for the WATTSTUNDE WSL20.100 MPPT Solar Charge Controller are not available in the provided product information. Please refer to the warranty card included with your product or contact WATTSTUNDE customer service for comprehensive warranty terms and conditions.

9. SUPPORT

For technical assistance, troubleshooting beyond this manual, or inquiries regarding your WATTSTUNDE WSL20.100 MPPT Solar Charge Controller, please contact WATTSTUNDE customer support. Contact information is typically found in the product packaging, on the manufacturer's official website, or through your point of purchase.