

Victron Energy SmartSolar MPPT 100/20

Victron Energy SmartSolar MPPT Solar Charge Controller 100V 20A 48V User Manual

Model: SmartSolar MPPT 100/20

1. INTRODUCTION

The Victron Energy SmartSolar MPPT 100/20 is an advanced solar charge controller designed to maximize energy harvest from solar panels and efficiently charge batteries. It features Maximum Power Point Tracking (MPPT) technology to ensure optimal power output, even under varying light conditions. Integrated Bluetooth allows for convenient monitoring and configuration via the VictronConnect app.

Key Features:

- **Smart Solar Charging:** Optimizes battery longevity by converting available sunlight into usable energy.
- **Maximum Power Output:** Lightning-fast MPPT ensures maximum power, even with partial shading.
- **Synchronized Charging:** Multiple SmartSolar MPPT controllers can synchronize for system-wide energy optimization.
- **Bluetooth Connectivity:** Use the VictronConnect app for real-time data, 30-day performance history, configuration, and firmware updates.
- **Intelligent Load Output:** Directly power devices with configurable voltage disconnects to protect batteries.

2. SAFETY INFORMATION

Please read all safety instructions before installing or operating the device. Failure to follow these instructions may result in electric shock, fire, or serious injury.

- **Electrical Safety:** Installation must be performed by qualified personnel. Ensure all power sources are disconnected before making any connections.
- **Battery Safety:** Work in a well-ventilated area. Wear eye protection and protective clothing. Avoid short-circuiting battery terminals.
- **Overcurrent Protection:** Ensure proper fusing is in place for both solar and battery circuits as

specified in the installation guide.

- **Ventilation:** Ensure adequate airflow around the unit to prevent overheating.
- **Environmental Conditions:** Do not expose the device to water, excessive humidity, or extreme temperatures outside its operating range.

3. PACKAGE CONTENTS

Verify that all items are present in the package:

- Victron Energy SmartSolar MPPT 100/20 Solar Charge Controller
- User Manual (this document)

4. INSTALLATION AND CONNECTIONS

Proper installation is crucial for the safe and efficient operation of your SmartSolar MPPT controller. Refer to the detailed wiring diagram below for connection points.

Mounting:

Mount the controller vertically on a non-flammable surface, ensuring sufficient clearance for ventilation. Avoid direct sunlight exposure to prevent overheating.

Wiring Sequence:

1. Connect the battery to the BATT terminals. Ensure correct polarity.
2. Connect the solar panels to the PV terminals. Ensure correct polarity.
3. Connect DC loads to the LOAD terminals (optional). Ensure correct polarity.

Always connect the battery first and disconnect the solar panels first when disassembling.

SmartSolar connections & types

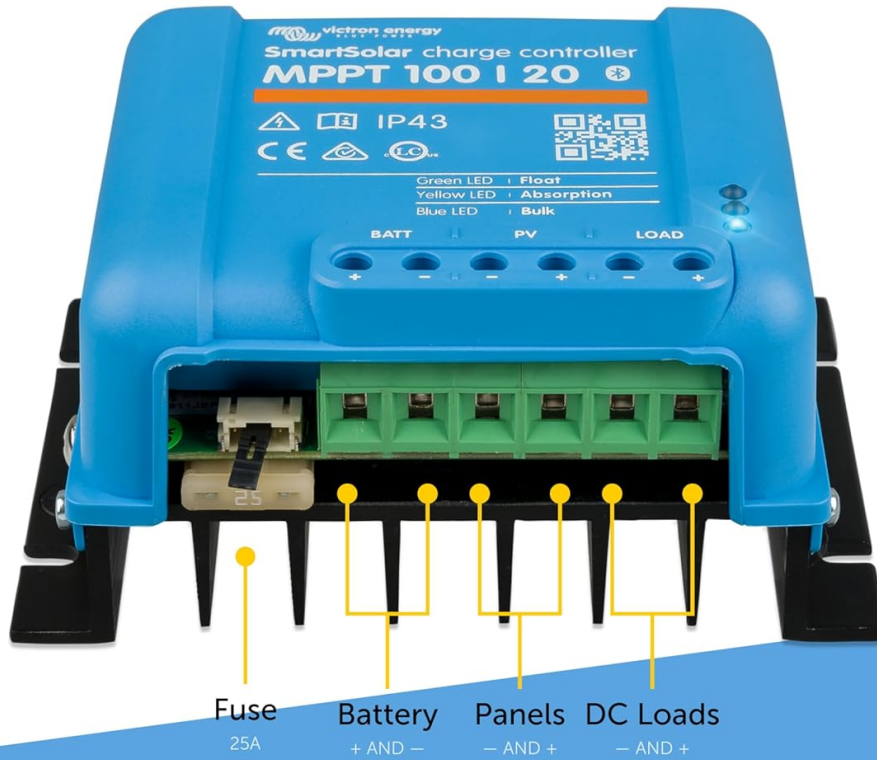


Image: Victron Energy SmartSolar MPPT 100/20 with clearly labeled connection points for the 25A Fuse, Battery (+ and -), Solar Panels (+ and -), and DC Loads (+ and -). This diagram illustrates the correct wiring sequence.



Image: A close-up view of the connection terminals on the Victron Energy SmartSolar MPPT 100/20, showing the screw terminals for secure wiring.

5. OPERATING INSTRUCTIONS

The SmartSolar MPPT controller operates automatically once correctly installed. For monitoring and advanced configuration, use the VictronConnect app.

Bluetooth Connectivity and VictronConnect App:

The integrated Bluetooth module allows wireless connection to your smartphone or tablet via the VictronConnect app. This app provides access to real-time data, historical performance, and settings.

1. Download the VictronConnect app from your device's app store.
2. Ensure Bluetooth is enabled on your smartphone/tablet.
3. Open the VictronConnect app and select your SmartSolar MPPT device from the list.
4. If prompted, enter the default PIN (usually 000000).

Through the app, you can:

- Monitor battery voltage, solar power, charge current, and load status.
- View 30-day historical data.
- Configure battery presets (e.g., Lithium, Lead-acid, AGM, Gel, Flooded).
- Adjust charge settings and set alarms.
- Update firmware.



Image: The Victron Energy SmartSolar MPPT 100/20 shown alongside a smartphone running the VictronConnect app, illustrating the Bluetooth connection and the app's detailed monitoring interface for charge status, voltage, current, and power.

Charging Modes:

The controller automatically manages the charging process through several stages to optimize battery health and lifespan:

- **Bulk:** Maximum current is delivered to rapidly charge the battery.
- **Absorption:** Voltage is held constant to fully charge the battery and balance cells.
- **Float:** Voltage is reduced to a lower level to maintain the battery at full charge.
- **Storage:** A slightly lower float voltage to minimize gassing and corrosion for batteries in storage.

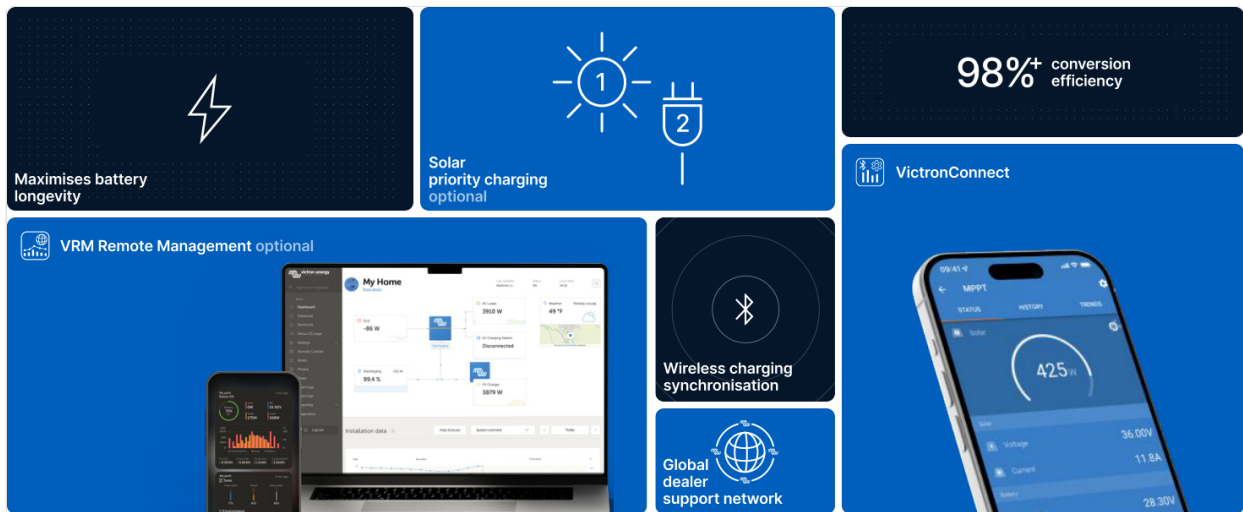


Image: The SmartSolar MPPT 100/20 with a graphic representing battery health, highlighting its capability to recover fully discharged batteries.

6. MAINTENANCE

The SmartSolar MPPT controller is designed for minimal maintenance. Regular checks can help ensure optimal performance and longevity.

- **Visual Inspection:** Periodically inspect the unit for any signs of damage, loose connections, or corrosion.
- **Cleanliness:** Keep the unit clean and free from dust and debris. Use a dry cloth for cleaning. Do not use solvents or abrasive cleaners.
- **Ventilation:** Ensure that the cooling fins are not obstructed to allow for proper heat dissipation.
- **Firmware Updates:** Regularly check for and install firmware updates via the VictronConnect app to benefit from improvements and new features.

7. TROUBLESHOOTING

If you encounter issues with your SmartSolar MPPT controller, refer to the following common troubleshooting steps:

- **No Power/No Display:** Check all wiring connections, especially the battery connection and fuse. Ensure the battery voltage is within the operating range.
- **Low Solar Output:** Verify solar panel connections and ensure panels are clean and not shaded. Check for proper panel voltage using the VictronConnect app.
- **Battery Not Charging:** Confirm battery type settings in the VictronConnect app match your battery. Check battery health and connections.
- **Bluetooth Connection Issues:** Ensure the controller is powered on and within range. Restart the VictronConnect app and your device's Bluetooth.
- **Overheating:** Ensure adequate ventilation around the unit. Reduce load if necessary.

For more detailed troubleshooting or persistent issues, consult the comprehensive manual available on the

Victron Energy website or contact customer support.

8. SPECIFICATIONS

Technical specifications for the Victron Energy SmartSolar MPPT 100/20 Solar Charge Controller:

Specification	Value
Brand	Victron Energy
Model	SmartSolar MPPT 100/20
Voltage	100 Volts (Max PV open circuit voltage)
Max Charge Current	20 Amps
Battery Voltage	12/24/48 Volts (Auto-select)
Item Weight	1.6 Pounds (approx. 0.73 kg)
Display Type	None (Bluetooth for app display)
UPC	859042007061
ASIN	B07FCSTM43

DIMENSIONS

Compact size

Weight: 0,65 KG / 1,43LBS

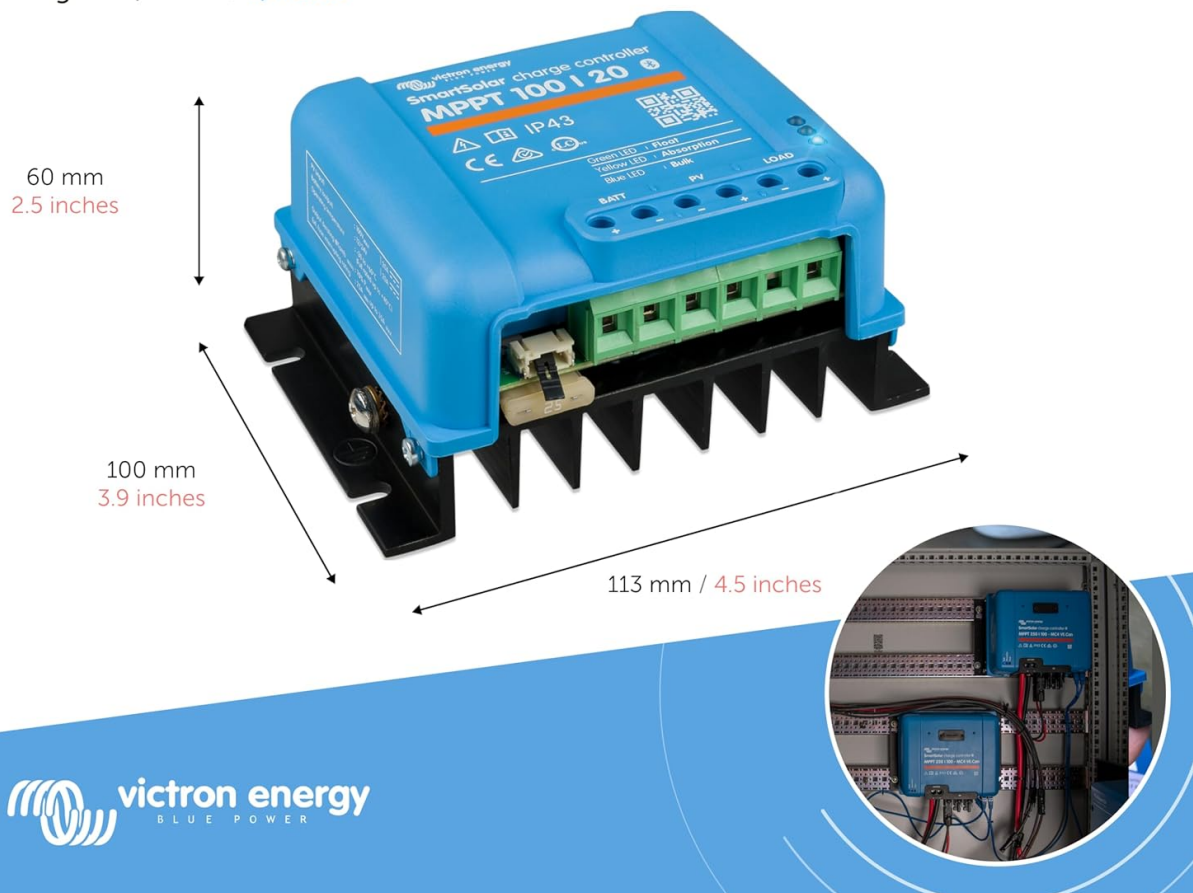


Image: A diagram illustrating the compact dimensions of the SmartSolar MPPT 100/20, showing its height, width, depth, and weight for installation planning.

9. WARRANTY AND SUPPORT

Victron Energy products are manufactured to high standards and come with a standard warranty. For specific warranty terms and conditions, please refer to the documentation included with your product or visit the official Victron Energy website.

For technical support, product information, or service inquiries, please visit the Victron Energy Store on Amazon or their official website.

10. PRODUCT VIDEOS

Watch these official videos for additional information on the Victron Energy SmartSolar MPPT controller and related systems.

VRM: Victron Remote Management Portal

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Video: This video demonstrates the Victron Remote Management (VRM) portal, showcasing how users can monitor and manage their Victron Energy systems remotely from various devices, including smartphones and laptops. It highlights features like system performance tracking, device management, and programmable alerts and alarms.

VictronConnect App for Monitoring Performance

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Video: This video provides an overview of the VictronConnect app, detailing its capabilities for instant monitoring of key data, viewing device performance, easy configuration, and firmware updating for Victron Energy products.