

Victron Energy PMP123021102

Victron Energy MultiPlus Inverter Charger User Manual

Model: **PMP123021102**

Brand: **Victron Energy**

1. INTRODUCTION

The Victron Energy MultiPlus is a powerful combination of a true sine wave inverter, a sophisticated battery charger with adaptive charge technology, and a high-speed AC transfer switch in a single compact enclosure. Designed for versatility, it offers features like PowerAssist to prevent overload of limited AC sources and an Uninterrupted Power Supply (UPS) function for seamless power transfer during grid failures.

This manual provides essential information for the safe and efficient installation, operation, and maintenance of your MultiPlus Inverter Charger.

2. SAFETY INFORMATION

WARNING: Incorrect installation can be hazardous and may lead to serious injury or damage to equipment. Always consult a licensed professional and follow all applicable electrical codes and regulations during installation.

- Read all instructions carefully before installation and operation.
- Ensure the unit is disconnected from all power sources (AC and DC) before performing any maintenance or installation work.
- Do not open the MultiPlus enclosure. There are no user-serviceable parts inside. Refer servicing to qualified service personnel.
- Ensure adequate ventilation around the unit to prevent overheating.
- Always use appropriate personal protective equipment (PPE) when working with electrical systems.

3. PRODUCT OVERVIEW

The Victron Energy MultiPlus combines several critical power components into one unit, simplifying complex power systems. Key features include:

- **Pure Sine Wave Inverter:** Provides high-quality AC power suitable for sensitive electronics.
- **Adaptive Battery Charger:** Ensures optimal charging for various battery types, extending battery life.
- **High-Speed AC Transfer Switch:** Automatically switches between shore/generator power and inverter power.
- **PowerAssist Feature:** Prevents overload of limited AC sources by boosting with battery power.
- **Parallel and Three-Phase Operation:** Allows for scaling up power output by connecting multiple units.

IN ONE VIEW

Freedom. Powered by know-how.



A true sine wave inverter



Unique PowerAssist feature



Uninterrupted AC power (UPS function)



Virtually unlimited power thanks to parallel operation



Remote Monitoring and Control

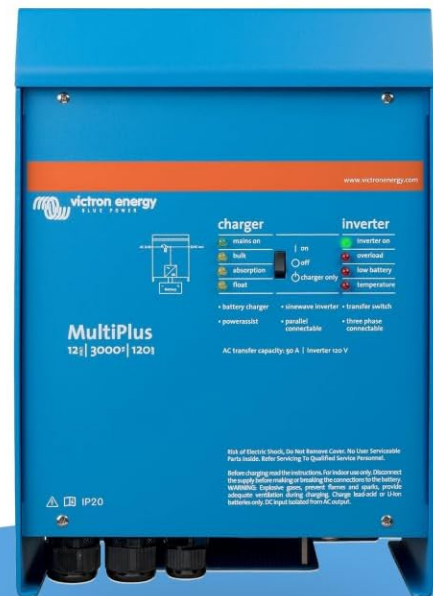


Figure 3.1: Overview of MultiPlus key features including true sine wave inverter, PowerAssist, UPS function, parallel operation, and remote monitoring.

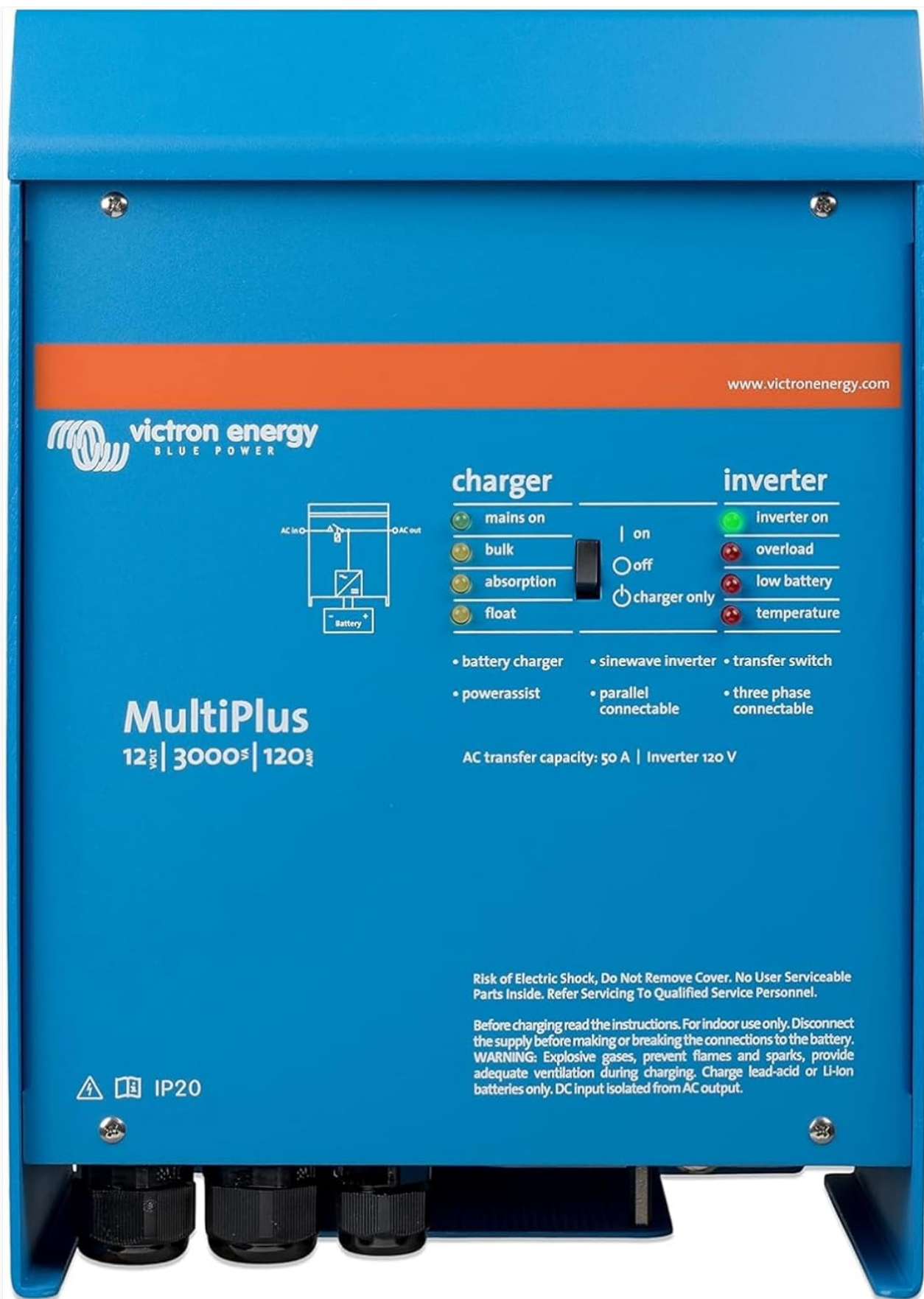


Figure 3.2: Front view of the MultiPlus unit, showing indicator lights for charger and inverter status.

4. SETUP AND INSTALLATION

Proper installation is crucial for the performance and safety of your MultiPlus. This section provides general guidelines. For detailed wiring diagrams and specific instructions, refer to the comprehensive PDF user manual available on the Victron Energy website.

4.1 Mounting the Unit

1. Choose a dry, well-ventilated location, protected from direct sunlight and moisture.
2. Ensure sufficient clearance around the unit for airflow (refer to specifications for minimum clearances).
3. Mount the unit vertically on a sturdy surface using appropriate fasteners.

DIMENSIONS

Compact size

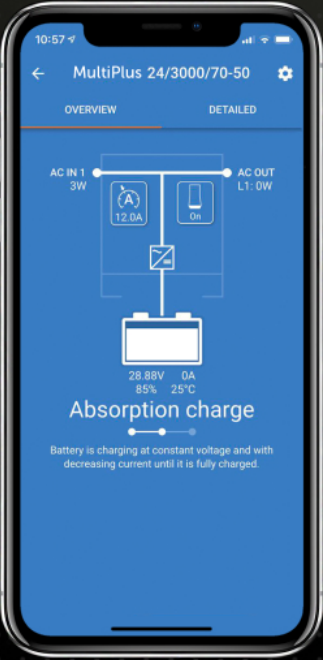


Figure 4.1: Physical dimensions of the MultiPlus unit, showing its compact size for installation planning.

4.2 Electrical Connections

All electrical connections must be performed by a qualified electrician in accordance with local and national electrical codes.

- **Battery Connection:** Connect the MultiPlus directly to the battery bank using appropriately sized cables and fuses. Observe correct polarity.
- **AC Input Connection:** Connect the AC input from shore power or a generator to the designated AC input terminals.
- **AC Output Connection:** Connect your AC loads to the designated AC output terminals.
- **Grounding:** Ensure the unit is properly grounded.



VictronConnect Monitor, operate & configure.

When coupled with a GX device you can monitor and control your Multi straight from our free VictronConnect app or the Victron Remote Monitoring platform. Easily adjust the AC input current limit to prevent shore power overload, or any setting to prevent issues from happening and maximise your system's performance.

Download the app.

Available for most devices. VictronConnect can connect to Victron products via Bluetooth, USB and WiFi/LAN/Internet.

Figure 4.2: Example wiring diagram for parallel connection of MultiPlus units, illustrating AC input and output connections.

4.3 Initial Configuration

The MultiPlus can be configured using the VictronConnect app or other Victron configuration tools. This allows for setting battery charge parameters, AC input current limits, and other system preferences.

DIMENSIONS

Compact size

Weight: 19KG / 40LBS

258 mm / 10.2 inches

218 mm / 8.6 inches

364 mm / 14.3 inches

Robust technology

Global network

45 years of know-how



Figure 4.3: The VictronConnect app allows for monitoring, operating, and configuring the MultiPlus via Bluetooth, USB, or network connections.

5. OPERATION

5.1 Powering On/Off

- Ensure all connections are secure before powering on.
- The MultiPlus typically powers on automatically when connected to a battery bank.
- Use the remote switch or control panel (if installed) to switch between 'On', 'Charger Only', and 'Off' modes.

5.2 Inverter Operation

When no external AC power is available, the MultiPlus converts DC battery power into pure sine wave AC power to supply connected loads.

- The 'Inverter On' LED indicates active inversion.
- The 'Low Battery' LED will illuminate if the battery voltage drops below a configurable threshold, indicating the need for charging.

5.3 Charger Operation

When external AC power is connected, the MultiPlus acts as a sophisticated battery charger, utilizing a four-stage adaptive charging algorithm.



Figure 5.1: Illustration of the MultiPlus's four-stage adaptive charging process (Bulk, Absorption, Float, Storage) with BatterySafe mode.

- **Bulk:** Rapid charging phase.
- **Absorption:** Constant voltage charging to fully charge the battery.
- **Float:** Maintains battery at a constant voltage.
- **Storage:** Reduces float voltage after a period to minimize gassing and corrosion.

5.4 PowerAssist Function

The PowerAssist feature prevents overloading of a limited AC source (e.g., a small generator or shore power connection) by automatically reducing battery charging current and, if necessary, boosting the AC output with power taken from the battery.

SYSTEM EXAMPLE

Parallel connection

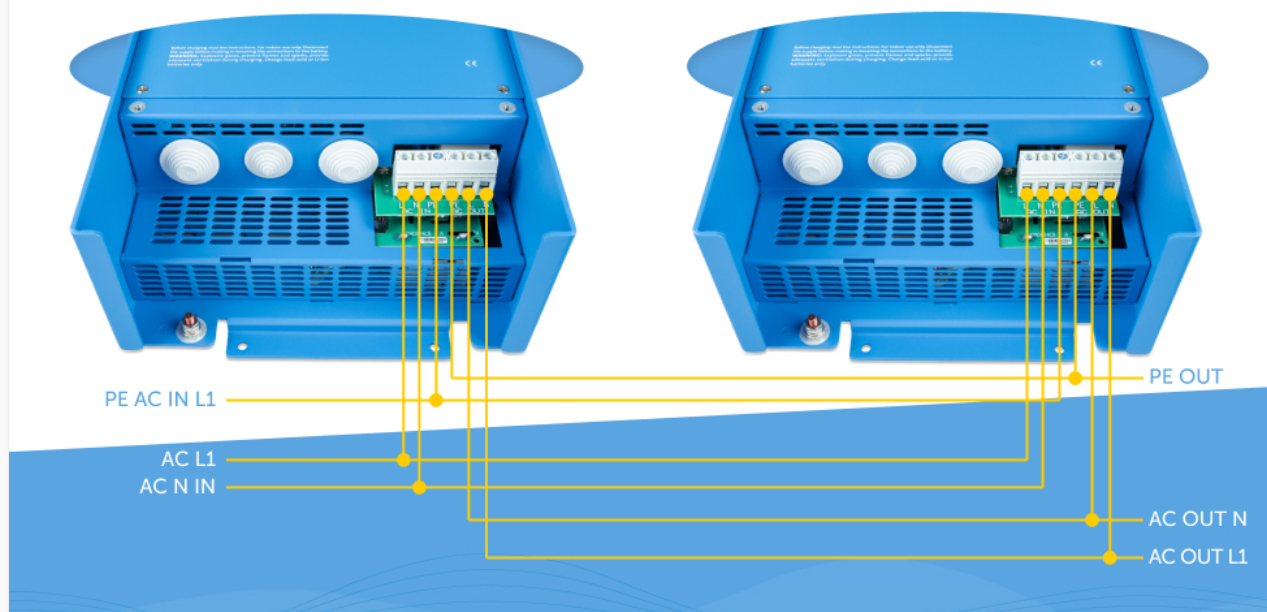


Figure 5.2: Visual representation of the unique PowerAssist feature, showing how it supplements limited AC input with battery power.

6. MAINTENANCE

The MultiPlus is designed for minimal maintenance. However, regular checks can ensure optimal performance and longevity.

- **Cleaning:** Periodically clean the exterior of the unit with a dry, soft cloth. Do not use liquid cleaners or solvents. Ensure ventilation openings are free from dust and debris.
- **Connections:** Annually inspect all electrical connections for tightness and corrosion. Loose connections can lead to overheating and poor performance.
- **Battery Health:** Monitor your battery bank's health regularly. Ensure batteries are properly maintained according to their manufacturer's guidelines.
- **Firmware Updates:** Check the Victron Energy website periodically for firmware updates for your MultiPlus model. Updates can improve performance and add new features.

Always disconnect all power sources before performing any maintenance.

7. TROUBLESHOOTING

This section addresses common issues you might encounter. For more complex problems, consult the full user manual or contact Victron Energy support.

Problem	Possible Cause	Solution
No AC output from inverter	Unit is off; Low battery voltage; Overload; Over-temperature	Check unit status/mode; Charge batteries; Reduce load; Ensure adequate ventilation.
Batteries not charging	No AC input; AC input current limit too low; Charger disabled; Faulty battery connection	Check AC input source; Adjust AC input current limit; Enable charger mode; Inspect battery wiring.
Unit making unusual noises	Fan operation (normal); Loose components; Internal fault	Verify if fan noise is normal during high load/charging; Disconnect power and check for loose external components; If persistent, contact support.
PowerAssist not engaging	Incorrect configuration; AC input current limit set too high	Review PowerAssist settings in configuration software; Lower AC input current limit if necessary.

8. SPECIFICATIONS

Feature	Detail
Model Name	Victron Energy MultiPlus 3000VA 12-Volt Pure Sine Wave Inverter and 120 amp Battery Charger
Model Number	PMP123021102
Product Dimensions (L x W x H)	14.3 x 10.2 x 8.6 inches (364 x 258 x 218 mm)
Item Weight	39.4 pounds (17.87 kg)
Power Source	Battery Powered
Wattage	3000 watts
Inverter Type	Pure Sine Wave
Battery Voltage	12-Volt
Charger Current	120 amp

9. WARRANTY AND SUPPORT

For detailed warranty information, please refer to the official Victron Energy website or the warranty card

included with your product. Warranty terms and conditions may vary by region and product.

For technical support, troubleshooting assistance beyond this manual, or service inquiries, please contact your authorized Victron Energy dealer or visit the official Victron Energy support portal:

www.victronenergy.com/support

You can also find additional resources, including the full user manual (PDF), firmware updates, and software tools, on their website.