Configuration and commissioning of solar systems



Configuring and commissioning a solar system is essential to ensure optimal operation.

This guide details the configuration of devices in a solar kit such as the MultiPlus-II converter/charger, the MPPT controller, the GoPower battery and the Cerbo GX.



By Eric Chimeshula

Configuration MultiPlus-II

1

How it works

Off-grid: battery priority. Hybrid: solar priority > battery > grid.

2

Critical thresholds

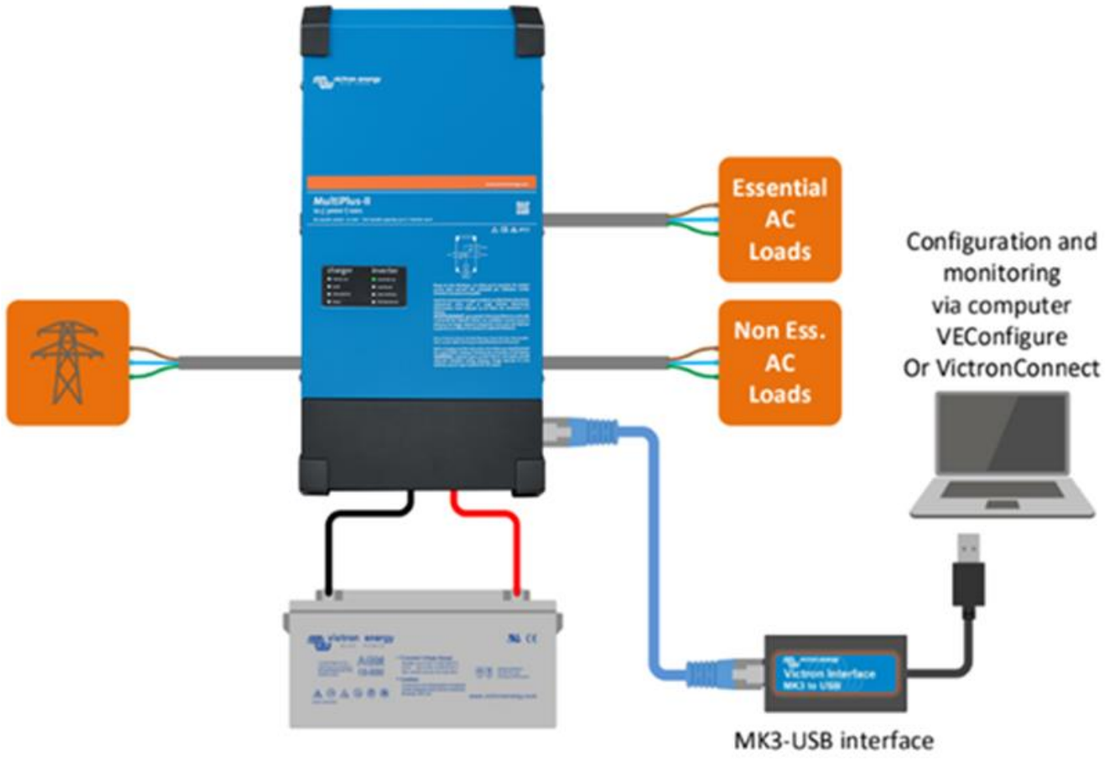
Cut-off voltage: 44V. Return voltage: 48V.

Frequency: 50 Hz.

3

System protection

Avoids deep discharge of batteries. Ensures a safe reboot.



VEConfigure

1 Features

Detailed inverter/charger configuration.

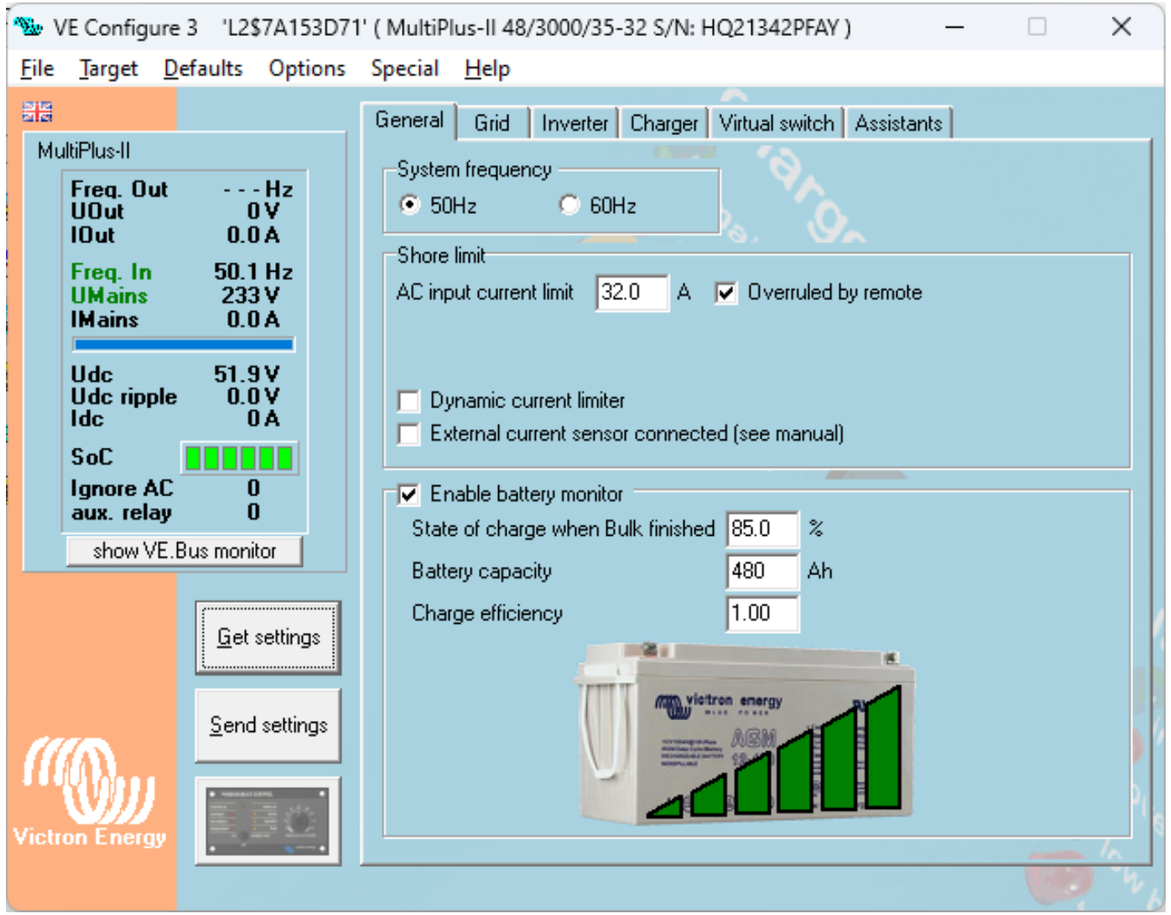
Customization of AC load and input/output settings.

2 Usage

Connection via VE. Bus. Launch the software and load the current settings.

3 Configuration

Adjustment of battery type, voltage and charging current. Definition of AC current limits.



VE.Bus Quick Configure

Features

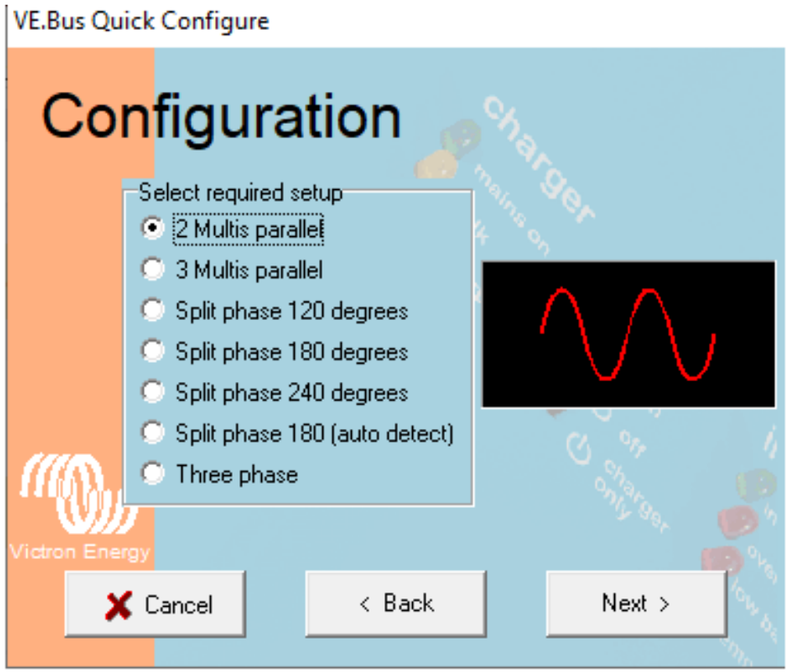
Quick setup for simple installations. Ideal for independent operation mode.

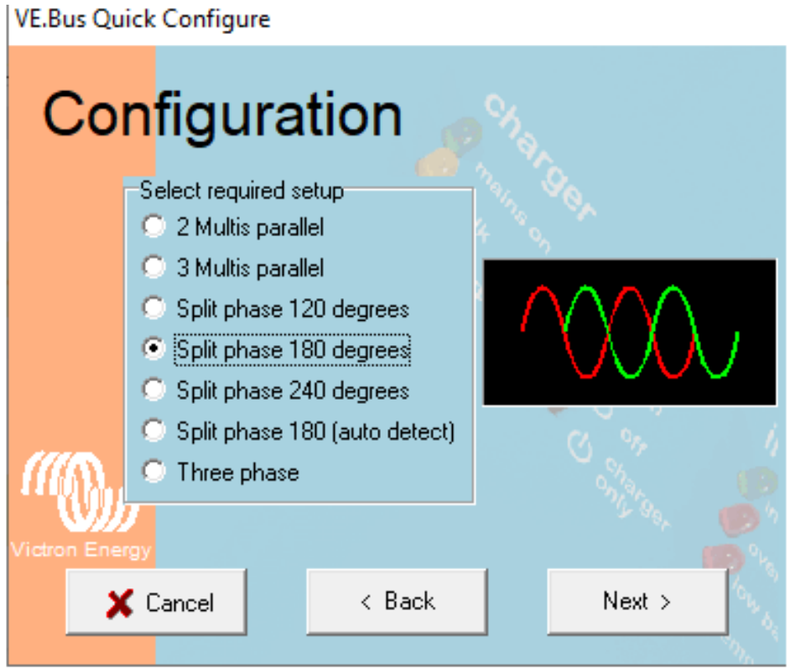
Usage

Connection via VE. Bus. Launch the software and select the appropriate menu.

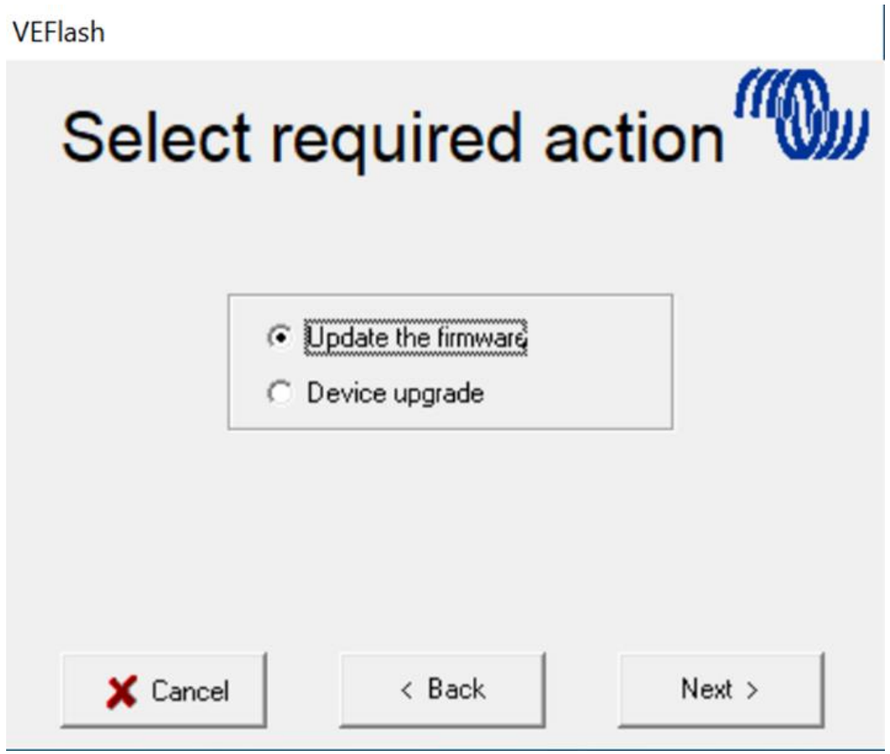
Options

System configuration, modification of existing settings, reset in standalone mode.





VEFlash



1

Connection

Connect the computer to the MultiPlus-II via the VE cable. Bus.

2

Selection

Choose the firmware to flash from the Victron Energy website.

3

Update

Start the flashing process and wait for the device to restart.

VEConfigurator System

- **Features**

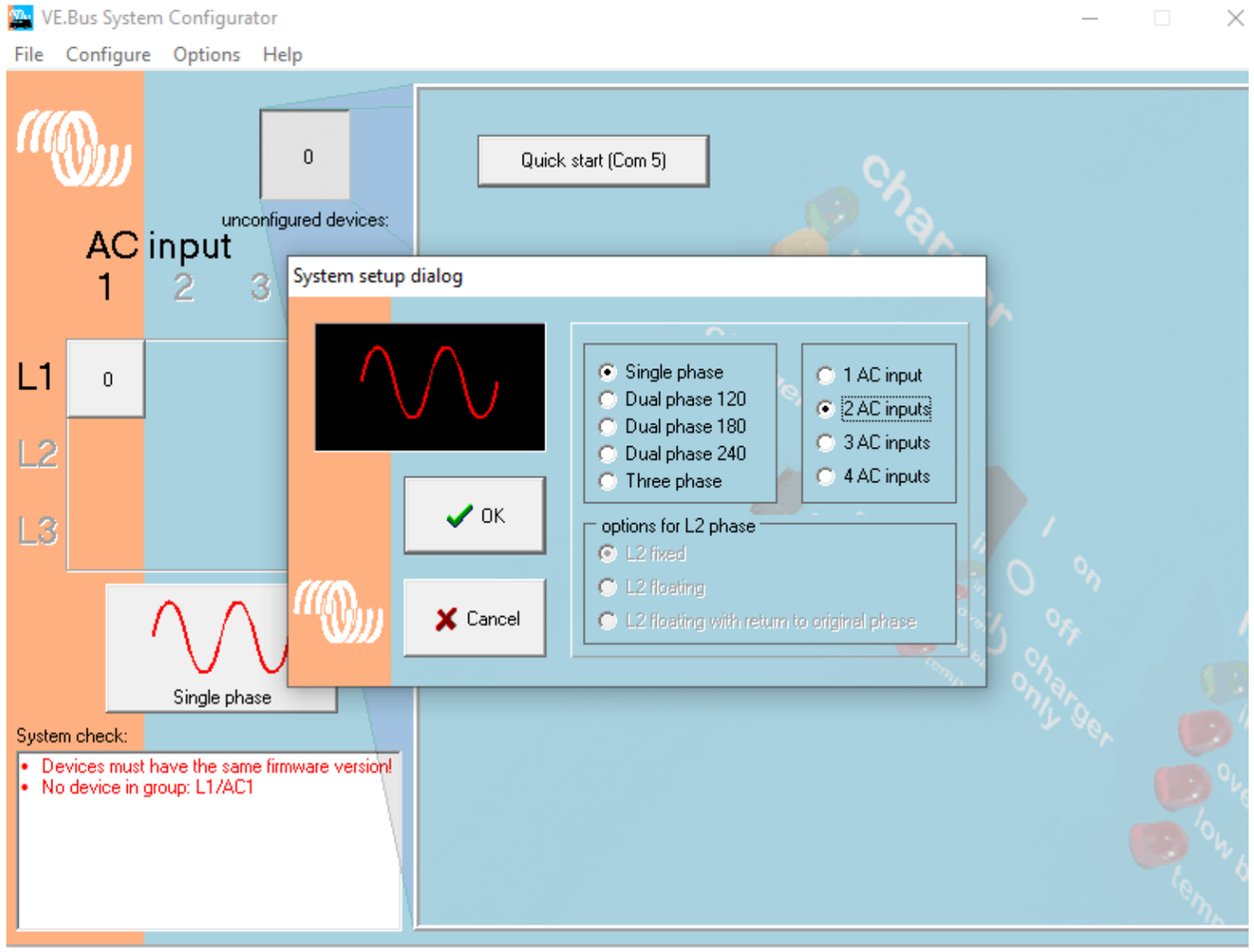
Interface for complex systems. Multi-device configuration in parallel or three-phase.

- **Usage**

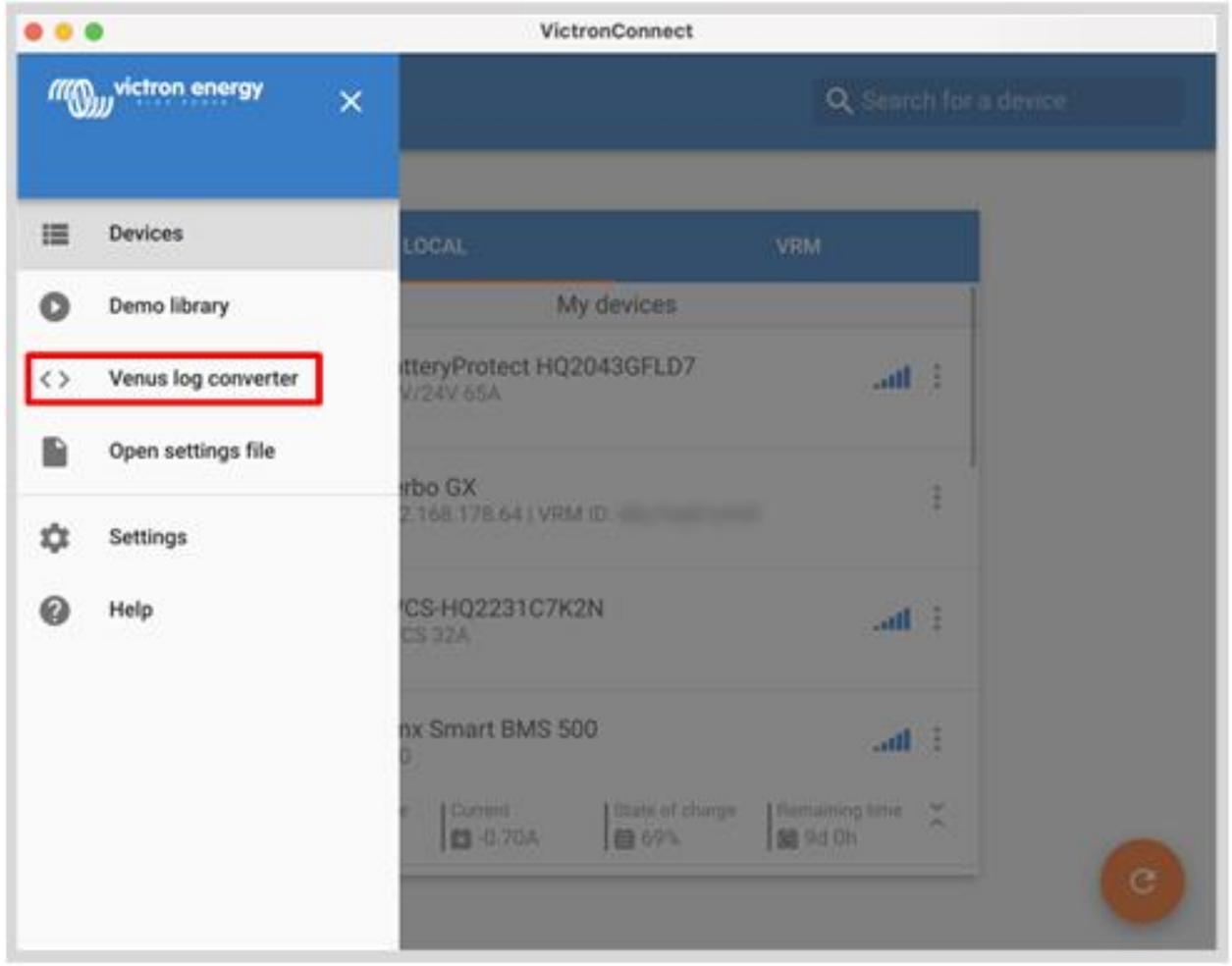
Device connection and detection. Configuring system settings.

- **Parameters**

Adjust parallelism, phases, and priority of power sources.



VictronConnect - Fonctionnalities



Configuration

Basic parameter adjustment and advanced MultiPlus-II.

Surveillance

Real-time monitoring of the system and performance.

Diagnostics

Detailed information for the Potential problem solving.



VictronConnect - Initial Setup

Selection

Choose your device from the list of available devices.

1

2

Access

Open the "Settings" section to configure the basic settings.

Settings

Set the battery type, charging voltages, and current limits.

3

VictronConnect - Advanced tools

1 **Advanced features**

Go to the configuration options to customize your installation.

2 **Diagnostic**

Use the diagnostic tools to check the health of the system.

3 **Resolution**

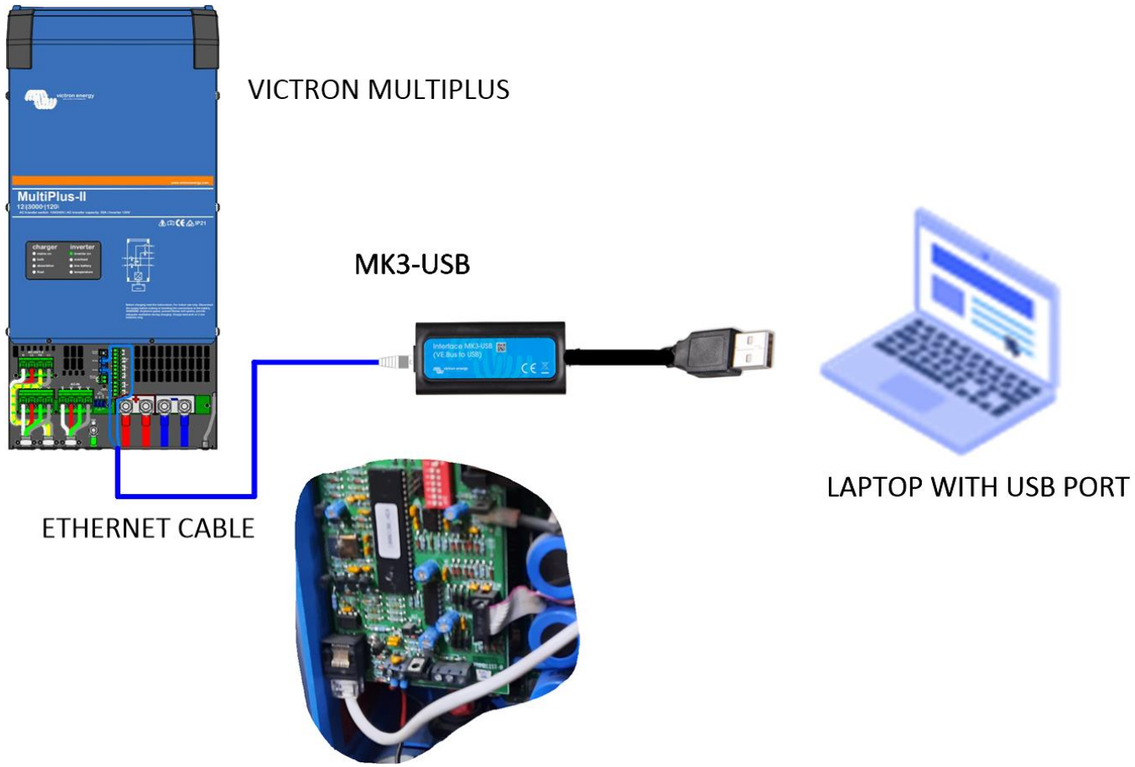
Identify and resolve potential issues with detailed information.





https://www.victronenergy.com/support-and-downloads/software

Converter configuration



Output voltage

220V AC

Frequency

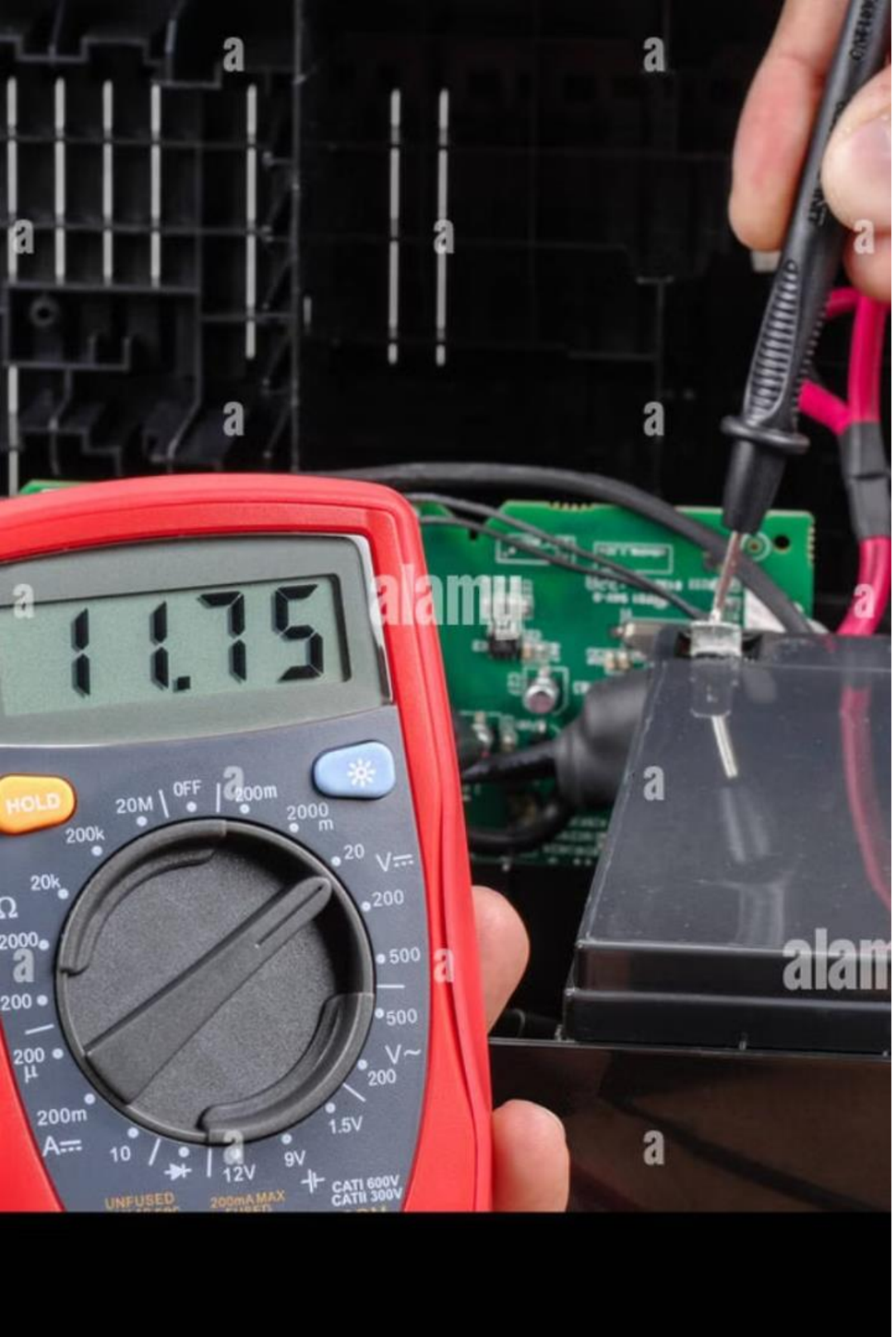
50 Hz (or 60 Hz if needed)

Maximum power

3,000 VA (2400W real)

PowerAssist

Power reinforcement in the event of mains overload



Verification and testing

Check Modes

Test the charger and converter.

Test the toggle

Check the automatic switch between mains and battery.

Measuring power

Confirm that the output power is compliant.

Update

Update firmware if necessary.

Configuring the 150/80A MPPT Controller



1

Charging Mode

Set up in Lithium-ion mode for the GoPower 100Ah battery.

2

Three-phase charging

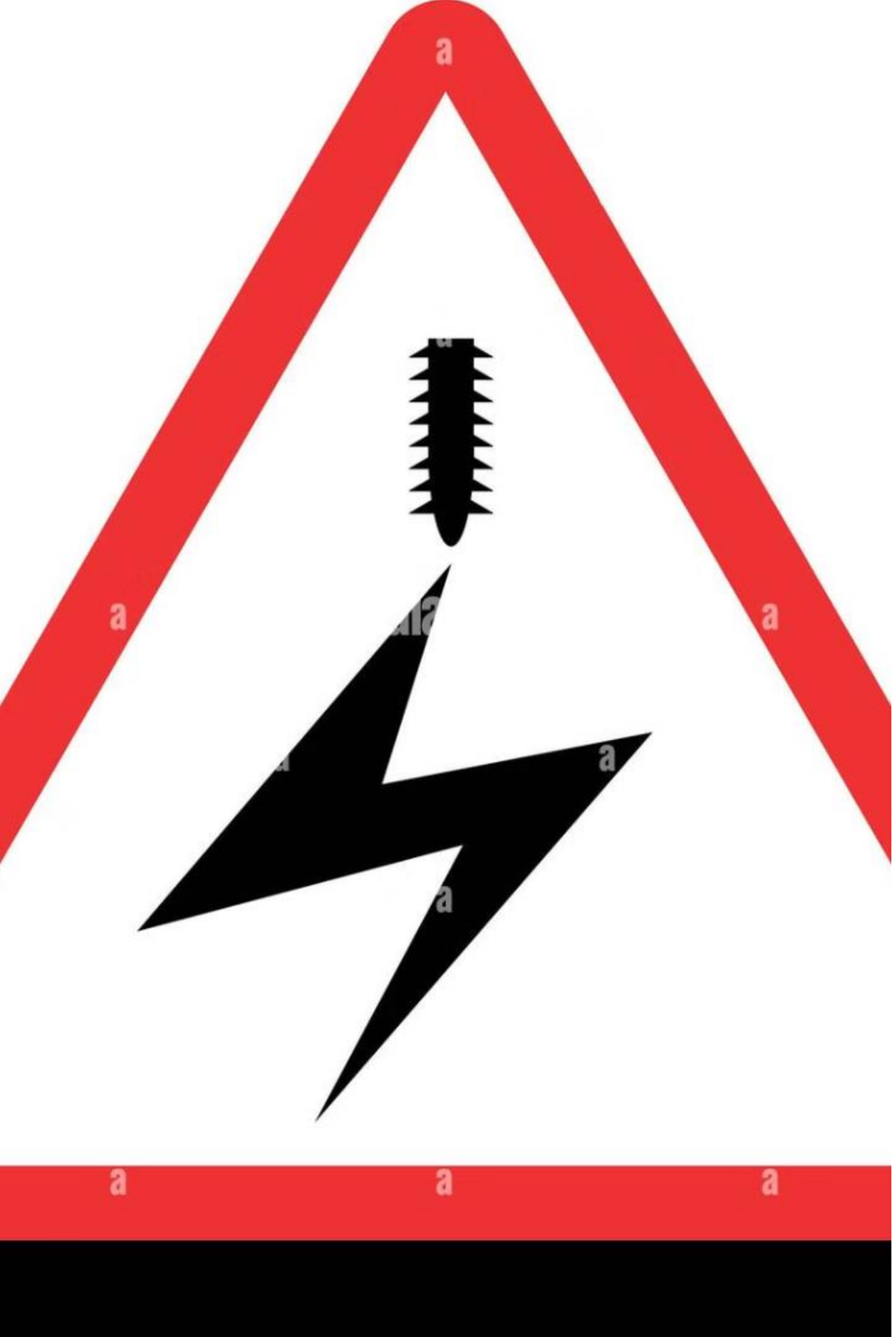
Bulk (54V), Absorption (57,6V maintenu), Float (55,2V).

3

Protection thresholds

Maximum voltage: 54V. Low cut-off: 44V.

Stop if temperature >45˚C.



Safety precautions

Connection order

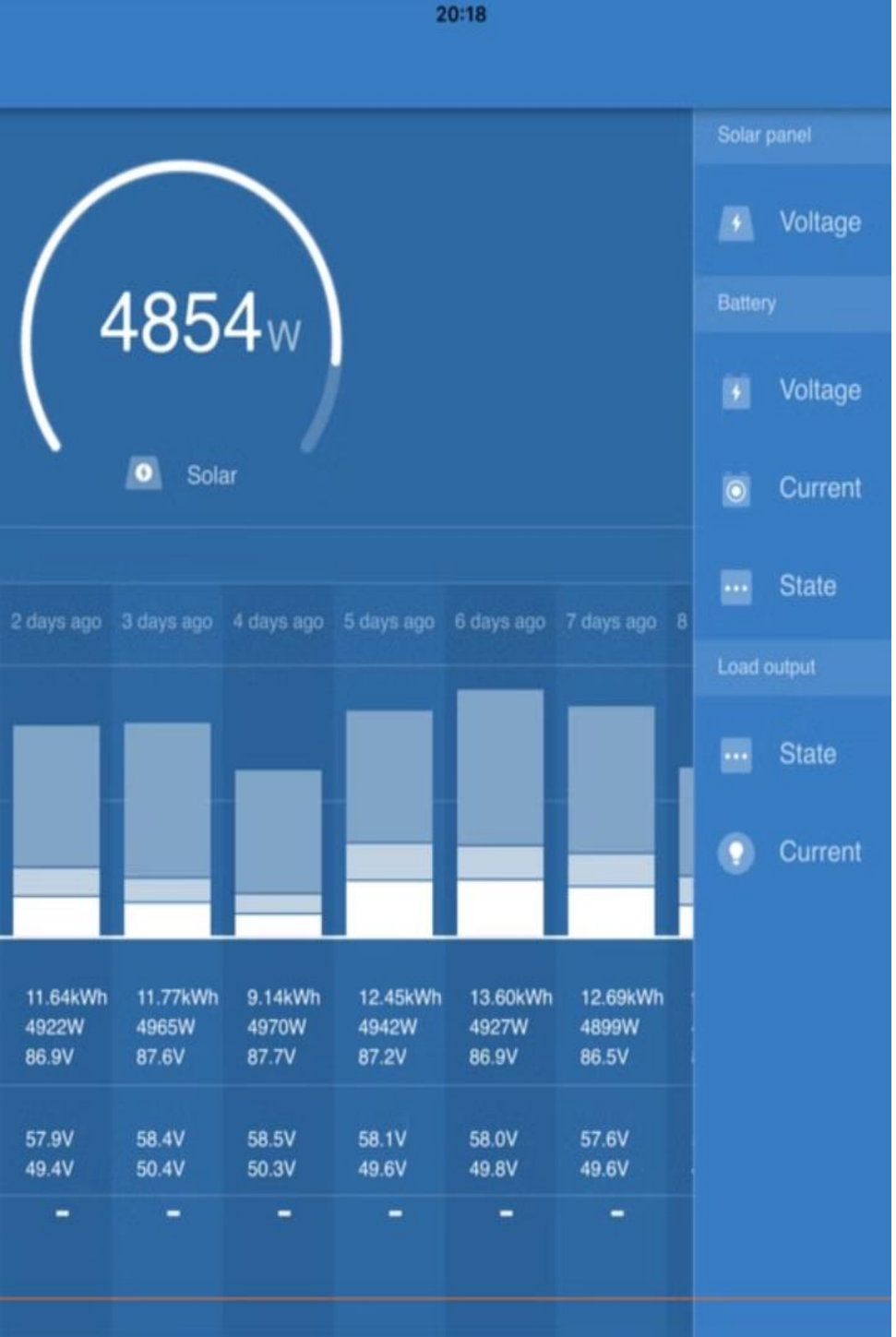
Always respect: Battery → Panels → Charging

Disconnect order

Do the opposite: Charge → Panels → Battery

Before wiring

Disconnect all power sources.



Installing VictronConnect

Download the app

Install VictronConnect on your device.

Turn on Bluetooth

Make sure Bluetooth is turned on.

Look for the Regulator

Find your MPPT in the list of devices.

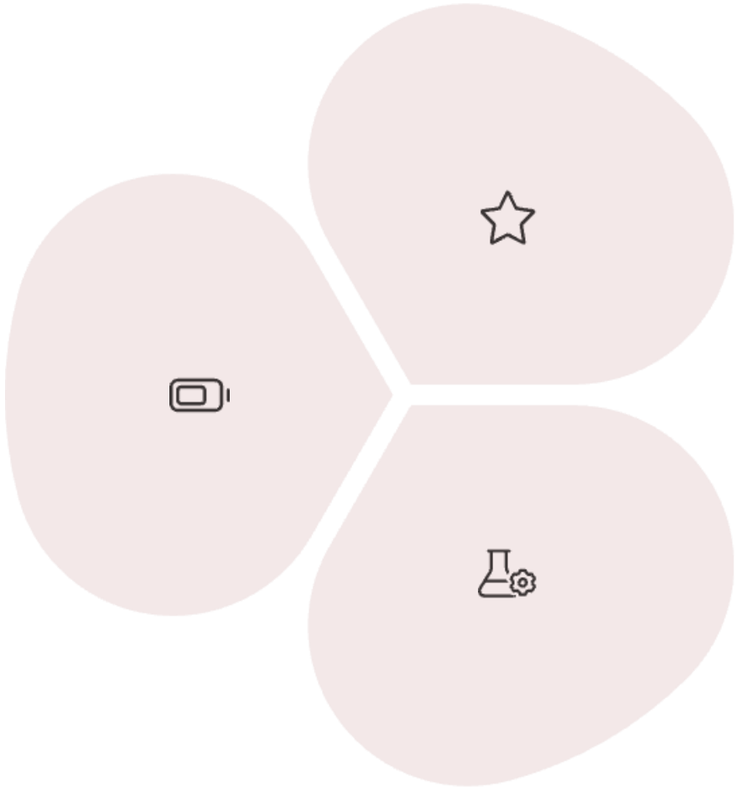
Enter the password

Use "000000" as your default password.

Battery type configuration

Lead-acid

AGM, Gel, Open Lead



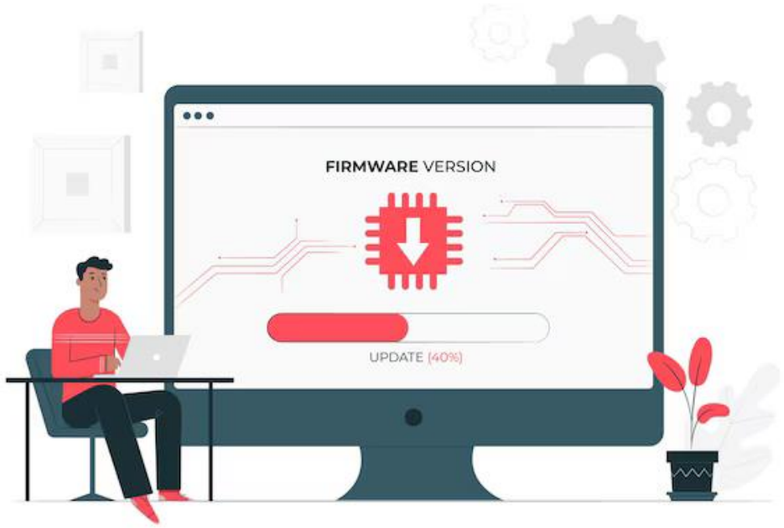
Lithium

LiFePO4 (check if BMS needed)

Custom

Set voltages manually

Solar panel configuration



Final verification

Everything is within the limits of the regulator

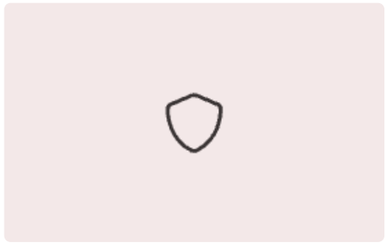
Field voltage

Respects the operating range

Field current

Does not exceed the limits of the MPPT

Protection and security



Comprehensive protection

Fully protected system



Cut-off thresholds

Definition of low-voltage limits

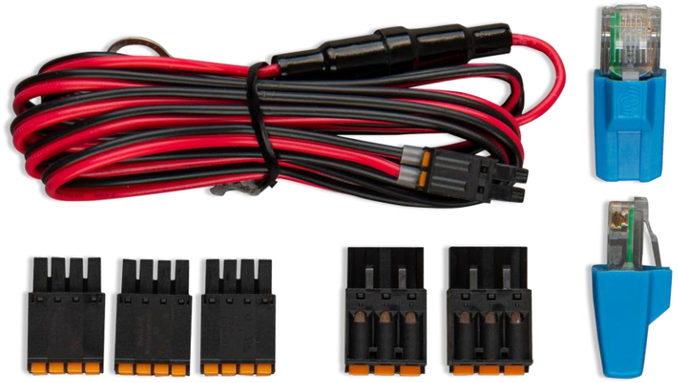


Deep discharge

Enabling Protection

Supervision with the Cerbo GX





Connection

Connect all components via VE. Bus and EV. Direct.

Surveillance

Access the VRM interface for real-time tracking.

Alerts

Check battery voltage (44V-54V) and identify potential errors.

VRM - Remote monitoring and management



Main view

Monitor real-time system performance.

Analysis

Explore graphs and historical data to assess effectiveness.

Adjustments

Change the settings as needed via VRM.

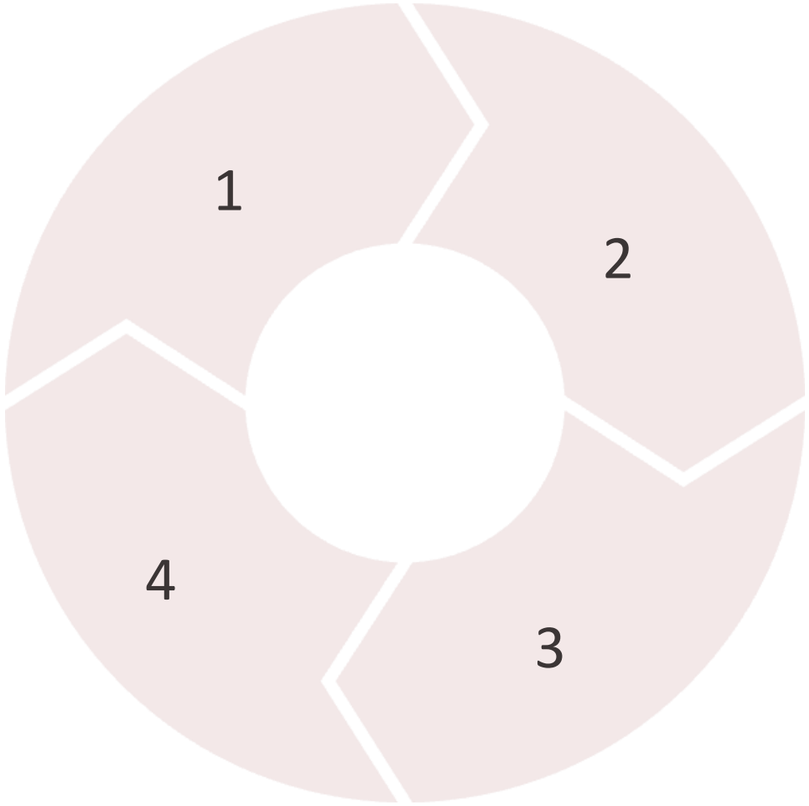
Error detection

View the screen

Check for error messages on the Cerbo GX.

Test failover

Check the transition between energy sources.



Fix problems

Adjust settings based on detected errors.

Analyze the data

Examine energy flows and performance.

Case Study: Stand-alone installation

1

Configuration MPPT

Lithium-ion mode, max charge 54V, cut-off 44V.

2

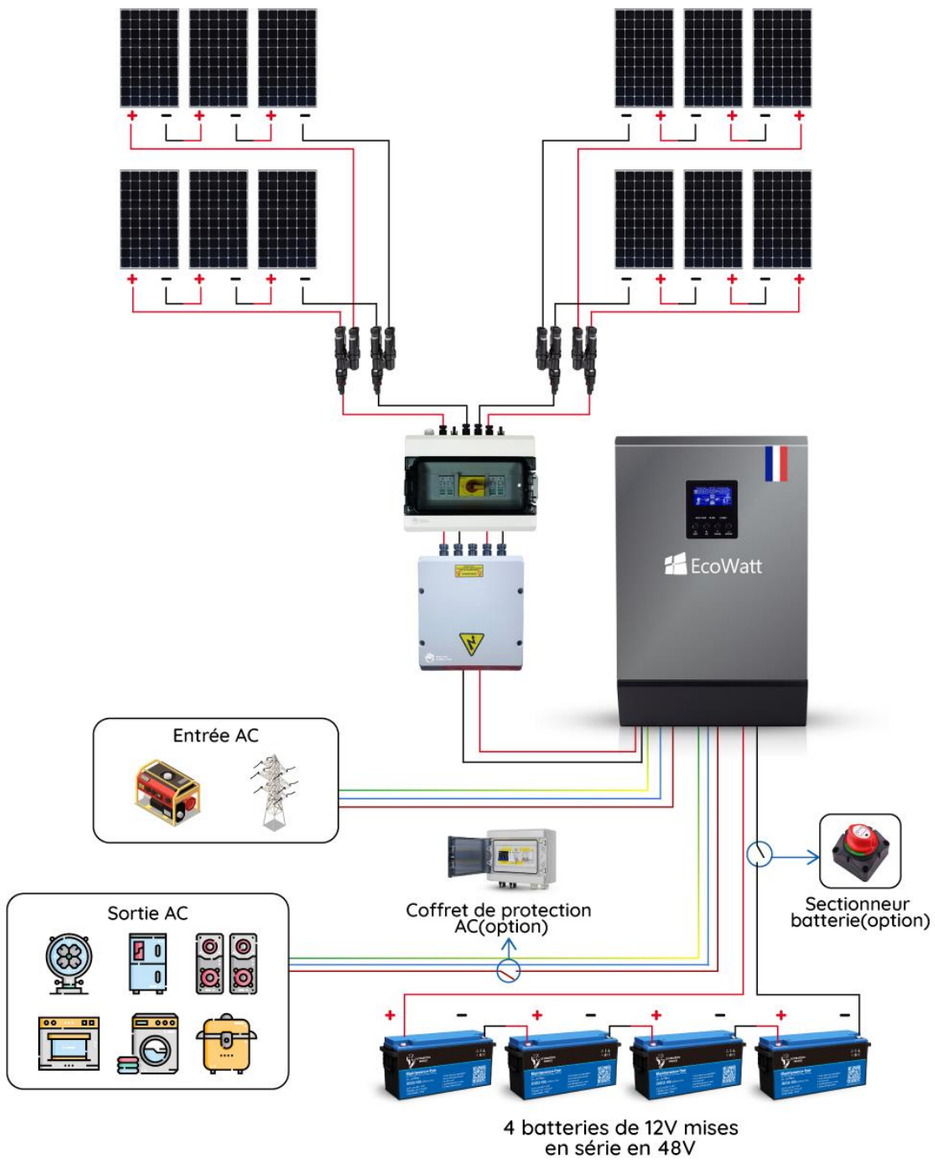
MultiPlus-II Setup

Hybrid mode, solar priority, 50Hz frequency.

3

Cerbo GX Connection

Real-time monitoring, alerts via VRM.



Final system test

1

Checking Connections

Make sure the cables are tight. Check the Polarities.

2

Electrical measurements

Test the continuity of the circuits with a multimeter.

3

Voltage Control

Measure the battery voltage and output of the MultiPlus-II.

4

Production verification

Control the production of solar panels.

Conclusion



The configuration of the devices ensures the performance and efficiency of the installation. With dedicated software, you can customize, update, and monitor the system securely.

Optimal performance

Reliable and efficient system

Monitoring

Suivi via Cerbo GX

Precise configuration

Adapted parameters

Careful installation

Verified connections