

INSTALLER'S MANUAL AQ-Lith EnergyRACK & Victron MultiPlus-II Three phase Victron installation (3*3KVA)

Installation guide part I for kit BAT/49983

PART 1

Version 2.0
(September 2021)

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1 Introduction

This first part of this manual is intended to assist in the installation of an AQ-Lith three-phase battery storage system. It should only be installed by persons qualified in electricity and installation techniques.



The installer must always ensure that the contents of this manual comply with the installation in question and with the latest local legislation such as the AREI, etc.



This manual is for support purposes only. Attending a training course (approved by us) is necessary for the correct installation and commissioning of a battery storage system.



Be sure to consult Part 2 of the manual before beginning to connect and start an installation. You will receive Part Two when you purchase your first installation.

The second part of the manual contains an extensive step-by-step plan for both connecting the system and setting the various devices and parameters. Furthermore, the second part also contains an overview of the most common problems and their solutions.

Before installing a battery storage system, always check the conditions for a grid study and the resulting additional safety measures.

2 General Information

2.1 Contact details Battery Supplies

- Nijverheidslaan +50/56, 8540 Deerlijk, Belgium
- Phone: +32 (0) 56 61 79 77
- Fax: +32 (0) 56 61 79 55
- Email: info@batterysupplies.be
- Web: www.batterysupplies.be

2.2 Type of Manual

This manual is an **installation guide** intended to assist a licensed installer in setting up and commissioning a Battery Supplies battery storage system.



It is necessary to read this manual thoroughly before installing or using a battery.

2.3 Intended Use

The EnergyRack from Battery Supplies (30-46kWh) is a storage battery intended to store excess solar energy and use it later with the added possibility of ups function for a limited time.

The EnergyRack is not suitable for powering life supporting medical devices and applications. Modifications to this product should only be done with written permission from Battery Supplies. Without this permission the warranty will no longer apply. Battery Supplies will not be responsible for any injury or damage caused by such modifications.

The batteries from Battery Supplies (Energybox/Energyrack) should only be used with compatible inverters. In case of any doubt please contact Battery Supplies.

3 Safety

This section contains all the safety information that should be observed during the installation and use of a home battery. To avoid damage to the devices or injury, this section should be read carefully



3.1 environmental requirements

- Do not expose the battery to temperatures above 50°C
- Do not place the battery near external heat sources
- Do not expose the battery to moisture or liquids
- Do not expose the battery to corrosive gases or liquids
- Do not expose the battery to direct sunlight for extended periods
- Do not allow power connectors to come into undesired contact with conductive materials
- Place the battery in a safe environment, away from children or animals
- Place the battery in an environment with a minimum of dust and dirt



Failure to meet the environmental requirements can have a negative impact on the operation and life of the product.

3.2 precautions for operation

- Never remove the casing from the battery
- Never touch the battery with wet hands
- Do not drop or dent the battery.
- Never puncture battery cells or battery housing
- Never place the battery in series
- Always respect the polarity of the power connectors on the battery
- Before installation, remove all jewelry or items that could cause a short circuit.
- Never short-circuit the power connectors
- Store the battery according to the guidelines in this manual
- Ensure proper and reliable grounding
- Disconnect the inverter-battery connection and then disconnect the battery before

- servicing, installing or cleaning it.
- Continued operation of a damaged battery may cause serious injury
- The battery must never be covered, painted,...
- Never connect the solar panels to the battery directly
- Never connect the battery directly to the AC mains.

3.3 emergencies

Turn off the power supply and battery in an emergency!

- Wet batteries: if the battery is wet or submerged , do not allow people near the battery. Contact Battery Supplies for further steps.
- Fire: **Never extinguish with water!** Only use a dry powder extinguisher and if possible move the battery to a safe place.
- Leaking battery: if electrolyte leaks from the battery, avoid all contact with this leaking gas and/or liquid. If someone does come in contact, take the following steps immediately:
 - o Eyes: immediately flush eyes with water for 15 min and seek medical attention.
 - o Skin: play and wash the touched skin with soap and water. Seek medical attention.
 - o Ingestion: try to vomit and seek medical attention.
- Damaged battery: damaged batteries are extremely dangerous and should be handled with care. They should not be used anymore. Contact Battery Supplies for further action.

3.4 Personal Protective Equipment (PPE)

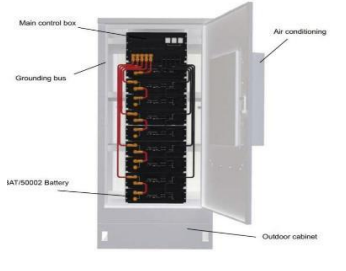




It is recommended that you wear the protective equipment below when working with a battery storage system.






- Insulated gloves
- Safety Glasses
- Safety Shoes

4 Overview of components


This first part of "component overview" describes the products that are provided in the kit. A second part describes the items that must be provided by you, the installer. This information should help you to get an overview of the additional costs you will have to incur to complete the installation.

4.1 Installation KIT 3*3kVA

EnergyRack	44-56.7V DC Up to 46 kWh (NOT INCLUDED IN KIT)	
2 x Victron Energy MultiPlus-II 48V / 3000VA / 35A	Charger / inverter 3000VA (https://www.victronenergy.com/inverters-chargers/multiplus-ii)	
1 x Victron Energy MultiPlus-II-GX 48/ 3000VA / 35A	Charger / inverter 3000VA Built-in GX function (https://www.victronenergy.com/inverters-chargers/multiplus-ii)	
3 x Victron Energy CT	Measure the current going to/from the grid.	
2*UTP cable	VE bus connection between the three inverters	

Fuse 200A DC + fuse holder	Securing the DC side of the Victron	
CanBus Cable	Provides connection between the Energyrack and the MultiPlus. This cable MUST be the one supplied.	
3* DC cable red (35mm ²) 20cm	Connection between Victron and 200A DC fuse	
energymeter ET340 3phase	Measurement of Pv inverter performance	
Victron Energy RS485 to USB converter	Provides connection between energy meter and MultiPlus	

4.2 Provided by installer (not in KIT)

Victron Energy Interface MK3-USB	Interface to connect your PC with the Multiplus-II via the VE.bus (single purchase by installer)	
DC cables 35mm ² (red and black)	Cables to connect the three Multiplus-II devices to the battery.	Different lengths can be ordered on request at Battery Supplies
Extension cable ct's	The beach ground cable is 1m long and may be extended.	Use cable with a section of at least 0.75mm and must be shielded

UTP cable (optional)	Necessary to extend the data cable if the distance between energy meter and Multiplus-II-GX is greater than 5m.	You may extend the data cable by up to 100m.
Wiring AC side	To connect all devices according to the diagrams.	Use the correct cross sections in accordance with local legislation.
Circuit breakers AC side	All circuit breakers on the AC side of the setup are not provided in the kit.	



The local situation has a big influence on the necessary extra material (cabling, extra power box,...) and therefore on the installation cost. Take this into account when drawing up the total price.

5 Inserting the battery

The Energyrack is delivered as a whole and therefore weighs more than 600 kg. You should therefore check beforehand how the battery can be moved to its place. If necessary, the modules (48 kg each) can be removed to facilitate moving the battery. The battery itself is not yet wired on arrival for safety reasons.

The inverters are best placed as close to the battery as possible to minimize cable losses. Hang the inverters in a cool place because too high temperatures will reduce the maximum power output of the inverters (see data sheet at the back) . The MultiPlus-II GX should be placed in a dry and well ventilated area (IP21) and there should be at least 10 cm of free space around the unit.

6 Wiring diagrams: data and power cables

This section provides some schematics needed when connecting this battery storage system. **Be sure to check if a grid study (or the additional safety measures associated with it) are required. These are not included in the schematic!**



These diagrams alone are not sufficient to correctly place and connect the system. Follow the installation roadmap (Part 2) to avoid damage to battery and inverters.

These diagrams serve as an overview to clearly see the scope of an installation. Before you start connecting, carefully read the safety instructions for the battery and the Victron Multiplus-II-GX.



Attached are principle diagrams. The installer is responsible for choosing the correct safety components according to local application(s) and current legislation. **Check whether a grid study/disconnection relay is mandatory! (vreg)**

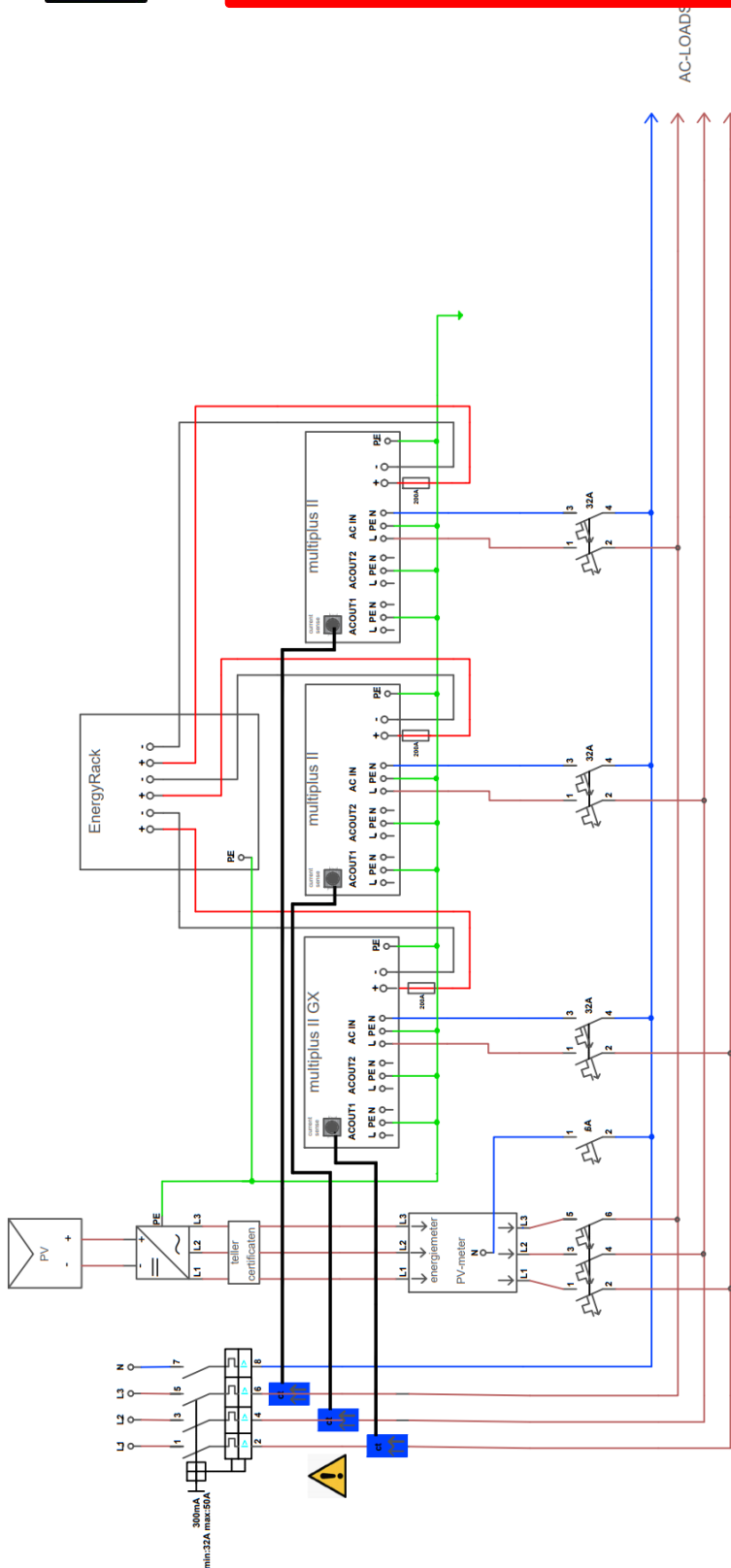


Circuit breakers with a different rated current than indicated on the diagrams may be installed. circuit breakers of 20A are best chosen of type D.

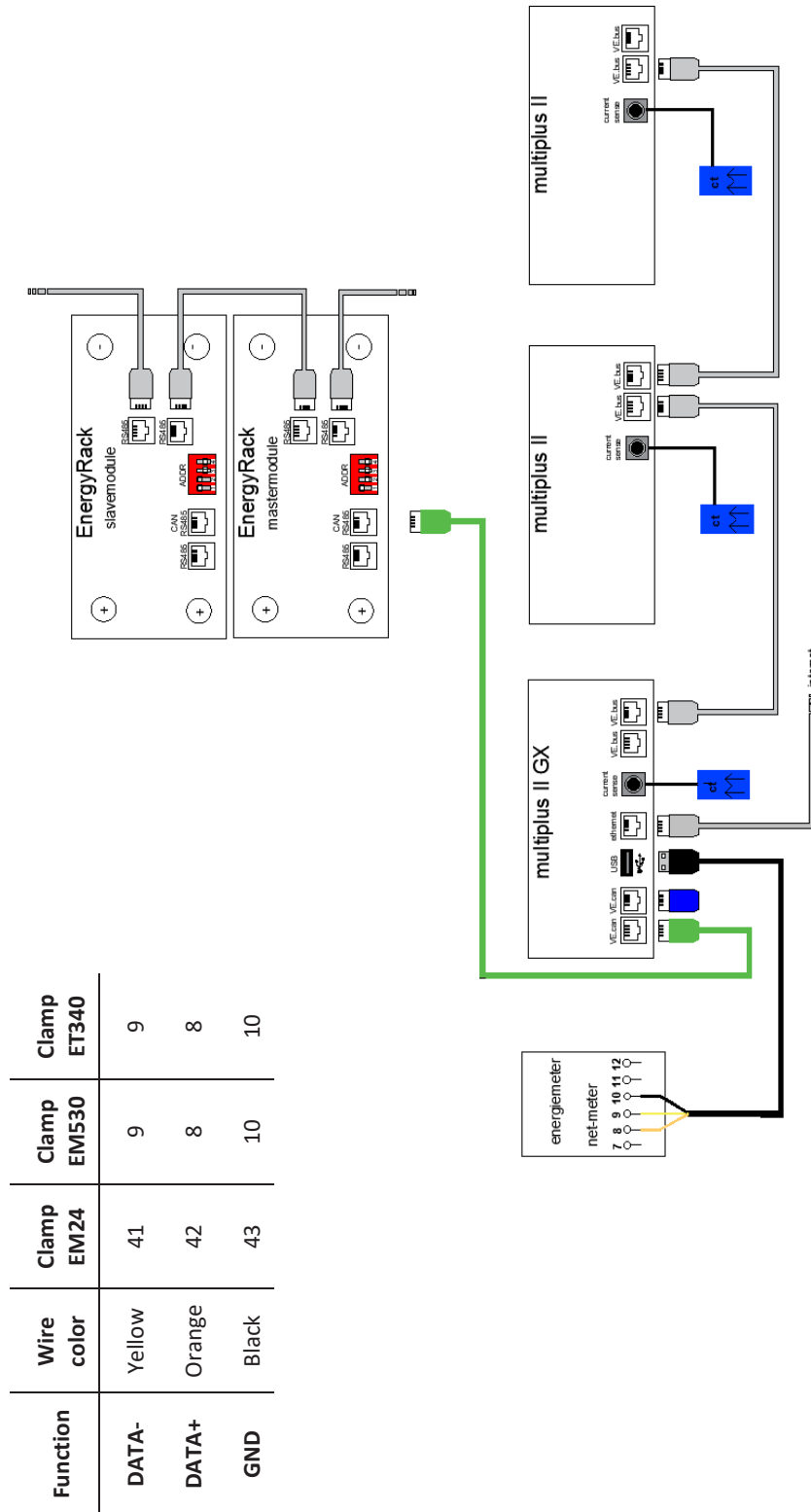
6.1 Schematic: 3*3kVA Victron



The phases of the CTs must match the phase of the respective inverter.



6.2 Schematic: 3*3kVA Data cables



Function	Wire color	Clamp EM24	Clamp EM530	Clamp ET340
DATA-	Yellow	41	9	9
DATA+	Orange	42	8	8
GND	Black	43	10	10

7 Technical Data Sheet: Victron MultiPlus-II (GX)

MultiPlus-II GX	24/3000/70-32	48/3000/35-32	48/5000/70-50
PowerControl & PowerAssist	Yes		
Transfer switch	32 A		50 A
Maximum AC input current	32 A		50 A
Auxiliary output	Yes (32 A)		
INVERTER			
DC Input voltage range	19 – 33 V	38 – 66 V	
Output	Output voltage: 230 VAC ± 2 % Frequency: 50 Hz ± 0,1 % (1)		
Cont. output power at 25 °C (3)	3000 VA		5000 VA
Cont. output power at 25 °C	2400 W		4000 W
Cont. output power at 40 °C	2200 W		3700 W
Cont. output power at 65 °C	1700 W		3000 W
Maximum apparent feed-in power	3000 VA		5000 VA
Peak power	5500 W		9000 W
Maximum efficiency	94 %	95 %	96 %
Zero load power	13 W	11 W	18 W
Zero load power in AES mode	9 W	7 W	12 W
Zero load power in Search mode	3 W	2 W	2 W
CHARGER			
AC Input	Input voltage range: 187-265 VAC Input frequency: 45 – 65 Hz		
Charge voltage 'absorption'	28,8 V		57,6 V
Charge voltage 'float'	27,6 V		55,2 V
Storage mode	26,4 V		52,8 V
Maximum battery charge current (4)	70 A	35 A	70 A
Battery temperature sensor	Yes		
GENERAL			
Interfaces	BMS-Can, USB, Ethernet, VE.Direct, Wi-Fi		
External AC current sensor (optional)	50 A		100 A
Programmable relay (5)	Yes		
Protection (2)	a – g		
VE.Bus communication port	For parallel and three phase operation, remote monitoring and system integration		
General purpose com. port	Yes, 2x		
Remote on-off	Yes		
Operating temperature range	-40 to +65 °C (fan assisted cooling)		
Humidity (non-condensing)	max 95 %		
ENCLOSURE			
Material & Colour	Steel, blue RAL 5012		
Protection category	IP22		
Battery-connection	M8 bolts		
230 V AC-connection	Screw terminals 13 mm ² (6 AWG)		
Weight	19 kg		30 kg
Dimensions (hwxwd) mm	506 x 275 x 147		565 x 323 x 148
STANDARDS			
Safety	EN-IEC 60335-1, EN-IEC 60335-2-29, EN-IEC 62109-1, EN-IEC 62109-2		
Emission, Immunity	EN 55014-1, EN 55014-2 EN-IEC 61000-3-2, EN-IEC 61000-3-3 IEC 61000-6-1, IEC 61000-6-2, IEC 61000-6-3		
Uninterruptible power supply	IEC 62040-1		
Anti-islanding	Please consult the certificates on our website.		
1) Can be adjusted to 60 Hz	3) Non-linear load, crest factor 3:1		
2) Protection key:	4) At 25 °C ambient		
a) output short circuit	5) Programmable relay which can be set for general alarm, DC under voltage or genset start/stop function.		
b) overload	AC rating: 230 V / 4 A, DC rating: 4 A up to 35 VDC and 1 A up to 60 VDC		
c) battery voltage too high			
d) battery voltage too low			
e) temperature too high			
f) 230 VAC on inverter output			
g) input voltage ripple too high			

INSTALLER'S MANUAL AQ-Lith EnergyRACK & Victron MultiPlus-II Three phase Victron installation (3*3kVA)

Installation guide part II for kit BAT/49983

PART 2

Version 2.0
(September 2021)

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1. Introduction

This second part of this manual is intended to assist in the installation of an AQ-Lith three-phase battery storage system. It should only be installed by persons qualified in electricity and installation techniques.

This manual consists of three chapters:

- 1) Connecting the system
- 2) Starting up and setting up the installation
- 3) Problems and Solutions

Also be sure to check in advance that you have the latest version of this manual.



The installer must always ensure that the contents of this manual comply with the installation in question and with the latest local legislation such as the AREI, etc.



This manual is for support purposes only. Attending a training course (approved by us) is necessary for the correct installation and commissioning of a battery storage system.



Be sure to consult Part 1 of the manual before beginning to connect and start an installation.

2. Connecting the plant

Using the diagrams and step-by-step plan found in this chapter, you will be able to correctly connect all devices and meters.



When connecting the installation, it is MANDATORY to follow the sequence (given in the step-by-step plan). If this is not done correctly, damage may occur to the devices.

2.1 Hanging and placing appliances

The **Victron Multiplus-II (GX)** units should be mounted on the wall. It is important to leave at least 15cm of free space on all sides of the equipment so that the ventilation of the equipment is not impeded. Never hang the inverters directly above the battery. Ensure that the circuit breakers protecting the inverters are no smaller than shown on the diagrams in Part 1.

The **EnergyRack should be** stored in a dry place at a constant temperature. (20-25°C) and out of the sun. Excessively high or low temperatures may adversely affect the life and operation of the battery.

Try to keep the distance between the battery and inverters to a minimum to minimize any cable losses.

The **CTs** are placed just after the digital meter. Make sure that all CTs are connected to the same phase as their respective Victron Multiplus II.

At the same time, all the circuit breakers can be fitted so that the inverters can later be connected to the grid. Do not connect the inverters to the grid yet!

2.2 Connecting the devices.

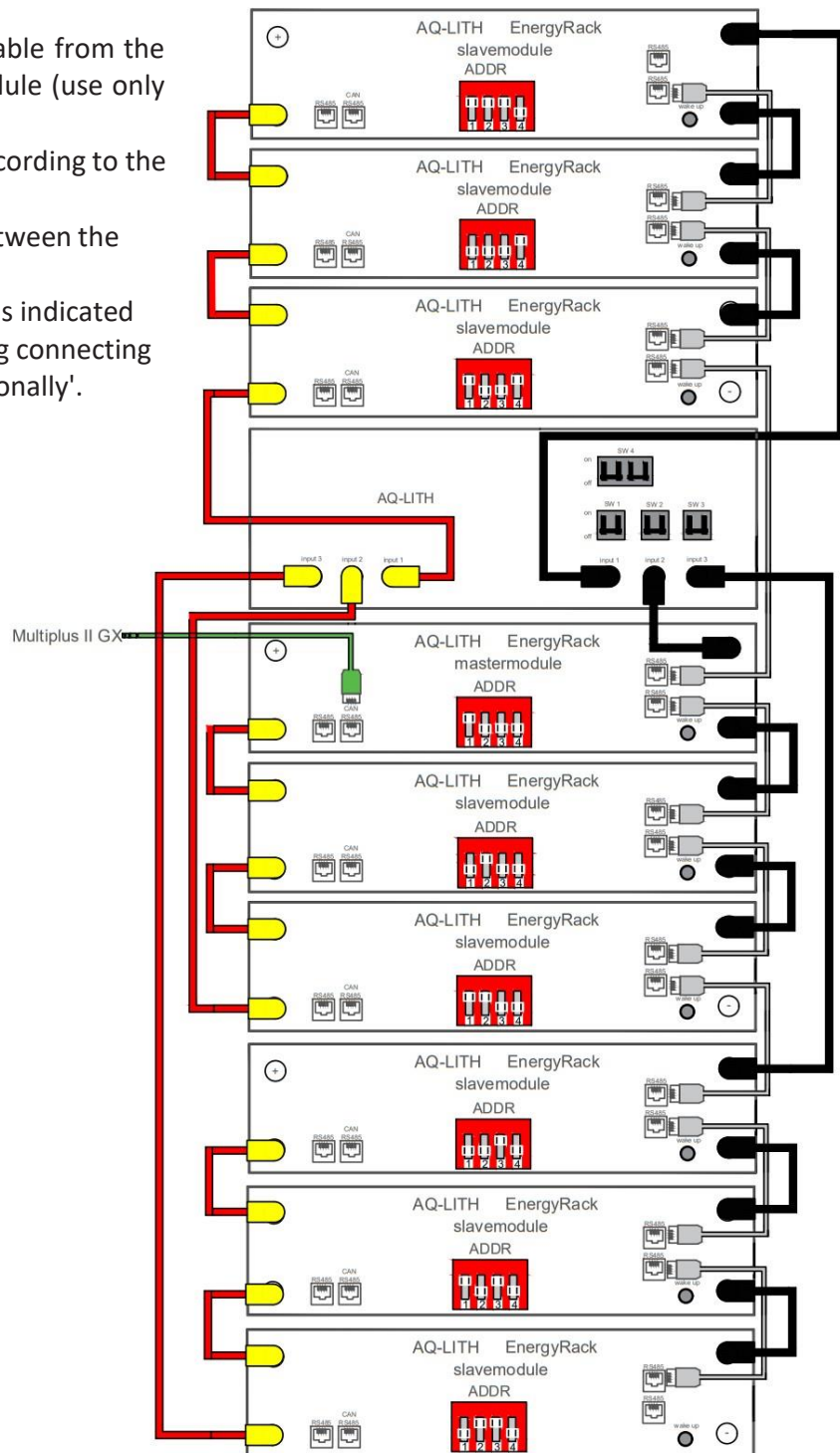
The diagrams for connecting the power and data cables can be found in Part 1 of this manual. The first step is to connect the EnergyRack internally. The diagram on the next page can be followed for this.



The Multiplus GX requires an internet connection via cable. Check in advance that there are no possible safeguards in place that will block the device from accessing the network.

Cabling of the EnergyRack

- Connect the special CAN cable from the inverter to the master module (use only the supplied cable)
- Position the dipswitches according to the drawing above
- Connect the data cables between the different modules.
- Connect the power cables as indicated above, making sure the long connecting cables are connected 'diagonally'.



Connecting the various devices



When connecting the installation, it is MANDATORY to follow the sequence (given in the step-by-step plan). If this is not done correctly, damage may occur to the devices.

1. Connecting the earthing cables

The units should each be grounded to their enclosures with the appropriate cable cross section. In addition, all grounding of AC-in, AC-out1 and AC-out2 should also be connected. The Energyrack itself should also be grounded. This is done on the plate where all ground cables of the module are brought together (bottom left of the EnergyRack).

2. Inserting the 200A DC fuses

By using the short plus cable (red), the connection can be made between the plus terminal of the Multiplus and one side of the fuse holder. These fuses should be mounted on the wall. Cut out the openings in the blue protection cap to create a suitable opening and then place it on the fuse holder. If necessary, provide some extra insulation tape to make sure there is no exposed metal visible.

3. Connecting DC cables

Make sure the DC switches are off from the battery! (Tip: check that there is no voltage on the DC cables with a multimeter as well as the polarity) First the ground (black cables) of the Multipluses are connected to the battery. Only then may the other side of the DC fuses be connected to the plus terminals of the battery.

As long as the setup is not working, the cooling group should be disconnected so it does not drain the battery. Also, do not press the wake-up button. **Make sure all the nuts are tightened properly.** After all, we are talking about very large dc currents here.

4. Connecting the AC-inputs

Connect the three inverters through the AC-in jack as shown on the diagram. Make sure each unit is connected to a different phase and remember which unit hangs on which phase.

5. Placing and connecting the CTs.

Place the CTs according to the diagram provided. Make sure each CT is connected to the correct inverter (phases of CTs and inverters must match).

6. Connecting the data cables

Now tomorrow all data cables are connected according to the schematic. In the multiplus GX two CAN ports are provided. One is used to connect to the battery. The other needs to be

"terminated" with a CAN bus end provided with the Multiplus GX. Only the CAN cable provided can be used to connect the battery to the inverter.

3. Connecting the CTs



The placement and connection of CTs requires some knowledge and experience. Incorrect placement/removal of these Ct's can cause damage to the CT's themselves as well as the energy meter.
CTs always short out when assembling!!!

The Current Transformers can easily be clicked over the cables. Make sure they are connected to the Victron's first before installing them otherwise they may be damaged.

4. Updating the firmware



Updating the firmware is best done in advance and not on-site at the customer's premises. The first time, this step may take some time.

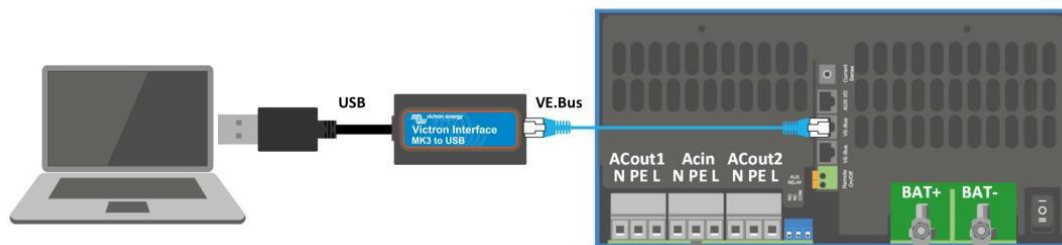
Following programs need to be installed:

- VictronConnect: <https://www.victronenergy.com/panel-systems-remote-monitoring/victronconnect#victronconnect-downloads> Victron Energy
- VeConfiguration tools: <https://www.victronenergy.com/support-and-downloads/software>

To connect the inverters three-phase, all three must have the same firmware. The firmware of the units can be updated through the VictronConnect program.

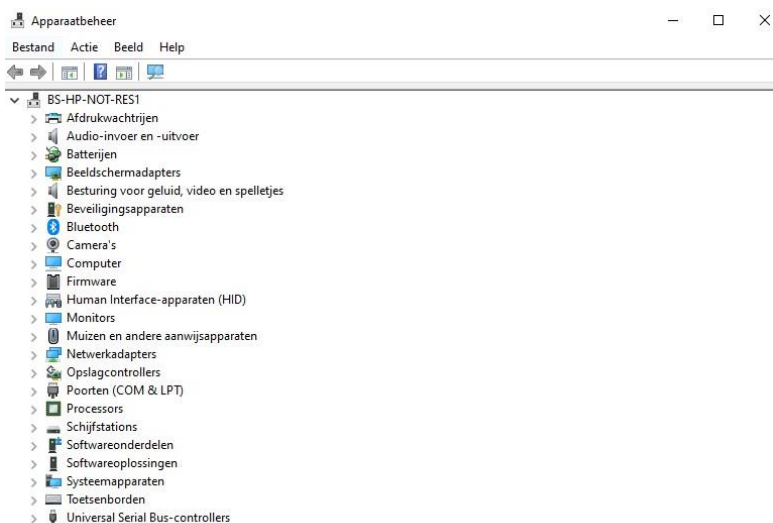
For updating the firmware tomorrow the three inverters are not yet interconnected with the VE-bus cables.

Before the firmware can be updated, some steps have to be taken. First of all the MultiPlus has to be connected to the computer via an MK3-USB interface.



When used for the first time, the drivers for this interface must be installed. For this the application "VeConfig" must first be opened. (Make sure the interface is already connected to the PC via the USB input) Go to special and choose USB drives. Click on Yes and choose a suitable folder to save it. The drivers are NOT yet installed by this.

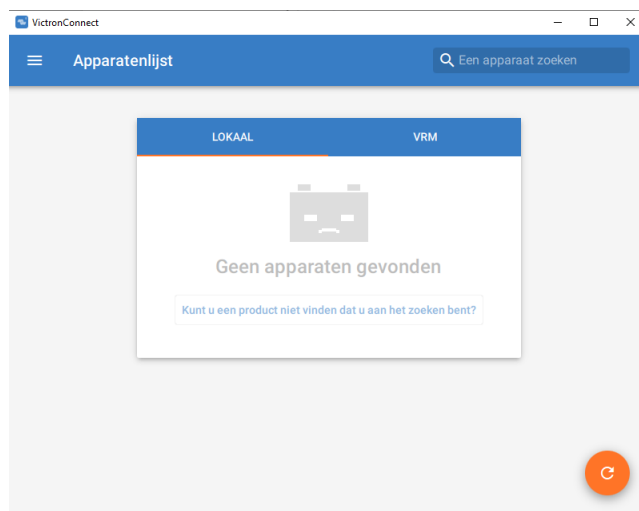
Then go to "device management" on your PC.



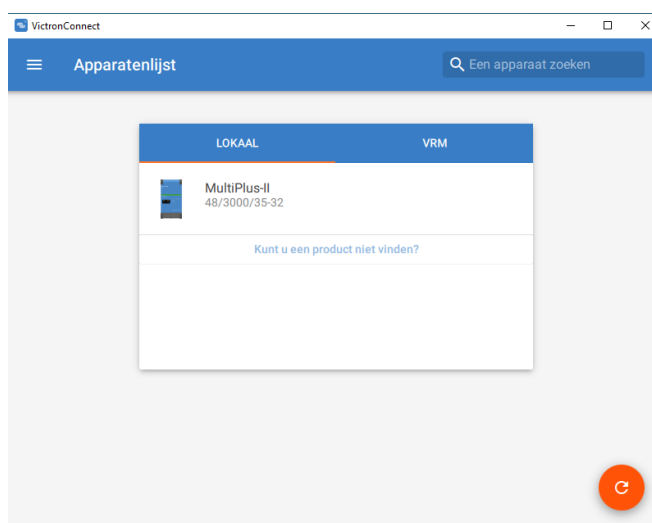
Under ports, choose the USB Serial Port. With a right mouse click the driver can then be installed. To do this, select the correct folder (just selected it yourself).

This installation of the drive is only necessary the first time.

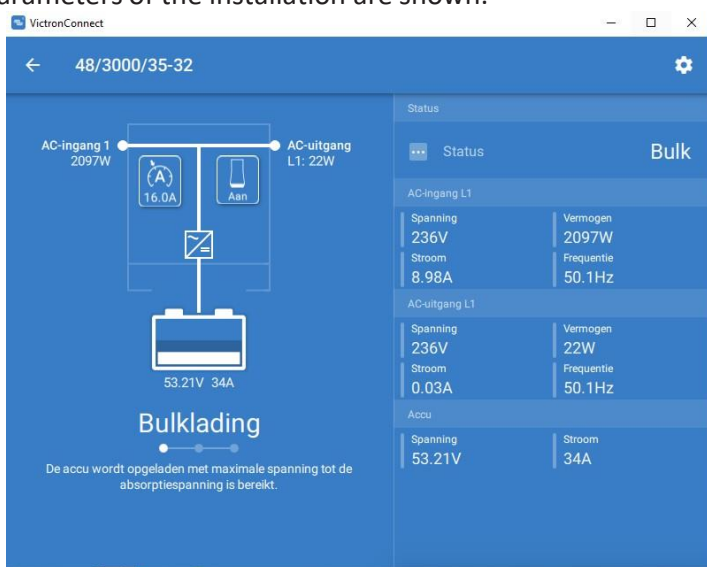
Now that the driver is installed and the first device is connected, it is time to open the Victron Connect app. The home screen is shown below.



Now connect the first MultiPlus via the interface to your PC according to the diagram on the previous page. When the MultiPlus is connected to the computer, it will appear in the list 'local' under the name 'MultiPlus-II' or 'MultiPlus-II-GX' (please disconnect the Mod-bus connections to other devices).

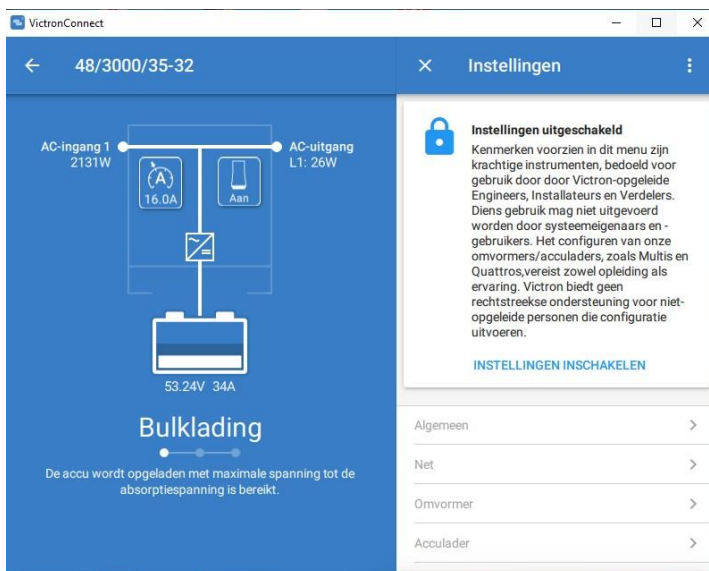


When the MultiPlus is clicked in the list of devices, the screen below is displayed. On this screen, various parameters of the installation are shown.

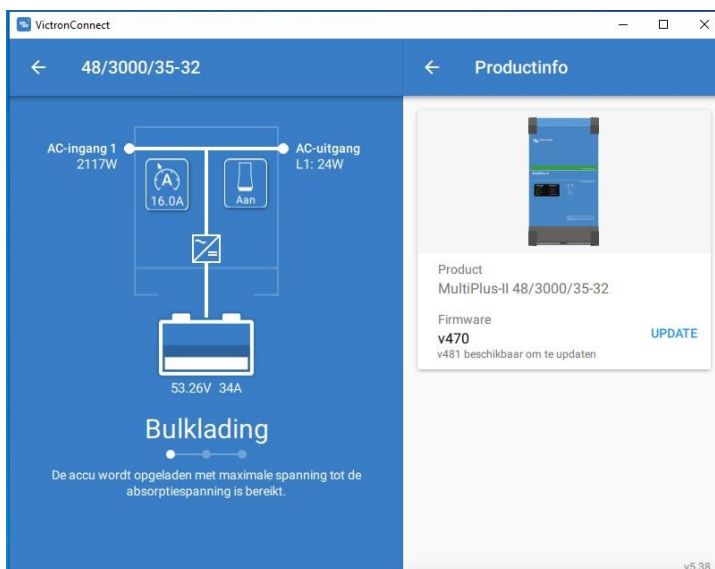


Then click on the gear icon in the upper right corner.

However, to adjust the inverter settings, they must first be enabled, this is done via 'enable settings'. The password to be entered is the same for each installation. **Password: zzz**



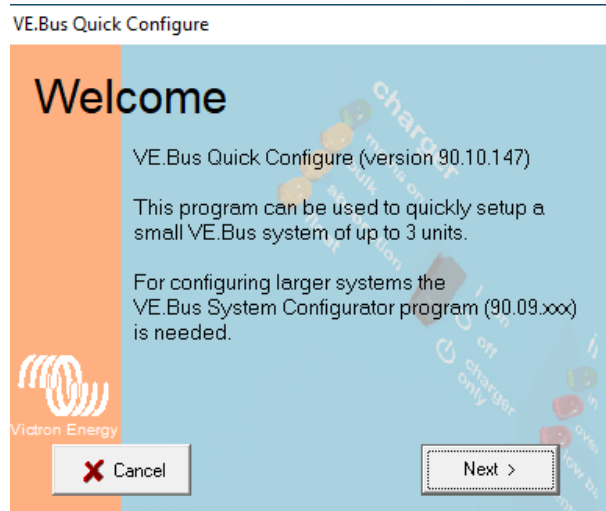
Once the password is entered, you can adjust all the settings. To update the firmware, click on the icon consisting of three dots at the top right. Once you have done this, you can see the current firmware version of the device and, if the firmware is not up to date, update it. The firmware update must be done from each MultiPlus unit separately, therefore these steps must be repeated for each MultiPlus.



After all three units have the latest Firmware the VictronConnect program may be closed and all Mod-bus cables between the different MultiPluses reconnected.

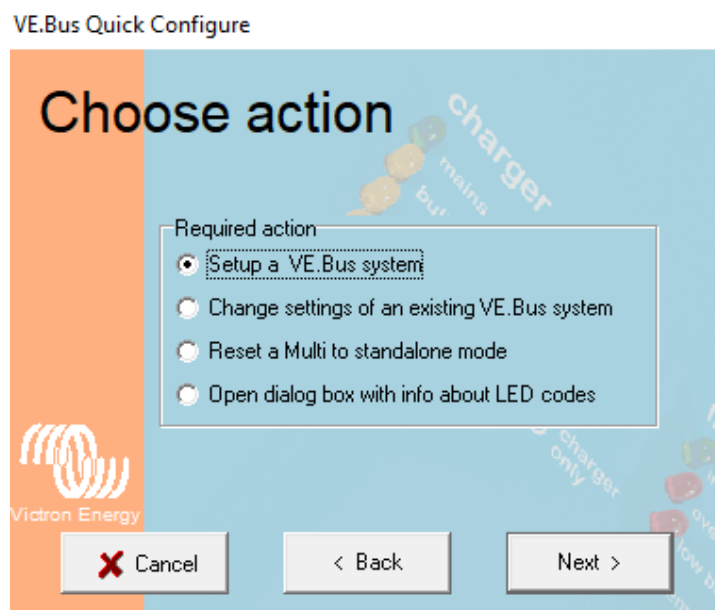
5. Loading parameters with MK3-USB interface

Now open the program: "VE.Bus Quick Configure", which can be downloaded again from the victron website. Ensure that all Mod-bus cables are connected and that one of the units is also connected to your PC via the MK3 interface. Make sure all the devices are **turned off**. The battery and then the circuit breakers to the devices may be turned on. The startup screen is shown below.

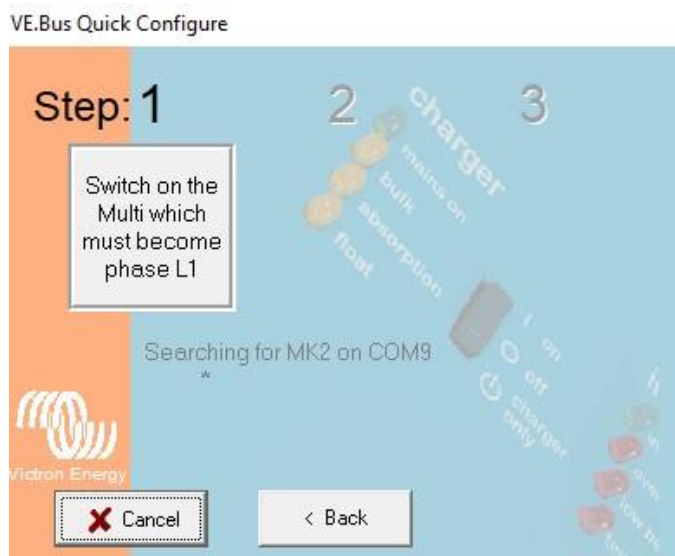


If the program asks for an update be sure to install it. Then click on "Next".

Next, choose: "Setup a VE.bus system". If you want to make changes to an existing system choose: "Change settings of an existing VE.Bus system". Then click "next" again.



As configuration you choose : "Three phase" and click again on "next". Select the correct COM port (find the option: "scan for existing ports"). Then click on "next" again. The program will now ask you to make sure that all devices are turned off. Click "next" and you should see the screen below.

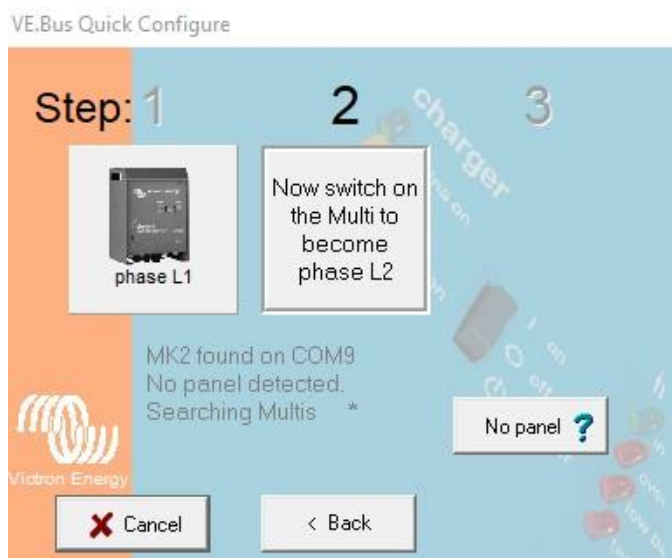


Now switch on the device connected to the first phase of the mains connection. Always set the devices to position 1 and not to position 2 (charging only).

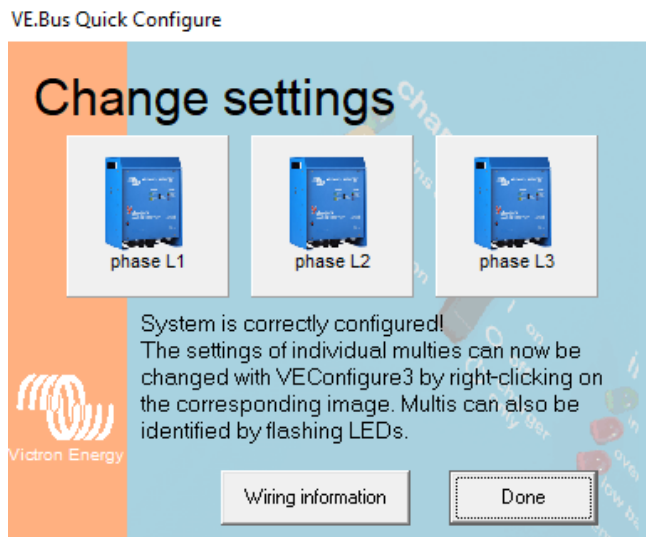


The phases of the grid must match correctly with the connection on the energy meters and with the connection on the inverters themselves otherwise the installation will not work.

The device is connected and paired with the first stage when the image below appears on your screen.



Now switch on the inverter on the second phase and then also the last Multiplus II that is on the third phase. If everything went correctly, three devices should now be connected and assigned to the corresponding phase.

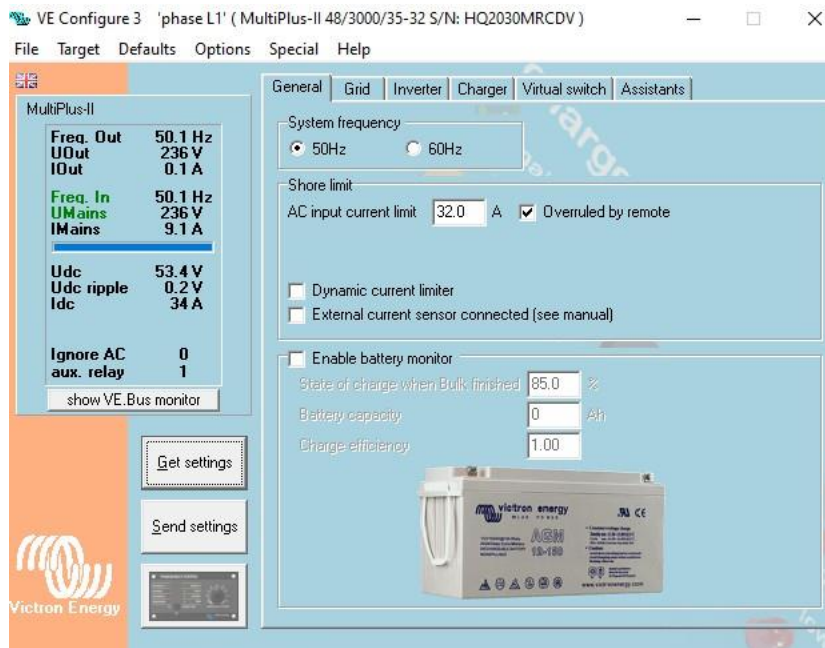


Now the correction parameters have to be added to the three devices. These can be loaded into the device using files. These files can be found at: www.batterysupplies.be/victron. Always check the parameters using the table provided at the end of this operation.



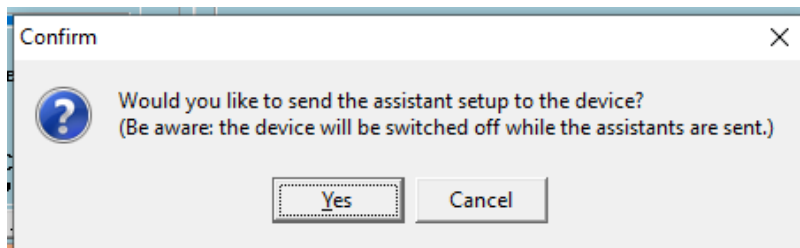
Choose the correct file for your installation otherwise damage to the battery may occur. So choose the file with as name the total capacity of the battery, total power of the inverters and the available grid!

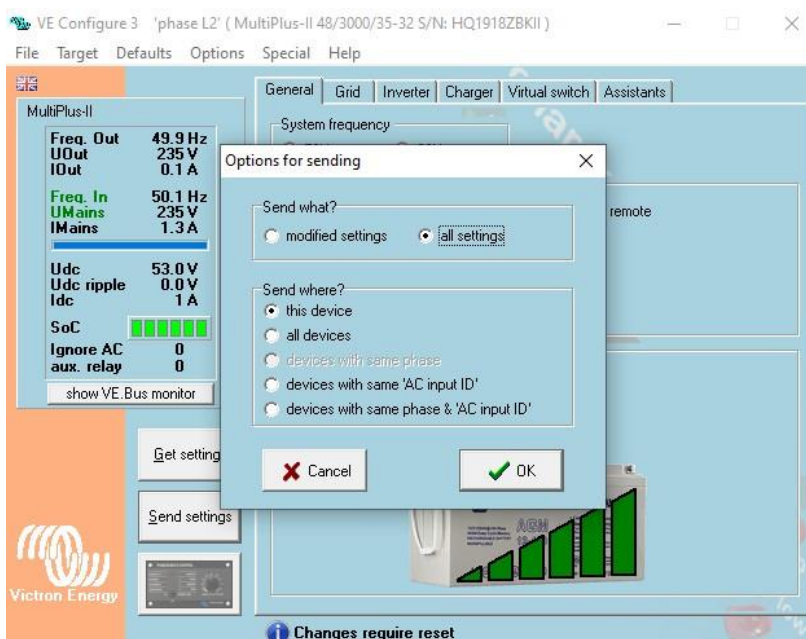
Right-click on the first inverter to open the Ve Configure Multi. After all information has been retrieved from the Victron, the following screen will be displayed.



Choose file -> "load settings" and select the correct file you downloaded from our website. CAUTION: Before forwarding the configuration to the Multiplus, go to the GRID tab and verify that the correct "Grid code standard" is selected. This may need to be changed depending on firmware updates and the location of the installation. A password is required to change the "grid code standard": TPWMBU2A4GCC Then click on "Send setting".

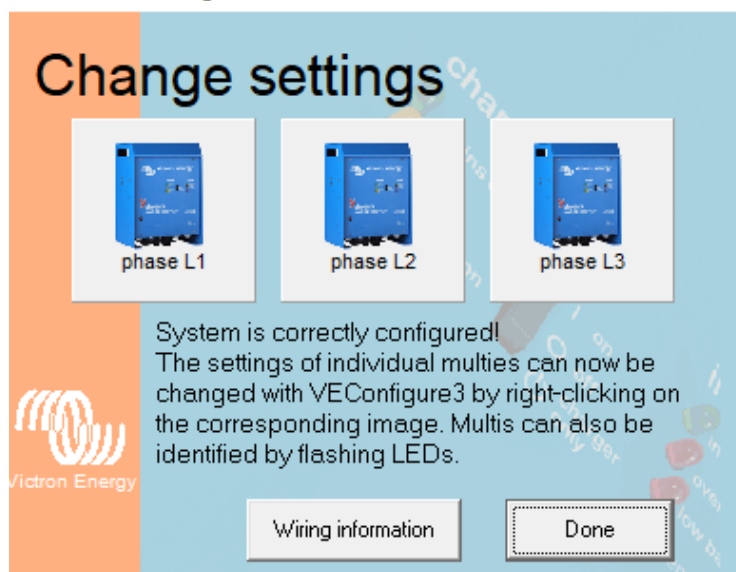
Select the options as shown below and continue with "ok". When the message below is shown choose "yes".





Then you may close the window and you will again see the screen below.

VE.Bus Quick Configure



Now repeat the above steps for the second and third inverters. Then close the program via "Done". All operating parameters are now in the devices and the connection via the interface may be disconnected with the PC.

6. VRM portal - settings ESS

For the system to work properly, some important settings have to be made in the internal software, which controls the MultiPlus-II GX. This can be accessed in two ways. Preferably it can be accessed online, but then an internet connection is required. See chapter 5.1.

Without an Internet connection, it must be accessed locally, as indicated in Section 5.2.

Note: Make sure all devices are turned on.

6.1 Connecting via VRM Online Portal

This method requires an internet connection via an Ethernet cable. The computer, tablet or smartphone used should also be connected to the Internet.

Steps:

1. Connect the MultiPlus-II GX to the internet via an Ethernet cable. This cable should be connected to the (only) Ethernet port on the unit.
2. Check if the network connection to the Multiplus-II GX is operational by lighting the green-orange status LEDs on the Ethernet port. An IP address should be visible on the blue display, after navigating.
3. Register or log in to VRM Portal. Using the "Add installation" button, a new installation can be added to this account.

Add installation

Note: It is possible to add a second account (with any limited rights) to the system.

Example: installer (full management) + customer (view only)

4. Enter the VRM Portal ID to connect to the system, found on the sticker on the unit and with the manual.
5. Open the Remote Console from the options on the left side of the page.
6. Go to chapter "5.3 Settings".

6.2 Connecting via local IP address


This method does not (yet) require an Internet connection, but does require a device with a wireless network card such as a laptop, tablet or smartphone. This step is also a preparation for a wireless connection to an existing WiFi network.

Steps:

1. Download the VictronConnect App on a tablet / smartphone from the App Store or install the software for PC at <https://www.victronenergy.nl/support-and-downloads/software>.
2. Connect to the MultiPlus-II GX via the WiFi access point named "Venus-...-...". The password can be found on the sticker on the unit and with the manual.
Notes: the signal strength of the WiFi access point is limited, so it is best to stay close.
3. Open the VictronConnect App or software and check if the MultiPlus-II GX is detected.

4. Copy the IP address ("Host") of the unit to a browser, or use the "Remote Control" button if it is displayed.
5. Proceed to chapter 5.3 "Settings".

6.3 Settings







1. Open the menu by clicking on 
2. You will first find an overview of the connected devices. Check if all energy meters are detected. Continue to "Settings" via the arrows.
Note: It is possible to set this screen to Dutch in the menu option "Display & Language".
3. Check if "Date & Time" are correct.
4. Check the Firmware Version. Check for online updates and install the latest version. **Then turn off automatic updates.**
5. Make sure that the menu option "Remote Console" on VRM (possibly on LAN) is always enabled. Deactivating this option may make the MultiPlus-II GX inaccessible! Setting a password may cause other users to lose access to this screen.
6. Settings menu option "System Setup":

System name	(self-selecting)
AC Input 1	Grid
AC Input 2	Not Available
Monitor for grid failure	Disabled
Battery monitor	Automatic
Has DC System	<input type="checkbox"/>

7. "DVCC" is turned on. 

Limit charge current	<input checked="" type="checkbox"/> 30kWh: 300A 46 kWh: 450A
Limit managed battery charge voltage	<input checked="" type="checkbox"/>
Maximum charge voltage	57.2 V
SVS , STS, SCS	<input type="checkbox"/> (all turn off)

8. Settings menu option "ESS":

Fashion	Optimized (with BatteryLife)
Grid metering	Inverter/Charger
Inverter AC output in use	 if the UPS function is redundant.  if the UPS function is desired (AC OUT 1 connected).
Multiphase regulation	Total of all phases
Minimum SOC (unless grid fails)	20%
Limit charge power	
 Maximum charge power	AQ-Lith EnergyRack 30kWh: 7500W AQ-Lith EnergyRack 46kWh:11000W
Limit inverter power	
 Maximum inverter power	AQ-Lith EnergyRack 30kWh: 11600W AQ-Lith EnergyRack 46kWh:15000W
grid setpoint	50W (standard)

9. Settings menu option "Energy meters":

- a. three-phase meter for the PV inverter

You will see one energy meter on the screen. The serial number is on the back of the meter.

Configure the meter with the parameters below:

Meter (PV meter/optional):

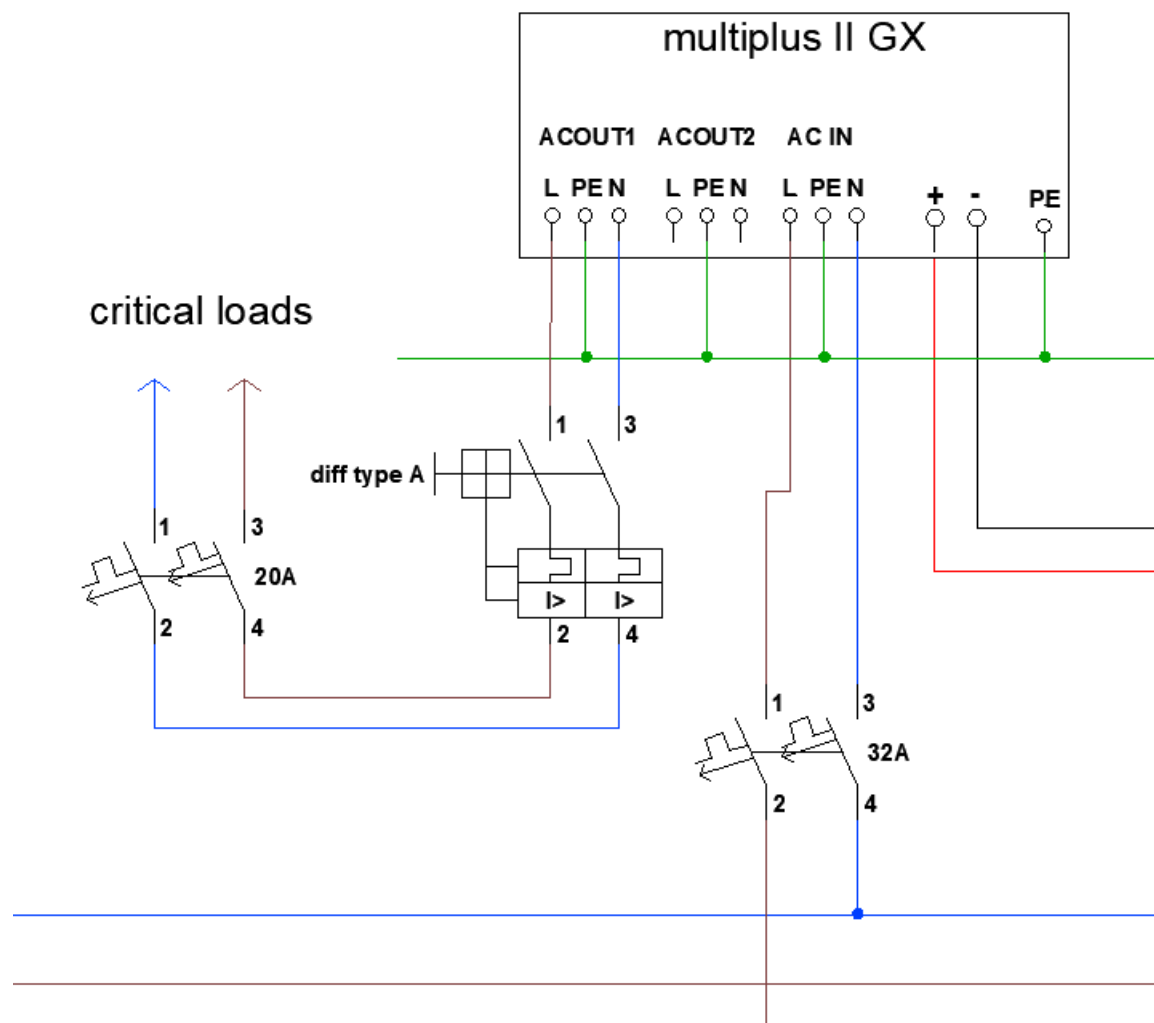
Role	PV inverter
Position	AC output
Phase type	choice of single-phase or multiphase inverter

Check carefully if the correct serial numbers correspond to the function of the meter. If there is an error here, the system will operate incorrectly.

- In the "WiFi" menu option, the internal hotspot can be enabled and disabled. If the computer is connected to it, it should not be switched off. Via the "WiFi networks" option, an existing wireless network can be connected if desired. This option is useful when an Ethernet cable cannot be connected to access the Internet. It is not possible to connect simultaneously in both ways.

7. UPS function

The victron Multiplus 11 can supply power to several circuits in case of an electricity failure. These circuits must be connected to the output of the Multiplus itself. Make sure that the maximum load of these circuits does not exceed the maximum power of the inverter (see Victron datasheet part 1 manual).



8. Inviting the customer (for the application on the smartphone)

On the vrm portal, other users can be added so the customer can follow the installation through the "Victron Connect" app. Follow the steps below in the vrm portal to add the customer:

- Make sure you have chosen the right installation.
- Go to: "Settings" -> "users"
- Click on "invite user" at the bottom in blue and add the customer via his email address



NEVER give your customer "full control" otherwise they may make adjustments that will counteract the operation of the unit or even damage inverters and battery.

Next, the newspaper will be asked to create its own account. If it then downloads the application on its smartphone and logs in, the customer will be able to follow the installation.

9. Setting the cooling module

A separate manual was included with the EnergyRack for setting up the cooling module. Set it up (using that manual) so that it starts cooling from 25 degrees. The fan will always run regardless of the temperature.

10. FAQ

10.1 How do I know if my CTs are measuring in the right direction?

Switch off the PV inverter so that there is no more production. The values of the grid measurement should then be positive numbers (positive=reduction from the grid, negative=injection into the grid). If, after switching off the PV inverter, negative values can be read on a phase, then this CT must be turned up.

10.2 My battery only wants to charge and not discharge?

Make sure all the buttons on the bottom of the Victrons are set to position 1 and not to position 2. In position 2, the Victron will only serve as a charger and not as an inverter.

10.3 The battery charges/discharges with up to 270W

Check the ADDR addresses of the different modules. Make sure that each module has its unique addressing and that the master (module connected to the Victron with CAN bus cable) has address 1!

10.4 Is my PV meter reading correctly?

When there is a yield from the PV panels a positive value should be read. If the meter is sending negative power, it must be reversed.

AQ-LITH® ENERGYBOX & ENERGYPACK HELPDESK BATTERY SUPPLIES NV

As of June 6, 2022, you, as an installer, can access our new help desk organized at our parent company TVH Parts NV.

! Private individuals cannot contact us directly. Please use the helpdesk number only for you, the installer. !

For all **technical questions at OFFER** (so not yet sold): Please contact Koen Bilcke of Battery Supplies via koen.bilcke@batterysupplies.be or by phone via our general phone number +32 56 617 977

For all **technical questions DURING or AFTER installation:** problems, extra info etc Helpdesk tel +32 56 434 906 or helpdesk.electronics@tvh.com. The helpdesk can solve some problems directly, if not they will transfer to an internal team of experts.

Hereby an overview of the possibilities for training and installation:

AQ-LITH® ENERGYBOX Home Battery: Training & Programming/Startup for Installers

-> there are 4 possibilities

- We can pre-program the inverter in advance. Then it is already 80 to 90% ready for use and you as installer can do the last bits yourself. This pre-programming costs € 75.00/inverter. If desired, do not forget to mention this service, when ordering.
- You can initially try booting the system. The installation instructions are well laid out for this. If this does not work, the following steps can still be requested.
- You install everything and we check and program everything remotely at the time. Best make appointment through the helpdesk so someone is available. This service is possible for € 150.00/installation.
- You install everything and afterwards we organize a video call where we program and check everything together. There is a chance that you will have to return to the installation if, for example, the meters are not correct. This service is available for € 150.00/installation. Of course, it is advisable to schedule an appointment in advance so someone of our staff will be available.
- On-site training is very time consuming and should be avoided as much as possible in these busy times. If this service is still requested, consider a minimum of 4 hours at € 75.00/h.

AQ-LITH® ENERGYPACK Energy Storage for Agriculture, Industry, SME & Retail: Installer training & system programming/startup always on site.

- National: Our services always start up the installation on site. This requires a minimum of 4 working hours at € 75.00/hour. Depending on the size of the installation, this can go up to 8 to 10 working hours.
- International: To be coordinated with Battery Supplies during quotation phase.