



Victron and Red Pole Vital Battery Range - Install Guide

General information about the Red Pole Energy Vital battery range can be found in Red Pole Energy's supplied documentation.

This manual is intended to be used in conjunction with the product manual supplied by Red Pole Energy. It provides additional and specific information regarding integration with Victron systems.

The Red Pole batteries' include a Battery Management System (BMS) with each battery module. This interfaces with the Victron GX device and can support multiple battery modules connected in parallel.

1. Offgrid, Backup and Energy Storage Systems are possible

Red Pole Energy Vital batteries + Victron can be used for the following system types:

- Off-grid (DVCC)
- Grid Backup (DVCC or ESS)
- Energy Storage Systems (ESS)

2. A GX-device is required, eg Cerbo GX or Venus GX

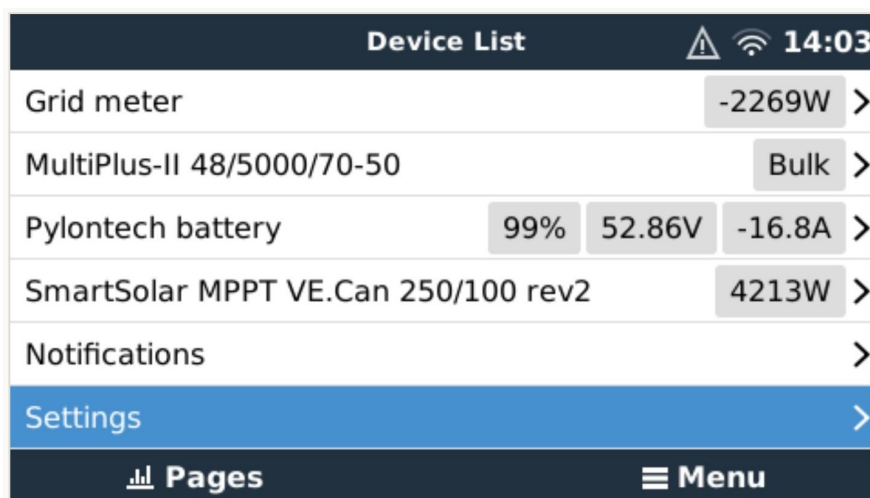
It is essential to use the CAN-bus connection of the GX device (e.g. Cerbo GX) - this communicates the keep-alive signal, charge and discharge limits, error codes and state of charge (SOC %) between the batteries and the system.

It is highly recommended to use the latest firmware version on all connected devices, including the GX device Inverter/Charger and MPPTs. There are regular updates to improve performance and reliability.

3. Connect the Red Pole Energy Battery

The battery should be connected to your Victron system using part number ASS030710018 - VE.Can to CAN-bus BMS type A Cable.

The Red Pole Energy battery shows up as a Pylontech battery. This is as a result of the ID passed through and the communication protocol used. To be fixed in future firmware versions, but not of any concern functionality wise currently.



Device List		⚠️	📶	14:03
Grid meter		-2269W	>	
MultiPlus-II 48/5000/70-50		Bulk	>	
Pylontech battery	99%	52.86V	-16.8A	>
SmartSolar MPPT VE.Can 250/100 rev2		4213W	>	
Notifications			>	
Settings			>	

Click on the Pylontech battery to see more details as reported by the battery. It shows the current voltage and the current / watts flowing in or out. It also shows the battery state of charge, health and temperature. It should look similar to what is shown below:

Pylontech battery			
Battery	53.54V	17.2A	920W
State of charge	91%		
State of health	100%		
Battery temperature	19°C		
Alarms	>		
History	>		
Pages			
Menu			

Scrolling down in the battery detail menu and checking the device details, it looks like the image shown below. This confirms it is picking up the battery correctly, and communicating on the CAN bus. Scroll down to the Name field, blank by default, and change the name to "RP-Vital5". Shown above.

Device	
Connection	CAN-bus
Product	Pylontech battery
Name	RP-Vital5
Product ID	B009
Firmware version	--
VRM instance	512
Pages	
Menu	

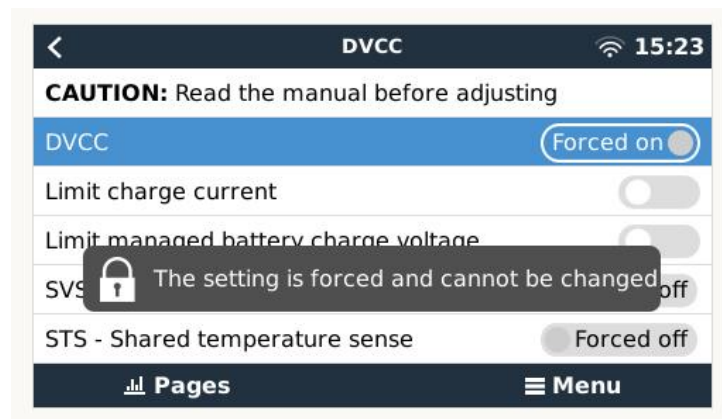
Going back to the Battery menu and scrolling down in the battery detail menu, you can check the battery parameters supplied by the battery. Shown in the image below for the RP-Vital5 battery:

Parameters	
Charge Voltage Limit (CVL)	56.1V
Charge Current Limit (CCL)	100.0A
Discharge Current Limit (DCL)	105.0A

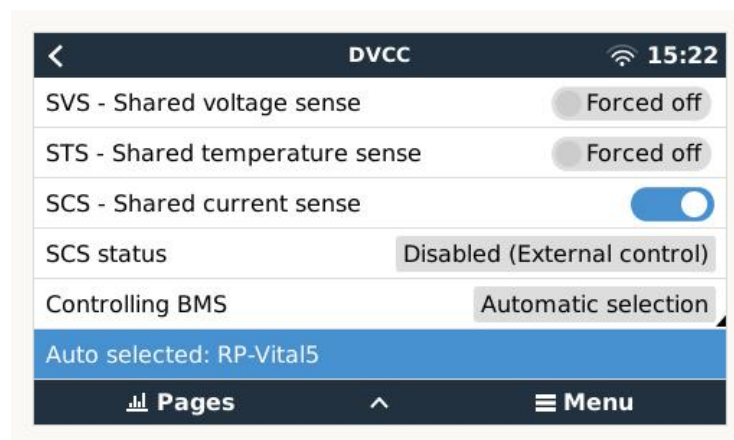
4. DVCC

Enabling [DVCC](#) changes a GX device from a passive monitor into an active controller. In systems with a managed CAN-bus BMS battery connected, the GX device receives a Charge Voltage Limit (CVL), Charge Current Limit (CCL) and Discharge Current Limit (DCL) from that battery and relays that to the connected inverter/chargers and solar chargers. These then disable their internal charging algorithms and simply do what they're told by the battery.

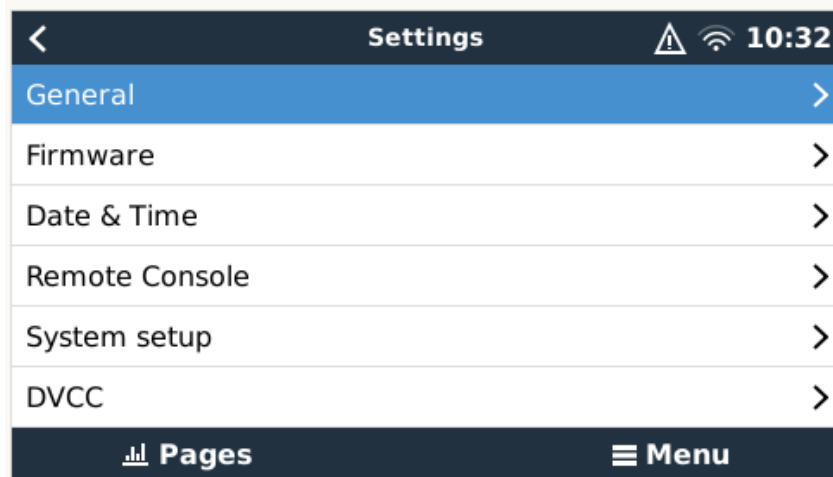
A recent change in Venus OS (for the GX device) firmware now forces DVCC to be enabled, and the following DVCC settings will be set and enforced automatically. We tested this with our batteries using firmware version V3.01. Shown below:



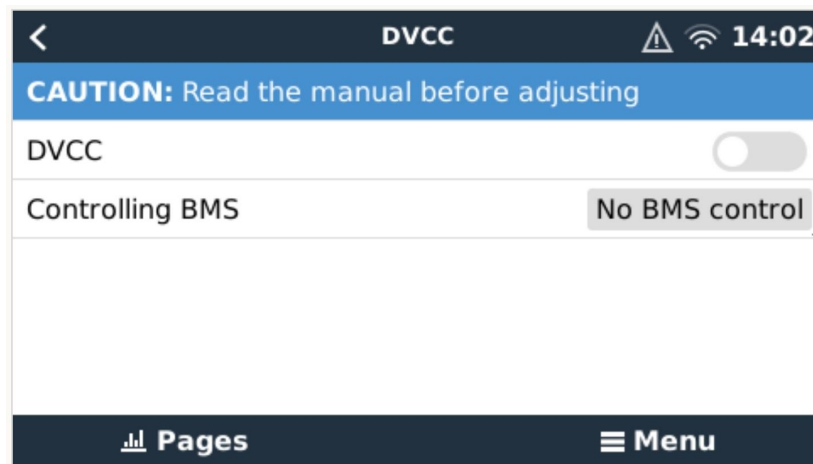
Scrolling down, you will see the controlling BMS has been detected as RP-Vital5.



If you are running a GX firmware version prior to this, these will need to be manually configured and we recommend turning off or disabling DVCC. To do this, go back to the main menu, then scroll down to Settings, then select DVCC, then turn it off / disable it:



It should look like this when done:



DVCC - Additional optional controls

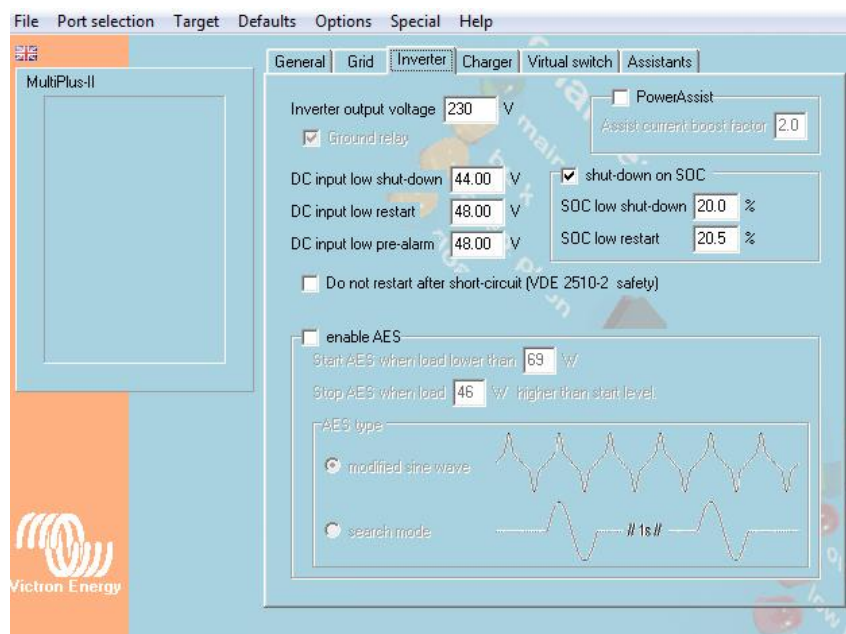
Note: The "Limit managed battery charge voltage" feature should be left OFF, unless you are experiencing "High Voltage" or "Internal Error" alarms. These alarms can indicate that there is an internal cell imbalance in the battery. It may be useful in this situation to enable this feature, and then adjust the voltage limit down so that the batteries are able to balance charge without reaching over voltage internally. This imbalance is at a cell level, so might not be reflected as a high overall battery voltage if

measured with a Multimeter. This can then be turned off once the battery has balanced itself properly.

The 'limit charge current' value that you set manually in the DVCC menu of the GX device will allow you to set a value less than the ceiling Charge Current Limit (CCL) set by the BMS, if you want to further restrict system wide charge current for some reason. You can enter a larger number than the CCL, but the system will then stop at the CCL number (and not your manually entered figure).

For example if you only wired in 80A capacity wire / fuses through the system, and didn't want the potential combined power delivery of a generator charging as well as a solar charge, you could limit the total system charging (MPPT + MultiPlus) to that lower level, even though the batteries could potentially absorb more.

5. VEConfigure Settings



When using the latest firmware on all compatible connected devices, and once the battery module has been detected by the GX device, battery charging parameters (e.g. Maximum Charge Current, Target Battery Voltage, etc) are automatically configured by the RP-Vital BMS, and communicated to the rest of the Victron components in the system via DVCC.

It is possible to override some of these automatic settings to provide additional limitations (e.g. reduce the total charge current that would be provided but the MultiPlus). The

following information is provided for that purpose, though is not required for the safe operation of the system.

This section presumes familiarity with VEConfigure software.

5.1 General Tab:

- Check the “Enable battery monitor” function
- Check inputs. Set accordingly for battery.

5.2 Charger Tab:

In the Charger tab of VEConfigure:

- Check “Lithium batteries”
- Charge curve : “Fixed”
- Absorption voltage : 55.6 V
- Absorption time : 1 Hr
- Float voltage : 55.6 V
- Charge current : 50 A (How much the AC/Grid is allowed to charge the battery with)

Note: make sure to double-check the float voltage after completing Assistants, and if necessary, set it back to 55.6 V.

5.3 Inverter Tab:

In the Inverter tab of VEConfigure:

- DC input low shut-down : 48 V
- DC input low restart : 50 V
- DC input low pre-alarm* : 50 V
- Check “shut-down on SOC” and set the thresholds as per your requirements**

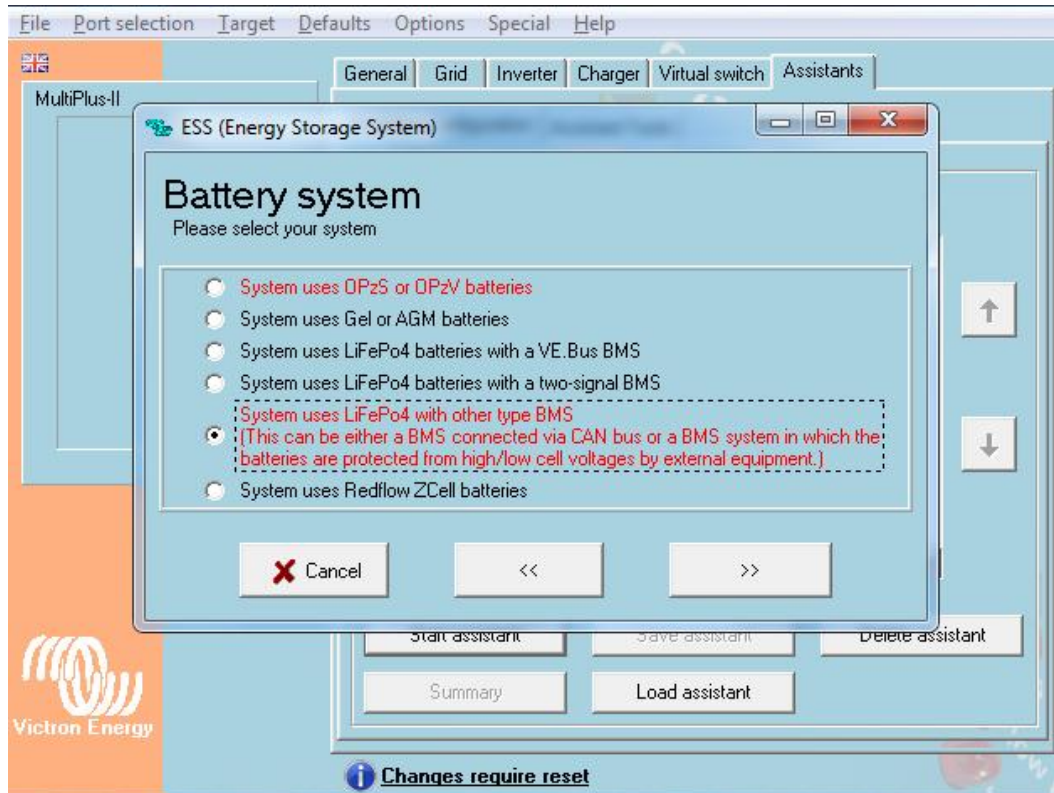
* The pre-alarm setting is dependant on your preference and on site specific requirements. You may wish for this to be activated earlier in an off grid situation to allow time to start a backup generator.

** It is recommended that you shutdown at 20% SOC of battery (DOD is 80%). Restart level needs to be above that, but recommended level depends on your setup and charging capacity. Examples could be 25% or 30%.

6. ESS System Settings

If you are using the battery as part of a grid connected ESS system, please review the ESS Quickstart guide and Design and Installation Manual.

The settings that are specific to the RP-Vital battery range in the VEConfigure ESS Assistant are mentioned here.



Battery System: System uses LiFeP04 with other type BMS

Battery Capacity: Set to 100Ah for RP-Vital5 (set to overall capacity)

Battery Type: Do not change battery type

Sustain Voltage: 50 V

Dynamic cut-off: Set all values to 49 V

Restart offset: 1.2 V (Default)

7. MPPT Settings

In normal operation the MPPT charge characteristics are governed by the GX device via DVCC, with instructions from the connected Pylontech battery.

This section presumes familiarity with VictronConnect

The settings below can be set as a precautionary measure, but need to be checked if a BMS is not controlling the system. It is similar to using it in a system without BMS, so that setting needs to be cleared. Here is how to do that:

- Chargers with LCD display: go into the setup menu, and change setting 'BMS' from 'Y' to 'N' (setup item 31).
- Other chargers: reset the charger to factory defaults with VictronConnect, and then reconfigure it.

Connect directly to the MPPT using Bluetooth and Victron Connect, then set the settings:

- Battery voltage: 48 V
- Battery preset: User defined
- Absorption voltage: 55.6 V
- Float voltage : 55.6 V
- Equalization voltage : 55.6 V
- Automatic equalization : Disabled