Solar and wind priority

1. Introduction

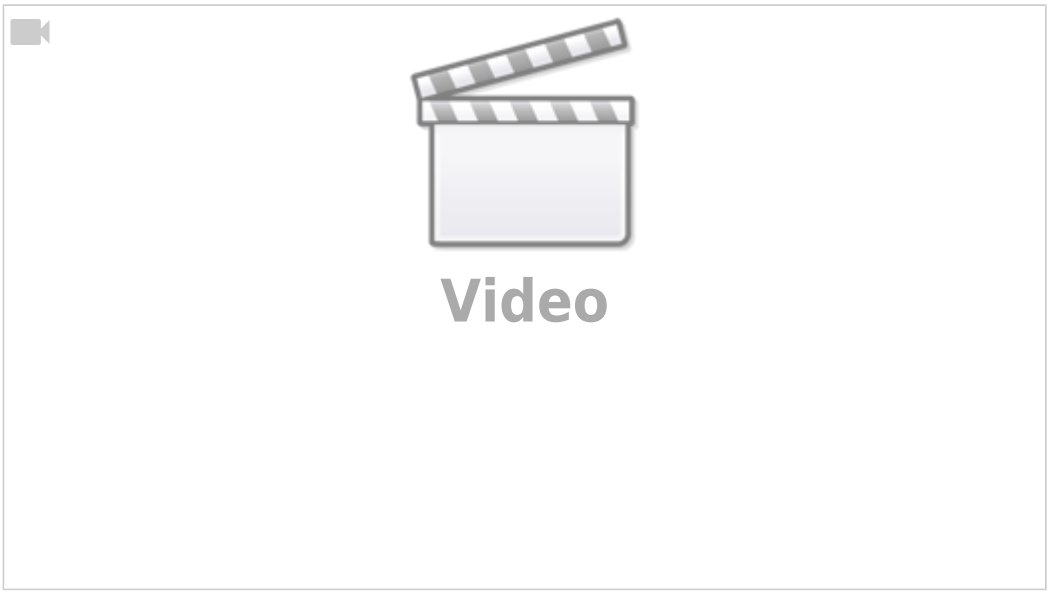
Solar & wind priority gets to work when plugged into shore. It then ensures that solar & wind power are used to charge the battery, while the shore power is only used to prevent the battery from becoming too deeply discharged.

It stays in this mode, called Sustain, for seven days; and if by that time there has not been enough solar or wind, it will run a full charge cycle, charging the batteries to 100%. This will make sure they stay in an optimal condition as well as be ready for a next use.

After those seven days, the system will not go back into sustain mode. Instead it will keep the batteries fully charged; and, where and when possible, during the day prioritise solar over shore power to power DC loads such as pumps and alarm systems.

The intended applications for Solar and wind priority are boats, campers and other systems that connect hook up to shore power.

For systems with a permanent utility connection, such as houses, farms and other stationary systems, we have a different solution: ESS.



2. Details and requirements

Requirements:

- Victron inverter/charger, such as Multi, MultiCompact, MultiPlus, MultiPlus-II or Quattro. Note that the Multi RS does not (yet) support this feature.
- Solar, preferably a Victron solar charger, but not necessarily. Or a wind generator with a

designated charger. Note that Victron does not supply charge regulators for wind generators.
- To use the “Charge to 100%” feature, either a VE.Bus Smart Dongle + VictronConnect App, which is an effective an simple monitoring solution; easy to retrofit onto existing systems; is needed. Or the more advanced option, a GX device like the Cerbo GX or Ekrano GX.

Further details and specifications:

- While in sustain mode, the inverter/charger will use shore power to make sure that the battery voltage will not drop below the configured Sustain voltage. Using shore power for that if need be.
- For charging the battery, as well as powering DC loads, solar and wind are prioritised. For AC loads that is not the case, shore power will be used to power them. Which in many systems is not really an issue, since they are small - or the available and solar and wind won't be sufficient. In case you do prefer to also power AC loads from the battery, solar and wind - then look into our Ignore AC input options, in VictronConnect available as the “Conditional AC input connection” settings menu. Also described in detail on this blogpost on Panbo.com
- The feature works purely on voltage, making it simple, robust and effective. It does not require an integration with battery monitors, GX devices or central control mechanisms such as DVCC.
- Generator support: the system will automatically detect that a generator is running; and then charge at full power as usual. For Quattros, it requires the generator to be wired to the AC-in-1 input. And in case of Multis with an external transfer switch wired in front of it, the GX device can be used to detect if the generator is active (with a digital input) and pass that information along to the Multi. When using a Digital Multi Control panel (DMC), closing the generator select input, terminals of screw connector on backside, the system will charge at full power also.
- On a Quattro AC-in-2 should be used for the shore power connection.
- The Solar and Wind priority mode works both for systems with a managed battery, where a BMS is managing the charge process (DVCC), as well as systems using lead batteries, or Lithium drop-ins, where the inverter/charger is running its own charge process. Examples of managed battery systems are Lynx Smart BMS, MG Electronics batteries with MG Master LV, and similar. For such systems, during those first 7 days, the inverter/charger will charge using the configured sustain voltage, rather than the battery-commanded charge voltage (CVL). Unless the CVL is below the configured sustain voltage: then -ofcourse- it will maintain that.

3. Configuration instructions

WARNING: updating the firmware of this product range, as well as making configuration changes, is strongly advised to be carried out by trained personnel only. Doing the update will cause all settings to be reset to their default: we therefor advise to save the settings before updating and after updating reinstall the configuration.

Step 1. Install required firmware versions

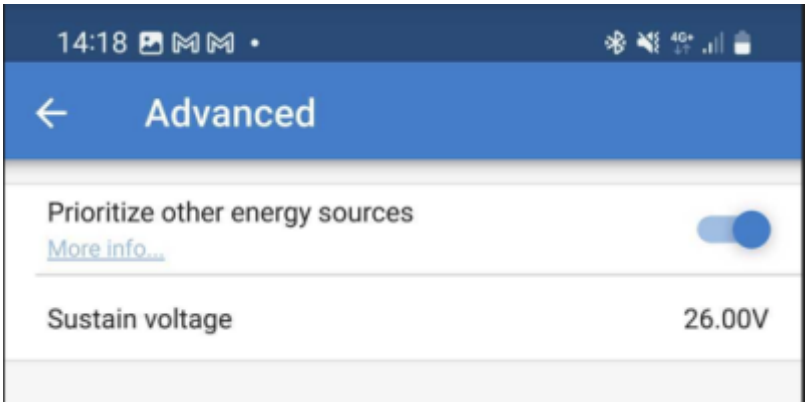
- Update the inverter/charger to firmware version 506 or later. This can be done using our VictronConnect app, using a direct connection to the inverter/charger with an MK3-USB (instructions), as well as using the remote update over the VRM Portal (instructions).
- Systems with a GX device: update to v3.10 or later. See user manual for instructions.
- Systems with a VE.Bus Smart dongle: update to v1.16 or later, using the VictronConnect App.

Step 2. Configuration

The required setting is in the inverter/charger. It can be set using the VictronConnect app as well as the VEConfigure software. Both are available on our Downloads section.

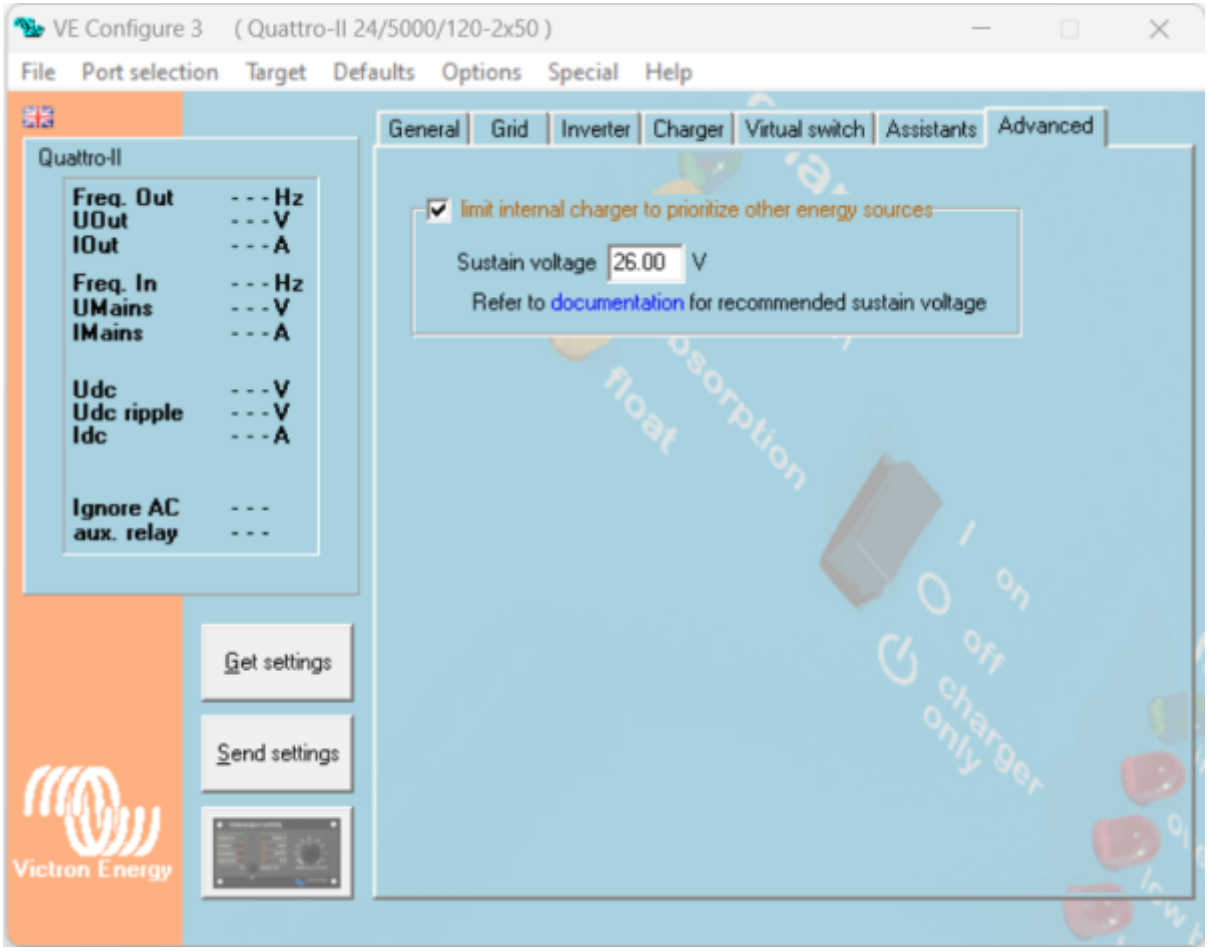
When using our VictronConnect software:

The setting is available in VictronConnect in the advanced tab of the settings:



When using the VEConfigure software:

The setting is enabled in VEConfigure, on the advanced tab:



These are the recommended sustain voltages:

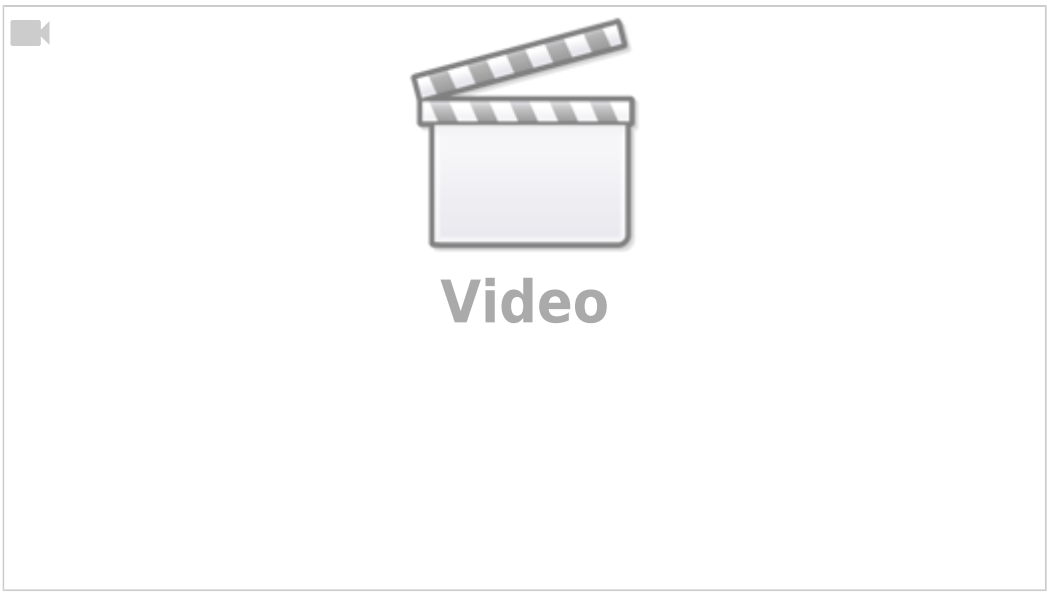
System voltage	LiFePO4	Lead (AGM, Gel)
12V	13.0V	Float minus 0.2V
24V	26.0V	Float minus 0.3V
48V	52.0V	Float minus 0.4V

For Lithium, setting Sustain to 13.0V, which equals 3.25V per cell, makes the system maintain a minimum state of charge of approximately 30%.

Other related settings

- Storage mode: this setting works as usual. When enabled, the inverter/charger will go to the Storage mode after 12 hours of being in Float.
- Repeated absorption interval: with Solar and wind priority enabled, this setting controls both the duration of the initial Sustain mode, as well as the repeated absorption interval. Increase this setting in case it is preferred to keep the system in Sustain for a longer time - allowing more days for solar and wind to charge the battery before falling back to shore.

4. User instructions



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https://www.victronenergy.com/live/ - **Victron Energy**

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