Solar and wind priority

BETA warning

NOTE: this is a new feature that is being rolled out in steps, and currently in beta. We'll be testing this over the summer period; and once stable announce it officially.

Status of the roll-out is that its usable with beta versions. In detail:

1. VE.Bus Firmware - done per version 26/27xx506
2. VEConfigure - done per version 90.04,236
3. VictronConnect - add sustain setting & add user control to override it in case a full charge from shore is needed - Included in VictronConnect V5.92beta1
4. Venus OS Normal GUI - add user control to override it in case a full charge from shore is needed. - Included per Venus OS v3.10~17
5. Venus OS HTML5 GUI - add user control to override it in case a full charge from shore is needed - pending.
6. VRM Dashboard controls - same: pending
7. VE.Bus Smart Dongle firmware - include Sustain state: pending

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

- 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.
- 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.
- 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 more traditional systems 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).

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.

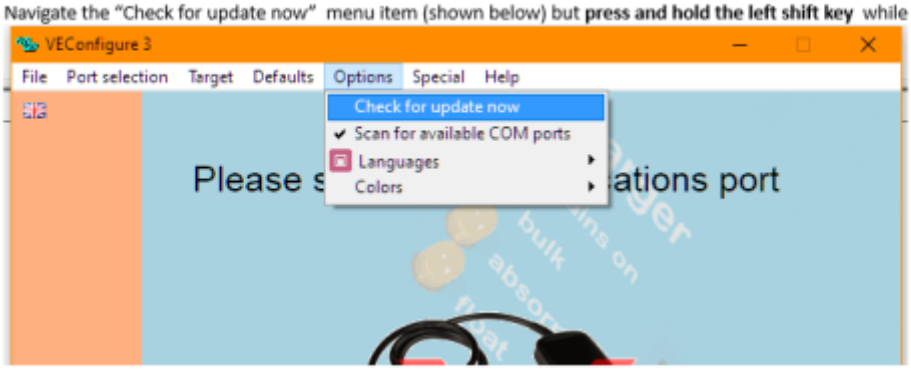
Step 1. Installation of beta versions and firmware

- Download VictronConnect beta version v5.92, or later, here: https://www.victronenergy.com/live/victronconnect:beta
- Use that version of VictronConnect to update the inverter/charger to 506. Firmware version 506 is included in that version. Requires an MK3-USB. Full instructions.
- Alternatively update remote using the VRM Portal - TODO ADD BETA DOWNLOAD LINK. For now, VictronConnect beta is the only source for the new 506 firmware, therefor the firmware update through VRM option is not possible at the moment. See the Remote VE.Bus firmware update

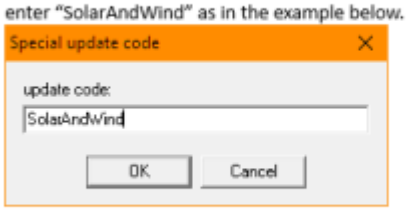
instructions.

- To update the GX device to a beta version, see here: https://www.victronenergy.com/live/ccgx:beta-testing
- In case you need to use VEConfigure (in most cases not necessary, use VictronConnect instead), the install it using these instructions:

1) Start VeConfigure
2) Navigate the "Check for update now" menu item (shown below) but **press and hold the left shift key** while clicking the menu item



3) You will then get a question for "Special update code"
enter "SolarAndWind" as in the example below. (Case sentive !!!)

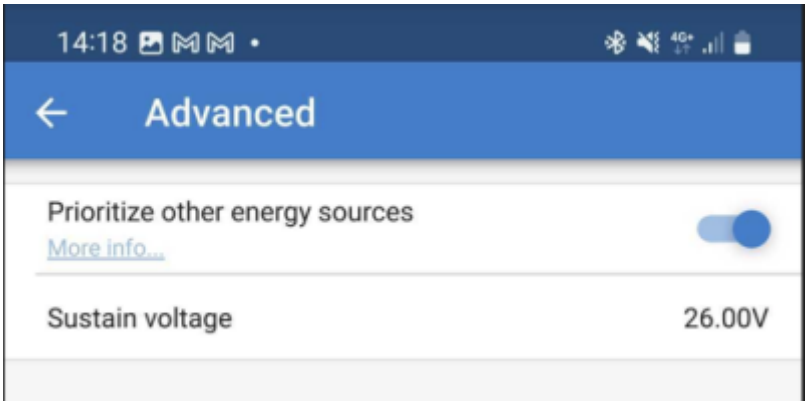


4) Press OK and follow the rest of the instructions.
The new beta will automatically be installed.

Step 2. Configuration

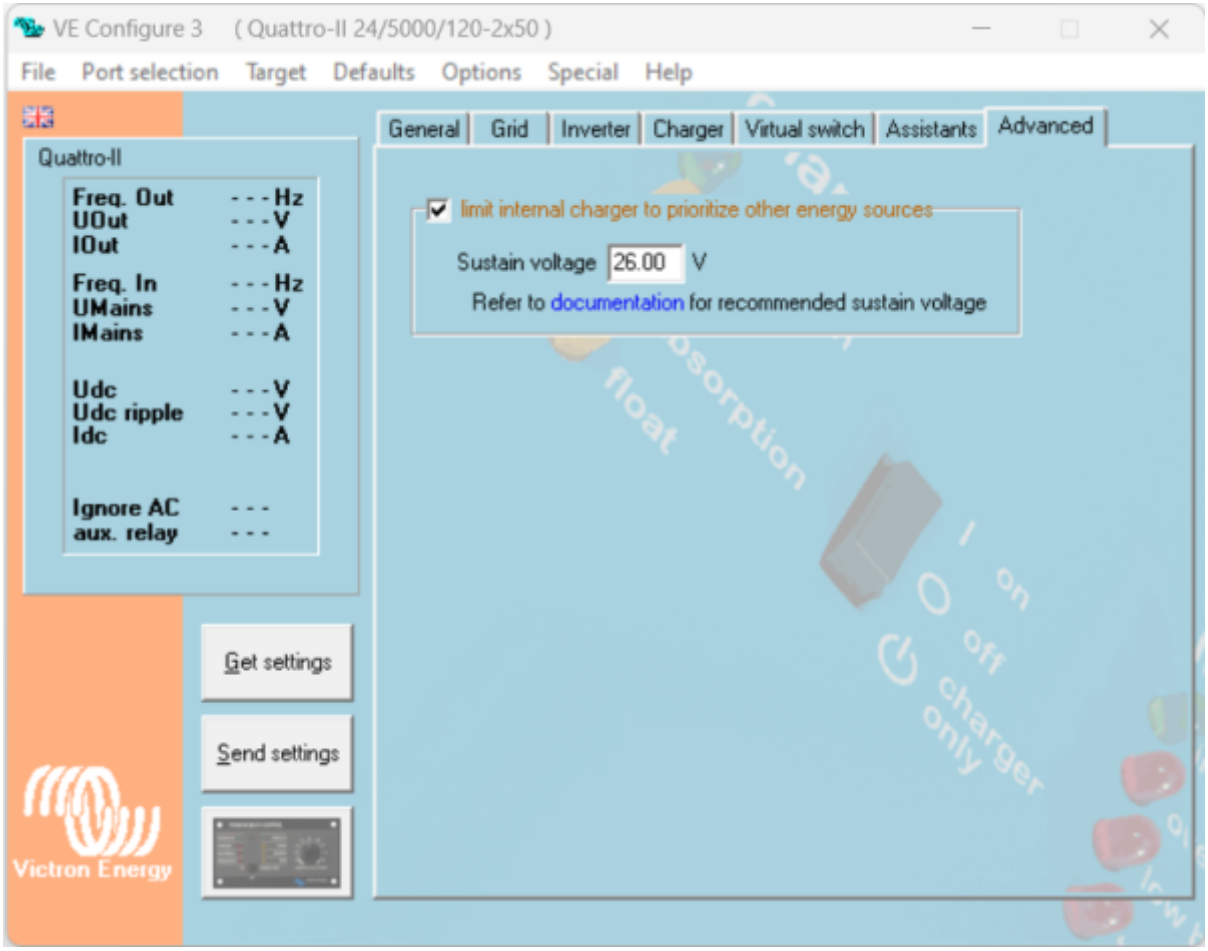
VictronConnect

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



VEConfigure

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%.

For Lead ... ?

Step 3 - Check further settings

- if the Storage setting is enabled, then after 12 hours of float, the system will go to storage as usual

- repeated absorption interval, defaults to seven days.

3. User instructions

DRAFT.

Here have an explanation, and screenshots of where the override settings are. Its important for boat builders and installers to have content that is targeted to (non-technical) end users on how to use this feature.

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

Permanent link:
https://www.victronenergy.com/live/ve.bus:solar-and-wind-priority?rev=1690894143

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