GX SolarEdge Manual

1. Introduction

In 2019 SolarEdge has introduced a new feature that allows AC-coupling with alternative power sources (or non-grid power sources) such as the Victron Energy Inverter/chargers range, facilitating continuous solar production during outages or in off-grid scenarios.

When a solar inverter is operating concurrently with a non-grid source, it may be subjected to voltage and frequency fluctuations that exceed trips, which are preset according to regional grid connection requirements. To support simultaneous operation while powered by a non-grid energy source, SolarEdge has introduced an “Alternative Power Source mode” (APS) with extended, user-configurable, frequency&voltage operating range and frequency-power & voltage-power “off-grid” dedicated droops.

With this feature you can now build custom size AC Coupled Hybrid systems with the capability to enable zero feed-in to the grid when in On-Grid mode and frequency shifting power control in Off-Grid situations

The AC coupled system sizing guideline, Factor 1.0 rule, from Victron Energy for AC coupled system must be adhered to.

2. How to configure APS mode

Requirements: • For SetApp (screenless) inverters: Firmware 4.8.24 or higher • For LCD inverters: Firmware 3.25xx or higher • Dry-contact for sensing the grid supply. (Victron’s auxilary Dry-Out can also be used) • SolarEdge grid meter (required for Zero feedback)

Note: APS mode is mandatory for systems requiring both zero feed-in in on-grid mode and frequency shifting in off-grid mode.

Configuration example 1: Use of external relay and dry contact, see figure 1

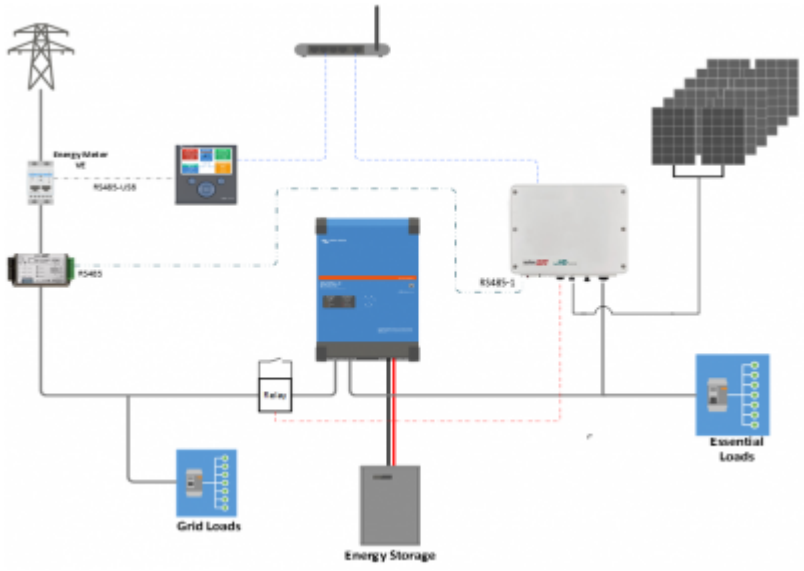


Figure 1

Configuration example 2: Use of Internal programmeble relay K1, See Figure 2

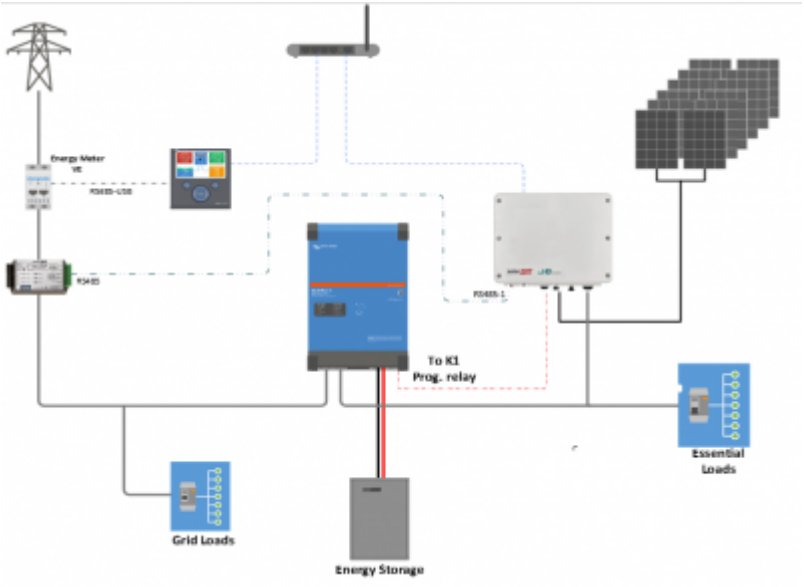


Figure 2

Programmble relay K1 Set up

2.1. Dry contact installation:

Install a dry contact, sensing the grid availability. Connect twisted pair wires from the dry contact terminals to the L1 and V terminals of the Communication Board inside the inverter, see figure 4.

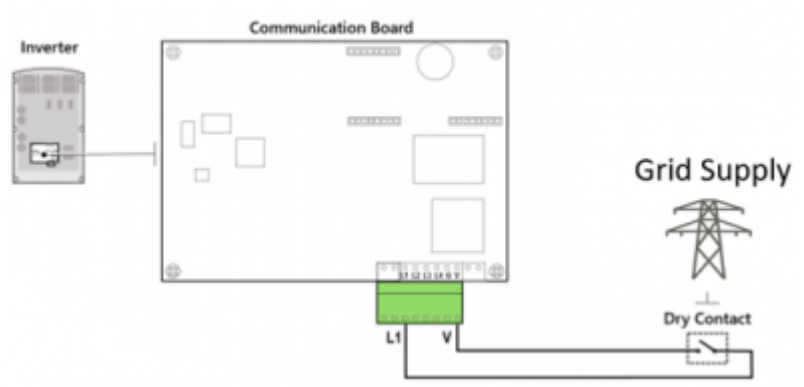


Figure 4

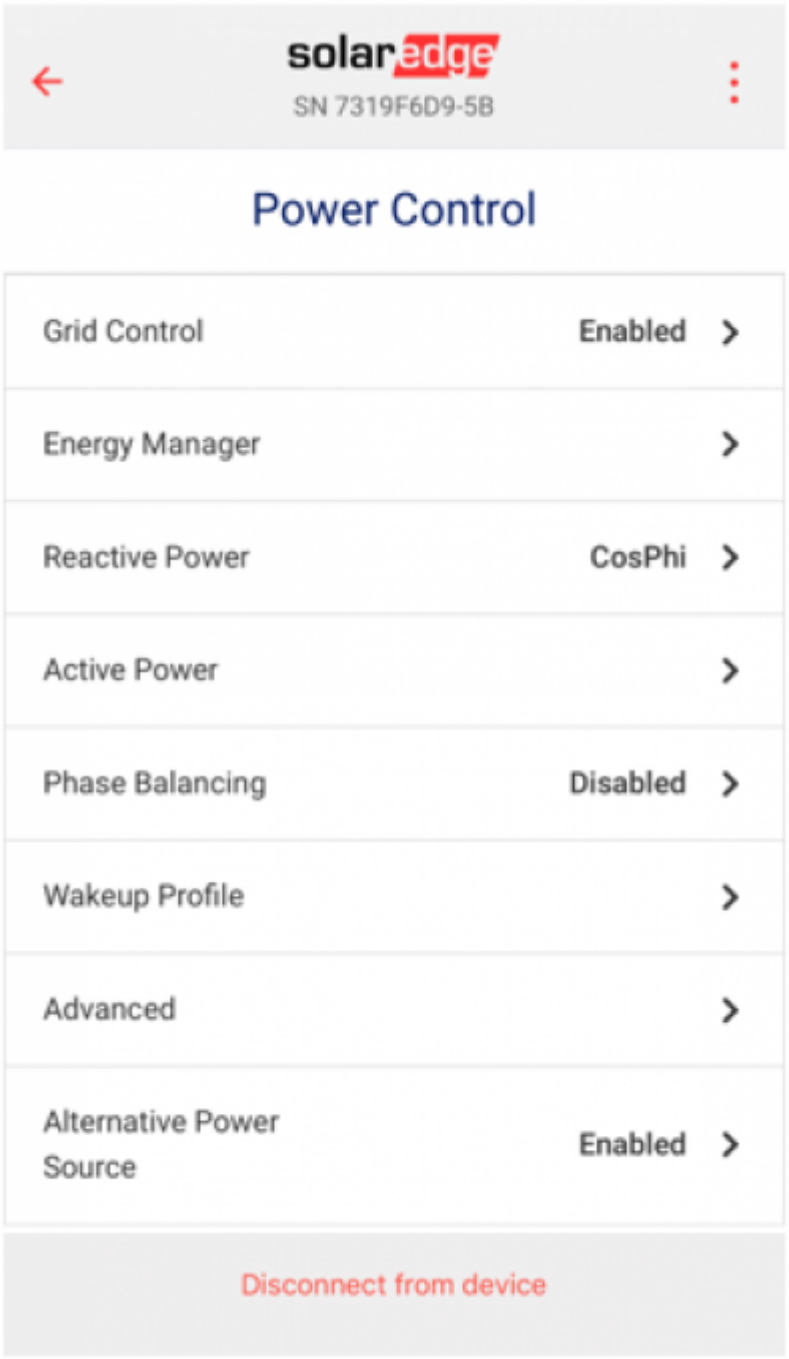
2. Alternative Power Source mode.

Alternative Power Source mode should be configured on the master inverter. Once configured, the master inverter automatically sets all detected slave inverters to Alternative Power Source mode.

To Configure Alternative Power Source mode: • Commissioning Communication GPIO Power Reduction Interface (RRCR) Mode Alternative Power Source.

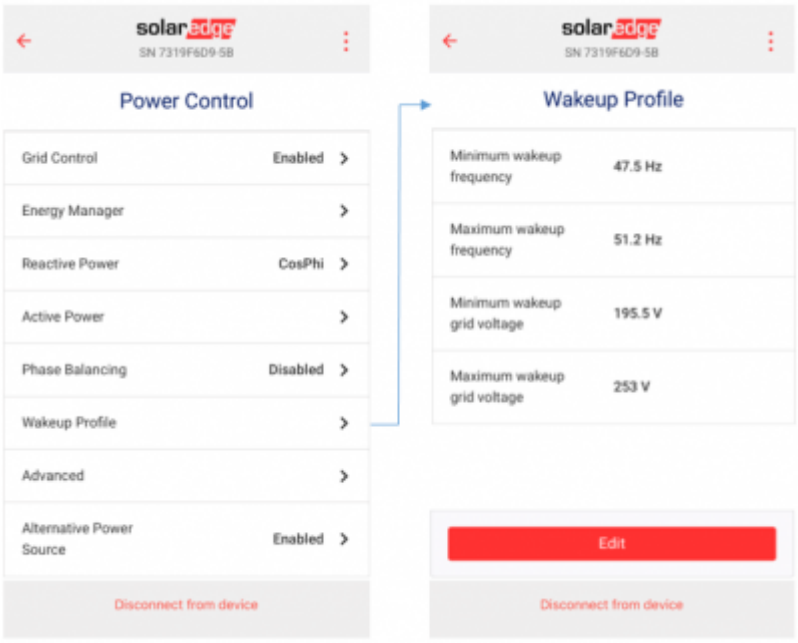
Inverters with LCD • Enter the inverter’s setup menu using the SolarEdge Password. • Communication GPIO Conf Device Type Alternative Power Src.

3. How to configure Frequency Shifting Important note: Please ensure the SolarEdge inverter and your VE.Bus Config is setup for the same frequency bandwidth. For systems that can feed back into the grid or for pure off-grid systems: 1. Enable frequency shifting • Go into Power Control • Ensure Grid control is Enabled



Inverters with LCD

2. Configure Wakeup Conf. • Power Control Wakeup Profile Edit • Edit Maximum Wake up Frequency = 51.2Hz

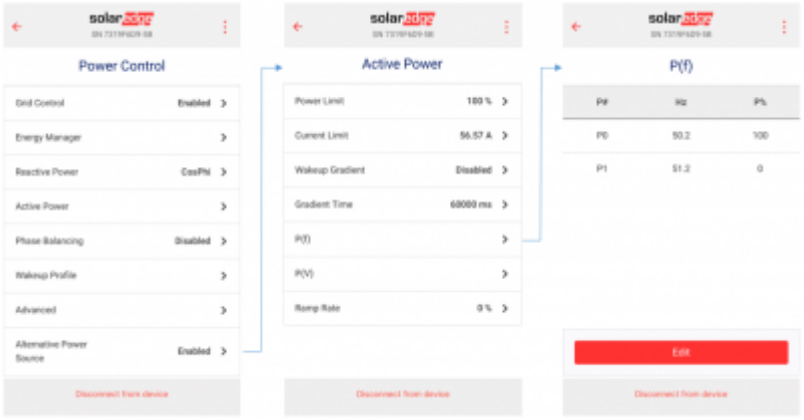


Inverters with LCD: • Power Control Wakeup Profile Edit

3. Disable Wakeup gradient • Power Control Active Power control Wakeup Gradient Disable

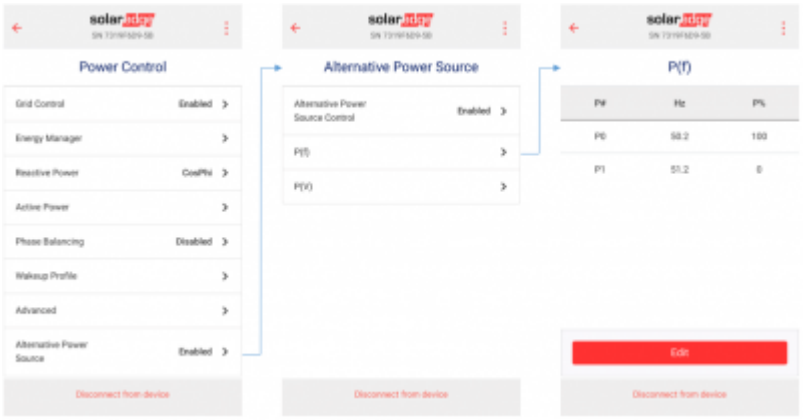
Inverters with LCD • Power Control Active Power control Wakeup Gradie Disable

4. Set P(F) • Power Control Active Power control P(f) • Edit P0: 50.5Hz, 100% Power • and P1: 51.2Hz, 0% Power

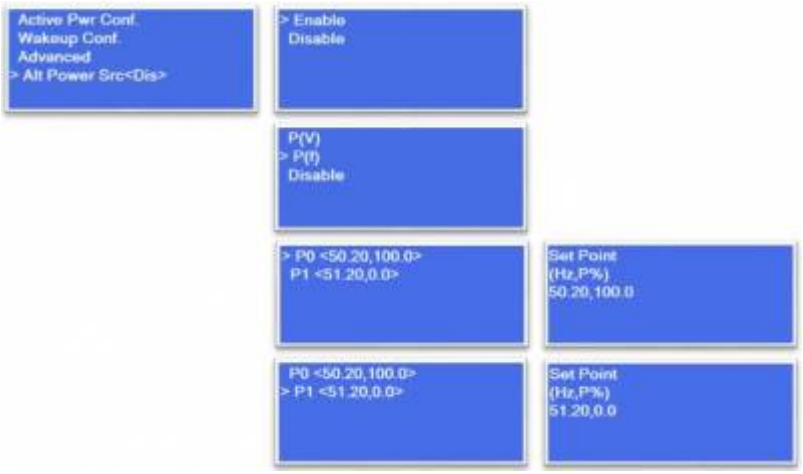


Inverters with LCD • Power Control Active Power control P(f) • Edit P0: 50.5Hz, 100% Power • and P1: 51.2Hz, 0% Power

For systems with zero grid feed-in In addition to the frequency settings above, please set the following: 1. Configure P(f) for APS • Power Control Alternative Power Source P(f) • Edit P0: 50.5Hz, 100% Power • and P1: 51.2Hz, 0% Power

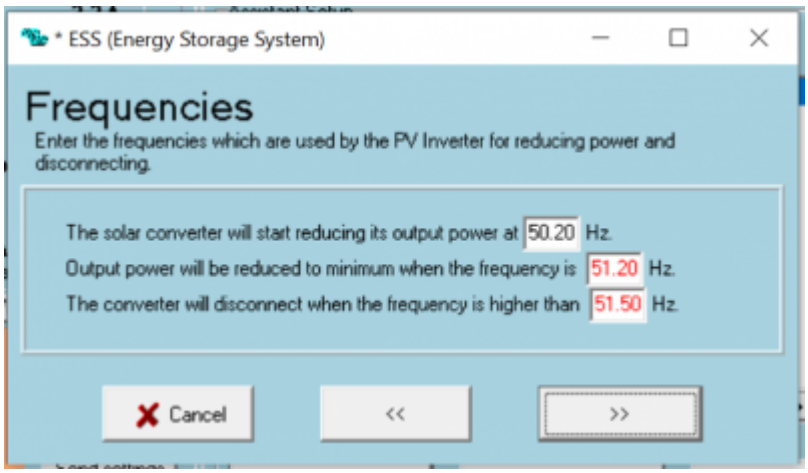


Inverters with LCD • Power Control Alt Power Src P(f) • Edit P0: 50.5Hz, 100% Power • and P1: 51.2Hz, 0% Power



2. Set ESS assistance The same bandwidth needs to be configured on VE.Bus Config for Victron

Start ESS assistance and set: 1. The solar converter will start reducing its output power at 50.2Hz 2. Output power will be reduced to minimum when the frequency is 51.2Hz 3. The converter wil disconnect when the frequency is higher than 51.5Hz



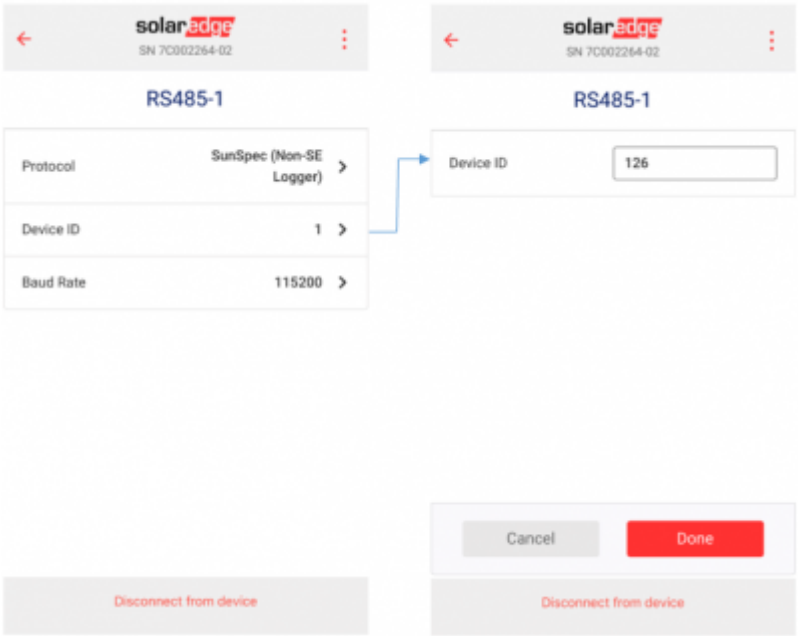
4. How to configure Sunspec to allow inverter monitoring via Victron GX device

1. Ensure that the GX Device and the SolarEdge system are both on the same LAN or WiFi network.

2. Enable ModbusTCP • Communication Modbus TCP port Modbus TCP Edit port to 502.

Inverters with LCD • Communication LAN Conf Modbus TCP TCP Port Edit port to 502

3. Enable SunSpec • Communication RS481 Protocol SunSpec (Non-SE Logger) Device ID Edit to 126



Inverters with LCD • Communication RS481 Device Type Non-SE Logger Device ID Edit to 126

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Once you are done with the Sunspec setup you can re-configure RS485-1 for your SolarEdge Grid meter. The SolarEdge meter is still required for a zero export setup. The suspect setting will remain in the memory of the SolarEdge.

Note: It also advised to edit the SolarEdge inverter’s IP address to a static IP by disabling DHCP edit the desired IP address for your SolarEdge inverter and the search for the IP address on your DX Device. The SolarEdge inverter will appear on you GX devices screen