

Off-grid Working Limitation of Hybrid Systems

The Sungrow hybrid inverters (SH5K+ and SH5K-20) are designed for on-grid and emergency power supply (EPS) applications. With the EPS box (STB5K) connected into the PV ESS, the system is capable of operating in off-grid mode to supply power for emergency appliances only in the event of a grid interruption or blackout. However, due to the diversity and complexity of off-grid systems, the designer or installer needs to be aware of following points before making a decision to install Sungrow hybrid inverters in purely off-grid systems.

Attention!

As the hybrid inverters are designed to be used as a grid connected system with emergency power supply, the off-grid only performance cannot be guaranteed.

The warranty is contingent on the inverter being installed as per the installation manual and within the below parameters.

Sungrow Australia reserve the right to decline warranty if the inverter has been installed outside of the installation instructions or used in a manner for which it was not designed.

Please ensure the following:

- No other generation equipment must be connected to the Sungrow equipment, which may void warranty
- The system must be designed and installed by a CEC accredited Installer with GC and SPS accreditation.
- The battery must be set as per manufacturers specifications, or via the inverter firmware in the setup (Li-Ion type). Contact Sungrow service team for advice if Sungrow batteries are installed in off-grid applications.
- The inverter must be registered in Sungrow website [here](#) to record system information.
- The inverter must be connected to the Sungrow web portal to enable remote monitoring.
- In the case where an issue occurs, the end user must contact the installer or the solar company for troubleshooting and then installer can contact Sungrow service team for advice. An end user may not directly contact Sungrow Australia for advice.

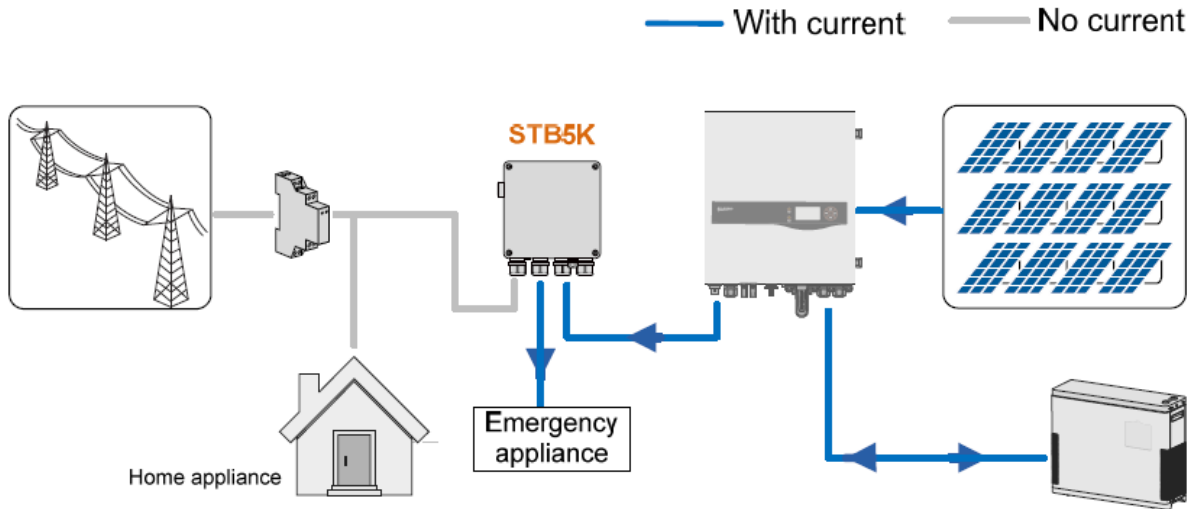


Figure 1 EPS System Configuration

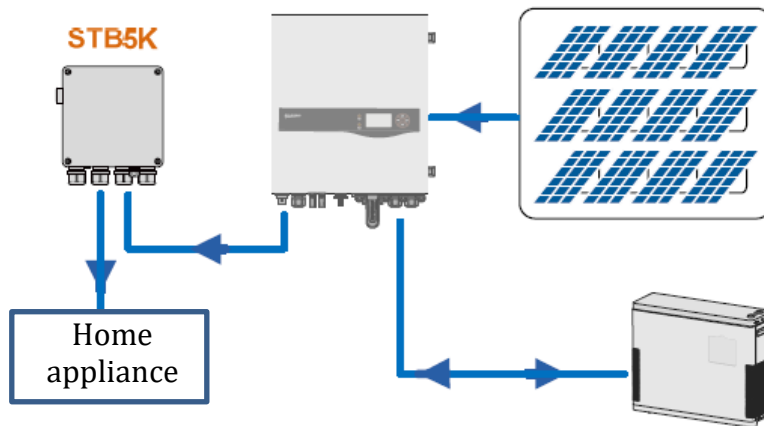


Figure 2 Off-grid System Configuration (see warranty T's & C's)

The peak power of the home appliance must be no more than 3000 W, the load current must be no more than 13 A.

Though in the daytime the maximum power delivered by solar can be up to 5000W, it is always advised to consider the cloudy days and the night time as the battery can only deliver a maximum of 3000W.

Pay attention to the peak power or peak current of the loads, if the power is higher than 3000W, it may trigger Error 051 (Load overpower fault in the off-grid mode) and shut the inverter down. Please measure and/or calculate the load accurately since the current shall be lower than 13A in any case.

There must be no other generation equipment in parallel connection with hybrid inverters.

A Sungrow hybrid inverter connects to the STB5K and the output of STB5K can only connect to loads. No other generation equipment can be connected to the STB5K or working in parallel with the hybrid inverter, including other solar inverters, gen-set, or another Sungrow solar or hybrid inverters, unless a changeover switch is used to switch the house load between the Sungrow hybrid system and the other generation equipment. Sungrow Australia is not responsible for the design beyond the hybrid inverter system, such as the design or selection of switchgear and the performance.

The neutral and ground must be connected at one point in a purely off-grid system of hybrid inverters (MEN).

Error 106 (The inverter is not grounded. Neither the PE terminal on the AC connection block nor the second PE terminal on the enclosure is reliably connected) will occur if the neutral and ground are isolated. Please notice that the Neutral line are all inter-connected inside the STB5K, for the grid, the EPS and the inverter AC terminals. And it's the same for the ground (PE) lines. Multi neutral and ground connection is not recommended. The connection can be either inside the STB5K or outside, manual connection as per AS/NZS 3000:2007

Please contact Sungrow service team on 1800 SUNGROW (786 476) or email us via service@sungrowpower.com.au if you have any enquiries about off-grid working limitation before making a decision to install Sungrow hybrid inverters in purely off-grid systems.