

Off-grid Working Limitation of Hybrid Systems and Warranty Cover

Disclaimer

The material in this document has been prepared by Sungrow Australia Group Pty. Ltd. ABN 76 168 258 679 and is intended as a guideline to assist solar installers for troubleshooting. It is not a statement or advice on any of the Electrical or Solar Industry standards or guidelines. Please observe all OH&S regulations when working on Sungrow equipment.

The following document outlines responsibilities of Sungrow Australia PTY Ltd, The Retailer/Installer, and the End User in respect to the installation and operation, and warranty of Sungrow Hybrid inverters installed in fully 'Off-Grid' applications.

Applicability: SH5K+, SH5K-20, SH5K-30, SH5.0RT, SH10RT

Conditions for SH5K+, SH5K-20, SH5K-30 only:

The Sungrow hybrid inverters are primarily designed for on-grid and emergency power supply (Backup) applications. With the 'Backup' connected to the ESS/Backup circuits, the system is capable of operating in off-grid mode to supply power for emergency appliances 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.

Please note that the maximum battery discharge rate is 3000 watts. In other words, backup circuits must be limited to max 3000 watts.

Important!

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 SH5K-- series connects to 48V battery systems

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

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 Sungrow SH5K-30 does not have a temperature probe input).
- The inverter must be registered in Sungrow website [here](#) to record system information.
- The inverter must be connected to the Sungrow web portal ([iSolarCloud](#)) 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.

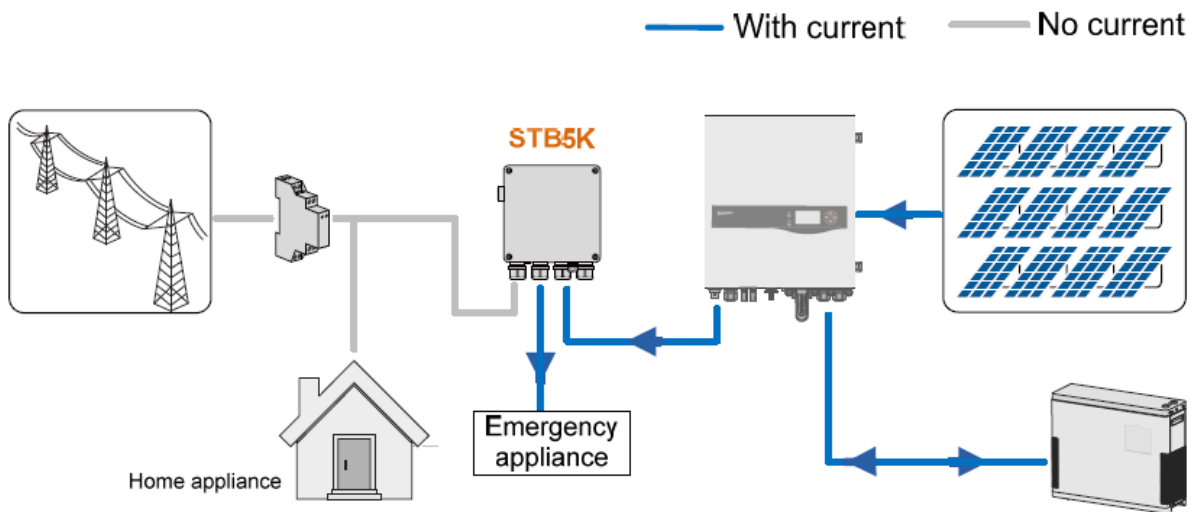


Figure 1 EPS System Configuration (Grid Connected)

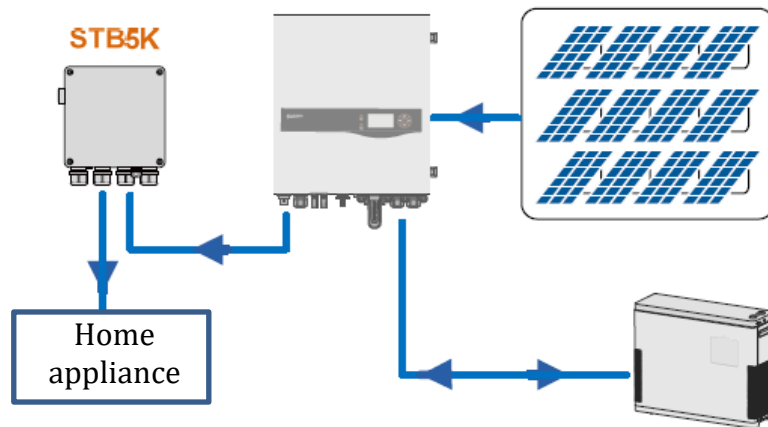


Figure 2 Off-grid System Configuration (see warranty T's & C's)

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 maximum output is 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 Backup Circuits* 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.

*3rd party Grid Connect inverter may be connected to the backup circuits of the SH5K-30

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 interconnected 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

Conditions for SH5.0RT and SH10RT:

The Sungrow SH5.0RT and SH10RT are designed to be used in either grid-connect or Off-Grid installations, within its design limitations.

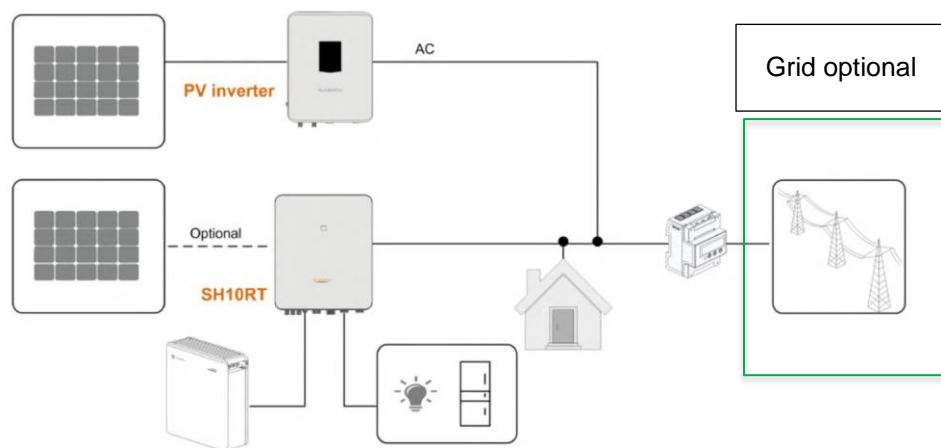


Figure 3 – HV Hybrid with 3rd party GC inverter connected to grid side.

The RT series are 3-phase Hybrid inverters and are designed for use with HV Lithium batteries only.

The conditions / Limitations that apply to the SH5K** series remain the same for the RT series, except:

- The backup circuit can deliver the full AC rated power of the inverter in normal use (please refer to the [data sheet](#)).
- A 3rd party single or 3-phase GC inverter can be connected to the backup circuits in Off-Grid mode.
- 3-Phase loads are not required to be balanced in Off-Grid mode.
- Please refer to the [user manual](#) for design and installation guidelines

- At the time of writing (November 2020) the facility to connect a Gen-Set or parallel another Hybrid inverter has not yet been enabled. Please refer to Sungrow bulletins for updates as these functionalities are planned be introduced in late 2020 or early 2021.

Responsibilities of all parties:

Installer/Retailer responsibility:

- The installer must be CEC accredited for the design and install of GC and SPS systems.
- The installer/retailer bears primary responsibility for the correct design and install of the system, according to the end user's needs and the Sungrow Owner's Manual.
- The installer/retailer bears primary responsibility for the warranty work on the entire system.
- The installer/retailer will make all reasonable effort to connect the plant on the iSolarCloud*
- In the event of a suspected fault, the Installer should report to Sungrow as soon as possible and seek remote diagnosis and assistance.
- In the event of a faulty Sungrow part, the installer/retailer will confirm the faulty unit to Sungrow, lodge a warranty claim, and replace the inverter.
- The installer/Retailer will absorb travel time and accommodation costs for maintenance and/or warranty work.
- The installer is responsible to securely pack the faulty unit into the delivery box within 5 working days of changeover, ready for Sungrow to collect, and advise Sungrow when ready.
- The retailer/installer has responsibility to ensure the End User is aware of the full benefits of the system and the iSolarCloud, and to [register](#) their inverter on Sungrow's web page.

End User responsibility:

- The End User is responsible for understanding the operation of the Off-Grid system.
- The End User is responsible for registering the system on Sungrow's '[Warranty Registration](#)' page.

- The End User is responsible for reporting any errors or faults to the retailer/installer as soon as possible after discovery.
- The End User shall contact the retailer/installer for all system concerns.
- In the event of the original retailer/installer not being available i.e. out of business, the End User shall engage a local Installer or Electrician to inspect / repair the system.

Sungrow Australia PTY LTD responsibility:

- Sungrow is responsible for the warranty of Sungrow products only, and bears no responsibility for design, installation correct settings, or 3rd party equipment.
- Sungrow shall be responsible for assisting the retailer/installer as much as possible/feasible in the operation and installation of Sungrow product.
- Sungrow will, on confirmation of a faulty Sungrow part, send a replacement unit to the address nominated by the warranty claimant.
- Sungrow will cover the freight cost (within Australia) and the return of the faulty inverter back to sungrow.
- Once the returned unit has been tested and fault confirmed, Sungrow will pay the installer a reimbursement** as per our [Warranty Terms and Conditions](#).
- Sungrow will offer full remote technical support to all concerned parties as necessary to resolve any faults or issues.

Exclusions / other conditions:

*Sungrow may at its discretion, waive the condition of iSolarCloud online monitoring clause in the cases where internet or 4G/5G connection is not available. The installer/End User should request this in writing.

**Sungrow may agree to an extra reimbursement to the installer under certain conditions. This must be negotiated and agreed in writing in advance.

**Sungrow are not responsible for travel and/or accommodation costs incurred by service personnel in the process of warranty repairs.

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.