SH5.0/10RT Retrofitting the Existing PV System

Disclaimer

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The Sungrow hybrid inverter is compatible with any 3-phase PV grid-connected inverters. An existing PV system can be retrofitted to be a PV ESS with the addition of the hybrid inverter. The power generation from the existing PV inverter will be firstly provided to the loads and then charge the battery. With the energy management function of the hybrid inverter, the self-consumption of the new system will be greatly improved.

There are two ways to retrofit the existing PV system:

1. To parallel the PV inverter and hybrid inverter at grid connect point.
2. To connect the PV inverter to the back-up circuit of the hybrid inverter.

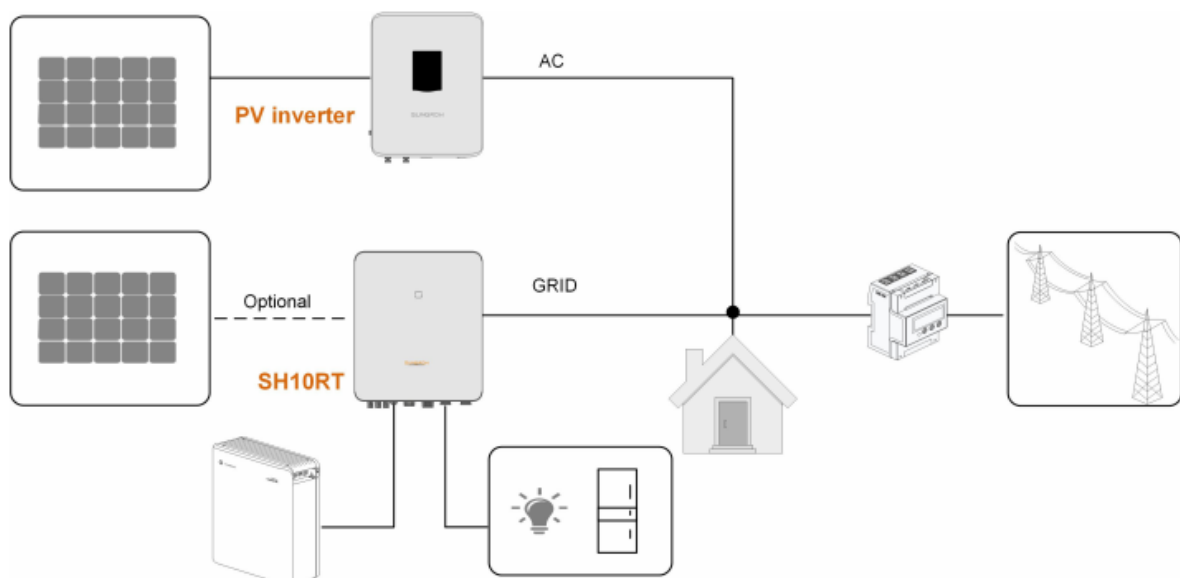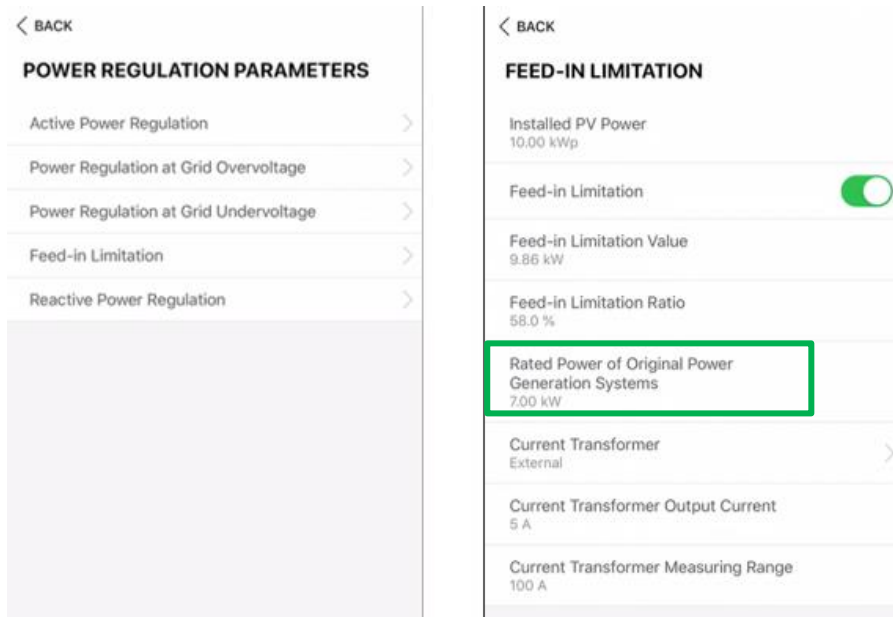## 1. Grid Connect Port to Retrofit the Existing PV System

Figure 1 Grid Connect Port to Retrofit the Existing PV System

The AC terminal of the PV inverter and the GRID terminal of the hybrid inverter are connected in parallel. The meter must be connected to the hybrid inverter and the hybrid inverter must set existing system.

In the Local Access, tap "More -> Settings -> Power Regulation Parameters -> Rated Power of Original Power Generation System"-> **Enter the power of the existing system**.

2. Back-up Circuit Port to Retrofit the Existing PV System
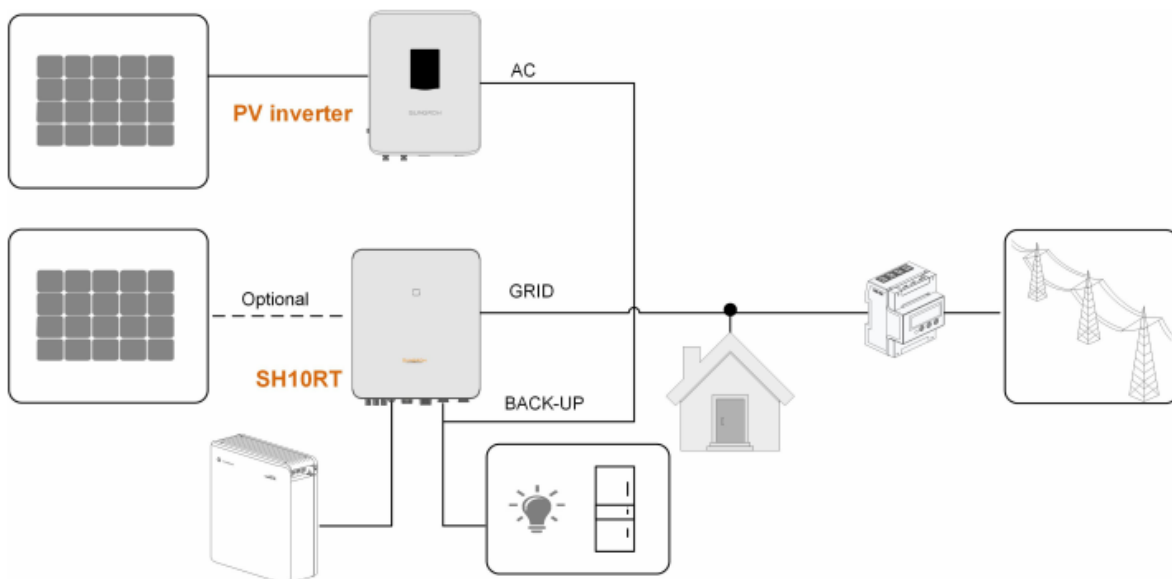

Figure 2 Back-up Circuit Port to Retrofit the Existing PV System

The back-up circuit port retrofits the existing PV system to maximize the use of PV energy by allowing the PV inverter to work even when off-grid.

The AC terminal of the PV inverter and the BACK-UP terminal of the hybrid inverter are connected in parallel.

The PV inverter power **CANNOT** *exceed the nominal power of the hybrid inverter* (if it is a single-phase PV inverter, the PV inverter power cannot exceed the single-phase nominal power of the three-phase hybrid inverter).

Before retrofitting the existing PV system to an off-grid port, the "Frequency Shift Power Control" parameter needs **to be enabled**.
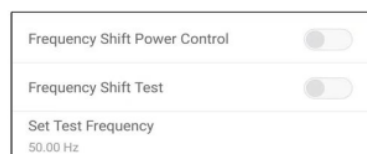
Frequency Shift Power Control

If PV inverter is connected on the backup circuit of the hybrid inverter during battery-backup operation, the hybrid inverter must be able to limit their output power to protect the battery and the loads from being overcharged or damaged by the excessive power from PV inverter.

In off-grid mode, hybrid inverter will change the frequency at the AC output. This frequency adjustment is detected by the PV inverter. As soon as the power frequency of the battery-backup grid increases beyond the value specified in "Set Test Frequency", the PV inverter limits its output power accordingly.

It must be ensured that the connected PV inverters limit their power at the AC output via the hybrid inverter due to changes in frequency. The frequency-dependent active power limitation PF **must be set in the PV inverter**.

In Local Access, tap "More -> Settings -> Operation Parameters -> Other Parameters" to enter the corresponding screen.

Frequency Shift Power Control	⬜
Frequency Shift Test	⬜
Set Test Frequency 50.00 Hz	

Parameter	Default value	Range
Frequency Shift Power Control	OFF	ON / OFF
Frequency Shift Test	OFF	ON / OFF
Set Test Frequency	50.00 Hz	50.00 ~ 55.00 Hz

The existing system settings must be also enabled.

3. Communication Cable Connection

If there are no special requirements for data synchronization, the hybrid inverter and PV inverter can be added to the same plant on iSolarCloud separately by using one normal WiFi dongle (V31 for SH_RT and WiNet for SG_RT) on each inverter.

If the customer has higher requirement for the data synchronization, the PV inverter and the hybrid inverter can be daisy chained as per following diagram. An EyeM4 dongle must be used in this configuration.
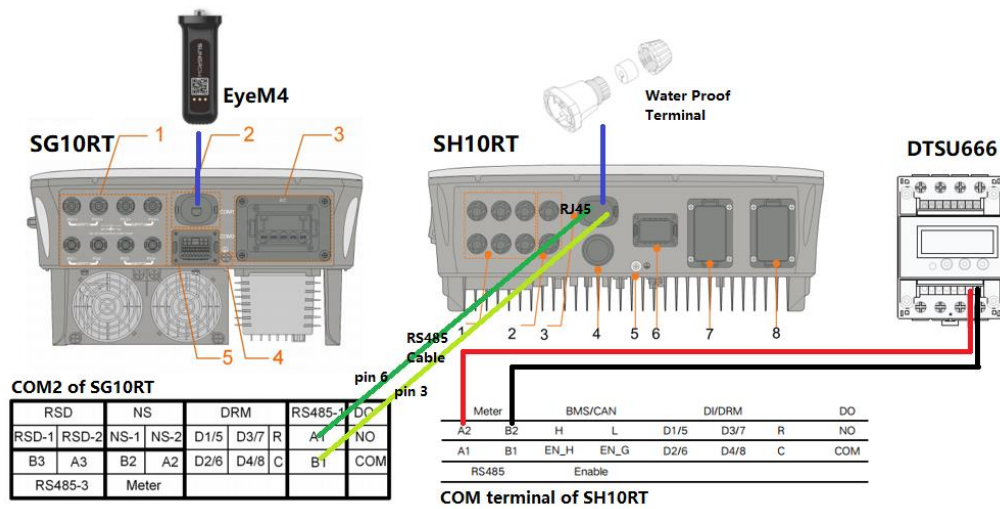
Note:

1. ESS system is not UPS system, **DO NOT** connect the critical equipment which required continuous and stable power supply to the back-up circuit.
2. By retrofitting the PV inverter on the back-up circuit of the hybrid inverter, if the **battery SOC > 85%**, the system may not be able to seamlessly shift from grid connect mode to off-grid mode. The hybrid inverter will get into a fault mode and turn off first. Then it will start up and the process may take 2-3 minutes.
3. The retrofitting configuration can only consist of one PV inverter and one hybrid inverter. If more a system consists of 3 inverters or more, a logger may be required. Please consult with Sungrow for the best solutions.
4. All the inverters and dongle must be updated to the latest version.
5. In zero-export scenario, the hybrid inverter can only ensure no power exported to grid itself but does not ensure zero export for the PV inverter. Please contact the PV inverter manufacturer for its zero-export solution.
6. PV modules for hybrid inverter are optional.

If you have any enquiries, please contact Sungrow Service Department on 1800 786 476 or email to service@sungrowpower.com.au, Monday- Friday 9am - 5pm (AEDT).