SH3.0 ~ 6.0RS Parallel Connection Instruction

1 Validity

(1) The following inverters can be connected in parallel: SH3.0RS, SH3.6RS, SH4.0RS, SH5.0RS, and SH6.0RS.

(2) At most 3 inverters can be connected in parallel.

- This mode only supports self-consumption currently.
- Please refer to "3.3 Battery Management" in the user manual to get the battery model.

2 System Configuration

Due to different load access methods, there are two master-slave operation modes.

2.1 One backup Port One Load

It is applicable when the maximum power of a single load does not exceed the rated power of a single inverter. The system with decentralized loads supports seamless power supply switching, and is free of external ATS, convenient for wiring.

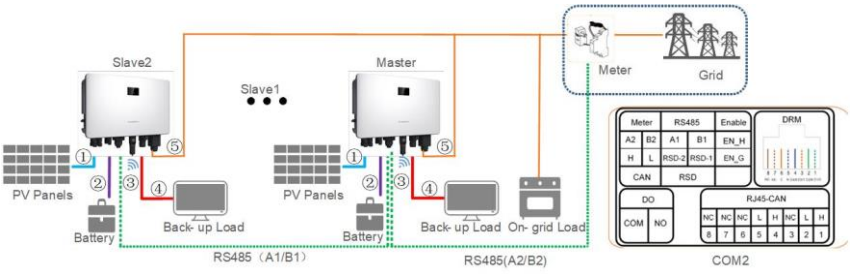


Figure 1-1 Decentralized access

①PV input	②BAT input	③COM2
④BACKUP	⑤GRID	

(1) The master inverter is connected to the meter, controlling all inverters to realize feed-in power limitation and SOC equalization. Slave inverters does not need to be connected to the meter. The

meter interfaces are A2/B2 of COM2, and the meter model is S100.

(2) The master-slave inverters communicate through RS485 parallel connection. Communication interfaces are A1/B1 of COM2. Manually set each inverter and the address is automatically allocated. Each inverter is equipped with a WiNet-S module, and reports data separately. Three inverters in parallel form a cloud data combination of a plant.

Figure 1-2 Master-slave inverter communication wiring

- If the grid-connected power is greater than 500W, inverters can balance the power with each other.
- Set the control parameters of each inverter separately, and set the feed-in limited power of only the master inverter.
- Set the parameters of master and slave inverters separately before operation.
- In the parallel connection mode, the feed-in limitation function of all inverters must be enabled.

(3) For detailed wiring, please refer to the wiring procedure of a single inverter.

2.2 All Backup Port One Load

- This section is applicable for countries and regions except for "AU" and "NZ".

It is applicable when the power of a single load exceeds the rated power of a single inverter. The system with centralized loads requires an external ATS and it takes about 150s to switch the power supply.

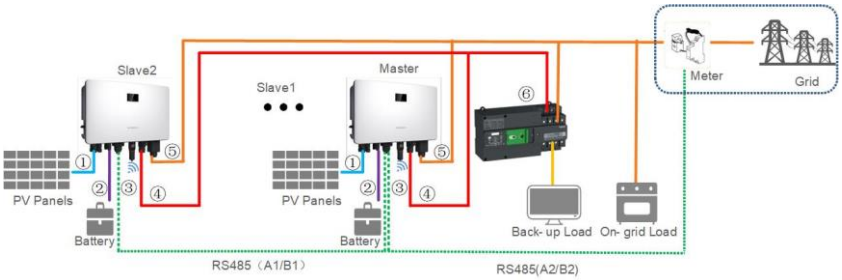


Figure 1-3 Centralized access

①PV input	②BAT input	③COM2
④BACKUP	⑤GRID	⑥ATS

(1) The bypass circuit inside the inverter cannot carry the working current of all loads, thus an external ATS is required to form another bypass circuit. Use only the ATS provided by SUNGROW.

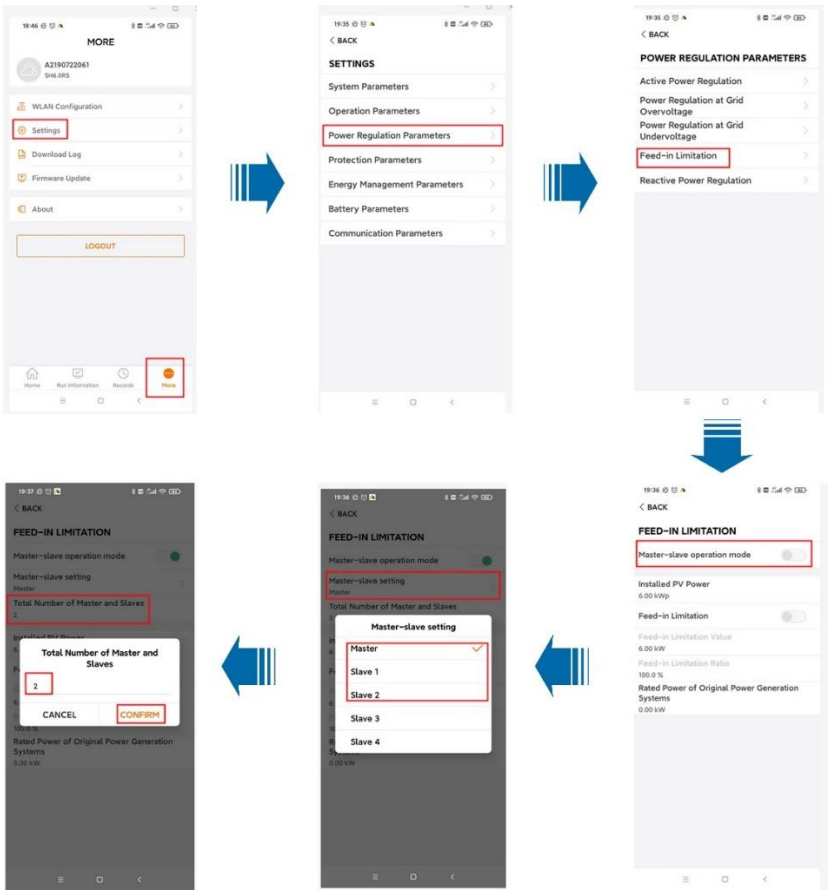
(2) The rest wiring is the same as that of the one backup port one load.

- If centralized loads are connected to the backup terminals, the power is evenly distributed and output power is the minimum inverter power.
- When the system runs in off-grid mode, all load power is evenly distributed to each backup terminal.
- All inverters should be connected to the battery. The inverter without the battery will stop to ensure the stable power supply of loads in off-grid mode.
- In the parallel connection mode, the feed-in limitation function of all inverters must be enabled.

3 Master-slave Inverter Settings

After initialize the inverter according to the user manual, proceed as follows:

More > Setting > Power Regulation Parameters > Feed-in Limitation > Master-slave operation mode > Master-slave Settings > Total Number of Master and Slaves



- If the number of inverters connected is inconsistent with the number set on the master inverter, the system fails to start.
- In the parallel connection mode, the feed-in limitation function of all inverters must be enabled.

4 Notices

4.1 Temporarily Inapplicable Scenarios

(1) In Zero-export mode, power balancing between inverters is not supported temporarily.

(2) Batteries in parallel are temporarily not supported to be connected to inverters.

4.2 Common Problems

(1) The power of each inverter is calculated and uploaded separately. Therefore, if there is only one meter, slave inverters are deemed as loads with negative power on the power flow diagram of the master inverter.

(2) If the grid-connected power exceeds 500W, inverters can balance the power with each other. Therefore, when the feed-in limited power is set higher than 500W, the feed-in power is about 500W, and the rest output flows to the battery.