Growatt develops three operation modes of SPH series, includes Load First, Grid First, and Battery First to meet different scenarios. This guidance is designed for customers to understand the concept of the operation modes and the setting procedures of activating these modes.

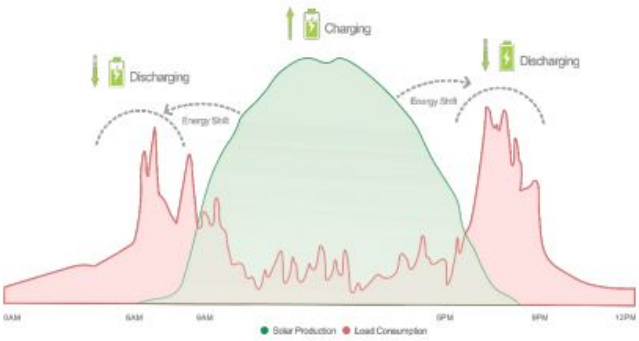
Load First

1. Default mode, can maximize the solar energy usage, lower the power import from the grid

2. Benefits:Maximize the solar self-consumption

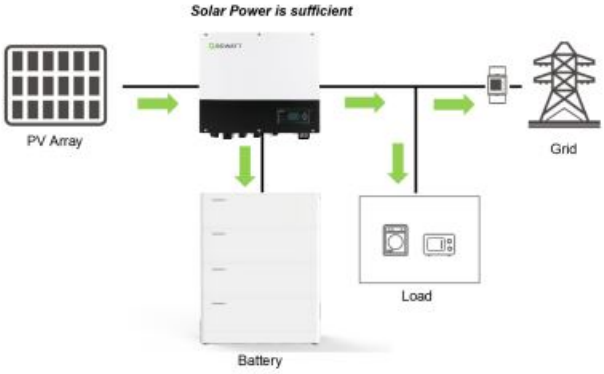
- More independent from the

grid



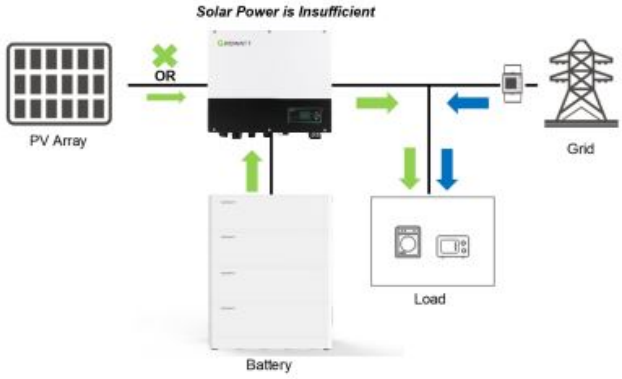
3. Priority: Load > Battery > Grid

4. How it works?



When solar power is insufficient and lower than load power, the battery will be discharged automatically and support the load along with solar power. If the

battery discharges to the discharge-stop SOC*, it will stop, then the solar and grid will support the load.



Notice:The “Discharge Stop SOC” is available for setting.

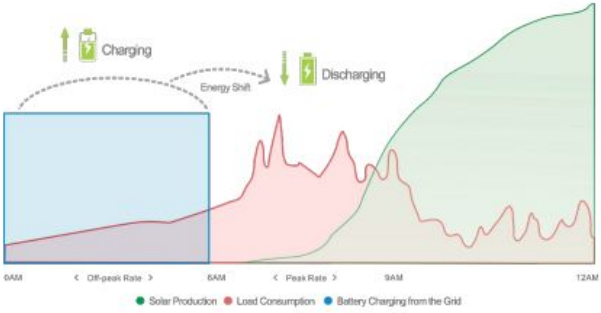
*The battery power supply can be restored when the battery is charged to the value of “Discharge-stop SOC +3%” by solar

Battery First

1. For multi-step electricity price areas, SPH can store the power into the battery when the electricity price is in the off-

peak rate and use the power in peak rate time or save the energy for blackout.

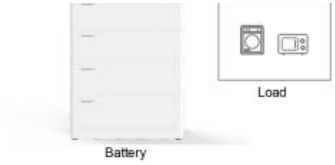
2. Benefits: Reduce the electricity bill.
Keep the power on in a blackout.



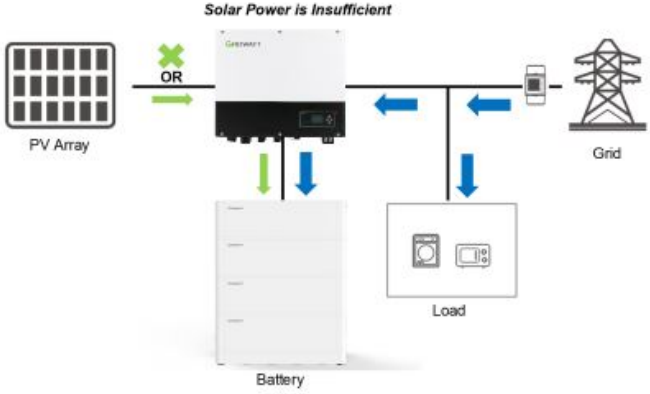
3. Priority: Battery > Load > Grid

4. How it works?

When the solar is sufficient, solar will charge the battery at top priority, and the surplus solar power will support the loads with the grid.



When the solar is insufficient, the solar will charge the battery at top priority, while the load will be powered by the grid. If you enable the AC Charge function, the grid will not only support the load but also charge the battery together with solar power until battery reaches “Charge Stopped SOC”.



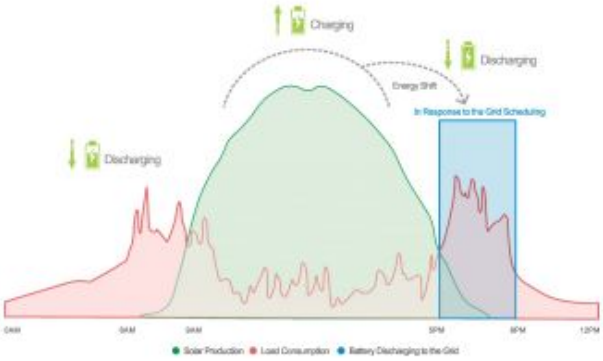
Notice:

The “Battery Charge Power Rate”, “Charge Stopped SOC” “AC Charge

Function” and “Charge Period” are available for setting.
Please do set the “Charge Period” otherwise the operation modes will be adjusted to “Load First” automatically.

Grid First

1. Export the energy into the grid in response to the grid scheduling
2. Benefits: Earn more profit from the utility company

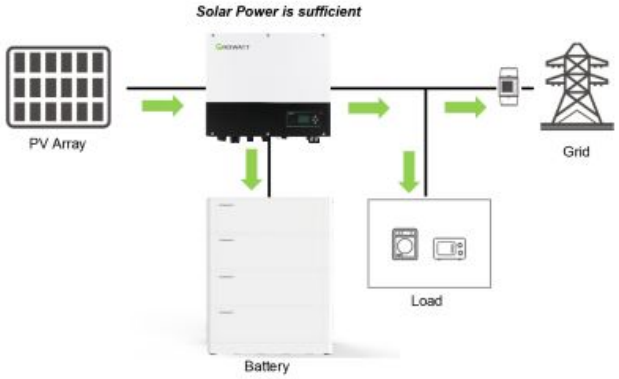


3. Priority: Load > Grid > Battery

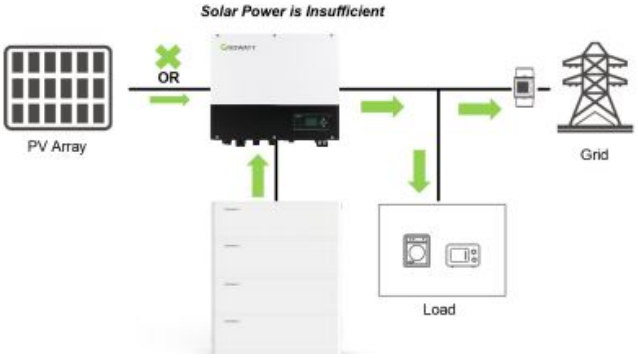
4. How it works?

W hen solar power is sufficient, the solar power will supply the max. AC power

output to the load and the grid, then the surplus solar power will charge the battery.



When solar power is insufficient, the solar and battery will work together to ensure the max. AC power output, supply power to the load and export power to the grid.

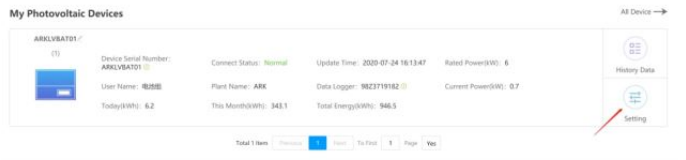


Notice:

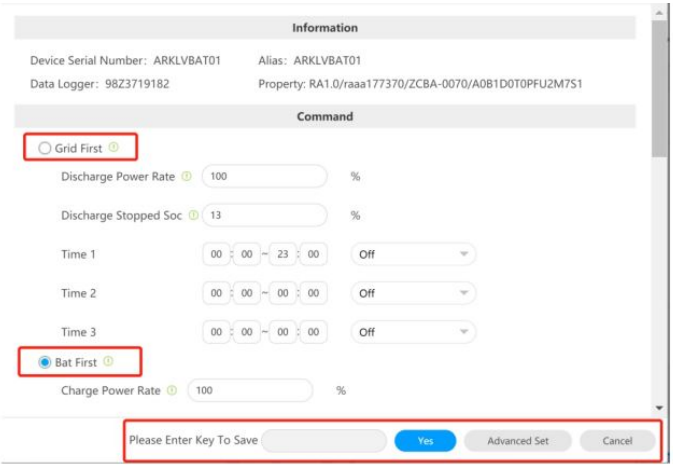
The “Battery Discharge Power Rate”, “Discharge Stopped SOC” and “Discharge Period” are available for setting And please set the “Discharge Period” otherwise the operation modes will be adjusted to “Load First” automatically.

Operation modes setting through Shinesever

1.Login in the ShineSever website, find the SPH system in your device list and click the “Setting”



2.The “Grid First”, “Battery First” “Load first” “Export Limit” functions could be set through the below page.



1. For Load First, it is the default setting, you can set the “Discharged Stopped SOC” . The battery will stop discharging when the SOC reaches the setting value, then it will be restored after battery reaches“ Discharge Stopped SOC + 3%”

2. For Battery First, the “Stopped SOC” and “Charge Power Rate” could be set by the following formula. The solar will

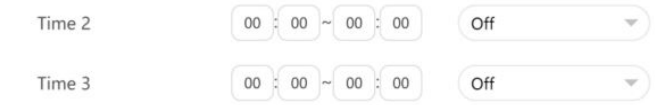
charge the battery as a top priority until the battery reaches the value of Stopped SOC in setting period of time.

$$\text{Charge Power Rate} = \frac{\text{Max. Charge Power}}{\text{Max. Battery Charge Power of SPH}} * 100\%$$

If you enable the “AC Charge” function, the system will absorb the power from the grid to ensure the charge power you set if the solar power is insufficient. This operation mode can be used for three periods of time a day.

Notice:

The system will switch to the “Load First” mode automatically when both conditions of “Charge Stopped SOC” and “Time” are met.



1. For Grid First, the “Discharge Power Rate” means that the battery will export setting power into the grid by the following formula at a certain time.

$$\text{Discharge Power Rate} = \frac{\text{Max. Discharge Power}}{\text{Max. Battery Charge Power of SPH}} * 100\%$$

The “Discharged Stopped SOC” could be set to limit the SOC of the battery when discharging, also it can be used for three periods of a day.

Notice:

The system will switch to “Load First” default Mode automatically when any condition of “Discharge Stopped SOC” and “Time” is met.