

# Route Auto Hybrid Inverter Output Priority and Working Mode

## Grid-Tie mode

### 1) **Mains Power Priority :**

Mains power and PV provide power to the load at the same time, and the battery only provides power to the load when the mains power is unavailable.

PV are given priority to charge the battery, and when there is excess energy, it will be used to power the load and finally **Feed the Grid**.

#### 1.1) **There is PV Power and Mains Power :**

- a) Mains power gives priority to providing load energy; Photovoltaics Charges the Battery.
- b) The battery is fully charged, and the remaining PV energy supplies power to the load. If the PV power generation is less than the load power, the mains power supplies supplementary power.
- c) The remaining PV power generation is greater than the load power and feeds power to the grid.
- d) When the PV power generation is insufficient (not enough for the set charging power), the mains will charge the battery to make up the remaining charging current.

#### 1.2) **There is PV Power, NO Mains Power**

- a) PV give priority to providing load energy, and the remaining energy is used to charge the battery
- b) PV give priority to providing load energy.  
If the PV power energy is insufficient, the battery discharges to supplement the load power supply
- c) PV give priority to providing load energy.  
If the PV power energy is insufficient, the battery discharges to supplement the load power supply. (The battery is discharged to low-voltage protection, the inverter switches to standby state, the PV power charges the battery, and the battery is charged until the battery returns to the set value, and the inverter output can be resumed. Or manually press the power button twice with an interval of 1 to 2 seconds. Reinvertable output)

#### 1.3) **There is Mains Power, NO PV Power**

- a) The mains power supplies power to the load and charges the battery according to the charging setting value.
- b) If the mains power is lost, the battery will be discharged.  
When the battery is discharged to low voltage, it will be switched to standby

# Route Auto Hybrid Inverter Output Priority and Working Mode

## 2) PV Power Priority :

Mains power and PV power provide power to the load at the same time, and the battery only provides power to the load when the mains power is unavailable; PV power is given priority to power the load, and when there is excess energy, it will be used to charge the battery. Finally, it feeds power to the grid

### 2.1) There is PV Power and Mains Power

- a) PV power energy is provided to the load first, and the excess energy is used to charge the battery.
- b) When the battery voltage is not very low, and the battery voltage reaches the grid connection condition (it does not need to be fully charged, the battery voltage depends on the mains voltage, if the mains voltage is 230V, the battery voltage is above 46V), the remaining PV energy feeds into the grid.
- c) The PV power energy is insufficient for load use, the charging current is reduced to 0, and the mains power supplies the insufficient energy. (That is, Photovoltaic + Mains Power are loaded at the same time)

### 2.2) There is PV Power, NO Mains Power

- a) PV solar energy is provided to the load first, and the excess energy is used to charge the battery.
- b) If the PV power energy is insufficient for the load, the battery will be discharged to supplement it.
- c) If the PV power energy is insufficient, the battery discharges to supplement the load power supply. (The battery is discharged to low voltage protection, the inverter switches to standby state, the photovoltaic charges the battery, the battery is charged to the battery low voltage recovery setting value, and the inverter output can be resumed. Or manually press the power button twice, with an interval of 1 to 2 seconds., can be re-inverter output).

### 2.3) There is Mains Power, NO PV Power

- a) The mains power supplies power to the load and charges the battery according to the charging setting value.
- b) If the mains power is lost, the battery will be discharged. When the battery is discharged to low voltage, it will be switched to standby

## Route Auto Hybrid Inverter Output Priority and Working Mode

### 3) Battery Priority (Off-Grid Operation Mode)

PV power will give priority to supplying power to the load. If the PV power are insufficient or unavailable, batteries will be used as a supplement to provide power to the load. When the battery discharge voltage reaches the set value, it will switch to the mains to supply power to the load.

#### 3.1) There is PV Power and Mains Power :

- a) The inverter works in the inverter state, PV power energy gives priority to powering the load, and excess energy charges the battery
- b) When the PV power energy is insufficient for the load, the battery is discharged to supplement, and the PV and battery supply power to the load at the same time
- c) The battery is discharged to low voltage (converts to the mains power supply setting value), switches to the mains bypass power supply state, and starts battery charging (charging according to the charging priority), and the battery is charged to the battery voltage and switches to the inverter power supply setting value. Can be converted back to inverter output

#### 3.2) There is PV Power, NO Mains Power

- a) PV power gives priority to powering the load, and the excess energy is used to charge the battery.
- b) If the PV power energy is insufficient for load use, the battery will be discharged to replenish it.
- c) PV power give priority to providing load energy.  
If the PV power energy is insufficient, the battery discharges to supplement the load power supply. (The battery is discharged to low voltage protection, the inverter switches to standby state, the PV power charges the battery, the battery is charged to the battery low voltage recovery setting value, and the inverter output can be resumed. Or manually press the power button twice, with an interval of 1 to 2 seconds., can be re-inverter output)

#### 3.3) There is Mains Power, NO PV Power

- a) Prioritize battery discharge for load use
- b) The battery is discharged to low voltage (converts to the commercial power supply setting value), switches to the commercial power bypass power supply state, and starts battery charging (charging according to the charging priority). The battery is charged to the battery voltage and switches to the inverter power supply setting value. Can be converted back to inverter output
- c) When the mains power is lost, the battery will be discharged. When the battery is discharged to low voltage, it will be switched to standby.

Note :- 1) PV = Photovoltaics = Solar Power Plant , 2) Main Power = Electricity Line / Grid