ARK-HV

Installation and Operation Guide for ARK-HV Battery

1. purpose of documents

This document contains the very important operation manual in case of initial battery installation, battery extended with new module or replace battery, such as Battery Capacity Adjustment (BCA) and others. If BCA is not carried out in accordance with this document, the battery system performance may suffer from insufficient battery capacity and SOC jumps.

2. Principles of battery selection for initial installation

1） The manufacture date of battery should be less than six months different.
2） All the battery should be the same type.
3） Do not mix old and new batteries together. Batteries less than 300 cycles are defined as new batteries.

3. New battery installation steps

This section is used to guide the battery extended with new module.

3.1 Principles for the selection of batteries for extension.

1） All the battery should be the same type.
2） Do not mix old and new batteries together. Batteries less than 300 cycles are defined as new batteries.
3） The interval between the installation of the new battery and the original battery is no more than 1 year.
4） 新增电池必现在 6 个月货架期内。(货架期具体含义)

3.2 No. 1 Battery extension with new module

Measure the voltage of new battery for added with a multimeter (the added battery has not been charged and discharged one day before installation)

1） If the voltage of the new battery for added is less than 51.5V, the original battery system needs to be adjusted to 15% SOC by charging or discharging, and then the new battery can be installed into the original battery system.
2） If the voltage of the new battery for added is the range of 51.5V~52.5V, the original battery system needs to be adjusted to 25% SOC by charging or discharging, and then the new battery can be installed into the original battery system.
3） If the voltage of the new battery for added is the range of 52.5V~53V, the original battery system needs to be adjusted to 45% SOC by charging or discharging, and then the new battery can be installed into the original battery system.
4） If the voltage of the new battery for added is the range of 53V~53.5V, the original battery system needs

to be adjusted to 80% SOC by charging or discharging, and then the new battery can be installed into the original battery system.

5） If the voltage of the new battery for added is more than 53.5V, the original battery system needs to be adjusted to 95% SOC by charging or discharging, and then the new battery can be installed into the original battery system.

Note: Battery capacity leveling by this method cannot guarantee that the capacity can be 100% optimized at beginning, but the battery capacity difference can be within a controllable range, the battery capacity will be gradually optimized to the maximum if the charging and discharging cycle is carried out for a period (about 1 month).

3.3 No. 2 The original system has an abnormal battery that needs to be replaced with a new battery.

- If there is only 1 abnormal battery in the original system

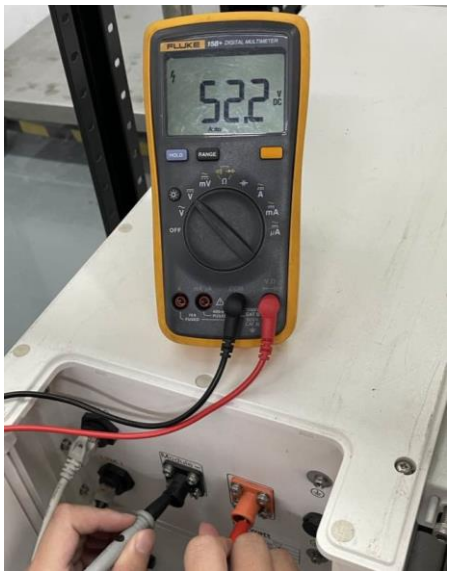
1） remove the abnormal battery from the original battery system.
2） Set the Hybrid Inverter to charge the battery, charge the remaining battery to full charge.
3） Measure the new battery voltage and discharge the system battery according to the new battery voltage to adjust to the corresponding SOC value according to No. 1 steps.
4） Connect the new battery to the system.

- If the original system has 2 abnormal batteries

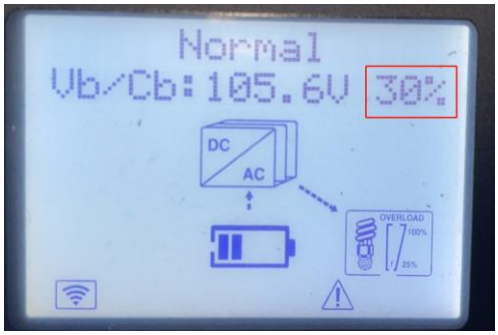
1） Need to prepare two new batteries with the same voltage for replacement
2） Remove all batteries from the original system and measure the voltage of the battery without abnormalities (this battery has not been charged and discharged within 3 hours).
3） Install the new battery into the system, the energy storage machine set battery charging, the new battery will be charged to full charge.
4） According to the old battery voltage according to the case 1 steps to the new battery to discharge the adjustment to the corresponding SOC value.
5） Connect the old battery to the system.

4. Battery Capacity Adjustment Procedure

Battery voltage measurement, change the multimeter to DCV, the positive terminal of the meter to the battery module +, the negative terminal to the battery module -, the following figure

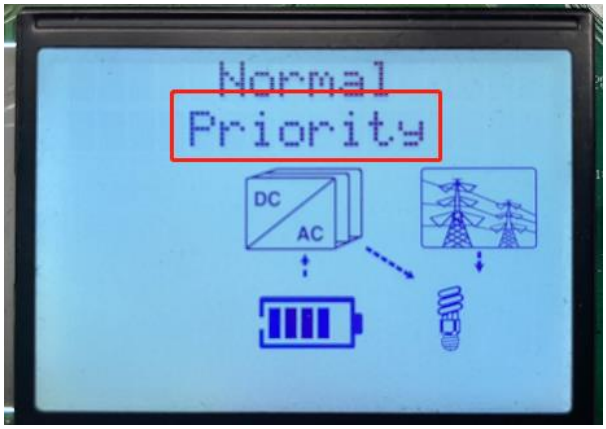


Check the original system battery SOC values, as follows;



SOC adjustment, according to the measured battery voltage value, set the energy storage machine charging and discharging the corresponding cut-off SOC value (such as step 1 battery voltage value of 52.2V, the original system battery needs to be charged or discharged to SOC of 25%), the setting method is as follows; Energy storage machine setting method:

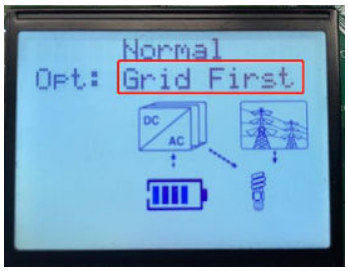
Press and hold the OK key for more than 6 seconds, select Priority by ↑ ↓ key, click OK, as follows;

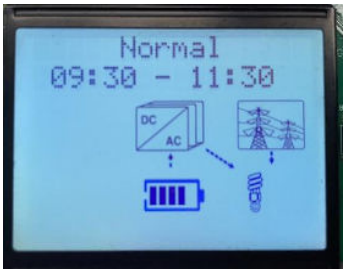


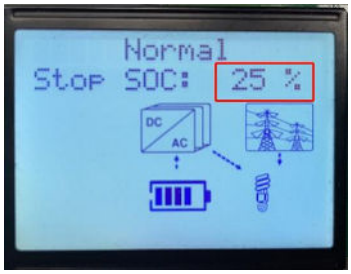
If the original system battery SOC is greater than 25%, then select Grid First (battery discharge),

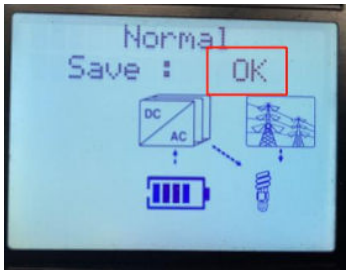
discharge stop SOC set to 25%, time period set to two hours, select Save to save the settings after setting; if the original system battery SOC is less than 25%, then set Bat First (battery charge), discharge stop SOC set to 25%, time period set to the current time two hours, select Save to save the settings after setting; (before setting a mode, you need to turn off the other mode first)

discharged model:

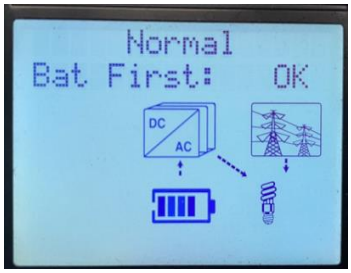


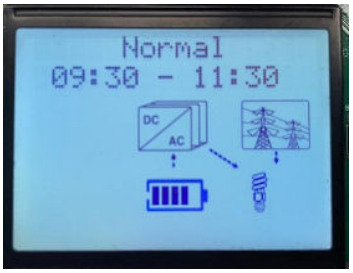


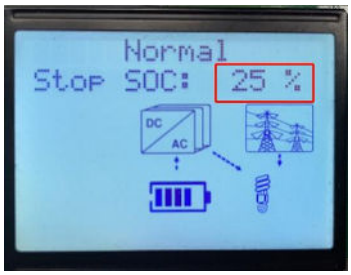


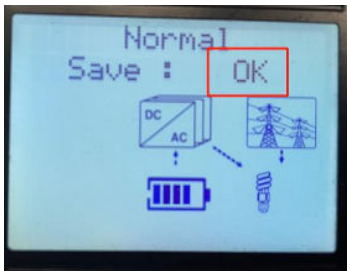


charged model:





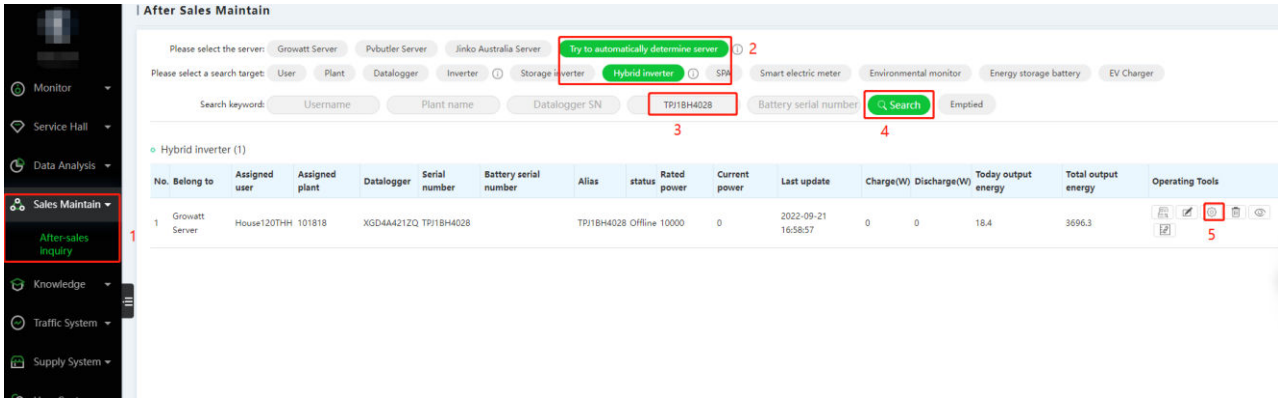




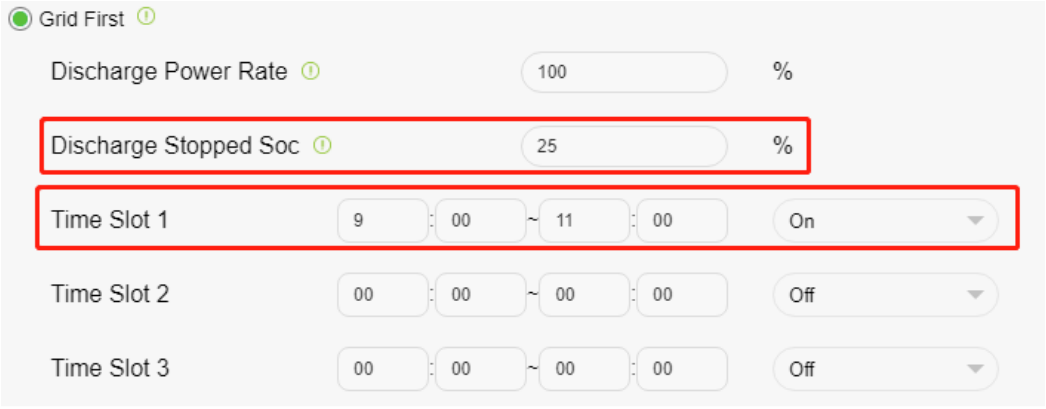
OSS

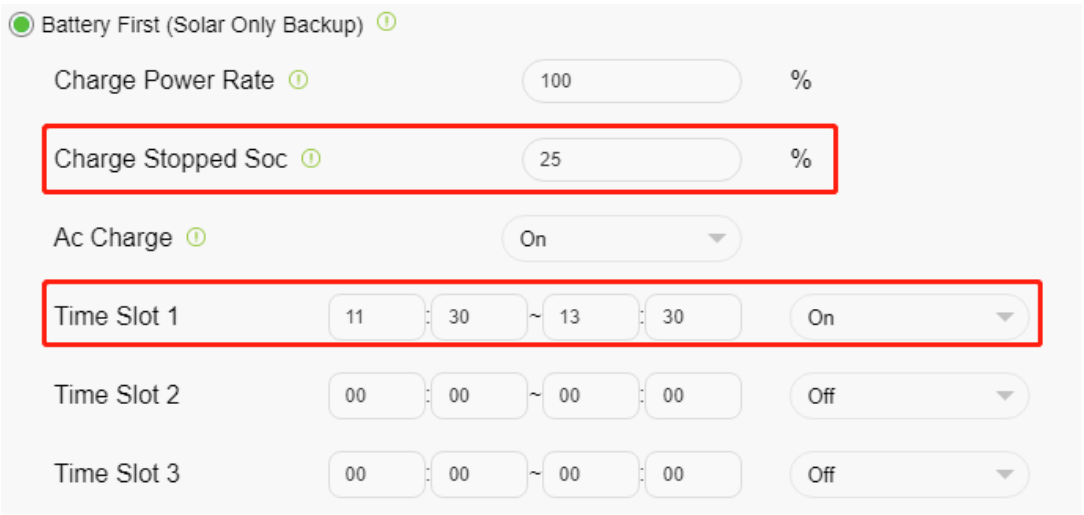
OSS management system settings:

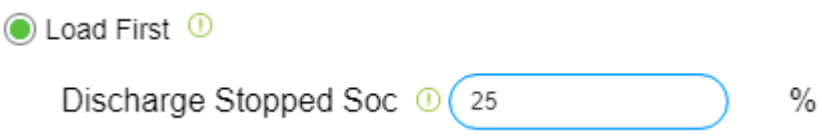
Enter the OSS management system → select sales maintenance after-sales inquiry → select the corresponding server and model → enter the SN number of the energy storage machine → click on the setting icon after searching



If the original system battery SOC is greater than 25%, set the grid or load priority mode (battery discharge), discharge stop SOC set to 25%, time period set to two hours; if the original system battery power is less than 25%, set the battery priority mode (battery charging), discharge stop SOC set to 25%, time period set to the current time two hours; (before setting a mode, you need to turn off the other mode first)







2） After the adjustment is completed, the new battery can be connected to the system for use.