LV5200 Battery
Supplementary Charge Maintenance Instruction

Background introduction: This document is used to explain how to identify and recharge the battery that has lost power. Due to Low voltage battery specification, we suggest that please charge the battery each 6 months.
*(*Starts from the dispatch date from the FOXESS)*

Part1: How to identify a healthy battery.
Part2: How to do the supplementary charge maintenance.
Appendix1: SOP of DC power supply
Appendix2: LV series battery firmware upgrade
Appendix3: Compatible inverter charger operation(Inverter A & Inverter B)

Tools Preparation:
1. Inverter charger
2. DC power supply
3. USB-RS485 cable and computer

Part1: How to identify a healty battery.

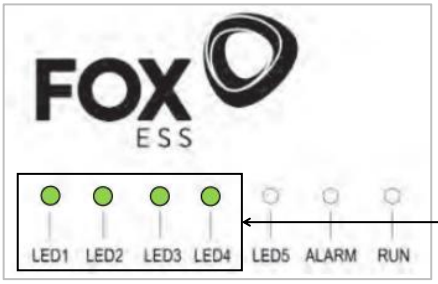
Step1: Long press the silver bottom, check if the LED lights are on.
A. The LED lights on, indicates that the battery is healty.
B. The LED lights still off, move on to step2.
C.

**Definition:*
Healthy battery: battery which is well-functioning, or lost of power but can still be well-functioning after supplementary charge maintenance.
Unhealthy battery: battery which is lost too much power that can not be repaired by supplementary charge maintenance.

Step2: Using the DC power supply to power on the Battery *(Set the DC power supply parameters as "32V, 100mA", operation refers to Appendix1)*, check if the LED lights on.
A. The LED lights on, indicates that the battery is unhealthy.
B. The LED lights still off, move on to step3.

Step3: Using the DC power supply to power on the Battery *(Set the DC power supply parameters as "40V, 100mA")*, check if the LED lights on.
A. The LED lights on, indicates that the battery is healty.
B. The LED lights still off, indicates that the battery is unhealty.

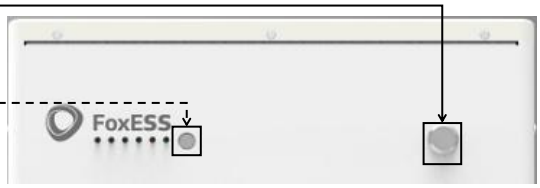
*NOTE:
1. For the unhealthy battery, please contact the distributor for further assistance.
2. For the healthy battery, please go on for *Part2: how to do the supplementary charge maintenance,* and charge the battery untill SOC>80% (that is to say, at least 4 LED green lights, which indicates the SOC, are on.)



Part2: How to do the supplementary charge maintenance.

Step1: Upgrade firmware. *(Before do the charging, we highly recommend to upgrade the firmware to the latest version!)*
1. Activate the battery. By “Power on the battery”, or “DC power supply”.
2. Connect the battery to computer.
3. Upgrade the firmware. *(operation refers to Appendix2)*

Step2: Do the supplementary charge maintenance.
1. Wiring
   ①AC input(grid to inverter)
   ②Communication(battery with inverter)
   ③DC input(inverter to battery)
2. Power on the battery. (By “Power on the battery”, or “DC power supply”.)
   ①If power on manually, need to long press the silver bottom to activate it, then press the black bottom at about 2 seconds.
   ②If power on by DC power supply, no need to press any bottom.



3. Turn on the AC switch on grid side, activate the inverter, and do the settings
4. The battery starts charging and the LED lights will flash. Make sure to charge the battery untill SOC>80% (that is to say, more than 4 LED green lights, which indicates the SOC, are on.)

*NOTE:
1. Make sure the battery is a healthy battery.
2. Make sure all the wiring and communication connection are good.
3. Detailed operation refers to *Appendix3: Compatible inverter charger operation(Inverter A & Inverter B*

Appendix1: SOP of DC power supply

Step One:
Have the adjustable DC power supply and low SoC Fox 5200 battery ready and prepared.

Step Two:
Connect the DC power supply and the battery with the cramp.

☑*Make sure the cramp is fully contact with the metal part. Or the battery can not be activated!*

Step Three:
Turn on the DC power supply, set the parameters, *For example: If set the voltage to 40V, current to 100mA, The LCD screen shows like pic.*
and press the "run" bottom to start exporting energy to the battery. (in the picture, the yellow button)

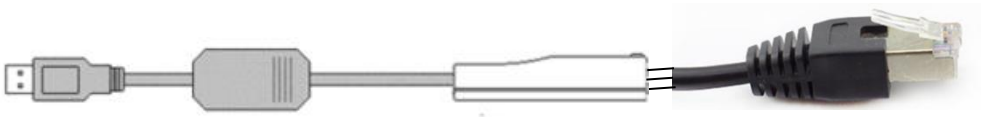
The battery will automatically be activated once DC power supply exports energy.* ***No need to press the silver bottom on the battery.*

Appendix2: LV series battery firmware upgrade

Attention: This instruction applys to both LV5200 battery and LV2600 battery. We take the LV5200 for example for the following steps. If need to operate on LV2600, just need to replace to the specific LV2600 upgrade file.

Tools Preparation:

1. "upgrade_lv5200" upgrade pack folder
2. Compatible version of lv5200 firmware in *XX.hex* file
3. A computer with a USB port
4. USB-RS485 cable



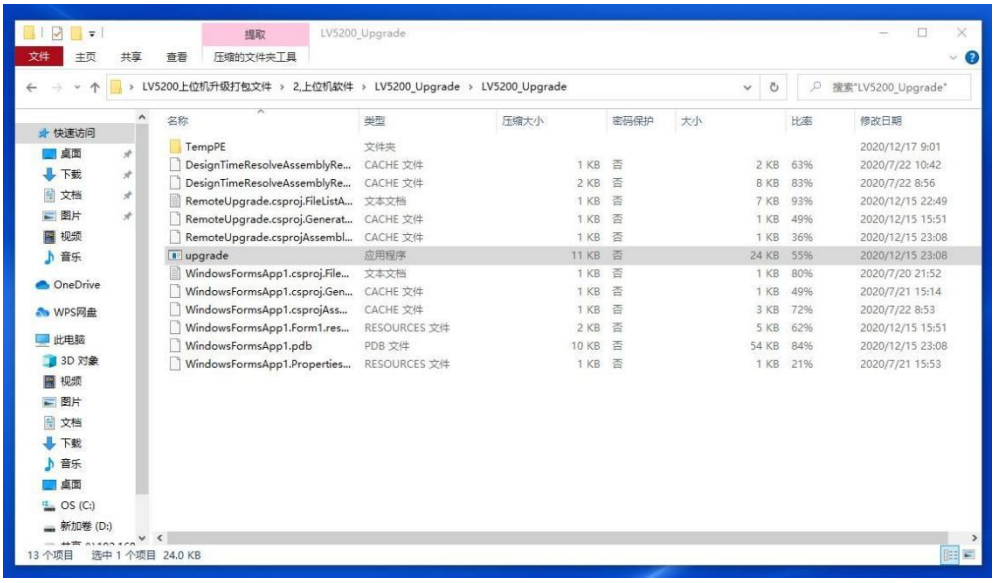
USB Port driver RS485

Upgrade Steps:

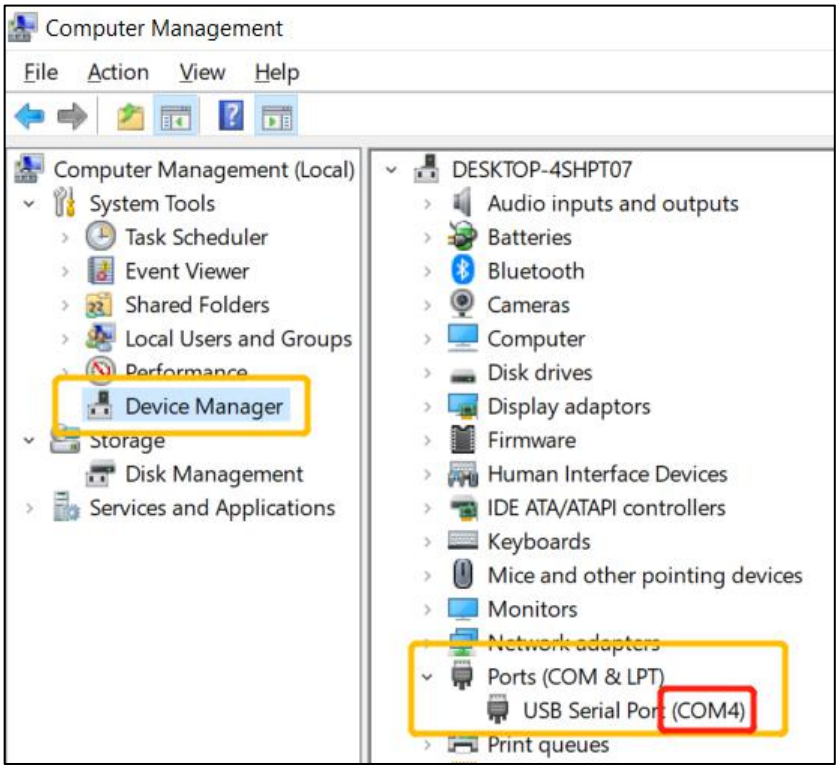
1. Connect the computer with the USB side of USB-RS485 cable

2. Connect the other end to the battery pack linkport located on other sides of the LV5200 battery, both works.

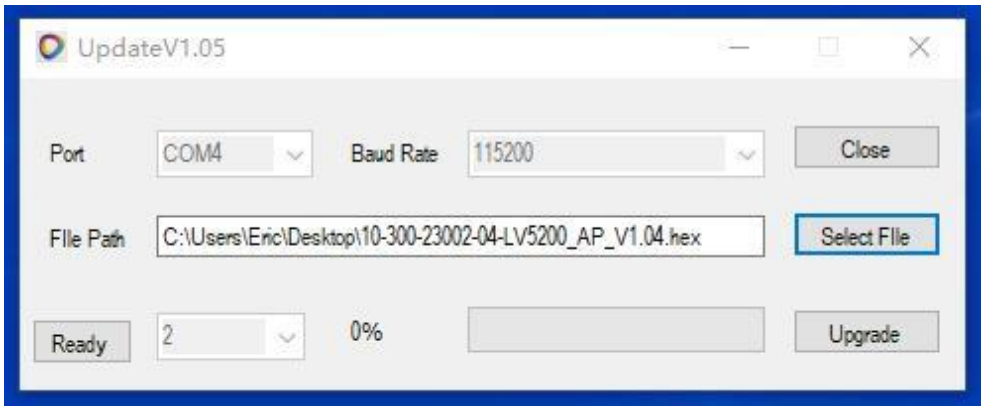
3. Turn on the 4th dip switch, rest remain off
4. Open the “upgrade_lv5200” folder on the computer.
5. Install drive for USB-RS485 under drive folder.
6. After drive is properly installed, open “LV5200_upgrade” folder, run “upgrade.exe”



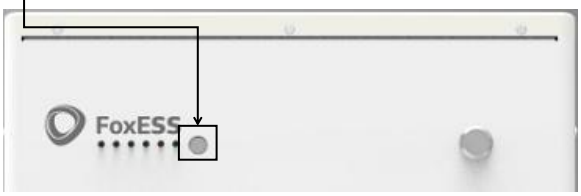
7. Record COM port number from the computer: Right-click on the desktop "The PC" icon, Select the "Manage" option to open the “computer management” interface shown as the picture Below, record the COM port number. (for example in the pic, should be COM4).



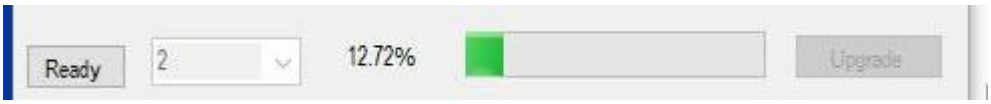
8. (Take COM4 as example) Choose “COM4” for port, then click “open”.
9. Select the compatible firmware version file by clicking “Select File”.



10. Activate the battery. By “Power on the battery”, or “DC power supply”.
11. Click “Ready”.
12. After clicking “Ready” on the upgrade window, the battery LED indicators will turn off. Press the battery power button and hold still until the LED indicators go flash pattern, then release the button.



13. Click “Upgrade”, the software will now start to upgrade, the whole upgrading process may take up to around 6 minutes, please do not operate the computer during the upgrading process to avoid upgrade failure.



14. When finished, the upgrade window will show “Success” if upgrade successfull.

**This upgrade instruction is released when FW version is V1.04*

Appendix3: Compatible inverter charger operation(Inverter A & Inverter B)

For Inverter A

1. Wiring

1.1 AC input(grid to inverter)

CAUTION!! There are two power terminal blocks with "IN" (Input) and "OUT" (Output) markings. DO NOT mistakenly connect to the wrong connectors.

WARNING! All wiring must be performed by a qualified personnel.

WARNING! It's very important for system safety and efficient operation to use appropriate cable size for AC input connection. To reduce risk of injury, please use the proper recommended cable size as below.

Suggested cable requirement for AC wires

Model	Gauge	Cable (mm^2)	Torque Value
OG 1.24	14 AWG	2.5	1.2 Nm
OG 3.24	12 AWG	4	1.2 Nm
OG 5.48	10 AWG	6	1.2 Nm

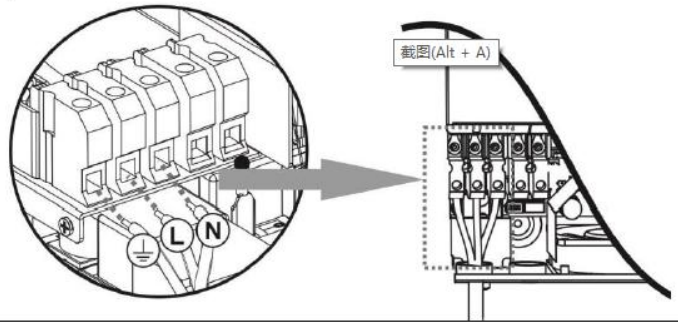
Please follow these steps to implement AC input/output connection:

1. Before making AC input/output connection, be sure to enable DC protector or disconnector first.
2. Remove insulation sleeves for about 10mm for the five screw terminals.
3. Insert AC input wires according to polarities indicated on terminal block and tighten the terminal screws. Be sure to connect the grounding wire (⏚) first.

⏚→Ground (yellow-green)

L→LINE (brown or black)

N→Neutral (blue)



⚠	**WARNING:** Be sure that the AC power source is disconnected before attempting wire connections.

1.2 Communication(battery with inverter)
1.3 DC input(inverter to battery)

2. Power on the battery. (By “Power on the battery”, or “DC power supply”.)

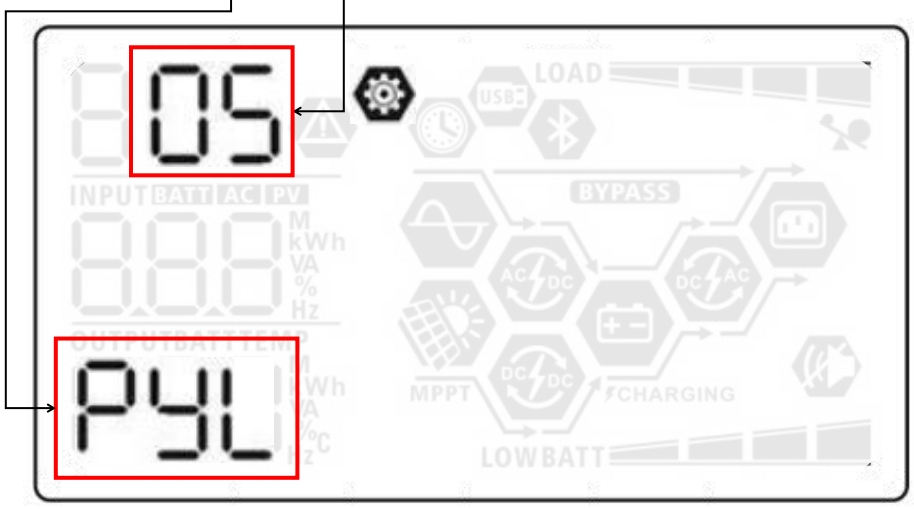
3. Turn on the AC switch on grid side, activate the inverter, and do the settings:

Press down the power bottom to activate the inverter. After the inverter is on and working, set the battery type as “Pylontech battery” by the following steps:

3.1 After pressing and holding “↵” bottom for 3 seconds, the unit will entering the set up Mode. Press “▲” or “▼” bottom to select programs. Press “↵” bottom to confirm your selection or “⏻/↻” button to exit.

3.2 Select program **“05”** : the Battery type

3.3 Select **“PYL”**, then confirm and save your setting.



4. The battery starts charging and the LED lights will flash. Make sure to charge the battery untill SOC>80%

For Inverter B

1. Wiring

**The cables mentioned in this SOP is not provided by FoxESS, before starting the operation, please make sure to prepare all the needed cable.*

1.1 AC-Grid (grid to inverter)

1.2 CAN (battery with inverter)

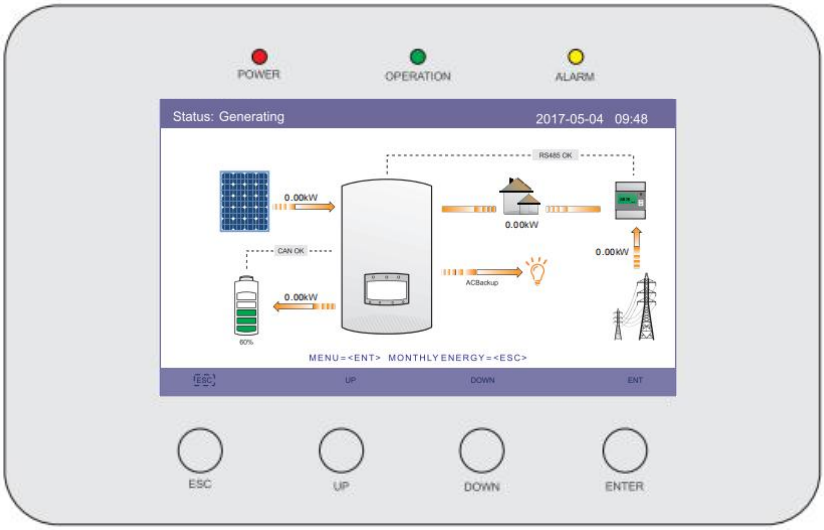
1.3 Battery +, battery - (inverter to battery)

2. Power on the battery. (By “Power on the battery”, or “DC power supply”.)

3. Turn on the AC switch on grid side, activate the inverter, and do the settings:

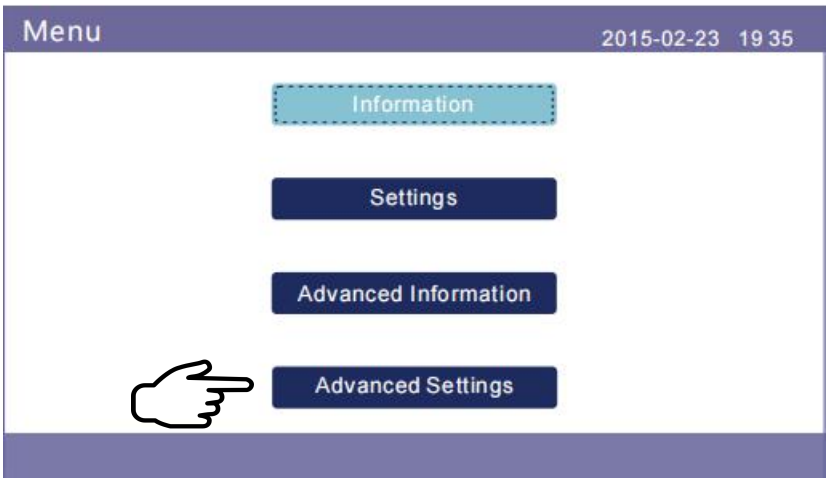
3.1 From “Main Page” to “Storage Energy Set”

Path: Main Page->Menu->Advanced Settings->Storage Energy Set



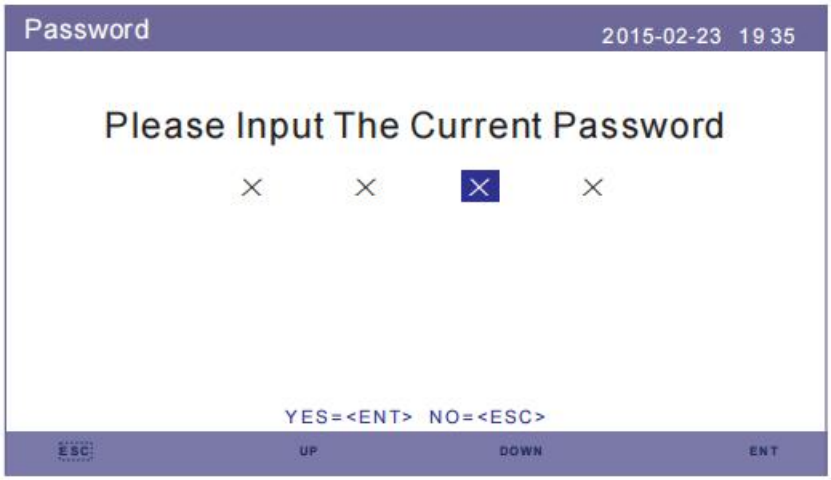
3.1.1 Main Page

Press "ENT": Enter the main menu.

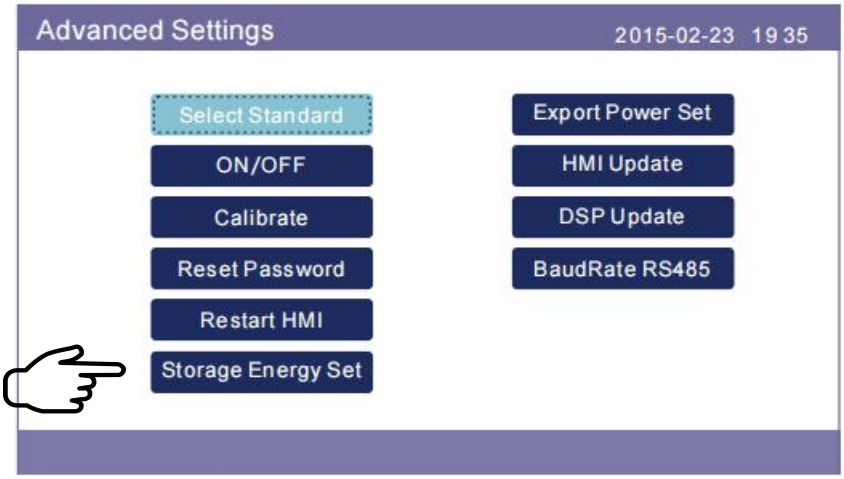


3.1.2 Menu

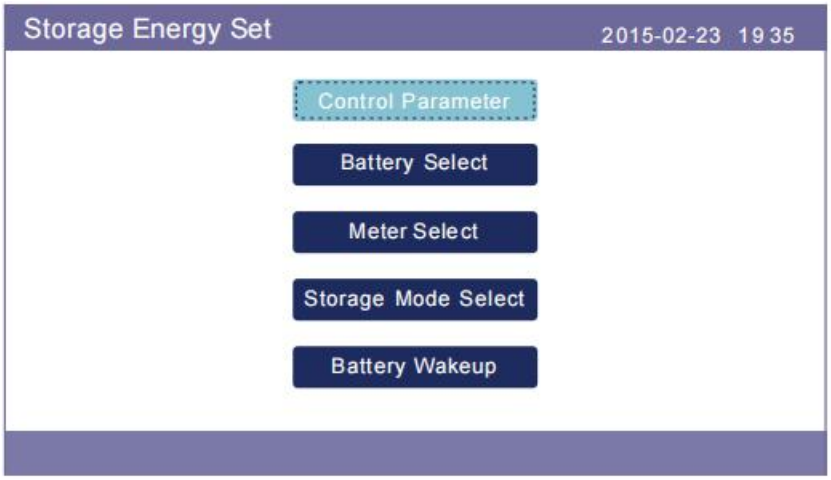
Select “Advanced Settings” from main menu, the LCD screen show the password is needed:



3.1.3 Enter Password (original Password is “0010”)



3.1.4 Advanced Setting



3.1.5 Storage Energy set

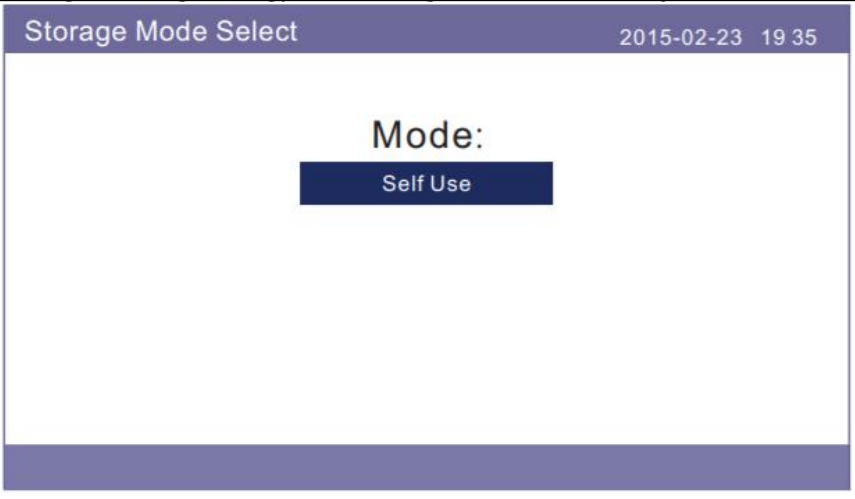
3.2 “Battery Select” setting

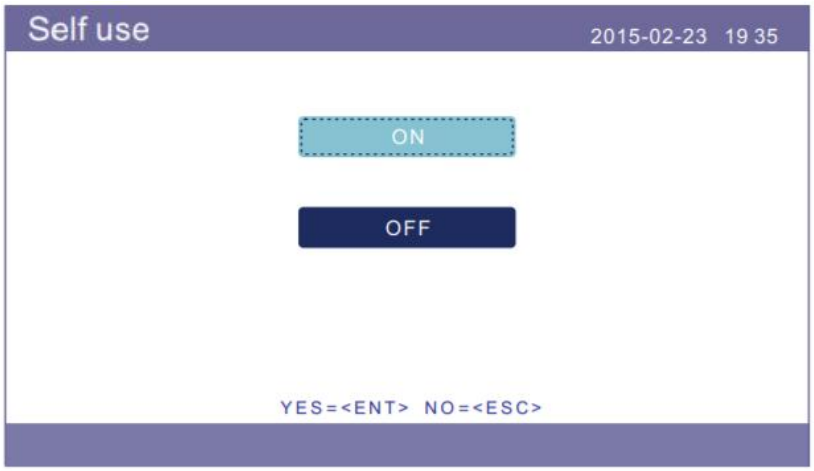
Path: Advanced Settings->Storage Energy Set->Battery Select->FOX

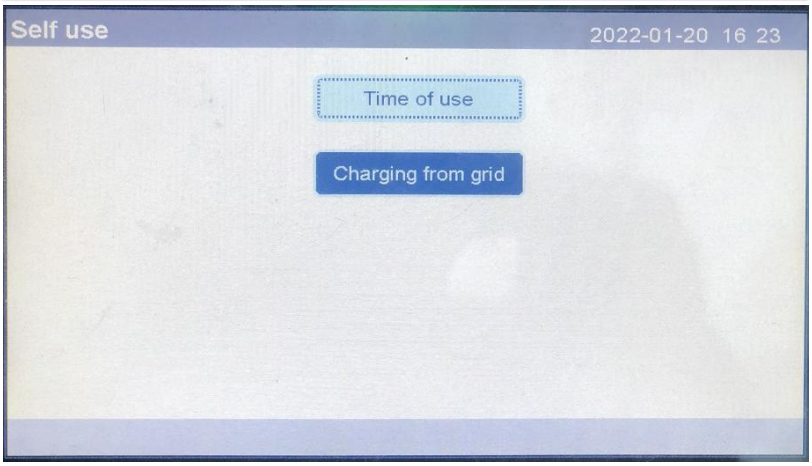
Choose “FOX”.

3.3 “Storage Mode Select” setting

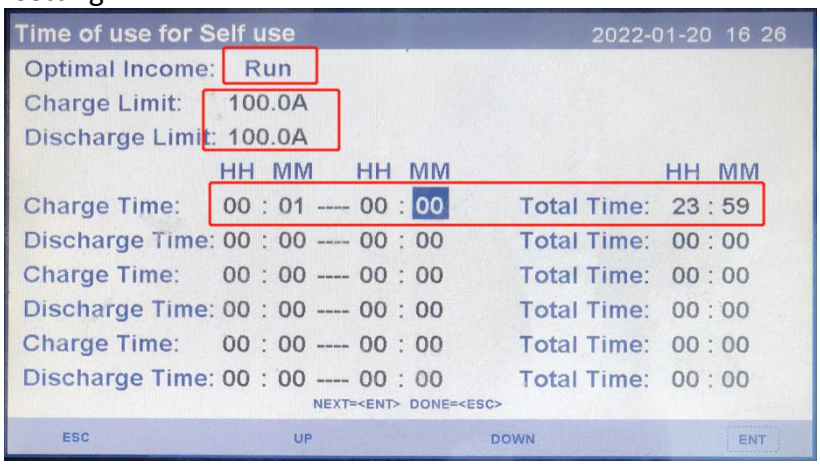
Path: Advanced Settings->Storage Energy Set->Storage Mode Select->Self-Use Mode->ON





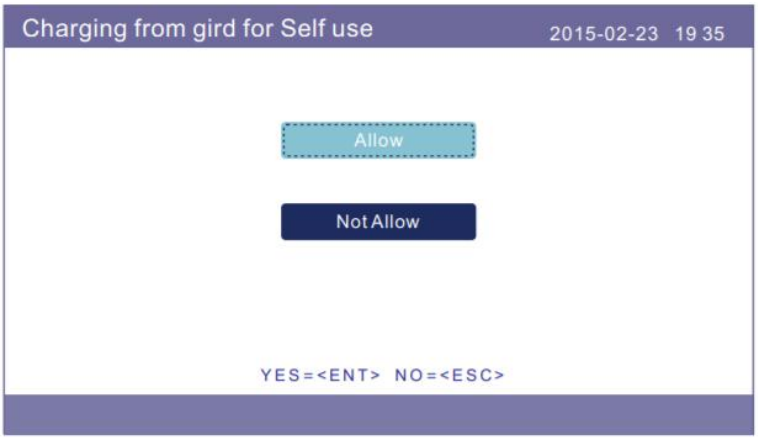


3.4 “Time of use” setting



Set the parameters like this

3.5 “Charging from grid”



"Allow" and save the Edit, then go back to main page

4. The battery starts charging and the LED lights will flash. Make sure to charge the battery untill SOC>80%