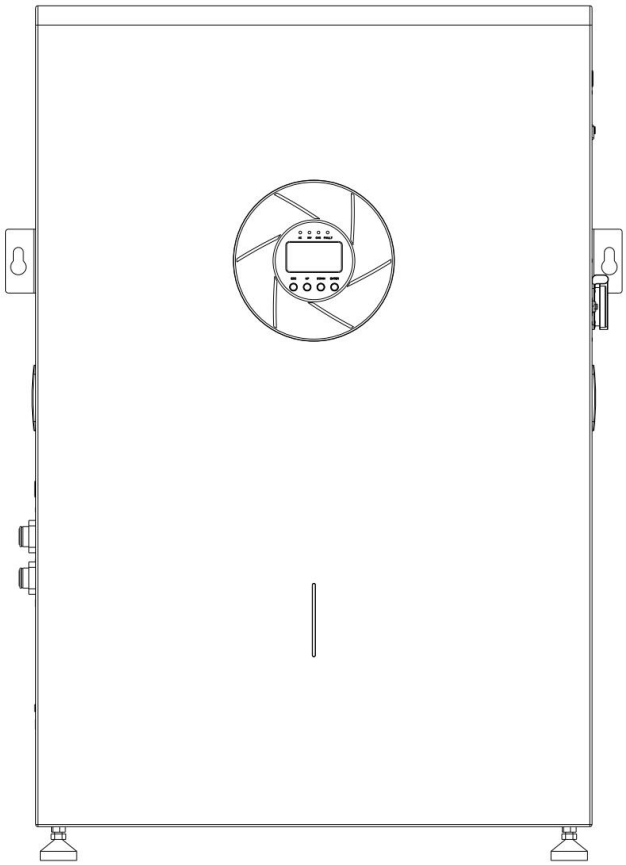
Integrated Optical Storage System

User Manual

Model: DOA01-5K_XFM5K-EU



Content

Chapter 1 Description of this Manual

1.1 Clarification

The assembly, installation, commissioning and maintenance of integrated energy storage systems . It does not cover any details of peripheral equipment and accessories (such as photovoltaic modules) connected to this product . For more information on this device, refer to the corresponding manufacturer's manual.

Target group:

	This manual is intended for persons who have received electrical training and have the knowledge and skills to operate this equipment. Such persons are able to handle the dangers and hidden dangers that may occur when installing electrical equipment.

1.2 Other Information

Please visit our official website for more product information.

1.3 Instruction Storage

Please keep this user manual in a safe place for future reference. The manufacturer is not responsible for any damage or injury caused by operation not in accordance with the instructions in the manual.

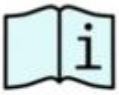
1.4 Explanation of symbols

The icons in the table below appear in the subsequent text and are annotated below.

	**Manual:** Please read this manual carefully before use.
	**DANGER:** This symbol indicates a hazardous situation which, if not avoided, could result in death or serious injury.
	**WARNING:** This symbol indicates a hazardous situation which, if not avoided, could result in death or serious injury.
	**WARNING :** This symbol indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.
	**CAUTION:** Failure to observe this warning may result in equipment damage.

1.5 Warning symbols

Symbolism	Description

	**Hazardous voltage warning!** This product works under high voltage . All operations on this product must be performed in accordance with the document instructions and by qualified professionals .
	**Be careful with the heat !** This product may become hot during operation . Do not touch this product during operation .
	**Follow the operating instructions !** using this product , please read the product manual carefully and follow all safety precautions and instructions described in the document.
	Protective earth connection point.
	Direct current (DC)
	Alternating current (AC)
	**Danger signal !** Risk of electric shock! Only carry out installation work after the inverter has been switched off and disconnected for at least 5 minutes.

Chapter 2 Security and Compliance

2.1 Safety Instructions

Danger to life due to lethal voltage!
inside the inverter and on the power lines. Therefore, only authorized electricians can install and operate this equipment. Even if the inverter is disconnected, the high voltage may still pose a risk of electric shock!

Risk of burns due to overheating of housing parts !
the housing cover and the heat sink may become hot. During operation, only the front cover of the inverter can be touched.

NOTE

Photovoltaic panels and grounding equipment

Follow local requirements for grounding PV panels and generators. We recommend connecting the generator frame and other conductive surfaces in a way that ensures continuous conduction to ground to provide the best protection for the system and personnel.

NOTE

Capacitor discharge current

For photovoltaic modules with large capacitance , such as thin-film photovoltaic modules on metal substrates, the coupling capacitance shall not exceed 470nF. Leakage current will flow The leakage current to the ground depends on the installation location of the photovoltaic module (such as aluminum foil on a metal roof) and weather conditions (such as rainy and snowy weather). Generally, the leakage current does not exceed 30mA . If this range is exceeded, the inverter will trigger protection and automatically disconnect from the grid.

NOTE

Do not attempt to open the device while it is in operation !

2.2 DC and AC circuit breakers

Use DC and AC circuit breakers to safely disconnect the equipment from the grid , PV generator and battery. After installation, DC and AC circuit breakers should be able to disconnect all non-grounded conductors.

2.3 PV panel grounding

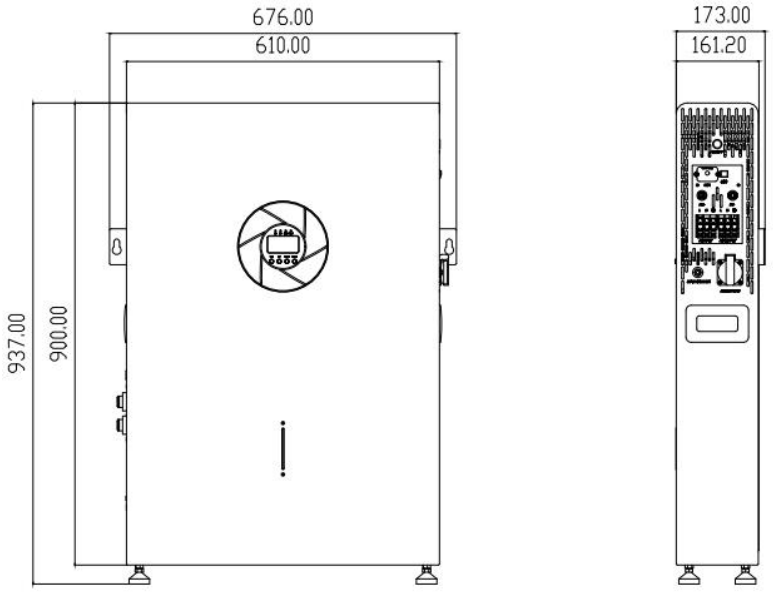
This unit has a transformerless isolated inverter built in . It is strictly forbidden to directly ground the PV modules. Only the mounting frame needs to be grounded. Otherwise, you will receive the error message "PV ISO Low".

Qualifications of skilled technicians

- Understand how this product works and how to operate it.
- Learn how to deal with the hazards and risks associated with installing and using electrical equipment and devices.
- Participate in installation and commissioning training of electrical equipment and devices.
- Familiarity with all applicable standards and guidelines
- Understand and follow this manual and all safety instructions.

Chapter 3 Product Description

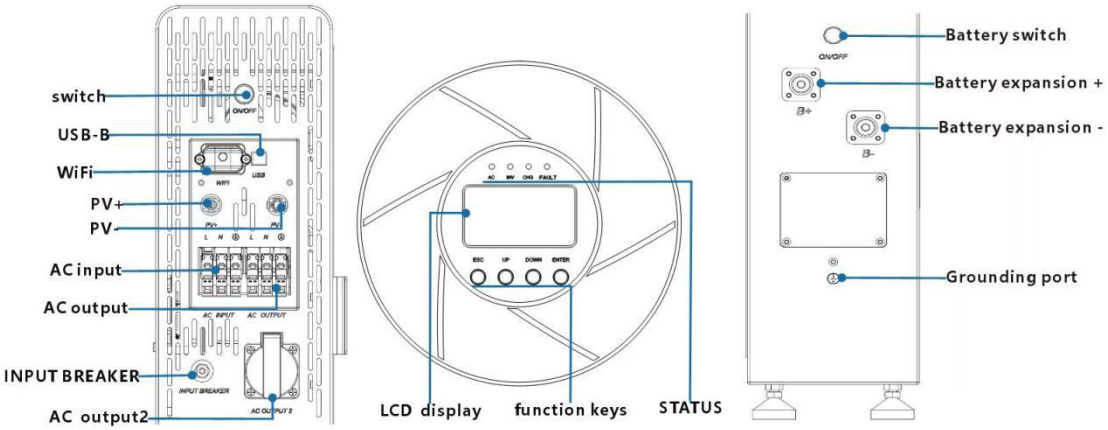
3.1 All -in-one size (Figure 1 ）



3.2 Device Information

The device is unidirectional and suitable for photovoltaic systems with battery storage. The energy generated by the photovoltaic system is used for load consumption first, and the excess energy is used to charge the battery. When the photovoltaic output is not enough to support the connected load, the system automatically obtains energy from the battery (if the battery is sufficient). If the battery energy is not enough to meet its own consumption needs, it obtains energy from the public grid.

Product interface description (Figure 2)



3.3 Product Storage Conditions

- The device must be stored in its original packaging
- The ambient storage temperature should be between -20 ° C and + 55 °C.
- The relative humidity of the storage environment should always be maintained between 0 - 95 %.

3.4 Shipping List

After receiving the product, please check the packaging first. If the packaging is damaged or the machine is damaged after unpacking, please keep the original packaging and contact the dealer immediately. If you need to transport the machine, it is recommended to use the original packaging!

Product accessories

- user's manual ×1
- this device ×1
- WiFi Dongle ×1
- screw ×2
- MC4 ×2 groups

3.5 Installation and electrical connection

DANGER

Danger to life due to fire or explosion

Despite the careful construction, electrical equipment may still cause fire. Do not install the inverter near flammable or explosive materials !

DANGER

Risk of burns from overheating of housing cover and radiator
The device should be installed in a hard to reach place .

DANGER

- All electrical installations must comply with IEE wiring rules. Avoid disassembly of the inverter enclosure as it contains no user-serviceable parts. Refer any servicing to qualified service personnel .
- All wiring and electrical installation should be performed by a qualified electrician only .
- Carefully remove the device from its packaging and inspect it for any external damage . If any If you have any questions , please contact your supplier.
- This inverter is designed for photovoltaic power generation and cannot be connected to other renewable energy equipment .
- Both AC and DC voltage sources are terminated inside the PV inverter. Before performing any maintenance, all AC and DC inputs and outputs must be disconnected.
- Do not connect it to a generator or any other external power generating device as this may cause serious damage to your device .
- Although the product design complies with all safety regulations , some parts and surfaces of the inverter generate high heat during operation. To reduce the risk of injury, avoid touching the heat sink on the back of the device while the inverter is operating.

Basic installation requirements

This section of the guide is intended to assist the installer in selecting a suitable mounting location to avoid machine damage or operator injury.

- This product must not be installed where it comes in direct contact with water .
- To avoid overheating and reduced product output power , do not expose the device to direct sunlight.
- The ambient humidity around the device should be 0 - 95% without condensation .
- The installation location must be convenient for future maintenance .
- Do not install the product in buildings constructed of flammable or heat-intolerant materials.
- Keep out of reach of children .
- Do not cover this product and do not place any objects on the device.
- Do not install the product near strong magnetic signals, such as TV antennas or other antennas or cables .

  The device requires adequate cooling space. Provide optimal ventilation for the device to ensure adequate heat dissipation. The ambient temperature should be below 40°C for optimal operation.
- Although the battery pack portion of this product is IP65 rated, it is recommended to avoid prolonged operation under sunlight, rain and snow pressure.

3.6 Equipment installation status check

- Be sure to select a suitable mounting surface to ensure the device is stable and wobble-free.

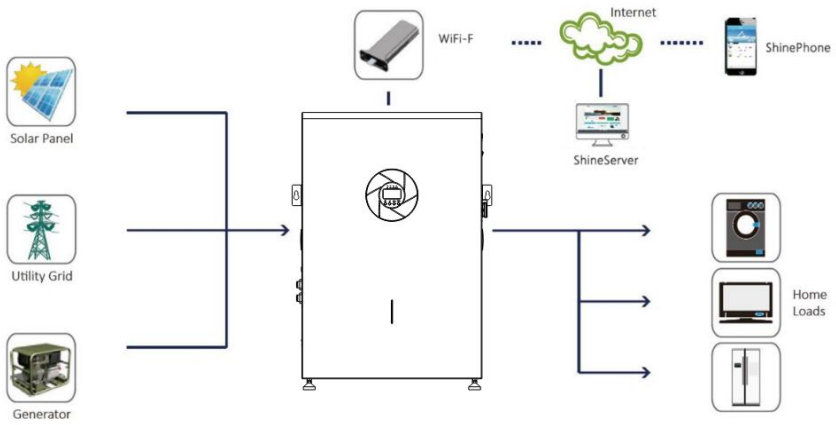
Electrical Connections

a risk of damage to electronic components and appropriate anti-static measures should be taken when replacing and installing equipment .

Grounding: The AC power source must be grounded before connecting the DC power cable.

3.7 System Block Diagram

View details



NOTE

Ensure that all wiring is properly selected and constructed to comply with wiring regulations .

3.7.1 Load connection

The integrated energy storage system can provide a maximum output power of 5kW.

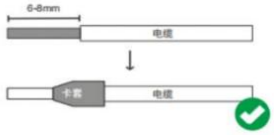
WARNING

The maximum output power of the load is 5kW . If the load continues to be greater than 5kW , the energy storage device will stop outputting .

3.7.2 Cable and circuit breaker adaptation recommendations

system	describe	DOA01-5K_XFM5K-EU
Photovoltaic input	Maximum current	30A
	Wire diameter	6mm²/9AWG
	Torque value (max)	1.2-1.6 Nm
	Circuit breaker specifications	32A
AC input and output	Maximum current	40A
	Wire diameter	8mm²/8AWG (L/N)
	Torque value (max)	1.2-1.6 Nm
	Circuit breaker specifications	40A

AC input and output



1. Use wire strippers to strip 6-8 mm of insulation from the cable
2. Fix the sleeve at the end of the cable (the sleeve needs to be prepared by the user)
3. The wire diameter is for reference only. If the distance between the PV array and the inverter or between the inverter and the battery is long, using thicker wires will reduce

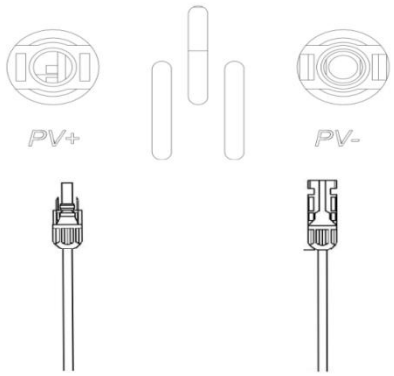
voltage drop and improve system performance.

3.7.3 Solar Panel Connection

DANGER

1. There is a risk of electric shock and fire , the maximum input voltage per string is 500 V DC.
2. Transformer-less design, no grounding for either positive or negative terminals.

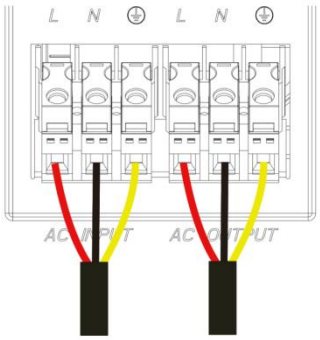
1. After installing the PV connection cable using the matching MC4 connector, insert the positive pole (+) of the MC4 connector into the positive pole (+) of the PV input connector, and insert the positive pole (-) of the MC4 connector into the negative pole (-) of the PV input connector.
2. Ensure firmness



- The maximum open circuit voltage of each PV input shall not be higher than 500V DC.
- of the PV panel is -10°C, the maximum open circuit voltage may occur. At this time, the input voltage must not exceed the maximum input voltage of the inverter (430 V).
- Before connecting the PV panels to the DC terminals, make sure the positive and negative poles are correct. Wrong polarity connection may damage the inverter.
- Check the short-circuit current of the PV modules. The total short-circuit current of the PV modules should be less than the maximum DC current of the inverter.
- When connecting PV, connect the same positive and negative terminals to the same PV terminals (e.g. positive to PV1 positive, negative to PV1 negative).
- When the PV has only one set of string inputs , do not mix input areas A and B.
- WARNING! Using the appropriate cables to connect PV panels is very important for the safe and efficient operation of the system. To reduce the risk of injury, use the correct connection. To reduce the risk of injury, use the original PV socket . Please use the correct recommended

3.7.4 AC input / output connections

Connect the live wire, neutral wire, and ground wire according to the cable positions and order shown in the figure below. The order from left to right is "L - N-PE"

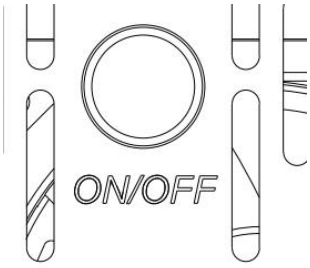


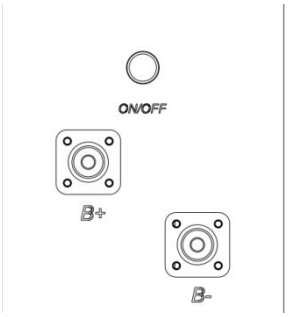
Danger !

1. Before connecting the AC input and output, the circuit breaker must be disconnected to avoid the risk of electric shock. It is forbidden to operate with power on.
2. Please check whether the wire used meets the requirements. Wire that is too thin or of poor quality may cause serious safety hazards.

Chapter 4 Inverter Function Introduction

4.1 Working Mode





After the device is properly installed and the battery connection is good, press the ON / OFF switch (located on the right side of the chassis) to turn on the device . Then turn on the inverter switch

4. 2 Operation panel instructions

The operation display panel is shown in the figure below, which includes four indicator lights, four function keys and an LCD display screen to display the operating status and input/output power information.

4.2.1 Four-button function

button	Functional specifications
Function Setting/Identification Key	Function setting: Press ENTER key on the display page to After more than 2 seconds, enter the function setting page. Enter the settings interface and press the UP or DOWN key to turn the page. Scroll up and down to select the interface you want to set. Confirm: On the function setting page, press the ENTER key and the setting option will be confirmed within 0.1 to 2 seconds.
Page turning/search key	Page turning: Press and hold the UP or DOWN button for more than 0.1 second on any page to turn the page left or right.

4.2.2 LED indicator function

Inverter indicator light

LED indicators			Instructions
AC	Green Light	Always on	The power grid is operating normally
		Flash	The power grid is normal, but the power supply is abnormal
		Off	Grid power supply abnormality
INV	Yellow Light	Always on	The machine is operating in battery mode
		Off	Indicates other status
CHG	Yellow Light	Always on	The battery is in floating charge state
		Flash	The battery is being charged at constant voltage
		Off	Indicates other status
FAULT	red light	Always on	Inverter failure
		Flash	The inverter generates an alarm
		Off	The inverter is working properly

Battery indicator

Indicator Lights	color	state	Instructions
	blue	There are four sections, each section represents 25%	Flashing means the segment is charging
	Green Light	Flash	Equipment is operating normally
	red light	Always on	Equipment failure

		Flash	Equipment is being upgraded
	Yellow Light	Always on	Device alarm occurs
	Off	Not bright	The device is powered off or in sleep mode

4.2.3 Function Buttons

button	describe
ESC	Exit the current interface
UP	Page up
DOWN	Scroll down
ENTER	Press and hold the Enter key for more than 2 seconds, then release it to enter the function settings page. Use "UP" or "DOWN" to scroll up and down. Press ENTER to enter the setting item, and press ENTER again to confirm the selection.

4.2.4 LCD function display

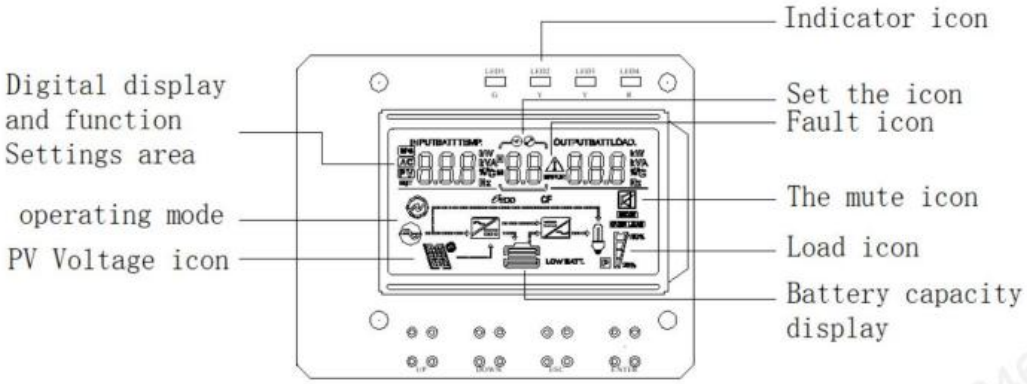


Figure 1-2 Four-button LCD screen

LCD display can be divided into: icon display, numerical display and function setting area, working mode display area

4.2.5 Icon Display

(1) The load and battery graphs show the load and battery capacity. Each square represents 25% of capacity. The load icon flashes when the inverter is overloaded, and the battery icon flashes when the battery capacity is too low or the battery is not connected.

(2) The buzzer icon indicates whether the buzzer is muted. Under normal circumstances, this icon is not displayed. In any mode, if the background software is set to MUTE ON and the inverter enters the MUTE state, the buzzer disable icon will be displayed.

(3) After entering the settings menu, the settings icon will light up, otherwise the icon will not be displayed.

(4) The fault icon is displayed only in fault mode and not in other cases.

4.2.6 Numerical display and function setting area:

(1) In non-functional mode, this area displays inverter information. In normal mode, it displays output information. Using the query key (UP or DOWN key) can display relevant information such as input voltage, output voltage, input frequency, output frequency, battery voltage, current, PV voltage, PV current, PV voltage, power, output power, output voltage, output apparent power, output voltage, load percentage, output voltage, software version, etc. Fault mode display

(2) On the function setting page, you can set the output voltage (OPU) and battery low voltage shutdown point (EOd) by operating the function setting key and the up and down search keys.

4.2.7 Working mode display area:

After 4 seconds of power-on, this display area mainly displays the working mode of the inverter, such as standby mode, grid mode, battery mode, fault mode, etc.

4.2.8 Buzzer inverter working status table

Generate buzzer alarm	describe
The beeping continues for 10 seconds and then stops	Failure Mode
The beeping stops after 3 seconds	PV/input voltage lost or restored
	Activate the main switch to turn on or off
Play a tone once a second for one minute, then stop	All other alarms (low battery beeps only in battery mode)

4.3 Daily startup

Refer to this manual to learn how to turn the machine on and off.

4.3.1 Startup Process

when the battery is 48 V or the utility grid (the utility grid input range must comply with the output mode) .

(1) Public grid switch

Connect to the mains, press the switch to the ON position, and the system starts. If you want to use the mains output, please wait for a while until the rear panel displays the mains mode.

(2) Battery switch on

Connect the normal battery, press the switch, and the inverter will establish working power. The system will start automatically. After waiting for a while, if the rear panel displays battery mode, the system enters battery mode.

4.3.2 Shutdown Procedure

When the system is in battery mode or utility grid mode, press the switch again to turn it off and the system will shut down.

4.3.3 Silent Operation

When the inverter is in any mode, you can set MUTE ON or OFF to mute or unmute the inverter.

4.3.4 Operations performed in alarm state

When the inverter sounds an alarm and the LED fault indicator flashes, it means that the

inverter is in alarm state. You can find the cause of the alarm based on the alarm information or contact the supplier.

4.3.5 Operation in Fault Mode

If the inverter buzzer keeps sounding and the LED fault indicator keeps on, it means that the inverter is working in fault mode. Please contact the supplier or maintenance personnel to provide fault alarm information and assist in troubleshooting.

4.4 Parameter query operation

Under normal circumstances, there are ten pages of display. Long press the query key UP or DOWN for 0.2~1 second to turn the page display, showing input and output voltage, input and output frequency, battery, PV voltage and current, load, software version and other information. If there is an alarm, an additional page of alarm information will be added. When the inverter fails, the fault code page is displayed by default. The main page displays fault or alarm information by default. When the inverter has no fault or alarm, the main page displays output voltage and frequency information by default.

Display page 1 (main display page) : Display the inverter input and output voltage, as shown in Figure 1-3

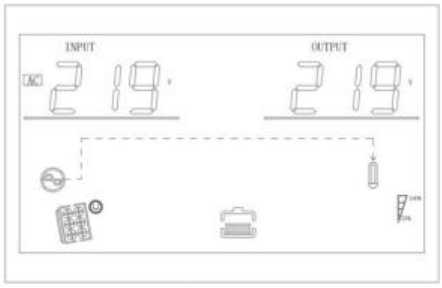


Figure 1-3 shows page 1

Page 2: Displays the inverter input and output frequencies, as shown in Figure 1-4

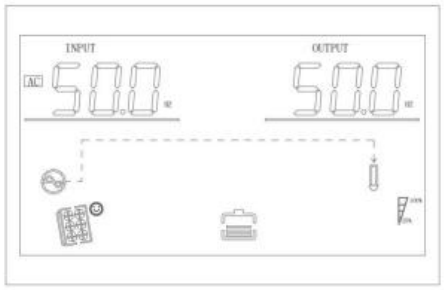


Figure 1-4 Showing page 2

Page 3: Battery information display, showing battery voltage and charging current, as shown in the figure 1-5

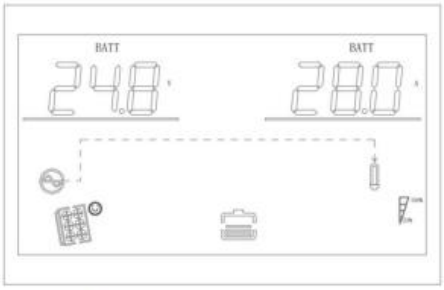


Figure 1-5 shows page 3

Page 4: Displays PV information, including PV voltage and PV charging current, as shown in the figure 1-6

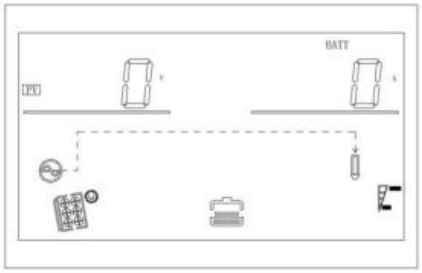


Figure 1-6 shows page 4

Page 5: Displays PV information, including PV voltage and PV charging power, as shown in the figure 1-7

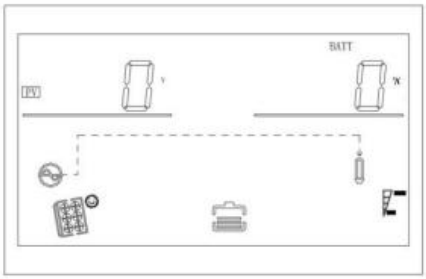


Figure 1-7 Display page 5

Display page 6: Display output information, including output voltage and active power, as shown in the figure 1-8

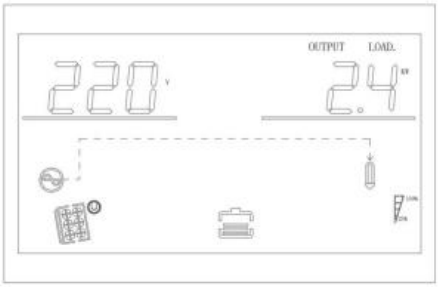


Figure 1-8 Display page 6

Display page 7: Displays output information, including output voltage and output

comprehensive power, as shown in Figure 1-9

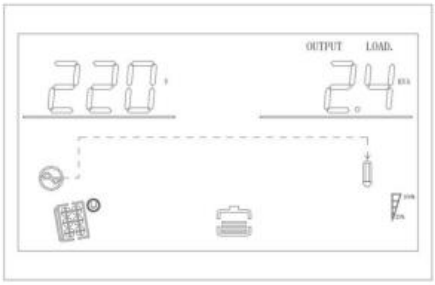


Figure 1-9 shows page 7

Display page 8: Display output information, voltage and load percentage, as shown in the figure 1-10

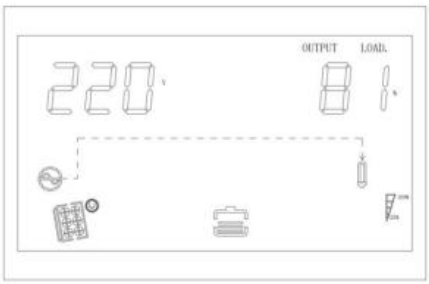


Figure 1-10 Display page 8

Display page 9: Display the inverter software version, as shown in the figure 1-11

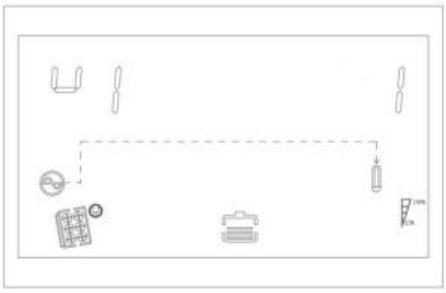


Figure 1-11 Display page 9

Display page 10: Display the MPPT software version, as shown in Figure 1-12

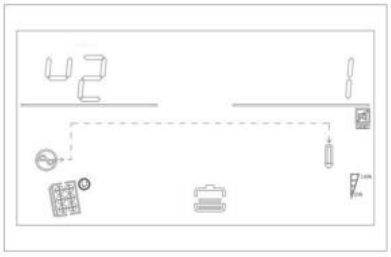


Figure 1-12 shows page 10

Display page 11: Displays photovoltaic power generation, as shown in Figure 1-13

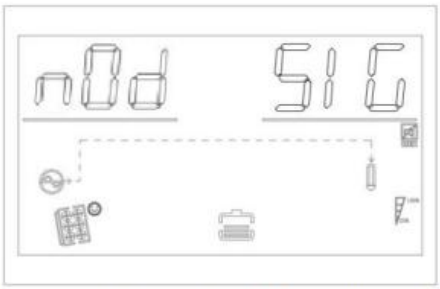


Figure 1-13 Display Page 11 (parallel status)

Display page 12: Network status of lithium battery pack; when SIG is constant, the battery pack is operating as a single group; when PAR is constant, the battery pack is operating in parallel; when PAR flashes, the battery pack is operating in parallel.

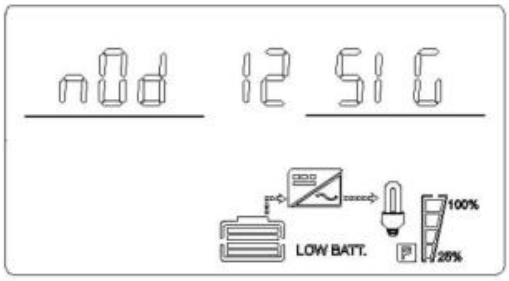


Figure 1-14 Display page 12 (lithium battery networking status)

Display page 13: Lithium battery voltage and current information; BMS voltage information is displayed in the upper left corner; BMS current information is displayed in the upper right corner. The flashing ERR is displayed in the upper left and upper right corners when BMS communication fails.

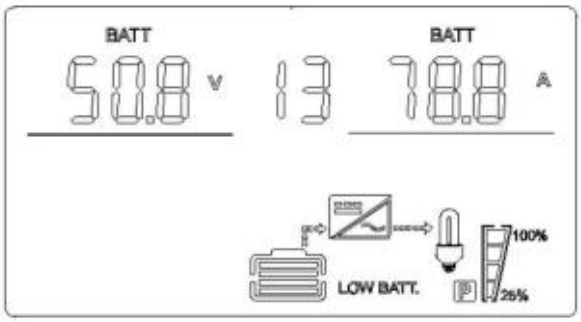


Figure 1-15 Display page 13 (lithium battery voltage and current information)

Display page 14: Lithium battery temperature and SOC. The upper left corner displays BMS temperature, and the upper right corner displays BMS SOC. ERR flashes when BMS communication fails

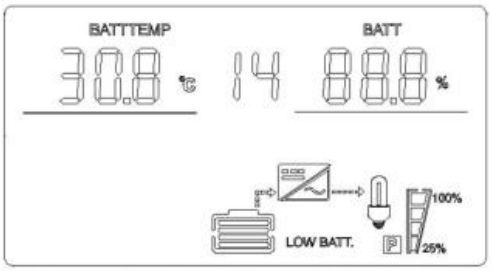


Figure 1-16 Display Page 14 (lithium battery temperature & SOC information)

Display page 15: Lithium battery capacity; the upper left corner shows the rated capacity, and the upper right corner shows the current capacity. The upper left and upper right corners show the flashing ERR when BMS communication fails.

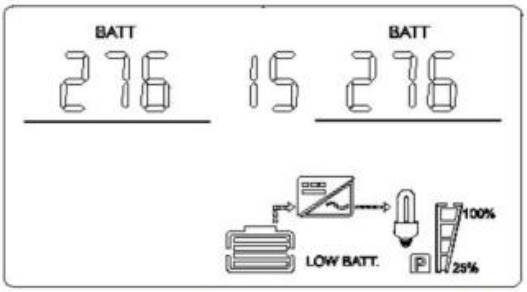


Figure 1-17 Display Page 15 (lithium battery capacity information)

Display page 16: Lithium battery constant voltage point; the upper left corner displays the fixed letters CV, and the upper right corner displays the BMS constant voltage charging point. The upper left and upper right corners display the flashing ERR when BMS communication fails .

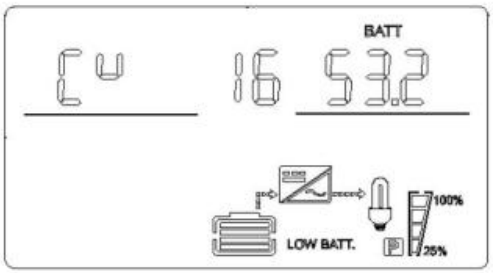


Figure 1-18 Display page 16 (lithium battery battery constant voltage information)

Display page 17: lithium battery fault alarm information; the upper left corner displays BMS alarm information; the upper right corner displays BMS fault information. When BMS communication fails, ERR flashes in the upper left and upper right corners .

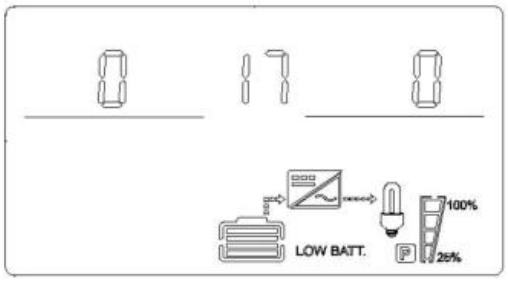


Figure 1-19 Display page 17 (lithium battery fault alarm information)

4.5 Function Setting Operation

Function setting operation of the inverter:

Enter the export function setting page, the operation details are as follows:

(3) Press and hold the function setting key ENTER for more than two seconds to enter the function setting page, press and hold the query key UP or DOWN for 0.1 to 2 seconds to select a function, and after turning to the desired function setting page, the corresponding function flashes.

(4) Press and hold the ENTER key for 0.1~2 seconds to enter the selected function setting page. The selected function word is always on and the value on the left of the selected function word flashes. Press and hold the QUERY key UP or DOWN key for 0.1~2 seconds to select the desired function parameter value.

(5) After turning the page to the desired function parameter, press and hold the ENTER key for 0.1 to 2 seconds to complete the function setting. At this time, the value of the function parameter will remain on and will no longer flash.

Press and hold the ESC key for more than 0.1 to 2 seconds to successfully set the function. At the same time, exit the function setting page and return to the main display page (you can also wait for up to 30 seconds without performing any operation to automatically return to the main display page).

4.5.1 Output voltage (OPU)

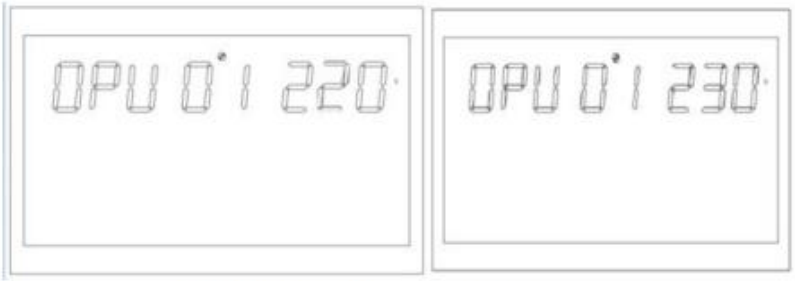


Figure 1-12 Setting the output voltage

(1) The default output voltages are 230V, 208V, 220V, 230V, and 240V, which can be set for all working states and take effect immediately .

(2) (2) Press and hold the function setting key ENTER for more than 2 seconds to enter the function setting page. Press and hold the query key UP or DOWN for 0.1~2 seconds to select a function. When you turn to the setting page, the word OPU flashes. Output voltage OPU .

(3) Press and hold the ENTER key for 0.1 to 2 seconds to enter the output voltage OPU setting page. At this time, the OPU word is always on and the OPU value flashes on the right side of the OPU word. Press and hold the query key UP or DOWN key for 0.1 to 2 seconds to select different output voltage values. The optional voltage values are 208V, 220V, 230V, and 240V. The output voltage defaults to 230V, and the settings are saved in real time .

(4) (4) After turning the page to the desired output voltage value, press and hold the ENTER key for 0.1 to 2 seconds. The output voltage OPU setting is completed. At this time, the value on the right side of the OPU will be permanently lit and will no longer flash.

(5) Press and hold the ESC key for more than 0.1 to 2 seconds to indicate that the function setting is successful, exit the function setting page, and return to the main display page (if no operation is performed, it will automatically return to the main display page after a maximum wait of 30 seconds)

(6) notes:

(7) If the output voltage is set to 208V, the output voltage must be derated to 90%.

4.5.2 Set other functions

4.5.2.1 Output frequency (OPF)

Set the output frequency, the default value is 50Hz

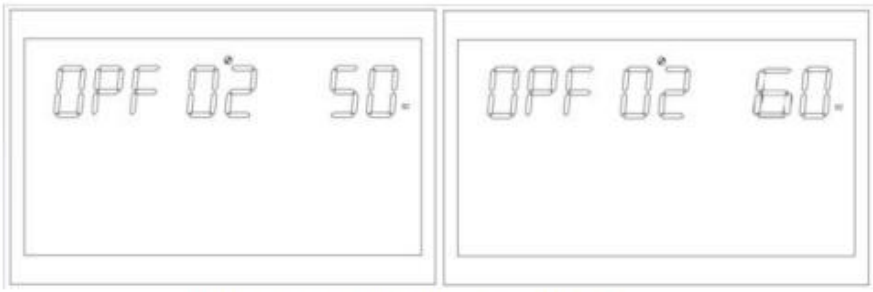


Figure 1-13 Setting the output frequency

Function description: Set the inverter output frequency. Can be set to 50Hz, 60Hz. Default is 50Hz .

Setting conditions: All states can be set. Battery mode settings take effect at the next power-on. Grid mode takes effect immediately. The frequency changes slowly after switching to battery mode .

4.5.2.2 Setting the Output Priority (OPP)

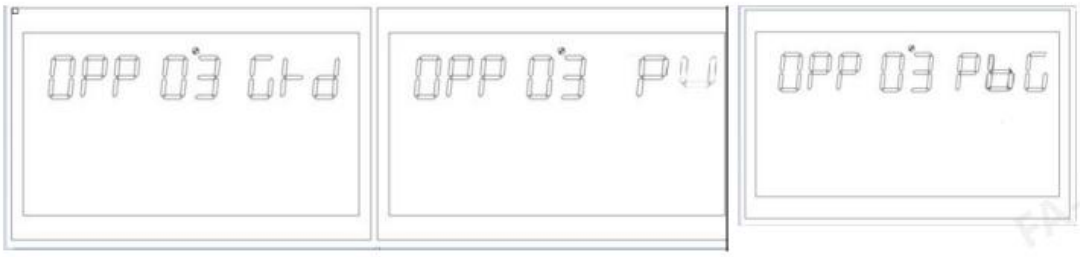


Figure 1-14 Setting the output priority page

Function description: Set the inverter output priority.
Setting conditions: All states can be set and the settings take effect immediately.
notes:
There are three options for inverter output priority. The default output priority is GRD: prioritizes mains 31 grid output; the second is PU (PV): prioritizes photovoltaic output; the third is PBG: photovoltaic > battery > mains Grid output

4.5.2.3 Output Mode (MOD)

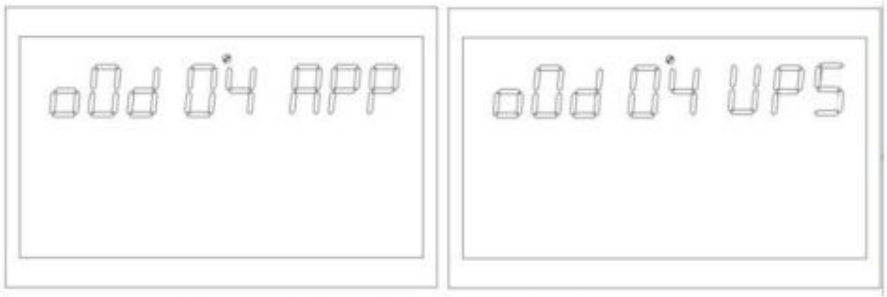


Figure 1-15 Setting the output mode

Function description: Set the output mode of the inverter.
Setting conditions: All states can be set and take effect immediately.

describe:

There are two options for AC output mode. The default mode is APP: Appliance, which is used for household appliances. The second is UPS mode, which is used for computers and other devices. The typical switching time is 10ms .

4.5.2.4 Charging Priority (CHP)

Figure 1-16 Setting the charging priority page

Function description: Set the charging priority of the inverter.

Setting conditions: All states can be set, and the settings take effect immediately.

describe:

There are four charging priorities. The default priority is PNG (PV and Grid): PV charging and Grid charging are carried out simultaneously; the second is OPV (Only PV): PV charging only; the third is GRD (Grid): charging priority is the grid; the fourth is PV: charging priority is PV charging .

4.5.2.5 Grid charging current (RCC)

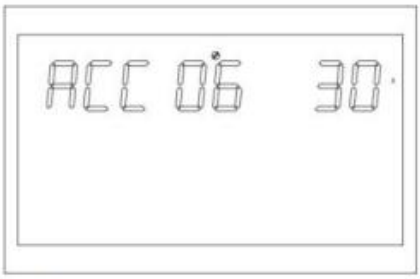


Figure 1-17 Setting the grid maximum charging current

Function description: Set the maximum grid charging current of the inverter. Setting conditions: All states can be set .

describe:

RCC: The maximum grid charging current is set to 30A by default, and the setting range is [2 , 80A] .

4.5.2.6 Maximum Charging Current (MCC)

Figure 1-18 Setting the maximum charging current

Function description: Set the maximum charging current of the inverter. Setting conditions: All states can be set .

describe:

MCC: Maximum charging current, refers to the maximum value of photovoltaic and grid charging current, optional (2-80A) .

4.5.2.7 Menu Default (MDF)

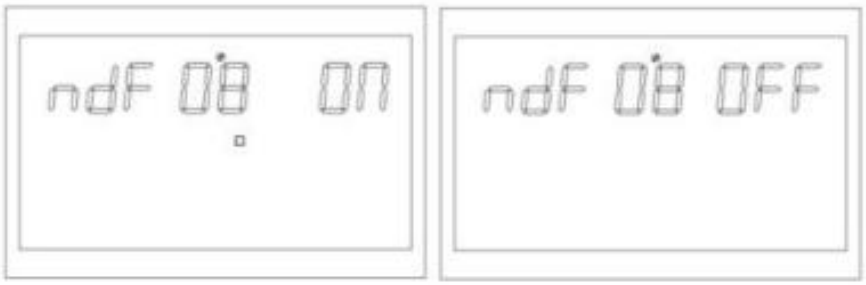


Figure 1-19 Returning to the Settings page

Function description: Return to the main interface .
Setting conditions: All states can be set.

describe:
The default setting is ON. In the function setting operation, if it is set to ON, the page will return to the first screen after 1 minute when it is not in the first screen (P1); if it is set to OFF, when the page is not in the first screen (P1), the LCD will stay on this screen.

4.5.2.8 Overload restart (LRS)

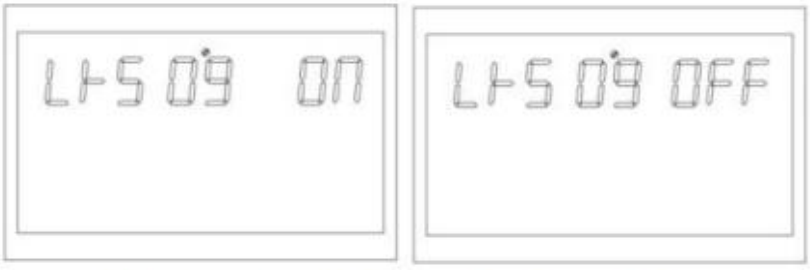


Figure 1-20 Setting the overload restart page

Function description: Set overload restart.
Setting conditions: All states can be set
describe:The default setting for overload restart is ON .

4.5.2.9 Overtemperature Restart (TrS)

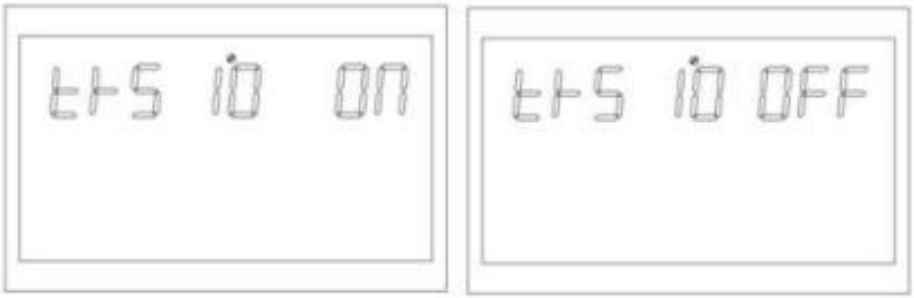


Figure 1-21 Setting the over-temperature restart page

Function description: System overheating restart.
Setting conditions: All states can be set .
describe:The default setting of over temperature protection is ON .

4.5.2.10 Main Input Power Failure (MIP)

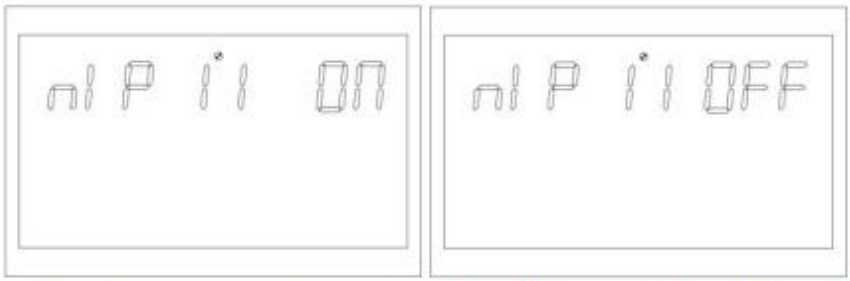


Figure 1-22 Setting the alarm page of main input power failure

Function description: Set grid or photovoltaic constant voltage alarm loss.
Setting conditions: All states can be set, the default state is ON, the grid or PV loss alarm continues to ring for a period of time, which can be set to close .
(All modes can be set)
describe:
MIP: Main input cut-off warning
The default setting is ON. The buzzer will sound for 3 seconds after the main input is lost. When the parameter is set to OFF, the buzzer will not sound frequently after the main input is lost .

4.5.2.11 Energy saving mode

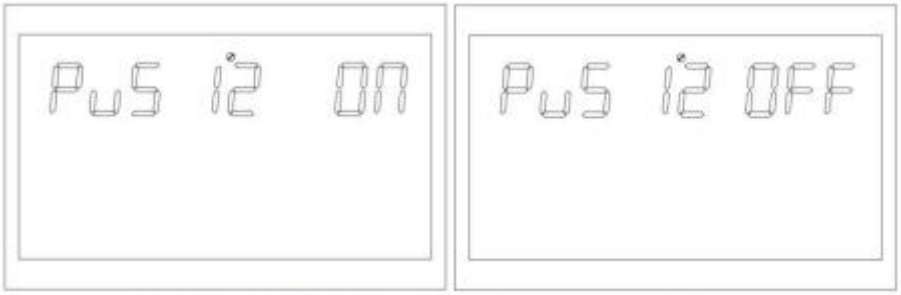


Figure 1-23 Setting the energy saving mode

Function description: Set whether to enable the inverter low power consumption mode (energy saving mode).
Setting conditions: All states can be set.
describe:
PWS: Power saving
The default setting is OFF, which turns off this function. In battery mode, if this parameter is set to ON, if the load is lower than 25W, the system output will temporarily stop; if the load is higher than 35W, the output will continue, and the system output will return to normal .

4.5.2.12 Transition from Overload Mode to Bypass Mode (OLG)

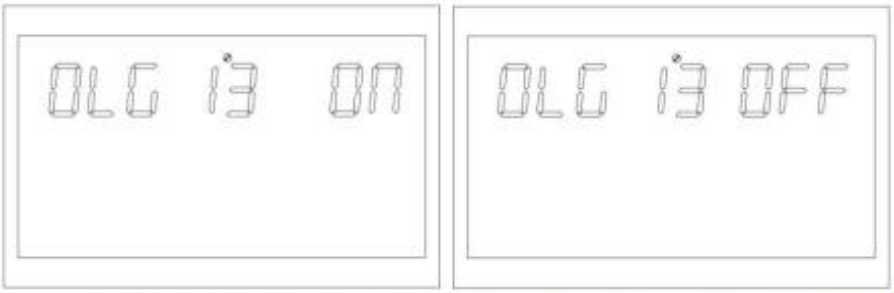


Figure 1-24 Setting the transition from overload to bypass mode

Function description: Set whether to switch to grid mode (also known as bypass mode) immediately when overload occurs in battery mode .
Setting conditions: All states are acceptable.
describe:
OLG: Overload Bypass
The default value is OFF, which turns off this function. When the value is set to ON, if the PV output is overloaded, the system will immediately switch to bypass mode (grid output, i.e. bypass mode).

4.5.2.13 Setting Mute (MUE)

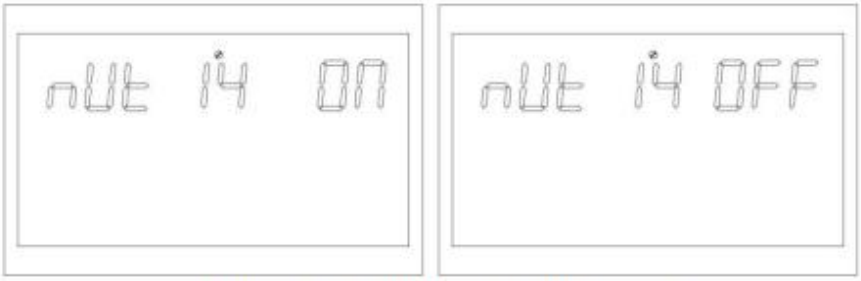


Figure 1-25 Setting the mute page

Function description: Set whether the buzzer sounds .
Setting conditions: All states can be set .
describe:
MUE: Mute
The default value is OFF, which means the mute function is turned off. When this parameter is set to ON , the buzzer will not sound in any state, such as alarm, fault, etc.
It can be set in any mode and functions normally, but no image can be displayed.

4.5.2.14 Battery return to grid voltage point (BTG)

Figure 1-26 Switching the battery back to the grid voltage point

Function description: When the battery and the grid are supplying power at the same time, and the battery is discharged to a certain voltage, it will switch to the grid for power supply to ensure that the battery will not run out of power.
Setting conditions: All states can be set, and the output priority must be set in PV and PBG modes .
describe:
BTG: Back to the Grid
The default value is 46V
When the battery definition mode is CUS (Customer Set Type) mode: the range can be [44,52]
When the battery is AGM (lead acid battery type) or FLD (flooded battery type): The default value is 46V. The range can be [44,52].
When the battery is LIB (lithium battery type): The default value is 47.6V. The range can be [40,50].

4.5.2.15 Switching back to battery mode voltage point (BTB)

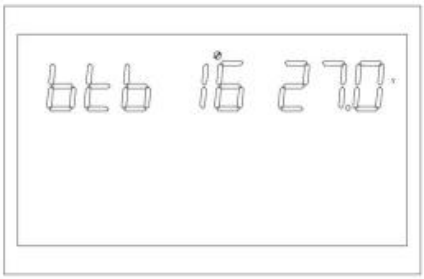


Figure 1-27 Setting the battery voltage point that let Grid mode switch back to battery mode

Function description: After the battery voltage is low and the device is shut down, a certain battery voltage value must be reached before the battery mode can be restarted .
Setting conditions: All states can be set.
describe:
BTB: Back to Battery
The default value is 5.2V
When set to FUL, the battery will charge until fully charged before restarting in battery mode.
When the battery definition mode is CUS (Customer Set Type) mode: the setting range is [48,58]
When the battery is defined as AGM (lead-acid battery) or FLD (flooded battery)
The default value is 52V. The range can be [48,58]
When the battery definition mode is LIB (lithium battery type): the default is 54.4V, and the configurable range is [46,58]

4.5.2.16 Battery Type (BAT)

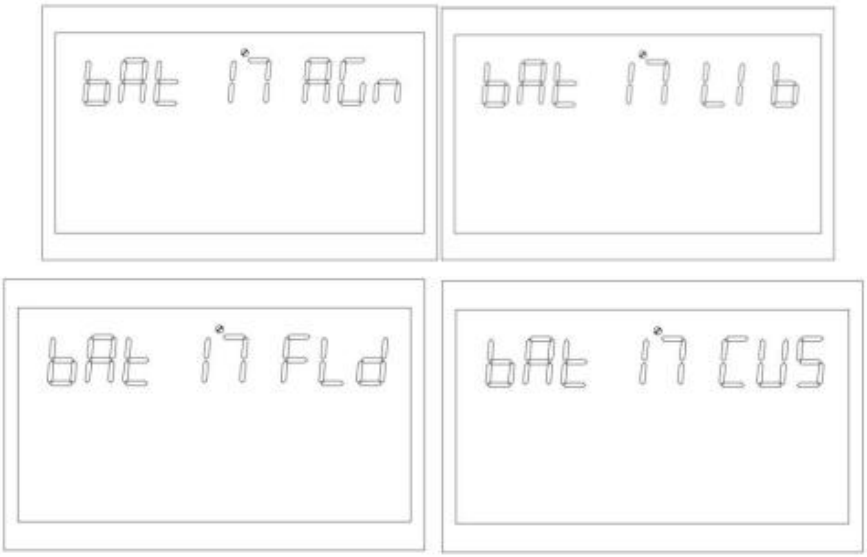


Figure 1-28 Battery type setting page

Function description: Set the battery type.
Setting conditions: All states are acceptable put.

describe:
BAT:Battery type
There are four battery types: the default is AGM (lead-acid battery); the second is FLD (flooded battery); the third is LIB (lithium battery); the fourth is CUS (customer set type)

4.5.2.17 Battery Low Voltage Point (bAL)

Figure 1-29 Setting the battery low voltage point

Function description: Set low alarm point of view.
Setting conditions: All states can be set.
describe:
bAL: Battery low
This parameter cannot be set when the battery definition mode is AGM (lead-acid battery type) 39, FLD (flooded battery type). Battery Type).
The default value is 44V
When the battery type is set to CUS (customer set type), the battery low voltage point can be modified .
The value range is [42,54].
If the battery type is set to LIB (lithium battery type), the battery low voltage point can be changed.
The default value is 47.6V and the range is [41.2,50.0].

4.5.2.18 Battery Shutdown Point (bAU)

Figure 1-29 Setting the battery shutdown point

Function description: Battery low voltage shutdown point setting
Setting conditions: All states are acceptable put .
describe:

bAU: Low battery
This parameter cannot be set when the battery definition mode is AGM (lead-acid battery type) or FLD (flooded battery type).
The default value is 42V
When the battery type is set to CUS (customer set type), the battery cut-off point can be modified
The value range is [40,48]
When the battery type is set to LIB (lithium battery type), the battery shutdown point can be changed.
The default value is 46V and the value range is [40,4].

4.5.2.19 Setting the voltage point in constant voltage mode (bCV)

4.5

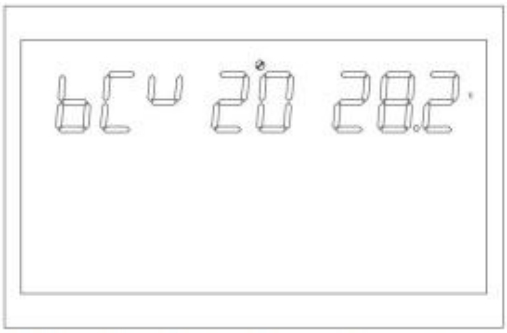


Figure 1-30 Setting the voltage point in constant voltage mode

Function description: Constant voltage point setting .
Setting conditions: All states are acceptable put.
describe :
bCV: Battery Constant Voltage
This parameter cannot be set when the battery definition mode is AGM (lead-acid battery type) or FLD (flooded battery type). type).
Initial default setting: 56.4V (AGM), 58V (FLD)
When the battery type is set to CUS (Customer Set Type), the constant voltage charge point can be modified.
The value range is 48~60, and the constant point voltage needs to be greater than the floating point voltage.
If the battery type is set to LIB (lithium battery type), the constant voltage charge point can be changed.
The default value is 56.4V, and the value range is [48,60]. The constant point voltage needs to be greater than the floating point voltage .

4.5.2.20 Float Charge Mode Voltage Point Setting (bFL)

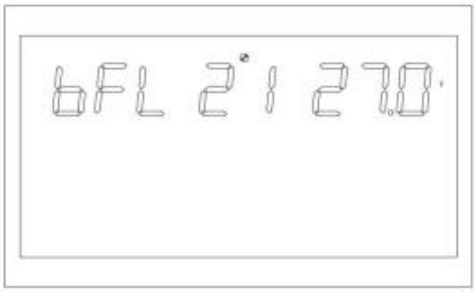


Figure 1-31 Setting voltage point in floating charge mode

Function description: Float charge voltage point setting.
Setting conditions: All states can be set.
describe:
bFL: Battery Float
This parameter cannot be set when the battery definition is AGM (lead-acid battery type) or FLD (flooded battery type).
The default value is 54V
The battery type is set to CUS (Customer Set Type) to modify the floating battery charge point.
The value range is 48~60V, and the constant voltage point voltage must be greater than the floating voltage.
If the battery type is set to LIB (lithium battery type), the constant voltage charge point can be changed.
The default value is 55.2V, and the value range is [50,58]. The constant point voltage must be greater than the floating point voltage.

4.5.2.21 Grid Low Voltage Point Setting (LLV)

Figure 1-32 Setting the low-voltage point of grid in inverter mode

Function description: Set the low voltage protection point of the power grid .
Setting conditions: The inverter is in APP or UPS mode. All states can be set.
describe:
LLV: Line Low Voltage
Output mode: MOD needs to be set to APP, the default value of the low voltage point of the power grid is 154V, and the setting range is [90,154]. Output mode: MOD needs to be set to UPS, the default value is 185V, and the setting range is [170,200].

4.5.2.22 Setting the grid high voltage point (LHV)

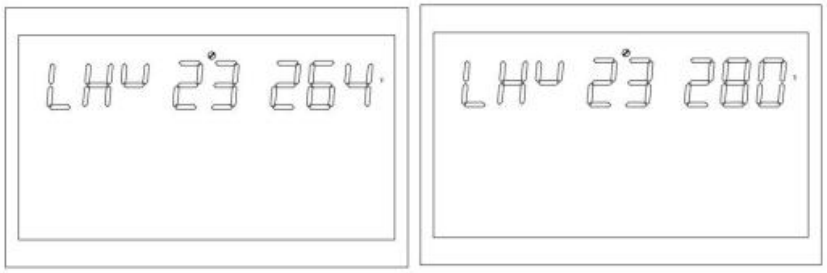


Figure 1-33 Setting high voltage point of grid

Function description: Set the high voltage protection point of the power grid .
Setting conditions: The inverter is in APP mode, all states are available is set .
describe:
LHV: Line High Voltage
Output mode: MOD needs to be set to APP, the default high voltage point of the power grid is 264V, and the range is [264,280].

4.5.2.23 Setting Low Battery Discharge Time (LWD)

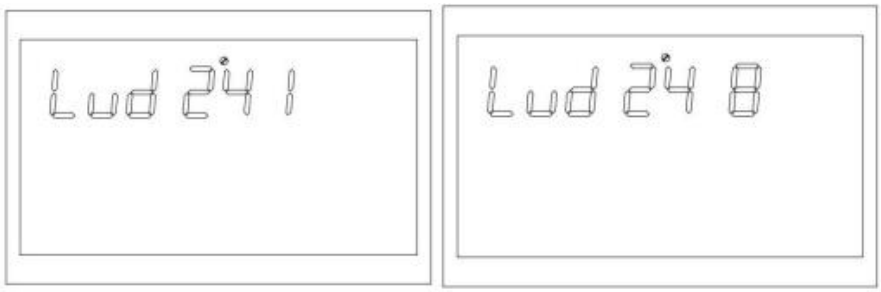


Figure 1-34 Setting the low-power discharging time

Function description: Low power discharge protection function, in battery mode, when the load is low, unlimited discharge will make the battery power very low, affecting the battery life. During the inverter low power amplifier setting time, the battery low voltage shutdown point will rise to 44V .
Setting conditions: When the inverter is set to APP mode, all states can be set.
describe:
LWD: Low Wattage Discharge
The default low battery discharge time is 8 (8 hours), and the range is [1,8]. In battery mode, if the battery shutdown point is not reached, the battery voltage shutdown point will

become 11V*battery number after the continuous discharge time exceeds 8 hours. When the battery is discharged to 11V*battery number, the system alarms and shuts down after 1 minute .

When the battery voltage exceeds 13.2V x the number of batteries for more than 30 seconds, the battery discharge time is reset.

4.5.2.24 Inverter soft start setting (SRE)

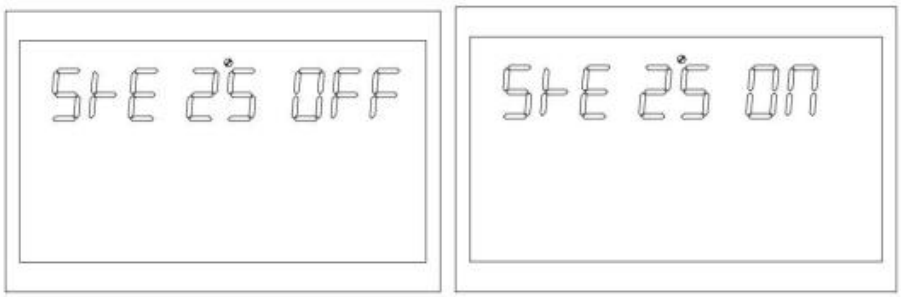


Figure 1-35 Setting the soft startup of the inverter

Function: When the interface is in the ON state, the inverter output voltage gradually increases from 0 to the target value. When the interface is in the OFF state, the inverter output voltage directly increases from 0 to the target value.

Setting conditions: All states can be set.

describe:

SRE:Soft Relay Enable

If the default is OFF, the output switch will only close when the inverter voltage rises to the rated output; if this parameter is set to ON, the output switch will close before the inverter starts to boost the voltage .

4.5.2.25 Setting Default Values (STD)

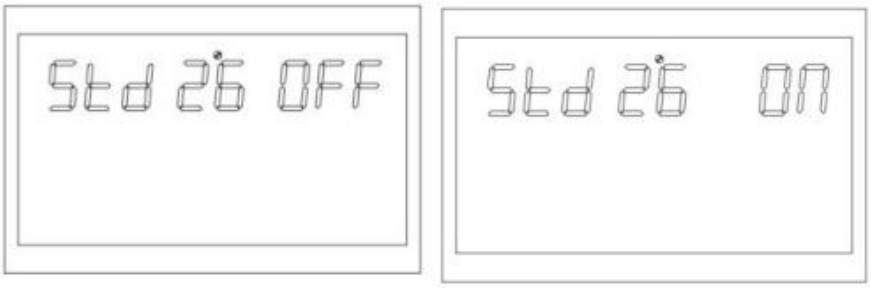


Figure 1-36 Setting default values

Restore all settings to default values .

Setting conditions: This parameter can be set in grid mode or standby mode (standby: no output but screen is on). It cannot be set in battery mode .

describe:

STD: Set default value

The screen displays OFF before setting. After setting the screen ON, the system returns to the default settings. After the setting is completed, the screen displays OFF again. It

can be set in both power grid and standby mode and takes effect immediately. It cannot be set in battery mode and no picture is displayed .

4.5.2.26 Setting Parallel Mode (PAM)

Figure 1-36 Setting default values

Function description: Set the parallel working mode
Setting conditions: This model cannot be set

4.5.2.27 Battery Missing (SBA)

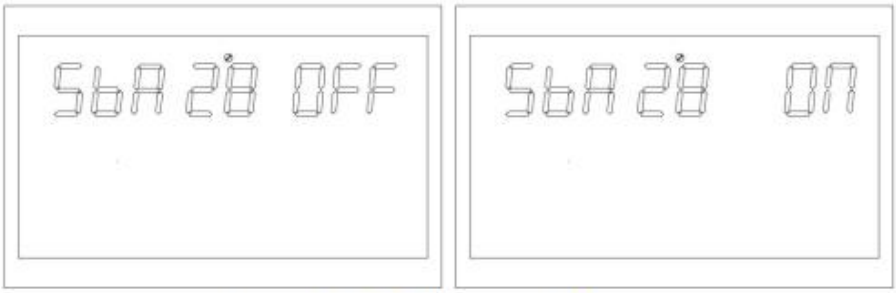


Figure 1-36 Setting default values

Function description: Set the parallel working mode
Setting conditions: This model cannot be set

4.5.2.28 Balance Mode (EQM)

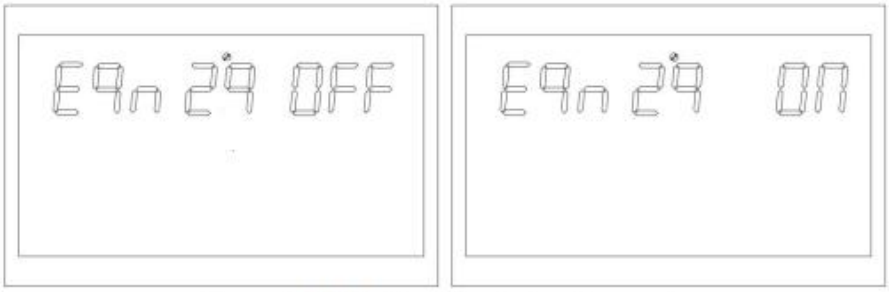


Figure 1-37 Setting the balancing mode

Function: Set whether to enable the balance mode .
Setting conditions: All states are acceptable put.
describe:
EQM: Equalization Mode
The default setting is OFF, which turns off this function. If it is set to ON, during the floating charge stage, when the set balancing interval time (battery balancing cycle) is reached, the controller will enter the balancing stage, or activate balancing immediately.

4.5.2.29 Setting the Equalization Voltage Point (EQV)

Figure 1-38 Setting the voltage balancing point

Function description: Equalization voltage point setting function. Setting conditions: All states can be set.
describe:
bCV: Balance voltage
All modes can be set.
The default value is 58.4V and the value range is [48,60].

4.5.2.30 Setting the equalization charging time (EQT)

Figure 1-39 Setting the balanced charging time

Function description: Balance charging time setting.
Setting conditions: All states can be set.
describe:
Balance time
In the balancing stage, the controller will try to charge the battery until the battery voltage reaches the balancing voltage, and then use constant voltage regulation to maintain the battery's balancing voltage until the battery's set balancing time ends. The battery is always in the balancing stage.
The default value is 60 minutes, and the adjustable range is [5,900] in 5-minute increments .

4.5.2.31 Setting the Equalization Delay (EQO)

Figure 1-40 Setting the delay balancing page

Function description: Balance delay charging time setting.
Setting conditions: All states can be set .
describe:
EQT: Equalization Timeout
In the balancing stage, when the battery balancing time is reached and the battery voltage has not risen to the balancing voltage point, the charging controller extends the battery balancing time until the battery voltage reaches a balanced state; when the battery balancing delay is completed and the battery voltage is still lower than the balancing voltage, the charging controller stops balancing and returns to the floating charge stage .
The default value is 120 minutes, and the value range is [5,900], which is set in increments of 5 minutes .

4.5.2.32 Setting the Equalization Interval (EQI)

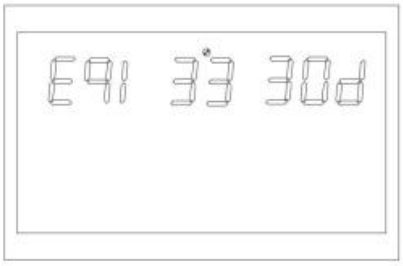


Figure 1-41 Setting the balancing interval

Function description: Equalizing charging interval setting.
Setting conditions: All states can be set .
describe:
EQI: Equalization Interval
During the floating charge phase with the balancing mode turned on, if a battery connection is detected and the set balancing interval time (battery balancing time) is reached, the controller begins to enter the balancing phase.
The default value is 30 days, the value range is [1,90], and each increment is 1 day.

4.5.2.33 Immediately activate the balance setting (EQN)

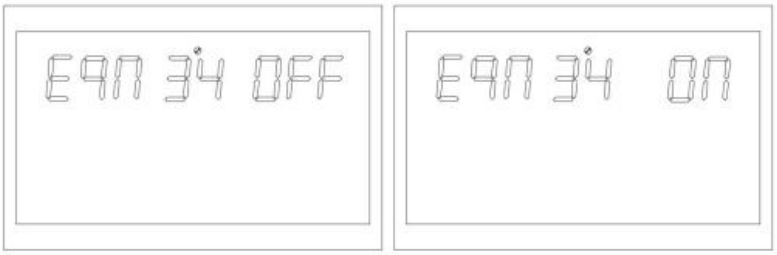


Figure 1-42 Start Balancing Settings Immediately page

Function: Set whether to enable the inverter's balancing mode immediately.
Setting conditions: All states are acceptable put.
describe:
EQN: Equilibrium Now
The default setting is OFF, which turns off this function. When it is set to ON, in the balancing mode, when it is detected that the battery is in the floating charge stage, the balancing charge is started immediately and the controller begins to enter the balancing stage .

4.5.2.34 Grid-tied inverter function (GTI)

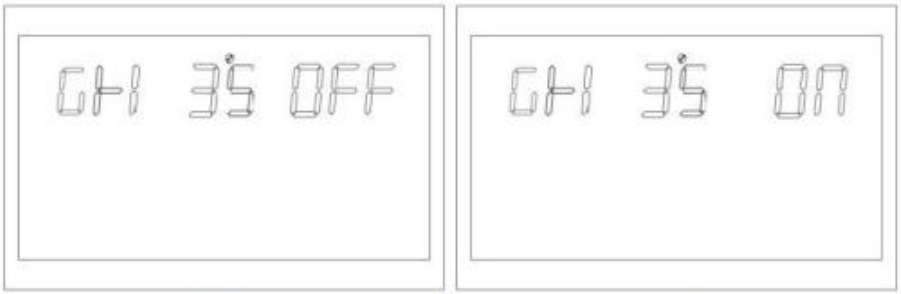


Figure 1-43 Grid-connected inverter function setting page

Function description: Set the inverter to access the grid in PV priority mode or PBG mode.
Setting conditions: All states can be set .
describe:
GTI: Grid-connected inverter
The default setting is OFF, which means this function is not enabled. When it is set to ON, the inverter provides additional energy to the grid by tracking the maximum power point. After this function is enabled, if the communication is abnormal, an alarm No. 56 will be generated, and the inverter will no longer determine the operating logic based on the BMS information.
* This function needs to be used in conjunction with the central control panel .

4.5.2.35 Battery Dual Output Low Voltage Shutdown Point (DBV)

Figure 1-44 Dual-way output low-voltage shutdown point of Battery page

Function description: After the inverter is turned on, the inverter secondary circuit output is turned on by default. After entering the battery mode, when the battery voltage is lower than the shutdown point, the secondary output is turned off. When the battery voltage is higher than the set value +1V/cell again, the secondary output is turned on.
Setting conditions: All states can be set.
describe:
DBV: Battery dual output cut-off voltage model
In battery mode, the default setting of dual output cut-off voltage is 48V, and the setting range is [44,60]
When the set point is higher than the constant voltage charging (CV) point -1V/segment, the constant voltage charging point is used as the recovery voltage.
* This function needs to be used with the bidirectional output auxiliary board.

4.5.2.36 Battery Dual Output Duration (DBT)

Figure 1-45 Battery dual-way output low-voltage shutdown point page

Function description: After the inverter is turned on, the auxiliary output is turned on by default. After entering the battery mode, when the battery discharge time reaches the set point, the auxiliary output is turned off.
Setting conditions: All states are acceptable .
describe:
DBT: Battery dual output cut-off time model
The default setting is OFF, the function is not enabled, and can be set to [5,890] (in minutes). When set to FU L, the second output has an infinite output time.
* This function needs to be used with the bidirectional output auxiliary board .

4.5.2.37 BMS communication function (BMS)

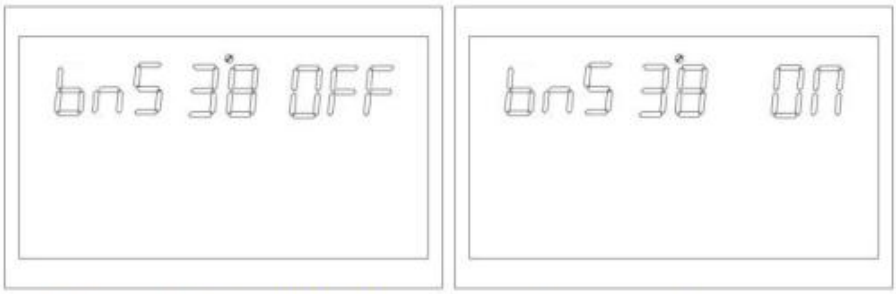


Figure 1-46 The B M S Management Function Settings page

Function description: Set whether the inverter communicates with the lithium battery BMS.
Setting conditions: All states are available put.
describe:
Battery Management System
The default setting is OFF, which means this function is not enabled. When it is set to ON, the inverter communicates with the lithium battery BMS through the central control board to receive battery information.
After this function is turned on, if a communication abnormality occurs, alarm 56 will be generated and the inverter will no longer determine the operating logic based on the BMS information.
*This function needs to be used with the central control panel.
*When the central control panel is not open, this page will be blocked Has been visited.

4.5.2.38 Low SOC Shutdown Function (BSU)

Figure 1-47 Low SOC Shutdown function setting page

Function description: Low SOC shutdown Already set.
Setting conditions: All states can be set.
describe:
BSU: Battery SOC is in locked state
The default value is 20, and the range is [5,50]. In battery mode, the lithium battery SOC reaches the set point, shuts down and calls alarm 68, and clears alarm 68 when it returns to the set value + 5%. In standby mode, switching to battery mode requires reaching the set value + 10%, and alarm 69 is triggered if it is not reached. After this function is turned on, alarm 69 is triggered when the lithium battery SOC reaches the set value + 5%, and clears alarm 69 when it returns to the set value + 10%.
It can be set to OFF, and the inverter will no longer adjust down, start, or alarm according to the SOC.

After turning on this function, the inverter will no longer determine the operating logic based on the SOC information. If a communication abnormality occurs, the relevant alarm will be cleared.
*This function needs to be used with the central control panel.
* The page is blocked when the central control panel is not connected Has been visited.

4.5.2.39 Set SOC to battery mode (STB)

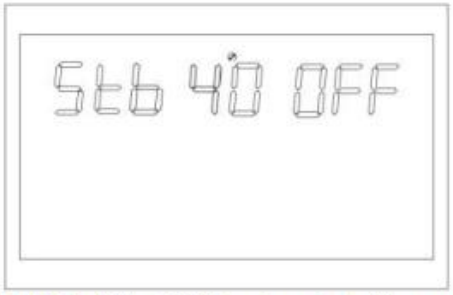


Figure 1-48 Set the SOC to turn to battery mode

Function description: Set the SOC value to battery model.

Setting conditions: All states can be set
describe:

STB: Set the grid to battery mode.
The default setting is 90, and the adjustable range is [10,100]. When PBG priority is set and the grid power is normal, when the lithium battery SOC reaches the set value, the inverter will switch to battery mode.

It can be set to OFF, in which case the inverter will no longer switch from grid mode to battery mode based on the SOC situation.
After this function is enabled, if a communication abnormality occurs, the inverter will no longer determine the operating logic based on the SOC information and clear the related alarms.

*This function needs to be used in conjunction with the central control panel .
* When the central control panel is not connected, this option page is blocked .

4.5.2.40 Set SOC to grid function (STG)

Figure 1-49 Set SOC to grid function setting page

Function description: Set the SOC value when the inverter switches to grid mode .

Setting conditions: All states can be set.

describe:

STG: Switches to grid mode when the battery SOC is low .

The default value is 50, and the setting range is [10,90]. When PBG priority is set and the grid power is normal, when the lithium battery SOC reaches the set value, the inverter will switch to grid mode.

It can be set to OFF, in which case the inverter will no longer switch from battery mode to grid mode based on the SOC condition.
After enabling this function, if a communication abnormality occurs, the inverter will no longer determine the operating logic based on the SOC information and clear the related alarms.

*This function needs to be used with the central control panel.
*When the central control panel is not connected, this option page is blocked Has been visited.

4.6 Fault and Alarm Description

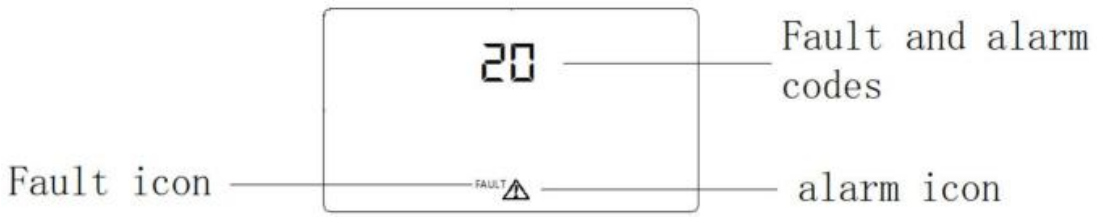


Figure 1-43 Fault and alarm ICONS

Function: Alarm code ALA flashes, and the buzzer sounds once per second for 1 minute. When the fault indicator is always on, the buzzer stops after 10 seconds, and the fault is eliminated after the buzzer stops. If you try to restart the inverter six times without success, it will remain in the fault state and you need to completely cut off the power (display distinction) or wait for 30 minutes before restarting the machine.
The faults and alarms on the LCD display are shown in the figure above. In fault mode, the fault icon is always on, and in alarm mode, the alarm icon flashes. Please contact the manufacturer to troubleshoot the fault.

4.6.1 Fault description

Fault: The inverter enters fault mode, the LED lights up red, and the LCD displays the fault code.

Fault code table

Fault Codes	Fault	Related actions	Trigger conditions	Recovery conditions	Fault/ Alarm
1	Bus boost soft start failure	Switch to failure mode	When the busbar is soft-started, the set voltage cannot be reached	Unrecoverable	Fault

2	Busbar overvoltage	Switch to failure mode	Busbar is higher than the set value	Unrecoverable	Fault
3	Bus undervoltage	Switch to failure mode	Busbar is lower than the set value	Unrecoverable	Fault
4	Battery overcurrent	Switch to failure mode	If the instantaneous value of battery current exceeds 580A, protection will be triggered immediately.	Unrecoverable	Fault
5	Over temperature	Switch to failure mode	The temperature sensor of PFC or INV is higher than the over-temperature set point	After the restart function is enabled, the faulty restart fails six times and cannot be recovered.	Fault
6	Battery overvoltage	Switch to failure mode	The battery voltage is higher than the set value	Recoverable	Fault
7	Busbar soft start fault	Switch to failure mode	The DC soft-start voltage for the bus does not reach the set value	Unrecoverable	Fault
8	Busbar short circuit	Switch to failure mode	During normal operation, the busbar momentarily drops below the set value	Unrecoverable	Fault
9	Inverter soft start fault	Switch to failure mode	After the inverter soft start has been running for a period of time, the rated output voltage still cannot be reached.	Unrecoverable	Fault
10	Inverter output overvoltage	Switch to failure mode	In battery mode, the inverter voltage is higher than the set value	Unrecoverable	Fault
11	Inverter output undervoltage	Switch to failure mode	In battery mode, inverter The voltage is lower than the set value	Unrecoverable	Fault
12	Inverter short circuit	Switch to failure mode	The inverter voltage is momentarily less than the set value, and the current is momentarily greater than the set value	After six failed restarts, the fault is irreversible.	Fault
13	Negative power protection	Switch to failure mode	The inverter power is less than the set value for a period of time.	Unrecoverable	Fault
14	Overload fault	Switch to failure mode	Load exceeds specification	After the restart function, the fault restart fails six times. No recovery after failure	Fault
15	Model failure	Switch to	The machine model	Unrecoverable	Fault

		failure mode	identified by the software does not match the hardware detection		
16	No bootloader	Switch to failure mode	No bootloader	Unrecoverable	Fault
17	PV program burning	Switch to failure mode	Burning PV control program	Restore after burning	Fault
19	Same serial number	Switch to failure mode	In parallel mode, multiple machines with the same serial number are detected.	Unrecoverable	Fault
20	CAN communication error	Switch to failure mode	In parallel mode, CAN Bus communication abnormality	Unrecoverable	Fault
twenty one	Battery voltage difference is too large	Switch to failure mode	In parallel mode, the voltage difference between the batteries of different machines is too large	Unrecoverable	Fault
twenty two	Input voltage difference is too large	Switch to failure mode	In parallel mode, the input voltage difference between different machines is too large	Unrecoverable	Fault
twenty three	Input voltage frequency difference	Switch to failure mode	In parallel mode, the input voltage and frequency of different machines are too different	Unrecoverable	Fault
twenty four	Setting output parameters asynchronously	Switch to failure mode	In three-phase parallel mode, there is a phase loss in different machine parallel mode settings	Restore when set to single-machine operation or when the three-phase operation setting conditions are met	Fault
25	Output out of step	Switch to failure mode	In parallel mode, the output voltage detection loses synchronization	Unrecoverable	Fault
26	BMS Failure	Switch to failure mode	Battery BMS has fault information	Turn off BMS communication Function or BMS Fault Elimination and Recovery	Fault

4.6.2 Alarm code table

Alarm: The inverter is not in fault mode, the LED flashes red, and the LCD displays the alarm code.

Alarm code	Alarm content	Related actions	Trigger conditions	Recovery conditions	Fault/ Alarm
50	Battery not connected	Warning: Battery not	Battery voltage low 8V/cell	Recoverable (10V/cell)	Alerts

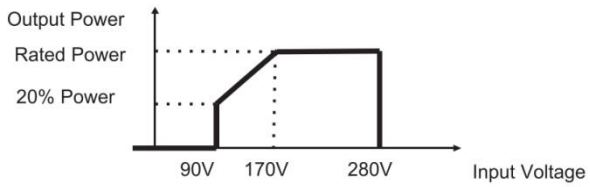
		charging			
51	Low battery shutdown	Warning: low battery voltage shuts down or fails to start	Battery voltage low 10.5V/cell (default)	Recoverable (10V/cell + 0.2* N (Number of battery cells)	Alerts
52	Battery low voltage	Alerts	Depends on bAL setting	Recoverable (Action Points + 0.2V/cell)	Alerts
53	Charger short circuit	Warning: Battery not charging	Battery voltage is less than 5V and charging current More than 4A	Unrecoverable	Alerts
54	Low power discharge	Alerts	The battery discharge exceeds the set low power discharge time	Recoverable (battery voltage above 13.2V/cell)	Alerts
55	Battery Overcharge	Warning: Battery not charging	The battery voltage is higher than the set value	Recoverable	Alerts
56	BMS lost	Alarm, lock Standby mode	After the BMS communication function is turned on, communication fails	Recoverable	Alerts
57	Over temperature	Warning, Battery Not Charging	PFC or INV temperature The sensor is higher than the set value	Temperature sensor for PFC or INV Below the set value	Alerts
58	Fan failure	Warning: If one of the fans fails, the other fan will run at full speed.	Fan speed signal not detected	Recoverable	Alerts
59	EEPROM Failure	Alerts	EEPROM read and write fail	Unrecoverable	Alerts
60	Overload	Warning: Battery not charging	Load＞102%	Recoverable (Load < 97%)	Alerts
61	Generator Wave Abnormal shape	Alarm, continue to work in battery mode	Generator waveform Detecting anomalies	Recoverable	Alerts
62	PV energy is weak	Turn off PV output and charging	When the battery is not connected, the bus voltage is lower than the set value	Recover after 10 minutes	Alerts
63	Synchronization lost	Alarm, switch to fault mode	Parallel board disconnection fault	Switch to stand-alone mode or troubleshoot disconnection	Alerts
64	Incompatible parallel settings	Alarm, switch to fault mode	When three-phase parallel operation occurs, there is a phase loss setting	Restore when the three-phase setting is correct	Alerts
65	Parallel version	Alarm, switch to	The parallel system	Restore when all	Alerts

	Incompatible	fault mode	has incompatible version numbers	machine versions in the parallel system are compatible with each other	
66	Parallel communication failure	Alarm, switch to fault mode	The slave device cannot be detected in the parallel system	In the parallel system, the system recovers after detecting the slave machine connected, and recovers in single machine mode	Alerts
67	There is a difference in the parallel mains	Alerts	The voltage or frequency error of each machine in parallel is too large	Restore when the voltage and frequency errors of each machine are detected to be reasonable	Alerts
68	Low SOC shutdown	Alarm, switch to fault mode	Lithium battery SOC is lower than the set value	Lower the SOC shutdown setting value or turn off the BMS communication function or SOC Restore to settings Recover when value +5%	Alerts
69	Low SOC	Warning, if in standby mode, then maintain standby mode without turning on	Lithium battery SOC is lower than the set value + 5% (mains mode or battery mode), lower than the set value + 10% (standby mode)	Shutdown Low SOC shutdown function or shut down BMS, communication function, or SOC returns to the set value Fixed value +10% recovery	Alerts

4.7 Specifications

Inverter output parameters	**DOA01-5K_XFM5K-EU**
Rated output active power	Output port 1 + output port 2 Total rated power 5.5KW
Rated output apparent power	Output port 1 + output port 2 Total rated power 5.5KVA
Output format	L+N+PE
Output voltage waveform	Pure sine wave
Output voltage	208/220/230 (default)/240Vac±3%
Output accuracy	≤±5%
Output frequency	Mains mode: follow the mains frequency, battery mode: 50/60Hz±0.3 %
Output Current	23.9A
Peak Power	1.5 times rated power @ 200ms
Output harmonic distortion	≤ 3% (linear load) @ linear load; ≤ 5% (non-linear load PF=0.7) @ non-linear load PF=0.7

Overload capability (battery mode)	1 minute @102%~110% load 10 seconds @ 110%~130% load 3 seconds @ 130%~150% load 0.2 seconds @>150% load
Operating temperature	-10 to 55°C
Storage temperature	-20 to 60°C
Battery parameters	
Battery Type	LiFePO4 Lithium Iron Phosphate
capacity	100 Ah
Nominal voltage	51. 2 Vdc
energy	Standard 5120W h / Optional - Expandable up to 30KWh
Charging method	Two-stage/three-stage charging
Maximum charging current	100A
Maximum discharge current	100A
Charge cut-off voltage	58.4 V
Discharge cut-off voltage	41.6 V
Cycle life	≥3000 times
Internal resistance	≤0.4mΩ
Storage temperature	-30~60℃ (recommended -10℃~35℃)
Charging temperature	0-60℃
Exhaust temperature	-30 to 60°C
Photovoltaic input parameters	
Maximum input power	6 000W
Maximum input open circuit voltage	500 Vdc
MPPT operating voltage range	120~430Vdc
Photovoltaic operating voltage range	150-500Vdc
Starting voltage	150Vdc
MPPT quantity	1
Number of MPPT strings per channel	1
Photovoltaic input maximum current	30A
Photovoltaic maximum input short-circuit current	32A
PV maximum charging current	100A
Maximum charging current (AC and photovoltaic combined charging)	100A
Mains input parameters	
Main topology	L+N+PE
Input voltage waveform	Sine wave (mains or generator)
Input voltage	208/220/230/240 Vac (Adaptive)
Input voltage range	APL mode @90~280V;
AC low voltage disconnect point	UPS Mode@170~264V

AC low voltage recovery value	APL mode @ 154Vac (default), adjustable range is 90-154Vac; UPS mode @ 185Vac (default), adjustable range is 170-200Vac
AC high voltage disconnect point	AC low voltage disconnect point +9V
AC high voltage recovery value	APL mode @264Vac (default), adjustable within 264-280Vac range;
Rated input frequency	UPS Mode @ 264Vac (Default) Not Adjustable
Frequency range	40~70Hz, default
AC frequency low trip point	40Hz@50Hz(UPS mode); 40@50HZ(APP mode) 50 Hz @60Hz (UPS mode); 40HZ@60HZ (APP mode)
AC power frequency low recovery value	43.5Hz@50Hz(UPS mode);40.5HZ@50HZ(APP mode) 53.5Hz@60Hz(UPS mode);40.5HZ@60HZ(APP mode)
AC high frequency disconnect point	60Hz@50Hz (UPS mode); 70Hz@50Hz (APP mode) 70Hz@60Hz (UPS mode); 70Hz@60Hz (APP mode)
AC frequency high recovery value	56.5Hz@50Hz (UPS mode); 69.5Hz@50Hz (APP mode) 66.5Hz@60Hz (UPS mode); 69.5Hz@60Hz (APP mode)
AC input current	40A
Switching time	10ms@typical value; 20ms@maximum value;
Output power derating	
efficiency	
Mains mode	>99.5%
No-load power consumption	＜ 60W
Peak efficiency (battery mode)	>93.5%
MPPT tracking efficiency	99.5%
General Data	
Relative humidity	5%~95% No condensation
Operating altitude	＜2000 m
Installation Method	Wall Mount
Cooling method	Intelligent air cooling
Protection Level	IP20
show	LCD
Communication interface	RS485/CAN/ WiFi
Maximum number of parallel units	Not supported
noise	<60 db
weight	75 kg
Dimensions (width/height/thickness)	610×937×161.2（ mm ）

Introduction and installation of energy storage batteries

5.1 Safety precautions

- If the battery is stored for a long time, it needs to be charged every three to six months, and the SOC should not be less than 80%.

- If the battery is fully discharged, it will need to be recharged within 12 hours.
- Do not connect batteries directly to photovoltaic solar .
- Do not insert any foreign objects into any part of the battery.
- Always disconnect the grid power supply and ensure the battery is in off mode before installation .
- Do not connect batteries of different types together .
- If the battery system needs to be moved or repaired, the power supply must be disconnected and the battery completely shut down.
- In case of fire, only dry powder fire extinguishers can be used; liquid fire extinguishers are prohibited.
- Do not open, repair or disassemble the battery. We do not assume any responsibility or liability for the consequences of violations of safe operation or design, production and equipment safety standards.