MUST®

USER'S MANUAL

Energy Storage Inverter

Contents

1 Notes on this manual
1.1 Validity

This User Manual describes instructions and detailed procedures for installing, operating, maintaining, and troubleshooting of the following energy storage inverter: 3.6KW, 4.2KW,4.6KW, 5KW.

Please keep this manual all time available in case of emergency.

This manual does not cover any details concerning equipment connected to the unit (e.g. PV modules). Information concerning the connected equipment is available from the manufacturer of the equipment.

1.2 Use instructions

1.2.1 Only professionals who have read and fully understand all the safety rules contained in this manual can install, maintain and repair this inverter. The operator must be aware that this is a high-voltage device. Qualified personnel must be trained to deal with the danger of installing electrical equipment.

1.2.2 Before using the inverter, read all labels and warning labels on this machine and instructions carefully and store the instructions in a place easily found. We are not responsible for any damage caused by non-compliance with these instructions.

1.2.3 The energy storage inverter strictly comply with local laws and regulations in testing and design.

1.2.4 The local safety standards should be complied with during the installation, operation and maintenance of the inverter.

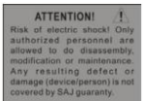
1.2.5 Incorrect operation may cause electric shock or damage to the inverter.

1.3 Symbols
Pay attention to the relevant identification in the product manual and product packaging.

1.3.1 Markings in the manual

SYMBOL	DESCRIPTION
 DANGER	**Danger** indicates a hazardous situation which, if not avoided, will result in death or serious injury.
 WARNING	**WARNING** indicates a hazardous situation which, if not avoided, could result in death or serious injury or moderate injury.
 CAUTION	**CAUTION** indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
 NOTE	**NOTICE** indicates a situation that can result in potential damage, if not avoided.
	Read the manual.

1.3.2 Markings on this product

Symbol	Description
	**Warning regarding dangerous voltage** The product works with high voltage. All work on the product must only be performed as described in its documentation.
	**Beware of hot surface** The product can become hot during operation. Do not touch the product during operation.
	**Observe the operating instructions** Read the product's documentation before working on it. Follow all safety precautions and instructions as described in the documentation.
	**CE Mark** Equipment with the CE mark fulfills the basic requirements of the Guideline Governing Low-Voltage and Electro-magnetic Compatibility.
	**SAA Mark** The inverter complies with the requirement of Equipment and Product Safety Act in Australia.
	**CQC Mark** Equipment standard with China Quality Inspection Center safety directive.
	No unauthorized perforations or modifications Any unauthorized perforations or modifications are strictly forbidden, if any defect or damage(device/person) is occurred, The company shall not take any responsibility for it.
	**Point of connection for grounding protection**
	**Direct Current (DC)**
	**Alternating Current (AC)**
	Signals danger due to electrical shock and indicates the times (5 minutes) to allow after the inverter has been turned off and disconnected to ensure safety in any installation operation.

2 Safety and conformity

SYMBOL	INSTRUCTIONS
	**Danger to life due to lethal voltages!** Lethal voltages are present within the unit and on the power supply lines. Therefore, only authorized electricians may install and open the unit. Even when the unit is disconnected, high contact voltages may still be present within the unit.
	**Danger of burn injuries due to hot enclosure parts!** During operation, the four sides of the enclosure lid and the heat sink may become hot. Only touch the front enclosure lid during operation.

 CAUTION	**Possible damage to health as a result of the effects of radiation!** In special cases, there may still be interference for the specified application area despite maintaining standardized emission limit values (e.g. when sensitive equipment is located at the setup location or when the setup location is near radio or television receivers).In this case, the operator is obliged to take proper action to rectify the situation. Do not stay closer than 20 cm to the inverter for any length of t ime.
 NOTE	**Grounding the PV generator!** Comply with the local requirements for grounding the PV modules and the PV generator. We recommend connecting the generator frame and other electrically conductive surfaces in a manner which ensures continuous conduction with ground in order to have optimal protection of the system and personnel.
 NOTE	**Capacitive Discharge Currents**! PV modules with large capacities relative to earth, such as thin-film PV modules with cells on a metallic substrate, may only be used if their coupling capacity does not exceed 470nF. During feed-in operation, a leakage current flows from the cells to earth, the size of which depends on the manner in which the PV modules are installed (e.g. foil on metal roof) and on the weather (rain, snow). This "normal" leakage current may not exceed 50mA due to the fact that the inverter would otherwise automatically disconnect from the electricity grid as a protective measure.

2.1 DC and AC breaker

Separate the unit securely from the grid and the PV, generators and battery using DC and AC breaker. DC and AC breaker shall be able to disconnect all non-ground conductors after installation.

2.2 Grounding the PV modules

The unit is a transformerless inverter. That is why it has no galvanic separation. Do not ground the DC circuits of the PV modules connected to the unit. Only ground the mounting frame of the PV modules.
If you connect grounded PV modules to the unit the error message "PV Isolation Low".

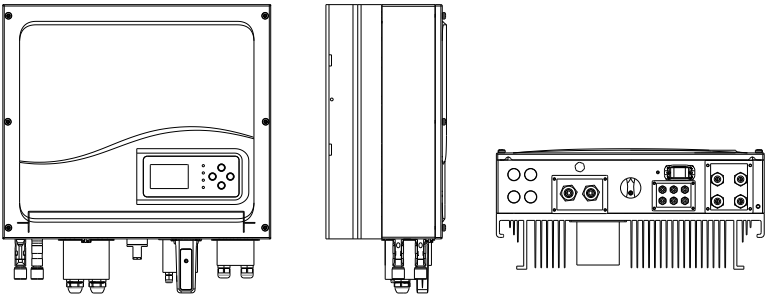
2.3 Qualification of Skilled Workers

Only workers with the following skills should install this inverter:

- Knowledge of how an inverter works and is operated.
- Instructed in how to deal with the dangers and risks associated with installing and using electrical devices and plants.
- Training in the installation and commissioning of electrical devices and plants.
- Knowledge of all applicable standards and guidelines.
- Knowledge and observance of this manual and all safety instructions.

3 Product Description

3.1 Inverter Overview



3.2 Information of the unit

The uint is a bidirectional energy storage inverter, suitable for photovoltaic systems with batteries to store energy. The unit is bidirectional which applies to PV systems with batteries to store energy. Energy produced by the PV system is used to optimize self-consumption; excess energy is used to charge the batteries, and then fed into the public grid when the PV energy is adequate. When PV energy output is insufficient to support connected loads, the system automatically draws energy from the batteries if battery capacity is abundant. If the battery capacity is insufficient to meet own consumption requirements, electricity will be drawn from the public grid.

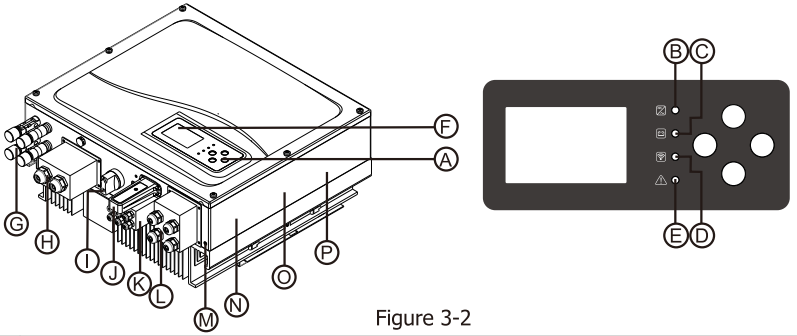


Figure 3-2

A	Function button
B	The inverter operation status indicator
C	Battery indicator
D	Wi-Fi status indicator
E	Fault indicator
F	LCD display panel
G	PV input terminals
H	Battery input terminals and cover
I	PV input switch
J	Wi-Fi com module
K	BTS terminal, BMS terminal, load monitor terminal, dry contact terminal, CAN communication terminal, USB terminal and cover
L	AC Output terminals and cover
M	Secondary grounding hole
N	Inverter Serial No.
O	Rating label
P	Warning signals label

Table 3-1

3.3 Storage of Inverter

If you want to store the unit in your warehouse, you should choose an appropriate location:

- The unit must be stored in its original package and desiccant must be left in the package.
- The storage temperature should always be between -25□ and +60□.
- The storage relative humidity should always be between 0 and 95%.
- A maximum of four units can be stacked vertically.

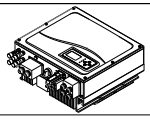
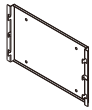
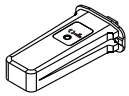
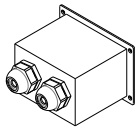
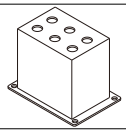
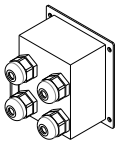
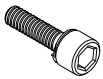
4 Unpacking

4.1 Check the Package

Although The inverter have surpassed stringent testing and are checked before they leave the factory, it is uncertain that the inverter. may suffer damages during transportation. Please check the package for any obvious signs of damage, and if such evidence is present, do not open the package and contact your dealer as soon as possible.

4.2 Check the Assembly Parts

After opening the package, please refer to Table 4-1 to check the completeness of the assembly parts. Please contact your dealer if anything is damaged or missing.

NO.	Pictures	Description	Quantity and Unit
1		inverter	1PCS
2		Mounting frame	1PCS
3		Wi-Fi module	1PCS
4		BAT wire cover	1PCS
5		BMS,RS485 com wire cover	1PCS
6		AC output cover	1PCS
7		Blasting screws	4PCS
8		Inverter hold screw	2PCS

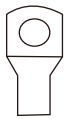
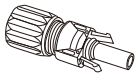
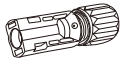
9		Battery input terminal	2PCS
10		PV+ input terminal	2PCS
11		PV- input terminal	2PCS
12		Metal terminals secured to PV+ input power cables	2PCS
13		Metal terminals secured to PV- input power cables	2PCS
14		CT	1PCS
15		User Manual	1PCS

Table 4-1

4.3 tools

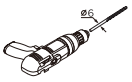
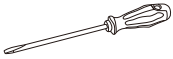
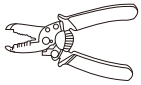
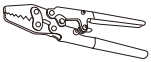
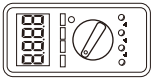
NO.	Tool	Model	Function
1		Hammer drill Recommend drill dia. 6mm	To drill holes on the wall
2		Unscrew screw	Lock the screws that mounting frame, battery terminals, and AC terminals
3		Removal tool	Removal PV terminal
4		Wire stripper	Strip wire
5		Crimping tools	To crimp power cables
6		multimeter	Measuring grid voltage

Table 4-2

5 Installation and Electrical Connection

5.1 Safety

DANGER

Danger to life due to fire or explosion

Despite careful construction, electrical devices can cause fires. Do not install the inverter on easily flammable materials and where flammable materials are stored.

DANGER

Risk of burns due to hot enclosure parts

Mount the inverter in such a way that it cannot be touched inadvertently.

DANGER

All electrical installations shall be done in accordance with the local and national electrical codes.

Do not remove the casing. Inverter contains no user serviceable parts. Refer servicing to qualified service personnel. All wiring and electrical installation should be conducted by a qualified service personnel.

Other installation points:

- Carefully remove the unit from its packaging and inspect for external damage. If you find any imperfections, please contact the installation contractor or supplier.
- Be sure that the inverter connect to the ground in order to protect property and personal safety.
- The inverter must only be operated with a PV generator. Do not connect any other source of energy to it.
- Both AC and DC voltage sources are terminated inside the PV Inverter. Please disconnect these circuits before servicing.
- This unit is designed to feed power to the public power grid (utility) only. Do not connect this unit to an AC source. Connecting the inverter to external devices could result in serious damage to your equipment.
- When a PV panel is exposed to light, it generates a DC voltage. When connected to this equipment, a PV panel will charge the DC link capacitors.
- Energy stored in this equipment's DC link capacitors presents a risk of electric shock. Even after the unit is disconnected from the grid and photovoltaic panels, high voltages may still exist inside the PV-Inverter. Do not remove the casing until at least5 minutes after disconnecting all power sources.
- Although designed to meet all safety requirements, some parts and surfaces of Inverter are still hot during operation. To reduce the risk of injury, do not touch the heat sink at the back of the PV-Inverter or nearby surfaces while Inverter is operating.

5.2 Selecting the installation location

This is guidance for installer to choose a suitable installation location, to avoid potential damages to device and operators.

- The unit shall be mounted at least 914 mm (3 feet) above the ground.
- The installation location must be suitable for the inverter's weight and dimensions for a long period of time.
- Select the installation location so that the status display can be easily viewed.
- Do not install the inverter on structures constructed of flammable or thermolabile materials.
- The humidity of the installation location should be 0~95% without condensation.
- The installation location must be free and safe to access at all times.
- Installation must be vertical or tilted backwards by max. 15° and make sure the connection of the inverter is downwards. Never install horizontally. Avoid forward or sideways tilt.

- Be sure that the inverter is out of children's reach.
- Don't put anything on top of or cover the inverter.
- Do not install the inverter near television antennae or any other antennae/antennae cables.
- The inverter requires adequate cooling space. Ensure good ventilation for the inverter to ensure the heat escape adequately. The ambient temperature should be below 40°C to ensure optimum operation.

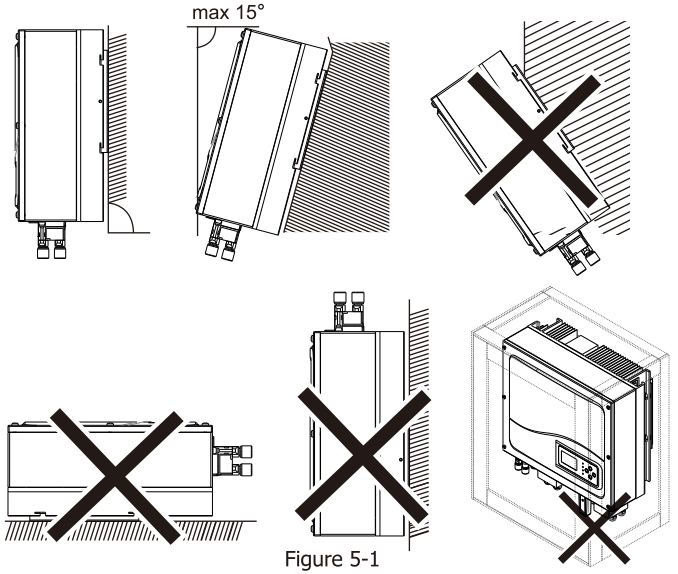


Figure 5-1

- The inverter should not be installed in direct sunlight and should have some coverage from the elements:

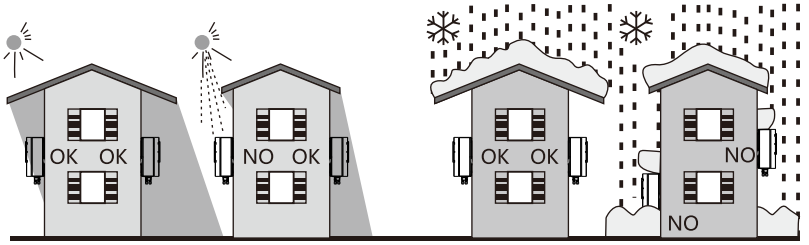


Figure 5-2

- Observe the minimum clearances to walls, other inverters or objects as shown in the diagrams below in order to guarantee sufficient heat dissipation.

Direction	Min. clearance (cm)
above	**80**
below	**50**
sides	**50**
front	**30**

Table 5-1

Ambient dimensions of one inverter□

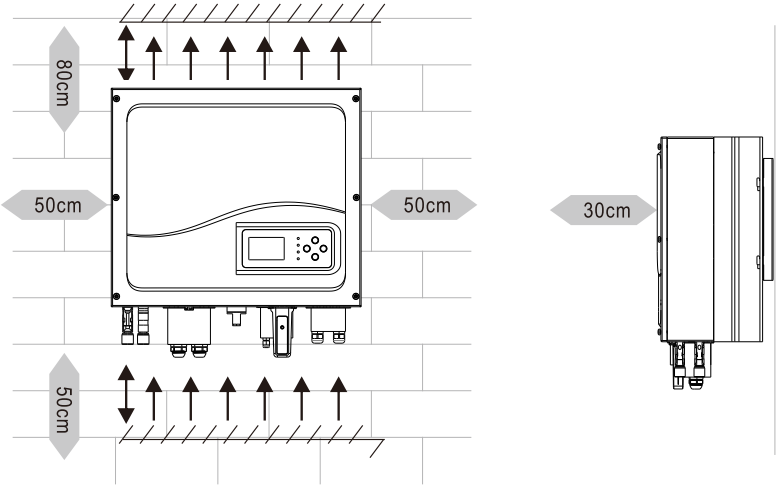


Figure 5-3

Ambient dimensions of a series inverters:

- There must be sufficient space between each individual inverter to ensure that the cooling air of the adjacent inverter is not taken in.
- If necessary, increase the clearance space and make sure there is enough fresh air supply to ensure sufficient cooling of the inverters.

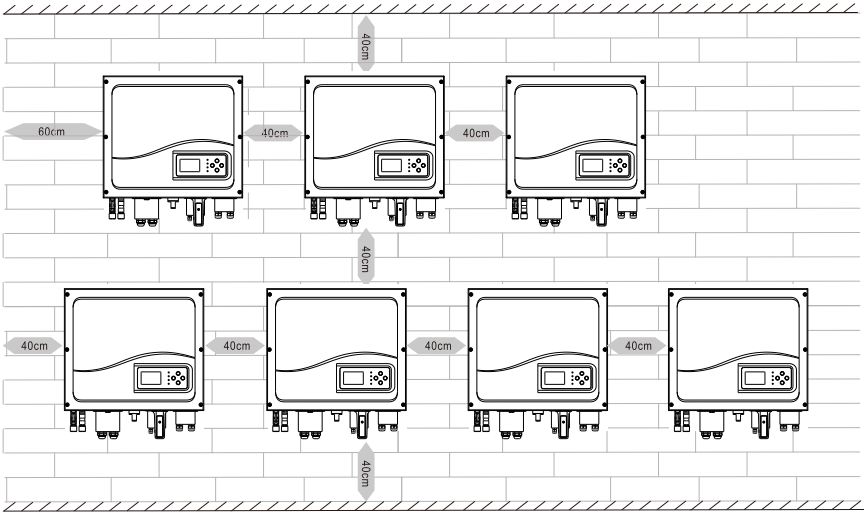


Figure 5-4

5.3 Mounting the Inverter with bracket

WARNING

In order to avoid electrical shock or other injury, inspect existing electronic or plumbing installations before drilling holes.

The dimension of bracket as follows:

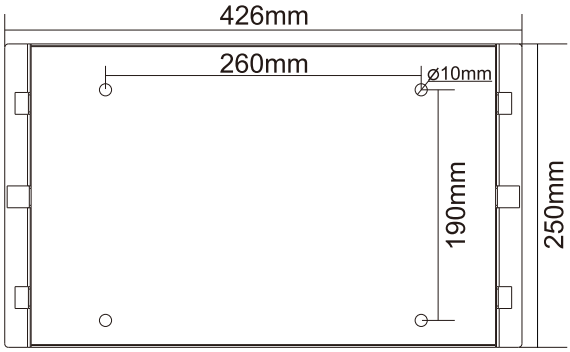


Figure 5-5

- Using the mounting frame as a template, drill holes as illustrated in image.
- Fix the mounting frame as the figure shows. Do not make the screws to be flush to the wall, Instead, leave 2 to 4mm exposed.

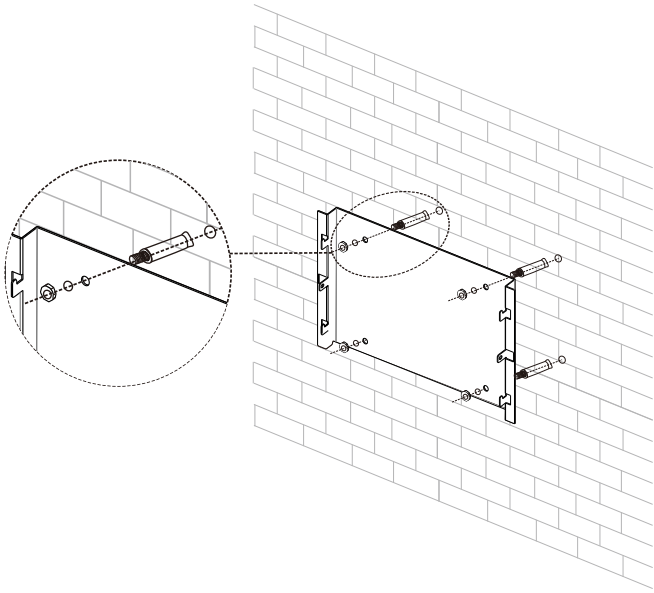


Figure 5-6

5.4 Fixed the inverter on the wall

WARNING

Falling equipment can cause serious or even fatal injury, never mount the inverter on the bracket unless you are sure that the mounting frame is firmly mounted on the wall after cautious checking.

Raise the inverter a little higher than the bracket whilst maintaining the balance of the inverter.

- Hang the inverter on the bracket through the match hooks on bracket.

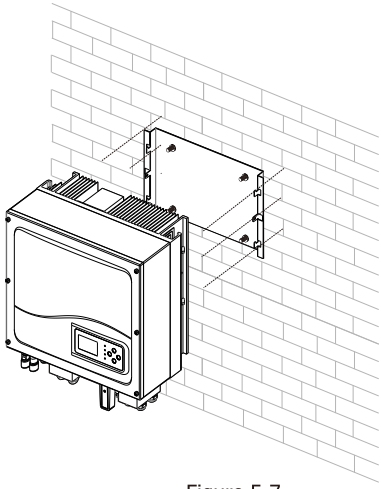


Figure 5-7

- After confirming the inverter is fixed reliably, fasten two M5 safety-lock sockets head cap screws on the left and right side firmly to prevent the inverter from being lifted off the bracket.

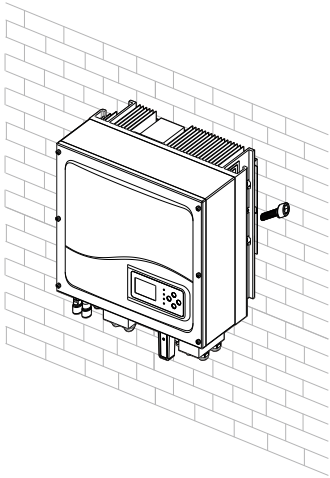


Figure 5-8

5.5 Check Inverter Installation Status

- Check the upper straps of inverter and ensure it fits on to the bracket.
- Check the secure mounting of the inverter by trying to raise it from the bottom. The inverter should remain firmly attached.
- Choose a strong mounting wall to prevent vibration while inverter is operating.

5.6 Electrical Connection

5.6.1 Safety

WARNING

Danger to life due to lethal voltages!

High voltages which may cause electric shocks are present in the conductive parts of the inverter. Prior to performing any work on the inverter, disconnect the inverter on the AC side, PV side, battery side.

Do not reverse input the battery as this will destroy the inverter!

WARNING

Danger of damage to electronic components due to electrostatic discharge.

Take appropriate ESD precautions when replacing and installing the inverter.

WARNING

Grounding

Before connecting the power cables, you much connect ground wire first.

Note:

- The electrical connection must be carried out by professional technicians. Before any electrical connection is made, it must be kept in mind that the inverter is bi-directionally powered. Professional personnel must wear personal protective equipment such as insulating gloves, insulating rubber shoes and safety helmet when making electrical connections.
- Electrical connections should follow appropriate rules such as conductor cross-sectional area, fuses, and grounding protection.

5.6.2 System Diagram with Inverter Electrical

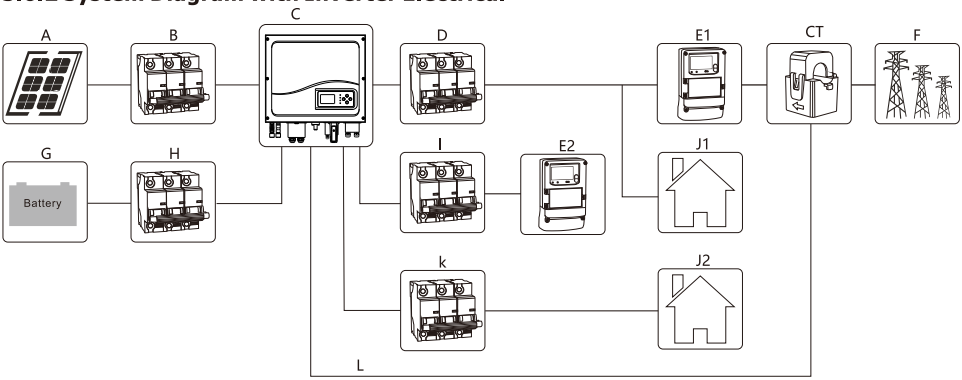


Figure 5-9

Position	Description
A	PV module
B	PV side breake
C	Inverte
D	Main AC output breaker
E1&E2	Energy meter, E1 is used to detect utility power consumption, and E2 is used to detect PV generation
F	Utility grid
G	Battery
H	Battery DC breaker
I	Inverter side breaker
J1&J2	J1 is normal load, J2 important load (maximum 2500VA)
K	Back-up output breaker(max.2500VA)
L	Load monitor
CT	Detect current flow from grid / out to grid

Table 5-1

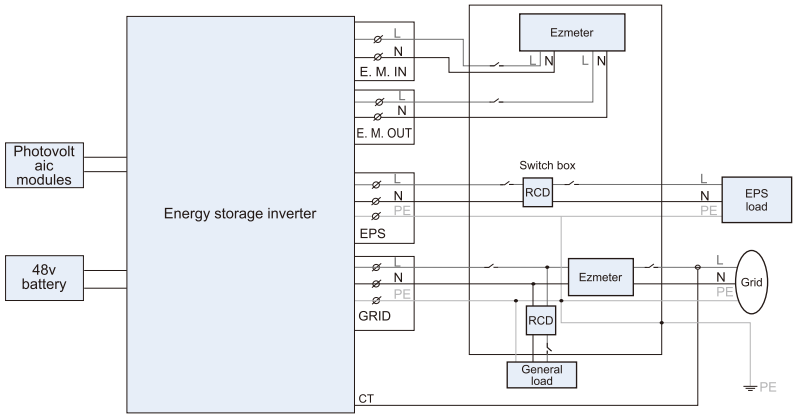


Figure 5-10

5.6.3 Connecting to the grid (AC utility)

NOTE

- Use only solid or stranded wire but not fine stranded wire.
- Use cables with high ambient temperatures.
- Use cables with a large cross-section.

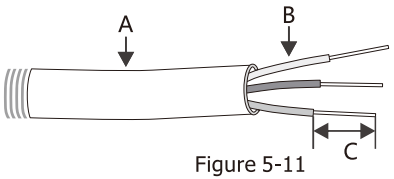


Figure 5-11

Bare length C=8mm,Output cable requirements:

Product Model	Area(mm²) B	AWG No.
3.6KW	5.26~9.0	8~10
4.2KW	5.26~9.0	8~10
4.6KW	5.26~9.0	8~10
5KW	5.26~9.0	8~10

Table 5-2

NOTE

The cable length should not exceed 48 m as the resistance of the cable will consume inverter output power and reduce the inverter efficiency.

- **Connect bidirectional meter**

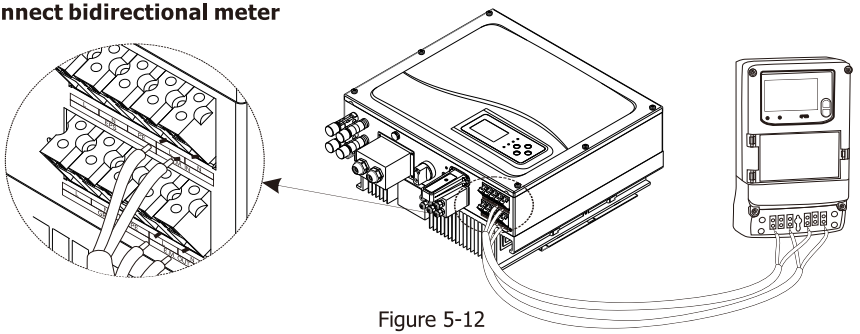


Figure 5-12

WARNING

- A separate single-phase AC circuit breaker must be installed between the inverter and the bi-directional meter for each inverter. The separate disconnection unit has below requirement:
Voltage: the voltage must not be less than the AC grid voltage which you connect.
Current: the current must not be less than 1.2 times of the inverter max output current which defined in the inverter spec.
- The bidirectional meter must be installed near the inverter, and the total length of the incoming and outgoing meter lines should not exceed 2m.

We suggest the AC separate unit spec as follow:

3.6KW	24A/230V
4.2KW	28A/230V
4.6KW	30A/230V
5KW	32A/230V

Table 5-3

The function of the bidirectional meter is to record the PV generation for the user. If the user does not need this function, please wire it as shown below.(Inverter default shipping method)

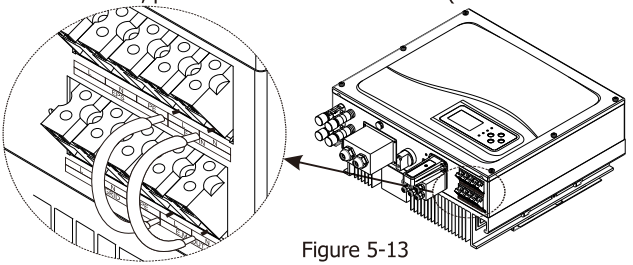


Figure 5-13

• **Connecting to the grid.**

The wiring is as follows:

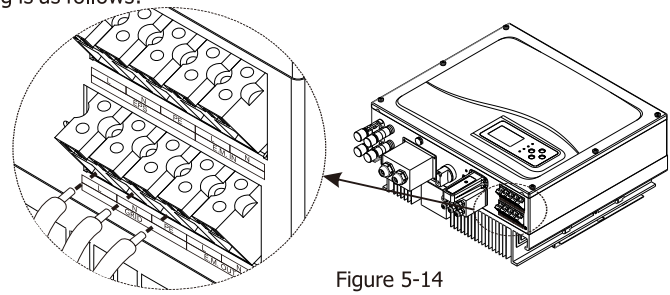


Figure 5-14

WARNING

• You must install a separate AC circuit-breaker or other load disconnection unit between the inverter and utility, in order to ensure that the inverter can be safely disconnected under load. The separate disconnection unit has below requirement:

Voltage: the voltage must not be less than the AC grid voltage which you connect.

Current: the current must not be less than 1.2 times of the inverter max output current which defined in the inverter spec.

• The inverter has leakage current detection and protection functions. If a leakage current detection function AC circuit breaker is selected, the rated residual current of the circuit breaker must be more than 300 mA.

• Single-phase AC circuit breakers are selected according to Table 5-3.

• **Connecting to the back-up.**

The back-up can provide max output power 2300VA and you can connect the important load to the back-up terminal, however you must install a AC separate circuit-breaker or other load disconnection unit between the inverter back-up output and the important load, in order to ensure that the inverter can be safely disconnected under load.

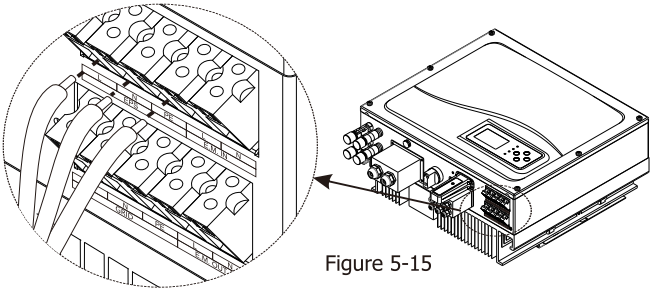


Figure 5-15

We suggest the separate unit spec is 20A.

WARNING

The back-up MAX output power is 2300VA, if the load greater than 2300VA, and after overload fault happen 3 times, the inverter will stop output. The output power of back-up also depends on the battery capacity.

• **Grounding the inverter**

The inverter must be connected to the AC grounding conductor of the power distribution gridvia the ground terminal (PE)⏚, The symbol "PE" is shown in Figure 5-14 and Figure 5-15. If necessary, ground the chassis as shown below.

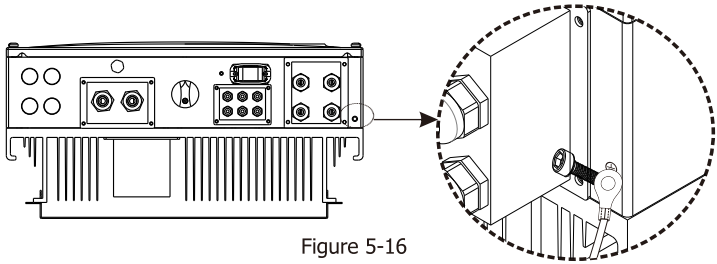


Figure 5-16

• **Wiring steps**

A. Open the AC waterproof cover and pass the AC cable through the waterproof cover locking screw hole.

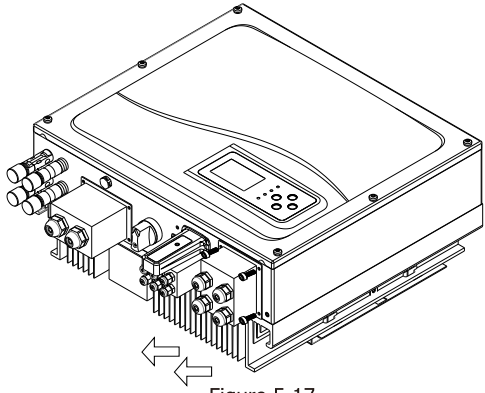


Figure 5-17

B. According to the wiring identifiers "EPS", "GRID", "E.M.IN" and "E.M.OUT", respectively, corresponding to their "L/N/PE" connected cables.

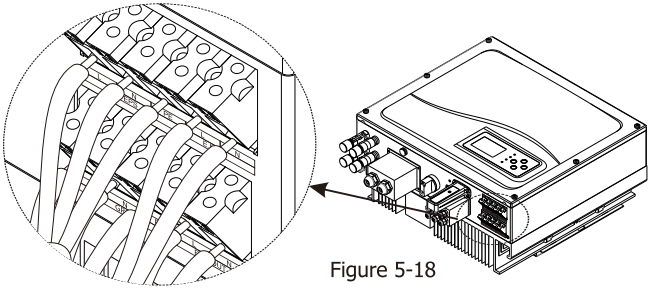


Figure 5-18

C. Secure the AC waterproof cover and tighten the connections.

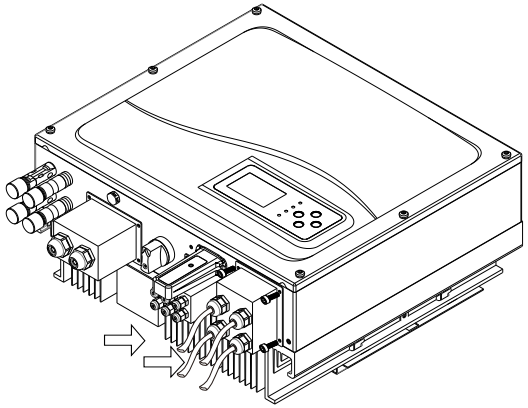


Figure 5-19

5.6.**4** Connect to PV Panel

DANGER

Risk of electric shock and fire, use only with PV modules, and with a maximum system voltage of 580Vdc.

DANGER

Electric shock hazard, the DC conductors of this PV system are normally ungrounded but will become intermittently grounded without indication when the inverter detects the PV array isolation.

DANGER

Do not disconnect the DC connectors under load.

DANGER

Because of the transformerless design, the DC positive pole and DC negative pole of PV arrays are not permitted to be grounded.

• **Connecting PV Input Power Cables**

Step1 Remove cable glands from the positive and negative connectors.

Step2 Take out metal terminals from accessory package,Wiring as illustrated in image.

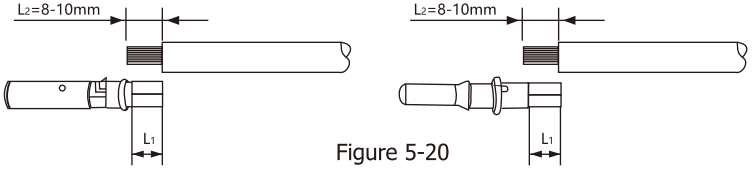


Figure 5-20

Step3 Insert the positive and negative power cables into corresponding cable glands.
Step4 Insert the stripped positive and negative power cables into the positive and negative metal terminals respectively and crimp them using a clamping tool. Ensure that the cables are crimped until they cannot be pulled out by force less than 400 N, as shown in image.

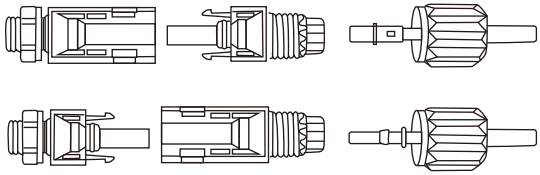


Figure 5-21

Step5 Insert the positive and negative connectors into corresponding DC input terminals of the PH5000 until you hear a "click" sound.

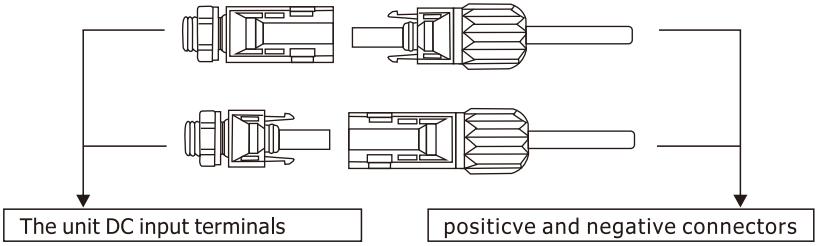


Figure 5-22

• **Conditions for DC Connection**

The PH500 single-phase inverter has 2 independent input : input A & input B.

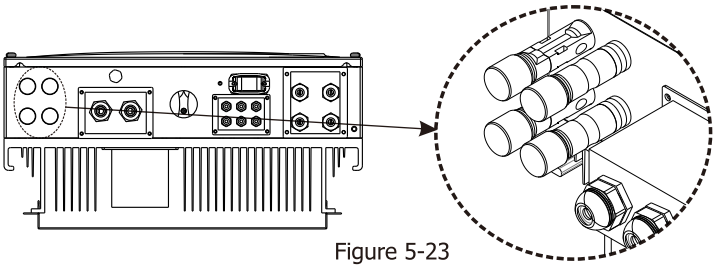


Figure 5-23

The diagram drawing of DC side is shown as below, notice that the connectors are in paired(male and female connectors). The connectors for PV arrays and inverters are H4 (yunfan) connectors.

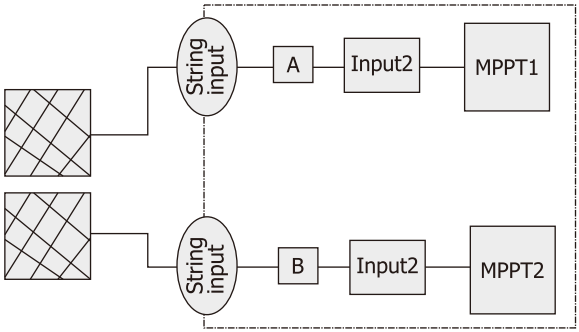


Figure 5-24

Suggestions for the PV modules of the connected strings:
A. Same type
B. Same quantity of PV modules connected in series

CAUTION
If the inverter is not equipped with a PV switch but this is mandatory in the country of installation, install an external PV switch.

The following limit values at the PV input of the inverter must not be exceeded:

Product Model	Max.current input A	Max.current input B
3.6KW	11A	11A
4.2KW	11A	11A
4.6KW	11A	11A
5KW	11A	11A

Table 5-4

- **Conditions for DC Connection**

CAUTION	Before connecting the PV array, ensure that the DC switch and AC breaker are disconnect from the inverter. NEVER connect or disconnect the DC connectors under load. Makesure the maximum open circuit voltage(Voc) of each PV stringis Less than 580Vdc. Check the design of the PV plant. The Max. open circuit voltage, which can occur at solar panels temperature of -10°C, must not exceed the Max.input voltage of the inverter.
WARNING	Improper operation during the wiring process can cause fatal injury tooperator or unrecoverable damage to the inverter. Only qualified personnel can perform the wiring work.
WARNING	Because of the transformerless design, the DC positive pole and DC negative pole of PV arrays are not permitted to be grounded.

Cable requirements:

Product Model	**Area(mm^2) B**	**AWG No.**
3.6KW	5.26~9.0	8~10
4.2KW	5.26~9.0	8~10
4.6KW	5.26~9.0	8~10
5KW	5.26~9.0	8~10

Table 5-5

5.6.5 connect to the battery

Before connecting to the battery, you much install a separate PV breaker (not less than 120A) between the inverter and battery that will ensure the inverter can be securely disconnected during maintenance.

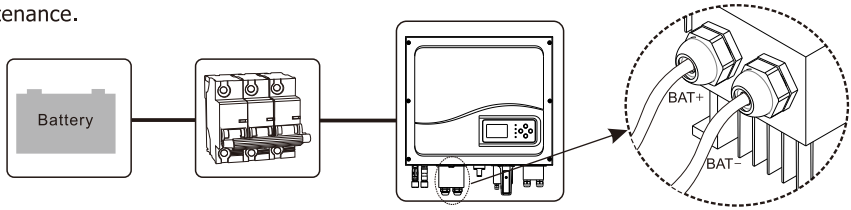


Figure 5-25

DANGER

Reversed polarity will damage the inverter!!!

It is very important for system safety and efficient operation to use appropriate cable for battery connection. To reduce risk of injury, you much use the recommended cable size, refer to the below chart.

Figure 5-26

Grade	Description	Value
A	O.D.	10~12mm
B	Conductor Material Sectional Area	20~25mm2
C	Bare Wire Length	10mm around

Table 5-6

The battery installation must comply with the manufacturer's user manual, include installing indoor or outdoor and the distance to the inverter.

The maximum charge/discharge current is 50A of the inverter, check the battery current in the spec. As the inverter's battery rated voltage is 48V, the battery series connection voltage much not exceed 48V or it will damage the inverter.

The following steps must be adhered to in order to implement the battery connection:

(1)Disconnect the breaker between inverter and battery.

(2)Check the polarity of the battery and the inverter.

(3)Compress the terminal head by professional tool.

(4)Screw the wire cable to the inverter's battery input terminal.

(5)If the inverter connects to a lead-acid type battery, you must connect BTS to the inverter, the CN8 BTS connection terminal in the COM connection port. (Figure 5-25)

(6)If the inverter connects to a lithium battery, you must connect the BMS to the CN3 BMS com. (Figure 5-27)

Note: we recommend using the appointed lithium battery, because the battery BMS communication has been designed to be compatible with the energy storage Inverter.

DANGER

Danger to life due to voltages!

Before you install the BAT. NTC, you must turn off the inverter, check all the separate breakers are off, and the inverter's LED is off. Then you can safely install the BAT.NTC terminal to the I nverter.

5.6.6 Communication terminal connection

Communication terminal as shown in the figure below:

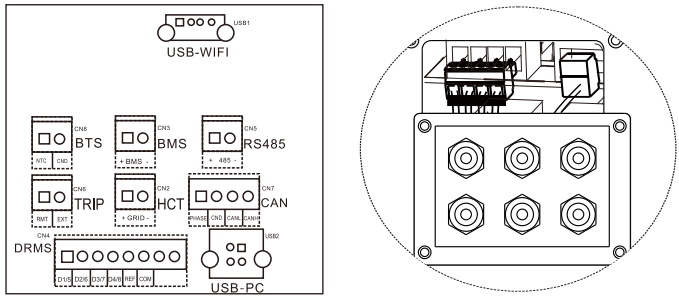


Figure 5-27

5.6.6.1 CT Load monitor connect to the inverter

In single inverter system, a CT must be installed to monitor the power of the house to decide the inverter status: charge or discharge.

The CT must be installed at the beginning from the grid to the house, in this case, the inverter can monitor all household consumption of power. According to the sensor, the inverter will control the PV power feeding to the grid to balance the level of household power use. (Figure5-9)

The CT installation directions are as follows:

- The direction of the CT-marked arrow points to the grid.
- Connect the white and black leads of the CT to the "CN2" CT terminals "+" and "-" on the COM port of the inverter. (Figure 5-27)

Note: The white line is connected with "+" and the black line with "-", it cannot be reversed.

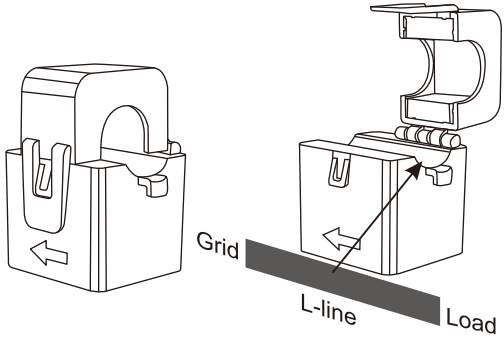


Figure 5-28

WARNING

The load monitor input L-line must be the same as the CT sensor L-line, and the input of the load monitor L&N cannot reverse. If this occurs the inverter will do the reverse direction power control, which means PV power will not store to the battery and the battery cannot discharge the power to the house load.

5.6.6.2 PC connected to inverter

Connect the USB cable to the USB2 USB-PC terminal on the inverter COM port. (Figure 5-27)

Note: Special monitoring software can be installed on the PC. You can set up and monitor the inverter by connecting the inverter via USB. Remove the communication terminal cover when connecting the PC.

5.6.6.3 The DRM0 function for SAA certification

The DMR0 function of the energy storage Inverter be provided for SAA.

The DRM0 is located on the CN6 DMR0 terminal of the inverter's front panel COM port. (See Figure 5-27)

When receive the order from DRM0 connection, the inverter will acting responding to the order, the inverter must POWER OFF or POWER ON.

6 Start-Up and shut down the inverter

6.1 Start-Up the inverter

(1) Connect the AC circuit breaker
(2) Turn on the DC switch
(3) Turn on the battery breaker
(4) The inverter will start automatically when the PV voltage is higher than 150V and the battery voltage is higher than 44V.

6.2 Turn-off the Inverter

DANGER

Do not disconnect the DC connectors under load.

Turn –off the inverter step:
(1) Disconnect the AC circuit breaker and prevent it from being reactivated.
(2) Disconnect the Battery breaker and prevent it from being reactivated.
(3) Turn off the PV switch.
(4) Check the inverter operating status.
(5) Wait until LED and LCD display has gone out, this will indicate the inverter is shut down.

7 Display panel and LCD display and settings

7.1 Display panel

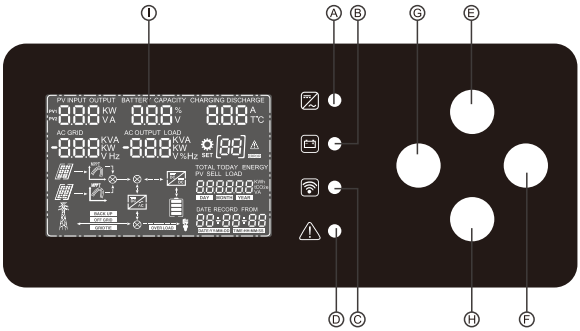


Figure 7-1

The display interface is operated by four functional buttons, which are defined as follows:

No.	Name	Describe
A	LED	Green: Normal Status
B		Yellow: Battery charge or discharge
C		Blue: Wi-Fi or GPRS Communication status
D		Red: Fault Status
E	Button	UP :UP turn or Value increase
F		ENTER :OK
G		ESC : Go to the main menu or leave the current interface
H		Down :Down turn or Value abate
I	LCD	Display machine work information

Table 7-1

7.2 LCD display and settings

7.2.1 LCD Information Definition

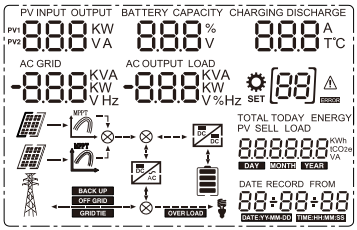


Figure 7-2

Display	Function
PV INPUT OUTPUT	Indicating the input voltage or current or power of the PV1/PV2. KW: Power; V: Voltage; A: Current.
BATTERY CAPACITY	Indicating battery voltage or percentage of battery capacity. V: Voltage; %: Percentage.
CHARGING DISCHARGE	Indicating the charge current or discharge current of battery or battery temperature of battery.
AC GRID	Indicating of power or voltage or frequency of AC Grid. KVA/KW: Power; V: Voltage; Hz: Frequency.
AC OUTPUT LOAD	Indicating AC output power or voltage or frequency or percentage with load. KVA/KW: Power; V: Voltage; Hz: Frequency; %: Loaded Percentage.
SET	Indicating setup interface page number.
	Indicating warning or Fault codes. Warning Code: . Fault Code: .
TOTAL TODAY ENERGY PV SELL LOAD DAY MONTH YEAR	Indicating of electricity generation. TOTAL ENERGY PV : Total PV input; TOTAL ENERGY SELL : Total electricity sale; TOTAL ENERGY LOAD : Total load power; TODAY ENERGY PV : PV input today; TODAY ENERGY SELL : Electricity sale today; TODAY ENERGY LOAD : Load power today;
DATE RECORD FROM	Indicating date and time.
	Indicating solar panel; Flicker refers to PV input voltage out of range.
	Indicating the state of the public grid.
	Indicating battery capacity (0-24%, 25-49%, 50-74% and 75-100%) And charging status.
	Indicating the state of the load.
	Indicating the state of charge or discharge.
	Indicating the state of the inverter or rectifier.

Table 7-2

7.2.2 LCD Display Step

The main interface is the default interface for the system, when the inverter is start on, default display primary interface. There are seven information display blocks in the main interface, (failure and energy flow chart excepted) press "UP" or "DOWN" to page for the following information:(all blocks turn over at the same time)

(1) PV input voltage, current and power.(Figure 1)

(2) Percentage of battery voltage and capacity.(Figure 2)

(3) Battery charge or discharge current, temperature.(Figure 3)

(4) Inverter output power, voltage, frequency and load current, power.(Figure 4)

(5) Electric power, voltage, current and frequency.(Figure 5)

(6) Power or total power generation.(Figure 6)

(7) Time and date.(Figure 7)

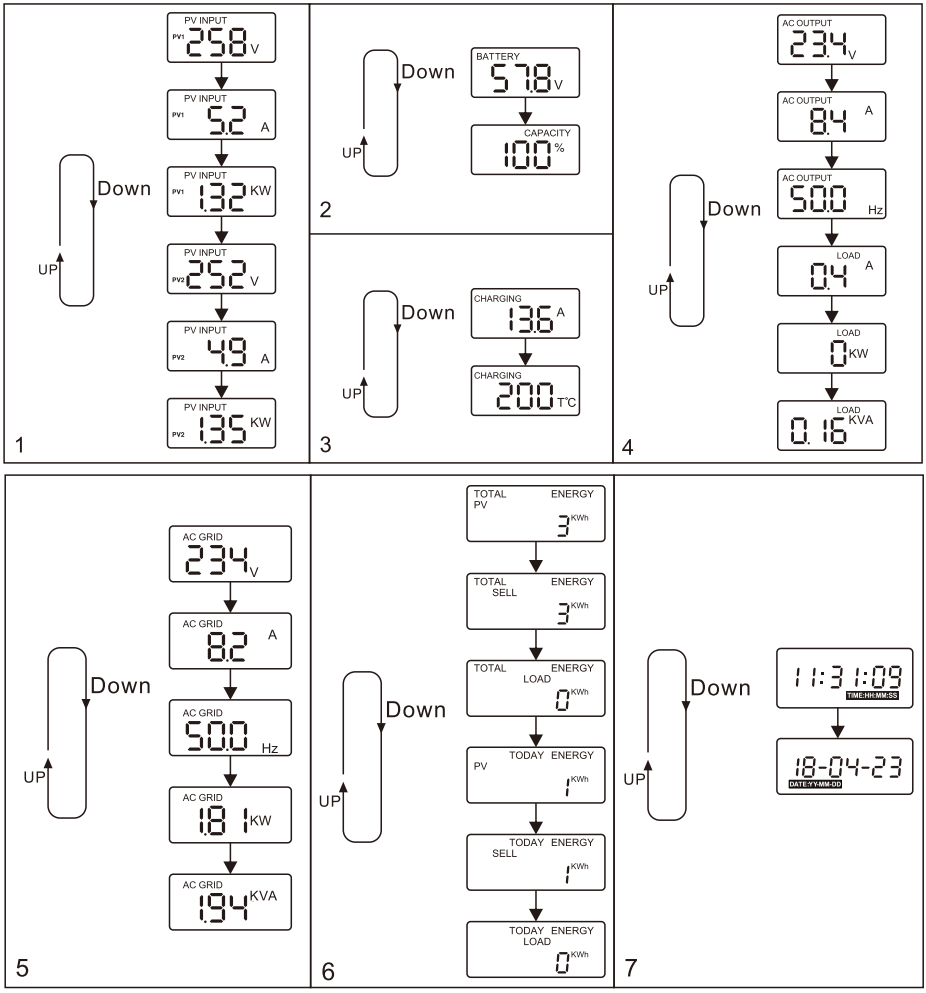
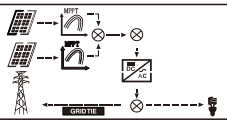
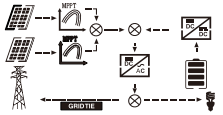
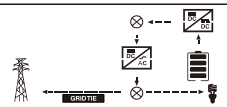
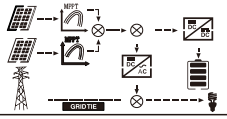
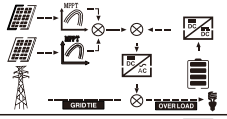
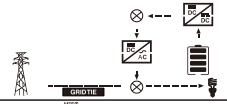
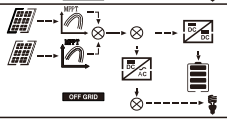
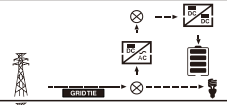
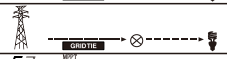
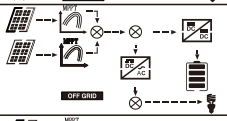
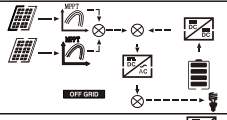
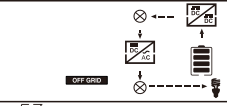


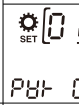
Figure 7-3

7.2.3 LCD Run status display

Run status		
Sell power to grid	Only PV supply and sell power to grid and load	
	PV and battery supply power to grid and load together	
	Only Battery supply power to grid and load	
Match Load	PV power is not enough, so only supply power to battery and load, no power to grid	
	PV and battery power supply power to load, no power to grid	
	No pv, only battery match load to supply power, no power to grid	
Battery Charge	PV supply power to load and battery charging	
	The grid supply power to battery for charging, and load	
standby	When invert happen fault, the grid supply power to load	
Off grid	PV power is enough, supply power to battery for charge , supply power to load	
	PV and battery power supply power to load	
	Only battery discharge and supply power to load	
Stop	Inverter shut down or fault happen	

7.2.4 LCD display settings

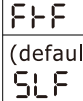
Hold down the "ESC" key for 5 seconds and enter setup mode. Press "ESC" to exit at [00] interface, press the ENTER key to enter the setup menu, Or hold down"ENTER" key for 5 seconds to enter the setup menu, enter the settings menu and press up or DOWN to select different settings, press the "ENTER" key to start the setting in the corresponding settings entry, press "up" or "DOWN" to select different settings, after setting the parameters, press "ENTER" to confirm settings and press "ESC" to cancel settings.

No.	Describe	Option	
00	Setup Mode		ESC Corresponding ESC key indicates exit; GO Corresponding Enter key represents the entry into the next interface.
01	Manual On/Off Control	(default) 	Manual shut down inverter
			Manual starting up inverter
02	User Mode		Energy storage mode 1 natural logic (1) On-grid operating conditions ① There is solar energy ●Solar: The solar energy preferentially charges the battery, the remaining energy is supplied to the load, and the remaining energy is incorporated into the grid. ●Battery: The battery is only charged and does not discharge, and only solar energy is selected to charge the battery (unless the forced AC charging time period is turned on, the utility will not actively charge the battery). ●Load: The load preferentially selects the battery to supply energy, and the insufficient energy is supplemented by the grid. ②No solar energy ●Solar: No solar energy. ●Battery: The battery only discharges and does not charge, and matches the load output energy (unless the forced AC charging time period is set, the grid will not charge the battery). ●Load: The load preferentially selects the battery to supply energy, and the insufficient power is supplemented by the grid. (2) Off-grid operating conditions ① There is solar energy When solar energy is sufficient, solar energy charges the battery and supplies energy to the load. When the solar energy is insufficient, the solar energy and the battery jointly supply energy to the load. ②No solar energy The battery provides energy separately to the load.

			2 Forced logic (1) Forced discharge time In the case of grid-connected conditions, the peak usage of the mains at noon or evening, the electricity price is high, allowing the battery to match the load discharge, and the forced logic takes precedence over the natural logic. (2) Forced charging time In the case of grid-connected conditions, late night power consumption is low, electricity prices are low, allowing the city to charge the battery, and the mandatory logic takes precedence over natural logic. Note: Forced charging logic takes precedence over forced discharge logic.
			Load priority Mode (default option) 1 On-grid operating conditions (1) There is solar energy ●Solar: The solar energy gives priority to the load, the superfluous recharges the battery, and then the surplus is fed into the power grid. ●Battery: The battery only selects solar charging. When the solar energy is sufficient, the solar energy charges the battery; when the solar energy is insufficient, the battery assists the power supply to the load. ●Load: The load priority is powered by solar energy. When the solar energy is insufficient, it is supplemented by the battery energy, and when it is insufficient, the energy is supplemented by the grid. (2) No Solar Energy ●Solar Energy: No solar energy. ●Battery: The battery is charged by the grid, and the battery energy is preferentially supplied to the load. ●Load: The load is given priority to the battery supply, which is less than the power grid supplement. 2 Off-grid operating conditions (1)There is solar energy When the solar energy is sufficient, the solar rechargeable battery supplies the load at the same time. When the solar energy is insufficient, solar energy and the battery simultaneously provide power to the load. (2)No Solar Energy The battery alone provides energy to the load. (Remark: Battery over-discharge or over-charge protection function: if the battery voltage is lower than the deep stop discharge set value, the PV and AC small current are forced to charge the battery; when the battery voltage is higher than the depth stop charge set value, the forced stop is given Charging batteries.)

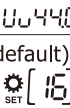
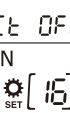
		SET 02 UPS	UPS mode UPS power supply mode 1 natural logic (1) On-grid operating conditions ①There is solar energy ●Solar: Solar energy preferentially charges the battery, excess energy is supplied to the load, and excess energy is incorporated into the grid. ●Battery:The battery is charged by the combination of solar energy and commercial power by default. You can choose to turn off the mains charging option. ●Load: The load preferentially selects the solar energy supply, and the insufficient power is supplemented by the grid. ②No solar energy -- Solar: no solar energy. --Battery: The battery is charged by the mains. -- Load: The mains supply energy to the load. (2) Off-grid operating conditions ①There is solar energy When the solar energy is insufficient, the solar energy and the battery jointly supply power to the load; when the solar energy is sufficient, the solar energy charges the battery and supplies energy to the load. ② No solar energy The battery supplies energy separately to the load. 2 Forced logic (1) Forced discharge time In the grid-connected condition, the battery must be forced to match the load discharge during the time period. (2) Forced prohibition of AC charging time In the grid-connected condition, during the time period, the battery is prohibited from being charged by the utility power.
03	Power Safety Regulation	SET 03 CodnUL	NULL
		SET 03 CodudE	VDE0126
		SET 03 CodtUu	TUV
		SET 03 CodAUS	AS4777-Australian

		SET 03 CEI0-21	CEI0-21
		SET 03 SP1663	SP1663
		SET 03 XINA1	XINA1
		SET 03 N4105	N4105
		SET 03 G83	G83
		SET 03 Ireland	Ireland
		SET 03 CGC	CGC
		SET 03 Danmark	Danmark
		SET 03 G59	G59
		SET 03 CGC_K	CGC_K
		SET 03 AS4777-New Zealand	AS4777-New Zealand
04	PV Source Input mode	(default)IND SET 04 Ind	Dual Independent input mode
		SET 04 PAr	Dual parallel input mode
		SET 04 dC	DC Source input mode

05	Selftest setting interface		tSt :test OFF :OFF Don't start CEI Self test function
			tSt :test On :ON start CEI Self test function
	Testing Procedure	(default) 	SLF :self tSt :test uOL :voltage Hi 2 :High 2 CEI self test for 59.S2
			SLF :self tSt :test uOL :voltage Hi 1 :High 1 CEI self test for 59.S1
		(default) 	SLF :self tSt :test uOL :voltage LO1 :Low 1 CEI self test for 27.S1
		(default) 	SLF :self tSt :test FrE :Frequency Hi 2 :High 2 CEI self test for 81>.S2
		(default) 	SLF :self tSt :test FrE :Frequency Hi 1 :High 2 CEI self test for 81>.S2
		(default) 	SLF :self tSt :test FrE :Frequency LO1 :Low 1 CEI self test for 81<.S2
		(default) 	SLF :self tSt :test FrE :Frequency LO2 :Low 2 CEI self test for 81<.S2
			SLF :self tSt :test PASS :pass CEI self test finish, and pass, when the test fail, it will display FAIL
06	Self test report		rPt :report OFF :OFF Don't check CEI Self test report record
			rPt :report On :ON check CEI Self test report record

	Check the self test report	tSt rPt uH2 264v 264v PS 200mS 195 mS	tSt :test rPt :report uH2 :voltage high 2 264v :264V(Setting value) 264v :264V(test value) PS :Pass 200mS :200ms(Setting value) 195mS :195ms(test value) Show CEI Self test report for 59.S2, when this test fail, it will display FAIL
		tSt rPt uH 1 253v 253v PS 200mS 198mS	tSt :test rPt :report uH 1 :voltage high 1 253v :253V(Setting value) 253v :253V(test value) PS :Pass 200mS :200ms(Setting value) 198mS :198ms(test value) Show CEI Self test report for 59.S2, when this test fail, it will display FAIL
		tSt rPt uL 1 195v 195v PS 400mS 391mS	tSt :test rPt :report uL 1 :voltage low 1 253v :195V(Setting value) 253v :195V(test value) PS :Pass 400mS :400ms(Setting value) 391mS :391ms(test value) Show CEI Self test report for 27.S2, when this test fail, it will display FAIL
		tSt rPt FH2 51.5Hz 51.5Hz PS 100mS 93 mS	tSt :test rPt :report FH2 :frequency High 2 51.5Hz :51.5Hz(Setting value) 51.5Hz :51.5Hz(test value) PS :Pass 100mS :100ms(Setting value) 93mS :93ms(test value) Show CEI Self test report for 81>.S2, when this test fail, it will display FAIL
		tSt rPt FH 1 50.5Hz 50.5Hz PS 100mS 98 mS	tSt :test rPt :report FH 1 :frequency High 1 50.5Hz :50.5Hz(Setting value) 50.5Hz :50.5Hz(test value) PS :Pass 100mS :100ms(Setting value) 98mS :98ms(test value) Show CEI Self test report for 81>.S2, when this test fail, it will display FAIL

		tSt rPt FL1 49.5 Hz 49.5 Hz PS 100MS 95 MS	tSt :test rPt :report FL1 :frequency High 1 49.5 Hz :49.5Hz(Setting value) 49.5 Hz :49.5Hz(test value) PS :Pass 100MS :100ms(Setting value) 95MS :95ms(test value) Show CEI Self test report for 81<.S2, when this test fail, it will display FAIL
		tSt rPt FL2 47.5 Hz 47.5 Hz PS 100MS 92 MS	tSt :test rPt :report FL2 :frequency low 2 47.5 Hz :47.5Hz(Setting value) 47.5 Hz :47.5Hz(test value) PS :Pass 100MS :100ms(Setting value) 92MS :92ms(test value) Show CEI Self test report for 81<.S2, when this test fail, it will display FAIL
07	Battery type selection	(default)Lead SET 07 LEAd	Lead-acid Battery
		Lithium SET 07 LI U	Lithium Battery NOTE: Lithium Battery no BMS communication required
		Lithium SET 07 LI S	Lithium Battery NOTE: Lithium Battery BMS communication required
08	Battery capacity (AH)	Lead SET 08 LI EUN100	Range from 0-900, every time add 10, NOTE: must same as the lead battery real capacity
		Lithium SET 08 LEAd100	Set will not take effect, get from BMS information
09	BCC Battery charge current limit	(default) SET 09 bCC 100	Range from 0% - 100%, 100% mean 50A NOTE: In the LI U mode, the maxinum setting current of the battery is 0.2c, otherwise it is easy trigger the battery protection or even damage.

10	Battery stop discharge SOC	Lithium  	Range from 0% - 100%, only fit lithium battery
11	BSV Battery stop discharge voltage	(default)48.5V  	Range from 40V-59V, must fit the battery to set value, the value must higher than Low voltage Protect 1V
12	BCV Battery const charge voltage	(default)54.5V  	Range from 40V-59V, must fit the battery to set value, the value must lower than High voltage Protect 1V
13	BFV Battery float charge voltage	(default)55.5V  	Range from 40V-59V, must fit the battery to set value, the value must lower than High voltage Protect 1V
14	BOV Battery High voltage Protect	(default)56.5V  	Range from 40V-59V, must fit the battery to set value, the value must higher than const/float charge voltage 1V
15	Battery Low voltage Protect	(default)44.0V  	Range from 40V-59V, must fit the battery to set value, the value must lower than stop discharge voltage 1V
16	CT anti-flux Enable	(default)OFF  	Set anti-flux Disable function
		ON  	Set anti-flux Enable function
17	Inverter frequency	 	The mains frequency is 50 Hz.
		 	The mains frequency is 60 Hz.
18	Reset fuction	 	Restore some factory default settings Note：Effective settings in standby mode

7.3 Use Wi-Fi parameter settings

With the Wi-Fi app, you can go through the local mode to set up the battery parameters, and the grid charging time, inverter discharging time etc. If you are not setting parameters, the inverter will work in default mode.

WARNING

Ensure that all wire connections are OK before turning on the battery breaker and the AC breaker. The PV switch should be turned on first to light the inverter and the battery parameters must be set according to your battery system and work status times. Otherwise the inverter will work at default status that may not conform to the battery voltage and the capacity.

8 Communication

This energy storage inverter uses Wi-Fi as the standard wireless communication. For details on the connection method, please refer to the "Wi-Fi Plug14 Data Acquisition Quick Installation Guide".

9 Trouble shooting

Sometimes, the PV inverter does not work normally, we recommend the following solutions for common troubleshooting. The following table can help the technician to understand the problem and take action.

error code	Error message	Description	Suggestion
01	N/A		
02	BMS Communication Fault	BMS Communication Fault	1.Check whether the BMS communication interface connection is normal and re-plug the BMS communication line. 2.If error message still exists, contact the installation contractor or supplier.
03	No BAT Fault	No BAT Fault	1.Check if the battery terminal is connected properly 2.Check battery voltage is very low, if true, change the battery 3.If error message still exists, contact the installation contractor or supplier.
04	Backup Overload Fault	Backup Overload Fault	1.Check whether the EPS access load exceeds the inverter load range. 2.If error message still exists, contact the installation contractor or supplier.
05	Charger Temperature fault	Charger Temperature fault	1.Check the operating environment of the inverter. 2.Check if the internal NTC is connected properly. 3.If error message still exists, contact the installation contractor or supplier.
06	Battery Temperature fault	Battery Temperature fault	1. Check the battery environment. 2. Check if the external NTC is connected properly. 3. If the battery is a lithium battery, restart the lithium battery BMS to see if the fault is eliminated. 4.If error message still exists, contact the installation contractor or supplier.

07	Charger Fault	Charger over-voltage or over-current fault	1.If the battery is configured as a lithium battery, restart the lithium battery BMS to see if the fault is eliminated. 2.If the fault is not eliminated, or if it is configured as a lead-acid battery, restart the inverter and see if the fault is eliminated. 3.If error message still exists, contact the installation contractor or supplier.
08	Soft Up Fail Fault	Charger soft start failure	1.Restart inverter. 2.If error message still exists, contact the installation contractor or supplier.
12	CET Self Test Fail	CEI self-test failed	1.Restart inverter. 2.If error message still exists, contact the installation contractor or supplier.
13	STMF103 Com Fault	Control board chip communication failure	1.Restart inverter. 2.If error message still exists, contact the installation contractor or supplier.
14	Only Gird Input Faul	Only Gird Input Fault	Increase Battery or Pv input.
17	Inverter Frequency Fault	Inverter Frequency Fault	1.Restart inverter. 2.If error message still exists, contact the installation contractor or supplier.
18	Relay Fault	Rely error	1.Restart inverter. 2.If error message still exists, contact the installation contractor or supplier.
19	Output Voltage Fault	Output Voltage Fault	1.Restart inverter. 2.If error message still exists, contact the installation contractor or supplier.
20	GFCI Damage	GFCI Device Damage	1.Restart inverter. 2.If error message still exists, contact the installation contractor or supplier.
21	Hall Sensor Fault	HCT fault	1.Restart inverter. 2.If error message still exists, contact the installation contractor or supplier.
22	Communication Fault	CPU communication fault	1.Restart inverter. 2.If error message still exists, contact the installation contractor or supplier.
23	Bus Voltage Fault	Bus overvoltage fault	1.Check if the PV voltage exceeds the inverter input voltage range. 2.Restart the inverter. 3.If error message still exists, contact the installation contractor or supplier.
24	Inverter Current Fault	Inverter over current fault	1.Restart inverter. 2.If error message still exists, contact the installation contractor or supplier.

25	No Utility	No utility grid connected or utility grid power failure.	1.Check AC wiring, especially the ground wire. 2.If error message still exists, contact the installation contractor or supplier.
26	PV ISO Fault	Insulation problem	1.Check if panel enclosure ground properly. 2.Check if inverter ground properly. 3.Check if the DC breaker gets wet. 4.If the error message is displayed despite the above checking passed, contact the installation contractor or supplier.
27	GFCI High		1.Restart inverter. 2.If error message still exists, contact the installation contractor or supplier.
28	DCI High	Output current DC offset too high	1.Restart inverter. 2.If error message still exists, contact the installation contractor or supplier.
29	PV High Fault	The DC input voltage is exceeding the Maximum tolerable value.	1.Disconnect the DC switch immediately. 2.If error message still exists, contact the installation contractor or supplier.
30	Grid Voltage Faul	Utility grid voltage is out of permissible range.	1.Check grid voltage. 2.If the error message still exists despite the grid voltage being within the tolerable range, contact the installation contractor or supplier.
31	Grid Frequency Fault	Utility grid Frequency out of permissible range.	1.Check grid frequency. 2.If the error message is displayed despite the grid frequency being within the tolerable range, contact the installation contractor or supplier.
32	Inverter temperature fault	NTC error	1.Restart inverter. 2.If error message still exists, contact the installation contractor or supplier.

Table 9-1

Note:If the suggestions do not work, please connect to the the installation contractor or supplier

10 Maintenance and Cleaning

10.1 Checking Heat Dissipation

If the inverter regularly reduces its output power due to high temperature, please improve the heat dissipation conditions. The heat sink may need to be cleaned as part of this process.

10.2 Cleaning the Inverter

If the inverter is dirty, turn-off the AC breaker and DC switch, waiting the inverter shut down ,then clean the enclosure lid, the display, and the LCD using only a wet cloth. Do not use any cleaning agents.(e.g. solvents or abrasives)

10.3 Checking the DC Disconnect

Check for externally visible damage and discoloration of the breaker and the cables at regular intervals. If there is any visible damage to the breaker, or visible discoloration or damage to the cables, please contact professional staff for maintenance.

Once a year, turn the rotary switch of the DC switch from the ON position to the OFF position 5 times in succession. This cleans the contacts of the rotary switch and prolongs the electrical endurance of the DC Disconnect.

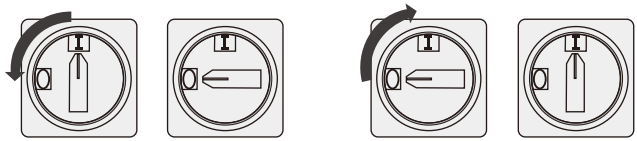


Figure 10-1

11 Decommissioning

11.1 Dismantling the Inverter

(1)Disconnect the inverter from the grid, PV and battery.
(2)Remove all connection cables from the inverter.
(3)Screw off all projecting cable glands.
(4)Lift the inverter off the bracket and unscrew the bracket screws.

WARNING

Danger of burn injuries due to hot enclosure parts!
Wait 20 minutes before disassembling until the housing has cooled down.

11.2 Packing the Inverter

If possible, always pack the inverter in its original carton and secure it with tension belts. If it is no longer available, you can also use an equivalent carton. The box must be capable of being closed completely and supporting both the weight and the size of the inverter.

11.3 Storing the Inverter

Store the inverter in a dry place where ambient temperatures are always between -25°C and +60°C.

11.4 Disposing of the Inverter

Do not dispose of faulty inverters or accessories together with household waste. Please comply with the disposal regulations for electronic waste which apply at the installation site at that time. Ensure that the old unit and any accessories are disposed of in a proper manner.

12 Working status

According to different conditions, The energy storage inverter mainly has the following kinds of working status.

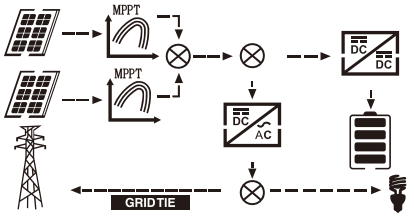
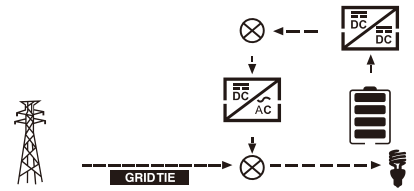
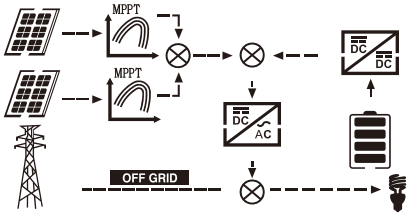
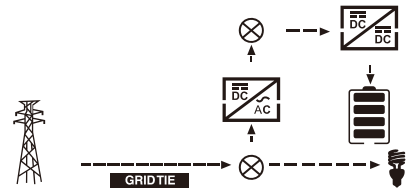
description	LCD display operation diagram
State 1: The energy produced by the PV system is used to optimize self-consumption. The excess energy is used to recharge the batteries, then exported to grid.	
State 2: When there is no PV, and the battery is sufficient, it can supply the load together with grid power.	
State 3: When grid fails, the system automatically switches to offline grid mode. The EPS load can be supported by PV and battery.	
State 4: Battery can be force charged by grid, and charging time/power can be set flexibly on PV Master APP.	

Table 12-1

13 specification

MODEL	3.6KW	4.2KW	4.6KW	5KW
RATED POWER(W)	3600	4200	4600	5000
PV INPUT(DC)				
Maximum recommended DC power(W)	4100	4800	5300	5750
Nominal DC operating voltage(V)	360	360	360	360
Maximum DC voltage(V)	550	550	550	550
Full Load Voltage range(tracker A/B)	173～500	204～500	218～500	238～500
Start voltage(V)①	120	120	120	120
MPPT voltage range(V)	120～550	120～550	120～550	120～550
Maximum input current(A)	11/11	11/11	11/11	11/11
No.of MPP tracker	2	2	2	2
Strings per MPP tracker	1	1	1	1
GRID OUTPUT(AC)				
Nominal AC output power(W)	3600	4200	4600	5000
Nominal output voltage(V);range(V)	220/230/240;180-280	220/230/240;180-280	220/230/240;180-280	220/230/240;180-280
AC gridfrequency(Hz); range(Hz)	50/60;45～55/55-65	50/60;45～55/55-65	50/60;45～55/55-65	50/60;45～55/55-65
Nominal output current(A)	15.7	18.3	20.0	21.8
Maximum output current(A)	16.4	19.1	21.0	22.8
Inrush current (spike/duration)	57.5A/5.2us	57.5A/5.2us	57.5A/5.2us	57.5A/5.2us
Total harmonic distortion i(THDi)	＜3%	＜3%	＜3%	＜3%
Power factor at rated power	1	1	1	1
Displacement power factor	0.8leading～0.8lagging	0.8leading～0.8lagging	0.8leading～0.8lagging	0.8leading～0.8lagging
Grid type	Single phase	Single phase	Single phase	Single phase
BATTERY MODE OUTPUT(AC)				
Output Rated power(VA)	2300	2300	2300	2300
Nominal output voltage(V);accuracy range	230;±1%	230;±1%	230;±1%	230;±1%

Output frequency(Hz); accuracy range	50/60(optional); ±0.2%	50/60(optional); ±0.2%	50/60(optional); ±0.2%	50/60(optional); ±0.2%
Output rated current(A)	10	10	10	10
Output waveform	Pure sine wave	Pure sine wave	Pure sine wave	Pure sine wave
Peak power(VA)	3450,10s	3450,10s	3450,10s	3450,10s
Total harmonic distortion v(linear load)	＜3%	＜3%	＜3%	＜3%
BATTERY & CHARGER				
Battery type	Lead-acid battery/ Lithium battery	Lead-acid battery/ Lithium battery	Lead-acid battery/ Lithium battery	Lead-acid battery/ Lithium battery
Nominal DC voltage(V)	48	48	48	48
Battery voltage range(V)	40～60	40～60	40～60	40～60
Charging curve	3-stage adaptive with maintenance	3-stage adaptive with maintenance	3-stage adaptive with maintenance	3-stage adaptive with maintenance
Over-current protection/Over-temperature protection	YES/YES	YES/YES	YES/YES	YES/YES
Maximum charging rated power(W)	2500	2500	2500	2500
Maximum charging current(A)	50	50	50	50
Efficiency				
Maximum efficiency	97.1%	97.1%	97.1%	97.1%
Euro-efficiency	96.5%	96.5%	96.5%	96.5%
MPPT efficiency	99.5%	99.5%	99.5%	99.5%
PROTECTION DEVICES				
DC reverse polarity protection	Yes	Yes	Yes	Yes
DC switch rating for each MPPT	Yes	Yes	Yes	Yes
Output over current protection	Yes	Yes	Yes	Yes
Output overvoltage protection-varistor	Yes	Yes	Yes	Yes
Ground fault monitoring	Yes	Yes	Yes	Yes
Grid monitoring	Yes	Yes	Yes	Yes
Integrated all-pole sensitive leakage current	Yes	Yes	Yes	Yes

Table 13-1

Note: *(1) Backup output power depends on of the battery.*
(2) Specifications are subject to change without further notice.

14 Contact

If you have technical problems about our products, contact the installation contractor or supplier . We need the following information in order to provide you with the necessary assistance:

- Inverter type;
- Inverter error messages;
- Inverter LED & LCD display;
- Type and number of PV modules connected;
- Optional equipment.

USER'S MANUAL

Energy Storage Inverter

Please download the software □SolarPowerMonitor2.2.81 .

Oversea:https://en.must-ee.com

4200-050308-01A1