



# Hybrid Inverter

SUN-3.6K-SG05LP1-AU

SUN-5K-SG05LP1-AU

SUN-6K-SG05LP1-AU

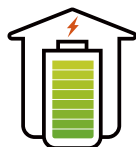
SUN-7.6K-SG05LP1-AU

SUN-8K-SG05LP1-AU

## User Manual



Authorized Distributor



**JOULE  
POWER**

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## About This Manual

The manual mainly describes the product information, guidelines for installation, operation and maintenance. The manual cannot include complete information about the photovoltaic (PV) system.

## How to Use This Manual

Read the manual and other related documents before performing any operation on the inverter. Documents must be stored carefully and be available at all times.

**Contents may be periodically updated or revised due to product development. The information in this manual is subject to change without notice.** The latest manual can be acquired via [service@deye.com.cn](mailto:service@deye.com.cn)

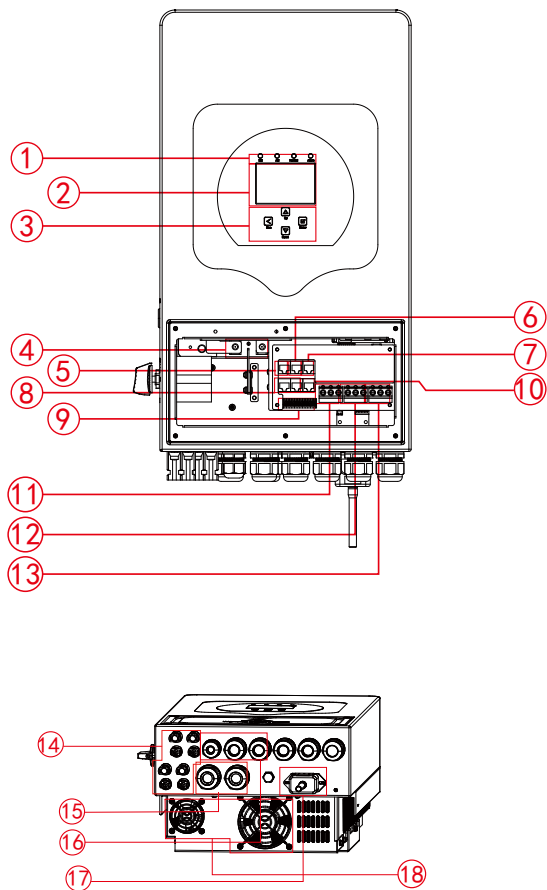
## 1. Safety Introductions

- This chapter contains important safety and operating instructions. Read and keep this manual for future reference.
- Before using the inverter, please read the instructions and warning signs of the battery and corresponding sections in the instruction manual.
- Do not disassemble the inverter. If you need maintenance or repair, take it to a professional service center.
- Improper reassembly may result in electric shock or fire.
- To reduce risk of electric shock, disconnect all wires before attempting any maintenance or cleaning. Turning off the unit will not reduce this risk.
- Caution: Only qualified personnel can install this device with battery.
- Never charge a frozen battery.
- For optimum operation of this inverter, please follow required specification to select appropriate cable size. It is very important to correctly operate this inverter.
- Be very cautious when working with metal tools on or around batteries. Dropping a tool may cause a spark or short circuit in batteries or other electrical parts, even cause an explosion.
- Please strictly follow installation procedure when you want to disconnect AC or DC terminals. Please refer to "Installation" section of this manual for the details.
- Grounding instructions - this inverter should be connected to a permanent grounded wiring system. Be sure to comply with local requirements and regulation to install this inverter.
- Never cause AC output and DC input short circuited. Do not connect to the mains when DC input short circuits.

## 2. Product Introduction

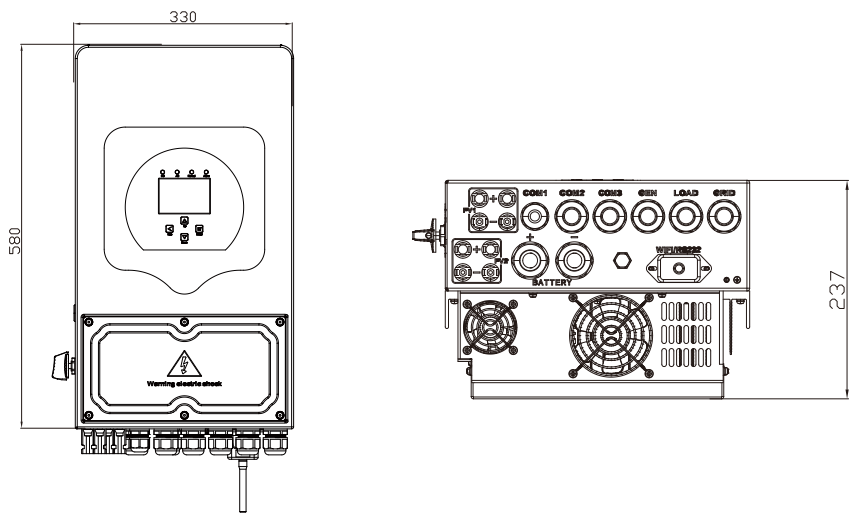
This is a multifunctional inverter, combining functions of inverter, solar charger and battery charger to offer uninterruptible power support with portable size. Its comprehensive LCD display offers user configurable and easy accessible button operation such as battery charging, AC/solar charging, and acceptable input voltage based on different applications.

## 2.1 Product Overview

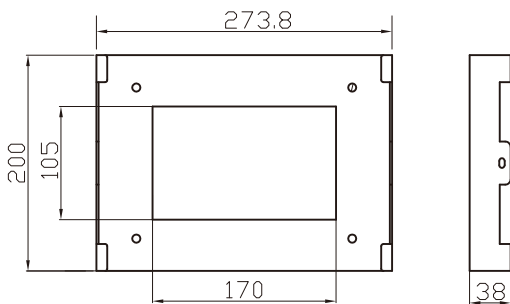


- |  |                     |                            |
|--|---------------------|----------------------------|
| 1: Inverter Indicators   | 7: DRM Port         | 14: PV input with two MPPT |
| 2: LCD display   | 8: Parallel port    | 15: Battery                |
| 3: Function Buttons  | 9: Function Port    | 16: Temperature sensor     |
| 4: Battery input connectors  | 10: RS 485 Port     | 17: WiFi Interface         |
| 5: BMS 485 Port  | 11: Generator input |                            |
| 6: BMS CAN Port  | 12: Load            |                            |
|  | 13: Grid            |                            |
| 18: fan (*Note: For some hardware version, it doesn't have this fan) |                     |                            |

2.2 Product Size



Inverter Size



Mounting bracket

## 2.3 Product Features

- Self-consumption and feed-in to the grid.
- Auto restart while AC is recovering.
- Programmable supply priority for battery or grid.
- Programmable multiple operation modes: On grid, off grid and UPS.
- Configurable battery charging current/voltage based on applications by LCD setting.
- Configurable AC/Solar/Generator Charger priority by LCD setting.
- Compatible with mains voltage or generator power.
- Overload/over temperature/short circuit protection.
- Smart battery charger design for optimized battery performance
- With limit function, prevent excess power overflow to the grid.
- Supporting WIFI monitoring and build-in 2 strings of MPPT trackers
- Smart settable three stages MPPT charging for optimized battery performance.
- Time of use function.
- Smart Load Function.

## 2.4 Basic System Architecture

The following illustration shows basic application of this inverter.

It also includes following devices to have a Complete running system.

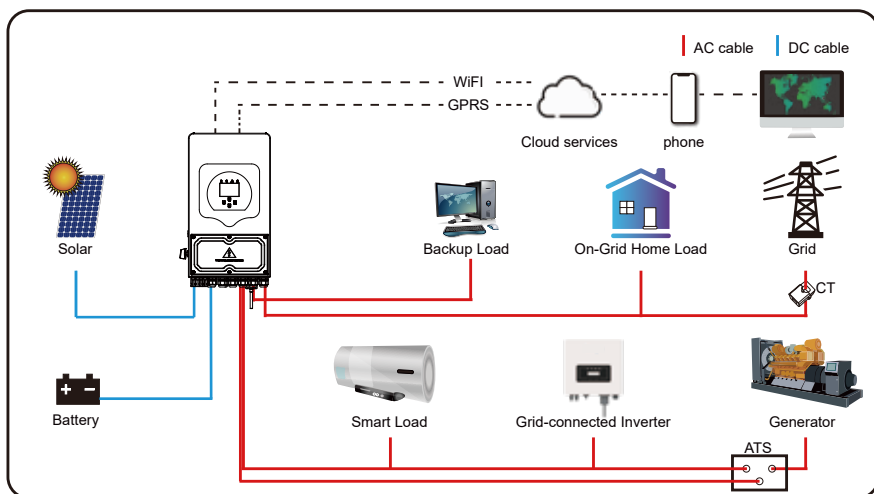
- Generator or Utility
- PV modules

Consult with your system integrator for other possible system architectures depending on your requirements.

This inverter can power all kinds of appliances in home or office environment, including motor type appliances such as refrigerator and air conditioner.

## 2.5 Maintenance of the System

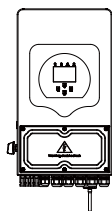
The inverter is low maintenance, however, it is important that at least twice a year (for dusty environments this may need to be carried out weekly) all the cooling fans, air ducts are cleaned and dust free. Check if there are no fault codes and Lithium battery communication is correct. Weekly cleaning statement: Suggest micromesh filters as an available option.



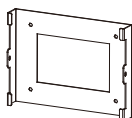
## 3. Installation

### 3.1 Parts List

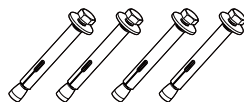
Check the equipment before installation. Please make sure nothing is damaged in the package. You should have received the items in the following package:



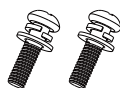
Hybrid inverter  
x1



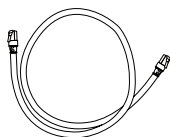
Wall mounting bracket x1



SSstainless steel anti-collision  
bolt M6\*60x4



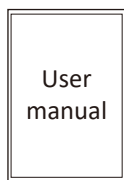
Stainless steel mounting  
screws M4\*12x2



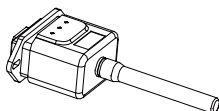
Parallel communication  
cable x1



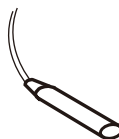
L-type Hexagon wrench  
x1



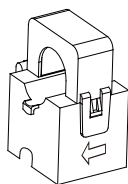
User manual x1



Wi-Fi-Plug x1



Battery temperature sensor  
x1



Sensor Clamp  
x 1

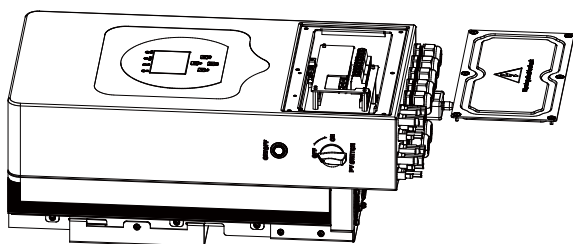
## 3.2 Mounting instructions

### Installation Precaution

This Hybrid inverter is designed for outdoor use(IP65), Please make sure the installation site meets below conditions:

- Not in direct sunlight
- Not in areas where highly flammable materials are stored.
- Not in potential explosive areas.
- Not in the cool air directly.
- Not near the television Antenna or antenna cable.
- Not higher than altitude of about 2000 meters above sea level.
- Not in environment of precipitation or humidity(>95%)

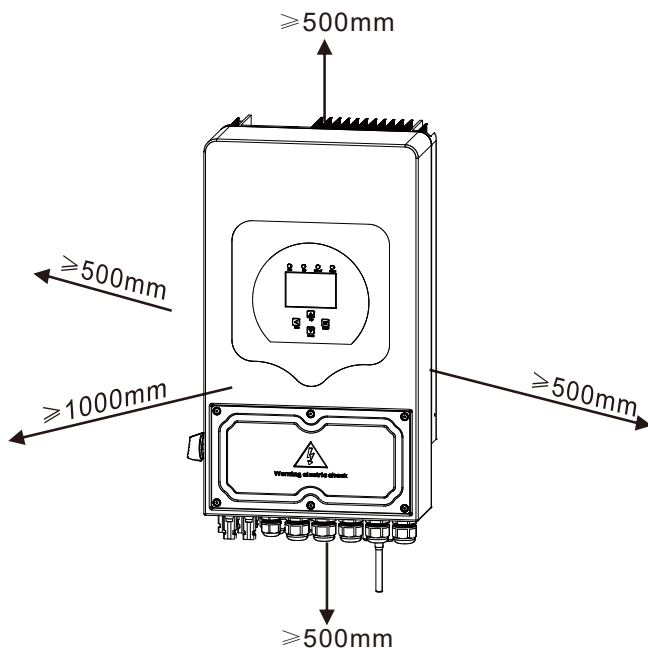
Please AVOID direct sunlight, rain exposure, snow laying up during installation and operation. Before connecting all wires, please take off the metal cover by removing screws as shown below:



### Considering the following points before selecting where to install:

- Please select a vertical wall with load-bearing capacity for installation, suitable for installation on concrete or other non-flammable surfaces, installation is shown below.
- Install this inverter at eye level in order to allow the LCD display to be read at all times.
- The ambient temperature should be between  $-25^{\circ}\text{C}$  to  $60^{\circ}\text{C}$  to ensure optimal operation.
- Be sure to keep other objects and surfaces as shown in the diagram to guarantee sufficient heat dissipation and have enough space for removing wires.



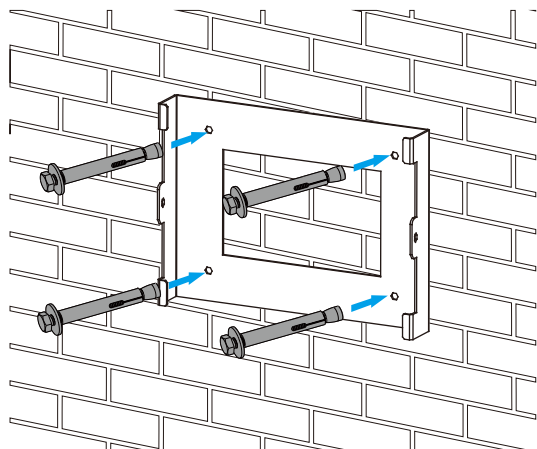


For proper air circulation to dissipate heat, allow a clearance of approx. 50cm to the side and approx. 50cm above and below the unit. And 100cm to the front.

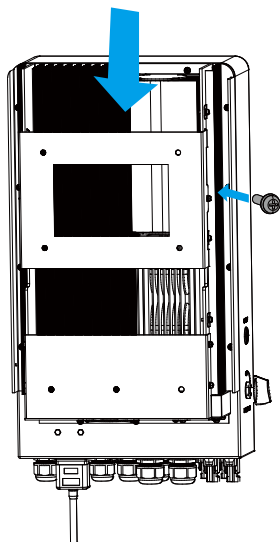
## Mounting the inverter

Remember that this inverter is heavy! Please be careful when lifting out from the package. Choose the recommend drill head(as shown in below pic) to drill 4 holes on the wall, 62-70mm deep.

1. Use a proper hammer to fit the expansion bolt into the holes.
2. Carry the inverter and holding it, make sure the hanger aim at the expansion bolt, fix the inverter on the wall.
3. Fasten the screw head of the expansion bolt to finish the mounting.



Inverter hanging plate installation



### 3.3 Battery connection

For safe operation and compliance, a separate DC over-current protector or disconnect device is required between the battery and the inverter. In some applications, switching devices may not be required but over-current protectors are still required. Refer to the typical amperage in the table below for the required fuse or circuit breaker size.

<i>Model</i>	<i>Wire Size</i>	<i>Cable(mm<sup>2</sup>)</i>	<i>Torque value(max)</i>	<i>Recommended DC breaker</i>
3.6Kw	2AWG	33.62	5.2Nm	150A
5Kw	2AWG	33.62	5.2Nm	150A
6Kw	2AWG	33.62	5.2Nm	200A
7.6Kw	1AWG	42.41	24.5Nm	225A
8Kw	1AWG	42.41	24.5Nm	225A

Chart 3-2 Cable size



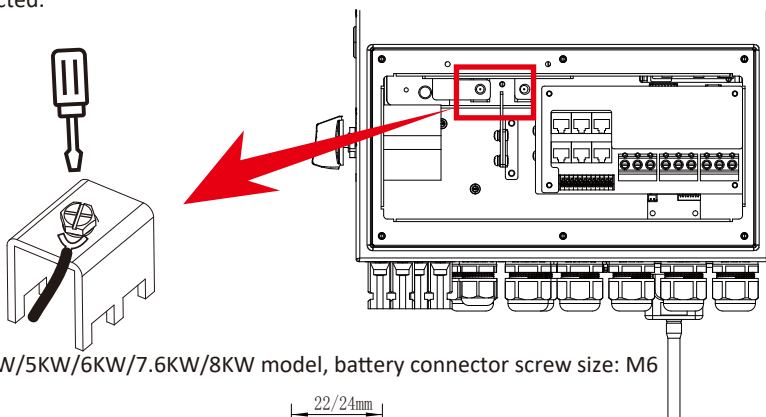
All wiring must be performed by a professional person.



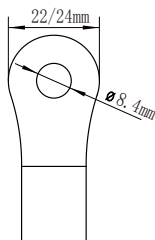
Connecting the battery with a suitable cable is important for safe and efficient operation of the system. To reduce the risk of injury, refer to Chart 3-2 for recommended cables.

Please follow below steps to implement battery connection:

1. Please choose a suitable battery cable with correct connector which can well fit into the battery terminals.
2. Use a suitable screwdriver to unscrew the bolts and fit the battery connectors in, then fasten the bolt by the screwdriver, make sure the bolts are tightened with torque of 5.2 N.M in clockwise direction.
3. Make sure polarity at both the battery and inverter is correctly connected.



For 3.6KW/5KW/6KW/7.6KW/8KW model, battery connector screw size: M6



DC Battery Input 1/2AWG Wire Size

4. In case of children touch or insects go into the inverter, Please make sure the inverter connector is fasten to waterproof position by twist it clockwise.

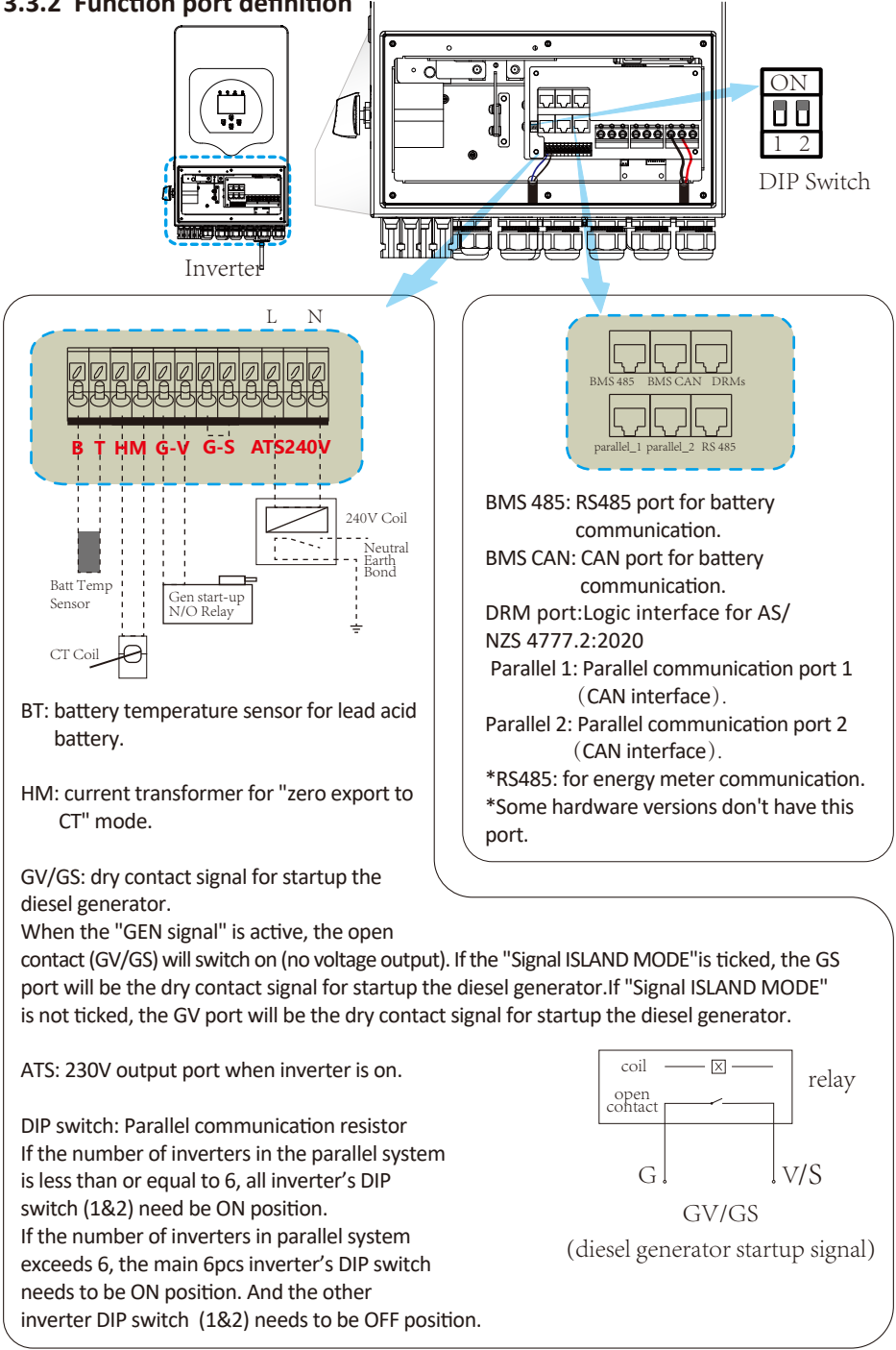


Installation must be performed with care.

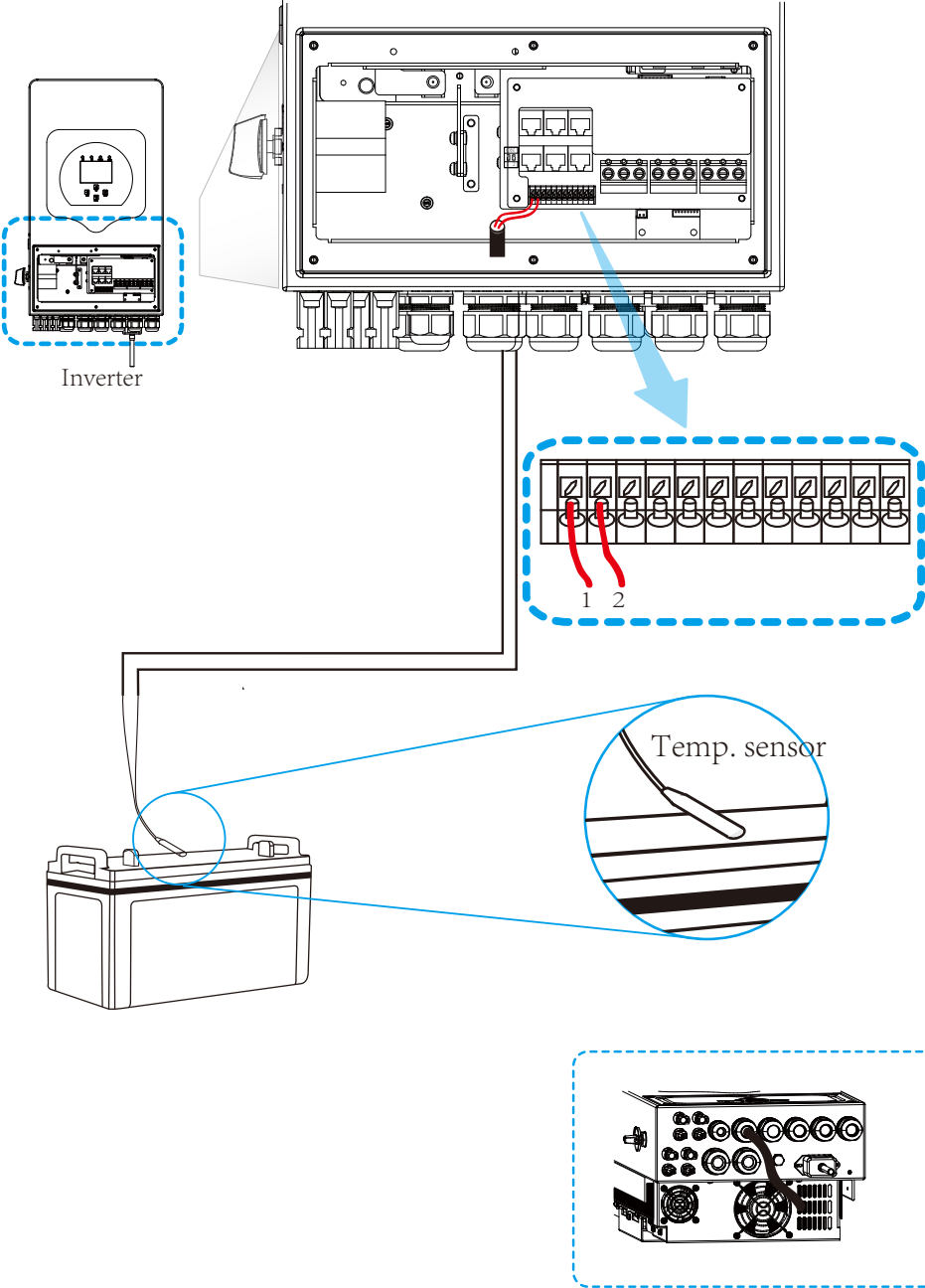


Before making the final DC connection or closing DC breaker/disconnect, be sure positive(+) must be connect to positive(+) and negative(-) must be connected to negative(-). Reverse polarity connection on battery will damage the inverter.

3.3.2 Function port definition



3.3.3 Temperature sensor connection for lead-acid battery



### 3.4 Grid connection and backup load connection

- Before connecting to grid, please install a separate AC breaker between inverter and grid. Also, it is recommended to install an AC breaker between backup load and inverter. This will ensure the inverter can be securely disconnected during maintenance and fully protected from over current. For the 3.6/5/6/7.6/8KW model, the recommended AC breaker for backup load is 32A. For the 3.6/5/6/7.6/8KW model, the recommended AC breaker for grid is 40A. In final installation, breaker certified according to AS60947.3 shall be installed with the equipment
- There are three terminal blocks with "Grid" "Load" and "GEN" markings. Please do not misconnect input and output connectors.



All wiring must be performed by a qualified personnel. It is very important for system safety and efficient operation to use appropriate cable for AC input connection. To reduce risk of injury, please use the proper recommended cable as below.

backup load connection

Model	Wire Size	Cable(mm <sup>2</sup> )	Torque value(max)	Recommended AC breaker
3.6Kw	12AWG	4	1.2Nm	32A
5Kw	10AWG	6	1.2Nm	32A
6Kw	10AWG	6	1.2Nm	32A
7.6Kw	10AWG	6	1.2Nm	50A
8Kw	10AWG	6	1.2Nm	50A

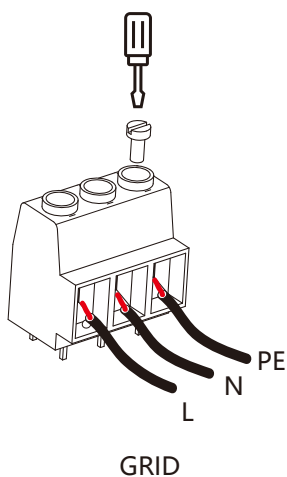
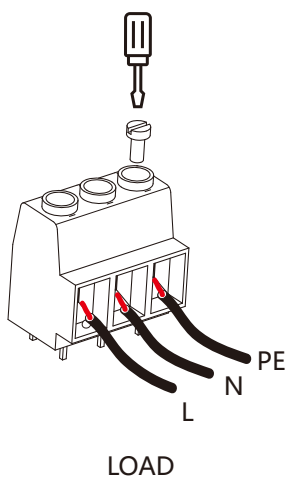
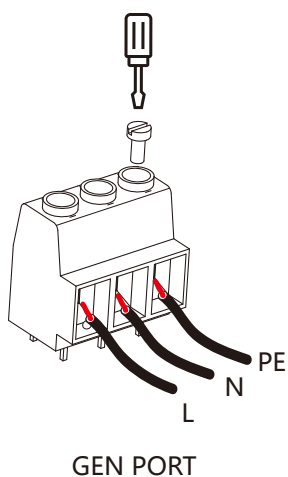
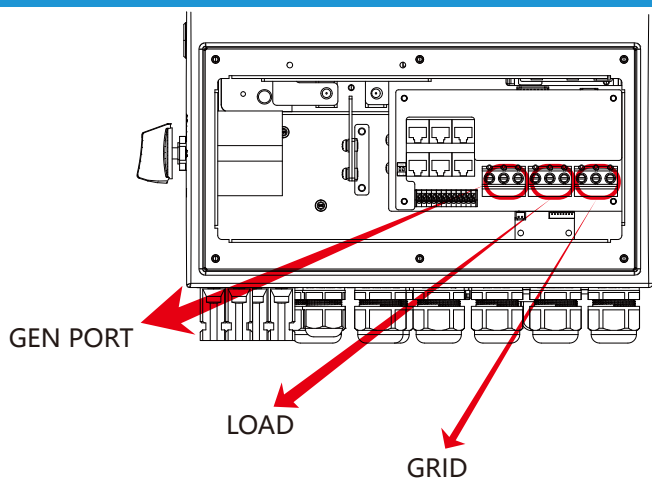
Grid connection

Model	Wire Size	Cable(mm <sup>2</sup> )	Torque value(max)	Recommended AC breaker
3.6/5/6/Kw	12AWG	4	1.2Nm	40A
7.6/8Kw	10AWG	6	1.2Nm	50A

Chart 3-3 Recommended Size for AC wires

**Please follow below steps to implement AC input/output connection:**

1. Before making Grid, load and Gen port connection, be sure to turn off AC breaker or disconnect first.
2. Remove insulation sleeve 10mm length, unscrew the bolts, insert the wires according to polarities indicated on the terminal block and tighten the terminal screws. Make sure the connection is complete.





Be sure that AC power source is disconnected before attempting to wire it to the unit.

3. Then, insert AC output wires according to polarities indicated on the terminal block and tighten terminal. Be sure to connect corresponding N wires and PE wires to related terminals as well.
4. Make sure the wires are securely connected.
5. Appliances such as air conditioner are required at least 2-3 minutes to restart because it is required to have enough time to balance refrigerant gas inside of circuit. If a power shortage occurs and recovers in short time, it will cause damage to your connected appliances. To prevent this kind of damage, please check manufacturer of air conditioner if it is equipped with time-delay function before installation. Otherwise, this inverter will trigger overload fault and cut off output to protect your appliance but sometimes it still causes internal damage to the air conditioner

### 3.5 PV Connection

The PV modules used to connected to this inverter shall be Class A rating certified according to IEC 61730.

Before connecting to PV modules, please install a separately DC circuit breaker between inverter and PV modules. It is very important for system safety and efficient operation to use appropriate cable for PV module connection. To reduce risk of injury, please use the proper recommended cable size as below.

<i>Model</i>	<i>Wire Size</i>	<i>Cable(mm<sup>2</sup>)</i>	<i>Recommended DC breaker</i>
3.6/5/7.6/8KW	12AWG	4	MPPT1:32A;MPPT2:20A

Chart 3-4 Cable size



To avoid any malfunction, do not connect any PV modules with possible current leakage to the inverter. For example, grounded PV modules will cause current leakage to the inverter. When using PV modules, please ensure the PV+ & PV- of solar panel is not connected to the system ground bar.



It is requested to use PV junction box with surge protection. Otherwise, it will cause damage on inverter when lightning occurs on PV modules.



3.5.1 PV Module Selection:

- When selecting proper PV modules, please be sure to consider below parameters:
- 1) Open circuit Voltage (Voc) of PV modules not exceeds max. PV array open circuit voltage of inverter.
  - 2) Open circuit Voltage (Voc) of PV modules should be higher than min. start voltage.

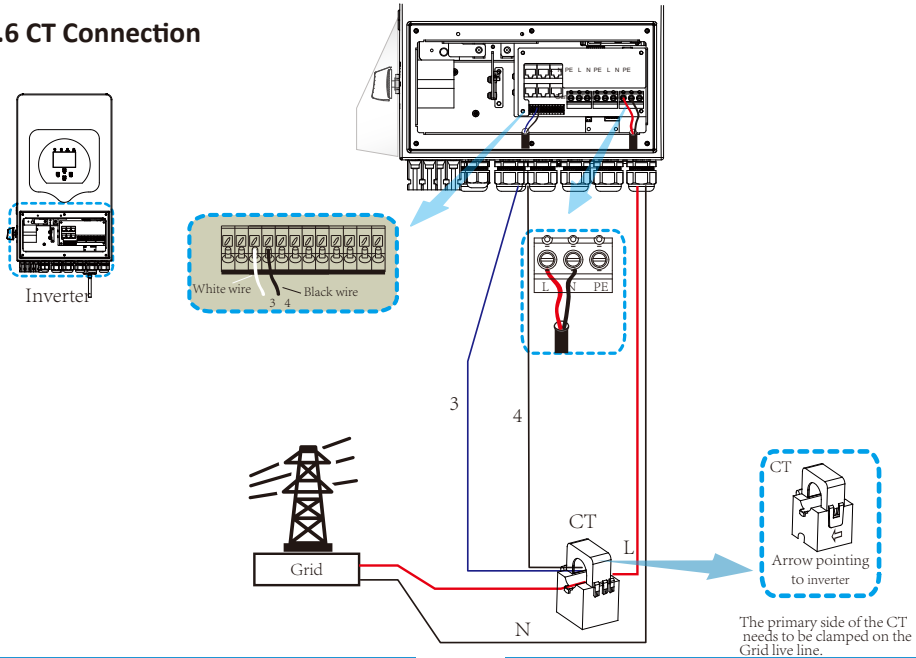
Inverter Model	3.6KW-SG05LP1	5KW-SG05LP1	6KW-SG05LP1	7.6KW-SG05LP1	8KW-SG05LP1
PV Input Voltage	370V (125V~500V)				
PV Array MPPT Voltage Range	150V-425V				
No. of MPP Trackers	2/1+1				
No. of Strings per MPP Tracker	1+1	1+1	1+1	1+1	1+1

Chart 3-5



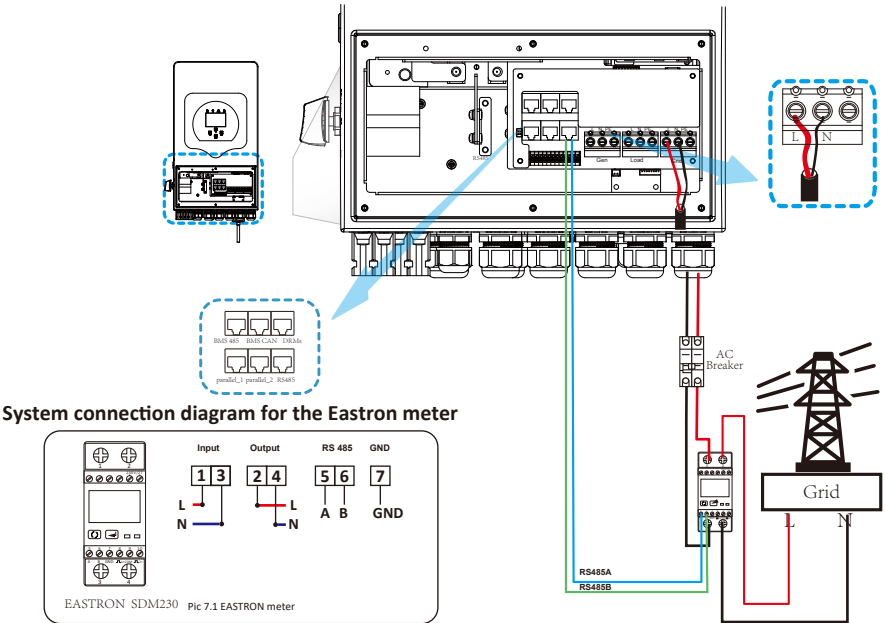
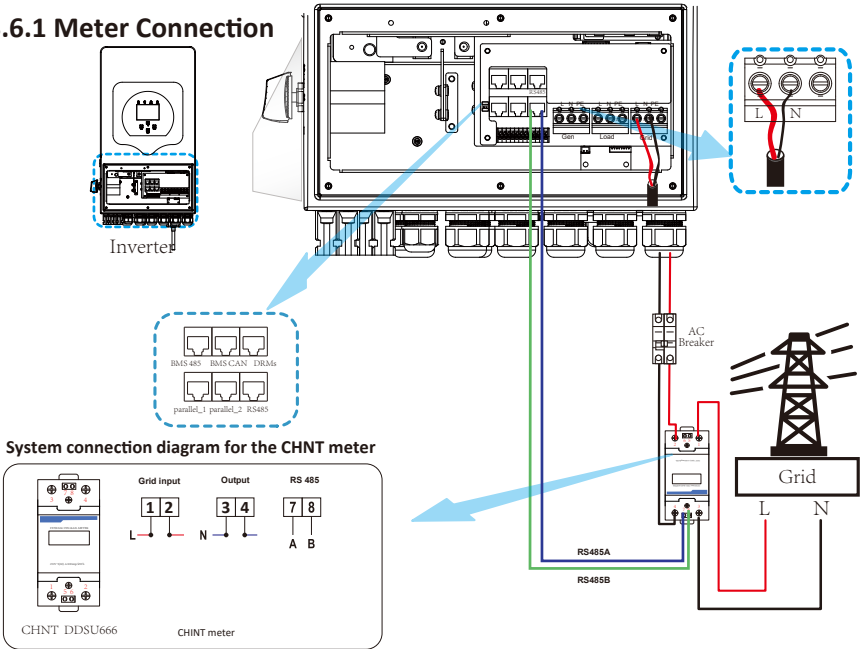
**Note:**  
This inverter complies with IEC 62109-2 clause 13.9 for earth fault alarm monitoring. If an Earth Fault Alarm occurs, the inverter will not connect to the grid and will report an error F04 on its LCD. At the same time, the buzzer will sound.

3.6 CT Connection



**\*Note:** when the reading of the load power on the LCD is not correct, please reverse the CT arrow.

**3.6.1 Meter Connection**



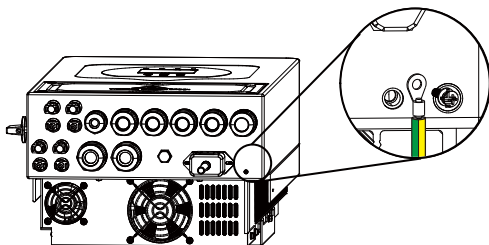


**Note:**

linverter has built-in leakage current detection circuit, If an external RCD is required, a type-A RCD with rated residual current of 300mA or higher is suggested. Otherwise inverter may not work properly

### 3.7 Earth Connection(mandatory)

Ground cable shall be connected to ground plate on grid side this prevents electric shock. if the original protective conductor fails.



### 3.8 WIFI Connection

For the configuration of Wi-Fi Plug, please refer to illustrations of the Wi-Fi Plug.

### 3.9 Wiring System for Inverter

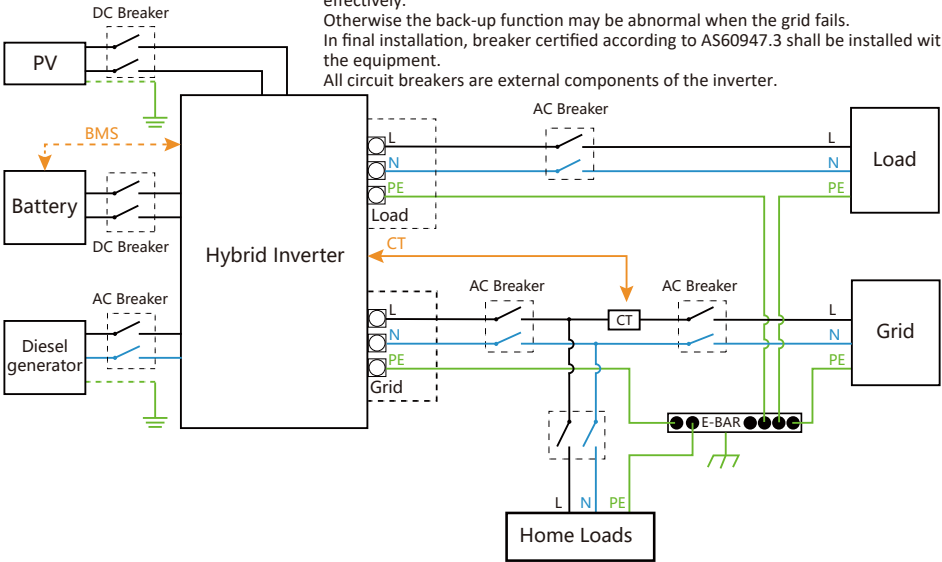
This diagram is an example for grid systems without special requirements on electrical wiring connection.

Note: The back-up PE line and earthing bar must be grounded properly and effectively.

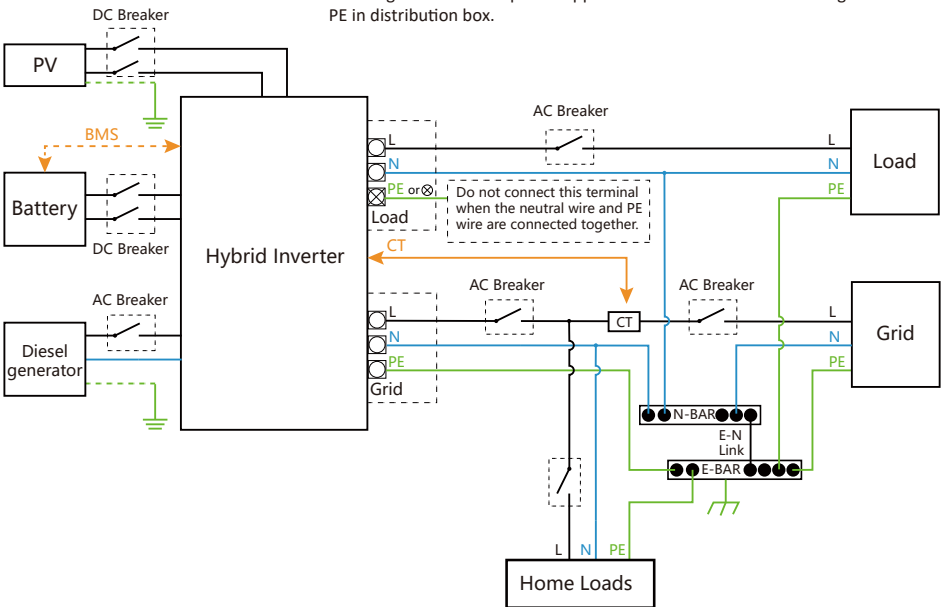
Otherwise the back-up function may be abnormal when the grid fails.

In final installation, breaker certified according to AS60947.3 shall be installed with the equipment.

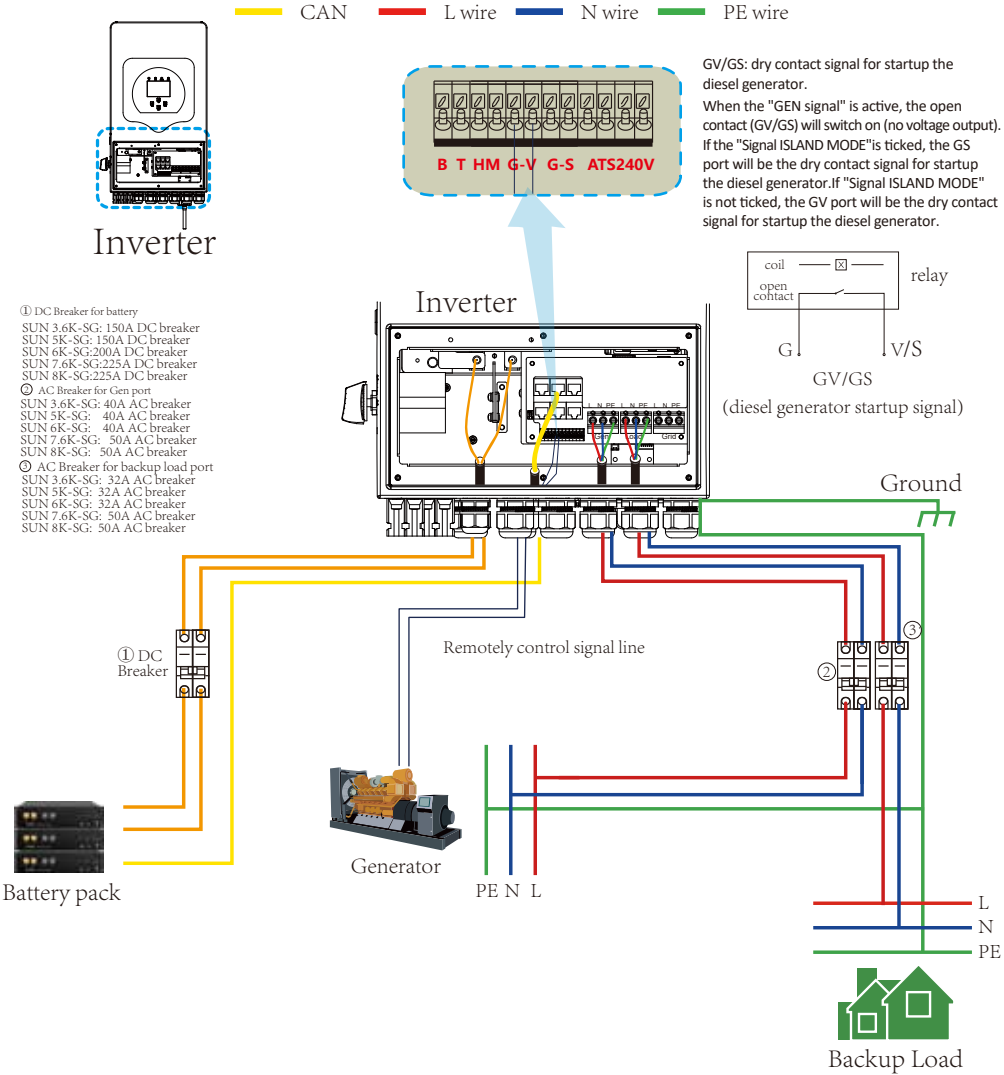
All circuit breakers are external components of the inverter.



This diagram is an example for application that Neutral connects together with PE in distribution box.



3.10 Typical application diagram of diesel generator



## 4. OPERATION

### 4.1 Power ON/OFF

Once the unit has been properly installed and the batteries are connected well, simply press On/Off button(located on the left side of the case) to turn on the unit.When system without battery connected, but connect with either PV or grid, and ON/OFF button is switched off, LCD will still light up(Display will show OFF), In this condition, when switch on ON/OFF button and select NO battery, system can still work.(NOTE: Choose the correct country code. (refer to section 5.8 of this manual) Notice: Different distribution network operators in different countries have different requirements regarding grid connections of PV grid connected inverters. Therefore, it's very important to make sure that you have selected the correct country code according to requirements of local authority. Please consult qualified electrical engineer or personnel from electrical safety authorities about this.)

### 4.2 Operation and Display Panel

The operation and display panel, shown in below chart, is on the front panel of the inverter. It includes four indicators, four function keys and a LCD display, indicating the operating status and input/output power information.

LED Indicator		Messages
DC	Green led solid light	PV Connection normal
AC	Green led solid light	Grid Connection normal
Normal	Green led solid light	Inverter operating normal
Alarm	Red led solid light	Malfunction or warning

Chart 4-1 LED indicators

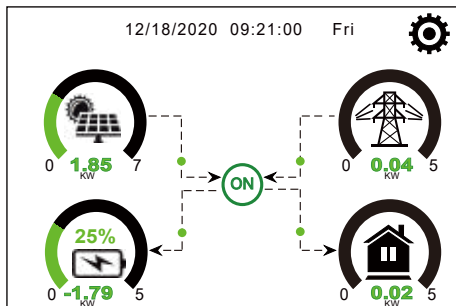
Function Key	Description
Esc	To exit setting mode
Up	To go to previous selection
Down	To go to next selection
Enter	To confirm the selection

Chart 4-2 Function Buttons

## 5. LCD Display Icons

### 5.1 Main Screen

The LCD is touchscreen, below screen shows the overall information of the inverter.



1.The icon in the center of the home screen indicates that the system is Normal operation. If it turns into "comm./FXX" , it means the inverter has communication errors or other errors, the error message will display under this icon(FXX errors, detail error info can be viewed in the System Alarms menu).

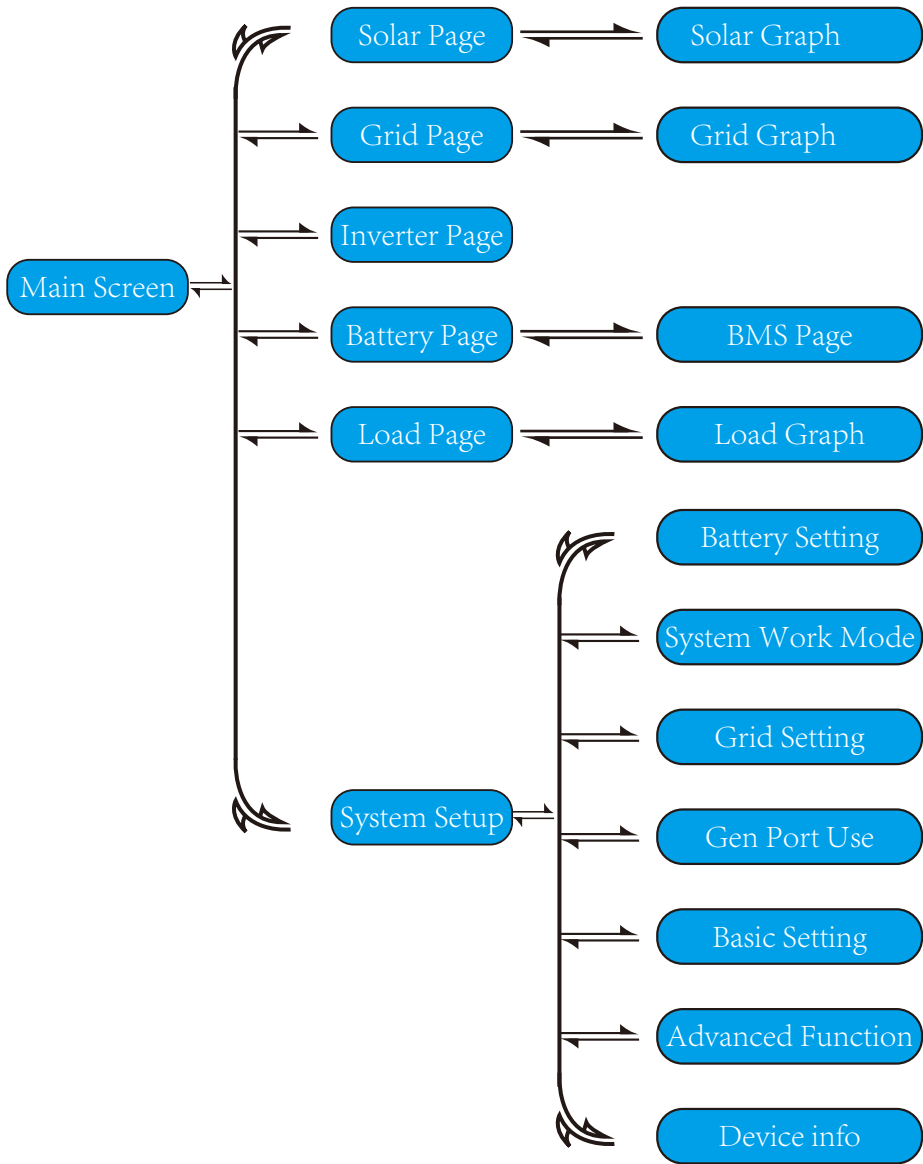
2.At the top of the screen is the time.

3.System Setup Icon, Press this set button,you can enter into the system setup screen which including Basic Setup, Battery Setup, Grid Setup, System Work Mode, Generator port use, Advanced function and Li-Batt info.

4.The main screen showing the info including Solar, Grid, Load and Battery. Its also displaying the energy flow direction by arrow. When the power is approximate to high level, the color on the panels will changing from green to red so system info showing vividly on the main screen.

- PV power and Load power always keep positive.
- Grid power negative means sell to grid, positive means get from grid.
- Battery power negative means charge, positive means discharge.

5.1.1 LCD operation flow chart





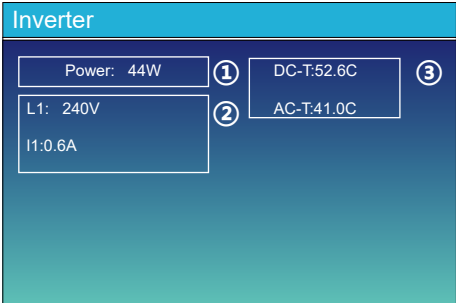
## 5.2 Solar Power Curve



This is Solar Panel detail page.

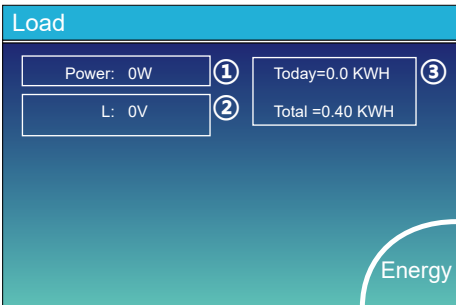
- ① Solar Panel Generation.
- ② Voltage, Current, Power for each MPPT.
- ③ Solar Panel energy for Day and Total.

Press the “Energy “button will enter into the power curve page.



This is Inverter detail page.

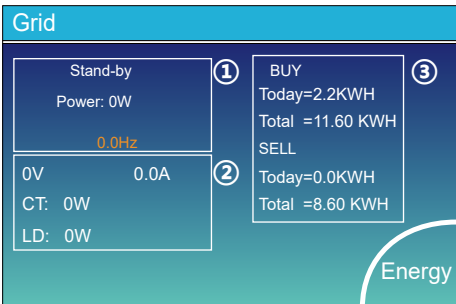
- ① Inverter Generation.
  - ② Voltage, Current, Power for each Phase.
  - ③ \*DC-T: mean DC-DC temperature, AC-T: mean Heat-sink temperature.
- \*Note: this part info is not available for some LCD FW.



This is Back-up Load detail page.

- ① Back-up Power.
- ② Voltage, Power for each Phase.
- ③ Back-up consumption for Day and Total.

Press the “Energy “ button will enter into the power curve page.



This is Grid detail page.

- ① Status, Power, Frequency.
- ② L: Voltage for each Phase  
CT: Power detected by the external current sensors  
LD: Power detected using internal sensors on AC grid in/out breaker
- ③ BUY: Energy from Grid to Inverter, SELL: Energy from Inverter to grid.

Press the “Energy “ button will enter into the power curve page.

Batt

Stand-by

SOC: 36%

U:50.50V

I:-58.02A

Power: -2930W

Temp:30.0C

Li-BMS

if you use Lithium Battery, you can enter BMS page.

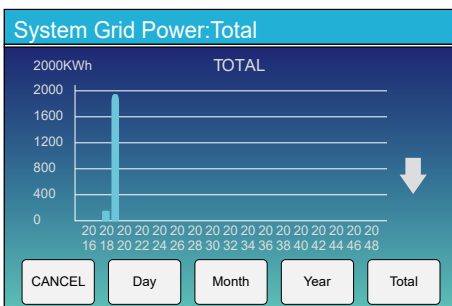
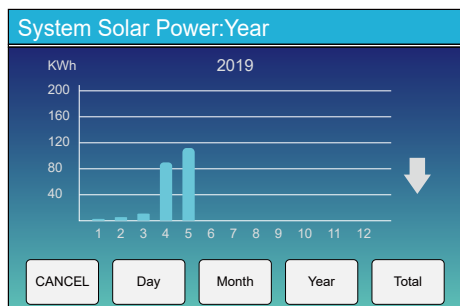
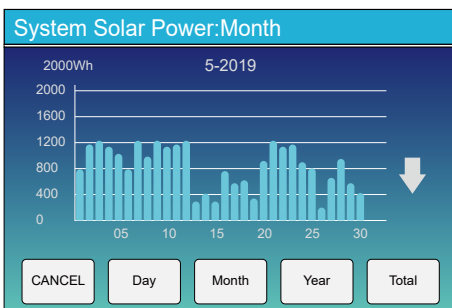
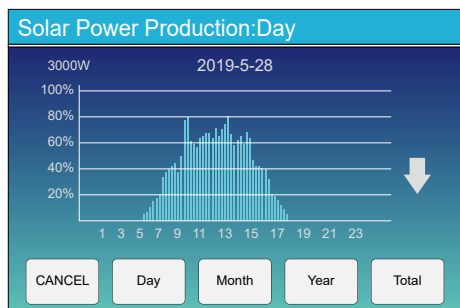
The screenshot shows the 'Li-BMS' application interface. At the top, there's a blue header with the text 'Li-BMS'. Below the header, the battery status is displayed in a grid:

- Mean Voltage: 50.34V
- Charging Voltage :53.2V
- Total Current:55.00A
- Discharging Voltage :47.0V
- Mean Temp :23.5C
- Charging current :50A
- Total SOC :38%
- Discharging current :25A
- Dump Energy:57Ah

On the right side, there are two buttons: 'Sum Data' (highlighted with a red box) and 'Details Data'.

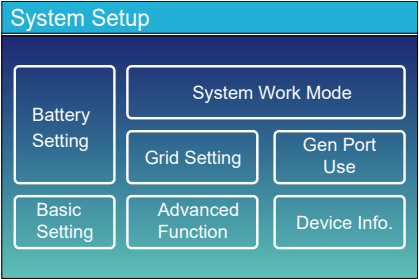
Li-BMS									
Volt					Charge				
	Volt	Curr	Temp	SOC		Volt	Curr	Fault	
1	50.38V	19.70A	30.6C	52.0%	26.0Ah	0.0A	0.0A	0x00	Data Sum
2	50.33V	19.64A	31.0C	51.5%	25.9Ah	0.0A	0.0A	0x00	
3	50.30V	19.60A	30.2C	52.0%	26.0Ah	0.0A	0.0A	0x00	
4	0.00V	0.00A	0.0C	0.0%	0.0Ah	0.0V	0.0A	0x00	
5	0.00V	0.00A	0.0C	0.0%	0.0Ah	0.0V	0.0A	0x00	
6	0.00V	0.00A	0.0C	0.0%	0.0Ah	0.0V	0.0A	0x00	
7	0.00V	0.00A	0.0C	0.0%	0.0Ah	0.0V	0.0A	0x00	
8	0.00V	0.00A	0.0C	0.0%	0.0Ah	0.0V	0.0A	0x00	
9	0.00V	0.00A	0.0C	0.0%	0.0Ah	0.0V	0.0A	0x00	
10	0.00V	0.00A	0.0C	0.0%	0.0Ah	0.0V	0.0A	0x00	
11	0.00V	0.00A	0.0C	0.0%	0.0Ah	0.0V	0.0A	0x00	Data Details
12	0.00V	0.00A	0.0C	0.0%	0.0Ah	0.0V	0.0A	0x00	
13	0.00V	0.00A	0.0C	0.0%	0.0Ah	0.0V	0.0A	0x00	
14	0.00V	0.00A	0.0C	0.0%	0.0Ah	0.0V	0.0A	0x00	
15	0.00V	0.00A	0.0C	0.0%	0.0Ah	0.0V	0.0A	0x00	

### 5.3 Curve Page-Solar & Load & Grid



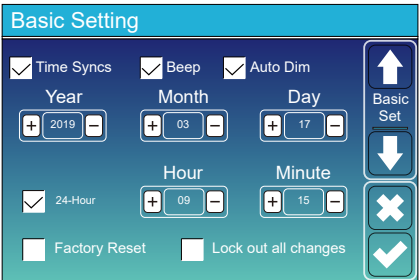
Solar power curve for daily, monthly, yearly and total can be roughly checked on the LCD, for more accuracy power generation, pls check on the monitoring system. Click the up and down arrow to check power curve of different period.

## 5.4 System Setup Menu

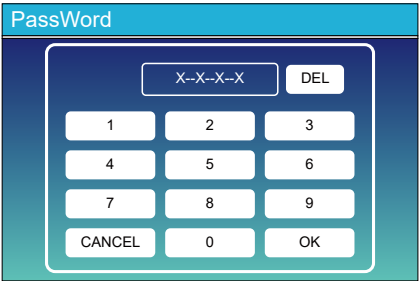


This is System Setup page.

## 5.5 Basic Setup Menu



**Factory Reset:** Reset all parameters of the inverter.  
**Lock out all changes:** Enable this menu for setting parameters that require locking and cannot be set up. Before performing a successful factory reset and locking the systems, to keep all changes you need to type in a password to enable the setting.



System selfchek: After ticking this item, it needs input the password.

5.6 Battery Setup Menu

Battery Setting

Batt Mode

Lithium

Use Batt V

Use Batt %

No Batt

Max A Charge

Max A Discharge

400Ah

40A

40A

Activate Battery

Batt Mode

↑

↓

✕

✓

**Battery capacity:** it tells Deye hybrid inverter to know your battery bank size.

**Use Batt V:** Use Battery Voltage for all the settings (V).

**Use Batt %:** Use Battery SOC for all the settings (%).

**Max. A charge/discharge:** Max battery charge/discharge current(0-115A for 5KW model, 0-90A for 3.6KW model). For AGM and Flooded, we recommend Ah battery size x 20%= Charge/Discharge amps.  
. For Lithium, we recommend Ah battery size x 50% = Charge/Discharge amps.  
. For Gel, follow manufacturer' s instructions.

**No Batt:** tick this item if no battery is connected to the system.

**Active battery:** This feature will help recover a battery that is over discharged by slowly charging from the solar array or grid.

Battery Setting

Start

30%

30%

②

A

①

40A

40A

Gen Charge

Grid Charge

Gen Signal

Grid Signal

Gen Force

③

Batt Set2

↑

↓

✕

✓

**This is Grid Charge, you need select.** ②

**Start =30%:** No use, Just for customization.

**A = 40A:** It indicates the Current that the Grid charges the Battery.

**Grid Charge:** It indicates that the grid charges the battery.

**Grid Signal:** Disable.

**This is Battery Setup page.** ①③

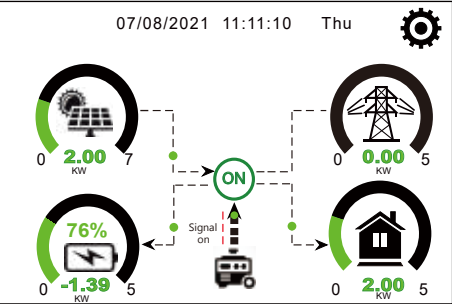
**Start =30%:** Percent S.O.C at 30% system will AutoStart a connected generator to charge the battery bank.

**A = 40A:** Charge rate of 40A from the attached generator in Amps.

**Gen Charge:** uses the gen input of the system to charge battery bank from an attached generator.

**Gen Signal:** Normally open relay that closes when the Gen Start signal state is active.

**Gen Force:** When the generator is connected, it is forced to start the generator without meeting other conditions.



This page tells the PV and diesel generator power the load and battery.

### Generator

Power: 1392W      Today=0.0 KWH  
Total =2.20 KWH

L1: 228V

Freq:50.0Hz

This page tells generator output voltage, frequency, power. And, how much energy is used from generator.

### Battery Setting

Lithium Mode

Shutdown

Low Batt

Restart

Batt Set3

**Lithium Mode:** This is BMS protocol.Please reference the document(Approved Battery).

**Shutdown 10%:** It indicates the inverter will shutdown if the SOC below this value.

**Low Batt 20%:** It indicates the inverter will alarm if the SOC below this value.

**Restart 40%:** Battery voltage at 40% AC output will resume.

### Battery Setting

Float V ①

Absorption V

Equalization V

Equalization Days

Equalization Hours

Shutdown ③

Low Batt

Restart

TEMPCO(mV/C/Cell) ②

Batt Resistance

Batt Set3

**There are 3 stages of charging the Battery .** ①

This is for professional installers, you can keep it if you do not know. ②

**Shutdown 20%:** The inverter will shutdown if the SOC below this value.

**Low Batt 35%:** The inverter will alarm if the SOC below this value. ③

**Restart 50%:** Battery SOC at 50% AC output will resume.

### Recommended battery settings

Battery Type	Absorption Stage	Float Stage	Torque value (every 30 days 3hr )
AGM (or PCC)	14.2v (57.6v)	13.4v (53.6v)	14.2v(57.6v)
Gel	14.1v (56.4v)	13.5v (54.0v)	
Wet	14.7v (59.0v)	13.7v (55.0v)	14.7v(59.0v)
Lithium	Follow its BMS voltage parameters		

## 5.7 System Work Mode Setup Menu

**System Work Mode**

☒ Selling First    5000    Max Solar Power  
☐ Zero Export To Load    ☒ Solar Sell  
☐ Zero Export To CT    ☒ Solar Sell

Max Sell Power    5000    Zero-export Power    20

Energy pattern    ☒ BattFirst    ☐ LoadFirst  
☒ Grid Peak Shaving    5000    Power

↑ Work Mode1  
 ↓  
 ✕  
 ✓

## Work Mode

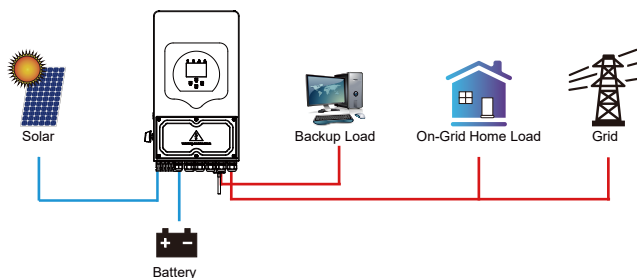
**Selling First:** This Mode allows hybrid inverter to sell back any excess power produced by the solar panels to the grid. If time of use is active, the battery energy also can be sold into grid.

The PV energy will be used to power the load and charge the battery and then excess energy will flow to grid.

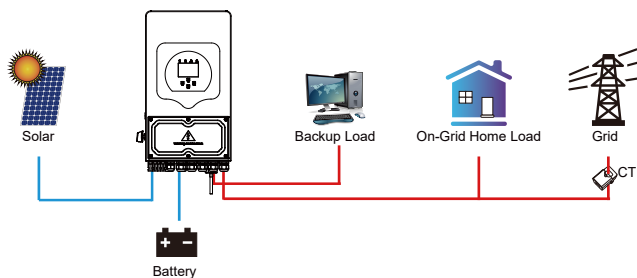
Power source priority for the load is as follows:

1. Solar Panels.
2. Grid.
3. Batteries (until programable % discharge is reached).

**Zero Export To Load:** Hybrid inverter will only provide power to the backup load connected. The hybrid inverter will neither provide power to the home load nor sell power to grid. The built-in CT will detect power flowing back to the grid and will reduce the power of the inverter only to supply the local load and charge the battery.



**Zero Export To CT:** Hybrid inverter will not only provide power to the backup load connected but also give power to the home load connected. If PV power and battery power is insufficient, it will take grid energy as supplement. The hybrid inverter will not sell power to grid. In this mode, a CT is needed. The installation method of the CT please refer to chapter 3.6 CT Connection. The external CT will detect power flowing back to the grid and will reduce the power of the inverter only to supply the local load, charge battery and home load.



**Note:**

Customer can only use export limit control function by CT or meter.

**Solar Sell:** “Solar sell” is for Zero export to load or Zero export to CT: when this item is active, the surplus energy can be sold back to grid. When it is active, PV Power source priority usage is as follows: load consumption and charge battery and feed into grid.

**Max. sell power:** Allowed the maximum output power to flow to grid.

**Zero-export Power:** for zero-export mode, it tells the grid output power. Recommend to set it as 20-100W to ensure the hybrid inverter won't feed power to grid.

**Energy Pattern:** PV Power source priority.

**Batt First:** PV power is firstly used to charge the battery and then used to power the load. If PV power is insufficient, grid will make supplement for battery and load simultaneously.

**Load First:** PV power is firstly used to power the load and then used to charge the battery. If PV power is insufficient, grid will make supplement for battery and load simultaneously.

**Max Solar Power:** allowed the maximum DC input power.

**Grid Peak-shaving:** when it is active, grid output power will be limited within the set value. If the load power exceeds the allowed value, it will take PV energy and battery as supplement. If still can't meet the load requirement, grid power will increase to meet the load needs.

System Work Mode						
Grid Charge	Gen	Time	Time	Power	Batt	
<input type="checkbox"/>	<input type="checkbox"/>	01:00	5:00	5000	49.0V	<div>↑</div> <div>↓</div> <div>✕</div> <div>✓</div>
<input type="checkbox"/>	<input type="checkbox"/>	05:00	9:00	5000	50.2V	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	09:00	13:00	5000	50.9V	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	13:00	17:00	5000	51.4V	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	17:00	21:00	5000	47.1V	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	21:00	01:00	5000	49.0V	

**Time of use:** it is used to program when to use grid or generator to charge the battery, and when to discharge the battery to power the load. Only tick "Time Of Use" then the follow items (Grid, charge, time, power etc.) will take effect.

**Note:** when in selling first mode and click time of use, the battery power can be sold into grid.

**Grid charge:** utilize grid to charge the battery in a time period.

**Gen charge:** utilize diesel generator to charge the battery in a time period.

**Time:** real time, range of 01:00-24:00.

**Power:** Max. discharge power of battery allowed.

**Batt(V or SOC %):** battery SOC % or voltage at when the action is to happen.

System Work Mode						
Grid Charge	Gen	Time	Time	Power	Batt	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	01:00	5:00	5000	80%	<div>↑</div> <div>↓</div> <div>✕</div> <div>✓</div>
<input type="checkbox"/>	<input type="checkbox"/>	05:00	8:00	5000	40%	
<input type="checkbox"/>	<input type="checkbox"/>	08:00	10:00	5000	40%	
<input type="checkbox"/>	<input type="checkbox"/>	10:00	15:00	5000	80%	
<input type="checkbox"/>	<input type="checkbox"/>	15:00	18:00	5000	40%	
<input type="checkbox"/>	<input type="checkbox"/>	18:00	01:00	5000	35%	

**For example:**

During 01:00-05:00, when battery SOC is lower than 80%, it will use grid to charge the battery until battery SOC reaches 80%.

During 05:00-08:00 and 08:00-10:00, when battery SOC is higher than 40%, hybrid inverter will discharge the battery until the SOC reaches 40%.

During 10:00-15:00, when battery SOC is higher than 80%, hybrid inverter will discharge the battery until the SOC reaches 80%.

During 15:00-18:00, when battery SOC is higher than 40%, hybrid inverter will discharge the battery until the SOC reaches 40%.

During 18:00-01:00, when battery SOC is higher than 35%, hybrid inverter will discharge the battery until the SOC reaches 35%.

## 5.8 Grid Setup Menu

### 5.8.1 Commissioning Procedure

If all physical connection is checked ok, please follow the steps below.

1. Turn on AC circuit breaker.
2. Turn on DC circuit breaker on PV strings and battery.
3. Turn on circuit breaker on battery pack.
4. Turn on DC switch on the inverter
5. Check the inverter status by inverter indicators and battery status by battery indicators.



**Note:**

Inverters cannot be installed in multiple combinations.

5.8.2 Grid Standard Selection

Grid Setting/Grid code selection

Grid Mode

General Standard

0/11

Grid Frequency

50HZ

60HZ

Phase Type

0/120/240

0/240/120

Grid Level

LN:220VAC LL:380VAC

☐ IT system-neutral is not grounded

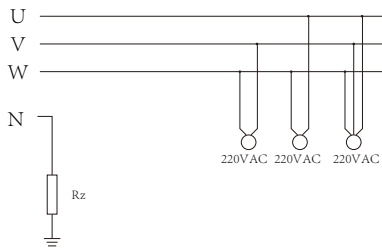
Grid Set1

**Grid Mode:**General Standard、UL1741 & IEEE1547、CPUC RULE21、SRD-UL-1741、CEI 0-21、AS4777\_A、AS4777\_B、AS4777\_C、EN50549\_CZ-PPDS(>16A)、NewZealand、VDE4105、OVE-Directive R25.  
Please follow the local grid code and then choose the corresponding grid standard.

**Grid level:** there're several voltage levels for the inverter output voltage when it is in off-grid mode.  
LN:230VAC LL:400VAC,LN:240VAC LL:420VAC,  
LN:120VAC LL:208VAC, LN:133VAC LL:230VAC.

**IT system:** For the IT grid system, the Line voltage

(between any two lines in a three-phase circuit) is 230Vac, and the diagram is as follow.If your grid system is IT system, please enable "IT system" and tick the "Grid level" as 133-3P as below picture shows.



Rz: Large resistance ground resistor. Or the system doesn't have Neutral line

For The Australian Market:  
For compliance with AS/NZS 4777.2:2020 please select from  
• Australia A    • Australia B    • Australia C    • New Zealand

Please contact your local grid operator for which option to select  
Note: By selecting Australia A, Australia B or Australia C the power quality response mode and grid protection settings will be reset to their default values for Australia RegionA, B, C respectively.

Default volt-watt settings for different regions are shown in the following table:

Region	Default value	VW <sub>1</sub>	VW <sub>1</sub> -ch	VW <sub>2</sub>	VW <sub>2</sub> -ch
Australia A	Voltage	253V	207V	260V	215V
	Inverter maximum active power output level(P) % of S <sub>rated</sub>	100%	20%	20%	100%
Australia B	Voltage	250V	195V	260V	215V
	Inverter maximum active power output level(P) % of S <sub>rated</sub>	100%	0%	20%	100%
Australia C	Voltage	253V	207V	260V	215V
	Inverter maximum active power output level(P) % of S <sub>rated</sub>	100%	20%	20%	100%
New Zealand	Voltage	242V	216V	250V	224V
	Inverter maximum active power output level(P) % of S <sub>rated</sub>	100%	20%	20%	100%



Default volt-var settings for different regions are shown in the following table:

Region	Default value	Vv <sub>1</sub>	Vv <sub>2</sub>	Vv <sub>3</sub>	Vv <sub>4</sub>
Australia A	Voltage	207V	220V	240V	258V
	Inverter maximum active power output level(P) % of S <sub>rated</sub>	44%supplying	0%	0%	60%absorbing
Australia B	Voltage	205V	220V	235V	255V
	Inverter maximum active power output level(P) % of S <sub>rated</sub>	30%supplying	0%	0%	40%supplying
Australia C	Voltage	215V	230V	240V	255V
	Inverter maximum active power output level(P) % of S <sub>rated</sub>	44%supplying	0%	0%	60%supplying
New Zealand	Voltage	207V	220V	235V	244V
	Inverter maximum active power output level(P) % of S <sub>rated</sub>	60%supplying	0%	0%	60%supplying

### Grid Setting/Connect

Normal connect	Normal Ramp rate	10s
Low frequency	48.00Hz	High frequency 51.50Hz
Low voltage	185.0V	High voltage 265.0V
Reconnect after trip	Reconnect Ramp rate	36s
Low frequency	48.20Hz	High frequency 51.30Hz
Low voltage	187.0V	High voltage 263.0V
Reconnection Time	60s	PF 1.000

**Normal connect:** The allowed grid voltage/frequency range when the inverter first time connect to the grid.

**Normal Ramp rate:** It is the startup power ramp.

**Reconnect after trip:** The allowed grid voltage /frequency range for the inverter connects the grid after the inverter trip from the grid.

**Reconnect Ramp rate:**It is the reconnection power ramp.

**Reconnection time:** The waiting time period for the inverter connects the grid again

**PF:** Power factor which is used to adjust inverter reactive power

### Grid Setting/IP Protection

Over voltage U>(10 min. running mean)		260.0V
HV3	HF3	
HV2 287.5V -- 0.10s	HF2 52.00Hz -- 0.10s	
HV1 253.0V -- 0.10s	HF1 51.50Hz -- 0.10s	
LV1 195.5V -- 0.10s	LF1 47.50Hz -- 0.10s	
LV2 92.0V -- 0.10s	LF2 47.00Hz -- 0.10s	
LV3	LF3	

**HV1:** Level 1 overvoltage protection point;  
**HV2:** Level 2 overvoltage protection point; ② 0.1s—Trip time.  
**HV3:** Level 3 overvoltage protection point.

**LV1:** Level 1 undervoltage protection point;  
**LV2:** Level 2 undervoltage protection point;  
**LV3:** Level 3 undervoltage protection point.

**HF1:** Level 1 over frequency protection point;  
**HF2:** Level 2 over frequency protection point;  
**HF3:** Level 3 over frequency protection point.

**LF1:** Level 1 under frequency protection point;  
**LF2:** Level 2 under frequency protection point;  
**LF3:** Level 3 under frequency protection point.

### Grid Setting/F(W)

F(W)	
Over frequency	Droop F 40%P/Hz
Start freq F 50.20Hz	Stop freq F 51.5Hz
Start delay F 0.00s	Stop delay F 0.00s
Under frequency	Droop F 40%PE/Hz
Start freq F 49.80Hz	Stop freq F 49.80Hz
Start delay F 0.00s	Stop delay F 0.00s

**FW:** this series inverter is able to adjust inverter output power according to grid frequency.

**Droop f:** percentage of nominal power per Hz

For example, "Start freq > 50.2Hz, Stop freq f < 51.5, Droop f=40%P/Hz" when the grid frequency reaches 50.2Hz, the inverter will decrease its active power at Droop f of 40%. And then when grid system frequency is less than 50.1Hz, the inverter will stop decreasing output power.

For the detailed setup values, please follow the local grid code.

### Grid Setting/V(W) V(Q)

☐ V(W)
 ☐ V(Q)

V(W)		V(Q)	
		Lock-in/Pn	Lock-out/Pn
V1	108.0%	P1	100%
V2	110.0%	P2	80%
V3	112.0%	P3	60%
V4	114.0%	P4	40%
		V1	94.0%
		Q1	44%
		V2	97.0%
		Q2	0%
		V3	105.0%
		Q3	0%
		V4	108.0%
		Q4	-44%

Grid Set5  
 ↑  
 ↓  
 ✕  
 ✓

**V(W)**: It is used to adjust the inverter active power according to the set grid voltage.  
**V(Q)**: It is used to adjust the inverter reactive power according to the set grid voltage.  
 This function is used to adjust inverter output power (active power and reactive power) when grid voltage changes.  
**%Un**: % of rated voltage.  
**%Invert**: % of rated power.

For example: V2=110%, P2=80%. When the grid voltage reaches the 110% times of rated grid voltage, inverter output power will reduce its active output power to 80% rated power.

For example: V1=94%, Q1=44%. When the grid voltage reaches the 94% times of rated grid voltage, inverter output power will output 44% reactive output power.

For the detailed setup values, please follow the local grid code.

### Grid Setting/P(Q) P(PF)

☐ P(Q)
 ☐ P(PF)

P(Q)		P(PF)	
		Lock-in/Pn	Lock-out/Pn
P1	0%	Q1	2%
P2	2%	Q2	0%
P3	0%	Q3	21%
P4	22%	Q4	25%
		P1	0%
		PF1	-0.000
		P2	0%
		PF2	-0.000
		P3	0%
		PF3	0.000
		P4	62%
		PF4	0.264

Grid Set6  
 ↑  
 ↓  
 ✕  
 ✓

**PQ**: It is used to adjust the inverter reactive power according to the set active power.

**P(PF)**: It is used to adjust the inverter PF according to the set active power.

For the detailed setup values, please follow the local grid code.

### Grid Setting/LVRT

☐ L/HVR

HV1	0.0V
LV1	0.0V

Grid Set7  
 ↑  
 ↓  
 ✕  
 ✓

**Reserved**: This function is reserved. It is not recommended.

### Basic Setting

☐ Time Syncs
 ☐ Beep
 ☒ Auto Dim

Year: 2019
 Month: 03
 Day: 17

Hour: 09
 Minute: 15

☐ 24-Hour

☐ Factory Reset
 ☒ Lock out all changes

Basic Set  
 ↑  
 ↓  
 ✕  
 ✓

After setting grid parameters, please select "Lock out all changes" and enter password. If the engineer does not know the password, please contact your distributor or Deye.

## 5.8.3 Grid Parameter Check

After steps above, customers can see firmware version on main page grid parameters in grid settings on LCD.

**GEN PORT USE**

☒ **Generator Input**  
 Rated Power  ☐ AC couple on grid side  
☐ AC couple on load side

☐ **Smart Load Output**  
 Power  AC Couple Freq High  ☐ On Grid always on

☐ **Micro Inv Input**  
☐ GEN connect to Grid input  
☐ OFF   
☐ ON

**PORT Set1**

**e.g. Power=500W, ON: 100%, OFF=95%:** When the PV power exceeds 500W, and battery bank SOC reaches 100%, Smart Load Port will switch on automatically and power the load connected. When the battery bank SOC < 95% or PV power < 500w, the Smart Load Port will switch off automatically.

\* **Note:** Some firmware versions don't have this function.

## Advanced Function

**Signal island mode:** when the inverter connects grid, the ATS port will output 230Vac and it is used to cut off Earth-Neutral(load port N line) bond via connect external relay. When the inverter disconnects from the grid, ATS port voltage will be 0 and the Earth-Neutral bond keeps on. More details, please refer to left picture.



## Advanced Function

☐ Parallel      Modbus SN      ☐ A Phase  
☒ Master            ☐ B Phase  
☐ Slave           ☐ C Phase

☐ Ex\_Meter For CT

☐ A Phase

☐ B Phase

☐ C Phase



**Ex\_Meter For CT:** when in Three phase system with CHNT Three phase energy meter (DTSU666), click corresponding phase where hybrid inverter is connected. e.g. when the hybrid inverter output connects to A phase, please click A Phase.

## 5.11 Device Info Setup Menu

### Device Info.

Inverter ID: 1601012001      Flash  
 HMI: Ver0302      MAIN: Ver2138

Alarms Code	Occurred
F64 Heatsink_HighTemp_Fault	2019-03-11 15:56
F64 Heatsink_HighTemp_Fault	2019-03-08 10:46
F64 Heatsink_HighTemp_Fault	2019-03-08 10:45



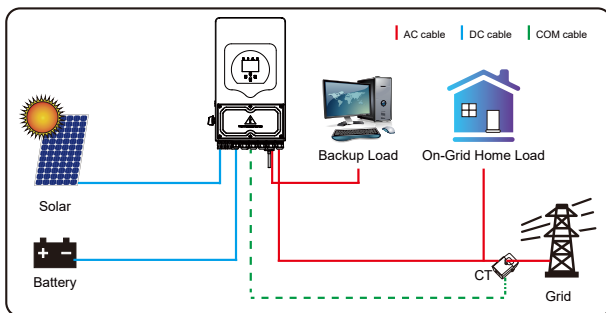
This page show Inverter ID, Inverter version and alarm codes.

**HMI:** LCD version

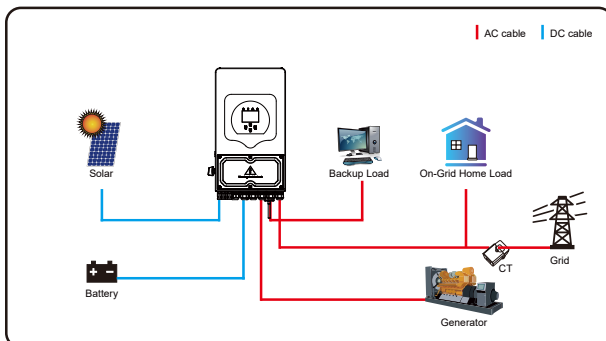
**MAIN:** Control board FW version

## 6. Mode

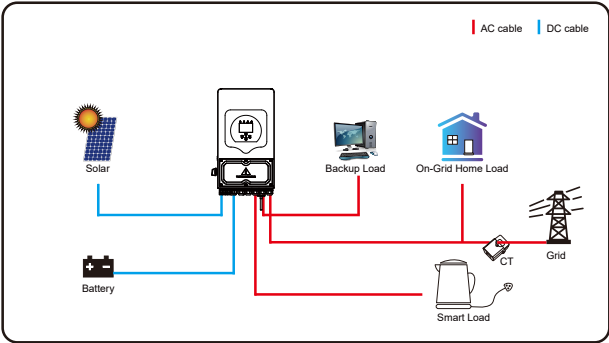
### Mode I: Basic



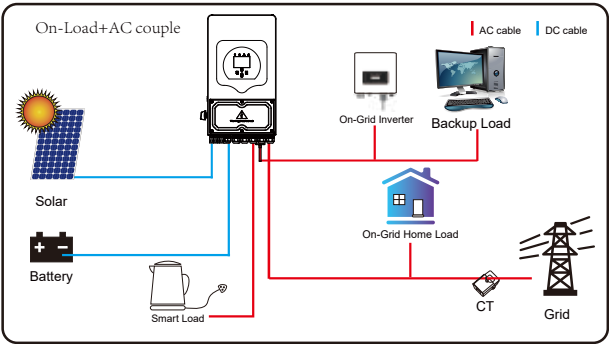
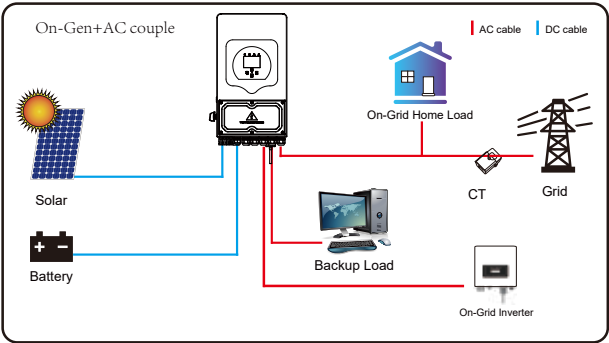
### Mode II: With Generator

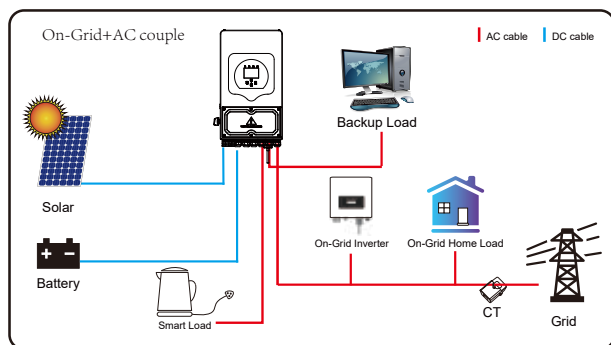


### Mode III: With Smart-Load



### Mode IV: AC Couple





The 1st priority power of the system is always the PV power, then 2nd and 3rd priority power will be the battery bank or grid according to the settings. The last power backup will be the Generator if it is available.

## 7. Fault information and processing

The energy storage inverter is designed according to the grid-connected operation standard and meets the safety requirements and electromagnetic compatibility requirements. Before leaving the factory, the inverter undergoes several rigorous tests to ensure that the inverter can operate reliably.



If any of the fault messages listed in Table 7-1 appear on your inverter and the fault has not been removed after restarting, please contact your local dealer or service center. You need to have the following information ready.

1. Inverter serial number;
2. Distributor or service center of the inverter ;
3. On-grid power generation date;
4. The problem description (including the fault code and indicator status displayed on the LCD) is as detailed as possible.
5. Your contact information. In order to give you a clearer understanding of the inverter's fault information, we will list all possible fault codes and their descriptions when the inverter is not working properly.

Error code	Description	Solutions
F08	GFDI _Relay_Failure	<ol style="list-style-type: none"> <li>1. When inverter is in Split phase(120/240Vac) or three-phase system (120/208Vac) system, the backup load port N line needs to connect ground;</li> <li>2. If the fault still exists, please contact us for help.</li> </ol>
F13	Working mode change	<ol style="list-style-type: none"> <li>1. When the grid type and frequency changed it will report F13;</li> <li>2. When the battery mode was changed to "No battery" mode, it will report F13;</li> <li>3. For some old FW version, it will report F13 when the system work mode changed;</li> <li>4. Generally, it will disappear automatically when shows F13;</li> <li>5. If still same, and turn off the DC switch and AC switch and wait for one minute and then turn on the DC/AC switch;</li> <li>6. Seek help from us, if can not go back to normal state.</li> </ol>
F18	AC over current fault of hardware	<p>AC side over current fault</p> <ol style="list-style-type: none"> <li>1. Please check whether the backup load power and common load power are within the range;</li> <li>2. Restart and check whether it is in normal;</li> <li>3. Seek help from us, if can not go back to normal state.</li> </ol>
F20	DC over current fault of the hardware	<p>DC side over current fault</p> <ol style="list-style-type: none"> <li>1. Check PV module connect and battery connect;</li> <li>2. When in the off-grid mode, the inverter startup with big power load, it may report F20. Please reduce the load power connected;</li> <li>3. Turn off the DC switch and AC switch and then wait one minute, then turn on the DC/AC switch again;</li> <li>4. Seek help from us, if can not go back to normal state.</li> </ol>
F22	Tz_EmergStop_Fault	Please contact your installer for help.
F23	AC leakage current is transient over current	<p>Leakage current fault</p> <ol style="list-style-type: none"> <li>1. Check PV side cable ground connection.</li> <li>2. Restart the system 2~3 times.</li> <li>3. If the fault still exists, please contact us for help.</li> </ol>
F24	DC insulation impedance failure	<p>PV isolation resistance is too low</p> <ol style="list-style-type: none"> <li>1. Check the connection of PV panels and inverter is firmly and correctly;</li> <li>2. Check whether the PE cable of inverter is connected to ground;</li> <li>3. Seek help from us, if can not go back to normal state.</li> </ol>
F26	The DC busbar is unbalanced	<ol style="list-style-type: none"> <li>1. Please wait for a while and check whether it is normal;</li> <li>2. When the hybrid in split phase mode, and the load of L1 and load of L2 is big different, it will report the F26.</li> <li>3. Restart the system 2~3 times.</li> <li>4. Seek help from us, if can not go back to normal state.</li> </ol>
F29	Parallel CANBus fault	<ol style="list-style-type: none"> <li>1. When in parallel mode, check the parallel communication cable connection and hybrid inverter communication address setting;</li> <li>2. During the parallel system startup period, inverters will report F29. when all inverters are in ON status, it will disappear automatically;</li> <li>3. If the fault still exists, please contact us for help.</li> </ol>

<b>Error code</b>	<b>Description</b>	<b>Solutions</b>
F34	AC Overcurrent fault	<ol style="list-style-type: none"> <li>1. Check the backup load connected, make sure it is in allowed power range;</li> <li>2. If the fault still exists, please contact us for help.</li> </ol>
F35	No AC grid	<p>No Utility</p> <ol style="list-style-type: none"> <li>1. Please confirm grid is lost or not;</li> <li>2. Check the grid connection is good or not;</li> <li>3. Check the switch between inverter and grid is on or not;</li> <li>4. Seek help from us, if can not go back to normal state.</li> </ol>
F41	Parallel system stop	<ol style="list-style-type: none"> <li>1. Check the hybrid inverter working status. If there's 1 pcs hybrid inverter is in OFF status, the other hybrid inverters may report F41 fault in parallel system.</li> <li>2. If the fault still exists, please contact us for help.</li> </ol>
F42	AC line low voltage	<p>Grid voltage fault</p> <ol style="list-style-type: none"> <li>1. Check the AC voltage is in the range of standard voltage in specification;</li> <li>2. Check whether grid AC cables are firmly and correctly connected;</li> <li>3. Seek help from us, if can not go back to normal state.</li> </ol>
F47	AC over frequency	<p>Grid frequency out of range</p> <ol style="list-style-type: none"> <li>1. Check the frequency is in the range of specification or not;</li> <li>2. Check whether AC cables are firmly and correctly connected;</li> <li>3. Seek help from us, if can not go back to normal state.</li> </ol>
F48	AC lower frequency	<p>Grid frequency out of range</p> <ol style="list-style-type: none"> <li>1. Check the frequency is in the range of specification or not;</li> <li>2. Check whether AC cables are firmly and correctly connected;</li> <li>3. Seek help from us, if can not go back to normal state.</li> </ol>
F56	DC busbar voltage is too low	<p>Battery voltage low</p> <ol style="list-style-type: none"> <li>1. Check whether battery voltage is too low;</li> <li>2. If the battery voltage is too low, using PV or grid to charge the battery;</li> <li>3. Seek help from us, if can not go back to normal state.</li> </ol>
F58	BMS communication fault	<ol style="list-style-type: none"> <li>1. it tells the communication between hybrid inverter and battery BMS disconnected when "BMS_Err-Stop" is active;</li> <li>2. if don't want to see this happen, you can disable "BMS_Err-Stop" item on the LCD;</li> <li>3. If the fault still exists, please contact us for help.</li> </ol>
F63	ARC fault	<ol style="list-style-type: none"> <li>1. ARC fault detection is only for US market;</li> <li>2. Check PV module cable connection and clear the fault;</li> <li>3. Seek help from us, if can not go back to normal state.</li> </ol>
F64	Heat sink high temperature failure	<p>Heat sink temperature is too high</p> <ol style="list-style-type: none"> <li>1. Check whether the work environment temperature is too high;</li> <li>2. Turn off the inverter for 10mins and restart;</li> <li>3. Seek help from us, if can not go back to normal state.</li> </ol>

Chart 7-1 Fault information



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Under the guidance of our company, customers return our products so that our company can provide service of maintenance or replacement of products of the same value. Customers need to pay the necessary freight and other related costs. Any replacement or repair of the product will cover the remaining warranty period of the product. If any part of the product or product is replaced by the company itself during the warranty period, all rights and interests of the replacement product or component belong to the company.

Factory warranty does not include damage due to the following reasons:

- Damage during transportation of equipment ;
- Damage caused by incorrect installation or commissioning ;
- Damage caused by failure to comply with operation instructions, installation instructions or maintenance instructions ;
- Damage caused by attempts to modify, alter or repair products ;
- Damage caused by incorrect use or operation ;
- Damage caused by insufficient ventilation of equipment ;
- Damage caused by failure to comply with applicable safety standards or regulations ;
- Damage caused by natural disasters or force majeure (e.g. floods, lightning, overvoltage, storms, fires, etc.)

In addition, normal wear or any other failure will not affect the basic operation of the product. Any external scratches, stains or natural mechanical wear does not represent a defect in the product.

## **8.Limitation of Liability**

In addition to the product warranty described above, the state and local laws and regulations provide financial compensation for the product's power connection (including violation of implied terms and warranties). The company hereby declares that the terms and conditions of the product and the policy cannot and can only legally exclude all liability within a limited scope.

## 9. Datasheet

Model	SUN-3.6K-SG05LP1-AU	SUN-5K-SG05LP1-AU	SUN-6K-SG05LP1-AU	SUN-7.6K-SG05LP1-AU	SUN-8K-SG05LP1-AU
Battery Input Data					
Battery Type	Lead-acid or Li-Ion				
Battery Voltage Range(V)	40-60V				
Max. Charging Current(A)	90A	120A	135A	190A	190A
Max. Discharging Current(A)	90A	120A	135A	190A	190A
Charging Curve	3 Stages / Equalization				
External Temperature Sensor	yes				
Charging Strategy for Li-Ion Battery	Self-adaption to BMS				
PV String Input Data					
Max. DC Input Power(W)	4680W	6500W	7800W	9880W	10400W
PV Input Voltage(V)	370V (125V~500V)				
MPPT Range(V)	150~425V				
Full Load DC Voltage Range	300~425V			200~425V	
Start-up Voltage(V)	125V				
PV Input Current(A)	13A+13A			26A+26A	
No. of MPPT Trackers	2				
No. of Strings Per MPPT Tracker	1+1				
AC Output Data					
Rated AC Output and UPS Power(W)	3600	5000	6000	7600	8000
Max. AC Output Power(W)	3600	5000	6000	7600	8000
Peak Power(off grid)	2 times of rated power, 10 S				
AC Output Rated Current(A)	15.7A	21.7A	26.1A	33A	34.8A
Max. AC Current(A)	15.7A	21.7A	26.1A	33A	34.8A
Max. Continuous AC Passthrough(A)	35A		40A	50A	
Power Factor	0.8 leading to 0.8 lagging				
Output Frequency and Voltage	50Hz; 230V/240V 0.85Un-1.1Un				
Grid Type	Single Phase				
Current Harmonic Distortion	THD<3% (Linear load<1.5%)				
Efficiency					
Max. Efficiency	97.60%				
Euro Efficiency	96.50%				
MPPT Efficiency	>99%				
Protection					
PV Input Lightning Protection	Integrated				
Anti-islanding Protection	Integrated(Active Frequency Shift)				
PV String Input Reverse Polarity Protection	Integrated				
Insulation Resistor Detection	Integrated				
Residual Current Monitoring Unit	Integrated				
Output Over Current Protection	Integrated				
Output Shorted Protection	Integrated				
Surge Protection	DC Type II / AC Type III				

<b>Certifications and Standards</b>	
Grid Regulation	CEI 0-21,VDE-AR-N 4105,NRS 097,IEC 62116,IEC 61727,G99,G98, VDE 0126-1-1,RD 1699,C10-11
EMC/Safety Regulation	IEC/EN 62109-1,IEC/EN 62109-2,IEC/EN 61000-6-1, IEC/EN 61000-6-2,IEC/EN 61000-6-3,IEC/EN 61000-6-4
<b>General Data</b>	
Operating Temperature Range( °C )	-40~60 °C , >45 °C Derating
Cooling	Smart cooling
Noise(dB)	<30 dB
Communication with BMS	RS485; CAN
Weight(kg)	24
Size(mm)	330W×580H×232D
Protection Degree	IP65
Installation Style	Wall-mounted
Warranty	5 years

## 10.Package and transport inverter

Usually placed inverter in the packing box with tape sealing, if the inverter cannot reoccupy, you can choose a cheap carton for packaging. Carton requirements must meet the size of the inverter and can support inverter machine overall weight.

Series frequency converter in the process of moving, please note: handle with care, do not touch the inverter, put as flat as possible.

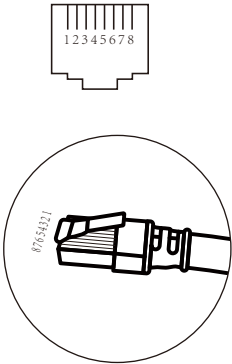
## 11.Disposing of the inverter

Do not dispose of inverter together with household waste. Please accordance with the disposal regulations for electronic waste which apply at the installation site at that time. Ensure that the old unit and, where applicable, any accessories are disposed of in a proper manner.

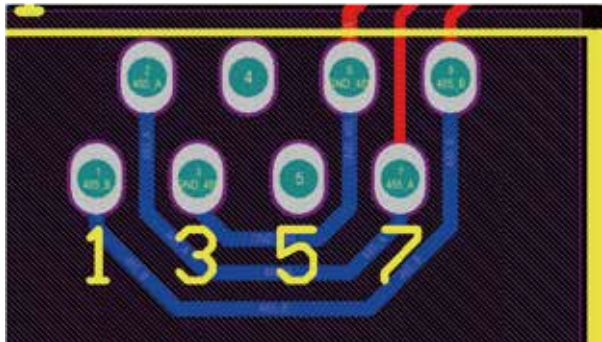
# 12. Appendix I

## Definition of RJ45 Port Pin for BMS

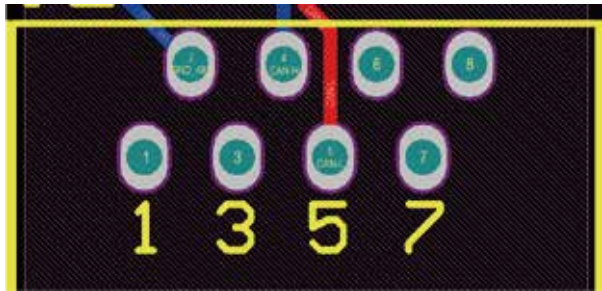
No.	RS485 Pin	CAN Pin
1	RS485B	--
2	RS485A	GND
3	GND	--
4		CANH
5		CANL
6	GND	--
7	RS485A	--
8	RS485B	--



## BMS 485 Port

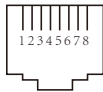


## CAN Port

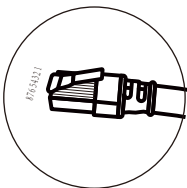
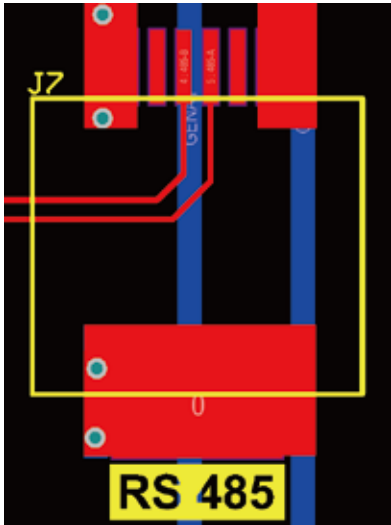


Definition of RJ45 Port Pin for RS485.  
 This port is used to communicate with energy meter

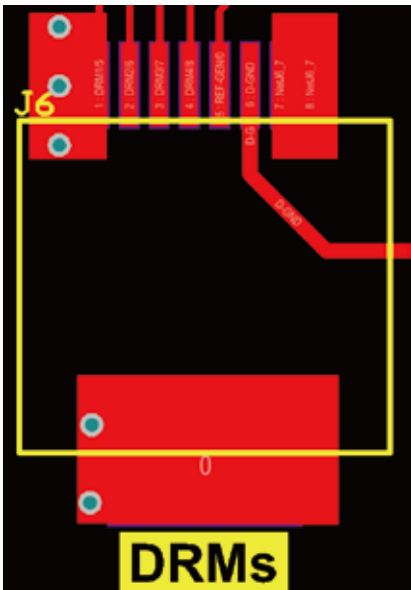
No.	RS485 Pin
4	RS485B
5	RS485A



RS485 Port



DRM port

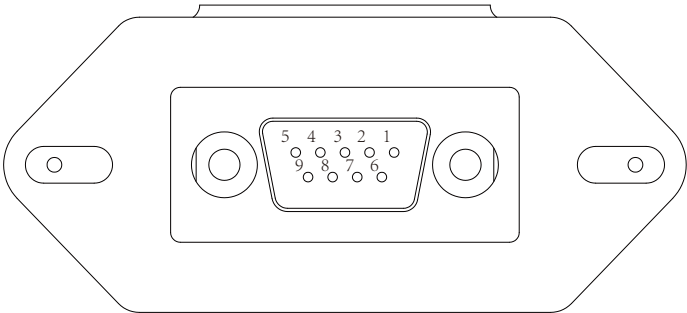


Definition of RJ45 Port Pin for DRM Port

No.	Modbus port
1	DRM1/5
2	DRM2/6
3	DRM3/7
4	DRM4/8
5	REF-GEN/0
6	D-GND
7	NetDRM_7
8	NetDRM_7

RS232

No.	WIFI/RS232
1	
2	TX
3	RX
4	
5	D-GND
6	
7	
8	
9	12Vdc

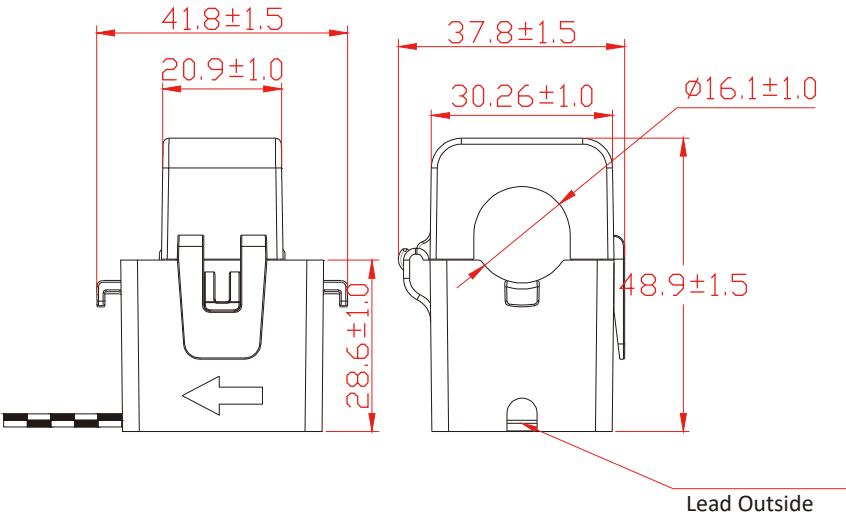


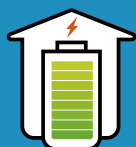
WIFI/RS232

This RS232 port is used to connect the wifi datalogger

### 13. Appendix II

- 1. Split Core Current Transformer (CT) dimension: (mm)
- 2. Secondary output cable length is 4m.





**JOULE  
POWER**

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