SINGLE-PHASE OFF-GRID INVERTER

H3600-OG/H4000-OG/H5000-OG/H6000-OG

User Manual

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Disclaimer

Off-Grid inverters need to be transported, used and operated under suitable environmental and electrical conditions. In the following cases, the manufacturer reserves the right not to provide after-sales service or assistance:

- The inverter was damaged during transportation.
- Inverter is out of warranty,or extended warranty not purchased.
- Install or use the inverter under improper environmental or technical conditions without authorization from the manufacturer.
- Install or configure the inverter in violation of the requirements mentioned in the user manual.
- Install and operate the inverter in violation of the requirements or warnings mentioned in this user manual.
- The inverter is damaged by any force majeure such as lightning, earthquake, fire, storm and volcanic eruption.
- Disassemble, change or update the software or hardware of the inverter without the authorization of the manufacturer.
- The inverter is installed, used or operated in violation of any international policies and regulations or local policies and regulations.
- Connect any incompatible batteries, loads or other devices to the 6K inverter system.

Note

- The manufacturer reserves the right to interpret all content in this user manual. In order to protect the IP20 protection level, the inverter must be well sealed, and the unused terminals/holes are forbidden to be opened. Make sure that no water or dust enters the terminals/holes.
- It is only suitable for professionals who are familiar with local regulations, standards and electrical systems, and who have undergone professional training and are familiar with the relevant knowledge of this product.
- Handle this product with care, and store it in a dry and cool room when not in use.

Safety and Warnings

The 6K off-grid series strictly abide by the relevant safety regulations for product design and testing. During installation, operation or maintenance, please carefully read and follow all instructions and precautions in the inverter or user manual, any improper operation may cause personal or property damage.

Symbol Definition and Explanation

	Warning! Failure to follow the warning signs in this manual could result in personal injury.
	High voltage and electric shock hazard!
	Hot surface!
	Product components are recyclable.
	This side up! Arrows must always point upwards during transport, handling and storage.
	Do not stack more than six layers.
	Disposal as domestic rubbish is prohibited.
	Fragile – Handle packaging or product with care and never let it up side down or hang.
	See operating instructions.
	Stay dry! Please store product in a dry and protected place, avoid excessive moisture.
	After the inverter is powered off, there is a delay in the discharge of internal components. Please wait for 5 minutes until the device is fully discharged.
	CE mark.

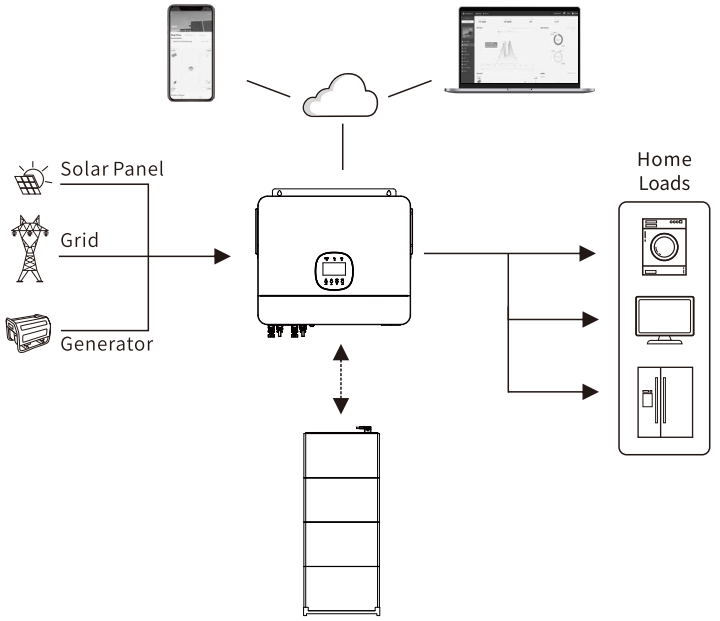
Safety Instructions

WARNING: Please read and retain this manual for future reference.

1. Please be clear which kind of battery system you want, lithium battery system or lead-acid battery system, if you choose the wrong system, energy storage system can' t work normally.
2. Before using the unit, read all instructions and cautionary marking on the unit, the batteries and all appropriate sections of this manual. The company has the right not to quality assurance, if not according to the instructions of this manual for installation and cause equipment damage.
3. All the operation and connection please professional electrical or mechanical engineer.
4. All the electrical installation must comply with the local electrical safety standards.
5. When install PV modules in the daytime, installer should cover the PV modules by opaque materials, otherwise it will be dangerous as high terminal voltage of modules in the sunshine.
6. CAUTION-To reduce risk of injury, charge only deep-cycle lead-acid type rechargeable batteries and lithium batteries. Other types of batteries may burst, causing personal injury and damage.
7. Do not disassemble the unit. Take it to a qualified service center when service or repair is required. Incorrect re-assembly may result in a risk of electric shock or fire.
8. To reduce risk of electric shock, disconnect all wirings before attempting any maintenance or cleaning. Turning off the unit will not reduce this risk.
9. NEVER charge a frozen battery.
10. For optimum operation of this inverter, please follow required spec to select appropriate cable size. It' s very important to correctly operate this inverter.
11. Be very cautious when working with metal tools on or around batteries. A potential risk exists to drop a tool to spark or short circuit batteries or other electrical parts and could cause an explosion.
12. 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.
13. GROUNDING INSTRUCTIONS -This inverter should be connected to a permanent grounded wiring system.
14. Be sure to comply with local requirements and regulation to install this inverter.
15. NEVER cause AC output and DC input short circuited. Do NOT connect to the mains when DC input short circuits.
16. Make sure the inverter is completely assembled, before the operation.

Contents

1. Introduction



Hybrid Power System

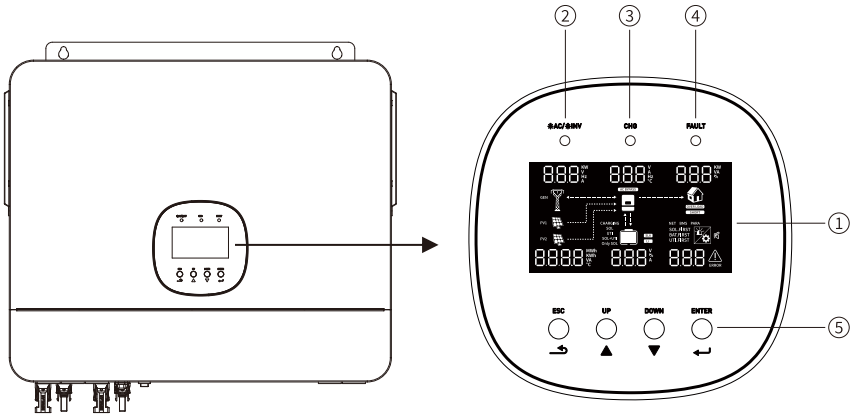
This is a multifunctional off-grid solar inverter, integrated with a MPPT solar charge controller, a high frequency pure sine wave inverter and a UPS function module in one machine, which is perfect for off-grid backup power and self-consumption applications. This inverter can work with or without batteries.

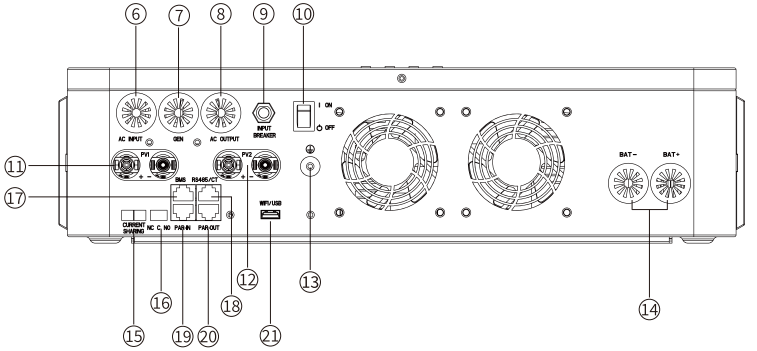
The whole system also need other devices to achieve complete running such as PV modules, generator, or grid. Please consult with your system integrator for other possible system architectures depending on your requirements. The WiFi / GPRS module is a plug-and-play monitoring device to be installed on the inverter.It is recommended that this device be purchased so that the user can monitor the status of the whole system anytime, anywhere from their cell phone or website.

1.1 Features

- Rated power 6KW, power factor 1.
- MPPT ranges 150V~480V.
- High frequency inverter with small size and light weight.
- Pure sine wave AC output.
- Solar and grid can power loads at the same time.
- With CAN/RS485 for BMS communication.
- With the ability to work without battery.
- Parallel operation up to 6 unit (only with battery connected).
- WIFI remote monitoring.

1.2 Product Overview





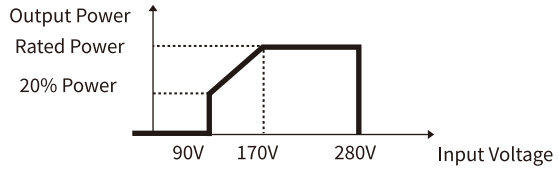
1. LCD display
2. Status indicator
3. Charging indicator
4. Fault indicator
5. Function buttons
6. AC Input
7. Generator Input
8. AC Output
9. Input Breaker/Circuit Breaker
10. Power ON/OFF Switch
11. PV1 Input
12. PV2 Input
13. GND (⏚)
14. Battery Input
15. Current Sharing Ports
16. Dry Contact
17. BMS Communication Port (Support CAN/RS485 protocol)
18. RS485/ CT Communication Port (Used for expansion and connection with CT)
19. Parallel Communication Port (PAR-IN)
20. Parallel Communication Port (PAR-OUT)
21. WIFI/USB Communication Port

1.3 Specifications Parameters

	H3600-OG	H4000-OG	H5000-OG	H6000-OG
Line Mode Specifications				
Input Voltage Waveform	Sinusoidal (utility or generator)			
Nominal Input Voltage	230Vac			
Low Loss Voltage	170Vac±7V (UPS); 90Vac±7V (Appliances)			
Low Loss Return Voltage	180Vac±7V (UPS); 100Vac±7V (Appliances)			
High Loss Voltage	280Vac±7V			
High Loss Return Voltage	270Vac±7V			
Max AC Input Voltage	300Vac			
Nominal Input Frequency	50Hz/60Hz (Auto sensing)			
AC Input Frequency Range	45~54Hz (50Hz) /56~65Hz (60Hz)			
Low Loss Frequency	45±1Hz (50Hz)/56±1Hz (60Hz)			
Low Loss Return Frequency	47±1Hz (50Hz)/58±1Hz (60Hz)			
High Loss Frequency	54±1Hz (50Hz)/65±1Hz (60Hz)			
High Loss Return Frequency	52±1Hz (50Hz)/63±1Hz (60Hz)			
Output Short Circuit Protection	Circuit Breaker			
Efficiency (Line Mode)	>94% (Rated R load, battery full charged)			
Transfer Time (UPS/APL/GEN*)	10ms Max /15ms Max/30ms Max			

Output power derating:

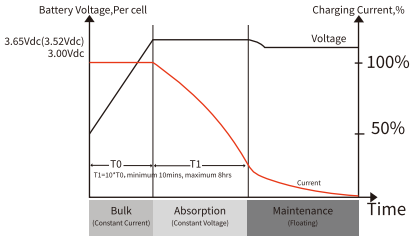
When AC input voltage drops to 170V, the output power will be derated.



* Different generators have different conversion times.

Inverter Mode Specifications				
Rated Output Power	3600VA/3600W	4000VA/4000W	5000VA/5000W	6000VA/6000W
Max. AC Output Active Power	3960W	4400W	5500W	6600W
Parallel Capability	Yes,3 units maximum			
Output Voltage Waveform	Pure Sine Wave			
Output Voltage Regulation	230Vac±5%			
Output Frequency	50/60Hz			
Nominal Output Current	26A			
Overload Protection	5s@≥150% load; 10s@110%~150% load			
Max. Bypass Current	35A			
Surge Power	7200VA, 5S	8000VA, 5S	10000VA, 5S	12000VA, 5S
Surge Capacity	2*rated power for 5 seconds			
Nominal DC Input Voltage	51.2Vdc			
Cold Start Voltage (Lead-Acid Mode)	46.0Vdc			
Low DC Cut-off Voltage (Lead-Acid Mode)	40.0Vdc			
Low DC Warning SOC (Li Mode)	Low DC Cut-off SOC +10%			
Low DC Warning Return SOC (Li Mode)	Low DC Cut-off SOC +12%			
Low DC Cut-off SOC (Li Mode)	Default 10%, 5%~50% settable			
High DC Recovery Voltage	56.4Vdc (C.V. charging voltage)			
High DC Cut-off Voltage	60.8Vdc			
No Load Power Consumption	<60W			

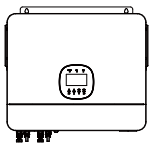
Charge Mode Specifications

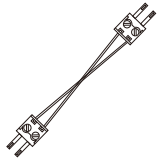
Utility Charging Mode					
Charging Algorithm		3-Step			
Max. AC Charging Current		60Amp (@VI/P=230Vac)	60Amp (@VI/P=230Vac)	60Amp (@VI/P=230Vac)	60Amp (@VI/P=230Vac)
Max. AC+PV Charge Current		120A			
Bulk Charging Voltage	Flooded Battery	58.4Vdc			
	AGM / Gel	56.4Vdc			
Floating Charging Voltage		54.0Vdc			
Charging Curve					
MPPT Solar Charging Mode					
Max. PV Array Power		9000W (4500W+4500W)			
Number of Independent MPP Trackers/ Strings Per MPP Tracker		2/1			
Max. PV Input Current		16A+16A			
Start-up Voltage		120Vdc±10Vdc			
PV Array MPPT Voltage Range @ Operating Voltage		150VDC ~ 450VDC			
Max. PV Array Open Circuit Voltage		530VDC			
Max. Inverter Back Feed Current To The Array		0A			

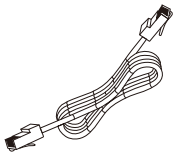
Max. PV Charging Current	90A	100A	110A	120A
Max. Charging Current (AC Charger Plus Solar Charger)	90A	100A	110A	120A
Maximum MPPT Efficiency	99%			
General Specifications				
Protection Degree	IP20			
Operating Temperature	0°C ~ 55°C			
Storage Temperature	-25°C~ 60°C			
Humidity	5% to 95% Relative Humidity(Non-condensing)			
Altitude	<2000m			
Dimension(W/H/D)	475/422/125mm			
Net Weight	12.6kg			
Display	LCD+LED			
Communication Interface	CAN/RS485/WiFi/DRY Connector			
Warranty	3 years			
Standard & Certification				
IEC62109-1, IEC62109-2, IEC/EN 61000				

2. Installation Descriptions

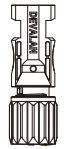
2.1 Unpacking and Inspection


Inverter
x1


Current sharing cable
x1

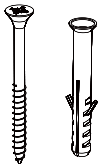

Parallel communication cable x2


PV positive connector
x2


PV Negative Connector
x2

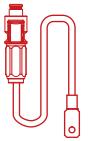

Tubular terminal
x7

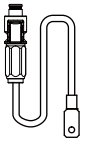

R-type terminal
x1

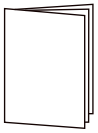

Expansion Screw
x2

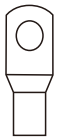

M5 screw
x2

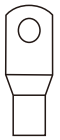

M4 screw
x1


Red Battery Connection Cable x1

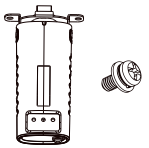

Black Battery Connection Cable x1


User Manual x1
Quick Installation Guide x1


M6 O-type terminal
x3


M8 O-type terminal
x5

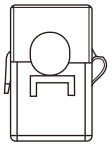
★★


Wifi module x1
M4 screw x2

★★


PV Disassembly Tool
x1

★★


CT
x1

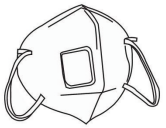
★★ Optional. Types of equipment to be applied vary in different regions. Please consult local customer service for equipment type selection.

2.2 Installation Tools

Recommended installation tools include but are not limited to the following tools. If necessary, additional auxiliary tools can be used on site.


Protection Goggle


Anti-noise Earplugs


Dust Mask


Safety Gloves


Safety Shoes


Utility Knife


Marker Pen

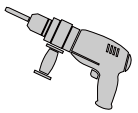

Anti-static Bracelet

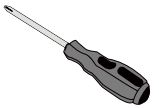

Cord Cutters


Wire Strippers

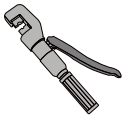

Measuring Stick


Rubber Hammer


Impact Drill


Phillips Screwdriver


Electric Screw Driver


Hydraulic Pliers

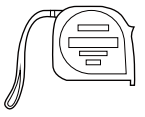

Heat Gun

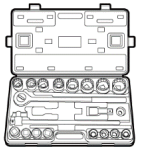

Crimping plier


MC4 PV connection wrench

Multimeter


Straight Screwdriver

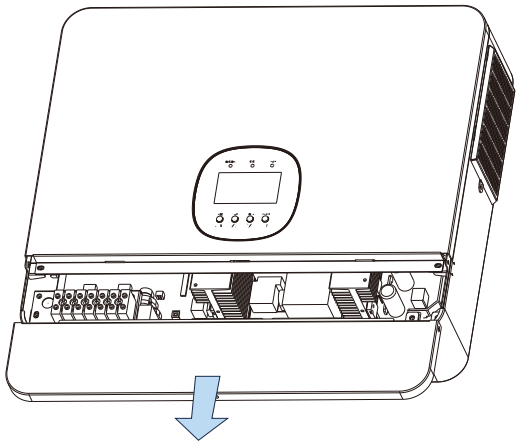

Steel Tape


Socket Wrench Set


Vacuum Cleaner

2.3 Preparation

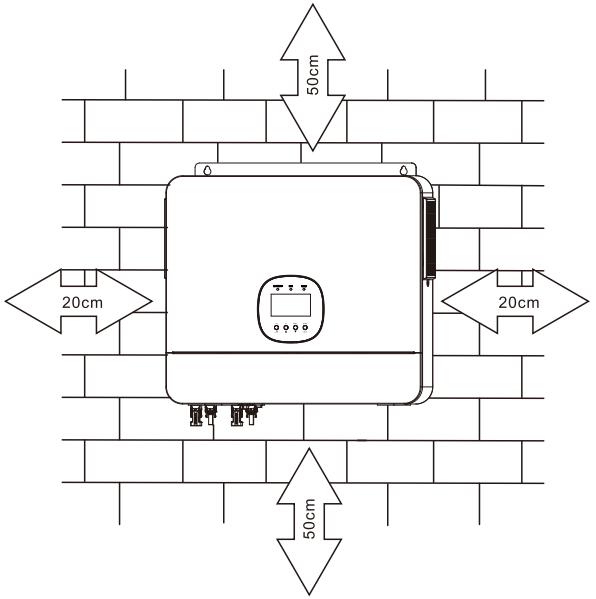
Before connecting all wiring, please take off bottom cover by removing four screws as shown below.



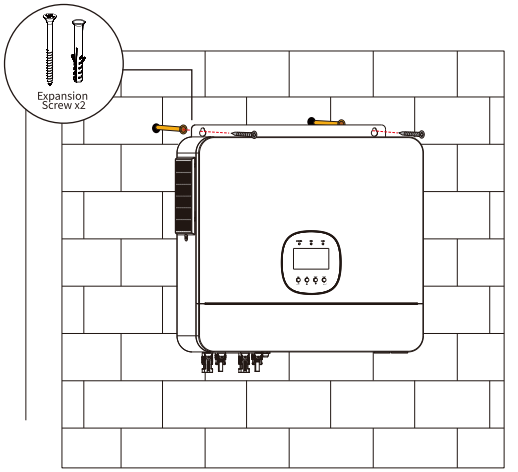
2.4 Mounting the Unit

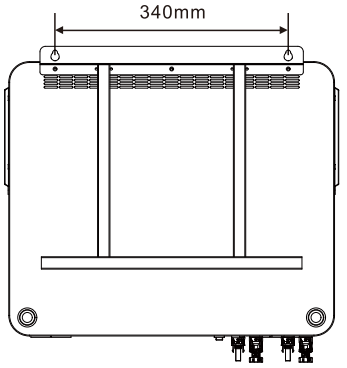
Consider the following points before selecting where to install:

- ▶ Do not mount the inverter on flammable construction materials.
- ▶ Mount on a solid surface.
- ▶ 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 0°C and 55°C to ensure optimal operation.
- ▶ The recommended installation position is to be adhered to the wall vertically.
- ▶ Be sure to keep other objects and surfaces as shown in the right diagram to guarantee sufficient heat dissipation and to have enough space for removing wires.



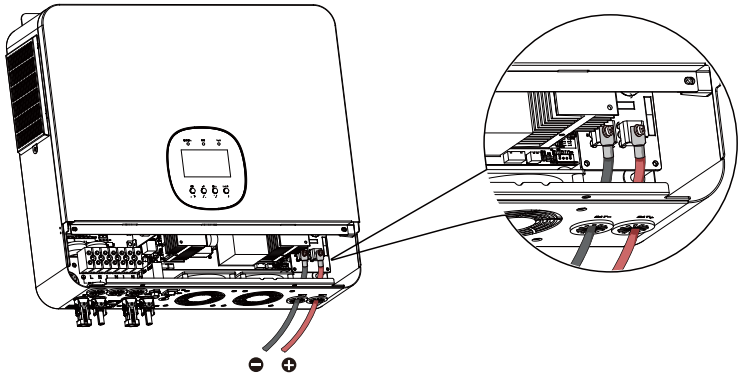
⚠ Suitable for installation on concrete or other non-combustible surfaces only.





Tighten the 2 expansion screws to install the unit.

2.5 Battery Connection



WARNING: Please make sure polarity (+/-) of battery are not reversed.

2.5.1 Lead-acid Battery Connection

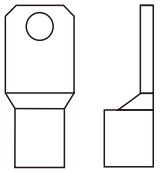
User can choose proper capacity lead acid battery with a nominal voltage at 48V. Also, you need to choose battery type as “AGM(default)”.

CAUTION: For safety operation and regulation compliance, it’s requested to install a separate DC over-current protector or disconnect device between battery and inverter. It may not be requested to have a disconnect device in some applications, however, it’s still requested to have over-current protection installed. Please refer to typical amperage in below table as required fuse or breaker size.

WARNING: All wiring must be performed by a qualified person.

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

O-type terminal:



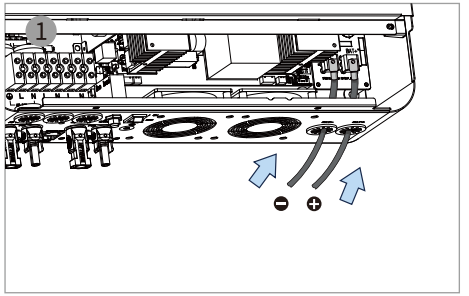
Recommended battery cable and terminal size:

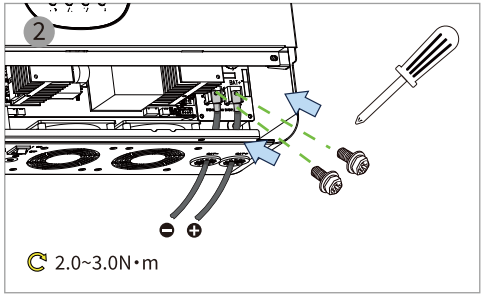
Model	Wire Size	Torque value
The 6K off-grid inverter	1 * 3 AWG	2-3 Nm

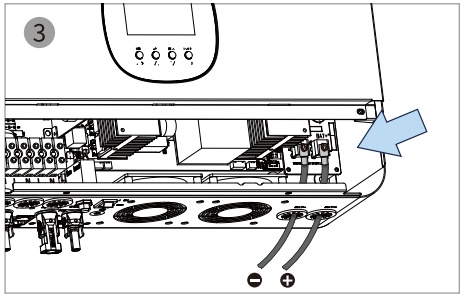
Note: For lead acid battery, the recommended charge current is 0.2C(C→battery capacity).

Please follow below steps to implement battery connection:

1. Assemble battery ring terminal based on recommended battery cable and terminal size.
2. Connect all battery packs as units requires. It’s suggested to connect at least 200Ah capacity battery for the 6K off-grid inverter.
3. First, insert the battery cable through the battery port, then insert the ring terminal of the battery cable into the battery connector of the inverter, and ensure that the bolt is tightened with a torque of 2Nm. Make sure that the polarity of the battery and inverter/charger are connected correctly, and screw the ring terminal to the battery terminal.







WARNING: Shock Hazard
Installation must be performed with care due to high battery voltage in series.

CAUTION: Do not place anything between the flat part of the inverter terminal and the ring terminal. Otherwise, overheating may occur.

CAUTION: Do not apply anti-oxidant substance on the terminals before terminals are connected tightly.

CAUTION: Before making the final DC connection or closing DC breaker/disconnector, be sure positive (+) must be connected to positive (+) and negative (-) must be connected to negative(-).

2.5.2 Lithium Battery Connection

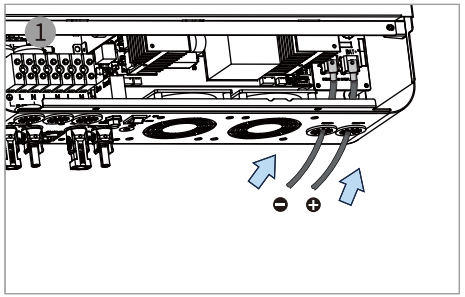
If choosing lithium battery for the 6K off-grid inverter, you are allowed to use the lithium battery only which we have configured. There're two connectors on the lithium battery, RJ45 port of BMS and power cable.

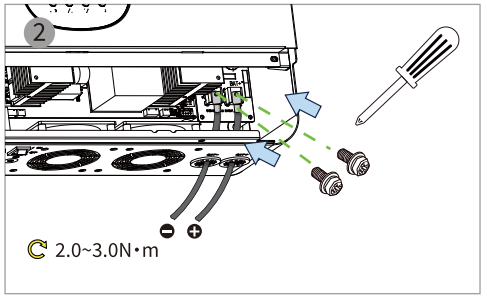
Please follow below steps to implement lithium battery connection:

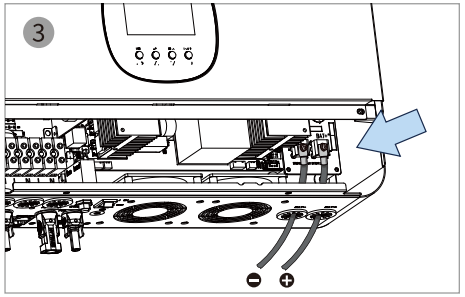
1. Assemble battery ring terminal based on recommended battery cable and terminal size (same as Lead acid, see section Lead-acid Battery connection for details).

2. First, insert the battery cable through the battery port, then insert the ring terminal of the battery cable into the battery connector of the inverter, and make sure to tighten the bolt with a torque of 2Nm. Make sure that the polarity of the battery and inverter/charger are connected correctly, and the ring terminal is tightened with the battery terminal.

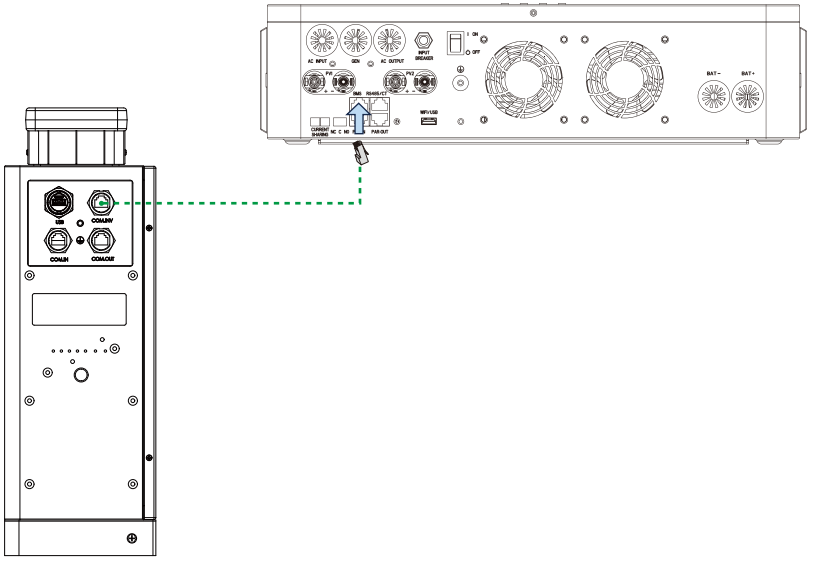
3. Connect the end of RJ45 of battery to BMS communication port(CAN or RS485) of inverter.







4. The other end of RJ45 insert to battery communication port (COM.INV).

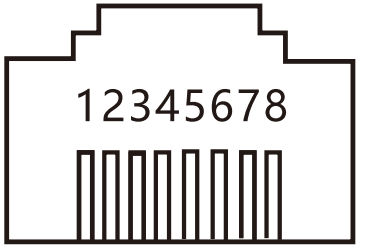


Note: If choosing lithium battery, make sure to connect the BMS communication cable between the battery and the inverter. You need to choose battery type as “lithium battery”.

2.5.3 Lithium Battery Communication and Setting

In order to communicate with battery BMS, you should set the battery type to “LI” in Program 05. Then the LCD will switch to Program 06, which is to set the protocol type. There are several protocols in the inverter. Please get instruction from customer service to choose which protocol to match the BMS.

Connect the end of RJ45 of battery to BMS communication port of inverter Make sure the lithium battery BMS port connects to the inverter is Pin to Pin, the inverter BMS port pin and RS485 port pin assignment shown as below.



Pin number	Color	BMS port	RS485 port (for expansion)
1	Orange and white	WAKE.UP	GND-S
2	Orange	GND-S	EXT-CT_N
3	Green and white	GND-S	RS485+
4	Blue	BAT.CANH+	GND-S
5	Blue and white	BAT.CANL-	RS485-
6	Green	GND-S	CT_ON+
7	Brown and white	BAT-485A	EXT-CT_P
8	Brown	BAT-485B	EXT-CT_P

2.6 LCD Setting

To connect battery BMS, need to set the battery type as “LI” in Program 05.

First set “LI” in Program 05, then switch to Program 06 to choose communication protocol.you can also choose CAN communication protocol which is from L1 to L5.

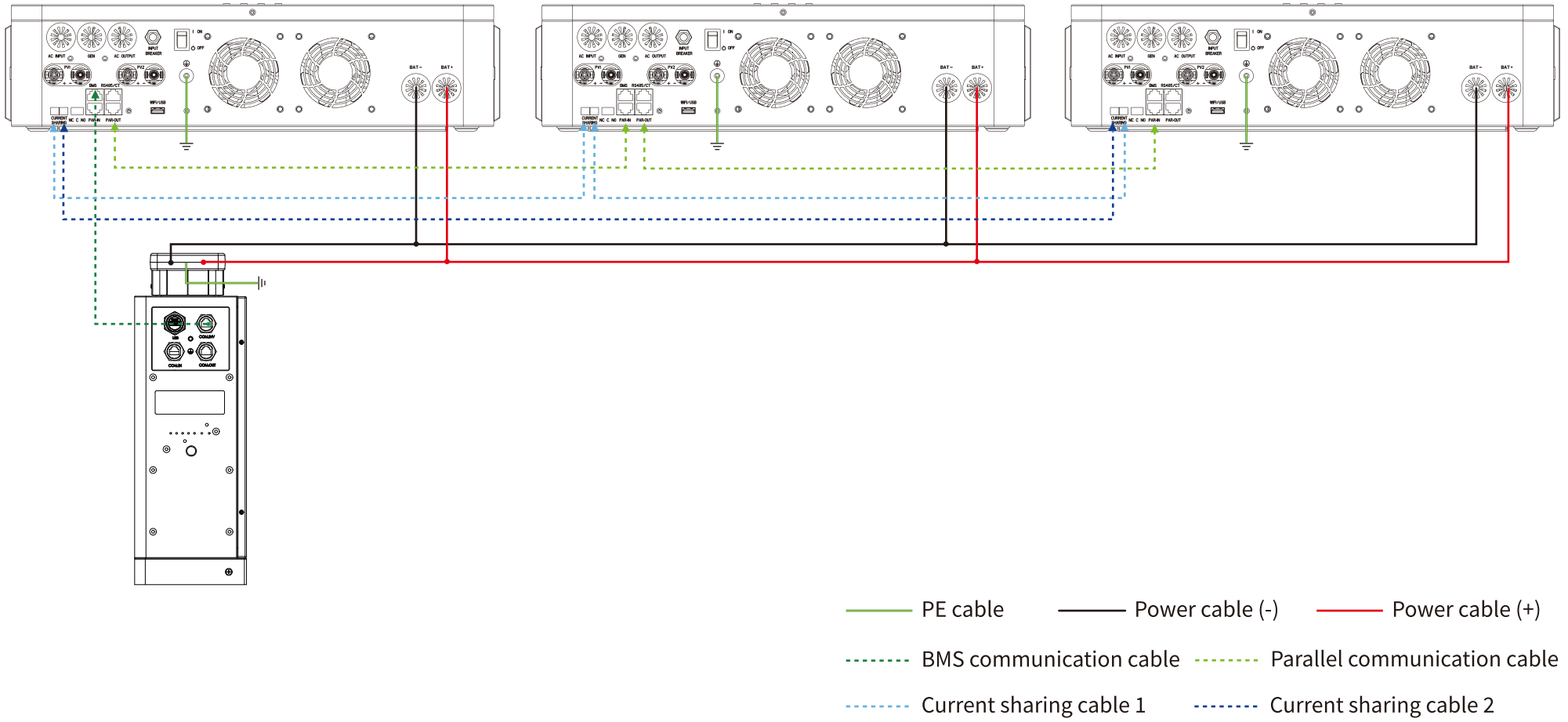
05	Battery type	AGM (default)	
		Lithium (only suitable when communicated with BMS)	
		User-Defined  If “User-Defined” is selected, battery charge voltage and low DC cut-off voltage can be set up in program 16, 17and 18.	

06	CAN Communication protocol	Protocol 1	
		Protocol 2	
		Protocol 3	
		Protocol 4	
		Protocol 5	

Note: Any questions about communicating with BMS, please consult with customer service.

2.7 Communicating with Battery BMS in Parallel System

If need to use communicate with BMS in a parallel system, you should make sure to connect the BMS communication cable between the battery and one inverter of the parallel system. It' s recommended to connect to the master inverter of the parallel system.



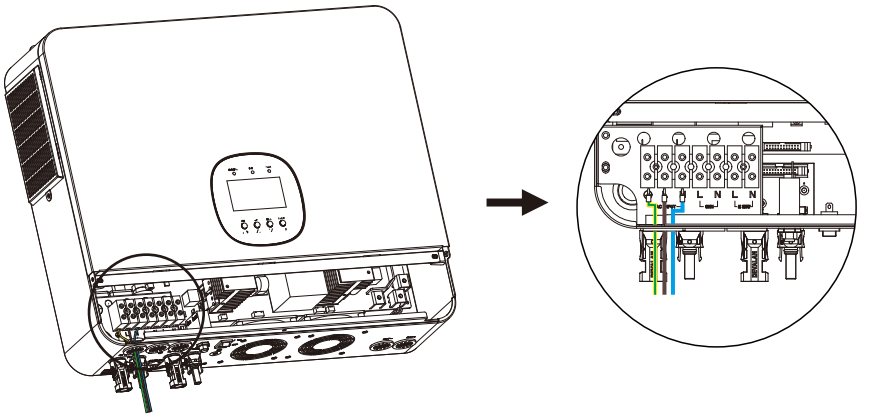
2.8 AC Input / GEN / Output Connection

CAUTION: Before connecting to AC input power source, please install a separate AC breaker between inverter and AC input power source. This will ensure the inverter can be securely disconnected during maintenance and fully protected from over current of AC input. The recommended spec of AC breaker is 50A the 6K off-grid inverter.

CAUTION: There are three terminal blocks with "AC INPUT", "GEN"and "AC OUTPUT" markings. Please do NOT mis-connect input and output connectors.

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

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



WARNING: Be sure that AC power source is disconnected before attempting to hardwire it to the unit.

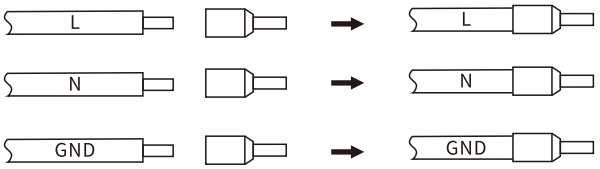
Suggested cable requirement for AC wires

Model	Gauge	Torque Value
The 6K off-grid inverter	1 * 10 AWG	1.2-1.6 Nm

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

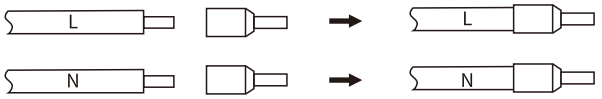
1. Before making AC input/GEN/AC output connection, be sure to open DC protector or disconnector first.
2. Remove insulation sleeve 10mm for seven conductors. And shorten phase L and neutral conductor N 3 mm.Then press in the tubular terminal.
3. Insert AC input wires according to polarities indicated on terminal block and tighten the terminal screws. Be sure to connect PE protective conductor.

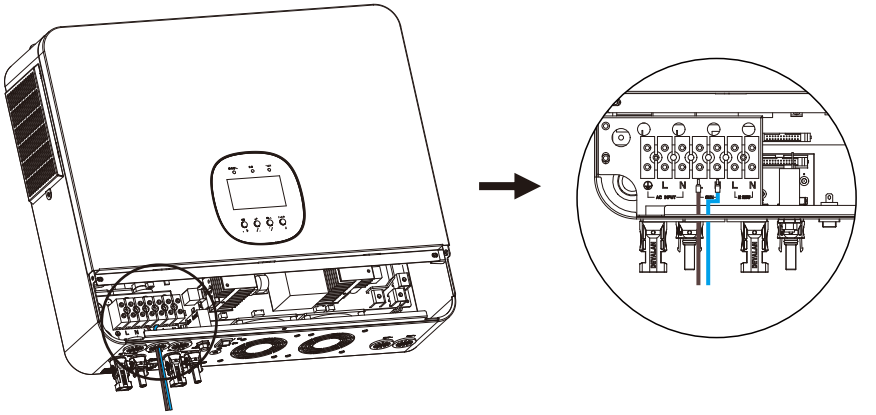
⏚ →Ground .....(yellow-green)
L→LINE (brown or black)
N→Neutral (blue)



4. Then,insert GEN wires according to polarities indicated on terminal block and tighten the terminal screws.

L→LINE (brown or black)
N→Neutral (blue)

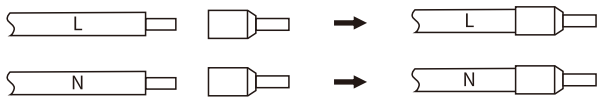


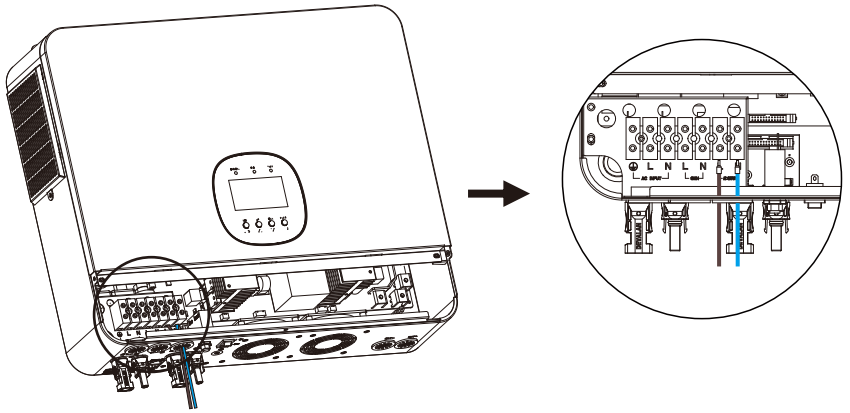


5 Last, insert AC output wires according to polarities indicated on terminal block and tighten terminal screws.

L→LINE (brown or black)

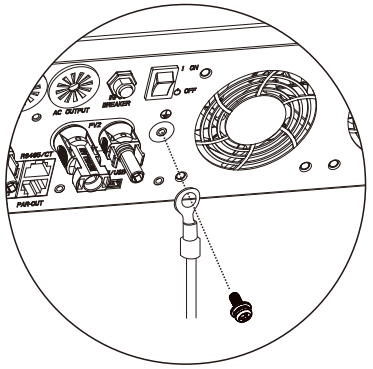
N→Neutral (blue)



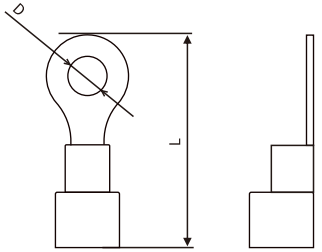


6 Make sure the inverter metal housing is grounded.

→Ground (yellow-green)



R-type terminal:



7 Make sure the wires are securely connected.

CAUTION: Important
Be sure to connect AC wires with correct polarity. If L and N wires are connected reversely, it may cause utility short-circuited when these inverters are worked in parallel operation.

CAUTION: Appliances such as air conditioner are required at least 2~3 minutes to restart because it' s required to have enough time to balance refrigerant gas inside of circuits. If a power shortage occurs and recovers in a short time, it will cause damage to your connected appliances. To prevent this kind of damage, please check with manufacturer of air conditioner that if it' s equipped with time-delay function before installation. Otherwise, this off grid solar inverter will trig overload fault and cut off output to protect your appliance but sometimes it still causes internal damage to the air conditioner.

2.9 PV Connection

CAUTION: Before connecting to PV modules, please install separately a DC circuit breaker between inverter and PV modules.

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

WARNING: Using the proper cables to connect the PV modules is important for the safe and efficient operation of the system. To reduce risk of injury, please use the proper recommended cable size as below.

Model	Wire Size	Torque value
The 6K off-grid inverter	1 * 10 AWG	1.2-1.6 Nm

2.9.1 PV Module Selection

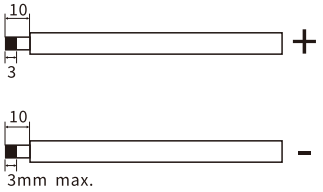
When selecting proper PV modules, please be sure to consider below parameters:

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 start-up voltage.

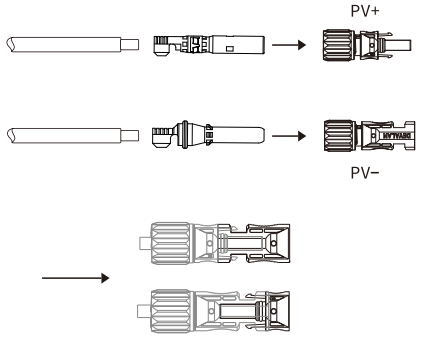
Inverter Model	The 6K off-grid inverter
Max. PV Array Open Circuit Voltage	530Vdc
Start-up Voltage	120Vdc±5%
PV Array MPPT Voltage Range	150Vdc~480Vdc
Rated input voltage	360Vdc

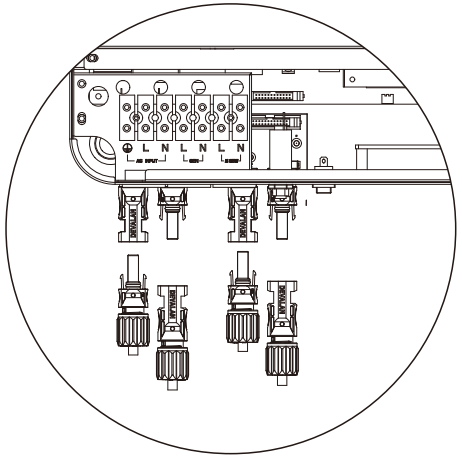
Please follow below steps to implement PV module connection:

1 Remove insulation sleeve 10 mm for positive and negative conductors.



2 Insert PV panel positive and negative cables into MC4 terminal, then connect positive pole(+)of connection cable to positive pole(+)of PV input connector, connect negative pole(-)of connection cable to negative pole(-) of PV input connector.

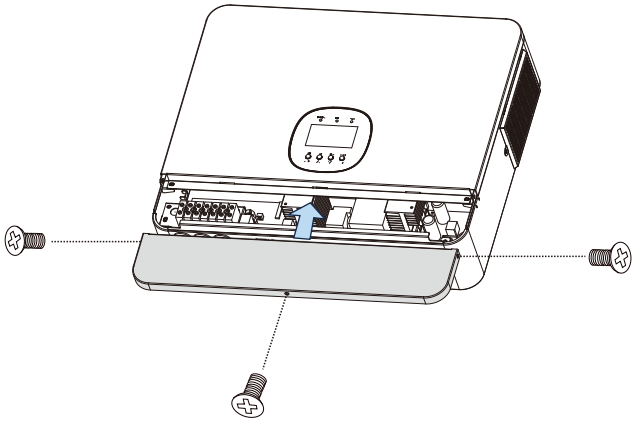




3 Make sure the wires are securely connected.

2.10 Final Assembly

After connecting all the wiring, put the bottom cover back in place and then tighten the three screws as shown below.



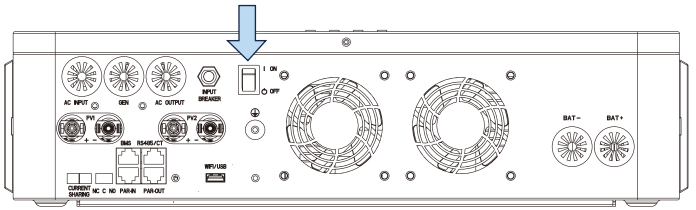
2.10.1 Dry Contact Signal

There is one dry contact(3A/250VAC) available on the rear panel. It could be used to deliver signal to external device when battery voltage reaches warning level.

Unit Status	Condition		Dry contact port: NC C NO	
			NC & C	NO & C
Power Off	Unit is off and no output is powered		Close	Open
Power On	Output is powered from utility		Close	Open
	Output is powered from Battery or Solar	Battery Voltage < Setting value in Program 12 (AGM) or Discharge Cutoff SOC (Li)	Open	Close
		Battery Voltage > Setting value in Program 17 (AGM) or Charge Max Soc (Li)	Close	Open

3. Operation

3.1 Power ON/OFF

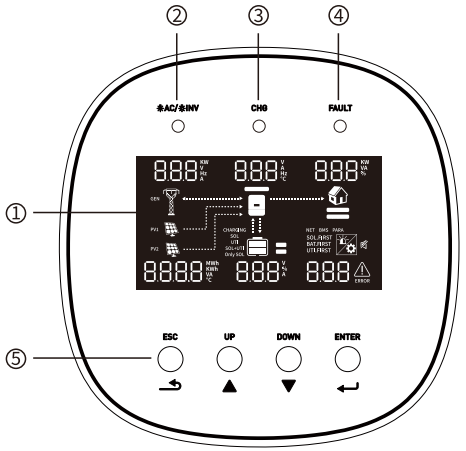


Once the unit has been properly installed and the batteries are connected well, simply press On/Off switch(located on the button of the case) to turn on the unit.

3.2 Operation and Display Panel

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

1. LCD display
2. Status indicator
3. Charging indicator
4. Fault indicator
5. Function buttons



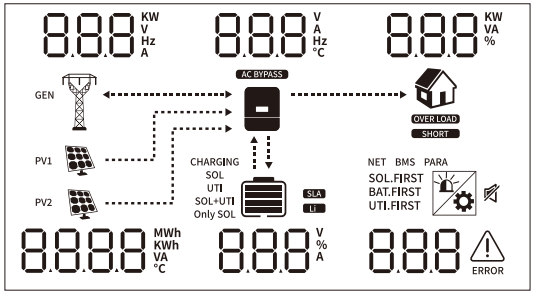
LED Indicator

LED Indicator			Messages
AC/INV	Green	Solid On	On-grid mode.
		Flashing	Off-grid mode.
CHG	Green	Solid On	The battery is fully charged in on-grid mode or off-grid mode.
		Flashing	The battery is charging in on-grid mode or off-grid mode.
FAULT	Red	Solid On	Fault occurs in the inverter.
		Flashing	Warning condition occurs in the inverter.

Function Buttons

Button	Description
ESC	To exit setting mode
UP	To go to previous selection
DOWN	To go to next selection
ENTER	To confirm the selection in setting mode or enter setting mode

3.3 LCD Display Icons



Icon	Description
AC Input Information	
	AC input icon.
GEN	Generator input icon.
KW V Hz A	Indicate AC input power, AC input voltage, AC input frequency, AC input current.
AC BYPASS	Indicate AC power loads in bypass.
PV Input Information	
PV1 PV2	Left：PV1 input icon. Right：PV2 input icon.
MWh KWh VA °C	Indicate PV power, PV voltage, PV current, etc.
Output Information	
	Inverter icon.
V A Hz °C	Inverter voltage , inverter current, output frequency,inverter temperature.

Load Information	
	Load icon.
	Displays load active power, apparent power, and load rate.
OVER LOAD	Indicate overload happened.
SHORT	Indicate short circuit happened.
Battery Information	
	Indicates that the battery charge is 5~24%, 25~49%, 50~74% and 75~100%.
	Indicate battery voltage, battery percentage, battery current.
SLA	Indicate SLA battery.
Li	Indicate lithium battery.
	Indicate charging source priority: solar first, solar and utility, or only solar.
Other Information	
SOL.FIRST BAT.FIRST UTI.FIRST	Indicates output source priority: “SOL mode，SBU mode，UTI mode”.
	Indicate warning code or fault code.
	Indicate a warning or a fault is happening.
	Indicate it’ s during setting values.
	Indicates that the alarm is off.

In AC mode, battery icon will present Battery Charging Status.		
Status	Battery voltage	LCD Display
Constant Current mode /Constant Voltage mode.	<2V/cell	4 bars will flash in turns.
	2 ~ 2.083V/cell	Bottom bar will be on and the other three bars will flash in turns.
	2.083 ~ 2.167V/cell	Bottom two bars will be on and the other two bars will flash in turns.
	> 2.167 V/cell	Bottom three bars will be on and the top bar will flash.
Floating mode. Batteries are fully charged.		4 bars will be on.

In battery mode, battery icon will present Battery Capacity.		
Load Percentage	Battery Voltage	LCD Display
Load >50%	< 1.717V/cell	
	1.717V/cell ~ 1.8V/cell	
	1.8 ~ 1.883V/cell	
	> 1.883 V/cell	
50%> Load > 20%	< 1.817V/cell	
	1.817V/cell ~ 1.9V/cell	
	1.9 ~ 1.983V/cell	
	> 1.983	
Load < 20%	< 1.867V/cell	
	1.867V/cell ~ 1.95V/cell	
	1.95 ~ 2.033V/cell	
	> 2.033	

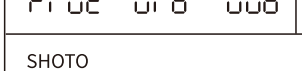
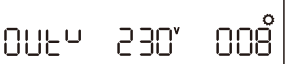
3.4 LCD Setting

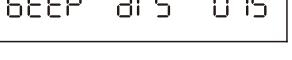
After pressing and holding ENTER button for 3 seconds, the unit will enter setting mode. Press “UP” or “DOWN” button to select setting programs. Then press “ENTER” button to confirm the selection or ESC button to exit.

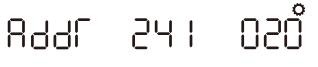
Program	Description	Setting Option	
01	On-Off Control. (Default ON)	Turn off	
		Turn on	
02	Output source priority: To configure load power source priority. (Default SUB)	Solar first	
		The solar energy is prioritized to power the load and the excess energy charges the battery. If the solar energy is not enough to power the connected loads, the battery participates in the power supply. At this point, if the battery voltage is less than 42V, the machine is connected to the power grid and the mains is involved.And the mains power supply is engaged. As the battery voltage rises above the program 12 setting, the battery is engaged. When the voltage is higher than the value set in program 17, the grid is cut out.	

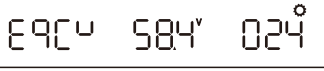
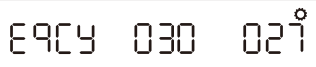
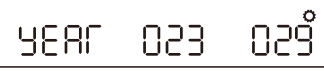
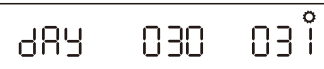
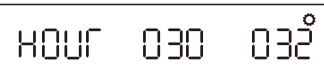
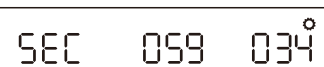
Program	Description	Setting Option	
02	Output source priority: To configure load power source priority. (Default SUB)	SBU priority	OPPr SbU 002
		If program item 35 is set to enable, and the solar energy is greater than the limit set in program 22, the solar energy feeds into the grid energy according to the limit, and the excess is charged to the battery. If the solar energy is less than the limit value set by program 22, the solar energy and battery energy will be fed into the grid according to the setting of item 22, and the insufficient part of the load will be provided by the grid. At this time, if the battery voltage is less than the value set in program 12, the battery is no longer discharged, the solar energy will be fed into the grid in full, and the under-carrying part will be provided by the grid. If program 35 is not set to enable, solar energy will be prioritized to supply power to the load, and the excess energy will be charged to the battery, if the solar energy is not enough to supply power to the connected load, the battery will participate in the power supply. At this time, if the battery voltage is less than the value set in program 12, the battery is no longer discharged, and all the solar energy is supplied to the load, and the under-carrying part is supplied by the grid.	
		SUB priority	OPPr SUb 002
		The solar energy is prioritized to supply power to the loads, and the excess energy charges the batteries, which can also be charged by the grid according to the charging priority (program 13). If the solar energy is not sufficient to power the connected loads, all solar energy is supplied to the loads, and any shortfall in carrying capacity is supplied by the grid, which can also charge the batteries according to the charging priority (program 13).	
		Utility priority	OPPr UtI 002
		The machine is connected to the grid, the utility power is prioritized to supply energy to the load , the inverter side will not provide energy to the load, at this time the battery charging will be done according to the charging priority (see program 13 description), the battery is always charged until full.	

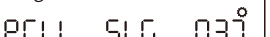
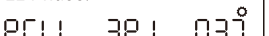
Program	Description	Setting Option
03	Maximum charging current: set total charging current for solar and utility chargers. (Max. charging current = utility charging current + solar charging current).	CHGI 100A 003 Default 120A, 10A~120A Settable (If LI is selected in Program 05, this program can' t be set up)
04	AC voltage input type.	Appliance (default) ACU APL 004 If selected, acceptable AC input voltage range will be within 90~280VAC.
		UPS ACU UPS 004 If selected, acceptable AC input voltage range will be within 170~280VAC.
		Generator(Only diesel generators allowed) ACU GEn 004 If selected, acceptable AC input voltage range will be within 170~280VAC. **Note:** When connecting generator, the generator should be no less than 10KVA(no less than 20KVA for three phase parallel system), and the inverters should be no more than 2 units in one phase.
05	Battery type	AGM (default) bAtt AGn 005
		Lithium (only suitable when communicated with BMS) bAtt LI 005

Program	Description	Setting Option	
05	Battery type	User-Defined  If “User-Defined” is selected, battery charge voltage and low DC cut-off voltage can be set up in program 16, 17and 18.	
06	Lithium battery communication protocol selection. (Default PY)	PYLON 	HINEN 
		GROWATT 	GROWCOL 
		SHOTO 	
07	Overload bypass: When enabled, if overload occurs in SOL mode, the device will switch to bypass mode.	Bypass disable 	Bypass enable (default) 
08	Output voltage	230V (default) 	220V 
		240V 	208V 
09	Output frequency	50Hz (default) 	60Hz 

Program	Description	Setting Option	
10	Number of batteries in series.	 (e.g. Display 4 batteries in series)	
11	AC Charging Maximum Current.	 Default 30.0A,2A~60A Settable. **Note:** If the set value in program 03 is less than the set value in program 11, the value set in program 03 prevails.	
12	Discharge cut-off voltage. Setting voltage point back to utility source when selecting “SBU priority” or “Solar first” in program 02.	 Default 46.0V, 42.0V~51.0V Settable.	
13	Charger source priority: To configure charger source priority. (Default CSO)	If this off grid solar inverter is working in On-grid, Standby or Fault mode, charger source can be programmed as below.	
		Solar first 	Solar will charge the battery first. Utility power will charge the battery only when solar is not available in UTI, SUB mode.
		Solar and Utility 	Both solar and utility power will charge the battery . (Utility charging must be in UTI, SUB mode)
		Only Solar 	Solar energy will be the only energy source no matter utility is available or not.
14	Alarm buzzer switch.	Alarm on (default) 	Alarm off 
15	Key buzzer switch.	Sound on (default) 	Sound off 

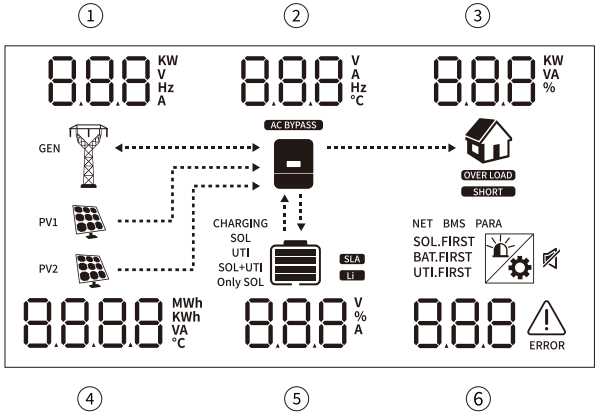
Program	Description	Setting Option
16	Floating charging voltage. If self-defined is selected in program 05, this program can be set up.	 Default 54.0V, 48.0V~61.0V Settable.
17	Trickle charge voltage. If self-defined is selected In program 05, this program can be set up. Setting voltage point back to battery mode when selecting “Solar first” in program 02.	 Default 56.4V, 48.0V~61.0V Settable.
18	Low DC cut-off voltage. If self-defined is selected in program 05, this program can be set up.Low DC cut-off voltage will be fixed to setting value no matter what percentage of load is connected.	 Default 40.0V, 40.0V~48.0V Settable. When reach Low DC cut-off voltage: (1) If battery power is only power source available, inverter will shut down. (2) If PV energy and battery power are available, inverter will charge battery without AC output. (3) If PV energy, battery power and utility are all available, grid participation in power supply and provide output power to loads, and charge the battery at the same time.
19	Meter and CT access options. Item 19 is the default use of INV (the current product of INV and CT mode to do adaptive, the customer conneCTed to the CT will change to CT mode, Will change to INV mode without CT).	CT  MTR  INV 
20	Address setting (for expansion).	Default 1, 1~250 Settable 
21	Baud rate setting. (Default 9600)	9600  38400 

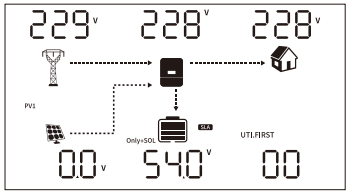
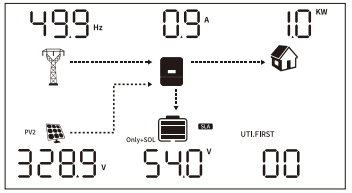
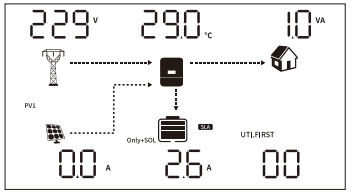
Program	Description	Setting Option
22	Active percentage setting.	0%~100% 
23	Battery equalization /EQ enable.	Battery equalization enable.  Battery equalization disable (default). 
24	Battery equalization voltage.	 Default 58.4V, 48.0V~61.0V Settable.
25	Battery equalized time.	 Default 900min, 5min~900min Settable.
26	Battery equalized timeout.	 Default 120min, 5min~900min Settable.
27	Battery equalization interval.	 Default 30days, 0 days~90 days Settable.
28	Battery equalization activated immediately.	Equalization activated immediately on.  Equalization activated immediately off(default).  If equalization function is enabled in program 23, this program can be setup. If “On” is selected in this program, it’ s to activate battery equalization immediately and LCD main page will shows “ EQ ”.If “Off” is selected, it will cancel equalization function until next activated equalization time arrives based on program 27setting. At this time, “ EQ ” will not be shown in LCD main page.
29	Real time setting---Year	 Default 2023, Range 23~90
30	Real time setting---Month	 Range 01~12
31	Real time setting---Date	 Range 01~31
32	Real time setting---Hour	 Range 00~23
33	Real time setting---Minute	 Range 00~59
34	Real time setting---Second	 Range 00~59
35	On-grid Enable.	 

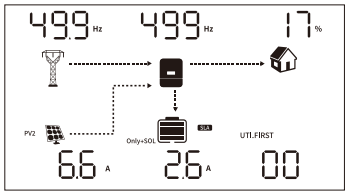
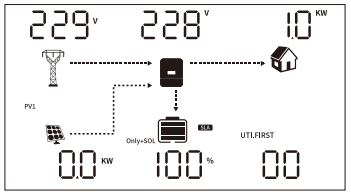
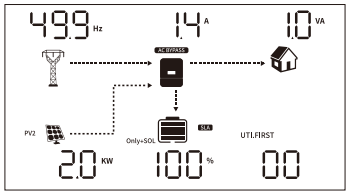
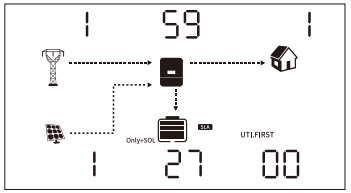
Program	Description	Setting Option	
36	Restore factory settings.	Clear power generation. 	
		Restore default system parameters. 	
		Restart 	
37	AC output mode *This setting is only available when the inverter is in stand by mode (Switch off). **Note:** Parallel operation can only work when battery connected. (Default SIG)	Single: 	Parallel: 
		L1 Phase: 	L2 Phase: 
		L3 Phase: 	
		When the units are used in parallel with single phase, please select “PAL” in program 37. It requires 3 inverters to support three-phase equipment, 1 inverter in each phase. Please select “3P1” in program 37 for the inverters connected to L1 phase, “3P2” in program 37 for the inverters connected to L2 phase and “3P3” in program 37 for the inverters connected to L3 phase. Be sure to connect share current cable to units which are on the same phase. Do NOT connect share current cable between units on different phases. Besides, power saving function will be automatically disabled.	

3.5 Display Information

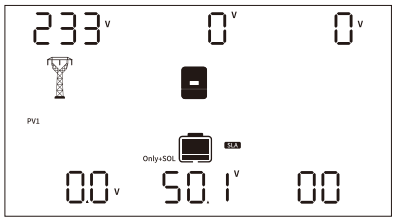
The LCD display information will be switched in turns by pressing “UP” or “DOWN” key. The selectable information is switched as below order: voltage, frequency, current, power, firmware version.

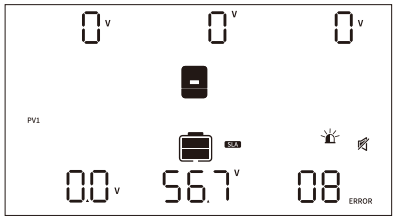
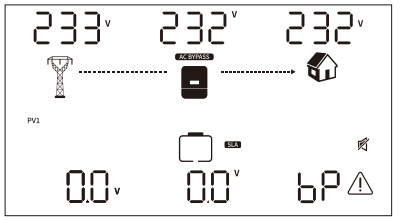
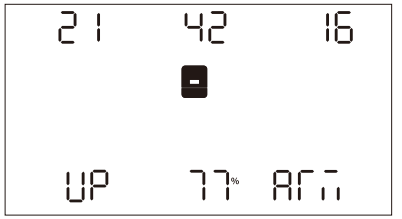
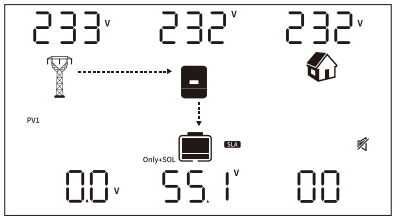
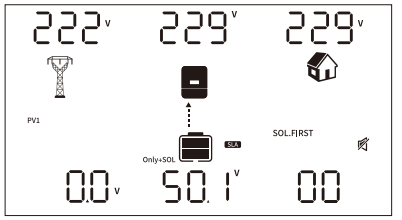


Setting Information	LCD display
① Grid voltage (or diesel generator voltage) ② Inverter voltage ③ Off-grid voltage ④ PV1 voltage ⑤ Battery voltage (Sampling voltage for lead-acid batteries) ⑥ System Failure	
① Grid frequency (Or diesel generator frequency) ② Inverter current ③ Off-grid output active power ④ PV2 voltage ⑤ Battery voltage (Sampling current for lead-acid batteries) ⑥ System failure	
① Grid voltage (Or diesel generator voltage) ② Inverter temperature ③ Off-grid output apparent power ④ PV1 current ⑤ Battery current (Sampling current for lead-acid batteries) ⑥ System failure	

① Grid frequency (Or diesel generator frequency) ② Off-grid frequency ③ Load factor ④ PV2 current ⑤ Battery current ⑥ System failure	
① Grid voltage (Or diesel generator voltage) ② Inverter voltage ③ Off-grid output active power ④ PV1 power ⑤ SOC ⑥ System Failure	
① Grid frequency (Or diesel generator frequency) ② Inverter current ③ Off-grid output apparent power ④ PV2 power ⑤ SOC ⑥ System Failure	
① DSP Master Version ② DSP subversion ③ DSP hardware version ④ M3 major version ⑤ M3 subversion ⑥ System Failure	

Operating Mode Description

Operation mode	Description	LCD display
Standby Mode **Note:** *Standby mode: the inverter has not been turned on.	The device provides no output.	

Operation mode	Description	LCD display
Fault Mode **Note:** *Fault mode: Errors are caused by inside circuit error or external reasons such as over temperature, output short circuited and so on.	The red fault light is always on, and the alarm buzzer sounds. (The picture in the figure shows the BUS overvoltage fault.)	
Bypass Mode	The unit will provide output power from the utility.	
Upgrade Mode	The upper part shows the local time in sequence: hour, minute, second. The update status is displayed in the lower left corner: updating. The percentage of upgrade progress is displayed in the middle below. The upgraded software type is displayed in the lower right corner: DSP,ARM, and BAT. DSP mode:The red light blinks slowly. ARM mode:The red light blinks rapidly BAT mode:The red light blinks slowly	
On-grid Mode	The power grid participates in the work, the power grid can supply power, or the machine feeds the power grid.	
Off-grid Mode	The power grid does not participate in the work.	

4. Parallel Installation Guide

4.1 Introduction

This inverter can be used in parallel with two different operation modes.

1. Parallel operation in single phase with up to 6 units.
2. Maximum 6 units work together to support 3-phase equipment. Four units support one phase maximum.

4.2 Package Contents

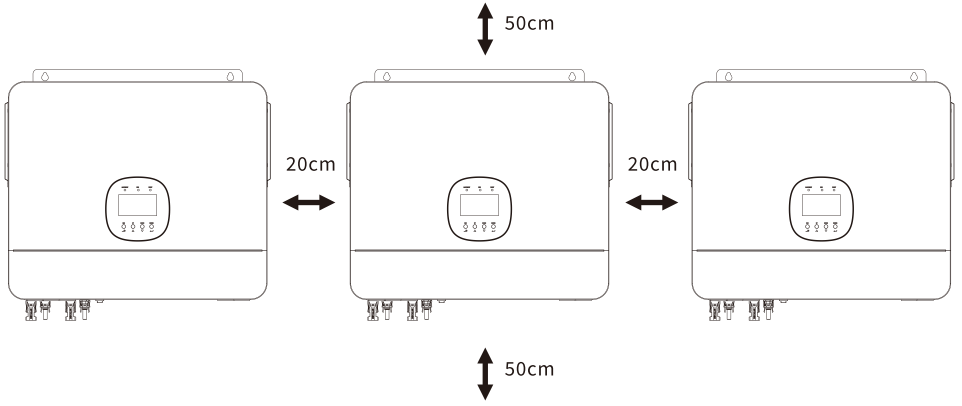
In parallel kit, you will find the following items in the package:

Parallel communication cable

Current sharing cable

4.3 Mounting the Unit

When installing multiple units, please follow below chart.

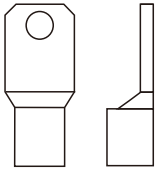


Note: For proper air circulation to dissipate heat, allow a clearance of approx. 20cm to the side and approx. 50 cm above and below the unit. Be sure to install each unit in the same level.

4.4 Wiring Connection

The cable size of each inverter is shown as below
Recommended battery cable and terminal size for each inverter:

O-type terminal:



Model	Wire Size	Torque value
The 6K off-grid inverter	1 * 3 AWG	2-3 Nm

> ⚠ **WARNING:** Be sure the length of all battery cables is the same. Otherwise, there will be voltage difference between inverter and battery to cause parallel inverters not working.

You need to connect the cables of each inverter together. Take the battery cables for example: You need to use a connector or bus-bar as a joint to connect the battery cables together, and then connect to the battery terminal. The cable size used from joint to battery should be X times cable size in the tables above. “X” indicates the number of inverters connected in parallel.

Regarding AC input and output, please also follow the same principle.
Recommended AC input and output cable size for each inverter:

Model	Gauge	Torque Value
The 6K off-grid inverter	1 * 10 AWG	1.2-1.6 Nm

> ⚠ **CAUTION:** Please install the breaker at the battery and AC input side. This will ensure the inverter can be securely disconnected during maintenance and fully protected from over current of battery or AC input.

Recommended breaker specification of battery for each inverter:

Model	1 unit*
The 6K off-grid inverter	200A / 60VDC

*If you want to use only one breaker at the battery side for the whole system, the rating of the breaker should be X times current of 1 unit. “X” indicates the number of inverters connected in parallel.

Recommended breaker specification of AC input with single phase:

Model	2 units	3 units
The 6K off-grid inverter	100A/230VAC	150A/230VAC

Note1: You can use 50A breaker for The 6K off-grid inverter for only 1 unit, and each inverter has a breaker at its AC input.

Note2: Regarding three phase system, you can use 4 poles breaker, the rating is up to the current of the phase which has the maximum units. Or you can follow the suggestion of note 1.

Recommended battery capacity:

Inverter parallel numbers	2	3	4	5	6
Battery Capacity	400AH	600AH	800AH	1000AH	1200AH

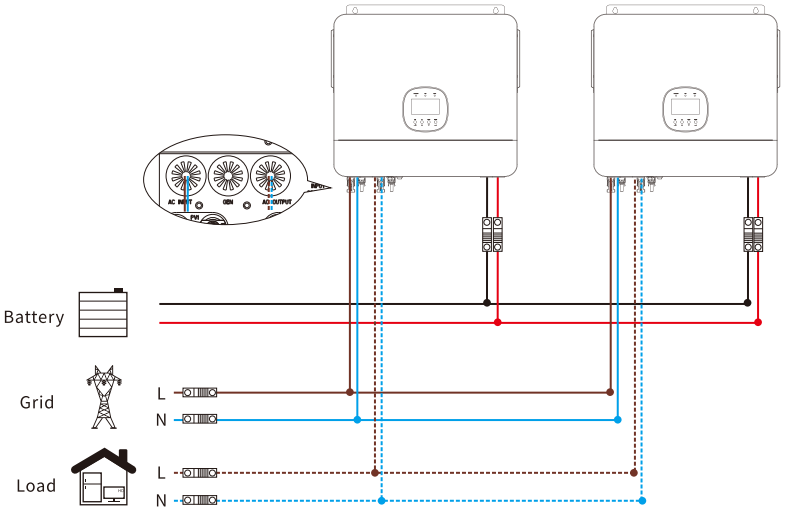
WARNING: Be sure that all inverters will share the same battery bank. Otherwise, the inverters will transfer to fault mode.

4.5 Parallel Operation in Single Phase

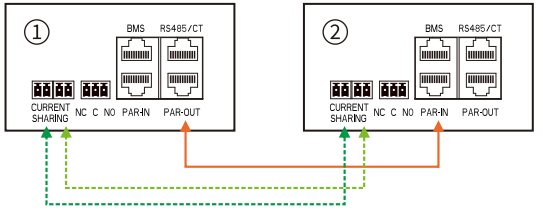
WARNING: All inverters must be connected to the same batteries and ensure each group of cables from the inverters to the batteries in the same length.

Two inverters in parallel:

Power Connection



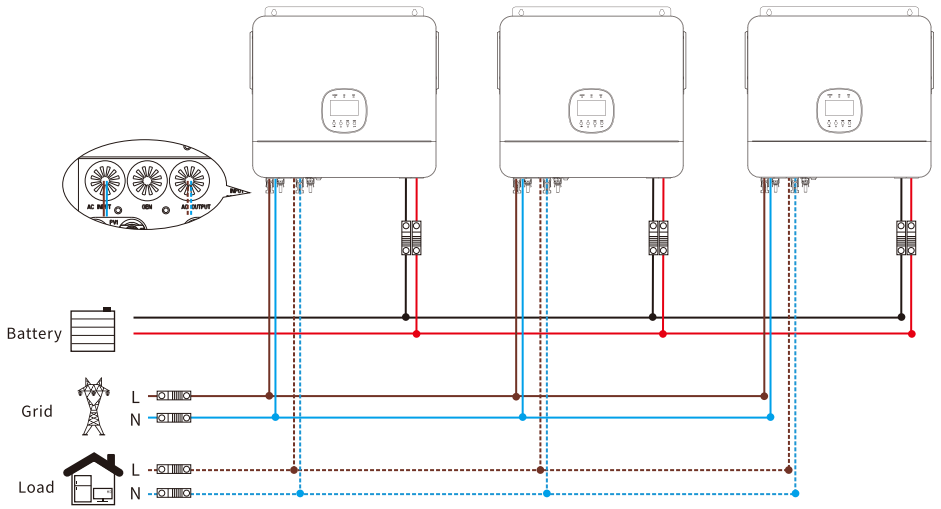
Communication Connection



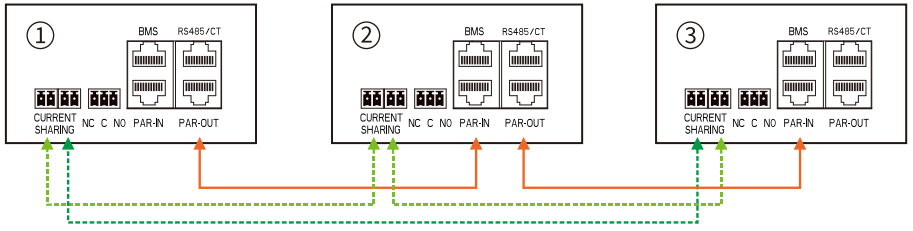
WARNING: Make sure that PAR-OUT of one inverter is connected to the PAR-IN of another inverter. No matter single or three-phase parallel, it is not allowed to connect the PAR-OUT of one inverter with the PAR-OUT of another inverter,or it is not allowed to connect the PAR-IN of one inverter with the PAR-IN of another inverter. Otherwise, the communication is abnormal.The PAR-IN of the first inverter and the PAR-OUT of the last inverter are not allowed to connect other inverters.

Three inverters in parallel:

Power Connection



Communication Connection

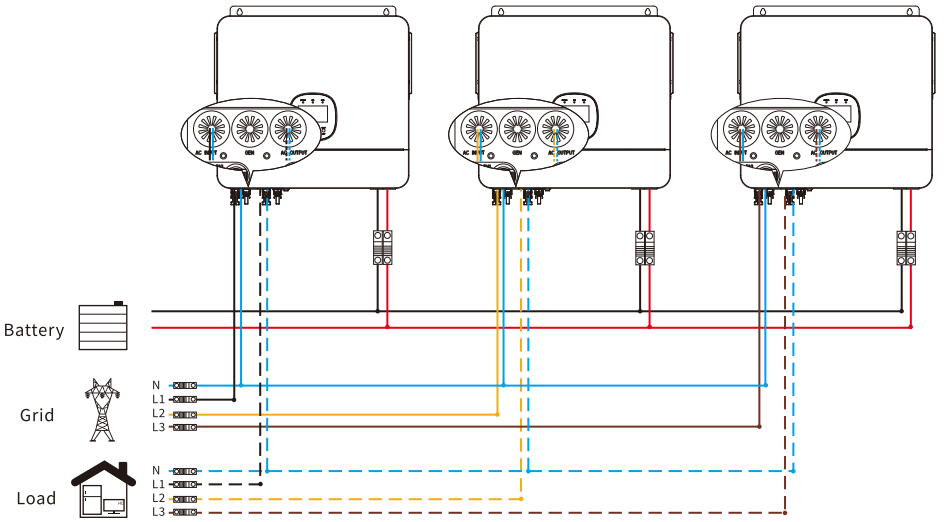


4.6 Parallel Operation in Three Phase

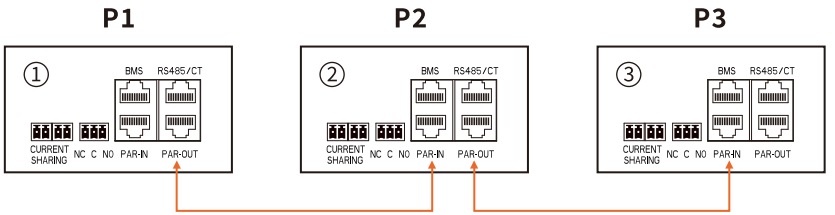
> ⚠ **WARNING:** All inverters must be connected to the same batteries and ensure each group of cables from the inverters to the batteries in the same length.

One inverter in each phase:

Power Connection



Communication Connection



4.7 PV Connection

For PV connections, refer to section 2.9.1 of this user manual.

> ⚠ **CAUTION:** Each inverter should connect to PV modules separate.

4.8 LCD Setting and Display

For instructions on setting and displaying the LCD, refer to sections 3.2 to 3.4 of this user manual.

Parallel in Single Phase

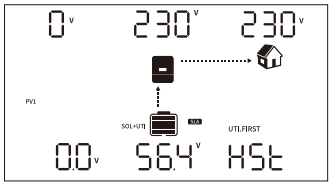
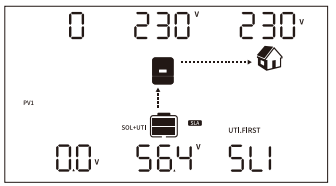
Step 1 Check the following requirements before commissioning:

- Correct wire connection.
- Ensure all breakers in Line wires of load side are open and each Neutral wires of each unit are connected together.

Step 2 Turn on each unit and set “PAL” in LCD setting program 37 of each unit. And then shut down all units.

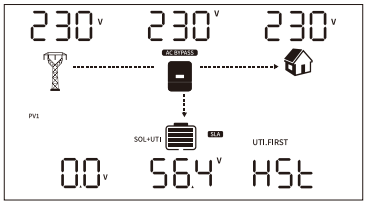
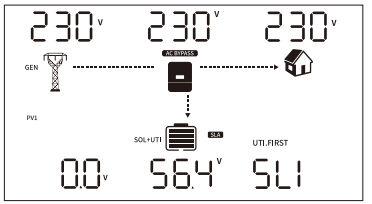
Note: It’s necessary to turn off switch when setting LCD program. Otherwise, the setting can not be programmed.

Step 3 Turn on each unit.

LCD display in Master unit	LCD display in Slave unit
	

Note: Master and slave units are randomly defined.

Step 4 Switch on all AC breakers of Line wires in AC input. It’s better to have all inverters connect to utility at the same time. If not, it will display warning 16.

LCD display in Master unit	LCD display in Slave unit
	

Step 5 If there is no more fault alarm, the parallel system is completely installed.

Step 6 Please switch on all breakers of Line wires in load side. This system will start to provide power to the load.

Parallel in Three Phase

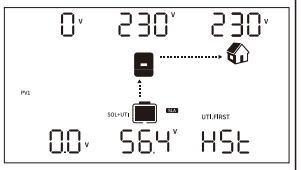
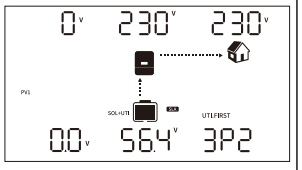
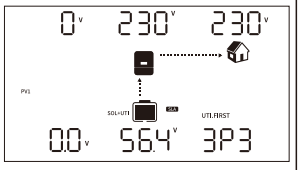
Step 1 Check the following requirements before commissioning:

- Correct wire connection.
- Ensure all breakers in Line wires of load side are open and each Neutral wires of each unit are connected together.

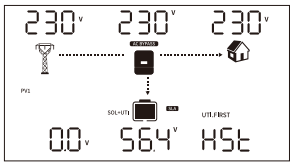
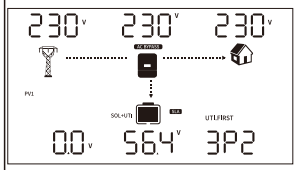
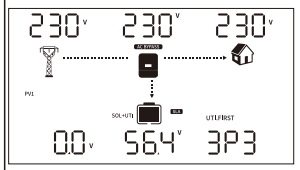
Step 2 Turn on all units and configure LCD program 37 as P1, P2 and P3 sequentially. Then shut down all units.

Note: It’s necessary to turn off switch when setting LCD program. Otherwise, the setting can not be programmed.

Step 3 Turn on all units sequentially. Please turn on HOST inverter first, then turn on the rest one by one.

LCD display in L1-phase unit	LCD display in L2-phase unit	LCD display in L3-phase unit
		

Step 4 Switch on all AC breakers of Line wires in AC input. If AC connection is detected and three phases are matched with unit setting, they will work normally. Otherwise, they will display warning 16/17 and will not work in the line mode.

LCD display in L1-phase unit	LCD display in L2-phase unit	LCD display in L3-phase unit
		

Step 5 If there is no more fault alarm, the system to support 3-phase equipment is completely installed.

Step 6 Please switch on all breakers of Line wires in load side. This system will start to provide power to the load.

Note 1: If there' s only one inverter in L1-phase, the LCD will show as "HST". If there is more than one inverter in L1-phase, the LCD of the HOST inverter will show as "HST", the rest of L1-phase inverters will show as "3P1".

Note 2: To avoid overload occurring, before turning on breakers in load side, it' s better to have whole system in operation first.

Note 3: Transfer time for this operation exists. Power interruption may happen to critical devices, which cannot bear transfer time.

5. Fault Reference Code

Fault Code	Fault Event	Icon Display
01	Fan is locked	
02	Over temperature	
03	Battery voltage is too high	
04	Battery voltage is too low	
05	Output short circuited	
06	Output voltage is too high	
07	Overload time out	
08	Bus voltage is too high	
09	LLC soft start failed	
16	Parallel input grid different	
17	Parallel input phase error	
18	Parallel output phase Loss	
19	Parallel forbidden without battery	
20	Parallel inverter' capacity different	
31	Relay fault	
32	Output relay fault	
33	Generator relay fault	
34	NTC fault	
35	Buckboost over current(hardware protect)	
36	Buckboost over current(software protect)	
37	Over DC current in buckboost current	
38	Battery discharge overLoad	
39	LLC_BUS voltage is too low	
40	LLC_BUS voltage is too high	

Fault Code	Fault Event	Icon Display
41	AC input overcurrent	
42	PV current sample fault	
43	Inverter CurrOverFault	
44	Boost over Current	
45	Bus voltage is too low	
51	Boost or INV over current	
52	Bus sample Fault	
53	SPS failed	
55	Over DC voltage in AC output	
57	Current sensor failed	
58	Output voltage is too low	
59	PV voltage is too high	
60	Negative power fault	
80	CAN fault	
81	Host loss	

6. Warning Reference Code

Warning Code	Warning Event	Audible Alarm	Icon Flashing
01	Fan is locked when inverter is on	Beep thrice every seconds	
02	Over temperature	No beep	
03	Battery is over-charged	No beep	
04	Battery voltage is too low	Beep once every second	
06	Output voltage is too High	Beep twice every 3 seconds	
07	Overload	Beep once every 0.5 second	
10	AC output undervoltage	No beep	
14	PV Reverse/Short Connect	No beep	
15	BUS undervoltage	Beep twice every 3 seconds	
21	Grid Voltage is abnormal	No beep	
22	Grid Frequency is abnormal	No beep	
31	Battery Only Charge	No beep	
32	Battery Need Charge	No beep	
33	Bus high volt No Charge	No beep	
56	Battery connection is open	No beep	
62	Internal communication ARM of DSP abnormal	Beep 1 second every 5 second	
110	Internal communication DSP of ARM abnormal	Beep 1 second every 5 second	
115	Firmware identification and so on do not match	No beep	
120	Abnormal communication with battery	No beep	
125	Battery fault protection	No beep	
Eq	Battery equalization	No beep	
bp	Battery is not connected	No beep	

7. Battery Equalization

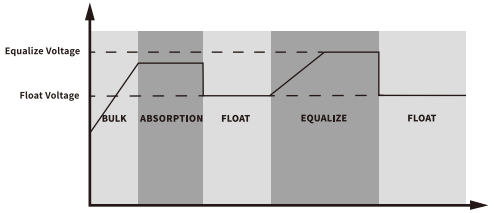
Equalization function is added into charge controller. It reverses the buildup of negative chemical effects like stratification, a condition where acid concentration is greater at the bottom of the battery than at the top. Equalization also helps to remove sulfate crystals that might have built up on the plates. If left unchecked, this condition, called sulfation, will reduce the overall capacity of the battery. Therefore, it' s recommended to equalize battery periodically.

- **How to Apply Equalization Function**

  You must enable battery equalization function in monitoring LCD setting program 23 first. Then, you may apply this function in device by either one of following methods:
  1. Setting equalization interval in program 27.
  2. Active equalization immediately in program 28.

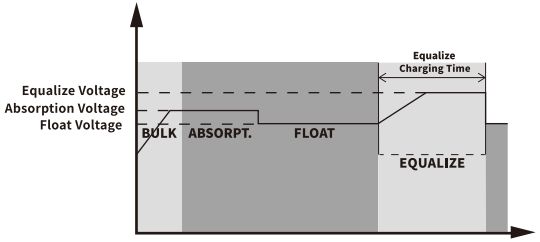
- **When to Equalize**

  In float stage, when the setting equalization interval (battery equalization cycle) is arrived, or equalization is active immediately, the controller will start to enter Equalize stage.

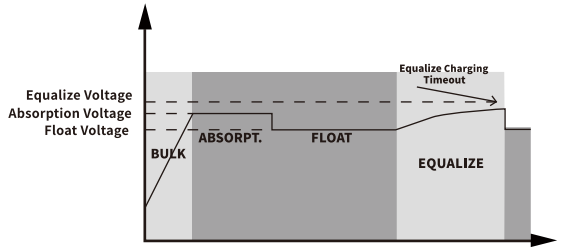


- **Equalize charging time and timeout**

  In Equalize stage, the controller will supply power to charge battery as much as possible until battery voltage raises to battery equalization voltage. Then, constant-voltage regulation is applied to maintain battery voltage at the battery equalization voltage. The battery will remain in the Equalize stage until setting battery equalized time is arrived.



  However, in Equalize stage, when battery equalized time is expired and battery voltage doesn' t rise to battery equalization voltage point, the charge controller will extend the battery equalized time until battery voltage achieves battery equalization voltage. If battery voltage is still lower than battery equalization voltage when battery equalized timeout setting is over, the charge controller will stop equalization and return to float stage.



8. Trouble Shooting

Problem	LCD/LED/Buzzer	Explanation	What to do
After connecting the battery, the device does not start.	No instructions.	The battery voltage is too low.	1. Recharge battery. 2. Replace battery.
No response after power on.	No instructions.	1. The battery voltage is far too low. (<1.4V/Cell) 2. Battery polarity is connected reversed.	1. Check whether the battery and wiring are well connected. 2. Recharge battery. 3. Replace battery.
Buzzer beeps continuously and red LED is on.(Fault code) Buzzer beeps once every second, and red LED is flashing. (Warning code)	Fault code 01	Fan failure.	1. Power off and restart. 2. If not, check whether all the fans are working normally. 3. Replace the fan.
	Fault code 02	The internal temperature of the original exceeds the specified temperature.	1. Check whether the air flow of the unit is blocked or whether the ambient temperature is too high. 2. Check whether the thermistor plug is loose.
	Fault code 03	The battery voltage is too high.	1. Check whether the specification and quantity of batteries meet the requirement. 2. Restart the machine, if the error occurs again, please return to the maintenance center.
	Fault code 05	Output short circuit.	Check if the connecting wires are good and eliminate abnormal loads.
	Fault code 07	The inverter is overload 110% and time is up.	Reduce the connected load by switching off some equipment.
	Fault code 08	Bus voltage is too high.	1. If you connect to a lithum battery without communication, check whether the voltage points of the program 17 and 18 are too high for the lithum battery. 2. Restart the unit, if the error happens again, please return to repair center.
	Fault code 41	Inverter over current.	Restart the machine and if the error occurs again, return to the repair center.

Problem	LCD/LED/Buzzer	Explanation	What to do
Buzzer beeps continuously and red LED is on.(Fault code) Buzzer beeps once every second, and red LED is flashing. (Warning code)	Fault code 55	Inverter power-up zero drift is too large.	Restart the machine and if the error occurs again, return to the repair center.
	Fault code 56	Battery open circuit.	1. If there is no communication when connecting the battery, please check whether the voltage of program 17 and 18 is too high for the battery. 2. Restart the machine, if the error occurs again, please return to the maintenance center.
	Fault code 62	Internal communication failure.	Restart the machine and if the error occurs again, return to the repair center.

Note: To restart the inverter, all power sources need to be disconnected. After the LCD screen light is off, only use the battery to boot.

9. APP & Web Monitoring

Please use the optional WIFI module to connect it to the USB port of the 6KW off-grid inverter to monitor the working status of the system and set the corresponding parameters. There are two ways to monitor: mobile app monitoring and web monitoring.

Note: This function is only available for inverters with the WiFi module installed.

9.1 APP Monitoring

You can control and view information and data about this product by APP.

Software download, search for [SOLARMAN Smart] and [SOLARMAN Business] in the Google App Store or Apple or Store, download the software, register and open it or scan the QR code below to download. SOLARMAN Smart APP is an on-line monitoring system for users to use and SOLARMAN Business APP is for installers to use. For detailed usage of the APP, please refer to the SOLARMAN Smart User Version APP Instruction Manual and SOLARMAN Business APP Instruction Manual.

SOLARMAN Smart

SOLARMAN Business

9.2 Web Monitoring

You can visit the website www.solarman.cn to monitor the system. For the detailed operation of the webpage, please check the user manual of the webpage.